

## CHAPTER 12

# Rules and Tools Behind the Scene: The Library's Role in Knowledge Sharing

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### Introduction

Since the start of the massive use of the Web in the mid 1990s, the way we carry out our work in research and development has changed markedly. These changes have given rise to speculations about the future role of libraries. Some people predicted a diminishing role, claiming that most scientific literature soon would be available electronically via the Web, and that powerful search engines, such as Google or Altavista, would make obsolete the classifying and indexing work done by librarians and other information management (IM) professionals. However, most research librarians have taken quick advantage of the changes, and have embraced the Web as a platform to reach a broader audience with better and more efficient services. Moreover, librarians and other IM professionals are increasingly assuming new roles and responsibilities, and their skills in organizing large amounts of data for specific user groups are in high demand, thus making them attractive members on multi-disciplinary knowledge teams (Klugkist, 2001). This short chapter attempts to shed some light on the evolving role of libraries in the Information and Knowledge Era.

### Libraries and the Web—Predictions and Realities

Predictions made about the possible diminishing roles of research libraries have not come true (Weston, 2002). Some of the predictions are reviewed below and contrasted with realities.

#### ***Predictions***

***Most scientific literature will soon be available online.*** Large publishing houses have moved quickly towards making their journals

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accessible via the Web. To date, about 20,000 scientific journals are accessible online, of an estimated total of 200,000 (Harnad, 2003). Online full-text access is usually provided for the most recent volumes and years, although a few publishers are making efforts to scan historic collections for online accessibility. Smaller publishing houses are catching up only slowly, particularly in developing countries. The International Network for the Availability of Scientific Publication (INASP; [www.inasp.info/ajol/](http://www.inasp.info/ajol/)) has provided valuable help enabling access to currently 160 African journals (mainly table-of-contents and abstracts, and accompanying them with document delivery services). The Scientific Electronic Library Online (SciELO; [www.scielo.org](http://www.scielo.org)) also facilitates free full-text access to about 100 peer-reviewed Latin American scientific journals.

Many publishers provide initial free trial access to their journals, but soon advise the user to register and to pay for personal or institutional subscriptions. Developing country researchers and institutions usually cannot afford to pay, and are switching to free information sources that often are not peer reviewed, thus contributing to the bias against quality research. This tends to further increase the already existing “digital divide” between rich and poor, and north and south.

Several “open access” journals have become available over the past few years, and many adhere to strict peer review processes in the same way as commercial refereed journals. However, their number and coverage is still limited (Suber, 2003). (A listing of licensed and open access journals of interest to staff of the International Center for Tropical Agriculture [CIAT, the Spanish acronym] and collaborators is available in: [www.ciat.cgiar.org/biblioteca/electronic\\_journals.htm](http://www.ciat.cgiar.org/biblioteca/electronic_journals.htm))

**Most scientific literature will be retrievable via Web search engines.** Search engines, such as Google, Altavista, and others, have become powerful and can retrieve important and highly relevant results. However, only a small percentage of current scientific literature is actually available online, the amount varying greatly by subject area (Herring, 2001). Furthermore, users are usually overwhelmed with hundreds or even thousands of hits, and have difficulty filtering them either by range of years, subject category, language, geographic indicators, or other relevant criteria.

**Bibliographic databases will become obsolete.** Most bibliographic databases, whether commercial or free access, global or institutional, have been made available via the Web. They are used a great deal for complex and comprehensive literature searches, and often constitute the backbone for many other value-adding services. With over 2 million new scientific articles published every year (Harnad, 2003), well-structured databases and XML-indexed Web information is a must, especially since the number of scientific articles is estimated to double every 15 years, because of advancements in science, increasing specialization, and more recently the

rapidly increasing number of doctorates in countries such as China and India (Meier, 2002). Knowledge workers are rediscovering standards, methodologies, and knowledge taxonomies (also called thesauri—see [www.fao.org/agrovoc](http://www.fao.org/agrovoc) or ontologies—see [www.fao.org/agris/aos/About.htm](http://www.fao.org/agris/aos/About.htm)) developed and refined by librarians and other IM professionals over the past 30 years. Classifying and indexing done by librarians and other IM specialists is still an important task, although artificial intelligence applications can facilitate some of the work.

Based on what has been outlined above, the prediction that libraries will play diminishing roles has not come true. On the contrary, library knowledge and skills are in high demand, and librarians and IM specialists are important members of numerous multi-disciplinary knowledge teams (see also list below *Evolving Roles of Libraries*).

## **Realities**

Over the past several years, many libraries have had to cope with decreasing budgets because decision makers have been more concerned with building and strengthening the information technology (IT) infrastructure. Furthermore, decision makers rarely use scientific literature themselves; rather they delegate literature search tasks to their assistants. These facts, combined with the uncertainties about the future role of libraries in light of the predictions above, have contributed to the weakening of many libraries.

Today, however, the crucial role of libraries in development and democratization processes is in little doubt. Particularly in developing countries, young researchers and students will not be able to afford home computers and pay for Internet access. Although the number of Internet cafes is increasing in urban areas, certain licensed materials will be available only via institutional computers. Most scientific journals available to non-profit institutions in developing countries at low or no cost will be controlled via Internet Protocol (IP) authentication. Each institution has been assigned a range of IP numbers by the respective national Internet domain agency. Publishers use these IP numbers to control and monitor access to their information resources. Librarians, together with their IT departments, will have to implement proper user authentication procedures and policies.

Publishers providing free or low-cost access to their electronic resources in developing countries are concerned that these special access privileges might be misused. They cannot afford to lose out on markets in private sector institutions in developing countries, nor in public and private institutions in countries in the north. Consequently, they see librarians as their natural allies in making sure that access privileges and copyright regulations are fully understood and respected accordingly.

## **Evolving Roles of Libraries and Information Management Professionals**

Librarians are assuming new responsibilities, but still need to carry out their traditional tasks. For example, they will have to educate users about copyright regulations. Under the European Union Copyright Directives issued in April 2001 (European Union, 2001), each country had to implement new copyright regulations by December 2002 that differ from country to country. The US Digital Millennium Copyright Act (DMCA) was implemented in 1998, and its implications are still under debate because regulations now are considerably more restrictive than they were in times of paper-based documents (Lutzker, 2001). Librarians will also have to negotiate electronic usage licenses, and handle publishing permissions to populate their virtual library Web sites. The list below gives new and traditional librarian tasks.

### ***Traditional tasks***

Selection  
Acquisition  
Classifying and indexing  
Serials management  
Preservation  
Bibliographic searches  
Document delivery  
User orientation

### ***New responsibilities***

Copyright and fair use  
License negotiations  
Publishing permissions  
Standards, methodologies, metadata  
Digital preservation  
User training (electronic resources)  
Multi-disciplinary knowledge teams

As already pointed out, the standards, methodologies, and tools developed in libraries in the 1970s, when computers became widely used, are now becoming important tools for knowledge representation systems on the Web (Berners-Lee et al., 2001). Multi-lingual knowledge taxonomies, such as the AGRIS thesaurus and classification schemes, are regaining importance as metadata indexing tools.

Preserving electronic resources for future generations becomes an increasingly challenging task (Schaffner, 2001), particularly as people are noticing with concern the ephemeral nature of Web-based content. Policies and procedures on how best to handle the preservation tasks are currently being discussed at the institutional and national levels, and librarians are making important contributions to this debate.

Furthermore, librarians provide training on electronic information resources, participate in multi-disciplinary knowledge teams that establish Virtual Libraries and prepare other Web contents (e.g., e-learning materials), and are generally involved in a variety of knowledge-sharing and capacity-building initiatives (Rosenfeld and Morville, 1998).

## CIAT Library Global Collaboration Strategy

CIAT's library is involved in numerous information-sharing initiatives at local, national, and international level (Figure 1), and provides advice and training to many Colombian IM professionals, to professors and researchers in collaborating academic and research institutions, and more recently to coordinators of telecenters and rural information systems.

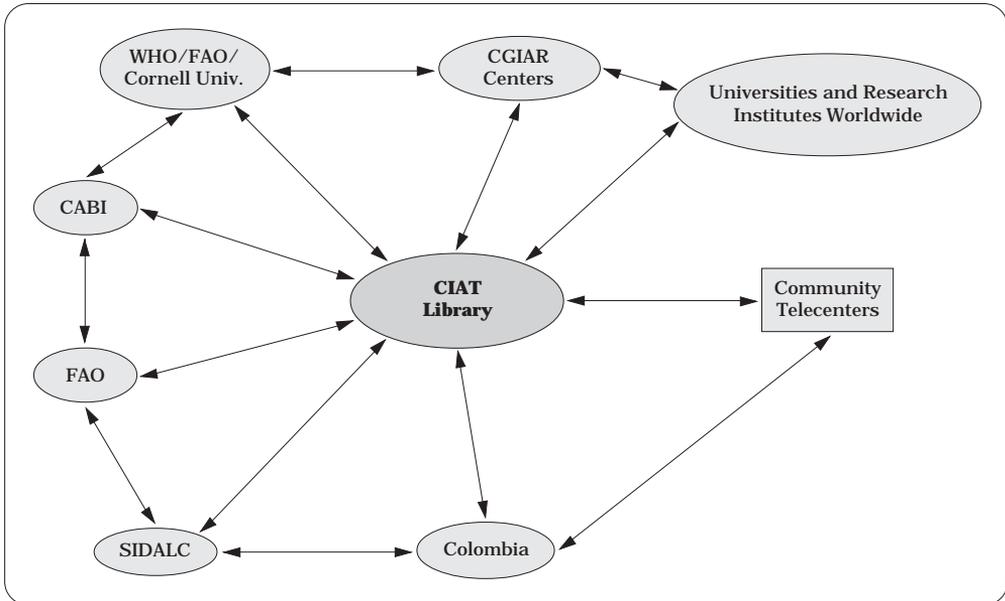


Figure 1. CIAT's library strategy for global collaboration (acronyms are given on page 287).

At national level, CIAT's library actively collaborates with the Agricultural Information System of the Cauca Valley (SISAV, the Spanish acronym), with a CIAT-led telecenter project in the Valle del Cauca (InforCauca), and with the Colombian Agricultural Information and Documentation Network (RIDAC, the Spanish acronym). At regional level, the library is an active participant in the Information and Documentation System of Latin America and the Caribbean (SIDALC, the Spanish acronym), submitting its in-house databases to the AGRIS2002 bibliographic database on a regular basis. At international level, CIAT collaborates with the Food and Agriculture Organization (FAO), the World Health Organisation (WHO), Cornell University, and with major publishers to implement Access to Global Online Research in Agriculture (AGORA), an initiative to make scientific journals in the agricultural and environmental sector available free or at low cost to developing countries. Participation in the global AGRIS network and the Consultative Group on International Agricultural Research (CGIAR) InfoFinder (<http://infofinder.cgiar.org/>) ensures that CIAT research results are accessible to global audiences. The

recently created CGIAR Library and Information Services Consortium (CGIAR-LISC) will result in broader access to scientific journals for all 16 CGIAR centers (Ramos et al., 2003). When fully implemented during 2003, CIAT researchers and library walk-in clients will gain access to 350 scientific journals, at practically the same subscription price the library has been paying for its 70 current subscriptions. In addition, CIAT continuously updates the CGIAR journal catalog, an important tool for library collaboration and document delivery services (see [www.icrisat.org/text/partnerships/srls/srls.asp](http://www.icrisat.org/text/partnerships/srls/srls.asp)).

## **Conclusion**

There is clear evidence that libraries will be playing progressively more important roles, because scholars heavily depend on scientific information resources usually only accessible via libraries. Increasingly, non-profit institutions in developing countries are granted access privileges for high-quality scientific literature at no cost or discounted prices. However, this access will be tightly controlled via IP authentication. Librarians will not only select and manage these important resources, but also be responsible for implementing proper user authorization processes and policies, as well as promoting these resources with staff and library walk-in users. Decision makers will have to take decisive steps to support their libraries, recognizing their crucial role in democratic development processes, and in bridging the digital divide between rich and poor, and north and south.

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