

“The National Portal of Romanian Libraries” Project

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1. Context

In 1999, the Ministry of Culture and Religious Affairs, together with the National Association of Librarians and Public Libraries in Romania (NALPLR) initiated the “Programme for the automation and development of public libraries services in Romania”, which involved starting to build up a physical infrastructure providing specific services. In 2005, the “Ministry of Culture and Religious Affairs strategy regarding public reading and reinventing libraries” emerged. One of its three functional components is “Building up a national web-based network of libraries in cities and villages”. This component includes achieving the “National Portal of Libraries” (NPL) as a unifying core of shared services and specific collective procedures.

The NPL aims at achieving a federated union of participating libraries in Romania, which:

- Should provide relevant web-based services to citizens, as a single institution would do, and
- tighten the collaboration among libraries, in order to reduce operation costs and increase the quality of the services they provide.

It is worth mentioning that the portal is not supposed to include the public libraries only, but to open up for all the libraries connected to the Internet, and it will usually be used freely.

This portal is meant to create a tool enabling the libraries in Romania to associate, in order to share the information and human resources, to the benefit of the users all over the country. Practically, the Ministry of Culture and Religious Affairs will finance the development of the support software for this portal¹ and will make available to the library community the computing infrastructure of the portal. Of course that the professional community itself will perform the task of providing services using the portal.

The present paper describes the functionality of the portal, as included in the bid documents for the support software development.

2. NPL Components

The portal will provide the users with a number of services, conventionally grouped into the following components: the National Union Catalogue (NUC), the Computer-Assisted Interlibrary Loan (CAIL), Heterogeneous Sources Interrogation (HSI), Library Material Reservation (LMR), the National Digital Library (NDL), the Digital References (“Ask a Librarian”) (DR), web-based services for people with vision disabilities (SPDV), the document delivery (DD), material circulation record (with as a special component for copyrighted documents management) (MCR), the Collective User Record (CUR).

¹ We hope this financing will start in 2006.

At first, the user interface will be in the Romanian and English, but the system will include a tool for adding in user interfaces in other languages as well (for instance, Hungarian). The system will provide the user with the opportunity to choose the language of the interface before using it. Besides, the user interfaces will comply with the standard WAI (Web Accessibility Initiative – see www.w3.org/TR/WCAG10/) adopted by W3C (World Wide Web Consortium) in order to facilitate the access of people with disabilities (especially those with vision disabilities). At least one of the user interfaces will be specially designed for people with vision disabilities.

2.1 Federated Union Catalogue (FUC)

The National Union Catalogue is the core of the portal. Actually, this is an integrated system for bibliographic database management, playing the role of grouping the bibliographic resources of participating libraries and organizations and of facilitating the access to the services of the portal. The most important functions of the NUC are:

- a) Catalogue consultation – any user (with access to the Internet) will be able to consult the union catalogue of participating libraries, and, implicitly, will be able to find out whether the material he or she is interested in is available in one of these libraries.
- b) Copy cataloguing – the participating libraries will exercised it, thus reducing the amount of original cataloguing. This way, the cataloguing of the same material in parallel in several places will be avoided. The experience of the countries that have such a catalogue proves that copy cataloguing entails great saving of the resources allotted for this purpose and considerably increases the speed with which an acquired material is made available to users².
- c) Bibliographic reports – following an interrogation, users will be able to define how the system forwards bibliographic data, which are the available elements and the order in which the records are presented. An important element is sorting out according to the relevance of the retrieved bibliographic data. The emphasis is laid upon the qualitative expression of the displayed resources starting from the number of bibliographic references (bibliographic citation sources, cross references, etc.) that reference the original material.
- d) Publishing channels – besides the online presentation of the results of an interrogation, the component will allow the transfer of bibliographic data via a serialization files, in various formats (such as UNIMARC, MARC 21 or XML formats).

From a bibliological point of view, the catalogue will be designed have the FRBR conceptual model in mind [Functional Requirements for Bibliographic Records – see the original report: at www.ifla.org/VII/s13/frbr/frbr.htm, and the allowed catalogue resources (that is the bibliographic entries recordable in the database) will include: works, expressions, manifestations (both at a monographic level, and at an analytical level), items, series, persons, communities, geographical locations, temporal entities, notions (including UDS classes) and terms, situations (that is, n-ary relations), such as: descriptors (e.g. subject headings), (bibliographic) identities, events, auctorial situations (e.g. for derived works, such as parodies), as well as various relations among these.

² One of the many practical consequences will be the fact that a library will be able to coordinate its acquisitions with other libraries. That will make it possible in the near future to share the acquisitions, and, on mid-term, to develop collections with designed profile (the libraries and other organizations will establish themes of regional or sector interest and will be responsible for the completeness of the theme collections in question). Corroborated with the library loan service, this sharing of acquisitions will lead to significant savings.

The NUC software will manage the bibliographic files, as well as the authority files and the holdings. In particular, the types of manifestations/series handled (in the first stage) will include: texts, scores, maps, images, phonograms, videograms, electronic resources.

The "external" format will be XML-based and will allow "language neutral" records (that is, these will be multilingual, and the languages of the elements will be explicit), while the set of characters used will be UNICODE, in order to represent all the possible writings in the records from the catalogues in Romania. For the transfer of the bibliographic data to/from the traditional systems, the system will include a converter into/from UNIMARC, as well as converters to/from frequently used formats in the libraries in Romania. To perform the data exchange with other online catalogues (in this country, but especially abroad), the NUC software will implement also the protocol Z39.50, as well as specific web services.

This component will implement a mechanism for recording the usual measurements practised in libraries³.

2.1.1. Consulting functions requirements

The consultation will facilitate the user's navigation through records, on the basis of the hyperlink technology, but will allow also the three conventional search scenarios: search for a known material (starting from title, author, etc.), search by collocation (that is finding all the materials that have an important common feature, ex., the same author, the same year of publication), search according by subject.

To make the most of alphabetical adjacency, the catalogue will allow browsing all the access points (that is, in the lexicographic order, irrespective of their nature). But the user will be able to browse even a part of the access points, for instance only certain categories, such as people's names (maybe even more refined: authors', translators' names, etc, just titles or notions) or only those in certain languages (for instance, only access points in Romanian or only in Romanian and French). It is expected to develop special mechanism making possible a fine handling of the queries with or without diacritics.

As the consultation of the catalogue is supposed to be comfortable and economical for various categories of users, the consultation user–interface will propose three interrogation scenarios: simple, advanced, and professional (for librarians), the latter with a variety of configuration options.

As in Romania the UDC classification prevails in characterizing the subject matters of library materials, and these characterizations should not be lost when the current digitized catalogues of the libraries are converted, it is mandatory to implement a special mechanism of handling the UDC classes and indexes (derived from the notion handling mechanism). This mechanism will allow an interrogation both by UDC indexes (for indexers) and by terms designating UDC classes (for users).

In order to be found by subject (or – more generally – according to a characterization of the content), the bibliographic records will be indexed with descriptors (e.g. subject headings), which are combinations of terms (e.g. "Brazil – economy – 20th century", "Eminescu – Caragiale – correspondence"). However, terms are just concept designations (or – more generally – notion designations). To find by subject, important are the relations between

³ We will take into account the results of the research PROBIP2000 and of the applications developed by the statistical Commission of ANBPR, including of those accepted by the National Statistics Institute (see: www.anbpr.org.ro/asociatie/comisii/statistica/statistica.htm).

notions, not those between terms. For instance, in order to answer correctly the interrogation “materials having physics as subject”, one should find also the documents indexed with “mechanics” and those indexed with “optics”, and that can be done by (automatically) operating the relations ‘mechanics’ – ‘part of’ – “physics”, which have to be specified in databases.

On the other hand, each notion can be expressed by several terms, in several languages (for instance, the concept of “optics” can be expressed by the terms “optics”, “optica” or “optique”) (see the illustration in Figure 1).

Therefore, the notion records will be associated by semantic relations that will allow “interfaces” in the search process, and the term records will “label” the notions by the “designation” relation. The terms will be included in indexes, thus constituting the keys to searching the notions.

In order to handle correctly these situations the software will implement mechanism for handling taxonomies (ex, thesauri), that is the coherent systems (and language neutral) of the notions and the relations among them, and the descriptors will be handled as associations of notions, not of terms.

The NUC software will ensure the display of bibliographic records in several conventional formats, such as: ISBD, MLA (Modern Language Association), APA (American Psychological Association), ISO 690: 1987.

2.1.3. Print and import/export functions requirements

The component will provide the user with sets of bibliographic records, in various predefined formats that are going to include: UNIMARC, MARC 21, Tinlib, but also print formats, expressed in the formalism XSL-FO and XML. At the same time, the user will be able to define bibliographic reports, that is, following an interrogation, he or she will be able to define the way the bibliographic data are presented, that is how the records are sorted, which elements are displayed and in what order.

We remind the fact that the sorting, based on the relevance of the information provided, is a useful option especially for the segment of users interested in research. The manner proposed for establishing the relevance is the number of citations of the original document. Although, essentially, it is a measurement based on counting the links of the type of cross references and bibliographic references, it reflects the quality of the referred content.

2.2. Interlibrary Loan (ILL)

This module will provide library members with the possibility to select materials available for loan (but that cannot be found in the library he or she is a member of) and to request an interlibrary loan on his or her behalf, under the conditions laid out in the Interlibrary Loan Regulations (adopted by the joint order of the Ministry of Culture and Religious Affairs and the Ministry of Economy and Commerce; see the Official Gazette no. 35, from the 11th of January 2005).

The mechanism will make it possible to check the users’ situations so that a procedure of declining the requests of the users who have debts or have been sanctioned by another library might be implemented. That presupposes that the files of the users registered in the libraries of the system should be stored into a central database, and accessed under very restrictive

conditions, in order to protect confidential data. Their management will be carried out in the specific ECU module.

The users will use the FUC in order to identify the desired materials and their locations. Therefore, the copies available for interlibrary loan have to be marked as such by the library that holds them. All that involves using a specific module developed for managing the circulation of the documents.

If a user intends to borrow a certain material and consults the national catalogue, one can distinguish several situations:

- a) The material is available for loan at his or her library. In that case, the user can call on the reservation service in order to reserve the material until he or she can come to the library and really borrow it.
- b) The material is available at his or her library, but it cannot be lent. In that case, the user can call on the reservation service in order to reserve the material for consultation at the reading room of the library, on a certain day, for a certain period of time.
- c) The material cannot be found in his or her library, but it is available for interlibrary loan in another library. In that case, the user can make a request at his or her library to borrow the material on his or her behalf.
- d) The material can be found in at least one of the libraries of the system, but it is not available for interlibrary loan. In that case, the user can call on the document delivery service, accessible through the NPL. The holding library might be able to deliver, under certain conditions (with or without a fee), photocopies of the material.
- e) The material is not registered in the catalogue. In that case, the user can call on the document delivery service⁴, and his or her library makes public the request, because: 1) maybe a library holds it, but has not yet registered it in the national catalogue; 2) maybe a bookshop, publishing house or antique book shop holds it and can offer it to the user.

The ILL component will manage the whole message exchange between the applicant and the holder, in order to carry out such a transaction. The library databases will be operated at a local level. The central system will facilitate the message exchange and the transaction. A “waiting in line” mechanism will be provided for the situations in which a document is requested by more users. That mechanism will make it possible to survey the return dates and the dynamics of the requests.

The module will allow the automatic storage of basic measurements and the configuration of other measurements, with a view to carry out statistical situations and analyse the performance of the system.

2.3. Heterogeneous Sources Interrogation (HSI)

This module will allow the integration of varied information sources, to the user’s benefit. It will carry out automatically the interrogation of these information sources and will aggregate the answers, in order to be presented, in a unitary format, for the user. The service will resolve the interrogation and aggregation of data presented in various specific management systems and will have the potential to connect to various categories of sources, such as:

⁴ This is a way to draw bibliographic records with the user’s help, meaning, he will elaborate a bibliographic reference in order to express his or her request. Of course, more often than not, it is supposed that this bibliographic reference cannot be very accurate, from a formal point of view, but can be understood by a bibliographer, therefore correctable (usually it will be taken over by the user from a bibliographic reference, not from the memory).

- a) the Internet (Web): Directory of Open Access Journals [www.doaj.org], Google Scholar [www.scholar.google.com], Answers.com [www.answers.com], WordNet [www.cogsci.princeton.edu/cgi-bin/webwn], Google [www.google.com], Open Directory [dmoz.org];
- b) library catalogues: Z39.50.

The HIS will allow the users to choose visually the information sources they wish to access at a given moment, but will return to them the partial results of the search, before all the interrogated sources answer or deliver the results. Thus, the user will be able to consult a partial list of results, while the search goes on in the background.

2.4. National Digital Library (NDL)

Another major component of the portal is the digital library. This component of the portal will contain text, visual and sound documents in a digital format, in a unitary presentation accessible for free. The NDL will comprise both public domain materials and copyrighted ones, but for which the right to publish was obtained beforehand.

The NDL will have, in its turn, several components, namely:

- a digital facsimile library;
- a digital text library;
 - full text;
 - XML text (including under Text Encoding Initiative – Tei and DocBook)
- a digital sound books library;
- a digital Braille text library;
- a digital photograph collection.

The NDL will be integrated with the FUC, as the bibliographic records of the documents found in this library will be found in the FUC, and a document will be accessible to the user by means of a hyperlink found in the bibliographic record.

2.5. Digital References (“Ask a Librarian”) (DR)

This component will implement a mechanism enabling the reference services of the participating libraries to associate in order to offer jointly online answers to the questions of the users registered in the libraries. This mechanism will have to take into account the following aspects:

- the questions have to be sorted out in order to exclude the frivolous/indecent messages;
- policies of allotting the received questions have to be implemented;
- the answers have to be indexed and archived, in order to avoid a multiple elaboration of answers to similar questions;
- comfortable interface for consulting the answer archive;
- a possible mechanism for checking the quality of the answers.

This mechanism comprises two scenarios:

- A. The scenario for the questions from the users registered at a library (therefore, those the system “knows”);
- B. The scenario for the questions of the “anonymous” users (that is not registered in the system).

A pair of question/answer can have an attached list of bibliographic records (from the FUC), representing the bibliography associated to the answer. Sometimes, this list represents the very answer, if the user requested a bibliographic on a certain theme. Therefore, in order to provide a user with a bibliography, the bibliographer will register in the FUC the records he wishes to include in this bibliography. Moreover, the answer might contain bibliographic references (that presuppose the inclusion in the catalogue of these bibliographic records).

The form for taking over the questions will include (at least) the headings:

- name (it should be the real name – it will not be made public);
- electronic messages address;
- the question;
- extra information (motive of the question, sources already consulted etc.);
- the languages acceptable for possible bibliographic references.

The questions/answers will be included in a specialized section of the digital library, and their associated metadata will be included in the catalogue, as they are accessible to the user, like any other material.

The component will be able to register the measurements specific of this type of service, for a global and individual reporting. The list of the measurements will include, at a minimal level, the number of requests related to the locations, the global number of questions put in the system, the number of requests met per location, the global number of questions put in the system that were answered, the number of questions that were answered, but failed to satisfy the user (ex., the latter asked for details or reformulated the questions), the number of questions with an answering time up to 3 minutes (local and global), the number of questions with an answering time of over 24 hours. All the measurements have to be reported at various periods of time, either globally or per location.

2.6. Services for Users with Vision Disabilities

The section for users with vision disabilities will comprise only user-interfaces specific of this category. These interfaces will be designed in collaboration with the Association of the Vision Disabled in Romania (www.anvr.ro) and the “Travelling Book” Foundation (www.fcc.ro), according to the standard WAI (Web Accessibility Initiative – see www.w3.org/TR/WCAG10/0, adopted by W3C (World Wide Web Consortium)).

2.7. Library Material Reservation (LMR)

This component will comprise a mechanism enabling library members to make anticipated reservations from a distance for the materials available at the library in question. This facility is meant for:

- Users/members (even to those who do not live in the locality where the library can be found), who intend to come to the library in order to consult materials in the reading room (or, where applicable, who want to borrow for home, by observing the regulations concerning public services in those libraries) and who wish to make sure that the material will be available on a certain day, for a certain period of time. The highest efficiency – at a social level – will be in the relation between rural libraries and those that can offer assistance (especially county libraries).
- Users who wish to borrow the materials and want to make sure that they will not be lent to other users until the moment they can come to the library to borrow.

The mechanism will provide user information services concerning the availability of the relevant material in that library. Thus, the library members who have an electronic message address will be informed when the relevant material becomes available.

The users will use the FUC to identify the materials they wish to reserve.

The component will allow the configuration of certain parameters for performing this service. A part of the parameters have to be configured by the system administrator (ex, the period of time after which a request can be erased if no one answers it or no one marks its undertaking). Other part of the parameters will be configured by the responsible administrator of each library (ex, the return periods practised by those libraries for each category of services, the granting or cancelling of particular privileges in the sense to certain categories of users – for instance, different return periods for the users in their own county and for users from other counties).

2.8. Community Information Service (“Infoghid”) (CIS)

The “Infoghid” service will develop into a module that will provide a container for information relevant to the community, both cultural (ex, the schedule of performances in the locality or the opening hours of the museums) and of other kind, ex, local legal information (ex, decisions of the local council or county), relating to tourism, transports and even business opportunities.

This information will be available for publication by several organizations and they will be able to group them according to communities and relevant domains.

The experience of users requesting community information indicates the following main domains of interest:

- Social assistance: institutions, activities, unprivileged social categories;
- Medical assistance;
- Administration;
- Education;
- Culture;
- Justice;
- Politics;
- Economy;
- Religion;
- Sport, tourism, ecology, entertainment.

Functionally, the module will observe the same principles like the system as a whole:

- performing the data input function;
- retrieving data according to the requirements derived from the traditional practice and possibly new ones;
- using the authority files of the system (for data elements involving that);
- managing (automatically, if possible) the important but ephemeral data.

This module will make it possible to operate data starting from the geographical principle, similar to the GIS systems. In this context, current data will associate within a record and a set of specific coordinates referring a graphic image, representing a mapped pixel design dynamically interpreted by the Internet navigation programme used.

2.9. Document Delivery (DD)

The document delivery service differs organizationally from the digital library, as it tackles the case of the documents provided for a fee, usually for copyright reasons.

The relevant material will be obtained on the basis of an online order form that will implement a pay mechanism for the user and a cost accounting one, according to the requested material, and request centralization and processing mechanism.

2.10. Material Circulation Record (with as a special component for copyrighted documents management) (MCR)

The central record (at a national level) of library material circulation is unusual. Three major factors justify it within this project. The first one is technical: the ever wider availability of the Internet. The second one is administrative: this component will allow small libraries to use a digital system, without installing a local one, which presupposes adequate infrastructure and personnel. The third one is legal and economic: such a record will allow generating statistics on loans according to titles, which will constitute a real base for fair royalties to rights holders, as a compensation for “public loan right”.

2.11. Collective User Record (CUR)

The registered users/members in each library of the system will be memorized and managed collectively by means of the integrated application operating the central database. The files of these users will be accessed under very restrictive conditions in order to protect confidential data. The usefulness of the central user record consists in the possibility it provides to detect and sanction collectively the unruly users, who might move from one library to another. Moreover, like in the case of bibliographic records, there are users who apply for membership at several libraries, and, the existence of a record including the data on them in a central database will allow copying the data in the local transaction databases, so that the process of issuing reader permits should be done quickly and safely. Besides, the CUR will facilitate the fulfilment of the formalities required for interlibrary loan. Anyway, most portals with complex services require applying for membership. Given that the system designer is supposed to propose control methods based on authenticity, the database including users registered with declared functions (librarians, editors, antique book specialists, bookshop keepers, etc.) will expand easily, so it will comprise the most important part, namely the users, who can be divided into two logical groups: the users registered in at least one of the participating libraries of the system and the potential users, who include all those who can access the system from a distance (from any possible location) and are not registered members of any library belonging to the network.

3. Final Remarks

Some services will be accessible for free to any user in this country (or abroad), while other will be accessible only to the members of the participating libraries. In principle, the services will be free, but it will be also possible to provide services for a fee. That presupposes the implementation of pay mechanisms for the users (who use paid services), at the library where they are registered.

The programme modules specially elaborated for this project will be open-source and will be delivered on the basis of a MIT license⁵ (see www.opensource.org/licenses/mit-license.php). The modules taken over from other projects will be delivered on the basis of their original license. In

⁵ Essentially, the MIT license allows using the sources of the product in any way (including commercially), provided a specific copyright notice is inserted.

other words, the sources of the programmes will be publicly accessible and will be able to be used also in other software products, even in commercial products.

The NPL is an ambitious project. Its ambitions are justified, however, by the need for making up for the slow progress of Romanian library science, namely to compensate the delay in achieving a federated union catalogue and the library services associated to it.

This project is expected to be financed as soon as possible.