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**LIBRARY SERVICES, LIBRARY AUTOMATION PROGRAMMES
AND THE SOFTWARE INDUSTRIES IN NIGERIA**

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ABSTRACT

Library services are undergoing transformation. The transformation from manual to automated systems is changing the services provided by these libraries and the way they are performed. But the automation programmes of Nigerian libraries are facing serious threat of inadequate funding. Inadequate funding is affecting the ability to adopt good software that incorporates all the features that can turn around library services. It has however been discovered that there are some government parastatals which can be made to be of assistance to these libraries. These are software oriented industries like NITDA, ISPON, Digital Bridge Institute, et cetera. These institutions can be made to work in partnership with the libraries on how their services can be enhanced. Some renowned institutions that have assisted libraries and research in the developed countries were also discussed.

INTRODUCTION:

Access to information is a major preoccupation of libraries. The era of ownership of resources when libraries enjoyed a pride of place on the number of materials owned, has given way to access to information. There is no doubt that quite a large volume of materials exist outside the four walls of the library. Access to these materials brings to the fore automating library services for easy, wide and fast accessibility. Underlining this automation processes is the software. The software is at the heart of any automation programme. For any success to be achieved in the use of the hardware (computer), the software should be good.

The software industry is increasingly becoming the driving force in the IT industry and of course an important element in the economy of any country. Software plays dominant role in the automation of production processes, service industries, et cetera, and so the developed countries are reaping quite a lot of fortunes from its exports. India for example, one of the best software countries of the world was said to have expected \$70 billion (#10.5 trillion) from software exports in the year 2012 alone, an amount greater than the year 2012 Federal Government of Nigeria budget of about #5 trillion (Youth Speak Column, 2012).

Many computer experts even in the developing countries have made reference to the importance of the software in today's knowledge economy (Adepetu, 2012; Ovia, 2007). The subtle shift towards data-driven research in many fields of study is gradually becoming an important basis of research and so the software becomes highly useful. No wonder, these foreign software continue to dominate the country's IT industry and attempt as much as possible to relegate the locally developed software to the background. This generate in them the feeling of inferiority complex thereby make them believe in any software imported. Obaro (2012) noted that this feeling of inferiority complex and anything imported is still a big challenge in Nigeria.

Quite a lot of the important sectors of the economy in Nigeria have benefitted from these foreign software. The Oil and Gas Industries, the Aviation Sector, Manufacturing and Banking are spending quite a lot of money importing this software. While the sectors above are buoyant enough to adopt this software, there are another set of sectors which are not lucky enough and who would need relatively cheaper software to be able to perform.

One and perhaps the most important sector in this respect is the educational system. Funding has been the greatest problem and none of the departments in the sector can be said to

be better off. Higher Education is one of the important components of the educational system. Attached to these higher educational institutions are the libraries. The library sub-sector in the educational system is not as lucky as its counterparts in the well-endowed sectors which are benefitting from the funding enjoyed by their parent organisations. In other words, the educational sector is seriously starved of funds as the Federal Government finds it difficult to meet up with the United Nations recommended 26% of National Budgets to the educational sector. The allocations of #426.53bn in the 2013 budget and #493bn in 2014 budget were just 10.2% and 10.7% respectively puts the government in a position trailing countries like Ghana (31%), Cote d'Ivoire (30%), South Africa (25%), Kenya (23%), etc. (Sunday and Atueyi, 2016). It is still the same story with the allocation of #492bn in the 2015 budget.

It has therefore become difficult for the components parts, most especially higher education to adopt new technologies necessary to enhance library services. There is no doubt that library services have suffered and automation programmes of these institutions have most often been delayed or toyed with. In other words, funding has not kept pace with the exponential expansion in the services offered by these institutions and the growing level of infrastructural repairs that need urgent attention. An external assistance would therefore not be out of place for the mission of teaching, learning and research to be fully realised. The past efforts by the government through its agency, the National Universities Commission to assist the library system of the universities by providing a common foreign software platform failed. This was when the TINLIB (The Information Navigator Library Management) software and 386 ICT computer systems were distributed to federal university libraries (Idowu and Mabawonku, 1999). Ever since this first and only attempt, the libraries have been left to go at their own pace adopting different types of software.

Another effort by an international organisation to acquire VIRTUA (a consortia package developed by Visionary Technology in Library Solutions) to link universities with NUC starting with six of them in each of the geographical zones (Ogunsola, 2005) is facing some challenges. Even those institutions that have adopted these software appears not to make any meaningful progress for the cost of the software, high cost of maintenance et cetera are scaring them away from the software.

Despite the existence of a number of government establishments which can be of assistance in enhancing library automation drives, many Nigerian libraries have not been able to

reap the full benefit of automation and are forced to adopt those software that readily come to their knowledge. Some of these libraries have changed software two to three times (Ajala and Ayankola, 2012) because of inadequate performance, outright failure, short demonstration before adoption, et cetera. This paper is to examine a number of government parastatals that can adequately assist these libraries in improving their services and also open the way for new ones.

THE SOFTWARE INDUSTRIES

The software industries in Nigeria are those establishments whose mandate is directly or indirectly related to the development and strengthening of the software packages produced in the country. These are parastatals in the Federal Ministry of Science and Technology, Federal Ministry of Communication Technology and the association of software producers. The activities of some of these parastatals and associations have much bearing to the development of software packages. There is another group whose oversight functions and or as matter of necessity find themselves assisting libraries in improving their services by developing their automation programmes i.e. purchase of software, et cetera.

Major Stakeholders in the Software Industry

National Information Technology Development Agency: The most important stakeholder and whose mandate is directly related to the development of software packages in the country is the National Information Technology Development Agency. NITDA is a federal government agency established by an Act of Parliament - NITDA Act 2007. One of the functions of the Agency is to “determine critical areas of Information Technology requiring research intervention and development”. Under its mandate, the Agency is also to empower its citizenry to participate in software and IT system development (NITDA, 2013).

Some of the areas of emphasis of NITDA have been in Public Service Network (PS Net, Mobile Internet Unit (MIU) and Human Capacity Development which have been in cooperation with public and private organisations (Olatokun, 2006). Over the last few years, NITDA software development mandate has received serious emphasis. It instituted a NITDA prize for software excellence where it challenged Nigerian students in higher institutions to harness their potentials towards development of good software (Tribune, 2011). In addition, NITDA’s other efforts in the software sub-sector are National Software Development Initiative, National Software Development Taskforce, National Software Policy (Adepetun, 2012a). Adepetun (2012b) in

another report made reference to a framework by NITDA towards software development centres, et cetera.

Similarity, NITDA's efforts has made some in-road into the library. Though the impact is gradually building-up and one of them is NITDA's activities with regards to training in the automation of libraries. The November 2005 NBTE/NITDA Virtual Library Workshop at the Yaba College of Technology was organised for the polytechnic and the monotechnic libraries. The workshop which was on Greenstone Digital Library System, an open source software came at a time when such open source software was relatively unknown in the country.

In addition, the 4th-9th November, 2012 National Workshop on Free and Open Source Software (FOSS) in Library Operations which took place in Calabar was organised by Librarians Registration Council of Nigeria in collaboration with NITDA. LRCN in collaboration with NITDA organised another capacity building programme on FOSS in library operations at the University of Nigerian, Nsukka (The Guardian, 2014). The deployment of virtual libraries by NITDA is also welcomed (Ubabukoh, 2014). The Guardian (2012) also reported that NITDA intend to partner with the LRCN in introducing minimum standard that will guide the establishment of e-library in Nigeria. This has become one of the policy initiatives of NITDA. Rosenberg (2005) has also made reference to the lack of the library software standardisation as one of the challenges of ICT use.

Standardisation as mentioned above is really needed in this period of proliferation of software by vendors who may be out to make money out of the unsuspecting libraries. Standardisation will really knock-off the swindlers in the e-library industry. At the same time, Nigerian libraries also need adequately trained staff to handle these automation projects in this period of digitisation, web content management, multi-media design, even Internet connectivity problems, et cetera. In addition, such standardisation as mentioned above would need capable hands (through training) to ensure its maintenance and sustenance when eventually the standard is set. The digitisation of materials is still needed to assist researchers in gaining access to materials which are of research value. But Fabunmi (2009) noted that it is even cheaper to provide online links to the available digital libraries than starting a digitisation programme. All the same, digitisation is still necessary for locally published materials which are largely not covered by digital libraries. As the foremost public IT organisation in the country, NITDA is

really trying and needs to strengthen the capacity of librarians in modern technology needed for today's automation programmes.

NITDA will also be relevant when it is able to see to how the locally developed software can be adjusted or rather repackaged to fit into modern networked enabled information system. Presently, the issue of networking is at low ebb. The level of services provided is affected when the library do not have access to materials existing in other libraries electronically. Even the so called consortia package used in Nigerian universities (i. e. VIRTUA) do not make use of the networking facility built into the software package. Networking should be a top priority among these libraries. An example of networking formed among libraries that easily come to mind is the case of SC LENDS Consortium formed by South Carolina State Library together with some local public libraries using the Evergreen ILS (an open source software) (Hamby, McBride and Lundberg, 2011). There are many software packages in Nigeria today struggling to gain acceptance. Nigerian libraries need to be exposed to good and relatively cheap software that can be adopted in the automation of the libraries. NITDA also needs to reach out to other FOSS, most especially the digitisation software which is also needed to capture the local resources existing in libraries for wider accessibility.

Institute of Software Practitioners of Nigeria: This is another important stakeholder in the software industry. ISPON is an association of software developers in Nigeria and they aim at encouraging local developers to thrive locally and internationally. ISPON has as part of its objectives to “ensure that the design, development and application of software services effectively meet the needs, aspirations and satisfaction of users of information technology”. Another objective is to encourage and advise the government on how to provide an enabling environment and infrastructures for software development in Nigeria (ISPON, 1999-2006).

As an important reference point for information on the software industry, the president of the association has challenged the government towards a national software policy and the release of loan to software developers (The Guardian, 2011a & b). The association has also been a force propelling NITDA to develop a positive attitude towards software development and the organisers of the “NITDA Prize for Software Excellence”. The prize is for National Software Innovation Cup Competition involving students in Nigerian tertiary institutions. The call for a National Software Board by the president will assist in developing a viable software industry.

An association like ISPON has a very broad coverage. It may therefore be difficult to narrow its activities down to the library. In addition, the profit motive of most associations and parastatals may be a hindrance to venturing into an area like the library where inadequate funding is the bane and where little or nothing will be there for the enormous challenges the sub-sector presents.

All the same, ISPON should strive more in its software development drive. The maintenance exercise for locally developed software will be easier, for maintenance problem has been an undoing of the foreign developed software for they are very expensive. In addition, locally developed brand of software would be cheaper and will be within the reach of these libraries. Right now, there are very few local software packages on librarianship and this cannot engender competition. Even most of these few software do not have networking facilities that grant users access to the collections of other libraries. This is needed to make them competitive in the world software market. It is therefore important that a mutual partnership between ISPON and NITDA and the universities be extended to developing good local software that will meet the automation needs of these libraries. This will release them from the interest that has already been developed in this foreign software which they cannot maintain.

The Digital Bridge Institute: The Digital Bridge Institute is a parastatal under the Federal Ministry of Communication Technology. It is a foremost institute for the education and training in all spheres of telecommunication and Internet infrastructure. As the focal point for human resources and workforce capacity development, the training programme of the institute cuts across diverse sections in both the public and private sectors and its mandate on the application of ICT extend to all relevant field of importance in Nigeria and Africa.

Apart from the mandate on education and training, the institute is also involved in encouraging indigenous software development and in matters of research on telecommunication in Nigeria and Africa. Sometimes in 2006, the institute organised a Train-the-Trainer Initiative on ICT for university professors and other lecturers in Nigerian higher institutions in five centres all over the federation simultaneously including Abuja.

As an institution charged with the function of providing the capability to formulate and implement pilot projects on the application of ICT in relevant field, the library profession stands to benefit from the institute. The widespread adoption of Internet technology in Nigerian higher institution's libraries to gain access to quite a lot of information materials has therefore made it

mandatory to look upon DBI for human capacity development in this area. In addition, the ability to form networks by libraries which is presently not utilised or rather given attention rests on the level of availability of the Internet technology. Furthermore, for the library to relate to the users and get feedback, the social media readily comes to mind. For all these services to be performed effectively, the use of Very Small Aperture Terminal and fiber optics technology in libraries has become a matter of necessity to ensure a faster and stable access to the Internet, and this is the area of mandate of DBI. Internet connectivity is really needed for today's consortia packages, open source software, inter-library loan modules of software and the ability to link different knowledge sites and networking to have access to each other's resources.

In actual fact, slow Internet access and outright failure of the telecommunication facilities has been a challenge to higher institutions and its libraries. It is expected that DBI could provide training assistance to these institutions most especially the libraries on how they can effectively use the Internet for research and their other telecommunication needs. In addition, the cost of accessing the Internet (Dedicated Internet Access), the maintenance of the Internet infrastructure and the networking facilities are high. DBI can also assist these libraries in controlling charges on ongoing maintenance and dues paid by these institutions on VSAT installations and fiber optics connections in the bid to access the Internet.

Nigerian Research and Education Network: This is the latest addition to the range of research and education institutions in Nigeria. It was inaugurated on 8th July, 2014 to create an effective infrastructure backbone that will connect all research and education institutions in Nigeria with other overseas research and education networks (The Federal Ministry of Communication Technology, 2014). Nigerian Research and Education Network which is a collaborative project involving The Federal Ministry of Education, The World Bank and The Federal Ministry of Communication Technology is expected to bring down the exorbitant cost of bandwidth and thereby improve the capacity of the teaching and research services of members in the network.

The first phase of the project had been inaugurated and 27 federal universities have been connected. The second phase still being expected will connect the remaining federal (new universities), state and private universities. The project is expected to solve the problem of Internet connectivity in Nigerian universities and thereby improve their global presence among the world universities. Nigerian university libraries need to be given adequate consideration in this new venture for them to support their inadequacy in the access to good Internet services

needed to boost their library operations and services. Libraries services will improve tremendously and networking with each other and with overseas libraries will be made easier when the software receive the capability (through the Internet) to hook on to various information sources scattered all over the globe.

Tertiary Education Trust Fund: Apart from these major stakeholders discussed above, there are some other institutions whose mandate is quite unrelated to software development but along the way find themselves performing such duty that relates to library development and provision of fund for software purchase for libraries. Such is the role that the Tertiary Education Trust Fund is performing today. One of the mandate of the Fund as provided in Section 7 Subsection 1 is to ‘stimulate, support and enhance improvement activities in educational foundation areas like Teacher Education, Teaching Practice, Library Development et cetera’ (TETFund, 2013).

The assistance in the development of library systems has mainly been in the procurement of books, library furniture, equipment including computers, projectors, et cetera. Of recent, a greater part of these allocations are also being used to procure library software packages. In addition, TETFund has a programme for provision of funds for higher degree up to doctoral level and sponsorship for conferences including training in librarianship. In 2014 alone, TETFund spent #19b to train Nigerian lecturers (Mohammed, 2014). The staff development and conference attendance programmes also cover automaton programmes and overseas training and degrees. For now, TETFund remains a veritable source of funds for institutions, libraries, library automation programmes and by extension software purchase and its training. Many libraries in the country have benefited from these higher degrees and workshop/conference attendance within and outside the country on various programmes including automation.

TETFund continually provides the financial assistance to academic staff for a number of programmes mounted by parastatals like NITDA, DBI, et cetera, some of which are even waiting to be accessed. To be able to perform optimally, these libraries also need to take care of their deficiencies which can be a hindrance to ensuring smooth library services. Such deficiencies include inadequate staffing, inexperienced system analysts, mismanagement, et cetera for such can limit the full operation of the automation programmes and thereby affect the library services.

Above all, the time has come for organisations (foreign and local) to remember the development of these libraries as part of their corporate social responsibilities to the country. Education has been one of the cardinal foci of most of these companies. The existence and the

success attained by these companies is a product of the education system and would be doing the system a lot of good if they plough back to the system that produced them. For these establishments, the automation programme of these higher institutions is an area where their attention is needed. Nigerian libraries can also develop to the level attained by the advanced economies or move closer to it if the correct tools are placed at their disposal and leakages in the educational system are blocked.

The supposed partnership or collaboration between NITDA, ISPON, DBI et cetera and university or rather higher institutions' libraries brings to the fore some experiences from some other climes. The efforts of these institutions in some other climes to fund, boost or rather assist research or research inclined organisations and consequently expand the frontiers of knowledge are noted below.

SOME IMPORTS FROM SOME OTHER CLIMES

Partnership or call it collaboration between different institutions has been discovered to be a good way of enhancing organisational performance. The sort of partnership that can engender improved library services (and even originate new services) can be made possible if NITDA, ISPON, Digital Bridge Institute and NgREN agree to collaborate with these libraries on areas where their expertise are required.

Libraries have been known to work in partnership with renowned organisations to deliver goods highly needed when it becomes difficult for them to go alone. The Google Book Search had partnered with many university libraries in the United States in the development of their Digital Library Systems. The University of Virginia is an example (Wittenborg, 2011). Google Book Search even in 2004 requested for permission to digitise the collections of five major research libraries (Tiwari, 2013). As a developing nation, partnership of such may not be feasible for individual libraries but structures like the LRCN, NLA, NUC, NBTE, et cetera can take up the mantle for these libraries. NITDA is really performing this role but other organisations outside government can also play this role effectively.

In addition, organisations like the National Science Foundation in the United States also provides funding for research centres, instruments and facilities that allow scientists, engineers and students to develop and expand their frontiers of knowledge. Libraries in Nigeria can use its

automation programme to boost and even expand the range of its services if assisted by organisations of the types above set up to assist research centres and researchers.

In Britain, the Software Sustainability Institute (SSI) based at the University of Edinburgh (formerly Edinburgh Parallel Computing Center) has a similar programme. SSI is an academic institute established for the benefit of researchers and software developers. It also helps in introducing software into the work of researchers and collaborates with groups to improve the maintenance, quality, usability of existing software. The above roles in the advancement of research are such that are expected from the Nigerian organisations discussed above where they are needed to assist research inclined organisations, library automation projects et cetera.

Similarly, the National Research Council is the premier national research and technology organisation in Canada. The Council is to promote the application of scientific and engineering knowledge to meet the economic and social needs of the country. The ICT section of NRC also owns software, programs, et cetera, that are available for licensing under conditions suitable for the needs of users. There are many institutions in Nigeria who can be made to take on this role to boost library services. In addition, some of the institutions saddled with these responsibilities can be strengthened to perform better.

CONCLUSION

The ability of libraries to provide the needed information services that will satisfy the yearning thirst of its users is hinged on library automation programmes. Nigerian library automation programmes have passed through thick and thin. It had withered through a lot of situations like in the period of the mainframe computers of the 1970's when inadequate skilled manpower, poor computing facilities et cetera were the problem even to the present level of advancement automation programme is passing through.

The gradual emergence of the software companies and of course software vendors to market these software and also assist in their maintenance have force these institutions to look for the one suitable for their needs. The effort of these libraries to use these software packages to hook on to other web resources and also project local resources for research use through the Internet has been without its problems. Some of these software have not performed to expectation, some have failed in this respect while the rate of migrating from one software to another is high. Many reasons have been adduced, ranging from inability to maintain the

software, level of staff competence, vendor inability, weak Internet connectivity, high cost of maintaining VSAT/fibre optics (Internet connectivity), the software itself et cetera. A lot of funds had gone down the drains for many libraries are forced to start all over again or migrate to better ones.

However, it has been discovered that there are some organisations in the country which can assist these institutions to alleviate the problems associated with these automation programmes. If the efforts of these organisations are adequately harnessed and a very good structure that can facilitate linkages with these organisations put in place. Such structure can be anchored on to the shoulders of Librarians Registration Council of Nigerian, Nigeria Library Association et cetera. These institutions can even influence the government to mandate these organisations to place automation of libraries as aspect of its mandate.

Nigerian libraries automation projects could also benefit from structures such as we have in the NSF, SSI and the Google Book Search above. This is not to say that the libraries will be passive recipient of these benefits. They must also show a strong commitment to accept and continue to support the project. Such could be in terms of a good number of qualified computer literate staff and an element of some financial participation. In addition, this paper can be a starting point on how further collaborations can be established with these agencies and how their services can be made more relevant to the library automation needs. Such would be a welcome innovation to finding solutions to the lingering problem of improving library services in Nigeria i. e. its automation programmes where the ability to link the users to vast information resources resides.

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