DIGITAL VERSION OF OLD DOCUMENT COLLECTIONS AND THE INDIVIDUAL VIRTUAL MANUSCRIPT MUSEUM TOOL

Gabriela Florescu[*] and Valentin Florescu

National Institute for Research and Development in Informatics, Research Department,
8-10 Maresal Averescu, 011455 Bucharest, Romania

Abstract

This paper targets a presentation of an information technology (IT) tool entitled 'individual virtual manuscript museum' as an IT service support for Theology researchers in their studies of old religious manuscripts situated in clerical archives with environmental vulnerabilities. The proposed tool for this service is a support for the documents 'owners to preserve and manage in a simple way the old collection or archive they dispose. This IT consultation method is new comparing the direct manuscript consultation in the clerical archive by which the documents could be altered. The method is new as it proposes a user-friendly tool in building an 'individual virtual museum of manuscripts'. This new method is based on secure use and secure interaction of any user on digital documents which are interactively and individually developed by each monastery or church without involving high costs for IT resources, infrastructure or special personal expertise in IT. The access to this 'individual virtual manuscripts museum' is modelled by the manuscripts' owner itself and it ranges from restricted individual access to public full access.

Keywords: virtual consultation, secured access, vulnerable manuscripts

1. Introduction

The valuable religious documents, manuscripts, icons, draws, as an important part of Romanian cultural heritage, are attracting scientists, clerical staff as well as the wide public due to their content as well as due to their artistic features [1, 2]. These precious documents are kept in special places and under special environmental conditions within churches deposits or church museum so, in most situations in an uneasy accessible place. They represent important parts of cultural heritage of great interest for historians, theologians as well as for scientific researchers interested in cultural information. The attempt to digitize these documents and manuscripts in order to make them available for electronic

[*] e-mail: gflores@ici.ro, phone: +40213160736, fax: +40213161030

or digital consultation and documentation seems to be one possible way to increase individual or public accessibility to the manuscript collection, important cultural information. As this important cultural information is also owned by Romanian monasteries we considered that a first step towards this cultural information preservation and dissemination could be a computer-based monastery museum connected or not to the Internet at local or national level.

Further, at international level, the integration of this cultural information could be obtained. This integration is recommended to be done according the **C**onceptual **R**eference **M**odel standard (CRM) namely the CIDOC CRM which is intended to promote a shared understanding of cultural heritage information by providing a common and extensible semantic framework that any cultural heritage information can be modelled to. International Committee for Documentation (CIDOC) of the International Council of Museums (ICOM) supervised research of more then a decade in the field of CRM for cultural information so that since 9/12/2006 CIDOC CRM is now the official recommended standard ISO 21127:2006 [3].

CIDOC CRM is intended to be a common language at international level for cultural heritage domain experts and implementers to formulate requirements for information systems and to serve as a guide for good practice of conceptual modelling. In this way, it can provide the framework needed to mediate between different sources of cultural heritage information, such as that published by museums, libraries, archives or individuals [4].

Considering the international trends [5] in approaching the cultural information, our aim was to design an experimental system for interactive building of a Virtual Manuscripts Museum as an alternative to direct consultation of old documents, system considering the CRM standard for further integration if requested by the cultural information owner. Experiments with the proposed tool are based on an extract of an old manuscript collection of the Romanian Academy Library. These experiments could be extended to any old documents' owner either individual or institutional.

2. Experimental

2.1. General specification

To portray with a few strokes the IT tool and the IT service, means to mention some of their features in their development and in their use as an experiment with an excerpt of the Romanian Academy old manuscripts collection, namely the Romanian Stock which contains 6000 volumes [6].

.The DOCIST experimental system [7] for digital content creation and distribution of old documents is made of two modules:

- Digital content creation module,
- Digital content distribution module.

The two generic target users of this system are:

- The manuscripts owner - the digital content providers interested in preserving and disseminating their existing documents and manuscripts by digitization accompanied or not by explicative text information;
- The manuscripts consultant - the interested public in documenting and researching cultural information

Structurally, the experimental system is made of three components:

- Documents data base,
- Owner interface,
- Consultant interface.

2.2. Working technologies

The main technologies used by the system developer are:

- HTML 4.1,
- JavaScript 5.0,
- ASP 3.0,
- ADO (ActiviX Data Object) 2.5,
- AJAX.

2.3. Data Base

The IT tool is based on a Data Base server type, MySQL 5.0, ODBC 3.5 with interface developed in ScriptWeb ASP.

The Data Base records are made of three types of information:

- The text type - for text information;
- The blob type - for images of the manuscripts to which the text information is referring to;
- The CRM type information – for extensions of integration with other systems of cultural information. [4]

The primary role of the CRM is to enable information exchange and integration between heterogeneous sources of cultural heritage information. It aims at providing the semantic definitions and clarifications needed to transform disparate, localised information sources into a coherent global resource, be it within a larger institution, in intranets or on the Internet [3].

The text information is made available in a free style. The manuscript owner introduces as much as possible text information expressing better the content of the manuscript.

The image of the manuscript is made of all pages of the manuscript in a standard jpg format and with a given resolution.

The CRM type information is optional and could be introduced later in case the manuscripts owner intends to disseminate it form further integration in National or International Virtual Library in a more elaborated format [4].

2.4. Interfaces

The system has one interface for digital content owner or provider and one interface for the digital content consultant. Both interfaces are secure at external intrusion at copy attempts.

2.5. Digital content protection

The system interface protects automatically the text and the image by including special security elements. The interface is made such a way that the following options are blocked:
- Copy,
- View Source,
- PrintScrn key,
- Shortcuts for the above options,
- Right hand side button of the mouse.

2.6. Statistics

The website statistics counts the degree of interest of digital document consultants in order to communicate a feedback for the digital document owner as well as to the digital content system administrator. An interesting statistics system implemented at the Online British Library [8] inspired our statistics for the individual virtual manuscript museum.

3. Results and discussion

3.1. Aspects for the digital content provider

The implemented system has been experimented with a web interface for the digital content owner. The content provider from his console can feed the Data Base from distance. By means of the SQL language it is possible to access each page of each set of records.

The content provider has the following rights:
- to access the Data Base by personal password established by the server Administrator; this password could be later modified,
- to feed the Data Base,
- to erase records,
- to modify records and
- to establish the sequence of pages for digital content visualization.

After the password input, verified by the server, the access right is received by the digital content provider or digital document owner and consequently, a web page is generated by the server. In this page, the text field and image field for a record are displayed. The image field is a rectangle 200x200 pixels under which there is a browse button. The content provider will

select this button and will choose from his computer the jpg file for the record by means of an 'open' type window. The images could be of any dimension with the standard resolution 72ppi, and the size 100kb for a minimal loss of graphical information. After the file selection, this image will appear minimized in the rectangle.

The text field will be a 'text area' type which will allow the text with diacritics. Under this input there is also a search button. By means of this button the window 300x300 pixels appears with two headings:

- Font selection, type and size;
- Selection of colour for the font from the 16 basic colours.

There is also a button for saving the record on the server and one button to close the work session.

3.2. Aspects for the digital content consultant

The digital content consultant, after choosing of a digital document for studying it, he has the possibility to browse each digitized page of the document as well as to zoom in or zoom out for studying details. The document image is increased three times against the original dimension. Page browsing is possible in both directions - descending or ascending. The consultant will be able also to search Data Base for texts and images by using selected keywords.

The digital content consultant by means of the home page will have a tree menu including the entire structure of information of Data Base organised by the following fields: author, year and document or manuscript type, geographic coordinates. The tree menu on each page further contains access to consult:

- Document type,
- Place,
- Time interval of original elaboration,
- Authors,
- Document editors.

The digital content consultant, based on this menu, accesses the zone of interest by browsing. Each document is characterized by:

- Place for direct consultation,
- Physical state of document,
- Original or copy availability in either digital or material format.

Considering the facilities developed by this experimental system [8] it is obvious that the IT tool is a support of an IT service in cultural heritage preservation – old manuscripts - either an individual institution would like to make accessible and available. The system could be improved and extended with more facilities but in our opinion it is more convenient to have a simple system easy and directly accessible and usable by theologians and researchers and with no sophisticated development depending on the technology infrastructures. The evolution of IT technology would little affect a simple system as that proposed by us as our system contains low dependable elements of the rapid transformation of IT. Our tool is an intention to solve a current need of

manuscripts owners to better preserve and disseminate the old documents as well as the need of interested people in manuscripts consultation for scientific purposes.

4. Conclusions

Knowledge society is first of all a society of long life learning and education. In this context, scientifically, the project contributes to the development of research in the field of personalised electronic book and digital archives of manuscripts and historical documents considering the official standards for cultural information.

Information gathered from manuscripts, old Romanian book is a precious testimony of the Romanian people's culture but it is threaten to disappear if no IT tools or IT services for non destructive consultation are made available for all documents' owners. The proposed IT tool, the so called 'individual virtual manuscripts museum' is a simple and accessible way by which, individuals, monasteries, museums, cultural organizations could better preserve, filter, distribute their precious cultural or theological information. The general system proposed by this paper is the solution of a new tool - the individual virtual museum - which was experimented on a part of the Romanian Academy, old documents collection.

Acknowledgement

References

[1] R. Stoica, M. Iova and D. Matei, *Bibliografia de referință a Cărții Vechi*, Institutul de Memorie Culturala (CIMEC), Bucharest, 1999.
[2] ***, *Romanian Old Books Catalogue*, CIMEC, Bucharest, 1999, available at http://www.cimec.ro/Carte/cartev/default.htm
[3] L. Van Eycken, B. DeKnuydt, and L. Van Gool1, *A Common Infrastructure for Cultural Heritage Applications*, EPOCH Conference on Open Digital Cultural Heritage Systems, D. Arnold, F. Niccolucci, D. Pletinckx and L. Van Gool (eds)., EPOCH Publications, Rome, 2008, available at http://public-repository.epoch-net.org/rome/01%20Common%20Infrastructure.pdf
[4] ***, The CIDOC Conceptual Reference Model, 2006, available at http://cidoc.ics.forth.gr/index.html
[5] D. Arnold and G. Geser, *Research Agenda for the Applications of ICT to Cultural Heritage*, EPOCH Publications, 2007, 8, 110, 133, available at http://epoch-net.org
[6] ***, Romanian Academy Manuscripts collection, Romanian Stock, available at http://www.biblacad.ro/www_rom/manuscrise.html

[7]   G. Florescu and V. Florescu, *System for interactive digital content provision and dissemination for historical documents*, Research Report (in Romanian), ICI, Bucharest, 2007.

[8]   ***, Online British Library Collection, available at http://www.bl.uk/collections/manuscripts.html