WORKING KNOWLEDGE (Davenport, Prusak 1998)

Why sudden interest?

(courses, conferences, articles, journals, consulting)

- growing conviction that knowing about knowledge is critical to business success
- more than a casual approach to knowledge is needed
- driving force – global competitiveness
- knowledge advantage is a sustainable knowledge because it increases with use
- new terminology: core competencies, knowledge creating organization, intellectual capital, strategy focus, networking
Firms are struggling to understand knowledge

- what they know, what they need to know, what to do about developing and sharing knowledge
- treating knowledge as a capital asset which needs to be managed
- tremendous excitement about benefits of knowledge initiatives in the corporate world (e.g. Boeing, British Petroleum, Chrysler, Coca Cola, Ford, IBM)

CONCEPTS

Data
- set of discrete and objective facts about events
- data is essentially raw material for creation of information
- data contains no judgement or interpretation

Information
- is data plus added value
  - methods: add purpose of data collection, know key components of data, analyze data methodically or statistically, remove data errors, summarize data
CONCEPTS

Knowledge

- is information transformed by humans
- requires comparison with other situations
- consider implications of consequences
- introduce expert evaluation and contains judgements
- knowledge creation takes place between humans.
- knowledge is about beliefs and commitments*
- when knowledge stops evolving it becomes opinion or dogma
- networks have created infrastructure for knowledge creation, exchange and management

* Knowledge Creating Company (Nonaka and Takeuchi, 1995)

KNOWLEDGE GENERATION MODELS

Models

- acquisition
- dedicated resources (e.g. R&D separate from everyday work)
- fusion (bring together people with different knowledge)*
- adaptation (originality is less important that effectiveness)
- knowledge networking (informal to formal)

* Knowledge Creating company (Nonaka and Takeuchi, 1995) – do not be afraid of a little creative chaos
KNOWLEDGE CODIFICATION AND CO-ORDINATION

- tacit knowledge is almost impossible to reproduce in a document or database
- tacit knowledge is transferred connecting people (narratives, interviews)
- mapping and modelling knowledge
  - “Yellow pages” – guide not repository (pointers)
  - IT tools needed to make knowledge maps work
- organizational knowledge maps are political documents

Overdoing would be an immense and futile effort

KNOWLEDGE TRANSFER

- knowledge is constantly transferred
- spontaneous transfer should be encouraged (avoid isolation)
  - talk rooms – Brownian motion theory of knowledge exchange
- managers long after work hours together
- meetings organized out of work place
- cultural hurdles (trust, language, what’s real work)
KNOWLEDGE MANAGEMENT PROJECTS

- knowledge repositories
  - external knowledge – competitive intelligence analysis
  - internal knowledge – research reports, marketing material
  - informal internal knowledge – tacit knowledge
- knowledge access
  - knowledge yellow pages
- improve knowledge culture
  - treating knowledge as a capital asset
  - changing employees perceptions

“A healthy tension between knowledge and action is the key to organizational success”.

International Atomic Energy Agency

KNOWLEDGE MANAGEMENT AND NETWORKING FOR ENHANCING NUCLEAR SAFETY
Challenge

“A safety improvement anywhere is a improvement of safety everywhere”.

Integrated Safety Approach

Establishing Safety Standards

Providing for the Application of Standards

Providing E&T

Coordinating R&D

Supporting TC projects

Rendering Safety Review Services / Appraising Compliance

Fostering Information Exchange

Assessing Feedback

Networking

Knowledge Base
KM Practical Application

- Planned step by step process
- Promoted by upper management
- Implemented at the knowledge centers
- Environment conductive to knowledge sharing
- Incorporated in work routines

Safety Knowledge Domains

Legal and Governmental Infrastructure
- Occupational Protection
- Protection of Patients

Emergency Preparedness and Response
- Quality Management
- Safety Culture

Management Systems
- Safety Assessment
- Design Safety
- Operational Safety

Nuclear, Radiation, Waste and Transport Safety Knowledge Domains
- Radiation Safety
- Waste Safety
- Transport Safety

Safety and Security of Radiation Sources
- Operational Safety
- Safety Culture
- Quality Management

Decommissioning
- Residual Waste
- Dischargeable Waste
- Disposable Waste

Safety
- Nuclear
- Emergency Preparedness and Response
- Management Systems
- Safety Knowledge Domains
- KM Practical Application

International Atomic Energy Agency
Process Flow for the Development of IAEA Safety Standards

Outline and work plan
Prepared by the Secretariat

Review
by the committees and Commission on Safety Standards

Drafting or revising
of safety standard
by the Secretariat and consultants

Review
by the safety standards committee(s)

Member States

Endorsement
by Commission on Safety Standards

Approval by the IAEA

Knowledge Domains
(Subject Related)
(Process Related)

Asian Nuclear Safety Network

Steering Committee
IT Support Group

Topical Groups
- Safety Analysis
- Safety Culture
- Education and Training
- Operational Safety

IAEA

Hubs

Master Index Database

National Centres
- Korea
- Japan
- Thailand
- Indonesia
- Vietnam
- Malaysia

Users

IT Support Group

Technology Suppliers

Country Hubs
- Malaysia
- Philippines
- China

Internet
Education and Training

- Sustainability of national programmes
- IAEA exemplary training material
- Training to trainers

Safety Vision

“Global safety regime that protects people and the environment from effects of ionizing radiation, minimizes the likelihood of accidents that could endanger life and property, and effectively mitigates the effects of any such events”.

Knowledge Management and Networking are essential elements to realize the vision
Knowledge Management Portal for the Department of Nuclear Safety & Security

Background

- Department of Nuclear Safety & Security (NS), has approx. 170 staff
- 3 Divisions & 10 Sections each with related network drives
- Information exchange is mostly done through one common network drive or by e-mail
- Knowledge is currently stored in many different locations and databases
Objective

To provide an integrated solution for sharing knowledge among staff (and MSs.) and thereby enhancing the programme delivery.

Features

- Structured Corporate Repository
- Yellow pages
- Communities of practice
Methodology

- Identify, Analyze and Structure Knowledge Domains
- Use modern CMS (Livelink) wherever possible
- Provide a consolidated and consistent platform, where useful nuclear safety knowledge can be accessed by safety experts
- Knowledge owners should be knowledge managers
- Later: Provide the knowledge to MS
- Also: Assist MS in establishing KM Portals
Welcome to the Nuclear Safety and Security Knowledge Portal

The objective of the Knowledge Portal is to provide NS staff with a unique tool to create and share knowledge in a systematic and structured way, for the day-to-day work, in view of contributing to an efficient programme delivery. The portal represents an entry point to relevant information and knowledge in the department while allowing the existing information repositories to remain unchanged.

Thematic Knowledge

Under Thematic knowledge the information is organized into knowledge domains.
**Nuclear Safety and Security Knowledge Portal**

**Thematic Areas for Nuclear Safety**

- Safety Assessment
- Probabilistic Safety Analysis
- Severe Accident Analysis

**Operational Safety**

- Operational Safety Performance
- Operational Experience Feedback
- Innovative and Evolutionary Reactors

**Design Safety**

- External/Internal Hazards/Failings
- Long Term Operation

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**Legal and Governmental Infrastructure - SKLGI**

SKLGI is a safety knowledge base on legal and governmental infrastructure for nuclear, radiation, waste and transport safety. The objective is to provide a one-stop shop for policy makers, regulators and other stakeholders regarding the essential elements of an effective regulatory infrastructure.

**Nuclear Safety Standards and Guides**

- Nuclear Safety Standards
- International Provisions
- National Standards
- Other IAEA Safety Related Publications

**Safety Reviews**

- International Peer Reviews
- Nuclear Self Assessment
- Safety Evaluation Reports

**Operating Experience Feedback**

- Operating Experience Feedback

**Safety Research and Development**

- IAEA Coordinated Research Programmes
- NEA/IAEA N & R
- Other International Safety Research

**Education and Training**

- Educators and Trainees