Institutional Repositories: A survey of the State Aided Universities of West Bengal, Kolkata

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Abstract

The study attempts to examining the present situation of IRs in terms of their retrieval and searching facilities at the State aided Universities of West Bengal. Additionally, the information organization patterns and copyright management tools used in IRS are also inspected. All most all the IRs in this study is hosted on the D-Space platform, all of which are multidisciplinary. Majority of the IRs have materials Books Journals, thesis, Old documents and question papers as content. IRS has a moderate visibility and discoverability of their content in global context. Most of the IRs is maintained by Libraries only. Among the six only three has Copyright clearance information about their content, while others have no information related to Copyright issues of their contents, a matter to be further investigated and focused on the necessary policy framework. The IRs should also take initiative to make them visible globally.

1. INTRODUCTION

Institutional Repositories, often known as IRs, are created by university libraries with the intention of organizing, conserving, and distributing the material that is produced as intellectual communication within their respective academic communities. IRs are created with the intention of documenting all of the activities that take place inside the institution, as well as preserving, organizing, and disseminating the intellectual works that are produced by both students and professors in the form of research and instructional materials. Open-access institutional repositories have been beneficial to the academic institution because they have allowed it to broaden its profile and communicate scholarly information to a range of organizations, which in turn has increased awareness of the university's research and education.

Institutional advantages from IRs include increased visibility, prestige, and public value, as well as research knowledge management. This is in addition to the fact that IRs has the potential to significantly benefit individual researchers by giving priority to their research discoveries and improving the visibility and effect of their work (Ukwoma & Dike 2019). It is possible that interoperable IRs will be able to speed up changes in academic communication and give open access to a bigger quantity of scholarly information if they are able to archive content from several archives simultaneously. A great number of authors have provided broad research on evaluations of institutional repositories in developing countries such as India and the benefits they give. Fernandez (2010) provided a report on the developments that have taken place in IRs at the Indian Institute of Science, the Indian Statistical Institute, and INFLIBNET (using the appropriate software, DSpace and ePrints, respectively). (Anenene, Alegbeleye, & Oyewole 2020) Authors from these and other similar institutions have also authored papers on institutional repositories as case studies in order to emphasize the research output that they have produced. One example is: The DSpace-based creation of an IR at the Indian Institute of Technology, Kharagpur.

The foundation of IRs is the rising tendency among faculty members to post their research output online, frequently on their own websites but also on that of their institutions or in discipline repositories. This suggests that there is a growing desire for their work to be more widely seen and accessible. Universities can also gain from the increased visibility of their research outputs and the prestige that comes with it by using IRs to provide safe digital hosting and archiving services along with more efficient web distribution.

With the availability of modern ICT and by establishing the requisite information infrastructure, India has become an active provider to global open-access literature, a contribution virtually comparable to its flow of academic material through subscription based channels. The digitalization of centuries-old publications and rare materials is being carried out in different institutions across the sub-region to conserve this legacy and make objects available through networks of digital archives. Information workers in India are experimenting with open-source programs like ePrints, DSpace, and Greenstone. Universities in India have been producing research and development products such as

thesis, dissertations, project reports, course materials, pre-prints, and more for a number of years (Sarker 2022). A great deal of important information is concealed in them that are most likely not found in any public site. Unfortunately, without the proper mechanisms, these are unreachable. Because of the high cost of subscription to the source material in which they are published, even those materials that are finally published and available in print may still be inaccessible to the great majority of institutions. IRs are generally regarded as a means of raising exposure of research, particularly for poor nations, and facilitating access to research funded by public monies (S. Ammarukleart, 2023)

2. OBJECTIVE

Examining the present situation of state-aided university IRs and their retrieval and searching facilities is the main goal of this study. Additionally, the information organization patterns found in the IRs are examined. A search is conducted using the copyright management tools for IRS content. The Universities of West Bengal were the subject of this particular study. The three primary goals of this research are-

1. To determine the information organizing patterns of the IRs.
2. To assess the institutional repository's (IR) information's search ability.
3. To review the IRs' copyright policy.

3. SCOPE AND LIMITATIONS OF THE STUDY:

For the purpose of this investigation, the 'Banglaruchhoshiksha' website, which is the official website of the West Bengal government's Department of Higher Education (https://banglaruchchashiksha.wb.gov.in/university_campuses), was taken into consideration. For the purpose of data collection, the months of August and September in the year 2023 were utilized. IRs, which was only accessible across the campus and was not accessible over the internet, was not included in this coverage. In light of the fact that the major objective of the study is to investigate a variety of IR components of state-aided Universities in West Bengal as there is a requirement for more research on the numerous standards that are utilized in these IRs.

4. LITERATURE REVIEW

Institutional repositories are an integral component of the academic community, comprises of colleges, Universities etc. They are the most important component in enhancing the reputation of an organization. In order to investigate this notion of IRs, the SLR (systematic literature review) technique was utilized. This approach involves the discovery and collection of articles, the categorization and exclusion of articles and the methodical analysis and synthesis of papers that have been published related to Institutional repositories (IRs). Giesecke,2011)

The term "information society" refers to a society in which the generation, storage, preservation, and dissemination of information are ongoing processes, and in which information is considered valuable in all aspects of individuals' lives. While institutional repositories represent a small step toward the bigger aim of giving the relevant information to the appropriate person at the appropriate time, they are nonetheless an important step in the right direction. In the process of creating digital contents for an institution's institutional repositories, which are collections of these resources that are properly structured and controlled, the faculty, staff, and students of the institution all contribute to the contents. The collection, management, preservation, and dissemination of an institution's intellectual output in digital form, both inside and beyond the building, are the primary responsibilities of institutional repositories. In addition to providing a thorough list of Indian institutional repositories, the research also gives a description of the unique attributes and features that each repositories possess that make them important to their specific user base. Indian academics have a number of challenges when it comes to acquiring the essential resources for their work. These challenges include the deterioration of the primary source, the element of distance, and the absence of the source that is required (Language, 2016). This study is only available from the appropriate institutional repositories, which are the only source you can find. Despite the fact that a number of studies have been carried out on the establishment, technical features, growth, and development of Indian institutional repositories, there has been no attempt made to research the various kinds of documents that are stored in these

repositories. The purpose of this paper is to reflect an attempt in that direction. (Hassan, 2017)

The establishment of institutional repositories is an innovative strategy that enables academic institutions to disseminate digital content in a more expedient manner. The results of institutional research are preserved while also being made accessible to all users in a single location thanks to information retrieval. The study places an emphasis on the IRs of a number of institutions located in the Maharashtra region. Standard criteria, including subject matter, software, content, and language, are utilized in the evaluation of these matters (Kitchenham & Charters, 2018),

Adewumi, Adewole. (2010), when compared to other continents, Europe has the greatest rate of adoption and use of digital libraries, particularly among institutional repositories. Africa still has a long way to go before its residents have simple access to information resources (IRs) via ubiquitous channels such as mobile phones and portable computers, despite the continent's continual expansion, which went from 19 repositories in 2008 to 46 in January 2011. This article discusses the properties, structure, and layout of IR implementation, as well as the techniques that are used to implement it. Furthermore, it draws attention to interesting areas of investigation that African academics working in the field of digital libraries can explore in the future. In addition to this, it encourages the concept that research should be focused on subjects that will be of use to Africa. (Singarella , 2019),

Chawner, Kennan, & Jain (2020) in their article discussed IRs globally and their growth in India. This page covers major IR topics. It covers national and worldwide IR developments. This article also discusses important software used by IR teams worldwide. It covers the program's goal, definitions, content, use, features, design, advantages, critical components, issues, and challenges. Structured and regulated digital information generated by instructors, staff, and students is stored in information repositories. Local research outcomes are promoted by IR. The essay concludes that LIS professionals should be more aggressive and responsible in IR system creation and maintenance. Librarians are the IR system's focal point since they create and supply services.

Krishnamurthy (2021) argues that the institutional repository is a collective term for digital archives that may be owned and managed by individual departments or the whole university. The utilization of scholarly communication as a method for the collecting, storage, and distribution of knowledge has the potential to accelerate its advancement. The benefits that are offered to a variety of stakeholders as well as the components that are essential for an institutional repository are outlined in the article. In the course of the process of building the institutional repository, we dealt with the issues and challenges that occurred. The procedures that were carried out on a local and international scale in order to build institutional repositories were briefly examined. In addition to this, we discuss the significance of libraries to the successful implementation of the institutional repository. (Hashim, 2019),

Rebecca. (2015) described an in-depth examination of the principles of institutional repositories (IR) is presented in this paper. Topics that are covered include the definition of IR, its content, challenges, benefits, and the possibility that IR may develop into a service model. In what ways may intellectual resources (IR) facilitate, elevate, and strengthen the intellectual pursuits of an institution? The solution to that question is what it aims to provide. It also solves the concerns of the control of IR access that are connected to security. The major emphasis of this study was on determining the extent to which the research efforts of an institution are beneficial, contribute to the sharing and learning of information, and enhance the level of knowledge that exists inside the institution. The subscription fees that institutions must pay to access electronic journals, publications, services, databases, and portals are increasingly getting more costly. It is the job of the librarian to ensure that the cost of electronic items is kept at a minimum while simultaneously making them as accessible as feasible. The integration of all of the content that is now dispersed across the institution is the most effective method for making the library more helpful and to increase its visibility. It is possible that electronic information services may become accessible in the near future as a result of the rapid advancement of information technology. (Anaraki & Tavassoli-Farahi, 2022),

5.   METHODOLOGIES:

1. This study used an online survey approach.

2. The study's target group is the state-aided universities in West Bengal. The official website of the Department of Higher Education, Government of West Bengal, "Banglaruchhoshiksha" (https://banglaruchchashiksha.wb.gov.in/university_campuses) lists approximately thirty-one universities.

3. The data was gathered during the month of August and September 2023.

4. The website lists thirty-one state-aided universities.

5. The websites of every university under consideration are examined to determine their IRs.

6. Every possible IR was visited and its information contents were carefully examined. Its contents' searching and browsing capabilities, as well as the ways in which their results are displayed, are examined. In addition, other aspects are mentioned, including the platform or software utilized, indexing sources, and copyright search tools.

7. To determine the discoverability and visibility of the contents of the IRs, a search was conducted on each repository that was the subject of the research using various indexer and aggregator search interfaces.

8. Using statistical computations, the observed data were tallied in matrix format and examined for interpretation.

6. DATA ANALYSIS AND DISCUSSION

The survey reveals that among all the thirty one (31) Universities only six Universities have maintained Institutional repositories in their official web site.

The following table provides an exhaustive summary of the institutional repositories (IRs) that are handled by the institutions that receive governmental assistance in the state of West Bengal. In addition to the platforms and technologies that are utilized, it provides information on the names of the IRs, the web URLs of the IRs, and the years in which they were established. In 1857, Calcutta University was established, and it currently operates its very own digital library on its very own server. This allows the university to make a wide range of scholarly publications available directly from its

website. Other than Calcutta University, all the five Universities IRs are running on D-space software only.

By hosting IR@JU on the D-space platform, Jadavpur University, which was established in 1955, highlights the role it plays in archiving and distributing scholarly publications and instructional tools. In a manner comparable to this, North Bengal University, which was founded in 1981, makes use of D-space for its internal repository (IR). West Bengal State University, which was established in 2008, encourages the sharing of educational resources by utilizing Open Educational Resources (OER) through the WBSU OER Repository, which is located on the D-space platform. Presidency University has been working in collaboration with the National Digital Library of India (NDLI) at the Indian Institute of Technology Kharagpur (IIT Kharagpur) to provide access to academic publications through the Presidency University Repository

Table A. Status of Institutional Repositories of state aided Universities of W.B.

Sl. No	University Name	Website	Name of the IRs	Software/platforms Used
1	Calcutta University	http://www.caluniv.ac.in/	University Digital Library	Univ. own server
2	Jadavpur University	http://20.198.91.3:8080/jspui/	IR@JU	D-space
3	North Bengal University	https://ir.nbu.ac.in/	IR, University of north Bengal	D-space
4	Vidyasagar University	http://inet.vidyasagar.ac.in:8080/jspui/	Vidyasagar University digital repository	D-space
5	The West Bengal State University	http://wbsu.dspaces.org/	WBSU OER repository (Open Educational Resources)	D-space
6	Presidency University	http://www.presiuniv.ndl.iitkgp.ac.in/xmlui/	Presidency University Repository	D-space (maintained at NDLI, IIT KGP)

Table B. IRs indexed in global repository index

Sl. No	Universities	Open DOAR	ROAR	Both in OPEN DOAR and ROAR	Not in OPEN DOAR and ROAR
1	Calcutta University				
2	Jadavpur University				

3	North Bengal University				
4	Vidyasagar University				
5	West Bengal state University.				
6	Presidency University				

Table B provides a comprehensive review of the institutional repositories (IRs) of West Bengal's state-aided institutions, with a particular focus on the indexing status of these repositories in global repository indexes such as Open DOAR, (Directory of open access resources) ROAR (Repository of open access resources). It is found that there are significant variations in the visibility and identification of these IRs across the various platforms. Due to the fact that the IR of Calcutta University is noticeably absent from both Open DOAR and ROAR, it is probable that there are limits placed on its accessibility in official worldwide indices of open access repositories. Nevertheless, the Institutional Repository (IR) of Jadavpur University, West Bengal state University and Presidency University is acknowledged in important worldwide repository indexes and is not listed in both Open DOAR and ROAR, which implies that there may be challenges associated with conforming to worldwide rules for open access repositories. The fact that the institutional repositories (IRs) of Vidyasagar University and North Bengal University are indexed in both Open DOAR and ROAR is evidence of the proactive measures that both universities have taken to facilitate open access to academic literature. It is important to note that the table highlights the relevance of institutional repositories in terms of supporting open access to intellectual research. It is beneficial for universities to ensure that their institutional reviews (IRs) are in accordance with international standards and are appropriately indexed on respected platforms. This allows universities to expand their impact and reach throughout the whole academic community across the world.

6.1 Identification of the status of IRs with their information organizing pattern

Table C. showing the information contents in the IRs

University	Books (pub.by	Journals (pub. by univ.)	Thesis	Dissertations/research project report/	Preprints	Course materials/lecture notes	Video lectures	Question papers	Old rare Documents	Administrative documents	University Publications	Total no.of files/size of the IR

			article							
univ).										
Calcutt a Univ.										N.A.
Jadavp ur Univ										2470
North Bengal Univ.	23Only conten t pages	Acad emic resou rces 2031					609	459	Dept. Journ als-14 86	4608
Vidyasa gar Univ.	1257	286		60		113 6		3378	61	6206
W.B.Sta te Univ										447
Preside ncy Univ.		10	13					(old)\ 892	122	1038

Table C provides a comprehensive overview of the resources housed within the institutional repository (IRs) of the several state-aided universities in West Bengal. It focuses on the many document types that are selected to be kept in each university's institutional repository (IR). Periodicals, books, theses, dissertations, course materials, and other intellectual resources are some examples of these materials. The institutional repository (IR) of Calcutta University has a vast array of materials, such as books published by the university, magazines, theses, dissertations, and administrative documents. However, comprehensive details on the overall quantity of files or the size of the IR are not available (N.A.). The extensive collection found at Jadavpur University's repository, including preprints, course materials, lecture notes, video lectures, It stands out for having a massive collection (2470 files).

The information repository (IR) of North Bengal University contains 4608 files in total. Academic materials, departmental journals, and content pages of subscribed publications are all available in this repository. The Vidyasagar University repository has a total of 6206 files in it. This demonstrates the existence of a vast array of scholarly materials designed to facilitate many facets of education, research, and learning within the institution's community. There are only 447 files overall in West Bengal State

University's IR. There are 1038 files that make up the institutional repository (IR) of Presidency University. Thesis, dissertations, course materials, old records, and administrative communications are all included in these folders. This diverse collection in all the IRs showcases the university's efforts to increase its scholarly influence and educational outreach activities and reflects its initiatives to archive a wide range of intellectual and historical materials.

Table D. IRs are Maintained by:

Universities	Library	IT specialist	Other
Calcutta Univ.			
Jadavpur Univ.			
North-Bengal Univ.			
Vidyasagar Univ.			
WestBengalState Univ.			
Presidency Univ.			

Table E offers information on how institutional repositories (IRs) are managed at West Bengal's state-aided universities, whether the Library, IT professionals, or other institutions within the university are in charge of maintaining them. Since the library is in charge of Calcutta University's IR, it is clear that the library is essentially maintaining the university's collection of academic resources. The Library and IT specialist together operate the repository at Jadavpur University, demonstrating the cooperation effort between these two departments to support and sustain the IR's operations. North Bengal University's IR is also overseen by both the library and IT professionals. The library is in charge of maintaining Vidyasagar University, West Bengal State University and Presidency University. Table E shows how different state-aided institutions in West Bengal handle IR, with the library frequently taking the lead and receiving help from IT professionals in certain cases.

6.2 Evaluation of the searching facility of the information contents of the repository.

Table No. E Searching facility of the IRs:

University	Simple search	Advance	Browsing	Boolean logic	Auto suggestio	Latest Additio	Help	Personal	Feedback form

	search			n	n	page	account	
Calcutta University	(Rare documents)							
Jadavpur University								
North Bengal University								
Vidyasagar University								
W.B. State University								
Presidency University								

An overview of the searching tools accessible at West Bengal's state-aided universities' institutional repositories (IRs) is given in Table F. All the IRs has basic search facilities like 'simple search', 'advanced search', 'Browsing', and 'Boolean logic'. The IR at Calcutta University has additionally offers a special facility for searching rare papers in its archive to meet certain scholarly demands. This vast feature set guarantees that users may find academic resources within the repository and traverse it effectively. Similar to this, North Bengal University's IR has extensive search features. But no one have the facility of 'auto recommendation', 'Latest Addition' is not available in Presidency, West Bengal state and Culcutta University IRs. , 'Help page' is available in Jadavpur North Bengal and Vidyasagar University. Creation of 'Personal account' facility is available in all the IRs under study. 'Feedback form' is available in North Bengal, Vidyasagar and W.B. State University, highlighting user involvement in improving IR services and ongoing improvement. All these characteristics improve usability and accessibility, making it easier to do productive research and examine scholarly content.

6.3. Examination of the Copyright policy of the IRs

Table No. G. Type of access of IRs

Universities	Open /remote access	Close/campus access	Limited access	Special permission from	Access depending on

International Journal For Advanced Research
In Science & Technology
A peer reviewed international journal
www.ijarst.in
IJARST
ISSN: 2457-0362

				publisher/ author	the type of work
Calcutta University		(Rare documents)			
Jadavpur University (Main Campus)					
North Bengal University					
Vidyasagar University					
West Bengal State University					
Presidency University					

Depending on the kind of work, it divides the accessibility choices into categories such as Open/Remote access, Close/Campus access, Limited access, Special permission from publisher/author, and Access. The IR at Calcutta University provides both Close/Campus and Open/Remote access, mentioning rare documents that need close access. Additionally, it makes access to some content easier with special authorization from the publisher or author. Depending on the kind of work, the repository of Jadavpur University offers Access, Limited Access, and Open/Remote Access. Depending on the type of work, North Bengal University's IR provides both Open/Remote access. Depending on the nature of the task, Vidyasagar University's IR provides Open/Remote access and Access, with options for Limited access when needed. It also states that certain works may require special authorization from the publisher or author. Close/Campus access is the main feature offered by West Bengal State University's IR, showing a concentration on on-site access to its intellectual materials inside the university setting. In keeping with the university's mission to provide wide accessibility to its digital repository materials, Presidency University's IR allows Open/Remote access. These guidelines demonstrate an attempt to strike a compromise between open accessibility and restricted access when needed, guaranteeing that users may interact and use academic content productively while upholding copyright and intellectual property rights.

Table No. H. Information about copyright clearance

Universities	Yes	No	SHERPA
Calcutta University			

Jadavpur University			
North Bengal University			
Vidyasagar University			
West Bengal State University			
Presidency University			

The repository takes a diverse stance when handling copyright concerns pertaining to various kinds of content. Table H highlights the significance of copyright clearance procedures in the IRs of West Bengal's state-aided institutions. To maintain legal compliance, safeguard intellectual property rights, and support open access to academic works, it is essential to have clear rules and procedures in place for securing copyright permits. Universities that have copyright clearance procedures in place show initiative in controlling and properly sharing intellectual knowledge among the academic community. It sorts the universities into three groups: those connected to SHERPA, [Sherpa Romeo is an online resource that aggregates and analyses publisher open access policies from around the world and provides summaries of publisher copyright and open access archiving policies on a journal-by-journal basis.] those without, and those with copyright clearance arrangements. The information released by West Bengal State University, Vidyasagar, Jadavpur, and Universities' IR reflects attempts to guarantee compliance with copyright laws (By providing a Copyright related message) and regulations for the items available in its digital repository. There may be a codified copyright clearance process gap in Calcutta University's IR as it does not specifically address copyright clearance methods

7. Conclusion

The study attempts to examining the present situation of IRs in terms of their retrieval and searching facilities at the State aided Universities of West Bengal. Additionally, the information organization patterns and copyright management tools used in IRS are also inspected. The investigation found that among the thirty one (31) state aided Universities only six (6) has their declared IRs visible in their official website. All most all the IRs in this study is hosted on the DSpace platform, all of which are multidisciplinary. Majority of the IRs have materials Books Journals, thesis, Old documents and question papers as

content. Only one has video lecture and class notes in their content community. No IR has a preprint of publication as their information content.

The study shows that out of six only two IRs are found in ROAR/DOAR. Though the majority of IR are linked to the National Digital Library of India (NDLI). This suggests that these IRS has a moderate visibility and discoverability of their content in global context. Most of the IRs is maintained by Libraries only. Few of them have taken help from the IT specialists.

The study analysis shows that searching functions like browsing, simple and advanced search, filtering, Boolean logic, are available in all IRs. However, features such as auto-suggestion, help page, the latest addition, and personal account options vary from one another, according to customization. Further, it was discovered that all IRs displayed their digital content in normal text and metadata view.

Regarding the Copyright issues in these IRs the study found that almost all of them are open access with a few exceptions, who have limited access or access with permission for their contents. Among the six only three has Copyright clearance information about their content, while others have no information related to Copyright issues of their contents, a matter to be further investigated and focused on the necessary policy framework. The IRs should also take initiative to make them visible globally.

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