Chapter 2

The Automation of
University of Zimbabwe Library

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The stories of the automation of various university libraries have been written in recent years all over the world, as scholars take stock of their intellectual heritage and try to situate higher education in the context of knowledge production. Librarians in developed countries boast a growing historiography. However, according to Shillinglaw, academic libraries in developing countries have received less historical attention in relation to technological innovation and computerization.[1] Therefore this chapter tries to fill a gap in the history of university library automation in developing countries.

The history of the automation of the University of Zimbabwe Library started in the 1980s. From then, librarians at the university witnessed a gradual transition from the conventional or traditional library, which had only the most rudimentary form of mechanization, to the current fully integrated, networked electronic library. The late 1980s were also characterized by a growing awareness at UZ library of the importance of ICTs. Initially, this came as a result of reports on the overseas experience of librarians who went on professional visits, or who had worked in the United States, Europe and elsewhere, and this led to conditions appropriate for the initiation of similar automation processes.

The development in the 1980s of the CD-ROM as a compact, cheap and robust method of mass data storage revolutionized the way in which databases were distributed and accessed. The American Association for the Advancement of Science (AAAS) undertook three-year pilot projects that provided seven African universities with CD-ROM databases in the sciences and social sciences as well as document-delivery assistance; UZ library participated in this pilot project, which was a major success. In the pilot project, the Ford Foundation supported the library with computer equipment, while Sida–SAREC paid for all CD-ROM subscriptions to *Arts and Humanities Index*, *Chemistry Citation Index*, *Science Citation Index* and *Social Science Citation Index*. The UZ library launched the

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[1] N. Shillinglaw, 'Design for a new library – the UNISA library in UNISA's 130th year: Dealing with distance education in the electronic era', *Mousaion* (2003), 21(2): 41–6.

project in 1994 when AAAS held a three-day workshop in the library. The library publicized CD-ROM in a variety of ways, including demonstrations, meetings with faculties, posters, etc.

The Automation Project at UZL

Automation proper – meaning 'the acquisition, organization and circulation by electronic means of library materials, accomplished by use of a specialized library management system or software' – started in 1996 when a grant of US$1,300,000 was received from Anglo American Corporation in Zimbabwe towards the library automation project. Anglo American supported the library upon the realization that the spectacular growth of the Internet and continuing massive reduction in the cost of digital storage and information retrieval would tremendously benefit academics' research outputs, and learning and teaching processes. The grant was to provide equipment to set up Internet services and procure a library information system and related equipment.

The Erudite Library System

With this grant, UZ library purchased the Erudite library information system and a connection to the Internet. Soon after the signing of the license agreement and the installation of Erudite, major challenges, particularly in regard to technical issues, surfaced. These arose because:

- No proper feasibility study had been carried out before its selection and implementation.
- University management and the majority of the library staff were not involved in the selection of the system.
- There was limited knowledge of the system and its value to the user community.
- The detail of the licence had not been well negotiated by either party.
- Back-up and technical-support services from the vendor became un-sustainable.

Furthermore, no meaningful training was provided, making it difficult for library staff to grasp the fundamental issues of the system.

By 1999 the pilot automation project had been discontinued. Love *et al.* suggest that information systems selection and evaluation should combine both a goal-based and qualitative approach.[2] At UZ library, the initial automation process, system selection and implementation did not adhere to stringent

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[2] P. Love, A. Ghoneim and Z. Irani, 'Information technology education: Verifying indirect costs using the structured case method', *Journal of Enterprise Information Systems* (2004), 17(4): 312–25.

selection and evaluation procedures. This may have led to the difficulties in implementing it.

Feasibility Study for Library Automation

In 1999 the university engaged Sida–SAREC consultants to carry out a feasibility study on library automation. The two consultants produced a far-reaching report with practical recommendations on library automation, which included:

- developing an infrastructure for communicating with all participants in the planning process;
- defining the problem to be addressed through automation;
- needs assessment;
- determination of staffing needs and financial resources;
- project budget preparation;
- assistance with technical aspects of planning that go beyond the library's staff experience or expertise.

Library Automation Steering Committee (LASC)

In 2000 LASC was formed, chaired by a Pro-Vice-Chancellor, with a mandate to oversee the planning, selection and implementation of the library information system and other automation projects. The committee met once or more every month, depending on the urgency of the business, to review the overall progress of the project, to approve development plans and programmes, and to discuss administrative issues related to the acquisition of software, hardware and other supplies. It was the aim of the university administration and library management to select and acquire the most suitable or appropriate information system in the circumstances. The successful implementation of the system and its subsequent progress are due to the active and effective role played by the university's top management, library management and staff, the Computer Centre staff and other key stakeholders.

Library Automation Strategic Plan (LASP) Committee

The function of the LASP Committee – unlike LASC, which had an administrative role – was to implement the automation of the library, including testing, implementing, modifying and problem-solving. The team was headed by the library's IT manager, who reported directly to the Librarian and subsequently to LASC meetings.

The Library Automation Strategic Plan became a guiding instrument during the planning and implementation phases. In LASP it was broadly agreed that automation should always be used as a means to achieve better overall service to patrons. The plan had the following components, among others:

- setting up project implementation structures and the recruitment of staff for the information technology division;
- hardware acquisition and installation;
- acquisition, installation and implementation of the library information system and application software;
- staff training;
- monitoring and evaluation.

Collaboration between the Library and Computer Centre

The library and the Computer Centre staff collaborated throughout the library automation process. A unit of the Computer Centre, the Library Information Technology Unit, was established and located in the library. The UZ library and the Computer Centre have maintained an excellent relationship that has contributed to the smooth implementation and successful running of the library automation project.

Steps in Selecting an Integrated Library System

In 2000 LASC began to look for a library system that would have the features for integration, MARC compatibility and network capability. The following specific steps were followed in selecting a library system:

1) Identifying and analysing technological needs that met with the library objectives. All library stakeholders were involved at this stage. It was agreed that selection of a library system must not be left solely to computer technology specialists with no library training. Consultation embraced the whole user community, led by the library.
2) Determining the resources available within the library or the organization, including human resources, financial resources and existing infrastructures.
3) Examining in detail different types of software for automating libraries, including in-house systems, commercial and open-source software.
4) Finding out about the library information system developers, whether an institution, a reputable company or individuals.
5) Developing criteria for evaluation based on needs assessment.
6) Finding out how frequently the system has been revised or updated since its first launch.
7) Ascertaining the availability of training and guidance during and after installation.
8) Ascertaining the support capability of the vendor.
9) Requesting the vendor for a demonstration and presentation.
10) Visiting other libraries that use the same library information system.

11) Determining and comparing the initial and total costs of each library system.
12) Selecting and acquiring the appropriate software for the library.

Selecting a Vendor

Although a number of systems were investigated and analysed, in 2000 the Innovative Interfaces Millennium system was deemed to be the most suitable for the university library because it provided for the computerization of library functions of acquisition, cataloguing, classification, OPAC and others.[3] The system was also found to be compatible with several national bibliographic communication formats. Other features that attracted UZ library to choose the Millennium system were:

- Clear vendor proposals.
- Excellent vendor demonstration and presentation of the system.
- Vendor credibility, regional and international experience.
- Customer support and back-up service, as experienced in other institutions where the system was installed.
- Research and development capability to upgrade and update the system.
- The high quality of the Online Public Access Catalogue (OPAC) and other system modules.
- The adaptability and flexibility of the system to keep up with rapidly changing technology and to smooth its successful implementation in the region and the world at large.

Contract with the Vendor

Negotiation and drafting of the contract with the vendor took place in 2000. It was lengthy and cumbersome to make sure that the university got the best out of the contract. It involved legal counsel, the university administration and library personnel in drafting and evaluating a contract. The parties also compared lists of necessary contract elements in the actual contract. Innovative was to formalize pricing and payment schedules, warranties and a maintenance obligation. The contract also took into account safeguards conformance to legal requirements necessitated by the university administration through its lawyers.

Implementing the Library System

The Innovative Millennium system was installed and implemented in 2001, and the library gradually started to convert its manual catalogue to an electronic

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[3] Millennium is also sometimes referred to as Innopac, the name used for the first library management system developed by Innovative Interfaces, see < http://www.iii.com/about/25.shtml>.

one. Other modules followed, such as the OPAC, the circulation module, the acquisition module and the serials check-in. This phased approach ensured maximum use of manpower and a systematic implementation and testing of the various modules.

This was an exciting period for the whole academic community. The phase involved:

- Customizing the Millennium system to the library's policies.
- Installation of hardware and software and the acquisition of the necessary supplies and peripherals.
- Loading the SABINET bibliographic database.[4]
- Training staff, realigning workflow and space.
- Evaluation.
- Acceptance of the system.

Once the system was accepted and implemented, retrospective conversion of records started. The bibliographic division prepared a plan for the exercise, which was to be implemented immediately. The retrospective conversion project was expected to be completed in three years but, owing to several factors, particularly financial and manpower constraints, it extended beyond the stipulated period, although it was about 95 per cent complete.

Challenges

The library automation project experienced a number of challenges in relation to user expectation and user attitudes.

Expectations of users

During and after automation, library users were gripped with a crisis of expectations. The library automation system promised to bring huge benefits to the academic community. The challenge was equally on the library to deliver tangible benefits to the teaching, learning and research processes of the academic community. Students and the academic staff expected the new library system to deliver rich scholarly electronic resources quickly to their desktop. The library measured up to the users' expectations by successfully sourcing assistance to subscribe to hundreds of electronic journals and other databases.

The benefits that accrued from the introduction of the library system cannot be measured solely by the number of online resources available to the library user but by the use made of them and the satisfaction of the user. More and more students are now using online journals and other databases. In 2005, 14,000 students used the Internet on a monthly basis, giving a total annual figure of

[4] See Chapter 3.

174,000 users. The OPAC, the circulation system and other online resources have hugely facilitated user satisfaction; library patrons no longer have to go laboriously through the card catalogue. By continuously adding value to the products it provides, UZ library clearly demonstrates that it intends to satisfy the users' expectations. For example, through automation, the library has created a number of online databases, such as the Electronic Theses and Dissertations (ETD), the Institutional Repository and the Past Examination Papers database, to name just a few.[5]

User attitudes

As indicated above, the introduction of the new automated system raised anticipation, and sometimes anxiety, among library users. The older generation of academics felt challenged by the new system because learning to use ICT resources was a new phenomenon. The main challenge for the library was to change the mindset of users through concerted and co-ordinated training. First, the deans of faculties and other senior academics were introduced to the new system through workshops and meetings. Information literacy skills training, through which ICT-related skills were introduced to all first-year students and subsequently to postgraduate students, assisted other academics to see the value of the new automated system and the use of e-resources.

Lessons Learnt

A number of lessons were learnt during the planning and implementation of the library's automation project.

Involvement of top administrators

A project as strategically important as this needs the leadership of the top management of the university. The Vice-Chancellor and his senior administrators were actively involved in the planning and implementation of the library information system project. In addition, all other stakeholders, including deans of faculties and chairpersons of departments, were involved.

Partnership between the library and the Computer Centre

From the failure of the Erudite project, the UZ library learnt that, in order for a library information system project to succeed, strong collaboration between the various university information units, and particularly with the Computer Centre, had to be forged. The partnership between the library and the Computer Centre led to the creation of the Library Information Technology Unit. Right

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[5] See Chapter 4.

from the initial stages of the library information system project, the Computer Centre provided strong support. It was also pleasing to note that the university administration encouraged joint committees for the planning and implementation of the library information system. The Computer Centre also provided ICT expertise and resources, including installing the library information system on its server. Furthermore, the Computer Centre provided assistance in the selection of equipment and networking of the entire library, as well as ensuring that ICT standards were adhered to.

Clear objectives

It was critical to invest time in setting objectives at the earliest stage of the project, and in putting a well-structured Library Automation Strategic Plan together. The LASC team set its objectives and could therefore deal with challenges. There was consensus among the team of where it was and where it wanted to be.

Identifying the needs of stakeholders

Right from the initial planning stages, the needs of all stakeholders were taken into account, and the involvement of a cross-section of the academic community was considered of prime importance.

Project commitment

It was learnt that the automation project needed to be managed by people who could spend 100 per cent of their time focused on the project. A project this strategically important needs an absolute focus. Staff were thus dedicated to the implementation of the project.

Staff

A critical factor in the planning and implementation of the project was the availability of staff with the required ICT and related skills. A lesson had been learnt that the library could not operate a massive automation project without a dedicated ICT unit based in the library itself. This decision led to the establishment of this unit and the employment of an ICT manager, an assistant and support staff to manage the automation project.

Training

Training was given top priority right from the beginning of the automation project. Rigorous in-house and formal ICT and related library information systems training was done regularly to develop the capacity of library staff to manage the ICT facilities, resources and services. To date, all the staff

except junior staff are computer literate at various levels, and others have been trained in different aspects of ICT applications, ranging from data entry and e-mail communication to troubleshooting, Web-page development and system administration. Training continues up to this day in various aspects of ICT and library automation.

Sustainability

A major aspect of the implementation and management of a library automation project is its sustainability. It was important for UZ library to include strategies about sustainability in its strategic plan. One of the challenges in automation projects is dealing with the contradictory anticipations of donors and the beneficiary communities. No assistance programmes will continue indefinitely. When donors start a project, they usually have an exit strategy; they assume that local organizations must find a way to sustain the project. However, most institutions cannot sustain the projects, partly because of lack of funds, human capital or conflicting project priorities. The university itself must have the capacity to sustain its ICT infrastructure, equipment and software. The campus-wide network must be maintained and upgraded on a regular basis, otherwise the library automation project runs the risk of not being sustained in the longer term. The technical sustainability of the Innovative Millennium system now lies with the Computer Centre, which is also responsible for annual licences. The university budgets annually for the licence fees and pays them.

Conclusion

Much of the progress achieved during the course of the University of Zimbabwe Library's automation project was due to the active participation of top university management in overseeing the planning, selection and implementation of the library information system, as well as the involvement of key stakeholders, including the library and the Computer Centre. After the failure of the first project, the university management put in place measures to ensure that all the necessary steps were followed up to the signing of the licence agreement. The feasibility study carried out in 1999 initiated by the university administration provided clear guidelines on how to approach library automation. The phases that followed the planning, selection and implementation of the library Information system ensured the successful progress of the automation project.

Library automation activities have expanded significantly during the past five years to include a number of in-house online databases. Training of library staff as well as users in the use and retrieval of information resources has been a key feature in UZ library's strategic plan and various subsequent action plans.