IT-BASED SOLUTIONS FOR USERS AND LIBRARY STAFF: CASE STUDY OF THE TALLINN UNIVERSITY OF TECHNOLOGY LIBRARY

Jüri Järs
Tallinn University of Technology Library
juri.jars@ttu.ee
The primary goal of TUT Library (founded in 1919) is to provide information for academic, research and development activities of the university.

As a public research library (nominated by the government), public services to readers outside of TUT are also offered according to our profile.

Beside of traditional library and information services, the development of unique (self-made) IT-based solutions has also been of a great importance for the Library.
1977-1987 using Soviet mainframes and self-developed PARES software application in the TUT computing centre without online connection between the Library and computing centre

The data about the users, their loans and refusals were entered manually via special input device with magnetic tape and then transported to the computing centre

The goal was to study the book collection as a hole and to specify the user needs

As a result we got statistical analysis of the usability of books by UDC, language, type, user education, faculty and occupation

There was much manual work for generating the input, but not so much real benefit of the results
1985  library automation group was formed  
initial study of the requirements for the IS started

1987  the project of library IS and strategic development plan  
(based on personal computers and LAN)  
first PC training courses for librarians  
first database – „Subscribed Periodicals“ (dBASE III Plus)

No financial possibilities to buy any commercial library software product

1991  database „Estonian Technology and Economics“ – articles with keywords and abstracts (Micro-CDS/ISIS, UNESCO)
Some milestones in developing IT solutions (3)

1991  sessions in remote databases with PC and modem
1992  first CD-ROM-databases
1993  database of TUT Publications (Micro-CDS/ISIS)
1995  database of TUT Lecturers and Researchers
       – short biographical data (Micro-CDS/ISIS)
1996  first Library Web Site
       web-based local e-catalogue with UNICODE support (MySQL)
1997  CD-ROM-databases from server (Logicraft LAN-CD)
1998-1999 EU DEDICATE (Distance Education Information Courses based on Access Through Networks) project
- new user training model
- inspiration and tools to create:

web-based distance training environment
web-based information portal “Subject Gates”

1999 data generation using INNOPAC/Millennium
- shared e-catalogue ESTER (8 research libraries)
- articles database ISE (Index Scriptorum Estoniae)
Some milestones in developing IT solutions (5)

2005 „Digikogu“ - open access institutional archive (MySQL)

scanning and OCR services
(Book scanner Minolta PS7000 + ABBYY Fine Reader)

2012 New platform for TUT Publications database (MS SQL)
- as only software product
- as complex product, which consists of software, hardware and furniture

- target group - library patron

- could be accessed through library web site or as a physical standing-room-workstation with limited capabilities

- 16 physical workstations based on Thin Client Windows terminals and special furniture

- user interface in Estonian and in English
One single access point for:

- searching in e-catalogue ESTER and Estonian articles database ISE
- topographic Open Stack Guide
- reservation system for group and individual study rooms
There are two ways to find the item location in open stacks:

- starting from ESTER, which allows to use different search criteria and to combine them, to limit search results (Extended Search), etc
**Record 7 of 8**  
**Record:** << previous  next >>

**Author** Kikas, Konrad, 1928-2012

**Title** Verba volant, scripta manent: viis aastakümmet raamatukogunduse ja infoteaduse radadel = Verba volant, scripta manent: five decades on the field of librarianship and information science / Konrad Kikas; [tõlked inglise keelede: Merike Leesment; toimetuskolleegium: Konrad Kikas ... jt.; kaanekundus: Maie Ruljand]

**Imprint** Tallinn : Tallinna Tehnikaülikool Kirjastus, 2008 ([Tallinn] : Infotükk)

**Place of publ.** Harjumaa

**Description** 366 lk. : ill., portr. ; 25 cm

**Permalink** [http://tallinn.ester.ee/record=b2350773~S9](http://tallinn.ester.ee/record=b2350773~S9)

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**Click on the following to:**  
TÄISTEKST TTÜ raamatukogu digikogus

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### Copy Status

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<tr>
<th>LOCATION</th>
<th>CALL #</th>
<th>STATUS</th>
<th>NOTES</th>
</tr>
</thead>
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<td>A5 [2008]</td>
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</tr>
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<td>A5 [2008]</td>
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</table>
- starting from Open Stack Guide, which allows to search by topic (about 900 divisions) or call number

After the initial search it is possible to limit the search results by selecting textbooks, special literature, reference books, dictionaries, periodicals, standards, booklets etc
Engineering and technology in general [62]

2nd floor  European Documentation Centre  Bibliographic Indexes
3rd floor  Textbooks  Dictionaries
4th floor  Special literature  Reference books  Dictionaries  Booklet

Select topic / floor
For the response

- the shelf of location in red
- with shelf number

will be shown on the floor map
- integrated with e-catalogue ESTER item records
- Web-based
- .NET webforms application
- MS SQL
- Ajax queries for a smoother user interface use
- Flash plugin to display floor map
Patron assessments for Open Stack Guide have been rather high

By the feedback (user survey 2012):
- 48% of respondents were very satisfied
- 47% satisfied
- 5% partly satisfied
- there was 0 answers for the choice „not satisfied“
Reservation system for group and individual study rooms

Necessary because the rooms are very much occupied, especially before and during examination sessions.

Each reservation may be from 1 to 4 hours per day.

Not more than 2 reservations per week are permitted.

Reservations could be made up to 14 days in advance.
User activities:
- one must log in with ESTER account identifiers
- select the date from the calendar
- select the room number and hours

It is possible to ask the e-mail confirmation
Reserve a Group Study or Individual Study Room

Select date

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</tbody>
</table>

My reservations

Please enter MY ESTER account identifiers
Username
Password
Log in

Each Reservation may be up to from 1 to 4 hours per day. Reservations may not be made more than 2 per week. Reservations may be made up to 14 days in advance.

Select room

- Group Study Rooms
- Individual Study Rooms
- Individual Study Rooms for a fee

1. Select the Date.
2. Select the Room.
3. Choose the Time from the drop down menu.
4. Select the box if you wish to receive the email confirmation for your reservation.
5. Confirm the reservation.
6. Click OK, You will be able to see the list of reservations you have made.
7. You can cancel a reservation if you need.
8. Log out.
The room and hours table shows graphically
- which room
- at which time
is free or reserved
<table>
<thead>
<tr>
<th>Select room</th>
<th>Group Study Rooms</th>
<th>Individual Study Rooms</th>
<th>Individual Study Rooms for a fee</th>
</tr>
</thead>
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<td></td>
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</tr>
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<td>8 9 10 11 12 13 14 15 16 17 18 19</td>
<td></td>
<td></td>
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<tr>
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<tr>
<td>Select 537</td>
<td>8 9 10 11 12 13 14 15 16 17 18 19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- free
- reserved
Reservations could also be made through smart mobile phone scanning QR-code at the front side of the room.
RESERVE A ROOM
RESERVEERI RUUM
For the use by library staff (only authorized users)

The goal:
- to get up-to-date information about user status at the entrance gate
- to receive detailed statistics about the visits and visitors afterwards
Each patron must register the library visit at the entrance gate.

For identification the patrons can use the special library card with bar code or Estonian ID-card (chip card).

At the entrance gate it is mandatory to scan the patron card.
After scanning the patron card

- the query is sent to ESTER patron record and Patron API will send the query results back to the gate

- on the public patron display only short information about patron status will be shown

- the detailed data (fines, fees, validity of the card etc) will be shown on the librarians display

If there are any problems the librarian can act as necessary
<table>
<thead>
<tr>
<th>sisenes</th>
<th>vöötkood</th>
<th>nimi</th>
<th>aegumine</th>
<th>staatus</th>
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külastusi: 24; - külausikaardiga: 0; - anonüümseid: 0;
Query results with date and time are stored in local SQL database, which allows to produce different statistical reports

Statistics about the visits and visitors in any combination of patron data and chronological limits could be produced. Patron data:

- Study level/occupation/social status
- Education
- Faculty/college/field of activity
- User type
- Gender
- Country of origin
- Age at the end of the period
- Age by decades
Chronological limits:

- By the day
- By the week
- By the month
- By the days of the week
- By the dates
- By the selected period

It is possible to differentiate the number of total visits and unique visits (personal visitors)

Simple graphical view of the results is also available
## LUJEJÄÄRVE - statistika koostamine

### teenIndusplirkond:
- TTU raamatukogu peahoone

### ajavahemik:
- õiel
- eelmise neljandik
- eelmise kuu
- jooksnev aastal
- määrat: alates 01.04.2014 kuni 01.05.2014

### külastuste tüüparuanded:
- kasutajate koguarv perioodis
- külastused kuude kaupa
- külastused kuupäevade kaupa
- külastused nädalapäevade kaupa

### seadistatavad aruanded:
- tunnused (kuni 3):
  1. luigejätup
  2. - valit -
  3. - valit -
- lisgraafik veerule:
- kasutajaid

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<tr>
<td>TTU ülioplane</td>
<td>313   313  116</td>
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<td>TTUR lugeja (T)</td>
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<td>TTUR töötaja</td>
<td>11    11   6</td>
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Done
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</tbody>
</table>
GateKeeper

- integrated with ESTER (Millennium) patron database through Patron Application Program Interface (PAPI)
- allows real-time verification of patron data

- .NET MVC 3 application
- MS SQL
- Ajax queries for smoother user interface use
- Flash plugin for display
In the new building much literature is available in open stacks (about 210,000 volumes on 1,650 shelves located on 4 floors).

It is necessary to guarantee that each volume is always located on the right place at the shelf.

Inventory solution consists of special software, hardware and some procedures for using ESTER database as the source of bibliographic and item records.

Programming of the first version was made by the specialists from ID-Balti AS, but the library shelving system is changing and today it is an open code, which is upgraded by the library IT staff.
Mobile terminals for the inventory of open stacks
Mobile terminal Honeywell Dolphin 9900

- Processor: Intel XScale PXA 270, 624 MHz
- Memory: 256 MB RAM, 1 GB Flash
- Mass Storage: 2 GB memory card
- Display: 3,5” VGA color TFT LCD with touch panel
- Keyboard: alphanumeric, 56 keys
- Scanner: laser, 1D and 2D symbologies, images, OCR
- Adaptus Imaging Technology 5.0
- Power: extended-life battery, 10 hours cordless work
- Weight: 600 g
- Wireless Full Area Networking (802.11 b/g)
- Windows Mobile 6.1
- Dolphin 9900 HomeBase station for data exchange and battery charging
Necessary set of records (based on call numbers) is generated from e-catalogue ESTER and loaded to mobile terminal

The items, which are checked out, are marked with special identifier

Each inventory record consists of the following data elements:
- Bar code
- Call number
- Item location
- Item status
- Language
- Note (if available)
Inventory of open stacks

- If the item is not on the right place the terminal gives an alert
- If the item status is „checked out“ but it is however on the shelf, the system shows detailed status information
- It is possible to interrupt the inventory and to continue it later
- Eventually the report of absent items will be generated
Why we are working out self-made IT solutions and not buying the service from IT companies?

Historical reasons:
- Until 1991 it was not allowed to buy software outside Soviet Union
- The boarders were opened after 1991, but our budget did not afford to buy any software
- Today we are able to buy something, but there is no product on the market, which corresponds to our requirements
- Our requirements are very library-specific and the solutions must be continuously supported and upgraded

- It is also good that we do not have any binding contract with definite company, which demands:
  - juridical supervision
  - permanent additional funding (special fees will be asked for any modification, which was not specified in primary agreement)
In cooperation between **librarians**, including:
- description of the goal and initial task
- testing the prototypes and Beta’s
- giving feedback

and **library IT division**, including:
- application design and programming
- prototyping
- corrections, modifications
- Support

it is possible step by step to work out exactly those solutions, which we need
In conclusion:
- synergy and
- economy
is achieved in cooperation and teamwork between librarians and library IT staff
Whatever new technology is always a kind of disappointment because we have expected too much of it

But in most cases it also produces a delightful surprise offering something that we couldn’t have hoped

[Author unknown]