

# PLANNING FOR THE AUTOMATION OF THE UNIVERSITY OF DAR ES SALAAM LIBRARY

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## **Abstract**

The paper examines the planning process for the automation of the University of Dar es Salaam Library. The planning phases described include the preparation phase, planning for implementation and database construction. The major issues during the preparation phase are the discussion on the context of automation, proposal write-up, and the formation of various Library Committees to oversee the implementation and stakeholders' workshop. Phase two planning activities described are technical aspects such as network design and implementation, hardware and software selection and procurement. Others are the memorandum of understanding and putting the system in place. In setting up the system planning, activities described are missions by technical consultants and software engineer and planning for training. Planning for database development is discussed in the third phase. Planning activities in this stage are retrospective conversion, standardization and quality control, maintenance and backup issues. The paper concludes by summarizing the planning areas that were successful and those in which improvements could have been made.

## **Introduction and background to the automation of the University of Dar es Salaam Library**

In the developed countries technological changes have had significant impact on library services since the 1970s. These technological transformations have mainly been in the use of computers in library operations. Computerization of library services has improved the efficiency and effectiveness of the services. Consequently the planning for the automation of library and information services is a legitimate area of concern to many library professionals both in the developed and developing countries. The library automation planning is normally undertaken in stages or phases. These stages may include feasibility studies; system selection; installation and system evaluation.

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- **The historical context of the UDSM Library automation project**

The University of Dar es salaam Library was established in 1970 to serve a total population of few hundred users. The library has since then been expanded space-wise to cope with the increase in the number of users and growth in the collection size. Today the library has total resources of around half a million volumes in printed, microform and electronic formats. Currently the library serves a user community of about 10,000 students and 3,000 staff. The library has 6,000 registered users. Today UDSM library has an integrated library automated system. The entire library system has a total of 136 computers. Among these 58 computers are dedicated for in-house library activities including cataloguing, registration, circulation etc. Fifteen computers are OPACs for users to access the library catalogue. Thirteen departmental libraries have been organized and their resources have been included in the computerized university library union catalogue. Additionally, the library subscribes to 17 CD-ROM databases. Six computers have CD-ROM drives while five have DVD drives. Currently the library subscribes to 9 full text online electronic journal services and two online databases. Access to international online databases and journal services started in 2001 as part of the Programme for the Enhancement of Research Information (PERI) coordinated by International Availability of Scientific Publications (INASP). The Library has several locally created databases. These include the bio-diversity, regional bibliographies, and civil society databases.

How was the automation of UDSM Library planned? Initial discussions concerning the feasibility of automating the UDSM Library took place in the mid-1980s. In 1985 an Ad-hoc Library Automation Committee comprised of librarians was formed to examine this feasibility. The Adhoc Library Automation Committee was formed as a result of a recommendation made in a study by two librarians in 1985. The study is titled "Feasibility study on the computerization of the UDSM Main Library". However, the formal planning and implementation of this project only started with the initiative taken by the Planning and Management Unit (PMU) of the University of Dar es Salaam in the mid 1990s. This initiative was part of the University-wide institutional transformation programme. As part of this programme PMU designed a Technology Master Plan for the entire University. The Information Technology Master Plan for the University of Dar es Salaam had six major projects including Academic Registration Information System, Human Resource Information System, Financial Information System, Management Information System and Library Information System. The automation of the library was therefore part and parcel of the University's strategic objective of improving and making its services more efficient and effective. However, while the planning and implementation of the library

project was within the broader context of the University's Information Policy the Library had recognized the need for the computerization of its services prior to the University-wide initiative as noted earlier. The Netherlands Government supported the University of Dar es Salaam Information Programme. The Delft University of Technology (DUT) played technical advisory role within this programme. Sida/SAREC and Carnegie Foundation of New York provided the funding for the automation of the library project. At the University of Dar es Salaam the Planning and Management Unit (PMU) coordinated implementation of the Information Technology Master Plan. Planning process also involved the relevant units and the technical support of the University Computing Center (UCC). What this shows is the existence of a number of key stakeholders in the planning process of this project. The planning authority was distributed and coordinated among these competing and cooperating groups and was not vested in one group.

This paper addresses the planning process and experiences of automating the UDSM Library. It is a critical examination of how the planning for the automation of the UDSM Library was undertaken.

### **Literature Review**

Planning is the process of setting goals, objectives, developing strategies, and outlining tasks and schedules to accomplish the goals (Branch, 1966). Planning is therefore the foundation upon which implementation depends. Although logically it would appear that planning process ends when implementation begins in practice planning is a continuous process. There is nothing like a complete or final plan because new situations arise during the implementation phase that may require further planning or revision of the original plan. This implies that a good planning process has to have an in-built flexibility. Substantial amount of literature (Nwalo, 2001, Ashoor, 2000; Mulimila, 2000; Mutula, 2000, Ondari, 1999) exists on the process of planning for the automation of libraries in the context of developing nations such as Tanzania. Most of the previous studies have identified a number of key areas in planning the automation of library systems in developing countries. Among the major factors discussed in these studies include the coordination and cooperation between various stakeholders who might have interest in the automation project. According to Ondari (1999) these stakeholders are normally within and outside of the library or even outside of the country. The planning process has to address the needs of each of these groups and provide for the coordination of the groups by outlining the organizational structure of the implementation tasks and responsibilities for each stakeholder. The second most significant element observed in most of these studies is planning for training and the broader issues of capacity building. Most of the literature reviewed indicated that skills and expertise in planning and operating automated libraries does not as yet exists in many of

the developing countries and there is substantial over-dependence on foreign expertise in this area. The experiences from of Moi University-Kenya (Ondari, 1999) and Sokoine University-Tanzania (Mulimila, 2000) show how training though an important component was initially not considered a significant item of expenditure in planning the automation of these libraries. Indeed the debate still rages on the level of expertise the library staff should have and whether to outsource most of the required expertise for automating library services.

The third significant area that has emerged from the previous studies on planning library automation is funding and the broader issues of sustainability of such projects in the context of developing societies. The dependency on donor support for automation of libraries in Africa is a much-criticized phenomenon in the literature. In the case of Moi University Library the support was from Overseas Development Agency (ODA) (UK) and VIRL (Belgium) for Sokoine University. Although donor dependency syndrome has negative implications for the long-term sustainability of such projects yet mobilizing funding including attracting donor funds is a critical strategic initiative in planning library automation in societies with limited financial resources. Thus, however bitter, the dependence on donor support is something that cannot be easily wished away in the contemporary era.

A fourth prominent issue coming out of the previous studies is the attitude of library staff toward automation of library services. Ondari (1999) reports that at Moi University the professional senior library staff espoused negative attitude toward the automation of the library services. However, Mulimila (2000) reports that at Sokoine University library staff was very supportive of the new technology. In most cases the literature shows that planning process has not taken into account the impact of library staff attitude in successful planning and implementation of the automation projects and the need to plan for the attitude change is almost lacking.

Finally, many other challenges are observed in the literature in planning library automation. These include: inadequacy of infrastructure (for example fewer telephone facilities, erratic power supplies, slow internet connectivity), expensive hardware and software etc.

### **Methods of Data Collection**

Data for this study was based on the analysis of documented records relating to this project and the key informant interviews. Most of the information was gathered from the records in the University of Dar es Salaam Library. Key informant interviews were conducted with some individuals who were involved in the planning and implementation of this project.

## **Findings**

The planning process for an integrated library automation system of the University of Dar es salaam can be divided into three main components. The components are preparatory, planning for implementation and database development.

### **Preparatory phase**

During the preparatory phase the major planning activity was the write up of the project proposal for the automation of the UDSM Library. Others were the formation of the Library Information System's (LIBIS) Committee and the holding of the stakeholders' workshop.

- **Proposal for the Automation of the University of Dar es Salaam Library**

The project proposal write-up was the first concrete step in the planning for the automation of the UDSM Library. The project proposal was completed in January 1997. The Delft University of Technology (DUT) wrote the proposal in collaboration with the University Computing Center (UCC) of the University of Dar es Salaam. The library was not involved in writing the draft project proposal for the automation of the University Library services. However, the library was requested to submit its comments on the draft project proposal. The Ad-hoc Library Automation Committee read the draft proposal and submitted its comments.

The Proposal for the automation of the UDSM library services first described the major objectives of the Library Information System (LIBIS); the scope of the activities, the justification for LIBIS and the major project activities to be undertaken.

Second, the proposal elaborated the implementation phases of the LIBIS project. Phase one is preparation and specification. The planned activities to be undertaken in this phase included finding ways of converting manual records (such as manual catalogue) into computerized formats; designing and specifying technical infrastructure (e.g operating systems, network systems, types of computers etc); survey of training needs; contract negotiations with software vendors. The proposal gave details of the decision-making structure; for example, University Computing Center in consultation with Delft University of Technology was to make decisions on hardware. The application was to be carried out by Library Information System Project Team supported by the software engineers from University Computing Center. However, the Library Director was recognized as the final decision-maker on all issues relating to the computerization of the University Library.

Phase two of the LIBIS project was expected to be largely technical and dealt with the implementation process. The main activities identified in this phase include the procurement of facilities such as equipment, system

software, and application software. Other activities were designing an organizational framework indicating responsibilities and tasks for library staff, application manager, technical staff and so forth. The training of professional IT skills; installation of workgroup Local Area Network (LAN) segment (linking separate workplaces in the library); installation of hardware facilities (such as server, workstations, system software); building and converting databases were other planned activities to be undertaken during the second phase.

The third phase of the LIBIS project was the installation of remote hardware facilities. The proposal was to cover the entire University of Dar es salaam Library system, which includes the departmental libraries and other units in distant locations. The establishment of the authorization measures was planned for this phase. This was to ensure the security of the system and data contained in them from abuse and unauthorized use.

Third, the LIBIS project was planned to be a two-year project to be implemented between January 1998 and October 1999.

Fourth, the proposal described the organizational structure for the implementation of LIBIS. Within this structure, the University of Dar es salaam Information Technology Steering Committee was to make final decision, conduct monitoring and evaluation of the project. The LIBIS Manager was to oversee the day to day management, budget and quality control. The Library Director who appoints the LIBIS Manager carries the final responsibility for the execution of the project. The consultant was to be contracted from Delft University Library to assist the LIBIS Team on technical matters and procedures since the University of Dar es Salaam lacked a qualified, skilled and experienced Manager. The consultant was also to do on the job training and thus transfer skills and experience in the project management and develop an organizational framework for system use and system management and implementation of organizational arrangements. The specific application training was to be carried out by the vendor of the software.

Fifth, the proposal provided a tentative budget for the implementation of the project. Budget items included equipment, materials and human resources development.

The Ad-hoc-Library Automation Committee discussed the project proposal as part of the planning process and submitted a revised proposal for the implementation of Phase one. The committee recommended that the library to be fully involved in all the planning processes of automating the library service. The committee also observed that the proposal was lacking detailed information about the library: for example the number of staff, users, professional skills and level of computer knowledge, the size of the collection, the projected collection and user growth rates etc. In turn the committee provided this information.

- **Formation of the LIBIS Committees**

The Library Academic Staff Meeting recommended the formation of two LIBIS Committees to oversee planning and implementation of the automation of the library services. The two committees were Internal LIBIS Committee and University-Wide LIBIS Committee. All Head of Sections in the Library formed the Internal LIBIS Committee. This committee was formed in April 1997. The Terms of Reference (TOR) were drawn in December 1997. In writing the TOR the Committee was guided by the TOR of the University of Zambia Library Automation Committee. The University-Wide LIBIS Committee was formed in May 1998. The members of this Committee included representatives from University Computing Center and Planning Management Unit of the University of Dar es Salaam (UDSM), end-users and librarians. This Committee had its first meeting in June 1998. The two committees were expected to articulate the needs of stakeholders in the planning and implementation process.

- **Stakeholders Workshop**

Stakeholders' workshop was held at the UDSM Library to discuss the modalities of implementing the LIBIS project in March 1998. Workshop participants included all library academic members of staff, representatives of the library administrative staff, the UCC Director and Delft University of Technology Consultants. This was an important planning meeting, which provided an opportunity for the library staff to raise important questions on the project. In this workshop budget and sustainability issues were discussed at length.

### **Planning for implementation**

Component two of the planning for the automation of the UDSM Library services was planning for the automation system, training and installation. This included making choices on the type of software and hardware, the type and levels of training to be undertaken.

- **Technical Aspects**

The plan was for the UCC in collaboration with DUT consultants to design, install, test and certify the LIBIS Local Area Network (LAN). Temporary cabling was done by UCC in May 1998. The temporary network points for the various sections in the library were in place by October 1998. The design for the permanent LAN was completed and a 13-page proposal was submitted to UDSM Library by UCC in June 1998. The implementation was planned to take 40 days. Work on permanent LAN was completed in July 2000 by UCC.

The UCC and DUT were to assist the library in the identification of appropriate hardware and server configuration. Some of the hardware such as

server and workstations were purchased in the Netherlands by DUT consultants after the UDSM Library Director made the request. Additional hardware (8 OPACS) was ordered in June 1998. Barcode readers and barcodes labels were ordered by DUT Consultant in October 1998 and received during the same month. Additional computers for user access (15 Macs) and 10 IBM compatibles were later purchased plus 13 Net Pro UPS. Twenty-five additional computers were later purchased. More hardware has been purchased since then.

Both the University Library and DUT were involved in the search for appropriate software for the library-automated system. The DUT contracted the services of the IT Manager of DUT Library in the search for an appropriate software. The IT Manager of the DUT Library then became the external consultant to the LIBIS Project. The Director of the Library communicated with TINLIB Library Software of London while the IT Manager of the DUT Library contacted several software producers in the Netherlands. All these efforts were communicated to both PMU and UCC. As part of this process the UDSM Library Director and LIBIS Manager visited the DUT in April 1998. They visited several software vendors with DUT Consultants and saw the demonstrations on how the software operates. These demonstrations enabled them to compare different software. The UDSM team in collaboration with the DUT consultants identified two Library Software, ADLIB and VUBIS for possible procurement. The group finally decided that ADLIB should be the first choice for the UDSM Library. The DUT consultants then negotiated with Databasix the producers of ADLIB on the price, license and contract agreement, including issues related to maintenance, training of library staff, the installation of the software on server and windows client. The DUT consultant did the negotiations on behalf the UDSM Library in May 1998. The UDSM Legal Team in the Faculty of Law first scrutinized the license agreements and maintenance contracts with Databasix for the purchase of ADLIB software. Some changes were made to these documents. Finally the contracts were signed in June 1998. The negotiated license was for six concurrent users per module. The Managing Director of Databasix represented his company while the Chief Academic Officer represented UDSM. It is important that the Senior Administrators represent the libraries when signing such contracts. The ADLIB software was procured in August 1998.

### • **The Memorandum of Understanding**

The UDSM and DUT signed a memorandum of understanding drafted by the Director of the Library, PMU Manager and LIBIS Manager on the implementation of the LIBIS project. The memorandum stated the roles of MHO-INFOPOL coordinator and supervisor and LIBIS Committee. The DUT committed to the successful implementation of the project as part of the

MHO-INFOPOL project. UDSM commits to mobilize resources for implementation of the project. This memorandum is critical in ensuring the successful implementation of the project because this is indicative of the level of commitment and responsibilities of each of the participating institution.

- **Putting the system in place**

In installing the automated library system at UDSM Library, the DUT consultant and ADLIB software engineer made several visits to the Library. This first visit in June 1998 by DUT consultant and ADLIB software engineer was a milestone in planning the automation of the UDSM Library. The consultant from DUT was then the Director of Information Technology at DUT Library. This visit charted the way forward in terms of planning for the next phase of the project. The two met all the academic library staff, UCC Director, the LIBIS Committee and the PMU Manager. The software engineer conducted demonstrations of the ADLIB software.

The second visit by the consultant and the software engineer was in November 1998. This visit was planned for the installation and the training of staff in the use of ADLIB. The software engineer from Databasis undertook the installation and training while the Consultant from DUT discussed the changes in work procedures as a result of the adoption of the automated system.

The third visit by the LIBIS technical advisor and the ADLIB software engineer from April 14-16<sup>th</sup> 1999 examined technical and administrative issues that have cropped up since the installation of the ADLIB software in November 1998. The team met with individual module users and addressed problems specific to each module. At the end there was a general consolidated session. The report by the DUT Consultant on this visit raised issues like the need for additional workstations, activating the circulation module by the end of June 1999 and has at least two OPACS for users by mid June 1999.

From 8-15<sup>th</sup> June 1999 there was an update-training mission by another member of staff from DUT Library.

A fourth visit by the LIBIS technical consultant and software engineer was from 16<sup>th</sup>-20<sup>th</sup> May 2000. The consultant discussed the contents of the second phase of the project and issues relating to the organization of the library in view of the changes that have been brought about by automation especially issues relating to human resources development.

- **Training**

Training was one of the key components of the LIBIS project. A series of training courses/workshops were planned for library staff and to a limited extent library users. The training was of two major types one was the training

in computer skills generally, internet searching and the use of electronic resources and second was training specifically in the application of the ADLIB software. The general training in computer skills involved 53 library academic and administrative staff. This was an in-house training conducted by UCC staff between 10-18<sup>th</sup> September 1998. It was an introductory training on computers generally, Windows 95 operating system, word and the internet. From 16-19 November 1998 four library staff (two senior and two support staff) attended Windows NT Server administration training conducted by UCC. Training specifically in Windows NT 4.0 Server Installation, configuration and administration was conducted by UCC for 9 library staff. The training was conducted from 6<sup>th</sup> to 14<sup>th</sup> December 1999. Library staff has been attending numerous training at UCC since 2000. With the support of DANIDA, INASP organized an internet training workshop for UDSM Library staff between 25-30<sup>th</sup> July 1999. This workshop was very important as it laid down the foundation for access to electronic resources. In 2002 the UDSM Library as a PERI Country Coordinating Library organized two national and one local workshops on electronic journals and electronic library management. All Academic Library Staff and Principal Library Assistants and Graduate Library Assistant at UDSM have attended these workshops. It is important to observe that the Library has now established a computer-training unit for short courses. Through this programme library staff have undergone specialized and general computer training.

A specialized training was conducted in the use of the ADLIB software both at UDSM Library and outside the country. Between October 5<sup>th</sup> and 17<sup>th</sup> 1998 two-library staff from UDSM attended training at Databasix, the producers of ADLIB, in Utrecht, Netherlands. The two members of staff were trained in ADLIB setup procedures and applications. In November 1998 UDSM library staff were trained in the use of ADLIB software by the ADLIB software engineer in Dar es Salaam. Another library staff member from DUT Library conducted update training on ADLIB from 8-15<sup>th</sup> June 1999. Another ADLIB in-house training workshop was conducted between 6<sup>th</sup> and 10<sup>th</sup> September 1999. OPAC familiarization for all library academic staff was conducted on the 3<sup>rd</sup> of April 2000. An in-house training in ADLIB from 8<sup>th</sup> to 9<sup>th</sup> November 2000 was conducted for few library staff who came back from studies. From 10<sup>th</sup>-22<sup>nd</sup> December 2000 two library staff attended ADLIB training at Utrecht, Holland. The training was conducted by Databasix.

### **Planning the system databases**

The third component for the planning process of the automation of the UDSM Library involved planning for retrospective conversion of records, system maintenance, and standardization in data entry.

- **Retrospective conversion**

Planning for retrospective conversion of the manual catalogue to computerized system was one of the key elements of the planning process in the automation of the library system. According to the implementation plan data entry was to start with materials that have been published since 1980, current journals, materials on special reserve and those in circulation. Among the alternatives proposed before the data entry started were the typing of the records and the use of the University of Malta Library catalogue. The second alternative was not taken instead it was decided that records were to be entered by typing them into the computer. This approach was very slow at the beginning. For example, between 1998 and 2000 only 35,997 records (books-titles) were entered into the ADLIB system. Among the factors that the planning process did not fully address in order to achieve fast and efficient data entry include the optimal number of computers for the tasks; the workload experience and qualification of the staff entering the data. Frustrated with the slow pace of data entry in May 2000 the LIBIS technical consultant from DUT recommended that conversion be done in India. This would have involved shipping manual catalogues to India. The UDSM Library rejected this idea on the grounds that the implementation of the LIBIS project was not only a technical exercise but also a capacity building activity for the UDSM Library staff. However, the flexibility in the planning process allowed for changes in the planning of data conversion methods. Additional computers were purchased and full-time data entry clerks were employed. With the additional computers secured and full-time data clerks employed 76,683 records were entered in 2001 alone. By March 28<sup>th</sup> 2003, 151,323 books and 8,665 serials were entered. Additionally, 6,000 users have their particulars entered into the computer. By the year 2003 the conversion of the old catalogue of the main library was completed and data entry in the departmental libraries was continuing.

- **Standardization and quality control**

The responsibility for the standardization and quality control according to the plan rests with the ICT Unit of the Library. During the implementation the LIBIS Manager and one or two people in the reference section did the quality control. Later on as the database grew it became necessary to train more people for quality control. For each module one person was trained to do the quality control and in principle each Head of section was the overall in charge of the quality issues relating to data entry in the sections.

- **Maintenance**

The LIBIS planning signed a maintenance contract with Databasix for the ADLIB software. However, concrete plans for the maintenance of the hardware such as computers are not clearly spelt out in the plans. Currently

the system administrator and ICT staff help with small trouble shooting problems but as the system grows this might not be efficient unless these staff get advanced training in system maintenance. The library outsources for major maintenance of the hardware.

- **Backup**

The ICT Unit is responsible for backup support services (back up is made on tapes), which is done on daily basis in the library. The backup service outside of the library has not started although it was planned that it will be centrally managed by UCC.

## **Discussion**

The findings from this study on the planning the automation process at the University of Dar es Salaam Library have revealed a number of key issues in the planning of automated library systems. Some of the findings can be generalized to other situations while others are more relevant to the current context.

At a more general level is the question of where does the ultimate authority for the planning lies? This study has shown that there are a variety of interest groups or stakeholders including the library, the University Administration, the PMU, UCC, donors, consultants, and so forth involved in the planning of this project. These stakeholders have their interests and needs in the automation of the library. It is interesting to note how these interests and needs were expressed and negotiated in the planning process. The exclusion of the library in writing the draft proposal on the automation of the UDSM Library services was an area of concern specifically for the library and the planning process in general. It probably reflected the top-down approach to planning in institutions such as universities. One can also observe that the library's own internal proposal for the automation of the library services in the mid 1980s never took off the ground. The library had produced a report in 1985 on the feasibility of automating its services and an Adhoc-Library Automation Committee was formed. Therefore there was a potential wealth of ideas that could have been tapped into at the first stage of planning automation from the library. The inclusion of the library at the early phase would also have made the planning process look more participatory in nature. However, with the current strategic planning approaches at the University that starts with the planning at departmental levels there are more participatory planning frameworks.

One of the participatory frameworks, which are thought to enhance the involvement of the various stakeholders in the planning process, is the use of the committees. Hence the formation of the two LIBIS Committees: one internal to the library and the other external. The critical question that is addressed here is whether these committees do in fact play an important role.

Did the LIBIS committees play any significant role in the planning of the automation of the UDSM Library? Experience from the UDSM Library automation project revealed that this was problematic. For example, when the University-Wide LIBIS Committee met in June 1998 it made several recommendations regarding what type of software the library should purchase. One of the recommendations made by this committee was for the purchase of software that is used in the Universities in the region. Unfortunately these recommendations were made when UDSM library in collaboration with the DUT consultants have already made the decision to purchase Adapted Library (ADLIB) software and the negotiations with Databasix had reached advanced stage. However, this does not in any way suggest that the choice made was not a good one, it only highlights deficiencies in the planning process and the role that such committees play. And probably the high level of cooperation between the significant stakeholders such as the Library, the DUT consultants and UCC in the selection and procurement of the equipment for the project generally was one of the main determinants of the success of this project. This positive aspect of the planning process outweighs the negative implication of the specific software selection by the DUT consultants in collaboration with the Library Director and LIBIS Manager without considering the recommendations of the LIBIS Committee. Also the delay in the formation of the LIBIS Committee and especially the University-Wide LIBIS Committee created an impression that this committee was not central in the project planning. However one may note that the planning for the hardware acquisition was not carefully done. The inadequate procurement of computers had implications for the implementation of the project. For example inadequate computers was among reasons given for the delays in the data entry. The planning process should, in principle, approximate the real needs of the system. Was this because of inadequate finances or lapses in the planning process?

This study like the previous studies (Nwalo, 2001, Ashoor, 2000; Mulimila, 2000; Mutula, 2000, Ondari, 1999) found that attitude of the library staff toward the automated system needs to be taken into consideration during the planning phase. The adoption of new innovations in any social system has been an area of interest for social science research and scholarship. In most systems there are individuals who are likely to adopt faster than others are. During the implementation of the UDSM Library automation some library staff showed little interest; for example, six months after the first training sessions were conducted in the use of the ADLIB software it was found out that some library staff have not logged into ADLIB. Why did it take too long for the staff to learn the nuts and bolts of operating ADLIB? Was this a case of the failure in training plans? Were the training methodologies not appropriate? The breakdown in the training plans

were reflected in the disagreement between the UDSM Library and LIBIS technical advisor on the contents of the update training mission by another DUT Library staff. Additionally, the fact that the new staff from DUT Library had only limited knowledge of ADLIB was not helpful in narrowing this gap. The question is was there anything wrong with the planning process? Was the training not adequate? How did the majority of the library staff perceive the planning process, were they supportive or not? If not why not? Or are these the laggards who in any adoption of an innovation normally take a long time to change or may indeed never change? The laggards in this case cut across the different cadres of staff some were senior and others were middle and lower level.

Among the key issues in the planning of the automation of the UDSM Library were those related to technical aspects. For example, the initial network problems affected the smooth performance of the system. The installation of the Windows NT solved many of the network problems. It is not clear why the planning process could not have foreseen this problem. This was probably explained by the lack of system administrator who is conversant with ADLIB software, hardware and network issues. The lack of this expertise within the library was another problem that made it difficult to implement the plans effectively. This is also related to another problem, which is lack of plans for the late setting up of the ICT Unit in the Library. The first draft proposal recommended at least two system administrators. Most minor technical problems are easily solved with ICT unit operating and manned by individuals who have good computer and professional qualifications. The first system administrator was employed in 2002. There are disagreements among scholars and researchers on whether to outsource or employ such expertise. For instance when it comes to critical issues such as maintenance, is the library better off to employ a hardware specialist who can do most of the maintenance activities or hire the expertise from companies outside the library as it is done now? Another awkward decision was to have a temporary LAN instead of the permanent one from the beginning. In some respect this can be conceived as a waste of resources and with careful planning the temporary phase could have been avoided. Furthermore, a mechanism for evaluating the system has not been identified in the planning process. And nothing has been done concerning this to date. This is now a major issue of concern especially on technical aspects as the system is growing bigger there is a need to plan for improvements and upgrading of the network. Improvements can include acquiring servers with bigger capacities, more servers, connecting the three main distribution points with fibber optic cabling and restructuring the ICT Unit so that it has advanced expertise in both hardware and software technology.

One of the areas that required careful planning is in the establishment of new roles and ways of work organization due to automation in the library.

These were not clearly spelt out in the planning despite the meetings with the DUT technical advisor. For example, among the explanations provided for the delays in data entry were the increased workload among staff.

Standardization and quality control are central areas that have not been well articulated in the implementation plans for the automation of the UDSM Library. This is another critical area that required thorough planning, unfortunately this is an area that remains problematic to this moment. But the implementation of this plan has remained illusive and it would appear that issues of standardization and quality control have not been addressed adequately up to the present time. It will not be surprising if most heads of Sections who are supposed to be quality controllers are themselves to date not in a position to exercise quality control. Data entry standardization procedures are not detailed enough. The initial problems in data conversion are partly due to limited experience in data entry.

### **Conclusion**

This study on the planning for the automation of the UDSM Library has shown that the coordination and cooperation of the key constituent stakeholders or players had a major bearing on the outcome of the planning process. In other words the cooperation between the key units and individuals was critical in the successful implementation of the UDSM Library automation project. The sharing of expertise (the DUT technical consultant and software engineer) and the cooperation between PMU, UCC, DUT Consultants, UDSM Library was a key determinant in the implementation of the plans. The support of the parent institution was an essential ingredient because library automation was within the broader strategic plan of the University of Dar es Salaam, that is the University-wide transformation programme. The automation of the UDSM Library was not an isolated project. Funding and the broader issues of sustainability of the project are important when planning library automation. Donor support in terms of financial support from MHO, Sida/SAREC, Carnegie Foundation of New York was critical and further mobilization of resources is important in sustaining the automated system.

The experience from UDSM shows that while the planning process was indeed flexible and to a larger extent participatory and well coordinated deficiencies are noted in planning areas such as the conversion, standardization, quality control and system evaluation. Finally donor funding has by and large supported the automation of the UDSM Library but plans are yet to be put in place for sustaining these services.

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