



ISTITUTO DI SCIENZA E TECNOLOGIE  
DELL'INFORMAZIONE "A. FAEDO"

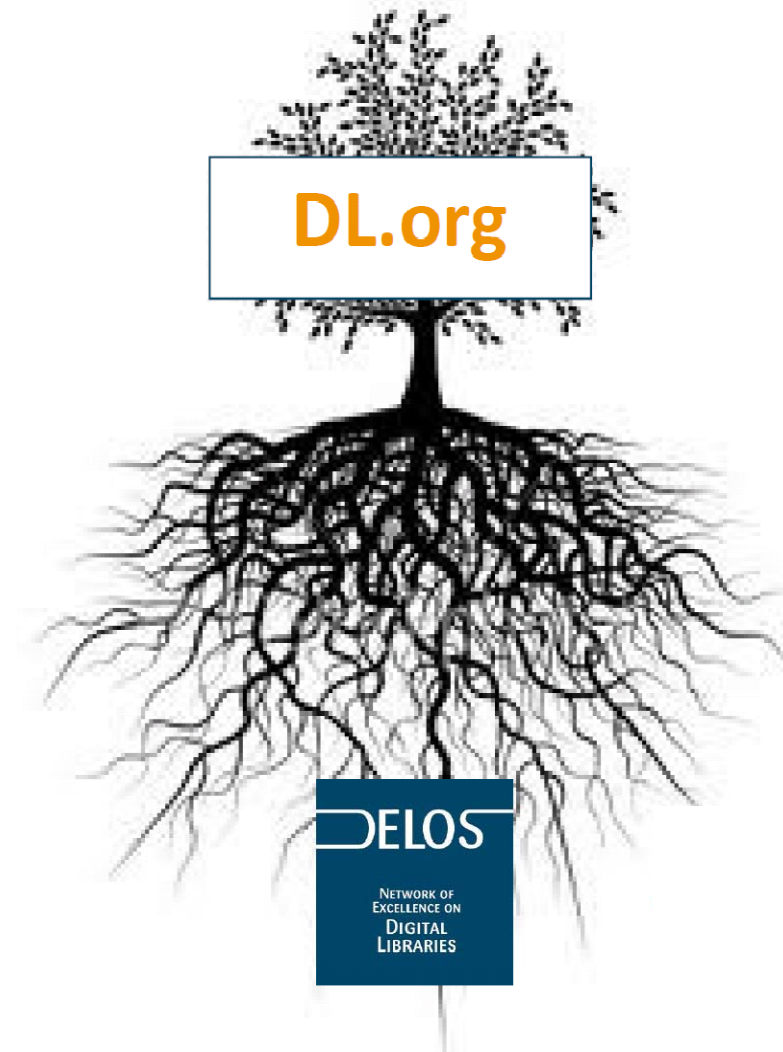
# Research and Education in Digital Libraries

## What is a DL ?

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ELAG 2011, 25-28 May 2011, Prague, Czech Republic

# DL.Org and DELOS



## DL.Org is a Coordination Action on Digital Library Interoperability, Best Practices and Modelling Foundations

### DL.Org consortium

- NKUA (Athens, Greece)
- HATII (Glasgow, UK)
- ISTI-CNR (coordinator)
- Trust-IT (london, UK)



## The Network of Excellence on Digital Libraries

Define and conduct a **joint program of activities** in order to integrate and coordinate the on-going research activities of the major European research teams in the field of **digital libraries** for the purpose of developing the next generation digital library technologies

# DELOS

## Grand Vision #1

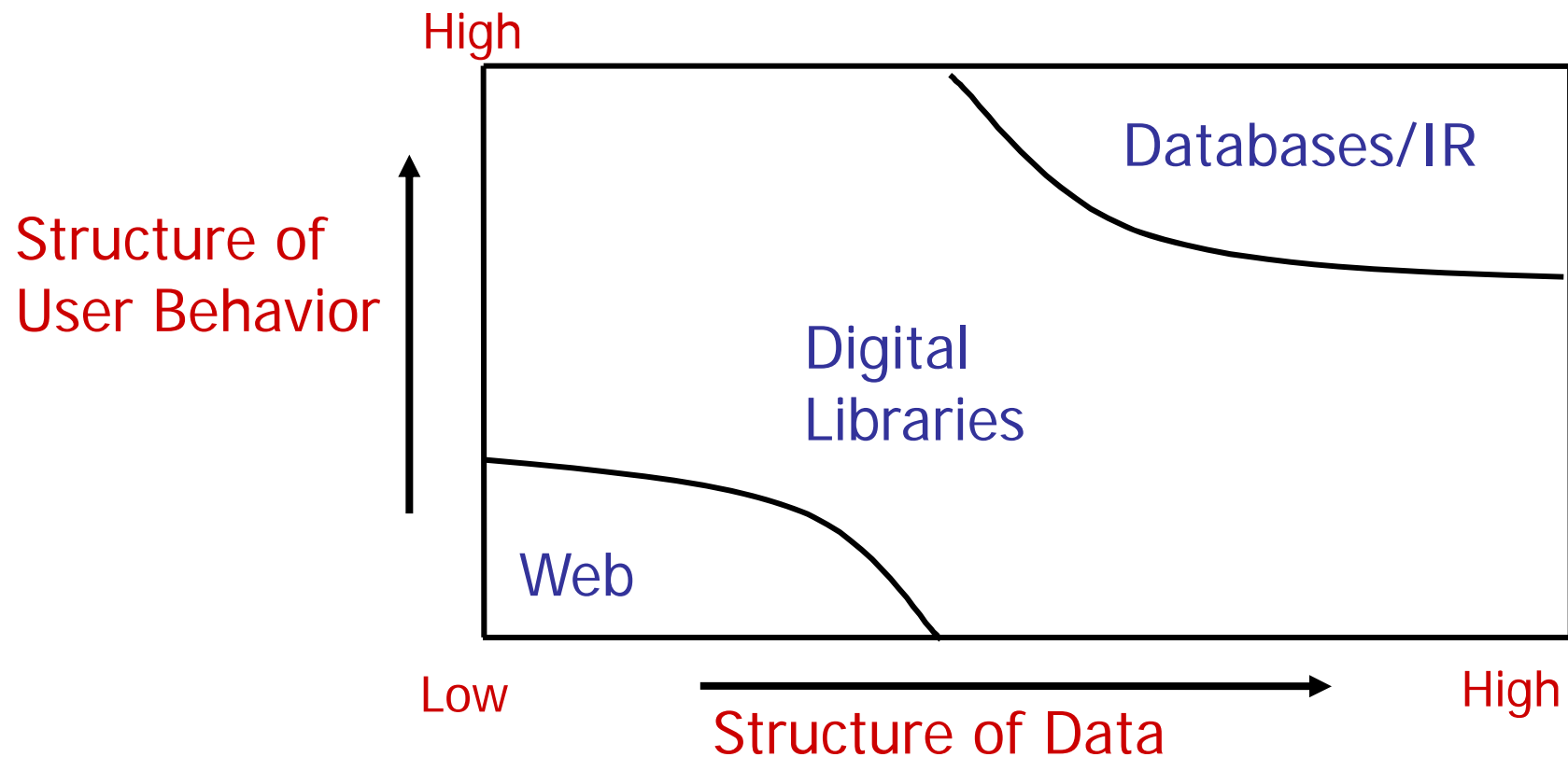
Digital libraries should enable **any citizen** to access **all** human knowledge **anytime** and **anywhere**, in a **friendly**, multi-modal, efficient, and **effective** way, by overcoming barriers of **distance**, **language**, and **culture** and by using multiple **Internet-connected** devices

# DELOS

## Grand Vision #2

The potential exists for digital libraries to become the **universal knowledge repositories** and **communication conduits** for the future, a common vehicle by which **everyone** will access, **discuss, evaluate, and enhance** information of **all** forms

# Digital Libraries in the Information Space

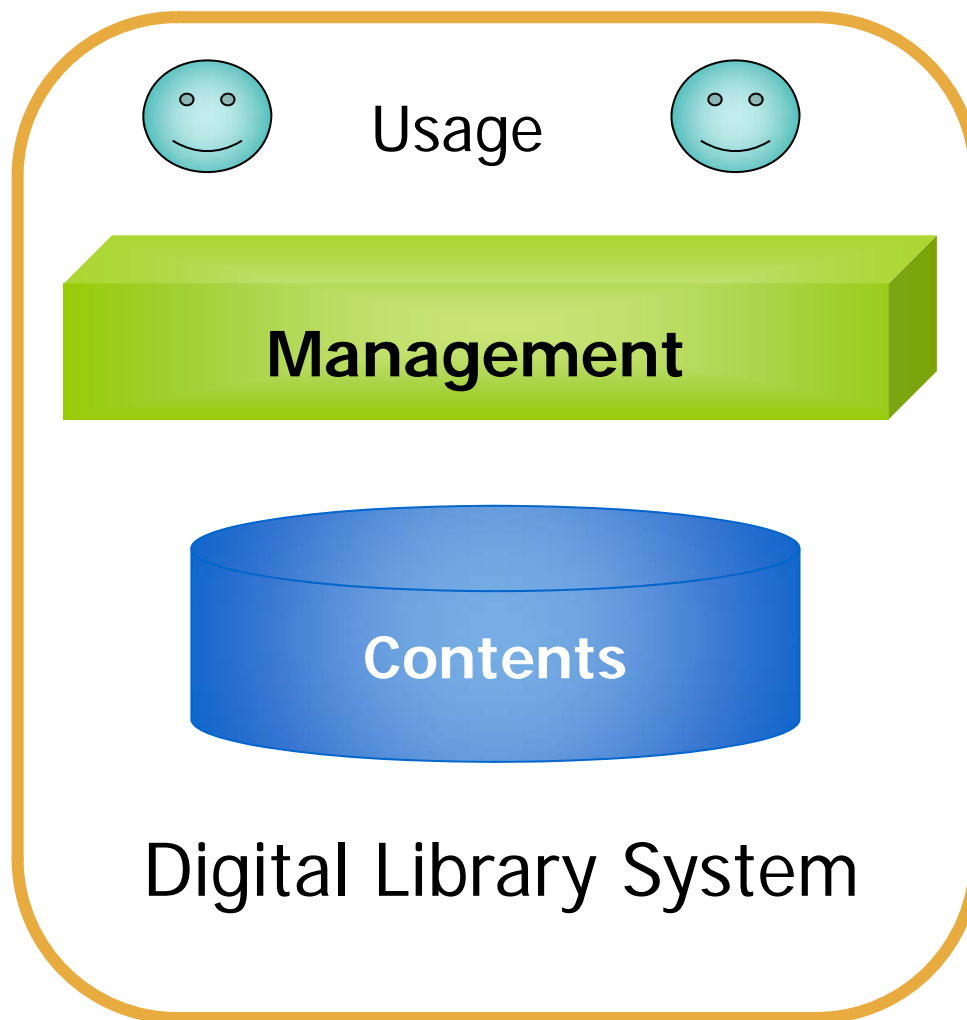


# What is a Digital Library ?

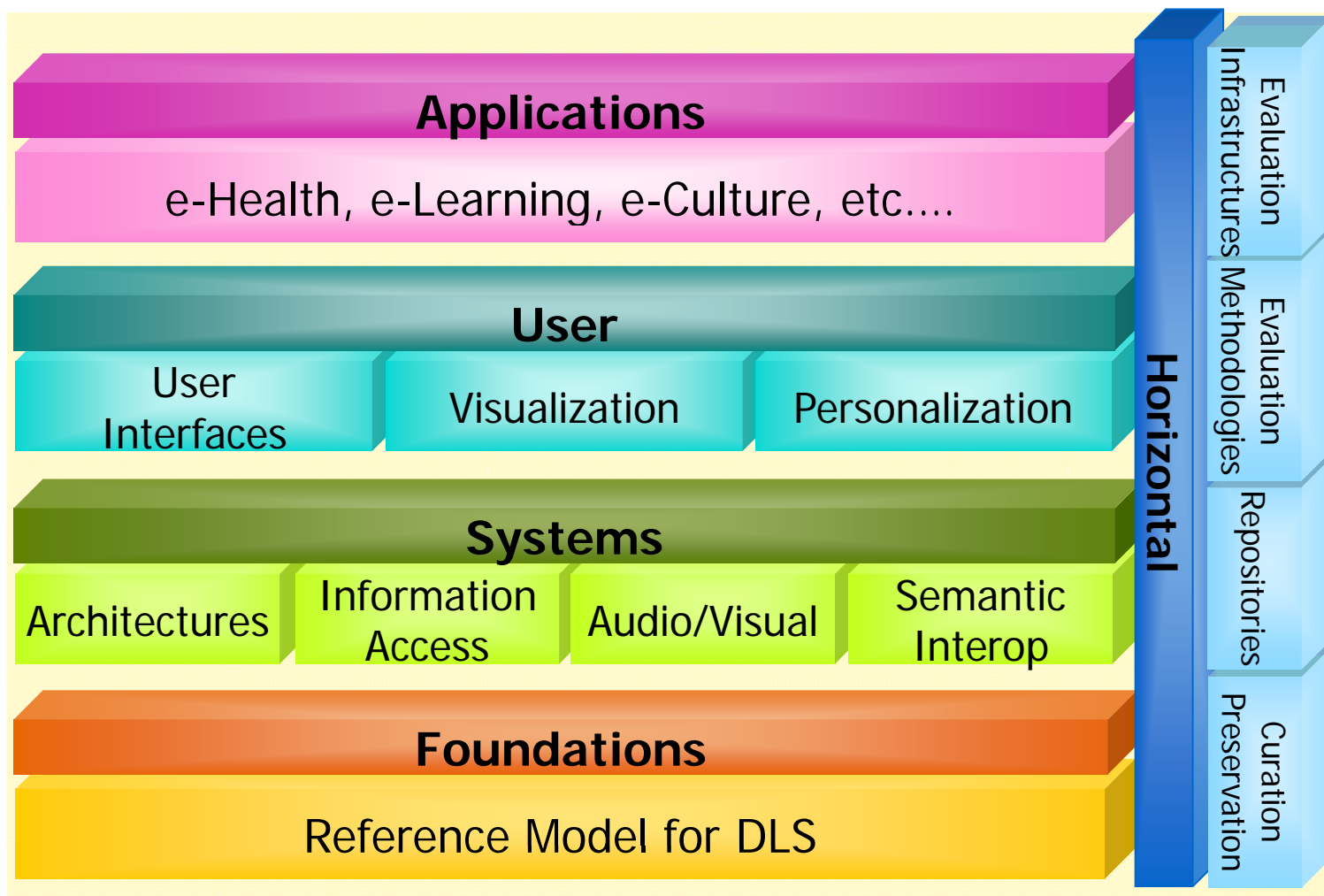
- A DL is the combination of “content and services”
- A DL is an “entity” providing the functionality to mediate between information objects and information users in the context of distributed collections of information objects. This (external) functionality includes access, publish, delivery, preservation, personalization, etc.
- A Digital Library is a “tool” at the centre of intellectual activity having no logical, conceptual, physical, temporal, or personal borders or barriers on information
- A Digital Library is an “institution” in charge of providing at least the functionality of a traditional library in the context of distributed and networked collections of information objects



# Conceptual Framework



# Research Directions in DLs



## Reference Model for DLS

Formalize a conceptual framework for Digital Library systems

- to serve as a yardstick of quality and richness
- to specify features and properties of generic DLMS
- to clarify relationships among
  - digital libraries, digital repositories, digital archives,
  - search engines, information infrastructures,
  - knowledge commons



## Architectures

- Peer-to-peer architectures
- Grid middleware
- Service-oriented architectures

## Information Access

- Indexing for complex and novel data
- Query routing in complex distributed Digital Libraries



## Audio/Visual

- Automatic metadata extraction
- Context-aware content-based retrieval
- Audio/visual interfaces

## Semantic Interop.

- Methods for the integration of heterogeneous ontologies and domain-specific knowledge organization systems
- Interoperability with e-Learning applications



## User Interfaces

- Framework for new digital library interfaces
- Task-oriented user interfaces
- Cooperation/collaboration tools, e.g., annotations

## Visualization

- Self-adaptability to small screens
- Visual analysis and exploration of query results

## Personalization

- Modeling foundations for user preferences and context
- Personalization of user interactions
- Peer-similarity-based query routing decisions
- User log analysis for profiling



## Curation/Preservation

- Integration of preservation functionality
- Establishment of a testbed and evaluation framework for preservation techniques
- Automating selection and ingest processes

## Repositories

- Common grounds: access policy, operational environment
- Infrastructure repositories for research and learning



## Evaluation Methodologies

Standard frameworks for comparative evaluation of DL Systems

- Definition of standard events in a DL environment
- Identification of appropriate metrics
- Establishment of information repositories

## Evaluation Infrastructures

- Cross Language Evaluation Forum (CLEF)
- Initiative for Evaluation of XML retrieval (INEX)





## e-Health

- Virtual electronic health records
- Integration of multiple medical information streams

## e-Learning

- Interoperability of e-Learning applications

## e-Culture

- Integration of upper-level ontologies
- Mapping of core ontologies to schemas and KOS

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