# E-Libraries Management and Consortia: new services to improve information access

## Literature review

**Joseph F. Rogani**

**MODULE BP 100**

**MA/MSc Information Studies**
**University of Northumbria – Newcastle**
**Università degli Studi – Parma**

***Keywords**: license, usage, access, storage, longevity, knowledge transferring, multimedia, security, transaction, contract, money, service, public, affiliate, user training, interoperability, digital, digitalization, co-operation, collection management, collection management, information need, projects, change management.*

As many people will remember, in 1945 Vannevar Bush first talked about his *Memex*: a system able to memorize every book and document so that one could freely retrieve them also in future times. That was the first idea of "multimedia" and its first application dates back to 1965, when Ted Nelson introduced his Xanadu, a project that until now hasn't been developed. Multimedia libraries, today, are those which have documents in different formats, while, just because of new formats of documents and new needs from different users, more and more libraries are turning digital: many of them directly see the light as "digital libraries", managing different kind of "objects", that contain or are themselves information.

The idea to share information and to spread it everywhere, which found its "technological" promoter in V. Bush, had already been got somehow by those first libraries in the U.S., where, just in the 1880s, libraries started working together to share their collections **[1]**.

In 1886, the *Library Journal* published an article by Melvil Dewey about "library co-operation", while a year earlier E.A. Mac had presented, in the same journal, his views on "Co-operation versus competition". **[2]**

In 1939, during the symposium organized by the ALA and called The Library of Tomorrow, R.B. Downs expressed his futuristic view of library co-operation in a paper entitled: "*One for all: a historical sketch of library co-operation, 1930-1970*". His study was so greatly appreciated that in 1970 the US Office of Education commissioned the System Development Corporation (SDC) to carry out a nation-wide study of academic library consortia. The aim of this study was to gather as much information as possible about the activities of academic library consortia providing guidance to those libraries that were forming, or planning to form, consortia. The published results demonstrated that the main reason to form consortia was the possibility to share and improve resources while one of the last ones was to reduce costs

Later on, in the 1900s, the Library of Congress started a cataloguing project according to which it provided cataloguing for participating libraries. Between the late 1960s and the early 1970s, consortia in US began to flourish: not only students at one university could enjoy resources at another, but also libraries of different types started to band together to form a cooperative entity, also thanks to automation, which then was going to see the light. Actually, automation is a very important purpose in this landscape, giving the chance of creating large databases, which can be accessed from remote positions in a variety of ways. Like this, users will have a great deal of information available, sometimes within free consortia and most of the times, instead, charging users for membership.

Then, it was in the mid-1990s that leaders of individual consortia in the U.S. started some informal meetings, which later led to the foundation of ICOLC, the International Coalition of Library Consortia. The aim was, and still is, to create a link between consortia and vendors. Today we also hear of "super consortium" which is intended to focus on a specific purpose, in particular dealing with the acquisition of expensive electronic products to serve a large number of researchers.

One of the concepts underlying the idea of a consortium, I think, is also the possibility to give access to a great deal of information to a great deal of potential users. It is true that

most of this information is limited to affiliated users: but it is also true that many could be the ways to turn this information completely public. And this is, as we know, one of the main purposes of libraries. The idea is not new. In fact **[3]**, due to the increased desire for higher education and more information in general, unaffiliated users during the 1960s in the U.S., started to press academic libraries asking for public access, also considered that many public libraries could not manage the big flows of users, who kept growing in number because of the increase in population.

Later on, during the 1980s, at the beginning of automation, the need to serve the general public was still there, while another tool was seeing the light: online database searching, which provided faster and more convenient access to traditional abstracts and indexes and, what is more, access to databases which did not exist in printed form.

Today, libraries, especially the academic ones, must take into consideration the tendency to massively use the new technologies, WWW included. At the same time, co-operation and integration of resources are strategic tools to manage global information. In fact, adopting the new electronic technologies improves the interoperability among documentation networks and heterogeneous systems, so that to create a network of relationships with other institutions, gaining more complete information.

Actually, interoperability means the ability of a system, or product, to operate in combination with other systems or products without asking the users for special efforts. According to Paul Gabriele Weston[*], interoperability means being actively involved in the process needed to assure that systems, procedures and the culture of an organization are managed so that to maximize interchange and re-utilization of information.

The final result of any research is content **[4]**. Many of the electronic resources are disseminated in Web sites, which have shown not to be reliable resources in many cases. Information integration is needed and it will be possible only making library resources function together as a cohesive unit. Peer-reviewed content is an indicator of the quality of scholarly materials contained in databases as well as comparing electronic content to print materials already held in the library. Though, it is important to accurately consider the possibility to cancel print subscriptions in favour of database access, since it happens many times that a vendor is forced to reconsider its license agreement with the aggregator because of a scarce revenue from the on line version of its journals. As ICOLC states, "***The use of licensed electronic information resources will continue to expand and in some cases become the sole or dominant means of access to content***", making clear that the measurement of the use of these resources is improved by the electronic environment. It is now possible to exploit the great amount of information kept by the many aggregated databases available, which, apart from periodical content, includes encyclopaedias, dictionaries, biographies and more. All now available through *cross-reference* tools, often offered by the same vendor, which give the user the possibility to search simultaneously in different databases.

The problem of licenses and the concept of copyright are particular ones when applied to electronic resources. The US National Information Infrastructure Working Group on Copyright, while giving a glance at electronic information, prefers to talk about licenses and contracts, which are more and more invading the field of information interchange. The concept of "copyright" **[5]**, actually, is usually associated to something you can physically perceive, like in the case of a printed book. At the beginning, the copyright was linked to the early printing technologies in two ways. That is, on the one hand, whoever used a printing press to violate copyright could be punished with the confiscation of what had been produced; on the other, high-speed printing press enhanced the power of copyright.

[*] Biblioteca Apostolica Vaticana

This way, the author could see his production printed in many copies and the publisher could rely on a great portion of the publication revenue.

It's easy to understand how copyright could be easily disregarded with the modern technologies. However, the U.S. Copyright Act, for example, states that copyright begins from the moment of creation, when the work is "fixed in a tangible medium of expression". You are supposed, so, not to use that work in a way that could damage the author. Among these media, I wonder, what place do electronic journals occupy exactly? If you have a book on your shelves at home, do you really own it? You probably own the physical object, but content is protected by copyright

Problems arise now that much of that content is available in networked electronic forms: actually, publishers feel they lose control the moment when someone simply forwards through e-mail, say, the content of an article. Then, as Ann Okerson says, just a few years ago, many libraries had to take the risk of seeing the information acquired be taken away, once the payment of the "leasing" of the information itself was ceased.

Today, many are the cases where libraries are guaranteed to have continued access to electronic full text databases thanks to consortia, that, in most cases, are run by a central unit that anticipate payment when some of the affiliated libraries cannot afford a payment immediately.

The electronic library is evolving: it is no more just an automated library but an organised centre where information and documents are managed and distributed. As regards the copyright problem, the European Parliament **[6]** has clearly stated that the exclusive right to reproduce a piece of work is not applied to temporary reproductions, like those due to the cache memory of a computer. Furthermore, in case of public utility, the member states can apply exceptions and limits to the exclusive right of reproduction and communication (but not to the distribution right). It has been seen that it's easier to do contracts with the big providers of databases within a national context and not charging just local entities or single libraries. The consortium seems to be the best solution: libraries are so able to achieve a heavier contact power. It must not be forgotten that universities and research centres, which are the actual founders of the researches whose results are then published by commercial editors, should at least share the copyright, in order to avoid the risk of paying twice for a research.

A consortium is an aggregation that aims at co-operation. Actually, nowadays, every kind of business has a "global" connotation **[7]**. Globalisation wants partnerships at all levels, especially if you consider the technological innovation process with all related implications, like research, the achievement of "total quality". In fact, the global technological process can't be afforded by just one enterprise but it requires the co-operation of many actors to keep the quality level high.

While at the beginning, consortia supported the automation process of affiliated libraries, they are now interested in different things, like the digitalization of old documents, resource sharing, licenses negotiations and more. You can start a consortium deciding whether to share all resources or just traditional or electronic ones. The partners can be libraries, university institutions and different entities.

Today, **[8]** there are two main reasons for the formation of consortia:

- The sharing of existing physical resources

- The purpose of identifying and addressing common needs arising from developments in Information Technology.

Many new consortia are growing worldwide, most of which mainly focused on electronic resources and reasons are that:

- Libraries can have a common interest in co-operative projects that will benefit all students and faculty of the related institutions;
- The Internet and the WWW give a chance to improve library services;
- Costs are controlled and regional storage facilities are provided;

These goals result from certain imperatives that libraries are now facing:

- Financial shortcuts
- Changing in publishing industry
- Rapid growth of information technology
- Need to gain total quality of services

As regards licenses negotiations, there are already different international consortia: Consorcia de Bibliotheques Universitairese de Catalunya, UK Pilot Site License Initiative, OhaioLINK (that has a section dedicated to document delivery) and NESLI (National Electronic Site License Initiative).

One of the problems libraries are facing more and more is that of data storage: it's evident that the storage of a digitised document has different characteristics from that of a traditional one. So, the media supposed to keep information must provide it with a longer life and more stability.

In Italy, the word co-operation appeared in the language of librarians just in the mid-70s when some "territorial library systems" began to appear **[9]**. Only in later years, the word "co-operation" was more and more associated with the automation process of libraries. The most important project since then is SBN, whose catalogue, collecting many national documents, university and research institutes libraries as well as local-authority is now available through the Internet. SBN can be considered a *de facto* consortium: though, funding for developing the systems and network administration comes from the central government.

Important co-operation projects, in particular digital ones, are the Italian periodicals catalogue promoted by the National Research Council (CNR) and those activities related to digital collections, like the ones carried on by CIBIT (the Italian Inter-university Library Centre for the Italian Telematic Library), where many works in Italian are digitised, archived and put online. Some other important co-operation projects are the description and administration of electronic resources, like ESSPER, dealing with Italian economics periodicals, the Inter-university Consortium for Automation (CILEA) in Milan and CINECA, another important inter-university consortium.

In Rome, CASPUR (the university computer consortium) among other projects provides with its services also many libraries not in the consortium.

As it seems clear, most of the initiatives for digital co-operation come from the academic and the research fields and cases are not rare where libraries prefer a decentralized co-operation for fear of losing autonomy and efficiency. In Italy we can't forget INFER, the Italian National Forum on Electronic Resources, which aims at facilitating dialogue and mutual collaboration between libraries and all others as regards knowledge production and distribution, keeping itself in touch with other similar initiatives

in other countries. INFER has also provided libraries with an agreement protocol **[10]** according to which licenses for the access to electronic documentation are negotiated. This protocol starts by defining the terminology:

- Producer, is the owner of the rights on the e-resource
- Distributor, is the intermediate agent who gives the product
- Contracting party, is the University, the Library, the Consortia
- Product, is the electronic publication, the kind of support, the search interface

Together with the above distinction, INFER also gives detailed information about the conditions of the contract, the permitted activities and the forbidden ones, the reciprocal promises, the duration and resolution of the contract as well as the applicable legislation and final observation.

Library consortia are also a sign that libraries are changing. As it is known, libraries generally have stable budgets, which must now find a balance between the need to purchase print material and the new demand for electronic resources. Also at the organizational level, libraries are more and more keen to accept team management rather than hierarchical structures **[11]**.

Furthermore, the new Web Technology forces libraries to think about how to create digital libraries and how to better develop Web portal interfaces. In these cases, consortia can actually help libraries to choose the best purchasing options as well as to analyse the quality of resources. So, what are important are not just cost but libraries' improvement in terms of total quality, in terms of change management. As regards large consortia, they generally aggregate information and obtain state funds to purchase information. Consortia, help libraries better manage changes by analysing the quality of the content from various providers and by serving as aggregators for member libraries.

Part of this change started in the past, when needs of different kinds pushed libraries to aim at a consortium co-operation. Some of the early consortia served libraries in the search for items not owned locally, others were more concerned with document delivery.

In America **[12]**, today many consortia opt to aggregate their catalogues as union or virtual catalogues. The expectation, while selecting either the virtual or union catalogue option, is that the catalogue will offer an option to integrate resource sharing, interoperate with other systems and link to external databases and resources. The difference between virtual and union catalogue is that the former links the different catalogues of the members while the latter is the unifying catalogue among the consortia's members, which combines the resources of consortia members, like MELVIL, which is a centralized database representing the cataloguing from libraries that participate in the California Digital Library.

Another interesting initiative is The Boston Library Consortium (BLC) composed of 16 academic and research libraries in Massachusetts and Rhode Island. The project links the many catalogues of the BLC with those of the Massachussets Automated Resource Sharing Networks. In total, about 56 million items are searchable thanks to an emulated interoperability. This, thanks to a software, URSA, which simultaneously searches across disparate integrated library systems. At a local level, catalogues are searched using the Z39.50 protocol.

Interoperability, so, is a crucial issue for digital libraries **[13]**, which can exchange and share documents, queries and services. Of course, interoperability will result more difficult for digital libraries compared to traditional ones. In fact, digital libraries generally provide more services, like sophisticated search engines and the ability to browse a great deal of material quickly. From a strictly technical point of view, interoperability can exist

thanks to different levels of abstraction which are referred to as interoperability layers, from the transport of digital bits along a network, to the “middleware” where bits are finally transformed and delivered to the proper place thanks to various protocols, like the above mentioned Z39.50 or HTTP or CORBA.

In Italy, there is much concern about the dissemination of electronic resources, as the work of INFER (Italian National Forum on Electronic Resources) shows **[14]**. In the phase of transition towards the global information world, the Italian libraries have found themselves weak, against those editors of electronic information who have taken advantage of their position to impose very high prices and very restrictive rules for users. INFER is convinced that it is necessary to let every actor of this transformation process benefit from the opportunities given by the new information society. It is for this reason that it promotes links among consortia initiatives, also considered that consortia experiences abroad have demonstrated that, both political and financial support from institutions, and is very important for the success of consortia.

So, alliances are very important for libraries if they want to survive in the present information era. Relationships are needed with editors, information providers and, mostly, with other libraries. Actually, the new consortia exploit the Information Technology tools, which help eliminate the limits previously encountered by the bibliographic network **[15]**. Today, thanks to the Web, it is possible to access virtual and single catalogues. Main aim of today’s consortia is to assure a quantifiable saving to the affiliated library or, what is nowadays more important, to get more and better services with the same expense.

It is clear that reasons for the creation of a consortium can be really varied. However, cost reduction, OPACs’ integration with the electronic documents delivery, and the acquisition of a national and international power on different themes, copyright included, are the main reasons for which a consortium exists.

As said before, editors have always taken advantage of the electronic environment to set strict limits to the use of information and consortia try to create an equilibrium between commercial interests and the needs of those who use the information provided for study and research reasons.

Consortia should also carry on projects to digitise rare documents and to create new databases. Furthermore, since the storage of digital information is more complicated than the traditional one, consortia will also negotiate the storage as part of the license. And just the coordinated management of licenses is the most important element of consortia. Of course, final aim is also the sharing of resources, a field where university libraries are more active: think about OhioLink, a consortium composed of 56 university libraries which have state funding; Palci (Pennsylvania Academic Library Connection Initiative) which is a local federation of 38 libraries; and CIC (Committee on Institutional Co-operation) that is a federation of 12 universities with 13 libraries.

In particular, as regards OhioLINK, in the mid-1980s, facing the need for additional library accommodation, state-supported higher institutions in Ohio proposed a co-operative network that would include a shared central catalogue with local sub-systems. The management of this consortium remains with the universities, despite the state funding. **[16]**

This consortium gathers higher institutions whose main focus is sharing electronic access. Thanks to a union catalogue for holding, customers can search and request materials not available locally from remote databases. Then, materials are usually delivered within 48 hours through a contracted 24-hour delivery service.

Some services, however, overlap, such as the inter-library loan, while others are unique to regional systems, especially in the continuing education sector. **[17].** Ohio’s seven regional library systems, in fact, serve 314 libraries in 64 of Ohio’s 88 counties. All of the systems deal with continuing education, technology and training as well as resource

sharing. Furthermore, their services are tailored to meet local needs. Many libraries, however, no matter how networks have developed, are still bound to serve their local communities in relation to their physical structures.

According to Schneider's study, most libraries joined their library systems in the 1970s and 1980s, in particular "to promote multiple library co-operation". Other main reasons were inter-library loan and continuing education services. The research found out that even though OhioLink is an important presence in academic libraries, regional library systems still offer services that cannot be duplicated, being their mission different from that of OhioLink.

Important consortia projects in UK are CURL, the Consortium of University Research Libraries, regarding the major British university that saw their computer centres linked to share information, thanks to JANET, the Joint Academic Network. Actually, the sharing of catalogueing information and the costs of developing electronic library resources, have been sensibly improved by the existence of consortia.

Co-operation is present at various levels and in most areas of library services: examples are joint storage facilities and inter-library loans, as well as reciprocal access for users. Nowadays, electronic data are expanding more and more and this, together with the improvements in telecommunications, makes co-operative activities increasingly important. Just think about the simple possibility to fax a journal article to the requester or the more interesting possibility to download articles from a database on the net.

Though an important reason for co-operation is collection development, considered that a single library can't own everything, many are aware that a more compelling reason is financial. In fact, budgets are often limited. However, main goals are to reduce duplication in holdings, to achieve better understanding of collection management, to coordinate future collection management decision as well as to acquire joint site licenses for shared databases. Nonetheless, there are also many barriers to co-operation, like the will to succeed, a desire for autonomy, a competitive environment and financial constraints. In particular, in academic faculties there may be the fear that sharing resources could lead to the loss of the personal program's reputation. Many academics in Britain, Australia and New Zealand, for instance, pose many negative words towards the question of co-operation. However, the innovations of Information Technology are playing a very important role: storage, retrieval and preservation of electronic formats, are more and more reliable, even if they don't seem to be always cheaper.

For a quality service, libraries that intend to cooperate must seek a matching between collective needs and local requirements. Furthermore, resource-sharing agreements lead to savings on the cost of individual items and subscriptions, as well as savings in terms of material processing and maintenance and technology costs. Actually, though saving money is not the only reason for choosing consortia, this form of aggregation should result in substantial financial savings.

Quality is also important. The more librarians know the criteria for selecting quality materials, the more the consortium will be rich.

Consortia, so, represent the future for co-operation; an increasing number of publishers, vendors and aggregators are negotiating consortia agreements. Thanks to consortia, the focus is not on repositories of information any more but to gateways to information, like portals, which give "access" to information. Especially because of the growing inability of libraries to own whatever is required, libraries now choose access, even if this has often been left in recent past as the option for more peripheral materials.

In Spain, 8 Catalan universities and the Biblioteca de Catalunya, have set the CBUC, a consortium that was created to face the spreading of international consortia in the mid of 90 **[18]**. The first result of this consortium is the CCUC, that is the collective catalogue of

the universities of Catalunya that gives access to more than 3 million and 3 hundred physical documents store in 120 libraries. For those libraries belonging to the CBUC (Consorci de biblioteques universitàries de Catalunya), there is a particular agreement that facilitates the loan and the inter-library loan with other institutes. Together with this "traditional" way of diffusing knowledge, it is also interesting to note the creation of the Biblioteca digital de Catalunya: all users from CBUC can enjoy a great deal of electronic resources.

It's no doubt that, today; libraries risk losing more and more their own capability to purchase new documents, due to the many cuts in funding. As a consequence, the chance of offering new resources and services diminishes. In order to face these problems, many libraries have started to create cooperative associations and, at the same time, the system of scientific communication is being reformed. It must be said, however, that consortia allow obtaining many more resources at the best price but, at the same time, it is necessary to change all the system of scientific editing.

Creating licensing consortia turns out to be the main strategy in joining forces. These consortia can be countrywide, statewide, regional or local amongst a certain type of library and their main aim is to share the burden of the work and the licensing costs. Recently, in The Netherlands, several Dutch research libraries issued a joint document warning publishers that they have collectively adopted a set of principles to guide them in future negotiations over electronic journals.

Similarly, ICOLC, which includes 52 libraries, invited publishers to re-evaluate their journal pricing policies, asking libraries to launch their own non-profit publishing ventures collectively and, at the same time, supporting those that do.

Today, by subscribing to electronic journals, libraries still have to face the "journal crisis", since they cannot reduce costs **[19]**. In fact, prices keep increasing, varying from 7% to 15% a year.

In the summer of 1997, a set of Licensing Principles, entitled "Guidelines and Checklists for Libraries", was published by Hans Geleynse, Chief Librarian of the Catholic University Brabant (The Netherlands) and Elmar Mittler, the chief librarian of the State and University Libray Gottingen (Germany). Such a draft played an important role in the initiatives that followed, included a European version of the Licensing principles, presented by LIBER (Ligue des Bibliothèques Europeennes de Recherche) at its Annual General Conference in Paris in 1998. According to these principles, libraries, for instance:

> Should be able to give a wide-ranging and unrestricted access to electronic information to their users;
>
> - Will make fair use of e-info
>
> While publishers:
>
> - Should arrange stipulations preventing libraries from cancelling subscriptions.
> - Should keep prices low, not exceeding, however, 80% of the printing subscription price, if a library wants to subscribe to the electronic version exclusively. Today, in fact, some publishers seem to try to put an obstacle to the spreading of information access, asking for additional fees for electronic access.

Many others are the principles dealing with access and use, storage, formats and integration, services and costs, information on use,

Today's digital technology allows us to represent, archive, reproduce and transmit forms, colours and sounds of any kind and the future scenario is to be found in the convergence of computer, television and telecommunications. Just to keep themselves within this new scenario, libraries have joined many initiatives in North Europe, North America and Australia. Its' just the case to remember that in 1997, the British Government diffused an important document dealing with the role of public libraries in the Information Society, entitled *New Libray: the people's network*. In this document it is proposed to create a network of services and the arrangement of a centralised agency for copyright management and licenses negotiations.

The United States seem to be at the cutting edge of co-operation: early in 1994, an important project, **JSTOR**, started with the collaboration of the Mellon Foundation in order to develop a system for digital conversion, archiviation and access to serials, founding its basis on the co-operation among the main British libraries and editors. Another important project is the **Digital Library Initiative**, which associates some of the most important American Universities. Both these project are characterized by some important aspects:

- The government initiative
- The inclusion, in the projects, of the major research laboratories
- The trend to expand co-operation outside the national borders.

In the Information Society, the Digital Library is a Key element **[20]**. Since the Web makes it difficult to understand exactly the relations among authors, users, distributors and aggregators of information, it is necessary to think about a structure that tends to:

- find out if the Web contains what we are looking for
- make agreements on the use of it
- buy just what we are interested in and have selected

Within this entire framework, it is clear how important the electronic publishing is, involving every aspect of scientific and academic communication. New business models are required and both editors and libraries will have to understand the ever-changing needs of users, who are becoming more and more asking. The university publications will probably find a place in the library web servers and librarians will help to organize the great deal of information.

Libraries, so, will provide users with access to the increasing digital resources also thanks to international consortia policies. It is also important to notice how, while making their catalogues available online, libraries are involved in Business-to-Consumer transactions as well as in Business-to-Business transactions, with databases, serials, and book suppliers. E-business strategies also apply when libraries are seeking funding and sponsorship for specific initiatives from corporations.

# Bibliography

**[1]** Bostick, Sharon L. *The History and Development of Academic Library Consortia in the United States: An Overview.* In The Journal of Academic Librarianship, vol.27. n.1

**[2]** Nfila Reason Baathuli & Darko-Ampem Kwasi. *Developments in academic consortia from the 19960 through to 2000: a review of the literature.*

**[3]** Courteney, Nancy. *Barbarians at the Gates: A Half-Century of Unaffiliated Users in Academic Libraries*. In The Journal ofAcademic Librarianship, vol.27, n.6, nov.2001

**[4]** Brooks, Sam. *Integration of Information resources and Collection Development Strategy*. In The Journal of Academic Librarianship, july 2001

**[5]** Okerson, Ann S. *Buy or Lease? Two models for Scholarly Information at the End of an Era*. In Daedalus. Journal of the American Academy of Arts and Sciences, fall 1996. vol.125 n.4 pp.55-76

**[6]** Bucchioni, Cinzia e Ortigari, Anna. *Le biblioteche nell'era elettronica: una gestione possibile*. In Bibliotime, anno II, numero 2, luglio 1999.

**[7]** Foglio, Antonio. *Alleanze strategiche per l'impresa. Scegliere e gestire le alleanze vincenti*. Franco Angeli, 1996

**[8]** Khol, D. *OhioLink: a vision for the 21st century*. In Library HiTech, n.12, 1994

**[9]** Giordano, Tommaso. *Digital Resources Sharing and Library Consortia in Italy*. In Information Technology and Libraries vol.19, n.2.

**[10]** *Negoziazione delle licenze per l'accesso alla documentazione elettronica. Principi (o linee guida) elaborati da INFER*. In http://www.uniroma1.it/infer/protocollo.html

**[11]** Hirshon, Arnold. *Libraries, Consortia, and Change Management*. In The Journal of Academic Librarianship, vol. 25, n.2, pages 124-126.

**[12]** Preece, Barbara. *Union and Virtual Catalogues in a Consortial Environment*. In The Journal of Academic Librarianship, vol. 27, n.6.

**[13]** EU-NSF Digital Library Working Group on Interoperability between Digital Libraries: Position Paper.In http://www.iei.pi.cnr.it/DELOS/NSF/interop.htm

**[14]** Giordano Tommaso*. INFER: Osservatorio italiano sulla cooperazione per le risorse informative*. In AIB Notizie, 11/2000.

**[15]** Tammaro Anna Maria. Consorzi di biblioteche: la cooperazione non è più un mito. In Biblioteche Oggi, Marzo 1999

**[16]** Clayton, Peter and Gorman G.E. *Managing Information Resources in Libraries*. Library Association Publishing, 2001

**[17]** Schneider, Tina M*. Academic Libraries and Regional Library Systems: how do they stand today?* In The Journal of Academic Librarianship, Vol.28, nmb.3, pages 141-146.

**[18]** Anglada, Lluis M e Comellas Nuria. *Reti, cataloguehi collettivi e consorzi in Spagna : l'esperienza del Consorci de Biblioteques universitàries de Catalunya*.In

**[19]** Klugkist, Alex C.  et al. *LIBER Licensing Principles for Electronic Information*. In The Journal of Academic Librarianship, vol.26, number 3, pages 199-201.

**[20]** Tammaro, Anna Maria. *Una strategia per la Digital Library*. In http://www.storia.unifi.it/_storinforma/guest99/tammaro.htm