Aims and Objectives

- **Aim**
  
  to build a basic understanding of KM through a range of techniques for utilizing personal and organizational knowledge to achieve organizational effectiveness and efficiency

- **Objective**
  
  to understand the issues involved in implementing KM systems in an organisational setting
Knowledge as action

- Knowledge - (the knowledge of something) is the ability to form a mental model that accurately represents the thing as well as the actions that can be performed on it and by it

  Sowa, 1994

- “Knowledge consists of truths and beliefs, perspectives and concepts, judgments and expectations, methodologies and know-how and is possessed by humans, agents, or other active entities and is used to receive information and to recognize and identify; analyse, interpret, and evaluate; synthesize and decide; plan implement, monitor, and adapt – i.e. to act more or less intelligently.

  … knowledge is used to determine what a specific situation means and how to handle it”

Wiig, 2000
KMS - Addressing the KM Dimensions

Structural Dimensions
- Organisational Design
- Information Infrastructure
- Technology Infrastructure

Functional Dimensions
- Memory
- Sense Making
- Learning

KMS - Supporting Action

Knowledge
Information
Data

Intention
- Exploration
- Exploitation
- Performance

Information Object
Dimensions of Work

Thinking (KM?)

Communicating (IM?)

Doing (IS?)

Changing Work Practices

- To create value through knowledge requires work:
  - to be performed collaboratively
  - to have a task/activity focus
  - to integrate "doing" and "planning"
  - learning from experience

- Work practices have changed from structured operation to knowledge work:
  - the focus is on work practices that require expertise and knowledge to be applied and used to perform activities.
  - the activities need to produce tangible outcomes as well as contributing to the creation of knowledge.
  - work practices combine productive and cognitive work
User Versus Knowledge Workers

<table>
<thead>
<tr>
<th>Attributes</th>
<th>User</th>
<th>Knowledge worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependence on the system</td>
<td>High</td>
<td>Low to nil</td>
</tr>
<tr>
<td>Cooperation</td>
<td>Usually cooperative</td>
<td>Cooperation not required</td>
</tr>
<tr>
<td>Tolerance for ambiguity</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Knowledge of problem</td>
<td>Average/low</td>
<td>High</td>
</tr>
<tr>
<td>Contribution to system</td>
<td>Information</td>
<td>Knowledge/expertise</td>
</tr>
<tr>
<td>System user</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Availability for system builder</td>
<td>Readily available</td>
<td>Not readily available</td>
</tr>
</tbody>
</table>

Communication

- The act of communication involves two agents, and serves the purpose of knowledge externalization, internalization and sharing between those agents. *Kaufman and Carley, 1993*

- Communication is essential to construct collective meaning through a process of transforming personal knowledge

- Shared meaning can be considered as organisational knowledge
**SECI Model - Amplification**

- ‘organisationally amplifying’ is a process where individual knowledge permeates the organisation’s knowledge network, through 4 expanding levels
  - Individual
  - Group
  - Organisation
  - Inter-organisation

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**KMS - Addressing Organisational Work**

<table>
<thead>
<tr>
<th>Focus</th>
<th>Object of Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisation</td>
<td>Capability</td>
</tr>
<tr>
<td>Group</td>
<td>Collaboration</td>
</tr>
<tr>
<td>Individual</td>
<td>Activity</td>
</tr>
</tbody>
</table>

Source: Nonaka, 1994
KMS Development as Organisational KW

KM Team Focus
- KMS Strategy
- KMS Planning
- KMS Development/Implementation
- KMS Operations

Object of Work
- Capability
- Collaboration
- Activity

Learning

KMS - Beyond IS

- KMS are socio-technical systems that can support
  - knowledge creation
  - knowledge capture, formalisation and preservation
  - knowledge organisation and distribution
  - application and utilisation of knowledge

*Traditional IS are not explicitly aimed at supporting all these functions*
Linking Business and KM Strategy

- What your company must know
- What your company can know
- What your company can do
- What your company must do

Tiwana, 2000

KMS Goals

- Value Adding
  - support work practices that include the cognitive aspects of the activity
  - encourages the reuse of existing materials in knowledge processes
  - making internal knowledge visible and external knowledge accessible;
  - development of human capital (personal skills/knowledge)
- Changing Perspective
  - from data to document
  - from report to meaning
  - from information to knowledge
  - from procedure to knowledge work
- Implementing Organisational Learning
KMS Objectives

- Support for knowledge work
  - must include the productive and cognitive aspects of the activity
  - doing, thinking, communicating
- Address all levels
  - individual, group, enterprise
- Focus on knowledge processes
  - making internal knowledge visible and external knowledge accessible
  - ensure knowledge is deployed
  - emphasis on knowledge production
- development of human capital (personal skills/knowledge)
  - learning
  - sense-making
  - reflection

Aspects of ROI in KM

- Measurable efficiencies in product development, production, sales and service cycles;
- Improved decision-making at the front lines in the development, production, sales and support cycles;
- Better ability to get new partners up to speed quickly;
- Improved business morale because employees are better informed and are making better decisions;
- Increased customer loyalty due to better trust in employees’ expertise

Eric Tsui, 2001
Measuring Knowledge Assets

- Intellectual capital measures and the efficiency of intellectual capital
- Intangible Assets Monitor (Karl-Eric Sveiby);
- Balanced Score Card (Kaplan and Norton)

Exploiting KM

The KM Infrastructure

- Management
- Staff
- Suppliers
- Customers
- Partners

Internal  External
A KMS Architecture?

![Diagram showing the relationship between People, Process, KM, Information/Content, and Technology]

Organisational Design: A Historical View

<table>
<thead>
<tr>
<th>Type of Org</th>
<th>Dominant Structure</th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>Functional division</td>
<td>Expertise under hierarchical control</td>
<td>Functional silos</td>
</tr>
<tr>
<td>Multi-divisional</td>
<td>Business unit</td>
<td>Integrates functional expertise</td>
<td>Boundaries impede learning &amp; knowledge transfer</td>
</tr>
<tr>
<td>Project-based</td>
<td>Project team</td>
<td>Customer focus market agility</td>
<td>Short term focus learning localised</td>
</tr>
<tr>
<td>Knowledge-based</td>
<td>Community of practice</td>
<td>Integrates competencies into the org</td>
<td>Competing priorities</td>
</tr>
</tbody>
</table>

Wenger, 2000
Understanding the Who, Why, What & How

- What is the motivation for change?
  - the business case
- Why KM?
  - identify the competitive advantage
- How does the KM project fit the organisation?
  - cultural and structural factors
- What is the KM agenda?
  - the functional perspective (eg promote “best practice”)
- Who are the “champions”?
  - find senior business sponsors to support your pilot initiatives
- What is to be done?
  - identify potential 'quick-wins'

Skill Base for KMS

Technical Competence
- project management
- technology awareness
- application systems
- systems implementation

Business Knowledge
- corporate needs
- quality management
- risk management
- customer orientation

Social Competence
- interpersonal
- leadership
- teamwork
- creativity
- diagnostic
Knowledge Audit

A structured method for analyzing knowledge resources and needs

- Ideal State
  based on org. strategy

- Gaps to be filled

- Recommendations:
  Plans
  Actions
  Changes

Current Reality

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Strategy Development

Knowledge Work

- Desired
  - Knowledge Capture
  - Inclination
  - Communication
  - Structure
  - Process
  - Technology Support
  - Awareness

- Current

Sussman, et al., 2003

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Components of the KMS Architecture

- **Repositories**
  - Store formal and informal (explicit) knowledge
  - Provides organisational knowledge assets, (information resources, knowledge-based products and organisational records) that are identifiable, reliable, authentic and flexible (e.g., Lotus Notes, intranets, Grapevine)
  - Categorizing and contextualizing knowledge based on a shared understanding of contexts and a common terminology

- **Collaborative platforms**
  - Support communication, co-ordination and knowledge sharing
  - Manage the work process (e.g., workflow) and model work practices with intelligent technologies
  - Support for sense making, learning and memory (functional dimension)
  - To transform personal knowledge into organisational knowledge

- **Networks**
  - Physical and logical channels for communication

*Nothing can be done if organisational culture is not supportive of KM!*

ICT for Knowledge Management

- Creation and Acquisition of Knowledge
- Communication and Collaboration
- Research and Retrieval
- Knowledge Storage and Organization

- OLAP
- Intra-/Internet-Standards
- User Modelling
- Content Management
- Online-Cooperation
- CSCW
- Work Coordination
- OLAP
- Intra-/Internet-Standards
- User Modelling
- Content Management
- Online-Cooperation
- CSCW
- Work Coordination
- Enterprise Modelling
- Editorial Systems
- Workflow Mgt.
- Text Mining
- Case Based Reasoning
- Search Engines

H. Shauer, 2002
Role of Intelligent Technology

- Modeling expertise
  - expert systems approach ("objectified" knowledge "canned" in a computerised form)
- Solving problems by analogy
  - Case Based Reasoning (CBR) approach
- Simulating problem solving
  - neural networks
- Dealing with ambiguity
  - fuzzy logic
- Deriving rules from data
  - machine learning
- Evolving solutions
  - genetic algorithms
- Search
  - Intelligent agents

KMS as Change Management

- Implementing
  - Organisational (re)structure
  - Socio-cultural change
  - Technological tools and techniques
  - Revised work practices
  - Recalibrated reward systems

*KMS deployment is about change management*
The change management process: Unlearning & Relearning

- The change management process (Kurt Lewin & Edgar Schein)
  - Un-freezing
    - Establishing a need for change for those affected by the change.
    - Removing the threat/ perception of risk in the change.
    - Introducing a climate conducive to change.
  - Moving or Implementing
    - Training/ 'skilling' those affected by the change.
    - Fostering positive attitudes towards the change.
  - Re-freezing
    - Reinforcing and institutionalising the change
    - Re-establishing stability
    - Integrated the change into the organisation's overall operations.
    - Diffusing the change throughout the organisation's social system.

Risk and Opportunity

- Risk is:
  - the possibility of loss, injury, disadvantage or destruction as a consequence of the uncertainty associated with pursuing a course of action
  - not always negative
  - necessary for progress as it is essential to exploiting opportunities
  - a key component of learning as it represents the potential for failure

- Need to balance the negative consequences of risk with the potential benefits of its associated opportunity
Risk Management

- Risk Management is:
  - a discipline that enables people and organizations to cope with uncertainty by taking steps to protect vital assets and resources
  - a framework for identifying risks and deciding what to do about them
  - weighing (assessing) situations and making decisions about which risks need immediate attention
  - a process that needs to be integrated into organizational management

- Most organisations believe that “... good business is all about risk, business growth cannot occur without introducing new risks [and] business objectives cannot be achieved without placing assets at risk [while] business rivalries cannot be won without out-risk-taking the competition ...”
  
  Chapman, 2001

Examples of RM: SEI RM Paradigm

- **Identify** - search for & locate risk before it is a problem
- **Analyze** - transform risk into decision making info, evaluate impact, probability, timelines, classify and prioritize
- **Plan** - translate risk info into decisions and actions and implement actions
- **Track** - monitor risk indicators and mitigating actions
- **Control** - correct deviations from plans
- **Communicate** - provide info and feedback, internally and externally, on all aspects of the risk program

http://www.sei.cmu.edu/programs/sepnm/risk/paradigm.html
The Paradox of KM

Knowledge:
- what you want to distribute, is not what is distributed
- what you are distributing is not what someone gets at the end
- knowledge is increased as a result of its sharing and distribution

Learning
- learning facilitates change by adapting memory artefacts to the current situation i.e. it is the capability to re-construct knowledge (memory) using a shared understanding of the new context.
- learning implies constant innovation but culture is a stabilising force
- forces for conformity and stability severely limit learning
- most learning in organisations tends to be lower-level (fixing the problem) but dynamic, complex environments demand higher-level learning (changing practices)