Into an Electronic Era
A Case Study of the Automation at Makerere University Library,
Kampala, Uganda

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Abstract: This thesis is a case study which describes the automation of a university library in Sub-Saharan Africa. The aim of the case study is, firstly; to find out which actors and factors have started and influenced the automation and the implementation of ICT at Makerere University Library in Kampala, Uganda. Secondly; it also discusses if the automation has changed the library’s condition. The empirical material consists of fifteen interviews with librarians and students. The empirical material itself has functioned as a base when discerning the analytical themes. The analysis has been done with the help from the theoretical frame and from literature about automation of library services, with focus on the developing world. The discussion is based on the two research questions. The results show that the librarians and the donor society were the most important influences starting the automation. The technology has changed the condition of the library and the librarians have to face new tasks and working routines. There is an OPAC available in the library and computer labs with Internet access. The access of information has improved, although the most important thing for the automation to be successful is student training.

Nyckelord: automatisering, informationsteknologi, universitetsbibliotek, Uganda, Afrika
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1. Introduction

Uganda is, according to the Organisation for Economic Co-operation and Development and the Development Assistance Committee (OECD/DAC), one of the least developed countries in the world.\(^1\) Except for the basic needs; clean water, food, shelter and health treatment, access to education is central to a country’s development. Through education Uganda’s population can increase their knowledge about essential issues that are important to stabilising their future, both socially and economically. Ongoing research into HIV/AIDS awareness and treatment can improve the standard of living in general. Libraries play a vital and very important role in the education system. In the long run the country’s democracy and development can only benefit from such institutions. They can enhance the level of knowledge and contribute to the country’s welfare. All sorts of libraries; public libraries, special libraries and university libraries contribute to this development. Our focus will be on a university library, that is, Makerere University Library in Kampala, Uganda. It has an essential role to play in the future as it contributes to higher education. Makerere University is Uganda’s largest university with around 25 000 students, who come from all over the country, and even from other countries in Sub-Saharan Africa, and is therefore a very important institution. Sub-Saharan Africa includes the entire African continent, apart from the seven countries of North Africa (Algeria, Egypt, Libya, Mauritania, Morocco, Tunisia and Western Sahara) and South Africa.\(^2\)

Information technology in East Africa university libraries started in 1987, but it has been a very slow development in this area.\(^3\) However, the last years the information technology has been incorporated into Makerere University Library as a vital tool to search, retrieve and deliver information. The goal of the automation and its possibilities to retrieve world-wide information, will hopefully improve the knowledge of Uganda’s whole population. The implementation of the technology might be one step to minimise the segregation of Uganda from the developed world.

During our education at the Swedish School of Library and Information Science (SSLIS) in Borås we have not had the opportunity to study other perspectives than the western hegemony of thought. We think it is important to broaden our views on this subject since we live in a multicultural society. As librarians we will meet many people and get in contact with documents and literature from various cultural backgrounds. Since SSLIS has an exchange with Makerere University Library in Kampala, Uganda, we saw an opportunity to utilise this connection. Uganda seemed like an exciting country to explore and therefore we wanted to conduct our case study at the Makerere University Library. We got permission from the library to come there and we got a grant from SIDA, to conduct a Minor Field Study for ten weeks. A Minor Field Study is a grant to Swedish students at a bachelor or master level to give them the opportunity to learn about developing countries and developing issues.\(^4\) Since SIDA is the main

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\(^1\)www.oecd.org/dac/stats/daclist
\(^4\) www.sida.se
donator to Makerere University Library, we think it is essential to see how the donations are supporting the library and what sort of results the library presents. We are very grateful we got the opportunity to conduct this study and it has been a very interesting experience.

1.2 Purpose

In recent years a lot of resources and effort has been put on information technology in libraries to improve their condition. Therefore, we believe it is of great interest to see how the automation of a library in a Sub-Saharan country is proceeding.

We intend to conduct a case study of the main library of Makerere University in Kampala, Uganda. Our purpose is to investigate the change of Makerere University Library due to the automation, from the formation of the idea till now.

1.3 Research questions

These two research questions will be our focus in the thesis:

What actors and factors started the transformation of the library?
In what way has the automation changed the library?

1.4 Disposition

Chapter 1 begins with the introduction to the thesis, where the purpose and the research questions are stated. Thereafter we describe the limitations relevant to this thesis. In the literature review, chapter 2, concepts important to this case study will be highlighted, i.e. the process of automation, university libraries and the situation in Uganda. In chapter 3, the theories that we intend to use and how we will use them in our specific case study will be discussed. Chapter 4 describes the method that we have used. The information that we have gained from the interviews are presented in the results, chapter 5. We start with a description of the institution that is the focus of our study; the main library of Makerere University. We think this part is necessary in order to get a background of the library as well as to get an insight in the library’s present condition. The results are followed by chapter 6, which includes an analysis and a discussion. The interviews will be analysed in relation to our chosen theories and the relevant literature. The interviews are also discussed in light of the research questions that we have posed. Chapter 7 is a conclusion where our main findings are highlighted. The thesis also includes a summary, chapter 8. In chapter 9 the references can be found. Chapter 10 consists of appendices, a list of abbreviations, the interview guide and a list of the informants.

1.5 Limitations

Our overall limitation is that we are conducting a case study and we will therefore only describe the main library of Makerere University. There are five branch libraries, but we will only focus on the main library, since the transformation of the library started there and because it is the largest library which influences most users. Henceforth, in our thesis, we will refer to the main library as Makerere University Library. When we
mention the branch-libraries, we will specify that. Our focus is on the factors and actors that have influenced and are influenced by the automation of the library. When we talk about actors, we mean the specific persons. When talking about factors, we refer to for example institutions or organisations. The actors we have focused on are the users of the library and the librarians.
2. Literature review

In this part a description will be made of the process of automation of libraries and how it changes a library. There is a specific focus on how the automation is proceeding in developing countries. Development aid will also be discussed, since we believe it is of importance to understand in which context Makerere University Library has been automated. A case study already conducted of the automation of Moi University Library in Kenya will be presented in more detail. Furthermore, we will describe what a university library is, with a focus on university libraries in developing countries. A brief background to Uganda is also given. Overall, the focus is on the developing world, mainly Sub-Saharan Africa, with specific attention directed to Uganda.

2.1 The automation of library services

2.1.1 Concepts of automation

Marlene Clayton and Chris Batt write in Managing library automation that “the librarian’s prime function is to manage information; that is, to control and supervise systems which create, collect, store, process and distribute information.” The area of computers, machine-readable data and telecommunications has developed during the years, which has given the librarian bigger opportunities to achieve these aims. However, this also includes challenges, since one has to understand and be in control of the processes that emerge with the new technologies.

For the libraries, the automation gives an opportunity to develop quick and efficient transfer of information. The transfer of communication or data is dependent on the telecommunication technology. An important concept connected to transfer of data is bandwidth, which is a channel’s capacity to transfer information. Clayton and Batt claim that the bandwidth “has been likened to a traffic network where the bands are the lanes on the road and where the direction is strictly controlled. The bandwidth of an electronic path determines how many cycles or bits can travel along this path at any given time.” The quality of the transmission is dependent on how much bandwidth is available. The more bits that can be carried through, the more bandwidth are disposable.

If interconnected independent computers are scattered throughout buildings, cities and/or nations, they create a data communication network. The aim of networking is to enable effective communication between users and/or to provide good computing services for the users. Networks that comprise a large physical area, for example an area belonging to one administration or a whole country, are called wide area networks (WAN). These networks can also be world-wide, for example INTERNET or TELENET, and then they are owned by multinational organisations. Networks within a certain geographical area are called local area networks (LANs). Contrary to WAN these networks have high bandwidth, since it is often only a few kilometres between the different positions connecting the LAN. The characteristic features of LANs are the

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6 Ibid., p. 65.
7 Ibid., p. 99.
8 Ibid., pp. 97-99.
short distances they encompass, their capacity for high speeds and low extent of error.\textsuperscript{9}

A computer system consists of hardware and software. Hardware can be explained as the “physical units making up a computer system – the bits you can touch rather than the programs (software).”\textsuperscript{10} It is the elements that the computer consists of: main memory, central processing unit, input/output devices, silicon chip etc. Software is “the set of instructions that can turn a collection of plastic, silicon, wire and metal (hardware) into a productive tool.”\textsuperscript{11} According to Clayton and Batt the software is even more important than hardware, since how the software is functioning is significant to what one will achieve. There is a variety of software that has been designed specifically for the library field, which often includes three major applications (three modules) linked together; circulation management, the online public access catalogue (the cataloguing module) and acquisitions and book ordering. These software systems for the libraries are known as library management systems, where all the functions share the same database. It is advantageous as it reduces data redundancy, and thereby can decrease costs and improve efficiency. The software also has other areas of relevance to libraries; one of them is access to remote databases. These databases have details of a range of journal articles and monographs, with great currency. One can either access the databases through CD-ROM or through the public telephone network. To satisfy bibliographic enquiries for all sorts of material that the library is providing, the Online Public Access Catalogue (OPAC) should provide the access point. It should make it possible to search for data by keyword, title, author, control numbers and subject. The OPAC has replaced the card catalogue and the major difference is that the OPAC has a link with transaction data. It is not only possible to demonstrate if a title exists, but also if it is in fact available and where.\textsuperscript{12}

Cataloguing, catalogue access, circulation, acquisitions and serials control are the most common library processes that are automated. As mentioned before, those three modules are common applications included in a library system. In the cataloguing system it is possible to select, create and edit bibliographic records for all sorts of library materials. There ought to be an OPAC, making it possible for searching for the record being catalogued. The circulation system is necessary for the control of the lending of the library’s material. Unique numbers are created; using barcodes, for the library’s material to be matched to borrower number. In the circulation system reservations are made as well as stock control. The procedure of selecting, ordering and processing books from addition to stock, is called the acquisition module. The serials control is often a part of the acquisition system.\textsuperscript{13}

\textbf{2.1.2 Aspects of activities due to automation}

A major reason for automating the library is that the automation will hopefully improve the efficiency of library operations for library users. Kieth C. Wright means in \textit{Computer-related technologies in library operations} that “as more information is made available in a variety of formats and in a variety of places, the need to manage

\begin{itemize}
  \item \textsuperscript{9} Clayton, Batt 1992, pp. 102-105.
  \item \textsuperscript{10} Ibid., p. 19.
  \item \textsuperscript{11} Ibid., p. 33.
  \item \textsuperscript{12} Ibid., pp. 41-63.
  \item \textsuperscript{13} Ibid., pp. 41-61.
\end{itemize}
information efficiently becomes critical.” The implementation of the actual library system consist of five broad aspects of activities; overall planning – the managerial function, systems testing, file creation, training and systems changeover.

First of all, the decision to automate demands appropriate planning and management, otherwise there can be too many unwanted results. The management has to prove that the automation will add importance to the service they already have. It is possible that an organisations opportunity to automate suddenly just comes across, and then it is hard to reject it. In those cases, to automate will only be an effective strategy if it can rely on a good plan. Clayton and Bratt highlight that library automation demands a business plan and an IT strategy. A business plan must define the product or service that the library provides. The IT strategy concerns issues like “what aspects of our general development (business) plan can be enhanced by the use of IT?” It is not only a short-term plan of the intentions for the future, it includes the necessary rules for realisation of the intentions. The manager, the staff and the parent organisation should be able to use this IT strategy as an orientation point, to know what they are expected to accomplish.

After the planning for the automation has been made, the next step is to choose a system that fits the library’s needs. The possible suppliers of a system are identified and a request for proposal (RPF) are sent to them. A RPF is a request to the suppliers that they will send a detailed description of the cost and of the actual system. Thereafter an evaluation of the different systems is made. The goal with the evaluation is to choose the library system which can satisfy the needs and requirements that the library has, in the best way. It is therefore important that a new system is also tested and assessed by the library management. Suppliers should be asked to demonstrate the system fully, by people who are trained using the system.

When automating a library, one has to converge the manual files of bibliographic records into a machine readable form. Except for creating your own files, the most common way is to use shared bibliographic records. The source of these records is usually the national library or a bibliographic agency, for example, the Library of Congress. When a library creates files in a library system during the automation process, AACR (Anglo-American Cataloguing Rules) is the predominant cataloguing standard that is followed in the English-speaking world. AACR includes the rules of selection and presentation of information in a catalogue entry as well as how different factors should be cited to maintain consistency. When it comes to the format, the method of encoding data that has become most widely used is the MARC format. However, there are many different variations of this format. The story of the MARC format dates back to the 1960s when some librarians at the Library of Congress in USA started research concerning how to produce catalogue cards by computer instead of the manual catalogue card production. A pilot project began, called A MARC – Machine Readable Cataloguing. After an evaluation of the pilot project with A MARC, in 1967, focus was set on the work with MARC II format. The goal was to create a standardised

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17 Ibid., p. 4.
18 Ibid., pp. 3-4.
19 Ibid., pp. 122-126.
20 Ibid., pp. 175-187.
format for an extensive variety of bibliographic data. Bibliographic data or bibliographic records consist of elements that give information about a special bibliographic document or item, or information related to that item. However, the MARC format has developed into many versions, created with concern of different individual requirements of the user community. Far from all machine-readable catalogue records are accomplished by adapting any MARC-based format.21

The key element in the automation of a library is people. Usually one member of the staff is appointed as the head of the process. A library system demands trained staff and it is not only the people who lead the system that have to be trained. Even, for example, the desk assistant and the cataloguers have to be trained. Different sorts of people will require different sorts of training, to a greater or a lesser extent. Training, as well, is something that has to be a process, since systems are not static and new staff will be arriving to the library. Not only the people who operate, maintain and design the system must be taken in mind, but also those who will use the system. To train operators and educate users is an extremely important aspect. The users have to be given a general description of the library system, why it has been introduced and how they can operate it. Above all, it is important to inform the users how the system can give them advantages as individuals.22

Clayton and Batt write that there are three different forms of changeover procedures when a library is automated; an all-at once-changeover, a parallel system operation and a gradual changeover. In the first form of change, the old system is ended at a certain time, and the new system is immediately implemented. In a parallel system operation the old and the new systems are functioning parallel for a certain time. In the gradual changeover, the process of implementing the new system is divided into different phases. This way might be especially suitable for integrated library systems where one module, for example the cataloguing module, might be introduced first followed by the other modules. Gradual change can also be used when only a branch of a library will be automated at first. The advantages of a gradual change are that it is less common with unexpected failure of the whole system. It also gives the actors at the library time to learn and adapt to the system. The disadvantages are, for example, that it can make the automation process very slow and that one can not estimate the benefits of the system before the change is fulfilled.23

2.1.3 Changes in libraries due to automation

Peggy Johnson means in “Managing changing roles: Professional and paraprofessional staff in libraries” that changes in libraries are necessary since library users are “becoming more diverse and more decentralised. People have greater and more immediate information needs for school, work, and lifelong learning.”24 Wendy M. Starkweather and Camille Clark Wallin mean in “Faculty response to library technology: Insights on attitudes” that the challenges the academic libraries face in these times of dynamic change is that the libraries must

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22 Ibid., p. 139-161.
23 Ibid., pp. 141-142.
understand the wishes and perspectives of the users.²⁵

Moid A. Siddiqui claims in the article “Management for change in acquisitions in academic libraries” that technological developments in academic libraries have made it necessary to change the mode of library services and operations, which have favoured the users. The major challenge for the managers is to implement and control this change. The manager has to make clear why the change is needed, the reason why it should happen and what possible conflicts or difficulties may affect it. The actual phase of implementation “is the phase in which the concepts and the plan for change are brought into being. During the implementation, the design of the change must be integrated into the department’s existing structure and processes.”²⁶

Clayton and Batt claim that technology represent change; “Change should be seen as a way of improving existing services and of being able to provide new ones - as a provider of challenge and opportunity rather than a threat.”²⁷ The effects of the computerisation of a library can result in resistance, confusion and even fear among the librarians. The familiar structure has to be left behind and the unknown has to be faced. Reactions can also be positive; some people will welcome the innovations and may even prefer any change at all than to remain in the present situation. However, to put too much personal energy and excitement into a change, just for the change in itself, could be a negative thing, since there could then be a risk that existing commitments will be neglected. To implement a new system in a library and thereby carry out a change takes long time and demands considerable planning.²⁸

Doll and Petrick Barron mean in Managing and analyzing your collection: A practical guide for small libraries and school media centers that availability and accessibility are important aspects of a library’s collection. The first thing is to locate the resource and know that it really exists – that is availability. The next thing is accessibility, which means that a resource must be physically present. When estimating the efficiency of the collection and what it contains, a critical thing for the users can be to determine the difference between accessible and available. These aspects are important aspects if a library is changing, if new information-needs or new forms of information are occurring it is important that the collection follows that change. An automation can be such a transformation in a library. It is then sometimes necessary to remove items and resources that are no longer useful. This will help to improve the accessibility and the availability to the library’s collection. Doll and Petrick Barron also highlight the necessity of weeding due to high costs of both maintaining and adding space and also the problems that occur when the material is damaged. It becomes very frustrating for users to go through too many inaccurate or outdated materials, before finding the best source.²⁹ The conversion of manual files into a machine readable format is a big economic expense in the automation process. Weeding has to be considered, since no library can afford the work of preparing items for an automated catalogue or circulation.

²⁸ Ibid., pp. 152-153.
system, if it is not needed.\textsuperscript{30}

2.2 ICT and automation of library services in developing countries

2.2.1 Social exclusion

Manuel Castells means that Africa’s economic collapse happened at the same time as the developed countries were aiming towards technological renewal. Therefore the countries in Africa have come to depend largely on donors and foreign borrowing.\textsuperscript{31} Resources and money from different developed countries as well as from non-government organisations (NGO:s) are aiming at different areas such as health, food and shelter. But the developed countries are also supporting with money to more specific areas such as education and technology. They might for example support a computer programme at a university. Many of the computers that the developed countries regard as too old for the fast-moving technological growth end up in Sub-Saharan Africa. Usually they come from well-meaning countries or NGO:s. The problem is that the local knowledge of for example, how to repair the computers is often very scarce, even if there is knowledge of how to operate the computers. Castells means that “Africa has become the dumping ground for a mass of equipment made obsolete by a fast-moving technological revolution.”\textsuperscript{32} Besides computers, it is also common with donations of books to the university libraries, but this can be a complicated issue. The books usually tend to be old, literature the donors no longer want for themselves, or the books might reflect the donors’ religious or political views. Another problem can be that the books are very good, but the content is not relevant for this particular university.\textsuperscript{33}

The access of technology in the developing world compared to the developed world is very segregated. Manuel Castells refers in \textit{The Information Age: Economy, society and culture: Vol. 3: End of millennium} to the segregation of the network society as a social exclusion. Castells means that “entire countries, regions, cities, and neighbourhoods become excluded, embracing in this exclusion most, or all, of their population.”\textsuperscript{34} In Sub-Saharan Africa, nearly a whole continent with 500 million people is the subject of social exclusion.\textsuperscript{35} The information technology, as well as the ability to use and adapt it, is, according to Castells “the critical factor of generating and accessing wealth, power, and knowledge in our time.”\textsuperscript{36}

The concept of the ‘digital divide’ is the “disparity in access to ICTs between countries and communities.”\textsuperscript{37} ICT is an abbreviation for Information Communication Technology. Mutula means that the reasons for the ‘digital divide’ in Sub-Saharan Africa consist of poor infrastructure, problems with language divides, the high cost of

\textsuperscript{30} Wright 1995, p. 50.
\textsuperscript{32} Castells 1998, p. 95.
\textsuperscript{34} Castells 1998, p. 74.
\textsuperscript{35} Ibid., p. 75.
\textsuperscript{36} Ibid., p. 92.
\textsuperscript{37} Mutula 2004, p. 283.
access and weak policy regimes. Jeffrey James is of the same opinion when he in Globalization, Information Technology and Development points out that many countries in Sub-Saharan Africa do not have a national technology policy, but what is even worse, some governments have even discouraged the use of the information technology when they for example charge heavy taxes for importing computers.

The most crucial factor that can facilitate the equalisation of the ‘digital divide’ between the developed and the developing countries is telephone access, that is, the building of fixed telephone lines. Mobile telephones are also important tools to integrate a country in the global world, but fixed telephone lines are essential for fax machines and Internet use, and therefore crucial if you want to minimise the divide. The cost for bandwidth to enable quick Internet access is also very high for a poor country, and that is a major problem as well. However, what is important to remember is that if the stable telephone lines do not work it does not really matter how many computers and how much advanced technology a country in Sub-Saharan Africa has access to. That the ‘digital divide’ in Sub-Saharan Africa is very severe is evident if a comparison is made between Sub-Saharan Africa and North America and Europe. 1 of 250-400 uses Internet in Sub-Saharan Africa compared to 1 of 2 people in North America and Europe. There are 8 computers for every 1000 people, compared to 360 for every 1000 people. 14 mainline telephone lines exist per 1000 people in Sub-Saharan Africa, compared to 655 per 1000 in North America and Europe.

Mutula speaks about the local content as a crucial factor of the ‘digital divide’. The local content is the “expression of the locally owned and adapted knowledge of a community.” In Sub-Saharan Africa the language in schools and universities is English, (apart from, for example, the French colonies where French is the official language) but for many students that is not their mother tongue. The content produced in Africa is also very scarce; it was in 2002 accounted for less than 0.05 percent of global Web content. Apparently very few pages are in the mother tongue of the people of Sub-Saharan Africa and only 1.5 percent of the book titles published every year are from Africa. This fact makes it even more important for the libraries to actually collect and store the small amount of locally produced literature that is available. But hopefully, with the development of digital libraries it might be possible to create local content more easily.

James points out that it is important to remember that the ‘digital divide’ is not only an inequality between different countries or continents, but also between different residents in a country. Those who benefit from the technologies in Sub-Saharan Africa are mainly the local elite, who are living in the cities as well as the rich expatriate community. If there is Internet access, it is very likely that it is located in the cities, and even if most of the people would have the opportunity to use a computer, it is often far too expensive for the big majority.

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40 Ibid., p. 28.
41 Kebede 2004, p. 274.
2.2.2 Needs and possibilities

Elizabeth Kiondo describes in the article “Resource mobilisation for Library Information services development in Africa” that it is possible to see the library development in Africa as divided into three distinct phases. In 60’s and 70’s there was a fast development with the help of donors. At this period, the government were also contributing with money to the libraries. In the 80’s the investment sank, since many countries suffered economic crises. In the 90’s a revival was seen, with the new technology and a lot of donors who were supporting this area.  

R.T. Mulimila states in the article “Information technology applications in East Africa government-owned university libraries” that when using IT and networking, telecommunications is essential. The absence of reliable power supplies and telecommunication networks is something which prevents the use of IT. Elisam Magara claims in the article “Applications of digital libraries and electronic technologies in developing countries: practical experiences in Uganda” that the usage of information technology in developing countries is limited. This fact is due to costs of connection, satellite time and bandwidth limit. Despite this situation, Magara means that the information technology can benefit the developing countries in the way that: “[i]t has become necessary for information workers to take the issue of automating libraries seriously for purposes of facilitating communication, information sharing, research and communication.” Magara points out that that the technology has enhanced the co-operation between libraries and she concludes that “[i]t is evident that digital libraries and the use of electronic technology have contributed effectively in collaborative applications between institutions.”

Most libraries in Sub-Saharan Africa that are part of universities, schools and organisations and which do not rely on donor funding are using CDS/ISIS software, since this system is for free. Those libraries that do have donor funding are using various commercial library systems, such as Mandarin, Winlib and VUBIS. In “Information technology applications in East Africa government-owned university libraries” R.T. Mulimila presents his survey of information technology (IT) applications at university libraries in East Africa, during the years 1987 – 1997. He found out that there was a weak co-operation among East Africa university libraries concerning projects in IT applications. He concludes that “the absence of co-operation, even between two neighbouring university libraries weakened the bargaining power to funding bodies as each library acted independently in most cases.”

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49 Mulimila 2000, p. 190.
50 Ibid., p. 188.
Mutula points out the problem with the lack of ICT-policies at libraries in the developing countries and claims that in most countries in Sub-Saharan Africa information technology has not successfully been integrated in the development agenda.\textsuperscript{51} Gashaw Kebede refers in his article “The information needs of end-users of Sub-Saharan Africa in the digital information environment” to the United Nations Economic Commission for Africa. They conclude that “the majority of the countries of the sub-region lack a national ICT-policy, with only 17 African countries having such a policy as of 2003.”\textsuperscript{52} Dick Kawooya points out in his article “Universal access to ICT and lifelong learning: Uganda’s experience” that Uganda still does not have an ICT-policy. He means that the “Government is committed to integrating ICT in formal and informal education system, it is yet to come up with a national ICT policy and clearly detailed strategies for achieving the same.”\textsuperscript{53}

In \textit{Library automation in transitional societies: Lessons from Eastern Europe} it is stated that "sophisticated automated library systems need well-trained and educated people."\textsuperscript{54} One of the major issues, once an institution has access to computer technology, is according to Patrick Ngulube in his article “Implications of technological advances for access to the cultural heritage of selected countries in sub-Saharan Africa," the importance of skills in the information and technology field. Many regard manpower as one of the most important aspects to whether an institution is able to successfully implement the new technology.\textsuperscript{55} In \textit{Into the Information Age: Computerization of the Copperbelt University Library} it is concluded that "the success and the future development of library computerization programmes depends very much on the training and retraining of the staff."\textsuperscript{56} Jagdish Arora describes in her article “Transforming a traditional library into a hybrid library: Use of leadership and managerial skills at the Central Library, IIT Delhi” the computerisation of the Central Library in Delhi. The article highlights the necessary personal traits that are needed among the staff when a library is facing something new. A problem in India is that people seldom get appreciated for hard work. This means that the library team was not very eager to see the automation of the library as a challenge. As well, senior librarians were afraid to be put in a critical situation if sub-ordinate staff performed well. The team leader, which is the writer of the article; Jagdish Arora got employed in 1998 as a head of the Computer Application Division to lead a team of librarians and other staff, in the process of automating the Central Library in Delhi. When Arora arrived at the library the process of automation had already been going on for more than eight years. Despite this fact, the computerisation project had not so far been successful.

\textsuperscript{51} Mutula 2004, p. 283. \\
\textsuperscript{52} Kebede, Gashaw 2004. “The information needs of end-users of Sub-Saharan Africa in the digital information environment” in \textit{The international Information and Library Review}. No. 36, p. 274. \\
\textsuperscript{55} Ngulube, Patrick 2004. “Implications of technological advances for access to the cultural heritage of selected countries in sub-Saharan Africa” in \textit{Government Information Quarterly}. No. 21, p. 150. \\
The article demonstrates that Arora’s mission, to automate the library in a successful way, was conducted in an excellent manner, in a period of four years time.\textsuperscript{57}

It is concluded in the article that the leader of a team, in the process of automating a library, is of great importance. A leader should be positive, sincere and willing to accept mistakes. The vision should be well-defined and the goals should be visual for the team. According to Arora, it was her strengths as a leader and her positive attitude that made the automation process finally so successful. If only people get motivated, technology can in itself function as a motivating factor. The librarians were allowed to do mistakes and learn from their experience. This also resulted in that the people at the Central Library in Delhi motivated each other and started to learn skills that was not originally their mainly task at the library. The library is now seen as a technology-advanced enterprise.\textsuperscript{58}

\textbf{2.2.3 A study of the automation of the library at Moi University, Kenya.}

In the article “Managing a library automation project: the Moi University experience” by Ezra Ondari-Okemwa, common problems related to the managing of a library automation project in a developing country, are examined. The Moi University has experienced problems such as lack of sufficient local technical expertise and qualified managers, inadequate information technology and poor infrastructure.\textsuperscript{59} In the article, “Automation and its impact on the job satisfaction among the staff of the Margaret Thatcher Library, Moi University”, Harrison Kibet Bii and Patrick Wanyama have examined what influence the automation has had on the job satisfaction among the staff of the Margaret Thatcher Library (main library). They are conducting their study by interviewing the university librarian, his deputy and the system librarian. Moreover, questionnaires were answered by 24 librarians working in the library, with different positions. Due to the automation, the way to deal with different services and information material is changing. Therefore the automation brings a change in the way the librarians relate to their work, which might affect how satisfied they are with the job.\textsuperscript{60}

In 1984 the Moi University Library was established. The main library is called the Margaret Thatcher Library, situated on the main campus. There are also three branch libraries; the College of Health Sciences Library, the School of Environmental Studies Documentation Centre and the Chepkoilel Campus Library. The libraries have all together around 140 000 volumes of bound periodicals and books, and over 80 computers.\textsuperscript{61}

Moi University, with about 7000 students, is one of five state Universities in Kenya, and

\textsuperscript{58} Arora 2002, pp. 10 -14.
\textsuperscript{60} Kibet Bii, Harrison, Wanyama, Patrick 2001. “Automation and its impact on the job satisfaction among the staff of the Margaret Thatcher Library, Moi University” in \textit{Library Management}. Vol 22; No. 6/7, pp. 303-305.
\textsuperscript{61} Kibet Bii, Wanyama 2002, pp. 303-304.
it is situated in a rural setting, about 35 kilometres north west of the capital of Kenya – Nairobi.\footnote{Kibet Bii, Wanyama 2002, pp. 303-304} The mission and objectives of the Moi University are defined as:

> Producing graduates who are practical, well informed, self-reliant, capable of functioning and contributing effectively to development efforts in both rural and urban environments, promote science and technology, without losing sight of its commitment to excellence in erudite teaching, research and scholarship.\footnote{Ondari-Okemwa 1999, p. 229.}

In 1988 the first idea of automating the Moi University Library was shaped. But, at this state, it was still only an idea and a proposal had to be written to get funding. In 1992 the Moi University Library got their proposal granted, the British Overseas Development Agency (ODA) agreed to finance the automation project. The same year, the library got two micro computers that the library staff was going to use for training in cataloguing. Not until 1994 did the actual automation of the library start.\footnote{Ibid., p. 231.} A local area network (LAN) was established by 1996.\footnote{Mulimila 2000, p. 189.}

Kibet Bii and Wanyama claim that, in the beginning of the automation, the library did not have any official policy document or any prior objectives for the automation project. All the arrangement of the automation was included in a package, together with the new building for the library, sponsored by the British Government through ODA and the Kenya Government. The major driving force for the change, the library team of the Moi University Library argue, resulted from “a global need for effective and efficient ways of processing and accessing information.”\footnote{Kibet Bii, Wanyama 2002, p. 306.}

When the library became financed by ODA, training was not a priority, and the library hoped to get funds from another donor for that issue. However, ODA eventually agreed to fund some training. Since a lot of staff at the library was not even computer-literate at this point, a basic computer-literacy course was arranged. One librarian was sent abroad to the UK for training in library automation, for twelve months. He then became the system librarian and the only one fully trained in an automated library system. He is working close to the university librarian, who assumed the duties of an automation project manager.\footnote{Ondari-Okemwa 1999, pp. 232-233.}

The circulation and cataloguing modules have been fully automated in the main library, and also all the branch libraries have automated these operations. The acquisition module is not yet fully in place. In the article from 2001, it is claimed that most of the librarians who are mainly involved in cataloguing and circulation issues at the main library, felt that they were carrying out computerised tasks, such as cataloguing, indexing classification, working with the OPAC and doing CD-ROM searches etc. Nevertheless, a small amount of the librarians felt that they still performed their routine tasks manually. These tasks were serials circulation, the booking and renting of the study carrels, interlibrary lending, acquisition control and archives administration. The library is using a library automation system package called TSERIES (formerly known as TINLIB). This library system can (besides cataloguing and circulation control) handle serial and acquisition control and interlibrary loans, which means that these tasks

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\footnote{Kibet Bii, Wanyama 2002, pp. 303-304}
\footnote{Ondari-Okemwa 1999, p. 229.}
\footnote{Ibid., p. 231.}
\footnote{Mulimila 2000, p. 189.}
\footnote{Kibet Bii, Wanyama 2002, p. 306.}
\footnote{Ondari-Okemwa 1999, pp. 232-233.}
carried out manually by the staff could actually be computerised. However, the affected librarians lacked knowledge in the software package and there was also a lack of technical support. Indeed, it is concluded in the study that even those librarians that had been trained had restricted or no access at all to the packages in which they had been trained.\textsuperscript{68}

Kibet Bii and Wanyama claim that:

The study revealed that 88 percent of the MTL staff members had received in-house training on various aspects of computerised library applications, albeit some to a basic level. The rest (12 percent) had yet to be trained. It was discouraging to find that some of those with no training were expected to use the automated systems, either to catalogue, or issue and discharge information materials.\textsuperscript{69}

Except for some difficulties with training, there are some other problems resulting from automation. There have been some frequent breakdowns and/or failures with the computers and the network. The librarians in the study felt that when the database of the library expanded in size, the speed of data processing and retrieval in the OPAC, cataloguing and circulation sections, acted in a much slower way. Moreover, some librarians felt that, despite the automation, they were still stuck in routine work. Every day they had to look at the same screen, and do the same procedures. A point when the lack if IT-skills of the staff felt embarrassing for them, was when helping the users of the library. When users were seeking assistance and the librarians could not help them, they felt insufficient. Moreover, it is hard for the users to perform user-self training, since there are not enough user terminals.

Even though there have been some difficulties with the implementation of the automation, most of the librarians welcomed the computerisation. Their expectations involved a more enjoyable, easier and prestigious work, where the computers would increase their efficiency. Most librarians felt that their expectations had been fulfilled, and they claimed the automation had enriched their work and changed their working role. Although, a small amount of librarians felt it was a sort of constraint. The reason for the discontent was the way the process of automation was managed. Lack of training and lack of access and use of the available software packages were the main source of the dissatisfaction.\textsuperscript{70}

According to Kibet Bii and Wanyama, it has been a slow process to implement even the simplest of functions. A major reason for this is that there was no automation policy document. If there had been a plan of the automation, the targets and goals could easier be attained for the library. However, this is something that the library management will give priority to in the future. The library has to work on the issue of communication and to support the university’s mission. There should also be more publicity about the system and software program that the library has. An additional reason for the slow automation process, as in most developing countries, is the situation that the university library is dependent on funding, and in recent years the financial support has been reduced. Lastly, it is only the system librarian who is in full control of all the automation operations. To be dependent on one person is an awkward situation and risky venture by all means. There is a need for a regular and structured in-house training

\textsuperscript{68} Kibet Bii, Wanyama 2002, pp. 304-306.
\textsuperscript{70} Ibid., pp. 307-309.
of all the aspects of automation for all the librarians. This is a must if the benefits are going to be gained from the automation.\footnote{Kibet Bii, Wanyama 2002, pp. 309-310.}

### 2.3 University Libraries in Sub-Saharan Africa

According to John F. Stirling in his article “The library within the university: General organisation and administration: Staff structure: Finance: Case-study of Exeter University Library,” a university library exists to serve the members of the own institution. University libraries have two conditions they need to accomplish. Firstly, they must make available services for study and research that are adapted as closely as possible to the university and within the financial limits the library has. Secondly, the library must function within the political structure of the university. Stirling continues with describing that the policy-making body of the university consists of an academic policy. This academic policy is the responsibility of the senate, which is the main academic body and includes the professors of the library as well as non-professorial academic staff and usually some student representation. The university policy-making also consists of a financial policy. The financial policy is handled by the council, which is the executive body of the university. The university library is often administrated by a library committee.\footnote{Stirling, John F. 1981. “The library within the university: General organisation and administration: Staff structure: Finance: Case-study of Exeter University Library” in \textit{University Librarianship} ed. John F. Stirling, p. 1.}

Edward K. Owusu-Ansah asserts in his article “The academic library in the enterprise of colleges and universities: Toward a new paradigm” that the duty of an academic or a university library is “to contribute toward the success of learning, the effectiveness of research, and the preparation of the clients of higher education for a dynamically advancing industrial/information society.”\footnote{Owusu-Ansah, Edward K. 2001. “The academic library in the enterprise of colleges and universities: Toward a new paradigm” in \textit{The journal of Academic Librarianship}, Vol. 27, Issue 4, p. 283.} Learning, research and the library is often viewed as an acknowledged mix. However, conflicts frequently occur between the wanted appreciation that the library desire and the limited role that the university administrators give it.\footnote{Ibid., p. 283.}

Sturges and Neill describe in \textit{The quiet struggle: Information and libraries for people in Africa} that most university libraries in Sub-Saharan Africa date back from the period after the Second World War. This was a time when a massive increase of the education sector started. Many of the university libraries have very impressive buildings, but the expense to maintain the library collection is so high, that most of the libraries have failed.\footnote{Sturges, Paul & Neill, Richard 1998. \textit{The quiet struggle: Information and libraries for the people in Africa}, p. 83.} Before independence there were hardly any libraries or information systems in the continent. The African countries wanted to do something about it and expatriate librarians came and started developing the libraries. The librarians all brought the experiences they had from their home countries with them. Their intentions were good, and the librarians articulated the problems with starting up library services in the developing world, when they only had knowledge of how to do it in the developed
world. However, Sturges and Neill demonstrate that they still failed to establish library services suitable for Sub-Saharan Africa.

When the revival for the libraries came in the 1990s, the libraries started to look at other options of funding. Julita Nawe states in her article “Strategizing financing of public university libraries in East Africa” that in the 1990s:

Institutions were forced to look for alternatives to reverse the situation. Both as learning processes and a survival strategy, institutions started drawing strategic plans in order to cope with new developments and to shape their future.76

Academic libraries are very expensive, not only for the African continent but in the whole world. There is a need to purchase large quantities of publications, many of them imported. Because of the high cost of the academic libraries, they have suffered badly from the poverty in Africa.77 Mutula refers to a study made by Rosenberg and Raseroka in 2000, which confirms this view. Here it is stated that libraries in Sub-Saharan Africa only get an average of 4 percent of the budget from the parent institution, compared to 6 percent, which is the international figure. Nwafor refers to B. Ifidon who also means that libraries in Sub-Saharan Africa are a very low priority at many universities. He concludes that faculty building and laboratories at the universities often have a higher priority.78 Stephen Mutula describes in “IT diffusion in Sub-Saharan Africa” that the university libraries in Sub-Saharan Africa face various challenges due to the new technology. He refers to a study by the African Association of Universities in 1996 which concludes that:

Libraries within the university environments in Africa had remained strangely neglected and that universities had witnessed a lot of changes from the changing economic climate and changing government policies.79

Sturges and Neill imply that it is possible to see from the footnotes from articles written by scholars from African universities that the authors often have to improvise, and use the material available at their library, which might not be the most suitable material for their needs.80

V. N. Ozowa means in “Automated issue systems in Nigerian university libraries: joining the Joneses” that there is a “marked difference between university libraries in developing and developed countries in terms of awareness, facilities and stock.”81 He means that the university community in the developed world are highly literate and that they are many. It is therefore a need to automate the libraries to make them more efficient. However, the need is the same in the developing countries, but the resources are so scarce, that if the libraries want to automate, it must be cost effective. There are other aspects that make it more difficult to automate libraries in developing countries

78 Nwafor 1990, p. 5.
apart from poor funding. There are inadequate infrastructure facilities, hardware obsolescence, communication and power problems and turnover of staff.\textsuperscript{82}

Mutula concludes that many students at different levels of education are not very familiar with different kinds of information services that might exist in or outside the University Library, and that the information sources that do exist are under-utilised as a result.\textsuperscript{83}

\section*{2.4 Facts about Uganda}

Uganda is located in east-central Africa, situated north and north-west of Lake Victoria. It is bordered by Sudan on the north, Kenya on the east, Tanzania on the south, Rwanda on the south-west and Zaire on the north-west.\textsuperscript{84} The area of Uganda is 236 000 km\textsuperscript{2}, about half the size of Sweden. The population in 2001 was around 24 million people and the estimated population for 2015 is 39 million people.\textsuperscript{85} The capital of Uganda is Kampala, with around 1.2 million people.

The country was a British protectorate until 1962, when Milton Obote became Prime Minister. 1966 he announced himself President, and Uganda became a one-party state. 1971, Idi Amin came to power through a coup d’	extsuperscript{é}tat and during the years Amin ruled, until 1979, there was a reign of terror in the country. Uganda’s population suffered badly and many people had to flee the country. The whole country’s population of Indians were forced to leave and this made the bad economy even worse, since the Indians were prosperous in areas of commercial activities. The education-system suffered badly during these years. In 1986, Yoweri Museveni came to power and he prohibited party-political activities. Museveni has ruled the country since then and Uganda still has a one-party system, but probably a multi-party election will soon come up.

Even though there are some conflicts in the north of Uganda, the country is at the moment relatively stable. The main threat in Uganda is HIV/AIDS, Uganda is one of the countries that has been most affected by the disease. However, Museveni was the first African leader who raised a consciousness about HIV/AIDS in form of information campaigns, and now people are more aware of it. Still it is a big problem which results in children becoming orphans and a lot of suffering for the whole population.\textsuperscript{86} The average life length for a Ugandan is around 44 years.\textsuperscript{87} Uganda has a fertile soil, good natural assets and a relatively educated population, but the country is still one of the poorest countries in the world.\textsuperscript{88} The total amount of development aid to Uganda was 2001 782.6 million USD.\textsuperscript{89}

\textsuperscript{83} Mutula 2004, p. 284.
\textsuperscript{84} www.africaguide.com
\textsuperscript{85} www.sida.se
\textsuperscript{86} Uganda: Länder i fickförmat: Nr 212 2003, pp. 15-16.
\textsuperscript{87} www.sida.se
\textsuperscript{89} www.sida.se
The education system in Uganda used to be one of the best in East Africa, but during the rules of President Idi Amin and Milton Obote it declined. The illiteracy for adults was in 2003 in Uganda 36%. The data refers to “the proportion who cannot, with understanding, both read and write a short simple statement on everyday life.” Many schools were founded by missionaries from Europe and these schools are still important in the country. The present President, Yoweri Museveni, introduced free school for four children per family in 1997 with the economic help from donors. At the moment, free school is provided for all children, but there is not any compulsory school attendance.

The school system is influenced by the British school system and starts with the pre-primary school, which is only attended by 10% of the children attending school in Uganda. The primary school is seven years which is followed by six years of secondary school. The quality of the education varies between rural and urban areas, where the rural areas have severe problems with for example lack of materials. At the government of Uganda’s homepage the Education Objectives are expressed:

(i) The State shall promote free and compulsory basic education
(ii) The State shall take appropriate measures to afford every citizen equal opportunity to attain to the highest educational standard possible.
(iii) Individuals, religious bodies and other non-governmental organisations shall be free to found and operate educational institutions if they comply with the general educational policy of the country and maintain national standards.

Makerere University is Uganda’s largest governmental university with 95% of the university students. The remaining 5% of the students study at the six other governmental universities in Uganda: Mbarara, Ndejje, Nkumba, Mbale Islamic, Uganda Martyrs and Bugema. In addition to the governmental universities there are also several private-owned universities, and the numbers of these universities have increased dramatically lately. One reason for this is that since the university education now is free of charge, many rich Ugandans think therefore that the quality at the governmental universities has decreased. In the last years, the government has put more of their resources to the primary schools, which has resulted in less money to the universities.

The first public library was established in 1923, in Entebbe, which at the time was the capital of Uganda. However, this service was only available for the expatriates. M. N. Kigongo-Bukenya writes in his article “The state of Ugandan bibliographic control and strategies into the twenty-first century” that the starting point for library services in Uganda was the establishment of the East African Literature Bureau in 1944. The Bureau published books in local languages and provided public library services. However, under the regime of Idi Amin, library services suffered tremendously. From 1962 to 1971, when Amin became President, there was a development in the library field, but it all ended with the dictator’s brutal regime. During the worst years when Amin ruled, some library attendants sold scientific journals from the library to people.

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90 http://globalis.gvu.unu.edu
91 Uganda: Länder i fickformat: Nr 212 2003, pp. 6-7.
92 www.government.go.ug
93 www.myuganda.co.ug/edu
96 Ikoja-Idonga 2003, p. 4.
who used the paper to for example wrap groundnuts in the local market. The wages for the librarians were so low, that they needed to have an extra income.98

There are now six university libraries in Uganda and there is also specialised information and library services in banks, research institutes, libraries in foreign embassies, international organisations, etc. The publishing and book trade sectors have improved in Uganda the last years, but the country still imports much literature from Great Britain, USA and India.99 There are only 20 urban public libraries and three rural libraries in Uganda. However, there are also some small libraries, which are run by community initiatives and NGOs. Ikoja-Odongo has described in his article “Public library politics: the Ugandan perspective” what politicians, civil servants and library associations leaders think about the current library situation in Uganda. He concludes that the rural communities are supposed to use school libraries where they exist. But this is a problem, because many schools do not have a library, or if they do, this room is also used for studying, which means it can not be used as a public library, since it will disturb the students.100 Ikoja –Odongo is also concerned with the fact that most of the employees in the public libraries do not have sufficient qualifications. Of 112 librarians, only one had a postgraduate qualification and 14 had a bachelor degree qualification. The rest had either a diploma in library work, a certificate or were school leavers. There is also a problem with insufficient material in the public libraries, since most of the books are very old. Ikoja –Odongo writes that one problem with the development of the public library services in Uganda is that many politicians feel that it is more needed to do things like “fighting diseases, providing roads and education and so on, therefore the idea of providing libraries may be a secondary one.”101

The National Library of Uganda was established by the National Library Act 2003. The National Library of Uganda has established and is managing a national collection of Uganda, and they are also responsible for International Standard Book Numbers and International Standard Serial Numbers. Their mission is:

To collect, preserve and disseminate Uganda’s documented intellectual and cultural heritage, provide professional leadership in library and information delivery and promote a reading culture.102

I. M. N Kigongo-Bukenya means in "Combatting illiteracy in Uganda through the public library services" that even though the Ugandan government has paid for the library services in Uganda, the government commitment has been very weak. The reason for this is a lack of supportive political leaders as well as no prominent educational philanthropists in the country.103 Another view has Syed A. H. Abidi, former director at the East African School of Library and Information Science. He thinks that the government in Uganda has an interest in the development of technology. In his article “World views: Uganda: Toward information literacy and information and communication technologies environment” he states that Uganda has experienced a fast

100 Ikoja-Odongo 2003, p. 3.
102 www.nlu.go.ug
speed of ICT adaptation and adoption. Uganda’s information society is gaining more and more strength and that the country has developed a consciousness about the importance of information as an instrument for development. According to Abidi, it is apparent that the government has started to become interested in this area, an example of that is the aim to start the Open University, which will be a distance education that will rely on information and communication technologies.\footnote{Abidi, Syed A. H. 2002. “World views: Uganda: Toward information literacy and information and communication technologies environment” in Library Quarterly, Vol. 72, No. 4, pp. xv -xvi.} However, when it comes to information communication technology in Uganda, the power supply is unreliable in most parts of the country. In rural communities it is almost non-existent. There is a tendency of slow resource sharing and in order to effectively benefit from the information technology, Uganda need to, according to Magara, deal with issues like:

Literacy and attitudes to different communities for the adaption of ICT into their activities; integrating ICT into the education system; and enacting policy for use and the regulatory environment for effective delivery of ICT services in Uganda.\footnote{Magara 2002, pp. 253-254.}
3. Theoretical frame

For the theoretical framework we have used James G. March and Johan P. Olsen’s *Rediscovering institutions: The organizational basis of politics*, which is a well known and cited work in political sciences. Even if it has mainly been used in political studies, we have chosen to apply their theories in our thesis in Library and Information Science. Since we studied a change in an organisation, this theory proved to be very rewarding to apply to our case study. We have also used Manuel Castells *The Information age: Economy, society and culture: Vol 1: The rise of the Network Society*. In this book he describes what features are characteristic for the ‘technical paradigm’. This technical aspect was an important complement to March and Olsen’s theory.

3.1 Intentional transformation of institutions

In James G. March and Johan P. Olsen’s *Rediscovering institutions: The organizational basis of politics*, it is argued that political institutions play a very important role in influencing politics. March and Olsen mean that “[s]ocial, political, and economic institutions have become larger, considerably more complex, and prima facie more important to collective life.”

When March and Olsen discuss institutions, they primarily focus on courts, parliaments and ministries. Although our library is not a political institution as such, we think it can be fruitful to use March and Olsen’s theories since they seem to have a very wide opinion of what a political institution can be. They describe an institution as consisting of three systems; the ‘individual’, the ‘institution’ and the ‘environment’. These three systems interact with each other and might be in conflict with one another. March and Olsen mean that:

In particular, it seems very likely that both the individuals involved in institutions and systems of institutions have different requirements for change that do the institutions themselves. There is no particular a priori reason for assuming that individual desires for change and stability be mutually consistent or will match requirements for institutional survival.

In this case study we see the library as the ‘institution’ and the librarians and the users of the library as the ‘individual’. The ‘environment’ consists of other institutions connected to the library, such as the government, Makerere University and the donor society. In our research, we see the political life and the context within which the library functions as the ‘environment’, that is, the institutions connected to the library. We believe these three parts that an institution consists of are all equally important to be able to describe different aspects of the automation.

An essential point of March and Olsen’s theory is that the behaviour of political institutions is mainly based on routines. People do what they are supposed to do and they act according to what is the normatively appropriate behaviour instead of

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107 Ibid., p. 57.
108 Ibid., pp. 57-58.
109 Ibid., p. 16.
calculating what the outcome will be of different actions. March and Olsen call this ‘logical appropriateness’ and according to them it is the base of political action. Since logical appropriateness is based on routines, it often makes institutions seem very bureaucratic. Routines are very essential as they for example make it possible to coordinate simultaneous activities and avoid conflicts. However, the decision of what behaviour is appropriate in a specific situation, is not an unproblematic issue, and in the end a decision has to be made to determine which rule is the most appropriate to use in a specific case. March and Olsen conclude that “[t]he fact that most behaviour is driven by routines does not, by itself, make most behaviour routine.”\cite{March1989_24} That is, these routines based on rules, offer various choices and thereby even a sort of flexibility in the behaviour.

Imbedded in the aspect of ‘logical appropriateness’ is the concept of ‘legitimacy’. To create legitimacy, the institutions need to show that “the decisions accomplish appropriate objectives or by showing that they are made in appropriate ways.”\cite{Ibid._24} The concepts of logical appropriateness and legitimacy are the fundamental ways in which decisions in institutions are made. These concepts will help us understand how various decisions and actions have been made in Makerere University Library.

According to March and Olsen, intentional changes in institutions can be seen as resulting from six different routine stable processes. The transformation can be viewed as a process of ‘variation and selection’. Obligations, rules and roles develop through experimentation, competition and survival. If this was true for Makerere University Library, the library was forced to transform just to survive as an institution.

Action can also be seen as resulting from ‘problem solving’. One must choose between different alternatives by trying to estimate their outcome. If this was true for Makerere University Library, the transformation occurred because they had problems with the way the library was structured and had to find new solutions.

A change can also result from ‘experiential learning’. Through a method of trial and error the institutions use the methods that have been successful before and reject the unsuccessful ones. If this was true for Makerere University Library, the transformation took place as an outcome of the librarians’ own experience both of the library but also outside the library in interaction with various partners and projects.

Furthermore it is likely for a change to occur if diverse interests among individuals result in a ‘conflict’. If this was true for Makerere University Library, the transformation came about because of a conflict between different actors involved or connected to the library.

Like an epidemiology, a change can spread from one institution to another by ‘contagion’. If this was true for Makerere University Library, the transformation happened as the library was influenced by another institution or institutions making a similar transformation that was successful and improved their work and activity.

\cite{Ibid._24} Ibid., p. 49.
A ‘turnover’ is also a possible explanation for a transformation of an institution, new members that arrive with different attitudes or goals can be a catalyst for a change. If this was true for Makerere University Library, the transformation occurred because new staff arrived at the library or new partners affected the library.\(^{112}\)

March and Olsen suggest that these stable processes “tend to maintain stable relations, sustain existing rules, and reduce differences among organisations.”\(^{113}\) It is thus necessary to complete the understanding of the transformation of institutions, and to do that, they suggest three forms of intentional control that complement the stable processes. The first one is control over attention; individuals or institutions can not attend to everything they want to attend to, and therefore the focus of attention is important. What transformation or action that will take place in a specific context depends on “which rule is evoked, which action is imitated, which values are considered, which competitors are mobilised, which opportunities are seen, which problems and solutions are connected, or which worldview is considered.”\(^{114}\)

The second form of control that needs to be considered is control exercised through some anomalies of adaptive processes. Primarily, stable processes might produce unanticipated consequences. Moreover, novelty tends to change during the process of implementation, for example when Makerere University Library adopts a new program, specifying what the change means can be difficult because changes are transformed by the processes of a change. The last anomaly is the competency trap. If an institution learns to use new technology, and it increases the efficiency, the likelihood of using the technology will also increase. The problem is if this leads to a suboptimal technology that indeed increases efficiency, and the institutions are content with this, although there are even better alternatives that the institutions are less experienced with, which would increase the efficiency even more. Competency traps are therefore inhibitors of change.\(^{115}\) This might be applied to Makerere University Library if the new technology adopted is not the most efficient or most appropriate one for the library’s needs.

The third form of intentional control is control over broad systems of meaning. Here it is highlighted that stable processes of action depend on the context in which they occur. This is a rather imprecise form of intentional control. For example, they “include control over worldviews, that is, over visions of the nature of things.”\(^{116}\) We will consider the specific context that Makerere University Library is a part of, Uganda, which is a developing country in Sub-Saharan Africa. March and Olsen emphases that to understand the change of an institution one must realise that intentions are often indistinct, and that they are part of a system of values, goals and attitudes.\(^{117}\)

\(^{112}\) March, Olsen 1989, p. 59.
\(^{113}\) Ibid., p. 61.
\(^{114}\) Ibid., p. 61.
\(^{115}\) Ibid., p. 63.
\(^{116}\) Ibid., p. 64.
\(^{117}\) Ibid., p. 65.
3.2 The ‘technical paradigm’

In *The information age: Economy, society and culture: Vol. 1: The rise of the Network society* Manuel Castells claims that a new form of technical revolution is reconstructing the material basis of society to a network society. His idea is that there is a new economy, society and culture emerging, and he uses the information technology revolution as an entry point. However, this entry point does not imply that new social forms and processes are constructed as consequences of technological change. Rather, one can see the technology-change as a crucial tool in a complex pattern of interaction between many factors, for example; individual inventiveness, intervention in the process of scientific discovery and social applications. Castells’ point is therefore that “technology does not determine society: it embodies it. But neither does society determine technological innovation: it uses it.”¹¹⁸ By using this aspect in our case study and connecting it to March and Olsen, we will consider the technology as an important factor that influences and is influenced itself by the individual, institution and environment.

Castells is referring to Melvin Kranzberg and Carroll Pursell, who claim that all technical revolutions are characterised by their penetration into all domains of human activity. Those different domains of activity are woven around this technology.¹¹⁹ The information technology is focused on improving the knowledge generation and information processing, as a source of productivity.¹²⁰ Castells means that “unlike any other revolution, the core of the transformation we are experiencing in the current revolution refers to technologies of information processing and communication. Information technology is to this revolution what new sources of energy were to the successive Industrial revolutions.”¹²¹ He claims that it is not the knowledge and information in itself that characterise the revolution but how you use it. The knowledge and information are applied to processing and communication devices, it is a sort of interaction between new innovations and the users of innovation. The users give feedback on the new technology which continues to change and, involving that the users change as well. A new technology is introduced, used and developed to a new realm. The information technologies are not only tools, they are also processes that have to develop and get redefined by their users.¹²² We believe it is crucial to bear in mind that the technology is not to be focused on, just because it is new. What is important is the knowledge and information that is embedded in the new technology and how the librarians and students can take advantage of it.

It is thus important to remember that technical innovation is not something that is isolated. It reflects a specific institutional environment and a certain level of knowledge that is embedded in this environment. The information technology is dependent on the environment because it requires an influence of ideas, problems and solutions in order to develop. Likewise, the information technology also influences the environment. The information technology creates an innovative environment in a process of dealing with ideas, applications and previous experience. It becomes a sort of trial and error when

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¹¹⁹ Ibid., p. 31.
¹²⁰ Ibid., p. 17.
¹²¹ Ibid., p. 31.
¹²² Ibid., p. 32.
you learn by doing.\textsuperscript{123}

The current technological transformation can be called the ‘technical paradigm’, a concept developed by Carlota Perez, Christopher Freeman and Giovanni Dosi, based on the classic analysis of scientific revolutions by Thomas Kuhn. To show the paths of social transformation to a ‘technical paradigm’, Castells suggests five different features that are characteristic to the new paradigm. These features are together creating a material foundation of the informational society\textsuperscript{124} and we mean that they have been an essential help when analysing our material.

According to Castells, the first feature of the ‘technical paradigm is that ‘technologies act on information’. This means that information is the new paradigm’s raw material. In previous technical revolutions information has been an important actor on technology, that is, information has been crucial to the development of technology. With the new paradigm it is the technology that is essential for the information.

The second feature reflecting the new paradigm has to do with the fact that all human activity and processes are shaped by the new technology, meaning that the ‘technology has a pervasive effect.’\textsuperscript{125}

The third characteristic feature concerns the ‘networking logic’ of the system used and the current relationships that exist within this system. That is the ‘networking logic’ of any system or set of relationships using these new information technologies. Thanks to available information technologies it is possible to materially apply a network in all sorts of organisations and processes. The ‘networking logic’ is also crucial for the mission to structure the unstructured. Moreover, when a network is spread it is at the same time growing in size, and it becomes relevant to be a part of that network. Castells main point about the network society is that “[n]etworks constitute the new social morphology of our societies, and the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture.”\textsuperscript{126} It is crucial whether you are a part of the network or if you are excluded from it. Social morphology is more important than social action. He means that '[a] network-based social structure is a highly dynamic, open system, susceptible to innovating without threatening its balance.”\textsuperscript{127}

The fourth feature is based on ‘flexibility’. In a society where continuous change is happening repeatedly, institutions are following that change and constantly modifying themselves. It is therefore possible to turn the rules upside down and change the processes and components in the organisation without destroying it. Even though the technical paradigm can be recognised due to its flexibility, it is not certain that flexibility functions as a liberating force. It can also have a repressive influence if the ones that decide the rules or changes are not the organisation itself, but the established powers.\textsuperscript{128} It is crucial to consider that the state can be a most important power of

\textsuperscript{124} Castells 1996, p. 61.
\textsuperscript{125} Ibid., p. 61.
\textsuperscript{126} Ibid., p. 469.
\textsuperscript{127} Ibid., p. 470.
\textsuperscript{128} Ibid., pp. 61-62.
technical innovation. Precisely because of that reason the state can function as a form of stagnation. When the state reverses its attention in technology or is unable to adapt to it under new circumstances, it is possible that the society does not create an own independent will and desire to create and apply technology. So, Castells summarises, the state is a highly relevant factor in the process of either let loose, stalling or leading technological innovation because it both organises and articulates the cultural and social forces that exist in a given time and space.  

The fifth feature is that all specific technologies, like microelectronics, telecommunications, optoelectronics and computers, are all converging into a highly integrated system. The different forms of technologies can not function on their own; they are a part of the same system.  

Castells summarises his technical paradigm as follows:

The information technology paradigm does not evolve towards its closure as a system, but towards its openness as a multi-edged network. It is powerful and imposing in its materiality, but adaptive and open-ended in its historical development. Comprehensiveness, complexity, and networking are its decisive qualities.  

3.3 Application of the theories

Our intention is to investigate how the automation has influenced Makerere University Library. Since something new has been implemented, that is, the use of technology in the library, the library’s condition is no longer the same. We believe a transformation of the library is taking place and this ongoing change is our focus.

To approach this issue, we are using March and Olsen’s theories of how institutions transform themselves as an outcome of different factors embedded in an interaction between the ‘individual’, the ‘institution’ and the ‘environment’. In our case study, we think it is interesting to see which factors have caused and influenced the transformation.

We intend to study the library’s transformation to an automated library based on March and Olsen’s six intentional stable processes. We will also consider the three forms of intentional control since we think they are necessary to give a more compound view of the library’s transformation. We will investigate how the three systems that an institution consists of, the individual, the institution and the environment, interact. We intend to consider the concepts of ‘logical appropriateness’ and ‘legitimacy’. We think this will give us a more multifaceted picture of how the library has changed, what different factors have been part of this transformation as well as who has been affected by the transformation of the library.

Manuel Castells’ theory focuses on the ‘technical paradigm’, as a technical transformation that affects all kinds of human activity. In addition to March and Olsen, we think Castells’ theory about the new ‘technical paradigm’ can be fruitful to use. We want to see if Castells’ five feature characteristic of the technical paradigm can be

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130 Ibid., p. 62.
131 Ibid., p. 65.
applied to Makerere University Library. If this is the case, we think we can claim that Makerere University Library as an institution has been influenced by the technical paradigm. Castells is conscious of the fact that there are huge areas of the world and numerous people that are excluded from the new technical system, and also that the speed of technological diffusion makes a difference both socially and functionally.\textsuperscript{132} However, the library has begun a transformation where the dominant technology plays a prominent part. It is important to understand what forces lie behind, as well as what might happen in the future. We see an opportunity to use the technical paradigm, that mainly exists in the developed countries, as something the developing countries have been influenced of.

Since March and Olsen focus mainly on the factors that cause change in an institution itself we think Castells can be a good complement, since he discusses what characterises a technological transformation itself. He means that all parts of an institution are affected by the technology. Therefore, we intend to investigate the new social roles and processes that have been adapted in the library due to the transformation of the library. Even though you may be excluded from the new technology, you are affected by it. Based on this fact, it is reasonable to presume that the librarians’ working-situation has changed and as well, the students may have been influenced by it somehow. We believe that the information and knowledge that exist in the library may have been affected and reconstructed in a new way.

\textsuperscript{132} Castells 1996, p. 34.
4. Method

In this chapter, the method that we have used; a case study, will be described. To learn about what it involves to conduct a case study, Robert K. Yin’s book *Case study research: Design and methods* has been applicable. To attain knowledge of how to use interviews, we have chosen Karin Widerberg’s book *Kvalitativ forskning i praktiken* since she is discussing the use of interviews when doing research.

4.1 Case study research

The method we have chosen for this thesis is to conduct a case study at Makerere University Library. Robert Yin states in *Case study research: Design and methods* that “case studies are the preferred strategy when ‘how’ or ‘why’ questions are being posed, when the investigator has little control over events, and when the focus is on contemporary phenomenon within some real-life context.”\(^{133}\) Since we have carried out a case study about the automation of Makerere University Library, our aim is to reach an understanding that could only be obtained by personally meeting the people who visit, use and work in the library. We wanted to obtain an understanding of how the automation had been carried out, managed, received and used by different actors. Documentation, physical artefacts, archival records, direct observations, participant-observations and interviews are diverse ways of gathering information for a case study. It is recommended to use as many sources as possible, and they all have their strengths and weaknesses.\(^{134}\) Our aim was to study a single case, but we hope that it will be possible to find similarities with libraries having common experiences.

Interviews have been our main source to gather information, and will be presented thoroughly in chapter 4.2-4.6. In addition to the interviews, we have used direct observation and documentation. Since these ways to gather information have not been our main sources, they will only be discussed briefly.

The documentation includes for example agendas, written report of events, administrative documents such as proposals, progress reports and other internal records. Documents are helpful to confirm for example a correct spelling and they can support information gathered elsewhere.\(^{135}\) We have used various internal documents about Makerere University Library.

We have used direct observation as a complement to the interviews. Yin claims that “observational evidence is often useful in providing additional information about the topic being studied.”\(^{136}\) Since the case study has been conducted in a context we are not familiar with, that is, a library in a developing country, it has been highly relevant for us to visit the actual location.

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\(^{134}\) Ibid., p. 85.
\(^{135}\) Yin 2003, pp. 85-86.
\(^{136}\) Ibid., p. 93.
4.2 The interviews

Karin Widerberg means in *Kvalitativ forskning i praktiken* that interviews are fruitful if one wants to reach an understanding of how people reflect reason and interpret certain situations. The crucial point is not to get pure facts, but foremost an understanding. But then of course, you can consider such “understandings” as some sort of social and public facts. It is also very important to know in advance what sort of result one wants to attain, because this has to characterise the interview questions. That is, we wanted to gather information mainly connected to March and Olsen’s routine stable processes and Castells’ features of the ‘technical paradigm’.

4.3 The interviews; selection of informants

We have interviewed both the employees of the library and the users of the library to get a nuanced understanding of the transformation of the library. When it comes to the users, we have only interviewed the students, since they are the main-users. Teachers and researchers and other possible visitors of the library have not been interviewed. The reason for this is partly lack of time but also because we wanted narrow our selection of informants. In retrospect we have realised that it could have been valuable to include some interviews with teachers and researchers as well. Moreover, due to lack of space and time, we did not conduct any interviews with any persons representing, for example, the donor society, the government and other influence from abroad. However, even though these actors and factors are not interviewed, they are included and discussed in both in the results chapter and the analysis chapter.

All in all we interviewed ten students and seven librarians, including the University Librarian and the former, now retired University Librarian. After conducting these interviews we felt that we had enough information.

The interviewed librarians were chosen in consultation with our supervisor in field, since she is working at the Makerere University Library and therefore has a good insight in the diverse positions in the library. It was important for us to interview key actors involved in the process of automation. We used the "snowball method", that is, we listened to the librarians’ suggestions of who we should talk with, and who they thought had the information we needed.

We continued conducting interviews with the students to broaden the conception of how the automation could be seen from another perspective. The students were mainly chosen with help from our supervisor at the library. But since all of these students were male, and we also wanted the female students’ views, we asked two female students visiting the library if they wanted to participate. We interviewed nine undergraduate students and one postgraduate student, of these eight male and two female students.

The fact that the students interviewed were partly chosen by our supervisor in field is an

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138 Ibid., p. 66.
139 Ibid., p. 68.
140 From now on, when we refer to the users, we mean the students of Makerere University.
important matter to consider and this might have influenced our results. Our supervisor could have had a specific reason for choosing certain persons; for example students who had a very positive attitude to the library. However, due to our limited knowledge about the library and their users, we thought it was a good idea to rely on her recommendations concerning the informants. We believe we got a reasonable selection with students from various faculties and with different knowledge about the library. Our supervisor also helped us to choose the librarians interviewed, after consulting us about what information we wanted to attain. We thought we got a good selection here as well. However, when it comes to the selection of both the librarians and the students, other persons interviewed might have given us a different result.

4.4 The interviews; the realisation

A useful strategy is to first interview the employees to get a stable foundation for the meeting with the leader. Accordingly, we started interviewing the librarians, as well as the former University Librarian, to get a conception of how the transformation had been conducted. Thereafter the interview followed with the present University Librarian. We chose to interview librarians in different positions, to get an insight into their different tasks, connected to the transformation. This might have given us a more profound understanding.

During the interviews we used a tape recorder. We performed all the interviews together, one of us being in charge of the actual conversation with the informant and one doing a written record. This method proved to be fruitful since we could then compare our interpretations of what had been said. Moreover, if a misunderstanding occurred during the interviews, one of us could most often help the other out.

The interviews with the librarians were around 45 minutes, and the interviews with the students were a bit shorter, they varied between 20 minutes to 30 minutes.

All in all we conducted eight interviews with ten students. Two of the interviews were conducted with two informants at the same time, since they were friends and insisted to do the interview together. We thought it could be fruitful; they might be able to discuss things more freely that way.

We constructed an interview guide consisting of fairly detailed questions. The basic idea is not to follow the interview guide completely in a special order; it should rather function as a reminder of what is to be illuminated in the work. Moreover, it is very important to give the one being interviewed the possibility to evolve other, and maybe unexpected aspects of reasoning. The interview guide was created with semi-structured questions around our two research questions. This made it possible for the informants to reason beyond our fixed questions. In addition we used resulting questions if needed.

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Depending on which informants we were interviewing, the questions were differently designed. In the interview with for example the Systems Administrator, we asked questions concerning the more technical aspects of the automation, whereas with others we discussed more how they felt about the automation of the library. We started out interviewing the librarian who in many ways has played a major part in the automation of the library. After her interview we revised some of the questions, and continued with the other librarians.

The transcript we did of the interviews was detailed, almost word by word. That is, we left out pauses, laughs and some mumbling. Sometimes it was hard to hear single words or parts of sentences on the tape, in these situations we did a summary of what the interviewees said or if we did not understand at all, we left those parts out. Although, in most cases, if it was something that we did not understand, we had the opportunity to ask the informants again what they meant. However, most of the interviews were fairly easy to transcribe and understand. All the citations that we have used in this work are of course correctly transcribed.

4.5 The interviews; the location

When it comes to the location of the interviews, Widerberg claims that carrying out the interviews in the actual place of work can be seen, for some people, as quite stressful. Others can see and hear and there can be unwanted interruptions and disturbances. On the other hand, there are some advantages with it since it gives an overall impression and a possibility to learn more about the environment. This creates a valuable background both for the interviews and for the following analysis of the interviews. We chose to do the interviews in the library just to get this overall impression, which we thought was important in our situation, since our method is to conduct a case study. The librarians were interviewed in their respective offices, and the former University Librarian was interviewed at a restaurant at Makerere University.

Five of the interviews with the students were carried out in an empty office in the library, and the other three interviews were done at a peaceful location just outside the library, since the office was occupied. We actually felt that the interviews outside the library were more relaxed than in the office, maybe the students felt a bit intimidated sitting in the office.

4.6 The interviews; ethical aspects

We asked all the participants in our study if we were allowed to include their names in our thesis or if they preferred to be anonymous. All the interviewees agreed to participate with their names.

When it comes to the librarians, we felt that, since Makerere University Library is such a small library, and everybody knows who has been interviewed by us, it would be easy to figure out who had said what, even if we did not include the names of the informants. Although we believe that there is a possibility that the librarians did not talk as freely as

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144 Widerberg 2002, p. 93.
145 Ibid., p. 106.
they would have done if they had been anonymous since they were afraid to criticise the library. However, we felt that this was the best solution. The most important aspect was the different positions that the librarians have and we wanted to include that in our results chapter. The names of the librarians can be found in 10.4 Appendix 4 List of Informants. We have been conducting this case study with support from SIDA/SAREC, which is one of the major donors of the automation of Makerere University Library. Therefore, we were aware that the librarians might have felt that they could not express themselves freely, concerning the donor’s role.

We also wished to include the students’ names and their field of study, and all the students agreed. However, we only have their forenames in the results chapter to facilitate the reading. We hope that the students could express themselves freely, since they are not working at the library. This was true for some students, but we also felt that some of them were a bit nervous during the interviews, and might not have said everything they wanted to tell us.

One important aspect to have in mind when conducting interviews is that the informants may give false information, exaggerate or be too tentative. We were also aware that being young white females from a developed country could influence the interviews with the librarians and the students. However, we did not have any problems with that when conducting the interviews.

4.7 Analysis

We have chosen to do our analysis by discerning analytical themes in our material. One way of doing it is by using the empirical material as a base. Another way is to use the theory as a base. Widerberg claims that combining these two ways is the best combination. However, our main technique has been to use the empirical material as a base and the categorisation of the themes has been discerned from the actual interview material.

Through the whole analysis, we used our two research questions as a directive when distinguishing the various themes. The selected themes have been related to our theoretical framework, mainly Castells’ five features that constitute the ‘technical paradigm’ and March and Olsen’s six stable processes and the three forms of intentional control.

\[\text{\footnotesize Widerberg 2002, pp. 144-145.}\]
5. Results

The results section starts with a description of Makerere University Library based on our own observations as well as information from for example Makerere University Library homepage and Makerere University Library Strategic plan. Thereafter follows the empirical material, obtained from the interviews. We have used a fairly large amount of quotations, since we believed it made the text more interesting. The names of the informants are available in chapter 10.4 Appendix 4: List of Informants. In the results chapter we have only used the positions of the librarians and the first names of the students. It is the positions that the librarians are in hold of that is essential for our thesis, even though they are not anonymous as such. The reasons for this are explained in the method chapter. We have only used the first names of the students to facilitate the reading.

5.1 Makerere University Library

Makerere University was founded in 1922 as a technical school and started developing into an institution of higher education in 1937. In 1979 Makerere University became an independent National University of the Republic of Uganda. The University has at present twenty faculties and institutes with about 22 000 undergraduate and 3000 postgraduate students.\(^\text{147}\)

The vision of Makerere University Library is to be a "provider of excellent library and information services"\(^\text{148}\), and their mission statement is "to meet study, teaching and research information needs for sustainable national and regional development."\(^\text{149}\) Uganda as a country does not have an ICT-policy. However, Makerere University Library actually does have a draft of an ICT-policy for the library. The ICT-policy first came out in 2001, the same year as the automation started, after a workshop for librarians and stakeholders. However, according to The Systems Librarian “it is not official, not many people know about it”. The ICT-policy for the library is updated from time to time and in the latest version it is stated that:

The policy details the rights and regulations of consumers of electronic information and will also ensure that the use of electronic information resources complies with the University policy of improving both the efficiency and effectiveness of library operations and services through the implementation of an integrated on-line Library Information System.\(^\text{150}\)

The objectives are:

- To meet study, teaching and research information needs of Makerere University;
- To strengthen the capacity of the library in the provision of services;
- To enhance fast access to required information resources.\(^\text{151}\)

\(^{147}\) www.makere.ac.ug  
\(^{149}\) Ibid., p. 2.  
\(^{150}\) Makerere University Library ICT-policy: Draft copy, 1.  
\(^{151}\) Ibid., p. 1.
The main library was constructed in 1959 and has a total area of 8000 Square metres with a seating capacity of 1,000. It is a general library with seven divisions; technical services, serials, reference and circulation, Africana and special collection, information communication technology, book-bank and bindery.\(^{152}\) The book bank at Makerere University Library functions as a complement to the library, and is mainly set up for students who can not afford to buy their own literature. The book-bank system was established at Makerere University in 1990. It was created to ensure availability of textbooks to students with limited funds. Apart from the library’s other collection, there were 221,696 books in November 2003 in the book-bank. These books are not found in the library, but are distributed to different departments and institutes of the University.\(^{153}\) There are seven specialised branch libraries. These are at the faculty of Veterinary Medicine, the Institute of Adult and Continuing Education, the Makerere Institute of Social Research, the East African School of Library and Information Science, the Albert Cook Library at the Medical School, the Makerere University Agriculture Research Institute and at the School of Education.\(^{154}\) The entire collection, including the branch libraries, consists of approximately 384,800 monographs, with an annual addition of about 2,250 books, if donations and exchange is excluded. The collection also consists of 82,000 bound serials, with an annual subscription of 330\(^{155}\) serial titles.

Makerere University Library has at the ground floor an information desk, a reservation desk and an issue desk with library staff to help the users. The library keeps the monographs published before 1985 on the open shelves. In general, these books look very old and torn and many have no front-page. The records of these books are available in the card catalogue which is arranged after both subjects and authors. The closed collection holds all new books published after 1985 and the records of these books are searchable in the OPAC. The maximum borrowing time for these books is four hours. There are several study areas and the main study area is situated at the ground floor, with both an open study area and a quiet study room. One section of the library is the Africana and special collection, which consists of literature related to East Africa, as well as books and documents on Uganda, and produced in Uganda. Moreover, there are general African books by explorers and travellers, as well as thesis and dissertations. These books are in closed access and are not allowed to be brought out of the Africana section. Accordingly staff is available to get the requested books. Photocopying is also available. Some literature of the Africana section is in the OPAC, but not everything, so there is a card catalogue for this section as well. The bound serials are all in a closed access.

Makerere University Library is using the library system Virtua, developed by a company called VTLS (Visionary Technology in Library Solutions). The choice of which system the library should use started, according to the Systems Librarian, with the development of a Request for Proposal (RFP). This document was submitted to the national newspaper in Uganda, the New Vision and on the websites of the University of

\(^{153}\) www.makerere.ac.ug
\(^{154}\) makerere.ac.ug
\(^{155}\) This information is obtained from the homepage of Makerere University Library. However, according to our informants, the library does not actually subscribe any serials at all for the moment.
\(^{156}\) makerere.ac.ug
Bergen, the University of Tennessee, the University of Uppsala and at Makerere University Library's own website. There were five companies who responded to the RFP. Two of these reached the semi-final stage i.e. ALEPH and Virtua. The Systems Librarian mean that both of them would have been good for the library, but Virtua was the cheapest, and that is the reason why it was chosen. Another important aspect was that Virtua could meet most of the specifications in the RFP. After the installation of Virtua, the librarians have had initial training. Six librarians have also visited Uppsala to study how to use and handle Virtua. The Systems Administrator has received additional training at the VTLS headquarters in Blacksburg, Virginia, US. This year, in 2005, some of the librarians have attended the Virtua user group in Switzerland.

In the cataloguing module, the library is using AACR2, the Anglo-American Cataloguing Rules. The format they are using is MARC. Makerere University Library both creates their own records, but they also use shared records, the supplier of these records is the Library of Congress, using the Z39.50 protocol. The Z39.50 protocol refers to “the International Standard, ISO 23950: Information Retrieval Z39.50”. According to Library of Congress’ homepage the “standard specifies a client/server-based protocol for searching and retrieving information from remote databases.”

The interlibrary loan is on a very small scale at the moment but it is not yet done in Virtua.

In Sweden, since 1987, the three largest university libraries (Lund, Gothenburg and Uppsala University Libraries) are using the same library system as Makerere University Library, developed by VTLS. In the beginning they worked closely together, and this collaboration seems to have been rewarding. According to Kerstin Dahl, in her article "Lund University Libraries and the move to Virtua in a networked environment" Lund University started using a classic VTLS system, but in 2000 they started using Virtua, which is VTLS’s third generation system. They chose Virtua since they had started using VTLS. They also knew that Virtua "had a comprehensive client-server software solution, which could offer our patrons the latest technology for accessing information, that it followed international standards and had flexible, self-instructing and user-friendly functions."

The first module of the system that has been implemented at Makerere University Library is the Online Public Access Catalogue (OPAC) which is called MakULA. Since all the librarians refer to MakULA as the OPAC we will henceforth use this term. So far, nearly all the books in the closed access have been entered. In the OPAC it is possible to search for literature located in the main library as well as in some of the branch libraries. One can search for books specifying author, title or subject. It is also possible to do an advanced search with Boolean terms. The library enters approximately 2500 records per month in the OPAC. There are ten computers available for searching the OPAC. Three of the computers were available for the students in the beginning of the autumn semester 2004 and the remaining seven computers came in January 2005. The second module is the circulation module, which is soon to be implemented and includes barcodes to the books, scanners and alarm gates. This will make it possible to produce reports including statistics of the circulation. The last module which will be implemented is the acquisition module. The problem with this module so far has been

157 www.loc.gov/z3950/agency
159 Ibid., pp. 112-113
that the library has not got its own book budget. Up to this point, the librarians have been unable to use the acquisition module, since they have not known how much money they could spend.

Three computer labs are available for the users. The computer lab for the undergraduate students has 35 computers and the computer lab for disabled students consists of 10 computers. There is also a computer lab donated by Uganda Tele Communication in 2004. It is available only for postgraduate students and University staff and it has 40 computers. On hand in all the computer labs is a librarian, with special education in computers. All the computers have Internet access which enables entry to electronic journals and databases. It is possible to search in external databases such as EBSCO HOST, which includes for example Medline and ERIC. There are also online journal databases, for example NISC databases, which includes AIDSearch and African Healthline. Furthermore, there is access to online full-text journal databases, which includes Blackwell Website, Emerald Group Publishing LTD and Oxford University Press. There is also a link to online books. The students have access to the Database of African Theses and Dissertations (DATAD), which includes abstracts of theses and dissertations from African universities. The library is also co-operating with the Programme for the Enhancement of Research of Information (PERI), under the sponsorship of the International Network for the Availability of Scientific Publications. Through PERI, libraries can access subscriptions of web-based journals. Makerere University Library is the co-ordinator of PERI to other universities in Uganda.

Makerere University Library has received financial support from Swedish International Development co-operation Agency (SIDA) specifically for technological improvement. This has resulted in a basic infrastructure, which includes location and space for the Information Communication Technology (ICT) equipment, hardware, software which is mainly the Virtua library system, e-mail and Internet access, sufficient electricity for the electronic equipment, Local Area Network (LAN) and appropriate furniture for the equipment. The library has also received funds from the Database of African Theses and Dissertations (DATAD), The Norwegian Agency for Development co-operation (NORAD) and The Carnegie Corporation of New York. This funding supplies the library with help and support in the development and improvement of information retrieval. The Carnegie Corporation of New York contributes with money for databases and training. They gave a grant to Makerere University Library of 650,000 dollar for the period of 2001-2004. The project’s objective was to "strengthen the University Library’s capacity and cost effectiveness in making available relevant and up-to-date publications for study and research by students and staff." One of the project’s specific goals was to establish a sustainable electronic document delivery system (EDDS) in the Science and Gender disciplines. This goal has been fulfilled and in EDDS, staff and students can apply for articles that are not available in Makerere University Library, but that are available from the partner libraries such as the Bergen University, University of Tennessee and the British Library. The library receives 5% of the tuition fee paid by privately sponsored students. Furthermore, the students of Makerere University pay a library fee which also helps to improve the library’s

160 www.makerere.ac.ug
162 www.makerere.ac.ug
163 Ibid
5.1.1 The informants

There are around 25,000 students studying at Makerere University. Many of them only use the branch-libraries but since our focus is the main library we have only interviewed students that frequently use this library.

There were in April 2005 sixteen employed librarians at Makerere University Library (main library), including the University Librarian. The librarians have various levels of education; Bachelor-degree, postgraduate-diploma, Masters-degree and the University Librarian holds a PhD. There are also two librarians that still are studying, but soon will get their PhD. We have interviewed the University Librarian, the former University Librarian, the Systems Administrator, the Systems Librarian, a former senior librarian, the Chief Cataloguer and a cataloguer at the Africana section.

5.2 Actors and factors that could have started the automation

5.2.1 Influence of the donor society

When it comes to the question of whose initiative it was to start the automation of Makerere University Library, there seem to be various actors and factors that together started the transformation.

The retired University Librarian at Makerere University Library, explains how the donor funding for the automation started at the library. He says that Makerere University Library wrote a proposal to the African Development Bank in the beginning of the nineties to ask for money. The first plan, before any money had been granted, the Systems Administrator refers to as the ‘implementation plan’. The library got recommendations what should be done in the library and written in the plan. They should get computers and employ new staff that could handle them; two software computer specialists and two hardware computer specialists. The project did not take off, but the University started recruiting personnel and got prepared for the automation. The former University Librarian describes the long procedure of automating the library:

Now, money was here, but then for some reason it stopped. It never was implemented and so it kept on dragging, things were changing, so the directors of the Computer Science kept changing, so we had to start all over again, so it was never implemented. Then in March 1999, when SIDA/SAREC came, so we rewrote, as it was very unclear. It was on and off, so we wrote another proposal, so the SIDA/SAREC accepted an ICT-introduction integrating of ICT in library-functions.

Finally, after ten years, the library got the money and could in 2001 start the project of automation. The Systems Administrator confirms this:

The University requested the Ministry of Education to improving the facilities in the Institute of Computer Science and in the library. And under the ADB, the African Development Bank project and the Ministry of Education, we conducted a concerted, a study of this library. [...] Not until 2000, we wrote a proposal and submitted it to SIDA/SAREC and when SIDA/SAREC received our proposal it was a part of the University's proposal and they advised the University of what to do. And SIDA/SAREC in 2001 gave us a grant of automating the library. And fortunately also, the Ministry of education project of 1991 also released money in 2001, after ten years.

The Systems Administrator describes what fields of the automation were included in the proposal to SIDA/SAREC in 2001:

We had three major fields, or major areas of implementation. One. Infrastructure, to acquire the infrastructure, two is to train the library staff who manage the infrastructure and three is to train the University community on how to use an automated library, an efficient use of the automated library.

The former University Librarian emphasises the donor society’s major role in the transformation, but also the importance of asking for money for the "right" things.

[T]he inspiration also came from when you talked to donors and they say what do you want? Then you really have to think, [...] they are not really going, for things like, traditional things like books [...] They want to buy something that will change the whole thing.

After the initial proposal, a second proposal was being written to SIDA/SAREC according to The former University Librarian:

So, SIDA supported us on the automation and the African Development Bank supported us on Internet. [...] So again SIDA, in phase two, we wrote a proposal to now ask for electronically journals, subscriptions of electronic journals, and then we wrote in the same proposal, training of librarians and then the third one I think was partnership.

In addition to the SIDA/SAREC money, Makerere University Library also got support from NORAD. This money was, according to the former University Librarian, used for purchase of computers.

5.2.2 Influence of abroad

When we asked the librarians why the automation started, many librarians concluded that it was a trend that the library had to follow. The Systems Librarian says:

I think it was even the trend, you know, every University was, you know, kind of automating the library, going online, so we had to do the same. [...] But I kind of think it was the way to go.

The former Senior Librarian also confirms this view and she says that:

Probably we are following the modernisation and it has to go with certain aspects, with the modernisation and all that.
The former University Librarian means as well that influence from abroad was an important factor. The former University Librarian and others with him at the library had an education from abroad and had seen what had happened in, for example, Europe, and were influenced by that. Other librarians are also talking about the need to follow this trend; the cataloguer at the Africana section feels that there was a need to automate the library:

It is the right decision, to start automating, because if we would stay behind, I do not think we would catch up with the other world.

The former Senior Librarian describes this initiative to automate the library as a wave, where both the donors and the librarians played a significant part.

None of the librarians mentions Sub-Saharan Africa as influencing the library’s decision to automate the library’s functions. Both the librarians and the students are talking about Europe or the United States as the influential part.

5.2.3 Influence from the government

None of the informants mentions the government as a major factor that has influenced the automation. On the contrary, it seems like the bureaucratic processes to receive money from the government is a very slow business indeed. For example, the cataloguer at the Africana section describes the problems with getting money from the government to the purchase of books. She says that the library only gets a small sum every three months:

And when it comes, they give you a small bit and then the rest go to other things, because there are so many things waiting. […] Yes, the government will give you a lump sum. They will say we will allocate so many millions for the whole financial year. Then they release bits to cover so many things. It is very difficult. But otherwise they have been fulfilling their obligations, although in slow.

The Systems Librarian is critical as well, when she describes how it can take up to two years for a book to come, due to lack of money. The former Senior Librarian points out that even if there is money allocated to the purchase of books, when something more urgent is needed, the money has to be taken from the book budget. The former Senior Librarian means that she can see a decline in the support from the government, and she feels that the resources the library gets are too scarce:

To get money from the government is very difficult, it has to do with the students cost. […] In the library right now the student pay only 5000 shillings, how many dollars, maybe three. So it is very small compared to the service that we have, but you know libraries they are not profit making organisations.

However, she is aware of that to get any more money from the government, the librarians must be convincing that there is an ongoing transformation of the library. The former Senior Librarian points out that Makerere University is the oldest university in Uganda, and for a long time it was the only university in the country. So, compared to the newer universities, Makerere University has been quite well off. However, there has been an increase in the intake of new students to Makerere University, which has resulted in less money spent on every student. Another reason for the declining support from the government is, according to the former Senior Librarian, that the government
has started to give higher education a lesser priority than primary schools. The governmental money given to Makerere University Library is mainly used for buying text books to the book banks, and according to the students that is much needed as well.

5.2.4 Influence of the librarians and the students

According to the librarians we interviewed, the former University Librarian, in his position as a University Librarian, seems to have been one of the leading figures starting the automation process at the library. The former University Librarian agrees and says that it was him and his colleagues who started the automation. The Systems Administrator confirms this view:

The initiative was basically from the librarians, and pioneered by Mr James Mugasha, the retired librarian [...] Those are the people, according to how I understand, who convinced the library, who convinced the Vice Chancellor that the library can be included in the ADB-funding of 1991. [...] In my understanding those, the head Vice Chancellor, the retired University Librarian and we had also another library staff who really started the ICT-section.

However, according to the Chief Cataloguer it is mostly the younger people of the staff who have been participating in the automation of the library. She means that the reason for this is that the younger people are more acquainted with the new technology.

The Systems Librarian was a part of the automation-committee at Makerere University Library, and she describes what happened the first year:

Ok, when we started just in the planning-phase, I was on the automation-committee as we used to call it then, but then you know, that was at a time when we really did not know much of what would happen. So I was on that planning-phase in what will we do, what will we do about it and what kind of information we needed, if we are going to acquire a system.

The Systems Librarian concludes that the librarians did not know in the planning-phase what would happen with the library. There seem to be a general agreement among the librarians that the students at Makerere University Library did not play an important role in the process of automating the library. The former University Librarian does not think the students at that time could see a need for libraries to be automated. But probably the students were considered by the librarians in the process of automation. The Systems Librarian means:

Not forgetting that we want to give the best services to our users. We thought, with the automation, definitely our services to the users would definitely improve.

In general, none of the students feel that they were directly involved in the initiative to automate the library. Paddy is very certain that none of the students were involved. Like the librarians, the students think that it was the librarians themselves who took the initiative. However, Joanne means that the students somehow could have been part of the initiative, but she does not explain in what way. Henry means that the students might have been involved indirectly as well:
When we complain, so in course of sighting a solution they might have thought of doing it in this way. But I do not recall the students saying we want computerised, for them they just complain the books are not enough and so. [...] Because maybe for us, what we might have focused on was buying enough copies.

Emmanuel means, as the librarians, that the donors played an important role contributing with money, and that the students were not involved:

Apart from international organisations which came in with the funding, then the implementation, the students were not involved as such, because the just found the system going on. So the students were not involved.

The Systems Librarian hopes that the students in the future will be able to participate more in the library’s decisions, and she tells us that the library did have a workshop about the automation, which included the students:

We can not just give out when we do not know whether we give out is what they want. But we have not yet done that much. Although, when we were in the very beginning, the planning-phase, we used to have, we had a workshop with at least our stakeholders, and sort of had, we exchanged ideas, but not really for feedback.

However, the interviews indicate that even though the students were a part of the workshop, their opinions did not seem to have been taken into account to any larger extent.

5.3 The transformation of Makerere University Library

5.3.1 The access to the library’s collection

Once the library system was purchased, Makerere University Library started entering records in the OPAC from the closed access sections, and this process with the cataloguing module was nearly completed as we conducted our case study. The cataloguer at the Africana section feels that the automation process has been very hectic:

[We have experienced so many difficulties. Because since we had no, nothing digitised. We were completely manual, and we, the only things we had that were in digital form were in the card master. [...] First of all we had to arrange the card catalogue. The card catalogue was also in a mess, [...] not being kept up to date. [...] So, we begun with that, and we started with the pilot project which showed us what, it dictated the function. [...] So, during the process of the pilot that is when we realised that we had many difficulties using this manual catalogue. So that one directed our functions by the time we embarked on the full project.

This pilot project was a starting point which showed what to do and the problems they were to face. It was necessary to estimate what already existed in the collection. By conducting the process of the pilot study, the librarians could move on to the next step, which was to validate the books that were going to be put in the OPAC. Validating the books means that they were checking if the card catalogue was corresponding with the physical books and their shelf cards. She continues:
We had a target, I think it was in June, that we had to launch the system. So immediately after the validation exercise, we embarked on entering the data, so that we would have a good number of them. So that it can be open to people, people start accessing it online.

There have been some evident practical changes in the library since the idea of an automation started at Makerere University Library. The former Senior Librarian explains what was the highest priority to automate first and why:

First, we wanted to start with the collection that was heaviest used, and the closed access collections, presuming that they were the most heaviest used, and they were the sections that should be part in OPAC, as a first priority.

Makerere University Library has acquired the integrated library system Virtua including an OPAC. The OPAC gives the users access to records of literature that the library owns. It is well liked by the librarians, although many feel that it is difficult to assess the impact of the whole integrated system, since the library only is using the catalogue module so far. The Chief Cataloguer puts it this way:

It has not yet embraced the whole library system, so it is very difficult to assess it, because the branch-libraries, some of them don’t have it, like the Medical Library, which is the biggest branch library has not got it, they are not connected.

The Systems Librarian is in charge of the library system. The OPAC is a part of this system and she is very content with it:

I think it is a great system, it typically does everything. [...] Everything could be possible if you read through, so it can do what we really want, then it is a great system and so far we have only used the cataloguing module, so I can only talk about that. I think so far, I have no complaints really about the cataloguing system, it is good.

However, the former Senior Librarian says that the librarians are having some problems with the MARC-format that is used for entering records in the OPAC:

Now we have to catalogue a single format, and that is a hard one, to train people in that format, it is a bit tricky, but we will learn with time. [...] Really editing becomes a big issue, editing all those records to OPAC. You find some mistakes here and there, because MARC-format is new to some librarians and it takes time to know this. And sometimes you can check something that you know is in the catalogue but you can not get it, because the indicators are wrong. And it frustrates some people. But probably, it is ok.

The students we interviewed had different experience of using the OPAC, some of them used it frequently or occasionally whereas others did not use it at all. Charles and Ransango are familiar with how to use it. Ransango’s opinion about the computers used for the OPAC is that they are good but too few. Joanne knows how to use it, but have the same opinion as Ransango when she means that there are too few computers:

I rarely access those computers [with access to the online catalogue], because they are very few and in most cases you find them occupied.
Henry has just recently started to use the OPAC:

It is good because it provides, it eases the search if you want the catalogue number instead of going to the manual catalogue. It’s quicker, although if you don’t know some computer basics, it becomes hard. And you might go to revisit the other one, which is the manual, because all these years we have been using it, and I think it is easier compared to this [the online catalogue].

When asking the students if they use the OPAC to search for diverse literature it becomes clear to us that many students do not actually know how to use it, which is a bit surprising. Peter and Joseph confirm this lack of knowledge in using the OPAC:

That one has been improved, and it has been installed in our main library, but most of us, like us, we do not know how to use it. And we haven’t been taught how to use it, and I believe very few people know how to use it. I think the only thing that we have learnt to use is the Internet. […] I have a feeling it is complicated, I do not know. I do not know what is in that catalogue; I do not know what is there.

Neither Mary Juliet is using the OPAC and she does not even seem to know there is such a thing; she is always using the card catalogue:

For my basic research I always go to the IDA-section, which is the closed section […] And then Africana section also, it is easier to get books there. And when it is my ordinary reading, when I do not have a specific thing that I am looking for I can go to the [card] catalogue. Because if I want any specific information of course I can not look in those [card]catalogues because the books are so many and I can not tell which one I want.

Rasango still uses the card catalogue as well and he even thinks it is easier to use than the OPAC. The students’ opinion about the card catalogue contradicts the former University Librarian’s view, who claims that the card catalogue is abandoned and that the students are spending more time at the computers.

The students we interviewed had different experiences of using computers, which made us understand that computer skills are very important if you are to have any advantage of the library’s automation. This is something that the students seem to be aware of as well, for example, Emmanuel tells us:

The computer would be easier but not everyone knows how to use a computer. So, for the few who knows how to use it, it becomes easier.

Important for our case study is that the first three computers for the OPAC were installed in August 2004, and the other seven as late as January 2005. Since we interviewed the students in the beginning of March 2005, the major part of the computers had only been in the library for a short time.

The former Senior Librarian is fairly critical to the system of the closed access:

Definitely not convenient for the students. But I mean we live in that part of the world, we do not have a lot of money. The annual budget for the books, it is really not that great, so we kind of only afford to buy a few books at the same time. […] And put them where we can safely guard them. […] I think it is more about fairness in the distribution
of the few books. I am not sure that our staff is that good, that they can keep up with all the demands of the students. But I do not think that we are that efficient in satisfying the students in this closed access.

Even though most of the students agree that the most relevant books are in the closed access, the students are also critical to the system. Joseph explains:

> For example Africana section, you use it for four hours, and you do not take it out [outside the library], so after four hours you have to take it back. If you exceed the four hours they charge you. Yet, we do not have the money to pay them. For example if you have an assignment to finish, and you have to hand in, if it is for tomorrow.

Some of the students seem to be of the opinion that even though the OPAC has been implemented it is more convenient to use the open shelves, because here the students have full accessibility. Lubwama explains:

> For closed access, you just have to use the procedure. The open shelves, you just get the books, they are concerning different subject. But the most critical books are kept in the closed access.

Joanne confirms this:

> If you went to the open shelves you get a wider access. Like, you can have one in your mind, but when you reach there personally, there are better books than the one you were looking for. Some are too old, but they have the information that you need.

A problem with the open access is highlighted by Emmanuel:

> It is quite difficult to look for books in the open shelves because people keep misplacing the books; they borrow a book from one shelf then take it to another shelf. So at the end of the day when you are looking for that book it becomes hard, because when someone come and pick it they don’t return it to the right place. Then they make it difficult for others to get it. Open shelves are quite difficult to use.

### 5.3.2 The computer labs

Apart from the computers giving access to the OPAC, the library has installed three computer labs. One computer lab is for the disabled people, the second one for the undergraduates and the third one for the postgraduates and the staff. According to the Chief Cataloguer, the African Development Bank supported the undergraduate’s computer lab financially, whereas Uganda Tele Communication has been the main donor for the purchase of computers to the postgraduate’s and the staff computer lab.

According to our informants, there have been problems with electricity as well as with very slow Internet access, which has made it nearly impossible to download for example a PDF-file. But, fortunately, these areas have improved at Makerere University Library the last few years, as is stated by the former Senior Librarian:

> The Internet at first was a big problem; because it was very expensive. [...] First we had to optimise the bandwidth. [...] The cost of bandwidth has gone down, so the University can now afford to buy more, so right now the system is a bit faster.

The University Librarian thinks that the students are very exited over the automation, since they are young people who like innovations. But she also highlights the problems
the library has had with bandwidth:

For us to maximise the utilise of the bandwidth we need to train our users so that they do not waste time doing things, which I guess consuming our bandwidth, instead […] using the bandwidth maximally without just wasting time listening to music or watching pornography, or things like that. Apparently music and pornography are sites that have been blocked, so that we can maximise and utilise our bandwidth.

The former Senior Librarian also thinks that the students are satisfied with the automation, but she can not tell for sure since she has not talked to that many of them. Most students she talked to were just learning to use the computers. She does not think the access is sufficient since the library do not have enough computers and not enough computer labs. It is very difficult to assess the impact of the system when not everything is in place. She continues:

You find that the students are given their own 25 minutes, something like that, and then another comes. Ok, they can book double sessions, but still if you are downloading, if you want to check these various databases, probably 25 minutes are very little.

The Systems Librarian points out another aspect, she means that one of the reasons why the sources in the computer labs are not so heavily used is:

You know the problem is, as you realise, our culture, the reading culture here is not so well developed as in other places, so while we have a lot, or maybe it is inadequate, the judging of how useful there are, or whether they are enough, might not be adequate, because they are not really used maximally, the usage is still low.

The former Senior Librarian means that some of the students are dissatisfied with the availability of documents in full-text versus access to bibliographic records:

You can not with these databases, you can not have full-text access, and some people get frustrated, they do not care about knowing that you have got the details that is also a service. […] So it is very difficult when you are trying to do the transition from the manual to the automated, because people are just impatient. […] But we have a way around that because we have some document-delivery, yes from the British Library. […] But when you tell them that we have full-text databases, they think that everything is full-text, so I do not know if it is the problem with communication or something that we need to do better.

The Chief Cataloguer tells us about PERI, which has put 700 titles of journals on the Internet which can be used for academic purposes. She is also very content with the collaboration with the British Library:

If the articles are not in the databases we access, we can order the articles through the British Library and it comes. […] It takes two weeks to get here. […] We are unable to pick subscriptions; we are now actually depending mainly on the databases.

She also talks about how impressed the lecturers are by the possibilities it gives to get online:

Very much, those lecturers who has used the Internet to get, of course, they are impressed, very impressed. I know I have met three lecturers who had said –I have to come to the library. You order an article and it is there, it is unbelievable.
When conducting the interviews with the students, we found out that the ones who know about the databases and how to use them are quite positive. Emmanuel tells us:

They are quite good because they make it easier to access information from different parts of the world which may not be available in the library here. So it is on the databases that you can access them. […] At times we try Ebesco and Emerald. […] they are good.

Moreover, Rasango tells us the databases are very useful. Lubwama also agrees and thinks that the different databases that the university pays for are very helpful. A problem with the computer labs is of course that there are so few computers, and the short time given to use them. Henry tells us about this:

Yes, we use them only that the computers are few. And you are required to go outside to the Internet cafes. Because you book for one hour, you come and book for a session. And given the few computers compared to all the students, it becomes somehow difficult.

Peter tells us about the problems with the scarce amount of time given to the students at the computer labs:

The time it takes to download, to convert, it takes like twenty minutes, and you have thirty minutes. And the next person comes, and they have to do their work. So many times we have to keep hinking, imagine, […] basically you have to explore old information. Personally I always use the books in the upper section; they are old books, old philosophies and old paradigms. I depend on those one trying to relate them to what is happening, basically that is what I do when I am doing my work. But Internet, I am not using it so much.

Rasanga explains that even though he thinks the various databases are very useful, you really have to go to an Internet café to download, and other students we interviewed confirmed this as well. Yet, another problem connected with this is that many students do not have the money to visit an Internet cafe.

There are also students not using the computer labs at all. Paddy claims that he is not using the computer labs and he has never used the databases. Moreover, even though the students use the computer labs, many do not access the various scientific databases that the library is paying for. Peter points out that there is a feeling of "reluctance" among the students to use the computers. Joseph means that the undergraduate students mainly use the computers for surfing on the Internet, and that it is only the master students that are using the other sources available on the computers:

And that programme, maybe it only works for the master students, but for the undergraduates, when you go to the lab, they surf sports, leisure, but academic work is rarely done by the undergraduates on the computer. We do surfing, e-mail, go to sports, such kind of leisure. So I think there is need for sensitisation and awareness on how these facilities can be used.

Many students actually just use the web-based search engine Google to search for information. Joanne tells us:

In most cases when I go there, it is like, I just go to the Google search, because I have specific things that I am looking for, that is the thing I use mostly.
Peter and Joseph also tell us that they do not use any scientific databases, they only use Google, Peter explains:

Personally I only know how to use Google, and I learned it myself, so most likely, most of the persons use Google, because very few people have taken simple courses in computer, we just learn by ourselves slowly, from colleagues.

The students are supposed to get help in the computer-labs. The Systems Administrator describes that every computer lab has got a library assistant who is trained in maintaining the computers. However, the students are not so satisfied with the librarians helping out in the computer labs. Henry claims:

You can ask them only that people are different, and in most cases people who are, who have some good basic skills are the ones who use these computers. […] The computer labs, you do it yourself, they never served us.

Joanne also confirms this, claiming it is especially true for the postgraduates:

In most cases, these people are not there, like for us postgraduates, they believe that we know what we are doing. So at times you consult your colleagues, and if you do not know what you are looking for, you just end up looking for it somewhere, maybe surfing for it.

Of opposite opinion to Henry is Emmanuel, who gives us another view of the situation:

We ask for their help [in the computer lab] in case we need it. […] Because they are very experienced in computers so if you having a problem regarding computer and accessing information then you have to inquire from them, because you can not just guide for information you don’t know.

5.3.3 The balance of books and computers

The University Librarian claims the importance of keeping a balance between books and computers:

I think that we ought to balance. […] I can not say that we should stop buying books, or stop buying journals, because we have e-resources. […] Because libraries provide services for different categories of people, and because we also have to catch up with the different interests of users, somebody may be tired looking at a screen, and rather, you know, get a book and relax. So really, I feel that we should have both. Because we have to provide for different people. […] Maybe they want to listen to some audio tape or maybe they want to read. So I think. […] It is not either or, it is both.

The cataloguer at the Africana section expresses her satisfaction about the fact that the donors are not only looking at the automation of the library, but also at other aspects that needs improvement, like the purchase of books:

It is good, because they are helping us with both automation, and you know, getting more books. So they are doing it concurrently, the donors, they are not doing one thing at a time, but they are looking at the, those things together. […] Yes, that is the good thing in it, and thank God they are seeing, looking at it that way.

The book-bank is an important part of the library, as it is one of the things that the students use most. These are the books that need to be most updated, since they are the
literature read at the various courses. The former Senior Librarian explains how the book-bank is functioning:

So we worked out a system whereby the University were buying books, and the books were to be shared out amongst the students, but they will be the property of the University. […] So the book-bank was set up and ideally it was catering for textbooks, providing textbooks for students. And the book-bank will order for the students, order for 100 [copies], So they will work out a mode of sharing these books and then at least 2 copies are the policy of the library, and will be kept in the IDA.

The views of the book-bank vary among the students, but many of them express that there is a lack of books and that the books are too old. Peter explains it like this:

Sometimes you find four copies of the same books, for others you find hundreds, more than enough copies, some copies are very few, others are very many, so there is a discrepancy. And those very many are not current. Sometimes lecturers have done photocopies, you find that only the lecturer has that book, so the lecturer photocopies what he wants the students to read, 50 pages, and every person is supposed to go and pay, you buy the notes from the textbooks, and that is many times not user friendly, sometimes they are very broken.

Henry is also lacking some materials:

It is good only that, you might be looking for a specific text and they tell you we don’t have it yet or we have few copies. You need to wait for some people to use it. And some days, when you need it quickly, you need to first photocopy.

Joseph thinks that the book-bank is not that good since the books are too old and at the library the books are often lent out. As the librarians, the students want both computers and more books to the library, but it is not either or. Emmanuel says:

They should at least balance the two. Because the automation would be there. Like again, the students will be there, who will be in need of books? So they should buy the computers, the automation and the books. Books should be there and the computers should be there, at least for everybody to access.

Mary Juliet thinks that the automation of the library is a positive thing, but she feels that books are very important as well:

Yes, it would be the best, because it is easier to access information. However we also need the books. […] And another thing with the books is that the books give us specific information more that the computers, because the little time I have researched in the computer, I find that the books are better, they give me more information, although the computers are also good.

5.3.4 Infrastructure, networking and resource sharing

The University Librarian describes what comes with the ICT-policy which concerns the infrastructure:

First of all it is the University policy, when you look at our strategic plan, the ICT, the automation and the ICT is one of the priority areas of this University. So, in view of that we get support from the government to implement these strategic priorities. And we had support from the donors, development partners, to enable us to put infrastructure, the IT-infrastructure in place, to train our staff and to subscribe for example e-resources.
The Systems Administrator states that the first step in the automation plan funded by SIDA/SAREC 2001 was to acquire the infrastructure. He tells us about the hardware and software that is needed for the infrastructure:

Since 2001, we have acquired a library system hardware and software, which is called Virtua integrated library system, developed by a company called VTLS. So in the first stage when we started to work with the infrastructure, SIDA/SAREC advised us to get in partnership with already automated libraries and helped us to identify Uppsala University to be our partner in implementing the automated library.

So far, the first module of Virtua that has been done is the records that have been entered in the OPAC. To complete the system, the circulation module and the acquisition module still need to be implemented.

As it is now, the only library in the whole Africa, apart from Makerere University Library, which is using Virtua, is the Bibliotheca Alexandria in Egypt. The Systems Librarian explains:

We go to the European user group meeting, we do not have an African one, but if we were many, then we would have, definitely one. And it gives you more bargaining power, and then, you know the exchange of ideas helps you really.

As the Systems Librarian points out, it would give the libraries in Africa more power if they would use the same system, since they could then learn from each other and exchange ideas. She hopes that in the future other libraries in Africa will also start using the same library system as Makerere University Library. The former Senior Librarian informs about the system:

Here in Uganda, nobody has this system. I mean from the local point, because a lot of the universities are using this [other] programme, it is called CDS/ISIS. It is a free programme developed by UNESCO, but it could not do a lot of things, the MARC format for example. And it was a free package that was developed by an individual within UNESCO, so there is no collective responsibility for updating, for developing the system. The universities in Uganda are using that and we looked at everything that we wanted, and it could not give us what we wanted. But it is free I mean, and it works for some. […] At least we should have records that enable sharing.

Space is another part of the infrastructure. Peter points out the high number of students and therefore the lack of space as a negative thing for the library:

Due to the increased numbers of students, the library is too small for us, for when it comes to critical moments when you have to do an assignment, like in the middle of the semester, we congest the library.

Joseph agrees:

Yes, actually I see that the library is small in terms of space, because sometimes you can get a book, but you have nowhere to study that book from, so like, we are seated here, but we would have loved to be in the computer lab, because we are writing an essay on ICT, but we can not do this from the computer lab. There are gaps, so we do not get enough information, because there are limited resources there.
An additional part of the infrastructure is the Local Area Network. According to the Makerere University ICT-policy, the library’s purpose with LAN is:

The library shall establish, equip and maintain a Local Area Network through which Information resources shall be accessed by all users in all branch libraries maintained under the University Library services.\(^{165}\)

LAN makes it possible to enhance the communication between the librarians within the library and with the branch libraries. The Systems Administrator claims that improvements have been made due to the implementation of hardware, for example every senior library staff has a computer to work on.

The importance of networking is stated in the Makerere University Library ICT-policy plan:

The Library system shall be used to actively participate in Information Networking and Resource sharing activities with both local and foreign libraries and other recognized Information Centres to promote regional and International co-operation and development.\(^{166}\)

The fact that the importance of networking is included in the ICT-policy plan shows that it is an important issue for the library. However, the ICT-policy plan is still not official. Makerere University Library has several partners that they are working with; University of Bergen Library, the University of Tennessee Library, Knoxville Libraries, Uppsala University Library and the University of Borås.\(^ {167}\) The former University Librarian describes how the partnership with University of Uppsala Library begun:

Then the unit that was agreed was the networking, so we identified the University of Uppsala to help us implementing the project. [...] Then, we went through the process of acquiring the computers, the system and so on, and we managed to after a long process of bids, we identified the library system which is the one, Virtua integrated library system. The same system is being used in Uppsala. So the librarian, one of the librarians of the University of Uppsala came here and assisted us to go through the evaluation and the process of bidding. So to become smart in the way to choose. So we identified that one and we purchased it and started implementing.

The Systems Librarian seems to be quite satisfied with the partnerships that Makerere University Library has with other libraries:

It is working, because, you have met the people from Bergen, and then of course Uppsala, those ones are always there, just a call away or just e-mail them and they help you out.

The cataloguer at the Africana section says that Makerere University Library has not been so influenced by other libraries within the country. The reason for this is probably that the library is the first in Uganda to automate and therefore the networks within Uganda are not so well developed:

\(^{165}\) Makerere University Library ICT-policy: Draft copy, p. 6.
\(^{166}\) Makerere University Library ICT-policy: Draft copy, p. 6.
\(^{167}\) http://makerere.ac.ug
Here it is not so much, because this is the main library, and everybody would want to peep what we are doing here, so they are being influenced by us. [...] Most of our libraries around are not yet automated. They are just beginning to see how they are going to go about it. Because it is expensive and networking is still in question.

The former Senior Librarian gives her explanation to this situation:

I think now there are two or three government-supported Universities [in Uganda], but the other ones are private, and really the system is expensive for a university. But I mean, there is no assistance from the government and all that, it is expensive to own this system and I do not think the students, you have to remember this is a developing country, you can not charge that much, then you will be unpopular. [...] And even we are trying to get, when you look at the options, we are trying to get universities which can maybe share the cost of the purchase and all that.

The University Librarian means that the library has to work on the networking with other institutions:

Makerere University is a co-ordinating institution, so we do need to work with other universities and institutions in the country to be able to implement the project fully, because it is national. And also to make sure that we sustain the project at the end of donor funding.

One ongoing project in Africa that promotes the co-operation between countries in Sub-Saharan Africa is DATAD, Database of African Theses and Dissertations, that Makerere University Library is part of. In the database there is a collection of abstracts of dissertations and theses written by Africans in African Universities. The project’s objective is to "create capacity in African Universities for the collection, management and dissemination of theses and dissertations electronically."

To be part of a network with other universities and libraries is something that the students feel is very important. Ransango means that it is a good thing to be able to share information between the universities. Lubwama says that:

It is important, because information across the world has change, the information in Uganda may be the same, but it helps the universities to share new ideas, new discoveries.

Peter also thinks that networks are very important:

[I]t will give us the opportunity to compare and contrast, and it will give us the opportunity to also think dynamically in relation to what other people are thinking. And because we can also compare paradigms, because sometimes space makes a difference, for let us say someone is from North Africa, and someone is from Europe, so that space, it stops, it stops us think locally, so we widen the scope of thinking.

Emmanuel confirms this view when he says that:

Knowledge is not located within one area. To get knowledge I think you have to corporate with others so that you can attain it at a wide scale.

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5.3.5 Views of the automation

All of the librarians interviewed thought that the library had improved due to the automation. The Systems Administrator is very positive when he describes the advantages with the automation:

Advantages of automation. I have seen this library from the beginning up to date. The advantages; one: ok, the main load of the University is to provide information, timely and current. So first, the library with this automation programme is able to provide to its users current information. And timely, in the time they need it. Two, now the library can be accessed even if it is on a public holiday. So whoever wants information can electronically through Internet, they can access, which used not to be there.

The Systems Librarian is also positive to the automation, she means that it has made the work easier and that the library’s services have improved. The former University Librarian means that the teachers at the University are very content with the automation:

The teaching staff, in general now, it has made a big, big, big change. A lot of them can use the journals. They are happy, otherwise, before, they had written off the library, because they said in the library it is only old things, but now they can read the journals.

The cataloguer at the Africana section gives her view of the automation:

It has changed the image of the library, actually, because we are finding it easier now for our staff who can easily direct the students when they come. […] It is easier to check on the computer you know, go to the catalogue. It consumes a lot of time. […] And it eliminates a lot of mistakes because in the manual process we are doing so many, many mistakes. And we have a lot of duplications here and there. […] But now with the system you can not enter a duplicate, […] it does tell you it is already there.

The students in general seem to be happy with the automation. Charles, for example, feels that it is much better now than it was before, although he emphasises that the automation of the library has just started. Emmanuel thinks that the computers are improving the library:

The library is quite good but we are still lacking some materials regards to books. But with the coming of the computers, it is quite improving, because now it is becoming easier to access any information you want by the Internet.

Peter expresses it like this:

Oh, for me it is exciting. My prayer is that it would become wider, as in more facilities, because that would ease access, like the long lines. […] If you can get online immediately, I think it would make it easier.

Lubwama also likes the new computers and feels that they are easy to understand:

The automation is not complicated, it is simple to understand. […] The computers is for the students to use for research purposes, the journals, you make your research, and searching in different web sites across the world.

Many of the students do not think it has been any major improvements in the library so far. A reason for this could be that the OPAC only has been available for such a short
time. However, many students think the computers are useful, since they shorten the long lines, waiting for books in the closed access or waiting by the card catalogue.

5.3.6 The process of weeding

When conducting our own observations at the library we noticed that there were many old books from the colonial era. There are some new books, published in the late nineties and up to now, but they are very few.

According to our informants, weeding is a major problem at Makerere University Library and no evaluation of the collection has been made so far. The former Senior Librarian confirms our view that the library has a problem with the large collection of old books. She explains that there is no weeding policy and the problems connected to that:

The library don’t have any weeding policy. […] A lot of people in the administration says when you come to the library and see the old collection, it is not a good image of the library. Maybe we have no way to put them. But we have that insecurity that we can’t put the new books there [in the open collection]. […] But I think at some point they will come up with a policy.

The cataloguer at the Africana section also thinks that weeding is a big problem at Makerere University Library:

[A] problem is weeding of our library, that is still a problem. We do not have a policy and when it comes to get out of all those books, it becomes a problem, and we are running out of space and we feel that some of these books should be discarded. But we can not, because there is no policy. So we find ourselves that when you put them off the shelves, they are again taken to the stocks. Still it does not solve any problem.

The Chief Cataloguer confirms that there is no weeding policy yet, but that they might start weeding soon:

[T]he three people you saw last week, who came from Bergen. They have put some interesting suggestions that we do the weeding as we enter the books in the OPAC.

As we could understand it, this is just suggestions that have not been considered any further. So far, since the library only has put the newest books from the closed-access in the OPAC, it was not necessary to take a decision. The cataloguer at the Africana section discusses the possibility that Makerere University Library will have a weeding policy:

Well, we do not know whether it will come up soon, this new librarian, maybe she will reinforce it. I do not know, but it comes on top because I think we need to have an information policy, then from there, we can begin tackling the issue of weeding nationally.

Many of the students interviewed feels that the books in the open access are too old. Joseph says:

For the open shelves nothing is really advancing, because no improvement has been made for the open shelves that I am familiar with. Maybe for the closed access, that one they have tried to update them, but the open shelves, they leave it to whom it may concern.
Mary Juliet is of the same opinion and she also thinks that there is a lack of literature written by Ugandans:

Actually they are very old, that is the reason why we do not use these books, they are from long time. You read them and they are from long time, you cannot get the information from now. And like now, when you study a course like mine, it is so much of today, the environment of today. We need so much, and those catalogue-books are from such a long time. And the other difficulty with them is that they were written by whites, from Sweden what, and if we are, now we look at Uganda, as we study, now we study Uganda, we do not study those Sweden things, so they are not really so much used as, to me in my courses, I do not know about other people.

Peter likes the open shelves, because since he is studying philosophy, he feels that he can find relevant literature there: Actually for me, I love the open shelves, I study philosophy, so it has given me an opportunity to look at the old paradigms, and I compare it with the new paradigms. Although my comparison has been limited, because when I read books from the old shelves, those ones I can easy access, but those that are in the closed shelves, I can’t easily access. So it limits my opportunity to compare the old paradigms and the new paradigms. So I would ask for that they would make some of the new books that are in the closed shelves easily assessable, or also get more copies, and have those books in the open.

5.3.7 The librarians new role

The University Librarian thinks that the automation has improved the image of the librarians, since the librarians’ status in the society was not that prominent before the automation. She claims that:

I think the librarians are excited. For me actually I have been seeing that it, the automation has improved the image of librarians. Because at one time, when people thought about librarians as failed people who have failed, you know. When librarianship started in this country, it was people who had failed A-level, who could not join the University, to do degree programmes, so they came to do diploma programmes in librarianship. So there was that, librarianship being despised, it was people who could not really make it. But with time of course graduates joined the librarianship at a graduate level that was how many of us joined the librarianship, we started elsewhere, then we did librarianship at postgraduate level. […] Now, with the coming of the IT, it has actually improved the image of librarians. Because now, people they see that it is something you can offer, there is something you can do better than many people, so it is a welcome development.

The Systems Administrator is also very positive and he thinks that the librarians skills have improved:

Another third one is that this automation has improved the library staff skills. The skills, the IT-skills, the literacy, have improved. Now we are dealing with real professionals, other [than] the older one who would catalogue and shelf books. […] The library trains the students to access information. So it has also improved. I can say more, but that is enough.

The Chief Cataloguer is also positive about the automation, and she means that it has changed the librarians’ role since the librarians got their own computers. When we asked the Systems Administrator about the disadvantages he could not see any, he claimed the librarians embraced the automation:
I do not see the disadvantages of the automation because before automation many of the library staff did not have ICT-skills or computer-skills. So they were worried that they would lose jobs. Ok? But when the automation programme started we trained them. [...] I can not identify with the disadvantages, I am sorry I can not, maybe some other people can.

According to the former Senior Librarian, the new technology implemented in the library has given rise to new positions in the library such as the systems librarian, the computer expert and the librarian at the help desk. The former Senior Librarian continues:

somewhat the structure changes and also the nature of doing work changes. [...] Now we have to catalogue. [...] We are putting everything in one place.

The former University Librarian believes that the librarians feel that they are being appreciated more due to the automation. He explains:

I think it has risen, they now feel that they are being appreciated more. Because now they have something new that they can teach. [...] They feel they are more needed they are more, the people think they know something new, so they are really excited about the whole thing. It has given them an opportunity to interact with the students even lecturers, because they want to know how to access.

This is not something that the Systems Librarian confirms, she thinks that the librarians are working very hard but their work is not being appreciated by the students:

The image, that one we have to work on it, really, because we think very few people really appreciate maybe what we do. We think we are putting in much, but then they say we are not putting in much. So, but the minute, like I said we put the collection online then what has been hidden may be seen, and when I come as a user and find that what I want is in the library, that will be that my image improves, my image of the library improves. So, I hope, if it is not improved, it is going to improve, as they become aware of what we are doing. [...] Well, automation is of course a very good thing [...] it is for the best. But then the process is tiring and you know, you put in so much effort. Maybe your effort is realised after a long time, at the moment, many of us may not see the efforts, but maybe later.

The former University Librarian has another view when he means that the students are really happy with the automation and that they are expressing it to the librarians:

But definitely now the students are happy about the automation. So they are now, when you see them, they talk to us and say: you are doing a good job. Which never happened before, they never made such comments. They also have written letters saying this is a good job.

All of the librarians agree that the automation has changed their tasks and their work situation to some extent. Although many students say that they have not seen much of a change, they think that the automation may have simplified the librarians’ work. Joanne means that the librarians not yet have had the time to interact, when it comes to the automation. Paddy does not think that the librarians’ image has changed, although he thinks that the librarians are helpful when they are there. However, he does not really think the librarians are there when they should:

The library is good, but of course there are some problems to face. The management, they come very late, like, they are supposed to come at eight and immediately start, but they come here at half past nine.
Peter thinks that the librarians are not helpful enough. He describes one occasion, when he was sitting by the online-catalogue but he did not know how to use it, and the librarian who was nearby did not try to show him how he could use the catalogue. He concludes:

So, I think they missed the point, they are not giving me what I do not have, so they are not dynamic enough, so I think they need to adjust to the changes, they are still acting the old way.

Henry also means that he has not got any help from the librarians concerning the computers, and that the students have to do everything by themselves. Emmanuel is of another opinion than the rest of the students, he is more in line with the librarians’ own view, when he means that the image of librarians actually has changed:

It has quite changed, because in the past what we had [...] regarding librarians and regarding searching for information, people take them to be lazy, quite slow looking for books, so with the automation, now people are looking at the library as more efficient and easy to use.

5.3.8 The training of staff

The Makerere University Library ICT-policy plan gives these directions for staff training:

All existing Library staff from M15 will be facilitated to acquire or update skills in ICT on continuous basis to be able to manage all the service points and trouble shooting. New recruits from M15 and above will be required to possess and demonstrate computer capability.\footnote{\textit{Makerere University Library ICT-policy: Draft copy}, p. 7.}

M15 refers to the wage-earner group which includes both librarians and library assistants. Makerere University Library seems to have given priority to staff training. As already mentioned, staff training was included in the proposals to the donors. The University Librarian means that staff training is important for the library:

It is priority. It is one of the things under IT, after the equipment of infrastructure, the second thing is training and we train both students and staff, so we train users and we call it training and retraining, because some people have already been trained, but we have to retrain, to be able to equip staff with these new skills. And we are training both, you know, old sort of training and also academic training, because the funding we got from SIDA/SAREC is supporting PhD-training, so we are training at different levels.

The library has occasionally different workshops and several of the librarians at Makerere University Library have been trained outside Uganda. Both the Systems Librarian and the Chief Cataloguer have been at Uppsala University Library for staff training, since Uppsala is using the same system, Virtua, as Makerere University Library. The Chief Cataloguer thought the staff training was good:
It was very helpful; it helped us to see the system which has been operating longer there, how it works. That is where I saw the circulation-system in operation, and I thought, if we can get that one, that eases the problem of who has brought what and who has not brought what, I hope it will make the reminders quicker.

Also the Systems Librarian thought it was a good experience visiting Uppsala:

[I] went to see how they are working with the system, and I got several ideas from there, which we have already implemented, at least for the cataloguing-module.

The former University Librarian emphasises the importance of training outside the library as a way of improving the library’s human resources:

But for me personally, we need people who is trained elsewhere, they can come and, but if you train them locally here, it is like inbreeding, you know that, they will not improve. If you want good staff, you need to get people out to get different ideas, different exposure. [...] Then after that we can go back to local, because you see if every single person is taught by the same teacher, and it can be worse here, because you see all this people went to the same library school.

5.3.9 The training of students

In the Makerere University Library ICT-policy plan it is announced that:

The University Library services shall endeavour to provide appropriate training to users in Information literacy skills to enable them access, retrieve, evaluate and use information appropriately.\(^{170}\)

According to the former University Librarian, the intention with the computer labs was that they should function as classrooms, to enable the students to be more computer literate.

[When] we started, we needed to have that enclosure for training, we want to train people, because they are not taught, so that is why we set it up, to use it as a classroom. And at the same time, when there is no training, they can use it. [...] But it is basically for training, and to show people how to use, because the level of knowing how to access some of these things is very low, so you have to teach them.

The Systems Librarian explains that so far they have not had any courses in how to use the OPAC, since it is still very new. However, the cataloguer at the Africana section says that they are trying to show the students about the OPAC and how it works.

The former Senior Librarian means that there are some students that are very keen on learning and then there are others who do not know anything about the OPAC and this is an unfortunate gap. During the period when the former Senior Librarian was doing her master degree, she experienced what her fellow-students knew about the library:

I have realised that many of them actually don’t know the resources. It is very disappointing. So when I was a student I have also been telling them by the way [...] do you know that we have this, do you know that we have an OPAC, and it is very disappointing when you feel that you are doing something and some people don’t know anything about it.

\(^{170}\) Makerere University Library ICT-policy: Draft copy, p. 7.
The Systems Librarian seems to be aware of the fact that not all students know how to use the computers and the different sources that are available in the various databases that the library offers. Her opinion is that it is the lecturers at the University who hopefully will spread an awareness of what is available in the library:

[M]ost of the users actually, for ejournals, I think are not undergraduates, they are postgraduates and staff. So from the minute you have an educated staff, if the lecturers are educated and if they know about the journals that we have, then definitely they will pass on the knowledge to their students. And then we go on in maybe, sensitising the staff about the e-journals, then of course it will trickle down even to the undergraduates, eventually they will catch up, although it will take some more time.

There are courses in the library on how to use the e-resources in the computer labs, and the systems Librarian means that they are advertised in different ways:

[A]t times it is a higher level workshop like for leaders, student leaders, so we go through the University guild. And then it is according to courses, then you advertise on note boards in the faculties. And we also take advantage of the existence of book banks, so those librarians help us out.

However, none of the students we interviewed had received any training from the library on how to use the computers or how to access the e-resources but all the students would like to have it. In the courses at the university that the students attend to, there seem to be very few opportunities to learn general computer skills or how to search for information. Joseph tells us about this:

We do not have special classes for computers, maybe science-courses, like technology, even agriculture, maybe they have special classes for computers, and maybe they can be in a position to use this other programmes, but I think that may not be the case, because I have a friend there and he also use Google search. Yes, maybe those doing computer science could be in a position, because they get a deeper understanding, more details in computer.

Neither Henry has received any training from the library:

On computers not yet. It was once in our department they told us that those gentlemen should come from the main library but I don’t think for that. Only that for me I have learned some basic but for some people who are seeing it for the first time that one time is not enough.

Only one of the students, Lubwama, thinks that by now, the students should know how to use a computer and that many of the students are happy with the computers. Many of the students we interviewed had to use the library’s facilities since they could not afford to go to an Internet café. Peter explains that in some faculties at Makerere University the students have to pay for using the computers, and that is a problem because a lot of the students do not have money.

The interviews made it clear that many students prefer browsing the shelves, rather than trouble themselves to use the closed access. As well, many students only use Google instead of searching the scientific databases. Some of them because they think Google is easier to use, and some of them because they apparently do not even know that the scientific databases exist.
5.4 The future

One of the librarians, the Systems Administrator, has high hopes for the future, but he thinks it will take some time for the library to reach the goal that he has in mind - to be fully automated in all ways, and he means that:

The biggest challenge on human [is] mind-changing. [...] All in all what it needs, if there was money and personnel, it would require about another 3-5 years. If there was money and personnel. Yes, because one of the things that we need is to change the mind of the people, to come from pre-electronic era to go to electronic era.

The University Librarian expresses her expectations and goals with the automation in the following way:

It is the usual expectations with automation; to improve services both for the users of the library and the library staff. Because when we automate we shall make it easier for the library staff and also for its users.

The former University Librarian says that the library has just received funding from SIDA/SAREC for the third phase of the automation of the library. The focus will be on finishing the automation, subscriptions of journals and staff training. The present University Librarian also confirms this information that the main focus is to finish the automation:

The plans for the future is to implement the automation-project fully. Because as you see now it has been partially done, and we have just started gaining. So our plan is to implement the whole project of automation and, not only for the main library but also for the branch libraries.

The Systems Administrator describes in more detail what will happen in the next few years:

Within this SIDA/SAREC funding 2005 to 2009 and the Carnegie 2005 to 2008, we shall add on computers, we shall add on LAN-connection, we shall add on the information on our system. Add on data processing. We wish to see that all this catalogue is in the computer and it can be accessed world-wide. We look forward to see all copyright free material in the library is in the system, it can be accessed. And that is what we will control.

He also says that the main focus at the moment is to put all the data online:

So, I hope, still this is of course a big challenge, but I hope things will ease up, and then we will have that kind, evaluating our collection, later on. Because when you realise, you know, that some of this, the collection is not being utilised, because the access is not good, maybe the card are misplaced in the catalogue. [...] But when you put them online it kind of grows attention to those items.

The Systems Librarian informs us that the library will soon employ around 20 people, who for a one year contract will complete the entering of data in the OPAC.

The librarians in general seem to have high hopes for the future, since they think that the automation will ease their workload. The library has so far only automated the cataloguing module. The cataloguer at the Africana section explains:
Because now, we started with cataloguing and this reference and circulation is coming, so we are going to embark on that. So all these are easing our services. Thereafter we shall embark on the acquisition-scheme.

Also the Systems Librarian hopes that the automation will make the librarians’ work easier, as well as improve the services for the users:

No more filing of cards, cross-checking, because we put in a lot of effort in the production of cards. So we hope with the automation, all that is going to reduce, and then we will just be doing the chores, instead of doing so much repetitive tasks. [...] Because we are planning to have a self-checking machine, all those kind of things, so we hope it will be made much easier, the lending out and the borrowing. [...] And of course the usage of the library-collection is going to improve, I hope. We are going to have more people.

The former Senior Librarian thinks that the automation of the library is the right decision, but she still has some doubts:

I would say for the purpose of efficiency it could be the right decision, yes, [...] but whether the amount is right, that is another question. Certainly in two or three years the field structure is going to go up. [...] So probably if we are fully automated the benefits should be there, but at what cost? Because that one is a very big issue. It is expensive for a poor country.

The former Senior Librarian is worried about the funding of the automation:

And then we also have another issue, the sustainability. You know a lot of these things are funded by SIDA/SAREC, so we do not know where to be when the initial funding. And recently the university administration was proposing a new field structure. Actually some courses had expanded, and they had increased the fees by almost 20%, which was a very big percentage. [...] The argument is that this extra should go to catch up with this automated system. [...] So I mean maintaining all surely requires a significant increase in the budget.

The Systems Administrator can not see any disadvantages with the automation of the library - on the contrary he is hoping Makerere University Library will be a digital library:

We need the library to work 24 hours without human intervention. If the system was automated why don’t you come at two [at night], enter the library, go to the section, get the book, go to a photocopy, copy what you want and go out. Without any person looking at you opening the gate. [...] That is the sort of dream I have.

Not everybody is as confident as the Systems Administrator of what will happen in the future. The Systems Librarian is worried about the ongoing automation of the library. She thinks the investment in the automation of the library was right but:

We are yet to see whether the implementation is right, I think the investment was in the right place. But as you may have seen or even found out, the kind of skills we have to implement this kind of thing may be lacking. That is the major problem and it is really something to worry about. Because when you realise, people we have been backing on to help us, are all going on to further studies. [...] I feel like, I am scared, I am scared.

The students in general are hopeful of what will happen in the future with Makerere University Library. Most of them are hoping for more computers, since the computer labs are so crowded. Henry thinks that the library may change in the future:
We might be able to access, that is if they are effective, then we should be able to access different kind of materials that we do not have from the books. And the latest journals and the latest research.

Mary Juliet feels that the library is changing, hopefully to the better:

Slowly by slowly, although the change is not abrupt. Slowly like that and we believe for a better change.
6. Analysis and Discussion

In this part we will discuss the research questions that were initially posed in relation to the results that we have gained from the interviews. Furthermore, we will discuss the research questions in the light of our theoretical framework. March and Olsen’s theories will in this part be connected with our interview material, mainly focusing on the six stable processes that they suggest transform an institution. Castells theories will be highlighted as well in the following discussion, with the main focus on Castells’ ‘technical paradigm’, and the features that it consists of. Lastly, we will discuss the interview material in relation to the knowledge gained from the literature review. We will not discuss all the literature from the literature review, only the parts that we thought were the most important.

6.1 What actors and factors have started the transformation of the library?

6.1.1 The beginning of the automation

The internal actors that have influenced the automation of the library were foremost, according to our informants, the librarians at Makerere University Library. Primarily it was The former University Librarian, since he has a high position in the hierarchy of the library. He was therefore able to influence and work towards a transformation of the library. He seems to have had a great impact of the automation of the library and he must have inspired the rest of the staff. Another person that we believe was a great influence on the automation of the library is the Systems Administrator. He came to the library as a Systems Administrator and installed the infrastructure and has since been an important key-person when it comes to technical issues. We believe that there must have been other key-persons equally important as these two persons, but they are the ones highlighted most in our interviews. Clayton and Batt writes that there is a need for both appropriate planning and management when automating a library.\footnote{Clayton, Batt 1992, pp. 1-2.} This seems to be the case at Makerere University Library. Some key-persons were very keen on automating, and they could prove that it would gain the library and its users.

The most influential factor that came from outside the library seems to have been, according to our informants, the donor society. This seems to be the general picture for countries in Sub-Saharan Africa. The donors support both areas such as food and shelter, but they are also helping more specifically, for example a university or a library.\footnote{Castells 1998, p. 95.} The important aspect is that it was not until the money from the external contributors was there, that the transformation could actually start. But without the librarians’ contribution the transformation of the library could not have taken place, since they actually wrote the proposal and specified what kind of transformation they wanted. The most important factor that stopped the librarians’ wish to automate the library was lack of money and the donor society was in hold of that money.

Influences from abroad have also influenced the library’s decision to automate. The library has been influenced by other institutions, firstly when Makerere University
Library purchased their new library system; they got support from librarians from the University of Uppsala. Also other libraries, as people from Bergen University have contributed to the transformation with their knowledge. Some of the staff of the library has also been educated abroad, and this influence has foremost been important to get new ideas in the ongoing process of the automation. This has been very fortunate for the library, since the co-operation within the country seem to be non-existent. This fact is not true only for Uganda, according to Mulimila, there is a very weak co-operation among East Africa university libraries, which he means is very unfortunate.\footnote{Mulimila 2000, pp. 188-190.}

A possible external factor influencing the automation of the library could be the government. Castells’ view is that the state can either function as a form of stagnation or a form of stimulation. If the government is a powerful influence, Castells claims that this does not necessary mean it is something good, on the contrary, that it can give rise to stagnation when an institution does not take its own initiative.\footnote{Castells 1996, pp. 10-11.} According to our informants, the government in Uganda has not sponsored the library in their automation project, and this might actually function as a form of stimulation for the library, if we consider Castells’ point. The librarians took their own initiative when they contacted the donors. Since it was the librarians’ initiative from the start, we believe this made them more motivated to accomplish the project. Sturges and Neill assert that academic libraries are very expensive, and that they have suffered from the poverty in Sub-Saharan Africa.\footnote{Sturges, Neill 1998, p. 159.} Nwafor discusses this issue as well, and he means that faculty buildings or laboratories at the universities often have a higher priority than libraries in Sub-Saharan Africa.\footnote{Nwafor 1990, p. 5.} These are perhaps possible explanations for the government’s failure to support the library, lack of money and lack of interest.

An additional factor that might have influenced the automation could have been the students. However, according to both the students and the librarians, the students have not been influencing the automation process of the library. Castells means that the technology changes with the help of the interaction with the users. If the users give feedback, the new technology keeps on changing.\footnote{Ibid., p. 5.} So far, the users have not been a part of the first phase of the automation process. We believe this has been a major disadvantage for the automation of Makerere University Library. The information technology necessitates an influence of solutions, ideas and problems to be able to develop.\footnote{Ibid., p. 32.} If the users can not interact or evaluate the advantages and the disadvantages of the automation, it is not that likely that the changes will be fully satisfying for the users. Starkweather and Wallin are of the same opinion when they highlight that it is necessary for the libraries to understand the needs of the users, if the change of the library is to be a success.\footnote{Starkweather, Wallin 1999, p. 640.} We believe a reason for the lack of influence from the students is the strong hierarchical structure that exists in the society in Uganda. If Uganda is to be a part of the network society and the ‘technical paradigm’, these hierarchical structures should not be subsisting. Castells means that it is important not to be excluded from the network society,\footnote{Castells 1996, p. 469.} and we mean that the students are excluded, since they have not been part of the transformation. March and Olsen mean that the
individuals needs are not necessary coherent with an institution’s requirements. An explanation why the students’ initiative was absent can be that the students did not prioritise the same decision as the librarians. This problem is also highlighted in the article about Moi University Library. The librarians often felt incompetent when they could not help their users. Some librarians even lacked training and knowledge in the software package. The situation at Moi University Library makes it very hard for the students and librarians to co-operate and develop together.

6.1.2 Why the library has been automated

There might be many reasons why the transformation happened and why the librarians wanted it. Of March and Olsen’s six stable processes resulting in a change, we have found that the transformation at Makerere University Library was foremost caused by ‘contagion’. Many libraries during the nineties were automating and the Makerere University library wanted to follow this trend. Syed A. H. Abidi, former director at East African School of Library and Information Science says that the society in Uganda has adapted quickly to the ICT-area, and that there has been an awareness of this trend. However, it took a long time for the donor society to allocate money to the automation. Since Uganda is a developing country, the donors were not certain if the project was the right thing, since the automation of the library services is very expensive and it demands a large amount of effort from various actors. In 2001, however, several library universities in Africa had already started to automate, and also in the developed world, this became very common. The donors now made it possible for Makerere University Library to follow this trend. At this point, the uncertainty was gone; it was the right thing to do at this time. After the money from these specific donors were given, other donors also contributed. We believe that imbedded in the concept of ‘contagion’ is the process of ‘variation and selection’. The reason why Makerere University Library followed the trend was to survive as an institution. Nawe confirms this when she means that during the nineties many libraries had to find new solutions and alternative ways of funding, in order to survive. At Moi University Library, a library with similar background and possibilities as Makerere University Library, the driving force for the change, was “a global need for effective and efficient ways of processing and accessing information.”

We think that If Makerere University Library and Moi University Library did not want to stay behind, the change was needed and the libraries was forced to transform just to survive as institutions. ‘Flexibility’ is one of the features representing Castells’ ‘technical paradigm’. He means that institutions have to be flexible to follow a change, and according to our informants this was the case at Makerere University Library; the library was forced to be flexible, to avoid being left out.

We believe that ‘contagion’, ‘variation and selection’ and ‘flexibility’ are the most essential influences why the library started automating. In addition to this, ‘turnover’ can be a partial explanation for the change. New people arrived at the institution, and they were the catalyst of the change. The former University Librarian was not a new member of the institution, since he had been at Makerere University Library since 1969,

\[^{181}\] March, Olsen 1989, p. 58.
\[^{184}\] Nawe 2004, p. 382.
but he was very foreseeing already in the beginning of the nineties. Therefore he and his colleagues were prominent in the automation as ‘turnovers’.

Yet another partial explanation for the change is ‘experiential learning’. There were people coming to Makerere University Library at an early stage, who helped the library to purchase the system that was needed for the automation. However this happened when the money for the automation was already granted. We believe that ‘experiential learning’ is a driving force mainly in the ongoing process of the automation. The librarians from Makerere University Library have also been abroad, learning more about other libraries’ way of working and getting new ideas.

We have found neither ‘problem solving’ nor ‘conflict’ as a reason for the transformation at Makerere University Library. There are three complementary forms of intentional control. These are; ‘control over attention’, ‘control exercised through some anomalies of adaptive processes’ and ‘control over broad systems of meaning.’

‘Control of attention’ is the form of control that mainly has affected the stable processes in the transformation. Attention has been focused fully on the automation, and on certain areas of the automation, mainly the technical equipment and training for the librarians. The attention regarding student training and the purchase of books has not been that evident. Even though the library has focused a lot on the automation, they should not forget that books are equally important. The fact that the government is mainly supporting the acquisition of books might give the library a good balance between the purchase of books versus the purchase of computers and technology related tools. However, the students do not seem to be content with the amount and quality of the books in the library. SIDA/SAREC seemed to have had a great influence on the decisions of what should be done. First of all they were the one’s who granted the money, but they also directed the library in its actions. It is possible to see the donor’s specific interest in this area as a ‘control of attention’, since the donors wanted the library to focus on this particular area. We believe that the ‘control exercised through some anomalies of adaptive processes’ has been influential as well. It is difficult to estimate the outcome of a transformation and the librarians do not know what will happen in the future. March and Olsen discuss the competency trap as a source that can inhibit a transformation. However, the librarians at Makerere University Library had the opportunity to choose which library system they wanted to install, since they had money sponsored for it. They were able to choose a system that fitted their needs and were not forced to implement the system CDS/ISIS, which a lot of other libraries in Africa use. The ‘control over broad systems of meaning’ is equally important. What March and Olsen want to highlight here is that what action is made is dependent on the context. If the context would have been different the outcome would have changed. At Makerere University Library, the automation and the stable processes that have influenced the change have been effected by the context. To automate in a developing country, with very limited resources, is not an easy task and it is a very different procedure compared to automate in a developed country.

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186 March, Olsen 1989, pp. 61-64.
187 Ibid., p. 63.
6.2 In what way has the automation changed the library?

6.2.1 The change of the library

According to Castells, the technology is changing the whole society and the people living in it.\(^{188}\) He means that technical innovations do not exist on its own; they are permeated with both the specific institutional environment but also the knowledge within that environment.\(^{189}\) The network society characterises both a dynamic and an open system.\(^{190}\) Magara means that it has become essential to be aware of the importance of automated libraries in Uganda since they are easing the communication and information sharing.\(^{191}\) Uganda has been fairly excluded from vast amount of information in the world and the automation has now opened up at least the library to the rest of the world. Before the automation of Makerere University Library the institution has been operating in a closed environment. One feature of the ‘technical paradigm’ concerns the ‘networking logic’. Something that has broadened the library to a more open system is the networks. It is now easier to co-operate with other institutions. Obviously, Uppsala University has been an important partner, the librarians have been abroad and learned more about their library system, and they have also had the opportunity to see other libraries ahead in the automation. Some of the librarians expressed a wish to be part of the modernisation, and one librarian even expressed a desire to be part of the electronic era. This confirms Castells’ argument that when a network is growing, more and more people want to be a part of it.\(^{192}\) It is possible to discuss the ‘networking logic’ on a more practical level as well. Our opinion is that the implementation of the library system Virtua and the computer-labs with the availability of various databases and the opportunity to access e-mail and Internet in the library, have improved the communication and co-operation widely. The computers have also made it possible for the students to connect from the branch libraries to the main library. However, since the libraries in Sub-Saharan Africa are using so many different library systems, it is not that easy to co-operate concerning the maintenance and updating of the systems.

The library has managed to set up a fairly well functioning basic infrastructure. The cataloguing module is soon to be finished and the circulation module and the acquisition module are soon to be implemented. There are still some problems connected with the infrastructure, that is, the computers are too few. Furthermore, there is not enough space, but a new building is constructed, which will give more room for the equipment and hopefully there will be more computers. Clayton and Batt describe three different changeover procedures in an automation process, an all-at-once changeover, a parallel system operation and a gradual changeover.\(^{193}\) The transformation process at Makerere University Library has partly been a parallel system operation, since the library still uses the old card-catalogue. But there has also been a gradual changeover, the library has started with one module, and will continue with the others as soon as possible.

Another feature of the ‘technical paradigm’ is ‘technology has a pervasive effect’ in all

\(^{188}\) Castells 1996, p. 17.
\(^{189}\) Ibid., p. 37.
\(^{190}\) Ibid., p. 470.
\(^{192}\) Castells 1996, pp. 61-62.
human activities and processes. The librarians are getting new roles and tasks, and therefore it is possible to see how the automation affects the activities at the library, and in the end the librarians. According to our informants, the librarians thought the automation had changed their work, but the students were more doubtful. The data allows us to conclude that some of the librarians are still doing their old routine work, even though they might have a computer at their desk. But for most of the librarians, the automation has changed the whole routine in their tasks. This is also concluded in Kibet Bii and Wanyama’s article about the automation of Moi University Library. Their conclusion was that the librarians thought the automation made the work easier and more prestigious, and that it had changed their working role. However, some of the libraries felt they were doing the same work, for example interlibrary lending or serials circulation. When it comes to the students the technology has so far not to any larger extent interacted with their activities, that is, when they are doing their research or exam work. However, we think this situation probably is going to change in the future, when the automation-project is fully integrated in the library.

There is also the aspect of ‘flexibility’, one has to be flexible to adapt to new innovations. It is not easy for the librarians who have been working for a long time, doing the same routine work, to suddenly change their thinking. Castells claims that information technology creates an innovative environment in a process dealing with different aspects of it and it becomes a sort of ‘trial and error’. We believe that when the librarians encounter the difficulties due to the automation, it is something that makes them creative. By trial and error the process of automation proceeds forward, it is a way of developing the institution and the actors connected to it. Clayton and Batt claim that the automation of a library can give reactions of fear and resistance among the librarians. This is due to a change, meaning that a new structure takes form and the unfamiliar is left behind. Most of the librarians at Makerere University Library seem to have a positive attitude to the automation of the library. However, one of the librarians expressed some worries for the future and another librarian thought the younger people had taken the central role in the automation. According to March and Olsen, institutions often seem bureaucratic and slow and the people working at institutions act according to the ‘logical appropriateness.” Arora points out that people in India seldom get appreciation for hard work and that senior librarians were afraid that subordinate staff would do such a good job, that their positions were threatened. This could be applied to Makerere University Library, since the hierarchical system could make the various positions very fixed. The librarians at Makerere University Library are adapting to the automation as well as they can, but of course changes take time, and all the modules have not yet been automated. It is difficult to estimate the outcome of the automation, but the librarians need to focus on what results they want to accomplish with the automation.

The ‘technical paradigm’ includes the aspect that all technologies come together into a highly integrated system. Telecommunications are an essential part for the infrastructure to function at the library and the computers can not work without reliable electricity.

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196 Ibid., p. 56.
supply. A local area network has been established at Makerere University Library and almost every librarian has got a computer, though internet access is not reliable, and downloading documents takes time. Accordingly, there are situations at Makerere University Library when the integration of the specific technologies is not working properly. One aspect of the ‘digital divide’ is the weak infrastructure that many developing countries are suffering from and Makerere University Library is apparently affected by it. Moi University Library has experienced the same problems as well, with both poor infrastructure and lack of adequate information technology.

6.2.2 The access to information

Doll and Petrick Barron discuss the importance of both availability and accessibility in libraries.\textsuperscript{201} If we consider the availability at Makerere University library due to the automation, the OPAC has been implemented to facilitate locating different resources. The problem is that many students are excluded from that availability since they do not know how the OPAC works. Another problem with the availability is that the computers are too few. An option for the students is to look in the card catalogues that are still around. But in the future, the card catalogues will eventually disappear, and then the students will be forced to learn how to handle the OPAC. If we consider the accessibility in the library due to the automation, there are books available in both the closed access and the open shelves. Still, the accessibility in the closed access is very restricted since you can only borrow the books for four hours. There are some problems with the accessibility in the open shelves as well, since the books are often misplaced. However, this has improved since the automation started. The librarians then checked all the books and the cards thoroughly when entering the data in the OPAC. But still, weeding is a problem. The library has a large collection of old books but no evaluation of the books has been made. The library is waiting for a weeding-policy to be established, until then, it seems like the issue will linger. When it comes to the accessibility, it has improved since the computer labs have been installed. Mutula speaks about the ‘digital divide’ and one of the problems is the high cost of access,\textsuperscript{202} and this is evidently something that the students at Makerere University Library are suffering from since the computers are too few. Furthermore, the access to computers outside the library environment is too expensive. One feature of the ‘technical paradigm’ concerns the fact that ‘technologies act on information.’\textsuperscript{203} Technology is used to enhance the access of information and through technology it is more available and accessible to the whole society. To some degree, the automation has improved both the availability and the accessibility. However, even though the computer labs are very appreciated by the students, we consider them under-utilised. The students mainly use the computers for browsing the net. When they search for information for their research, they mainly use Google. The scientific databases are not so frequently used, and we believe this is waste of the library’s resources. This confirms Mutula’s opinion that the information sources are under-utilised, since many students are not familiar with the different kinds of information services that do exist in the library.\textsuperscript{204} This might not be so surprising since there are only around 20 public libraries in Uganda, and almost all of

\textsuperscript{200} Odari-Okemwa 1999, p. 228.
\textsuperscript{201} Doll, Petrick Barron 2002, p. 3.
\textsuperscript{202} Mutula 2004, p. 283.
\textsuperscript{203} Castells 1996, p. 61.
\textsuperscript{204} Mutula 2004, p. 284.
them in the rural areas. Another important issue is that even though the availability of the scientific databases exists, the accessibility is very limited, since there is not enough time to download or even open and read through the whole relevant document. It is problematic for the students if they can not attain relevant scientific information needed to support them in their proceeding studies.

Castells means that one of the most important aspects with the new technology is how to use it. This is also confirmed by Clayton and Batt, who say that a library system needs trained staff, and that the training must continue long after the implementation of the system. There is a demand of trained staff, so that the students can learn and gain something from the automation. The librarians gave us the impression that student training was a fairly high priority. For example, the former University Librarian expressed his vision with the computer labs, that they should function as classrooms. However, when interviewing the students this did not seem to be the case. Many of the students lacked even basic computer skills. They were very keen to learn how to use the computers, but they had not yet had the opportunity. We believe that student training is one of the most important issues, if the students are going to be a part of the automation. The librarians have attained adequate knowledge about the automation, but they have not shared it with the users sufficiently. However, it is important to remember that changes take time. Clayton and Batt write that when a library is implementing a new system and does this sort of transformation, there is a need of a large amount of planning and it takes a long time to do this sort of change.

Makerere University Library is putting a lot of effort and money to the automation. When an institution relies on donor funding, the money comes from various organisations that all have their specific area that they want to contribute to. Therefore, the decisions and their outcomes are different, compared to if the library was supported by the government and could make its own decisions. According to March and Olsen, it is very important for the institution to prove for the users and the society that the library’s decision to change is legitimate. Makerere University Library has to legitimize its behaviour both to the donor society and to the society in general. The important aspect here is that if the donor society does not approve of the library’s decisions, they might cease the funding. If the library, that is, the ‘institution’ considers their decision as legitimate, the ‘individual’ and the ‘environment’ must approve as well. Otherwise the transformation will not be successful. Our general view is that there is a lack of feedback or a lack of communication; some of the librarians do not feel that they are being appreciated by the students. The students are complaining that the librarians are not helpful enough, that they are not there, or that they have not yet adapted to the change. Maybe the librarians could be accused for still being stuck in a routine work. If the library is changing the students must be a part of that change. Castells means that the specific institutional environment is very important when an institution starts using something new. The university itself has a responsibility in the transformation as well, it has to acknowledge and support it. Some of the librarians think that the lecturers should teach the students how to use the library’s resources.

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205 Ikoja-Odongo 2003, p. 3.
206 Castells 1996, p. 32.
209 March, Olsen 1989, p. 49.
Probably it is not only a lack of communication between the librarians and students, but also between the library and the faculty. The library is part of the university and the communication between these actors is crucial to satisfy the students in the best way. Owusu-Ansah means that conflicts often occur between the library and the university administrators as well as faculty members, and this could be a problem at Makerere University Library as well.

We think it is important not to rely on the new technology only because it is new. Even though you can find a lot of new information on the Internet that information might not be the most relevant, and therefore books are utterly important to totally please the students’ need of knowledge. The information that can be found due to the new technology and the library’s physical collection, need to be seen as a complement to each other. Regarding the book-bank and the regular collection of books in the library, it seems like the students really need more updated books, and some weeding has to be done. The students think the automation is good, but the books are essential for them to be able to do their courses, especially for the students who do not have much money. This is what James refers to as the ‘digital divide’ between different residents in a country. The local elite, who are mainly living in the cities, are the ones who benefit from the new technologies in Sub-Saharan Africa. At Makerere University library there is a division between the students who do not have the money to buy books, and have to depend on the library’s collection, and those who do have the money and are able to buy new books. This is one of many reasons why the improvement of Makerere University Library is utterly important for Uganda’s population.

7. Conclusion

Our conclusion is that the actors and factors that have influenced the transformation of Makerere University Library are both the librarians and the donor society. The librarians influenced the automation since they wrote a proposal to the donors where they specified an area which they thought would gain the library the most. They were also concerned about which area the donors would be interested to invest money in. It was the trend for the moment and the donors supported the proposal to automate the library. When the automation started, the partnership with people from various libraries was an important inspiration as well. Our opinion is that neither the students nor the government were influencing the automation to any larger extent.

A gradual change is slowly becoming discernible at Makerere University Library. The automation has resulted in a new structure that makes the data more available. It gives the users and the librarians a clearer picture of the collection. However, even though there are brand new computers in the library and availability of e-journals and different databases, we feel that Makerere University Library still has not changed the image of the whole library. We thought that the automation would make the library appear modern in some way, but that is not the case. The reason for this can be that the process of automation has just started, but we also think that it has to do with the fact that there are so many old books in the open shelves. This is partly because Makerere University Library does not have a weeding policy but also due to lack of money to purchase new books. Another reason is that the new books are kept in the closed access.

\[211\] Owusu-Ansah 2001, p. 283.
\[212\] James 1999, p. 104.
How the ongoing transformation of the library will continue in the future is mostly depending on money, since the library is relying on donor funding to complete the automation. Even though new technology is being implemented in the library, the outcome of that implementation is dependent on how the librarians use their knowledge to make the most out of it, and also how the institution is acting upon it. The library is just in the beginning of the automation and for Uganda to be part of Castells’ “technical paradigm” is probably a long way to go. But we believe the automation of Makerere University Library is one step in the direction towards the ‘technical paradigm’ for Uganda. The technology has made it possible for the institution to interact with the environment and the individuals to a larger extent and made it more open-ended to the rest of the world. Our conclusion is that the library has been influenced by the fact that the ‘technical paradigm’ exists in the developing countries and it will probably be even more influential in the future.

Above all, it is necessary to supply more computer training for the students. Otherwise the accessibility and the availability can not be claimed to have improved due to the automation of the library and it will not benefit its users. The access to information has improved in itself with the computer labs and the OPAC. The problem is that the resources are not being sufficiently used, even though they are there. We think that one of the major reasons that the students have not yet received so much training is that the library has focused on staff-training. Information literacy is a very important aspect when new technology is being implemented. To be able to gain anything from the implementation of computers at a library the users must know how to handle the new technology as a tool for access information. An opportunity to learn some basic skills in computers is to use the Internet cafés or have a computer at home. The latter alternative is not very common in Uganda; since the students can not afford to buy books, they can hardly buy a computer. In Kampala, the capital of Uganda, there are many Internet cafés that are quite well functioning, even though a bit slow. Since there are not enough computers for the students to use at the library, some students use the Internet cafés to search for information. It is evident that Makerere University Library has a very important role in providing free Internet access for those students who otherwise could not afford to pay for it.

March and Olsen describe that in the transformation of institutions, it is difficult to really know how it will change the institutions.\textsuperscript{213} In general, it seems like the librarians are happy and content with the transformation, but they are also aware that there are difficulties on the way to reach their goal, and their expectations of the automation seem to vary very much from person to person. The plans for the future and the money to fund the library’s future existence are only settled until the end of the funding period. We believe this is not a long-term planning, and we hope that Makerere University Library will come up with a more sustainable plan soon.

\textsuperscript{213} March, Olsen 1989, p. 63.
8. Summary

Uganda, situated in East Africa, is one of the least developed countries in the world. The country suffered severely during the rules of Milton Obote and Idi Amin. The education-system was badly neglected during these years and this also included the libraries. Since Yoweri Museveni came to power in 1986, the country has been fairly stable. Museveni has put effort in enhancing the quality of education, and due to that, the libraries have also recovered. Uganda’s largest governmental university is Makerere University. There are six other governmental universities as well as several private universities.

The automation of library services in developing countries is in many ways similar to the process in developed countries. Areas that often are automated in libraries are cataloguing, catalogue access, circulation, acquisitions and serials control. However, there are some specific aspects that developing countries often have to deal with for example lack of sufficient equipment and not enough bandwidth. Moreover, university libraries in developing countries often rely on development aid to fund their projects.

Many university libraries in Sub-Saharan Africa started automating mainly during the 1990s. Makerere University Library also had the intention of automating the library in the beginning of the 1990s; they wrote a proposal in 1991, requesting funding that should cover the costs for the automation. However, it was not until 2001 that the library received money from SIDA as well as other donors. Accordingly, Makerere University Library has just started their automation and implementation of a basic infrastructure. The library system in use is the Virtua, developed by a company called VTLS. The cataloguing-module that is, entering the records in the OPAC, is nearly finished. The circulation-module and the acquisition-module still have to be adapted.

The thesis is a case study and our purpose has been to investigate the change of Makerere University Library due to the automation, from the formation of the idea till now. Our thesis is based on two research questions which are:

What actors and factors started the transformation of the library?
In what way has the automation changed the library?

To approach these research questions, we have used a theoretical framework consisting of James G. March and Johan P. Olsen’s theory of how intentional changes transform an institution. They describe how these intentional processes are an outcome from six different routine stable processes. These processes are ‘variation and selection’, which means that an institution changes due to experimentation, competition and survival; ‘problem solving’ which refers to that the institution changes when it has to choose between different alternatives and what outcomes this will result in; ‘experiential learning’ which describes that an institution learns which are the successful methods and which are the unsuccessful ones through a method of trial and error; ‘conflict’, i.e. different opinions among people in an institution can result in a change; ‘contagion’ which means that an institution follows other institutions´ changes and lastly ‘turnover’ which describes that a change can occur if new members arrive with new ideas.
In our theoretical framework we have also used Manuel Castells’ theory of the current technological transformation which he refers to as the ‘technical paradigm’. We have investigated if the six features of the ‘technical paradigm’ can be applied to Makerere University Library, that is, if the library has been influenced by these features. According to Castells, the first feature is the fact that ‘technologies act on information’, which means that the raw material of the new paradigm is information. The second feature is ‘technology has a pervasive effect’, which means that the new technology affects all human activities and processes. The third feature is ‘networking logic’, which is a network system and the set of relationships that are settled within the system. The fourth feature is ‘flexibility’, which is that an institution modifies itself due to the changes in the society. The fifth feature is that ‘all technologies converge into a highly integrated system’.

The empirical material consists of 15 interviews with both librarians and students, carried out at Makerere University Library, based on an interview-guide. The empirical material was used as a base for finding themes. The research questions were used to structure our material and we analysed our material with help of the theoretical frame.

Concerning the first research question “What factors have influenced the ongoing transformation of the library?” our conclusion is that some individuals at the library played a very important role in the automation. The librarians wrote the proposal for the library to get automated. The donors finally agreed to fund the project, and it is possible to see both the librarians’ wish to automate and the donors decision as a form of ‘contagion’. Further factors that influenced the transformation are the various forms of networks. The librarians have learned from other institutions and other librarians through ‘experiential learning’. The data shows that the students and the government in Uganda were not involved in the transformation of the library.

The second research question is “In what way has the automation changed the library’s condition?” Our research shows that the automation mainly has changed the roles and tasks for the librarians, even though many have not adapted fully to the new situation. It confirms Castells view that ‘technology has a pervasive effect’. However, most students are so far not affected by the automation, since there is a lack of knowledge concerning the new technology. ‘The networking logic’ is also an important aspect, and our conclusion is that the librarians are able to be a part of networks to a larger extent and the library has acquired a fairly well-functioning infrastructure, though there are many areas that still need improvement. According to March and Olsen, institutions often seems bureaucratic since the decisions are made according to the ‘logical appropriateness’. The librarians have had some difficulties adapting to their new roles and tasks. Due to automation, the library has changed its structure; there are new computers with access to further information. However, the new image is still not visible for its users since there is a lack of equipment and the library continues to store old books. We think the automation of Makerere University Library is influenced by the ‘technical paradigm’. It has made the library more open to the environment in and outside Uganda. The availability and accessibility to information has improved. New information is available and there is a new structure of the library, since it is possible to search and find information on computers. But there is still the problem with students’ training to make the most out of the automation. Many students do not even know about the existing resources, and this can be considered alarming. It is important not to rely on information just because it is new; the crucial point is how you use it. If the students do
not know how to use it, the automation is not successful. Furthermore, there has to be a balance between books and computers.
9. References

9.1 Unpublished sources

7 recorded interviews conducted with librarians at Makerere University Library, February-March 2005. The tapes and the transcriptions are in hold of the authors.

8 recorded interviews conducted with students at Makerere University, March-April 2005. The tapes and the transcriptions are in hold of the authors.

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Makerere University Library: Provider of excellent library and information services: Strategic plan 2001-2005.

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## 10. Appendices

### 10.1 Appendix 1: List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AACR</td>
<td>Anglo-American Cataloguing Rules</td>
</tr>
<tr>
<td>ADB</td>
<td>African Development Bank</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>DAC</td>
<td>Development Assistance Committee</td>
</tr>
<tr>
<td>DATAD</td>
<td>Database of African Theses and Dissertations</td>
</tr>
<tr>
<td>EDDS</td>
<td>Electronic Document Delivery Service</td>
</tr>
<tr>
<td>ERIC</td>
<td>Education Resources Information Centre</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>ICT</td>
<td>Information Communication Technology</td>
</tr>
<tr>
<td>IDA</td>
<td>International Development Agency</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
</tr>
<tr>
<td>MakLIBIS</td>
<td>The Makerere Library Information System</td>
</tr>
<tr>
<td>MARC</td>
<td>Machine-Readable Cataloguing Record</td>
</tr>
<tr>
<td>NGO</td>
<td>Non Governmental Organisation</td>
</tr>
<tr>
<td>NISC</td>
<td>National Information Services Co-operation</td>
</tr>
<tr>
<td>NORAD</td>
<td>The Norwegian Agency for Development co-operation</td>
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<tr>
<td>ODA</td>
<td>Overseas Development Authority</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>OPAC</td>
<td>Online Public Access Catalogue</td>
</tr>
<tr>
<td>PERI</td>
<td>Programme for the Enhancement of Research of Information</td>
</tr>
<tr>
<td>RFP</td>
<td>Request For Proposal</td>
</tr>
<tr>
<td>SAREC</td>
<td>Swedish Agency for Research co-operation with Developing Countries</td>
</tr>
<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>SIDA</td>
<td>Swedish International Development Co-operation Agency</td>
</tr>
<tr>
<td>VTLS</td>
<td>Visionary Technology in Library Solutions</td>
</tr>
<tr>
<td>WAN</td>
<td>Wide Area Network</td>
</tr>
</tbody>
</table>
10.2 Appendix 2: Interview Guide; The librarians

How did the automation of the library start? In what year?
Whose initiative was it to automate the library? Why? Conflicts?
Were the librarians involved?
Were the students involved?
What was the donor’s role?
What was the government’s role?
Were you inspired by other libraries or projects?

What has been your role in the automation?
What do you think about the automation?
What do you think are the librarians’ general view of the automation?
What do you think is the students’ general view of the automation?
What do you think is the most obvious transformation of the library due to the automation?
Do you think the library has a new image due to the automation? In what way?
What have been your expectations of the automation? What has been fulfilled so far?
Do you think the economic investment on the automation is the right decision? Should there be focus on something else?

Has the access of information and to the library’s collection improved for the users?
Which books have you prioritised entering in the OPAC?
Have there been any difficulties with the automation?
What are the advantages of the automation?
Has the access of information improved with the automation?
Have you been participating in any staff-training?
Can the student influence the way of automation? Do they give feedback that you take in account?
10.3 Appendix 3: Interview Guide; The students

How often and for what purpose do you use the library?
What is your general view of the library?
Is it something that you are not satisfied with in the library?

Do you still borrow books from the open shelves?
Are there relevant books there?
What do you think about the closed access to new books in the library?
Do you use the OPAC? What do you think about it?
Do you use the card-catalogue? What do you think about it?
Do you use the computer-labs?
Do you use electronic journals or do you search in other databases available at the library?
Have you had any training in how to use the computers in the computer-labs and the OPAC?

Whose initiative do you think it was to automate the library?
Were the students involved in this process?

What do you think about the automation?
What do you think are the students general view is of the automation?
Do you think the economic investment on the automation is the right decision?

Do you think the image of the library has changed?
What about the librarians, do you think their image has changed?
Do you think you can find more relevant information due to the automation?
10.4 Appendix 4: List of Informants

Dr Maria G. N. Musoke, University Librarian
Mr James Mugasha, former University Librarian
Mrs Elizabeth Ruth Kamya, Chief Cataloguer and head of the technical services section
Ms Ruth Nalumaga, former Senior Librarian at the ICT-section, at the moment abroad for further studies
Mr Elly Amani Gamukama, Systems Administrator and head of the ICT-section
Mrs Elizabeth Nassar State, Systems Librarian and Librarian 1 in technical services
Ms Margaret Nakiganda; Cataloguer at the Africana section and Librarian 1
Lubwama Abubaker, Bachelor-student in Education
Emmanuel Sbeguijja, Bachelor-student of Public Administration
Joanne Kwegondeza, Master-student of Business Administration
Mary Juliet Wori, Bachelor-student of Environmental Management
Peter Mugogo, Bachelor-student of Social Sciences
Joseph Kyebuzibkiia, Bachelor-student of Social Sciences
Henry Byenkya Kwaligonza, Bachelor-student of Political Sciences and Philosophy
Charles Rutaro, Bachelor-student of Social Sciences
Rasango Ezra, Bachelor-student of Education
Paddy Kawuki, Bachelor-student of Social Sciences and Arts