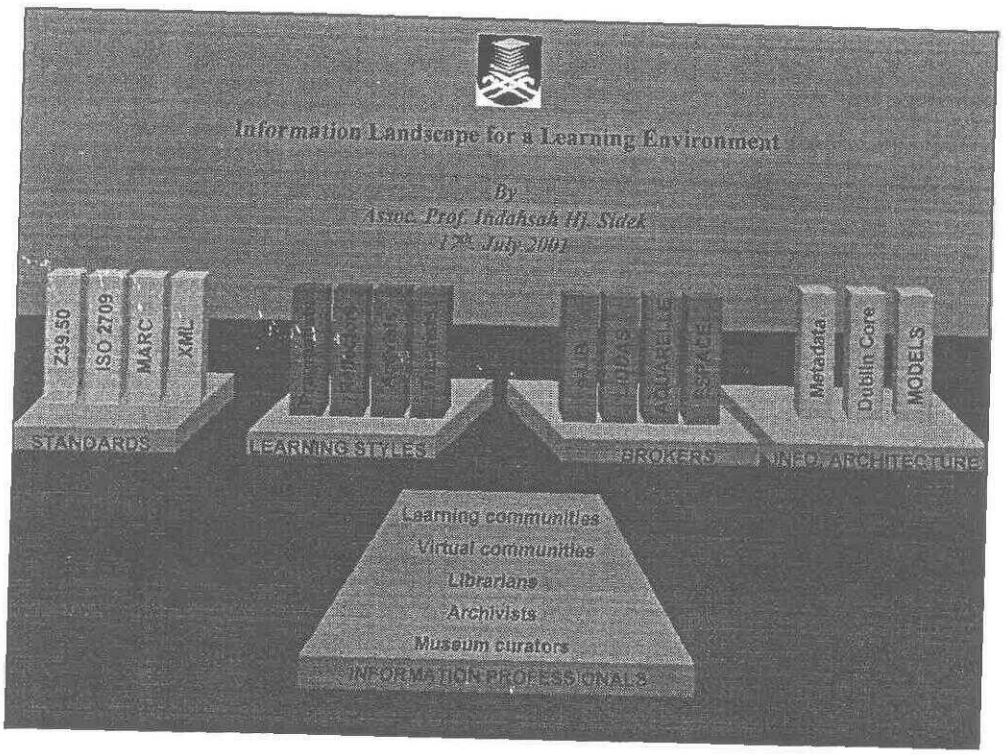
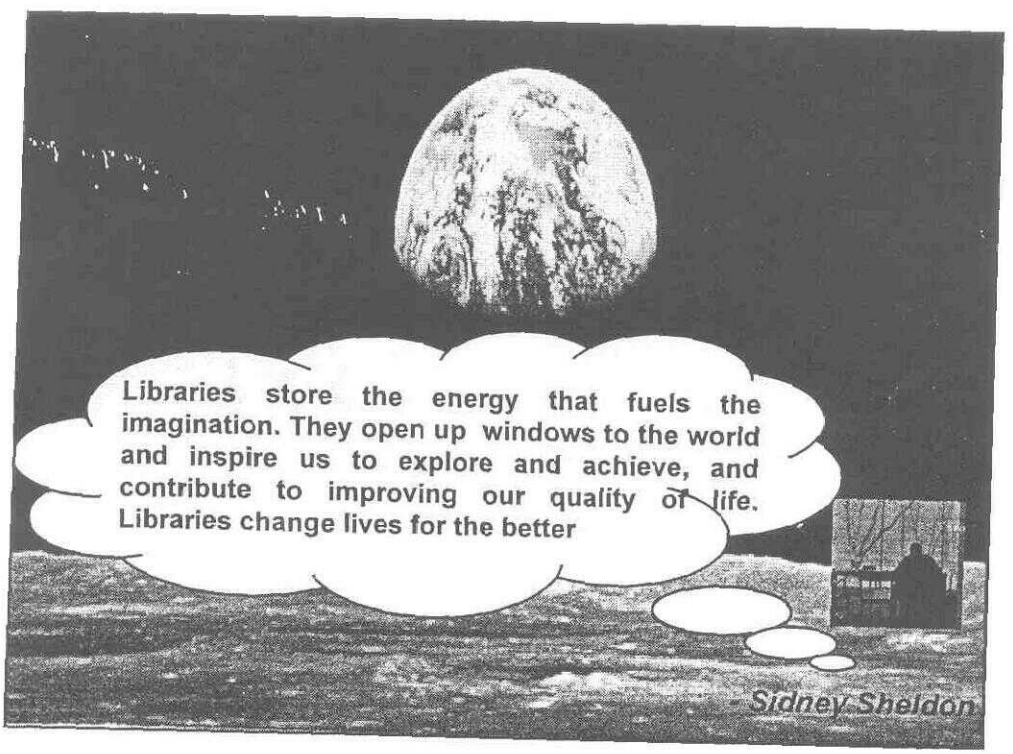
UNIVERSITI TEKNOLOGI MARA

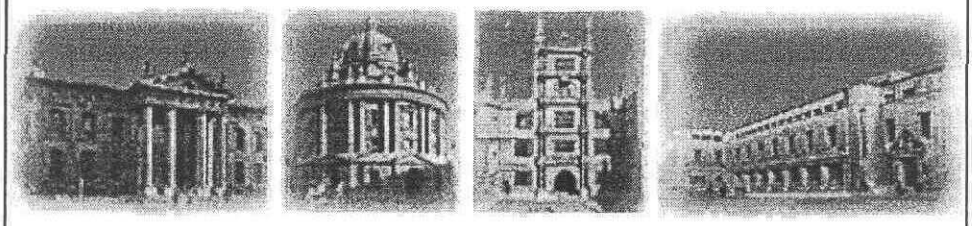
# MAKLUMAT SEJAGAT : CABARAN KEPADA PUSTAKAWAN

17-19 JULAI 2001
INSTITUT LATIHAN FAMA
PORT DICKSON NEGERI SEMBILAN

*ANJURAN :*
*PERPUSTAKAAN TUN ABDUL RAZAK*
*UITM SHAH ALAM*

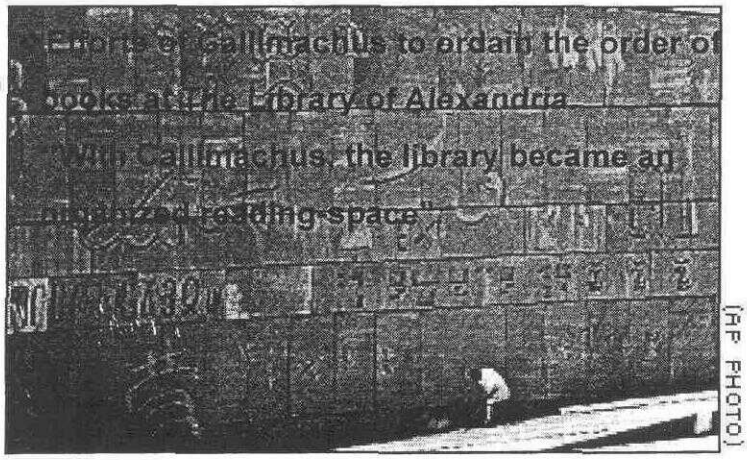

Information Landscape for a Learning Environment
By
Assoc. Prof. Indahsah Hj. Sidek
17th July 2001
Z39.50
ISO 2709
MARC
XML
STANDARDS
LEARNING STYLES
BROKERS
Metadata
Dublin Core
MODELS
INFO ARCHITECTURE
Learning communities
Virtual communities
Librarians
Archivists
Museum curators
INFORMATION PROFESSIONALS


Libraries store the energy that fuels the imagination. They open up windows to the world and inspire us to explore and achieve, and contribute to improving our quality of life. Libraries change lives for the better
Sidney Sheldon

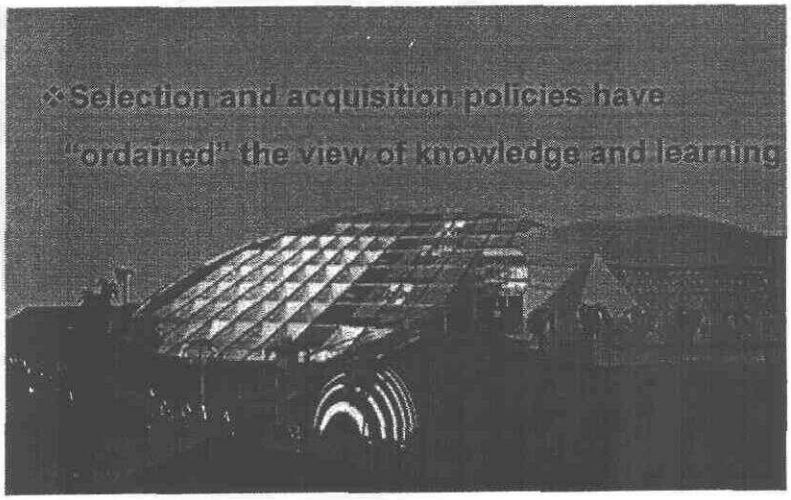


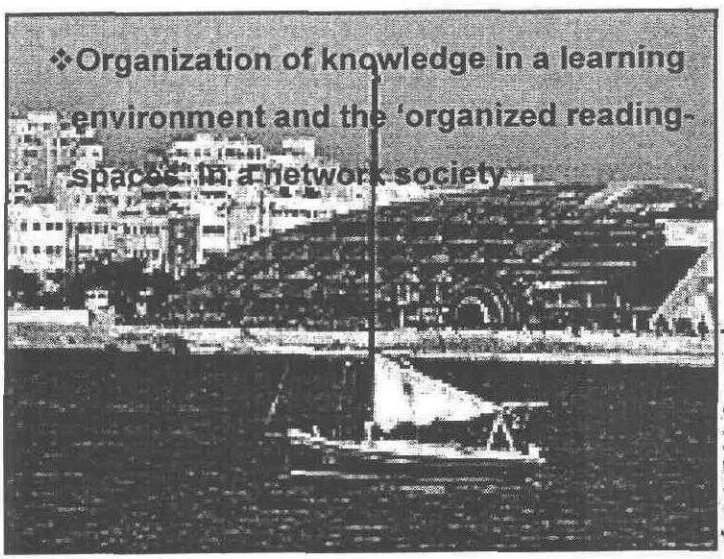
**...Librarians are 'ordainers of the universe'**

*"A history of reading"*
*– Alberto Manguel*

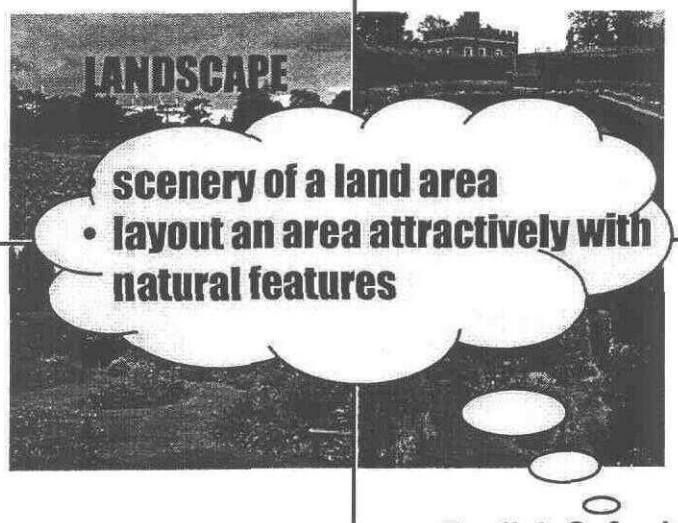



***Callimachus of Cyrene***
***One of the most distinguished poets of Alexandria. More than 800 literary works are attributed to him both poetry and prose. His "Pinakes" (the catalogue of the ancient library of Alexandria) was the first bibliographic catalogue in history***

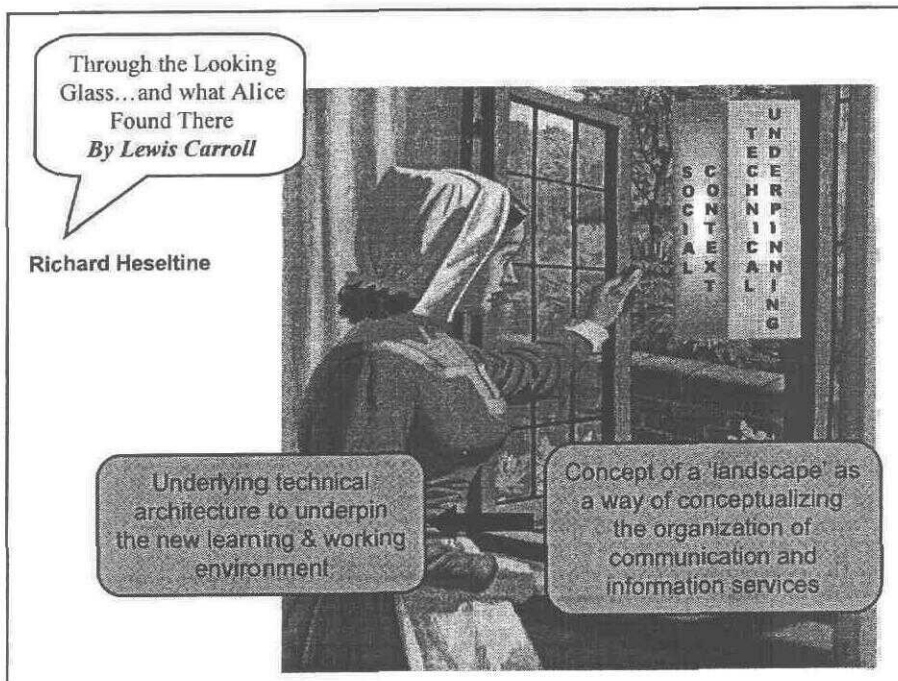

❖Selection and acquisition policies have
"ordained" the view of knowledge and learning


❖Organization of knowledge in a learning
environment and the 'organized reading-
spaces' in a network society

(AP PHOTO)



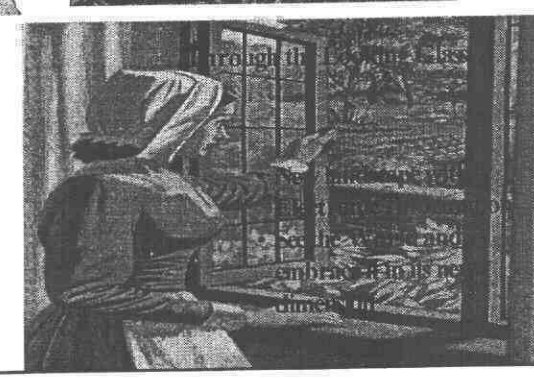

*- English Oxford Dictionary*

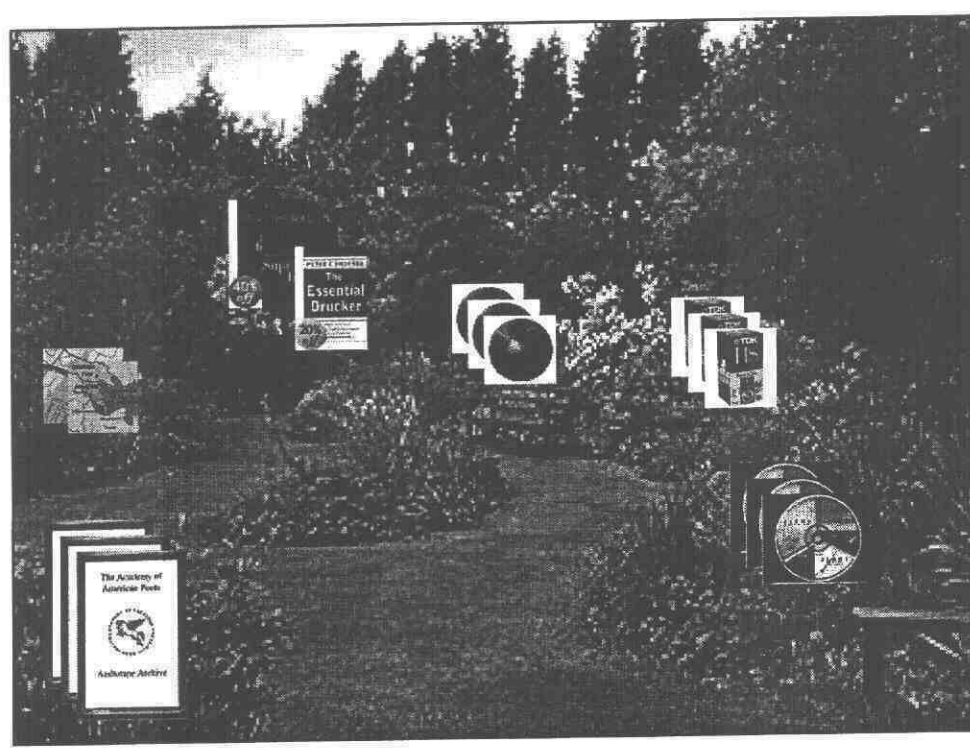


Alice÷s adventures in Wonderland

"What is the use of a book…

without pictures and conversation?'





## Information Landscapes

- How will these landscapes support users and how will they relate to existing places and services?

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## Information Landscapes

- The Information Landscape of the future will weave together electronic services and existing services in ways that join USERS to the materials and tools that they need, when they need them.

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## Information Landscapes

- Current information and learning systems exist as functional islands, a series of individual, *unconnected* opportunities

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## Information Landscapes

- How will library services combine physical places and digital information spaces; the print and the electronic; learning and information

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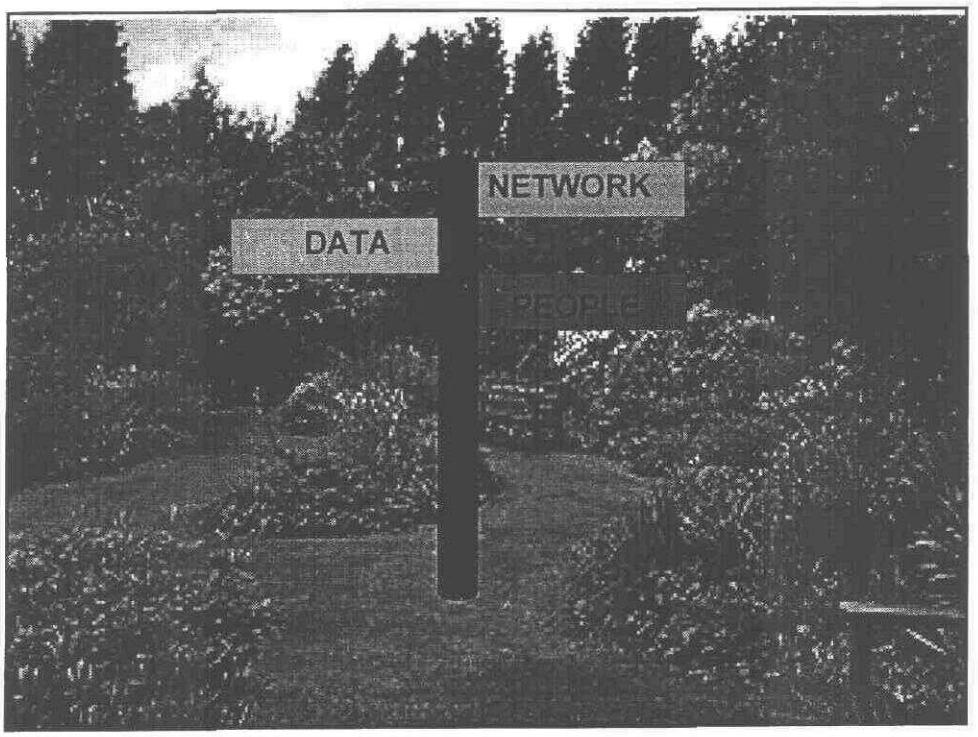
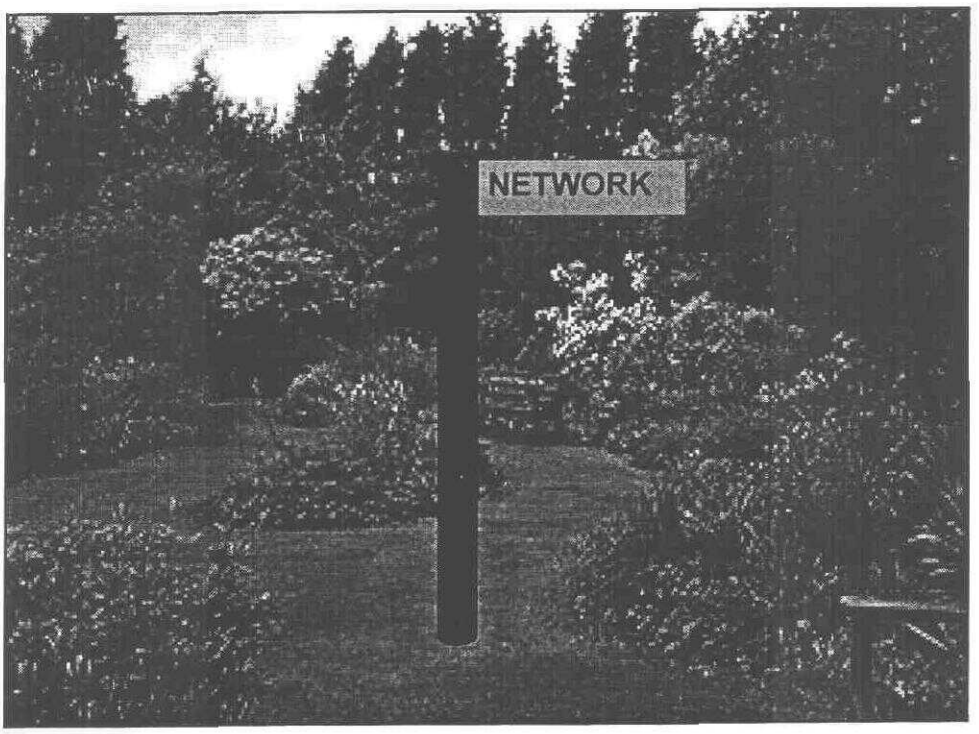

NETWORK
DATA
PEOPLE


NETWORK

## Characteristics of Networked Resources

- Heterogeneous, and grow in volume and variety, with different access characteristics; diverse data schema and exchange formats

## Characteristics of Networked Resources

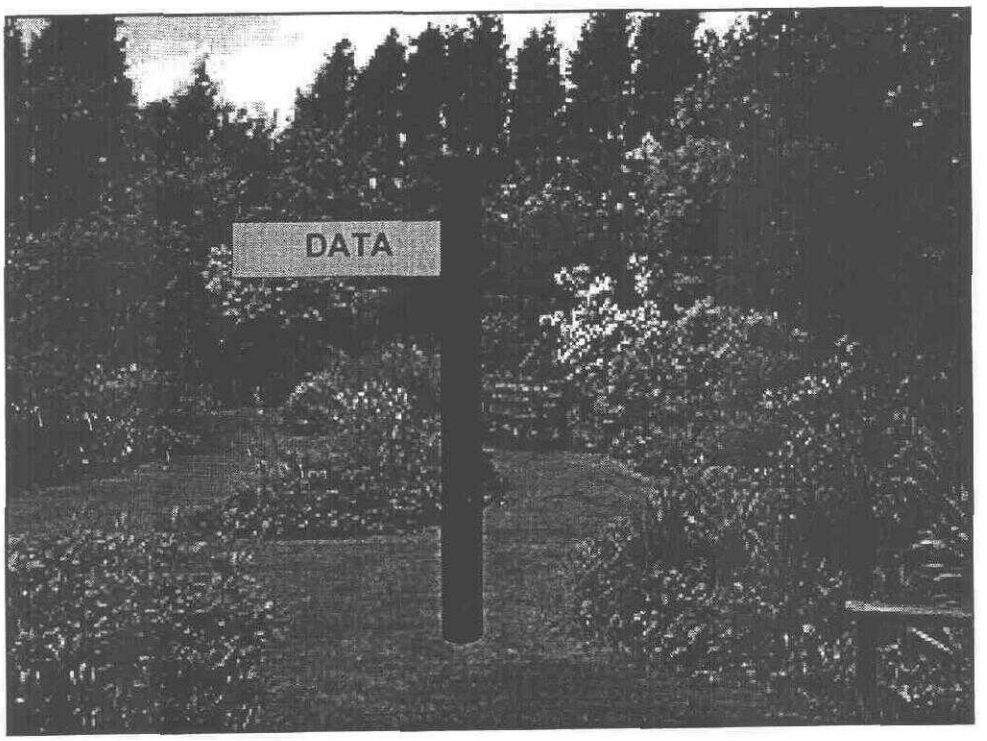
- Autonomously managed

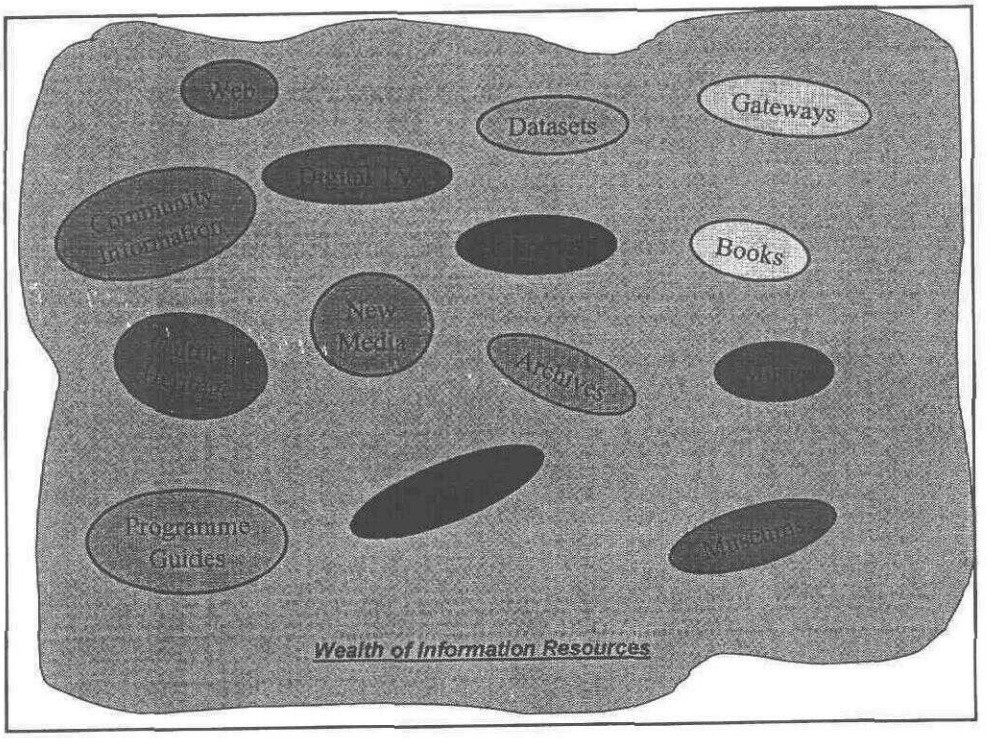
## Characteristics of Networked Resources

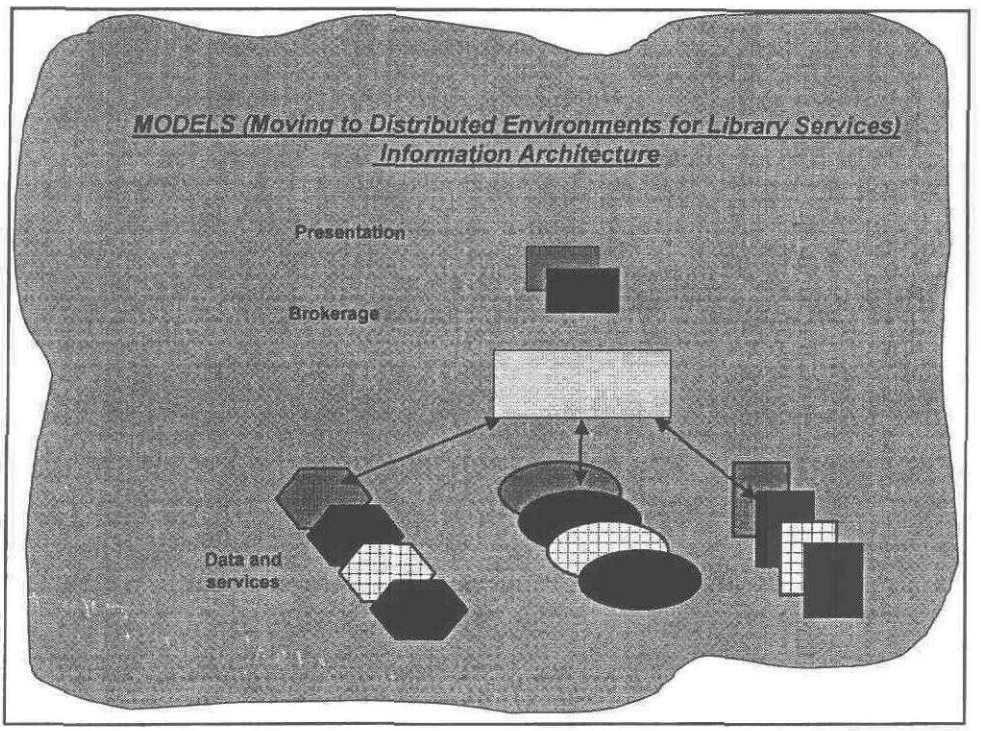
- Individually controlled.
  Information providers wish to protect the value of their resources

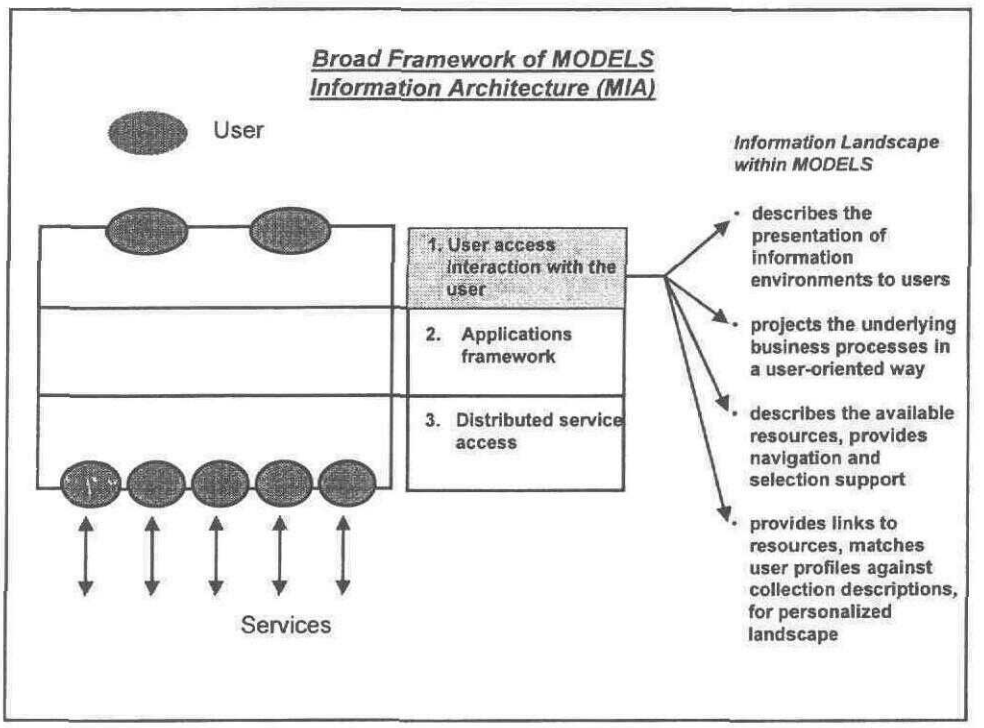
## Characteristics of Networked Resources

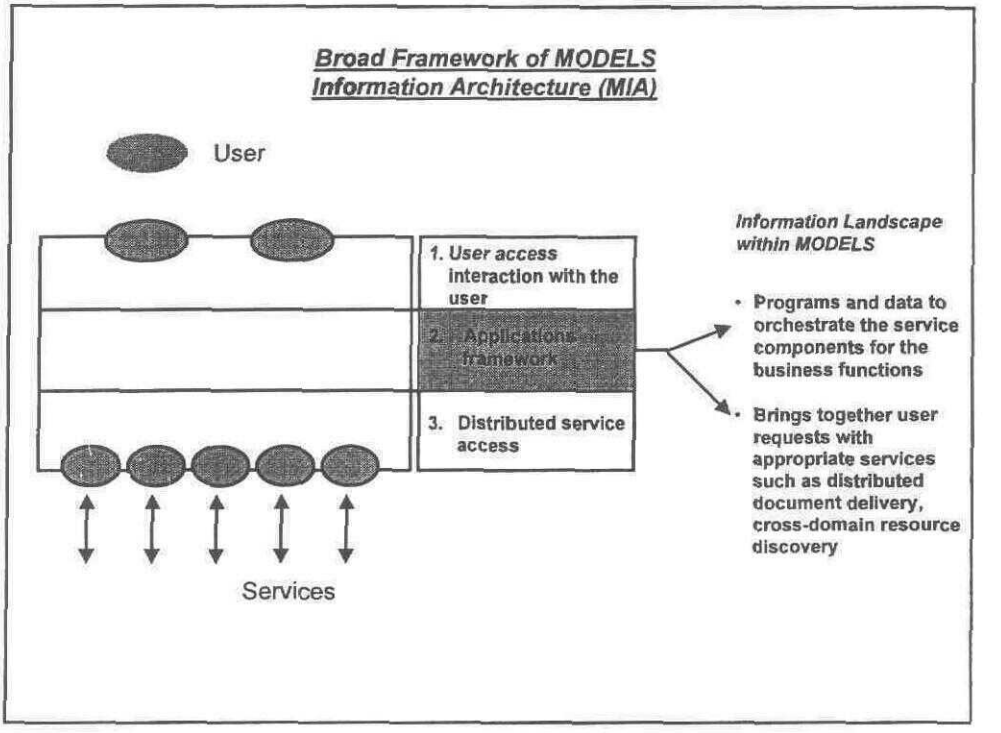
- Different aggregations of functions


DATA


Web
Datasets
Gateways
Digital TV
Community Information
Books
New Media
Archives
Programme Guides
Wealth of Information Resources


MODELS (Moving to Distributed Environments for Library Services)
Information Architecture
Presentation
Brokerage
Data and services


Broad Framework of MODELS
Information Architecture (MIA)
User
1. User access interaction with the user
2. Applications framework
3. Distributed service access
Services
Information Landscape within MODELS
• describes the presentation of information environments to users
• projects the underlying business processes in a user-oriented way
• describes the available resources, provides navigation and selection support
• provides links to resources, matches user profiles against collection descriptions, for personalized landscape


Broad Framework of MODELS
Information Architecture (MIA)
User
1. User access interaction with the user
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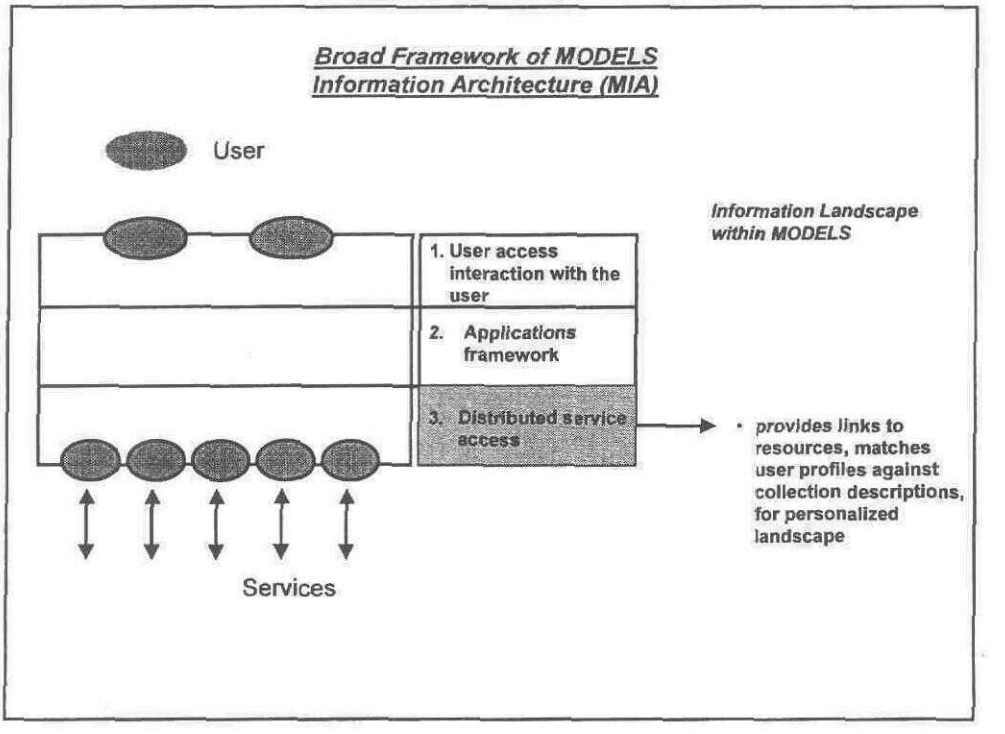
3. Distributed service access
Services
Information Landscape within MODELS
• Programs and data to orchestrate the service components for the business functions
• Brings together user requests with appropriate services such as distributed document delivery, cross-domain resource discovery


Broad Framework of MODELS
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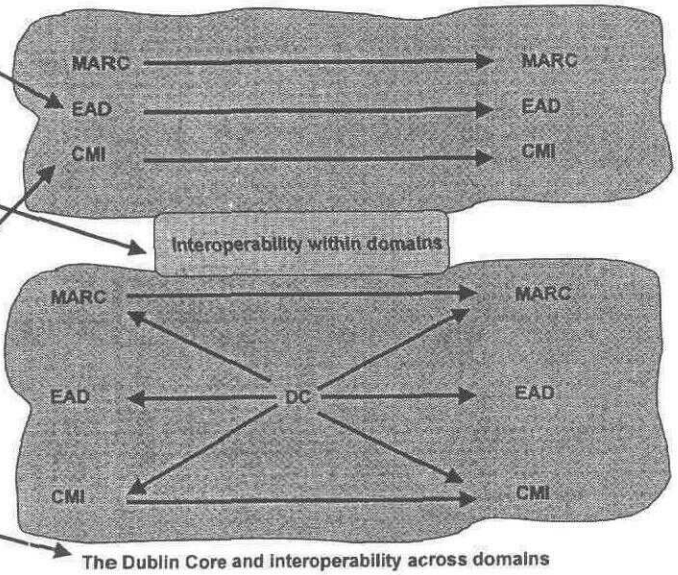
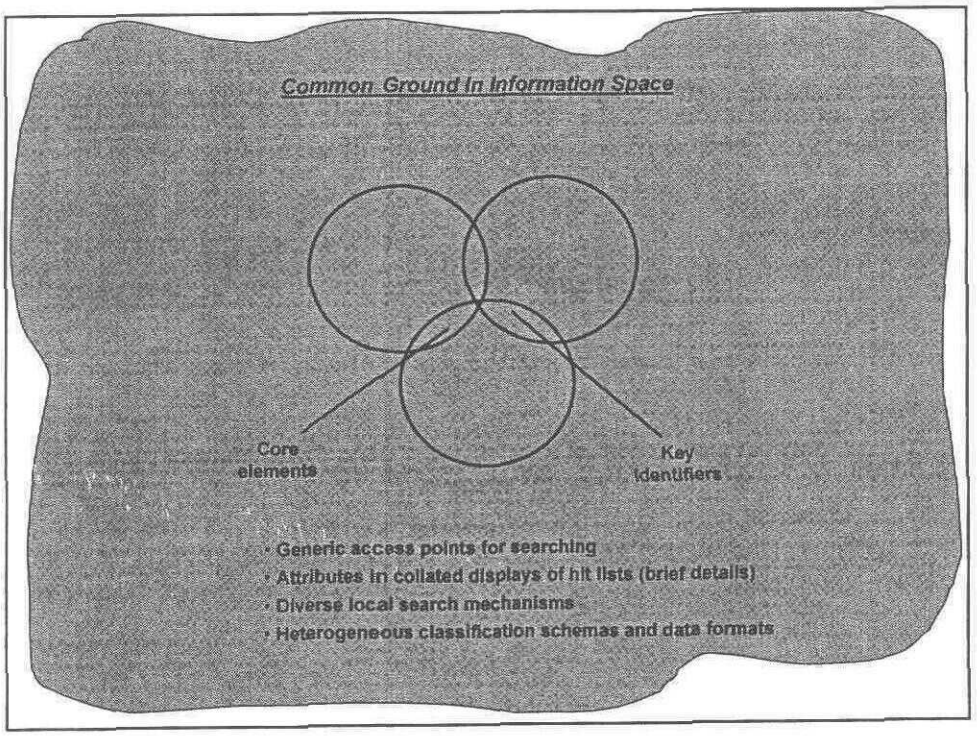
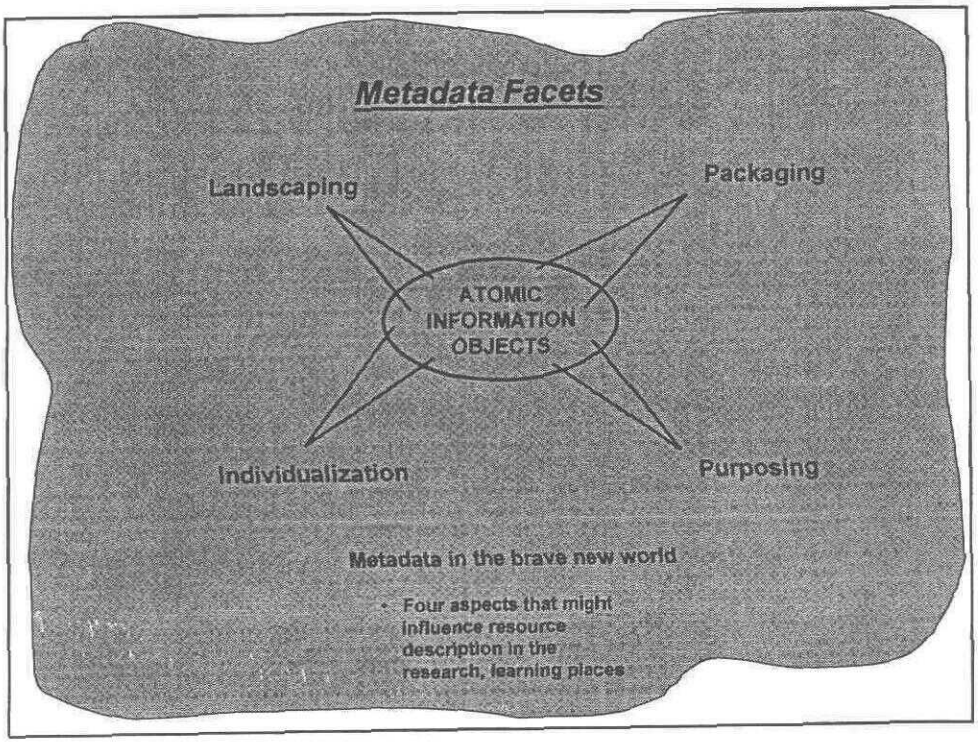
• provides links to resources, matches user profiles against collection descriptions, for personalized landscape

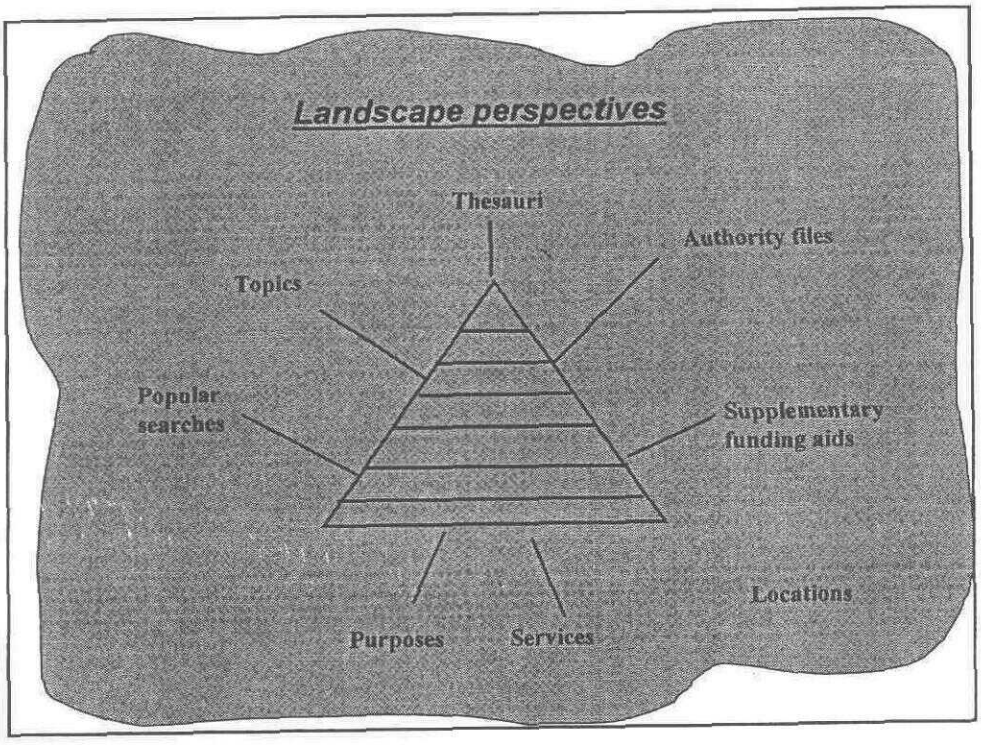
## Metadata and Network Protocols

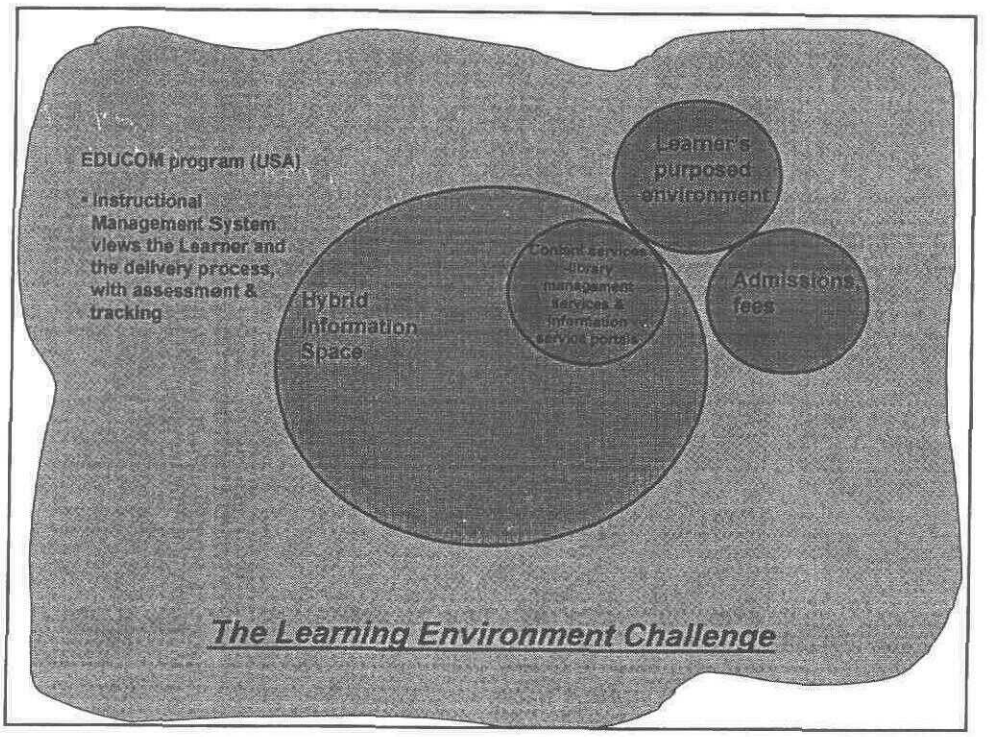
- Encoded Archival Description
- Distributed information systems with common record structure and network application protocols, i.e. MARC and Z39.50; Archives integrated access system and EAD; Museums integrated access system with CIMI standard
- Consortium for Computer Interchange of Museum Information
- Dublin Core acts as lynchpin of cross domain resource discovery
- Integrates access to systems with different standards

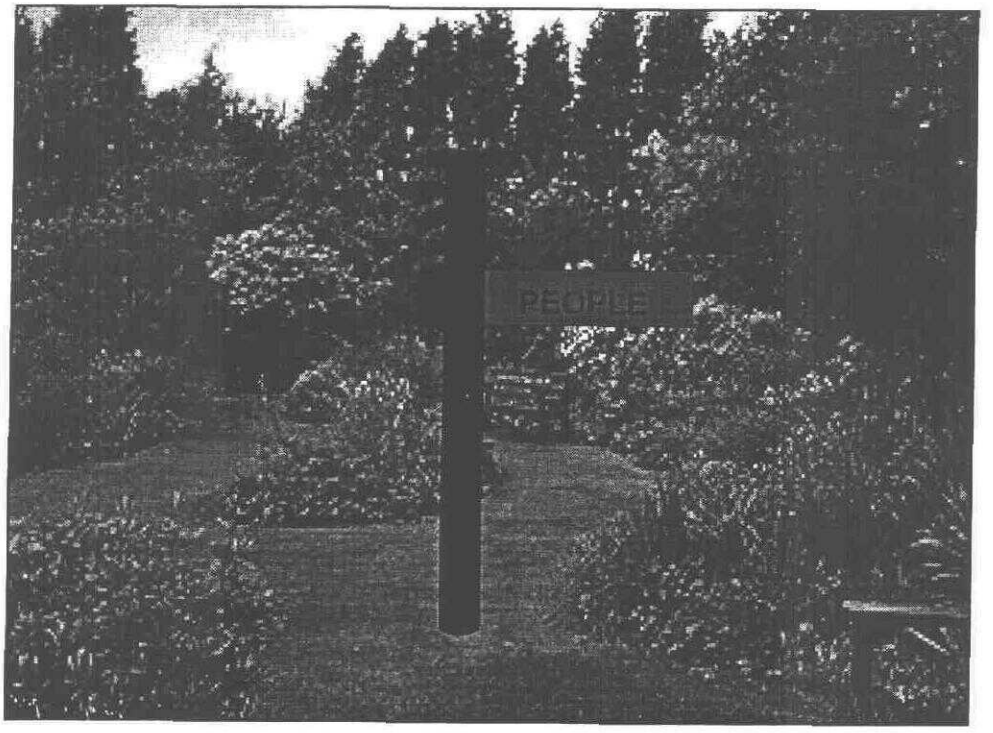



Metadata Facets
Landscaping
Packaging
ATOMIC INFORMATION OBJECTS
Individualization
Purposing
Metadata in the brave new world
• Four aspects that might influence resource description in the research, learning places


Landscape perspectives
Thesauri
Authority files
Topics
Popular searches
Supplementary funding aids
Locations
Purposes
Services

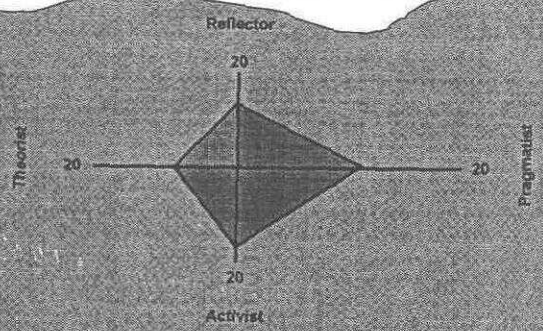

EDUCOM program (USA)
• Instructional Management System views the Learner and the delivery process, with assessment & tracking
Learner's purposed environment
Content services library management services & information service portals
Admissions fees
Hybrid Information Space
The Learning Environment Challenge


PEOPLE

## *The Learners & the Learning Information Landscape*

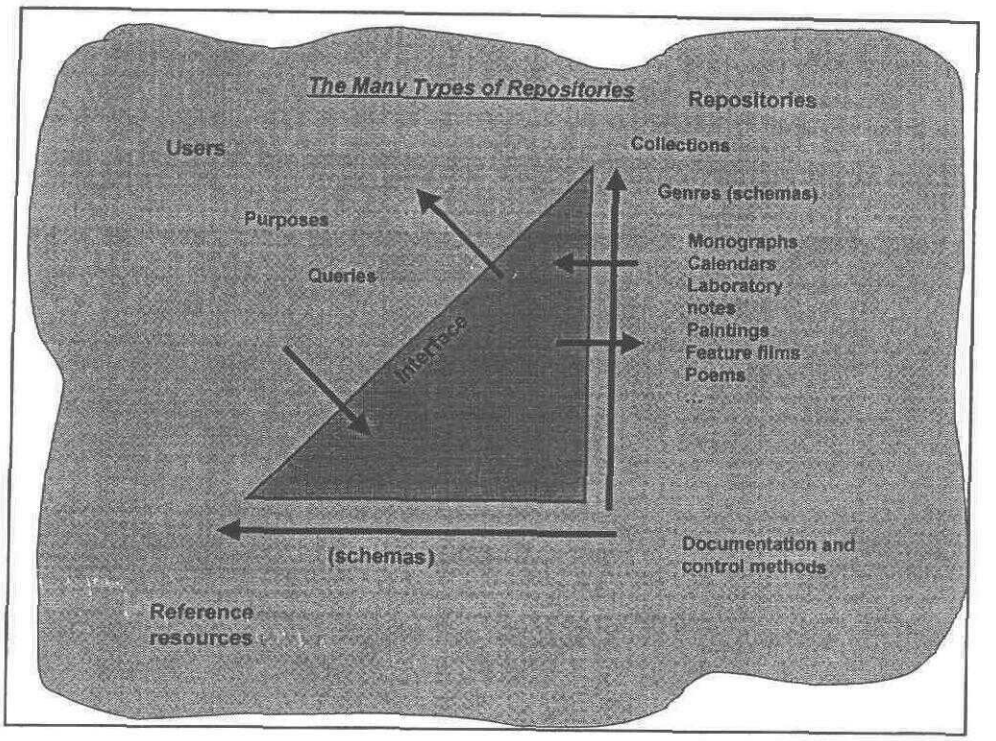
Kolb learning styles

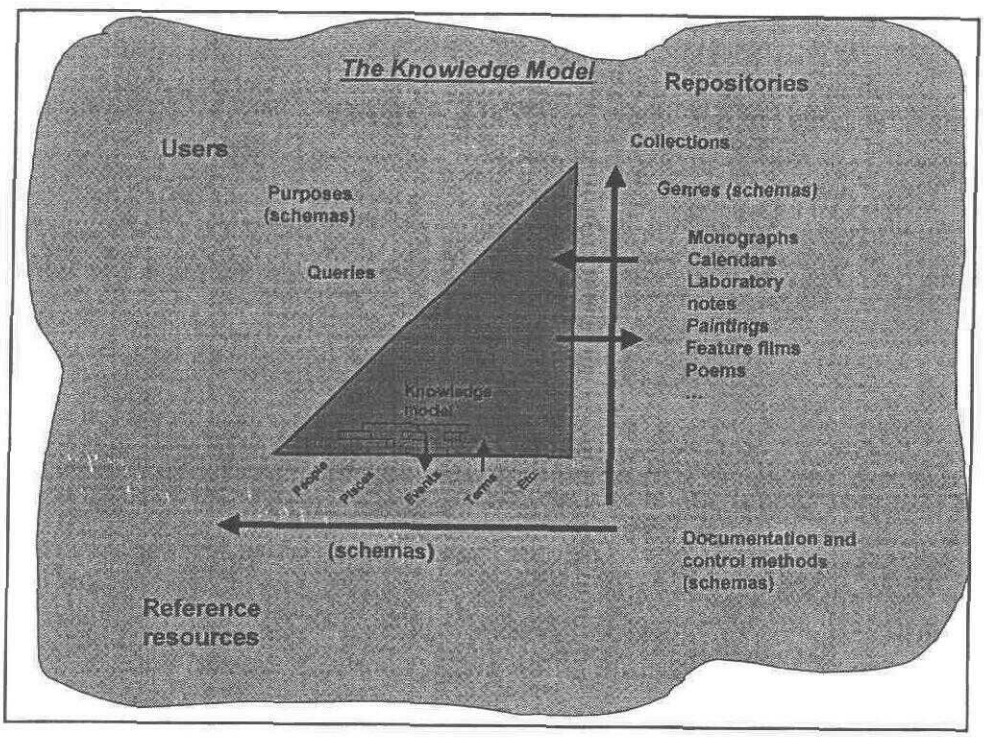
| | | |
|---|---|---|
| Concrete | Type 1<br>*Why?*<br>Motivator | Type 4<br>*What if?*<br>Enabler |
| Abstract | Type 2<br>*What?*<br>Expert | Type 3<br>*How?*<br>Coach |
| | Reflective | Active |

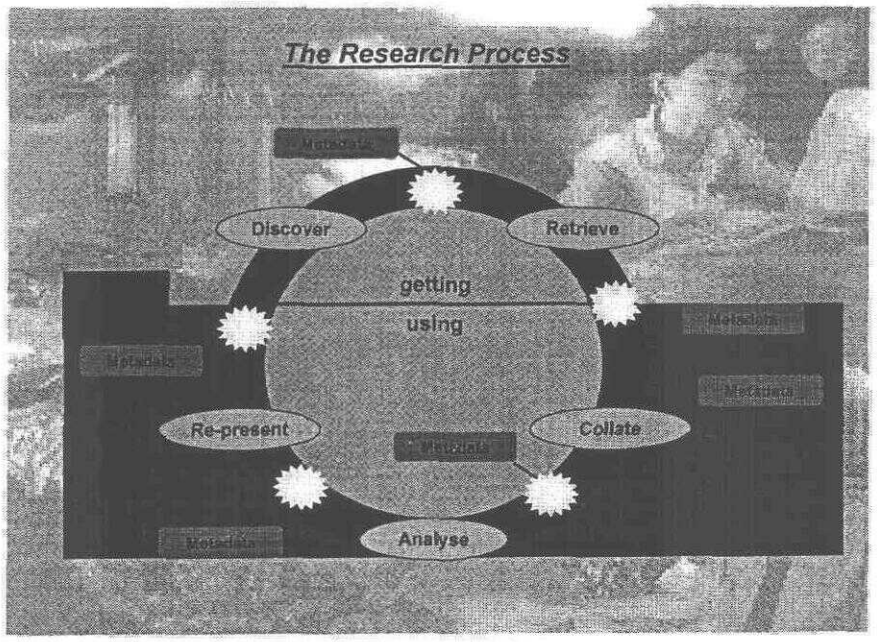


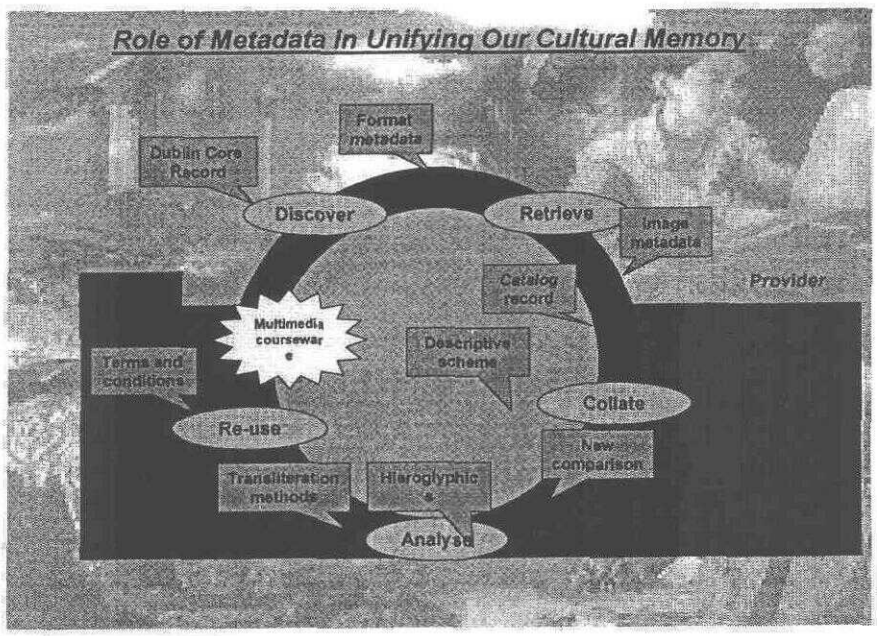

| | |
|---|---|
| Activists | Open-minded and enthusiastic learners; throw themselves in; live for the here and now; ready to try anything; thrive on challenge but soon become bored with routine. |
| Reflectors | Learn by collecting all the data they can and then considering it from different perspectives before reaching a conclusion; cautious, thoughtful, listen, act only when confident. |
| Pragmatists | Down-to-earth and practical people; they learn by putting theories and techniques into practice; like to get on with things and act confidently; impatient with long-winded and wooly discussion; enjoy problem-solving. |
| Theorists | Like to learn in a logical step-by-step manner; they collect and organize data, the devise their own theories for how it all fits together |

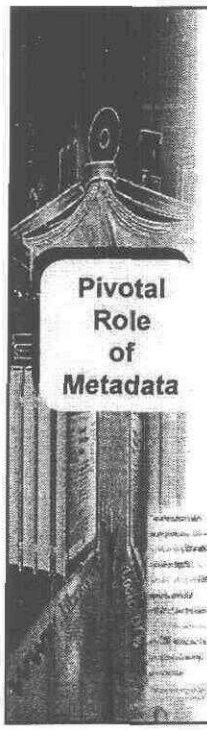
*Honey & Mumford – Learning Styles Research*


The Many Types of Repositories
Repositories
Users
Collections
Genres (schemas)
Purposes
Queries
Monographs
Calendars
Laboratory
notes
Paintings
Feature films
Poems
...
Interface
(schemas)
Documentation and
control methods
Reference
resources


The Knowledge Model
Repositories
Users
Collections
Genres (schemas)
Purposes
(schemas)
Queries
Monographs
Calendars
Laboratory
notes
Paintings
Feature films
Poems
...
Knowledge
model
People
Places
Events
Terms
Etc
(schemas)
Documentation and
control methods
(schemas)
Reference
resources

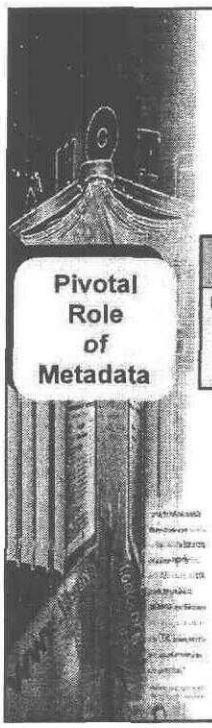

The Research Process
Discover
Retrieve
getting
using
Re-present
Collate
Analyse


Role of Metadata In Unifying Our Cultural Memory
Format metadata
Dublin Core Record
Discover
Retrieve
Image metadata
Catalog record
Provider
Multimedia coursewar e
Descriptive scheme
Terms and conditions
Collate
Re-use
New comparison
Transliteration methods
Hieroglyphic s
Analyse




**Metadata packets in five stages of research by layers in the reference model for business-acceptable communications**

| | Discovery | Retrieval | Collation | Analysis | Re-Presentation |
|---|---|---|---|---|---|
| Handle | Publisher or distributor | Identification number | | | |
| Terms and conditions | Access, use, rights statements | Access terms, fee structure, use restrictions | Acknowledgements | Anonymization requirements | Terms and conditions, fees |
| Structure | File type, size, format | Resolution, compression method, arrangement, hardware or software dependencies | Data structure and representation methods | Data capture and manipulation methods | |
| Context | | | | | |
| Creation | Functional provenance, creator name, date | Links, functional dependencies | | Value tables and organizational schemes | |
| Relations | Collection/site/ item/association | Toolsets and analytical methods | Disciplinary schema | | Credits/citations |
| Content | | | | | |
| Classification | Object type, status | | Disciplinary schemes | | Conventions of representation |
| Content | Subjects, coverage, scope of content | | Disciplinary overlays | Unknown data values | |
| Use history | Publication or citation history | Captions and citation details | | | Citations |

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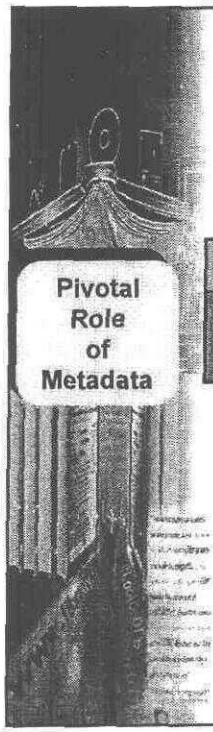
|---|---|---|---|---|---|
| Handle | Publisher or distributor | Identification number | | | |

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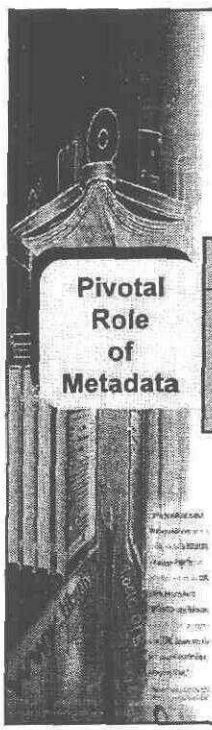
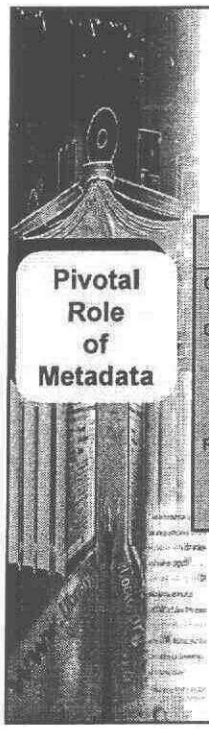
| | Discovery | Retrieval | Collation | Analysis | Re-Presentation |
|---|---|---|---|---|---|
| Terms and conditions | Access, use, rights elements | Access terms, fee structures, use restrictions | Acknowledgement | Anonymization requirements | Terms and conditions, fees |




**Metadata packets in five stages of research by *layers in the reference* model for business-acceptable communications**

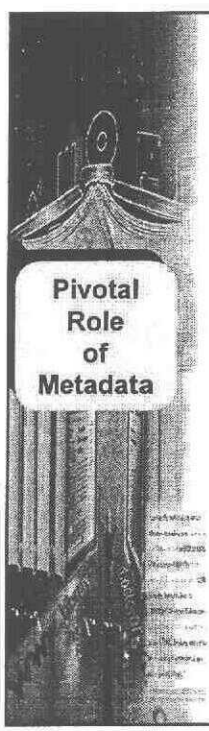
| | Discovery | Retrieval | Collation | Analysis | Re-Presentation |
|---|---|---|---|---|---|
| Structure | File type, size, format | Resolution, compression method, arrangement, hardware or software dependencies | Data structure and representation methods | Data capture and manipulation methods | |



**Pivotal Role of Metadata**

## Metadata packets in five stages of research by layers in the reference model for business-acceptable communications

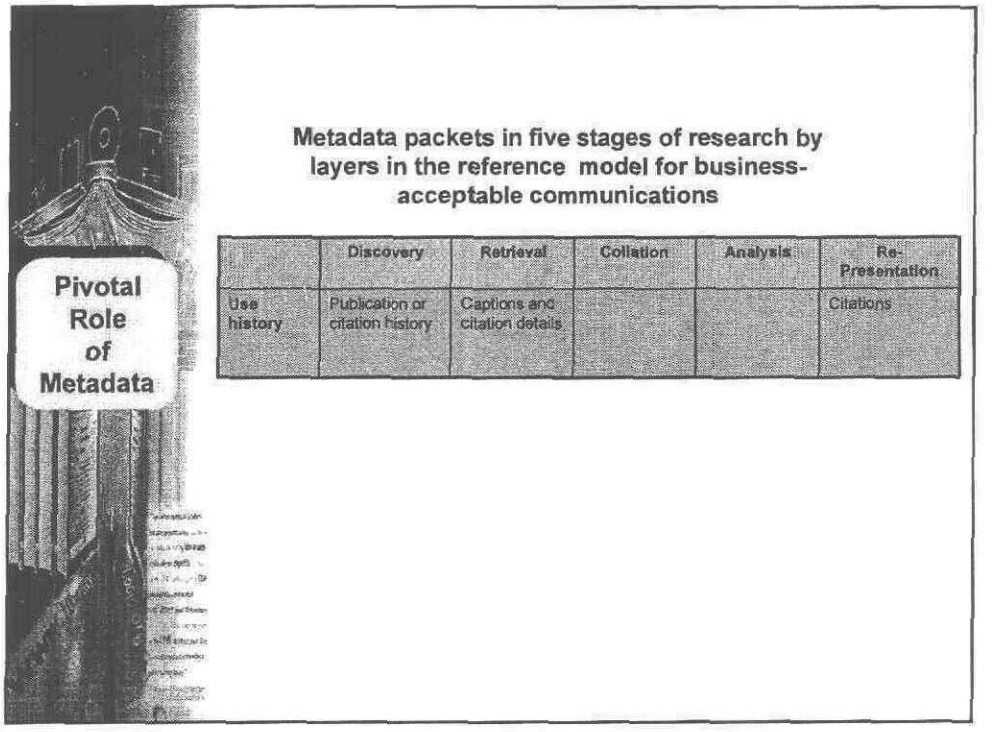
| | Discovery | Retrieval | Collation | Analysis | Re-Presentation |
|---|---|---|---|---|---|
| Context | | | | | |
| Creation | Functional, provenance, creator name, date | Links, functional dependencies | | Value tables and organizational schemes | |
| Relations | Collection/site/item/association | Toolsets and analytical methods | Disciplinary schema | | Credits/citations |

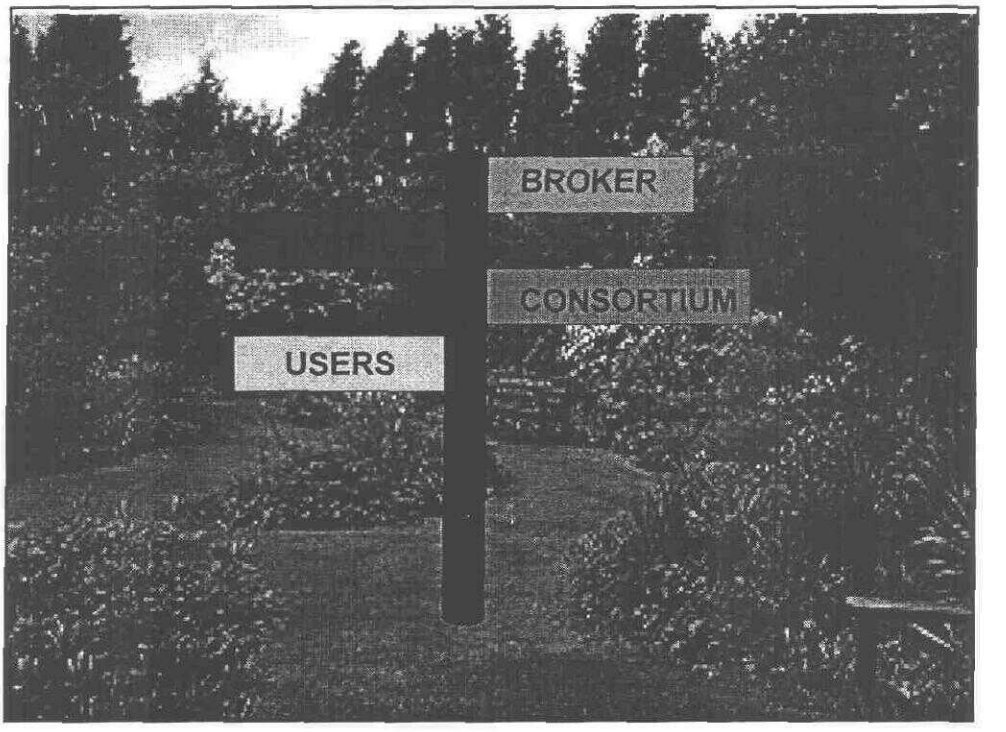


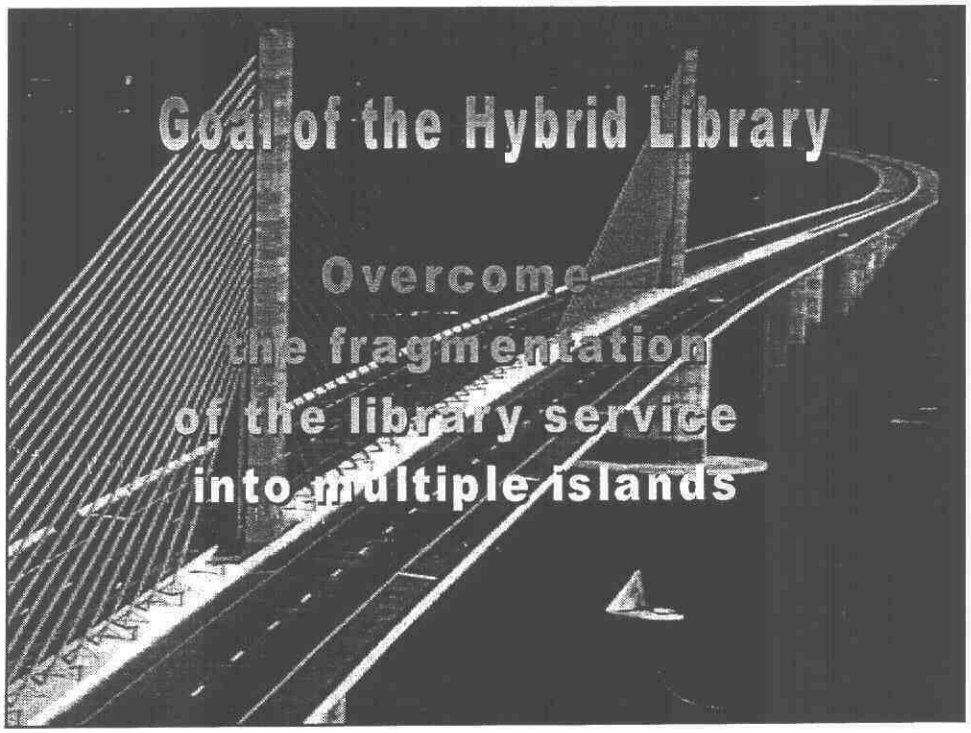
**Pivotal Role of Metadata**

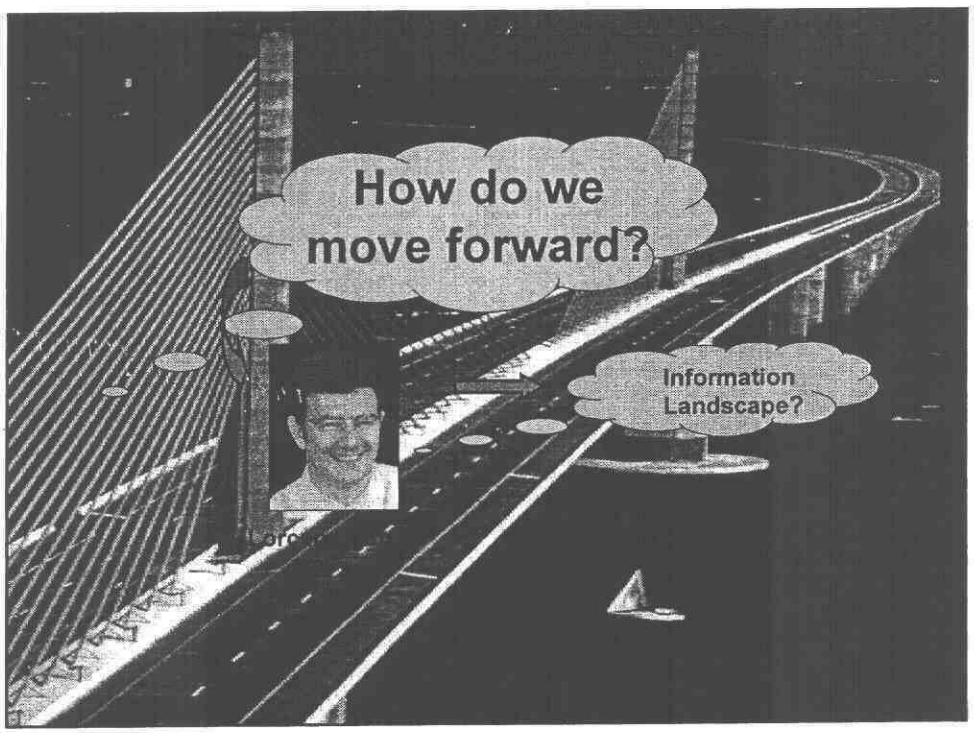
## Metadata packets in five stages of research by layers in the reference model for business-acceptable communications

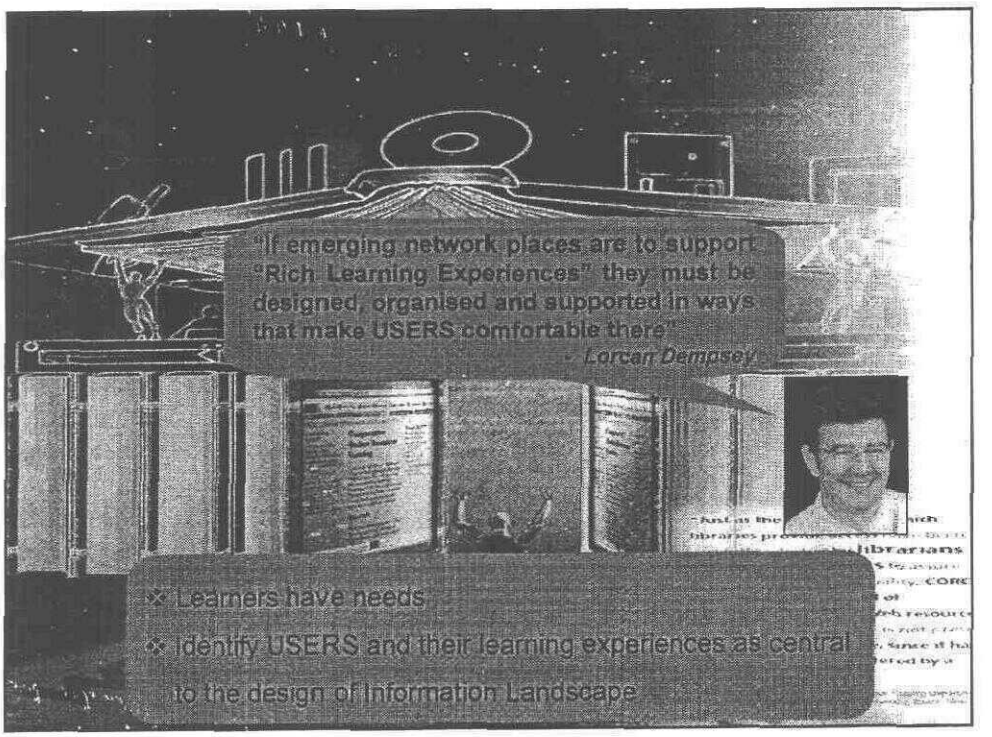
| | Discovery | Retrieval | Collation | Analysis | Re-Presentation |
|---|---|---|---|---|---|
| Content | | | | | |
| Classical | Object type, class | | Disciplinary schemas | | Conventions of representation |
| Subject | Subjects, keywords, topics or themes | | Disciplinary methods | Methods, data values | |

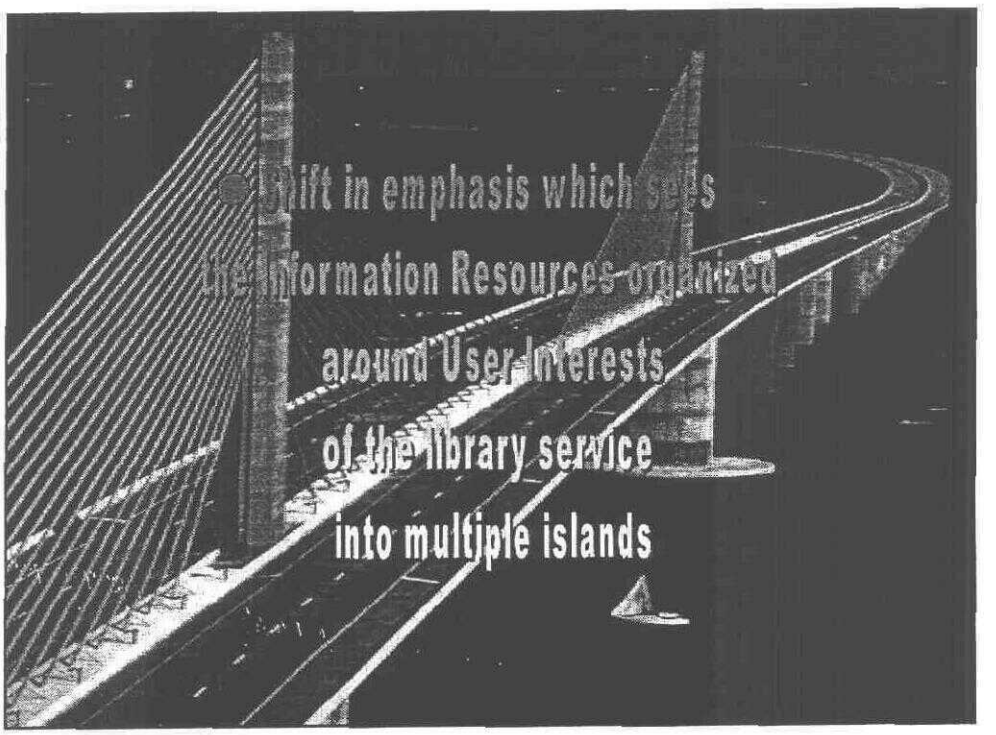

Pivotal Role of Metadata
Metadata packets in five stages of research by layers in the reference model for business-acceptable communications
Discovery
Retrieval
Collation
Analysis
Re-Presentation
Use history
Publication or citation history
Captions and citation details
Citations

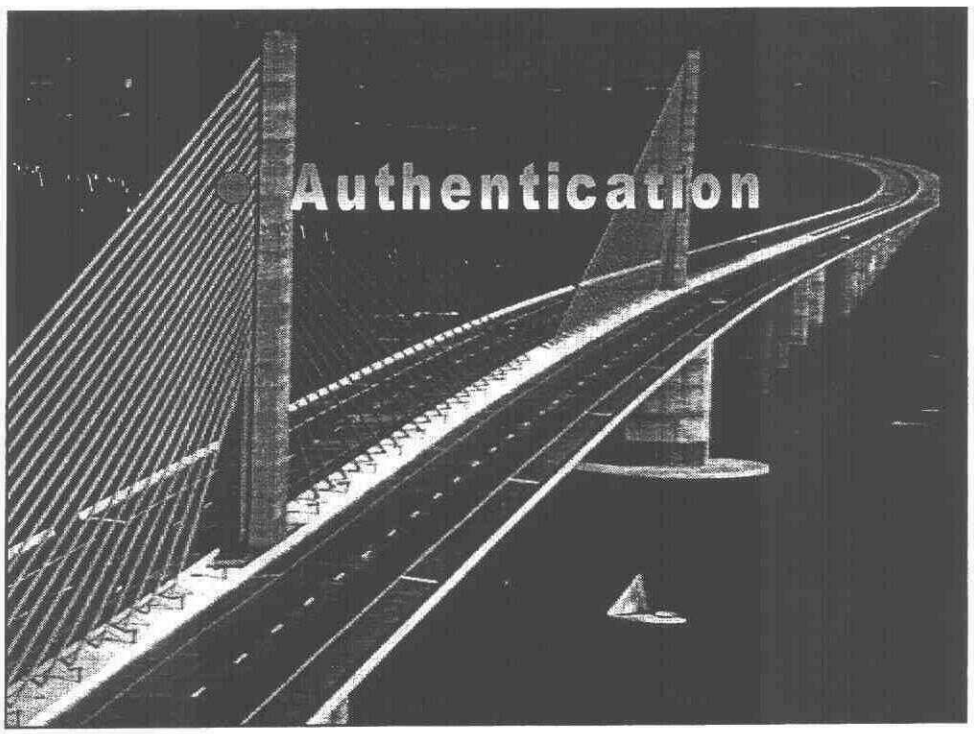

BROKER
CONSORTIUM
USERS

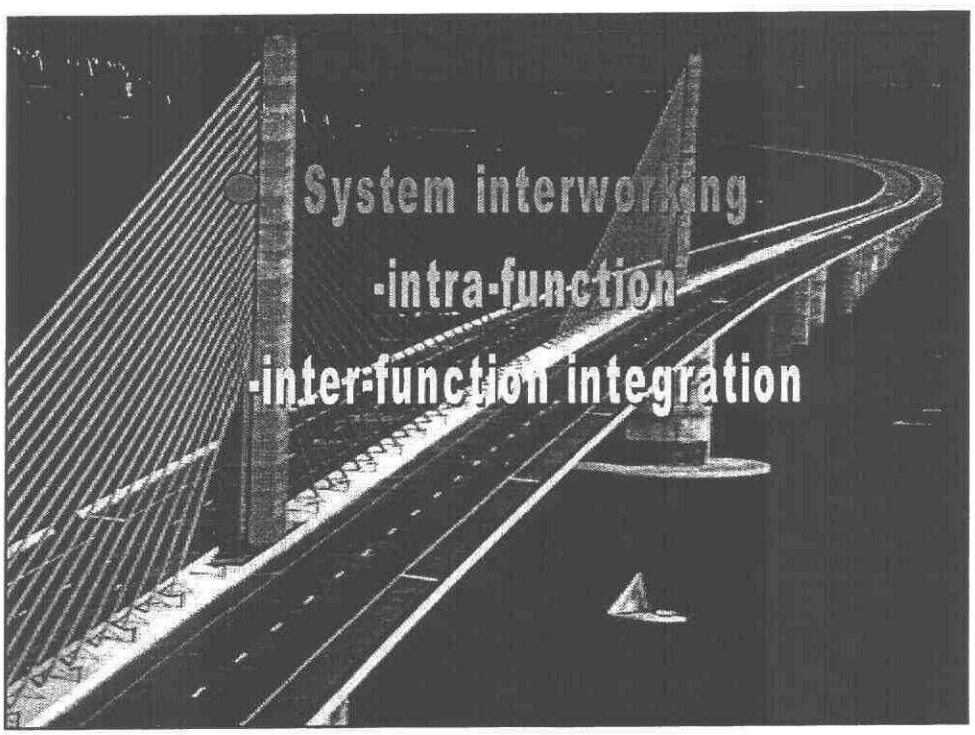

Goal of the Hybrid Library
Overcome
the fragmentation
of the library service
into multiple islands

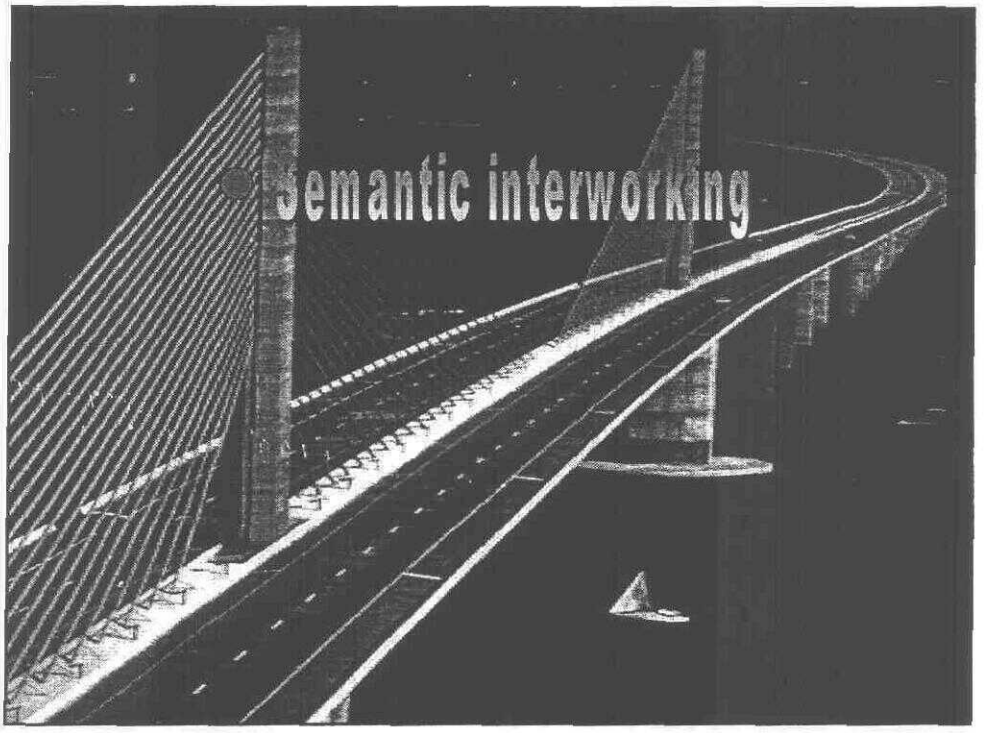

How do we
move forward?
Information
Landscape?


"If emerging network places are to support "Rich Learning Experiences" they must be designed, organised and supported in ways that make USERS comfortable there"
- Lorcan Dempsey
Learners have needs
Identify USERS and their learning experiences as central
to the design of Information Landscape


Shift in emphasis which sees
the Information Resources organized
around User Interests
of the library service
into multiple islands


Authentication


System interworking
-intra-function
-inter-function integration




User makes information request

⬇

Library determines

§ What privileges does this user possess?

§ *What conditions* does this information request carry with it?

§ What do we know about the user (e.g. level)?

⬇

*Library maps* this request onto its landscape (and may extend the landscape in respect of this particular query) (*))

⬇

Library determines which sources it might offer and determines the conditions they carry (e.g. price)

⬇

Library determines who will pay this price (library or user)

⬇

If Library: are we willing to pay for this user on this occasion (*if no go back two places)*

⬇

If user, library determines if user will pay. If not, go back three places.

⬇

If user is to pay, library carries out debit

⬇

*User supplied with information*

*The Process of Handling The End User's Individual Demands*

Library views information universe and determines suitability of each source for its clientele

↓

Library makes decision on which standard products to offer and thus creates a `landscape' [3]

↓

Library negotiates `deals' with selected information suppliers

↓

Library sets up infrastructure to enable selected information products to be acquired or accessed

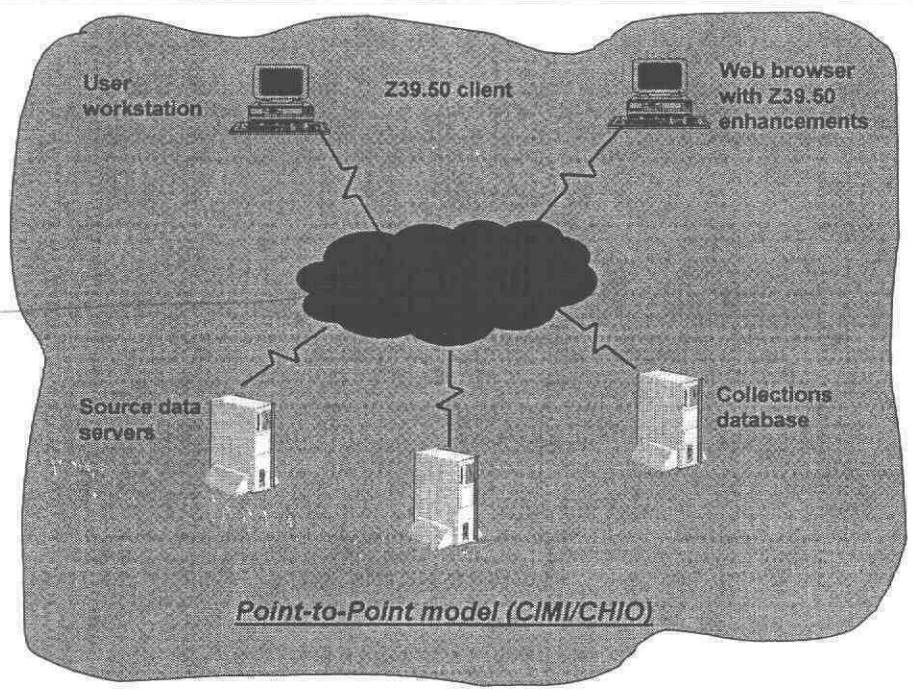
↓

Library sets up infrastructure to enable information products to be used

↓

Library creates user interface to enable information requests to be processed

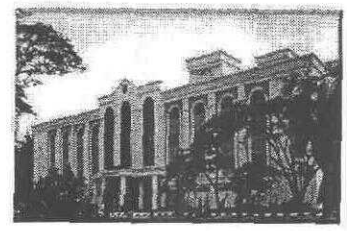
***The Process of Setting Up a Suitable Information Landscape and Infrastructure***




39.50

## BROKERS

Provide a common point of the access to a range of repositories and distributed resources



**LIDDAS** (Local Interlending & Document Delivery Administration System)

- **Australian project**
- **Broker access to databases**
- **Search & location of desired items**
- **Request & delivery of items**
- **Directory services for *environment* and business information; authentication *service***

**AQUARELLE**

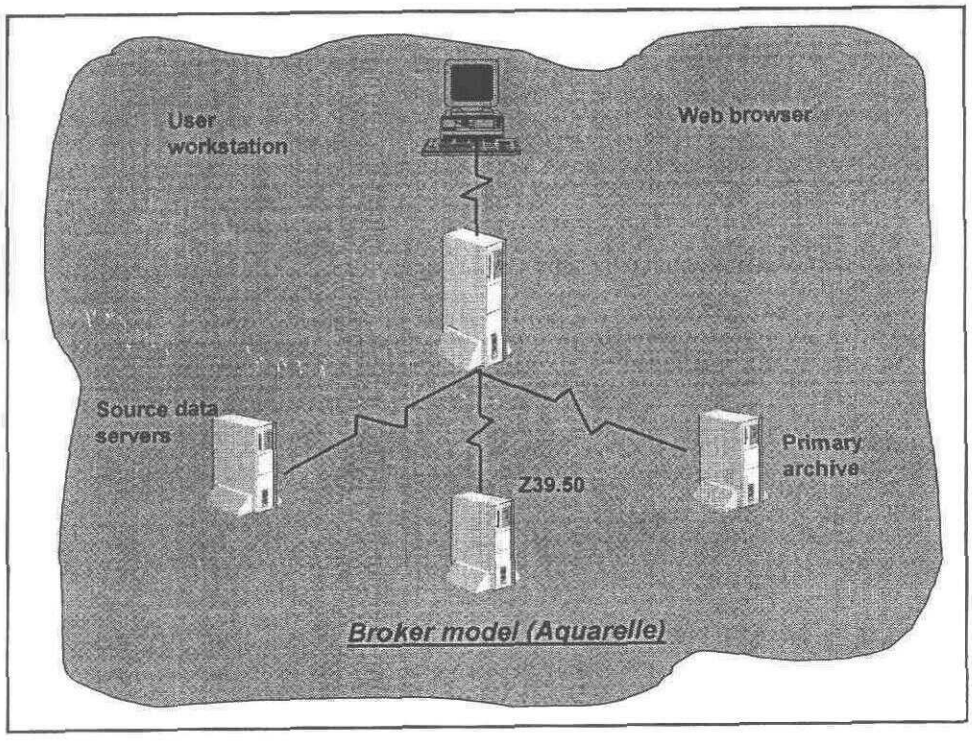
- **EU Telematics *Applications Programme***
- **"Mediator" service for *museum repositories***
- **Single point access to *interrelated multimedia***

**"Hybrid Library" – integration services across sets of resources**

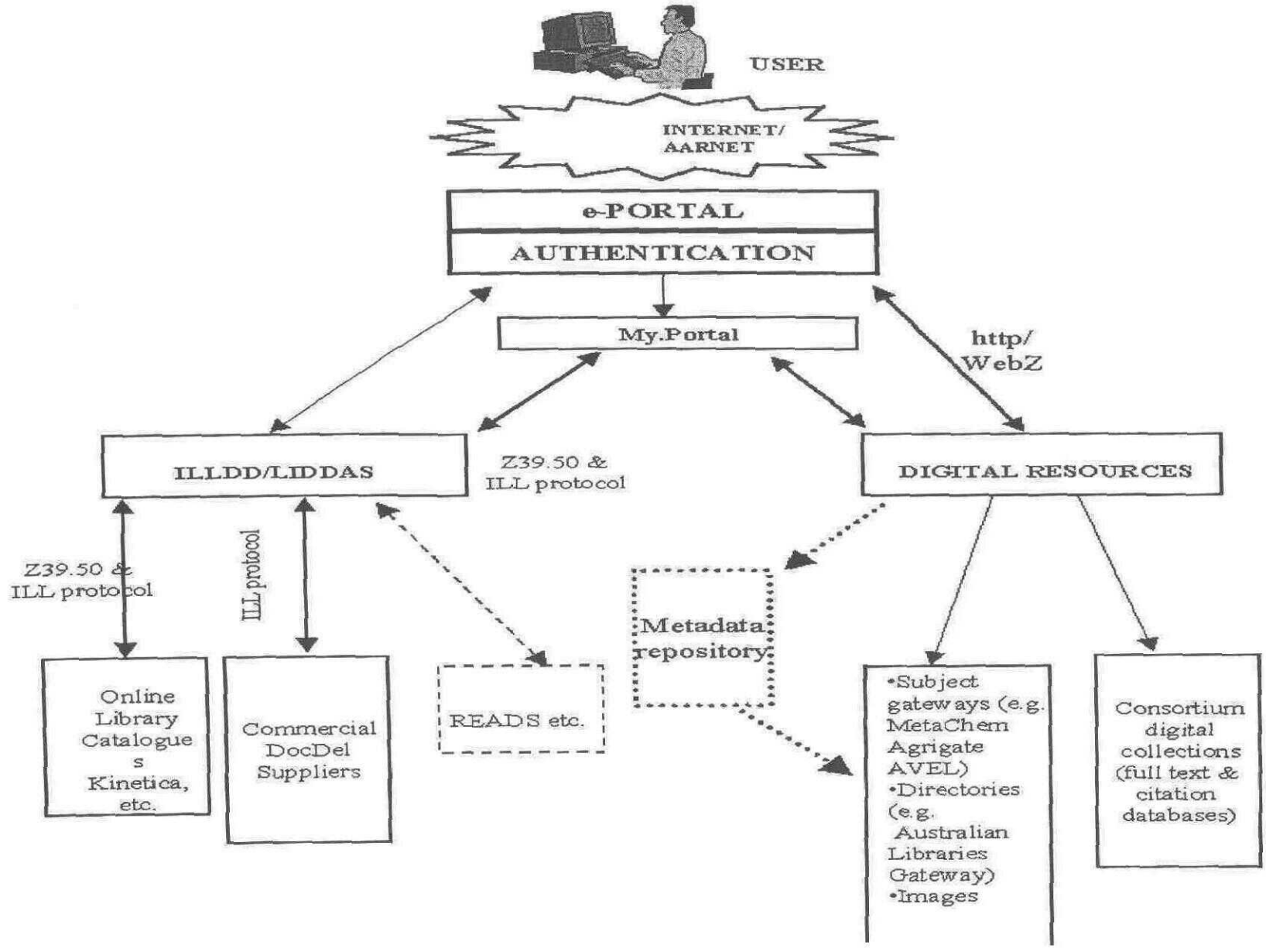
**'Clump' – virtual union catalogue services across different underlying OPAC**

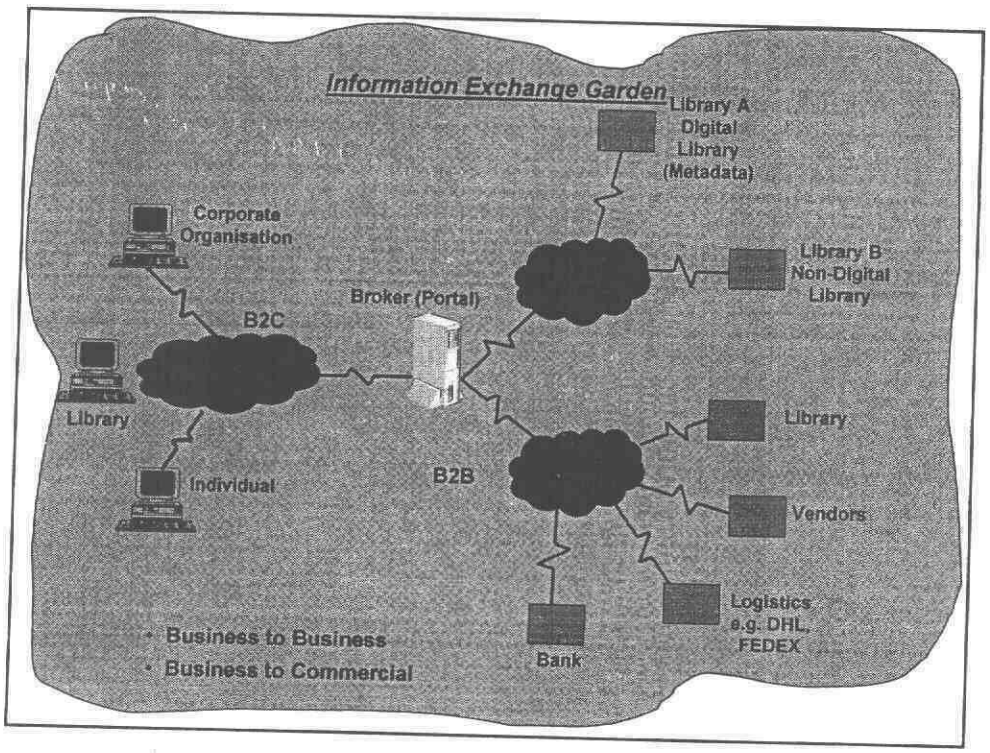
| UNIVERSITIES IN MALAYSIA | MAIN LIBRARIES | LIBRARY URLs |
|---|---|---|
| Universiti Malaya | UM Library | http://www.umlib.um.edu.my |
| Universiti Islam Antarabangsa | International Islamic University Library | http://lib.iiu.edu.my |
| Universiti Kebangsaan Malaysia | Perpustakaan Tun Sri Lanang | http://www.library.ukm.edu.my |
| Universiti Putra Malaysia | Universiti Putra Malaysia Library | http://lib.upm.edu.my |
| Universiti Sains Malaysia | USM Library | http://www.lib.usm.my |
| Universiti Teknologi Malaysia | Perpustakaan Sultanah Zanariah | http://www.psz.utm.my |
| Universiti Utara Malaysia | UUM Sultanah Bahiyah Library | http://www.lib.uum.utm.my |
| Universiti Malaysia Sabah | Perpustakan Universiti Malaysia Sabah | http://www.ums.edu.my/library |
| Multimedia University | Siti Hasmah Digital Library | http://library.unitele.edu.my |
| Universiti Teknologi MARA | Perpustakaan Tun Abdul Razak | http://www.ttm.edu.my/acactr/ptar |
| Universiti Malaysia Sarawak | Centre for Academic Information Services Universiti Malaysia Sarawak | http://www.unimas.my/html/cais.html |
| Universiti Tun Abdul Razak | UNITAR Virtual Library | http://vlib.unitarkli1.edu.my |
| Universiti Tenaga Nasional | UNITEN Library | http://www.uniten.edu.my/go/library |

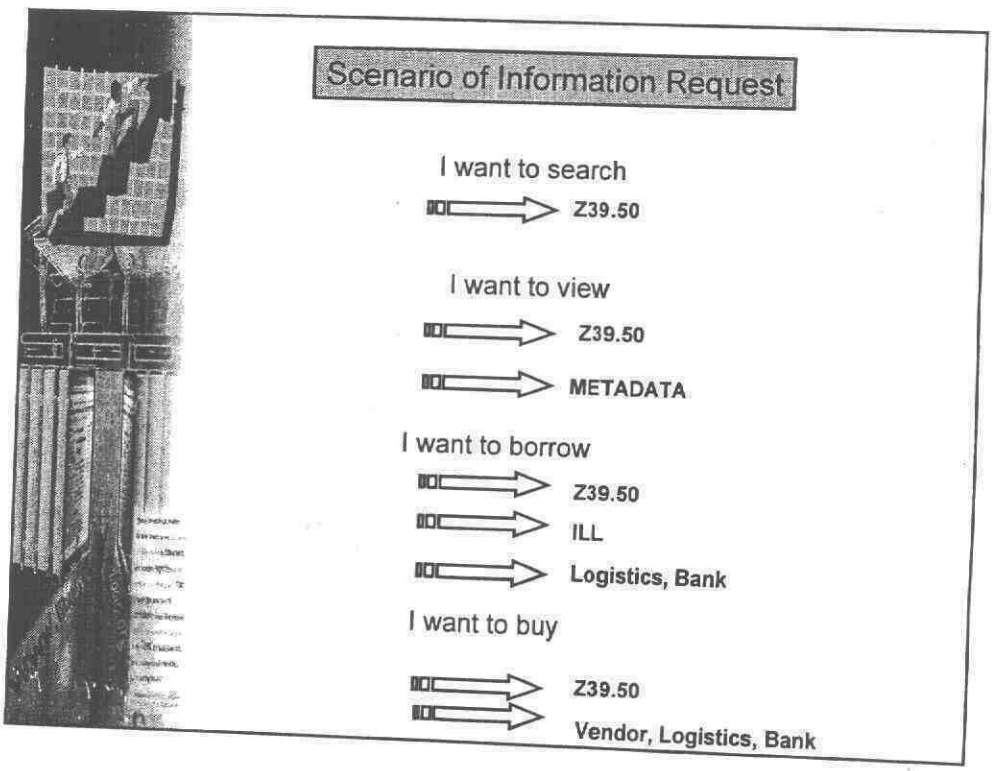
Source: Evaluation of Academic Library Web Sites In Malaysia
K. H. Lee & K. H. The Malaysian *Journal of Library & Information* Science, Vol. No. 5, no. 2, December 2001: 95-108


User
workstation
Web browser
Source data
servers
Z39.50
Primary
archive
Broker model (Aquarelle)

# eSPACE CONCEPTUAL MODEL




Information Exchange Garden
Library A
Digital
Library
(Metadata)
Corporate
Organisation
Library B
Non-Digital
Library
Broker (Portal)
B2C
Library
Library
Individual
B2B
Vendors
Logistics
e.g. DHL,
FEDEX
Bank
• Business to Business
• Business to Commercial


Scenario of Information Request
I want to search
Z39.50
I want to view
Z39.50
METADATA
I want to borrow
Z39.50
ILL
Logistics, Bank
I want to buy
Z39.50
Vendor, Logistics, Bank

## Broker & Value Added Services

Events

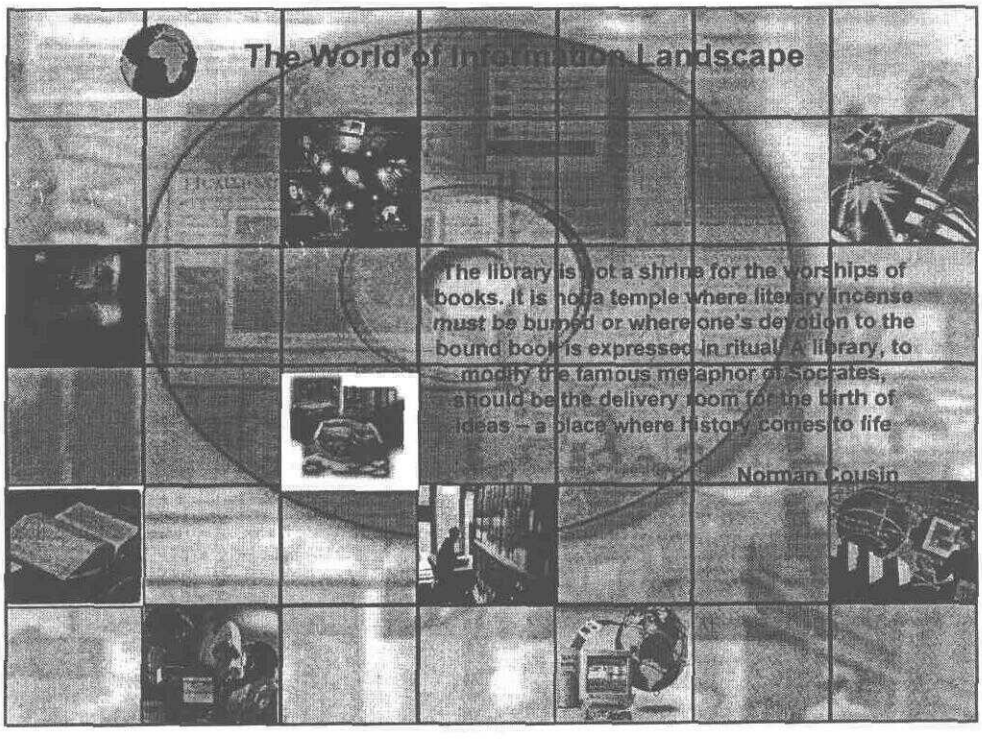
News

Utusan Malaysia | New Straits Times | Berita Harian

CMS

amazon.com. | BARNES&NOBLE.com www.bn.com

Collaboration (Mails, Forum, VoIP)

ZDNet onebox | mailcom | YAHOO! | THE MATH FORUM | Inter-Fone

## The World of Information Landscape