The A to Z of

Knowledge Management Technology

David J Skyrme

CORNWELL affiliates

Consultants in Management and IT

Around the KM Tech World
in 80 minutes

CORNWELL affiliates

Consultants in Management and IT
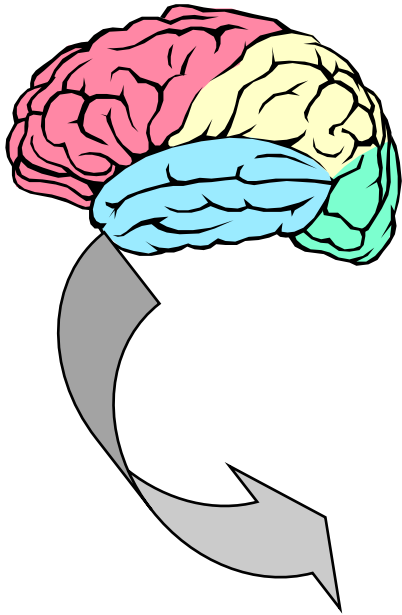
A is for…..

Artificial Intelligence (AI)

- Neural networks

- Genetic algorithms

- Natural Language

- Counter-intuitive

- Ant algorithms

- IA (intelligent agents)

B is for.....

Bayes and Boole

- ❏ TRUE, FALSE
- ❏ AND, OR, NOT
- ❏ Probabilistic
- ❏ Autonomy
- ❏ Sabio (IBM, Almaden)

C is for…..

Content Management

Authors
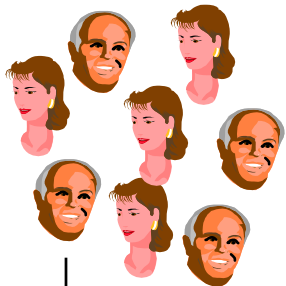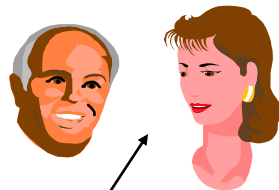
Editors / Reviewers

Output Templates (HTML)

Input Templates
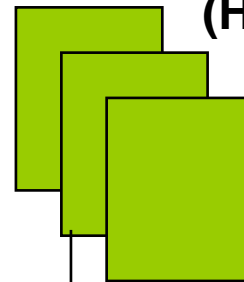
Workflow
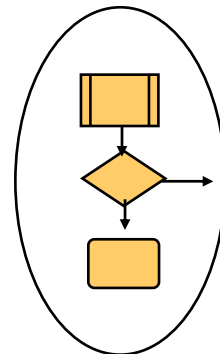
Database (tagged info blocks)
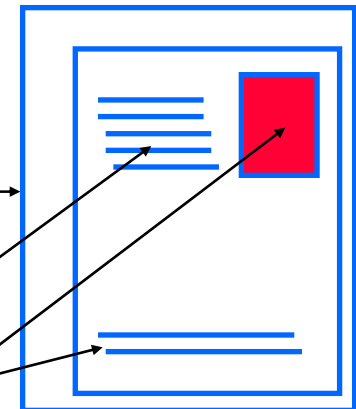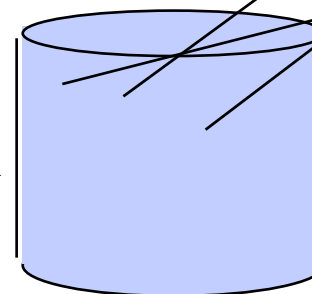
C is for Content

Supply Side

Demand Side

- **Distributed authoring**
  - *Overcome webmaster bottleneck*
  - *Instant publishing*

- **Faster & Relevant Retrieval**
  - *Precision / Recall*
  - *Information overload / 'fog'*

Solutions

**CMS
(Content Management
System)**

**EIP
(Enterprise
Information Portal)**

**+
Editorial Processes
Standards / Style**

**+
Work tools ('gadgets')
Connections**

*Information Architecture
(common language and taxonomy)*

HIGHWAYS AGENCY
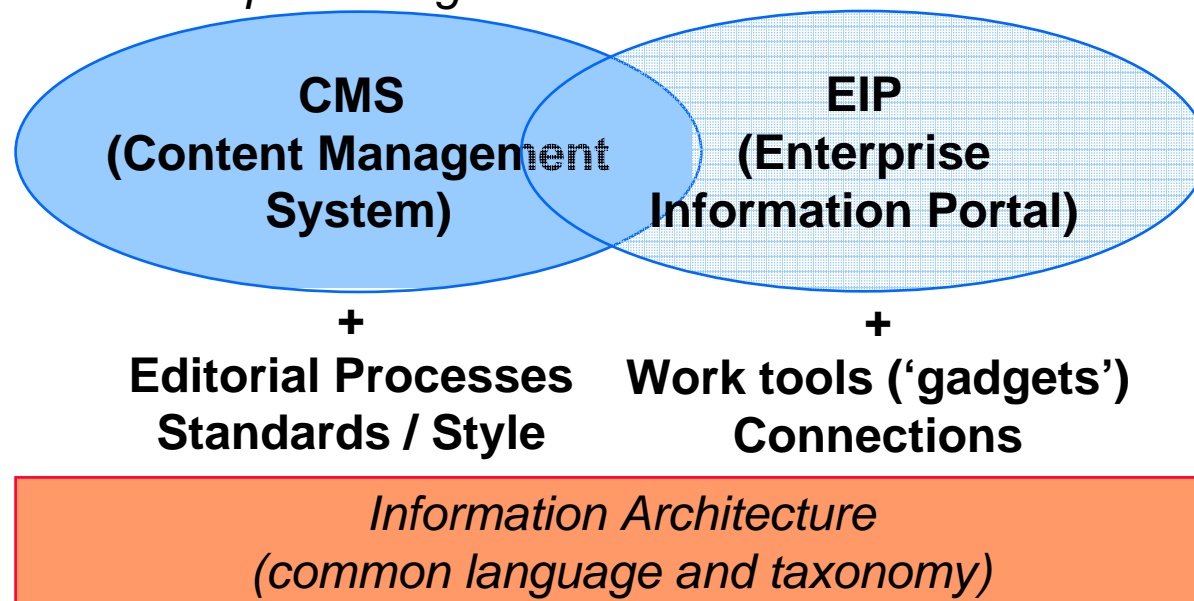
Welcome Helen

directory ●   news ●   admin ●   prefs ●   logoff ●   help ●

My Pages | **Communities** | **SupportNet** | **HA Community**

08 October 2001 11:28:29

Pages: **Home Page** | My News

Personalize this Page
Add New Page
Choose Gadgets
Change Layout
Change Colors

Portal T

Portal Training to begin in Leeds on

Roadworks   _ ▲ ▼ X
[A1 ▼]   [Show Closures]

My Links   _ ▲ ▼ EDIT X
Highways Agency
Corporate Directory Services
WebCat Library Database
DTI Working Time Regs
GSI Directory
MP's and Constituency's
InfoNet
DTLR

Business   _ ▲ ▼ EDIT X
GuardianUnlimited

Housing market is shaken
Home-buyer confidence has fallen sharply,
according to the first major piece of research
to examine how the housing market had
been affected by the September 11 attacks.
Belgium looks to Virgin to save Sabena
Executives from Virgin Express are expected
to meet senior Belgian government officials

Outlook Deluxe   _ ▼ EDIT X

Inbox | Calendar | Contacts | Tasks   **Reply   Reply All   Forward**

Messages | By Conversation Topic | By Sender | Unread Messages   **New Item   Delete Item   Search**

!	🗋	▽	📎	Subject	From	Created ▽
	✉			**RE: 800*600 PC Settings - Affect on Gadget**	**Johnston, Chris**	**Mon 08/10/2001 11:08**
				800*600 PC Settings - Affect on Gadget	Amos, Simon	Mon 08/10/2001 10:37
				RE:posters	Majella Mcloughlin	Fri 05/10/2001 16:41
				Videoconferencing training 12th Oct	Lowe, Matt	Fri 05/10/2001 15:23
			📎	HA Portal: NS Directorate	Mellors, Alan	Fri 05/10/2001 15:17
			📎	TSS Liaison Intranet/Extranet - Agenda	Grindley, David	Fri 05/10/2001 11:19
				RE: Portal design	Johnston, Chris	Fri 05/10/2001 11:12
				Intranet reports	Johnston, Chris	Fri 05/10/2001 10:27
				FW: Communities	Amos, Simon	Thu 04/10/2001 17:34
				RE: Super Admin	Johnston, Chris	Thu 04/10/2001 16:38
				Network Strategy	Hadley, Mark	Thu 04/10/2001 12:42
!				Canceled: Possible meeting SSR/Extranet	Grindley, David	Thu 04/10/2001 10:34
				RE: Aqumen 'website'	Ambler, Dave	Thu 04/10/2001 09:52
				HA Portal Resources	Walford, Helen	Wed 03/10/2001 20:55

My Applications   _ ▲ ▼ EDIT X

🔑 Access   📊 Excel   🔍 Explorer   📈 HAMIS   📓 Notepad   📰 PowerPoint   **DAS** Version 1   🟩 Visio

📝 Word

UK News   _ ▲ ▼ EDIT X
GuardianUnlimited

Local intranet

C is for…..

Content Management

"Content management vendors are often
obsessed with developing complex,
convoluted and expensive technology."
(Gerry McGovern)

C is also for collaboration and community software, categorization
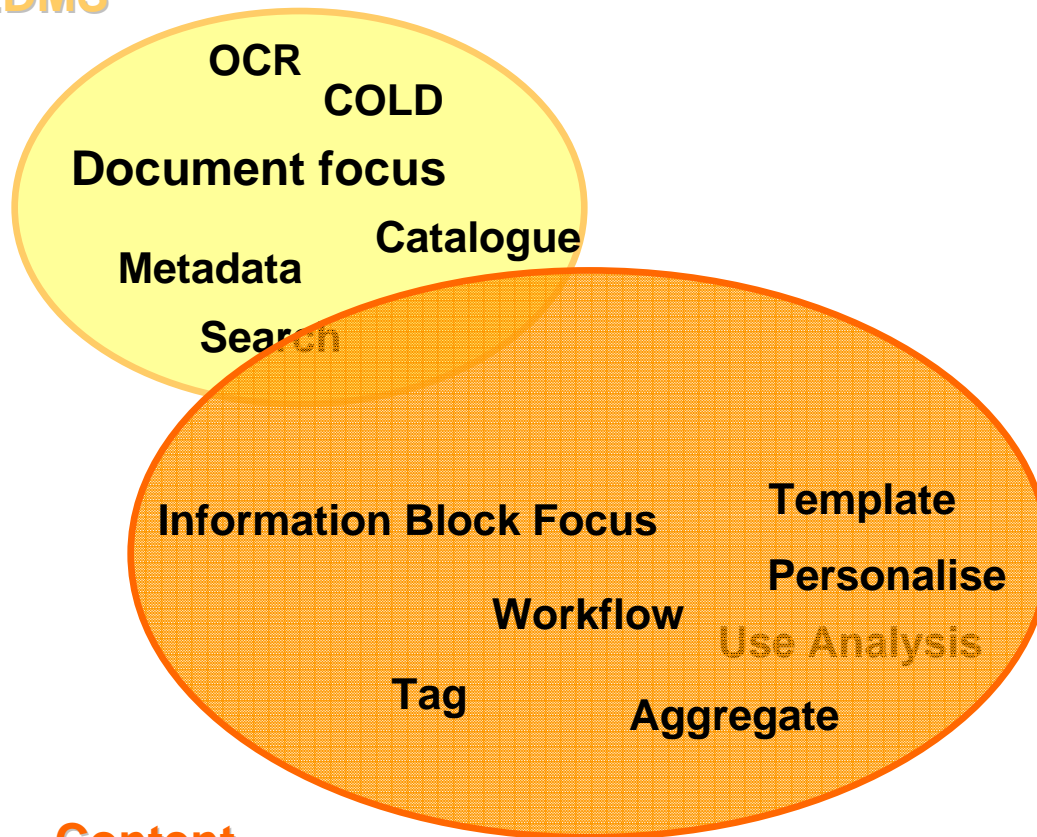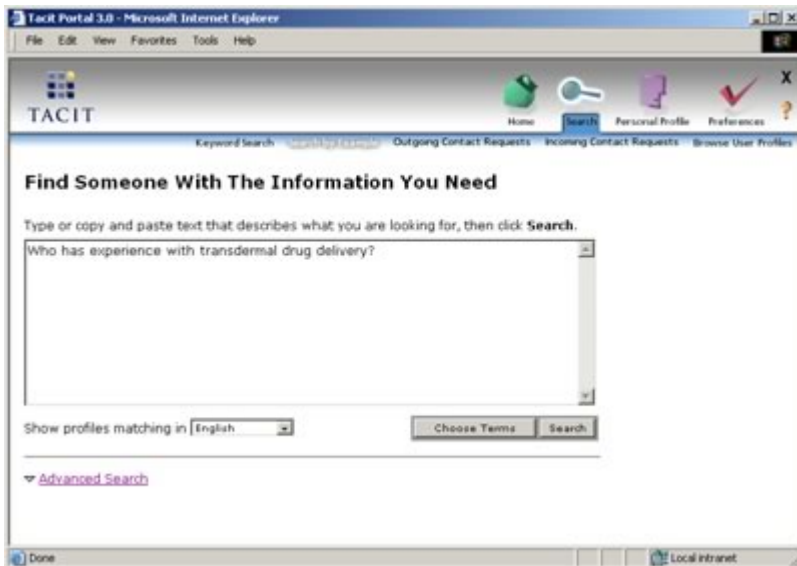
D is for…..

Document Management

EDMS

OCR

COLD

Document focus

Catalogue

Metadata

Search

Information Block Focus   **Template**

Personalise

Workflow   Use Analysis

Tag   **Aggregate**

Content Management

E is for…..

E-mail

"Companies have spent billions of dollars on intranets, knowledge management and customer relationship management systems, and the best return on investment they've had so far is e-mail" (Mahenrda Vora, CEO, Intelliseek)

❑ Info overload

❑ Email management

❑ Text mining

❑ Personal profiling

❑ KnowledgeMail

F is for.....

Framework

- Individual
- Team
- Enterprise
- Glboal

- Create
- Identify / Gather
- Classify
- Access / Share
- Search / Retrieve

e.g. eRoom

e.g. SiteScape

Tacit

Autonomy etc.

Unstructured

e.g. Inktomi

OpenText etc.

Semi-structured

Structured Data
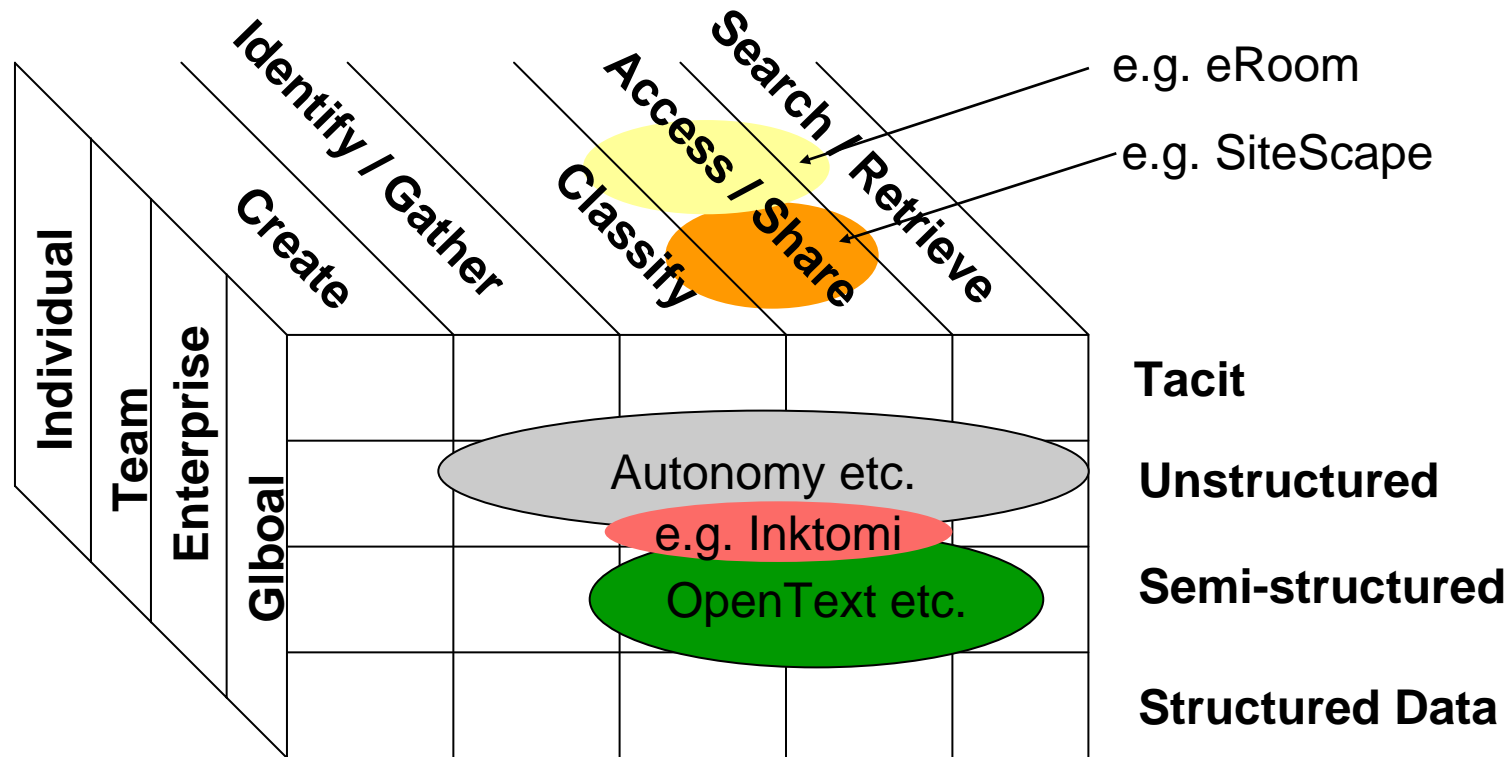
Like ecology, new niches appear; some bubbles expand; some coalesce; others burst; some fade away; and there is always Microsoft, Oracle, IBM, SAP and other heavyweights in the background.

G is for…..

Groupware

Collaboration

Videoconferencing

Chat

Threaded discussions

Shared workspace

Same Time
Different Place

Different Time
Same Place

- ❑ $200 m a year market
- ❑ Lotus Notes #1 revenues
- ❑ Microsoft #1 seats
- ❑ Many specialised suppliers
- ❑ More integration with portals etc.
- ❑ Sometimes cheap / cheerful the best

G is for…..

Groupware

H is for…..

Humans

Human

Organisation

Slug

Computer
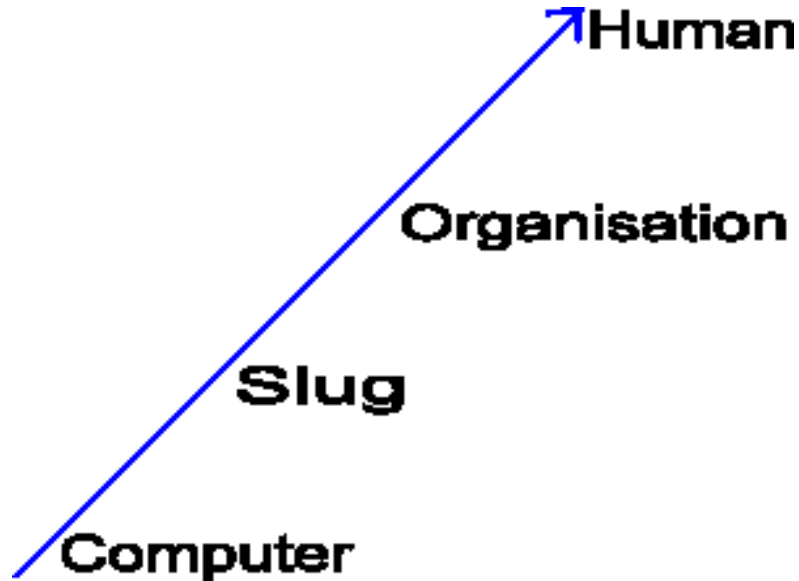
❑ High intelligence

❑ Common sense

❑ High touch

❑ 10-100 billion neurons

❑ 2K-10K synapses / neuron
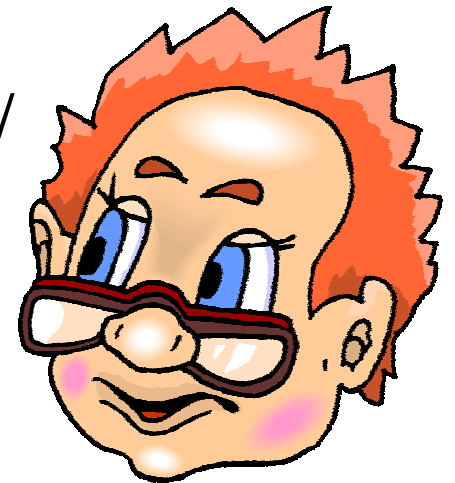
I is for…..

Intelligent Agent
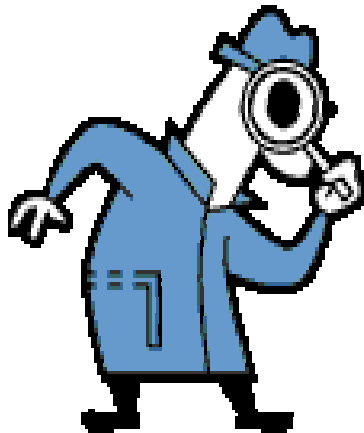
- ❑ Discovery

- ❑ Alerting

- ❑ Active matching

- ❑ Filtering

- ❑ Negotiation?

I is also for integration, intranet, innovation (e.g. Invention Machine)

J is for…..

JIT Knowledge

- ❑ **Remember 'push'?**
- ❑ **Backweb's hanging in – just!**
  - ➢ *Polite® communications*
  - ➢ *Notification (Flash Alerts)*
  - ➢ *Closed-loop reporting*.
- ❑ **c.f. Alerting**
- ❑ **Best is probably reliable retrieval**

K is for…..

Know-bot

❑ Auto replies for simple questions

❑ Links to humans when stuck

❑ Case-based reasoning

❑ Customer service e.g. Dell

❑ Multi- knowledge channels

K is also for knowledge discovery, KM suites (?), killer application

L is for…..

Learning Objects
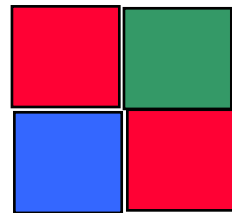
Assembled lesson
(supported by LMS)
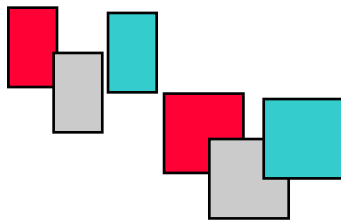
Library of reusable modules
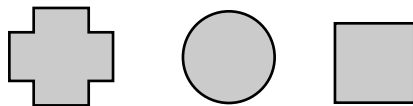
Developers' building blocks
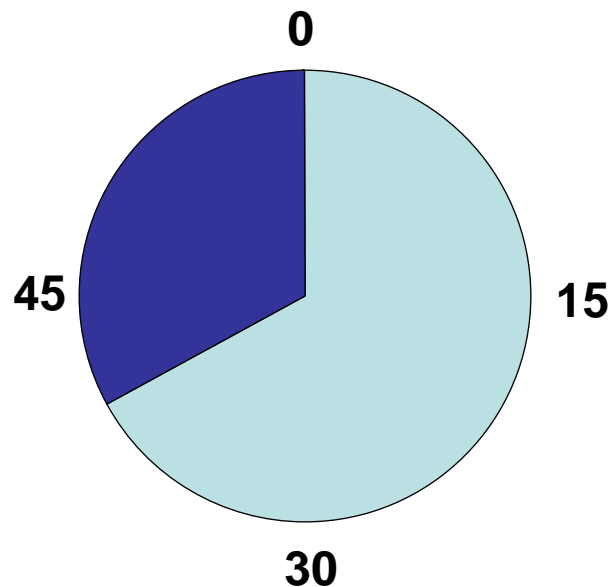
M is for…..

Mobile KM

IT manager's survey:

❑ One of top three applications

❑ Info access 2nd only to messaging for mobile device usage (32% vs. 35%)

❑ Location sensitive knowledge

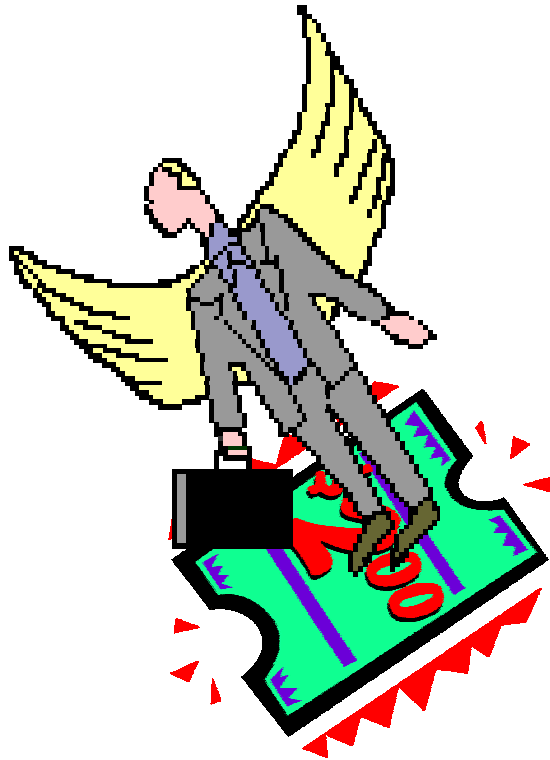M is also for mereology (search method), metadata, multi-lingual

Half Way……

KM services market –

$ 2bn a year

- Strategy
- Operations
- Implementation
- Training

Thoughts so far?

Implications for Cornwell?

N is for…..

Natural Language Processing

- ❑ Basis of 2nd/3rd generation retrieval and classification software

- ❑ Morphological analysis

- ❑ Syntax

- ❑ Semantics

- ❑ Pragmatics

"Harry flew to New York on a cheap ticket"

History   ×

View ▾   Search

Last Week
Monday
Tuesday
Today

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Technology

- Genetic Algorithms
- Genetic Programming
- Evolutionary Programming
- Neural Networks
- Rough Sets
- Evolutionary Strategies
- Fuzzy Systems
- Simulated Annealing
- Quantum Computing
- Ant Systems
- Tabu Search
- DNA Computing

Rough Sets

Rough set theory is a tool for studying imprecision, vagueness, and uncertainty in data analysis. It focuses on discovering patterns, rules, and knowledge in large pools of data. The theory has its origin in the great research effort in the 1970's by Polish mathematicians and computer scientists in the analysis and representation of information systems. The concept of a rough set was put forward by Dr. Zdzislaw Pawlak in 1982, and was later advanced into various data mining applications by Dr. Andrzej Skowron. The theory of rough sets has been used for numerous applications in medicine, pharmacology, engineering, manufacturing, and banking. Dr. Andrzej Skowron is currently a Senior Partner at NuTech Solutions.

Scanning frame 2 in progress

39 %

Cancel

Done   Internet

O is for…..

Open Standards

Do you know your SCORM from your SOAP?

Management Layer   tpAML, ADS, UDDI
Discovery Layer   ADS, UDDI
Description Layer   WSDL (ebXML)
Exchange Layer   SOAP, ebXML, XMLP

- ❑ "The nice thing about standards is that there are so many to choose between".
- ❑ Vendor alliances; W3P
- ❑ ANSI/ISO e.g. KM stds
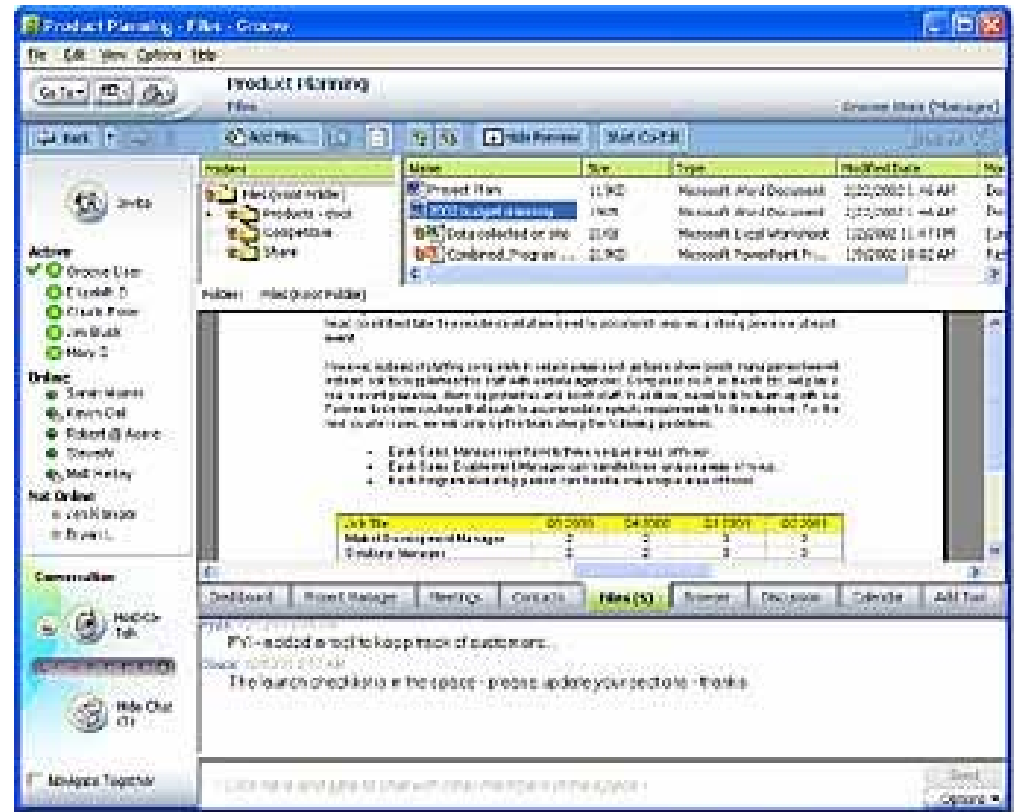
O is also for ontologies

P is for…..

P2P

❑ Napster?! Yes/no, but…

❑ Use idle PCs e.g. Boeing

❑ File sharing

❑ Connect project teams

❑ Avoid clogging email

❑ Get in the Groove….

P is also for portals (see Content)

A Sample Groove Workspace *Shared Space*

Work online or offline in Groove *shared spaces*

- **Virtual work spaces** you create & control

- **Bring together** people, information & tools

- **Work directly** across network firewalls

- **Edit docs,** manage projects, & more...

- **Easy as IM & chat** Create space & invite contacts. Dissolve when done, or use for ongoing projects

Click red circles for more info

Welcome Page | **Shared Space**

Q is for…..

Question Boards

❑ Discussion, Chat?
  ➢ perhaps, haphazard
❑ Expertise profiles
❑ Auto-generated
❑ Manually modified
❑ Auto-routed
❑ Anonymous or not
❑ Answers update knowledge base and profile
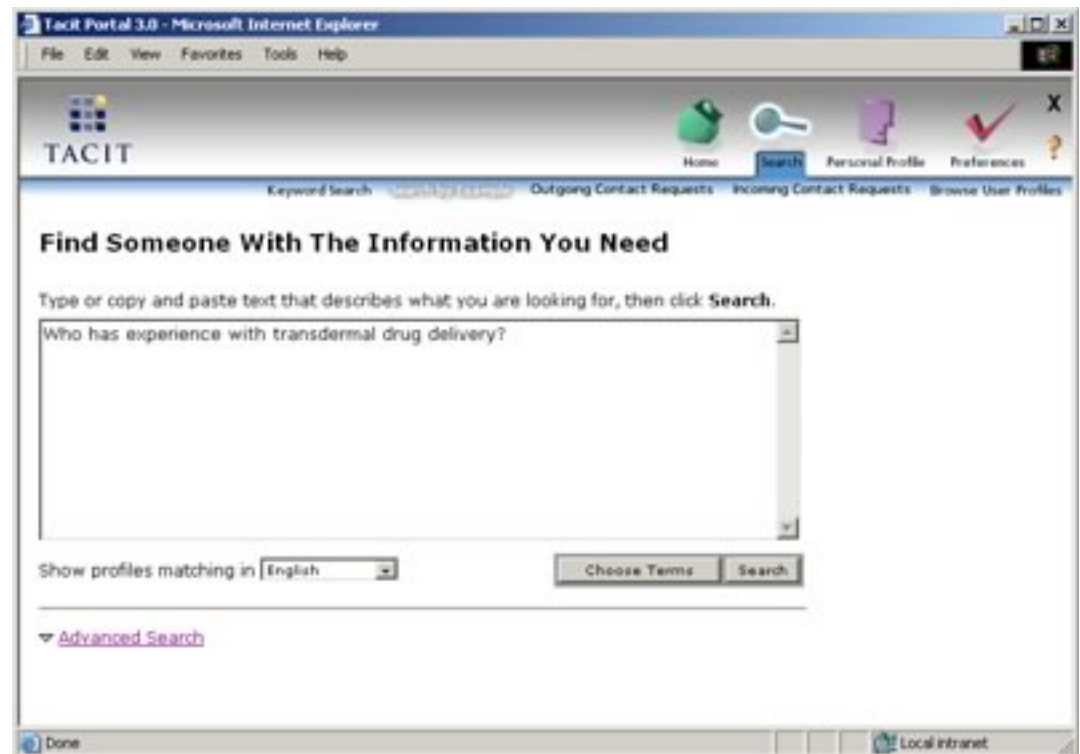
"But who has the answers?"

Answer Board!

R is for.....

Retrieval

- Many file types

- NLP, fuzzy

- Patterns e.g. video

- Semantic filters

- Results navigation

- Test at TREC

- Hot topic

S is for.....

Semantic Web

- ❑ TB-L, funded by W3C

- ❑ Web as a gigantic 'brain'
  - ➢ Meanings & relationships
  - ➢ Agents and humans
  - ➢ Enhance global collaboration
- ❑ Automated web services
  - ➢ Needs XML, RDF, ontologies
- ❑ Will it work?
  - ➢ C.f. WWW 10 years ago; XML 5

T is for…..

Taxonomy

- Hierarchies of terms

- Thesaurus adds controlled vocabulary (e.g. for tags)

- Organized information

- Helps retrieval

- Multi-lingual mapping

- Stand-alone systems

- Integrated with search

Narrower Term
NT1 Budgets
   NT2 Budgetary control
    UF Budgeting
     NT3 Financial audit
NT1 Capital
   NT2 Capital flow
NT1 Currencies
NT1 Customs policy
UF Customs duties
   NT2 Tariffs
   UF Tariff barriers
NT1 Financial administration
UF Financial management
   NT2 Accounting
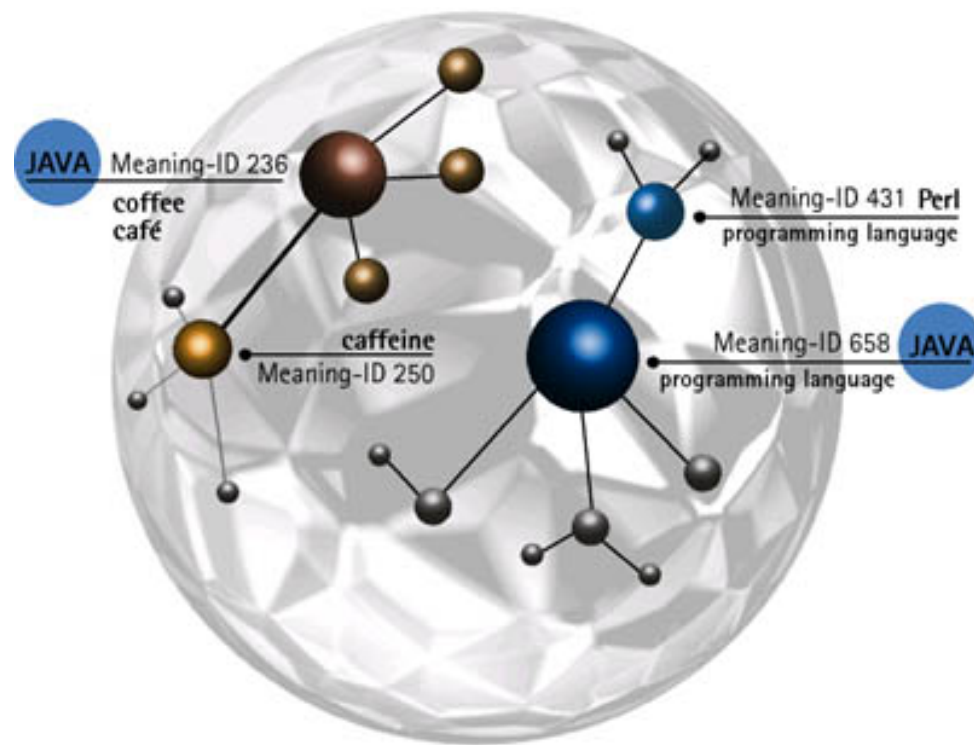
Applied Semantics

U is for…..

Usability

- ❑ HCI well-known but not well practiced

- ❑ Usability labs – how real users (not developers) work

V is for…..

Visualisation
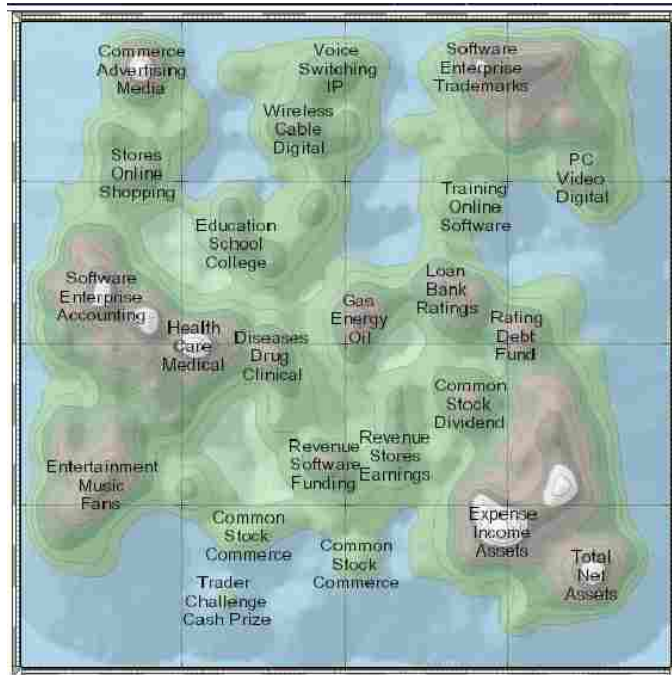
Aurigin's Themescape
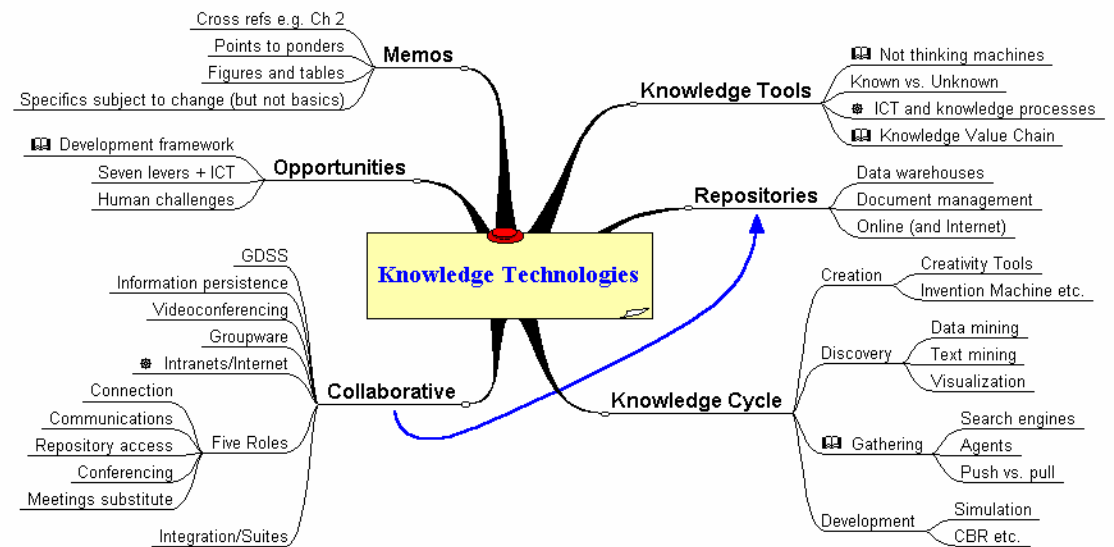
Mind Manager
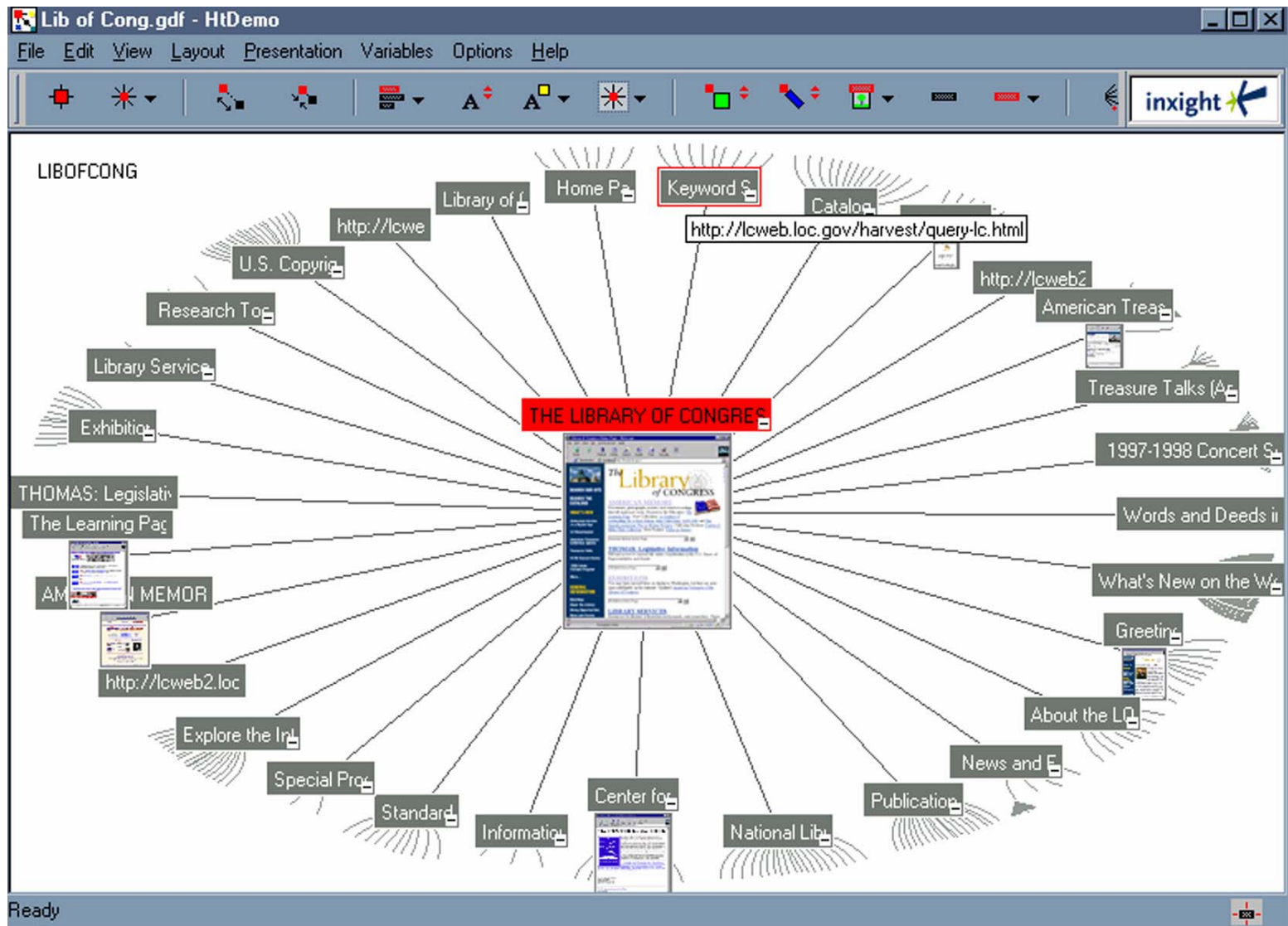
InXight's hyperbolic tree
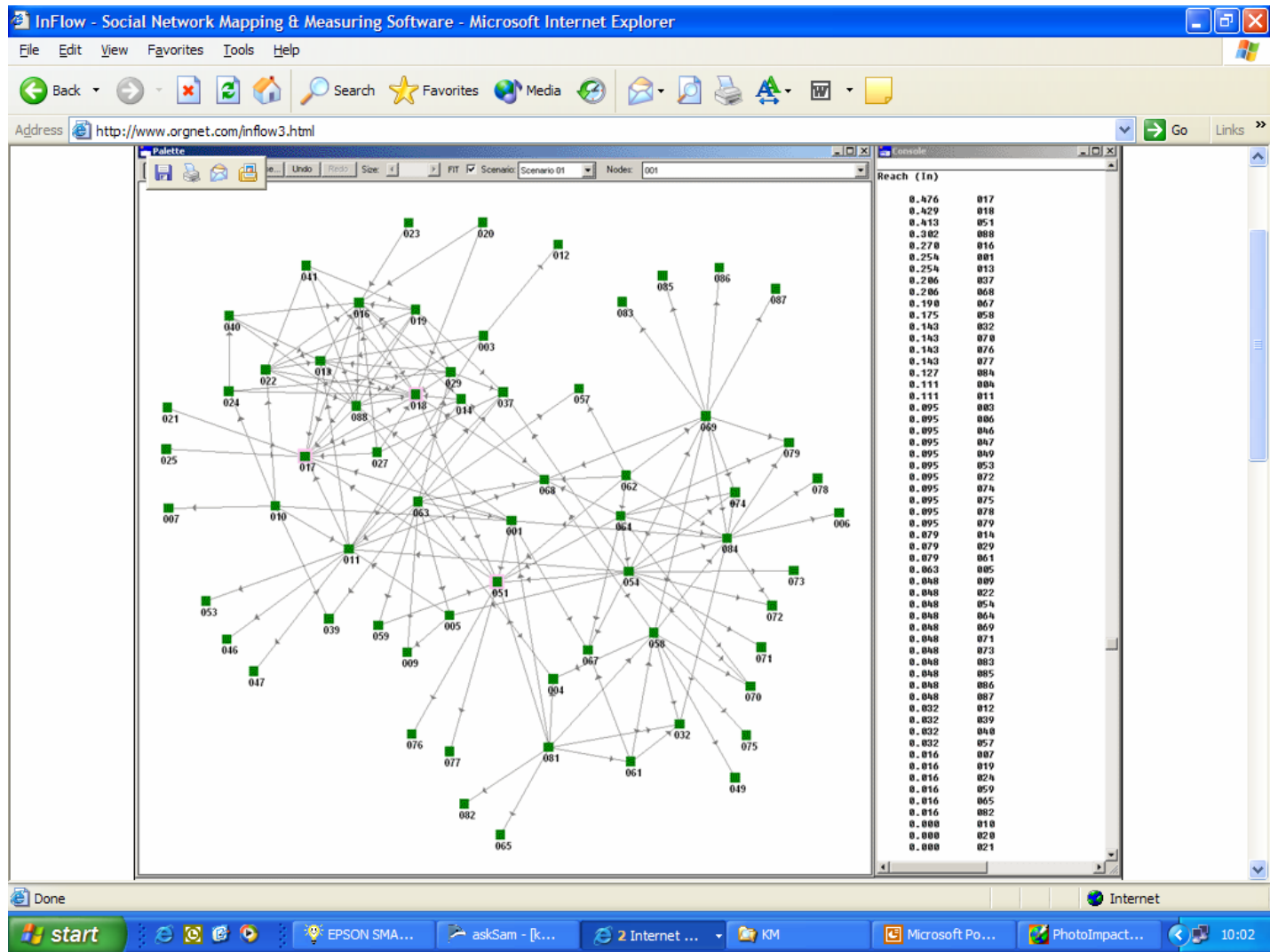
Orgnet's Inflow

W is for…..

Who?

3Path   P2P focusing on the real-time delivery of e-mail

APR   Decision Intelligence. Aquired Smartlogik (Brightstation). Youmeus.com
Akiva   Idea management software plus WebBoard (O'Reilly) conferencing and WebChat
Albert   French search engine that works with Domino
Antarcti.ca   Visual Net information visualisation for search and discovery
Applied Semantics CIRCA technology (ontology and the linguistic processing) text mining
AskMe   Expertise profiler that integrates with Outlook
AskSam   Bibliographic database for semi-structured data. Beats Access hands-down.
Autonomy   Not just search but full portal and other KM tools

BackWeb   P2P 'polite' push for altering and updating
Broadvision   Enterprise portal and content management suite
Bungo   Connected Workspace for virtual teams. Also LiveMail instant messaging

Cipher   Knowledge.Works that extracts competitor intelligence from Outlook, Exchange
Convera   Retrievalware that also searches graphics, images, videos through pattern matching
Correlate   Drag 'n drop K-maps from Domino and SharePoint data

Divine   eCRM but acquired Northern Light categorised search engine
Documentum   Content management evolved from document management suite

W is also for web analytics, workflow, WiFi, web services

Who Else?

eGain	CRM that uses case based reasoning (Inference)
eRoom	Online collaboration software. Also hosted eRoom.net service.
Fretwell Downing	ZPORTAL: Z39.50 retrievial from multiple online databases
Grimmer Software	Word Mapper takes the results of searches and displays in a concept map.
Groove Networks	P2P shared workspace: "10x better than email for sharing files"
Hummingbird	Portal suite from many acquisitions e.g. PCDOCS, Fulcrum
Hyperwave	eKnowledge infrastructure (CMS/portal). Germany.
IBM	Highly integrated Websphere (portal) now merged with Lotus K-station
InXight	Xerox spin-off; categorization and visualization (hyperbolic trees)
Inktomi	Search Everywhere concept induction search engine. Recently acquired Quiver.
Intelliseek	Aggregates, categorizes and tracks external sources for business intelligence
Intraspect	Collaborative solutions: shared workspace plus vertical markets
Invention Machine	Invention 'recipes' using Cobrain semantic processing.
JXTA	core P2P technology to links PDAs, mobiles, PCs

W is also for web analytics, workflow, WiFi, web services, W3C

Who Else?

Kana	eCRM and analytics with auto-answers from KANA IQ knowledge base
Knowledge Management	Deskartes suite uses neural network technology to aid search
Lexiquest	Automatic text mining, classifier used by Verity. Now a division of SPSS.
Lotus	Integrating with Websphere. Discovery server, K-station, SameTime, Quickplace
Microsoft	Getting better - expect integration of Sharepoint TeamServices and Portal
Native Minds	vReps (virtual agents) that mimic real ones
Netmap Analytics	Started as social networking but now data mining with link maps
NextPage	P2P e-content platform sharing. Initial target - legal and accountancy firms.
Nutech Solutions	Intelligent search and extraction system based on "rough sets".
Open Text Corporation	Livelinks: a full suite developed from document management services
Orgnet	Inflow social network analysis software
Plumtree	Major portal vendor with all the 'gadgets'
ProjectPlace	Shared virtual space e.g. used by Fujitsu/Siebel on joint CRM project
Purple Yogi	Automatically classifies and collates information in metadata store
Quiver	Hybrid Classifier and Topic Adviser

W is also for web analytics, workflow, WiFi, web services

Whose Left?

Retrievalware	Formerly Excalibur product; now Convera following merger.
Semio	Categorization, visual topic trees. Acquired by Webversa, Aug 2002.
SiteScape	Computer conferencing - evolved from VAX Notes. Used by Shell.
SmartLogik	Assets recently acquired by APR.
Sopheon	Product development, expertise profiling (Organik) and Teltech.
Stratify	Automatic classification with SOAP and WSDL APIs.

Tacit Knowledge Systems Knowledgemail analyses emails and extracts user profiles

UBBThreads	Infopop. "a database driven message board that doesn't require brain surgery to implement"
Ventris	Alkaline: a very fast and low cost NT/Unix search engine
Verity	K2 Enterprise: portal with interesting modules from 3rd parties.
WebCT	Leading provider of e-learning solutions
Webversa	Voice-to-enterprise (V2E) access and alerting software. Now owns Semio.
Wordmap	Taxonomy management system
XDegrees	Interesting P2P enterprise software. So interesting Microsoft acquired 10 Sept
Yaga	P2P software that includes digital rights management, royalty accounting
Zylab	Full text retrieval from document imaging - ZyCOLD, ZyImage etc.

See also *KM World's '100 companies that matter'* http://www.kmworld.com/100.cfm

W is also for web analytics, workflow, WiFi, web services

A-Z of KM

Convergence / Consolidation

EDMS

OCR
COLD
Document focus
Metadata **Catalogue**
Search

Collaboration

Videoconferencing
Chat
Threaded discussions
Shared workspace

E-Commerce

Transactions
XML
Rules-based
Database
Web-based

Information Block Focus **Template** **Single log-on**
Personalise
Workflow
Use Analysis
Tag
Aggregate

Security
Unified Search
Personalised Desktops
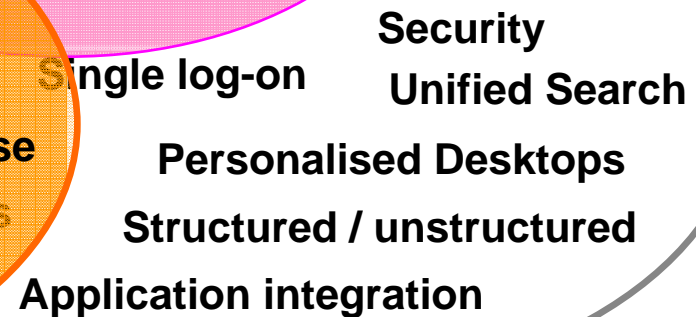**Structured / unstructured**
Application integration
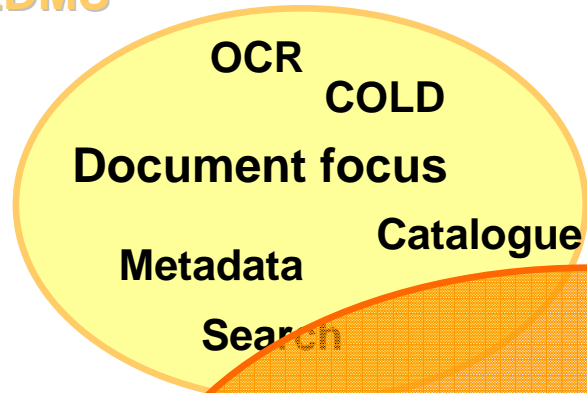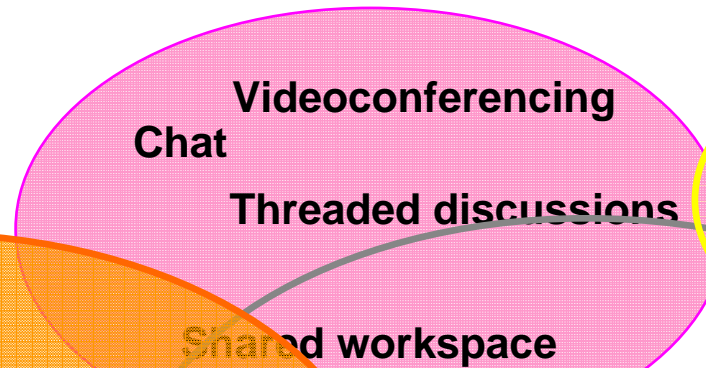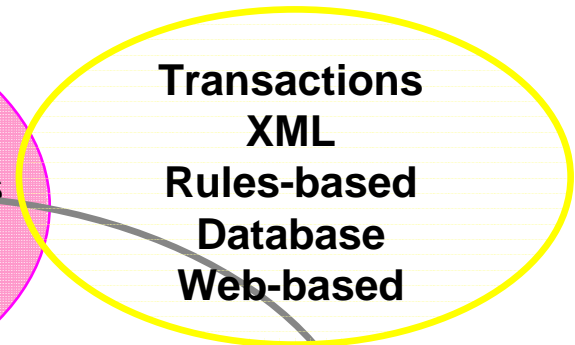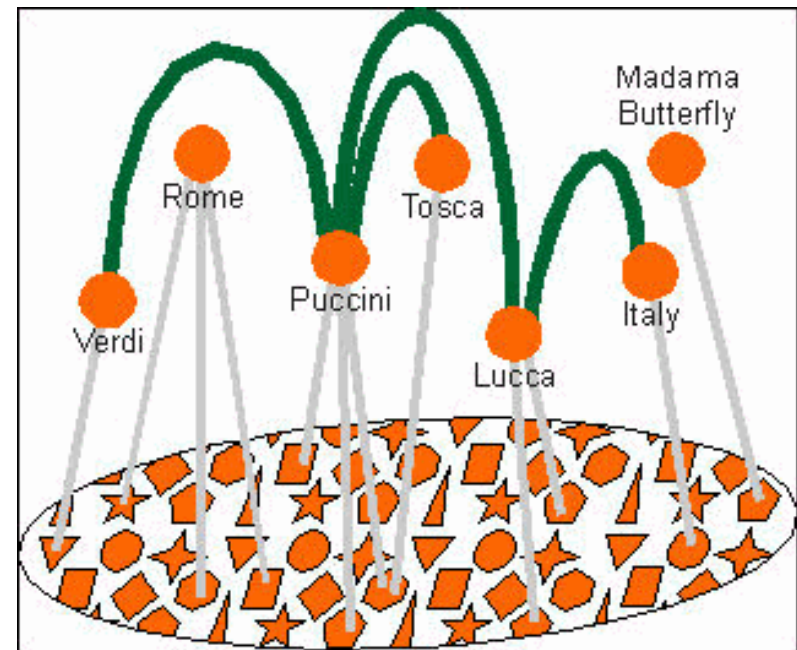
Content Management
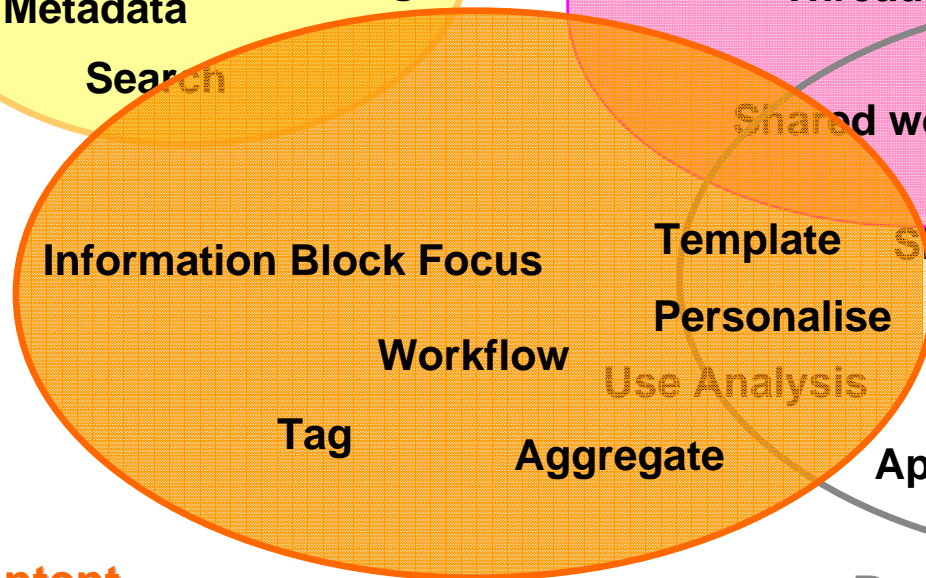
Portals

X is for…..

XTM (XML Topic Maps)

- ❑ ISO 13250
- ❑ XML tags for:
  - ➢ topics (types and names)
  - ➢ occurrences
  - ➢ associations
- ❑ www.topicmaps.org
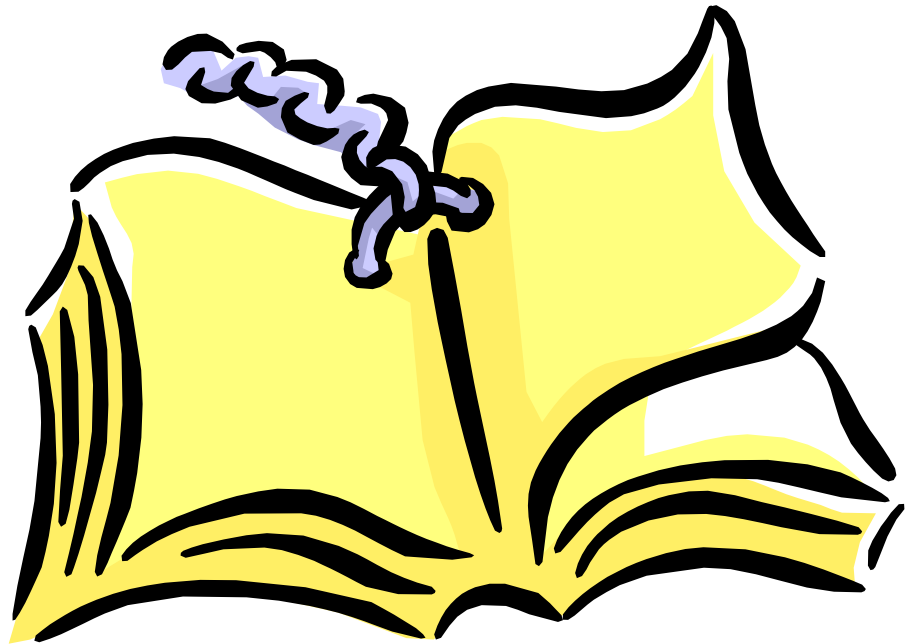- ❑ c.f. RDF, OIL, DAML!!

X is also for XML, xHTML

Y is for…..

Yellow Pages

- ❑ Traditionally a chore

- ❑ Structured and free text

- ❑ Informal photos help

- ❑ BP Connect

- ❑ Automated through expertise profiling

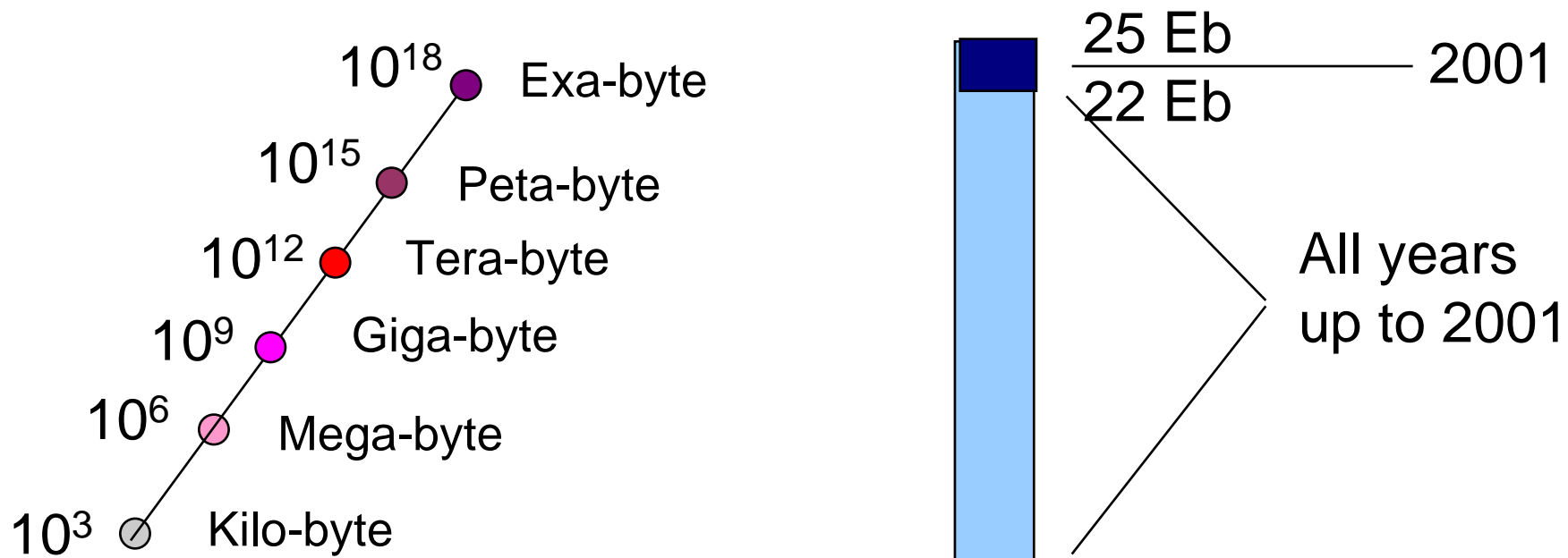- ❑ Sopheon, AskMe, Tacit, but all now wider in scope

Z is for…..

Zillion

"A very large but indefinite number"

10^{18} ● Exa-byte

10^{15} ● Peta-byte

10^{12} ● Tera-byte

10^{9} ● Giga-byte

10^{6} ● Mega-byte

10^{3} ● Kilo-byte

25 Eb
————————— 2001
22 Eb

All years
up to 2001

Do we have a problem?

"No technology can beat the knowledge sharing that takes place in the bar after work"

CHEERS! CHEERS!