Contents

IT2043 - KNOWLEDGE MANAGEMENT SYLLABUS

UNIT I KNOWLEDGE MANAGEMENT

KM Myths – KM Life Cycle – Understanding Knowledge – Knowledge, intelligence – Experience – Common Sense – Cognition and KM – Types of Knowledge – Expert Knowledge – Human Thinking and Learning.

UNIT II KNOWLEDGE MANAGEMENT SYSTEM LIFE CYCLE

Challenges in Building KM Systems – Conventional Vrs KM System Life Cycle (KMSLS) – Knowledge Creation and Knowledge Architecture – Nonaka's Model of Knowledge Creation and Transformation. Knowledge Architecture.

UNIT III CAPTURING KNOWLEDGE

Evaluating the Expert – Developing a Relationship with Experts – Fuzzy Reasoning and the Quality of Knowledge – Knowledge Capturing Techniques, Brain Storming – Protocol Analysis – Consensus Decision Making – Repertory Grid- Concept Mapping – Blackboarding.

UNIT IV KNOWLEDGE CODIFICATION

Modes of Knowledge Conversion – Codification Tools and Procedures – Knowledge Developer's Skill Sets – System Testing and Deployment – Knowledge Testing – Approaches to Logical Testing, User Acceptance Testing – KM System Deployment Issues – User Training – Post implementation.

UNIT V KNOWLEDGE TRANSFER AND SHARING

Transfer Methods – Role of the Internet – Knowledge Transfer in e-world – KM System Tools – Neural Network – Association Rules – Classification Trees – Data Mining and

Business Intelligence – Decision Making Architecture – Data Management – Knowledge Management Protocols – Managing Knowledge Workers.

TEXT BOOK

1. Elias.M. Award & Hassan M. Ghaziri – "Knowledge Management" Pearson Education

REFERENCES

1. Guus Schreiber, Hans Akkermans, Anjo Anjewierden, Robert de Hoog, Nigel Shadbolt, Walter Van de Velde and Bob Wielinga, "Knowledge Engineering and Management", Universities Press, 2001.

2. C.W. Holsapple, "Handbooks on Knowledge Management", International Handbooks

UNIT I KNOWLEDGE MANAGEMENT

1.1 KM Myths

- ✓ Knowledge Management Systems Life Cycle.
- ✓ Knowledge Creation and Knowledge Architecture.
- ✓ Capturing Tacit Knowledge
- ✓ Knowledge Codification
- ✓ System Testing and Development
- ✓ Knowledge Transfer and Knowledge Sharing
- ✓ Knowledge Transfer in the E-World
- ✓ Learning from Data
- ✓ Knowledge Management Tools and Knowledge Portals
- ✓ Managing Knowledge Workers

1.2 KM Life Cycle

1.1.1 Key Differences:

The systems analyst gathers data and information from the users and the users depend on analysts for the solution.

The knowledge developer gathers knowledge from people with known knowledge and the developer depends on them for the solution.

The main interface for the systems analyst is associated with novice users who knows the problem but not the solution.

The main interface for the knowledge developer is associated with the knowl- edgeable person who knows the problem and the solution.

Conventional systems development is primarily sequential, whereas KMSLC is incre- mental and interactive.

In case of conventional systems, testing is usually done towards the end of the cycle (after the system has been built), whereas in KMSLC, the evolving system is verified and validated from the beginning of the cycle.

Systems development and systems management is much more extensive for conven- tional information systems than it is for KMSLC.

The conventional systems life cycle is usually process-driven and documentation- oriented whereas KMSLC is result-oriented.

The conventional systems development does not support tools such as rapid prototyping since it follows a predefined sequence of steps

KMSLC can use rapid prototyping incorporating changes on the spot.

ATTRIBUTES	USER	EXPERT
Dependence on System	High	Low
Ambiguity Tolerance	Low	High
Co–Operation	Required	Not Required
Knowledge about the Problem	High	Average
Uses the System	Yes	No
Contribution	Information	Expertise/Knowledge
Availability	Yes, Readily available	No, not readily available

1.1.2 Key Similarities:

Both cycles starts with a problem and end with a solution.

The early phase in case of conventional systems development life cycle starts with information gathering.

In KMSLC the early phase needs knowledge capture.

Verification and validation of a KM system is often very similar to conventional systems testing.

Both the systems analyst and the knowledge developer needs to choose the appropriate tools for designing their intended systems**.**

1.3 Understanding Knowledge

Knowledge can be defined as the ``understanding obtained through the process of experience or appropriate study."

Knowledge can also be an accumulation of facts, procedural rules, or heuristics.

A procedural rule is a rule that describes a sequence of actions.

A fact is generally a statement representing truth about a subject matter or domain.

A heuristic is a rule of thumb based on years of experience.

Intelligence implies the capability to acquire and apply appropriate knowledge.

Memory indicates the ability to store and retrieve relevant experience according to will.

Learning represents the skill of acquiring knowledge using the method of instruction/ study.

Experience relates to the understanding that we develop through our past actions.

Knowledge can develop over time through successful experience, and experience can lead to expertise.

Common sense refers to the natural and mostly unreflective opinions of humans.

1.4 Knowledge, intelligence

Knowledge can be defined as the ``understanding obtained through the process of experience or appropriate study."

Knowledge can also be an accumulation of facts, procedural rules, or heuristics.

A procedural rule is a rule that describes a sequence of actions.

A fact is generally a statement representing truth about a subject matter or domain.

A heuristic is a rule of thumb based on years of experience.

Intelligence implies the capability to acquire and apply appropriate knowledge.

Memory indicates the ability to store and retrieve relevant experience according to will.

Learning represents the skill of acquiring knowledge using the method of instruction/ study.

1.5 Experience

Experience relates to the understanding that we develop through our past actions.

Knowledge can develop over time through successful experience, and experience can lead to expertise.

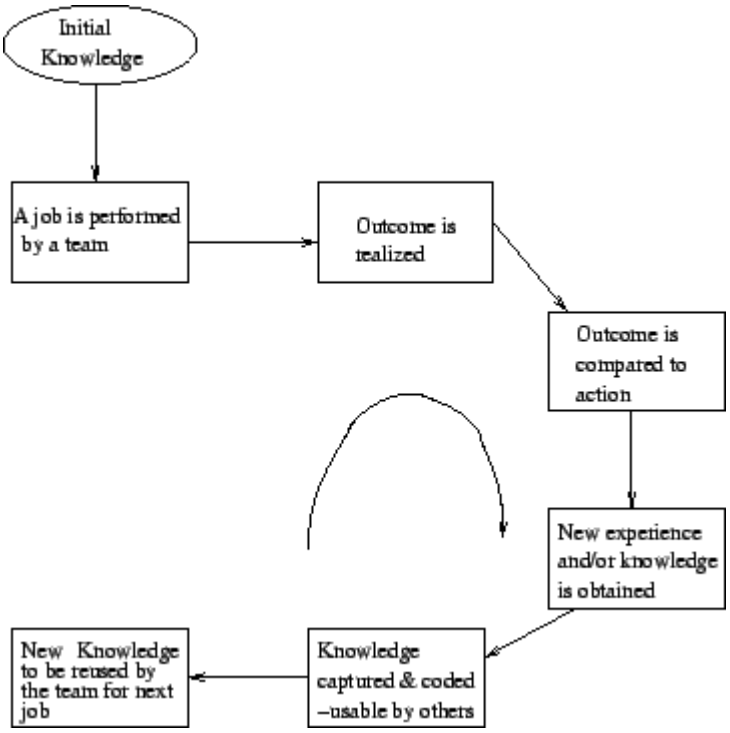
Common sense refers to the natural and mostly unreflective opinions of humans.

1.6 Common Sense

Common sense refers to the natural and mostly unreflective opinions of humans

1.7 Cognition and KM

- ✓ Cognitive Psychology
- ✓ Data, Information and Knowledge
- ✓ Kinds of Knowledge
- ✓ Expert Knowledge
- ✓ Thinking and Learning in Humans



1.7.1 Cognitive Psychology

Cognitive psychology tries to identify the cognitive structures and processes that closely relates to skilled performance within an area of operation.

It provides a strong background for understanding knowledge and expertise.

In general, it is the interdisciplinary study of human intelligence.

The two major components of cognitive psychology are:

1.7.1 Experimental Psychology:

This studies the cognitive processes that constitutes human intelligence.

1.7.3 Artificial Intelligence(AI):

This studies the cognition of Computer-based intelligent systems.

The process of eliciting and representing experts knowledge usually involves a knowledge developer and some human experts (domain experts).

In order to gather the knowledge from human experts, the developer usually interviews the experts and asks for information regarding a specific area of expertise.

It is almost impossible for humans to provide the completely accurate reports of their mental processes.

The research in the area of cognitive psychology helps to a better understanding of what constitutes knowledge, how knowledge is elicited, and how it should be represented in a

corporate knowledge base.

Hence, cognitive psychology contributes a great deal to the area of knowledge management.

1.8 Types of Knowledge

Deep Knowledge:

Knowledge acquired through years of proper experience.

Shallow Knowledge: Minimal understanding of the problem area.

Knowledge as Know-How: Accumulated lessons of practical experience.

Reasoning and Heuristics: Some of the ways in which humans reason are as follows:

Reasoning by analogy: This indicates relating one concept to another.

Formal Reasoning: This indicates reasoning by using deductive (exact) or inductive reasoning.

Deduction uses major and minor premises.

In case of deductive reasoning, new knowledge is generated by using previously specified knowledge.

Inductive reasoning implies reasoning from a set of facts to a general conclusion.

Inductive reasoning is the basis of scientific discovery.

A case is knowledge associated with an operational level.

Common Sense: This implies a type of knowledge that almost every human being possess in varying forms/amounts.

We can also classify knowledge on the basis of whether it is procedural, declarative, semantic, or episodic.

Procedural knowledge represents the understanding of how to carry out a specific procedure.

Declarative knowledge is routine knowledge about which the expert is conscious. It is shallow knowledge that can be readily recalled since it consists of simple and

1.8.1 Kinds of Knowledge

Uncomplicated information. This type of knowledge often resides in short-term memory.

Semantic knowledge is highly organized, ``chunked'' knowledge that resides mainly in long-term memory. Semantic knowledge can include major concepts, vocabulary, facts, and relationships.

Episodic knowledge represents the knowledge based on episodes (experimental information). Each episode is usually ``chunked'' in long-term memory.

Another way of classifying knowledge is to find whether it is tacit or explicit

Tacit knowledge usually gets embedded in human mind through experience.

Explicit knowledge is that which is codified and digitized in documents, books, reports, spreadsheets, memos etc.

1.9 Expert Knowledge

It is the information woven inside the mind of an expert for accurately and quickly solving complex
problems.

1.9.1 Knowledge Chunking

Knowledge is usually stored in experts long-range memory as chunks.

Knowledge chunking helps experts to optimize their memory capacity and enables them to process the information quickly.

Chunks are groups of ideas that are stored and recalled together as an unit.

1.9.2 Knowledge as an Attribute of Expertise

In most areas of specialization, insight and knowledge accumulate quickly, and the criteria for expert performance usually undergo continuous change.
In order to become an expert in a particular area, one is expected to master the necessary knowledge and make significant contributions to the concerned field.

The unique performance of a true expert can be easily noticed in the quality of decision making.

The true experts (knowledgeable) are usually found to be more selective about the information they acquire, and also they are better able in acquiring information in a less structured situation.

They can quantify soft information, and can categorize problems on the basis of solution procedures that are embedded in the experts long range memory and readily available on recall.

Hence, they tend to use knowledge-based decision strategies starting with known quantities to deduce unknowns.

If a first-cut solution path fails, then the expert can trace back a few steps and then proceed again.

Expert Knowledge

Nonexperts use means-end decision strategies to approach the the problem scenario. Nonexperts usually focus on goals rather than focusing on essential features of the task which makes the task more time consuming and sometimes unreliable.

Specific individuals are found to consistently perform at higher levels than others and they are labeled as experts.

1.10 Human Thinking and Learning.

Research in the area of artificial intelligence has introduced more structure into human thinking about thinking.

Humans do not necessarily receive and process information in exactly the same way as the machines do.

Humans can receive information via seeing, smelling, touching, hearing (sensing) etc., which promotes a way of thinking and learning that is unique to humans.

On macro level, humans and computers can receive inputs from a multitude of sources.

Computers can receive inputs from keyboards, touch screens etc.

On micro level, both human brain and CPU of a computer receive information as electrical Impulses The point to note here is that the computers must be programmed to do specific tasks. Performing one task does not necessarily transcend onto other tasks as it may do with humans.

Human learning: Humans learn new facts, integrate them in some way which they think is relevant and organize the result to produce necessary solution, advice and decision. Human learning can occur in the following ways:

- ✓ Learning through Experience.
- ✓ Learning by Example.
- ✓ Learning by Discovery.

UNIT II KNOWLEDGE MANAGEMENT SYSTEM LIFE CYCLE

2.1 Challenges in Building KM Systems

Knowledge Evaluation:

Involves assessing the worth of information.

Knowledge Processing:

Involves changing people's attitudes and behaviours.

Involves the identification of techniques to acquire, store, process and distribute information.

Sometimes it is necessary to document how certain decisions were reached.

Knowledge Implementation:

An organization should commit to change, learn, and innovate.

It is important to extract meaning from information that may have an impact on specific missions.

Lessons learned from feedback can be stored for future to help others facing the similar problem(s).

2.2 Conventional Vrs KM System Life Cycle (KMSLS)

Key Differences:

The systems analyst gathers data and information from the users and the users depend on analysts for the solution.

The knowledge developer gathers knowledge from people with known knowledge and the developer depends on them for the solution.

The main interface for the systems analyst is associated with novice users who knows the

problem but not the solution.

The main interface for the knowledge developer is associated with the knowl- edgeable person who knows the problem and the solution.

Conventional systems development is primarily sequential, whereas KMSLC is incre- mental and interactive.

In case of conventional systems, testing is usually done towards the end of the cycle (after the system has been built), whereas in KMSLC, the evolving system is verified and validated from the beginning of the cycle.

Systems development and systems management is much more extensive for conven- tional information systems than it is for KMSLC.

The conventional systems life cycle is usually process-driven and documentation- oriented whereas KMSLC is result-oriented.

The conventional systems development does not support tools such as rapid prototyping since it follows a predefined sequence of steps

KMSLC can use rapid prototyping incorporating changes on the spot.

Key Similarities:

Both cycles starts with a problem and end with a solution.

The early phase in case of conventional systems development life cycle starts with information gathering.

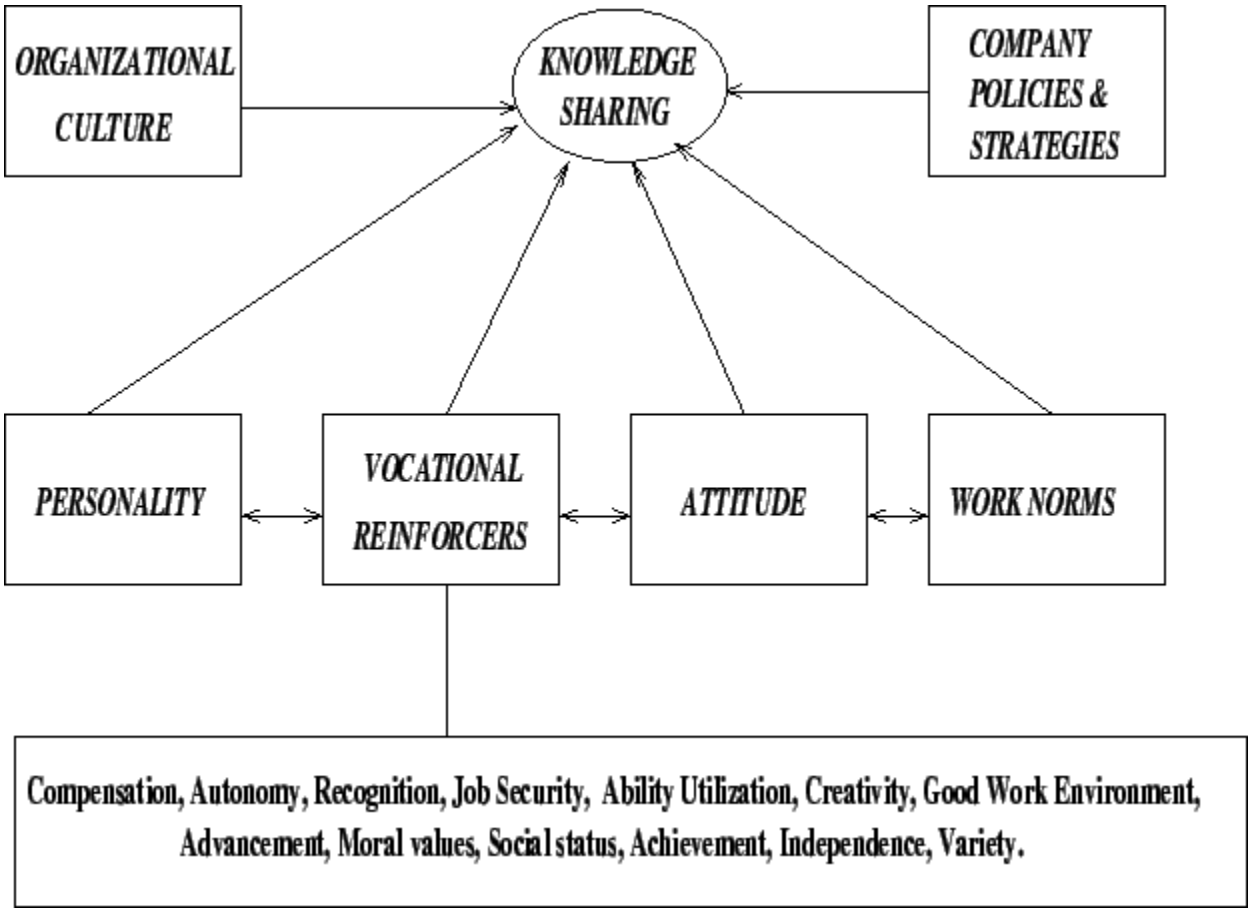
In KMSLC the early phase needs knowledge capture.

Verification and validation of a KM system is often very similar to conventional systems testing.

Both the systems analyst and the knowledge developer needs to choose the appropriate tools for designing their intended systems**.**

2.3 Knowledge Creation and Knowledge Architecture

Knowledge Creation



Knowledge update can mean creating new knowledge based on ongoing experience in a specific domain and then using the new knowledge in combination with the existing knowledge to come up with updated knowledge for knowledge sharing.

A team can commit to perform a job over a specific period of time.

A job can be regarded as a series of specific tasks carried out in a specific order.

When the job is completed, then the team compares the experience it had initially (while starting the job) to the outcome (successful/disappointing).

This comparison translates experience into knowledge.

While performing the same job in future,the team can take corrective steps and/or modify the actions based on the new knowledge they have acquired.

Over time, experience usually leads to expertise where one team (or ind There exists factors that encourage (or retard) knowledge transfer.

Personality is one factor in case of knowledge sharing.

For example, extrovert people usually posses self-confidence, feel secure, and tend to share experiences more readily than the introvert, self-centered, and security-conscious people.

People with positive attitudes, who usually trust others and who work in environments conductive to knowledge sharing tends to be better in sharing knowledge.

Vocational reinforcers are the key to knowledge sharing.

People whose vocational needs are sufficiently met by job reinforcers are usually found to be more likely to favour knowledge sharing than the people who are deprived of one or more reinforcers.

Knowledge Architecture

Knowledge architecture can be regarded as a prerequisite to knowledge sharing.

The infrastructure can be viewed as a combination of people, content, and technology.

These components are inseparable and interdependent

By people, here we mean knowledge workers, managers, customers, and suppliers.

As the first step in knowledge architecture, our goal is to evaluate the existing information/ documents which are used by people, the applications needed by them, the people they usually contact for solutions, the associates they collaborate with, the official emails they send/receive, and the database(s) they usually access.

All the above stated resources help to create an employee profile, which can later be used as the basis for designing a knowledge management system.

2.4 Nonaka's Model of Knowledge

In 1995, Nonaka coined the terms tacit knowledge and explicit knowledge as the two main types of **human knowledge.** The key to knowledge creation lies in the way it is mobilized and converted through technology.

Tacit to tacit communication (Socialization):

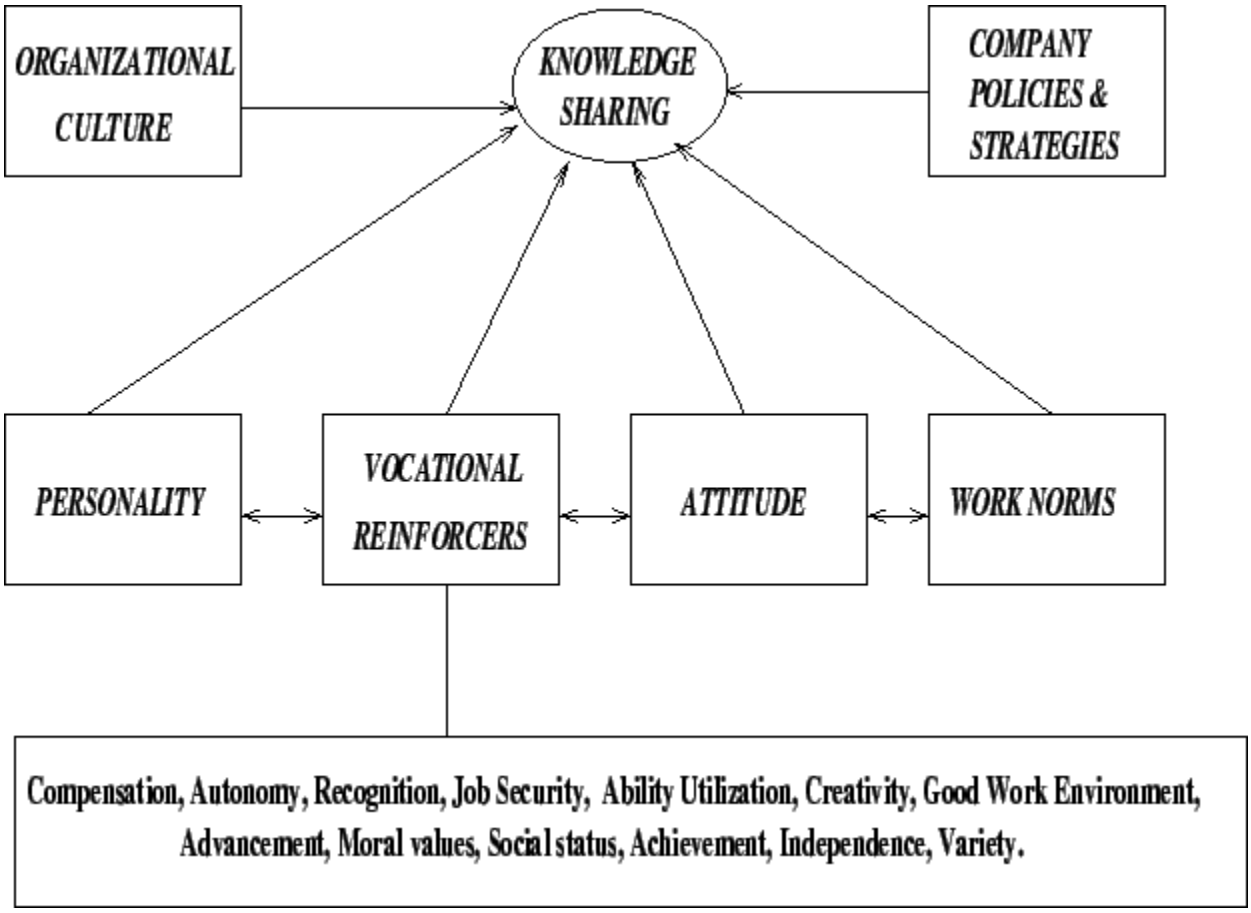
Takes place between people in meetings or in team discussions.

Tacit to explicit communication (Externalization):

Articulation among people trough dialog (e.g., brainstorming).

Explicit to explicit communication (Communication):

This transformation phase can be best supported by technology. Explicit knowledge can be easily captured and then distributed/ transmitted to worldwide audience.



Explicit to tacit communication (Internalization):

This implies taking explicit knowledge (e.g., a report) and deducing new ideas or taking constructive action. One significant goal of knowledge management is to create technology to help the users to derive tacit knowledge from explicit knowledge.

2.5 Creation and Transformation.

2.5.1 The People Core

By people, here we mean knowledge workers, managers, customers, and suppliers.

As the first step in knowledge architecture, our goal is to evaluate the existing information/ documents which are used by people, the applications needed by them, the people they usually contact for solutions, the associates they collaborate

with, the official emails they send/receive, and the database(s) they usually access.

All the above stated resources help to create an employee profile, which can later be used as the basis for designing a knowledge management system.

2.5.2 Knowledge Architecture

The idea behind assessing the people core is to do a proper job in case of assigning job content to the right person and to make sure that the flow of information that once was obstructed by departments now flows to right people at right time.

In order to expedite knowledge sharing, a knowledge network has to be designed in such a way as to assign people authority and responsibility for specific kinds of knowledge content, which means:

2.5.3 Identifying knowledge centers:

Here, the term knowledge center means areas in the organization where knowledge is available for capturing.

These centers supports to identify expert(s) or expert teams in each center who can collaborate in the necessary knowledge capture process.

Activating knowledge content satellites

After determining the knowledge that people need, the next step is to find out where the required knowledge resides, and the way to capture it successfully.

This step breaks down each knowledge center into some more manageable levels, satellites, or areas.

2.5.4 Assigning experts for each knowledge center:

After the final framework has been decided, one manager should be assigned for each knowledge satellite who will ensure integrity of information content, access, and update.

Ownership is a crucial factor in case of knowledge capture, knowledge transfer, and knowledge implementation.

In a typical organization, departments usually tend to be territorial.

Often, fight can occur over the budget or over the control of sensitive processes (this includes the kind of knowledge a department owns).

These reasons justify the process of assigning department ownership to knowledge content and knowledge process adjacent/interdependent departments should be cooperative and ready to share knowledge.

2.5.6 The Technical Core

The objective of the technical core is to enhance communication as well as ensure effective knowledge sharing.

Technology provides a lot of opportunities for managing tacit knowledge in the area of communication.

Communication networks create links between necessary databases.

Here the term technical core is meant to refer to the totality of the required hardware, software, and the specialized human resources.

2.5.7 User Interface Layer

Usually a web browser represents the interface between the user and the KM system.
It is the top layer in the KM system architecture.

The way the text, graphics, tables etc are displayed on the screen tends to simplify the technology for the user.

The user interface layer should provide a way for the proper flow of tacit and explicit knowledge.

The necessary knowledge transfer between people and technology involves capturing tacit knowledge from experts,storing it in knowledge base, and making it available to people for solving complex problems.

Features to be considered in case of user interface design:

- ✓ Consistency
- ✓ Relevancy
- ✓ Visual clarity
- ✓ Usability
- ✓ Ease of Navigation

Authorized Access Layer

This layer maintains security as well as ensures authorized access to the knowledge captured and stored in the organization's repositories.

The knowledge is usually captured by using internet, intranet of extranet.
An organization's intranet represents the internal network of communication systems.
Extranet is a type of intranet with extensions allowing specified people (customers, suppliers, etc.) to access some organizational information.Issues related to the access layer: access privileges, backups.

The access layer is mostly focused on security, use of protocols (like passwords), and software tools like firewalls.
Firewalls can protect against:

- ✓ E-mails that can cause problems.
- ✓ Unauthorized access from the outside world.
- ✓ Undesirable material (movies, images, music etc).

A mobile agent roams around the internet across multiple servers looking for the correct information. Some benefits can be found in the areas of:
Fault tolerance. Heterogeneous operation.

Key components of this layer:

Membership in specific services, such as sales promotion, news service etc.
The registration directory that develops tailored information based on user profile.
The search facility such as a search engine.

In terms of the prerequisites for this layer, the following criteria can be considered:

- ✓ Security.
- ✓ Portability.
- ✓ Flexibility
- ✓ Scalability

Issues related to the access layer: access privileges, backups.
The access layer is mostly focused on security, use of protocols (like passwords), and software tools like firewalls.
Firewalls can protect against:

- ✓ E-mails that can cause problems.
- ✓ Unauthorized access from the outside world.
- ✓ Undesirable material (movies, images, music etc).

A mobile agent roams around the internet across multiple servers looking for the correct information. Some benefits can be found in the areas of:

- ✓ Fault tolerance.
- ✓ Heterogeneous operation.
- ✓

Key components of this layer:

Membership in specific services, such as sales promotion, news service etc.
The registration directory that develops tailored information based on user profile.
The search facility such as a search engine.

In terms of the prerequisites for this layer, the following criteria can be considered:
Security.

- ✓ Portability.
- ✓ Flexibility
- ✓ Scalability

UNIT III CAPTURING KNOWLEDGE

3.1 Evaluating the Expert

3.1.1 Indicators of expertise:

The expert commands genuine respect.The expert is found to be consulted by people in the organization, when some problem arises.

The expert possess self confidence and he/she has a realistic view of the limitations.

The expert avoids irrelevant information, uses facts and figures.

The expert is able to explain properly and he/she can customize his/her presentation according to the level of the audience.

The expert exhibits his/her depth of the detailed knowledge and his/her quality of explanation is exceptional.

The expert is not arrogant regarding his/her personal information.
deal for building a simple KM system with only few rules.

Ideal when the problem lies within a restricted domain.

The single expert can facilitate the logistics aspects of coordination arrangements for knowledge capture.

Problem related/personal conflicts are easier to resolve.
The single expert tends to share more confidentiality.

3.1.2 Disadvantages of working with a single expert:

- ✓ The single expert usually provides a single line of reasoning.
- ✓ They are more likely to change meeting schedules.
- ✓ Often, the experts knowledge is found to be not easy to capture.
- ✓ The knowledge is often found to be dispersed.

3.1.2 Advantages of working with multiple (team) experts:

- ✓ Expert Evaluation
- ✓ Complex problem domains are usually benefited.
- ✓ Stimulates interaction.
- ✓ Listening to a multitude of views allows the developer to consider alternative
- ✓ ways of representing knowledge.
- ✓ Formal meetings are sometimes better environment for generating thoughtful
- ✓ contributions.

3.1.3 Disadvantages of working with multiple (team) experts:

- ✓ Disagreements can frequently occur.
- ✓ Coordinating meeting schedules are more complicated.
- ✓ Harder to retain confidentiality.
- ✓ Overlapping mental processes of multiple experts can result in a process loss.

- ✓ Often requires more than one knowledge developer.

3.1.5 Experts qualifications:

- ✓ The expert should know when to follow hunches, and when to make exceptions.
- ✓ The expert should be able to see the big picture.
- ✓ The expert should posses good communication skills.
- ✓ The expert should be able to tolerate stress.
- ✓ The expert should be able to think creatively.
- ✓ The expert should be able to exhibit self-confidence in his/her thought and actions.
- ✓ The expert should maintain credibility.
- ✓ The expert should operate within a schema-driven/structured orientation.

3.1.6 Expert Evaluation

- ✓ The expert should be able to generate enthusiasm as well as motivation.
- ✓ The expert should share his/her expertise willingly and without hesitation.
- ✓ The expert should use chunked knowledge.
- ✓ The expert should emulate an ideal teacher's habits.
- ✓ Experts levels of expertise:
- ✓ Highly expert persons.
- ✓ New experts.
- ✓ Capturing single vs multiple experts' tacit knowledge:

3.2 Developing a Relationship with Experts

Creating the right impression: The knowledge developer must learn to use psychology, common sense, technical as well as marketing skills to attract the experts respect and attention.

Understanding of the expert's style of expression:

Experts are usually found to use one of the following styles of expression:

Procedure type: These type of experts are found to be logical, verbal and always procedural.

Storyteller type: These type of experts are found to be focused on the content of the domain at the expense of the solution.

Godfather type: These type of experts are found to be compulsive to take over.

Salesperson type: These type of experts are found to spend most of the time dancing around the topic, explaining why his/her solution is the best.

Preparation for the session:

Before making the first appointment, the knowledge developer must acquire some knowledge about the problem and the expert.

Initial sessions can be most challenging/critical.

The knowledge developer must build the trust.
The knowledge developer must be familiar with project terminology d he/she must review the existing documents.
The knowledge developer should be able to make a quick rapport with the expert

Approaching multiple experts:

Individual approach: The knowledge developer holds sessions with one expert at a time.

Approach using primary and secondary experts

Small groups approach

3.3 Fuzzy Reasoning and the Quality of Knowledge

Sometimes, the information gathered from the experts via interviewing is not precise and it involves fuzziness and uncertainty.

The fuzziness may increase the difficulty of translating the expert's notions into applicable rules.

3.3.1 Analogies/Uncertainties:

In the course of explaining events, experts can use analogies (comparing a problem with a similar problem which has been encountered in possibly different settings, months or years ago).

An expert's knowledge or expertise represents the ability to gather uncertain information as input and to use a plausible line of reasoning to clarify the fuzzy details. People may use different kinds of words in order to express belief.

Belief, an aspect of uncertainty, tends to describe the level of credibility.

These words are often paired with qualifiers such as highly, extremely.

3.3.2 Understanding experience:

Knowledge developers can benefit from their understanding/knowledge of cognitive psychology.

When a question is asked, then an expert operates on certain stored information through deductive, inductive, or other kinds of problem-solving methods.

The resulting answer is often found to be the culmination of the processing of stored information.

The right question usually evokes the memory of experiences that produced good and appropriate solutions in the past.

Fuzzy Reasoning & Quality of Knowledge Capture

Sometimes, how quickly an expert responds to a question depends on the clarity of content, whether the content has been recently used , and how well the expert has understood the question.

3.3.3 Problem with the language:

How well the expert can represent internal processes can vary with their command of the language they are using and the knowledge developer's interviewing skills.

The lanage may be unclear in the following number of ways:

Comparative words (e.g., better, faster) are sometimes left hanging.

Specific words or components may be left out of an explanation.

Absolute words and phrases may be used loosely.

Some words always seem to have a built-in ambiguity.

3.4 Knowledge Capturing Techniques, Brain Storming

- ✓ On-Site Observation (Action Protocol)
- ✓ Brainstorming
- ✓ Electronic Brainstorming
- ✓ Protocol Analysis (Think-Aloud Method)
- ✓ Consensus Decision Making
- ✓ Repertory Grid
- ✓ Nominal Group Technique (NGT)
- ✓ Delphi Method
- ✓ Concept Mapping
- ✓ Blackboarding

3.5 Protocol Analysis

In this case, protocols (scenarios) are collected by asking experts to solve the specific problem and verbalize their decision process by stating directly what they think.

Knowledge developers do not interrupt in the interim.

The elicited information is structured later when the knowledge developer analyzes the protocol.

Here the term scenario refers to a detailed and somehow complex sequence of events or more precisely, an episode.

A scenario can involve individuals and objects.

A scenario provides a concrete vision of how some specific human activity can be supported by information technology.

3.6 Consensus Decision Making

Consensus decision making usually follows brainstorming.

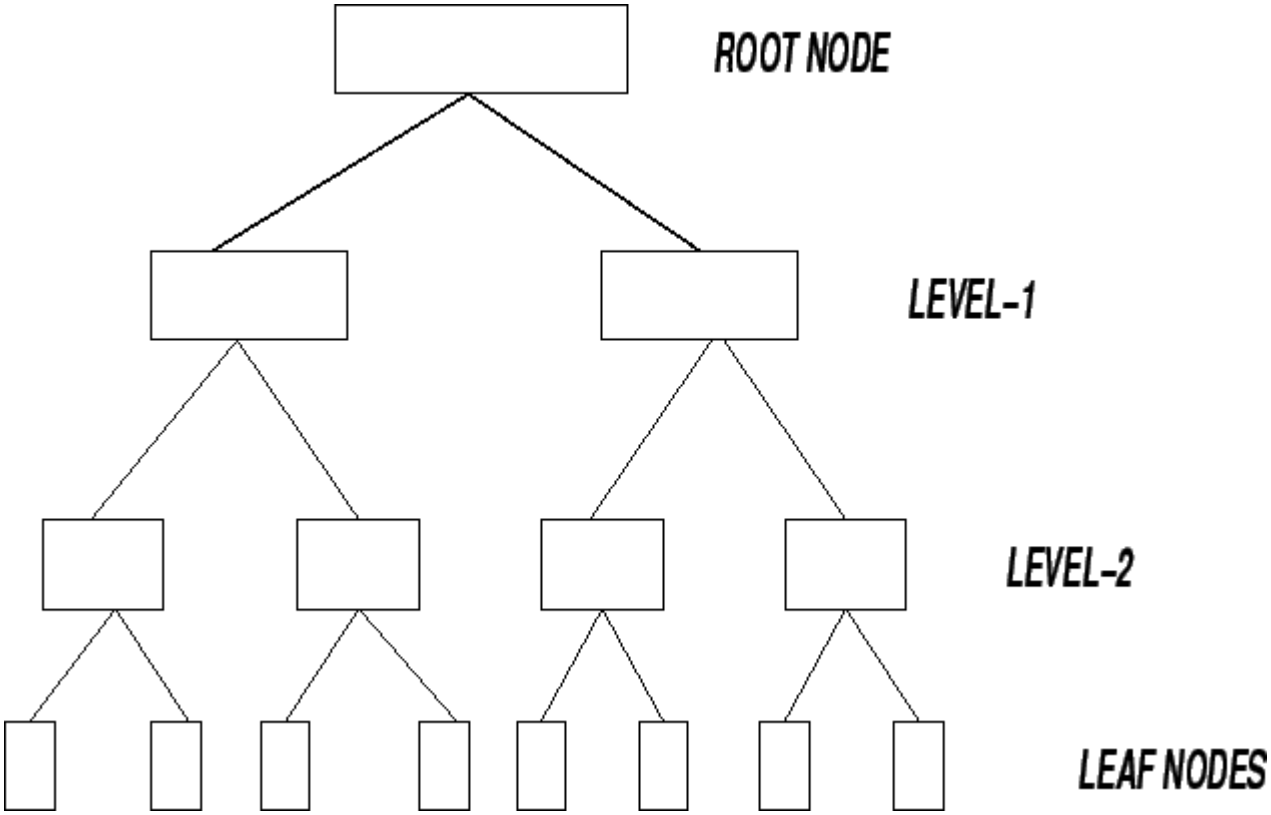
It is effective if and only if each expert has been provided with equal and adequate opportunity to present their views.

In order to arrive at a consensus, the knowledge developer conducting the exercise tries to rally the experts towards one or two alternatives.

The knowledge developer follows a procedure designed to ensure fairness and standardization.

This method is democratic in nature.

This method can be sometimes tedious and can take hours.



3.7 Repertory Grid- Concept Mapping

This is a tool used for knowledge capture.

The domain expert classifies and categorizes a problem domain using his/her own model. The grid is used for capturing and evaluating the expert's model.

Two experts (in the same problem domain) may produce distinct sets of personal and subjective results.

The grid is a scale (or a bipolar construct) on which elements can be placed within gradations.

The knowledge developer usually elicits the constructs and then asks the domain expert to provide a set of examples called elements.

Each element is rated according to the constructs which have been provided.

3.8 Blackboarding.

In this case, the experts work together to solve a specific problem using the blackboard as their workspace.

Each expert gets equal opportunity to contribute to the solution via the blackboard.

It is assumed that all participants are experts, but they might have acquired their individual expertise in situations different from those of the other experts in the group.

The process of blackboarding continues till the solution has been reached.

UNIT IV KNOWLEDGE CODIFICATION

4.1 Modes of Knowledge Conversion

Conversion from tacit to tacit knowledge produces socialization where knowledge developer looks for experience in case of knowledge capture.

Conversion from tacit to explicit knowledge involves externalizing, explaining or clarifying tacit knowledge via analogies, models, or metaphors.

Conversion from explicit to tacit knowledge involves internalizing (or fitting explicit knowledge to tacit knowledge.

Conversion from explicit to explicit knowledge involves combining, categorizing, reorganizing or sorting different bodies of explicit knowledge to lead to new knowledge.

4.2 Codification Tools and Procedures

- ✓ Knowledge Maps
- ✓ Decision Table
- ✓ Decision Tree
- ✓ Frames
- ✓ Production Rules
- ✓ Case-Based Reasoning
- ✓ Knowledge-Based Agents

4.2.1 Knowledge Maps

Knowledge maps originated from the belief that people act on things that they understand and accept.

It indicates that self-determined change is sustainable.

Knowledge map is a visual representation of knowledge.

They can represent explicit/tacit, formal/informal, documented/undocumented, internal/external knowledge.

It is not a knowledge repository.

It is a sort of directory that points towards people, documents, and repositories.

It may identify strengths to exploit and missing knowledge gaps to fill.

Knowledge Mapping is very useful when it is required to visualize and explore complex systems. Examples of complex systems are ecosystems, the internet, telecommunications systems, and customer-supplier chains in the stock market.

Knowledge Mapping is a multi-step process.

Key can be extracted from database or literature and placed in tabular form as lists of facts.

These tabled relationships can then be connected in networks to form the required knowledge maps.

A popular knowledge map used in human resources is a skills planner in which employees are matched to jobs.

Steps to build the map:

- ✓ A structure of the knowledge requirements should be developed.
- ✓ Knowledge required of specific jobs must be defined.
- ✓ You should rate employee performance by knowledge competency.
- ✓ You should link the knowledge map to some training program for career development and job advancement.

4.2.2.Decision Table

It is another technique used for knowledge codification.

It consists of some conditions, rules, and actions.

A phonecard company sends out monthly invoices to permanent customers and gives them discount if payments are made within two weeks. Their discounting policy is as follows:

If the amount of the order of phonecards is greater than $35, subtract 5% of the order; if the amount is greater than or equal to $20 and less than or equal to $35, subtract a 4% discount; if the amount is less than $20, do not apply any discount."

4.2.3 Decision Tree

- ✓ It is also a knowledge codification technique.
- ✓ A decision tree is usually a hierarchically arranged semantic network.
- ✓ A decision tree for the phonecard company discounting policy (as discussed above) is shown next.

Frames

A frame is a codification scheme used for organizing knowledge through previous experience.

It deals with a combination of declarative and operational knowledge.

Key elements of frames:

Slot: A specific object being described/an attribute of an entity.

Facet: The value of an object/slot.

Production Rules

They are conditional statements specifying an action to be taken in case a certain condition is true.

They codify knowledge in the form of premise-action pairs.
Syntax: IF (premise) THEN (action)
Example: IF income is `standard' and payment history is `good', THEN `approve home loan'.
In case of knowledge-based systems, rules are based on heuristics or experimental reasoning.

Rules can incorporate certain levels of uncertainty.

A certainty factor is synonymous with a confidence level , which is a subjective quantification of an expert's judgment.

The premise is a Boolean expression that should evaluate to be true for the rule to be applied. The action part of the rule is separated from the premise by the keyword THEN.

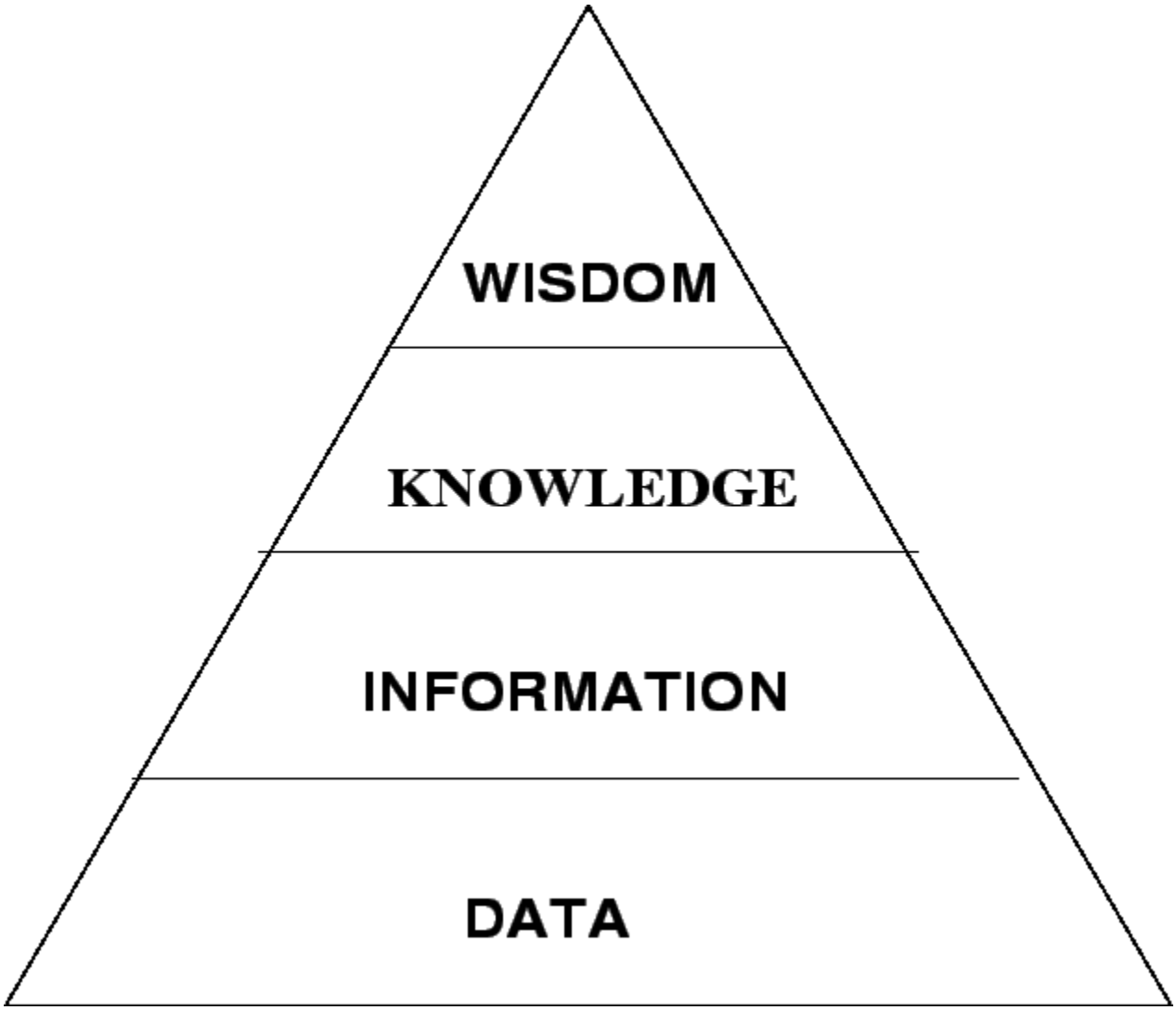
The action clause consists of a statement or a series of statements separated by AND's or comma's and is executed if the premise is true.

In case of knowledge-based systems, planning involves:

- ✓ Breaking the entire system into manageable modules.
- ✓ Considering partial solutions and liking them through rules and procedures to arrive at a final solution.
- ✓ Deciding on the programming language(s).
- ✓ Deciding on the software package(s).
- ✓ Testing and validating the system.
- ✓ Developing the user interface.
- ✓ Production Rules
- ✓ Promoting clarity, flexibility; making rules clear.
- ✓ Reducing unnecessary risk.

Role of inferencing:

- ✓ Inferencing implies the process of deriving a conclusion based on statements that only imply that conclusion.
- ✓ An inference engine is a program that manages the inferencing strategies.
- ✓ Reasoning is the process of applying knowledge to arrive at the conclusion.
- ✓ Reasoning depends on premise as well as on general knowledge.
- ✓ People usually draw informative conclusions.



Case-Based Reasoning

It is reasoning from relevant past cases in a way similar to human's use of past experiences to arrive at conclusions.

Case-based reasoning is a technique that records and documents cases and then searches the appropriate cases to determine their usefulness in solving new cases presented to the expert.
The aim is to bring up the most similar historical case that matches the present case.

Adding new cases and reclassifying the case library usually expands knowledge.

A case library may require considerable database storage as well as an efficient retrieval system.

4.2. 4 Knowledge-Based Agents

An intelligent agent is a program code which is capable of performing autonomous action in a timely fashion.

They can exhibit goal directed behaviour by taking initiative.

they can be programmed to interact with other agents or humans by using some agent communication language.

In terms of knowledge-based systems, an agent can be programmed to learn from the user behaviour and deduce future behaviour for assisting the user.

4.3 Knowledge Developer's Skill Sets

Knowledge Requirements

- ✓ Computing technology and operating systems.
- ✓ Knowledge repositories and data mining.
- ✓ Domain specific knowledge.
- ✓ Cognitive psychology.

Skills Requirements

- ✓ **I**nterpersonal Communication.
- ✓ Ability to articulate the project's rationale.
- ✓ Rapid Prototyping skills.
- ✓ Attributes related to personality.
- ✓ Job roles.

4.4 System Testing and Deployment

4.4.1 Quality Assurance

The KM system should meet user expectations.

Performance usually depend on the quality of explicit/tacit knowledge stored in the knowledge base.

For the expert, quality relates to a reasoning process which produce reliable and accurate solutions within the KM system framework.

For the user, quality relates to the systems ability to work efficiently.

For the knowledge developer, quality relates to how well the knowledge source is and how well the user's expectations are codified into the knowledge base.

4.4.2 Review after Implementation

The questions to consider:

How the KM system has changed the accuracy/timeliness of decision making?

How the KM system has affected the attitude of the end users?

Whether the system has caused organizational changes. If so, then how constructive the changes have been?

Whether the system has changed the cost of operating the business. If so, in what way?
How the KM system has affected the relationships among the end users?
Whether the system has affected the organizational decision making process. What tangible results can be demonstrated in this regard?

4.5 Knowledge Testing

It is required to control performance, efficiency, and quality of the knowledge base.

4.5.1 Types of testing

Logical Testing:

To make sure that the system produces correct results.

User Acceptance Testing:

It follows logical testing and check the system's behaviour in a realistic environment

Issues

- ✓ Subjective nature of knowledge (tacit)
- ✓ Lack of reliable specifications
- ✓ Verifying correctness/consistency
- ✓ Negligence in case of testing
- ✓ Time limitations for knowledge developers to test the system
- ✓ Complexity in case of user interfaces

4.6 Approaches to Logical Testing, User Acceptance Testing

4.6.1 Logical Testing Approaches

Two approaches:

Verify the knowledge base formation:

The structure of the knowledge as it relates to circula o redundant errors is verified.

Consistency, correctness and completeness of knowledge base rules are also verified.

Verify the knowledge base functionality:

Deals with confidence and reliability of the knowledge base.

Attributes:

- ✓ Circula Errors
- ✓ Completeness
- ✓ Confidence
- ✓ Correctness
- ✓ Consistency
- ✓ Inconsistency
- ✓ Redundancy Errors
- ✓ Reliability
- ✓ Subsumption error

4.6.2 Use Acceptance Testing Approaches

Steps:

- ✓ Selecting a person/team fo testing.
- ✓ Deciding on use acceptance test criteria.
- ✓ Developing a set of test cases.
- ✓ Maintaining a log on different versions of the tests and test results.
- ✓ Field-testing the system.

4.6.3 Test Team/Plan

A testing plan indicates who is to do the testing. Commitment initiates with management support and a test team with a test plan.

The team is expected to be independent of the design/codification of the system
understand systems technology/knowledge base infrastructure
be well versed in the organization's business

Deciding on use acceptance test criteria:

- ✓ Adaptability
- ✓ Adequacy
- ✓ Appeal
- ✓ Availability
- ✓ Ease of use
- ✓ Performance
- ✓ Face validity
- ✓ Robustness
- ✓ Reliability

4.6.4 Use Acceptance Test Techniques:

- ✓ Face Validation
- ✓ Test Team/Plan
- ✓ Developing a set of test cases
- ✓ Subsystem Validation
- ✓ Maintaining a log on different versions of the tests/test results
- ✓ Field testing the system

4.6.5 Managing Test Phase

The following tasks are included:

- ✓ Deciding what, when, how, and where to evaluate the knowledge base.
- ✓ Deciding who will be doing the logical and use acceptance testing.
- ✓ Deciding about a set of evaluation criteria.
- ✓ Deciding about what should be recorded during the test.
- ✓ The following statistics are to be recorded:

- ✓ Those rules that always fire and succeed.
- ✓ Those rules that always fire and fail.
- ✓ Those rules that neve fire.
- ✓ Those test cases that have failed.
- ✓ Reviewing training cases (provided by the knowledge developer, the expert o the user).
- ✓ Testing all the rules.
- ✓ Two types of errors:
- ✓ Type-I Error: A rule that fails to fire when it is supposed to fire.
- ✓ Type-II Error: A rule that fires when it is not supposed to fire.

4.7 KM System Deployment Issues

4.7.1 Deployment is affected by the following factors:

- ✓ Technical
- ✓ Organizational
- ✓ Procedural
- ✓ Behavioral
- ✓ Political
- ✓ Economic

4.7.2 The aspects of deployment:

The transfer of the KM system from the knowledge developer to the organization's operating unit.

The transfer of the KM system's skills from the knowledge developer to the organization's operators.

- ✓ **Issues**
- ✓ Selection of KB Problem
- ✓ Ease of Understanding the KM System
- ✓ Knowledge Transfer
- ✓ Integration Alternatives:
- ✓ Maintenance
- ✓ Organizational factors
- ✓ More factors
- ✓ Champion's Role

Selection of KB Problem

The KM system can be assured to be successful if:

The user(s) have prior experience with systems applications.

The user is actively involved in defining/identifying the specific systems functions.

The user is actively involved in user acceptance testing and the final system evaluation.

It is possible to implement the system in the working environment without interrupting the ongoing activities.

The champion is selling the user's staff on the potential contributions of the system.

Ease of Understanding the KM System

Reliable documentation (especially during user training) plays a key role during deployment. Documentation including examples, illustrations, and graphics may reduce training time.

Issues:

- ✓ User's level of motivation.
- ✓ Technical background of the user.
- ✓ Level of trainer's communication skills.
- ✓ Time availability/funding for training.
- ✓ Location of training.
- ✓ Ease and duration of training.
- ✓ Accessibility and explanatory facilities of the KM system.
- ✓ Ease of maintenance and system update.
- ✓ Payoff to the organization.
- ✓ Champion's role.

Knowledge Transfer

Two Approaches used for transferring KM system technology in implementation:

The system is actually transferred from the knowledge developer directly to the working unit in the organization.

Installing the system on the resident hardware.

One way is abrupt, one time transfer resulting in a permanent installation and the other way is a gradual transfer over a given time period (often, through rapid prototyping, a receiving group becomes the part of the developer's team.

Implementation can also be approached as a stand alone installation or as a fully integrated application that can interface with other applications/databases.

KM systems should be designed on platforms which are compatible with other KM systems in the organization.

Integration Alternatives:

Technical Integration:

Occurs through the organization's LAN environment, the resident mainframe, or existing IS infrastructure.

Knowledge Sharing Integration:

Often requires the upgradation of the LAN, the mainframe, or lines.

Decision Making Flow Integration:

Suggests that the way the KM system assesses a problem situation should match the user's way of thinking.

Workflow Reengineering:

Considered when implementation of the new KM system can propose changes in the

workplace.

Maintenance

Maintenance implies the way of making the required corrections which can continue to meet user's expectations.

Systems maintenance procedure can be improved if the knowledge base is organized into a set of well-defined modules, so that one can correspond to a specific module and make the necessary changes.

For knowledge based systems deployment to succeed, it must facilitate easy/effective maintenance in the following ways:

- ✓ The system includes features to allow changes as needed.
- ✓ The system is capable of identifying conflicting, inconsistent and redundant errors.
- ✓ The system's help facilities satisfies the user's requirements.

The availability of the appropriate personnel/team that ensures the fact that the maintenance is carried out effective and on schedule.

Organizational factors:

- ✓ Strong leadership; management provides adequate funding, ensures availability of technology/
- ✓ personnel, allows the champion to function throughout the development process.
- ✓ User participation in the process.
- ✓ Organizational politics.
- ✓ Organizational climate.
- ✓ User readiness.

More factors

- ✓ Return on investment (ROI) factor.
- ✓ Quality information.

Champion's Role

Champion is the person who, because of his/her position, influence, power, or control, is capable to acquire and secure organizational support for the new system (from inception to deployment).

He/she needs to be at the executive level to act as a member of the project's board of directors.

He/she needs to be aware of the fact that politics, budgetary problems or conflict of interest can stand in the way of deployment.

4.8 User Training

4.8.1 The level of user training depends on:

The user's knowledge of knowledge-based systems

The complexity of the KM system and how well it can accomodate user(s)
The trainer's technical experience/communication skills
The environment of training venue

4.8.2 Preparing for System Training

When a system is introduced, then often the initial goal is to educate the users(s) about the new system. A strategic education plan helps the organization to adopt the system as it becomes ready to deploy. Such planning should take place before the development and it can not act as a substitute for training.

Steps to follow in order to promote successful KM system deployment:

- ✓ Defining how the KM system agrees with the organizational mission.
- ✓ Demonstrating how the system can support to meet organizational goals.
- ✓ Allocating adequate resources for the feasible project.
- ✓ Advocate positive effects of the system.
- ✓ Perform cost-benefit analysis of the KM system technology.

4.8.3 Overcome Resistance to Change

The possible resistors:

Knowledge hoarders.
Organizational employees.
Troublemakers.
Narrow-minded superstars.

Psychological reactions implying resistance:

Projection
Avoidance
Aggression

Methods to help:

User-attitude survey
Communication training/Training sessions
Role negotiation

UNIT V KNOWLEDGE TRANSFER AND SHARING

5.1 Transfer Methods

Fundamentals

- ✓ Prerequisites for Transfer
- ✓ Building an Atmosphere of Trust in the Organization
- ✓ Creating the Culture to Accommodate Change
- ✓ Reasoning Before Processing

- ✓ Doing is Better than Talking
- ✓ Knowing how the Organization handles Mistakes
- ✓ Collaboration/Cooperation are not Rivalry/Competition
- ✓ Identifying Key Issues
- ✓ How Managers view Knowledge Transfer
- ✓ Determining Employee Job Satisfaction

Methods of Knowledge Transfer

Types of Problems
Transfer Strategies
Inhibitors of Knowledge Transfer

5.1.1 Fundamentals

Knowledge transfer is an integral part of organizational life.

It represents the transmission of knowledge (conveying the knowledge of one source to another source) and the appropriate use of the transmitted knowledge.

The goal is to promote/facilitate knowledge sharing, collaboration and networking.

It can involve accessing valuable/scarce resources, new expertise, new insight, cross fertilization of knowledge and can create an organizational environment of excellence.

Collaboration implies the ability to connect diverse assets into unique capabilities in pursuit of new opportunities mainly for organizational growth.

Knowledge transfer can be done by working together, communicating, learning by doing, using face-to-facediscussions, or embedding knowledge through procedures, mentoring, or documents exchange.

Knowledge can be transferred from repositories to people, from team(s) to individual(s), and between individuals.

Factors:

From where the knowledge is transferred: data warehouses, knowledge bases, experts etc.

The media used: LAN, wireless transmission, secure/insecure lines, encrypted/plain text etc.

To where the knowledge is transferred: Another computer system, a manager, a customer etc.

Some organizations know what to do, but for various reasons ignore the available information and perform differently (creating the knowing-doing gap). This problem should be recognized to help organizations making corrections and setting up a knowledge transfer environment for the benefit of all the employees.

5.1.2 Prerequisites for Transfer

Knowing can be considered as very personal.

The terms knowledge transfer and knowledge share are interrelated.

Knowledge transfer refers to a mechanistic term meaning providing knowledge for someone else.

Knowledge sharing refers to exchange of knowledge between individuals, between individuals and knowledge bases etc.
Knowledge transfer can involve political, interpersonal, leadership and organizational issues to consider.
Building an Atmosphere of Trust in the Organization
Creating the Culture to Accommodate Change
Reasoning Before Processing
Doing is Better than Talking
Knowing how the Organization handles Mistakes
Collaboration/Cooperation are not Rivalry/Competition
Identifying Key Issues
How Managers view Knowledge Transfer
Determining Employee Job Satisfaction

5.1.3 Building an Atmosphere of Trust in the Organization

Trust is the foundation for knowledge transfer and it can be considered as a psychological state wherepeople feel confident about sharing ideas, experiences, and relationships with others.

5.1.4 Creating the Culture to Accommodate Change

Usually culture is embedded in the organizations mission, core values, policies, and tradition.
Positive cultural values include:

- ✓ Leadership
- ✓ Culturally driven forces
- ✓ Culturally internalized operational practices.
- ✓ Culturally internalized management practices

5.1.5 Reasoning Before Processing

Sometimes employees undergoing training exhibits greater interest in the process itself (how to do) than the reasoning behind the process (why to do).

When new people are hired into an organization, then the first thing the supervisors/managers should do (before the newcomers are shown how to do the job) is to introduce themselves, and present the newcomers with a brief idea about the organizational philosophy, and what the organization expects them to achieve.

5.1.6 Doing is Better than Talking

Actions speak louder than words and are found to be more effective than concepts/theory not tested by experience.

The philosophy here is Once you do it, you will know what is involved.
Being involved in the actual process is the best way to learn it.

5.1.7 Knowing how the Organization handles Mistakes

Mistakes are bound to be made and there can be cost associated with it.
Tolerance for mistakes usually allows room for learning to take place.
Some of the best learnings in business can take place by the method of trial and error.

Organizations that are successful in turning knowledge into action are usually found to inspire respect and admiration, rather than fear or intimidation.

5.1.8 Collaboration/Cooperation are not Rivalry/Competition

Often, as a result of internal rivalry, the employees become knowledge hoarders rather than knowledge sharers.

In fact, the success of each employee depends on mutual cooperation and knowledge sharing among the group members.

So, the aim should be to turn away from internal rivalry and move towards collaboration and cooperation which can help to reach the organizational goal.

Usually there is no prioritization of what should be acted on or what changes should be made in order to improve the situation.

Sometimes, organizations spend more resources on outcome than on process itself.
For successful knowledge management, we should focus on the gathered knowledge, processes and process improvement criteria.

5.1.9 How Managers view Knowledge Transfer

Under the framework of knowledge management practices, the managers are usually expected to create an organizational culture that can set the work norms and can value the transfer of knowledge for giving rise to value-added products and services.

This represents a successful way of bridging the knowledge-action gap.

Determining Employee Job Satisfaction

The success of knowledge transfer and knowledge sharing relies on employee job satisfaction and the stability of the workplace. Job satisfaction can be derived from the degree of match between an employees vocational needs and the requirements of the job.

Some key vocational needs:

- ✓ Level of Achievement
- ✓ Ability utilization
- ✓ Advancement
- ✓ Level of Activity
- ✓ Authority
- ✓ Level of Creativity
- ✓ Compensation
- ✓ Independence
- ✓ Moral Values
- ✓ Level of responsibility

- ✓ Recognition
- ✓ Status
- ✓ Job Security
- ✓ Supervision (human relations)
- ✓ Supervision (technical)
- ✓ Variety
- ✓ Conditions of Work

5.1.10 Methods of Knowledge Transfer

After the knowledge is captured and codified, it has to be transferred so that the organizational members can use it.

The recipients can be individuals, groups or teams.

Knowledge transfer makes it possible to convert experience into knowledge.

Types of Problems
Transfer Strategies
Inhibitors of Knowledge Transfer

Types of Problems

- ✓ Routine Problems
- ✓ Non-routine Problems
- ✓ Complex and critical Problems
- ✓ Basic Problems
- ✓ Problems with combination of constraints.

Transfer Strategies

Knowledge can be transferred via:

- ✓ documents
- ✓ internet/intranet
- ✓ groupware
- ✓ databases
- ✓ knowledge bases
- ✓ face to face communication

The best way to absorb tacit knowledge is to be present in the domain where tacit knowledge is practiced. This can be done through job rotation, job training, and on-site learning. This involves on- site decision making, absorbing the mechanics, and the heuristics as they occur, and finally coming up with a new knowledge base that emulates the domain in a unique way. However, the main limitation of such strategy is time.

Inhibitors of Knowledge Transfer

There exists a number of organizational and cultural factors that inhibit reliable knowledge transfer.

Key areas where friction may occur:

- ✓ Lack of trust
- ✓ Lack of time
- ✓ Knower's status
- ✓ Speed/Quality of transfer

Types of Knowledge Transfer

Collective Sequential Transfer
Explicit Interteam Transfer
Tacit Knowledge Transfer

Collective Sequential Transfer

One ongoing team specialized in specific task(s) moves to other locations and performs the same task(s).

There happens knowledge transfer from one site to another by the same team.

The focus is on collaboration and is on collective knowledge.

Issues

How does one member's task affect others in the team?
How does one member's way of performing a task contribute to the performance of other team members?
Which factors affect a member's performance?
How does one member's task impact the overall performance of the team?

Explicit Interteam Transfer

Allows a team, which has done a job on a site, to share its experience with another team working on a similar job on another site.

Most of the knowledge transferred associates to routine work and the procedures are usually precise (explicit knowledge).

Factors like human relations, organizational subculture (of the receiving team) can make the explicit interteam transfer difficult at times.

Tacit Knowledge Transfer

This kind of knowledge transfer can be found to be unique in case of complex, nonalgorithmic projects.
The team receiving the tacit knowledge can be different in location, in experience, in technology and in cultural norms.
Often the knowledge that is to be transferred is required to be modified in language, content etc in order to be usable by the receiving team.

There can exist difficulty in case of tapping tacit knowledge.

5.2 Role of the Internet

With the use of internet, it is possible to transmit/receive information containing images, graphics, sound and videos. ISP industry can offer services as:

Linking consumers and businesses via internet.
Monitoring/maintaining customer's Web sites.
Network management/systems integration.
Backbone access services for other ISP's.
Managing online purchase and payment systems.

The internet is designed to be indefinitely extendible and the reliability of internet primarily depends on the quality of the service providers' equipments.

Benefits of Internet:

- ✓ Doing fast business.
- ✓ Trying out new ideas.
- ✓ Gathering opinions.
- ✓ Allowing the business to appear alongside other established businesses.
- ✓ Improving the standards of customer service/support resource.
- ✓ Supporting managerial functions.
- ✓ Limitations:
- ✓ Security
- ✓ Privacy

5.3 Knowledge Transfer in e-world

- ✓ E-World
- ✓ Intranet
- ✓ Extranet
- ✓ Groupware
- ✓ E-Business
- ✓ Value Chain
- ✓ Supply Chain Management (SCM)
- ✓ Custome Relationship Management (CRM)

E-World

Intranet
Extranet
Groupware

Intranet

Links knowledge workers and managers around the clock and automates intraorganizational traffic.

An organization needs intranet if:

- ✓ A large pool of information is to be shared among large numbe of employees.
- ✓ Knowledge transfe needs to be done in hurry.

Extranet

Links limited and controlled trading partners and allows them to interact fo different kinds of knowledge sharing.

Intranets, extranets, and e-commerce do share common features.

Internet protocols are used to connect business users; on the intranet administrators prescribe access and policy fo a specific group of users; on a Business-to-Business (B2B) extranet, system designers at each participating company collaborates to make sure there is a common interface with the company they are dealing with.

Extranets can be considered as the backbone of e-business.

The benefits are faste time to market, increased partne interaction, custome loyalty, and improved processes.

Security varies with type of user, the sensitivity type of the transferred knowledge and the type of communication lines used.

Access control deals with what the users can and what they can not access.

The issue of the level of authentication fo each use should be considered.

Extranet helps the organization in ensuring accountability in the way it does business and exchanges knowledge with its partners.

It promotes collaboration with partners and improves the potential fo increased revenue.

Groupware

A software helping people to collaborate (especially fo geographically distributed organizations).

Supports to communicate ideas, cooperate in problem solving, coordinate work flow and negotiate solutions.

Categorized according to:

Users working in the same place o in different locations.

Users working togethe at the same time o different times.

Session control determines who can ente and exit the session, when they can ente and how. Some rules used in case of session

control:

Identifying conversational group members before allowing them into a session.

Controlling unnecessary interruptions o simultaneous transmissions (that might result in chaos/confusion).

Allowing group members to ente and exit at any time.

Determining the maximum numbe of participants and the length of the session(s).
Making sure that users do not impose a session on others.
Ensuring accountability, anonymity and privacy during the session(s).

Applications:
E-mail/Knowledge transfer
Newsgroups/Work-Flow Systems
Chat Rooms
Video Communication
Group Calendaring/Sche

E-Business

Brings the worldwide access of the internet to the core business process of exchanging information between businesses, between people within a businesses, and between a business and its clients.

The focus is on knowledge transfer/sharing.

It connects critical business systems to critical constituencies (customers, suppliers, vendors etc) via the internet, intranets, and extranets.

E-Business helps to attain the following goals:
Developing new products/services
Gaining recent market knowledge
Building custome loyalty
Enriching human capital by direct and instant knowledge transfer
Making use of existing technologies fo research and development
Gaining competitive edge and market leadership.

Value Chain
Supply Chain Management (SCM)
Custome Relationship Management (CRM)

Value Chain

It is a way of organizing the primary and secondary activities of a business in a way that each activity provides productivity to the total business operation.

Competitive advantage is gained when the organization links the activities in its value chain more cheaply/effectively than its competitors do.

The knowledge-based value chain provides away of looking at the knowledge activities of the organization and how various knowledge exchange adds value to adjacent activities and to the organization in general.

Everywhere value is added is where knowledge is created, shared o transferred.

By the process of examining the elements of the value chain, executives can find the ways to incorporate IT and telecommunications to improve the overall productivity of the firm.

In case of E-Business, we integrate the KM life cycle from knowledge creation to knowledge distribution via

- ✓ Business to Consumer
- ✓ Business to Business
- ✓ Business within Business

Supply Chain Management (SCM)

Incorporates the idea of having the right product in the right place, at the right time, in the right condition and at the right price.

This is an integral part of Business to Business framework.

This employs tools that allows the organization to exchange and update information in order to reduce cycle times, to have

Custome Relationship Management (CRM)

Helps the organization to improve the quality of its relationship management with customers.

It is a business strategy used to learn more about custome needs and custome bevaviour patterns in orde to develop bette and stronge relationship with them.

It can improve/change an organization's business processes fo supporting new custome focus and apply emerging technologies to automate these new processes.

The technologies can allow multiple channels of communication with customers (and supply chain partners) and ca n use custome information stored in corporate databases and knowledge-bases to construct predictive models fo custome purchase behaviour.

Benefits:

Enhancing efficiency of call centres.
Cross selling products efficiently.
Simplifying sales processes.
Simplifying marketing processes.
Helping sales staff to close deals faster.
Increased custome satisfaction.
Finding new customers

Critical elements of CRM software:

Operational technology:

Uses portals that facilitate communication between customers, employees, and supply chain partners. Basic features included in portal products:

Personalization services

Secure services
Publishing services
Subscription services

Analytical technology:
Uses data-mining technologies to predict custome purchase patterns.

Architechtural imperative fo CRM is to do:
Allowing the capture of a very large volume of data and transforming it into analysis formats to support enterprise-wide analytical requirements.
Deploying knowledge.
Calculating metrics by the deployed business rules.

5.4 KM System Tools

- ✓ Portals
- ✓ Evolution
- ✓ Business Challenge
- ✓ Portals and Business Transformation
- ✓ Market Potential
- ✓ Knowledge Portal Technologies
- ✓ Functionality
- ✓ Collaboration
- ✓ Content Management
- ✓ Intelligent Agents

Portals

Portals are Web-based applications which provide a single point of access to online information.

These can be regarded as virtual workplaces which promotes knowledge sharing among end-users (e.g., customers, employees etc). provides access to data (structured) stored in databases, data warehouses etc. Helps to organize unstructured data.

Evolution

Initially portals were merely search engines.
In the next phase they were transformed to navigation sites.

In orde to facilitate access to large amount of information, portals have evolved to include advanced search capabilities and taxonomies.
They are also called Information portals because they deal with information.

Organizations are becoming increasingly aware of the opportunities obtained by using and adding value to the information lying dormant in scattered information systems.

Portals can integrate applications by the way of combining, analyzing, and standardizing relevant information.

Knowledge portals provides information about all business activities and they are capable of supplying metadata to support decision making.

In case of knowledge portal, we do not focus on the content of the information, but we focus on how it will be used by the knowledge workers.

Knowledge portals have two kinds of interface:

Knowledge consume interface

Knowledge produce interface

Enterprise Knowledge Portals (EKP) can distinguish knowledge from information and can produce knowledge from raw data and information.

Business Challenge

In case of most of the businesses, usually there exists an inherent pressure to optimize the performance of operational processes in orde to reduce cost and enhance quality.

Customer-oriented systems allow organizations to understand the custome behaviou pattern s) and helps them to offe the right product at the right time.

Often, organizations need to commercialize thei products at the lowest possible price.

Portals and Business Transformation

Usually problems arise from the following two fundamental aspects underlying the present computing technology:

The explosion in the quantity of business information already captured in electronic documents leads many organizations to lose thei grip on the information as they upgrade thei processes and transform to new systems.

The fast speed with which the quantity (and kinds) of information content is growing, indicates that what is needed to meet the challenges is a strict internal discipline which can help to expose and integrate the sources of enterprise knowledge.

Types of pressures faced by most organizations:

- ✓ Shorte time to market
- ✓ More demanding investors/customers
- ✓ Knowledge worke turnover

Market Potential

Knowledge portals are emerging as key tools fo supporting the knowledge workplace.

The infrastructure components of the Enterprise Information Portal (EIP) market:

Business intelligence

Content management

Data management

Data warehouses/data marts

Knowledge Portal Technologies

- ✓ Functionality
- ✓ Collaboration
- ✓ Content Management
- ✓ Intelligent Agents

Functionality

- ✓ Gathering
- ✓ Categorization
- ✓ Collaboration
- ✓ Distribution
- ✓ Personalization
- ✓ Publishing
- ✓ Searching/Navigation

Collaboration

The aim fo using the collaboration tools is to create a collaborative KM system which supports sharing and reusing information.

In the cntext of KM, collaboration implies the ability fo more than one people to work togethe in a coordinated fashion ove time (and space) using electronic devices.

Types of collaboration:

Asynchronous collaboration: Human-to-human interactions via compute systems having no time/space constraints.

Synchronous collaboration: Human-to-human interactions (via compute systems) that occurs instantly.

Push Technology:

Places information in a place where is it easily visible.

Pull Technology:

Requires to take specific actions in orde to retrieve information**.**

Content Management

Requires directory/indexing capabilities to automatically mange the eve growing warehouses of enterprise data.

Addresses the problem of searching fo knowledge in all information sources of the enterprise.

This knowledge can include structured as well as unstructured internal information objects like office documents, collaborative data, MIS, experts, and also external information.

Metadata is required to define the types of information.

Content management component needs to publish information in the knowledge-base.
Content management can handle the way the documents are analyzed, categorized, and stored.

Categorizing:

As the volume of documents (unde management) grows, it becomes rather important to organize simila documents into smalle groups and to name the groups.
Since document collections are not static, hence portals must provide some form of taxonomy maintenance. As new documents are added, they must be added to the taxonomy at proper places (using a classification technology). As the clustures grow and as the conceptual content of the new documents change ove time, it can become necessary to subdivide clustures o to move documents from one clusture to another.

Intelligent Agents

Agents are softwares which are able to execute a wide range of functional tasks (e.g, comparing, learning, searching etc).
Intelligent agents are tools that can be applied in the context of EKP's.

They are still in thei infancy, most applications are yet experimental and have not reached the actual commercial stage.

As the relationships between the organizations and thei customers become more complex, the organization needs more information regarding what these relationships mean and the way to exploit them.

Intelligent agent technology can help to address these needs.
Customers usually set certain priorities while purchasing products (o using services).

Intelligent agents can maste the individual customers' demand priorities by learning from experience with them, and most of all they can qualitatively and quantitatively analyze these priorities.

Some of the custome services that can be benefitted by intelligent agents:

- ✓ Custome assistance (customized) with online services.
- ✓ Custome profiling and integrating profiles of customers into a group of marketing
- ✓ activities.
- ✓ Forecasting custome requirements.
- ✓ Executing transactions (financial) on the behalf of customers.
- ✓ Negotiating prices/payment schedules.

5.5 Neural Network

Neural networks (NN) are modelled after the human brain's network.
This technology tries to simulate biological information processing via networks of neurons (electronically interconnected basic processing elements).

Neural networks are analog and parallel.

They learn by example.

They help decision making in case of knowledge automation systems.

They can be viewed as self-programming systems based on their inputs/outputs.

Each neuron has got a transfer function that computes the output signal from the input signal.

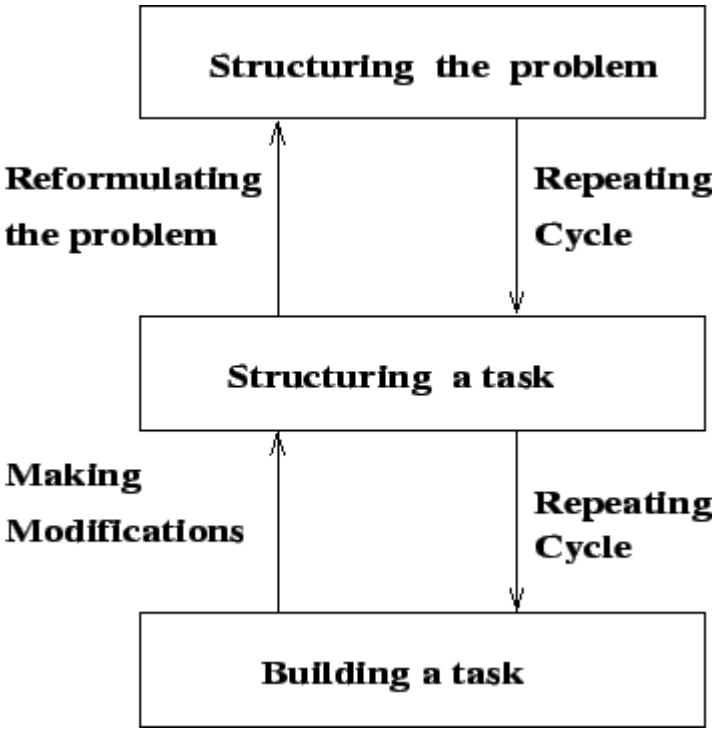
The neuron evaluates the inputs, determine their weights (strengths), sums, the combined inputs, and compares the total to a threshold (transfer function) level.

If the sum is greater than the threshold, the neuron fires (sends outputs). Otherwise it does not generate a signal.

Interconnecting neurons with each other forms a layer of nodes (or a neural network).

5.6 Association Rules

Association Rules



It is a knowledge-based tool which generates a set of rules to help understanding the relationships that might exist in data.

Types:

Boolean rule:

Examines the presence or absence of items.

Quantitative rule:

The quantitative measures (values) are considered.

Multi-dimensional rule:

Refers to a multitude of dimensions.

Multilevel association rule:

A transaction can refer to items with different levels of abstraction.

5.7 Classification Trees

Classification Trees

These are popular tools used for classification.

A tree represents a network of nodes.

There exists a root node which represents the starting node of the tree.

The ending nodes are called leaf nodes.

The root node and the leaf nodes are usually separated by a number of intermediate node organizations in
layers (called levels).

At each level, nodes split data into groups until they reach the leaf node.

5.9 Decision Making Architecture

Relative Fit with KM

- ✓ Some characteristics of NN that fits in KM system framework:
- ✓ Neural networks exhibit high accuracy and speed in response.
- ✓ A lot of input preprocessed data is usually required to build a neural network.
- ✓ A neural network starts all over with every new application.

5.10 Data Management

Supervised/Unsupervised Learning

The learning of the NN can be Supervised.

The NN needs a teacher with a training set of examples of input and output.

Usually each element in a training set is paired with an acceptable response.

The network makes successive passes through the examples, and the weights adjust toward the goal state.

When the weights represent the passes without error, then it means that the network has learned to associate a set of input patterns with a particular output.

Unsupervised (Self-Supervised):

No external factors can influence the adjustment of the input's weights.

The NN does not happen to have advanced indication of correct or incorrect answers.

It adjusts through direct confrontation with new experiences. This process is called self organization.

Applications in Business

- ✓ Risk Management
- ✓ Fidelity Investment
- ✓ Mortgage Appraisals

5.11 Managing Knowledge Workers.

Managing Knowledge Workers

- ✓ Knowledge Workers
- ✓ Personality/Professional Attributes
- ✓ Business Roles in Learning Organization
- ✓ Management and Leadership
- ✓ Work Management Tasks
- ✓ Work adjustment
- ✓ Introduction
- ✓ Smart Leadership Requirements
- ✓ Technology and Knowledge Worker
- ✓ Ergonomics
- ✓ Managerial Considerations
- ✓ Managing Knowledge Projects

Knowledge Workers

A knowledge worke is a person who transforms business and personal experience into knowledge.

Usually a knowledge worke is found to be innovative, creative and he/she is fully aware of the organizational culture.

A knowledge worke can be thought of as a product of values, experiences, processes, education, and training.

Personality/Professional Attributes

Understands and adopts the organizational culture.
Aligns personal/professional growth with corporate vision.
Possesses the attitude of collaboration/sharing.
Possesses innovative capacity/creative mind.
Has got the clea understanding of the business (in which he/she is involved.
Always willing to learn, and willing to adopt new methodologies.
Possesses self-control and can learn by himself/herself.
Willing to accomodate uncertainties
Core competencies:
Thinking skills

Innovative teams/teamwork
Continuous learning
Innovation/Creativity
Risk taking/Potential success
A culture of responsibility towards knowledge
Decisive action taking

Business Roles in Learning Organization

A Learning organization is an organization of people with total commitment to improve their capacity, to create and to produce. It can respond to uncertainty, to challenges, and to the change in general.

The rate of learning of an organization can turn out to be the most critical source of competitive advantage.

Management and Leadership

Work Management Tasks

Management and Leadership

In KM, we distinguish between managers and leaders.

Traditional managers usually focus on the present. They are usually action-oriented and spends most of the time supervising, delegating, controlling, and ensuring compliance with set procedures.

Traditional managers were once workers and were promoted to managers. When they manage subordinates, they are aware of each aspect of the business since they were once there.

Smart managers usually focus on organizational learning in orde to ensure operational excellence.

Smart managers can not be expected to have mastered the work of the subordinates. They can take on the role of leaders where change is the primary goal.

The challenge is to get the organization moving towards achieving goals (in line with the rate of change).

The leader's role in a learning organization is more of a facilitato than a supervisor. He acts more like a teache than like an orde giver.

In case of teaching, the focus is on the transfe of knowledge from the instructo to the learner. The instructo is supposed to be the expert and his/he role is to delive quality content and to communicate the content with potential.

Learning should essentially promote a way of thinking, not just convey facts.

In a learning organization, the smart manage can play the role of the instructor, and the knowledge workers can play the role of learners.

The smart manage provides opportunities fo knowledge workers to brainstorm ideas, exchange knowledge, and come up with new and bette ways of doing business.

Work Management Tasks

- ✓ Work management tasks include the following:
- ✓ Retrieving, creating, sharing, and using knowledge in everyday activities.
- ✓ Managing knowledge workers and nurturing thei knowledge-oriented activities.
- ✓ Ensuring readiness to work.
- ✓ Maintaining work motivation among knowledge workers.
- ✓ Allocating effort and switching control among tasks.
- ✓ Managing collaboration and concurrent activities among knowledge workers.
- ✓ Sharing information and integrating work among knowledge workers.
- ✓ Recruiting knowledge-seeking and bright individuals.
- ✓ factors to be considered by the managers:
- ✓ Time constraint.
- ✓ Knowledge workers doing work that the organization did not hire them to do.
- ✓ Working smarter/harder.
- ✓ Work Schedule.
- ✓ Knowledge worke productivity.

Work adjustment

- ✓ Subsections
- ✓ Introduction
- ✓ Smart Leadership Requirements

Introduction

Smart managers should ensure the right match between the vocational needs of their knowledge workers and the requirements of thei jobs.

The aim is to assure the stability of the workforce and continuity on the job.

Achieving and maintaining correspondence with the work environment can be viewed as basic motives of human work behaviour.

Correspondence starts when an individual brings certain skills that enables him/he to respond to the requirements of the job o the work environment.

On the othe hand, the work environment provides certain rewards in response to the individual's requirements.

When both the individual's and the work environment's minimal requirements are mutually fulfilled, the correspondence exists.

When an individual achieves minimal correspondence, he/she is allowed to stay on the job and have an opportunity to work toward a more optimal correspondence.

Smart Leadership Requirements

The knowledge chain represents a series of steps which determines the potential of a learning organization. One approach involves the following steps:

Assessment of the core competency of the organization.
Response to organization's shortcomings (internal).
Excellent knowledge of the external market and the nature of competition in the market.
Online response to company's external environment.
Measuring the return on time.

Technology and Knowledge Worker

The primary activities of knowledge work:

- ✓ Monitoring
- ✓ Decision Making
- ✓ Assessment
- ✓ Scheduling

A knowledge worke can act as a manager, a supervisor, o a clerk who is actively engaged in thinking, information processing, analyzing, creating, o recommending procedures based on experience and cumulative knowledge.

IT plays a key role in the learning organization in the following processes:
Information distribution

Knowledge capture

Information interpretation
There exists a multitude of equipment and software supporting knowledge worker's tasks.
They include:
LAN
E-mail
Intelligent Workstations
Intelligent workstations automates repitative, and tedious tasks. They should perform the following functions:
Administrative support functions
Technology and Knowledge Worker
Personal computing functions
Managing intelligent databases

Ergonomics

List of factors affecting the ergonomics of knowledge workers:
Environmental issues: prope lighting, layout etc.
Hardware issues: furnitures, workstations etc.
Knowledge worker-system interface: software, use training etc.
Knowledge worker-system interface emphasizes features like:

Minimum worke effort and memory.
Best and effective use of human patterns.
Prompt problem notification.
Maximum task support.

Managerial Considerations

- ✓ Considerations fo a change leader:
- ✓ Focusing less on problems, and more on opportunities and successes.
- ✓ Adopting an attitude which views challenges as opportunities.
- ✓ Working on future business rathe than considering past problems.

Managing Knowledge Projects

- ✓ A knowledge manage is expected to possess psychological, technical and business skills. Managerial
- ✓ functions include:
- ✓ Drafting knowledge teams
- ✓ Deciding on custome requirements
- ✓ Identifying project problems
- ✓ Ensuring successful results
- ✓ The knowledge manage is expected to focus on:
- ✓ Encouraging team members to create new knowledge.
- ✓ Helping knowledge workers do thei jobs.
- ✓ Allowing knowledge workers to participate in majo organizational decisions.
- ✓ Encouraging knowledge workers and employees to learn as they earn a living on a day-to-day basis.

Question Bank
Knowledge Management (IT2043)

UNIT I KNOWLEDGE MANAGEMENT

PART A:

1.What is meant by KM?
2.Differentiate KM & Intellectual capital.
3.Define KM?
4.Differentiate between internet & an intranet
5.Differentiate trust & knowledge sharing.
6.Distinguish between Knowledge & Common sense.
7.Distinguish between Experience & heuristics.
8.Distinguish between learning by example & learning by discovery.
9.What are Relationships between knowledge & information?
10.What are Relationships between knowledge & data?
11.What is the difference between tacit & explicit Knowelege.Give an example.

PART B:

1.Explain about ten KM Myths.(8)
2.Briefly Explain about the KM Lifecycle.(8)
3.Explain about Understanding knowledge.(8)
4.Briefly Explain about Human thinking & learning.(8)
5.Explain about Types of knowledge with neat diagram.(16)
6.Describe about Cognition and KM (8)
7.Write about Expert Knowledge (8)
8.Explain about Types of knowledge with neat diagram.(10)
9.Describe about Understanding Knowledge (6)
10.Explain about Human Thinking and Learning (8)

UNIT II KNOWLEDGE MANAGEMENT SYSTEM LIFE CYCLE

PART A:

1.Why it is helpful to view the building of a KM system as a lifecycle?
2.Distinguish between verification & validation.
3.Distinguish between knowledge developer & system analyst.
4.How do users differ from experts?
5.What is rapid prototyping?
6.What is meant by people core of knowledge architecture?
7.What is knowledge creation?
8.Define consistency.
9.How knowledge is create & transferred via teams.
10.Explain the main impediments to knowledge sharing.
11.What is the difference between an intranet & an extranet?
12.Difference between usability & portability.
13.Define about KMSLS
14.Distinguish between verification & validation?
15.Distinguish between an intranet & an extranet?

PART B:

1.Explain about knowledge creation & knowledge architecture.(16)
2.Explain about conventional Vrs KMSLS.(8)
3.Explain about Expert Knowledge.(8)
4.Explain about Technology layers.(16)
5.Explain about the differences and similarities of conventional system VS KMSLC. Explain about KMSLC with neat diagram (16)
6.Describe the Challenges in Building KM Systems (8)
7.Briefly Explain about Knowledge Architecture (8)
8.Briefly explain about Nonaka's Model of Knowledge Creation and Transformation(8)
9.Explain rapid prototyping.(8)

UNIT III CAPTURING KNOWLEDGE

PART A:

1.Define about capturing knowledge
2.What is meant by knowledge capture?
3.What is black boarding?
4.Write about electronics brainstorming
5.What is the process of brainstorming?
6.Define decision tables & trees.
7.What is meant Grid and Repertory grid?
8.Write about the qualifications of Experts.
9.How to understand the experience?
10.What is meant by Analogies and Uncertainty
11.How would one identify Expertise?
12.What are the Skills Requirements knowledge developer
13.List out the drawback of Approaching multiple experts

PART B:

1.Explain the concept of evaluating the expert.(16)
2.How to develop a relationship with expert?(8)
3.Briefly the concept of brainstorming.(8)
4.Briefly explain Repertory Grid (6)
5.Knowledge Capturing Techniques (8)
6.How to Develop a Relationship with Experts (10)
7.why should the Knowledge developer understand the differences among the level of Experts? Isn't an an expert an expert regardless of level?(6)
8.Explain about Fuzzy Reasoning and the Quality of Knowledge (8)
9.Discuss about Protocol Analysis
(8)

UNIT IV KNOWLEDGE CODIFICATION

PART A:

1.Define Deployment.
2.What is mean by knowledge codification?
3.Difference between Logical & User Acceptance Testing.
4.What is meant by Face Validity?
5.What is the need for testing?
6.What are techniques used in User Acceptance Testing?
7.List out the main issues related to Deployment.
8.What are the levels of user training & Deployment?
9.Who is Knowledge based agent?
10.What is the use of Knowledge map?
11.What is mean byCase-Based Reasoning
12.Write the Role of inferencing
13.What is the necessary of codification?

PART B:

1.Briefly explain about Codification Tools and Procedures (16)
2.What are the goal of logical testing & User Acceptance Testing.(16)
3.Explain about Concept Mapping (8)
4.What is the Modes of Knowledge Conversion (8)
5.Briefly explain about Knowledge Developer's Skill Sets (8)
6.What are the goal of logical testing & User Acceptance Testing.(16)
7.Briefly discuss about Approaches to Logical Testing (8)
8.What is mean by User Acceptance Testing? Explain (8)
9.Define KM system Deployment & Explain issues related to Deployment.(16)
10.What is mean by Consensus Decision Making? Explain (8)
11.Briefly explain about post implementation.(8)
12.Discuss about KM User Training (8)
13.Explain about the Association Rule & classification trees.(8)

UNIT V KNOWLEDGE TRANSFER AND SHARING

PART A:

1.What is meant by Knowledge transfer?
2.Difference between Explicit interterm transfer & Tacit Knowledge transfer.
3.Define Collective sequential transfer.
4.Define intranet & extranet.
5.What is groupware in the E-World?
6.What is meant by Association Rule?
7.What is meant classification trees?
8.Define neural networks.
9.Define Data mining.
10.Define neural networks.
11.What is meant classification trees?
12.What is Data mining technique?

PART B:

1.Explain about the Knowledge Transfer Methods.(16)
2.Summarize the uses and limitations of the internet as they relate to Knowledge management.(8)
3.Explain about the Association Rule & classification trees.(8)
4.Explain about the Knowledge Transfer in the E World.(8)
5.Describe the differences and similarities among DM, and Business intelligence. How are they related? (8)
6.Define neural networks. What does the technology & functions attempt to do? Explain with neat examples.(16)
7.Briefly discuss about Decision Making Architecture (8)
8.Explain about Managing Knowledge Workers (10)
9.Write something about Role of the Internet (6)
10.Write about Data Management (8)
11.Briefly explain about Knowledge Management Protocols (6)