

# **INFORMATION NETWORKING IN LATIN AMERICA: PROMISES AND CHALLENGES**

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## **ABSTRACT**

Networks can be excellent ways of cooperation, where information exchange, data processing or shared acquisition of information records are the main goals. Latin America has several information networks, most of them with the support of international organization, like UNESCO, IDRC, and OAS. In this paper, a description of the main cooperation schemes and networks is provided, including some of the products of cooperation and the sponsoring organizations' role. An analysis of the promises and challenges of information networking in the region is also included.

## 1. INTRODUCTION

When freeing South America from Spanish rule, Bolivar had the dream of a Latin American country that would spread from the border of the United States to Patagonia. This dream has proven to be difficult to achieve. Latin America shares a common history, the same language and a similar religion. However, these similarities do not always work in favor of regional integration.

Information networking in the region has promises and challenges to meet before this millennium ends. In this paper, an attempt is made to explain the Region's networking achievements and some of the cooperation challenges posed by cultural and economic causes.

The analysis is focused on the Spanish/Portuguese speaking countries.

## 2. TRADE AND COOPERATION

Economic relations among Latin American (LA) countries are scarce. Most LA nations look north to have access to the largest market of the world, which is comprised of the North American economies of the United States (US) and Canada. Any amount of trade among LA countries looks small in comparison and more difficult to handle.

For instance, air travel communication is easier to the US than within the LA region.

Mexico, the second largest economy of the region, after Brazil, exports only 2% of the total goods and services to its closest neighbors the six Central American countries. Imports from these countries, on the other hand, amount to barely 1% of Mexico's foreign trade [5]. However, Mexico trades 66% of all its exports with the United States, and imports almost the same amount of goods from the US. Latin America, as a whole, has an inter-regional trade that amounts to 12% in exports and 14% in imports of the total trade of the region [12]. Therefore, most of the LA foreign trade is with North America, Europe and Asia. However, the smaller economies seem to trade more with regional partners. These figures show the rather weak economic relations among most LA countries (See Table 1). As a consequence, if economic links are poor, information exchange is likely to be poor as well

Table 1

<b>INTER-REGIONAL TRADE (X)</b>			
As percentage of total trade.			
Argentina	21%	Ecuador	8%
Bolivia	58%	Paraguay	31%
Brazil	13%	Peru	18%
Colombia	16%	Uruguay	30%
Chile	17%	Venezuela	13%

CEPAL. Statistical Yearbook for Latin America, 1988.

### **3. FREE TRADE TIDE**

Fortunately, the political and economic integration of Europe and the US reaction of forming a somehow similar economic block with Latin America is motivating countries of the region to reduce import/export tariffs in order to increase the volume of trade. Mexico and Chile signed a free trade agreement, and Mexico is also working on a possible agreement with Costa Rica. Brazil, Argentina and Uruguay signed a similar agreement two years ago. Venezuela, Colombia and Peru are also discussing to the creation of a tariff free territory between them. This interest in increasing trade among LA countries is likely to help information in the short run, since at least government organizations and private companies will require more information on trading partners.

### **4. INTERNATIONAL ORGANIZATIONS**

Despite the low trade volume among LA countries, the Region has been able to cooperate since the 1960's. Successful information networks have been founded, in general, by international organizations. A list of the most important parent organizations is included in Table 2. The table lists 27 of the most important parent institutions which have supported information networks or agencies in LA. Twenty one information systems and networks are identified, and are listed in Table 7. Both tables should be consulted to identify the organization acronyms which are used throughout the paper. The lists are by no means complete, but it include the active organizations which have appeared in different publications of the LA region [1,3,7,9,10,13,14].

Among parent organizations there are international agencies that stand out for their long commitment to information networking in LA. For instance, CEPAL has done important LA networking, by integrating the region in economic matters. It has created and supported INFOPLAN, which is one of the most active networks. It has national focal points, which provide links to other national networks. CEPAL, thorough CLADES has published directories of information centers with economic development information, and economic planning indexes, among other publications.

UNESCO has been another key player in LA information networking. Several, if not most, of the networking initiatives have been fostered by this UN organization [11]. The regional office in Caracas, Venezuela has supported the creation of networks and information systems along with financing several meetings, and exchange and training of information professionals. Another important UNESCO contribution, with IDRC support, has been the provision of the software MINISIS/Micro-ISIS. This software has been the means for information processing standardization and exchange of information records among libraries and information networks. Out of 4,094 software copies distributed around the world, nearly 1,400 have been given to LA institutions in the region (INFOLAC 3(4)19. This package is the most popular software in library and information activities in the region. The minicomputer version of this program is used in most national online databases in Mexico and in Brazil.

Table 2

<b>MAIN SPONSORING ORGANIZATIONS</b>
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- \* ACAL - Academy of Sciences of LA, Caracas, Venezuela.
- \* ALIDE - LA Association of Finance Institutions for Development, Lima, Peru.
- \* ALADI - LA Association of Economic Integration, Santiago, Chile.
- \* CEPAL/UN-Economic Commission for LA, Santiago, Chile.
- \* CLAD - LA Center for Development Administration, Caracas, V.
- \* CELADE - LA Demographic Center, Santiago, Chile.
- \* CIDE - Research and Development Center for Education,
- \* CIMMT - International Center for the Improvement of Maize and Wheat, Mexico, City.
- \* CLACSO - LA Council of Social Sciences, Santiago, Chile.
- \* CRESALC -Regional Center of UNESCO for Education in LAC,

- Caracas, Venezuela.
- \* FAO - UN Food and Agriculture Organization.
  - \* IICA - Inter-American Institute of Agricultural Sciences, San Jose, Costa Rica.
  - \* IIN/OAS - Inter-American Institute of Children, Montevideo, Uruguay.
  - \* ILET - LA Institute for Transnational Studies, Santiago, Buenos Aires and Mexico, City.
  - \* ILCE - LA Institute for Educational Communication, Mexico C.
  - \* IAEA - International Agency for Atomic Energy, which has national focal points in various countries.
  - \* ILPES - LAC Inst. of Economics in Social Planning, Santiago, Chile.
  - \* OLADE - LA Organization of Energy, Quito, Ecuador.
  - \* OAS - Organization of American States, Regional Program of Scientific and Technological Development.
  - \* PAHO/WHO - Pan American Health Org., a regional office of WHO.
  - \* PIIMFA - Inter-American Program of Information on Children and Families, Montevideo, Uruguay.
  - \* REDALC - Education Network for LA and the Caribbean, Santo Domingo, Dominican Republic.
  - \* RIT - Ibero-American Network on Terminology, Caracas, Venezuela.
  - \* SELA - LA Economic System, Caracas, Venezuela.
  - \* UC - University of Colima, Mexico.
  - \* UNAM - National Autonomous University of Mexico.
  - \* UNESCO/PGI - Unesco General Program for Information.
  - \* USIS - United States Information Service.

Along with UNESCO, IDRC has also played a important role in fostering cooperation among national information agencies in the region. This Canadian organization has provided funds and know-how to at least 12 regional networks [1]. It organized, among other related seminars, the seminar to exchange experiences of regional information networks in Latin America and the Caribbean (LAC) in Havana, 1988.

OAS' contribution to library activities has been mainly in library training and in granting of scholarships in library studies. It founded the school of library science in Medellin, Colombia where hundreds of Latin American librarians have been trained. The prime time of this institution was in the 70's when there were few library schools on the LA continent, becoming the only alternative

in library education for several countries.

International library associations, such as the International Federation of Libraries and Associations (IFLA), have also helped to create cooperative programs through its Advanced Librarianship Program (ALP). This association has a section devoted to LA and a regional office located in Sao Paulo, Brazil. IFLA funds have helped to organize seminars on public libraries, national libraries, and specific projects such as the Latin American database INFOBILA on library science, which is compiled by the National University of Mexico (UNAM). Other organizations like FID, national library associations and international information organizations have also contributed to LA information networking.

To discuss the contributions of international organizations which contribute or have contributed to information cooperation in the region would take several pages. Therefore, this description is concluded by briefly mentioning the following organizations: FAO, an organization that funded the AGRINTER program; a network of great impact in LA agricultural activities, now a ceased program.

WHO which sponsors BIREME, one of the oldest and active information networks in the region. IAEA that sponsors the atomic energy network of LA; and USIS which has basically provided training and guidance in information networking. Finally, other types of sponsoring organizations that have played important roles in networking are large national research/ educational institutions of LA nations (See Table 2). A list of active networks, information systems and countries where they are located is provided in Table 7.

## **5. NETWORKING OUTCOME**

Information systems and networks have compiled or created various information products to exchange information. Tables 4,5,6,7 provide a list of some recent products of LA cooperation. These lists are limited to reference-type products, library associations and information systems and networks. The data was compiled from articles and notes that appeared in the INFOLAC Bulletin [8] and excludes monographs, meetings and workshops and courses, which certainly outnumber information products.

Table 3

<b>LIBRARY ASSOCIATIONS</b>
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- \* ABILPAC - Association of Public Libraries of LAC, Caracas, Venezuela.
- \* ABINIA - Association of National Libraries from Ibero America.
- \* AIBA --- Inter-American Assoc. of Agriculture Librarians and Documentalists which holds a conference every 3 years.
- \* ALEBCI -- Assoc. of LA Schools of Library Science, San José, Costa Rica.
- \* FID/LAC - International Federation of Information and Documentation, LA Commission, Havana, Cuba.
- \* IFLA/LAC -LAC Section of the International Federation of Library Associations and Libraries, Sao Paulo, Brazil.

Table 3 shows human networks in the form of regional library associations. They usually affiliate professionals from a group of countries but seldom from all of Latin American and the Caribbean countries. Their goals are usually to communicate and combine efforts in the creation of directories and bibliographical reference sources. A good example is ABINIA, where most of the national libraries of LA, Spain and Portugal created a CD-ROM of incunabula and books published up to the political independence of LA nations. Funds for this project were provided by Spain.

Table 4

<b>SOFTWARE PRODUCTS</b>
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- \* FIIR/INFOLAC - Reference information exchange format.
- \* INFOPROJECT/ILPES -Software for information handling in public investment.
- \* Micro CDS-ISIS - Several applications of this package.
- \* SISTDOC/PLACIEX - A package to manage regional trade info.
- \* SISEST/PLACIEX - Management of export statistics package.

Bibliographical databases in several fields, but specially in medical, economic and science and technological, have been created. Some of them are now available in CD-ROM (Compact disk

read only memory), a technology that is enabling LA to exchange information regardless of its telecommunications development. Other common networking products are directories, database software and annual programs of library and information training (See Tables 5,6).

Table 5

<b>SCIENCE AND TECHNOLOGY PRODUCTS</b>
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- \* ACAL Directory/database - List of Scientific Institutions of LA.
- \* ASFA - Aquatic Science and Fisheries Abstracts, Mexico City.
- \* INCAL/ACAL - Directory of Latin American Scientific Institutions.
- \* LILACS CD-ROM/BIREME/PAHO-Health sciences, produced by BIREME.
- \* PERIODICA/UNAM CD-ROM - Index of LA journals in science.
- \* RIDLAC Database - Directory of LA researchers.
- \* REPIDISCA CD-ROM - A database on sanitary engineering and environmental sciences.
- \* SIUS Database/CIMMYT - References on cultivation of maize.

The most known training programs are the International courses organized by UNAM, a program that has been held annually for ten years, and the previously discussed training program of the Inter-American School of Librarianship in Medellin, Colombia, created by the OAS. Both education efforts have traditionally received OAS scholarship funding.

Table 6

<b>SOCIAL SCIENCE PRODUCTS</b>
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- \* ABINIA CD-ROM - Collection of Latin American incunabula.
- \* ALCA/IDICT - Database of information systems and networks in LA.
- \* BIBLAT Database/UNAM - Articles published by LA authors in non-LA and LA journals.
- \* AIIC/CICH/UNAM - Annual international information course (10 annual courses).
- \* CIFIPIALC/ALIDE-Directory of LAC economic development institutions.
- \* CLASE CD-ROM/online/UNAM - LA citations in social sciences and humanities.

- \* COLIMA CD-ROM - LA bibliographical databases (9 dbases).
- \* EIB/OAS - Inter-American School of Librarianship,  
Medellin, Colombia.
- \* INFOBILA/UNAM CD-ROM - Latin American Information and  
Librarianship (database) Mexico City.
- \* PLANINDEX Abstracts/CLADES - LA economic planning references.
- \* REDUC Database - References of educational research  
publications.

Besides the compilation of information sources, the region has held numerous meetings, courses, and workshops over the years. Some of these meetings and courses have been seminal for those involved in networking, and for the creation of interest groups, which have evolved into more formal institutional networks.

Table 7

<b>INFORMATION SYSTEMS AND NETWORKS</b>
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- \* AGRINTER/IICA/FAO - Inter-American Agricultural Information  
System, San Jose, Costa Rica (Ceased operation).
- \* BIREME/PAHO - LAC Health Sciences Info. Center, Sao Paulo, B.
- \* CEREALC - Regional Center for the Promotion of Books and  
Reading, Bogotá, Colombia.
- \* CLADES/CEPAL -LA Center for Economic and Social Documentation,  
Santiago, Chile.
- \* CRM/UNAM/IDRC-Center for MINISIS Resources, Mexico City.
- \* DOCPAL/CELADE-LA Population Documentation System, Santiago, CH.
- \* IDRC- International Development Research Center  
(Canada), Bogotá, Colombia.
- \* INFOLAC - The Regional Program for Cooperation Between Info.  
Networks and Info. Systems for Development of LAC,  
Caracas, Venezuela.
- \* INFOPLAN/CEPAL-Info. System for Planning, Santiago, Chile.
- \* PANET/FEPAFEM-Pan-American Network of Information in Medical  
Sciences and Health Education, Caracas, Venezuela.
- \* PESICRE/SELA -Info. System on Coop. and Economic Integration.  
Caracas, Venezuela.
- \* PIIMFA/IIN/OAS-Inter-American Info. Program on the Family and  
Child.
- \* PLACIEX - LAC Program of Foreign Trade Information, Lima,  
Peru.
- \* REDUC/CIDE - Documentation and Information Network in Education

- of LAC, Santiago, Chile.
- \* REDINCO/CLACSO-Info. and Communication Network of the LA Council for the Social Sciences (CLACSO), Buenos Aires, Argentina.
  - \* REPIDISCA - Pan-American Network of Info. and Documentation for Sanitary Engineering and Environmental Sciences, Lima, Peru.
  - \* RIALDE/ALIDE -Information Network on Banking and Development Financing, Lima, Peru.
  - \* RIBLAC/UNESCO - Information Network for Bio-Sciences of LAC Caracas, Venezuela.
  - \* RIDALC - Info. Network for Researchers of LA, Buenos Aires.
  - \* SAIN - Andean Industrial Information System, Lima, Peru.
  - \* SID/CRESALC - Educational information and documentation service.
  - \* SIIE/OLADE - Energy-Economic Information System, Quito, Ecuador.

## 5. INFOLAC

There are several networking activities in the region. Due to this factor, INFOLAC, The Regional Program for Cooperation Between Information Networks and Information Systems for Development of Latin America and the Caribbean (INFOLAC), was founded in 1987, with the sponsorship of UNESCO, and CEPAL/CLADES. Sixteen countries from the region, along with international organizations, signed the first agreement to create this program.

The main goal is to coordinate and promote the cooperation of information activities of private and public organizations, as well as international organizations working in the region. The main areas of concern are management of information projects, evaluation of new technologies, standardization and interconnection of databases, promotion of databases and networks' use and training of personnel [2].

INFOLAC is perhaps the most ambitious coordinated networking program but has, to a certain degree, a limited role because of a lack of funds. INFOLAC is more an advisory body than an action-taking organization for the region (See Table 8).

Table 8

<b>INFOLAC</b>
1987 - INFOLAC is created.
1988 - INFOLAC writes a four year strategy plan, 1988-1990.
1989 - Research Project on Training of Library Personnel.
1990 - Havana meeting to review INFOLAC program.
1990 - San José Meeting on evaluation of the Program.
1990 - Regional Meeting of Education of Information Professionals, Caracas, Venezuela.
1991 - Caracas meeting evaluates INFOLAC objectives.
1991 - INFOLAC-FID/CLA Consultation Meeting, Caracas, Venezuela.
1993 - INFOLAC coordination was passed to the UNESCO Regional office. New plans are created.

In addition, INFOLAC, a program for a LA network of networks was created in the Meeting of Latin American Information Network of Networks, in Santiago, Chile, 1991, with the support of ALIDE. Network members include IBASE/ALTENEX, CEPAL/CLADES, CIDE/REDUC, BIREME and the ALIDE/RIALDE. Members of the cooperating program held their second meeting on "Evaluation and Future Development of Latin American Information and Documentation Networks" in Bolivia in 1990 (INFOLAC 4(1)7-8). The work of this organization in the future can be of great benefit to the region, since it involves some of the most active networks of South America.

Similar efforts but on linking computer networks have been expressed by REDALC which also has a program to create a computer backbone to connect Latin American and Caribbean universities with EARN, the European Academic Research Network. However, this telecommunication program is still a project. PAHO/WHO have also conducted seminars to discuss the connection of computer networks of health sciences related institutions to BITNET (INFOLAC 3(1)17).

Central American countries are working in the creation of nodes to have a gateway to Bitnet. Costa Rica has been the first country set up a computer link.

## 6. NETWORKING LIMITATIONS

Combining information efforts in the region faces some limitations and problems to overcome. For instance, a common problem of products and services generated through networking activities is their limited currency. In general, once a product is released, it takes time to produce a new edition. Access is another barrier, especially for databases and information services. Telecommunications are not reliable in several of the countries, a telephone call is expensive and usually difficult, and postal communication takes a long time. Computer networks at the national level are few, and interconnections with international networks such as Internet and Bitnet are minimal [4]. Costa Rica, Argentina, Brazil, Mexico and Venezuela have Bitnet and Internet nodes, however within these countries a small number of institutions have access to them. Electronic communication would foster networking, since it is easier and less dependent on institutional budgets.

Table 9

<b>NETWORKING BARRIERS</b>
<ul style="list-style-type: none"> <li>* Limited computer network knowledge (Internet, Bitnet).</li> <li>* Scarce economic resources.</li> <li>* Limited networking culture.</li> <li>* Long geographical distances.</li> <li>* Frequent changes of information leaders.</li> <li>* Different information assets,</li> <li>* Smaller countries require more assistance.</li> </ul>

Human problems are also common. Changes of information leaders are frequent in several countries, a fact which affects the continuity of the cooperating programs. The size of the countries is another challenge for LA networking. The larger countries have bigger record collections and are usually better organized. This means that agencies from these countries have to contribute more to any cooperative scheme. A fact that sometimes makes institutions reluctant to take part in networks (See Table 9).

Geographical distance is another barrier. Flying to meetings is expensive and difficult to fund for small organizations, or even

for large national library and information bodies. Inter-continental meetings are usually held with the assistance of international bodies. Multinational meetings normally foster the creation of associations and networks. However, if a follow up meeting is not funded by international organizations cooperation may fade away, and the up-date of a networking product may have to wait until another meeting is held.

The networking products listed in Tables 4,5,6,7 are not all current. Organizations, on the other hand, are not all similarly active. Some of them undergo periods of low activity, depending on whoever is in charge of the executive activities. These information networking problems became worse with the economic crisis of the 80's. Many cooperative agreements in the region came to a stand still. Travel, telephone communication, and even postal services were out of reach of many institutions.

Table 10

<b>PROBLEMS OF NETWORKING ACTIVITIES</b>
<ul style="list-style-type: none"> <li>* Access to shared sources tends to be difficult.</li> <li>* Distribution of services is expensive.</li> <li>* Input tends to be greater in the executive location.</li> <li>* Input in networking tasks seems to be correlated to the size of economies.</li> <li>* Updating of sources becomes difficult.</li> <li>* Coordination of activities is a difficult task due to traditional means of communication.</li> </ul>

## **8. BUSINESS INFORMATION**

Business information networking is poorer than academic information, as a consequence of the limited economic activity between countries of the region. However, the new interest in regional trading and joint ventures, as well as the renewed interest of large foreign corporations, has helped in the creation of business sources. Companies like Strategic Information Systems (SIS) are contributing to the information integration of LA. Another example is the Kompass Company, which is creating

directories of companies in the region. The first published directory was of Mexican companies. It was compiled in a joint venture with the Mexican private information center INFOTEC. Chile is also working on a national Kompas directory. Some regional companies, like INFOSEL, a Mexican news and financial information company, is ready to incorporate nine LA newspapers in an online news service. The University of Colima in Mexico is producing multi-database CD-ROM's with bibliographical information from different LA countries (See Tables 5,6).

If vendor information services are considered as networking, US information companies, along with European companies, have traditionally been present in the Region. Some of them are Dialog, EBSCO, SWEETS and other well established information businesses. New companies are also starting to market their services such as International Business Network, Bank of America Information Services, "Network" of the World Trade Centers Network, and ICQ Network.

## **9. LA INTEGRATION IS A MUST**

Federalist integration of nations is the new economic trend. New types of scale economies are shaping the world at a fast pace. Businesses and other organizations are restructuring, creating integrated organizations, global networks, and corporate centers [6]. Therefore, networking is more than ever the best way to achieve massive research programs, discover new resources, better serve a market or exchange information wealth,

Table 11

<b>INFORMATION NETWORKING CHALLENGES</b>
<ul style="list-style-type: none"> <li>* Learn how to benefit from telecommunication infrastructure</li> <li>* Give more continuity to cooperative programs.</li> <li>* Increase computer networking culture.</li> <li>* Keep communication alive.</li> <li>* Take advantage of the economic integration tide.</li> </ul>

Therefore, now more than ever, cooperation is a must for LA. This continent has more characteristics in common than differences. LA information agencies have to learn how to at least benefit of present telecommunication infra-structure. Library and information centers, from countries where there are some means of connecting to networks such as Internet, need to learn how to take advantage of electronic communication. These skills would make networking easier not only among LA countries but also with the rest of the world. LA, on the other hand, has to reduce its dependence on the assistance of international bodies and develop a self-supported networking culture. Information institutions should take advantage of the present trend of economic integration and increased trade in the region.

## **11. CONCLUSIONS**

1. The Bolivarian idea of having a single Latin American nation is still a dream. Despite sharing a common history and religion, trade and economic links between Latin American countries are poor, especially among the more economically advanced countries like Brazil, Mexico, Chile, Venezuela and Argentina.
2. Other networking barriers include the limited information development of the countries. Most of them lack well structured local library networks, have limited national networks and few have gateways to Internet and Bitnet.
3. However, there has been progress despite economic limitations and different political systems. Some types of cooperation are the integration of networks and information systems for the collection and exchange of information. Networking products created to exchange information are databases, printed reference sources and the training of personnel.
4. The new impetus for free trade that is taking place in industrialized countries is also taking place in LA. This trend of increasing trade among member countries of the region gives an unprecedented opportunity to increase information networking as well, since companies and government organization will require more information on their trading partners.

5. Therefore, information agencies of Latin America are presented with a challenge. They have the possibility to contribute to better information flow between LA countries, an information flow which can improve their socio-economic performance by providing information to decision makers and to the academic community, who are in charge of the region's socio-economic future.

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