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Can Use of Metadata to Locate Digitized Resources Supplant Cataloguing and the Catalogue?

- Dr. M. O. Okoye.

Staff Turnover in a Nigerian University of Technology Library, 1981-1999

- Samuel Adewale Ogunrombi

Running and Maintaining an ICT-Based Library in a Developing Economy: The Covenant University Experience.

- Nsiko, Christopher; Ilo, Promise and Osayande Odaro


- Sylvester, Ozioma Anie

The Gender Factor in Use of Libraries in Nigerian Polytechnics.

- Dr. (Mrs) M. U. Ugboma and Nelson Edewor

Information Delivery to Farmers through Audio-Visual Resources and Information and Communication Technology (ICT).

- Ihorah, H.C; Nwofor, F.A; and Onwudinjo, O.T.U.

Information and Communication Technology: A Propeller to Effective Reference Service Delivery in Libraries.

- Utor, J. S.; Agwu, Uju M.; and Gbaden Terlumun.


- Oduagwu, Matilda C. and Emuchay Blessing.

Information and Communication Technology (ICT) as a Research Tool in Polytechnic Libraries.

- Blessing C. Onu and Angela Chioma Uche

Facilities and Services for Effective Utilization of Library Resources by Undergraduates of Nigerian Universities.

- Justin Nwozi Ekere

Use of Digital Frontiers for Library and Information Cooperation and Cultural Integration.

- Dr. M.O. Okoye and E.D. Chigbu.
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Enugu State University of Science & Technology Library, PMB, 01660
Enugu, Enugu State.
Tel.: 08052400186, 08038500275.
E-mail: geasogwa@yahoo.com

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EDITORIAL

In this issue a variety topics are covered. However, most of the articles slant towards issues on Information and Communication Technology (ICT) and information delivery in libraries.

The lead article by Dr. Okoye examines digitization. It attempts to find out whether digitization and its metadata will supplant cataloguing and the catalogues in libraries. This is followed by Ogunromobi’s article which examines staff turnover in Babakar Tafawa Balewa University (ATBU) library. The study reveals high rate of turnover in the library.

Developing an ICT-based library is one of the greatest desires of every library. Nkiko, Ilo and Osayande present the Covenant University Centre for Learning and Resources’ experiences. The paper highlights the superiority of ICT-based library over its manual counterparts. They present this as a model to encourage other libraries. Sylvester’s work follows. It studies the problems of the use of ICT facilities in information and retrieval by the National Youth Service Corps (NYSC) management in Nigeria.

Dr. Ughoma and Edewor’s paper considers the gender factor in the use of library services in Nigeria Polytechnic libraries. Their focus is on three Polytechnics in Delta State of Nigeria. The next paper by Ilorah, Nwofor and Onwudinjo direct our attention to the information needs and the roles of libraries and other information to the farmers through information and communication technologies (ICTs).

Utor, Agwuna and Gbaden in their own paper argues that the method of reference services delivery of the manual libraries has been slow and uncoordinated. The paper asserts that ICT is a propeller to the effective reference services delivery in libraries. The next paper by Oduagwu and Emuchay focuses on the imperativeness of user education programme in the tertiary institutions.

Onu and Uche present a conceptual overview of ICT and the components as research tools in libraries. The features of WAP-aided handsets as ICT research tools are also highlighted. In her own article Ekere laments the under-utilization of resources in university libraries especially in this era of rapid advances in most areas of knowledge.

The last paper by Dr. Okoye and Chigbu assesses the role of digital frontiers in library and information cooperation and cultural integration in South East Universities of Nigeria.

G. E. Asogwa
Editor-in-Chief
08038500275•08052400186
geasogwa@yahoo.com
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CAN USE OF METADATA TO LOCATE DIGITIZED RESOURCES SUPPLANT CATALOGING AND THE CATALOGUE?

BY

DR. M. O. OKOYE.

Abstract

The paper discusses digitization and why libraries digitize their records. Access on preservation of resources are discussed in relation to digitization. Permanence an authority of intellectual output are examined with respect to digitization. Also discussed is whether immunity to copyright contravention could be guaranteed by digitization. Sources between metadata and the library catalogue are discussed. Access to digitized resources through the metadata is compared with access to shelved resources through the library catalogue. Ways by which the library catalogue could be improved to meet the challenges of contemporary document delivery are highlighted.

Keywords: Digitization Access Preservation Permanence Intellectual output Authenticity Copyright contravention Metadata Catalogue and Cataloguing

Introduction

A very important function of any library is the ability to facilitate quick access to its holdings. During the analog era, access depended on the efficiency of the library's catalogue. Today, there is a paradigm shift in the practice of providing access. This shift is ushered in by the digital environment. Digitization has proved to be possible for nearly every format and medium presently held by libraries (Smith, 1999).

*DR. M. O. OKOYE works with the Nnamdi Azikiwe Library, University of Nigeria, Nsukka.
Digitization has been variously defined. It is the conversion of analog signals to machine-readable formats. It is also defined as "representing an object, image, document or a signal (usually, an analog signal) by a discrete set of points (Wikipedia, 2008); many universities in the developed countries such as Syracuse University, Harvard University library, University of Massachusetts Medical school Library and Columbia University have digitized their library holdings (Smith, 1999). It is also gaining momentum in Nigeria, to the extent that University libraries of Jos, Obafemi Awolowo and Ahmadu Bello University have digitized their theses and dissertations (Bozino, 2006). The University of Nigeria, Nsukka is currently undergoing digitization of theses, dissertations, publications and curriculum vitae of staff.

Collaborative digitization projects are also possible. Two of the earliest projects were those of Colorado and NC\'s CHO (North Carolina Exploring Cultural Heritage Online) based at the State Library of North Carolina, (Wikipedia, 2008). There is also an ongoing massive digitization project involving Google and Research Libraries. Participants in the programme are the libraries of Harvard, Stanford, the University of Michigan, Oxford University, as well as the New York Public Library (NYPL) (Quinn, 2008).

Digitization is capital intensive and certain technical decisions have to be taken. Such decisions relate to whether the process should be outsourced or done in-house. If in-house option is chosen, then decisions are taken on the software and equipment for scanning and creating paper capture and searchable texts using optical character recognition (OCR) technology, as well as what metadata to engage and how to re-use data from the library's OPAC (Piron, 2008). It is less expensive to scan from single sheets than from bound volumes. Small sheets are less expensive to scan than over-sized ones. Items in good condition are less costly to process than those that have deteriorated and thus require special handling. Cost consideration should also accommodate staff development/skills acquisition for the following categories of staff.

1. Staff who will man the scanners
2. The Bookmakers
3. The quality assurance personnel (for instance, the librarians) who will append their digital signatures to digitized resources.
4. The technical staff that will upload such digitized data to the Internet.
Waters (2003) identified three cost barriers to digitization which must be considered in order to jump-start the dynamics of cost-saving. They include:

1. **Technology and Workflow Costs:**
   - This involves understanding and adoption of good practices from any other big digitization project. In addition, technology development paths that result in lower costs should be identified for various formats including those of capture and OCR.

2. **Intellectual Property Costs:**
   - Copyright law should be appreciated. A memorandum of understanding could be reached among the institution, users and publishers.

3. **Institutional Costs and Variables**
   - There is a need for institutions to define and defend their choices related to digitization in terms of their institutional mission of teaching and research.
   - For any library that gets financially stuck in the midst of its digitization project, it is consulting to note that some foundations are particularly interested in electronic products and specialized scholarly initiatives may attract their support (Hazen, D. et al., 1998).

   Digitization is accepted by librarians as a welcome development. However, the fact that it is one of the challenges to cataloguing and the catalogue is not appreciated by many librarians especially in developing countries. It is against this background that the author finds the need for identifying areas where it may compound problems for the library catalogue and possibly make cataloguing irrelevant.

In the succeeding pages, the following questions will be answered:

A. **Why Digitize? The Issues that will be dealt with are whether Digitization will Guarantee:**

   1) Access to resources?
   2) Preservation of resources?
   3) Permanence and authenticity of intellectual output?
   4) Immunity to copyright contravention.
B. Can use of Metadata to Locate Digitized Resources Supplant Cataloguing and the Catalogue?

This issue will be discussed under five headings as follows:

(i) Is there any difference between metadata record and the catalogue?
(ii) Do digitized resources have more access through their metadata record than shelved resources have through their catalogue?
(iii) Are catalogues and cataloguing endangered species?
(iv) Can access through the catalogue be improved?
(v) Can digitization supplant cataloguing?

These issues will be addressed in the subsequent sections.

A. Why Digitize?

Digitization may allow libraries to manage collections and provide services more effectively or to provide traditional services such as copying or interlibrary loan at lower costs or at less risk to collections (Hazen et al., 1998). Libraries may also wish to showcase research, teaching and scholarship of their institutions. It could also be to promote open access to research and make available an easy way for faculty and researchers to promote and distribute their work. Generation of visibility and interest in the library’s holdings can be achieved. Publishers also benefit immensely as in the case of the Google project where as part of the bargain, Google “would connect to purchasing alternatives-links to online booksellers” (Marcum, 2007). The gesture is expected to boost promotion and sales of books/journals to publishers. Digitization provides significantly reduced amount of storage space and easier access points.

(i) Digitization and Access

One of the core reasons for digitization of resources is the belief that it provides easier access. Digital files can make the remote accessible and the hard to see, visible. Digital surrogates can bring together research materials that are widely scattered about the globe, allowing viewers to conflate collections and compare items that can be examined side by side solely by virtue of digital representation (Smith, 1999). The issue of digitized resources having more access through the
Metadata than catalogues has been affirmed by digital librarians. Marcum (2007) observed that "digital librarians are amazed at the extent to which some materials, once put online, gets visited more than it ever did on library shelves. More and more are being made accessible on the web, where it is discoverable, and in many cases searchable, not through library catalogues but through electronic search boxes." (Marcum, 2007 http://www.guild.2910.org/future.html) Google has also launched a massive digitization project with a mission "to organize the world's information and make it universally accessible and useful" (Quint, 2008). The participating librarians and their employers were elated and were making access possible. The President of the University of Michigan believed passionately that such universal access to the world's printed treasures would be mission critical for today's great public university. The easy access to reference surrogates that provide a great deal of the information contained in the original even if at fairly low resolution is a boon to researchers when developing efficient and effective research strategies (Smith, 1999).

(ii) Can Digitization Guarantee Preservation of Resources?

Digitization has always been accepted as a medium for preservation of resources. However, Smith (1999) has challenged the preservation propriety of digitized resources. He states that computer files require hardware and software, both of which are developed in often proprietary forms that quickly become obsolete rendering information on them inaccessible. Retrieval of information encoded in an obsolete file format and stored on an obsolete medium (such as 8 inch floppy diskette) is extremely expensive and labour intensive, when at all possible. He also declared that often the medium on which digital information is recorded is itself inherently unstable. He suggested that the advantages of scanning for access purposes could be combined with those of preservation microfilming by using the model of hybrid conversion, that is, creating preservation-standard microfilming and scanning it for digital access purposes or conversely beginning with high quality scans of the original and creating computer-output microfilm (COM.) for preservation purposes.

He believed that microfilms are a medium for preservation of resources. According to him microfilms are projected to last several centuries when made on silver halides film and kept in a stable environment. It requires only a lens and a light to read. (Smith, 1999).
Does Digitization Guarantee Permanence and Authenticity of Intellectual Output?

By its very nature, information in digital form is not fixed in the way that texts printed on a paper are. They are not fixed in form except when a hard copy is printed out. The information can be easily changed and without trace of erasures or emendations. Flexibility is one of the chief assets of digital information. “It is easy to edit, to reformat and to commit to print in a variety of iterations without the effort required to produce a hard copy from a typewriter. It is easy to summon up quickly any number of variations of value, shape and placement (Smith, 1999).”

One can make a large number of identical copies from a digital file. From the perspective of a library that endeavours to collect a text that is final and definitive, it can complicate things considerably (Smith, 1999). Because the digital text is flexible and can be easily changed, the matter of permanence and authenticity of intellectual output become conceptually problematic. Libraries do not only safeguard information but they also provide evidence of one type or another of the works provenance which goes towards establishing the authenticity of that work. Digitized resources do not lend themselves to such fool-proof evidences.

However, if the resource is in portable document format (PDF), the document cannot be edited or have any part of it changed. In this instance, digitization can guarantee permanence and authenticity of intellectual output.

Digitization and Immunity to Copyright Contravention.

Digitization projects are undertaken with an understanding of ownership rights and with full recognition that permission is essential to cover materials that are not in public domain. Negotiation with copyright holder often entails fees and many of the collections that may be of the highest research and teaching value will not be digitized for web access because of the strictures of copyright that may apply. For this reason library web sites these days contain a disproportionate amount of public domain materials, which distort the nature of the source base for research restricted to the web (Smith, 1999).

The notion on the part of many young studies is that if it is not on the web then it must not exist has the effect of orphaning the vast majority of information resources especially those that are not in the public domain. However, there may be instances where the copyright holder may permit digitization of his resources without...
demanding any fee. For instance, the alumni of the University of Massachusetts Medical School gave permission for their dissertations to be digitized (Piorum, 2008). In Ahmadu Bello University Zaria, Nigeria, the issues of copyright were being worked out and only the abstracts of the theses/dissertations were being digitized (Bozimo, 2006). In University of Nigeria, Nsukka, the full text of theses/dissertations of postgraduate students, staff publications and curriculum vitae are being digitized. Initially, academic staff hesitated but when they realized the visibility and recognition their work would attract when uploaded to the Internet, they voluntarily submitted their resources and documents.

In the case of Google’s gigantic digitization project, Google had already planned how to contain the contingencies. Participating libraries would contribute only its public domain, non-copyrighted materials initially. Google hopes to meet the libraries copyright standards by undertaking the massive digitization project without any cost to the participating libraries, while the libraries would not receive any financial compensation from Google. Publishers were also relatively comfortable with the prospect of Google’s entry into their world, because their re-issued public domain works in print might take a hit. The publishers would also have their booklists digitized and promoted for free (Quint, 2008).

B. Can use of Metadata to Locate Digitized Resources
Supplant Cataloguing and the Catalogue?

This issue will be discussed under five headings as follows:

(i) Is there any difference between metadata record and the catalogue?
Metadata is structured data, which describes the characteristics of a resource. It shares many similar characteristics to the cataloguing that take place in libraries. A metadata record consists of a number of pre-defined elements representing specific attributes of a resource and each element can have one or more values (Taylor, 2007). An example of a simple metadata record includes:
* Element name/value
* Title – web catalogue
* Creator – Donija Mc. Auliffe
* Publisher – Univ. of Queensland Library
* Format – Text/html
* Relation – library website

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Key metadata elements supporting access to published documents include the originator of a work, its title, when and where it was published and the subject areas it covers. Where the information is issued in analog form, such as print material, additional metadata, such as location of the information e.g. call numbers are provided. Some of the most popular metadata schemes include:

1. Dublin core
2. AACR2 (Anglo American Cataloguing Rules, 2nd ed.)
3. GILS (Government information locator service)

The Dublin core metadata element set is a standard for cross domain information resources description. It provides a simple and standardized set of conventions for describing things online in ways that make them easier to find. Dublin core is widely used to describe digital materials such as video, sound, image, text and composite media like web pages.

The Dublin in the name refers to Dublin, Ohio, U.S. where the work originated from an invitational workshop hosted in 1995 by OCLC, a Library consortium that is based there. The “core” refers to the fact that the metadata element set is basic but expandable “core” list. (Wikipedia, 2008). From the foregoing, it could be said that metadata record describes and locates digitized online resources essentially and could possibly be used to describe and locate analog materials. The library catalogue on the other hand describes and locates materials on the shelves only.

(ii) Do Digitized Resources have more access through their Metadata Record than Shelved Resources have through their Catalogue?

Through digitization, bibliographic searching has become simplified. With the click of a button a researcher can pick full texts of public domain works from databases thereby gaining access with minimum time. Digitization has made many users to ignore library catalogues for full texts (Okojie, 2007). She stated that the use of the library catalogue is decreasing, and that even in more developed countries where information literacy is higher, research shows that users are turning away from the library catalogue. She cited Robert Aaron (2006) who quoted a survey reported in ARL Lib Qual study, 2004 to assess opinion about library catalogues in order to support her argument. The research stated the opinion of users as:
The library catalogue is widely viewed as being too difficult to use
Users want and expect Google-Like features, that is
(i) Browsing, not searching
(ii) Don’t care about consistency
(iii) Prefer to see everything in one place
(iv) Do not want to do heavy thinking before they can access information.
(v) More than 67% of university students and faculty get information daily from popular search engines.
(vi) Less than 40% use library web pages daily (less than 10% for undergraduates and the catalogue use is even smaller).

People will search for and use even poor information if it is easier to get than search the catalogue. (Culled from Okojie, 2007: 3-4).

Herrigan (2004) made a similar conclusion to the effect that “students and other researchers go to the internet first using Google and other search engines to search for information rather than the library catalogue”.

Okojie (2007) states that users are becoming frustrated with the limited information provided by the catalogue record and are pressing for a more robust retrieval system (Okojie, 2007: 10). Concerned with the Google’s mission statement which is “to organize the world’s information”, Marcum (2007), observed a paradigm shift with respect to the relevance and functionality of the catalogue. He envisioned a situation, which could make cataloguing an endangered species. He reeled out four critical questions facing cataloguers and by implication, the catalogue as follows:

1. If the commonly available books and journals are accessible online, should we consider the search engines the primary means of access to them?
2. Massive digitization radically changes the nature of local libraries. Does it make sense to devote local efforts to the cataloguing of unique materials only rather than the regular books and journals?
3. we have introduced our catalogue rules and the MARC format to libraries all over the world. How do we make massive changes without creating chaos?

4. Finally, should we proceed with AACR3 in the light of a much-changed environment? (Marcum, 2007).

(iv) Can the Catalogue be Improved?

Marcum (2007) was however optimistic of re-engineering cataloguing. His optimism was supported by Mann (2005) who believes that Google’s software fails especially “to retrieve desired keywords in contexts segregated from the appearance of the same words in irrelevant contexts.” He maintained that cataloguing and classification could provide the recognition mechanism that scholarship requires for systematic literature retrieval in book collections. Burke (2007) in her survey on the future of cataloguing believed that MARC, AACR2, LCSH etc. would still be the dominant framework and content standards for cataloguing in the foreseeable future provided that the envisaged catalogue would have enriched bibliographic metadata tools etc, akin to commercial sources such as Amazon.com and the Google.

(v) Will Digitization Supplant Cataloguing?

It is logical to contend that as long as there are analog materials like books and other print materials, catalogues and cataloguing will still be relevant. Moreover, Librarians have started cataloguing the web. Continued relevance of the catalogue is buttressed by the fact that Google’s keyword searching fails to map the taxonomies that alert researchers to unanticipated aspects of their subjects, fails to retrieve literature that uses keywords other than those the researcher can specify and it misses not only synonyms and variant phrases but also all relevant works in foreign languages (Mann, 2005, http://www.guild2911/searching.htm).

Conclusion

The paper has shown that use of metadata is complementing and filling the gaps created by using the catalogue access. Accesses to digitized resources are faster. When digitized resources are uploaded to the Internet, access to them becomes global and can be achieved with minimum time and effort. The paper has also shown that permanence and authenticity of intellectual output are not among the gains of digitization.
digitization except if the document is in PDF. It also shows that digitization is not a very durable medium for preservation of resources. Digitization does not also guarantee immunity to copyright contravention but memorandum of understanding could be reached between the digitizing institution and the copyright holder/s.

The paper also established the nuances between metadata and the catalogue. It also established that digitized materials have more access through its metadata record than shelved resources have through the catalogue. It observes that library catalogues need re-engineering/retooling to remain relevant. Finally the paper concludes that as long as analog resources exist, the use of metadata cannot supplant the catalogue. Catalogue and cataloguing are favoured by the fact that the content of the internet is now being catalogued.

Recommendation

Librarians should regard access and other gains, which are derivable from digitization of resources as healthy developments. Efforts should be made to digitize all library holdings in our universities. The library catalogue should be re-tooled to meet the challenges of contemporary document delivery.

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