2257-76

Joint ICTP-IAEA School of Nuclear Energy Management

8 - 26 August 2011

Knowledge Management Basics

Tatiana Karseka
IAEA, Vienna
Austria

Knowledge Management Basics

Tatiana Karseka, IAEA

**IAEA/ICTP SCHOOL OF NUCLEAR ENERGY MANAGEMENT
8-26 AUGUST 2011, TRIESTE, ITALY**

An early example of knowledge management

Contents

1. What is Knowledge?

"How you define knowledge determines how you manage it" (Allee 2002)

KNOWLEDGE IS

Google — Knowledge
About 1,150,000,000 results (0.06 seconds)
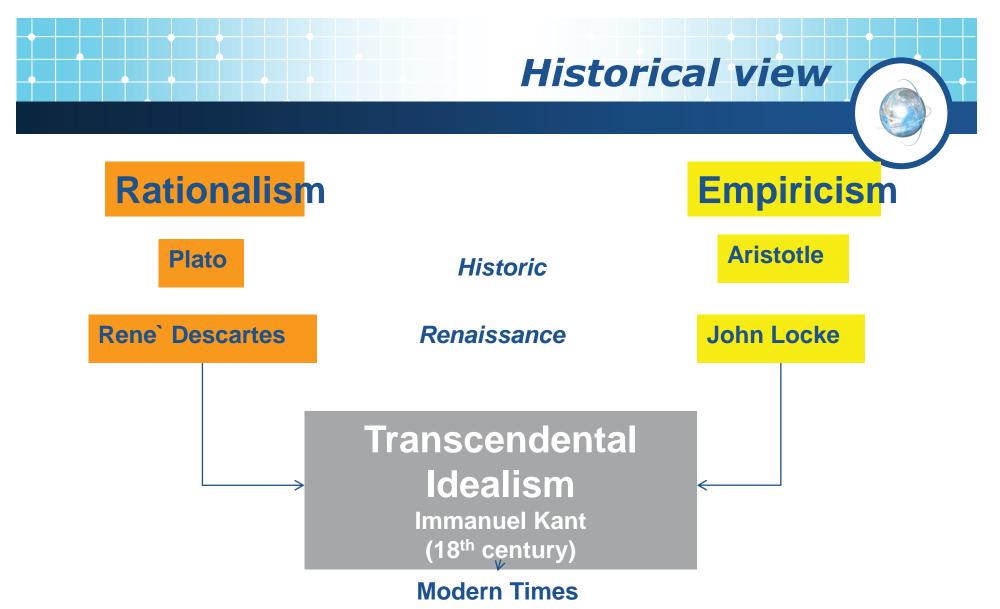
❖ The Sum of what is known (OED).

❖ The State of understanding (OED).

❖ Both mind and memory (Plotkin, 1994)
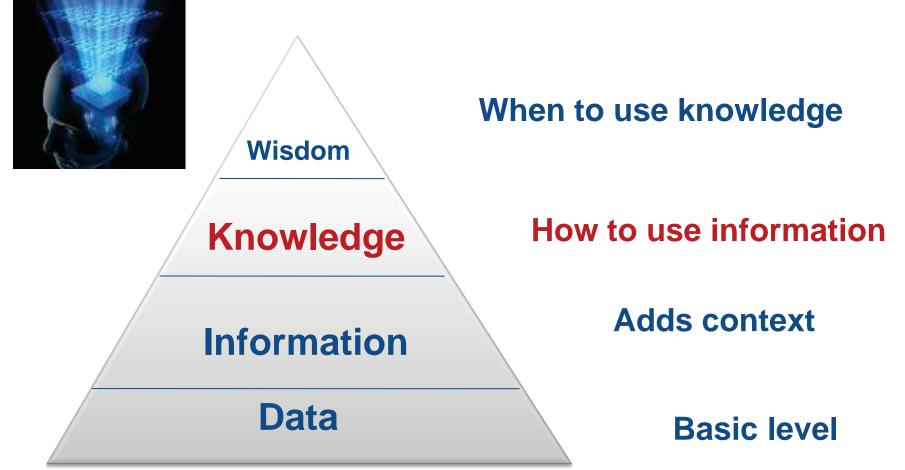
❖ **The acquiring, understanding and interpreting of information (IAEA).**

❖ True knowledge is theory wrapped with practical commonsense (James, 1950).

❖ **Knowledge** is a familiarity with someone or something, that can include facts (data), descriptions, information, and/or skills acquired through experience or education (Wikipedia).

Rationalism

Empiricism

Plato

Historic

Aristotle

Rene` Descartes

Renaissance

John Locke

Transcendental Idealism
Immanuel Kant
(18th century)

Modern Times

Knowledge is created through interplay between sensory experiences and rational thinking

Wisdom

Knowledge

Information

Data

When to use knowledge

How to use information

Adds context

Basic level

Jonathan Hey, 2004

Departure:
16:40 OS 602
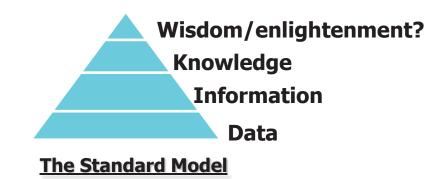
Moscow   Austrian Airlines

17:18

The Cake Analogy

Wisdom/enlightenment?
Knowledge
Information
Data

The Standard Model

Data = the molecular constituents
Information = list of ingredients
Explicit knowledge = recipe
Tacit knowledge = 'know how'

Explicit Vs Tacit Knowledge

EXPLICIT

- Detached knowing
- 'Know-that'
- Knowledge *about* something
- Easy to capture and codify
- E.g. Knowledge of math and science etc.

Patents

Manuals

TACIT

- Attached knowing
- 'Know-how'
- Knowledge of acquaintance (James, 1950)
- Procedural knowledge
- Not easy to capture
- Acquired through experience
- E.g. Playing piano, riding a bicycle etc. (90% of the workplace knowledge)

KNOWLEDGE IS A RESSOURSE

Knowledge Transfer/Creation
(Nonaka and Takeuchi Model)

TO

	Tacit	Explicit
Tacit	Socialisation	Externalisation
Explicit	Internalisation	Combination

FROM
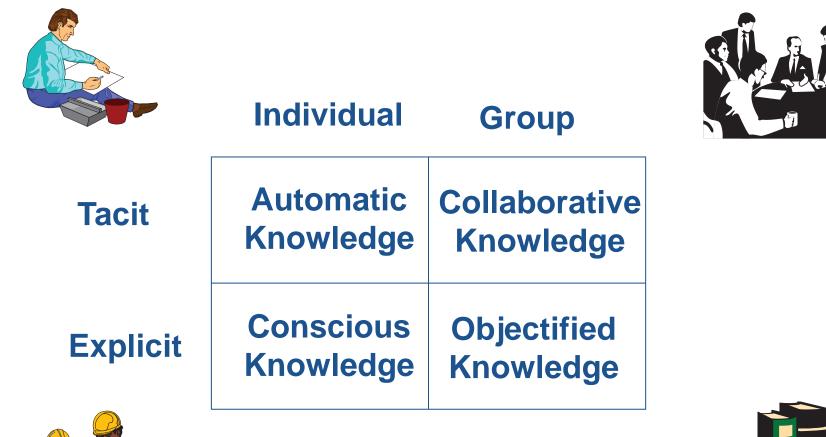
Organisational Knowledge

(Spender's Multi-Type Matrix)
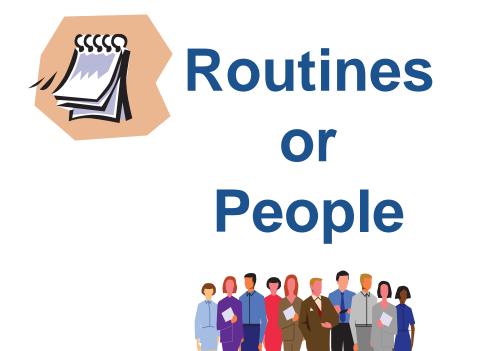
	Individual	Group
Tacit	Automatic Knowledge	Collaborative Knowledge
Explicit	Conscious Knowledge	Objectified Knowledge

Organizational Knowledge

Routines are derived from...

"Routines"

Nerve System of the Organisation (Nelson and Winter 1982)\
Behaviour in an organisation is based on routines.

Cultures

Rules

Codes

Beliefs

Paradigms

Frameworks

Conventions

Regulations

Procedures

Routines
or
People

?

2. Defining Knowledge Management

Definitions:
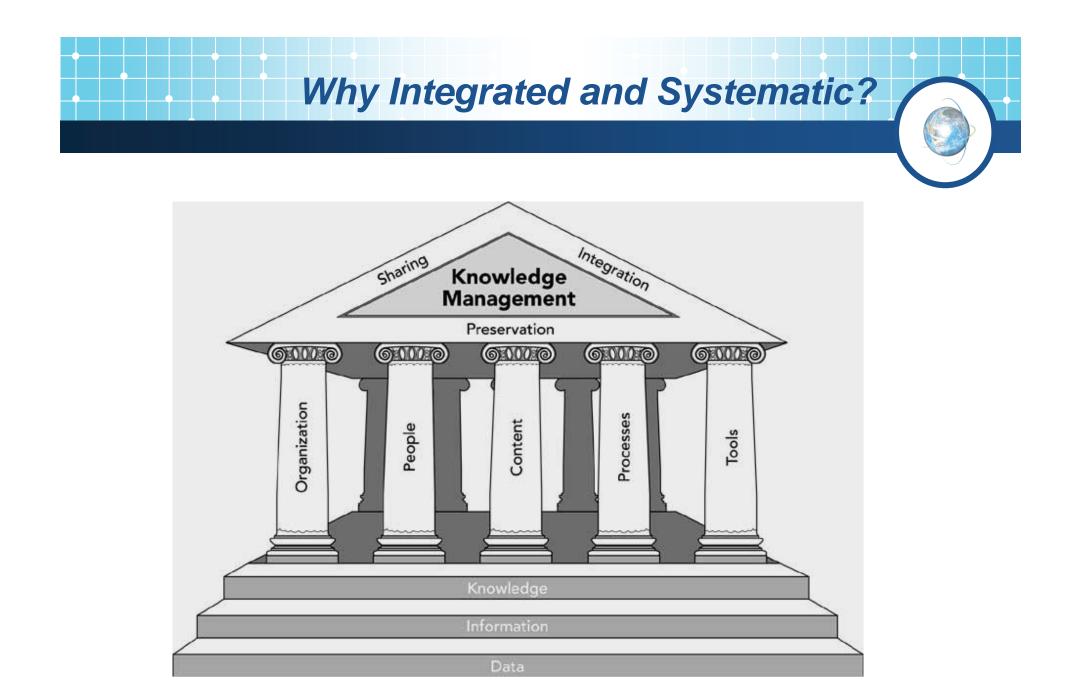
- '…*the processes that governs the creation, dissemination, and utilization of knowledge...*' (Newman, 1992)
- '...*managing the organization's knowledge by creating, structuring, dissemination and applying it to enhance organizational performance...*' (O'Leary, 1998)
- '…*process to acquire, organize, and communicate knowledge of employees so others may be more effective in their work…*' (Alavi and Leidner,1999)
- '…*process to acquire, organize, and communicate Knowledge* (Andriessen, 2004)
- **It's all about**

CREATE, CAPTURE, PRESERVE, TRANSFER, DISSEMINATE, UTILIZE

IAEA definition:

an **INTEGRATED, SYSTEMATIC** approach to **IDENTIFYING, ACQUIRING, TRANSFORMING, DEVELOPING, DISSEMINATING, USING, SHARING, AND PRESERVING KNOWLEDGE,** relevant to achieving specified objectives (IAEA)

Managing Knowledge means...

Managing

Key Organisational Resources (Knowledge)

Manipulating

Organisational Routines

3. Knowledge management:
## Why it is a necessity?

Why Knowledge Management?
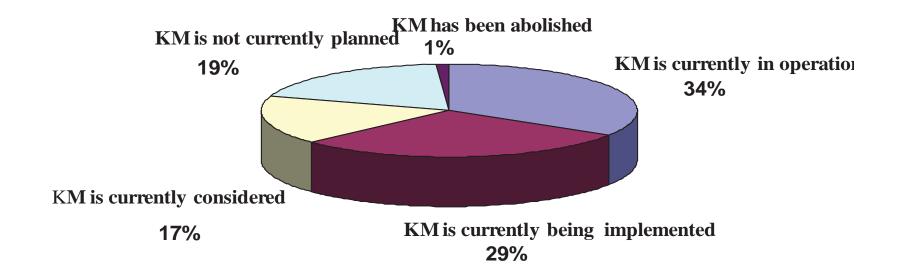
❑ **Knowledge is a costly resource**

❑ **No management – no ownership – no   control**

❑ **Globalization and competition – to create**

  strategic advantage.

❑ **Restructuring and downsizing – Identify**

  and retain key knowledge sources.

❑ **Succession and integration in routines**

❑ **Successful Innovation – new products**

❑ **Efficient working processes**

4. Why not everybody does Knowledge Management?

The scope of KM

The scope of KM activities in 423 corporations surveyed by KPMG [KPMG1999]

80% of corporations in some stage of KM activities

- Not realizing the need

- Costly

- Employees overwhelmed with routines without knowledge management

- Lack of Knowledge Sharing in organizational culture (Knowledge is power attitude)

- Lack of leadership and example

5. Some other concepts and terminology in knowledge management

Know-how

Skill or competence derived from knowledge and experience.

Skill

Proficiency, facility, or dexterity that is acquired or developed through training or experience.

Knowledge + Skills + Attitude

Core Competencies – Critical Knowledge

Core competencies…

- Consist in a bundle of abilities and technologies

- Are integrated in products, processes and in the mind of staff

- Are the basis of economical success

➔ *Market competition becomes competition on knowledge.*

Learning organization

An organization whose key personnel view its future success as being based **on continuous learning and adaptive behavior.**

The organization, therefore, becomes renowned for **creating, acquiring, interpreting and retaining knowledge** and then modifying its behavior to reflect new knowledge and insights.

Knowledge Management System

➢ **When managed company-wide, KM can be viewed as a "*knowledge management system*" (KMS)**

➢ **Ideally KMS is an integrated and coordinated approach to affect the management of knowledge and is manifested in a variety of implementations including document repositories, expert databases, work processes, etc.**

➢ **Supported by organizational memory and an organizational memory system.**

6. Conclusions

Conclusions

- ✓ **The way you define knowledge defines your Knowledge Management**

- ✓ **Knowledge is the key resource of most organizations in today's world.**

- ✓ **KM is difficult and challenging.**

- ✓ **KM is an integrated and systematic process**

- ✓ **Because critical knowledge is often tacit, Leadership and culture are important catalysts (trust, ownership, commitment, empowerment, rewards etc.)**

Thank You !

http://www.iaea.org/NuclearKnowledge/