

Historical Digital Archive and Geo-referenced Contents of the *Francigena Librari* Web Portal

Adriana Martinoli and Alfredo Esposito

General Direction for Libraries, Cultural Institutes and Copyright
Ministry for Cultural Heritage and Activities

{adriana.martinoli,alfredo.esposito-01}@beniculturali.it

Abstract. The General Direction for Libraries, Cultural Institutes and Copyright is promoting a project on the “Historical, cultural and religious itineraries valorization” and is achieving an institutional Portal dedicated to Italian Francigena track to create an unified gateway access for cultural and touristic contents concerning the Francigena route. The aim of the Portal is to offer news, events, cultural itineraries, interactive maps, virtual exhibitions, information, documents and images that represent the historical, cultural and religious heritage along one of the most important European pilgrimage routes, catalogued with innovative tools for managing taxonomies which allow advanced searches and geographical access to wide information. User may organize, in “Create your itinerary”, his virtual or real journey sharing contents on the Francigena in the “community”.

Keywords: Francigena route, Digitization, Libraries, Metadata, Indexing, GPS tracks, valorization, historical itinerary, cultural itinerary, religious itinerary.

The General Direction for Libraries, Cultural Institutes and Copyright is promoting a project on the “*Historical, cultural and religious itineraries valorization*” and is achieving an institutional Portal which is a unified gateway access for cultural and touristic contents^{1,2,3}. The initiative starts with the Francigena Route project which aims to promote the itinerary described by Sigerico, Archbishop of Canterbury, in a travel diary which dates back to 990, containing the 79 stages back from Rome, where he received the *pallium* for the investiture by Pope Johannes 15th[1]. This project is part of an articulated institutional design whose goal is to preserve, to promote, and to make available the historical, cultural and religious heritage born, from age to age, on one of the most important pilgrimage routes. In order to provide broad visibility to

¹ President of the Ministers Council’s Decree: Consults for Historical, Cultural, Religious Itineraries, and institution of the scientific Committee of the Consults, 27th September 2007.

² Minutes of the Advisory Committee, 31st March 2009. In:
www.francigena.beniculturali.it/web/valit/il-progetto

³ Agreements significances of the legislative decree 22th january 2004, n.42, article 112 subcript between DGBID and the European Association of Francigena routes, the 18th December 2008, the 10th February 2010.

documents, initiatives, projects and resources committed along this common touristic-cultural and religious route, the portal has the following objectives:

- to spread the mapping of the cultural heritage through an articulated trace which connected Europe to the capital of Christianity;
- to involve regions, local government institutions, associations operating in the territory, ecclesiastical institutions, Council of Europe, including matters relating to cultural and touristic places of interest (accommodation, food and wine traditions, holidays and religious festivals, folklore, popular events, etc);
- to identify and share guidelines and operational standards;
- to make accessible cultural and tourist contents in digital format⁴;
- provide visibility to the databases developed by subjects (individuals or corporations) involved in the project or who wish to join, creating a shared information network^{5,6}.

1 Digital Historical Archive

It represents the core of the Portal which includes data of documents and books preserved in libraries, archives and cultural Institutes. Data are organized in a logical and user-friendly way.

The browse page displays the following available searches: free search, advanced search, thematic areas, type of item, Institutions.

The advanced search allows refining by several approaches: a) names that includes people, institutions, congress, title. It appears the number of digital documents associated and then it is possible to narrow the set of results; b) topics; c) Place; d) Time.

The project implementation process involved different research and work stages for the selection of documents:

- Data analysis, collection and selection (bibliographic, archival, audiovisual and iconographic materials) equipped with standard descriptions [2-4], ;
- Description of the document/object aimed to the creation of Metadata necessary to the digitization process and to the web search of integrated information with other areas of the portal as well;
- Creation of rules for the automatic caption generation;
- Editing of captions and abstracts;
- Management of controlled and structured vocabulary for thematic indexing [5].

⁴ 20th December 2005 n.120 Paper draft Directive MiBAC, Departement for research, innovation and organization, General Direction for technological innovation and promotion. Guidelines for co-ordinated communication plan of the web-site of the MiBAC Institutes about their accessibility and quality.

⁵ Pontifical Council for Culture,
www.vatican.va/roman_curia/pontifical_councils/cultr/index.htm

⁶ Ministry Draft/Res(2010)53. Partial Enlarged Agreement (EPA) concerning the cultural Itineraries.

The Portal hosts a selection of cultural and touristic contents chosen in collaboration with the following libraries which the digitization of historical material has covered 40,140 images:

- Biblioteca Angelica, Roma – Images: 16479;
- Biblioteca Casanatense, Roma – Images: 988;
- Biblioteca d'Archeologia e Storia dell'Arte, Roma – Images: 5192;
- Biblioteca di Storia Moderna e Contemporanea, Roma – Images: 31;
- Biblioteca Nazionale Centrale di Roma – Images: 1638;
- Biblioteca Vallicelliana, Roma - Images: 15812.

It also includes materials preserved in: Istituto centrale per i Beni Sonori ed Audiovisivi, Roma (16); Biblioteca Nazionale Marciana, Venezia (198); Biblioteca della Società Geografica Italiana, Roma.

The back-office management of digital documents includes several steps: managing the editorial processing of digital content by assigning index entries referencing to the controlled vocabulary; Multilingual generating captions for viewing summary of digital documents; Referencing digital contents through geographical approach; Screen access to the controlled vocabulary; Browsing the controlled vocabulary management Tree to add terms and items.

The front-end page result of the digital document shows content information acquired [6-7-8-9-10].

2 Itinerary and Walkway

This section includes data collection and mapping development of the pedestrian path along the Francigena Route through the use of the download official guide that shows all the information about road book of the route, maps and GPS tracks.

The official walkway was born through these procedures:

- Collection of data mapping and development of the pedestrian path along the Francigena Route [11].
- Implementation of the official guide download that lists all the path information, maps and GPS tracks.
- Conclusion of the procedure for the validation of the Via Francigena official route with the letter signed by the Italian Minister of Cultural Heritage and Activities, Sandro Bondi and by the Minister for Agriculture, Food and Forestry Policies, Luca Zaia (11/11/2009).

Different or alternative paths are evaluated by a "Procedure for the assessment of changes to the pedestrian Francigena Way", whose objective is to define the mode of assessment and "certification" of the changes to the pedestrian path of the Francigena Way. Through the "Stages" you can find travel guides already divided into small steps of 20-25 km that the tourist can download (road book). There are also GPS tracks to download on their device in order to have the path that is already configured in your device.

The macro area “Along the Francigena Way” dedicated to cultural and tourist trails consists of:

- news, events, information, cultural tours and tourist exhibitions [12] editing and editorial content, united being multilingual and fully geo-referenced, queried and integrated
- the function "Create your itinerary" (definisci il tuo percorso) gives the user the possibility to define your own itinerary and then to create and print a practical guide containing all information about tourist and cultural attractions, digital documents, cultural events and cultural places (libraries, archives and Cultural Institutes).

The Portal shares web 2.0 functionality and potentialities. The Facebook profile is open to promote and communicate the initiative in this popular social network. Tagging functionalities is available to create your own path.

Moreover concerning the development of the web 2.0 we are confident to enlarged the functionalities considering the valuation and the propriety of the information to insert in the web-page portal [13].

3 Technological Framework

This section shows an overall view of the technological architecture and describes the used software, the RDBMS and the communication protocol employed between different modules of the Francigena system.

The technological platform uses open source software. The Via Francigena Portal, [14] was developed by computer company Engineering Ingegneria Informatica [15] and managed, in the last time, by computer company Inera s.r.l. [16].

The main component of the Portal Architecture is Liferay Enterprise Portal [17] that is employed as portlet container and as CMS of the whole system. Liferay works with a Search Engine SOLR for browsing and indexing the contents. It is also used to access the Digital Library and to make metadata and digital items available. The protocol is used to share Digital Library data through calls and responses web services (SOAP over HTTP).

Calls and responses of the web services (SOAP over HTTP) allows the sharing of Digital Library data.

Fig. 1 describes the Francigena system with its different subsets and their main interactions. This framework allows a great modular scalable through the use of standard protocols.

Digital Archives: provide a secure storage of information, metadata, items and digital contents. It is realized with the object-relational database management system (ORDBMS) PostgreSQL [18].

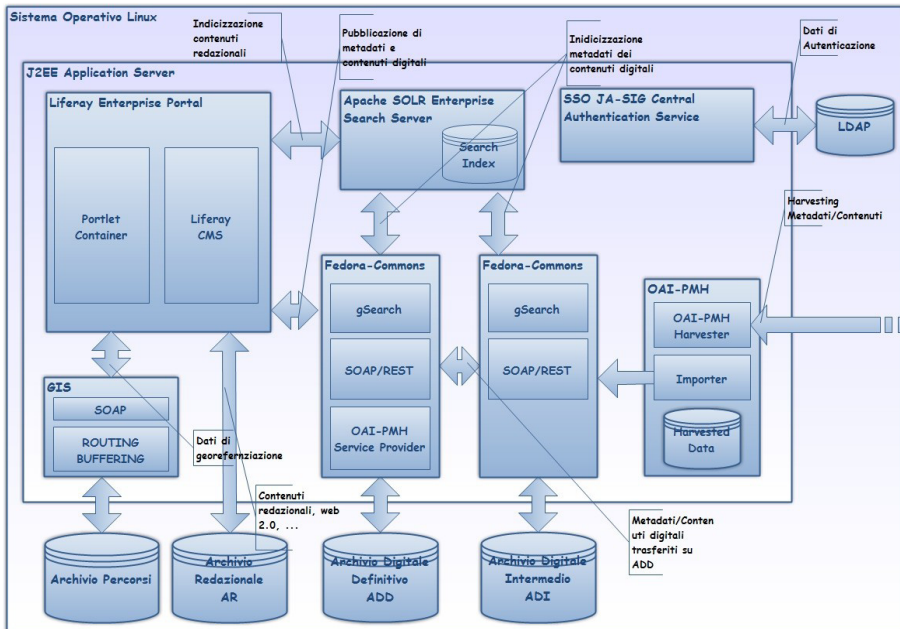


Fig. 1. The Francigena Portal architecture

OAI-PMH: is a mechanism for repository interoperability. Data Providers are repositories that expose structured metadata via OAI-PMH [2]. Service Providers then make OAI-PMH service requests to harvest that metadata. OAI-PMH is a set of six verbs or services that are invoked within HTTP. The metadata and digital contents harvested are saved in the specific Digital Archive.

Enterprise Search Engine (SOLR) [19]: indexes all the metadata of digital content in the Archive Digital and the editorial content managed by the portal. The index then allows you to perform full-text searches on the various fields of metadata and editorial content in the system. The interaction is done through requests encoded in XML format over HTTP protocol.

Fedora-Commons (Digital Library - DL) [20]: it implements the functionality of the digital library which allow the administration and use of digital content and metadata. The description of the objects of the entire Fedora is based on the use of Administrative Metadata Management (MAG) to describe documents and reports and their relation. The Metadata are sent to the search engine for indexing when the metadata are inserting or editing or deleting. To do this it uses the form gSearch that translates and sends it to the indexing engine JMS messages generated by the management functions of the persistence of digital objects metadata. The DL exposes an OAI-PMH service provider that enables the system to the sharing of digital content and metadata with other repositories of digital content.

Geographic Information System (GIS): It is the system that manages and provides all data geo-referencing and cultural itineraries used by the Francigena Portal. It uses and manages the archive paths. The macro functionality exposed and used by the subsystem Portal (Liferay Enterprise Portal) are: routing that allows you to calculate the route between two or more geo-referenced points, buffering that is used to identify points at a certain distance from a given point and management (creation, modification, deletion) of geo-referenced points. The features are available through web services (SOAP over HTTP).

Single Sign on (SSO): it is a service that allows the propagation of authentication credentials to all integrated subsystems that require login.

LDAP: repository of the users of the system. It is powered by logging to the portal.

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