ENCYCLOPAEDIA OF IRANIAN ARCHITECTURAL HISTORY

EIAH Data Model

Semantic Interoperability between Distributed Digital Repositories

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ISKO UK Conference

Content Architecture

Exploiting and Managing Diverse Resources

London, 22-23 June 2009

- Introduction to EIAH
- Goals and objectives
- Entry and Document
- EIAH Information Architecture Objectives
- EIAH Information Architecture
- EIAH Cake
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Introduction to EIAH

- EIAH
  - Founded at 2007
  - Nonprofit Organization
  - Head director of the project: Mohammad Beheshti the Former head of Iranian Cultural Heritage Organization
- Sponsors
  - The Iranian Academy of Art
  - Iran Cultural Heritage, Handicrafts & Tourism Organization
  - The Iranian Ministry of Housing and Urban Development
- Partners
  - National Library & Archive of Iran
  - Polytechnic University of Iran
  - Shahid Beheshti University of Iran

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Goals and objectives

- EIAH Goals
  - Increasing the quantity and improve the quality of information on Iranian culture
  - Facilitating the recovery of vernacular identity
  - Presenting the joint heritage of the countries in the region for further interaction and focusing on cultural unity
- Objectives
  - Providing varied types of resources
  - Providing eligible and accurate resources
  - Providing accessible resources

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Entry and Document

- Two Core Concepts in EIAH Information Architecture
  - Entry
    - Every topic or concept in domain which information accumulates around it (Terms, Monuments,...)
  - Document
    - Any kind of resources which provides information regarding history of Iranian architecture (Text, Photo,...)

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EIAH Information Architecture Objectives

- Three Main Objectives
  - Facilitate the access to the resources and documents
  - The ability to represent the conceptual relations between topics of Iranian architecture domain
  - The ability to represent and develop relations between topics and resources

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EIAH Information Architecture

- Three-layer architecture
  - Information pool
  - Ontology – knowledge representation level
  - The mediator level
- Foundation layer
  - Standards and policies

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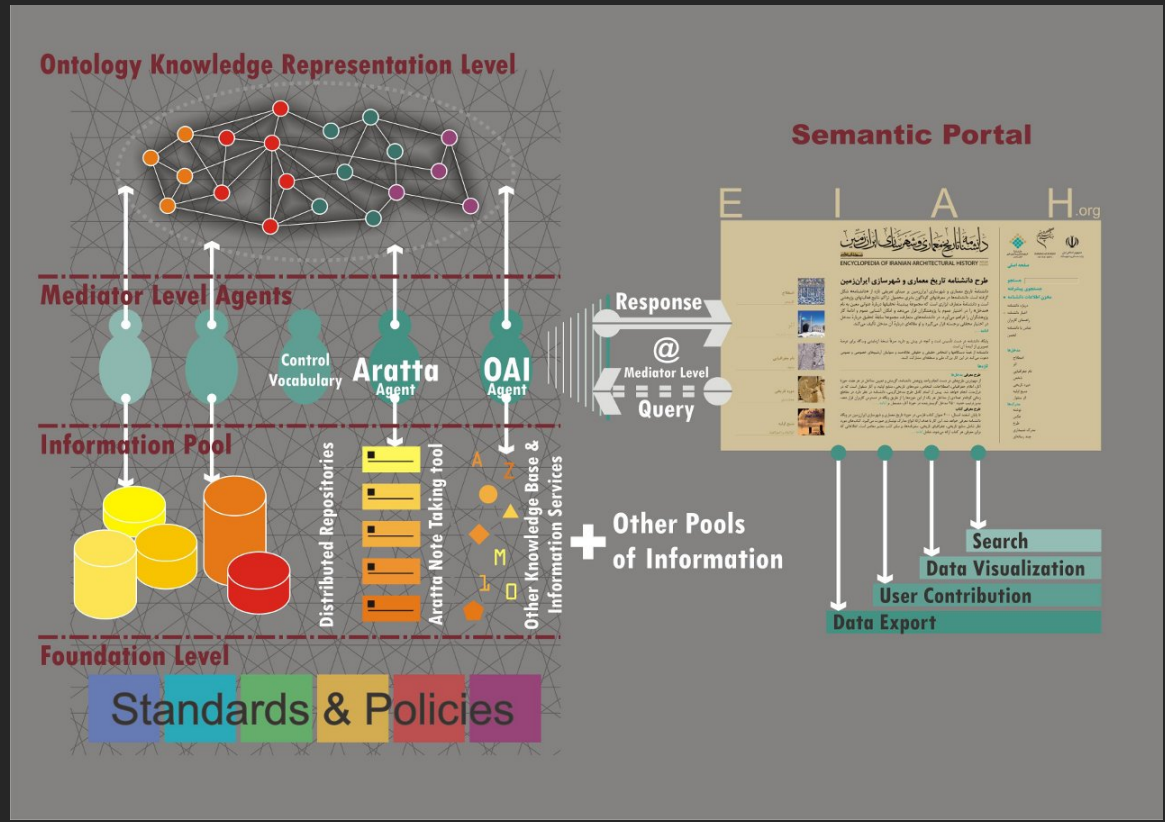

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EIAH Information Architecture

- Three Layer Architecture
  - Service-oriented architecture
  - Distinct components and services
  - Semantic enabled.
  - Modularity

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Standards and Policies

- A Foundation Layer

  All processes and work-flows in this project must follow open and international standards and guidelines, so all the products in different phases of the project could be homogenized and optimized. These guidelines are known as EIAH's standards and policies.

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Standards and Policies

- Software Standard Policies
- Hardware and Network Standard Policies
- Technical Tracking Standard Policies
- Information Storage and Exchange Standard Policies
- Content Legal and licensing Standard Policies
- Security Standard Policies
- Resource Description and metadata Standard Policies

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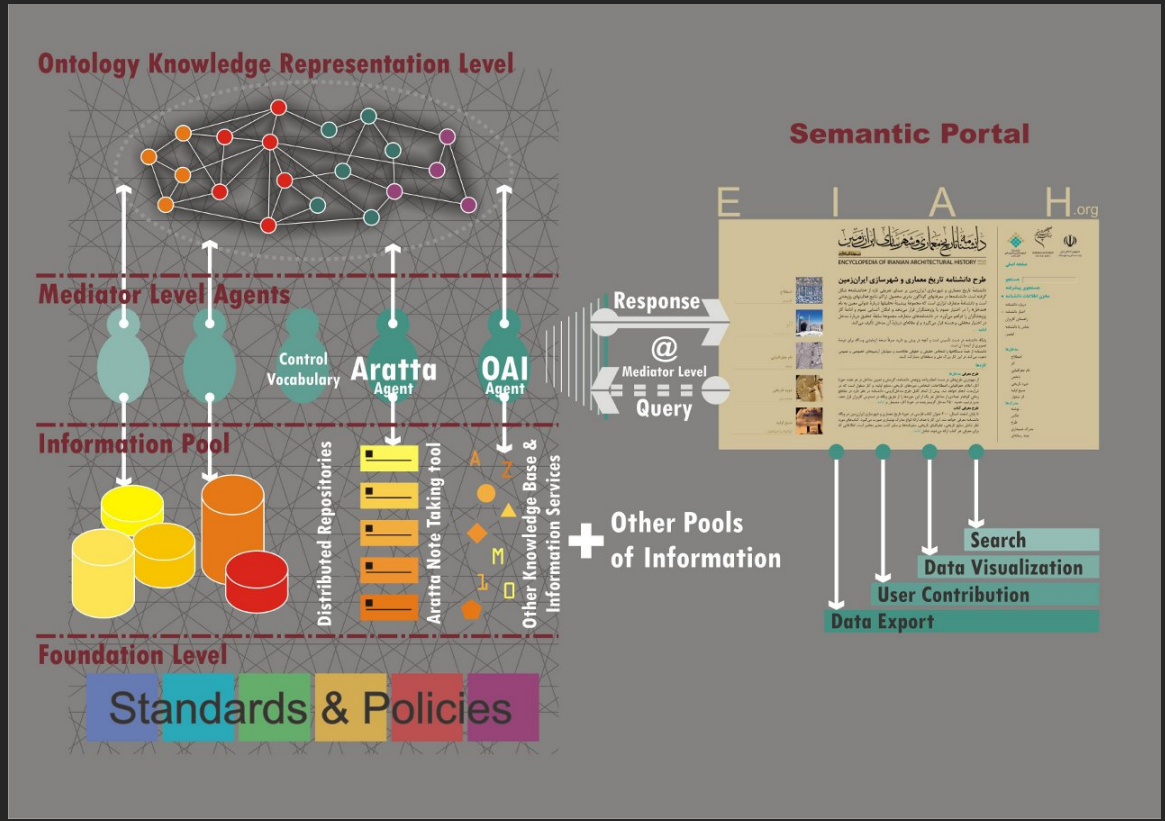

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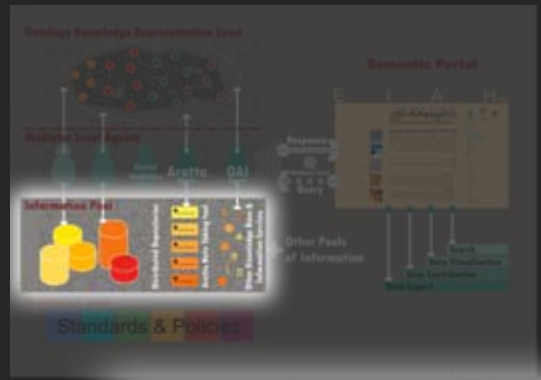

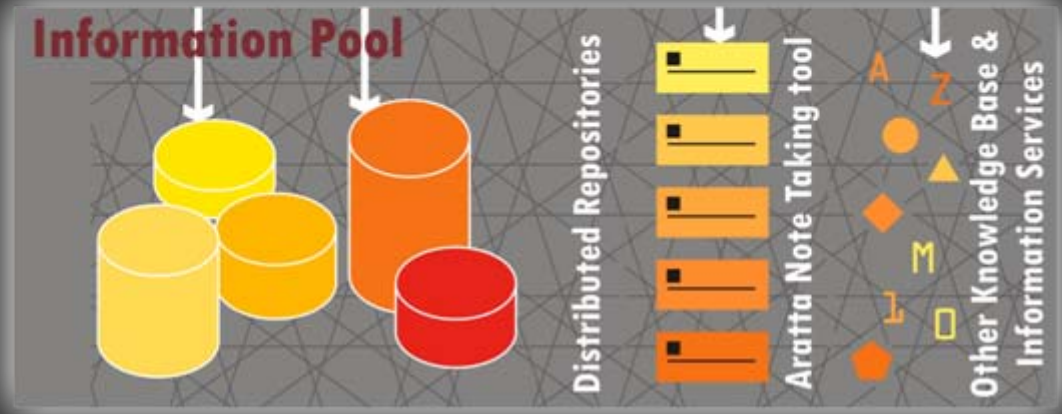

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Information Pool

- A network of digital repositories, containing various types of resources related to Iranian architecture
- To establish the grid of digital repositories a powerful Open source solution was necessary.

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DSpace

- DSpace institutional repository platform was chosen after evaluating and reviewing twenty other solutions.
- EIAH customized and localized DSpace for the institution's needs. These modifications include Persian Calendar, Persian user interface and right to left text rendering.

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DSpace

- Open Source Software
- The community around DSpace
- Using crosswalk plug-ins
- Can customize UI for end user
- Uses Java, JSP, servlet JSTL
- Uses Oracle and Postgresql
- Uses Apache Lucene

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Aratta

- A collaborative research tool (semantic note taking tool)
- developed as a web-based research tool
- Semantic relations between notes
- Reference management services
- Deploys the conceptual model of the EIAH and defines its relational tags based on this model

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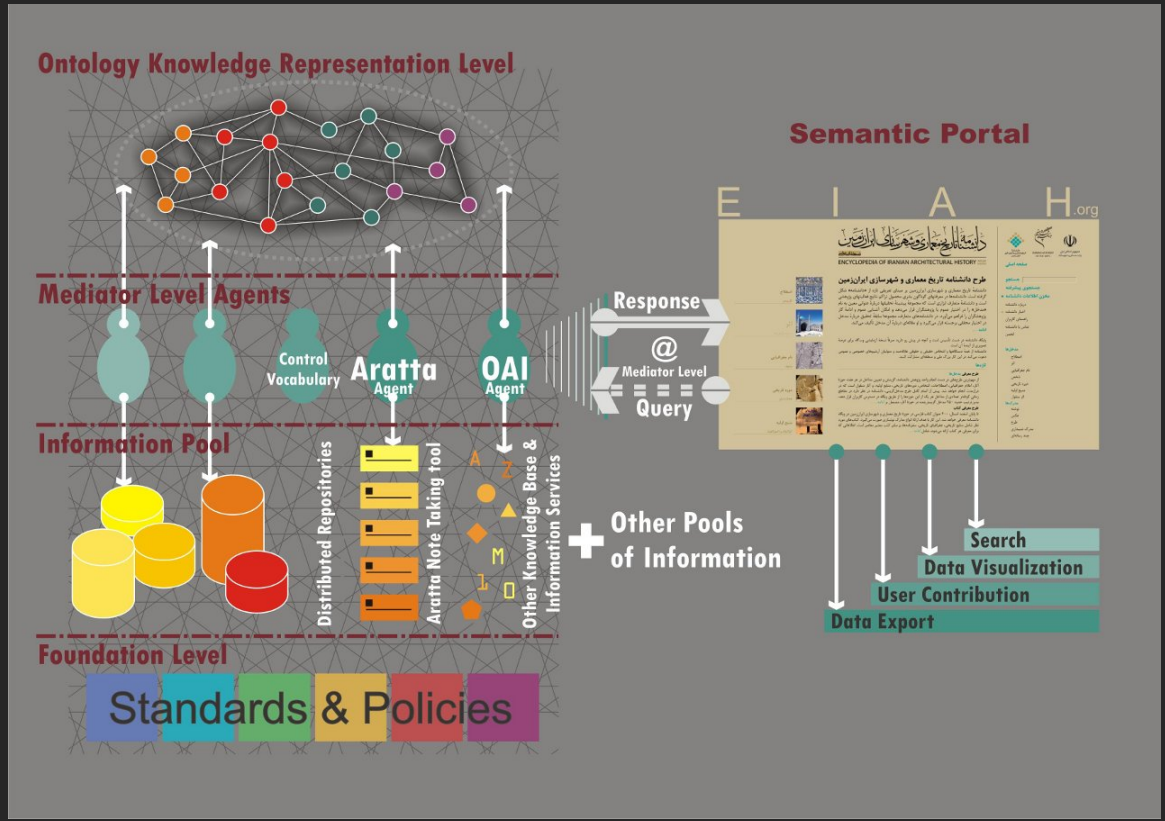

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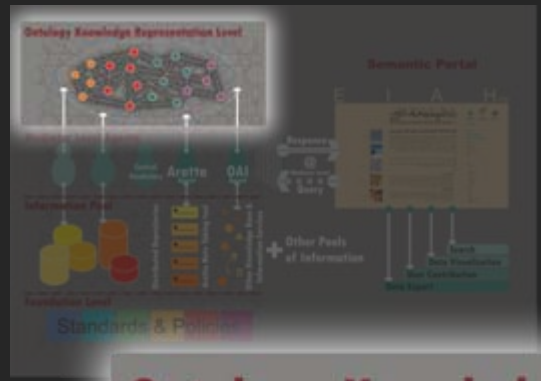
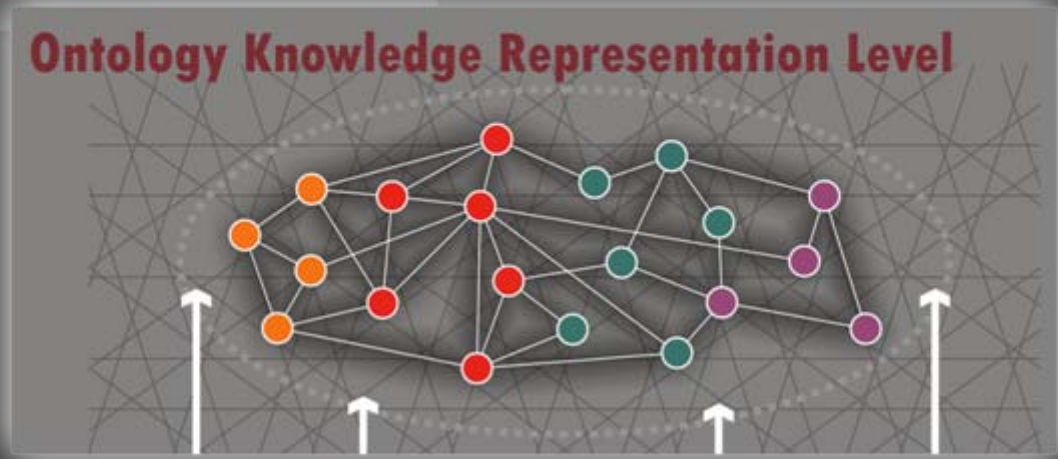
Ontology





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Ontology

- A specification of a conceptualization and a formal representation of a set of concepts within a domain and the relationships between those concepts (Tom Gruber, 1992).
- In Iranian architecture domain, the ontology gives us an overall picture of Iranian architectural history with all its concepts and all their relations.

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EIAH Ontology

- EIAH ontology
  - Temporal
  - Spatial
  - Human (actors and actions)
- Subclass
  - Persons (as subclass of human entities),
  - Works (monuments and sites) and Geographical Names (as subclass of spatial entities),
  - Historical Periods and Events (as subclass of temporal entities),
  - (Architectural) Terms (which is the abstract level of all classes).

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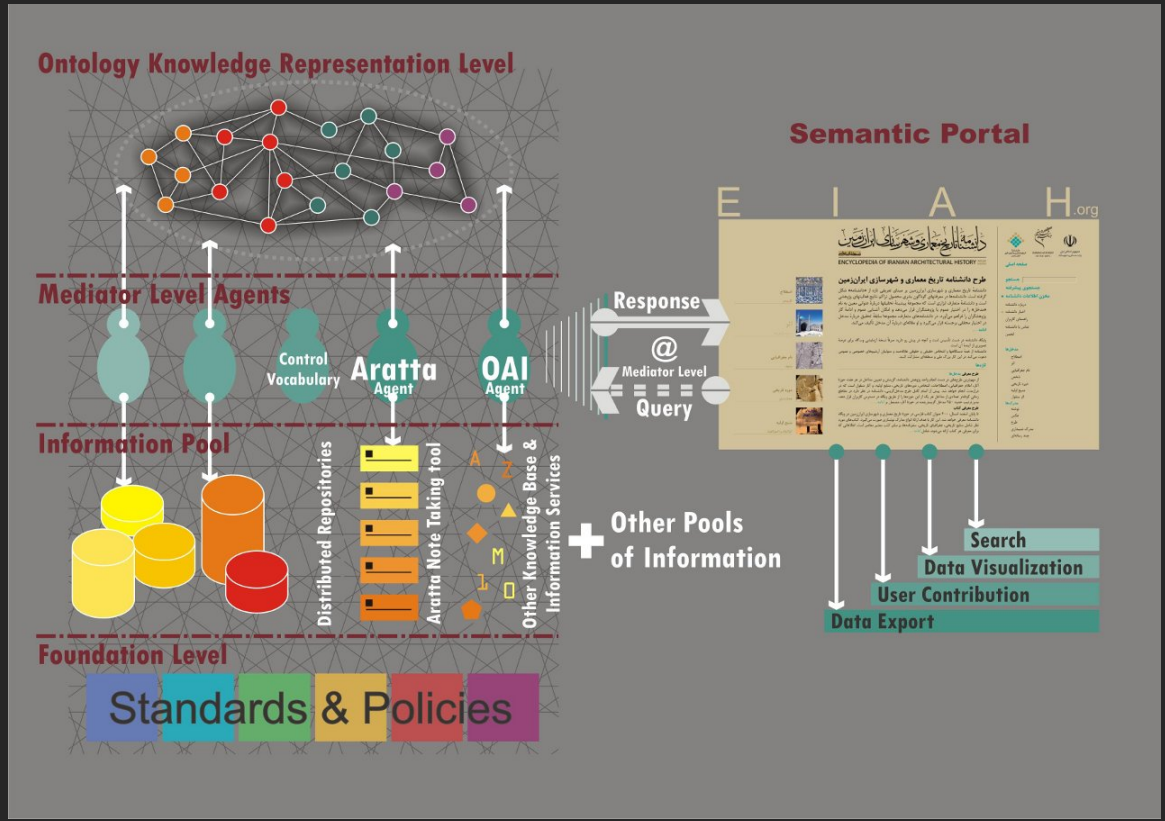

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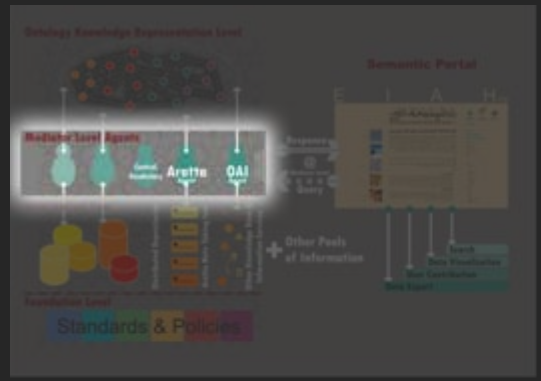

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The Mediator Level

- Detects relations between two layers (ontology and repository)
- Collects and links resources to concepts (entries)
- Integrates data from other services (e.g. Aratta)
- Applies controlled vocabulary to improve search quality

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Controlled Vocabulary

- Required for accurate search results (recall and precession)
- Needed for efficient resource description
- Expansion of users by multilingual controlled vocabularies.
- Promoting a broader global overview respecting translation /Culture
- Three main fields are in our focus: architectural terms, geographical names and united list of peoples name

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Metadata Model

- Customized and based on the Dublin Core (simple & qualified)
- Uses relational elements as refinements of subject
- Compliance with EIAH ontology
- Enables high semantic interoperability among different services

Term Name: Is related to Geographical Name		Term Name: Is related to Historical Period	
URI	Http://eiah.org/en/Entries#Geographical_Name	URI	Http://eiah.org/en/Entries#Historical_Period
Label:	Is related to Geographical Name	Label:	Is related to Historical
Definition:	An entity responsible for correlating a geographical name to the resource	Definition:	An entity responsible for correlating a historical period to the resource
Types of term:	Property	Types of term:	Property
Refines:	http://purl.org/dc/elements/1.1/subject	Refines:	http://purl.org/dc/elements/1.1/subject

Application Profile

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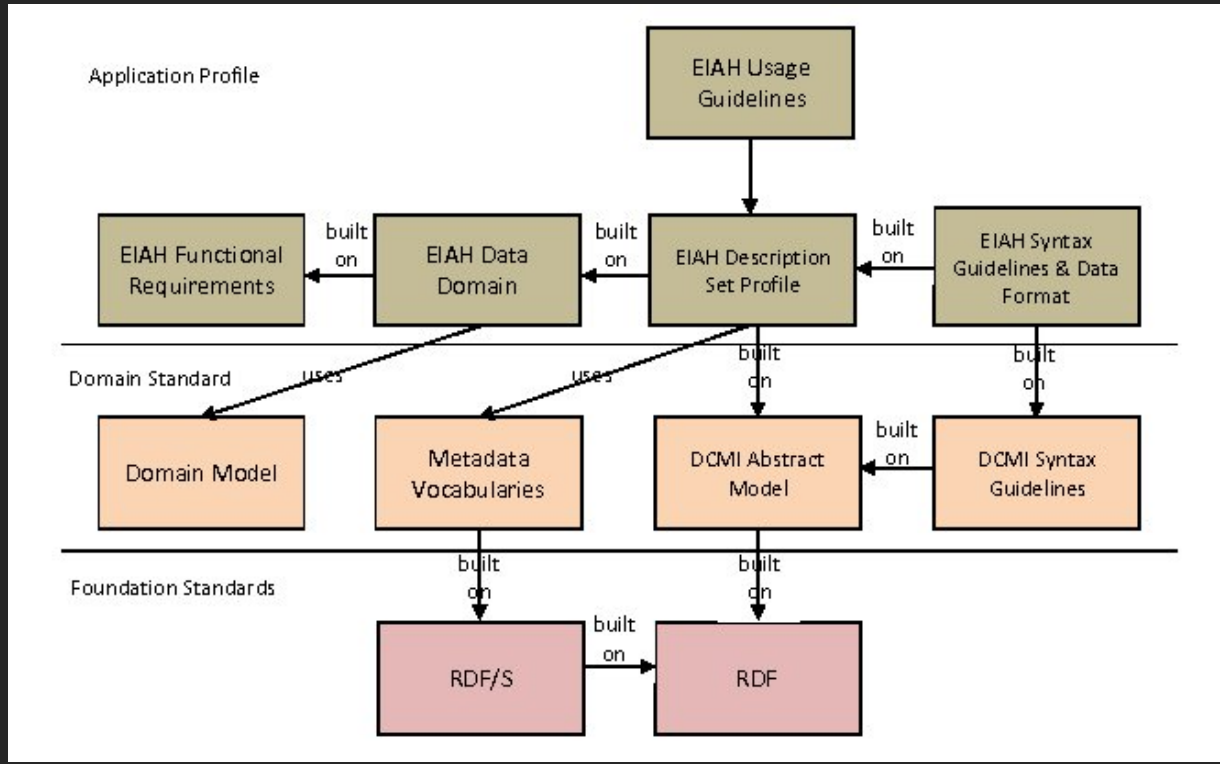

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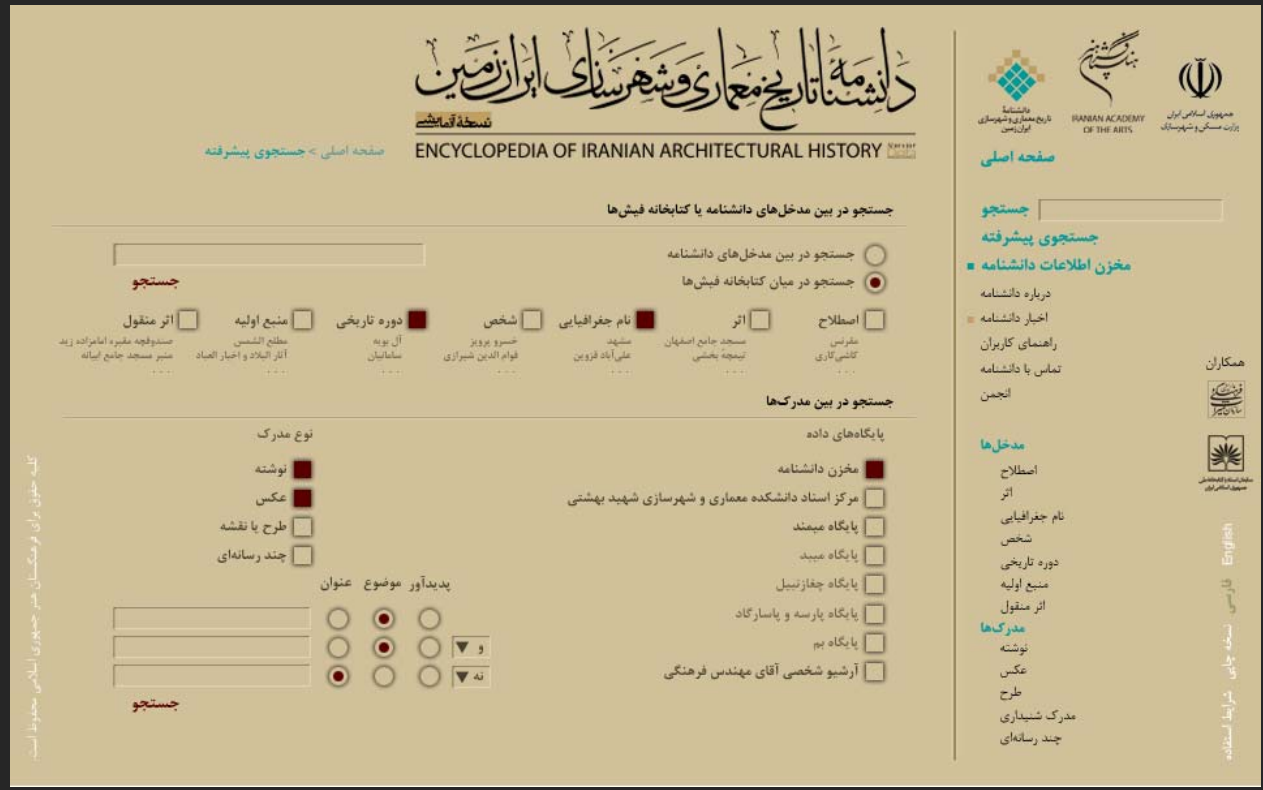
Semantic Portal



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Distributed Repositories

- Widespread cultural heritage centers
- Huge amount of resources
- Promoting digital preservation

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OAI-PMH

- Open Protocol for Metadata Harvesting
- HTTP and XML
- Built-in for DSpace
- Dublin Core friendly

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The Current Implementation

- Repository Level: DSpace
- EIAH Metadata and Application Profile
- Ontology Level: Semantic Mediawiki tools
- Mediator Level: Semantic Mediawiki extensions

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Future Works

- Launch of more digital repositories in other cultural heritage centers;
- Development of EIAH ontology;
- Development of EIAH controlled vocabulary;
- Implementing of DSpace XML UI framework (Manakin) to increase adaptability;
- Enhancement of EIAH application profile based on DCAP Singapore framework;
- Development of more data visualization tools.