

## Tilburg University

### A challenging future awaits libraries able to change

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**ARTICLES**

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**A Challenging Future Awaits Libraries Able to Change****Highlights of the International Summer School on the Digital Library**[Jola G.B. Prinsen](#)

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**Abstract**

The future for academic and research libraries can be an exciting and challenging one, at least for those libraries that are both able and open to change. This article presents highlights from the sixth International Summer School on the Digital Library <http://www.ticer.nl/summer01/> held in 2001. Two of the three courses that comprised this year's summer school focused on roles for libraries in education and electronic publishing. The other course focused on managing the actual change process towards a new kind of library.

**Digital Libraries and Education**

Hans Roes, Deputy Librarian at Tilburg University, The Netherlands was the course director for the International Summer School on the Digital Library session on "Digital Libraries and the Changing World of Education" held 5 - 10 August 2001 at Tilburg, The Netherlands.

On the first day of the course, Anneke Eurelings, Director of the Transnational University Limburg, The Netherlands, discussed relevant developments in ICT (Information and Communication Technology) and presented an overview of learning theories [1]. She argued that student-centered education, like problem-based or project-based learning, is the future of education. She then focused on e-learning environments and commercially available products resulting from recent research projects. Eurelings called attention to the current environment of higher education, made turbulent by changing labor market requirements and competition in higher education. She recommended that librarians take a role in education by:

- Participating in e-learning experiments (via multidisciplinary teams);
- Becoming involved in universities' e-learning centers;
- Investing in e-learning tools/software; and

- Learning!

Hans Roes addressed changes in education in general, and then focused on strategic opportunities in education for libraries [2]. By doing so, he provided the overall structure for the rest of the Digital Libraries and Education course. The opportunities for libraries he mentioned included:

- Developing digital libraries as natural complements to digital learning environments to support educators with respect to the selection of adequate resources for a given course;
- Managing and indexing digital student portfolios and integrating them with other information resources offered by the library;
- Teaching information literacy to educate future knowledge workers, in traditional ways or via Internet-based instruction modules;
- Collaborating as part of multidisciplinary teams of experts to design courses;
- Providing a learning center to serve as a physical learning environment suitable for more active learning styles.

### *Digital libraries and digital learning environments*

Joseph Janes, Assistant Professor at the University of Washington Information School, introduced the concept of a digital library and described the consequences a digital library has for faculty (and their library colleagues) [3]. Digital libraries can increase access to information, but also can increase the potential for plagiarism. Educational objects, like syllabi, textbooks, etc., are transformed, and entirely new educational objects can be created.

Janes also presented a case study of the Internet Public Library <<http://www.ipl.org/>> developed between 1994 and 1995 by the then School of Information and Library Studies at the University of Michigan. The case study illustrated how a digital library can support education [4]. Although initially intended only to be a class project, the Internet Public Library created such great interest and enthusiasm that it has continued and is now maintained by a small professional staff (coordinating and providing training and continuity), and supported by students and other volunteer professional librarians.

Digital libraries can support the learning process, as Christine Dugdale, formerly the ResIDE research fellow, very vividly showed in her presentation about ResIDE [5]. The ResIDE Electronic Library system offers access to an electronic reserve, a current awareness service, and past examination papers. ResIDE <<http://www.uwe.ac.uk/library/itdev/reside>> was developed to solve the ubiquitous problem of "too many students - too few books". Dugdale showed how short loan collections can provide access to a greater quantity and range of material for a larger distribution of learners. Additionally, electronic libraries can support new learning methods or environments. However, implementing an electronic reserve poses many challenges, for example, dealing with copyright issues.

John MacColl's presentation was on virtual learning environments (VLEs) and libraries in general, and the ANGEL project <<http://www.angel.ac.uk/>> specifically [6]. MacColl, Sub-librarian Online Services at the University of Edinburgh, listed

three primary reasons why libraries should be involved in creating and maintaining VLEs:

- VLEs contain links to resources, both licensed and free;
- VLEs overlap with electronic reserve systems;
- A VLE is unlikely to realize the dynamic linking potential of its content without library involvement.

Often, faculty are not aware of copyright issues and do not know what material is electronically available or licensed by the library. Showing faculty how the library can add value to their VLEs is very important. VLEs can be connected to library systems, through the integration of library systems at the back end via 'middleware' (the technology component), and through the close liaison and involvement of library staff in VLE development (the human component). The aim of the ANGEL project is to integrate 'open' library resources and 'closed' learning environments. MacColl concluded that:

- VLEs are changing the way learning and teaching are delivered and will soon be ubiquitous. ("They are coming, whether we like it or not.");
- Libraries must assert their traditional role as resource managers in this new environment of web-based courses;
- Academic staff/library liaison is crucial;
- Virtual learning environments must also be *virtuous* learning environments.

Richard Everett, JISC's MLE Coordinator in the UK, discussed Managed Learning Environments (MLEs). While a VLE encompasses the components in which learners and tutors participate in online interactions of various kinds (including online learning), an MLE includes the whole range of information systems and processes of the college/university (including its VLE if it has one) that contribute directly or indirectly to learning and learning management, e.g., the student record system, business systems, and learning resources (content). Good MLEs can exist only if all their components are integrated. The UK's Managed Learning Environment Steering Group (MLESg) <<http://www.jisc.ac.uk/jciel/mlesg/>> will define a set of interfaces (Instructional Management System (IMS) specifications) to allow the various systems to work together.

At this time in the UK, higher and further education institutes will buy only IMS-compliant systems. Everett's advice to libraries is:

- Stimulate library system vendors, publishers, and other content providers to make their systems IMS-compliant;
- When involved in the selection of a VLE, stress the importance of IMS-compliance.

### ***Digital portfolios***

Although there was no assigned speaker on the subject of digital portfolios, Joseph Janes related how the University of Washington Information School conducted a

pilot project to create digital portfolios. Information about their portfolio assignment and links to several example portfolios can be found at <http://www.ischool.washington.edu/mlis/portfolio.htm>.

### ***Information literacy***

Patricia Davitt Maughan, User Research Coordinator at the Teaching Library at the University of California, Berkeley, introduced the concept of information literacy and described how it has evolved in the US since 1974 [7]. In the US, information literacy is an important concern of government and higher education, not just of libraries. One of the late breaking developments in the information literacy movement is the issuance of the Information Literacy Competency Standards for Higher Education <http://www.ala.org/acrl/ilcomstan.html>. Maughan also discussed where an information literacy program can reside and emphasized the need for quantitative and qualitative assessment of information literacy programs. According to Maughan, libraries undertaking information literacy training must have:

- Strong commitment from the institution;
- Strong commitment from the library administration;
- Proficiency in teaching, technology, and assessment among library staff;
- Faculty who will partner with librarians and other information-handling professionals.

The current challenges to libraries are attracting greater support, raising the value of information literacy, and blurring the edges of the faculty/librarian divide. The focus of the librarian-faculty dialogue should move from what the library owns to how the library can contribute to student learning. As loci for partnerships, Maughan mentioned one-to-one, librarian-to-faculty partnerships, computer instructional centers, campus curriculum committees, and faculty senate committees.

Elizabeth Dupuis, Head of the Digital Information Literacy Office at the University of Texas at Austin, provided an example of online library instruction in her presentation of TILT, the Texas Information Literacy Tutorial <http://tilt.lib.utsystem.edu/> [8]. This module is designed to teach undergraduates -- primarily first-year students -- fundamental research skills. TILT is organized to include an introduction and three modules:

- Selecting appropriate information sources;
- Searching library databases and the Internet;
- Evaluating and citing print and electronic resources.

Dupuis emphasized that *online* library instruction is not the best choice in all situations, but she explained why, in the case of the University of Texas at Austin, it was. TILT is freely available to anyone online and incorporates active learning techniques. After demonstrating the system (which amazingly was funded at just \$3,000), Dupuis focused on: the project planning, which constituted 45% of the entire project; TILT's design; TILT project management; and the project's development process (iterative, with the emphasis on testing through usability studies, focus groups, and online comments from quizzes). Currently, schools and

libraries, worldwide, use TILT, which is available as open source/open content at <http://tilt.lib.utsystem.edu/yourtilt/>. TILT provides a model for how libraries collaboratively can build and share instructional material, and it encourages the sharing of improvements made. Dupuis concluded that librarians should:

- Seek others interested in collaboration;
- Develop a model to encourage stakeholders;
- Design for flexibility and maintainability;
- Overcome criticism and doubt;
- Find champions for long-term success;
- Assess and make adjustments continually.

### ***Collaborative course design***

The DEsite didactic module provides an example of how a digital library can support the learning process and serves as an example of collaborative course design [9]. Pieter Jan Boon, documentalist at the Tilburg University library, described and demonstrated the DEsite module on the decision-making process within the European Union. The module consists of two parts. The didactic element (in Blackboard) consists of announcements, information about courses and lecturers, means of communicating with lecturers and fellow students, and an online quiz. The substantive section (available via the web at <http://cwis.kub.nl/~dbi/instruct/eu/>) contains contents, information sources, and links. A project team consisting of both librarians and academics developed DEsite.

### ***Providing a learning center***

Howard Nicholson, University Librarian at the University of Bath, talked about physical learning environments suitable for more active learning styles [10]. He outlined the development history of buildings for converged library and information technology (IT) services (learning resource centers or LRCs) in Britain. He identified four phases:

- Phase 1 LRCs (before 1992) had books and computers for word processing, LAN connectivity, seminar rooms and study 'carrels', and no developed concept of zoning.
- Phase 2 centers (1992) had some wider functionality (e.g., AV, language learning, the first experiments with teaching space); the zoning concept was adopted; Internet and e-mail had been widely introduced; group work space was provided; and helpdesks were merged.
- Phase 3 centers (late nineties) had much wider functionality (e.g., servers, reprographics, scanning, TV, video edit); provided services for faculty (e.g., 'teaching support units', courseware, graphics, web design); reconsidered the importance of the social function; but had problems with the demand for laptop connectivity.
- Phase 4 LRCs (future) will have data connectivity everywhere (either wired or

wireless), more teaching of skills, and decreases in numbers of book loans. Possible developments might also include learning centers as the focus for MLE/VLE access and support; digital resources being accessed through the VLE; and interlibrary loans being replaced by online access.

Nicholson concluded by recommending a SCONUL briefing paper [11], which can be ordered at <<http://www.sconul.ac.uk/publications/publications.htm#2>>.

### *Other themes*

The Digital Libraries and Education course also briefly touched on three other themes: distance education, the library profession, and building library-faculty partnerships.

Linda Smith, Professor and Associate Dean at the Graduate School of Library and Information Science of the University of Illinois at Urbana-Champaign, was unable to attend the course in person, but Elizabeth Dupuis presented Smith's paper [12] on the LEEP program, a five-year-old distance education masters degree program in the field of library and information science, developed at Dr. Smith's Graduate School. LEEP program students are located in more than 40 states in the US and outside the US as well. Faculty consists of full-time faculty in Urbana-Champaign and adjuncts in several other states. The technology used supports the following activities:

- Asynchronous (any time -- any place) discussion via electronic bulletin boards;
- Asynchronous communication via email;
- Live synchronous (same time -- any place) session interactivity in a virtual classroom (Real Audio and navigation of web-based resources; student questions and comments via text chat; chalkboard; and break out chat rooms);
- An archive of live sessions;
- Asynchronous collaborative document creation and editing.

Dupuis focused on the role and responsibilities of the library in the LEEP program. Important issues in providing distance education library services include, for example, copyright and authentication. The session concluded with a live discussion with Linda Smith in the USA, during which she took questions via text chat and answered via Real Audio.

Richard Biddiscombe, Team Leader of Arts, Social Sciences, and Law in the Main Library of the University of Birmingham, talked about the current state of libraries and the library profession [13]. Biddiscombe provoked the audience by stating that higher education does not need librarians but instead needs knowledge managers. These knowledge managers should, for example, support academic staff in developing courses, actively support the development of learning programs, acquire access and clear copyright for virtual library environments, seek out research funding, create web portals, and participate in national programs. To be able to do so, they should possess: good interpersonal skills, team building skills, service ethics, pedagogic requirements, and good understanding of information technology.

The important subject of building faculty-librarian partnerships was covered by Hannelore Rader, University Librarian/Dean, at the Ekstrom Library of the

University of Louisville [14]. Although librarians and faculty can cooperate in a number of fields (e.g., collection development, research collaboration, team teaching, etc.), Rader focused on cooperation in the field of information literacy. Rader stressed the importance of making the library visible on campus and taking every opportunity to get involved in faculty activities/meetings. Librarians should also seek collaboration with faculty on all levels.

## Electronic Publishing

Hans Geleijnse, Director of Information Service and Systems at the European University Institute in Florence, Italy, was the director of the "Electronic Publishing: Libraries as Buyers, Facilitators, or Producers" course of the International Summer School on the Digital Library held 7 - 12 October 2001 in Florence. Geleijnse began with an overview of developments and key issues in electronic scholarly publishing [15]. He spoke about the journals crisis and university reactions to that development. He then focused on the question of whether the move towards electronic publishing could solve the journals crisis and described several alternatives and new routes, such as SPARC, Highwire Press, JSTOR, the Open Archives Initiative, and the Public Library of Science. Licensing was discussed next. Several issues remain unsolved: electronic document delivery, cross-searching and cross-linking, rights management systems, perpetual access, retro-digitization and access to back issues. Geleijnse believes consortia should be more than buying groups; they should also support reform in the system of scholarly publishing. In that sense, he agreed with Landesmann and Van Reenen [16]. E-books were also briefly addressed. Geleijnse concluded with a discussion of the changes in the information chain.

Teun Nijssen, Senior Project Manager at the Tilburg University Computer Center, The Netherlands, gave a presentation on information technology issues [17]. Based on his experiences in digital library projects at Tilburg University, he advised the audience about important components of document servers: platform, storage hardware and software, search engines, user clients and user interfaces. Next, Nijssen talked about "the glue between the building blocks" -- Z39.50. Finally, he discussed formats, especially SGML and XML.

The first day of the Electronic Publishing course ended with a presentation on self-publishing by Hans Roes, Deputy Librarian at Tilburg University library. Roes described four self-publishing projects conducted at the University:

- DEGREE <<http://cwis.kub.nl/~dbi/degree/>>: making economics research papers accessible through the Internet;
- Electronic Journal of Comparative Law <<http://law.kub.nl/ejcl/>>: setting up a new, electronic, peer-reviewed journal on comparative law;
- The e-republishing component of the Internet Law Library <<http://till.kub.nl/>> project: making texts, already published somewhere else, electronically available;
- ARNO <<http://www.uba.uva.nl/en/projects/arno/>> [18]: building an infrastructure to make research output electronically available based on distributed archives that are interlinked by subject, connected with the existing national library infrastructure, linked with the production process of publishers, and linked with digital learning environments.



All four projects involved collaboration between several Dutch universities, and all involved both library and faculty. Therefore, the projects provided a good example of what the library's role in self-publishing projects can be. Roes concluded:

- Facilitating self-publishing is fun;
- Self-publishing gives the library staff a better insight into the changing information chain;
- Self-publishing gives academic staff a better idea of the possibilities of digital libraries; and
- The combination of expertise from both parties provides the best chance of bringing about a change in publishing.

### *The (commercial) e-publishing market*

Jonathan Clark, Director of Science Direct, Elsevier Science, The Netherlands, covered electronic journal publishing as well as the role and the added-value of publishers [19]. He did so by listing the four functions of a scientific journal: dissemination, validation, registration, and archiving. He argued that a publisher manages the dissemination process, and while a traditional publisher's role lies solely in content, an electronic publisher should also provide IT tools and search engines. With regard to validation, publishers guard the integrity of the system, and with regard to registration, publishers are independent facilitators. Although, traditionally, archiving has not been a publisher role, this is changing in the digital arena. Although the costs of archiving are high, commercially there is a huge interest in back files.

Carol Ann Hughes, Director of Collections Management at Questia Media, Inc., USA, presented a case study of the business model of Questia Media [20]. Questia Media does not sell e-books. It provides access to digital content through personal subscriptions to a collection of selected texts (books and journal articles) in the humanities and social sciences published by traditional scholarly publishers. Tools for interacting with these texts, such as margin highlighting, citation and bibliography creation, and margin notation creation, are provided along with the text. Questia primarily targets undergraduate students in the US as potential customers. Questia's collection development process looks like that of a traditional library, but it is cross-university and cross-course.

Rick Johnson, Enterprise Director at the Scholarly Publishing & Academic Resources Coalition <<http://www.arl.org/sparc>> (SPARC), USA, introduced the SPARC initiative. SPARC formed as a reaction to the global journals crisis [21]. SPARC, a coalition of 200 research institutions and libraries, introduces competition, change and alternative strategies into the marketplace. Johnson mentioned several SPARC initiatives, some of which are:

- *Theory and Practice of Logic Programming* <<http://www.cwi.nl/projects/alp>>, a new journal founded by Cambridge University Press and the 50-person editorial board who quit the commercially published *Journal of Logic Programming*;
- *Journal of Machine Learning Research* <<http://www.jmlr.org/>>, set up by the former editorial board of the commercially published *Machine Learning*;

- *Evolutionary Ecology Research* <<http://www.evolutionary-ecology.com/>>.

SPARC titles are less expensive than commercially published journals, authors are making the switch from commercially published journals to SPARC titles, and SPARC titles score high in the ISI journal citation reports. SPARC is also involved in education and advocacy. Their main activities include:

- *Create Change* <<http://www.createchange.org/>>, a resource for faculty and librarians to reclaim scholarly communication;
- *Declaring Independence* <<http://www.arl.org/sparc/di/>>, a guide to creating community-controlled science journals, aimed at the editorial boards of scientific journals.

Until now, SPARC's work has largely focused on North America; however, Johnson concluded his talk by announcing the establishment of SPARC Europe <<http://www.sparceurope.org/>>.

David Stern, Director of Science Libraries and Information Services at the Kline Science Library at Yale University, USA, discussed journal pricing models. To illustrate the journals crisis, he first gave an overview of historical financial trends, like inflation, monographs and serial costs, library expenditures, and library materials base budgets. Then he discussed the factors determining the value of paper and electronic scholarly journals: peer review, the editorial board, search capability, current awareness capability, and one entrance instead of branding. A selection of interesting reactions to the journal crisis in the field of electronic journals includes:

- Commercial reactions (Highwire, SPARC);
- *ARLO* <<http://ojps.aip.org/ARLO/>> (the journal is free for readers; authors are charged and the peer review process is automated);
- *ATMP* <<http://www.intlpress.com/ATMP/>> (an overlay on part of the well-known LANL arXiv.org archives, selected articles from the preprint server are peer reviewed).

Stern briefly described some alternative pricing models, focusing on his own tiered, journal costs model [22]. This model consists of five tiers, the first four for commercial materials and the fifth one for non-marketable e-prints. Stern concluded his presentation by expressing his interest in seeing a post publication accountability study of peer review. More information about journal costs and possible journal cost solutions can be found on Stern's web pages at <<http://www.library.yale.edu/scilib/jrnstop.html>> and <<http://www.library.yale.edu/scilib/jrnslol.html>>.

Giuseppe Bertola, full-time Professor at the Department of Economics of the European University Institute, Italy, gave his view, as an author, reader, referee, and editor, on the supply and demand of printed and electronic material in economics. In his opinion, students, practitioners, young authors, and publishers need 'good' (refereed, reputable) journals, while established authors may not need them. His answer to the question "What does it take to produce a 'good' journal?" was "mainly, reputation (based on the group that is involved in the journal and the philosophy behind the journal), followed by the work of editors with equity and referees, and circulation."

### *Copyright, licensing and consortia*

Toby Bainton, Secretary of the Society of College, National and University Libraries (SCONUL) in the UK, covered the topics of copyright and licensing [23]. He first focused on the EU Copyright Directive [24], which was adopted on 22 May 2001. EU governments are required to implement this Directive into their national copyright law before 22 December 2002. New features include the right of communication to the public and the legal protection of technical measures and rights-management information. Article 5 of the Directive contains the all-important exceptions, only one of which is compulsory to implement in national law: temporary, transient, incidental acts, integral and essential to a technological process. All other exceptions are optional. Bainton also discussed licenses, which, he said, technically speaking, are invitations to negotiate. He outlined the main elements of licenses: recitals, definitions (very important and a place for nasty surprises!), choice of law, rights granted, term and termination, licensee's undertaking, warranties, and dispute settlement.

UK experiences with consortia and licensing, through the National Electronic Site License Initiative (NESLI), were presented by Frederick Friend, Director of Scholarly Communication at the University College London, UK [25]. NESLI is a (via JISC) government-funded consortium. NESLI's aims are to achieve:

- Better value for the money for libraries in their purchase of journal subscriptions;
- Better access for users to journal literature;
- Increased use of electronic journals, promoting the shift from paper to electronic formats.

NESLI appointed a Managing Agent (formed by Swets Blackwell and Manchester Computing) to negotiate contracts, manage subscriptions, and communicate with libraries from 1998 through 2001. NESLI approves offers from publishers, and individual libraries decide whether to buy and sign contracts. (There is no compulsion to do so.) Starting in 2002, a new model will be implemented. JISC will invite tenders for specific services. There will no longer be a single agent, and the role of the agent will be restricted. Friend concluded that all the NESLI objectives are being achieved to some degree. In 2001, journals from 20 publishers are available through NESLI, and there are around 70,000 downloads a month of full-text articles, plus many uses of abstracts and tables of contents.

US consortia and licensing were discussed by David Kohl, Dean and University Librarian at the University of Cincinnati, USA [26]. Kohl compared the traditional (title-by-title selection) model used, e.g., by the CalState consortium to the new (mass purchase) model used by OhioLINK. CalState's goal was to provide electronic access to a core group of journals already present and important, and to pay a reasonable cost for such access. Their result was that 50% of the 1,279 core journals could be provided via aggregators. The added cost for electronic journals was up to 25% per title. OhioLINK's first goal was to substantially increase access by using the digital format, but also to increase use by significantly increasing the number of journals available. Their second goal was to substantially increase the value received for the money spent. The price the OhioLINK consortium had to pay consisted of:

- The sum of all members' present print subscriptions;

- Plus a negotiated inflation rate;
- Plus a no-revenue reduction pledge during the contract period (guaranteed turnover for the publishers); and
- In some cases, an electronic surcharge.

In return, each library continues to receive their ongoing print copies, plus all libraries receive access to all the publishers' journals electronically. Kohl argued that the OhioLINK model is a win-win for both libraries and publishers. Of course, the model focuses on mass additions to increase journal access, not a thoughtful selectivity taking into account university instruction, research and service. Statistical analysis since 1999, however, proved that the formerly unavailable journals are used -- even heavily used. According to Kohl, the implications are that there is apparently a huge unmet need, and libraries have not been selecting materials so much as rationing them. The solution is not finer or better selection, but providing broader access. To conclude, Kohl recommended the tools and sources available via ICOLC (the International Coalition of Library Consortia, <http://www.library.yale.edu/consortia/>): meetings, listservs and policy statements.

Hans Roosendaal, member of the Executive Board at the University of Twente. The Netherlands, gave a strategic presentation about changes in the value chain of scientific information [27, 28]. Departing from the four functions of scientific communication (registration, certification, awareness and archiving), Roosendaal argued that the current value chain (author - publisher - reviewer - publisher - agent - university - reader) could be changed to a new one, consisting of author - university - publisher - reviewer - publisher - university - reader. Agents will no longer have a role in this value chain. Publishers, however, will (to safeguard objectivity), as will universities, which will be responsible for archives. He stressed that universities must get ready for the future *now*; they only have 5 - 10 years to survive. They need to:

- Develop document servers and browsers;
- Develop archives for the materials produced by their own scientists *and* students;
- Change the university's cost allocation models in such a way that the library budget will be centralized and decisions about scientific information are not made by individual faculties.

It is also Roosendaal's strong opinion that library consortia should be more than simply buying groups. They should stimulate universities to make the changes above and should experiment with distribution and business models together with publishers. The Dutch UKB consortium provides an example of this.

### ***Negotiating***

A complete morning was devoted to the topic of license negotiation. Alicia Wise, Assistant DNER Director at the Joint Information Systems Committee (JISC) in the UK, provided participants with theoretical background (much of which is freely available via the JISC web site) [29, 30]. DNER (the Distributed National Electronic Resource) is a collection of information resources and services for further and higher education, and an underlying information environment.

Wise provided useful tips for negotiating, focusing on: negotiation styles, preparation, the first meeting, subsequent meetings, closing the deal, and aftercare. In a class exercise, groups of 'publishers' had to negotiate with groups of 'librarians' about an imaginary electronic product. Wise summarized by stating that:

- Negotiations should result in licenses that reflect the balance of needs from both libraries and publishers;
- Model licenses are useful and can help ease administrative burdens;
- Negotiations should address all aspects of content, service delivery, training, and support;
- Uses/users of information are changing rapidly, and realistic usage terms need to be negotiated to support them effectively;
- Licenses are important in law should something go wrong, but the real aim is to work closely and collaboratively for mutual benefit. It is necessary to plan ahead for amicable resolution of any differences.

### ***Reference linking and interoperability***

Reference linking was covered by Herbert Van de Sompel, who has been Director of E-Strategy and Programs at The British Library, since 1 September 2001. In 2000, Van de Sompel obtained a Ph.D. from Ghent University in Belgium for his research on dynamic and context-sensitive reference linking, now commonly known as the OpenURL framework [31]. During his presentation, Van de Sompel explained the problems of some of the established linking frameworks that are not context-sensitive and are static, closed, and have a limited scope. This can result in links to resources for which users do not have a license, or links to non-preferred versions of resources. Van de Sompel stated that the OpenURL framework solves these problems by disconnecting metadata from services and introducing overlaying service components. The set-up and maintenance of local service components (connecting metadata to services) is a typical task for libraries. It is also possible to integrate the OpenURL framework with the DOI/CrossRef linking system. Currently, the OpenURL is being standardized by the US National Information Standards Organization (NISO). Ex Libris USA, Inc. markets a local service component under the name SFX Server.

A different approach was presented by Thomas Place, Deputy Librarian for Library Systems and Development at the Tilburg University library [32]. He spoke about the results of the successful Decomate II project <<http://www.bib.uab.es/decomat2>>, one of the few EC-funded projects that resulted in a commercially exploitable system. The Decomate system (currently exploited by PICA under the name iPort) offers:

- A uniform interface;
- Simultaneous searching of distributed and heterogeneous information resources, using standards like HTTP, Z39.50, LDAP, XML, OpenURL, etc.;
- Merging and grouping / de-duplication of result sets;
- Document ordering;

- Graphical navigation of thesauri;
- Current awareness services.

In these ways, the system goes further than the OpenURL framework, since it also tries to give users a one-stop-shop.

Herbert Van de Sompel also gave a presentation on the Open Archives Initiative (OAI) [33]. This initiative, the roots of which lie in the e-print community, develops and promotes interoperability solutions that aim to facilitate the efficient dissemination of content. The first part of the presentation focused on the working of the OAI Metadata Harvesting protocol. Van de Sompel defined the functions of data providers, who adopt the OAI technical framework as a means of exposing metadata about their content, and service providers, who harvest metadata from data providers using the OAI protocol and who use the metadata at the basis for value-added services. In the second part of his presentation, Herbert envisioned the future possible consequences of the use of the OAI framework for the information chain. Departing, like Roosendaal, from the four functions of scholarly communication (registration, certification, awareness and archiving), Van de Sompel argued that preprints fulfill the functions of registration and awareness, and he stated his belief that interoperability between the two can be achieved by metadata. He questioned why it shouldn't be possible to extend the use of the Metadata Harvesting protocol to include certification metadata, preservation metadata, usage metadata, author metadata, etc., and thus achieve a new value chain. He concluded by stressing (like Geleijnse and Roosendaal) that libraries should rethink themselves and should be proactive in exploring alternative mechanisms for scholarly communication.

### *Archiving, preservation and national libraries*

Johan Steenbakkers, Director of Information Technology and Facility Management at the Koninklijke Bibliotheek, National Library of The Netherlands, talked about the deposit system of the Koninklijke Bibliotheek (developed in cooperation with IBM), which should become operational next year <<http://www.kb.nl/dea>> [34]. The system will conform to the ISO standard for digital archives. The deposit system will not contain a working module for long-term preservation, but developments are proceeding quickly and appear very promising. Steenbakkers explained why it is so hard to preserve digital documents. Then, he focused on preservation techniques and preservation metadata. He introduced two techniques that use both a data archive and a software archive. The approach suggested by Jeff Rothenberg is currently being used and extended by Raymond Lorie from IBM and is called UVC (Universal Virtual Computer) emulation. The Preservation Layer Model (PLM), being developed by IBM and the Koninklijke Bibliotheek, describes the metadata needed for technical preservation. Steenbakkers concluded that although necessary techniques and procedures are still being developed, he is quite confident that within a few years the first deposits for electronic publications will be operational.

Steenbakkers (on behalf of the Dutch national library) and Van de Sompel (on behalf of The British Library) gave a joint presentation on the role of national libraries. Steenbakkers argued that the role of national libraries in a digitized world is to create a deposit collection of electronic publications and to catalogue the publications; to maintain the deposit collection and guarantee perpetual access to the information; and to digitize national collections of printed publications. Van de Sompel presented the new mission statement of The British Library [35].

## The Management of Change

The course directors for the session on "Managing the Change Process towards your Library of the Future" were Lynne Brindley, Chief Executive of the British Library, and Jan Wilkinson, University Librarian and Keeper of the Brotherton Collection at Leeds University Library, United Kingdom. The course took place 30 July - 3 August 2001 at Tilburg, The Netherlands.

Brindley opened the session by providing the context for change [36]. She first focused on the knowledge society and knowledge economy. Drawing from the work of Don Tapscott, Brindley provided a context for transforming the library's business from "running a library" to "brokering knowledge and information in an Internet world." She then explored the context of educational change more specifically, particularly higher education. She advised that more attention must be paid to what is happening in primary and secondary schools, as they deliver future library users. Finally, Brindley talked about technological drivers and changes in publishing. Her conclusion was that libraries must change to survive. She advised librarians to analyze their own contexts for change, to monitor external trends as contexts for change and planning, to position their own institutions and their libraries in new contexts, and to learn to manage change to move from now into the future. Brindley also warned that change is a continuous process, not something which can be completed.

### *The theory*

Michael Cant and Lucy Jeynes, both directors of Larch Consulting Ltd. and key speakers at the "Managing Change" course, provided the theoretical background on change management. In spite of the fact that they kept stressing that there is no standard model for change management, they still managed to provide a framework for change.

Cant introduced the change management discipline and gave a historical perspective of change management [37]. He focused on questions that should be considered at the onset and on reasons why organizations fail in their efforts to change. Cant concluded with four recommendations, which together form a framework for change:

- Identify the 'incident' precipitating the change process;
- Develop an implicit understanding of the organization and its workings;
- Identify stakeholder groups and 'quick wins' for each;
- Ensure a plan is in place to address behaviors, attitudes, and skills across the organization.

Jeynes presented the key steps in change management [38]:

- Recognizing the need to change ("do not change to correct problems from the past, but to prepare for the challenges of the future");
- Building the vision ("be bold", "be audacious");
- Mobilizing commitment ("change is about people");

- Diagnosing reality (the SWOT [Strengths Weaknesses Opportunities and Threats] analysis);
- Getting there (change models like business process re-engineering, organizational development, etc.);
- Knowing the change cycle.

In Jaynes opinion, successful change programs have:

- Top management commitment;
- Constant, consistent communication;
- Employee involvement at all levels;
- A shared vision of the future;
- Understanding of the need to change;
- Management of the political network.

Jaynes warned that momentum must be sustained: change processes take 2 - 3 years.

Key roles in the change process were discussed by Cant [39]. According to Cant, the change sponsor will make or break the process. He or she is a well-respected member of the organization who will take ownership of the change program. His/her job is to influence and to chair the steering group. The steering group consists of stakeholders. Its role is to debate; it is the role of the change team to do the work. This team consists of a small number of active people with complementary skills. Cant also spoke of change agents, facilitators and mentors, leaders, and resisters.

Good communication between the persons implementing change and those affected by it is one of the most important factors of successful change processes [40]. Lucy Jaynes recommended beginning communications right at the outset of the program, making one person in the change team responsible, and developing a communication plan parallel to the project plan. She also stated that communication is about exchange, and that, e.g., feedback sessions with staff and user studies should be part of the communication plan. It is important to identify one's stakeholders, to understand one's audience, to determine the aim of one's communication efforts and its content, and, finally, to select the right medium. Jaynes also talked about face to face communication. Everyone was quite shocked to hear that, according to research, the effect of face to face communication is mainly determined by the initial appearance of the speaker (70%) and the way he/she presents his/her ideas (22%). What the speaker actually says only matters for 8%.

People are another crucial success factor for change processes [41]. Lucy Jaynes focused mainly on resistance: reasons for resistance, kinds of resistance, and managing resistance. She argued that it is important to achieve commitment rather than compliance. Some useful steps she gave, included the following:

- Allow space for the expression of regret and disagreement;
- Allow resisters to identify what has been gained from the old way of doing



things and what will be useful to carry forward into the 'new era';

- Look at the fears and concerns about the change;
- Encourage people to identify some positive spin-offs of the change initiative.

One of the other two issues Jeynes discussed was performance management, which is about communicating one's expectations to staff, equipping staff with the required skills, motivating and encouraging them, and measuring their performance. Finally, Jeynes talked about motivation and reward in general and about motivating oneself, the change manager, especially.

### *Case studies of change management in libraries*

Eugenie Prime, Manager of Corporate Libraries at Hewlett-Packard Company, gave a truly inspiring presentation about the importance of developing a vision for change [42], and illustrated this with examples from her own work at HP. Prime said, "the future is not what it used to be". Since nothing is predictable anymore, she asked why we should feel the need to plan. But then she argued that "planning is needed to shape [the] future," and "a vision gives the framework within which to make decisions." Strategic visioning is critical when the environment is dynamic and changing radically, which is the case for all libraries today. Planning is important because it defines a strategic meaning for the organization, it provides a common vocabulary and framework for discussing opportunities, options, decisions, and action plans, and finally, it pulls people towards a desired future. Prime talked about the characteristics of a good vision and the phases through which the strategic visioning process goes. She described a library's vision as a mental picture of one's library in the future. She also mentioned pitfalls to avoid. Some practical advice included the following:

- The particular vocabulary of an organization should be used to describe the vision;
- It is important that the vision is shared, so sometimes amending is required;
- One should know the stakeholders, and what keeps one's CEO or chancellor awake.

The second case study was presented by Lars Bjoernshauge, Director of Libraries at Lund University Libraries in Sweden [43]. Until 2001, Lund University had one university library, one big library for medicine, science, and engineering, and numerous faculty and departmental libraries, some 60 of which were without qualified staff and had inadequate opening hours. Currently, the library organization is in the beginning of a change process, the aims of which are to implement quality library services for students, teachers, and researchers, to develop electronic library services, and to focus on the demands and needs of the students. A choice was made for a decentralized library organization, or a network of libraries, with a minimum service level for all libraries in the network.

Daan Boom, Senior Knowledge Manager at KMPG, The Netherlands, presented the case of his Information & Research Center, which changed from a library to a knowledge management department [44]. He showed that organizational, IT, and digital library developments forced -- but also enabled -- his department to adopt new roles in content management, library management, research, information

management, and knowledge management. He also described several innovative products and services provided by his department.

The process of changing from a traditional library to a knowledge management department was also the subject of Linda Stoddart's case study [45]. Stoddart, currently Director of the Bureau of Library and Information Services of the International Labor Office (ILO) in Geneva, Switzerland, introduced knowledge management, and then focused on building a knowledge management strategy, perfectly illustrating the theoretical steps Michael Cant and Lucy Jeynes had described. Stoddart's practical advice included the following:

- Be at the heart of your organisation -- not just its support;
- Take the initiative -- don't expect to be invited;
- Play a role in managing the internal information and knowledge of the organization, for example, the intranet;
- Ensure that your own team is at the heart of the change process -- set an example for good management.

The final case study [46], presented by Hans Geleijnse, Director of Information Service and Systems at the European University Institute in Italy, was equally illustrative of the change management process. Geleijnse described the strategy for the development of a digital library at Tilburg University (where he used to be the librarian), and the change process at the library of the European University Institute (EUI). At Tilburg, the development strategy was closely connected with the university's strategy. It has contributed significantly to the positioning of the university. The involvement of the library staff and the changes in culture, attitudes, skills, and responsibilities can be identified as the most important success factors. The EUI library is at the beginning of a process of strategic and organizational change. The involvement of an international user community and a multinational staff in the development of a new strategic plan was discussed, and the various conditions for a successful implementation were identified. Geleijnse concluded with important recommendations for human resource management:

- Management should express clear views and ideas (a strategic plan can help, but the strategic planning process is also important);
- Library goals and objectives should be at the basis of the human resources plan;
- The digital library requires new skills of library staff, and staff level and skill should be continually upgraded;
- Staff involvement is one of the most critical issues: decentralize tasks and responsibilities;
- Stimulate open communication and a culture of change.

## **Conclusions from the International Summer School on the Digital Library**

Fundamental changes are occurring in society, education, technology and publishing. If academic/research libraries want to survive, they must also change. Libraries should, of course:

- Provide electronic access to scholarly material;
- Customize and personalize information services.

But, more importantly, they should:

- Experiment on distribution and business models together with publishers (preferably via library consortia, which should be more than just buying groups);
- Support universities and research communities to develop document servers and open archives for their own scientific output;
- Stimulate universities to change their cost allocation models in such a way that the library budget is centralized, and decisions about scientific information are no longer made by individual faculties.

With regard to education, libraries can and should:

- Support educators in the selection of adequate resources for a given course (digital libraries are natural complements to digital learning environments);
- Manage and index digital student portfolios and integrate them with other information resources offered by the library;
- Educate the future knowledge workers in traditional ways or via Internet-based instruction modules;
- Collaboratively design courses in multidisciplinary teams of experts;
- Provide a learning center: a physical learning environment suitable for more active learning styles.

To achieve this, libraries should not only cooperate with each other, but also with publishers, university administrators and faculty. Flexible and user-oriented vision and strategy are needed. Change should be embraced. Sound knowledge of the theories and practical techniques of change management can help.

## **Further Information about the International Summer School on the Digital Library**

### ***Papers:***

Papers written by the lecturers and included in the reference section can be ordered via Interlibrary Loan from the Tilburg University library at <http://www.kub.nl/bibliotheek/> or from other libraries that acquired the complete course packs.

### ***Course packs:***

The complete course packs with all papers can be ordered at  
<<http://www.ticer.nl/summer02/form.htm>>.

### ***Reports about the summer school courses:***

Other reports about the summer school courses (mainly written by participants) can be found via  
<<http://www.ticer.nl/summer01/publicat/litlist.htm>>

### ***Ticer B.V.***

Ticer, or the Tilburg Innovation Centre for Electronic Resources, is a private company owned by Tilburg University. Ticer offers consultancy, and organizes courses and seminars in the fields of digital libraries and ICT infrastructure. For more information, see the web site at  
<<http://www.ticer.nl/>>.

### ***Future Ticer courses***

In 2002, the International Summer School on the Digital Library will be held for the seventh consecutive year. Ticer will also organize a digital library course for librarians in science and technology at CERN in Geneva: the International Spring School on the Digital Library and E-publishing for Science and Technology <<http://www.ticer.nl/spring02/>>. Ticer also plans courses in Seoul, Tokyo, Bielefeld and South Africa. If you would like to receive information about Ticer courses, please send an email with your full address to <[ticer@kub.nl](mailto:ticer@kub.nl)>, or regularly check Ticer's website at <<http://www.ticer.nl/>>.

## **References**

- [1] Changes in Higher Education and the Importance of ICT / Anneke Eurelings. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.1.1-1.5
- [2] Digital Libraries and Education : Trends and Opportunities / Hans Roes. - In: *D-Lib Magazine*, vol.7, no.7/8, July/August 2001.  
<<http://www.dlib.org/dlib/july01/roes/07roes.html>>
- [3] Digital Libraries as Learning Tools / Joseph Janes. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.3.1-3.6
- [4] An Intellectual History of the Internet Public Library / Joseph Janes. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.4.1-4.20
- [5] The ResIDe Electronic Library : An Electronic Reserve for a New Learning Environment / Christine Dugdale. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.5.1-5.18

[6] Project ANGEL : The VLE and the Library / John MacColl and John Paschoud. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.7.1-7.19

[7] Information Literacy : History, Assessment and Breaking Developments / Patricia Davitt Maughan. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.10.1-10.11

[8] TILT as a Model of Interactive, Online Library Instruction / Elizabeth Dupuis. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.11.1-11.5

[9] DEsite : Cooperative Course Design and Tilburg University / Eddy De Smijter and Pieter Jan Boon. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.6.1-6.6

[10] The University of Bath Library and Learning Centre : Lessons from the Past and for the Future / Howard Nicholson. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.9.1-9.8

[11] Information and communications technology in academic library buildings / prepared by Andrew McDonald, Vilas Edwards, Rhil Range and Dave Webster. - London : SCONUL, 2000. - 18 pp. - (SCONUL Briefing Paper)

[12] Lessons Learned from Distance Education / Linda C. Smith. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.13.1-13.7

[13] Starting over : Re-skilling Librarians and Establishing their Future in the End-user Environment / by Richard Biddiscombe. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.12.1-12.12

[14] Building Faculty-Librarian Partnerships for Information Literacy / by Hannelore B. Rader. - In: International Summer School on the Digital Library : Week 2: Digital Libraries and the Changing World of Education : 5 August - 10 August, 2001. - Tilburg: Ticer B.V., 2001, p.14.1-14.10

[15] Electronic Publishing of Scholarly Scientific Information : An Overview of Developments and Key Issues / by Hans Geleijnse. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.1.1-1.18

[16] Consortia vs. Reform : Creating Congruence / by Margaret Landesmann and Johann van Reenen. - In: *The Journal of Electronic Publishing*, vol.6, no.2, December 2000. - <<http://www.press.umich.edu/jep/06-02/landesman.html>>

[17] IT and Electronic Publishing : Issues, Trends and Developments / by Teun

Nijssen. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.2.1-2.11

[18] Reclaiming Academic Output Through University Archive Servers / by Maarten van Bentum, Renze Brandsma, Thomas Place and Hans Roes. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.3.1-3.10 (submitted to the New Review of Information Networking, August 2001)

[19] Surfing the Third Wave : The Added Value of a Publisher in a Changing World / by Jonathan Clark. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.4.1-4.10

[20] The New Value Proposition : Questia Media, Inc. and its Business Model for Electronic Full-Text / by Carol Ann Hughes. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.5.1-5.8

[21] Effective Change through Competition : The Evolving Scholarly Communications Marketplace / by Richard K. Johnson. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.6.1-6.5

[22] Pricing Models : Past, Present, and Future? / by David Stern. - In: *The Serials Librarian*, vol.36, no.1/2, 1999, p.301-319

[23] Copyright and Licensing in the Digital Age / by Emanuella Giavarra. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.8a.1-8a.18

[24] Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society . - In: Official Journal L 167, 22/06/2001 P.0010-0019 (see in the list on <[http://europa.eu.int/comm/internal\\_market/en/intprop/docs/](http://europa.eu.int/comm/internal_market/en/intprop/docs/)>)

[25] UK Experiences with Consortia and Licensing / by Frederick J. Friend. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.9.1-9.6

[26] US Consortial Licensing : Good Lessons, Hard Lessons, Warning Lessons / by David F. Kohl. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.10.1-10.10

[27] A New Value Chain for Scientific Information / by Hans E. Roosendaal, Peter A.Th.M. Geurts, and Paul van der Vet. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.12.1-12.3

[28] Scientific Communication and its Relevance to Research Policy / by Hans E. Roosendaal and Peter A.Th.M. Geurts. - In: *Scientometrics*, vol.44, no.3, 1999, p.507-519

[29] Negotiation and Digital Collections / by Alicia Wise. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.13a.1-13a.13

[30] Collection Development Policy for the DNER / JISC's Committee on Electronic Information (JCEI) Content Working Group (CWG), Version 2.0, June 20, 2001. - <[http://www.jisc.ac.uk/dner/collections/coldev\\_policy.htm](http://www.jisc.ac.uk/dner/collections/coldev_policy.htm)>

[31] Open Linking in the Scholarly Information Environment Using the OpenURL Framework / by Herbert Van de Sompel and Oren Beit-Arie. - In: *D-Lib Magazine*, vol.7, no.3, March 2001. - <<http://www.dlib.org/dlib/march01/vandesompel/03vandesompel.html>>

[32] Decomate : Unified Access to Globally Distributed Libraries / by Thomas Place and Jeroen Hoppenbrouwers. - In: *Research and Advanced Technology for Digital Libraries : 4th European Conference, ECDL 2000, Lisbon, Portugal, September 2000 : Proceedings* / ed. By J. Borbinha and T. Baker. - Berlin; Heidelberg : Springer-Verlag, 2000. - Lecture Notes in Computer Science; vol.1923. - p.467-470

[33] The Open Archives Initiative : Building a Low-Barrier Interoperability Framework / by Carl Lagoze and Herbert Van de Sompel. - In: *Proceedings of the First ACM/IEEE-CS Joint Conference on Digital Libraries*. - New York, NY : ACM, 2001. - p.54-62

[34] Digital Archiving and Preservation / Johan Steenbakkens. - In: International Summer School on the Digital Library : Week 3: Electronic Publishing : 7 October - 12 October 2001. - Tilburg: Ticer B.V., 2001, p.17.1-17.10

[35] Taking the British Library forward in the Twenty-first Century / by Lynne Brindley. - In: *D-Lib Magazine*, vol.6, no.11, November 2000. - <<http://www.dlib.org/dlib/november00/brindley/11brindley.html>>

[36] The Context for Change / Lynne J. Brindley. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. - Tilburg: Ticer B.V., 2001, p.1.1-1.11

[37] Understanding and Managing Change in the 21st Century / Michael Cant. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. - Tilburg: Ticer B.V., 2001, p.4.1-4.21

[38] Key Steps in Change Management / Lucy Jeynes. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. - Tilburg: Ticer B.V., 2001, p.5.1-5.14

[39] Key Roles in the Change Process / Michael Cant. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. - Tilburg: Ticer B.V., 2001, p.6.1-6.14

[40] Communications in Change Management / Lucy Jeynes. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. - Tilburg: Ticer B.V., 2001, p.8.1-8.13

[41] People and Change / Lucy Jeynes. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. -

Tilburg: Ticer B.V., 2001, p.10.1-10.13

[42] Strategic Planning/Visioning in a Time of Turbulent Change / Eugenie Prime. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. - Tilburg: Ticer B.V., 2001, p.2.1-2.4

[43] Implementing Change Processes in a Decentralised Library Environment : Recent Redesign of the Organisation of Library and Information Services at Lund University, Sweden / by Lars Bjoernshauge. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. - Tilburg: Ticer B.V., 2001, p.7.1-7.7

[44] Changing Role of Information Professionals : KPMG Case: One Firm Research Services / Daan Boom. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. - Tilburg: Ticer B.V., 2001, p.9.1-9.3

[45] Managing Intranets to Encourage Knowledge Sharing : Opportunities and Constraints / Linda Stoddart. - *Online Information Review*, vol.25, no.1, 2001, p.19-28

[46] Change Management and the Development of a Digital Library : Case Studies: Tilburg University and the European University Institute / Hans Geleijnse. - In: International Summer School on the Digital Library : Week 1: The Management of Change : 30 July - 3 August, 2001. - Tilburg: Ticer B.V., 2001, p.12.1-12.16

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