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

KM in Action - Unit Activities
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.

- "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; analyze, 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, 1999

KMS - Addressing the KM Dimensions

- Structural Dimensions
- Functional Dimensions

KMS - Supporting Action

- Knowledge
- Information
- Data
- Information Object

- Intention
- Exploration
- Exploitation
- Performance

KMS - Supporting Action
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>Attribute</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. (Kaufer 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

KMS - Addressing Organisational Work

Focus | Object of Work
--- | ---
Organisation | Capability
Group | Collaboration
Individual | Activity
KMS Development as Organisational KW

<table>
<thead>
<tr>
<th>KM Team Focus</th>
<th>Object of Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>KMS Strategy</td>
<td>Capability</td>
</tr>
<tr>
<td>KMS Planning</td>
<td>Collaboration</td>
</tr>
<tr>
<td>KMS Development/Implementation</td>
<td>Activity</td>
</tr>
<tr>
<td>KMS Operations</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>What your company must know</th>
<th>Strategy-Knowledge Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Gap</td>
<td>Strategy Gap</td>
</tr>
<tr>
<td>What your company can know</td>
<td>Knowledge-Strategy Gap</td>
</tr>
<tr>
<td>What your company can do</td>
<td></td>
</tr>
</tbody>
</table>
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

People
Process
Information/Content
KM
Performance
Exploitation
Exploration
Learning
Money
Sense making
Technology

A KMS Architecture?
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>

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

Recommendations:
Pla: Actions
Changes

Gaps to be filled

Current Reality

Knowledge Work
Incubation
Communications
Structure
Awareness

Strategy Development

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

- Creativity Tools
- Document Management
- Data Warehouses
- Data Mining
- Enterprise Modelling
- Editorial Systems
- Workflow Mgt.
- OLAP
- Intra-/Internet-Standards
- User Modelling
- Content Management
- Text Mining
- Case Based Reasoning
- Search Engines

Role of Intelligent Technology

- Modeling expertise
  - Expert systems approach ("objectified" knowledge "carried" in a computerised form)
  - 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 rivalry 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/sepm/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 – it is the capability to re-reconstruct 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)