

Digital Libraries

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Libraries

❑ Strategies:

- Reducing unnecessary tasks
 - Examples: newspaper articles, bookmobiles
- Offering new services
 - Examples: new media types (DVD), longer open hours, Karlsruhe: 24h
- Better access instead of larger collections
 - Example: interlibrary loans (ILL)
- New financial sources
 - Example: exhibitions, user fees
- Shared activities
 - Example: re-using title descriptions from other libraries
- Process restructuring
 - High quality services instead of simple booking tasks
- Outsourcing
 - Examples: coffee shop, delivery services, etc., Cologne: bicycle delivery
- New technologies
 - Examples: computer work stations, CD and DVD presentation stations

Libraries

- ❑ Another strategy: re-structuring resources (let the user work!)

- ❑ Why?
 - Reducing workload of service staff
 - Reducing health risks for staff members (RPI – Repetitive Strain Injury)
 - Time for new products and processes (value-added services)
 - Customers save time (reduced waiting times)

- ❑ How?
 - Free access to media objects (open shelves)
 - Free search functions (local and online)
 - Self-booking and self-return of rented media

Libraries

- ❑ Search : „Zettelkasten“ – Slip Box



Historisches Seminar Heidelberg

Source: <http://www.historisches-seminar.uni-hd.de/galerie/kohnle/Seiten/Zettelkasten.htm>

Libraries

❑ Search : „Zettelkasten“ – Slip Box

- Can get quite BIG!
- Disadvantages:
 - Difficult to navigate
 - Results have to be copied by-hand
 - Hard to maintain up-to-date
 - Error-prone
 - Easy to destroy
 - Usually only in one language
 - Slow
 - Expensive
 - Etc. Etc.

Le Grand Classeur Mécanique
Prague, ca. 1948 (Detail)

Courtesy of the Canadian Centre for Architecture, Montréal
<http://cca.qc.ca/>



Libraries

❑ Search : Microfiche – Optical Catalogues

- Small films made of textual and graphical data
- Various materials have been used as the substrate: cellulose nitrate, cellulose acetate, and polyester
- For durability reasons, only polyester is used today
- Can be produced on 35mm film as well, which is cutted in stripes and combined to a fiche
- Life expectation is about 500 years
- Microfiches are very sensitive to water
- Black-and-white and color versions available
- Disadvantage:
 - Special readers are needed
 - Yearly update only (every few weeks: interims)



Steve Dalton
MICROFILM AND MICROFICHE
Director of Field Service
Northeast Document Conservation Center

Image Sources: <http://jmhauchard.free.fr/lien/microfiche.jpg>, <http://www.dpts.co.uk/media/images/media/microfiche.jpg>

Digital Libraries

- ❑ Search : Electronic slip boxes
 - CD-ROM Database
 - OPAC – Online Public Access Catalogues
 - LAN (Library)
 - WAN (Network of Libraries)
 - Internet (Home Usage)
 - Extensive search functions
 - Additional information about media
 - Only gives theoretical location (library)
 - Differs often from real location (objects are not tracked)



Source: <http://www.heise.de/kiosk/archiv/ct/2001/18/4/@00000@/pic05.jpg>

Digital Libraries

❑ Search : OPAC – Example: McLuhan (based on PICA)

The screenshot displays the OCLC PICA OPAC search interface. At the top, there is a navigation bar with 'Home', 'Katalogmenü', and 'Hilfe'. The search bar contains the text 'suchen (und) library' and 'alle Wörter [ALL]'. The results section shows 17 hits, with the first 10 displayed. The results are listed in a numbered format, each with a blue diamond icon. The first result is 'Professionelle Videotechnik : analoge und digitale Grundlagen, Signalformen, Bildaufnahme, Wiedergabe, Speicherung, Filmtechnik, Fernsehtechnik, Signalverarbeitung, Studiotchnik ; mit 62 Tabellen' by Ulrich Schmidt. The second result is 'Modeling a character in 3ds Max : [the definitive start-to-finish guide for creating awesome low-polygon characters in 3D Studio Max 3 and 4 for real-time games]' by Paul Steed. The third result is 'Looking for information : a survey of research on information seeking, needs and behavior' by Case, Donald O.. The fourth result is 'Access denied in the information age' by Stephen Lax. The fifth result is 'Self-organizing maps' by Teuvo Kohonen. The sixth result is 'Bibliotheken bauen : Tradition und Vision ; erscheint im Mai 2001 anlässlich der offiziellen Wiedereröffnung nach der Neu- und Umbauphase der Schweizerischen Landesbibliothek' by Susanne Bieri. The seventh result is 'Reengineering yourself and your company : from engineer to manager to leader' by Howard Eisner. The eighth result is 'The vital illusion' by Jean Baudrillard. The ninth result is 'Don't make me think : a common sense approach to web usability' by Steve Krug. The tenth result is 'Videoconferencing and videotelephony : technology and standards' by Richard Schaphorst. At the bottom, there is a 'Download' link and a table with columns 'Begriff', 'Typ', and 'Anzahl'.

Home Katalogmenü Hilfe

suchen (und) alle Wörter [ALL] sortiert nach Erscheinungsjahr

Recherche
Sachgebiete
Ende

Ihre Eingabe war:
suchen (und) (alle Wörter [ALL]) library
Es sind 17 Treffer.
Dies sind die Treffer 1 - 10.

1. [Professionelle Videotechnik : analoge und digitale Grundlagen, Signalformen, Bildaufnahme, Wiedergabe, Speicherung, Filmtechnik, Fernsehtechnik, Signalverarbeitung, Studiotchnik ; mit 62 Tabellen](#)
/ Ulrich Schmidt. - 3., aktualisierte und erw. Aufl. - Berlin [u.a.] : Springer, 2003
2. [Modeling a character in 3ds Max : \[the definitive start-to-finish guide for creating awesome low-polygon characters in 3D Studio Max 3 and 4 for real-time games\]](#)
/ Paul Steed. - Plano, Tex. : Wordware Publ., c 2002
3. [Looking for information : a survey of research on information seeking, needs and behavior](#)
/ Case, Donald O.. - Amsterdam [u.a.] : Academic Press, 2002
4. [Access denied in the information age](#)
/ Stephen Lax. - New York : Palgrave, 2001
5. [Self-organizing maps](#)
/ Teuvo Kohonen. - 3. ed. - Berlin [u.a.] : Springer, 2001
6. [Bibliotheken bauen : Tradition und Vision ; erscheint im Mai 2001 anlässlich der offiziellen Wiedereröffnung nach der Neu- und Umbauphase der Schweizerischen Landesbibliothek](#)
/ Susanne Bieri. - Basel [u.a.] : Birkhäuser, 2001
7. [Reengineering yourself and your company : from engineer to manager to leader](#)
/ Howard Eisner. - Boston [u.a.] : Artech House, c2000
8. [The vital illusion](#)
/ Jean Baudrillard. - New York : Columbia University Press, c2000
9. [Don't make me think : a common sense approach to web usability](#)
/ Steve Krug. - Indianapolis, Ind. : New Riders Publ., 2000
10. [Videoconferencing and videotelephony : technology and standards](#)
/ Richard Schaphorst. - 2. ed. - Boston, Mass. [u.a.] : Artech House, 1999

gehe zu Nr.

[Download](#)

Begriff	Typ	Anzahl
library	alle Wörter [ALL]	24

Digital Libraries

❑ New value added services

- Better management
 - Automatic procurement
 - Automatic inventory
- Better usage
 - Virtual guides (avatars?)
 - Self booking
 - User profiles
- Better contents
 - Digitized media
 - Annotated media
- Better presentation
 - Exhibitions
 - Displays
 - Virtual tours on Internet

**Good Example:
Cleveland Public Library:**
<http://www.cpl.org/>

Digital Libraries

❑ Why self-service?

- Reduced customer wait time
 - Singapore: 5 minutes on average instead of 60-90 minutes
- User privacy
 - No staff member sees the topics
- Convenience
 - Theoretical 24 hours – 7 day per week service possible
- Reduced reshelving time
 - Robot controlled reshelving is much faster
- Record Accuracy
 - Automatic systems are usually more accurate, wrong bills are more seldom
- Automatic Payment
 - Smart Pay Cards can be directly used
- Ergonomics for staff members
 - Reduced Repetitive Strain Injury (RSI)
- More time for better services
 - Staff members have more time

Digital Libraries

❑ Effect of self-booking

- Significant reduction of staff involved in booking

	St. Louis Centr. Lib	Utrecht Centr. Lib	Herning Centr. Lib	Singapore:Marine Parade
Self checkout	no	no	yes	yes
Technology	none	none	barcode	RFID
% self checkout	0 %	0 %	73 %	98.6 %
n staff in checkout	3.9 **	3.7 ***	< 1	0.1
loans 2000	420,000	875,000	915,000	1,400,000
opening hours 2000	47	46	55	65



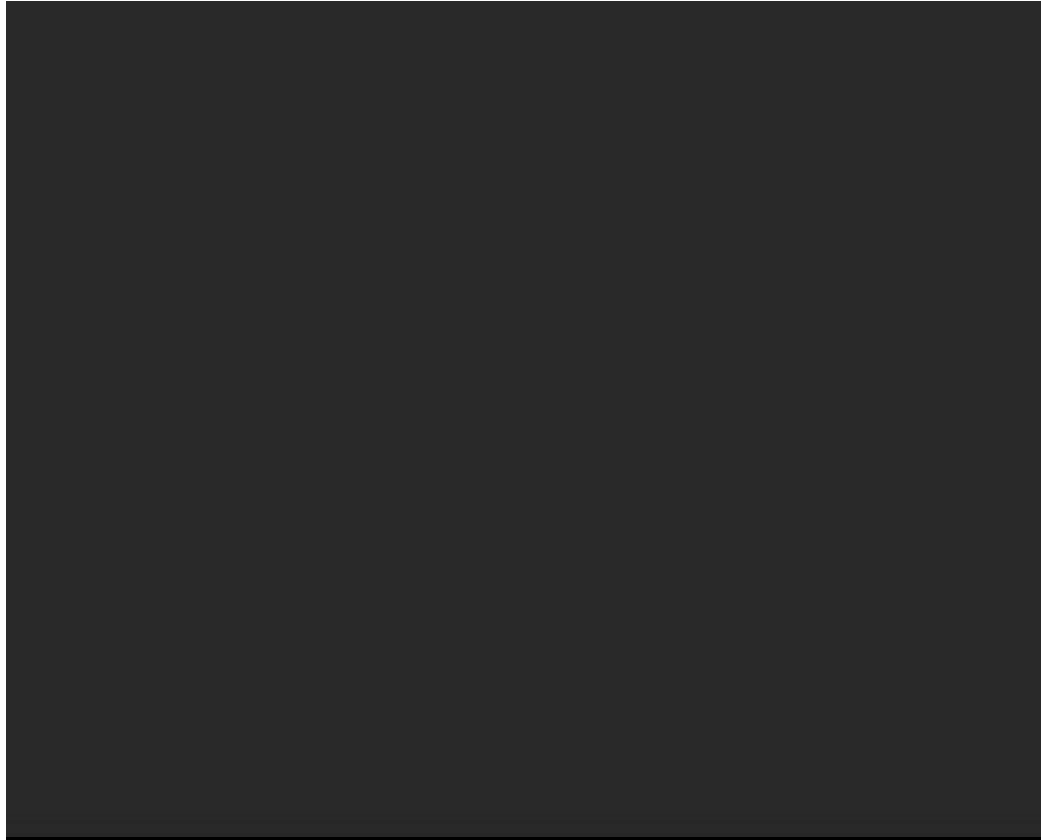
Glen E. Holt, Jens Ingemann Larsen, Ton van Vlimmeren
Customer Self-Service in the public library
International Network of Public Libraries
Bertelsmann Foundation, Gütersloh, Germany, 2002

Source: http://www.internationales-netzwerk.de/en/ueberblick_kunden.htm

Digital Libraries

❑ Libraries of the future?

- Libraries 2040 – A visionary project of the Netherland libraries



Architectural
Concept for
Brabant Library

Source: <http://2040.bibliotheek.nl>

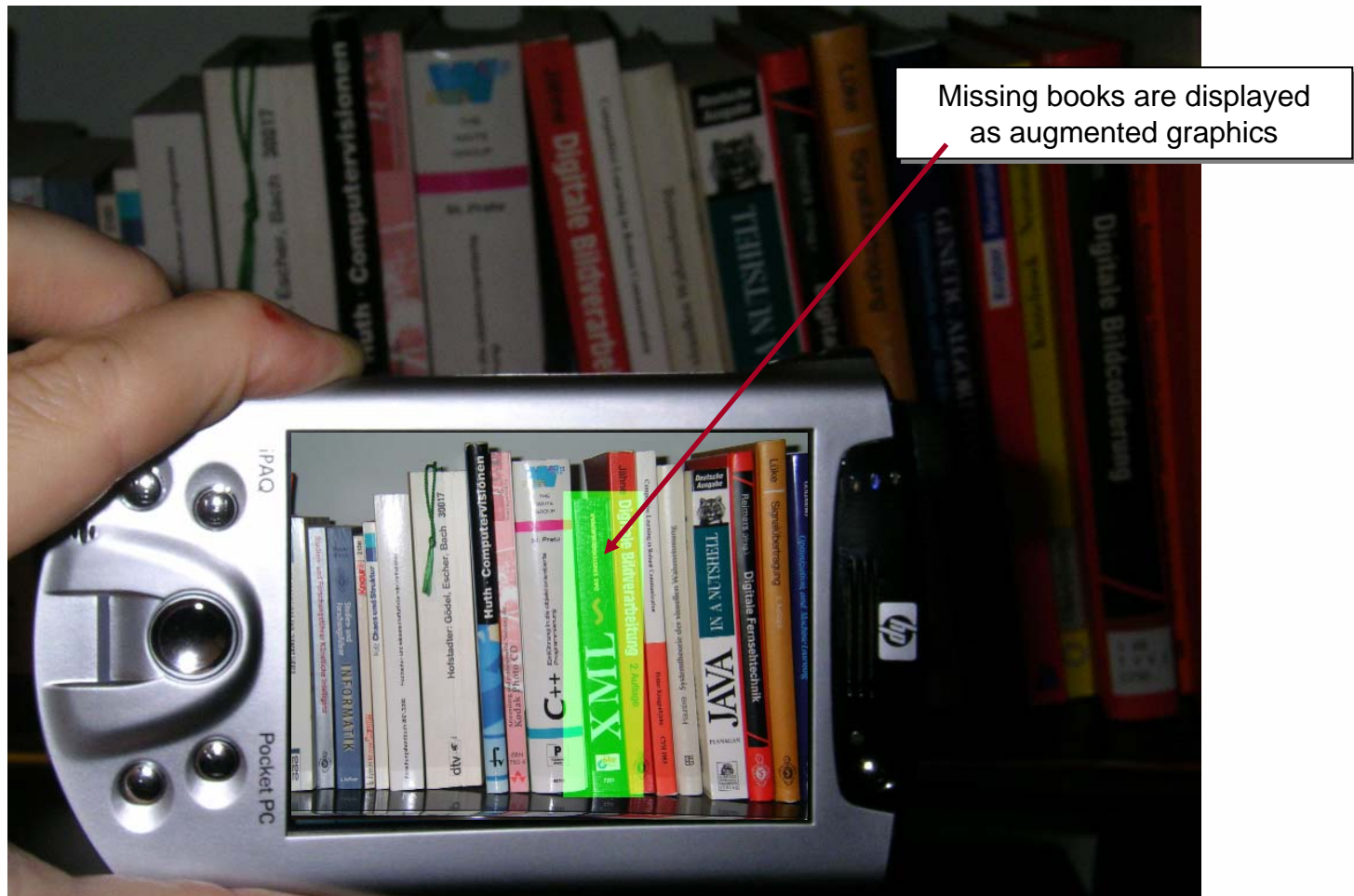
Digital Libraries

□ Example Ideas: *Augmented Search*



Digital Libraries

❑ Example Ideas: *Augmented Search*



Digital Libraries

- ❑ ARLibrary – the Augmented Library Project
 - Studierstube Vienna
 - Augmented Reality Technology to select and locate publications in libraries
 - Intuitive search interface
 - Position on the library shelves augmented with additional information
 - Prototype built with the Computergraphics' Library at the Technical University of Vienna (650 publications, 60 optical markers)
 - Books and shelves are attached with 60 optical markers
 - ARLib Converter Software assumes that all the books appear sequentially in a shelf and thus derives their position based on an average book width

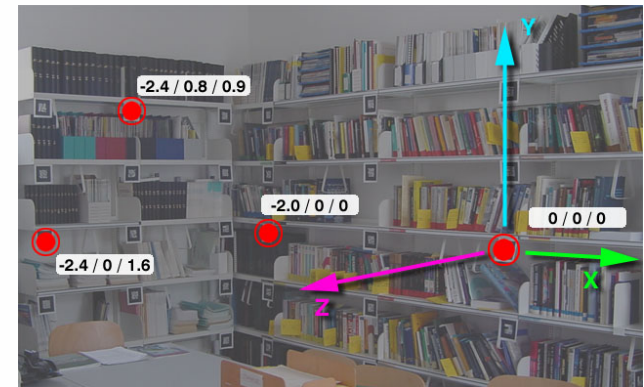


Source: <http://www.studierstube.org/projects/mobile/arlibrary/arlibrary.html>

Digital Libraries

❑ ARLibrary – the Augmented Library Project

- Library Database
 - ISBN#, year of publication, shelf assignment code, author, title and keywords
- The shelf definition file
 - Bookshelves locations, books sizes and colors
- Station File
 - Defines the number of markers used, their position and orientation
- (optional) Stationkit
 - Defines which books have optical markers

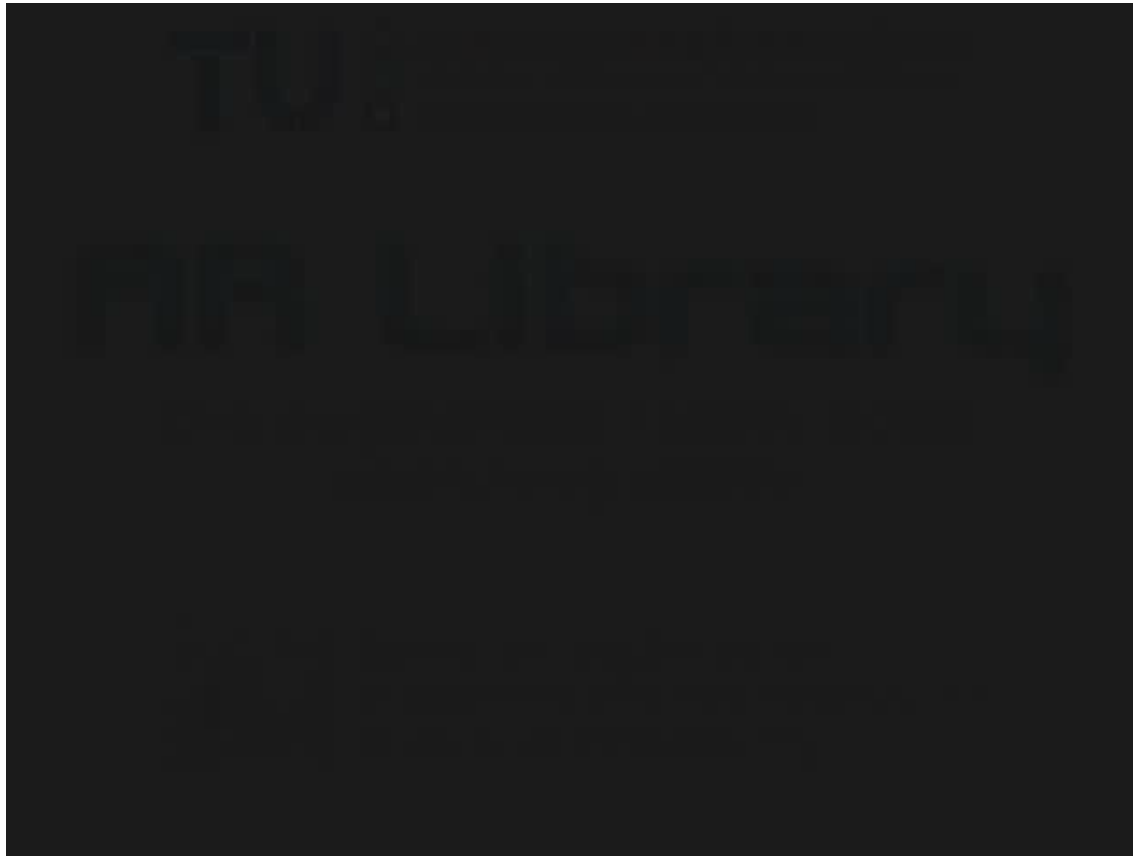


Markers and the relative coordinate system

Source: <http://www.studierstube.org/projects/mobile/arlibrary/arlibrary.html>

Digital Libraries

- ❑ ARLibrary – the Augmented Library Project



Movie

Source: <http://www.studierstube.org/projects/mobile/arlibrary/arlibrary.html>

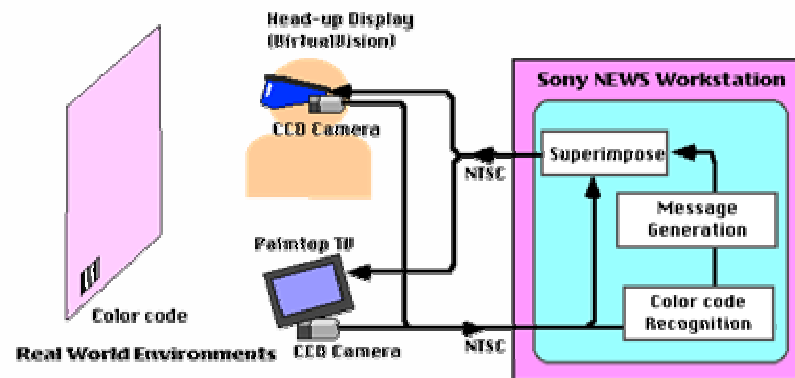
Digital Libraries

❑ NaviCam

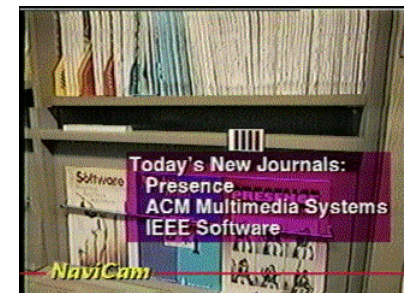
- Jun Nakimoto, Sony Laboratories Library, 1995
- Augmented Videos Project
- Example Application: Libraries, Museums, etc.
- Optical markers are tracked with CCD camera



NaviCam



NaviCam Architecture



NaviCam: Augmented Bookshelf



Jun Rekimoto and Katashi Nagao,
*The World through the Computer: Computer Augmented Interaction
with Real World Environments*
User Interface Software and Technology (UIST '95), pp.29-36, 1995.

Source: <http://www.csl.sony.co.jp/person/rekimoto.html>, Images Copyright(C) 1994-1998, Sony Computer Science Laboratories, Inc.

Digital Libraries

❑ SearchLight

- Saarland University, Saarbrücken
- Objects are tagged with digital markers
- Steerable camera is used for object tracking
- Projector highlights the object with a white spot



Andreas Butz, Michael Schneider, Mira Spassova
SearchLight – A Lightweight Search Function for Pervasive Environments
Proceedings of PERVASIVE 2004, Vienna, Austria, 2004, pp. 351-356.

Source: <http://w5.cs.uni-sb.de/~butz/publications/papers/Pervasive-Search.pdf>