TINREAD

Product Overview

ime
Romania

TinREAD

PRODUCT OVERVIEW

June 2010

CONTENTS

TinREAD

Product Overview

"TinREAD is state-of-art software built with best technology available"

1. IME Romania

IME Romania (Information Management and Engineering) is a company specialized in providing solutions for libraries. Considering the number of Integrated Library Systems installed and also considering the amplitude of the developed projects, the company is the largest in the country and one of the largest in the Eastern Europe in this field of activity.

From the very beginning, more than ten years ago, the main purpose of the company was to deliver high quality software for libraries, best available worldwide and to provide technical support for its customers. Gradually, the activity has been extended with connected services, more and more substantial in order to improve and adapt the distributed products. Thus, the products were fully translated (software and documentation) for their use in Romania and Moldavia. At the same time, the specific changes and customizations were operated, thus the software was adapted to these functional requirements. Very soon the company's very efficient and constant activity has lead to the statute of technology partner and co-developer for the distributed software.

Starting with 1998, IME Romania developed its own ILS solution initially called TLIB, thus, having at its disposal the technical instruments necessary to get involved in complex projects requiring reliable systems, tested for a long time in complex implementations, and in the same time requiring flexibility and developments adapted to each project to a certain extent.

All this knowledge and technical expertise was invested in **TinREAD** (The Information Navigator for READers) project started in 2003. The main goal of the project was to build an ideal library system perfectly fit for any type of library in no matter what country. This approach was made possible by extensive investments in research and by the two international bids won by IME Romania: **National Collective Catalogue of Romania** and **National Shared Catalogue of Moldavia**. Both projects aimed to the same objectives as the one TinREAD did and a large number of senior librarians from both countries were involved in TinREAD project. The result is not just another ILS, but a unique system with capabilities described in the followings.

A major reference for IME Romania is **The Library of Congress** in the United States. The LC has appointed IME Romania their Technical Services Partner for their International Field Office Services implementations worldwide. IME Romania is experienced in supporting large implementations and in working with partners, such as LC, who demand the highest level of service.

Another major reference is AED/RITI-ACCESS programme (Academy for Educational Development / Romania Information Technology Initiative), financed by **USAID** (United States Agency for International Development), that highly appreciates the excellent expertise and technical support of IME Romania, who developed and implemented the Library Informatics System project with its two components: The first National Collective Catalogue of Romania and The Digital Library.

Last year, IME Romania has celebrated ten years of activity full of successes. During this first decade, the expertise of our work, the decisions, the firmness and the competitiveness have been materialized in implementations of more than 300 libraries locally or worldwide. IME Romania is available to support its products in all aspects of implementation, support and ongoing maintenance. IME Romania is also very receptive to continuing development of the product to meet the market needs of customers world-wide.

IME Romania is **3M** distributor for library security products since 2003. Starting with 2004, IME became member of **Oracle Partner Network** and **IBM Partner** status was achieved in 2005. IME is fully certified with **SR EN ISO9001** quality management standard for Software/Hardware related activities. Software development is performed using ISO/IEC 15288 and CMM Level 3 procedures.

2. TinREAD project

Based on the initial experience as a distributor for two large ILS, IME Romania got much feedback and ideas on the requirements for a "high end" international library automation system, and the concept of TinREAD was born.

The TinREAD system development was funded due to 2 large government contracts with USAID (National Collective Catalogue of Romania) and National Library of Moldavia (National Shared Catalogue of Moldavia). Because these two government contracts funded all development, the system was built based on ideas of experts in the field consisting of specialist teams from both library communities. The focus of these groups was to build the ideal system and because there was no pressure to make sales, the focus was kept on the integrity of the system. The result is a sophisticated and extensible system architecture and robust functionality.

Two and a half years were spent on developing code for TinREAD main functionality. Here much emphasis was placed on developing the core engine and the data modeling process. Because of the effort put here upfront, it now only takes about one month to implement a new module for the system. New modules can be implemented quickly because the basic structure of the system was designed to be extended easily.

While coding was being done, in parallel for more than 1½ years system analysis was performed by the specialist library teams in Romania and Moldavia. This analysis included details about standards and internationalization. The internationalization was an essential component, as was the ability to handle many different national standards.

The result is TinREAD.Engine the core of the whole system. This is an ILS application generator that allows the System Administrator to completely define the application at runtime with no need to modify the source code. Parameterization concept usually referred by ILS system is extended by TinREAD to a new approach: application generating. The menus, submenus, lists, forms, fields, relations, validation, access-rights are all customizable by System Administrator and allows the most flexibility ever possible for an ILS.

TinREAD.Engine is the framework used to define/generate ILS applications, a platform for development resembling to the Administration Module of other ILS but extending this module to the highest limit. TinREAD.Engine is designed to be a flexible, customizable, high performance, fast and easy to use, scalable, robust, secure and modular platform for the fast development of applications for modern libraries. Built on the solid foundation of Java SE and Java EE it provides web services, component model, management, and communications APIs complying with the industry standards for implementing enterprise class service-oriented architecture

(SOA) and web 2.0 applications. The database connectivity is performed via JDBC drivers thus making the software 100% pure Java allowing it to be platform independent.

The most popular family of applications developed with TinREAD.Engine is **TinREAD.ILS**. Because this application is the subject referred in most cases, anytime when no other qualifier is specified but **TinREAD**, we mean the ILS application TinREAD.ILS. The functionality of an ILS or DLS is available in TinREAD.ILS (or simply TinREAD). The generator used for the deployment of this popular application is TinREAD.Engine.

3. TinREAD packages

3.1. TinREAD family

TinREAD.ILS is an Integrated Library System (ILS) designed for libraries or companies wishing to automate their information management activities. In fact, the functionality included in TinREAD is more than the one in usual ILS systems and a more accurate term to define TinREAD is NILS (Neo – Integrated Library System). Traditional ILS supposes a complex integrated environment with standard functionality for users (OPAC, WebOPAC) and staff (Cataloguing, Circulation, Acquisitions, Serials Control). Such systems are doing a great job for an old-style library working by itself. Modern libraries need not only their departments to be integrated, but also the library to be a part to the global flow of information between libraries or other actors holding information. Also, the endless process of improving library services requires new tools, new functionality and obviously a new type of software.

TinREAD is such a software.

In order to make it easy to use and to achieve the highest level of portability TinREAD is a web based application and offers a simple, attractive graphical user interface with superb work-flow using any web browser available (Internet Explorer, Netscape, Opera etc).

TinREAD family of applications is a flexible solution for libraries and has three members customized for specific needs in specific types of libraries.

TinREAD.Mini is the standalone application designed for small libraries, like school libraries. This version can be used by one single user and has several limitations regarding the total number of records allowed by the system to be stored. Most of TinREAD.Mini systems use PostGresql database for obvious reasons.

TinREAD.Standard is a powerful version of this ILS and its target are medium and large libraries. This is the Client/Server version of the system designed for Multiuser applications. TINLREAD.Standard has the entire standard functionality of a traditional ILS. Many TinREAD.Standard systems in use are using PostGresql for database management but also Oracle Database can justify its use in such cases. This version of TinREAD can use any of the two databases with no particular differences for system technical performances.

TinREAD.Expert is a modern DLS and you can get with it the very best of TinREAD. The Expert of the family is carefully designed for huge national/international projects involving Information Retrieval. This special version includes the entire functionality of a traditional ILS and adds specific functionality to DLS (Digital Library System). A lot of Expert options are not available in Standard version (ex. FRBR cataloguing). Content Management, Real Application Cluster and Disaster Recovery components available from Oracle makes it the most suitable RDBMS for such projects.

3.2. Upgrades

The flexibility is not just a characteristic of TinREAD product, but also the policy of IME in order to protect the investments in library technology. Each version of TinREAD can be updated at any time to a higher one, of course if the hardware requirements are met as specified in *TinREAD – System Overview* brochure. For further details please do not hesitate to contact us.

3.3. TinREAD.Mini

Small libraries like school or, usually, corporate/company libraries need library software easy to use, cheap and reliable. They must be ensured that their solution is extendable and even if it's small, is compatible and can be connected with large systems used by big libraries. This way small libraries gain the power of bigger ones and are able to participate to the general flow of information.

TinREAD.Mini is the package especially designed for such libraries. Is easy to use and the forms for data input are restricted to their minimum, even though extended version of the forms are available with just one click.

3.3.1. Standalone

This version of TinREAD can be used as a standalone application by one single user. Each license of TinREAD.Mini allows it to be installed on one single computer and to be used by one user at a time.

3.3.2. Modules

Modules and functionality available in TinREAD.Mini are much the same as superior versions of TinREAD and one can consider TinREAD.Mini to be the same powerful application like TinREAD.Standard used by one single user.

TinREAD.Mini modules included in each version of the above are:

- OPAC – allows patrons to search, place holds on library's collection…and more
- Z39.50 client – extends the library getting connected to larger sources of information
- Cataloging – catalog easily information and gain full control of your library
- Circulation – easy-to-use procedures for check-out, check-in and patrons information
- Reports – build general use library paperwork and statistics
- MARC editor – allows cataloguing records using the power of MARC standard
- Administration – controls the entire system

3.4. TinREAD.Standard

TinREAD.Standard, as its name states, is the standard version of TinREAD allowing Multiuser access to library information. Usually this is the package selected by medium or large libraries to automate their activities.

3.4.1. Networking

TinREAD.Standard has a Client/Server architecture, thus a server machine is assumed. Please check *TinREAD – System Overview* brochure to get information about the hardware specifications for such a computer. Client computers must be compatible with TCP/IP protocol

and must run a graphical Web Browser supporting Cookies & Java Script such as but not restricted to Internet Explorer, Mozilla, Netscape, Opera. Hardware specifications for the client side can be checked among Web Browsers specifications but usually this is not an issue since any computer able to browse the web should do.

LAN (Local Area Network), MAN (Metropolitan Area Network) or WAN (Wide Area Network) implementations are the ones suitable for this version. One single library can connect and automate all is departments in a LAN network running TinREAD if all of them are in the same building. MAN implementation of TinREAD.Standard applies when branches of the library are distributed in different areas of the city, or WAN architecture can be used if branches are located all over the country.

3.4.2. Modules

TinREAD.Standard is not just another standard ILS like many others on the market. Build with the powerful framework of TinREAD.Engine, this NILS (Neo-ILS) has a lot more to offer than standard products. Please check the description of each module available in TinREAD.Standard and also the Special Features section in this brochure to get a closer image about this unique product.

- **Web OPAC** – allows patrons to search, place holds on library's collection via World Wide Web protocol; integrates different and multiple sources of information at the same time (library catalogues, Google Books, Directory of Open Access Journals etc) in an unified interface; multimedia materials including fulltext are attached to bibliographical descriptions.

- **Cataloging** – catalog easily information and gain full control of your library; multiple MARC formats descriptions are allowed in the same database (USMARC, UNIMARC, CHMARC etc) and searched like just one single catalogue; forms defined for more that 15 types of bibliographical units; fully customized form and fields; revolutionary procedures of Global Editing holdings; /B (Bibliographical), /A (Authority), /H (Holdings) containers fully implemented for any MARC format.

- **MARC Editor** – allows cataloguing records using the full power of multiple MARC formats stored in the same database; MARC formats to be used are fully customizable (fields, subfields, indicators, help); short or detailed form editor; automatic translation to /from labeled format or to/from FRBR.

- **Circulation** – easy-to-use procedures for check-out, check-in and patrons information; reservations and cancellations; complex trap system for transactions checking; taxes and fees management; statistical reports.

- **Acquisitions** – access to http sources of information inside the application allows searching companies databases (publishers, editors, book stores) for ordering; fully customizable suppliers database with online access to their offer; ordering and batch ordering; comprehensive procedures to follow up orders, claims or cancellations, invoices or payments.

- **Serials Control** – same as the Acquisitions the access to http sources of information allows searching external databases (publishers, editors, book stores) for ordering; fully customizable suppliers database with online access to their offer; ordering and batch ordering; automatically generate the expected issues; comprehensive procedures to follow up orders, claims or cancellations, invoices or payments.

- **Reports** – fully customizable reports generator; free-text and table reports; news reports are built within hours just by drap&drop available fields and interactively grouping or formatting it on screen; scheduled reports; distributed processing reports (running on a separate server-machine)

- **Z39.50 Client** – extends the library collections getting connected to larger sources of information; MARC21, UNIMARC, CHMARC and many other formats supported.
- **Z39.50 Server** – makes the library a worldwide source of information; extends library services; allows the library to be integrated in large/national projects, in Collective/Union Catalogues.
- **Administration** – controls the entire system; user classes, users and the corresponding access rights are defined in order to access menus/submenus, lists, filters (logical databases), forms, fields; translation; full control over the interface objects; standard parameterization capabilities; transaction recovery/history database; full control of the ILS application.

3.5. TinREAD.Expert

TinREAD.Expert is not usually shipped for library automation. The complex capabilities and dedicated functionality available with this version applies to large/huge projects like National Catalogues (Federal, Union, Collective, Shared). Such projects assume specialized flow of data, building new dedicated modules and procedures of intensive customization of a traditional ILS. TinREAD.Engine can show all its power when used for such purposes. The development, in fact generating a large application as described above, suppose careful analysis of the requests, proper configuration of TinREAD.Engine System Databases (SYSDBA - please check *TinREAD – System Overview*) and finally deploying the corresponding/generated application. The regular timeframe for building a new module is about 1 month including software quality management procedures. New modules are usually needed by universities or libraries grouped in consortium and can be any of the one below, but not restricted to those:

- Digital References Services (*"Ask the Librarian"*)
- Digital Documents Delivery
- Local Community Services Information
- University Curricula etc

For example, ILS database must often be connected with Universities general purpose Students database and to be integrated with it. Or, in IME past experience several governmental projects built in the past had to be connected together and unified. Databases for different other purposes (museums for instances) had to be connected and integrated in one single application and the most suitable system was proven to be TinREAD.Expert.

Also, huge, national or international projects suppose large scale development in a very tight timescale. TinREAD.Expert is built from the very start to be able to manage such difficult tasks. IME team is also committed to dynamism, fast development and flexibility and winning more than 8 (eight) international bids for such complex projects is by itself the prove for TinREAD.Expert capabilities.

3.5.1. Standard Modules

TinREAD.Expert includes all the functionality of the .Standard version and extends it with specialized capabilities built for special purposes as detailed in the above. For the consistency of this presentation the standard modules shipped with this package will be briefly described even though they are the same as for the standard version of the product. The difference between the two versions is made by the Expert modules described immediately after.

- **Web OPAC** – allows patrons to search, place holds on library's collection via World Wide Web protocol; integrates different and multiple sources of information at the same time (library catalogues, Google Books, Directory of Open Access Journals etc) in an

unified interface; multimedia materials including fulltext are attached to bibliographical descriptions.

- **Cataloging** – catalog easily information and gain full control of your library; multiple MARC formats descriptions are allowed in the same database (USMARC, UNIMARC, CHMARC etc) and searched like just one single catalogue; forms defined for more that 15 types of bibliographical units; fully customized form and fields; revolutionary procedures of Global Editing holdings; /B (Bibliographical), /A (Authority), /H (Holdings) containers fully implemented for any MARC format.

- **MARC Editor** – allows cataloguing records using the full power of multiple MARC formats stored in the same database; MARC formats to be used are fully customizable (fields, subfields, indicators, help); short or detailed form editor; automatic translation to /from labeled format or to/from FRBR.

- **Circulation** – easy-to-use procedures for check-out, check-in and patrons information; reservations and cancellations; complex trap system for transactions checking; taxes and fees management; statistical reports.

- **Acquisitions** – access to http sources of information inside the application allows searching companies databases (publishers, editors, book stores) for ordering; fully customizable suppliers database with online access to their offer; ordering and batch ordering; comprehensive procedures to follow up orders, claims or cancellations, invoices or payments.

- **Serials Control** – same as the Acquisitions the access to http sources of information allows searching external databases (publishers, editors, book stores) for ordering; fully customizable suppliers database with online access to their offer; ordering and batch ordering; automatically generate the expected issues; comprehensive procedures to follow up orders, claims or cancellations, invoices or payments.

- **Reports** – fully customizable reports generator; free-text and table reports; news reports are built within hours just by drap&drop available fields and interactively grouping or formatting it on screen; scheduled reports; distributed processing reports (running on a separate server-machine)

- **Z39.50 Client** – extends the library collections getting connected to larger sources of information; MARC21, UNIMARC, CHMARC and many other formats supported.

- **Z39.50 Server** – makes the library a worldwide source of information; extends library services; allows the library to be integrated in large/national projects, in Collective/Union Catalogues.

- **Administration** – controls the entire system; user classes, users and the corresponding access rights are defined in order to access menus/submenus, lists, filters (logical databases), forms, fields; translation; full control over the interface objects; standard parameterization capabilities; transaction recovery/history database; full control of the ILS application.

3.5.2. Expert Modules

Extended modules add functionality designed to allow a modern library to offer new services to patrons. A library becomes a powerful information holder and information consumer using such specialized modules. Making use of these capabilities TinREAD.Expert becomes the perfect candidate for National Catalogues or large Digital Libraries.

- ❑ *Extended OPAC & Data Integration* module enables TinREAD to be online connected with any source of information available online. TinREAD's Extended OPAC handles three types of information:
  - o **Internal bibliographical** source (its one databases)
  - o **External bibliographical** source (other ILS databases available via Z39.50 protocol)

o **External non-bibliographical** sources like Google Books [books.google.com], Google Print [print.google.com], Google Scholar [www.scholar.google.com], Directory of Open Access Journals [www.doaj.org], Answers.com [www.answers.com], WordNet [www.cogsci.princeton.edu/cgi-bin/webwn], Open Directory [dmoz.org] etc.

Information from internal databases or from other libraries catalogues via Z39.50 protocol or from different other web sources are searched, displayed and used (print, email, export) in a unified format no matter of their provenience.

Multicasting calls are easily performed selecting multiple servers just clicking on their name. Data retrieved from multiple sources is de-duplicated with complex algorithms and grouped in order to eliminate "informational noise". These way users can check the availability of an item in one library or another making use of the **Collective Catalogue** functionality of TinREAD.

Records retrieved in External sources can be taken into the internal catalogue just by dragging them from one window to another. Before saving the record some validation procedures and preliminary editing can be defined in order to ensure catalogue consistency. The source of bibliographical data is filled in automatically.

❑ *Shared Cataloguing* capabilities are available for TinREAD.Expert Cataloguing module because of its ability to control sensitive information. Access rights can be defined for users or user classes from the highest level (menus/submenus) down to lists, filters, forms, fields, subfields and indicators. For example the most subtle setting is to allow one user only the access to certain subfields of a MARC field, and for each subfield to specify what indicators (values) is he allowed to use and what access rights are defined for each indicator (read, insert, modify, delete). This in depth access to the system allowed the implementation of a real bibliographical authority level mandatory for a Shared Catalogue.

Because TinREAD.Expert allows System Administrator to build forms at runtime by drag&drop users can access and maintain bibliographical descriptions according to the scheme of the application defining the flow of data and necessary validations. Each record has different status flags attached to it, specifying its bibliographical level (checked – available to the public, on hold – further validation needed etc). These flags are set automatically when passing from one bibliographical level to another.

TinREAD.Expert allows multiple MARC formats in the same database, for instance MARC21 records, UNIMARC records and CHMARC records in the same bibliographical file. Searches are performed with no distinction of the format used and records are retrieved in their original format. This powerful capability makes TinREAD.Expert a unique among other traditional ILS.

TinREAD.Expert extends Cataloging to the highest limits allowing, also, FRBR descriptions. Records can be displayed in labeled or MARC format (any of them as defined by System Administrator at runtime) or in **FRBR** format. The complex architecture of TinREAD databases allows also the FRBR navigation starting from **Work** then **Manifestation** and **Expression**. MARC records are automatically converted to FRBR by the system. This way TinREAD.Expert is not just a cataloguing tool but also a training tool allowing new cataloguers to learn FRBR and to get used to this method of organizing bibliographical information.

❑ **Inter-Library Loan** module concludes the functionality of a Union/Shared Catalogue of TinREAD.Expert. Basic procedures of processing requests and checking their status are

all available in TinREAD.Expert. Most advanced capabilities refer to the ability of collecting detailed information about each library holdings and their availability. Access to other TinREAD systems or other ILS systems is performed via standardized protocol **SIP2** (Standard Interchange Protocol) developed by 3M. Both Client and Server modules will be available for TinREAD.Expert because the ILL process assumes for the same library either the client role (placing demands) or the server role (processing requests).

❑ **Digital Library Toolkit** means for TinREAD.Expert more than just attaching fulltext to bibliographical descriptions, or just searching the text inside. The full set of tools is available starting with the process of digitizing materials, describing them at bibliographical level and also describing their structure and finally indexing and placing them in the proper repository.

   o *Input/Scanning module* is a powerful completely automated piece of software allowing digitizing book or materials that are available in hardcopy format. ADF (Automatic Document Feeder) functionality is available in order to minimize human intervention. Bibliographical description might be allowed by the System Administrator in this early stage in order to make two steps at one time and to minimize the time of the digitization process.

   o *Content module* adds digital information to each bibliographical record available in ILS database. The content, structure and formatting, is managed by TinREAD itself and together with the bibliographical data produces a complete digital representation of the original material. TinREAD can manage all digitized formats including but not restricted to: picture files, audio files, video files, full-text files (HTML, PDF, RTF, DOC) etc. The content is structured and divided into its original pieces (chapters, table of contents etc) using an intuitive scheme easily understood by readers. Applying styles to the structured content and formatting it a very accurate digital representation of the original work is obtained.

   o *Annotation tools* is a specialized module allowing users to annotate text and to maintain a useful "self database" for all consulted documents. Each user registered to the system can create and manipulate its own "articles" referring to one (or many) documents. Just by clicking a button user can add its own comments on the text and to attach a subject to this comment. These articles (annotations) can be ordered, searched, printed in a bibliography etc. Each article has the short bibliographical description and also contains a link to the exact place of the full-text referred. This tool proves to be very useful in the learning and researching processes. Thus a digital book is not only a book on another support but something more, is a book organized by the reader's choice.

❑ **Special features** are included in each module. For ex. RFID capabilities are available in Circulation module; SIP2 client calls are allowed for external self-checking devices in order to fully automate the loan/discharge process. Also Extended OPAC makes use of SIP2 calls in order to retrieve availability information for bibliographical items. Email, SMS and WAP integration might be included for Circulation or ILL messages and other.

4. Modules

4.1. OPAC

The OPAC module is a standard feature for integrated library systems. TinREAD OPAC offers such functionality and also extends it according to the followings.

OPAC – TinREAD.Mini

In this standalone version of the OPAC module only main capabilities are used because complex use of Multiuser environments does not apply. These options available for the use of small libraries are:

- Directly browse data (lists for Titles, Authors etc).
- Easy (simple) search: just type the search term and go (press Enter).
- Complex (advanced) search: specify field to be searched and values.
- Booleean searches: combine more fields in search criteria.
- Display the lists for data matching the search criteria.
- Display the bibliographical descriptions for any type of materials (books, serials, audio/video etc).
- Availability for items is also displayed: return date if loaned.
- Authority details (description) for Authors, Editors etc.
- Navigate through data with just one click on any term; the system will cleverly understand to perform the desired search.
- Displays retrieved data formatted as needed, then print or save/export it.

OPAC – TinREAD.Standard

More complex functionality in supplementary introduced by Multiuser environments like the use of **.Standard** distribution. Access via http calls (World Wide Web) to library collections is enabled in this advanced version of the OPAC module.

- Web access to library services.
- Patrons can logon into the system and check their account: loans, overdue dates, fees.
- Patrons can update their personal information (phone, email, address etc) but can not change main information (id no, name).
- Patrons can send messages to staff (requests for books, for information).
- Patrons can check the availability of an item and to place holds (reservation) for an item or a global reservation for a title (whatever item will be available first); reservations are allowed for general use items and not for reference items (to be consulted only in the reading-rooms).
- Multimedia files can be attached to bibliographical descriptions making the library catalogue a multimedia catalogue.
- Displays retrieved data formatted as needed, then print or save/export it to ISO or XML format.
- History list of the performed searches, jump to previous search by selecting it from a list.

- The history list is saved in system database and used for statistical purposes; it can be sorted by any of the search fields or any value searched.

- Set operations; patrons can select records and define a set; this set can be "saved" in application clipboard and retrieved later; another set of records can be defined and the two sets can be combined (AND, OR, NOT); the result set can be displayed to the user; useful for complex bibliographies, research etc.

- Each user can self-register for SDI (Selective Dissemination of Information) services and receive email notifications including a link to the bibliographical record stored in the library catalogue when this becomes available.

OPAC – TinREAD.Expert

The very best of TinREAD OPAC module is achieved by the .Expert distribution. The powerful information retrieval system extends the capabilities of the .Standard version as shown in the followings.

- Multicasting calls; one search is launched against multiple sources of information and the combined results are presented to the user; data retrieved from multiple sources is de-duplicated with complex algorithms and grouped in order to eliminate "informational noise"; this allows libraries to join their data into Collective/Federal/Union Catalogues.

- Integration; this complex version of the OPAC module can search three type of sources: internal bibliographical data (TinREAD own data), external bibliographical sources (other libraries via Z39.50 protocol) or external data (ant other source via http protocol, like Google Books, Directory of Open Access Journals etc); these external sources should be defined by the library; parsing a new source is a matter of days for TinREAD.

- Digital Library; fulltext attached to bibliographical records is fully formatted: first the structure of the document is defined (content, chapters, subchapters, cross-references, index etc) and then the graphical formatting if performed with TinREAD specialized tools; the fulltext of the digital books can be searched; text can be annotated by patrons with special tools; each user can handle its own "articles" database, sort it, print it and use it to enhance the e-learning process.

TinREAD OPAC module is the one that handles the **National Collective Catalogue** of Public Libraries in Romania.

4.2. Catalogue Module

This unique module is the one used by the **National Shared Catalogue** of The Republic of Moldavia.

The most impressive feature of the Cataloguing module is the ability to define and maintain the MARC format to be used. First, at system startup, the System Administrator make the proper definitions for the MARC format: fields, subfields, indicators, help, usage (object to be placed on the easy version of a form or on the extended version of the same form), defines the index for a searchable field (which subfields to be indexed, the index expression built with this fields) etc. All these operations are performed at runtime and no modifications of the source code are needed.

Also validation rules are defined for each object: formal validation (meaning that data should comply to a certain rule like year or ISBN or else), authority validation can apply (meaning that the values for a certain field should be checked against the values of a table – authority lists) or bibliographical level validation might apply (record should be approved by a user with the necessary bibliographical authority prior displaying it to the public).

Then based on this MARC database, System Administrator defines (at runtime) the forms for each material type according to the rules described by the MARC format and customized in respect to the library needs. Each department can have its own form ton catalogue books with more or less fields according to the activity of the department.

Finally, the access rights are established also by the System Administrator for user or user class allowing or denying operations (read, modify, insert, delete) for each field, subfield or indicator. This procedure perfectly defines the flow of data in any particular case with all the respect to the library departments specific activities.

Multiple MARC formats are allowed in the same bibliographical database: for example records catalogued with MARC21 standard can coexist with records catalogued with UNIMARC fields or with CHMARC standard. The database can be searched in a unified manner (let say, search for Author) and the records will be displayed accordingly (each record type will be searched in the proper field where Author is stored). "Concept" term is introduced by TinREAD, thus Author means a Concept implemented in different manners by each standard. TinREAD setup means assigning search concepts to fields and subfields for each MARC format.

New MARC formats can be defined by the System Administrator from the scratch. Proper setup procedures must be performed and the newly defined MARC standard will be available to be used with the already existing ones.

TinREAD Catalogue module is unique and fits perfectly, 100%, to any complex library.

Some of its **basic** features are the following.

- Unique entity-relationship database structure
- Navigation – via a relational connection on title, author, corporate body, subject, thesaurus term, classification number, etc.
- Sophisticated modes of retrieval.
- Option of full MARC implementation with any MARC standard.
- Easy or Full MARC editors.
- Capability of producing records in many different MARC formats for the same database.

- Full UNICODE implementation.
- Option to create labeled bibliographic records for non-MARC trained staff.
- FRBR automatically translation of records.
- Monograph and general media, article and reports, serial templates, audio/video and other 15 templates predefined by the system (scores, maps, phonograms, images, electronic resources, URLs etc).
- Audio-visual, patent, legislation templates also available.
- Complex descriptions making use of the full power of MARC standards (volumes, series, parts, components etc).
- Links between records in different languages for the same bibliographical unit.

Holdings

- Revolutionary method for holdings.
- Thousands of items for one single bibliographical unit are managed easily.
- The system groups together the items by accession number, location, branch and displays data in "directory" trees easy to follow.
- Inserting multiple items is achieved just by specifying how many items to be inserted; later each item can be edited separately accessing it directly or
- Each group (many contiguous accession numbers with the same details) can be edited together (group operations).
- Database is updated at with the use of N-Tier technology.

Ease of Editing with Intelligent Windows for **validation**.

- Ability to construct a consistent database using central validation list on all indexed fields which including: Title, Author, Publisher, Subject Heading, Thesaurus Term, Classification Number, and Self Reference and any other as defined by the System Administrator.
- Fields are repeatable; no limit for the total number of repetitions.
- Variable field length.
- Allow access to list through truncated terms and ensures consistent spelling
- Stop words and custom sort values.
- Custom sort order of characters as defined at system start-up.

Import and Export Options

- Load with case from machine readable bibliographic files, e.g. OCLC, BNB, BNF, LoC, USMARC, BLAISE, etc. (ISO 2709, XML, XLS format).
- Online data transfer from other automated library by drag&drop from the search window to the editing window.

Reports

- Extensive reporting facilities including.
- Recent acquisitions
- Current awareness/SDI
- Shelf reference lists

- Spine label creation

The entity relationships structure automatically links Authors, Titles, Subjects, Keywords, etc. this enables the user to move from one entity during a search via hypertext links (navigation). For example, the user can move instantly from an author search to a subject search and from a book to an article. All this can be done within the context of the original search. This utilization of hypertext techniques is unique within the library market and has set a standard for all future systems.

4.3. Circulation

The Circulation Control Module, seamlessly integrated with the other TinREAD modules, includes all of the features and functions required to keep truck of the location of specific items (monograph, reports, serial issues, audio/video materials) – and to circulate them efficiently throughout your organization.

- Thoroughly comprehensive maintenance / administrative process
- Branch library / single library facility
- Borrower / item / location matrices
- Closed dates, grace periods, renewal periods, "in transit" periods
- Library defined periods for overdue notices
- Personal as well as departmental cost centers, integrated with modules

Active User Involvement in Circulation Process

- Self reservation request from the OPAC
- On-line messaging possible between patrons and staff
- Option for self issues of items
- Option to display borrower and date of loan in OPAC

Functional **Superiority**

- Ability to import borrower records from previous automation system or form organization personnel database
- Complex validation rules at data input; each field can be checked against a validation rule (a regular expression defining the structure of the input string – user id, phone number, date of birth).
- Main loans desk functions can be invoked in any module
- Accepts all types of numeric and alphanumeric barcodes and smart card data
- Comprehensive financial management; conversion of overdue days to bills
- Payments management: receipts or registering charges for later payment
- Optional reservation fee, ability to handle partial fine payments, waive fines
- Status reports reflecting real-time usage of collection
- Inventory listing and in-house usage statistics
- Ability to manipulate information with report generator

The TinREAD Circulation Control system is ideal for any size or type of library. Many of the parameter facilities are optional and so control of circulation function can be as simple or as complex as required.

4.4. Acquisitions

The electronic control of the acquisition of monograph and general media purchase types is assuming greater importance for many libraries and information centers. The Acquisition Module allows both flexibility in the procurement process as well as accurate financial control of budgets.

- Cost accounting and personal fund codes
- Supplier files and statistical performance evaluation reports
- Request and approval order status options
- Single or multiple purchase option
- Effective administration of invoice handling, credit notes and additional charges

The automation of daily acquisition management routines creates accurate, quick and needed reporting for the Information Professional in seconds.

- Recipient acknowledgement, outstanding item audit and approval management
- Purchase order, claims, missing issue and cancellation reports are generated quickly and accurately
- Create greater current awareness with our customizable SDI reports
- Order records become the basis for catalogue entries
- Holdings lists can be created in seconds and presented by department, delivery address or individuals

Take advantage of the electronic revolution in publishing and bookselling.

- Electronic table of contents and chapter heading services from publishers and booksellers can be easily incorporated into the database to be logically access by end users
- OCR scanning of jacket covers, synopsis and chapter headings
- Interfaces are available with all leading booksellers and publishers to easily facilitate a range of services:
  - o retrospective conversion of catalogue records
  - o on-line claims
  - o on-line records
  - o access to suppliers database
  - o electronic copies of invoices

The Acquisitions module is part of the fully integrated TinREAD library management system, it shares the same validation files with all the order modules which eases workflow, speeds the process of acquisition and offers an accurate statement of the purchasing process.

4.5. Serials Control

The Serials Module is a robust and proven product which can effectively deal with the complexities of subscription management and acquisition.

- Cost accounting and personal fund codes
- Supplier files and statistical performance evaluation reports
- Request and approval order status options
- Single or multiple purchase option
- Effective administration of invoice handling, credit notes and additional charges

The automation of daily acquisition management routines creates accurate, quick and needed reporting for the Information Professional in seconds.

- Routing / circulation lists are effortlessly created, maintained and printed
- Claims and missing issue reports are generated quickly and accurately
- Fast two keystroke check-in of issues received
- Create greater current awareness with our customizable SDI reports
- Automated check-in records can be created with the order or with receipt of first issue
- Renewal and holdings lists can be created in seconds and presented by department, delivery address or individual
- Batch serials issues prediction for one year
- Bind serial issue and attach accession numbers; holdings lists

Take advantage of the electronic revolution in publishing and bookselling.

- Electronic table of contents and chapter heading services from publishers and booksellers can be easily incorporated into the database to be logically access by end users
- OCR scanning of jacket covers, synopsis and chapter headings
- Interfaces are available with all leading booksellers and publishers to easily facilitate a range of services:
    - retrospective conversion of catalogue records
    - on-line claims
    - on-line records
    - access to suppliers database
    - electronic copies of invoices

The Serials Control module is part of the fully integrated TinREAD library management system, it shares the same validation files with all the order modules which eases workflow, speeds the process of serials acquisition and offers an accurate statement of the purchasing process.

4.6. Inter Library Loan

The basic unit of the ILL module is the ILL request placed by a patron/staff to be processed by a library. Each request has its own record consists initially of the following:

- a link to the bibliographic details of the request
- optional link to the requested item (library holdings)
- a link to the record of the patron making the request
- any other details given by the patron, e.g. Last Date of Use.

As the request moves through the stages of approval, transmission, receipt etc., further information is added to it. Some of this is entered by the librarian processing the request (e.g. Supply Library) some is added automatically by the system (e.g. the Date on which the request was processed).

As the request moves through the system, flags (pieces of identifying data) are added to the record, so that requests can be grouped by status. For example, once a request has been transmitted, the record is stamped with the date of transmission; this record will then appear in the Current Record Set of requests awaiting receipt.

Major functionality of ILL module includes:

- ILL Cost Centers
- Personal Cost Centers
- Patron Statistical Classes
- Supply Libraries database (codes, addresses, contacts)
- Publication types / sources types
- ILL messages for patrons and/or staff
- Notes for supply library (retransmission)
- Request / approve / claim / cancellation
- Loaning ILL item to patron
- Search / edit request
- Record progress of ILL requests
- Personal fund accounting
- Print formats and custom reports

The Inter Library Loan module is part of the fully integrated TinREAD library management system, it shares the same database files with all the order modules which eases workflow, speeds the process of loaning items from one library to another and offers an accurate statement of the loaning process.

4.7. Report Generator

Complex reports grouping large amount of data can be defined using interactive tools. Data is first of all selected from the database using search forms defined by the System Administrator by simply selecting the appropriate search fields and validation rules that apply to them. Then application databases are searched to meet user specified criteria. The resulted set of records can be edited (adding more records or removing records) and the final set of data is used to perform the report.

Output format can be also customized by the System Administrator using drag&drop procedures with graphical interactive tools. Complex output formats are allowed by grouping data. Large amount of data can be searched, sorted, indexed, sophisticatedly formatted finally producing a report file.

After a report is defined by the System Administrator then it becomes available to be used by patrons or librarians. The user simply selects the data to be processed by performing a search and then clicking on the selected records or clicking "select all". The set of records will be processed accordingly and the result will be displayed on the screen or might be saved in a file in any of the following formats: **RTF**, **PDF**, **HTML**, **XLS**, **CSV** and **XML**.

Report Generator module capabilities are:

- Fully customizable reports
- Select the fields included in a report with drag&drop
- Define data to be included in the report
- Full formatting of the report
- Free-text or tabular reports
- Totals, subtotals, grouping data
- Once defined by the System Administrator easy to use by patrons or librarians
- Many predefined reports for each module
- Scheduled reports (result saved in a file)
- Distributed reports (report task running on a different server-machine to minimize CPU usage)

The Report Generator module is part of the fully integrated TinREAD library management system, it shares the same database files with all the order modules which eases and speeds the process of producing reports and offers an interactive tool able to quickly manage any new reporting tasks.

5. Special features

Many powerful features of this family of products have been mentioned before into dedicated sections. The new approach and innovative ideas included in TinREAD make the difference between this information system and any other ILS. This section joins together most important and special features in order to allow you an overview upon this unique product.

5.1. General

- ❑ Web application, a simple web browser is needed for patrons or staff.
- ❑ Also, native Windows, Linux, Mac OS X client software can be generated.
- ❑ Client/Server architecture, N-tier processing.
- ❑ Best technology available: Java, SQL, Oracle, FRBR.
- ❑ Navigation whenever possible; access to authority details (author, publisher, subject, thesaurus term etc).
- ❑ Multiple records editing at the same time, even in different modules.

5.2. Application generation

- ❑ Customization (dynamically generating the application) at runtime done by the System Administrator (no source code modification needed).
- ❑ Control over the entire system for the System Administrator at runtime; user classes, users and the corresponding access rights are defined in order to access menus/submenus, lists, filters (logical databases), forms, fields; translation; full control over the interface objects.
- ❑ Also standard parameterization capabilities as defined by traditional ILS.

5.3. MARC

- ❑ Full MARC implementation (/B, /A, /H) and even more!
- ❑ Full MARC editor; forms available in short (condensed) format or extended (complete) format; System Administrator setup which field is available in each version of the form. Display also catalogued data in labeled or FRBR format.
- ❑ FRBR style navigation in OPAC.
- ❑ Extensions are possible for the System Administrator at runtime (no source code needs to be modified): adding new fields, place them into forms, runtime-indexes can be generated, fields can be included in the search list (OPAC) etc.
- ❑ Multiple MARC formats are allowed in the same database; records are stored and retrieved in the original format; ex. the bibliographical database can contain MARC21, UNIMARC and CHMARC at a time each catalogued with the mentioned standard; records are searched all together and retrieved from the unified catalogue.
- ❑ Translation into easy-to-use labeled format for small libraries allowing them to handle records with complex descriptions operated by large libraries.
- ❑ Automatic translation from MARC to FRBR (Work, Manifestation, Expression, Item) thus making the system not just another cataloguing tool but also a training tool to easily learn FRBR; Migration strategy from MARC to FRBR standard.

5.4. Federal/Collective/Union Catalogue

- Information (bibliographical descriptions or else) can be taken online from other sources (Z39.50, http etc) with drag&drop from one window to another.
- Multicasting; parallel searching for multiple databases no matter of their type (Library, web page, electronic resources database); the result page is updated intelligently to minimize the traffic and to present the user the updated responses from each source.
- Information regarding items availability is extracted from systems allowing this (ex. other TinREAD systems or SIP2 servers).
- Online algorithms for data deduplication (ISBN, title, author, publisher, year, edition etc).

5.5. Shared Cataloguing

- Bibliographical authority mechanism for users and user classes.
- Three levels for data validation:
  - formal – data must comply to a certain rule – a regular expression;
  - authority lists – data is check against a validation table;
  - bibliographical authority level – data must be approved by a user with enough rights in order to give access to it for the public (visible in OPAC).

5.6. Intrenationalization

- Full UNICODE application (input / sort / store / search / retrieve).
- Custom sort rules.
- Custom sort strings (defined in respect with non-sorting words – stop words).
- Easy to translate (on the screen using a special tool); everything the System Administrator sees on the screen can be translated online seeing the effect at once. This means translation of the application itself (menus/submenus, interface objects).
- Translating a TinREAD MARC format supposes defining the fields, subfields, indicators, help; such translation is usually available for each standard and such manuals are published by national libraries; translation of TinREAD means just putting these texts into the application assuming that the proper copyright conditions are met.
- Multilingual thesaurus; advanced implementation schema allowing linkage between terms in different languages; ex. data described (catalogued) using a list of subject in one language (say Romanian) can be searched by users against English terms, for instance; The appropriate correspondence is done automatically by TinREAD.
- Searching data regardless of diacritical marks is also possible.
- Links between bibliographical records in different languages describing the same unit.

5.7. Multimedia

- ❑ TinREAD allows the full set of multimedia descriptions; forms for each material type are already defined in the system; any of these can be customized at runtime by the System Administrator or new ones can be defined.
- ❑ Attaching multimedia files to multimedia descriptions operated with the above mentioned capabilities.

5.8. Digital Library Tools

- ❑ Input/Scan module.
- ❑ Content management and formatting.
- ❑ Annotation tools available for users.

5.9. Reports

- ❑ Interactive reports generator with drap&drop capabilities.
- ❑ Free-text or tabular reports.
- ❑ On screen reports or export to PDF, RTF, HTML, XLS etc.
- ❑ Scheduled reports.
- ❑ Distributed reports (running on a different server).

5.10. Other

- ❑ Customizable keyboard input. Ex. for Cyrillic alphabet (select characters from a table with the mouse). Ex. for Chinese five strokes or four corners method can be used to generate Unicode values.
- ❑ Barcode and RFID integration.
- ❑ email, SMS, WAP integration.
- ❑ Z39.50, ZING protocols supported.
- ❑ Advanced conversion programs from/to ISO 2709, XML, XLS etc.
- ❑ Transactions log.
- ❑ Transactions validation.
- ❑ Transactions recovery.
- ❑ Advanced security options: x.509 v3 certificate used for data encryption.

"TinREAD is state-of-art software built with best technology available."