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## Problems and Prospects of Automating Public Libraries in Ghana

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# **PROBLEMS AND PROSPECTS OF AUTOMATING PUBLIC LIBRARIES IN GHANA**

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## **Abstract**

Automation has become a very integral aspect of modern libraries. Automation of libraries is designed to replace traditional libraries with its numerous challenges, specifically for public libraries in Ghana. This study was conducted by reviewing different papers on prospects and challenges of library automation globally and specifically narrowed to Ghana. From the study, it was revealed that the main problems of automating libraries have been categorised under four main headings which are; No automation problem, pre automation problem, automation problem, and post automation problem. Other problems revealed were poor construction of databases, lack of provision of information literacy education among patrons, poor usage of online information resources among others. The study further sought to identify the potential benefits of automating public libraries in Ghana which were the availability of more resources to patrons, deployment of inventory libraries, reduce manual labor, and increased rate of patron's access to catalogs. It was recommended that funds must be allocated to automate public library systems, encouragement of practical hands-on workshops, review progress on areas of digitisation, planning, and consultation from other automated libraries, and employment of computer mastery databases.

**Keywords:** Automating, International Federation of Library Association, Information Communication Technology, Computer Based Library Systems, Online Public Access Catalog, Inter loan library, Random Access Memory, Read Only Memory, Danish International Development Agency, Compact Disk

## **1.0 Introduction**

The growth in Information and Communication Technology (ICT) has developed every aspects of human life making retrieval and use of information an important commodity in the third world country. Due to the diminishing economics and innovation in technologies in the advanced countries, it has urged libraries to change their roles from owing collection of documents to make information available. One of the important elements of qualitative information provision is the sharing of resources which is dependent on the availability of automation, specifically the connections to networked collection of data and utilities with protocol search, standardization of organizational materials and retrieval abilities. ICT has been adopted by both public and private organizations. Libraries have implemented ICT in order to manage and convey quick information to the individuals.

According to Mohammed (2006), libraries have automated their functional service because of the lack of traditional library services and specification requirements pertinent to a given problem. Raiz (1992) opines that addition of new arrivals of books increases users need. It is only ICT that can improve services to users' needs. The library manual processing functions such as selection, cataloguing, circulation (charging and discharging), regulate periodical, etc can be automated to ensure effectiveness and efficiency with no pending problems (Raiz, 1992). Most scholars believed that certain factors have led to the change from paper-based to electronic library processes. Garcha and Buttlar (1996) "profile the characteristics of libraries in African countries with particular emphasis on the state of the art of technological capabilities and argued that a lot of libraries in Africa lack the technological capacity to fully automate in terms of online public access catalogues". The library automation in Ghana is a new concept which assumes importance in libraries in the mid 1960's and since then it has been used in librarianship.

Automating libraries have many prospects and problems ranging from a 'Janus face'<sup>5</sup>, on the one hand and it has prospects. Scholars who have looked at the issue of automating libraries have concentrated on either the prospect or on the problems. There are small studies that have researched on prospects and challenges, that is why this research seek to achieved. This research will bridge the gap in literature with specific emphasis on Ghana (Ahenkorah-Marfo & Borteye, 2010; Amekuedee, 2005; Manuh & Budu, 2007).

Automation involves computerization. The word "automation" came from the Greek word "automose" meaning self-dedication or self-movement or the power of the same time (spontaneous). The term automation was first introduced in the General Motor Company in the U.S. by D. S. Harder in 1936. Harder use the term automation to mean the use of automatic devices between advanced manufacture activities. Automation is "technology of automatic working in which the handling method, the process and design of professional material are integrated. This is the effort to achieve an automatic and self-regulating chain of processes".

Kumar and Car (1995) defined library automation as "the application of computers in housekeeping operations such as acquisitions, cataloguing, circulation control, serial control and interlibrary loans". Library automation also refers to "the application of automatic and semiautomatic data processing machines (computers) to perform traditional library housekeeping activities such as acquisition, circulation, cataloguing and reference and serials control"(Uddin, 2009). Automation infers that libraries subscribing to electronic databases or journals. Due to that it means librarians must convert their traditional or manual library resources to meet the 21<sup>st</sup> century challenge, this can be done by the use of technology. The use of automation will empower librarians to use ICTs to perform day-to-day functions or activities such as "cataloguing and classification, serials management, collection management, budgeting, circulation management,

referencing, indexing and abstracting in order to improve information services to library users” (Tenant, 1995 cited by Haliso, 2011).

## **2.1 Automation as a step by step approach**

Automation is usually done as a step by step approach depending on funding. Jayaprakash and Balasubramani (2011) indicate that at the start of automation, libraries allot importance on house-keeping activities of the libraries, as it is basic to make the start of automation better and success depend on these activities. Rao (1995) indicate that automation of house-keeping activities of libraries depend on it importance and the type of library. In special library, they give more importance to serial control and in public library, the importance may be given to circulation control. Also, in academic library they may automate acquisition but automating cataloguing must be given higher priority in the automation programme, this is because cataloguing is of higher priority to any library.

Amekuedee (2005) argued differently that when the library takes a decision to automate, the first library housekeeping activity is cataloguing. Saffady (1989) argued differently from the other scholar that in automating housekeeping activities of the library is the circulation control, and he sees that circulation control is automated first since it is similar to inventory management and other processing activities which have been successfully and completely computerized. Sahu et al. (2005) indicates that automating library activities must be done in order of importance. Nevertheless, the utmost importance must be given to repetitive activities, activities that need a lot of time, bulky files, and high profile tasks are key in automation. According to Mutala (2012), acquisition and cataloguing are labour intensive therefore needed more labours in terms of automating it.

## **2.2 Public Libraries in Ghana**

Public libraries have developed since its establishment in 1951. The purpose for the establishment is for the individual information need to be met. Public library plays a major role in the requirement of knowledge and information spreading in any nation cannot be over emphasized. Public libraries provide the opportunity for special enlightenment encourages the love of learning and allows people to fulfil their civic duty. They provide facilities for readers to acquire knowledge through books and other information sources. It is largely from public libraries that one can acquire positive reading habits. Also, public libraries can display topical books and journals for the use by its patrons. Public libraries are used for reasons other than borrowing books (Agyen-Gyasi & Atta-Obeng, 2010).

Patrons go to read newspapers (both local and foreign), or look for information about the community, local government, or health issues. Public library is a place where people could study and do assignment (Agyen-Gyasi, 1996). In addition, to the studies and assignment, public library provides internet connectivity service so as to help the users connect to the internet and offer training and support to users using computers. Countries make adequate provision for public libraries to provide educational, cultural and recreational roles to its citizenry. Bukenya (2009) have given background information about the development of libraries in Ghana in general and public libraries in particular. In their view, the main factors that contributed towards the provision of public libraries in Ghana were the impact of missionary activities on the community (which included bringing literacy to the people and setting up of presses to ensure the speedy publication of reading materials to sustain literacy) and the introduction of formal education in the Gold Coast. Others include the pioneering work of Bishop Orfeur Aglionby who was responsible for the early promotion of reading among Ghanaians; the British Council initiative which helped laid the foundation for national library services and creating awareness for further education.

Likewise the training of library staff in the country; the Ghana's healthy economic three state, which assured the availability of capital and recurrent funds for library development; the progressive and supportive policy of Kwame Nkrumah as well as the enthusiasm and hard work of the library staff and a far-sighted and supportive Ghana Library Board. All these led to the growth of public libraries in Ghana. The Act that established the Gold Coast (now Ghana) Library Services Board (Cap 118) was one of the first Library Acts in Africa, and many countries took it as a model (Bukenya, 2009). Among the functions of the Act were to establish, maintain, equip, manage and determine the conditions of service for the officers and staff of the public libraries in Ghana. This legislation made the Gold Coast Library Board, the second public corporation in the country after the Cocoa Marketing Board. Consequently, the Accra Central Library was started in 1950. A purpose built library building considered to be one of the most beautiful buildings in Accra at that time was put up and officially opened in 1956 by the then Governor Sir Arden Clarke. Antwi (1989) indicated that public library in Ghana provide unique services in relation to information, education, entertainment and recreation and it becomes valuable if only is able to perform such roles in meeting the needs of the community. In the view of Bukenya (2009), public libraries are established to promote the culture of reading.

### **2.2.1 Automating Libraries in Ghana**

Most public libraries in Ghana use the conventional manual service delivery. In recent times, automating libraries is a necessity. It is clearly infer that "more new information has been produced in the last 30 years than in the previous 5000 years. Approximately, over 1000 books are published internationally every day and volume of all printed knowledge doubles every five years" (Reuters Magazine, 1997). To add up, surprisingly information available in automated design and internet has changed the publication of information; therefore it becomes important to computerize public library. You need an incorporated library computerization package to be able

to effectively and efficiently automate the library services and these packages are commercially available in the market. The information professionals must select the appropriate software package that can help them to perform their library functions as well as providing satisfaction to users. This can be done by the information professional by evaluating the software for cost effectiveness, efficiency and friendliness of the software to users.

### **2.3 Prospects of Automating Libraries in Ghana**

Increasingly, public libraries are changing from the conventional way of offering library services to automating as a result of the prospect of automation. This is because of new element of the needs of users and advance in document. Suku and Mini (2005) indicated that there are certain factors that make the importance of automation in academic libraries. These are information flow, unable to explore numerous materials, waste of time, and repetition of library operations and inability of the library to purchase many materials. When library operations are automated it will facilitate quick, easy and dependable resource sharing thereby reducing time and space between libraries.

According to Rajput and Jain (2006), logical and substantive must be the hallmark of justifying automation of library. Nevertheless, in spite of the difficulties that come with automation, the advantages outweigh the disadvantages (Boateng et al., 2011). Automation has brought the following benefits to the library, namely: it has made library resources available to users, it has made the resources available to users no matter where they are, and you only need internet connectivity to the main network and easy retrieval to library resources (Wolpert, 1999). According to Parvez (2011), automation has brought about less time in circulation (charging and discharging) of books. Automation has also help employees to serve users better and to perform

variety of library functions and operations such as acquisition, cataloguing, reference and circulation (Egunjobi & Awoyemi, 2012).

According to Ahenkorah-Marfo and Borteye (2010), both librarians and users enjoy a lot of benefits from library automation. These are automation brings about the repairs of library materials so that the documents will be in good condition after the processing of the document, it has also helped in the weeding of materials that are out-of-date and not useful, it has also helped in the resolution of call numbers thereby helping copies of the same title related to each other and registering clients with automated system is less tiresome as compared to the manual system. Kadiri (2004) indicated that “library automation will address the problem of manual processing of materials overcoming the problems of filling and typing errors, retrieving errors, and the time involved”.

Scholars such as Ahenkorah-Marfo and Borteye (2010) indicated that automation has helped in deployment of inventory in the library. Computerization has considerably affected the circulation library services, that is, it has saved both users and staff time; with the introduction and support of WEBOPAC, users can reserve library services, reduction of theft cases with Radio Frequency Identification (RFID) system and users can search at any location at any time for information (Parvez, 2011). The benefits of automation of library services can be gained during the process and outcome of automation (Ahenkorah-Marfo & Borteye, 2010).

Chuene (2000) conducted a research among computerized library facilities and manual library facilities. The outcome of the research showed that “automated acquisition system reduced the manual labour from twenty-seven to fourteen”. An identification from the author stated that automated library system is preferable with the evidence of fast provision of information, accurate

service and also improved productivity. Okiy (2004) has also stressed that “the computer based cataloguing system is the best system that offers librarians a conducive environment to function properly”.

The spread of the use of automated tools in libraries has steered an application in the related services concentrated on automated tools. Revealed studies indicated that librarians processes a solid aspiration to advance their tutoring in librarianship. These areas that were left were ascribed to automation, utilization of electronic resources, complete automation application to create, store and disseminate information and alteration in needs and prospects of the user. The needed skills are “programming, virtual research environments and software development are in tandem with the digital era we are living in” (Krubu & Osawaru, 2010).

Rao (1995), principally indicates that the aim of computerized cataloguing scheme is to increase the rate at which patrons access catalogues one way or the other by microform, online or CD-ROM. ICT catalogues enable different searches to be made and information accessed at the same time ones done. Also, books that are not in the collection of ones’ library can be accessed using an automated catalog. In this regard, automated catalogue provides different access to library collections than the manual catalogue, therefore rendering a high possibility of networking at the “post-coordinate” stage (Singh, 1999). According to scholars such as Egunjobi and Awoyemi (2012) and Delsey (1990) indicated that one of the advantages of automation was to facilitate access. This implies that users outside the library at any point in time can access information using bibliographic citations including title, call number, author, and keyword and to enable workers perform variations of functions. Also, it was observed that, a lot of paper work involved in borrowing library materials are on the decline. The current trend in borrowing books are the use of automated tools such as scanners which are used for scanning borrowed books.

Attempts to digitize libraries have been very successful. The DANIDA sponsored project made it possible for libraries in Ghana, especially, academic libraries to appreciate the use of automated tools with the support of International Federation of Library Association-Africa branch. Six universities were networked and the benefit derived from the networking was that there was stress-free communication and possible document delivery between the academic libraries as well as the academic librarians. Nonetheless, a stopover between the dates of February 26, and March 7, by the researcher to the University of Ghana to monitor the success the project has come to an abrupt end due to financial constraints.

Despite the fact that the success of automating libraries is high, the collected works suggests that libraries in developing countries have not fully utilized ICT to perpetuate the excellent use of information provision in university and public libraries.

#### **2.4 Problems of Automating Libraries in Ghana**

Generally, sometimes advanced countries cannot be compared to the public libraries in Ghana because they make good use of automation even if we have equal access to delivery information. Chisenga and Rorissa (2001) singled out the countless inequality in terms of automation of public libraries due to some challenges pointed out by various scholars such as Mutala (2012); Rosenberg (2005). Academic libraries in Ghana that are using the manual library procedures are still facing difficulties in their operations. Due to that most individuals are disappointed with the information service provided by librarians in academic library. The study also discusses literature on various challenges of automating libraries in Africa. These factors were discussed under four broad headings. These are ‘No automation problem’, ‘pre-automation problem’, ‘automation problem’ and ‘post automation problem’.

#### **2.4.1 No-Automation Problem**

It is concerned with the challenges that manual libraries are expected to face. Manual Libraries face the challenge of coming together to agree with other libraries and this is because coming together has been limited to photocopying and libraries lending from each other (interlibrary loan). This challenges as been quoted as “redundant duplication as libraries repel sharing of resources in order to preserve their autonomous collections; inadequate bibliographic control and information about the accessibility of resources in other libraries; expensive postage and carriage for delivering materials, as well as the spaces unscrambling libraries from one another, restraints of materials (such as Africana collections, theses and dissertations, etc.); lack of worldwide photocopying services, microfilming and photographic services; financial constraints for collection development” (Stephen, 1995).

#### **2.4.2 Pre-automation problem**

A study carried out by Rajput and Gautam (2010) on special library stated the challenges to include “scarcity of funds, inadequate managerial maintenance, absence of trained staff, reluctance in learning computers and absence of space”. Chisenga (2004) also investigated ten countries in Anglophone Africa detects the early challenges to include; “inadequate budget, lack of ICT services, lack of ICT approaches, minute skills levels of users, lack of competent staff in ICT, lack of guaranteed staff by institutional management, and unwillingness among staff to use ICT”. Nok (2006) indicated that academic libraries in Africa faced inadequate documents and funds in many years. In all these challenges mentioned above, Mutala (2012) and Youngman (1999) maintain that library employees do not express the importance of capitalizing in Information and Communication Technology to authorities that is why funds are not allocated to automation.

### **2.4.3 Automation Problem**

Automation problem is concerned with problems that are typically threatened when automating libraries. Nok (2006) indicated that there are new challenges that come with automation of documents. These he quoted as “acquisition, selection, and cataloguing of online information resources, the construction of databases, providing information literacy education for library users, and the new skills required by, and continuing education for librarians”. From a critical point of view, most libraries in Africa meet these challenges in automation, namely: “lack of funds, reluctance among staff to use ICT, lack of trained staff as well as erratic power supply”. Libraries are confronted with problems such as “lack of commitment by institutional management, severe technical harms encountered and software not being user friendly”.

In addition, operation of the mechanical system may generate a bottleneck of bibliographic citation that needs to be entered: the manual ones in large numbers in various cabinets that need to be inputted. The challenge with this implementation is that occasionally, keying of the backlog causes a lot of mistakes. Some scholars have theorized that many libraries lack expertise to execute the automation project. Re-accession of documents also indicate library automation; the implication is that, accession numbers must be replaced with barcodes. This poses a threat to the library throughout the process of automation. Adogbeji and Adomi (2005) observe that one limitation of library automation procedures is the past transfer of data. Another issue is that even when the whole library is re-accessioned, only some books could be processed within a stipulated time with the reason that some books are borrowed and some are lost.

### **2.4.4 Post Automation Problem**

This is concerned with challenges that are encountered after automation. According to Jayaprakash and Balasubramani (2011), the challenges include “computerization not up to

expectation of users, paucity of funds for improvement, paucity of funds for staff training, library staff not willing to go for training, software is not user friendly, lack of awareness among users, lack of standardization and incompatibility of hardware, and computerization not up to expectation of organization”. According to Rajput and Gautam (2010) indicated that some libraries in recognizes the following; “paucity of funds for improvement, lack of attitude of authority for staff training, computerization below expectation of users and organization, serious technical problems encountered, paucity of funds for staff training, software not being user friendly, lack of awareness among users, and Lack of standardization and incompatibility of hardware as the post-automation problems”. Lack of or inadequate staff training could affect employees’ attitudes towards automated libraries.

Staff could forget the things they were taught such as some functionalities of the software and it becomes necessary to use refresher courses to train them again. Workers deliberately ignore duties assigned to them. In this regard, Gardner (1994) singled out “human resources, vendor and maintenance, culture, funding, education and training as key factors for ICT use in automated libraries in developing countries”. He further states that, unexperienced and unqualified employees lead to the engagement of emigrants and authorities in developing countries cannot engage the services of such emigrants because of inadequate funds. Management also makes mistakes of just generating income ignoring the maintenance aspect. Enough training is necessary for library institutions in order to work efficiently with automated tools.

Factors that hinder the use of automated tools in libraries are predominantly the unqualified ICT skills of workers (Haliso, 2011). Academic librarians are mostly unwilling to use automate tools because of their cultural background leading to ineffective work performance. Abifarin (1993) “surveyed the extent of information technology in 17 university libraries in Nigeria, concluding

that computer information technology was inadequate and underutilized, he identified constraints such as the inability to recruit expertly trained professionals with computer expertise". Among scholars such as Obajemu (2006), Okiy (2005), Sani and Tiamiyu (2005) have opined that librarians' approach to the usage of automated tools can determine their usage, whether negatively or positively. Outlook is a situation where librarians one way or the other attracts or repels automated tools. Embracing automated tools may enhance the librarians' staff performance and rejecting may end in low performance. With respect to this, Obajemu (2006) emphasized the exhibition of positive outlook. Okiy (2005) revealed that low and inadequate use of ICT, low rate of computer education militated against the use of information and technology in libraries and also inadequate security controls to guard computers from physical theft and hackers.

Aside this, irregular power source too hampers the even administration of library procedures. Once power cut is experienced, patrons cannot indulge in lending services. This further generates the issue of obtaining other sources of light and powering them. It is in conformity with Adogbeji and Adomi (2005), Mutula (2012) and Nok (2006), irregular power cuts hinders the full functioning of automated tools and contributes a severe blockage to automation. Results from two African libraries show that irregular power cut is one of the obstructions for using automated tools. Abifarin (1993) has observed that an inconsistent broadcastings system, an irregular power source, possibly and prominently, absence of development and strategy progress related to attainment of automated tools and related equipment hinders the efficient use of automation tools.

Chisenga (2004) and Obajemu and Ibegwam (2006) identified that public libraries in Nigeria are endeavoring to automate their operations. One of the top factors identified as affecting automation in libraries is lack of updates. Consequently, this issue still stands because of neglected organizational obligation and inconsistent updates of ICT tools (Tully, 2003). Periodically,

random failure, outdated tools, inadequate preservation, inadequate mechanical sustenance, and poor training of personnel's also destruct the use of automated tools in libraries. The research by Okiy (2005) revealed that inadequate funds, negligence of managerial provision resulted to inaccessibility of automated tools in some libraries.

There is also the issue of oversight. Oversight in data entry can cause many challenges. In instances when the books are on shelves but are not captured, people cannot borrow. Staff will therefore have to scan each book with a scanner to identify materials which have not been captured in the system and capture them into the system accordingly. Another issue worth mentioning is the issue of selecting the best model for library service. Sturges (2010) terms the progress of information in developing world and major factors that have caused the growth, or deficiency of automating libraries. His impression about the information situation pronounces the insufficient functions of libraries in a region where there are only few publications of books and information generally; "political censorship; prevalence of an orally communicated cultural heritage; acceptance of radio and, more recently, television as communication media; a history of resistance to the African press; and the inability of national institutions to monitor or control the flow of data and information across borders made possible by computer and telecommunications technology". Rosenberg (2005) agrees with Sturges' remarks, also stating that "libraries in Kenya were based totally on the British model and were not necessarily relevant to Africans and their information needs".

### **3.0 Conclusion**

This study focused on different angles of automating thus the problems and prospect of automating public libraries in Ghana in a universal way as an effort to bridge the gap in that respect. Specific consideration was paid to defining automation, identifying the types, prospects

and challenges and examining automation of public libraries in Ghana. It was deduced that most public libraries in Ghana use the manual system in their in-house operations. The paper also elaborated on the prospect of automating public libraries and concluded that the ultimate idea behind the transformation from conventional way of offering library services to automating was as a consequence of the growing of document and different heights of user information needs. It subsequently emphasized the benefit of automating libraries in Ghana such as interlibrary loan services, to render fast and easy services, accessibility to unlimited literature, save time, ensures reliability, cutting across space and time.

This study also discussed the problems that public libraries encountered in automating its services. These problems were characterized into four main headings ('No-automation problem', 'pre-automation problem', 'automation problem' and 'post automation problem'). Other problems were how libraries with no automation embarks on co-operative agreements among other libraries whilst vexing to maintain their own sovereign collections. It further bade to pinpoint some of the limitations obstructing the accomplishment of the course of automating libraries. Moreover, the initial challenges identified in automating libraries in Ghana include; financial constraints, lack of trained personals, and lack of commitment to automation on the part of the library management. Problems of automation included the construction of databases, cataloguing of online information resources, providing information literacy education for patrons, the construction of databases and the new skills required, ongoing education for librarians as well as the challenges with retrospective adaptation of data. The study also stressed post automating problems to include computerization which is often not up to the hope of users, inadequate funds for upgrading, staff training issues and user hostility software.

In a shot to submit solutions to these problems, several endorsements have been made pointing authorities and government of Ghana to invest in resourcing public libraries and assist them to speed up in the automating of these libraries because patrons, staff and the state are likely to accrue from this development. It is commonly admitted that Ghana is not responding to the changes of the fast changing digital environment and are encountering challenge of lack of awareness, understanding and skills. Automating public libraries is a vast stage to addressing this trial. Otike (1990) was right when he spoke so well for the African libraries that, “we cannot afford to walk when our colleagues elsewhere are running”.

#### **4.0 Recommendations**

Funding is the basis for all automating problems. Consequently, Bhanja and Barik (2009) were factual to propose that in the process of designing automation, it is significant for information professionals in African to get leaders to engage governments of states. Also, interlibrary loans between libraries order must be encouraged.

Majority of the tutors were trained in the ancient outdated library skills therefore they cope to lecture the concepts in automated library abilities. In view of dealing with the lack of competent mortal assets, tutors with their library proficient knowledge should take the principal responsibility in affecting contemporary progresses in the area and extend it to students in both theory and practice. To influence applied lessons they require to go further than just theory-there is the need to induce them to vigorously contribute in practical hands-on workshops that can serve as an aid to train the group and produce professionally qualified librarians that we require in our public libraries.

Research has revealed that, countless librarians process a strong concern in pursuing their schooling in librarianship and information science in view of responding to the varying

requirement of specialized librarians such as: “Strategic planning and leadership skills, Customer interfacing relations, Information literacy skills, Communication and outreach skills, Library technologies, Networking and outreach, Copyright issues, Licensing of E-resources and access management, Project management, Library space design, Indigenous knowledge management, Marketing of library and information resources and services, Fund raising, Content development and management, Pedagogical skills, Forging partnership and collaboration” (Burnett, 2013). It is important to alert computer operator and review progressions on areas of digitization in order to reduce negative attitude of staff in the execution of their functions.

In an attempt to digitize public libraries, intensive planning and consultation must be made from other automated libraries. This will clear all doubts, mistakes and efficiently use the finance available. Public libraries should ultimately be considered when entertaining plans to automate the library. Software packages should be chosen on the basis of operational service and preservation. “Full text CD-ROMs which can run on most microcomputers with a CD-ROM attachment should be considered”. Using of CD-ROMs can reduce cost since it excludes storage, processing and bindery cost.

Computer mastery databases in those libraries should be employed which hope to automate their upcoming services. Intermittent exercise should be initiated by executives to train staff with low computer literacy. Occasionally, library executives can take the staff through job rotation to computer organizations for short term exercise. In a situation where the cost of such training exercise is high in computer firms, agreements could be made with university computer centers for the training to be undertaken.

It is clear that library automation is capital intensive. Nevertheless, to deliver proficient and real operations, benefit fully from resources globally, it is vital for Ghanaian librarians and computer

geniuses to engage those who are influential in government to make financial provisions accessible for the execution of mechanization.

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