Developing a library of the future

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Developing a Library of the Future – The Tilburg Experience

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Developing a Library of the Future – The Tilburg experience

In 1989 Tilburg University, the Netherlands, launched a programme to build a new library and also to reshape library and information services in an innovative fashion. Central elements in the Tilburg concept include: a computer architecture which is campus-wide accepted, a focus on the use of information technology in order to improve information services, the concept of the integrated desktop, and a user-oriented information management.

Policy strategy in 1989

The innovative programme was a cooperative effort by the library staff, the staff of the computer centre and specialists from Digital Equipment with full support of the Board of Governors. Basic assumptions in this document were:

- The forthcoming changes in the scientific *information chain* in which users will have more facilities both as a consumer and as a producer of new information; this is particularly true in a university environment for students who are writing their theses and researchers engaged in writing articles, books and papers;
- Close cooperation between the Library and the Computer Centre can have a strong, supportive influence in the primary process of academic education, teaching and research by making possible an *information-oriented workplace;*
- Optimal support can be offered to staff and students in all aspects of the gathering and use of information by focusing on *integration* of library information services with other computing facilities;
- The technical infrastructure should be characterized by flexibility and stability, and should be based on technological *standards and open solutions;*
- Only with the help of other parties can the technological potential in the field of information use be made operational. Because of this, there should be a clear and active preference for *cooperation* both

within the university and with other parties: libraries, computer and software companies, publishers and others;

- A strong belief in the potential, the creativity and the *expertise* of the library and computer centre's own staff.

TILBURG UNIVERSITY

* Economics, Social Sciences, Computer Science, Law, Arts and Philosophy
* 10,000 students
  1,600 staff
* Compact Campus
* Good Infrastructure
* Use of IT is a cornerstone in strategy

LIBRARY TILBURG UNIVERSITY

* 750.000 volumes
* 60 fte staff
* Full member of Pica: shared cataloguing, ILL, OPAC, other Local Library Systems
* Dedicated Databases
* 1989: start programme to develop a new High Tech Library
* 1992: new Library building

The innovative direction

The central element in the concept was user-oriented information management:

- catalogues and other databases can be consulted and documents can be requested from the desktop of the individual user;
- electronic information can be retrieved from computerized collections remotely and without the intermediate steps of collecting and delivering printed documents;
- integration of the different applications (information services, communication facilities and various software packages) on the desktop computer.

Realization and implementation

In some key areas – imaging, publishing, office automation, automated circulation, database development and networking – project teams were organized. When, subsequently, the new library was opened in May 1992, several new services became available to the users. Since then, modifications and improvements have been realized. In addition a number of new services were introduced.

The current situation is as follows:

1. *A fully self-service circulation system, the "lendomat"*, providing users with facilities for lending and returning books

REALIZED IN 1992

* Lendomaat: self service
* Online Contents Database (1600 journals)
* Current Awareness Service: project with Elsevier Science Publishers
* Campus Wide (Community) Information System
* KUBguide: network navigation through various databases
* Modules for Interactive User Instruction
* Integrated Desktop

without assistance from library employees. At this moment 95 % of the loans are effected through this selfservice system.

2. An *Online Contents Database* giving users information about articles in 1 700 journals. This is a service comparable to Current Contents, but mapped to the journal collection of the library. The database is produced using *scanning and optical character recognition*.

In line with this new service a pilot project was launched in cooperation with Elsevier Science Publishers, which offered online Current Awareness Service containing bibliographical information, keywords and abstracts of articles from Elsevier journals to which Tilburg University subscribes.

For this kind of information an advanced *text retrieval system* (Verity's *TOPIC*) was used which has been made fit for full text document retrieval and enables users to make their own profiles by defining topics. By the spring of 1994 the database contained more than 260 000 records.

3. The implementation of *KUBguide*, an online information system, offering transparant network navigation between various databases running on different computers using different database management systems (Sybase, TOPIC, Ingres, VUBIS, Digital's VTX), such as the online catalogue, bibliographical and abstract databases, and community information.

   Students and faculty are offered open access to the OPACs of other Dutch Pica libraries, the National Catalogue with a direct Inter Library Loan request facility, and to the Internet. All these local and remote services are accessible through the KUBguide system.

4. A coherent IT infrastructure with Ethernet connections in all rooms and an FDDI backbone connecting the different departments of the university.

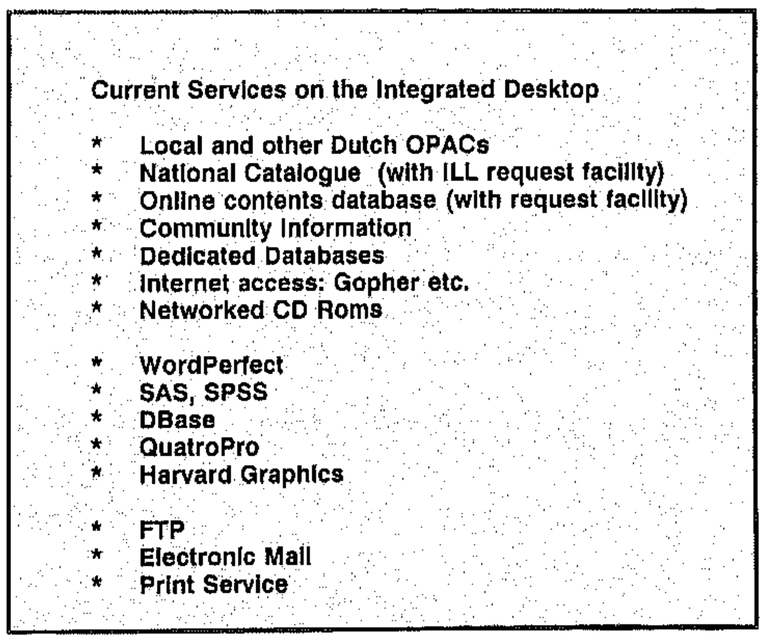
   Novell, the network protocol TCP/IP, and FTP were used to realize the network facilities.

5. The realization of *the integrated desktop.* The planned integrated services were functioning on *250* PCs in the library and about *1 400* other PCs all over campus by Summer 1992. All these PCs have a 80386SX or 80486 SX processor, 20 Mhz, 4 Mb memory, super VGA, and use MS-DOS 5.1 and the graphic user interface MS-Windows 3.1.

   In Autumn 1993 the number of student computers in the library was extended from *250* to *400*. This broad implementation is unique because it offers a number of different computing services.

The following are currently available:

- *information sources* (including the KUBguide library databases and Internet-access). In addition to these services, various CD-ROMs and Interactive Instruc-



In the Library

- 900 study places
- 400 PC's for students
- 48 terminals
- 80 Pc's for library staff
- 12 workstations for staff

On campus

- 1400 PC's for staff
- 200 PC's for students

All these PC's have a 80386SX or 80486SX processor, using GUI MS-Windows

tion Programs are integrated in the campus-wide network. This information is now also available on the integrated desktop.

- *various software packages* like WordPerfect, Harvard Graphics, licensed campus-wide.

- *communication facilities* like FTP and Pmail. All staff and students have their own personal account and can mail to each other.

- *print service.* All services are present in an integrated form. The results of the work on the various desktop computers in the library can be printed by the students via various decentralized self-service laser jet-printers, which are available in the library and in the departments.

An important advantage of the integrated desktop is that the user can easily implement information from local and remote (library) databases (using the "cut and paste" techniques) into his text, thesis or article. Besides that, information from different sources, inhouse databases, external databases, CD-ROMs, can be downloaded and printed. In this way library and computing services facilitate the process of instruction and research. Staff and students can retrieve information, download it and work on it, use it in the production of new papers and articles, and communicate with each other electronically to discuss results and progress.

6. The production of the first of 15 *interactive instruction modules* in the Telephassa project, an EC-sponsored Commet programme. In September 1993, the full complement of the modules was finished. One of the modules deals with the use of the integrated desk top.

First evaluation

After two years of operation a first evaluation can be made:

1. The new library is a great success. Every day the building is overcrowded with especially students who want to write a paper using one of the workstations or students who want to use the library in a traditional way.

2. There is full support on the side of the faculty. A development is under way to implement the use of the integrated desktop and the use of electronic information in various courses. On the other hand it is clear that it takes time to persuade faculty to use these new facilities to remodel courses and to integrate electronic information services and electronic communication facilities in the curricula.

3. There are also problems, of course. First of all there is a demand for more; more software, more computers, more printers, more support, but also a demand for more money to buy books and journals. A serious, even recurring problem, is the

noise of students discussing their search results, Internet software and WordPerfect problems, thereby disturbing other students who want to work in silence.
The maintenance of the systems requires a lot of attention and a continuous effort on the part of both the library staff and the staff of the computer centre.

Because of the heavy use of the services, performance problems require attention. New solutions for new problems constantly have to be found.

Success factors

The main success factors of our programme to build a new library with new services can be summarized:

- There was an idea, a strategic plan;
- Close cooperation between the library and the computer centre;
- Commitment from the Board of Governors;
- The most important factor: the people; staff members who worked with enthusiasm and creativity to develop a new library and new services.

With respect to this last factor it must be stressed that this takes time. First of all because libraries will need staff with better and more advanced qualifications than before. This means that a library needs a long term personnel policy plan including continuous education, courses and on-the-spot-training.

It also takes time because we are moving from the rather traditional and conservative organization that a library usually is into a completely new world with new goals and objectives, since users can access information without the need of the intermediary role of the library.

New projects

Because there is an idea and a long-term plan, accepted by the University Board as a strategic goal, it was possible to start new projects in line with the overall strategy.

At this moment the emphasis is placed on

- ***The improvement of the user interface***
  At this moment at Tilburg University we have to deal with different user interfaces, with different retrieval systems for our OPAC and our various inhouse reference databases. In order to improve the graphical user interface and to deal effectively with both bibliographic databases, full-text databases and image databases in the end-user environment, the Mercury software from Carnegie Mellon University is adapted to the Tilburg situation, using the client-server architecture and the Z 39.50 protocol. This protocol is going to be a standard for access to heterogeneous databases.

  This project has been carried out in cooperation with Digital Equipment.

- ***Knowledge navigation***
  Users can access information which is available on the network, information which is stored in the university library and information which is stored remotely.

  For the users it is very important to locate the really valuable information and to receive the proper information for a specific problem or question.

  Libraries should help the users to solve their information problems. Tools should be developed which select and detect the relevant information in the present information chaos.

  An electronic navigator is now being de-

veloped in order to help the user to identify sources available either in the library or in various databases which can be accessed from the enduser work-station in the university.

- *Electronic document delivery*
  Tilburg University is currently developing a Document Delivery Server in cooperation with Pica in the framework of the national RAPDOC project. In this national project Pica and 18 university libraries and major public libraries cooperate in order to speed up the delivery of documents, i.e. articles from journals requested in the Dutch Inter Library Loan system. At this stage the project focuses on 7 000 journal titles (covering 90 % of the ILL requests) and aims at a delivery within 24 hours, first by mail or fax, and electronically at the end of this year. For that reason local servers will be installed in the major libraries.

  The local Document Delivery Server should be able to communicate with

  – the local OPAC or reference database
  – the local library system in order to identify the users
  – a central Online Contents reference database – an image storage server
  – the National Catalogue and the Inter-library loan system
  – other Document Servers installed in other libraries
  – a scanning work-station
  – a printer-station
  – the end-user work-station.

  The system has an important management component which can be used to check accounts and to execute financial transactions.

- *A project with Elsevier Science with respect to the delivery of copyright material to the end-users*
  Elsevier will deliver the images of the articles of 114 journals the library subscribes to.

  The goal of this project is

  – to enable our end-users on campus to make print-outs on their department printer of the relevant articles, which will be sent to them over the network;
  – to enable end-users on campus – by the end of 1994 – to browse through the full-text images and to retrieve them on their work-stations.

  Important research issues will be:

  – to create an interface between the bibliographic information and the specific image of the requested article, in other words an interface between the reference database and the image database;
  – to monitor the use of these services and user behaviour; this is not only relevant to the publisher, but also to the library. The library will have more management information on the use of its journals when the information can be accessed electronically;
  – to test an economic model. It is clear that the library has to respect the legal rights of publishers and make fair use of their licences. Both for the library and for the publisher it is of great importance to reach clear agreements on this issue and to examine the cost effectiveness of licensed electronic journals.

  This experiment is regarded as a real breakthrough in the relationship between publishers and libraries in Europe.

- ***The development of a full-text database with research papers (grey literature) produced by the university staff***
  This information is non-copyright material which is of great importance for researchers in specific fields. This database will also be made available through the World Wide Web.

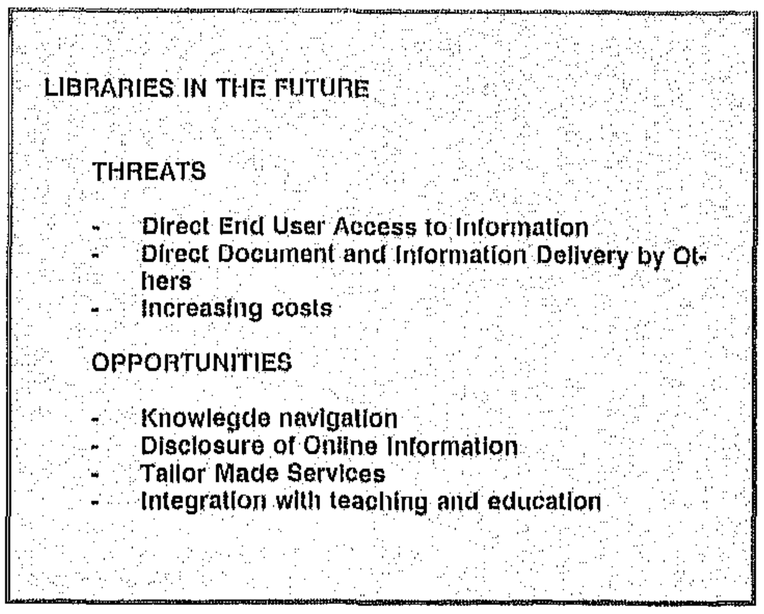
- ***The creation of a coloured image bank with pictures and maps of the Tilburg collection.***
  The project is carried out in the framework of the Elise project of the EC, coordinated by De Montfort University, Leicester. Other partners are the Victoria and Albert Museum and IBM, UK.

These new initiatives illustrate the firm intention of the university to move ahead with library innovation and to focus on and facilitate the end-user access to electronic information.

Strategic issues

It is obvious that new developments with respect to information technology will change the information cycle dramatically. Users will be able to access information, bibliographical databases as well as primary sources, wherever they are located without visiting a library. The monopoly of the library as the gateway to information is under pressure. The answer to all demands, problems and threats in the future will not simply be *'the electronic library'*.

The full electronic library without staff and real books will do a poor job in the next decade and will not be able to meet all user needs in a research environment. On the other hand, the library that does not give speedy access to electronic information will disappear and will, in the best of cases, become a museum. The electronic opportunities will force us to reconsider not only various traditional library functions like acquisitons and cataloguing, but also collection development and collection management.



Libraries have to anticipate these developments and make full use of the strengths of libraries and librarians: the disclosure of (online) information, the packaging of information coming from various sources, the development of tailor-made services, and the support of users in solving their information problems.

But even then, the future of libraries will be uncertain. In the end, libraries will not decide their own future. Libraries are not created to satisfy librarians as custodians of the past. Libraries are there to serve the users, and the users will decide which value libraries can add to the information processes of the future.