

***Third Workshop on Foundations
of
Digital Libraries***

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Outline



- The past



- The future



- The present

The past: DELOS



Lack of foundations

- Comparison among systems is hard
 - Different focus
 - Different concepts used
 - Different terminology
- Lack of DL systems design and development methodologies
- No systematic approach to integration and reuse of solutions
- No basic instrument for designing DL courses

DELOS Reference Model



Conceptual framework capturing significant entities and relationships of the DL Universe

- Based on the collective understanding acquired on DLs by the DELOS Network of Excellence members as well as by other groups around the world

Exploitation: interoperability



- **Systematic approach to interoperability**
 - interoperability involves many concepts (not only content and functionality)
 - the degree of interoperability can be expressed as a function of the set of covered concepts

The future: DL.org

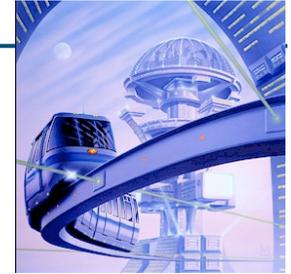


DL.org

Coordination Action on Digital Library Interoperability, Best Practices, and Modelling Foundations

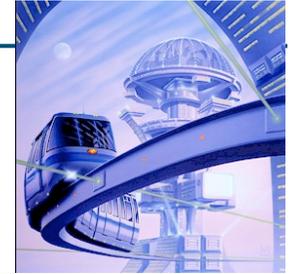
- ***Dec 2008 – Nov 2010***

Objective



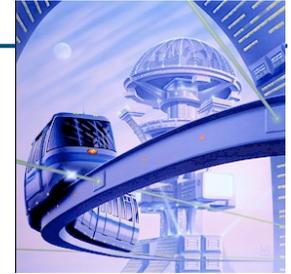
Promote interoperability between current and future DL initiatives by exploiting the Reference Model as well-grounded and very broadly-reaching abstract tool

Instruments



- Thematic Working Groups
- Liaison Group
- Web-based collaboration environment

Side effect



Consolidation and enhancement of the DL Reference Model

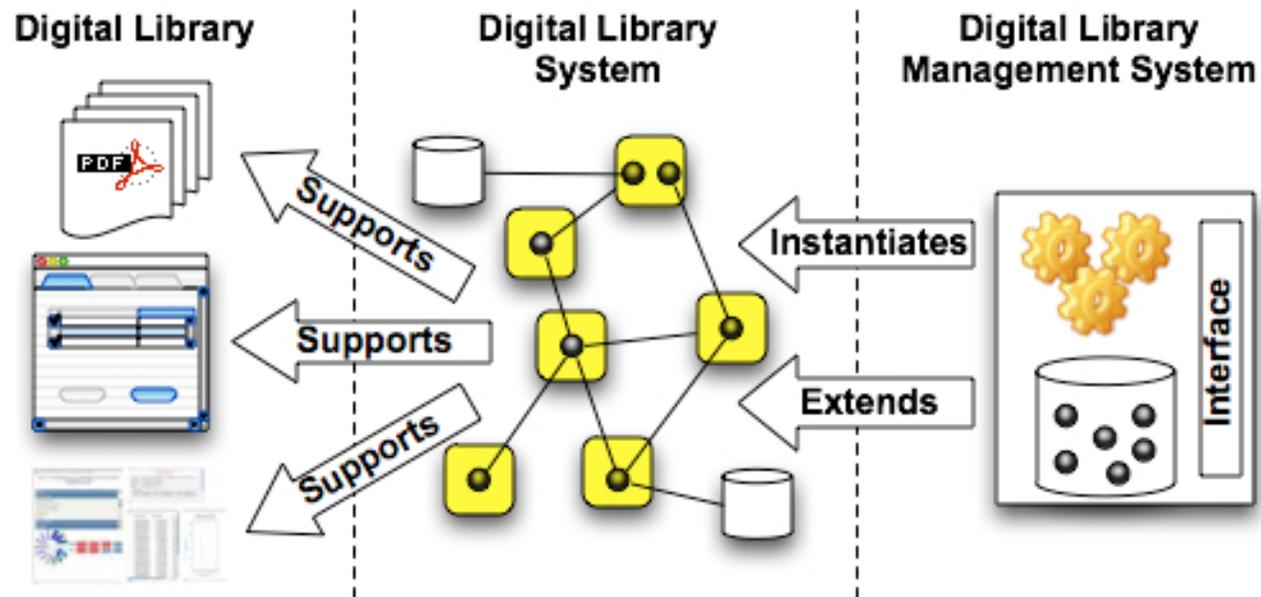
The present: DLF Workshop objective



**Identify and prioritise interoperability
issues to be addressed**

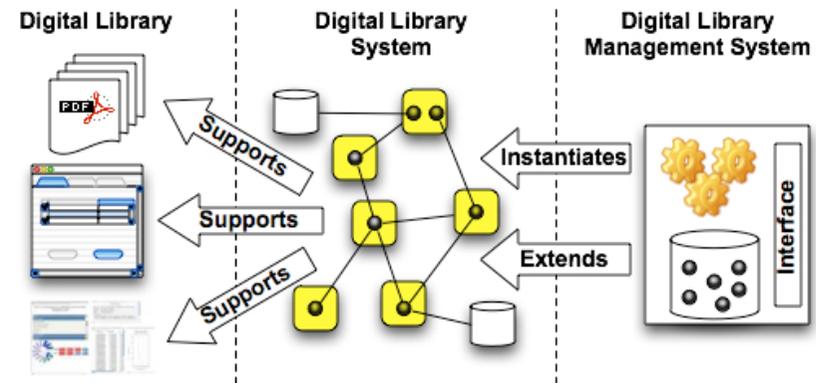
Overview of the DELOS Reference Model

The DL “systems”



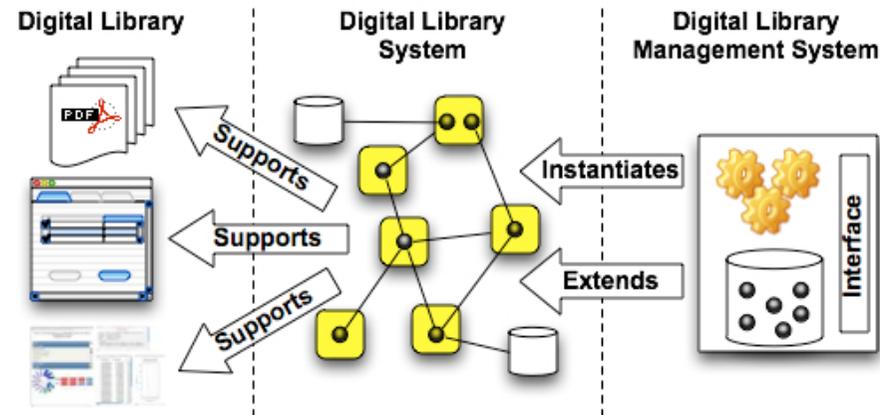
Digital Library

*A (potentially virtual) organization that comprehensively collects, manages, and preserves for the long term rich **digital content** and offers to its **user** communities specialized **functionality** on that content, of measurable **quality**, and according to prescribed **policies***



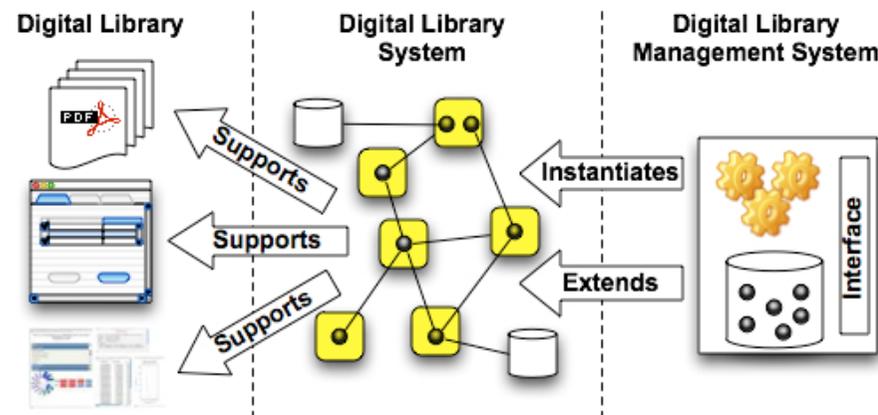
Digital Library System

*A software system that is based on a (potentially distributed) **architecture** and provides all functionality that is required by a particular Digital Library. Users interact with a Digital Library through the corresponding Digital Library System.*



Digital Library Management System

A generic software system that provides the appropriate software infrastructure to both (i) produce and administer a Digital Library System that incorporates all functionality that is considered foundational for Digital Libraries and (ii) integrate additional software offering more refined, specialized, or advanced functionality.



The main user roles

- End-users



**DL
Users**

- DL designers



DL Designers

- DL system administrators



**DL System
Administrators**

- DL application developers



**DL
Application
Developers**

DL End-Users

- Exploit the DL functionality for providing, consuming, and managing the DL Content as well as some of its other constituents. They perceive the DL as a stateful entity that serves their functional needs. DL end-users may be further partitioned into
 - *Content Creator*
 - *Content Consumer*
 - *Librarian*



**DL
Users**

DL Designers

- Exploit their knowledge of the application semantic domain to define, customize, and maintain the Digital Library so that it is aligned with the information and functional needs of its end-users. To perform this task, they interact with the DLMS providing functional and content configuration parameters.



DL Designers

DL System Administrators

- Select the software components necessary to create the Digital Library System needed to serve the required DL and decide where and how to deploy them. They interact with the DLMS by providing architectural configuration parameters, such as the selected software components, the hosting nodes, and the components allocation.



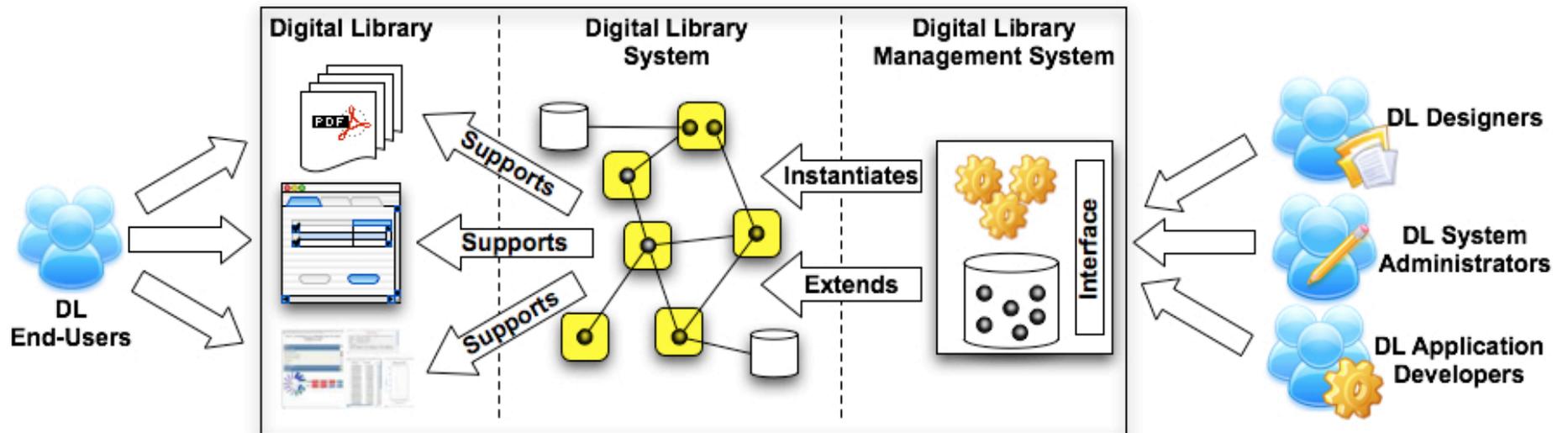
**DL System
Administrators**

DL Application Developers

- These develop the software components of DLMSs and DLSs, realizing the necessary functionality

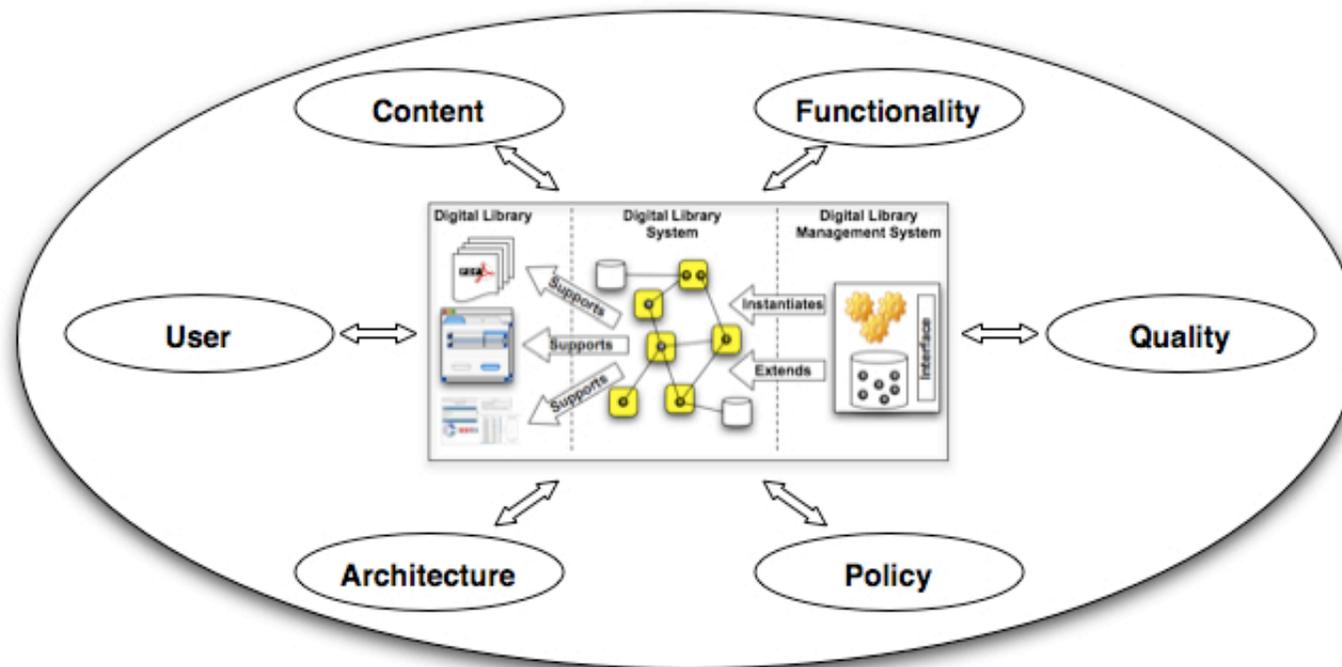


The user's views

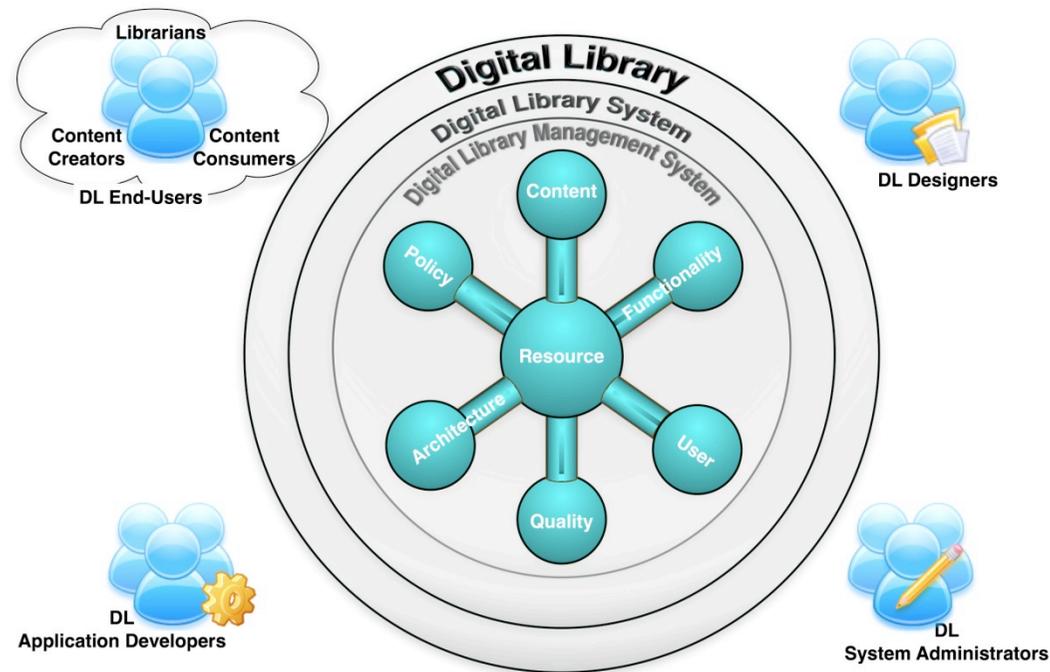


The DELOS DL Reference Model

Concepts and relationships that represent the significant aspects of the different type of DL “systems”

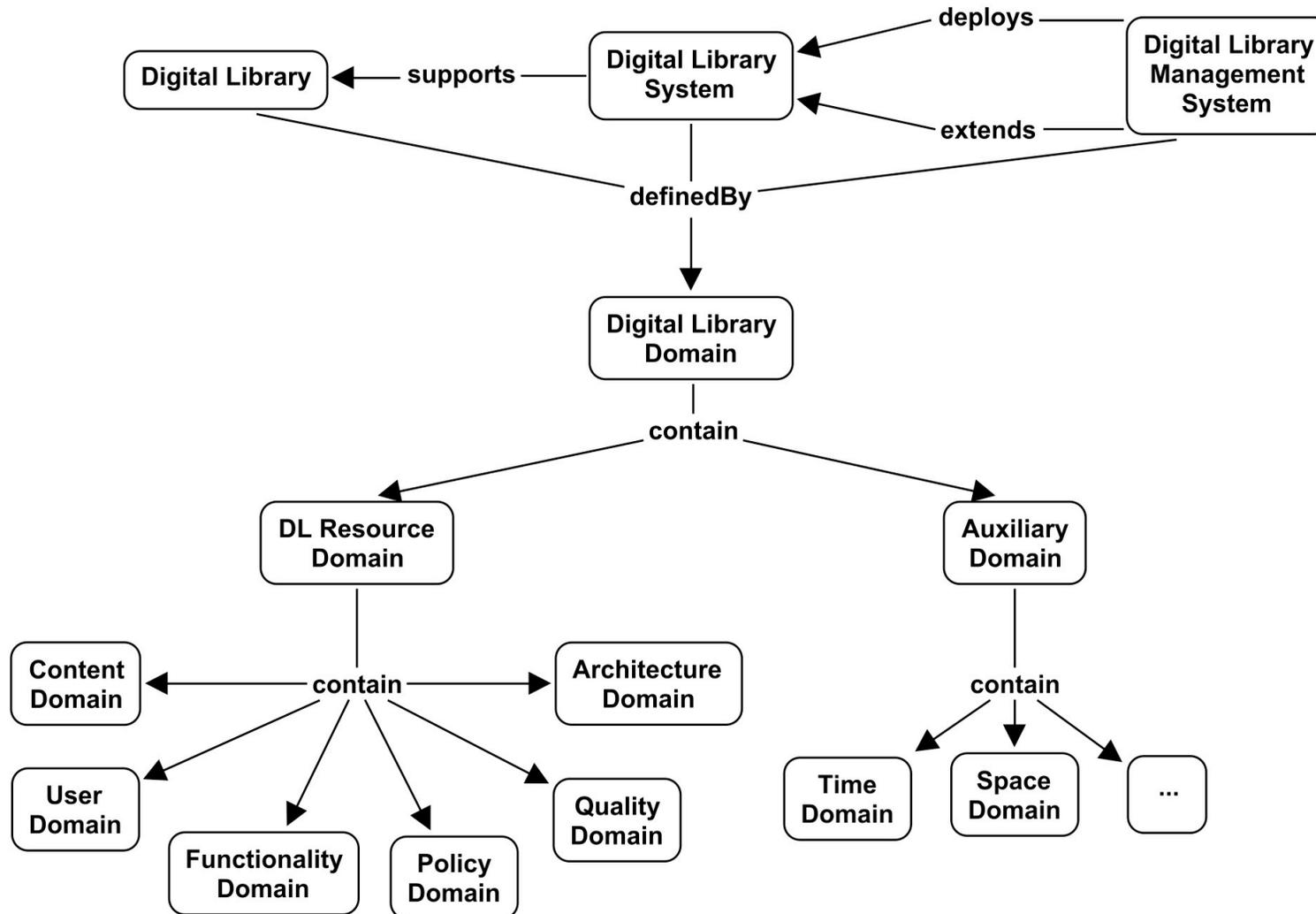


The 6+1 Domains (1/2)

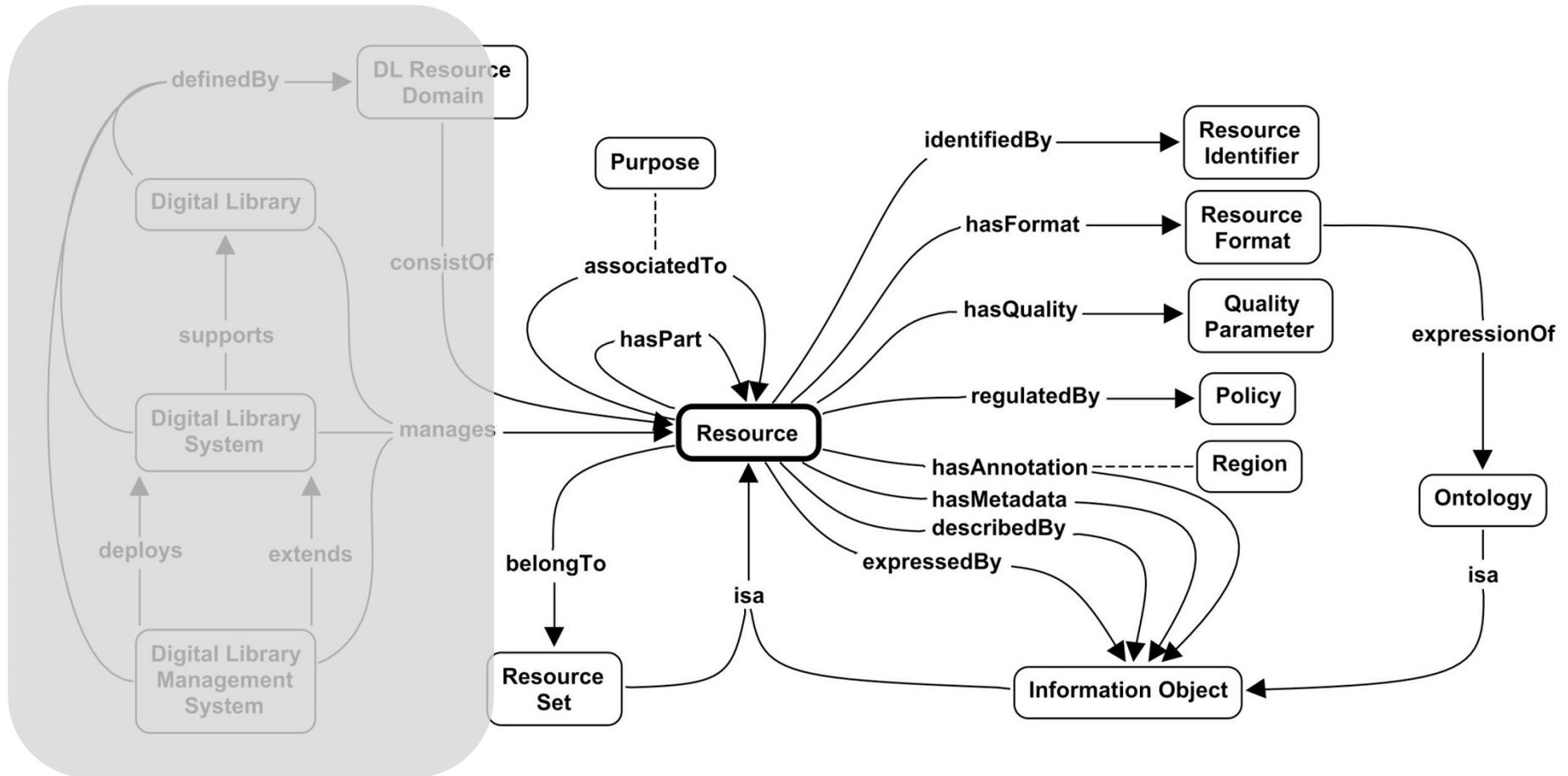


Resource – captures generic characteristics of entities belonging to the other domains (super-domain)

The 6+1 Domains (2/2)



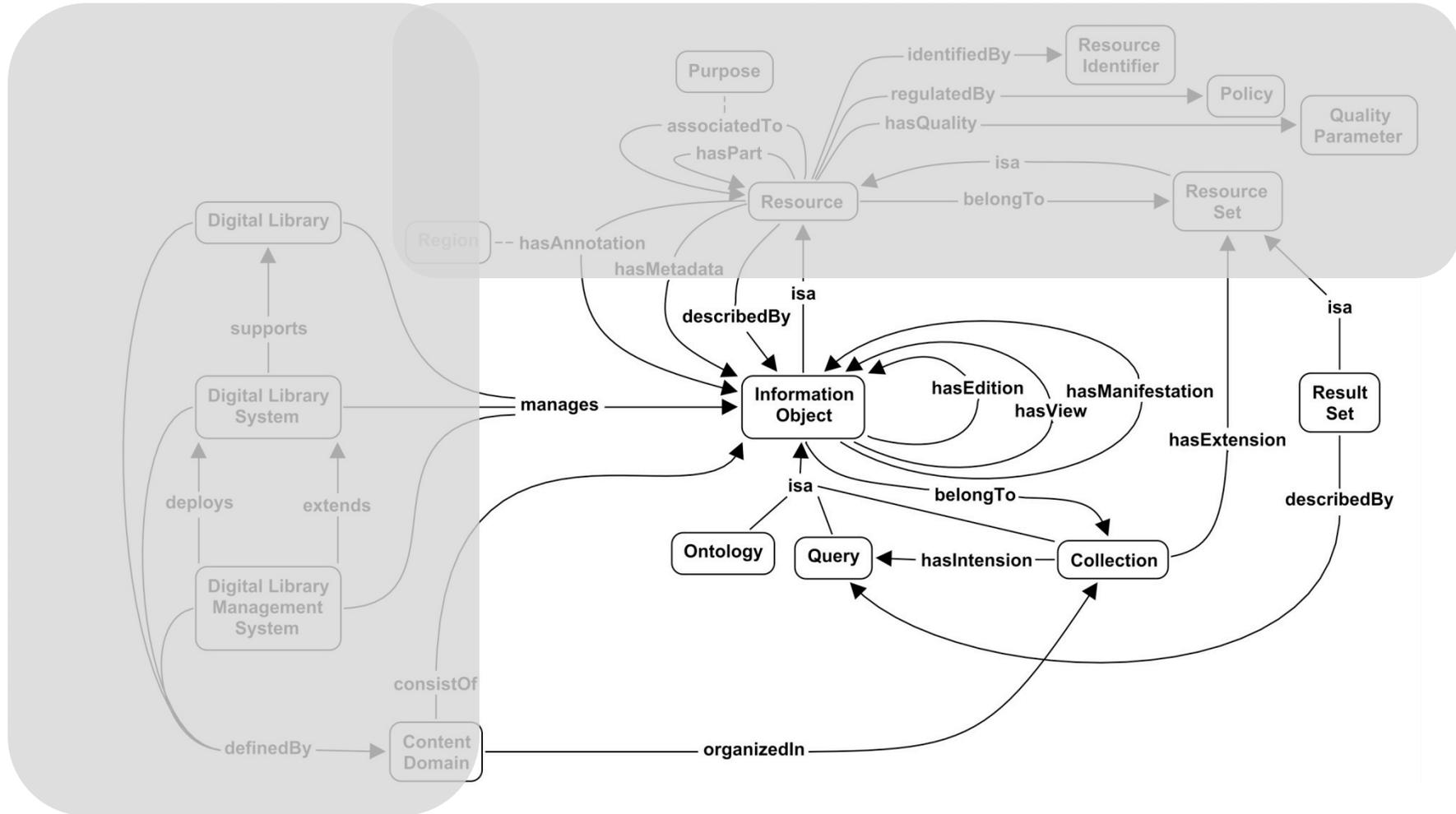
The DL Resource Domain



Resources-related interoperability issues

- How resources are identified?
- How is a format of a resource expressed?
- Which ontology is used?
- How are policies on resources expressed?
- Which are the characteristics of the information objects that act as resource metadata?
-

The Content Domain

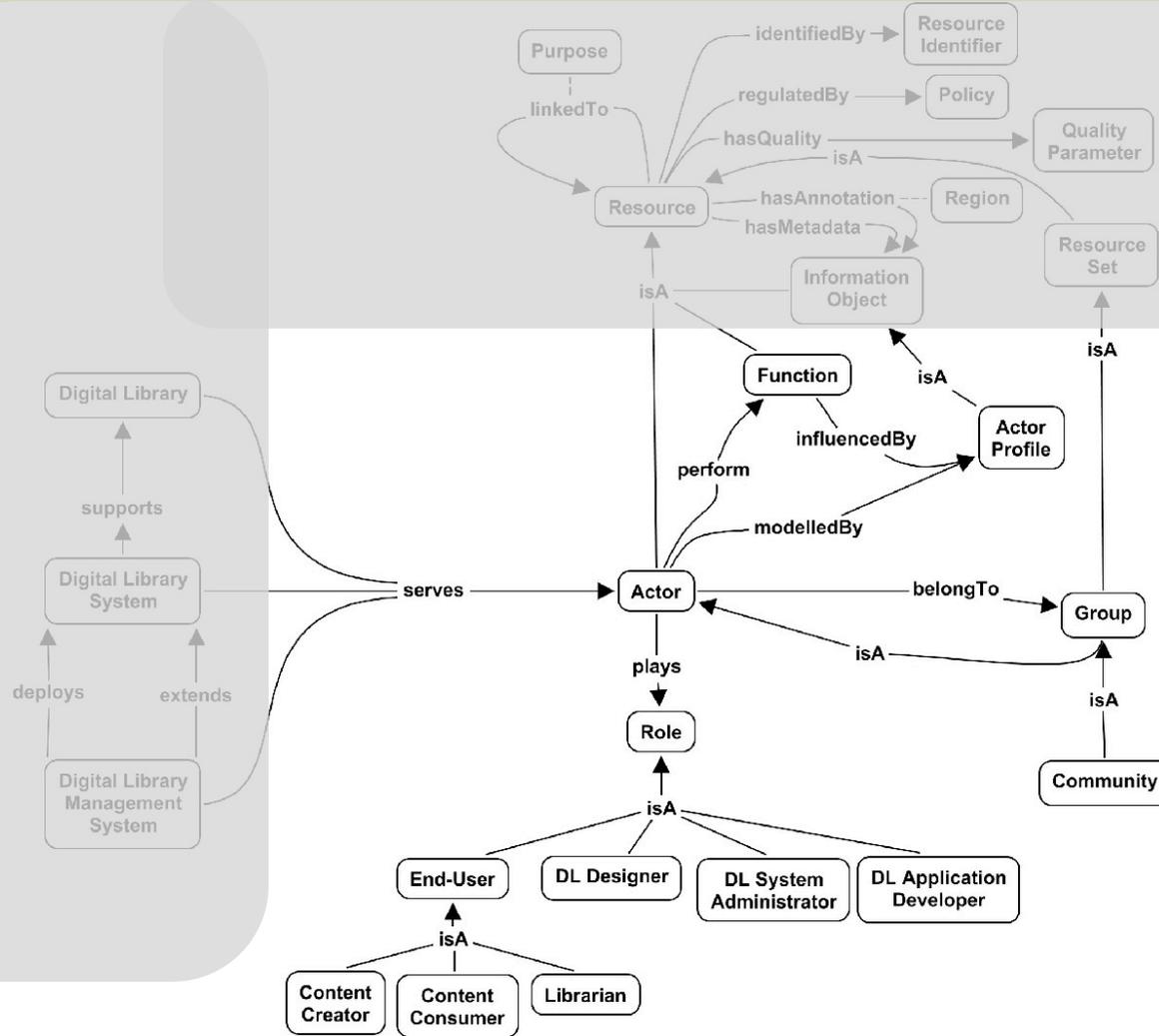


Content-related interoperability issues

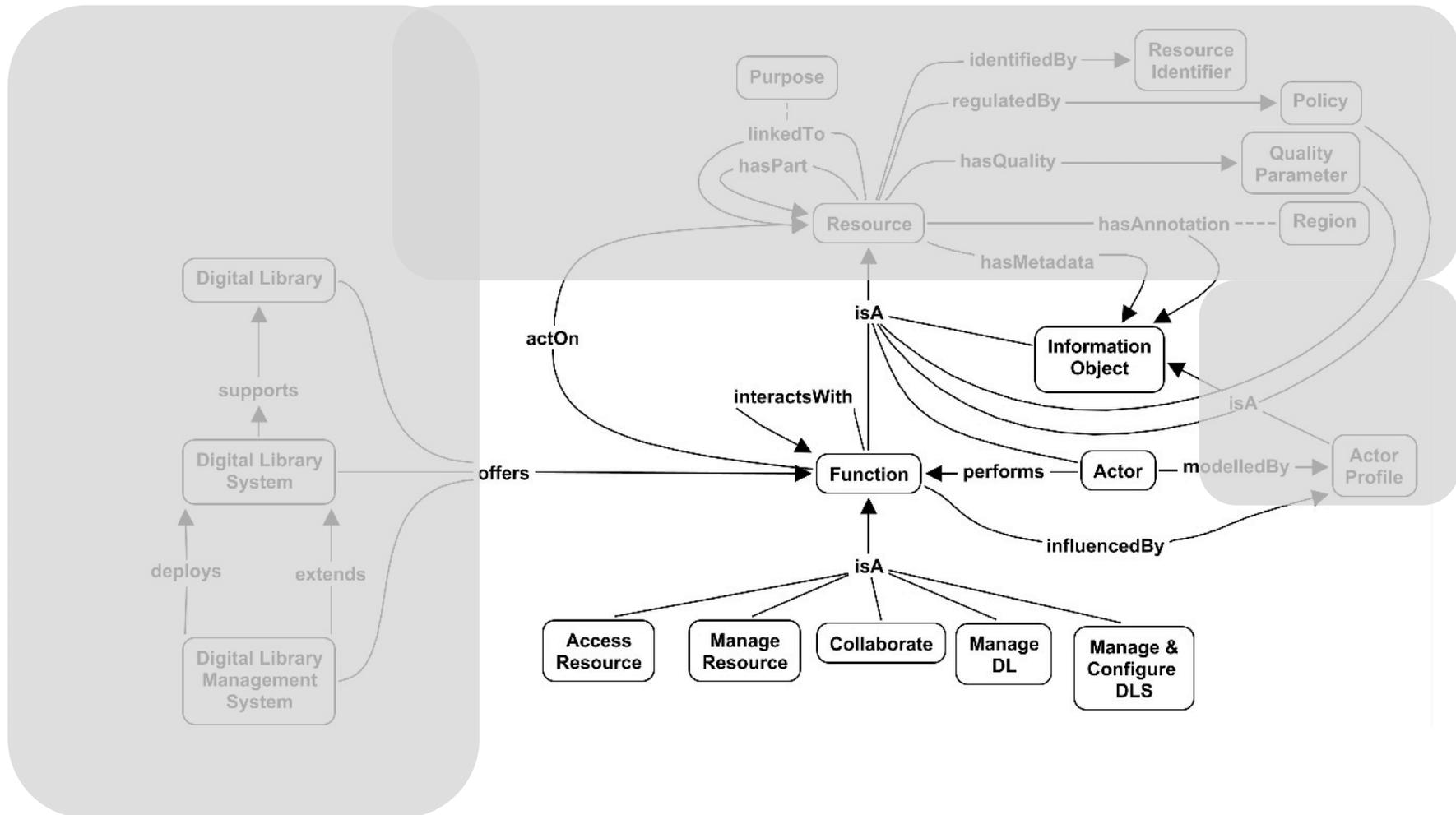
- How information objects are identified?
- How is a format of an information object is expressed?
- Which ontology is used?
- How are policies on information objects expressed?
- Which are the characteristics of the information object that act as metadata for other information objects?

- How are editions of a same information object represented?
- How are collection represented?
- How are collection metadata represented?

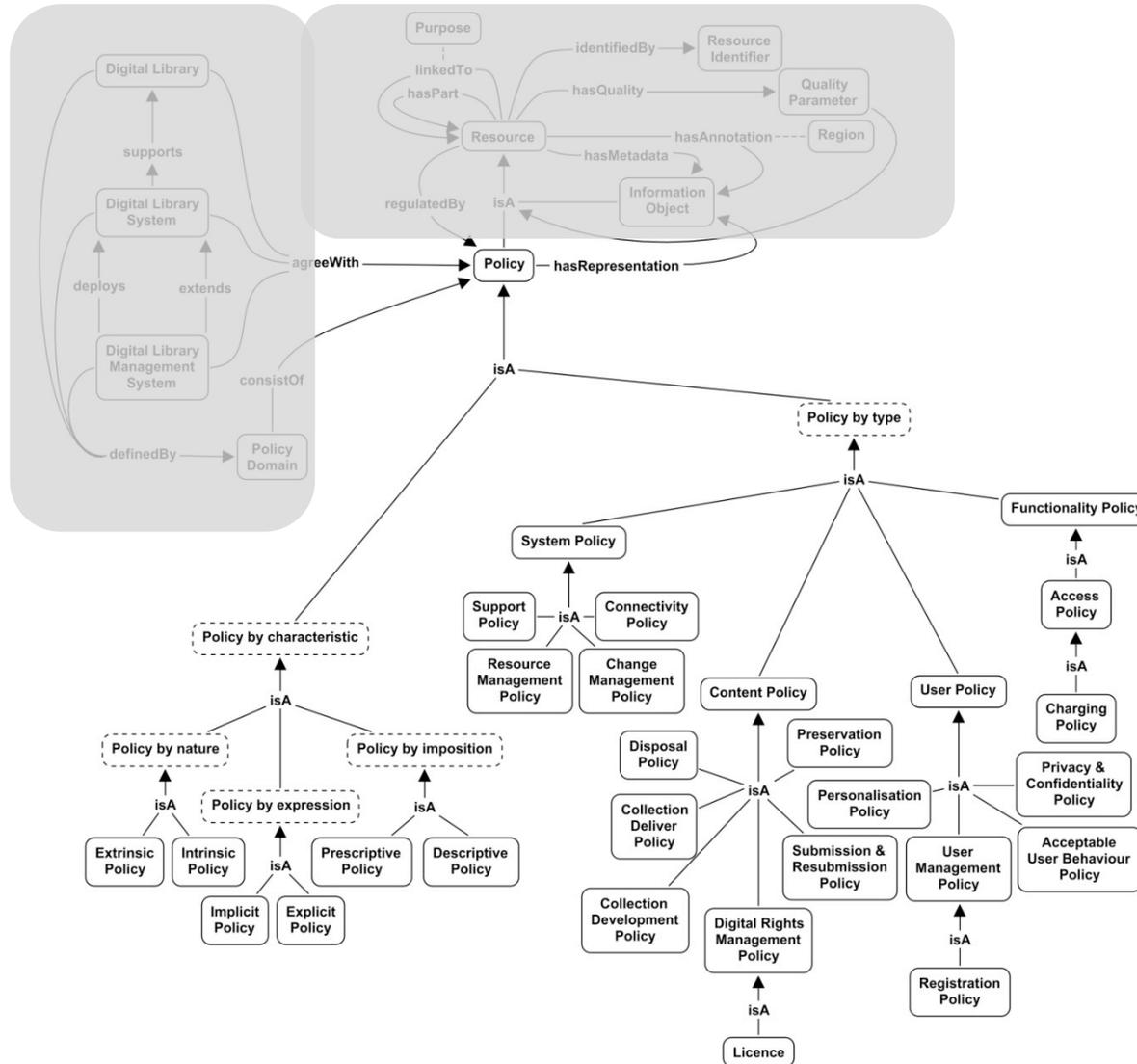
The User Domain



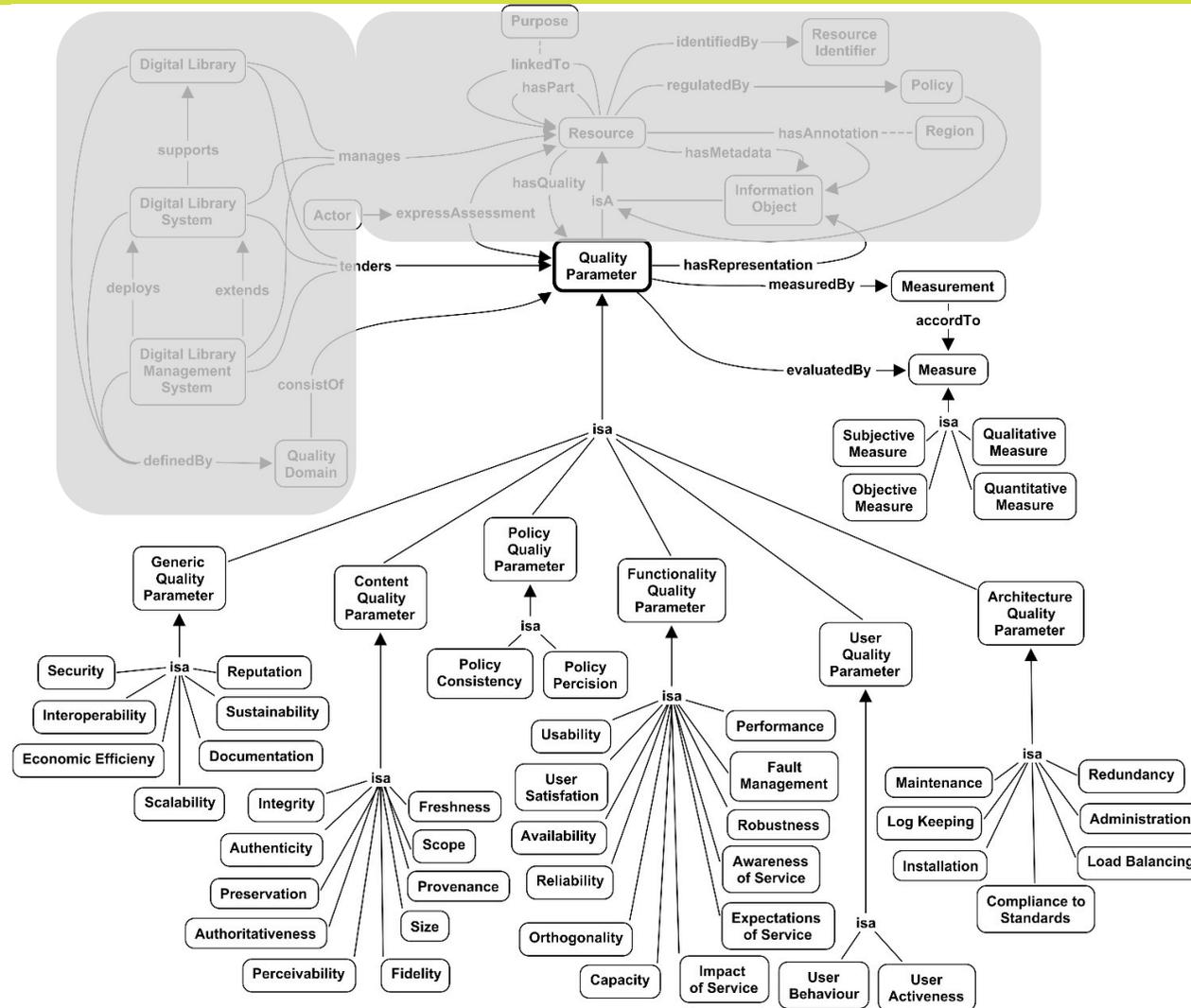
The Functionality Domain



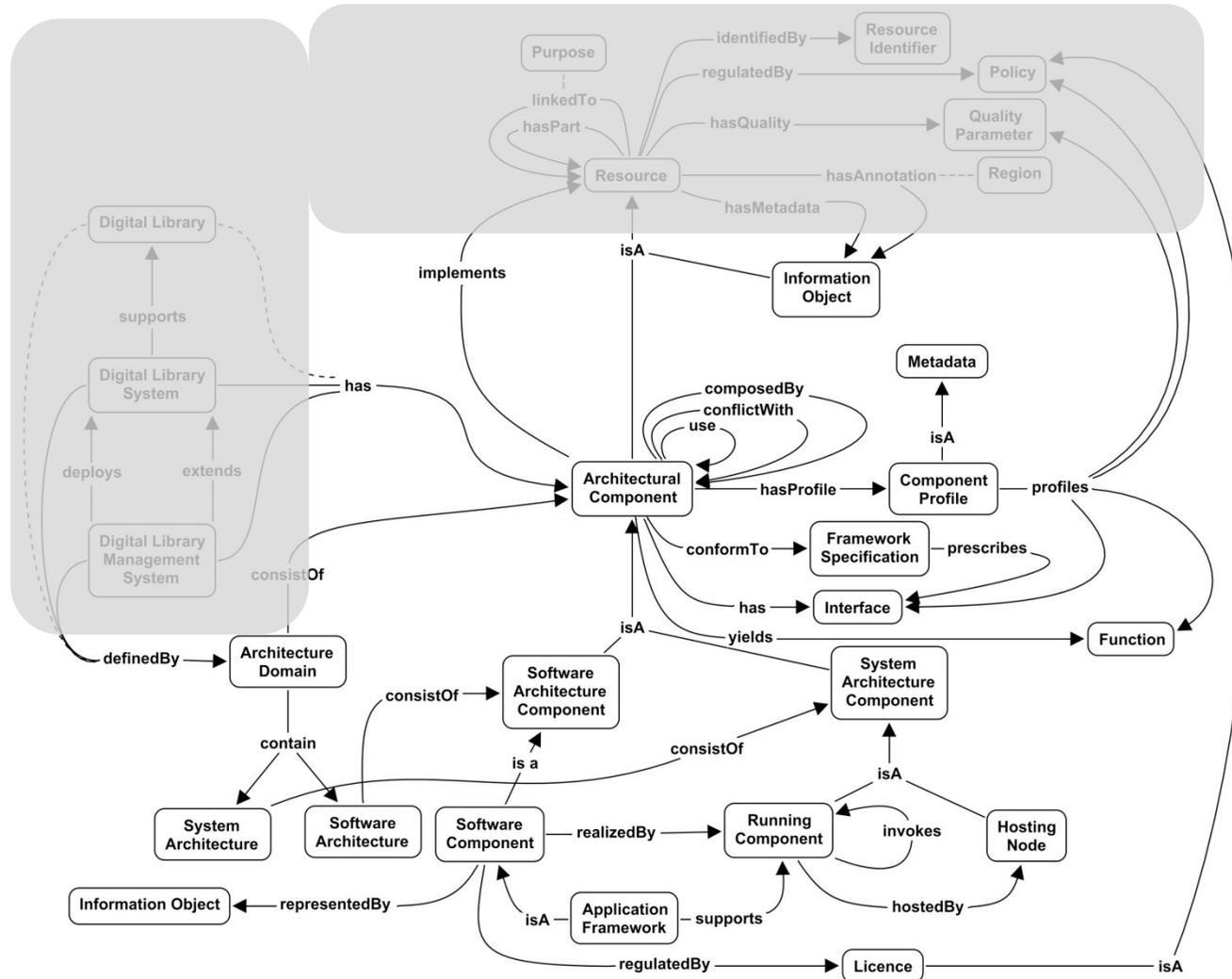
The Policy Domain



The Quality Domain



The Architecture Domain



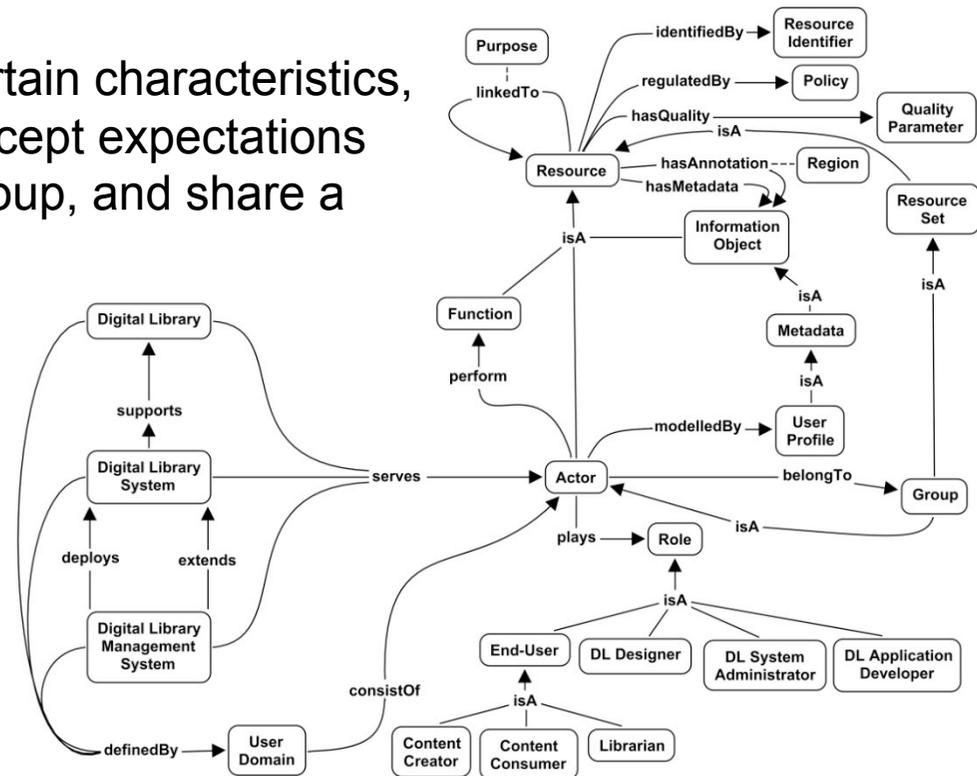
Concepts & Relationships

Definition: A set of *Actors* sharing certain characteristics, that may interact with one another, accept expectations and obligations as members of the group, and share a common identity.

Relationships:

Rationale:

Examples:

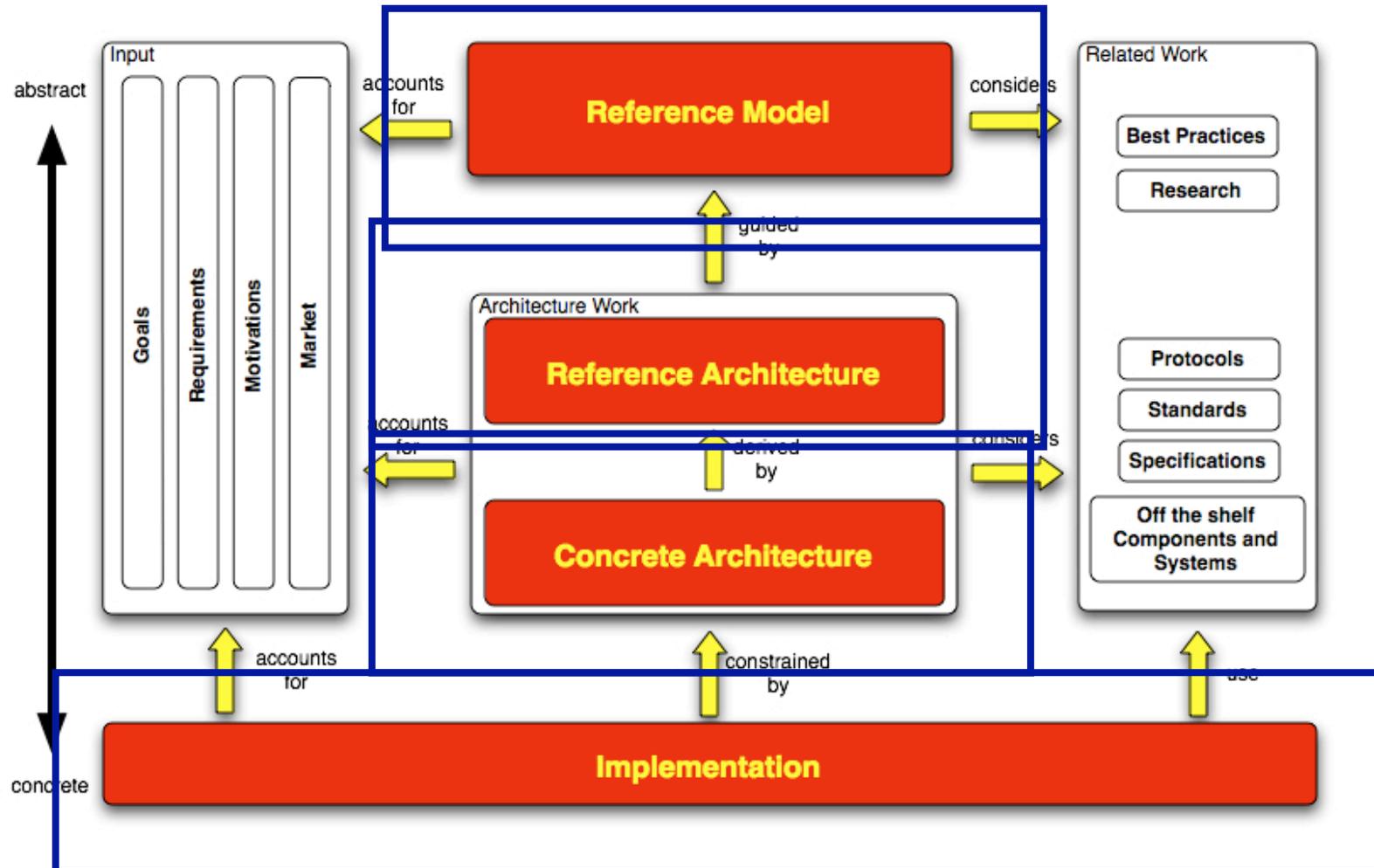


DELOS Reference Model document

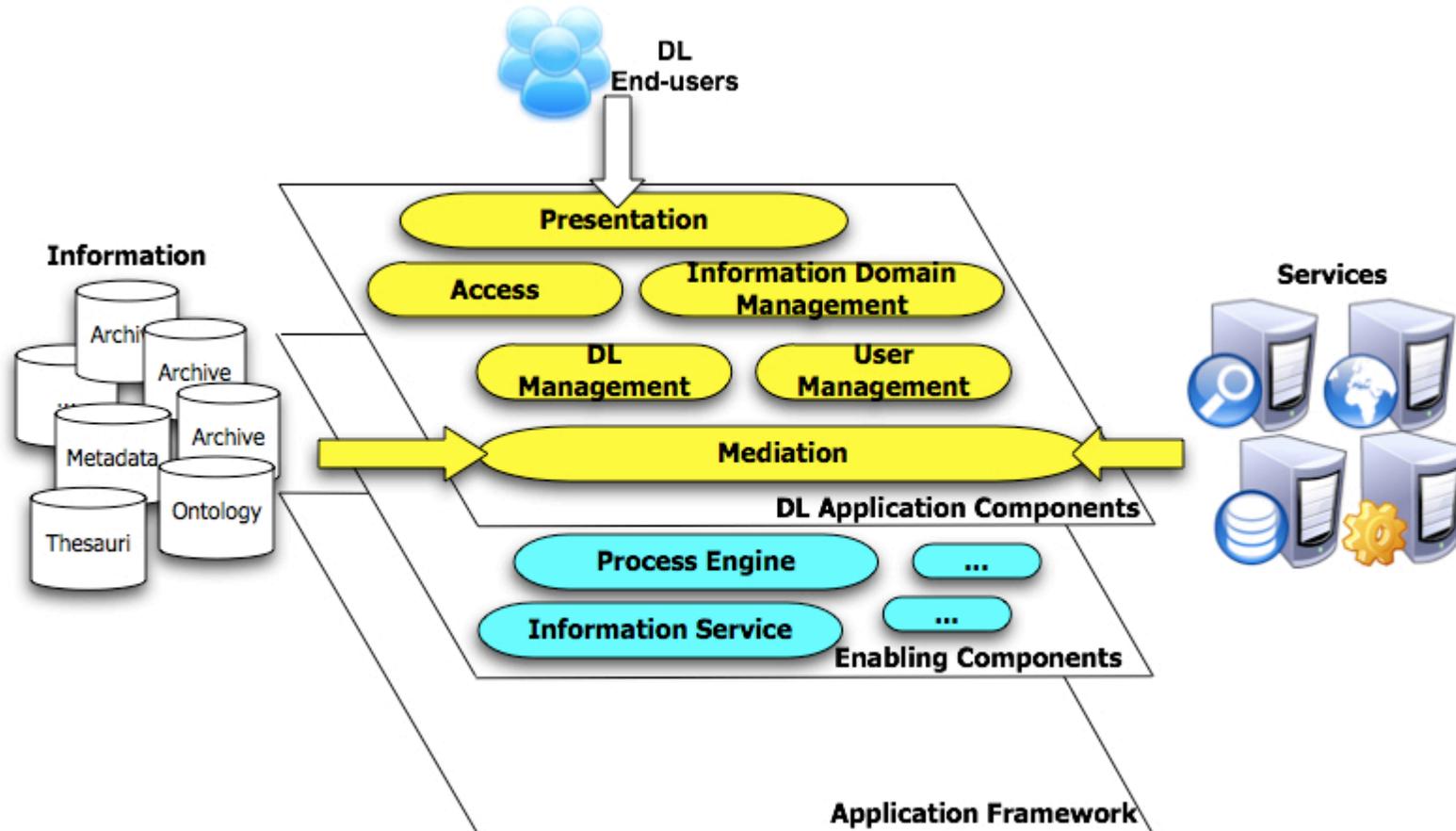
- *The DELOS Digital Library Reference Model*
(Foundations for the Digital Library Universe), Dec 2007

http://www.delos.info/files/pdf/ReferenceModel/DELOS_DLReferenceModel_0.98.pdf

Reference Frameworks



Reference Architecture: Functional Areas



Functional components

