MÖTESPLATS INFÖR FRAMTIDEN

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Libraries in UmeåRegionen focus on new technology and on being number one in Europe

Inger Edebro Sikström, the chair of the Bibliotek 2007 Steering Group

Libraries in UmeåRegionen focus on new technology. Better service and increased accessibility are the aim. The project goes by the name of Bibliotek 2007.

- The project aims to develop library services so that the needs and requirements of the visitors are taken into consideration. Our vision is that the libraries should be accessible to everyone and on the same conditions.

UmeåRegionen
The project is under the supervision of UmeåRegionen, which is made up of six municipalities: Bjurholm, Nordmaling, Robertsfors, Umeå, Vindeln and Vännäs. The region has almost 140,000 inhabitants, which is more than half of the population of the County of Västerbotten.

The distance from the city Umeå to the other five municipalities is at most 60 km. Each workday, over 4,000 people commute in the region, of which the majority commute to work or study in Umeå. Inter-library cooperation has therefore been natural outcome.

The libraries, popular places to visit
The libraries are a greatly appreciated resource for the inhabitants of Västerbotten, which in fact holds an honourable third place in Sweden for the number of loans per inhabitant (10.2). Bjurholm, Sweden’s smallest municipality, could account for as high as 65 loans per child in the year 2000. The City library in Umeå has approximately 3,000 visitors daily, a figure that is even greater than the world famous Vasa Museum in Stockholm.
Just as before, books and other printed media are the cornerstones of the libraries. New services can be offered thanks to inter-municipal collaboration and the development of technological solutions that are specifically designed for the library field.

One point in common for UmeåRegionen is that cooperation shall be beneficial for all six municipalities. The overall aims are lower costs and higher quality for all forms of service.

**Financing**
The budget for the first stage of Bibliotek 2007 was SEK 6.3 million. After applying through the Regional Growth Agreement, the project was granted SEK 3 million from the EU’s Structural Fund Objective 1 programme. The partner municipalities also contribute with SEK 1.3 million. Other co-financiers are the National Public Art Council, the County Labour Board, the Umeå University Library, the Institute of Design at Umeå University, and two of Sweden's leading library service companies; Axiell AB and Bibliotekstjänst AB/BTJ (the Library Service Agency). DataResurscentrum at the Västerbotten County Council is another collaborative partner.

**Joint computer system and library card**
It is required that all the libraries have the same computer system if it is going to be possible to develop new and improved services. We, therefore, began by combining the catalogues of the six libraries in one centralised database. In addition to the technical aspects of the computer system implementation, library staff training has been a significant and important part of this stage of the project.

We have also introduced a single library card, or more correctly two; one for the younger users and another for those who are a little older. In this way we have a natural means of acquainting users with the borrowing rules that apply for adult users. The card also has a tactile marking so that the visually impaired can identify their library card more easily.

**Number one in Europe…?**
It sounds somewhat dominant and perhaps some people can wonder a little about the slightly cocksure heading "number one in Europe"

The libraries in UmeåRegionen have commissioned Umeå University’s Institute of Design to develop means that can increase the accessibility of the libraries. One result of this collaboration is a completely new search instrument that can pave the way for the library of tomorrow, both in Sweden and in the rest of Europe.

**Institute of Design at Umeå University**
Interaction Design Lab (IDL) is a research unit at the Institute of Design and constitutes a part of the research centre Umeå Centre for Interaction Technology (UCIT).

The Interaction Design Lab works on an interdisciplinary basis and it focuses on user-oriented solutions. Starting with the latest in research findings from information and communications technology, applications are further developed for different professional and working situations. This work is done in cooperation with researchers and manufacturing companies, as well as in close contact with the intended users of the technology.

Industrial design is one of Umeå University’s strongest fields of development. An example of an early project in collaboration with the Umeå Public Library is the digital bookcase where
the end of the bookcase consisted of a monitor where the user could browse through the books on the monitor that in reality were placed on the shelves.

**Problem assessment**
A major problem is that many visitors think it is difficult to find what they are looking for in the library.

Peter, who can be seen in the image to the right, expressed it like this:
“The best thing about the library is that it has everything you need
--but it is impossible to find it. “

Professor Bengt Palmgren at the Institute of Design in Umeå usually says that all libraries should be “intuitively self-instructional”.

Why is it so difficult to find things in our libraries? The difficulties can be caused by several factors:

- Poor information signs (confusing information signs, poor visual guides about the overall structure, signs that are too small…)
- Visitors remove books from the shelves and then put them back in the wrong place
- Complicated library terminology. What do ‘f’ and ‘ref’ mean? And how do I find the right bookcase?

The assessment that has been made in the project is that up to 90% of all the visitors’ questions can be answered with the help of a computer. Seven out of eight librarians can see the need for a portable computerized aid.

**Brainstorming—problem-solving**
In connection with the problem assessment, brainstorming took place and different problem-solving ideas were discussed. The intension was to think widely and understand the overall picture before focusing on individual solutions. Some examples of solutions that emerged are:

An interactive information sign on which the visitor can touch an area and receive information as to what can be found there. The problem is that if changes were to be made in the contents of the shelves, then they must also be updated in the information sign.
Library staff members carry a computer with a so-called head mounted display in the form of pair of special glasses and by means of voice recognition they can search in the database. The advantages are that the computer is small and it is hands-free. The disadvantages are that the devise can feel inconvenient to wear during an entire working period and that it would also be difficult to show a visitor the results.

Intelligent bookcase. Communicating with a shelf that contains a scanning function. The problem is this-- Is it technically possible and how much would it cost?

Tracks in the floor that direct to different areas. The problem is the number of areas and the lack of flexibility.

Use two classification systems, one for the library staff and one for the visitor. The visitor can think that it is easier to look and find, but there would be a risk that communication between the staff and visitor would be awkward.

**Hand held computerised aids**
The idea that we have further developed is one of the early suggestions about a self-contained, portable hand held computer.
The hand held computer is intended to be a complement to the library’s stationery computers. The aim is that it is should simplify the contact with borrowers who are out among the shelves.

The most important functions that have received priority in the development work are:
- The opportunity to search in the library’s catalogue
- Access to Internet
- Access to the borrowers’ register
- Telephone

**Position finding**
The idea is also that the hand held computer can even work as a compass, which by using so-called RF tags, one is able to navigate in the library to find the correct book.

RF tags involve a technology that works roughly in the same manner as bar codes in a shop. An antenna is mounted on the bookcase that is connected to a computer processor. In the computer processor there is a little scanner that via radio frequency can ’scan’ information from the different shelves. The computer processor is in wireless contact with the hand held computer that is worn by the library staff member. The antennas that are linked to a scanner specify exactly where a certain copy is located on the premises. Thereafter one is lead to the correct shelf, in this case by using Bluetooth.
**User Interface**
An interactive prototype of an interface with a hand held computer has been developed and tested by several library staff members.

The menu bar is made up of
Search function
Memos
Borrowers’ register
Scanning function
Internet
Telephone function

When you want to write in the text input field you click the stylus in the field and a graphic keyboard automatically appears at the bottom of your monitor.

Scroll bar for selecting the category.
Means of selecting between:
Title
Author
Subject heading
Subject code
Location
Original title
Series
ISBN/ISSN

... etc. Title and author are preset
Different alternatives for presentation of search result

Pushbuttons that enable single step operation between the completed searches. If no searches have been made only the outline of the right pushbutton is visible.

Under the “Advanced search” bar you can add (+) or take away (-) criteria. When you click in the blue field a text input field appears like that for Title/Author here above. You can also select different categories.
A presentation of a search for “Tintin” looks like this.

A more detailed presentation of the search result looks like this.
A presentation as images of the result of the “Tintin” search.

When you select one of the books, you get a larger image and a short résumé of the book.
When you click on “guide” the exact location of just the book you selected is shown; the bookcase and the shelf.

You can also see a floor plan of the premises in about the same way as the “Olga-system”, where the location is shown.
For reservation of a book, a reservation window box appears. In the window box is the name of object written. It is also possible that the name of the latest borrower can be accessed. Of course information can be changed by using the graphic keyboard.

The memo function is used for notes that support both text and graphic information.
As an addition function it is even possible to send the notes as e-mail.

For searching for the borrower you can choose between the following:
- Name
- Loan number
- Personal registration number
Here you can find information about the person; unpaid fines, loan blocks, current loans, reservations.

The scanning function is used to find information that is linked to the scanned object. Scanning is done in the same way as bar code readers and is activated by pressing the pushbutton on the hand held computer.
When the object is scanned, in this case a book about brownies and elves, you can choose which type of information link you want to see.

For example, if you select videotape you can see which videotapes the library has and where they can be found. In this example you can even click on the film title and see a preview trailer.
This presentation gives you some idea how databases that currently are accessed via Internet could be accessed in the hand held computer.

With an increased use of hand held computers the format of home pages will probably be adapted to monitors of this size.

The telephone function allows the user to both call and accept calls via an earphone (like those used for mobile phones). The icon in the upper right-hand corner changes when you make a call or are called.

Scenario

För att tydligare beskriva hur handdatorn används i sin rätta miljö gjordes ett kort scenario.
Fredrik goes to the library to borrow a book about brownies.

He finds a book that is interesting, but isn’t really satisfied.

He sees a member of the library staff working in the library.

Fredrik shows him the book and explains what he wants.

The librarian scans the book with his handheld computer...
…and it shows the information that is linked to the book. In this case it is a videotape.

The librarian checks to make sure that the videotape is where it should be.

… and with the help of a floor plan of the library on the hand held computer shows Fredrik where to find the videotape.

**The Future?**

Generally speaking it can be said that most probably mobiles will be more like hand held computers or that hand held computers will have more functions like Bluetooth, Network Interface Card (NIC), scanners and telephones. At present these functions are often optional modules that you have to attach. Later technology will probably be more refined with improvements in monitor and sound quality, and improved battery capacity and memory. Something that will also affect development will be the standard of the net and the other computer products. But factors that will influence the development of hand held computers will be the “demand for them”, the utility and satisfaction consumers feel when using them, and the future development of communication between people. These aspects in combination with the price will be critical factors.

When can we expect to see the hand held computer be used in libraries all over Sweden—and perhaps even in libraries in Europe?

The thing that is going to determine development in the library field is the extent to which we in the profession are willing to embrace knowledge from other fields.

Libraries in the Umeå Region have described problems and presented ideas that are commonplace to them, and have commissioned researchers to recommend technical solutions that are not necessarily in production at present, but perhaps in the year 2007. In other words we have chosen to be moderately visionary.
Currently, the clearest result is the introduction of cooperation among the six municipalities: Bjurholm, Nordmaling, Robertsfors, Umeå, Vindeln and Vännäs.

An application for extension of the project has been submitted. Among the activities that are planned are the following:

- design of individual web services, e.g. information about new books presented according to personal preference, advanced e-mail service
- additional media information, e.g. searchable table of contents, jackets, back-cover blurb, reviews and pictures of the authors
- develop library application of MMS (Multimedia Messaging Service), e.g. send e-books or talking books to mobile phones.

Questions about the project can be sent to:

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