

NEW PARADIGM FOR MANAGING INFORMATION AND TECHNOLOGY TO SERVE EDUCATION AND RESEARCH IN CUBAN TECHNICAL UNIVERSITIES

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Introduction

The University of Havana was founded in 1726 and engineering studies began in Cuba in the year 1900. Up until 1959 there were only four universities in the entire country. Today there are more than forty institutions of higher education in Cuba, and of these, eleven offer programs in engineering.

The Instituto Superior Politécnico “José Antonio Echeverría” or CUJAE as it is still known, is the former Faculty of Technology of the University of Havana, and is now the biggest and most important technological university in Cuba.

This University has now six faculties, twelve research centers, eleven engineering programs, 58 master programs, 864 faculty members and researchers, 5087 undergraduate students and almost 18000 graduate students. It graduates, in average, 600 engineers, 200 masters and 40 Ph.D.s every year.

In 1998 the Central University Library was in serious difficulties, principally because of deficient funding. Since 1990 Cuba had been in the grips of a grave economic crisis, caused partly by the disappearance of the Soviet Union, until then our main trading partner, and partly by the further tightening of the already long and tough US embargo upon Cuba. But, over and above this, the library did not have the technology or the trained staff it needed, and the information available for the university community was far from current. As a result, the library services were poor and did not meet user expectations. The library also suffered from a lack of leadership.

Many authors have argued that the traditional mode of operation of academic libraries has had its day. The library is changing with developments in information technology, teaching and learning methods and changes in society.

The academic library's traditional mode of operation is no longer effective because it cannot deal with the combination of funding problems, rapidly escalating costs of information resources, and investment in technology and human resources to meet increasing user needs. This is particularly the situation of many technical universities in developing countries, and librarians must discover new ways, or perhaps new paradigms, of operating if their institutions are to function successfully [3].

The Final Report of OECD Experts' Meeting on Libraries and Resource Centers for Tertiary Education [1], held in Paris in 1998, established some valid conclusions:

With regard to the future design and organization of libraries, four general conclusions were agreed to by experts:

The library sets an image: New and renovated libraries will provide a visible, identifiable and physical image for tertiary education institutions to attract students, teachers and researchers.

The networked library and professional development: The new library is integral to learning by educating towards a critical use of networked resources. The need for staff and students to be trained or re-trained is recognized as critical and must receive adequate funding.

The role of the library: Protecting cultural heritage remains one of the fundamental roles of libraries. Librarians are faced with a new mission to guide students, professors and whenever possible, the whole community in the digital world.

Flexibility: New library facilities should include as much flexibility as possible to meet the needs of today and the future, particularly with concern for rapid and unpredictable technological development.

Perhaps of greatest interest are the concepts that were used to describe the library of the future:
Market-driven library delivery,
Product-based library,
Knowledge managers,
One-stop-shop for learning.

These conclusions and concepts are, without doubt, open to discussion, but they may constitute a good starting point, or benchmark, for a rethinking of the organization and administration of “new age” libraries.

The new paradigm

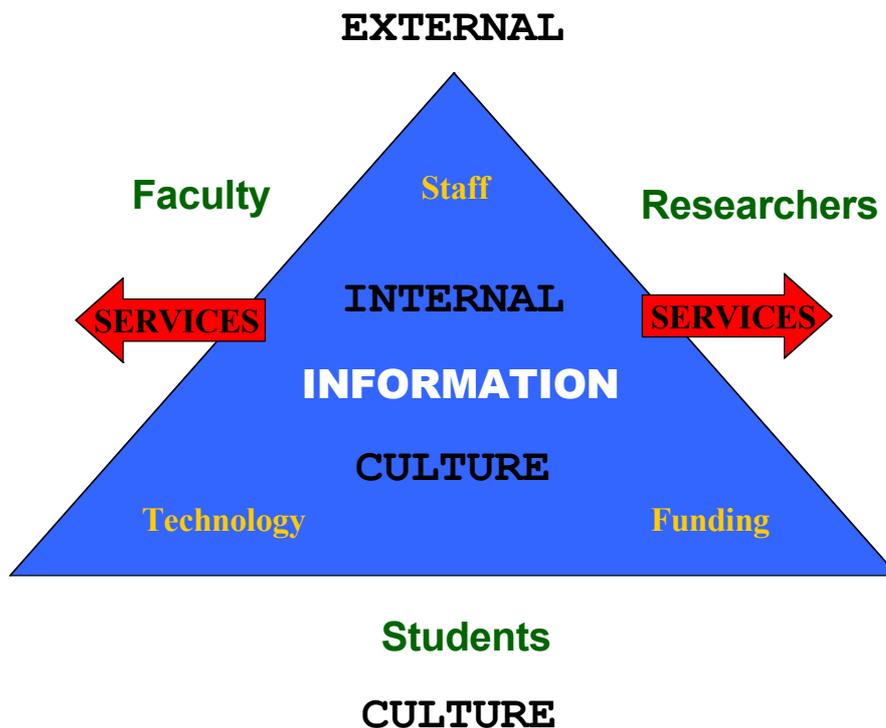
Early in 1999 the senior administration of the University decided to appoint a new team to run the Library. These new librarians were given the task of operating in an innovative and creative fashion in order to bring about a positive change in the way the Library functioned and in the services it offered.

The main component of leadership is the ability to create a new vision or to revise an existing one and to link it to a strategic plan for implementation. A change of concept or vision in an academic institution is a long and difficult process, but when the new concept is attained and serves as a long-term aim, it has a chance of success [4].

Under these conditions a new library mission was adopted: ***The university library must be recognized as an innovative, responsive provider of information services and knowledge manager committed to meeting the needs of users by taking a leadership role to select, organize, provide access to, and preserve information resources and the education of users about their utilization.***

From a very pragmatic point of view the scenario we were facing in our university library could be represented by the following figure:

APPROACH TO A NEW LIBRARY PARADIGM



We divided the scenario into internal and external. The internal scenario had to deal with the problems of funding, staff training and accessing new technology; but, at the same time, we had to redefine the information acquisition policy in order to know what kind of information we really needed. Besides integrating everything, we had to create a new “internal culture.”

The external scenario is where we find the users of the Library – students, faculty and researchers -- but also other possible users from outside the university, such as businesses or other institutions. Here, too, it was essential to create a new culture, taking steps that had to be initiated in the main by the librarians themselves.

The internal scenario

With regard to the internal scenario, work began on three main fronts simultaneously: quest for sources of funding, staff training and access to information technology.

In the matter of funding, we followed two paths in a reasonably aggressive way. On the one hand we went in intelligent pursuit of funds that might be available at the Ministry of Higher Education or other sources of funding, both Cuban and international. On the other hand, we created new services and information products, with value added and a high degree of personal attention, which would enable us to generate additional sources of funding.

Over the past three years, these new services and information products have come to include:

- photocopying, printing and binding of documents;
- retrieval of personalized information for businesses, institutions and researchers;
- A permanent look out service for specific research areas;
- Electronic scanning system;
- Internet reading room (12 hours per day);
- Full text study books on the net;

Publication and marketing of seven technical journals put out by the University (Arquitectura y Urbanismo; Ingeniería Electrónica, Automática y Telecomunicaciones; Ingeniería Energética; Ingeniería Industrial; Ingeniería Estructural y Vial; Ingeniería Hidráulica y Sanitaria)

Staff training proved to be an immensely important undertaking because nothing could be done without skilled librarians. The great majority of the 39 employees of the Central Library, as well as the other 15 of the departmental libraries, were librarians of the old school, unfamiliar with information technology or with the handling of information in digital format.

After a collective analysis of the question, we came to the conclusion that the employees had to become familiar with areas such as:

Quality of service.

Retrieval of electronic information.

Computer skills and information technology.

The English language.

The upshot of this was that starting in 1999 staff training programs became an annual event for everyone in the Library, the results of which can be evaluated in systematic, collective analyses carried out by the University administration and the librarians. Furthermore we regularly survey the Library users to find out their opinions about the services offered.

As regards access to information technologies, an analysis by the senior administration of the University led to the installation of the fiber-optic backbone in the Library and a hook-up to the University web which made it possible to access the internet and other networked applications.

Over and above this, the Library directors have earmarked a significant percentage of the funds that were made available for the purchase of up-to-date computer equipment and other resources in order to improve services.

All of this has made it possible to automate many of the services offered to the University community and, thanks to a new intranet, to make Library services available to the more than eleven hundred computers across the University.

Another area requiring particular attention was the University's and the Library's information acquisition policy, because the limited funds had to be used as efficiently as possible. This led us to a number of important decisions:

To cease forthwith the purchase of journals in printed format, and to acquire exclusively digital versions which, as we know, offer a range of advantages.

To acquire in printed format only those materials whose importance had been formally sanctioned by a Department of the University.

To acquire licenses that would give us access to specialized information on line.

To create a virtual centralized library for the use of the entire University.

For the acquisition of licenses, which usually prove to be expensive, CUJAE, with the backing of the Ministry of Higher Education, led the way to forming a consortium of Cuban universities which collectively contribute funds for this purpose.

After more than three years of intensive collective effort and the implementation of the ideas and activities mentioned, we can now see the flowering of a new organizational culture among the

librarians, and this has led to greater professional fulfillment for each individual and to an enhanced sense of commitment to the University.

The external scenario

The fundamental issue concerning the external scenario is the training to be given to library users so that they can make the best use possible of the information resources available to them.

The skills required of a member of the university community in the electronic age are totally different from those once demanded in an age of traditional information. The identification and location of individual resources in the traditional libraries was a finite task, determined by the limitations of the collection, and it required principally the ability to navigate the library catalogues and the classification system used in the stacks. To identify and locate resources in an electronic world, on the other hand, may well prove to be an endless task. As we continue our transition from a traditional age to an electronic age, the need for information skills becomes increasingly urgent [2].

It is this relationship between the growth of information and the increase in complex technology to manage it that causes this change in information skills. From this relationship three main categories of required information skills emerge. Firstly, the increase in the location, scope and volume of information leads to a growing need to evaluate that information. This involves the evaluation of the quality and the filtering and elimination of excessive information, and the focusing on specific needs. Secondly, there is a need to become familiar with the various sources and skills needed to handle the complex technology in which the information lies hidden. Thirdly we have the logical and linguistic skills required on the one hand to formulate the information needs and to make them explicit and comprehensible to IT systems, and on the other hand to read, decode and interpret the information electronically obtained. As a result, the necessary information skills required to navigate successfully through the electronic world and to retrieve the best information have changed both qualitatively and quantitatively [5].

To deal with the training of library users, the Library devised three solutions depending on the kind of user involved. These were:

A 16-hour course for first-year students in engineering programs;

A 4-hour seminar-workshop for faculty and researchers;

A distance learning (e-learning) on the intranet for anyone who wanted to take advantage of it.

These solutions come with personalized attention for the user whenever he or she requires it, and an effort is made to maximize contact between librarian and user.

All of this has helped significantly to change the thinking towards IT and information culture among members of the University community of the CUJAE. One could also mention that all this learning process is increasingly being improved because students entering Cuban universities are better trained in computer use and IT, thanks to the growing tendency to include computer studies starting in primary school.

To sum up

This process has meant an intense and enormous undertaking for all the librarians, but the results have been highly satisfactory, as the surveys of library users show. More than eighty-five percent

of users were happy with the Library's services, as opposed to only 45% in previous year surveys.

Furthermore, morale among librarians is higher since their working conditions have improved, and there is a greater recognition of the quality of the services they offer.

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