Knowledge Codification and Coordination

Connecting the Dots Between Strategy, Technology, and Implementation

WK-4

The Three Components of Knowledge Management:

- **Knowledge generation.**

Includes all activities, which brings to light knowledge that is "new" to the individual, to the group, and to the organization.

- **Knowledge codification.**

Representation of knowledge so that it can be "reused" either by an individual or an organization.

- **Knowledge transfer.**

"Movement of knowledge from one location to another".

Knowledge Generation

- Involves intentional activities of an organization
  - To acquire new knowledge
  - To create new knowledge
- Techniques include
  - Buy or rent
  - Can hire 'expert' firm or individuals
  - Support external research, grants, consortia
- Value of intellectual capital, "fair price"
  - How to keep 'purchased knowledge' intact
  - Differences in culture make hard to assimilate

Knowledge Generation

– Research and Development

- long time to get financial return
- value depends on how effectively applied
  - **Xerox – the problem child PARC**
- most knowledge generation from synthesis
  - **combination of K from different sources**
  - **in unique ways**
    - **so that new ideas emerge**

Knowledge Generation

– Shared Problem Solving

- **Leveraging diversity of people**
- **different backgrounds**
- **different cognitive styles**
- **creative solutions**
- **experience can constrain search for novel ideas**

– "Creative abrasion"

- **people with diverse background**
- **but a shared vision**
- **come together to solve problems**

Knowledge Generation

- Adaptation
  - External and internal threats
  - Force need to generate new knowledge
  - Apply existing resources in innovative and creative ways to rethink workflows, processes, business models
  - When core capabilities can become core rigidities
  - When best practices become worst practices

Knowledge Generation

– Communities of Practice

- **Groups of workers who share common interests and objectives, but are not necessarily employed in the same dept/location (or firm), and who occupy different organizational roles**

- **Bonded by a common sense of purpose**

- **Shared interests in knowledge sharing**

- **Collaboration for new knowledge creation**

- **Collaborate F2F, or, by phone, by email and via online Internet/web communities**

Knowledge Capture & Codification

- Knowledge generation needs to be channeled
  - Continuous processes of classifying, categorizing, scanning, filtering, organizing and packaging knowledge
  - **Codification is representation of K to make it easily accessible and transferable**
    - **Knowledge accumulates and changes over time and so it is hard to "measure" in discrete units**
    - **Subjective and Context sensitivity – DKI - ???**
    - **Capturing and Coding go hand in hand – What is not coded is not accessible nor transferable**
  - **D&P's 4 basic principles for K codification**

Knowledge Codification and Coordination

"Relevance is far more important than completeness"

- Tacit, explicit, codified, rich, poor
- Categorize, describe, map, model, simulate
- Principles of K Codification
  - Business goals, importance
  - Identify Existing K and goals
  - Usefulness and appropriateness
  - Medium for codification and distribution

Codifying and Mapping

"Tacit, complex knowledge, developed and internalized by the knower [over a long period of time], is almost impossible to reproduce in a document or database."

- Tacit Knowledge – hitting baseball
- Tacit experience – how to K transfer
- Knowledge map – people, documents and databases
- K map is an inventory – HR skills etc
- K – a piece in every head
- Six Degrees of Separation

Case Studies of K Management

"… Clearly the value of the map was the quality and depth of information more than the bells and whistles of a sophisticated storage and retrieval system."

- Time Researchers – K pools
- Microsoft's Competencies and Training
- Technologies for Mapping Knowledge
  - Groove, Lotus Notes / Raven / Websphere, Peoplesoft, SAP, Restrac, Resumix
- 33 1/3 % Rule – IT vs. K Projects
- Politics of Mapping Knowledge
  - **Map vs. Territory**
- Dynamic modeling of Knowledge

Case Studies of K Management

- Weick's sensemaking and aerial photographs – AI versus meaning making
- Embedded knowledge – M&A
- Deep Blue – how deep?
- Expert systems and AI – promises and hype
- Monsanto's KM A – Tangible Patents as K
- K Taxonomies

Codification
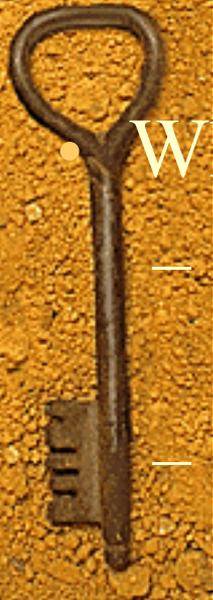
- What is the purpose of knowledge codification?

  – To convert corporate knowledge into accessible and applicable formats

  – 4 basic principles:

    - What **business goals** are to be served?

    - What **knowledge exists** in what **form** to accomplish the goals?

    - **How** can it best be codified for usefulness?

    - What is the **appropriate medium** for codification and distribution?

Knowledge capture and codification

- Capturing involves scanning, organizing and packaging knowledge

- Codification is representing knowledge in a manner that can easily be accessed

- **Principles of knowledge codification**
  - **Define strategic intent**
  - **Identify existing knowledge**
  - **Evaluate existing knowledge for usefulness**
  - **Determine medium for codification and distribution**

Knowledge Capture & Codification

- ## Defining Strategic Intent
  - Determine the business problem to be solved and align knowledge to be captured with business objectives
- ## Identify & Evaluate Existing Knowledge
  - Very difficult to determine knowledge requirements.
  - Subjective process raising political, cultural and strategic issues.
  - Different perspectives about content needs, and sources of "hard" and "soft" information (e.g., ideas, gossip and opinion).

Knowledge Capture & Codification

- Determining Appropriate Media
    - **Media choice will vary with richness and complexity of the knowledge captured**
    - **Scanning: involves a combination of electronic and human approaches, and is usually the first step in capturing knowledge**
    - **Involves capturing info, filtering out redundant info, adding value via human input;**
    - **a team can be tasked, with scanning news wires, broadcasts, etc. and synthesizing info into a daily report**

Knowledge Capture & Codification

Determining Appropriate Media

– Organizing: structures info in an accessible form

– **Too much structure can hide info from employees whose mental models don't match chosen structure – Andersen's KXchange**

– Four classifications

- **Process knowledge (e.g., best practices) that can increase efficiency**

- **Factual knowledge <u>easily documented</u> but of little value unless synthesized and in context**

- **Catalog knowledge shows where things are – People yellow pages**

- **Cultural knowledge - cultural and political**

Determining Appropriate Media

- Knowledge Maps
  - **Guides to where knowledge exists in an organization and an inventory of knowledge assets available**
  - **Several schemes to map knowledge**
    - **Physical mapping (IS architecture)**
    - **Qualitative mapping – points to information by topic rather than location**
    - **Process mapping – uses a generalized model of how a business functions to map knowledge**
    - **Functional mapping – loosely based on org. chart**
    - **Conceptual mapping – organize around objects, such as customers – hard to do**

Codifying Tacit Knowledge

- Narratives
  - **A way to try to capture the tacit knowledge of experts**
  - **A story can communicate ideas and complex understanding of events**
  - **When knowledge is shared in a context shared by listeners it is more likely to be absorbed**
  - **Videotapes provide one way to share stories easily**

Knowledge Transfer

- Four different modes of knowledge conversion
  - Socialization
  - Externalization
  - Combination
  - Internalization

Nonaka and Takeuchi (1995)

Tacit to Tacit – Socialization

Tacit to Explicit – Externalization

Explicit to Explicit – Combination

Explicit to Tacit - Internalization

	Tacit	Explicit
Tacit	Socialization	Externalization
Explicit	Internalization	Combination

FROM

TO

- Gives structure & permanence to otherwise nebulous forms of knowledge

– Pros and Cons???

  – Distinctiveness & its value

  – Flexibility & adaptability to change – 'Static'

Pros and Cons of Codification

- *The more codifiable and teachable a capability is, the higher the risk of rapid transfer*

- *High level of "Technological competition" and fear of losing tech edge speeds transfer of capabilities.*

- *Characteristics of the manufacturing capability do not affect hazard rate.*

- *Imitation and transfer are not identical phenomena*

- *Key Employee turnover is significantly associated with faster imitation time*

Knowledge Generation and Codification

- Knowledge generation
- Knowledge codification
- Knowledge transfer - spirals
- Tools
  - Data management tools- data warehouses, data search engines, data modeling, visualization
  - Information management tools - automated information search and retrieval agents, decision support technologies, executive information systems, document management technologies
  - Knowledge management