The KMS Road Map

The first phase: evaluation of the infrastructure and aligning KM and business strategy.

The second phase: KM system analysis, design, and development.
- Knowledge audit and analysis
- Designing the KM team
- Creating the KM system blueprint
- Selecting KM technology
- Developing the KM system

The third phase: KMS deployment

The final phase: measuring ROI and performance evaluation

Amrit Tiwana, 2002

Nature of the KMS

- KMS is a socio-technical system defined in the interaction between the technology and the use of that technology
- It is not a piece of software, it is a way of working
- Work is not where you go, it is what you do
- KMS is not a synonym for any one technology but requires an effective architecture and ICT infrastructure to acquire, create and deliver organisational knowledge to all constituencies
- Traditional IS, when concerned with the meaning not just information content, play a significant role in KM initiative
- KMS are designed and developed to give the users the knowledge they need to perform their tasks
- KM tools are not necessarily computer-based but, when broadly defined, should enable knowledge generation, codification and transfer

Gallupe, 2001
### Aims of KMS Development

- Leverage components already in place
- Integrate various systems by linking the outputs from one as inputs of the others
- Bring together work content and its context
  - support knowledge work
- Facilitate learning
- Ensure consistency in processes
- Adopt a user-centred approach to design
  - right knowledge to the right people in the right time
- Incorporate facilities for security and personalisation
  - authorisation (who wants it)
  - personalisation (what I need)
  - customisation (how I like it)

### 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 build</td>
<td>Readily available</td>
<td>Not readily available</td>
</tr>
</tbody>
</table>

### Element of KMS Implementation

- Start with ‘high-value’ activity
- Focus on knowledge work
  - dynamic activity with high degree of discretionary judgement and expertise and potential for learning
- Scalability
  - start “quick and small” and progress to a full implementation by evolving the functionality and propagating the application
- Address culture, technology, organisational and work structure “simultaneously”
- Find a “champion” and an enthusiastic ‘guinea pig’
Software for Knowledge Management

- Online Cooperation
- CSCW
- Work Coordination
- Creation and Acquisition of Knowledge
- Communication and Collaboration
- Knowledge Management and Organization
- OLAP
- Intra-/Internet Standards
- User Modeling
- Content Management
- Text Mining
- Case Based Reasoning
- Search Engines
- Enterprise Modeling
- Editorial Systems
- Workflow Management

H. Shauer, 2002

The Development Process

- Select the activity
- Acquire the knowledge
- Represent the knowledge in computable form
- Validate the knowledge base
- Refine the knowledge base
- Use the knowledge base
- Maintain the knowledge base

Life cycle for IS and KMS

Ph.1 - Project Definition
Ph.2 - Requirements Definition
Ph.3 - Logical Design
Ph.4 - Physical Design
Ph.5 - Testing
Ph.6 - Implementation
Ph.7 - Operation
SDLC

Ph.1 - Strategy
Activity Definition
Work practice study

Ph.2 - Development
Actor, Architecture, Team

Ph.3 - Deployment
Manage change and rewards structures

Ph.4 - Evaluation
Value proposition
Enhancement

KMDLC

Frada Burstein
Implementation

- Conceptualisation
- Formalization
- Objects
- Relationships
- Implementation
- Integrating
- Specializing
- Testing
- Reasoning
- Advice
- Explanations
- Interaction/Interface

Pilot Project

Characteristics of the pilot:
- Non trivial
- Stay away from the organization’s lifeblood
- Aim at high visibility and noticeable impact
  - tangible outcomes according to clear measures set up in advance
  - process-intensive project is more likely to have a high impact and measurable outcome
- Start with an easy and suitable technology
- Project must last long enough for building a team and the synergy within the team

Tiwana, 2002

Prototyping

The usual approach for KMS development
- eliciting compiled knowledge requires an iterative development process
- a prototype is useful for testing ideas about representing the knowledge
- prototyping helps build up the knowledge engineer’s experience
- prototyping helps determine the scope of the final system
- a prototype is useful to gain management and user confidence and support
The information packaging methodology

- IPM implements incremental, spiral, evolutionary development model
- Comprises four inter-related steps:
  - Architecture planning
  - Design and analysis
  - Technology implementation (including pilot)
  - Deployment and metrics testing (includes user acceptance training and assessment)
- A new spiral starts with assessment of the level of strategic alignment of the system with current organizational directions

Methodological Caution

- An over reliance on methodology is bad.
- Methods are useful and can encourage a disciplined approach. They are not neutral since they embody some of the assumptions of their originator. This means that a particular methodology may have a limited use.
- Furthermore, the selection of a suitable project together with the consideration of human, organisational and social issues, can be critically important. ... No methodology can give an insight into the salient features of a problem or a 'feel' for the environment.
A Spiral Model of System Development

- Determine objectives, alternatives, constraints
- Evaluate alternatives, identify, resolve risks
- Plan next phases
- Develop, verify next level product

(Boehm, 1988)

KMS Deployment

- What does this mean?
- How do you know it is working or not working?
- What factors to consider?
- What processes to introduce/change?
- How to take charge of change and not let the change take charge of you?
  - A road map: "current state – transition state - future state";
  - Pilot the transition state;
  - Identify supporters/opposition

(Ramizen, 2002)

KMS Deployment: What does it mean

- 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-frezing
    - Establishing a need for change for those affected by the change.
    - Removing the threat/persuasion of risk in the change.
    - Introducing a climate conducive to change.
  - Moving or Implementing
    - Training ‘selling’ those affected by the change.
    - Fostering positive attitude 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.

The Value Proposition of Deployment

- Gaining “competitive advantage”
- Need to consider:
  - Innovation
    - Core competencies
    - Absorptive capacity
    - Core capabilities (and rigidities)
  - Diffusion of Innovation

Innovation

- Innovation is how organisations generate new ideas and exploit them to develop marketable products or services. Innovation is:
  - an idea, practice or object perceived as new (Rogers 2003, p. 36).
  - the ability to build on previous knowledge and generate new knowledge.
  - a willingness to try something totally new.
  - a vital ingredient in organisational renewal and the creation of sustainable success (Roos et al., 1997, p. 40).
- Innovation involves
  - understanding an existing body of knowledge
  - extending that knowledge through insight or fundamental rethinking of a given situation

Innovations that give companies a competitive edge occur bottom-up rather than top-down.
Core Competence

- Core competencies involve sets of skills and technologies within an organisation that can be successfully mobilised for a rapid response to a perceived market need or opportunity.
- Core competencies are:
  - the collective learning in the organisation
  - a key factor in competitive advantage
  - closely linked to knowledge creation
  - Necessary for successful innovation

(Prahalad and Hamel, 1990)

Organisations with defined core competence are able to mobilise resources rapidly to create knowledge and innovate.

Absorptive Capacity

- Absorptive capacity is critical to an organisation’s innovative capabilities. It is an ability to recognize the value of new knowledge, assimilate this knowledge, and apply this knowledge to commercial ends.

(Cohen & Levinthal 1990)

- Absorptive capacity is largely a function of the organisation’s prior level of knowledge.
- Organisations with existing knowledge and skill are in a better position to identify relevant new knowledge and to integrate it with current knowledge for innovations.
- Most innovations are derived from borrowing ideas rather than from fundamentally new interventions.

Core Capabilities and Core Rigidities

- Core capability:
  - focused on new product/process development
  - facilitate innovation
  - differentiates an organization strategically through its superior technical and management systems and skills base
  - emphasises values and embedded social factors

(Leonard, 1998)

- Rigidity is the tendency to stabilise. Core rigidity is:
  - a strong forces against innovation
  - protecting the status quo
  - formalising processes and tasks and developing systems
  - privileging those processes and systems
  - The dichotomy between capability and rigidity is analogous to the contradictions inherent in a learning culture: culture stabilises while learning is innovation

(Leonard, 1998)
Diffusion of Innovations

- Diffusion pertains to 'a special type of communication concerned with the spread of messages that are perceived as new ideas.' (Rogers 2003, p.35)

- Elements of Diffusion
  - The "Innovation"
  - Communication channels
  - Time
  - A social system

References

- Shauer, H. (2002) personal communication (SIMS seminar presentation)