

Knowledge Management and Dublin Core

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InterCog

Connecting People, Ideas
& Technology



- Context
 - Why consider KM & DC together?
 - DC-KM Community
 - Scope
- Defining Knowledge Management
- Representing, Modelling, & Managing Knowledge
- Organizing Information versus Organizing Knowledge
- Case-Studies
 - Higher Education – OSUKB
 - Corporate Sector
 - Semantic Web



- Why consider KM & DC together?
 - Both aim to deliver efficiencies in organisation & retrieval of information
 - DC approach may be beneficial to KM
 - KM scope may inform evolution of DC
- DC-KM Community
 - Established 2007
 - Builds on work of DC-Corporate Circle
 - Not much in the way of documentation available
- Scope
 - Conceptual foundations
 - A domain with flexible 'boundaries'



Defining Knowledge Management

- Terminology first emerged in 1980s
- Not a “one size fits all” descriptor:
 - An academic discourse
 - An organisational intervention
 - A set of activities that a community of practice might undertake to ensure optimum knowledge stewardship & flow
 - What an individual might do to maximise the reuse and retrievability of their own knowledge
- Involves consideration of both explicit and tacit dimensions
 - **Explicit:** Can be documented & formalized; know-who, -what, -when, -where, -why, -if, ...
 - **Tacit:** Not easily documented and may involve complex “know-how” involving individual or corporate “ways of doing things”
- Management perspective dominant in the 1990s ...



53 Definitions

General observation: this again illustrates the definition diversity. It is not like these are 53 definitions with slightly different word choice. These are substantially different. There are only five attributes that are seen in 30% or more of the definitions: KM is a process, it is targeted at the organization (company), it deals with knowledge, sharing is part of the story, and the definition includes a “why”.

Sims, 2008 <http://blog.simslearningconnections.com/?p=282>



Defining KM

- Fundamental KM problem is all about changing organisational 'silos' of activity manifest in:
 - Organisational Divisions
 - Hierarchical management structures
 - Projects
 - Work Teams
 - Documents
 - Individual workspaces
- So that knowledge
 - Flows more readily
 - Is shared and leveraged for maximum benefit
 - Is not pigeonholed nor rendered inaccessible through poor information management practices



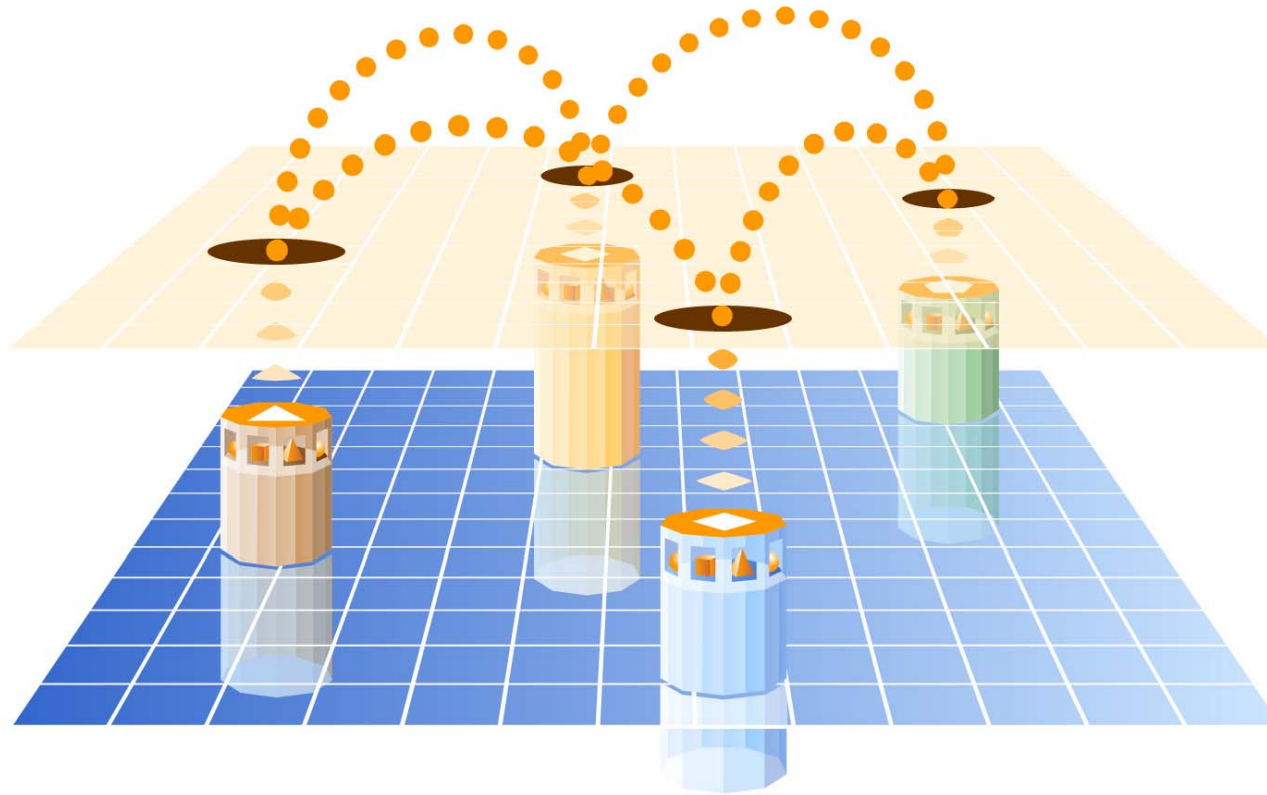
Silos



- The problem is deeper than just a “mentality” or attitude
- We are compelled to create this problem each time we create knowledge, because **meaning & value are contextual** – Web 2.0 does not ‘solve’ this!



Smart Silos?





A Definition

Knowledge Management (KM) finds expression as both an *organisational intervention* aimed at delivering better efficiencies in the handling of knowledge, and an *academic discourse* that develops theoretical frameworks and practical techniques for managing the entire knowledge lifecycle from a variety of perspectives: individual, community, and organisational.

It *can*, though doesn't need to, involve a multiplicity of considerations and tasks and is always influenced by context.



Principle of reduction



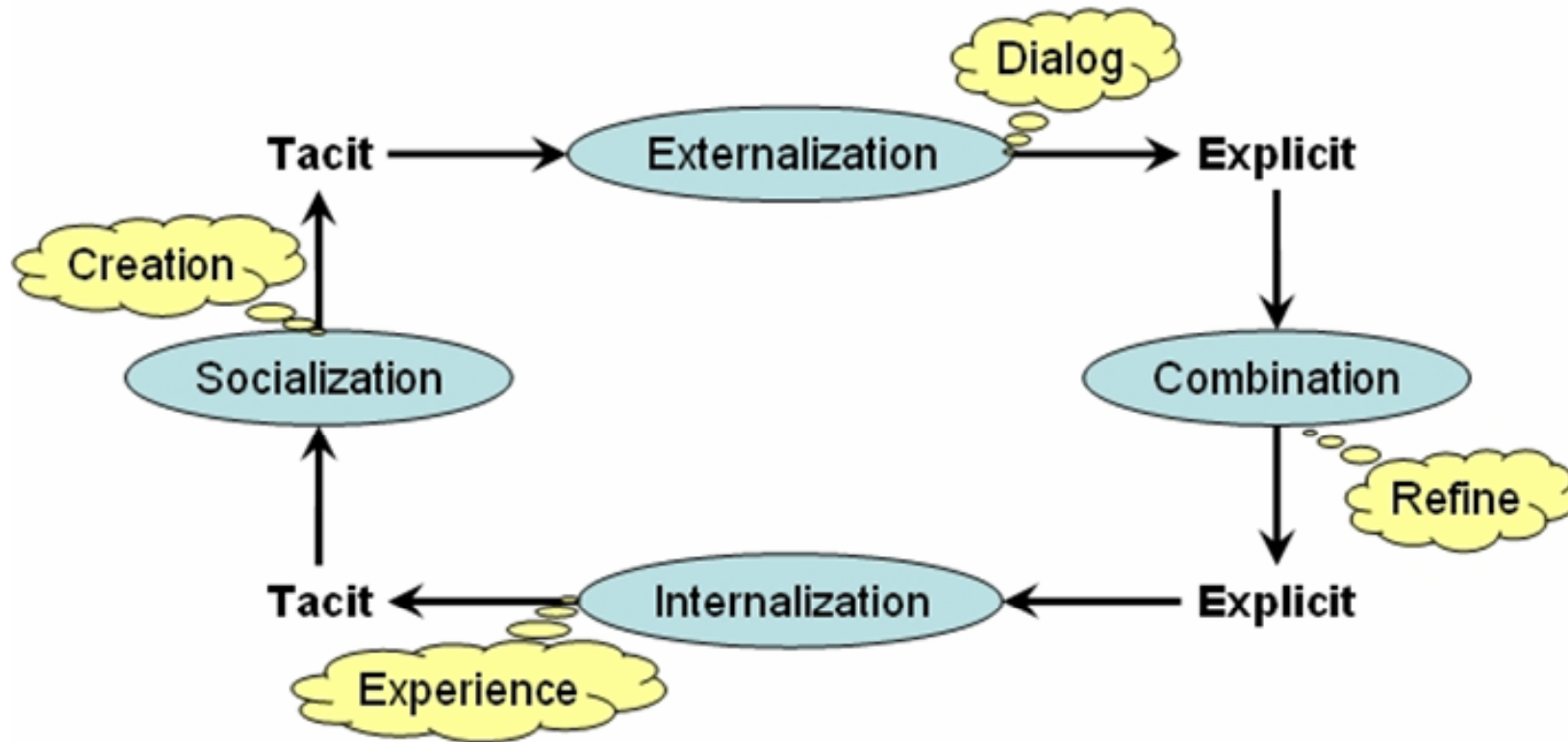
Principle of emergence

complexity, sense-making,
storytelling

- **Computer Science**
 - Formal Knowledge Representation
 - ✓ Prolog, RDF, OWL, ACE
 - Classification
 - ✓ Declarative (“it is known that ...”)
 - ✓ Procedural (“know-how”)
 - ✓ Conditional (“know-if” & “know-why”)
- **Classifying Explicit & Tacit dimensions**
- **Recognizing Knowledge as a “thing & a flow”**
- **Representing relationships between data, information, knowledge & wisdom (also sometimes intelligence)**



The SECI Model

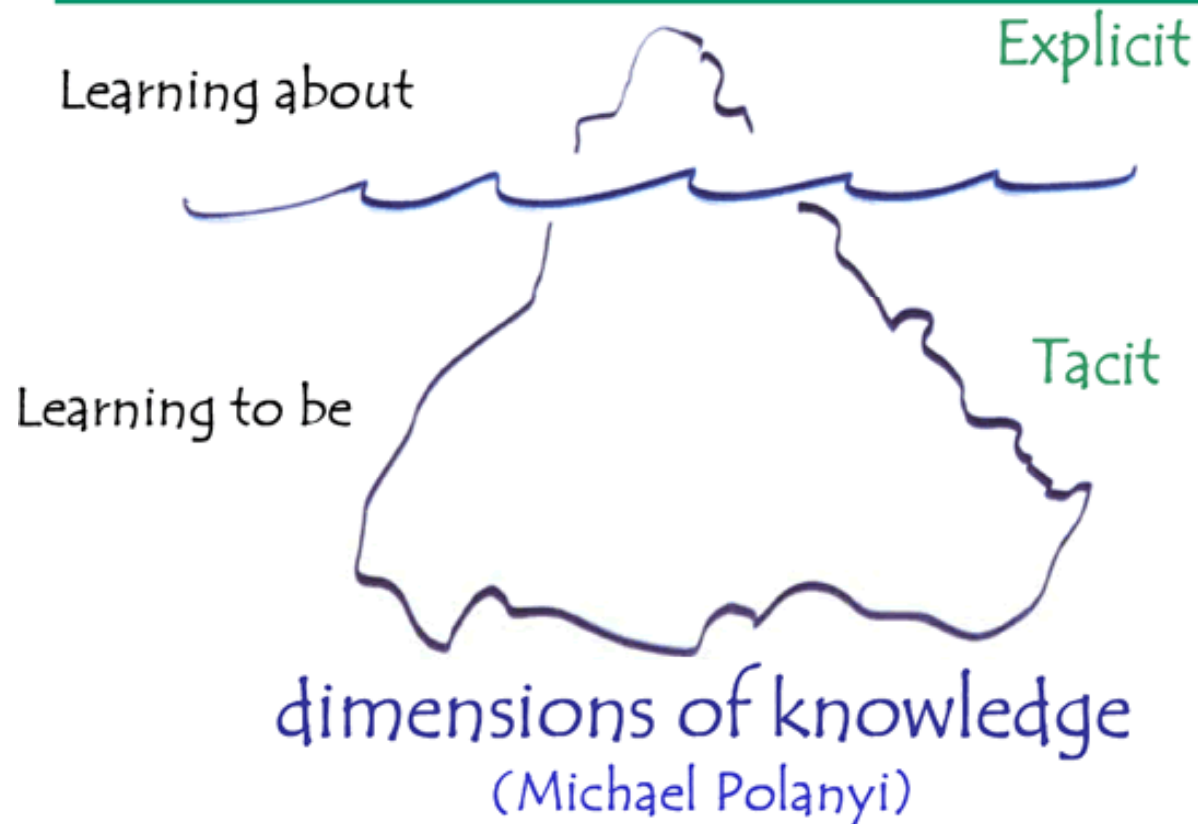


Source: Nonaka and Takeuchi (1998)

[http://www.slsquared.com/kmbook/index.php?title=Knowledge Creation and Transformation \(SECI\)](http://www.slsquared.com/kmbook/index.php?title=Knowledge%20Creation%20and%20Transformation%20(SECI))



Beyond textbook learning:
learning-about ==> learning-to-be



Source: J. Seely Brown (2008) Minds on Fire

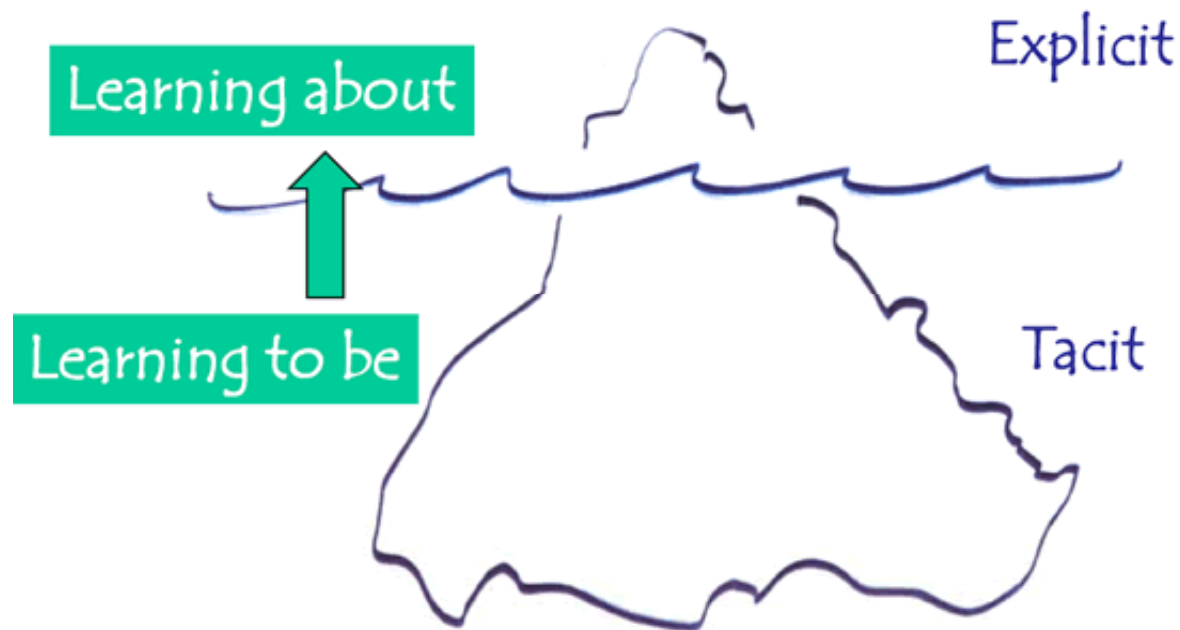
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Reversing the Flow



Key: unleashing productive inquiry

Source: J. Seely Brown (2008) Minds on Fire

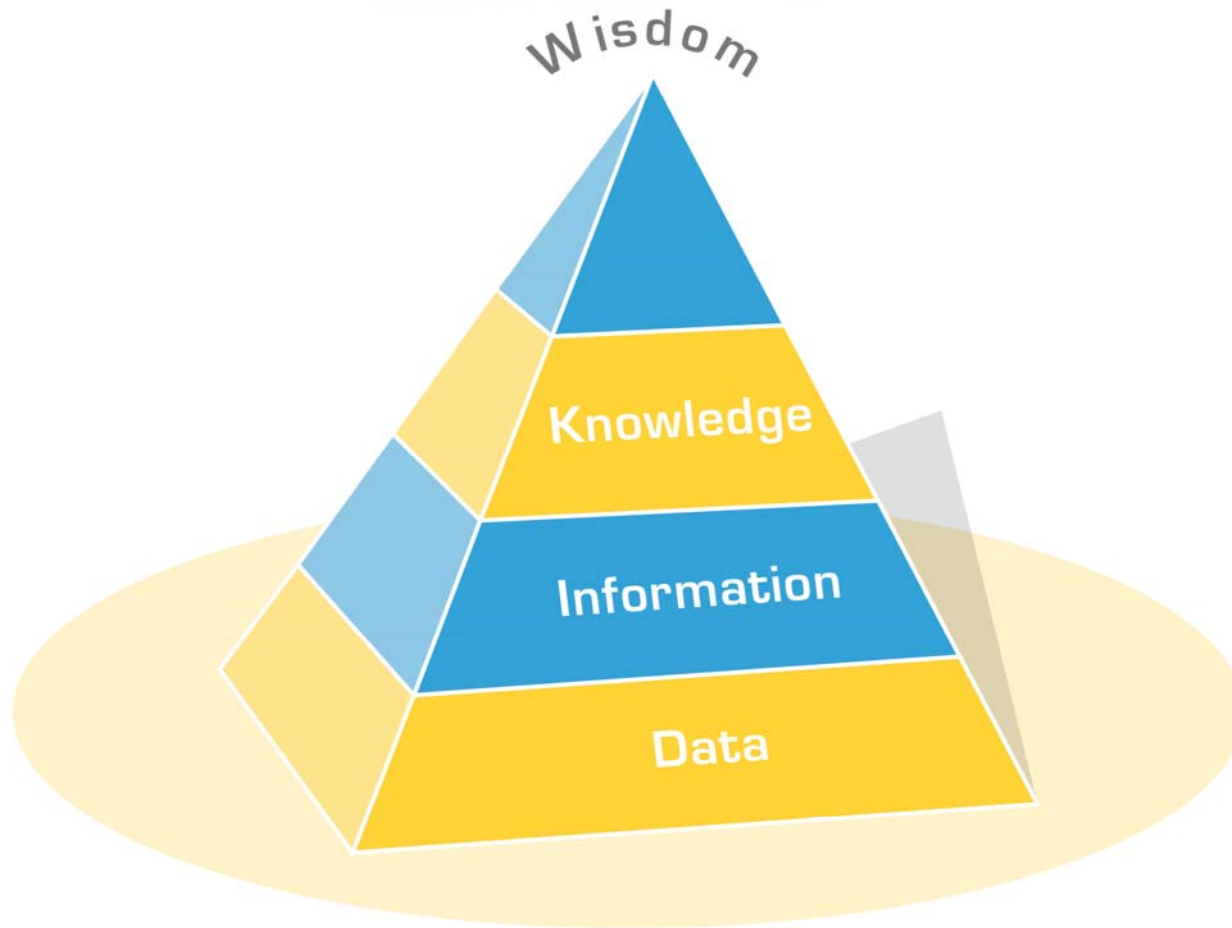
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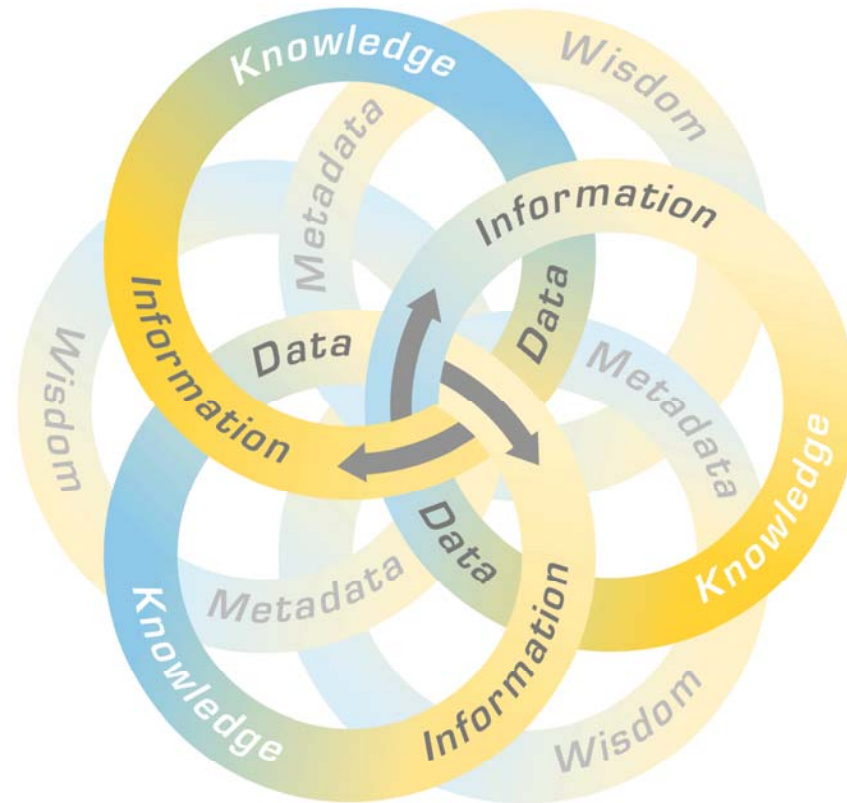


DIKW – traditional view





DIKW – Web realistic model





Conclusion #1

Defining and using shared semantics
is not sufficient
for sustainable knowledge sharing!

Need to also represent statements
that involve syntax
and structural relationships



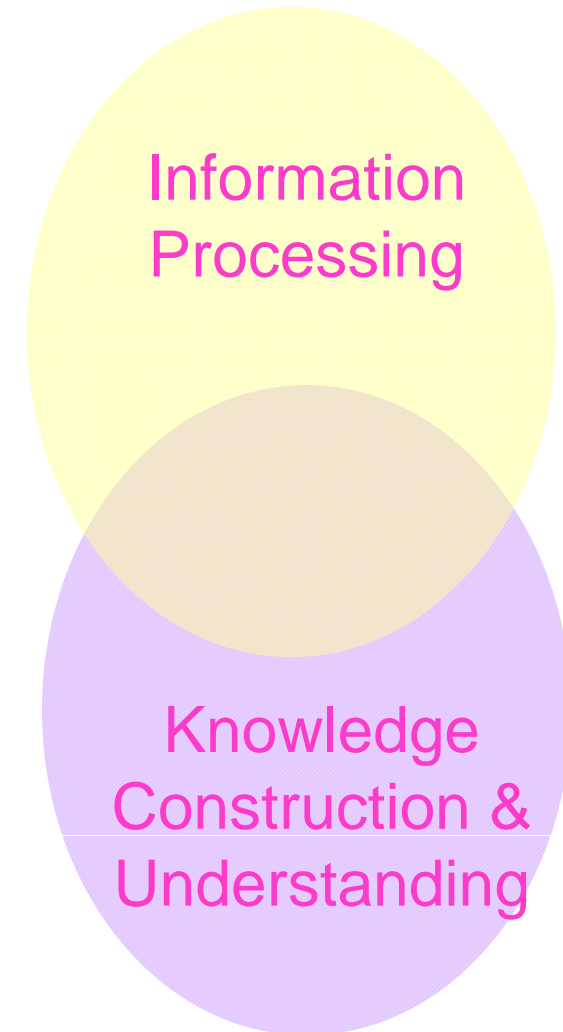
A Faceted Model





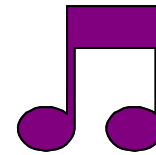
Sense-Making

- Who
 - What
 - When
 - Where
- } descriptive 'primitives'
of information retrieval
e.g., DC-Kernel
- How
 - If
- } procedural or
rule-based 'primitives'
- Why
- conditional, motivational
or explanative 'primitive'

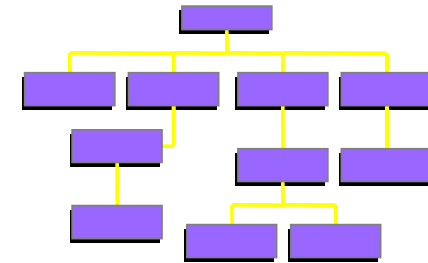




- Many approaches to take



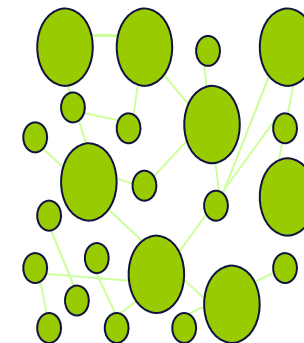
- **Hierarchies** & **Networks** are dominant forms of human organization



- Explicit Systems and Protocols &/or Self-organization?

→ Structure & Relation important

→ Metadata can assist





What role do
Knowledge Organization Systems
have in KM?



- Classification schemes
- Thesauri
- Taxonomies
- Controlled Vocabularies
- Subject Headings
- Indexes
- Topic Maps
- ...

➔ **Metadata** will leverage all these in KM contexts



Ohio State University Knowledge Bank

- Integrates diverse digital assets
- Institutional repository just a component of a broader KM program
- Scholarly outputs the primary object for KM
- Library focus: collection development
→ knowledge management
- Tools to support individuals in same process
- DSpace using a DC Application Profile + CC licensing
- ... but a long way to go



Corporate Sector

- Metadata (often custom) primarily used for *internal* organizational information management purposes
- Still no widespread usage of DC metadata for broader interoperability purposes (see Inmon, et al., 2008, 'Business Metadata')
- Some evidence of usage of DC as an “integration framework” bringing together digital assets from distributed repositories
- An evolving interest in KM (though primarily “top-down” in perspective) – and KMS depend on metadata!



Semantic Web – Promise & Hype

- Evolution of DC Abstract Model toward alignment with RDF an example of theory following practice
- Demonstrates a pathway to future information and knowledge processing but still burdened by research hype
- Not sufficient nor complete for holistic support of KM



Question 1

To what extent can metadata
be used to support the
organization of *knowledge*?



Question 2

Could DC metadata be extended
beyond the **descriptive**
to accommodate the **explanative**?



Question

Questions