

**Application of Information and Communication Technologies (ICTs) to Library Operations and Routines in Selected Nigerian Federal University Libraries**

by  
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**Abstract**

*Digital media have revolutionized information sources and advances in Information and Communication Technologies (ICTs) and have dramatically enhanced information provision. The process of library operations and routines has become very challenging and complex. Libraries as centres for learning, teaching and research can no longer cope with the use of traditional methods. To this end, the study examines the Application of Information and Communication technologies (ICTs) to Library Operations and Routines in Selected Nigerian Federal University Libraries. Survey research method was adopted for the study; six (6) academic libraries in Federal Universities in the six geo-political zones of Nigeria were selected for this study. Area or cluster probability sampling was used for this study. Questionnaire was instrument used for data collection. A total of 336 (92.3 %) copies of the questionnaire were returned duly completed and found usable for this study, Data were analysed descriptively, to further clarified the researchers interviewed one staff each from the selected academic libraries. The study found among others that ICT facilities are frequently applied in cataloguing and classification of information resources with a score of 250 (74%) and selection of information resources with a score of 244 (73%) while statistical records with the least score of 44%, computers was the most often used IC facilities in the library studied. The study concluded that digital media have revolutionized information resources and the advances in ICT have dramatically enhanced information provision not only in the selection, ordering, acquisition, processing, storage and retrieval of library information resources but also improved staff productivity. It is expected that the NFUL can fully utilize the benefit of ICT facilities, especially, the digitization of local contents, institutional repository and functioning websites. The challenges of ICT utilization in the libraries if not properly handled will reduce their potentials to achieve the goals and objectives of their parent institutions. The study recommended among others that, the NFUL should use Open-source library information management software and DSpace content management system and document management to manage the library.*

**Introduction**

Information and Communication Technology (ICT) has made significant impact in human endeavours, noteworthy and prominent areas and those of service deliveries such as banks, health, transportation, education and libraries. In the university environment, the library a major information providing system supports teaching, learning and research. Devchoudhary (2007) observed that ICT has influenced the traditional library services in the process of acquiring, processing, storing, retrieving and information delivery. Supporting the chain, Anunobi and Edoka (2010) reported that user expectations from any information providing system is to make resources available directly or remotely in real time and format notwithstanding. Library routines are the major activities done in the library through the divisions or unit, such as acquisition, processing, storing, disseminating and preservation of information resources among others. While library operations: are functions librarians carry out in the library on daily basis, such as selection, ordering, classification, cataloguing, charging and discharging of information resources in the various division of the library. The pertinence of undertaking study on

library routines and operations cannot be over emphasized. According to Aina (2004) using technologies on routines and operations peculiar to the library has improved efficiency in resource organization service delivery and dissemination of information making them effective and easy while at the same time eliminating repetitive and routine tasks in the library. Oketunji (2001) and Chesenga (2004) listed library routines in which ICT could be applied to include acquisition, cataloguing, circulation, serials control, selective dissemination of information services and preparation of management information.

**Statement of the problem**

Using ICT in libraries have presented remarkable changes in the ways daily operations and services were done traditionally, it has identified new and active role for librarians and facilitate speedy library operations, services, and access to and delivery of information (Mairaj and El-hadi, 2012). Today, physical location of libraries is less important as long as the information is accessible. Anunobi and Edoka (2010) noted that there are copious studies and opinion on the use of ICT facilities for library operation and routines in general. However to what

extent has ICT facilitate university libraries in Nigeria to fulfill their objectives and goals that brings on the library, what improvement has it on selection, processing and preservation of information resources? Therefore, the study intends to investigate the librarians opinion on the influences of ICT application on library operations and routines in selected Nigerian Federal University libraries.

#### **Objective of the study**

1. To identify library operations and routines performed with ICTs facilities in the selected Nigerian Federal University Libraries
2. To ascertain the areas of library operations and routines where ICTs facilities are use in the selected Nigerian Federal University Libraries
3. To find out which integrated library software use in enhancing library operations and routines in the selected Nigerian Federal University Libraries

#### **Significance of the Study**

It is expected that the result of the study will encourage the university library management to provide the necessary and adequate ICT facilities to enhance library operations and routines in the libraries. Anticipated that academic libraries that do not apply ICT to library operations and routines identify which ICT facilities they can use and strategize to operate optimally. For libraries already utilizing ICT facilities for various operations and routines could explore areas reported in the study to be effective and efficient in their operations.

#### **Literature Review**

This paper review literature on the library operation and routines performed with ICTs, areas of library operations and routines where ICTs facilities are use and integrated library software use in enhancing library operations and routines in university libraries. Libraries in the third world including Nigeria are gradually but steadily converting from manual to computerised routines. The benefit of the automated or uses of ICT in a library system are both self evident and overwhelming (Nwalo, 2005). This library operations and routines are the activities the librarians do on daily basis or major functions, such as selection, ordering, cataloguing and classification of information resources etc. Okolo in Emojorho (2011) opines that, in this age, the library needs ICT in order to give efficient services to its users. Not only because of its speed of its operation is high, the

volume of its output is correspondingly large, thereby enhancing information delivery and the overall performance of library services. To aid in the challenging task of building an appropriately balanced collection that meets the needs of the user community Bluh and Hepfer, (2006) reported that selection of library information resources is the heart of the resource development process. It builds the library's collection for a particular user skill and knowledge that are dependent on the right tools facilitate selecting appropriate library materials and sources that meet the needs of the community.

The acquisition of new items for library information resources is governed principally by an acquisition policy. Ezeani (2010) noted differences in acquisition policy but reported that regardless of type of library the following characterize/describe acquisition policy:

- a. the total level of resources available for the library service as a whole is slated;
- b. priorities for spending are agreed;
- c. the total budget is then broken down across the various budget headings, e.g.: books, journals, and other resources in other formats such as DVDs; and
- d. budget holders and key functionaries such as Heads of Department and Deans of Faculty as obtained in tertiary institutions are informed of their budget allocation and that acquisitions may proceed.

#### **Benefit Derivable with the Application of ICT on Library Operations and Routines**

The automated system helps to facilitate the process of acquisition with regard to ordering, receipting and invoicing. The system then will allow the acquisitions process to run, using its reporting systems and order transmission. Barton & Waters (2004) noted that with ICT facilities, library patrons need to use keywords to search for resources and their various locations in the library. With the Internet, it is possible to search for catalogues of other libraries remotely. This is far better than the manual system of surfing through card catalogues of materials that can only take place within a library. In line with this, Adebisi (2009) observed that from the user's point of view the cataloguing module of the integrated library software system is the most powerful and useful part of the library. The advantages of automated catalogues are multifarious. They include sophisticated searching of the library stock and linked to the circulation control system that swiftly notify a borrower that the library holds a

particular item, he/she can also see its loan status at the time, that is if an item is loaned out and when it would be returned. This also gives the library absolute control to place a hold on it or immediately require its returns depending on the urgency and number of patrons demanding for its use. The circulation section involves core duties such as issuing, renewing resources, reserving items and charging and discharging of books. In addition, charges and fines are also imposed on clients who have overdue books. These tasks have greatly been made easier by the use of ICTs. Ezeani (2010) noted that borrowers can carry out self-issue over the Internet in certain libraries. The ILS system checks the status of the borrower to ascertain if lending limits have been reached. The borrower automatically is made to see which other items they have on loan. If a requested book is damaged and is out of circulation, this is often revealed by the computer and the patrons are further provided the opportunity to reserve the desired item on line. Data provided by the circulation control module of the automated management system can make a significant contribution to the successful management of stock. When used properly, the system can provide data on usage for managers to support their decisions in areas such as stock selection policy, opening hours, staffing levels, distribution of stock and information for statutory and local performance indicators. In addition, overdue notices are automatically generated and amount to be collected immediately known. The library at a glance can decipher how much is realised from such payments. This is also time-saving and better than the manual sorting of overdue cards. Building Institutional Repositories is a new task which librarians are entrusted to do in the digital era aimed at overturning the rampant deterioration of print information resources (Barton & Waters 2004). Deterioration of information resources in Nigerian university libraries has caused great loss on information resources. Deterioration is caused by natural and human factors. The natural factors comprise climatic and environmental, while human factor include theft, pilferage, mutilation wrong shelving and marking of resources especially the print materials. Concerted efforts and commitment to transferring, migrating, conversion, storage, handling and retrieval of resources have been reported to be

done without serious hitches caused by natural and human factor using ICTs. This has affected operations and routines in the library.

#### **Research Methodology**

Survey research method was adopted for the study, six (6) academic libraries in federal universities in the six geo-political zones of Nigeria were selected for this study, they libraries comprise Kashim Ibrahim Library, Ahmadu Bello University, Zaria, Kaduna State; University of Ilorin Library, Kwara State; Nnamdi Azikiwe Library, University of Nigeria, Nsukka, Enugu State; University of Lagos Library, Lagos State; University of Uyo Library, Akwa Ibom State and Ramat Library, University of Maiduguri, Borno State. However, the subjects of the study were the staff of Resources Development Division (RDD) formally Collection Development Unit, Resources Processing Division (RPD), formally Cataloguing and Classification Unit, Customer Services Division (CSD) Circulation Unit and Information, Communication Technology Division, formally Media Unit. Area or cluster probability sampling was used for this study because every member of the population has an equal and independent chance of being a sample. Ndagi (1999) noted that, researchers could sample area of cluster (the entire university library) or the individual elements within the clusters (I. e any section or unit of the library). Questionnaire was instrument used for data collection. Out of the 364 copies of the questionnaire distributed to the respondents, a total of 336 (92.3 %) copies were returned duly completed and found usable for this study, analyses and discusses of data collected for this study are frequencies and percentages. To further clarification the researchers interviewed one staff each from the selected academic libraries.

#### **ANALYSIS AND DISCUSSIONS**

##### **Library operations and routines performed with ICTs in the federal university libraries studied**

The researcher requested the respondents to indicate their opinions on where ICT facilities are applied in the library operations and routines. Lists of relevant library operations and routines were provided for them to choose. Their responses are shown in Table 1 and Fig. 1

**Table 1** librarians' opinions on library operations and routines performed with ICTs in the federal university libraries studied

Librarians' opinions on the type of library operations and routines	Institution												Total		
	ABU		UNI		UNN		UNI		UNI		UNI		F	%	Mean
	F	%	F	%	F	%	F	%	F	%	F	%			
Selection of library resources	4	1	2	7	3	1	5	1	6	1	2	7	244	7	.7262
Ordering of information resources	3	1	1	4	2	7	4	1	5	1	1	4	187	5	.5547
Use of publisher catalogue	4	1	2	7	3	9	5	1	5	1	2	6	231	6	.6875
Purchasing of information resources	4	1	1	5	2	8	4	1	5	1	1	4	206	6	.6131
Payment for information resources	3	1	1	3	1	6	4	1	4	1	8	2	159	4	.4732
Cataloguing /classification of information resources	5	1	2	7	3	1	5	1	6	1	2	7	250	7	.7440
Charging and discharging of information resources	4	1	1	4	2	7	4	1	5	1	1	4	191	5	.5685
Library information resources statistics records	3	1	8	2	1	5	3	1	4	1	7	2	147	4	.4358
Marketing of library and information products and services	3	1	1	4	3	1	4	1	4	1	1	4	189	5	.5625
Registration of library users	4	1	2	6	3	1	4	1	4	1	1	5	206	6	.6131
Library Staff/Students daily statistic records	4	1	1	5	2	7	4	1	5	1	1	4	194	5	.5774
Entrance/ exit to the library security devices	3	1	1	3	2	6	4	1	4	1	9	3	161	4	.4792
Fire and smoke detection facilities	3	1	9	3	1	5	3	1	4	1	7	2	149	4	.4435
Communication between library staff	3	1	1	3	1	6	3	1	4	1	1	3	151	4	.4494
Surveillance of information resources on the shelves	3	1	1	4	2	7	4	1	4	1	1	4	173	5	.5149

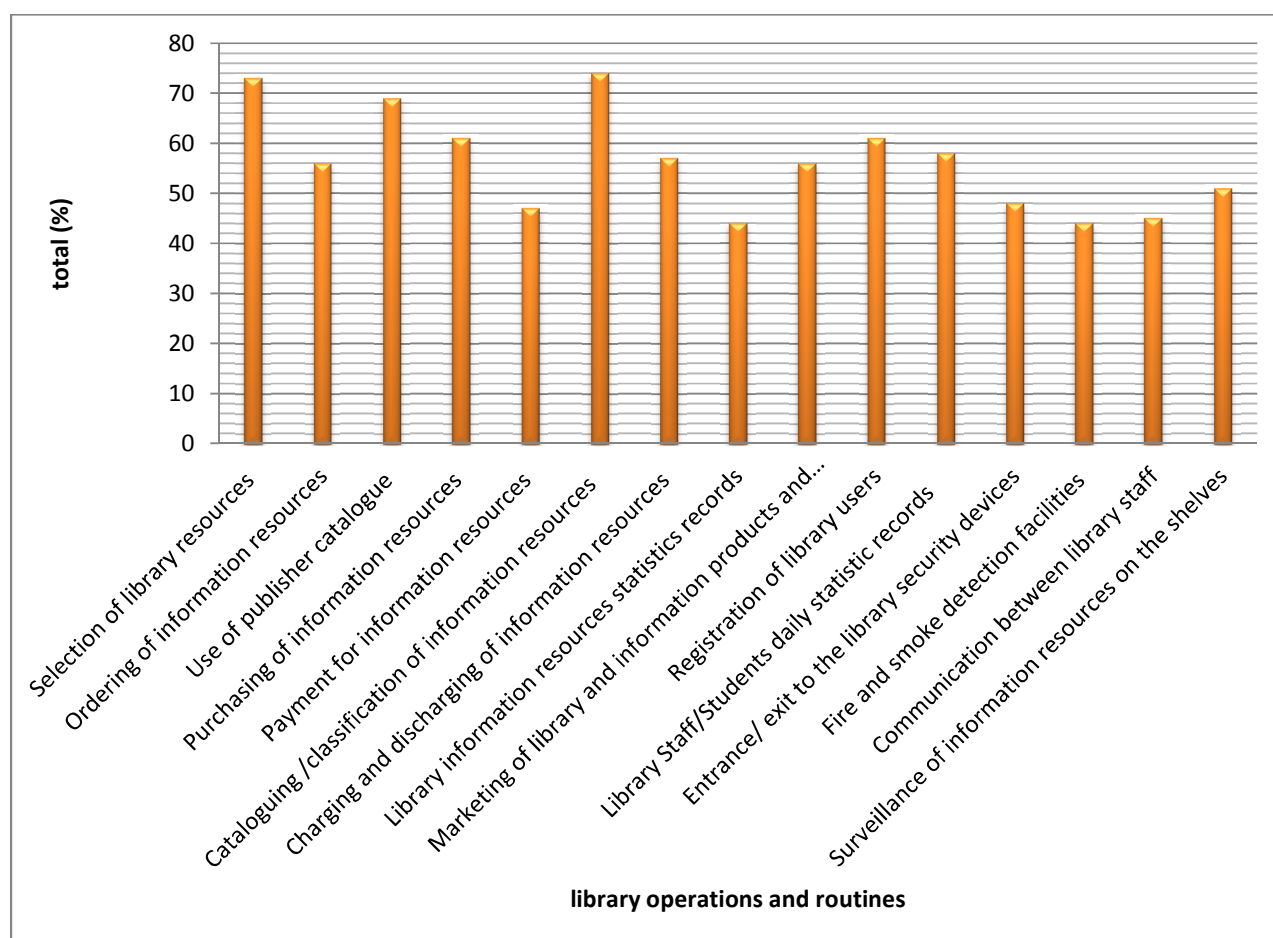


Fig. 1 Librarians' opinions on library operations and routines performed with ICTs in the federal university libraries studied

Table 2 ICT facilities utilisation for library operations and routines in the federal university libraries studied

ICT facilities	Extent of library ICT application										Mean
	Very Often		Often		Undecided		Rarely often		Not often		
	F	%	F	%	F	%	F	%	F	%	
Scanners	118	35.1	75	22.3	50	14.9	37	11.0	56	16.7	3.4256
Computers	232	69.0	53	15.8	27	8.0	2	0.6	22	6.5	4.3065
DVD	90	26.8	99	29.5	52	15.5	25	7.4	70	20.8	3.3393
CD	93	27.7	93	27.7	55	16.4	34	10.1	61	18.2	3.2887
Digital cameras	67	19.9	88	26.2	77	22.9	37	11.0	67	19.9	2.9613
Barcode sensors or readers	86	25.6	71	21.1	87	25.9	36	10.7	56	16.7	2.9405
Telephones	132	39.3	83	24.7	66	19.6	19	5.7	36	10.7	3.4643
Internet facilities	184	54.8	65	19.3	36	10.7	14	4.2	37	11.0	3.9643
Memory card	113	33.6	80	23.8	65	19.3	26	7.7	52	15.5	3.3363
Printers	143	42.6	80	23.8	56	16.7	33	9.8	24	7.1	3.5417

Table 1 and Fig.1 above indicate the opinions of respondents on the library operations and routines that ICT facilities are frequently applied in cataloguing and classification of information resources with a score of 250 (74%) followed by selection of information resources which scored 244 (73%). Library information resources statistic records have the least frequency of 147 (44%). This may be because many libraries still use manual system of statistical record and ICT has not been applied in such operations and routines of the libraries. The respondents were further required to indicate how often the ICT facilities are utilised to achieve the operations and routines for information resources management in Table 2. A list of ICT facilities were provided for the respondents, using the likert scale of measurement: very often, often, undecided, rarely often and not often to indicate their opinions. Table 2 below summarises their responses.

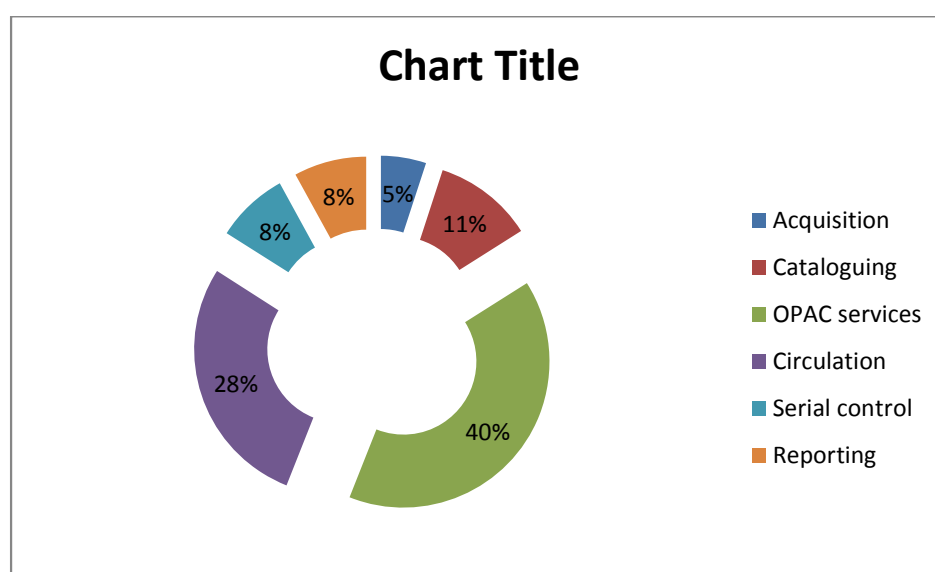
Table 2 above shows the responses of the respondents on the extent of the utilisation of ICT facilities in libraries studied on library operations and routines. It indicates that computers are often utilised with a mean score of 4.3065 and Internet facilities have the second highest mean score of 3.9643. This is because computers and Internet facilities work together. The least of the ICTs utilisation for library operations and routines in the libraries studied is the barcode sensors or readers. Barcode readers are only used in converting retrospective bibliographic information to the library OPAC in the libraries studied and none of libraries studied utilise this ICT for discharging of information resources in their libraries. Information and Communication Technology has been found to be applied to all facets of library operations and routines. Library automation, information super highway etc. are the languages of the 21<sup>st</sup> century. Zaid (2004) noted that the use of ICT especially in libraries cannot be over-emphasized because an automated library has the

potentials for satisfying library patrons' needs beyond the capabilities of the manual system. In order to achieve this, the researcher asked the respondents to indicate which integrated library software their library was using at the time of the study; their responses were not cleared since many indicated different ILS. Therefore the researcher interviewed the research assistants' from the federal university libraries studied, if the libraries studied were using any Integrated Library Software (ILS) to manage their information resources. A list of commonly used ILS in the Nigerian libraries was drawn for the respondents to indicate which of them is in use in the respective libraries. The summary of the responses revealed that Nnamdi Azikiwe Library, University of Ilorin Library and University of Uyo Library use KOHA ILS for the management of their information resources. Kashim Ibrahim Library (ABU) uses Virtua, while the University of Lagos Library uses Millennium ILS to manage their library operations and routines. Ramat Library (UNI MAID) is yet to apply any ILS to manage its library operations and routines at the time of this studied. Surprisingly, none of the libraries studied uses X-LIB the Nigerian indigenous ILS developed by the Raw Materials Research and Development Council (RMRDC). It was also revealed that KOHA is Open Source library software where subscription is free. It was discovered that the libraries which opted for Open Source Software (OSS) do so due to financial constraints. This agrees with the study of Imo and Igbo (2011) who noted that more than 75% of the university libraries in Nigeria have used more than one Integrated Library Software in their automation project and have changed them averagely within five years of use.

The respondents were asked to indicate which modules their ILS can perform. Lists of possible ILS modules were provided for them to tick from. Their responses are shown in Table 3.

**Table 3: librarians opinions on the use of ILS modules to library operations and routines in the management of library information resources**

Library operations and routines	Institution												Total	
	ABU		UNI ILO		UNN		UNIUYO		UNI G		UNI MAID			
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Acquisition	4	1	2	1	0	0	4	1	4	1	-	-	14	5
Cataloguing	3	1	5	1	6	2	10	3	8	2	-	-	32	11
OPAC services	30	9	10	3	30	9	24	7	25	7	-	-	119	40
Circulation	22	7	6	2	6	2	20	6	30	9	-	-	84	28
Serial control	0	0	7	2	6	2	6	2	6	2	-	-	25	8
Reporting	5	1	9	3	0	0	4	1	6	2	-	-	25	8



**Fig. 5: ILS applications to library operations and routines in the management of library information resources**

Table 3 and Fig. 2 above show the library operations and routines in which ILS are applied. It was discovered that ILS is being applied in the provision of OPAC services with the score of 115 (42.4%) and circulation with a score of 81 (29.9%). Library acquisition has the least response with the score of 7 (2.6%). From the interview with some staff of the libraries studied, the researcher discovered that acquisition module of the ILS is rarely used due to lack of regular internet connectivity and the staff inability to acquire information resources online. OPAC and circulation modules of the ILS are partially utilised because the libraries have LAN network but have challenges of internet connectivity, otherwise library client, can lend or put book on hold in the comfort of their homes before coming to the library.

**Conclusion and recommendations**

Based on the findings of this study, it could be concluded that Information and Communication Technologies (ICTs) have facilitated the library operations and routines especially the areas of the selection, ordering acquisition, processing, storage and retrieval of library information resources; Despite the fact that the university libraries are owned and funded by the Federal Government of Nigeria, they have different types of ICT facilities available and used for the library operations and routines. However, none of the libraries studied uses X-LIB the Nigerian indigenous ILS developed by the Raw Materials Research and Development Council (RMRDC), and only OPAC services and Circulation modules were used by the university libraries studied. It is expected that the Nigerian federal university libraries can fully utilise the benefits of ICT facilities,



especially, the digitisation of local contents, institutional repository and functioning websites. The challenges to ICT utilisation in the libraries if not properly handled will reduce their potentials to achieve the goals and objectives of their parent institutions especially through the provision of current and relevant information resources that are necessary to sustain their learning, teaching, research, community services and functions. Arising from the findings and conclusion of this study, the following recommendations are made:

1. The university libraries should acquire relevant ICT facilities to enhance the library operations and routines and the Ministry of Education and universities management should increase their budget to libraries to enable them provide and maintain their ICT facilities.
2. With some of the long term ICT management challenges still facing the Nigerian federal university libraries studied, library should use Open-source library information management software to reduce cost of subscriptions and software maintenance; there is a need for ILS such as Koha, Greenstone and the use of cloud-based library management system such as Libramatic, Aura software and librarika. But most importantly development of Nigeria-based ILS.
3. To meet the need of library users in this technological age and making library information resources available, there is a need for open access repositories for scholarly and/or published digital content in Nigeria university libraries, DSpace content management system and document management system should be applied to library operations and routines. DSpace repository software is used as a long-term storage, access and preservation of digital content. The DSpace platform enables libraries to: capture and describe digital material using a submission workflow module or a variety of programmatic ingests options distribute an organisation's digital assets over the web through a search and retrieval system preserve digital assets over the long term.

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