

THE SITUATION OF THE ARGENTINE UNIVERSITY LIBRARIES OF SCIENCE AND TECHNOLOGY: ITS POSSIBILITIES OF ACCESS TO INFORMATION*

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Abstract: In Argentina, research in the basic sciences and technology is carried out for the most part within national universities. The ever increasing demand for information is catered for by libraries in these institutions which is why they should be examined closely. We present an up-to-date survey on the situation of science and technology libraries in Argentine Universities with respect to their capabilities for accessing electronic information. The state of libraries across the country is uneven, ranging from libraries with adequate information technology, and consequent access to services like electronic full text or electronic transmission of documents, to those which have only just started input into their first bibliographic databases. Nevertheless the demands of users in the area of science and technology has resulted in these information units developing faster than the other libraries in Latin America.

The survey focuses on the developments which are leading to substantial improvement in access to information access, and also on the foundations of this development phase. The latter include: the QIUF programme (Quality Improvement of Universities Fund); the University Interconnection Network Project (UIN); which connects state universities with each other and with the rest of the world; and finally the science and technology Information workgroup working within MERCOSUR, whose aim is the regional integration in the information area as well as the optimal use of available resources. One of the main tasks of the library is to include itself and stand out in "the global village". Brazilian researcher and author in globalization phenomena, Octavio Ianni, states: "Electronic media will prevail as a powerful means to communicate, inform, and understand what is happening throughout the world". Various authors suggest a strong dependence of real economic development on timely access to information. Since science and technology are essential to economic development, science and technology libraries must have a proactive role in this process.

Introduction

The purpose of this work is to introduce the present-day situation of the university libraries of science and technology, dependent on the national universities, in the

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Argentine republic, concentrating on the possibilities of access to information, and analysing them regionally. The present work was carried out firstly by examining the meagre bibliographic material available on Argentine university libraries. In the specific area of science and technology, no material was obtained at all. The starting point was the work about the Argentine university libraries published by Luis Herrera¹, who made an analysis of the situation of these libraries, proposing strategies for improving their performance. In a second instance, we consulted the work of Ricardo Rodríguez Pereyra² on the University Libraries at the end of the century, which describes the information units across the country in private and public universities. It is necessary to mention the valuable collaboration obtained from the executive direction of the FOMECA that provided us published and unpublished documentation about this subject. In order to make a methodological definition of the disciplines in the area of science and technology, we adopted the classification made by the secretary of university policies referring to the branches of knowledge: agricultural sciences, engineering, land surveying and technology, exact and natural sciences, pharmacy, biochemistry and chemistry³. In a wider context, and providing the basis for this work, we briefly describe the national policies on science and technology, as well as the information policies in this area. We also point out the programs or projects originating in the Ministerio de Cultura y Educación (Ministry of Culture and Education) that bear directly on this analysis, like the Red de Interconexión Universitaria - RIU (University Interconnection Network) and the Fondo para el Mejoramiento de la Calidad Universitaria (Fund for the Improving of the University Excellence). Both Projects depend on the Programa de la Reforma de la Educación Superior - PRES (Program for the Reformation of Higher Education).

National University Environment

Since the 19th Century, public universities have achieved a fundamental role in the study, research and development of the sciences. With the university reform of 1918, the public university stopped being a forum for the elite groups and extended to all social levels, contests for obtaining professorships were established and a major autonomy from the political power of the day was attained. In the University of Buenos Aires, very important research was done in the schools of

¹ Herrera, Luis. *Bibliotecas Universitarias Argentinas*. Buenos Aires, Ministerio de Cultura y Educación, 1995.

² Rodríguez Pereyra, R. *Las Bibliotecas Universitarias en la Argentina de Fin de Siglo*. Ponencia presentada a la Mesa Redonda "Bibliotecas Públicas y Universitarias en América Latina" 14a. Bienal del Libro. San Paulo, Brasil, Agosto 1996.

³ Bases para la discusión de una política de Ciencia y Tecnología. Buenos Aires, SECYT, 1996. p. 35

exact sciences, engineering, biochemistry and pharmacy. In this context, the UBA produced three Nobel prizes in the sciences, as well as excellent research supporting the education of students. Between 1976 and 1983, the resources supplied by the government for the area of scientific research in the universities decreased markedly (from 27,9% in 1976 to 6,8% in 1983). From 1983, and with the commencement of the democratic period, the resources given to this sector were low in comparison to other countries of intermediate development. Today, the budgetary situation is not different and the national universities house 80% of the research in science and technology done in the country, with a staff amounting to 20,000 researchers⁴. The university libraries of science and technology have not escaped the economic reality facing the universities to which they belong. These libraries were once well known for being efficient, well provided and with skilled personnel, but today this has changed. The situation was transformed as a consequence of the low budgets for the Universities. The prioritisation of expenses in favour of other areas left the libraries unprotected, and this entailed a large cut in the acquisition of bibliographic materials in different formats, support, lack of training for the persons in charge and for the whole staff, lack of modern technologies, etc. Certainly, there has been no clear political decision by the authorities of the universities to invest in the area of information.

National Policies in Science and Technology

The national body responsible for these policies, the Secretaria de Ciencia y Técnica (Secretary of Science and Technology), which until 1996 depended on the Presidency, is now under the authority of the Ministerio de Cultura y Educación (Ministry of Culture and Education). With the collaboration of scientists and researchers of all the areas of knowledge, it produced a report entitled "Basis for the discussion of a policy on science and technology". This document aims at "generat[ing] a wide discussion, fruitful and serious, with the purpose of defining a policy on science and technology."⁵ " so, the science and technology system underwent a profound change, implemented by three decrees through which the Gabinete Interministerial (Inter-ministry Cabinet) and the Agencia de Promoción Científica y Tecnológica (Agency for the Promotion of Science and Technology) were created and the CONICET (National Council for Science and Technology Research) functions and attributions were redefined⁶. In the new institutional structure the functions are assigned as follows:

⁴ Ciencia y Universidad: La investigación en veremos. Clarín, Suplemento Educación. 10 agosto 1997.

⁵ Bases para la discusión de una política de Ciencia y Tecnología. Buenos Aires, SECYT, 1996.

⁶ Taller Bariloche para la implementación de políticas sobre ciencia y tecnología. San Carlos de Bariloche, Febrero, 24 al 28, 1997.

- a) The function of defining the national plan of science and technology are the concern of the Inter-ministry Cabinet.
- b) The functions of promotion and financing are the concern of the Agency for the promotion of science and technology.
- c) The execution of the research is to be made in a series of bodies dependent on different State Secretaries (CNEA, CNAE, INTI, INTA, CONICET, universities) and by private ones.

Finally, a concrete interest from the government for the definition of a scientific policy for the country is observed.

Scientific Information Policy in Argentina

Since the decade of '70s, Latin American countries believed it necessary to inspire and define national policies on information in science and technology, because it was a priority to have structures useful for the transference of knowledge in this area between scientists of the whole world⁷. The information policy in Argentina has been for a long time a subject that has not been faced with seriousness, and corresponding political decisions have been needed; innumerable problems took priority for the politicians in comparison with this. The science and technology sector has been a little more fortunate than other branches of knowledge, but formally it has not achieved yet the establishment of an information system. Between 1952 to 1992, numerous attempts were made to achieve this objective, with no positive results⁸. In 1992, the Lineamientos para el Sistema Nacional de Información Científica y Tecnológica (Guidelines for the national system of scientific and technological information) were expounded. In this document an historical account on the subject was made, along with an analysis of the current situation, the objectives of the system, strategies for its development, etc. The conclusion was the following: “the overview of the services shows that in Argentina a system of scientific and technological information is functioning, although it is not institutionalised. None the less, this system is suffering problems that effect the transference of information to the scientific and technical community⁹”

⁷ Hurtado Galvan, Laura.- Desarrollo desde arriba y desde abajo: Información, Documentación y Comunicación en las ONGS de América Latina. Cuzco: Centro de Estudios Regionales Andinos Bartolomé de Las Casas, 1995.

⁸ Lineamientos para el sistema nacional de información científica y tecnológica. Buenos Aires, CAYCIT/CONICET, 1992.

⁹ Op.cit. p.28

Situation of the Libraries at a Regional Level

For a better analysis, we divided the libraries by geographical zones. In each zone we mention the existing universities, taking into account only those in which degrees in the area of Science and Technology are offered, for later analysis its libraries, arriving at last to a conclusion by region. The criterion for the division was the following: the Province of Buenos Aires was divided into the Metropolitan Zone and the Buenos Aires Zone, and the rest of the country was divided into the following: Centro (Centre), Litoral, Noroeste (North-western), Cuyo, Nordeste (North-eastern) and Sur (South). The Universities corresponding to each zone are mentioned below, except for the Universidad Tecnológica Nacional (National Technological University), which will be analysed in alone because it has many locations around the country.

METROPOLITAN ZONE

Universidad de Buenos Aires

BUENOS AIRES ZONE

Universidad de La Matanza

Universidad del Sur

Universidad de Centro

Universidad de Mar del Plata

Universidad de La Plata

Universidad de Lomas de Zamora

Universidad de Luján

Universidad de Quilmes

Universidad de Gral. San Martín

Universidad de Gral. Sarmiento

Universidad de Lanús

Universidad de Tres de Febrero

CENTRE ZONE

Universidad de La Pampa

Universidad de Córdoba

Universidad de Rosario

Universidad de Río Cuarto

Universidad de San Luis

Universidad de Villa María

CUYO ZONE

Universidad de Cuyo
Universidad de San Juan

LITORAL ZONE

Universidad de Litoral
Universidad de Entre Ríos
Universidad de Misiones

NORTH-WEST ZONE

Universidad del Nordeste
Universidad de Formosa
Universidad de Sgo. del Estero

NORTH-EAST ZONE

Universidad de Jujuy
Universidad de Salta
Universidad de Tucumán
Universidad de La Rioja
Universidad de Catamarca

SOUTH ZONE

Universidad de Patagonia Austral
Universidad de Patagonia San Juan Bosco
Universidad de Comahue

Preliminary Diagnosis by Region

In the METROPOLITAN zone is the country's biggest university, the Universidad de Buenos Aires, founded in 1821. It includes the Schools of Exact and Natural Sciences, Engineering, Pharmacy and Biochemistry and Agricultural Sciences. Each one has a main library, departmental libraries or libraries belonging to the Institutes hosted by them. These libraries acquire their bibliographic material through the SISBI (Libraries and Information System)¹⁰, which since 1993 is administratively in charge of the acquisition of periodicals and databases on CD-ROM for all the libraries of the system. Its mission is to co-ordinate the library services of the Universidad de Buenos Aires; the acquisition of the mentioned

¹⁰ Universidad de Buenos Aires. Sistema de Bibliotecas y de Información. <http://www.sisbi.uba.ar>

material is among its tasks. By doing this, the efforts of individual units are saved, the possibility of duplicated purchases are eliminated and the availability of the access to electronic editions of some periodicals are assured (\$750,000 from the total budget of the science and technology sector is designating for this purpose). The scientific communication centre co-ordinates REDUBA, network of academic units of Universidad de Buenos Aires, through it connect the information units, being SISBI responsible for the Catálogo Colectivo Universitario de Libros - CCNUL (National University Collective Catalogue of Books), with information about the co-operating national universities. All the libraries of these schools have Internet access, ranging from e-mail usage in some cases to providing their services through the web for others. The information units have a primary document recovery service. On a different scale they are digitising their catalogues and generating their own databases. Regarding the possibility of access to remote databases, agreements with providing companies such as Knight-Ridder and Scientific and Technical Network (STN) have been established.

In the BUENOS AIRES region there are 13 universities of which 11 have schools in science and technology or award degrees in this subject area. Among these 13 universities the importance of the Universidad de La Plata should be noted. Along with the Universidad Nacional del Sur, settled in Bahía Blanca and the Universidad del Centro located in Tandil and with campuses in various cities of the province of Buenos Aires, are educational centres with well-known excellence in the scientific and technological area. All these universities offer degrees in the area of science and technology and the libraries offer, in all cases, the basic services: take-home and in-situ material lending, interlibrary loans, etc. All of them have access to the Internet. In the case of the Universidad de La Plata, through its documentation centre, it has centralised the interlibrary loans of all the information units of the system. The rest of the universities were recently created, such as the Universities of La Matanza, Quilmes, Lanus, General San Martín, General Sarmiento and Tres de Febrero; these institutions are starting to organise their information units, so they provide the basic services, incorporating gradually the new features.

In the CENTRE region is the University of Cordoba, the first university created in Argentina, founded in 1613 and reorganised in the 19th century. This university, of recognised excellence in the academic-scientific field, hosts many main libraries of the schools of exact, natural and physical sciences, chemistry, mathematics, astronomy and physics and the school of agricultural sciences. The National University of Cordoba also carries out the centralised purchase of bibliographic materials, (as the Universidad of Buenos Aires does) in the area of science and technology to the value of \$220,000. In these libraries, the basic

services are provided but development of the reference and information services provided for the users (including access to on-line or CD-ROM databases and document supply) has been uneven. In the province of Cordoba, we should also draw attention to the library of the University of Rio Cuarto. It is a model library in several ways: this library has open shelves, a high level of IT, access to local and remote databases and a purpose-built modern library building.

About the CUYO zone, we can say that the libraries of both universities have a similar level of development. The science and technology libraries of the Universidad de Cuyo and of the University of San Juan cover the needs of the users partially. Different campuses have advanced in the automatation of their catalogues. They hold several databases on CD-ROM. Some schools have access to Internet, but it is not widespread.

In the LITORAL zone, the NORTH-EAST zone, the NORTH-WEST zone and the SOUTH zone, the information units show a similar panorama: limited bibliographic resources, most of the materials are out-of-date and the subscriptions to the periodical publications are not permanent. In some cases their equipment is not modern, though it is useful for the creation of their own databases. In all the cases, training of staff is insufficient. In some cases they have access to Internet, but not from the library. In the SOUTH zone, the geographic area is much more extensive, making communication difficult between campuses sited in different cities.

A separate paragraph is deserved for The Universidad Tecnológica Nacional (National Technological University), which comprises campuses distributed all around the country. In Buenos Aires, a new building was recently opened and the process of automation has been started. As there is little information available and taking into account the number of locations (30) it is impossible to perform an analysis of the information units of this university.

Preliminary Conclusions

- Regarding the book stock, the university libraries with a major development are those in universities with an important academic tradition (UBA, UNC, UNLP).
- All the universities have access to Internet through the Red de Interconexión Universitaria, but the number of libraries connected to the Net is quite low. We infer from this that the authorities of the higher education institutions opted for the use of these resources by other sectors or programs. Or because the

libraries do not have the necessary presence in order to obtain the support for being connected.

- Most of the libraries, despite having out-of-date equipment, have started the automation of their catalogues, as well as the different services they offer (lending, OPAC, acquisitions, statistics, etc.). This demonstrates that efforts are aimed mostly at information processing, but not directly at the users.
- Lack of continuity in the purchase of periodical publications collections. This is a very acute problem in the Argentine libraries. Some of the causes are: finances for these purchases are obtained from public funds, so the acquisition depends on their fluctuations (budget cuts, inflation, etc.) and generally the libraries are the first victims chosen to settle debts. Another important problem is that the cost of scientific and technical publications increases periodically.
- Scarce human resources, with a low level of training.
- Most of the main libraries of the universities must cater for the requirements of several degrees from the science and technology area as well as from the humanities, so it is impossible to cover the bibliography of all areas of knowledge.
- Because there is no collective catalogue, libraries on the different campuses of the same university are not aware of the complete book stock of the university.

As Herrera says¹¹: “The identified problems have basically institutional roots. The lack of generalised progress in the university libraries reveals signs of indifference on the part of those who are in decision-making positions.”

On the other hand, in the CENTRE, METROPOLITAN and BUENOS AIRES zones are concentrated some of the most important libraries of this area. In Buenos Aires, for example, the library of the Campomar Foundation, the library of The National Atomic Energy Authority (in its both its locations, Bariloche and Buenos Aires), the library of the National Institute of Industrial Technology, the library of the Institute of Theoretical and Applied Research in Physical Chemistry and the ones of the Chemical Engineering Pilot Plant in Bahía Blanca and the National Research Centre in Santa Fe. All these centres help to palliate some deficiencies of the university libraries. These institutions belong to universities, to the government or directly to the National Council of Science and Technology Research).

¹¹ Herrera, Luis. *op.cit.* p.4

Programs and/or Projects Generated by the Ministry of Culture and Education

This Ministry, through some of their secretaries, is looking forward to solving some of the problems that are effecting higher education.

Project of University Interconnection Network (RIU)

In 1994 the Secretary of University Policies of the Ministry of Education decreed the creation of an information network in order to facilitate the interconnectivity of libraries, public universities and research centres. The national universities, totalling 36 in number, along with Consejo Interuniversitario Nacional (Inter-University National Council) and the Secretary of University Policies, are interconnected through their respective nodes. These centres (located in Buenos Aires, La Plata, Córdoba and Mendoza) and the equipment used by them are what is designated the “backbone” of the RIU. The RIU will be responsible for the network between the nodes, but will have no influence on what may happen within a node. Each node will be responsible for its content and will distribute information according to their policies and own priorities. The purpose of the RIU is to reach the highest possible number of end-users, including professors, researchers and pupils. Regarding end-users, the challenges are two: to inform the potential users about the usefulness of the network and to train them in its use. The universities will be responsible for the training of the end-users¹². This is an invaluable tool for the communication between the different information units of the Sistema Universitario Nacional (National University System).

Fund for the Improvement of University Quality - FOMECE

El Fondo de Mejoramiento de la Calidad Universitaria (Fund for the Improvement of University Quality) is the key instrument of the Programa de Reforma de la Educación Superior - PRES (Program for the Reformation of Higher Education).

“Shortly after the constitution of the Secretary of University Policies, in 1993, there was established the basis for the later “Programa de Reforma de Educación Superior” (Program for the Reformation of Higher Education), of which the FOMECE is a key instrument. The elaborate strategy worked out for the development of the university system can be synthesised in the following triad : (i) the evaluation of the quality of the university, (ii) the elaboration of plans, programs and projects for the its improvement, and (iii) the specific financing for the realization of these projects.¹³”

¹² RIU - UBA.AR Boletín Nro. 2, 1995

¹³ Infomec 2(3)1997 p.3

The FOMECA is a fund for competing projects, which must be evaluated. By this means it is possible to obtain the necessary economical funding for the realization of changes promoting the improvement of quality in the higher education. The secretary of university policies establishes a link with the University and this allows the presentation, approval and evaluation of the projects, in both the financial and academic aspects. The economic resources for this program are provided by the World Bank and the National Treasury. In the context of the improvement of higher education, FOMECA became one of the financing sources for the development of the university libraries. So far, three calls for the presentation of projects involving improvement of higher education have been made. We must emphasise the deadline (August 1st 1997) for the presentation of projects for the third call, which is in the area of training of human resources for libraries. The projects approved in the two first calls are currently being undertaken. These projects must be concluded in five years (first call) and four years (second call).

Sixty percent of 236 projects so far funded are in the science and technology domain. Apart from these, sixteen projects involving libraries of universities with degrees in science and technology have been approved.

TABLE 1: Projects in the library area approved in the first and second call¹⁴

region	university	conv.	type*
METROPOLITAN	Universidad de Buenos Aires	1	AU. - ML
BUENOS AIRES	Universidad de la Matanza	2	ML
	Universidad del Centro	2	ML
	Universidad de Quilmes	1	ML
	Universidad de General Sarmiento	2	ML
CENTRE	Universidad de La Pampa	2	RED
	Universidad de Río Cuarto	1	ML
CUYO	Universidad de Cuyo	2	RED
	Universidad de San Juan	1	RED
LITORAL	Universidad de Entre Ríos	2	RED
NORTH-EAST	Universidad de Santiago del Estero	2	ML
NORTH-WEST	Universidad de Jujuy	2	RED
	Universidad de Catamarca	2	RED
SOUTH	Universidad de La Patagonia Austral	2	RED
	Universidad de la Patagonia San Juan Bosco	2	RED

¹⁴ Bibliotecas. Documento interno de la Dirección Ejecutiva del FOMECA. Febrero 1997.

COUNTRY	Universidad Tecnológica Nacional	1	RED
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* AU - Academic Unit (School); ML - Main Library

Actual Situation and Investment Made in the Library of Science and Technology Area

After sketching the current situation of the Libraries, we must point out that due to the presentation of different FOMEC projects in diverse disciplines in our area of competence, there has been a substantial change in the resources available for the use by the information units. Here we present a table in which we specify the investment made in the areas of equipment (computers, printers, modems, etc.) and bibliography (on any media).

Regarding the equipment area, we present the requested amounts for the 16 library projects. As far as the bibliography area is concerned, these amounts are in addition to those requested by the library area plus those approved in the science and technology area that requested bibliographic materials. The figures given in the bibliography section correspond to 75% of the total funding assigned to that area in the case of the projects in the library area. We note this percentage because in every case of the purchases made by the national universities, it was demonstrated that the cost of the material of the areas of science and technology was higher than that of the other areas, spending up to a 70%-80% of the budget.

The results in this table show the level of investment made in both FOMEC calls.

TABLE 2: Total investment made in the two FOMEC calls

Geographic Zone	Library Equipment	Bibliography	Totals by zone for Equipment and Bibliography
Metropolitan	198,130	1,636,933	1,835,063
Buenos Aires	368,630	3,320,483	3,689,113
Centre	225,900	3,491,760	3,717,660
Cuyo	355,330	155,000	510,330
Litoral	614,264	365,417	979,681
North-east	126,101	276,042	402,143
North-west	538,400	974,755	1,513,155
South	446,490	513,080	959,570
UTN	1,564,250	483,100	2,047,350
TOTAL	4,437,495	11,216,570	15,654,065

In the METROPOLITAN zone only one out of four libraries in the area of the University of Buenos Aires received FOMEC financing - the School of Exact and Natural Sciences. Anyway, the acquisition of bibliography (databases and

periodicals) is an area that is covered up by the centralised purchases made by the SISBI. The financing needed by the three information units is related to the lack of equipment and training of the staff. Regarding this last item, the University of Buenos Aires presented a project to the third call with an extensive plan for the training of all the libraries of the REDUBA. We can say that the UBA has in this area a coverage of 25% from the FOMECE financing. The metropolitan zone has a 4% of Equipment and 15% of Bibliography, in the context of the total investment made by the FOMECE.

The BUENOS AIRES zone has benefited from four FOMECE financed approved projects, that at a regional level is up to 33% of the total for the universities. Three of these projects correspond to recently created Universities. So, we observe that in this zone, the effort is aimed to develop new libraries. In the majority of the cases the percentage for Equipment is 8% lower and this is due to the fact that in this area only the main libraries were financed despite the establishment of internal networks. Regarding the bibliography area, this percentage raises to 30% because here is included an elevated number of science and technology projects with a important amount for Bibliography (UNS, UNL). It can be deduced that this region is covered in the bibliographic area, but is lacking in the area of equipment as well in the area of staff training.

Summarising, in the METROPOLITAN, CENTRE and BUENOS AIRES zone, the area of Bibliography presents 76% of the total funds available. 53% of the national universities are concentrated in these zones and they have the three most important universities of the country. They have a total of 7 FOMECE projects approved. Taking these facts into account, it is logical that they requested the major amount of resources in this area. These three zones present similar characteristics in the level of development of their library services. If we look at the Equipment, they account for 17% of the total. The libraries in these zones are media-equipped with the appropriated technology and are connected to the Internet.

In the Cuyo zone, in which both Universities have projects for a Library Network, it is the only zone of the country that has 100% support from FOMECE. The major percentage of this investment is for Equipment (8%) because they have prioritised the development of resources aimed at the construction of internal networks that inter-connect the libraries and placing the collective catalogues on-line. And by these means, they can also solve the problem of the geographical dispersion of their locations. Regarding bibliography, we can say that the request was meagre (1%).

The NORTH-EAST and LITORAL zones have not benefited so well.. Both regions have three universities each. In the North-east, the Universidad de Santiago del Estero has an approved project for the main library, with the lowest equipment (3%) and bibliography (2%) percentages. This is a result of the type of project presented. We can deduce that the North-east region has benefited least in the whole country. In the Litoral, the Universidad of Entre Ríos presented a network project. In comparison this region has benefited because they prioritised the creation of a network for the inter-connection of the information units, percentages of 14% in equipment and 3% in bibliography.

The SOUTH and NORTH-WEST zones both have had projects for library networks approved. They were presented by the Universidad Austral de La Patagonia and the Universidad Nacional de La Patagonia San Juan Bosco, respectively. In the NORTH-WEST region these were presented by the Universidad de Jujuy and the Universidad de Catamarca. In these two regions, as well as in the CUYO region, the constitution of networks was of primary interest, which is reflected in the request of Equipment.

The Universidad Tecnológica Nacional covers up the 36% in the area of equipment and the 4% in bibliography. This high percentage in the equipment area is due to the execution of a project of retrospective conversion of the traditional libraries through the creation of an interactive multimedia centre for consulting and learning. The UTN-regional Santa Fé is the head of the pilot project, and later the other 30 campuses will be equipped to emulate it.

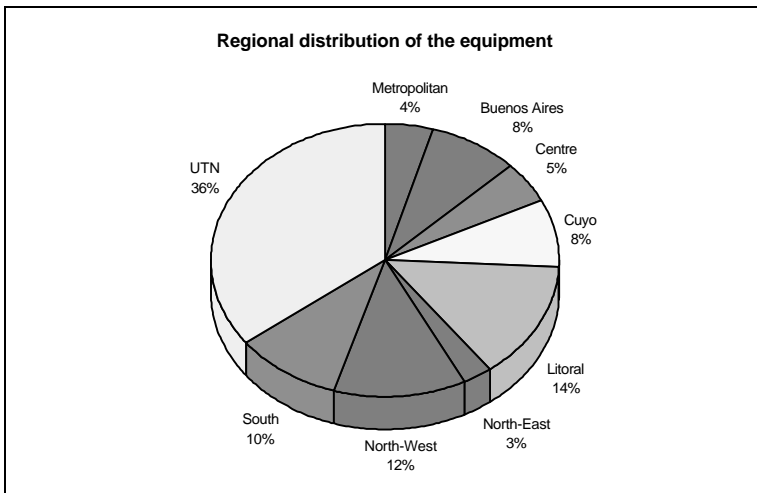


Figure 1

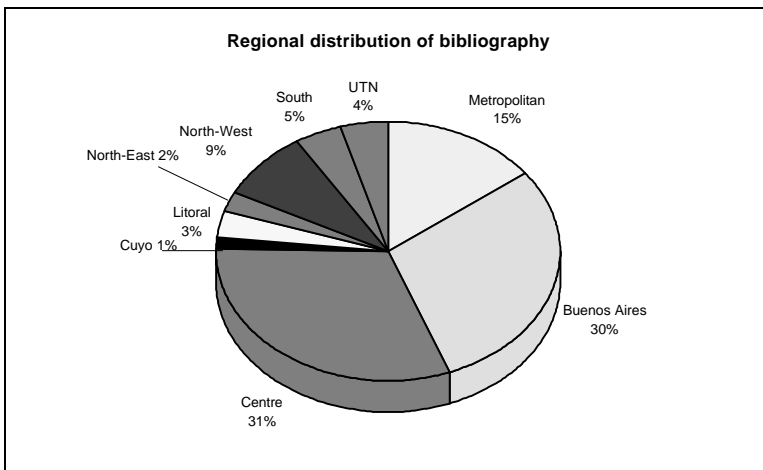


Figure 2

Final Conclusions

From the foregoing, it can be deduced that the university libraries in the area of science and technology are in undergoing a process of substantive change. The investments made and the utilisation of the RIU will help the libraries to increase

their possibilities of access to information. It can be inferred that the libraries with a major library development are the ones that better canalised the economic funds that the Ministry of Culture and Education has offered. They managed these opportunities in an efficient manner because they have skilled personnel or because the authorities of the corresponding schools had taken the decision to support the development of these libraries. An impact analysis of the investments made on different regions cannot be made, because there is no accurate information about the resources assigned to the science and technology area by the libraries, so a comparison can not be done. Anyway, it can be deduced that according to the general state of the concerned libraries, the above mentioned investments have not been enough. To conclude, we hope that the libraries could profit from the assistance received and can transform it in a sustained development supported by the necessary political back up.

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