

A-Z of KM

Technical Briefing  
16<sup>th</sup> Sept 2002.



# The A to Z of Knowledge Management Technology



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**CORNWELL affiliates**

Consultants in Management and IT



A-Z of KM

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# Around the KM Tech World in 80 minutes



**CORNWELL affiliates**

Consultants in Management and IT

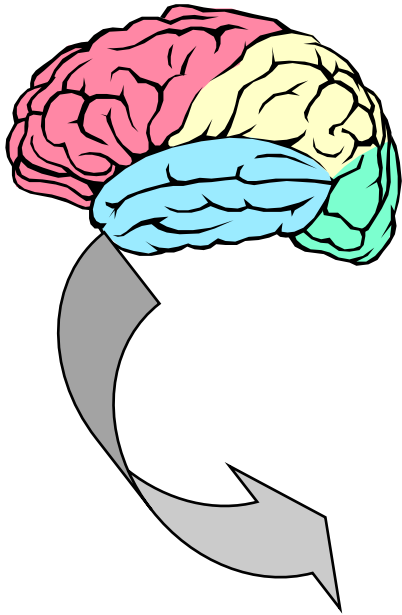




# A is for.....



## 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)

Google™ [Advanced Search Tips](#) | [All About Google](#)

**Advanced Search**

Find results  with all of the words  10 results

with the exact phrase

with at least one of the words

without the words

Language  Return pages written in  any language

File Format  Only  return results of the file format  any format

Date  Return web pages updated in the  anytime

Occurrences  Return results where my terms occur  anywhere in the page

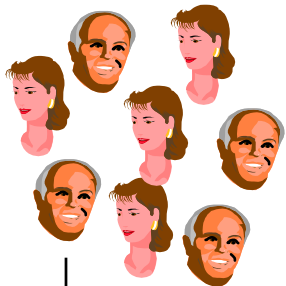


# C is for.....

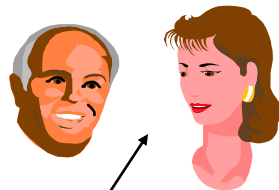


## Content Management

Authors

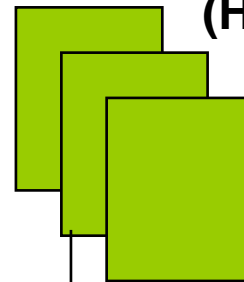


Editors / Reviewers

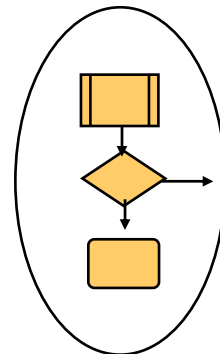


Input Templates

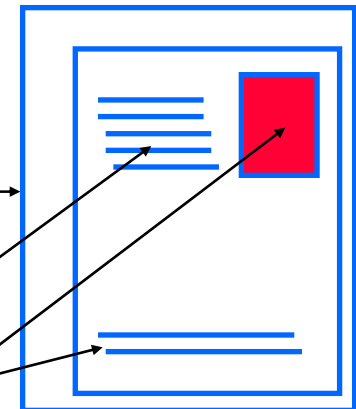
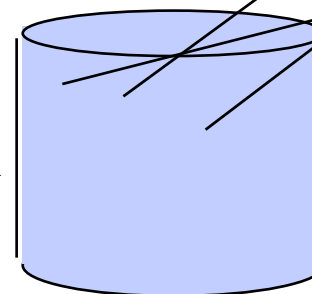
Output Templates  
(HTML)



Workflow



Database  
(tagged info  
blocks)





# C is for Content



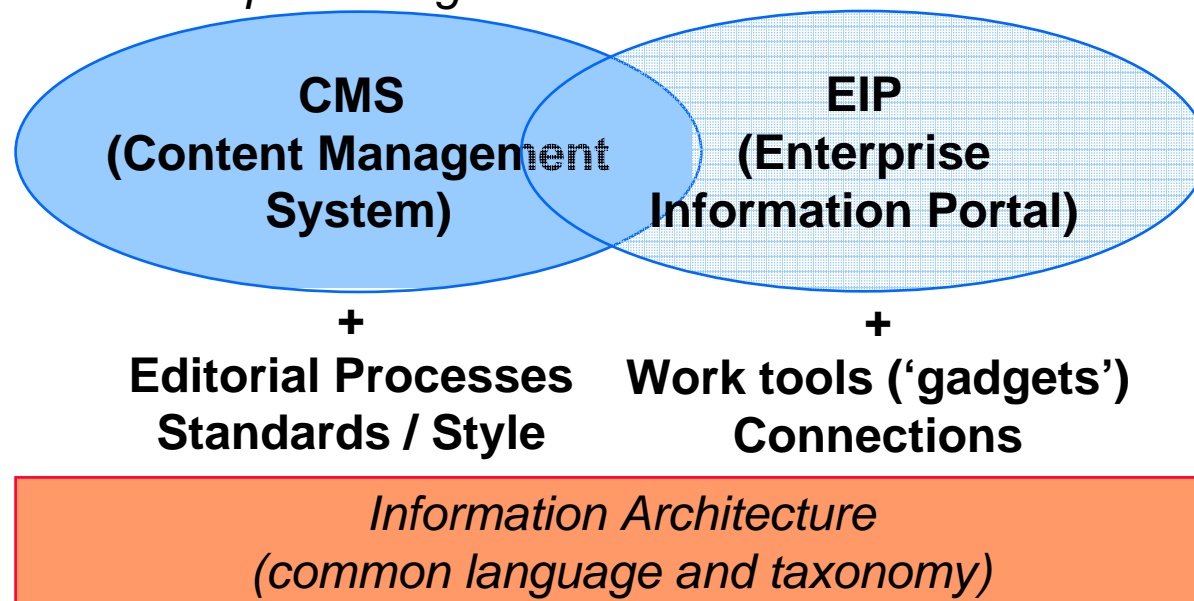
## Supply Side

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

## Demand Side

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

## Solutions





directory news admin prefs logoff help Welcome Helen

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 or

### Roadworks

A1

Show Closures

### My Links

[Highways Agency](#)  
[Corporate Directory Services](#)  
[WebCat Library Database](#)  
[DTI Working Time Regs](#)  
[GSI Directory](#)  
[MP's and Constituency's](#)  
[InfoNet](#)  
[DTLR](#)

### Business



#### 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

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: Aquamen 'website'			Ambler, Dave	Thu 04/10/2001 09:52	
HA Portal Resources			Walford, Helen	Wed 03/10/2001 20:55	

### My Applications



Access



Excel



Explorer



HAMIS



Notepad



PowerPoint



Version 1



Visio



Word

### UK News



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



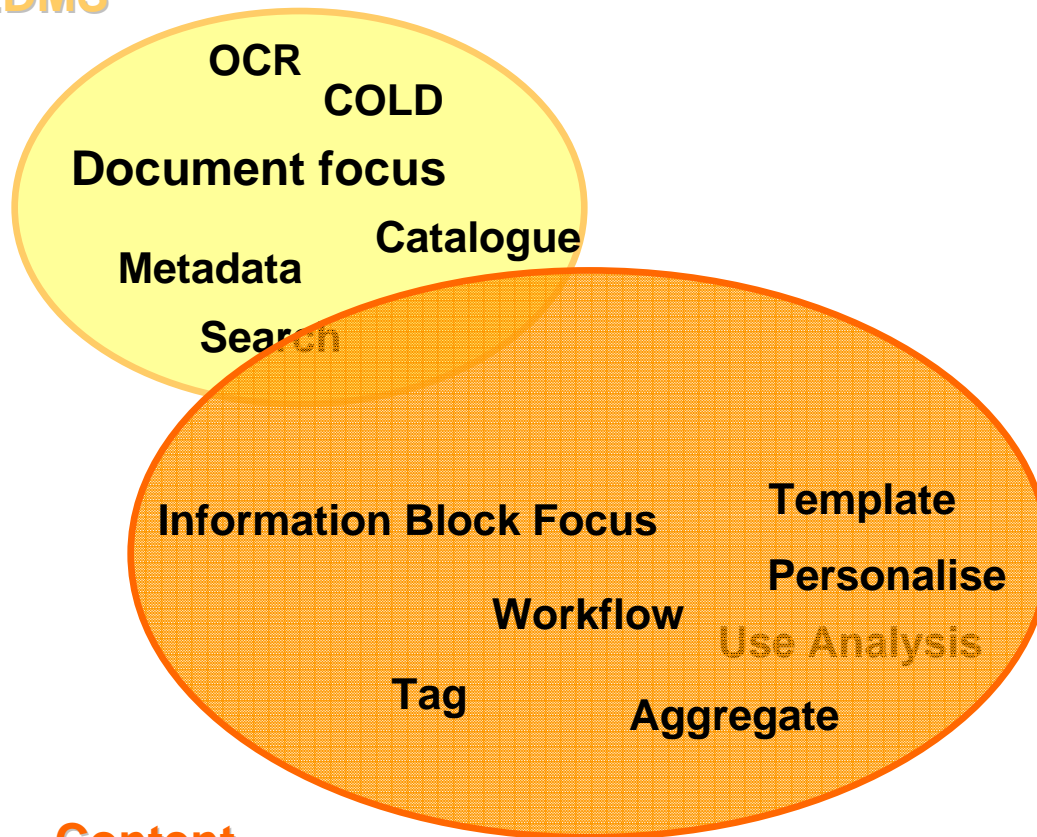


# D is for.....



## Document Management

EDMS



**Content  
Management**



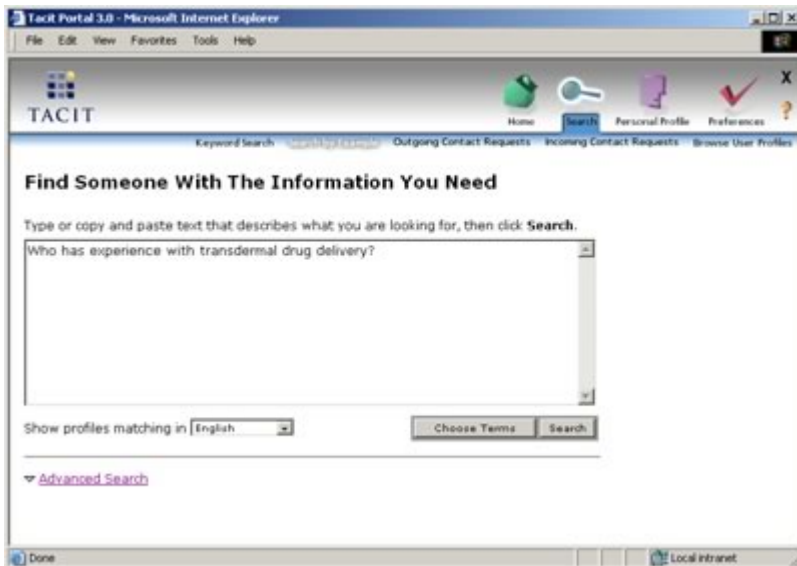
# E is for.....



## 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”  
(Mahendra Vora, CEO, Intelliseek)



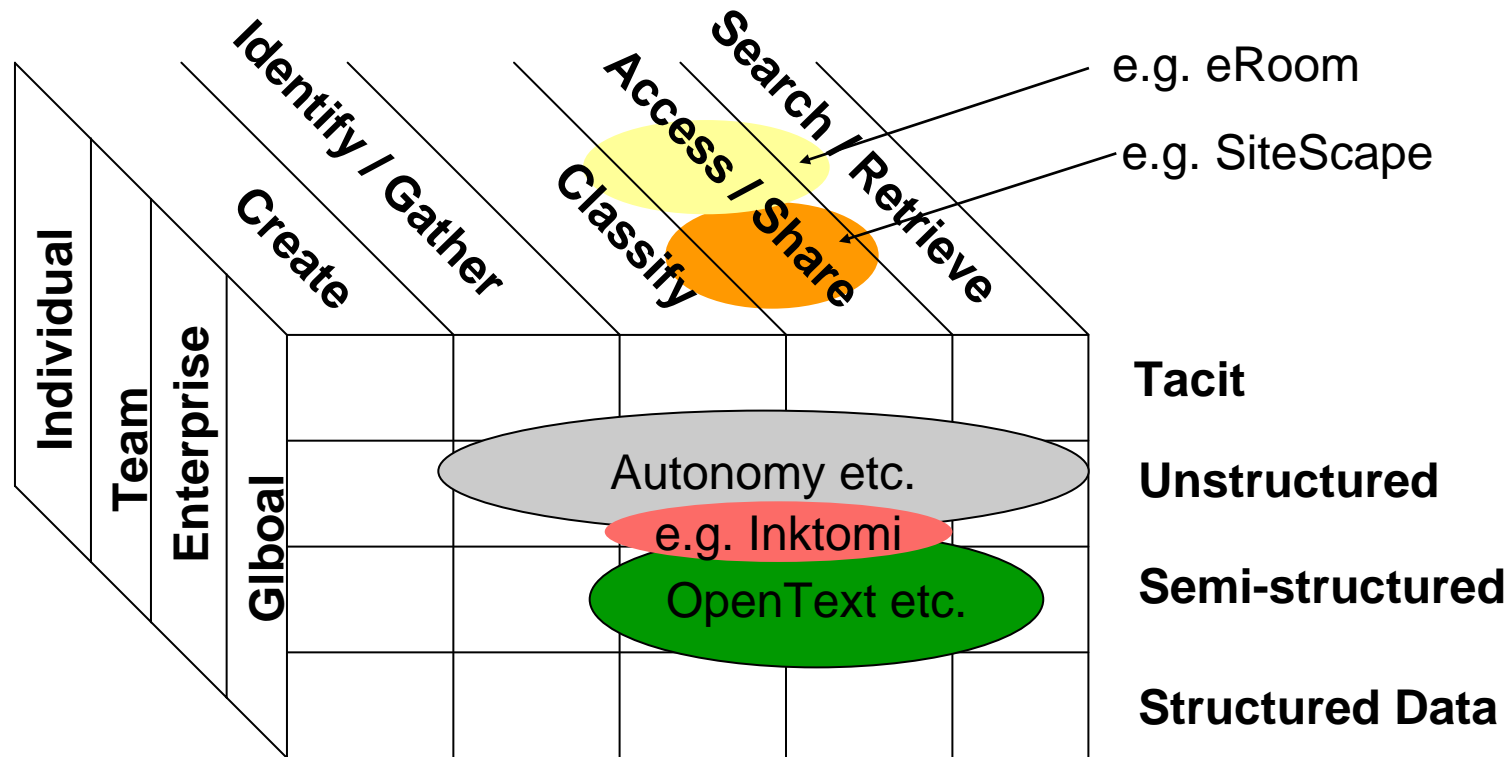
- ☐ Info overload
- ☐ Email management
- ☐ Text mining
- ☐ Personal profiling
- ☐ KnowledgeMail



# F is for.....



## Framework



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

Same Time  
Different Place

Videoconferencing  
Chat  
Threaded discussions  
Shared workspace

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

**Project Homepage** BEEP

Start  
Project Browser  
Personal  
My Tasks  
My Meetings  
Logout

[All](#) / [BEEP](#)


**BEEP**

[Document Archive](#) [Document Templates](#) [Discussion Forum](#)

[Project Calendar](#) [Planning & Tracking](#) [Contacts](#)

[Deleted Items](#) [Members](#)

**Announcements**

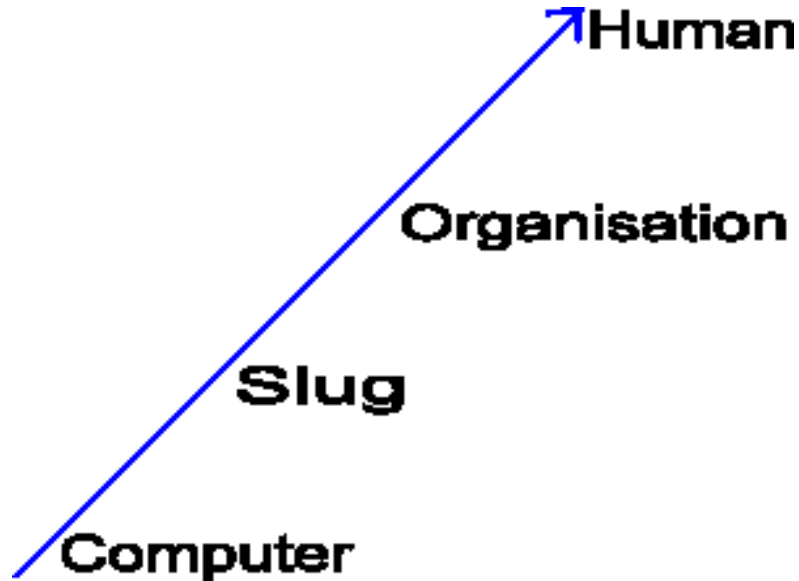
Copyright 1998-2002. [Support](#). [FAQ](#). [Manual](#). [News](#). [Contact Support](#).  **projectplace.com**



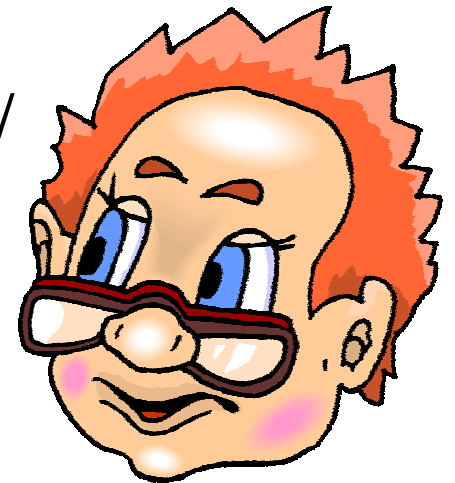
# H is for.....



## Humans



- ❑ High intelligence
- ❑ Common sense
- ❑ High touch
- ❑ 10-100 billion neurons
- ❑ 2K-10K synapses / neuron

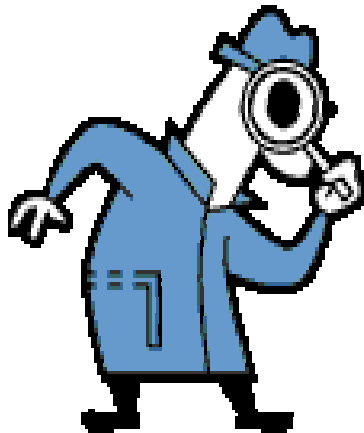




# I is for.....



## 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



Live Help

Speak with an eGain representative now!



YODA'S HELP DESK

- ❑ Auto replies for simple questions
- ❑ Links to humans when stuck
- ❑ Case-based reasoning
- ❑ Customer service e.g. Dell
- ❑ Multi- knowledge channels

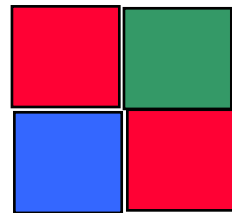
K is also for knowledge discovery, KM suites (?), killer application



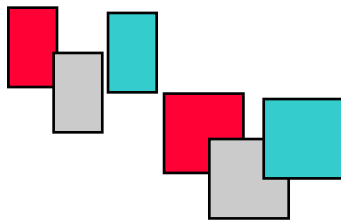
# L is for.....



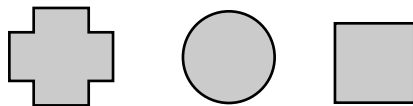
## Learning Objects



Assembled lesson  
(supported by LMS)



Library of reusable modules



Developers' building blocks



# M is for.....



## Mobile KM

IT manager's survey:

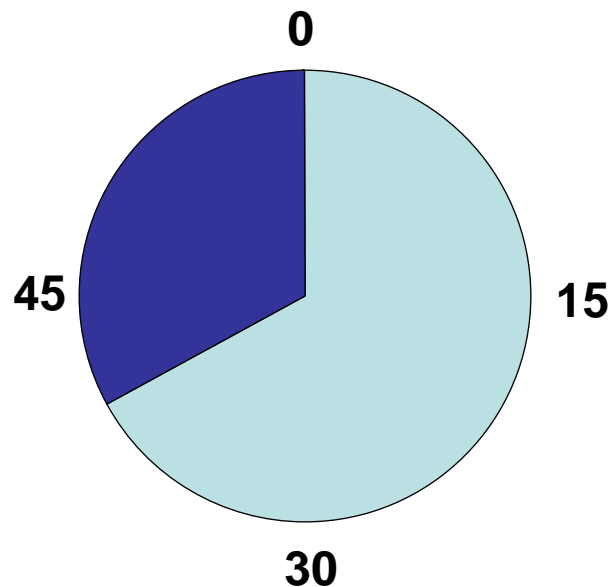
- ❑ One of top three applications
- ❑ Info access 2<sup>nd</sup> only to messaging for mobile device usage (32% vs. 35%)
- ❑ Location sensitive knowledge



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



# Half Way.....



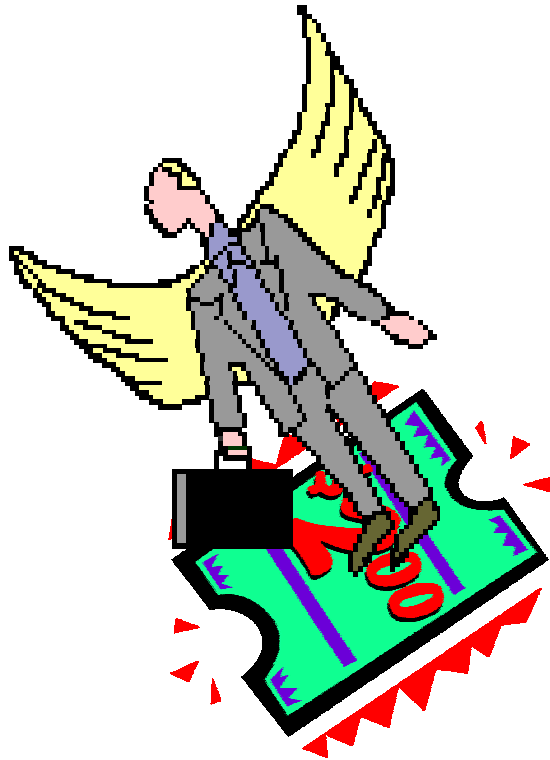
- ❑ KM services market –
  - \$ 2bn a year
  - Strategy
  - Operations
  - Implementation
  - Training
- ❑ Thoughts so far?
- ❑ Implications for Cornwell?



# N is for.....



## Natural Language Processing



- ❑ Basis of 2<sup>nd</sup>/3<sup>rd</sup> generation retrieval and classification software
- ❑ Morphological analysis
- ❑ Syntax
- ❑ Semantics
- ❑ Pragmatics

*“Harry flew to New York on a cheap ticket”*

NuTech Solutions - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address [http://www.nutechsolutions.com/technology/rough\\_sets.asp](http://www.nutechsolutions.com/technology/rough_sets.asp) Go Links

History View Search

- Last Week
- Monday
- Tuesday
- Today

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About Us Products & Solutions

Press Careers Contact

Scanning frame 2 in progress

39 %

Cancel

**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.

$$\begin{aligned}
 O_1^H &\rightarrow 1/2 O_2(g) + 2e^- + V_{Sn}^{IV} + SnO_2 \rightarrow O_2(g) + 4e^- + Sn_{Sn}^X \\
 O_2^X &\rightarrow 1/2 O_2(g) + V_O^{\bullet} + 2e^- + O_1^H \rightarrow 1/2 O_2(g) + 2e^- \\
 V_{Sn}^{IV} + V_{Sn}^{IV} + SrSnO_3 &\rightarrow 3/2 O_2(g) + 6e^- + Sr_{Sn}^X + Sn_{Sn}^X \\
 V_{Sn}^{IV} + SnO_2 &\rightarrow O_2(g) + 4e^- + Sn_{Sn}^X + V_{Sn}^{IV} + 4e^- + SnO_2 \\
 1/2 O_2(g) &\rightarrow O_1^H + 2 V_{Sn}^{IV} + SnO_2 \rightarrow O_2(g) + 4e^- + Sn_{Sn}^X
 \end{aligned}$$

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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

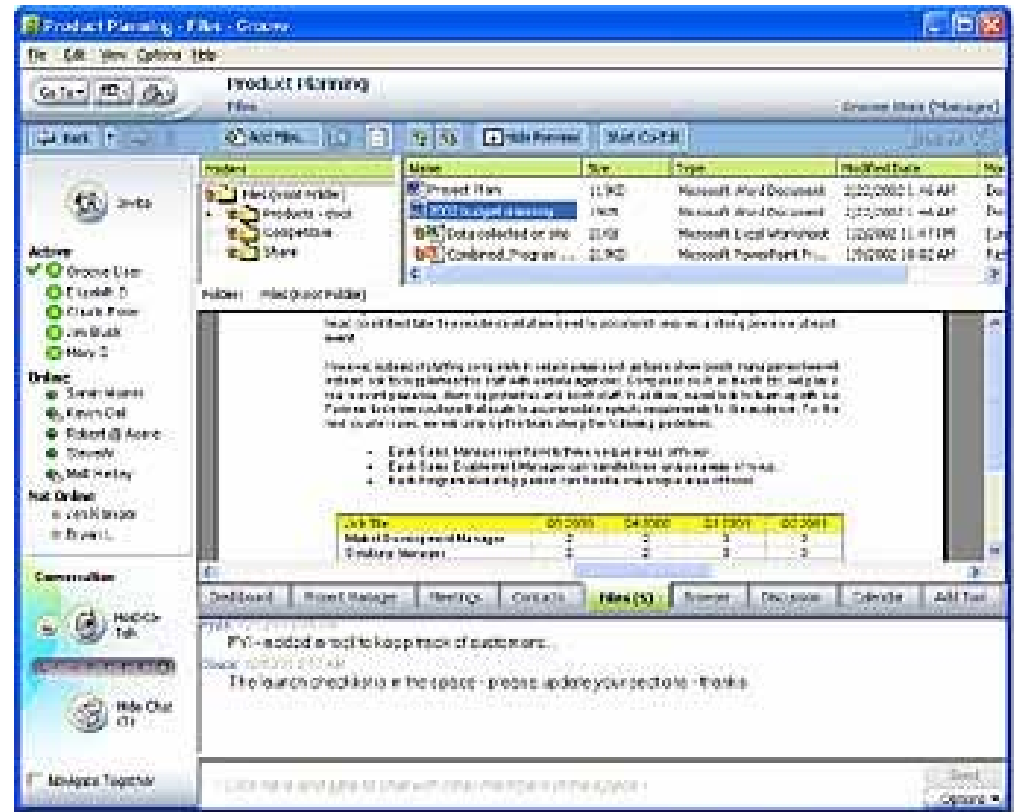


# P is for.....



## 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-Z of KM



**Groove Workspace - Shared Space - Microsoft Internet Explorer**

### 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

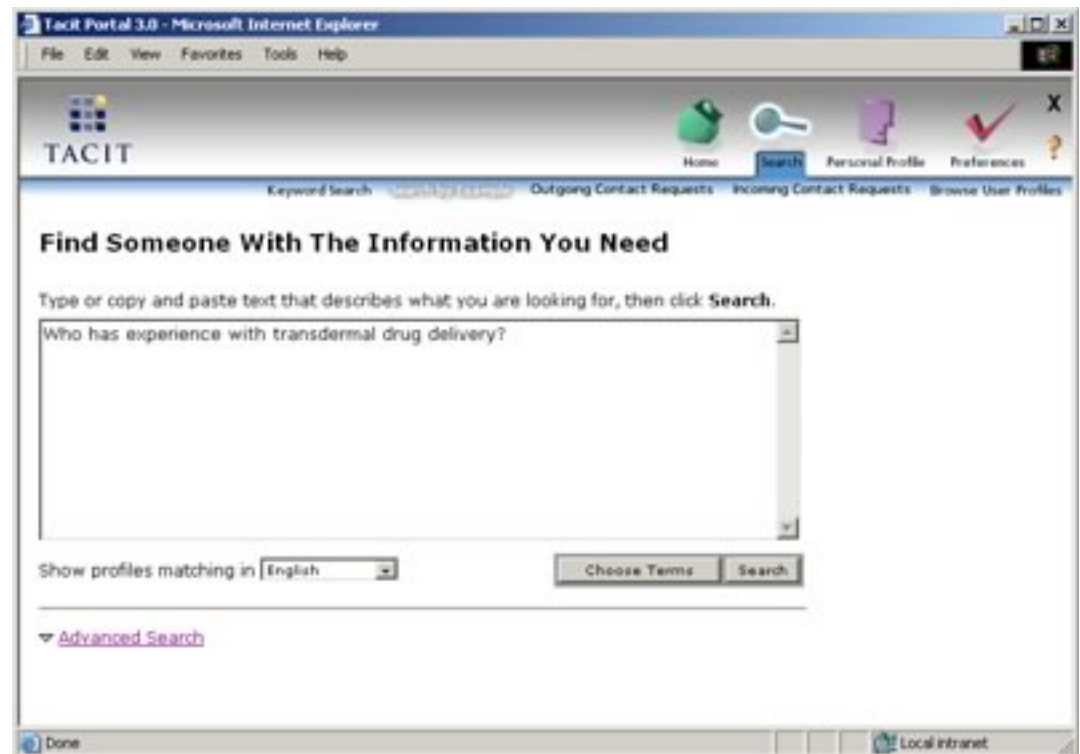


# Q is for.....



## 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!

Re: Supply Chain - Message (HTML)

File Edit View Insert Format Tools Actions Help

Reply Reply to All Forward

From: Automation@skgn.com Sent: Wed 4/10/2002 5:09 PM

To: Sandra Wenning

Cc:

Subject: Re: Supply Chain

Dear Sandra

SKGN found the following resources that would help your question regarding "supply chain".

16 Questions & Answers	Date
<a href="#">ROI of Supply Chain Automation</a> It depends on your group's existing degree of automation and organizational integration. If you have a solid base of "legacy sys	02/20/2002
<a href="#">Supply Chain Automation</a> I am interested in finding any information or past projects related to supply chain automation specifically in the area of suppl	02/27/2002
<a href="#">JIT Inventory Management</a> What is the Just in Time system and how can it be implemented?	02/11/2002
<a href="#">Customer Success with Supply Chain ...</a> Do we have an example of a customer success integrating our RobotArms products with Supply Chain Management?	03/06/2002
<a href="#">Inventory Management Protocols</a> The key to managing a supply chain is managing inventory levels. The process Honeywell uses to manage these levels is detailed b	02/11/2002

[See more questions and answers...](#)

9 Experts	Date
<a href="#">Sara.Vaughn</a> (Supply Chain Management) 20+ years experience in managing procurement and supply management organizations at the corporate and business unit levels. Extensive inter...(more)	Rating:☆☆☆☆☆ Avg. Reply: 2 hrs Prev. Answers: 11
<a href="#">Gwen.Harrison</a> (Supply Chain Management) 20+ years experience in managing procurement and supply management organizations at the corporate and business unit levels. Specialties inc...(more)	Rating:☆☆☆☆☆ Avg. Reply: 1 min Prev. Answers: 2
<a href="#">Eric.Johnson</a> (Supply Chain Management) Experienced in using software applications to automate supply chains. Have used applications to not only help manage inventory, forecasting...(more)	Rating:☆☆☆☆☆ Avg. Reply: 25 mins Prev. Answers: 2
<a href="#">Derrick.Berton</a> (Customer Success) I am the Director of Professional Services and can speak to all angles and sides of customer successes. Prior to being the Director of Pro...(more)	Rating:☆☆☆☆☆ Avg. Reply: 53 mins Prev. Answers: 4
<a href="#">Mike.Springer</a> (Customer Success) I am a Consulting Manager for RobotArms products targeted towards the Automobile industry. I was the Team Lead on the large projects we hav...(more)	Rating:☆☆☆☆☆ Avg. Reply: 58 mins Prev. Answers: 2



# R is for.....



## Retrieval

- Many file types
- NLP, fuzzy
- Patterns e.g. video
- Semantic filters
- Results navigation
- Test at TREC
- Hot topic

Northern Light Search: knowledge harvesting - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Mail Print Print Preview Print Setup

Address [harvesting&qt=&pu=&a=3%3A1&us=50&rv=1&tl88=0%3A88&jt5=0%3A5&jt12=0%3A27012&d1=01%2F01%2F1999&d2=14%2F04%2F2002&search.x=41&search.y=15](http://harvesting&qt=&pu=&a=3%3A1&us=50&rv=1&tl88=0%3A88&jt5=0%3A5&jt12=0%3A27012&d1=01%2F01%2F1999&d2=14%2F04%2F2002&search.x=41&search.y=15) Go

divine  
Northern Light  
powered by COMPAQ  
OpenVMS AlphaServer systems

Simple | Power | Business | Investext | News Special Editions™  
Save this Search as an Alert Edit this search ? Tips

Power Search found 1,777 items for:  
knowledge harvesting Search

Organized by topic  
into Custom Search Folders™

- Soybeans cultivation & harvesting
- Wheat cultivation & harvesting
- Cotton cultivation & harvesting
- Rice cultivation & harvesting
- Management
- Fruit crop cultivation & harvesting
- Citrus fruit cultivation & harvesting
- Knowledge management
- Data processing services
- Telecommunications industry
- Crop yields
- all others...

US Patent 5,924,090

Search Current News  
knowledge h Search

1. **Special Collection** [U.S. Army Ready To Capture And Build On Information -- Knowledge management is c...](#)  
75% - **Articles & General info:** Chalk one up for brains over brawn. Armed conflicts soon may be decided not by who has the most powerful weapons, but by who has ... 04/15/2002  
**Information Week (magazine):** Available at NorthernLight.com
2. **Special Collection** [BEST PRACTICES IN KNOWLEDGE MGT-TUTORIAL REPORT](#)  
71% - **Industry overviews:** (5 page report) Report of FAULKNER INFORMATION SERVICES 10/01/2001  
**MarkIntel Market Research (full reports):** Available at NorthernLight.com  
[More results](#) from this publication
3. **Special Collection** [\(Page 2\) BEST PRACTICES IN KNOWLEDGE MANAGEMENT-TUTORIAL REPORT](#)  
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**MarkIntel Market Research (single pages):** Available at NorthernLight.com  
[More results](#) from this publication
4. **Special Collection** [The Age of Knowledge Frontier or Fad?](#)  
69% - **Articles & General info:** Not so long ago, the Hudson Institute, an international public policy institute based in Minneapolis, Minn., that forecasts trends and developments, made it very clear ... 06/01/2000  
**Communication World (magazine):** Available at NorthernLight.com
5. **Special Collection** [Following patterns carves a path to success](#)  
62% - **Articles & General info:** It takes more than fresh ideas to constitute a cerebral army. Pattern recognition may hold the key to acquiring, using and sharing **knowledge** both among ...

Done Internet



# 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

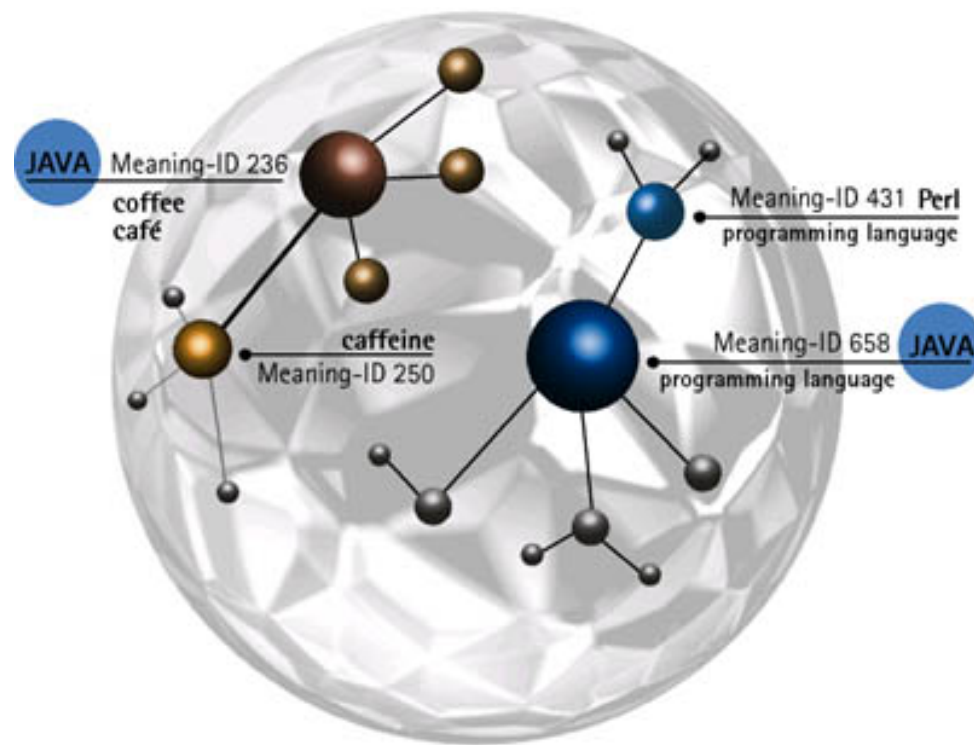
*UF Tariff barriers*

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

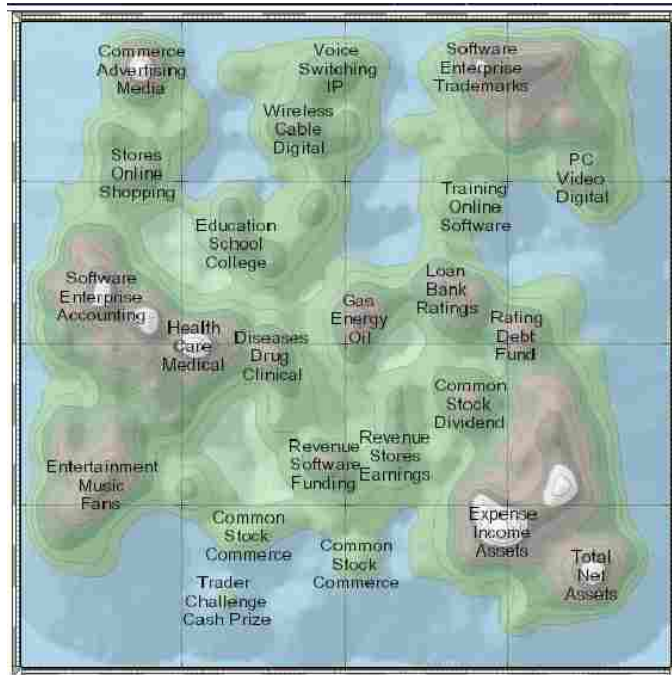




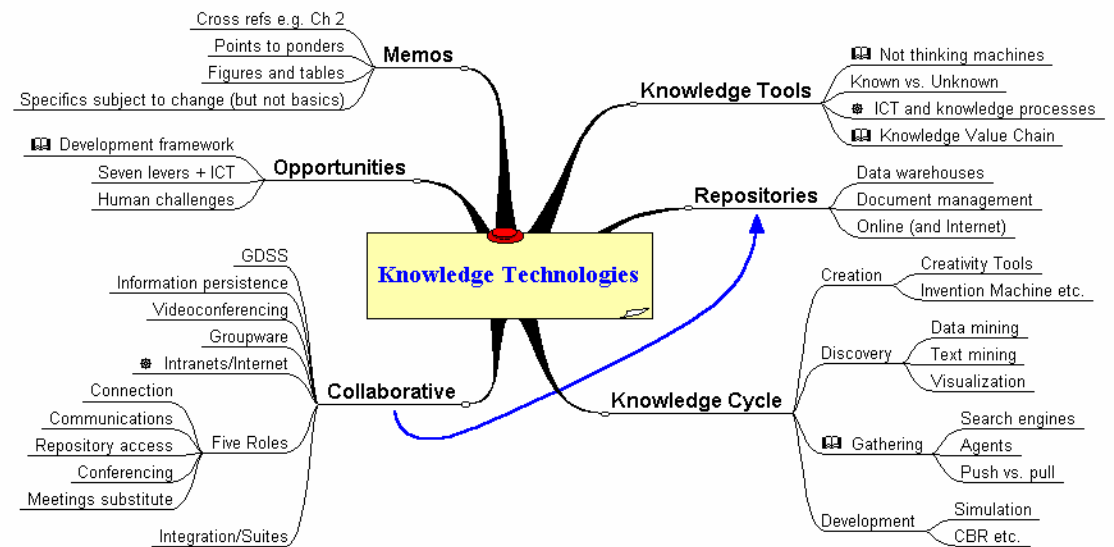
# V is for.....



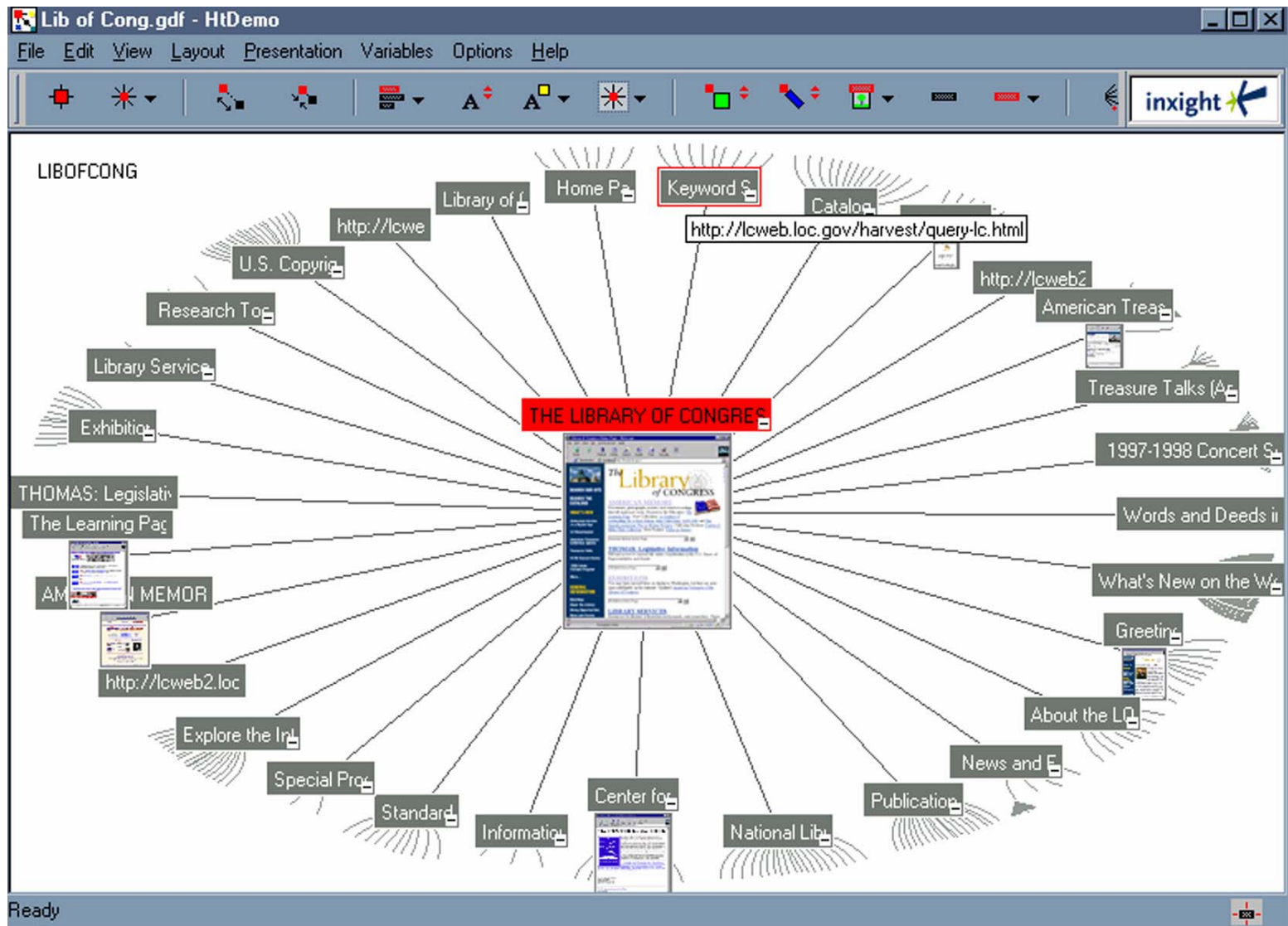
## Visualisation



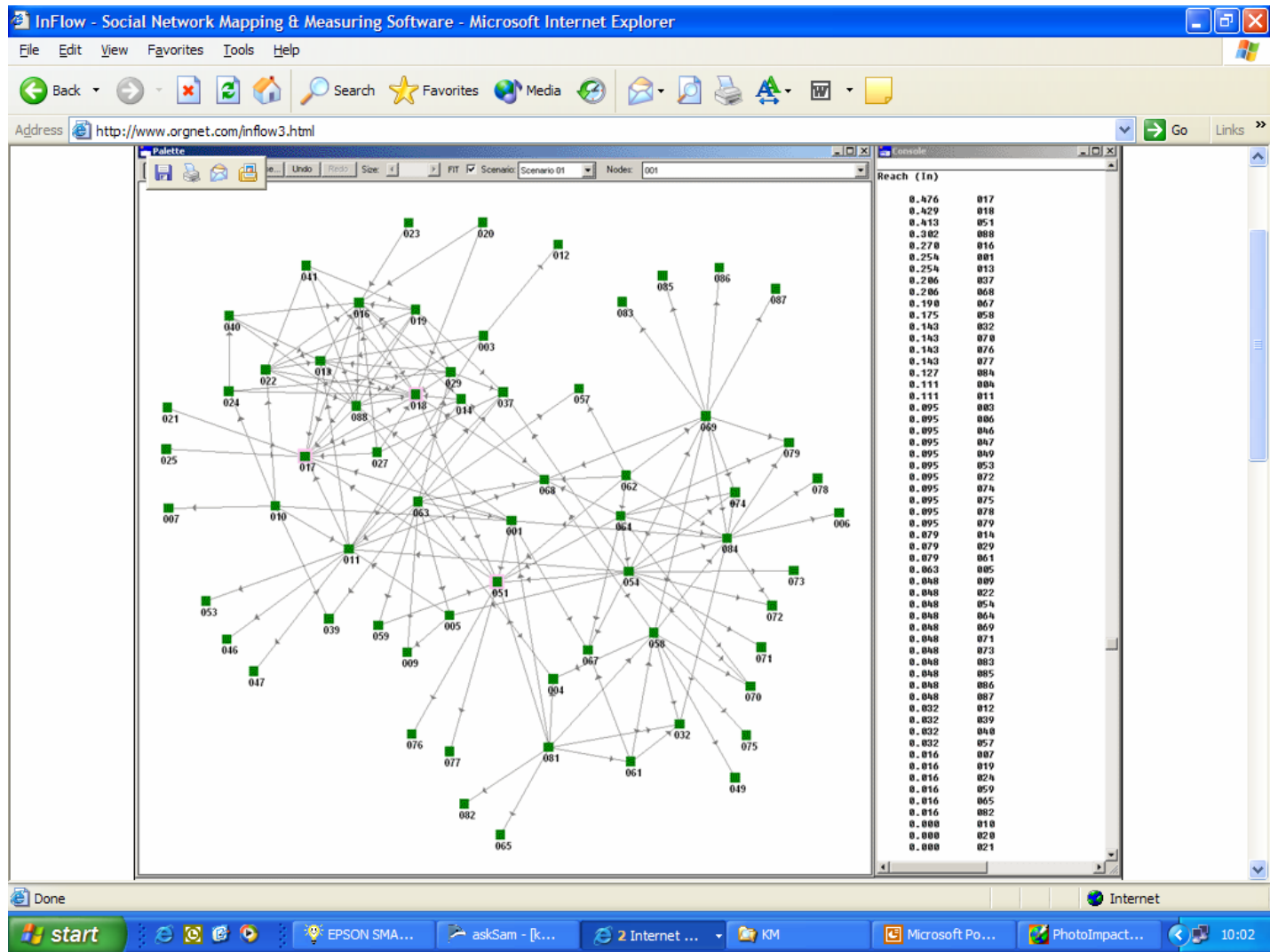
Aurigin's Themescape



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  
eRoom

CRM that uses case based reasoning (Inference)  
Online collaboration software. Also hosted eRoom.net service.

Fretwell Downing

ZPORTAL: Z39.50 retrieval from multiple online databases

Grimmer Software  
Groove Networks

Word Mapper takes the results of searches and displays in a concept map.  
P2P shared workspace: "10x better than email for sharing files"

Hummingbird  
Hyperwave

Portal suite from many acquisitions e.g. PCDOCS, Fulcrum  
eKnowledge infrastructure (CMS/portal). Germany.

IBM

Highly integrated Websphere (portal) now merged with Lotus K-station

InXight  
Inktomi  
Intelliseek  
Intraspect  
Invention Machine

Xerox spin-off; categorization and visualization (hyperbolic trees)  
Search Everywhere concept induction search engine. Recently acquired Quiver.  
Aggregates, categorizes and tracks external sources for business intelligence  
Collaborative solutions: shared workspace plus vertical markets  
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

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# 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

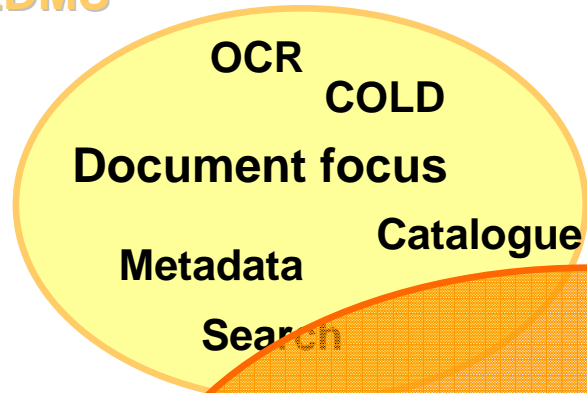




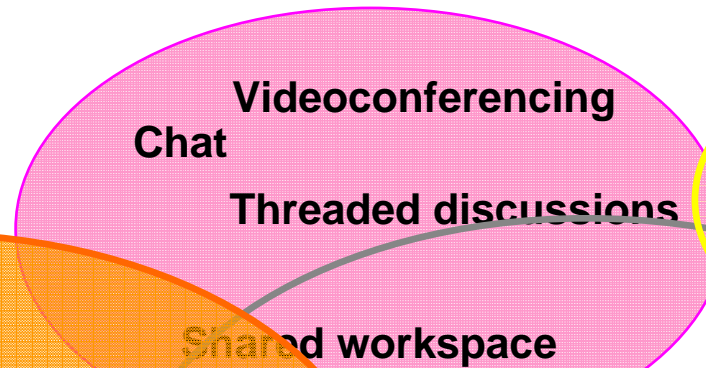
# Convergence / Consolidation



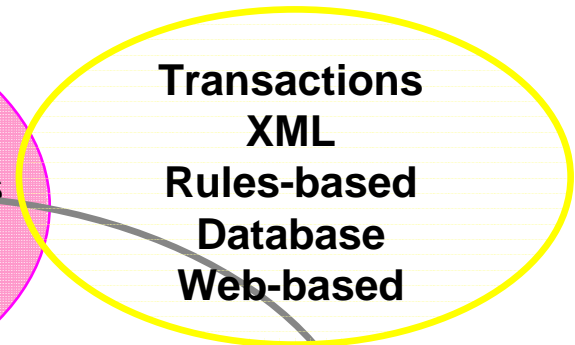
## EDMS



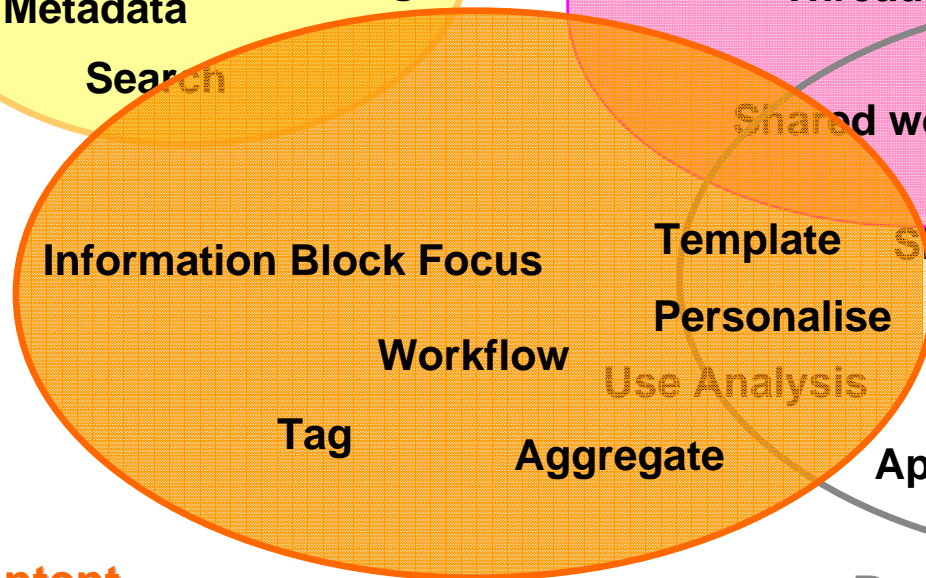
## Collaboration



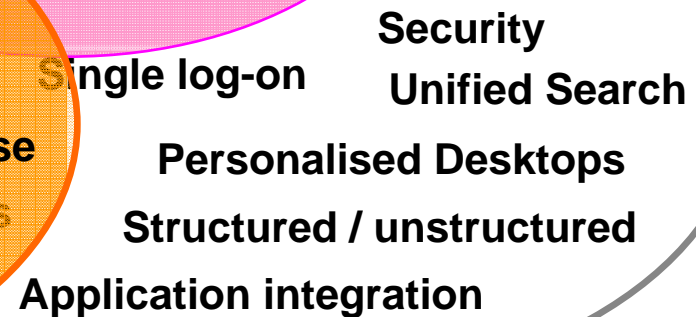
## E-Commerce



## Content Management



## Portals





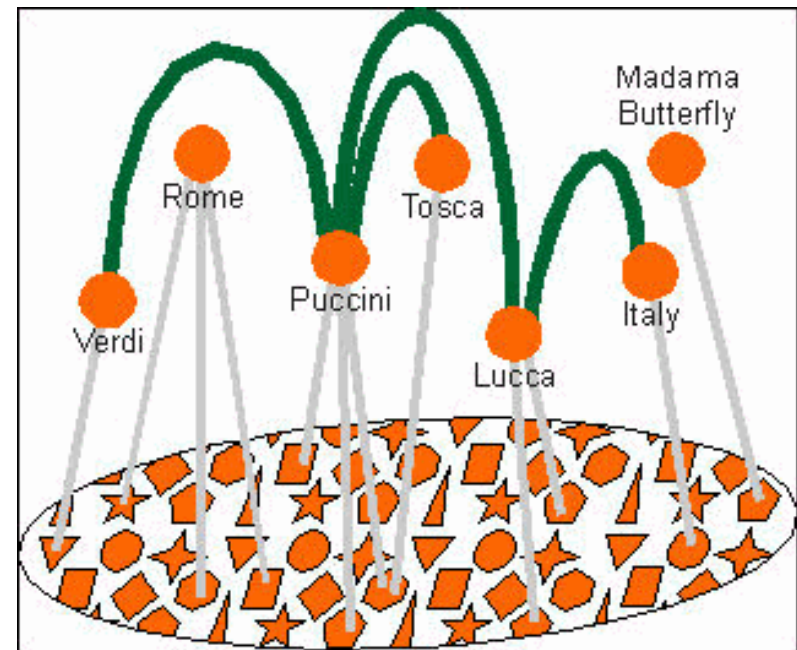


# X is for.....



## XTM (XML Topic Maps)

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



X is also for XML, xHTML

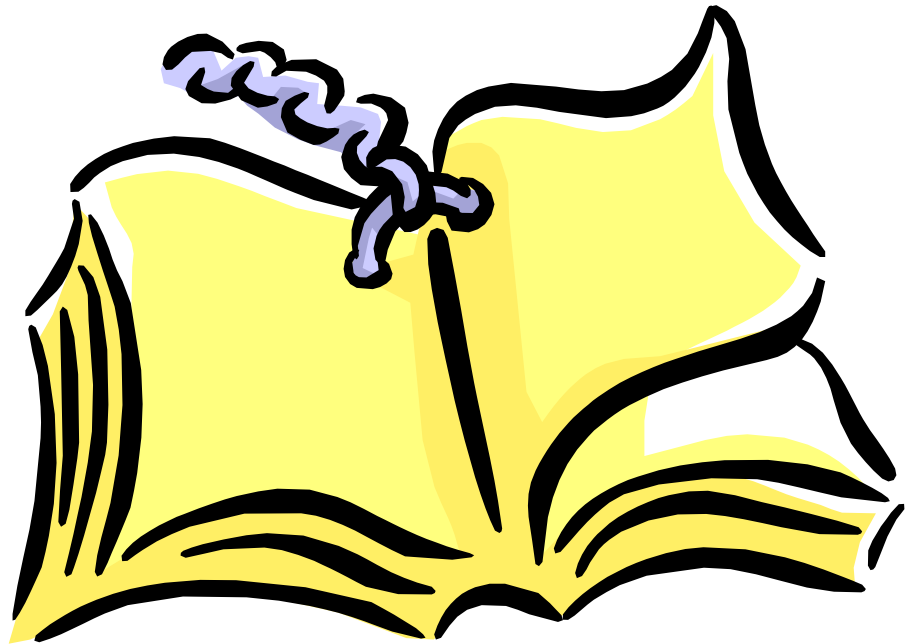


# Y is for.....



## 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



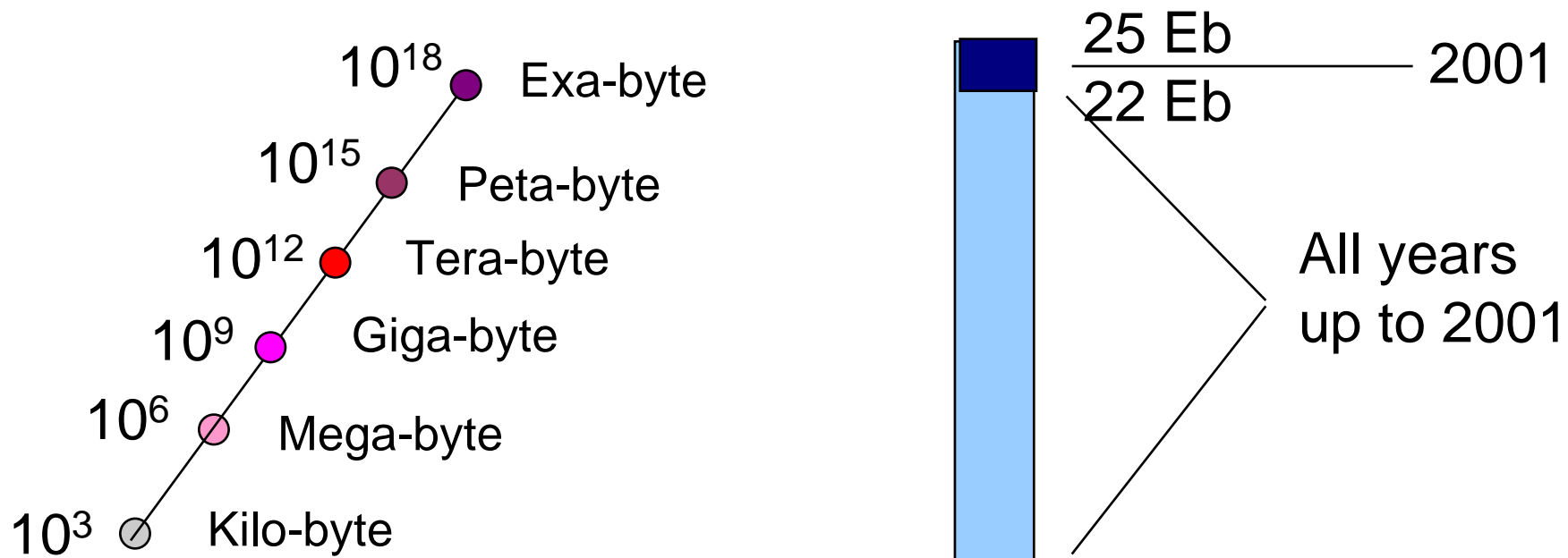


# Z is for.....



## Zillion

“A very large but indefinite number”



Do we have a problem?



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

