



DIGITAL REPOSITORIES AS PATHFINDERS FOR ACADEMIC ADVANCEMENT IN HIGHER EDUCATION INSTITUTIONS

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ABSTRACT:

As we are moving into a deeper arena of digital technology, we are becoming dependent on the routine updates in various social circles, academic happenings, research related issues and current happenings across the world. It is a world dependent mostly on digital services that connects us to every corner of the areas we wish to get in touch and sometimes irrespective of whether we really wish to. How far can academics and research stay behind? Of course, it is sometimes dragged or fitted in under the garb of advancement. Book-shelving is partially becoming a thing of past and surfing of pages of a books too is lagging behind. Surfing webpages is new method to touch, find and use the academic sources and resources. We are increasingly getting involved into millions of pages spread across hundreds of disciplines, subjects and specializations day by day. Finding an appropriate source has become easier these days. However, there is a liberalism around us that fosters everything and at this juncture, repositories are highly useful. International and national repositories require a bigger platform and finances as well as manpower. But a smaller step for institutional repositories can add noble benefits to entire academia.

Key words: -Digital repositories, higher education institutions, academic integrity, liberalism in academics, opportunities, challenges.

INTRODUCTION:

From the ancient times of search for knowledge for different subjects, topics and disciplines of human importance, information is unceasingly spreading its wings. So are the developing tools and machinery as the human mind thinks fit. The search is unending and in the recent years, we have observed that the amount of specialization of subjects has also increased a lot. This presses the demand for more in-depth search, collaborations and inter-connectivity of knowledge. To satisfy the needs of these critical hours, newer means and methods are discovered to store and retrieve the knowledge base.

Significant is the creation and storage in the form of printed books and digital media and equally significant is the retrieval system. When we create such information bases, they should be designed and handled so well that accessing of it should be hassle-free. The technological means have solved these persistent issues and

now a days, it is possible to have the both 'creation' and 'retrieval' fair and easier. All the branches of academics are inter-related and nobody can survive alone in the flood of information. When we talk about atomic power, we also talk about its effect on human kind and society, this is the simplest way to understand the connectivity of academic branches. It is therefore very much necessary to have an integral and inter-linked platforms that will facilitate these processes.

It should also be taken into consideration that nobody can stay away from the sources of information and loves a better and informal means of obtaining it. Digital repositories therefore play a key role in this fast-paced world that is full of information. A better eye only but can differentiate between information and knowledge and at this point in time inevitability of digital repositories come at the fore. Though it is always easier said than done, a strong will

among higher education institutions can transform the existing scenario.

Digital Repositories at a Glance:

Queen Mary's institutional research repository defines that 'a digital repository is an online archive for the storage of digital objects; these can range from digital archives, moving or still image galleries, manuscripts, anything that is in electronic format and needs a place to be stored either in the short or longer term'. It also says that 'an institutional research repository is a digital repository for the storage of outputs from research undertaken at an organisation; these can be wholly open access repositories, closed access, or a mixture. Content that you might expect to find in an institutional research repository are: research papers, working papers, reports, datasets, and other digital objects resulting from research.

Digital repositories are fundamentally meant for storage of information, data, content on different subjects and topics, selection and at the same time dissemination of information. In the recent times, digital repositories have become an important area and they have their establishment for the academic purposes. Simultaneously, these repositories work as open access storages where national and international service providers are available. The knowledge seekers access this facility to obtain a data and knowledge of all types wherever required for research purposes or for deeper study of any topic of their interest. DRs can store a wide range of content in various forms as well as methods and they are helpful for teaching learning purposes at the fundamental level. There is no denying the fact that they are also helpful for research initiatives. So far as institutional repositories are concerned, they are the digital archives of intellectual products created by faculties, researchers and students of an institution. Many institutions and organisations across the nation and globe are working for storage facilities of such kind.

Worldwide it has been observed that there are different kinds of digital repositories; some of them can be online or offline depending upon the nature of the organization. It is also true that the objectives of creating a digital repository may be based on a single subject or sometimes they are multidisciplinary or they may be discipline-wise. These repositories may be operated by private institutions or maybe by government institutions and they can hold documents in many formats.

The content which is presented for open to public access may be short term or on long term basis. DRs support mechanism to import, export, identify, store and retrieve the digital assets and content. In India, in the last few years expressly 15 years, there are many digital repositories funded sometimes by research centres of national importance; these include IITs and IIMs, etc. Sometimes DRs are established and funded by universities and institutions themselves in order to create their own repositories. ShodhGanga, e-Gyankosh are some of the well-known and popular titles known as digital repositories. These DRs store digital theses of Ph.D. works across the nation and they are available for public access with or without sign-in account. From the year 2005 onwards, University Grants Commission, New Delhi has taken initiatives towards establishment of digital repository and in its regulation it considers the creation of Indian National thesis database and submission on electronic basis. Considering the upper number of HEIs in India, it is noticed that the number of digital repositories are very lesser in proportion.

Key aspects involved in DR:

Most of the academic journal, published in India are in print media rather than in the digital format. This might be happening because of the financial problems and lack of funding for such kind of creation in digital formats. As there are many open source software available, these softwares can be used in its suitable way and

institutional repositories can be created with less amount of finance. Availability of skilled persons handling the software is another important issue. Many of the organisations and institutions are not also interested in digitisation of their documents for several reasons. One of the furthest reasons is the copyright issues with intellectual properties. Well established and nationwide known institutions are contributing higher level of academics to the existing one. A proper deliberation should also be made on whether the existing knowledge can be disseminated to the last person in the line. Mere storage is not important but the distribution, availability and access are the significant aspects of the entire scope.

India has been contributing vast resources at a faster pace in academics and research but at the same time it is lagging behind for the storage and dissemination. Several conferences, seminars, symposia and academic meets on important issues of national and international relevance have contributed a lot of knowledge towards the existing stock but the same could not be disseminated due to lack of tools on access.

It is important to mark out the difference between a repository and an archive. Most of the time people understand both the terms on a similar basis but there is a major difference between their appearance and function. Repository is a network accessible server that holds scholarly material for electronic resources whereas an archive is generally accepted as a synonym for a repository. It is not only that the research related articles or intellectual property products are included in institutional repositories but a normal academic life such as administrative documents, course notes, learning objects, etc. can also be stored in an institutional repository-DSpace@MIT, e-Prints Soton at University of Southampton, and

Research Online @ GCU are some of the examples.

There are four main objectives for having an institutional repository and they are: to create global visibility for an institution scholarly research; to collect and integrate all the content in a single location at the same time to provide open access to institutional research output by self-archiving; it also helps to store and preserve other institutional digital assets including unpublished or easily lost literature. For example, thesis or technical reports. In plain words an institutional repository is basically a digital archive of the research output created by the faculty research staff and student and it is accessible over the internet for the end users both within and outside of the institution.

Benefits to HEIs:

A proper procedure for creating an institutional repository is always a big area where the initiatives are taken. A lot of work is required to be done on management of all these intellectual products. In the simplest words, it can be said that it is a simple web based mechanism for researchers to deposit and access their research publications. There are several advantages of having an institutional repository in higher education institution. Digital archives of a particular research publication with a particular higher education institution can be accessible anywhere through internet and that may help the institution itself to raise its status.

In case of research output, an online access to the research productivity of an institution also helps in the creation of citation index that helps additionally the institutions to improve on their status with research areas. Research output can be preserved and controlled in a hassle-free manner as all the content is available in e-form. Institutional repository also increases the accessibility and impact of research among the students in the colleges. Beyond this, we also can reap the benefits of different types as all the researches today are interlinked with all the

subjects around us. Anyone who is researching on a particular topic may require resources from the related or interlinked topics and in that case the study in e-format on an institutional repository can always be an easily accessible source. This, in reality is facilitating the research work for researchers across all disciplines and serving a noble purpose of disseminating information to all.

There are different types of Digital Repositories presently found with institutions globally:

- Digital Asset Management Repository
- Preservation Repository.
- Dark Archive.
- Consortial Digital Repository.
- Subject- or Discipline-Oriented Repository.
- Metadata Repository

Establishment of DRs is a much beneficial procedure and that helps institutions to create their own footprints regarding their presence about research and academic happening as well as advancement.

Queensborough Community College, New York has prepared a comprehensive list of commonly occurring benefits as follows:

- Opening up outputs of the institution to a worldwide audience;
- Maximizing the visibility and impact of these outputs as a result;
- Showcasing the institution to interested constituencies – prospective staff, prospective students and other stakeholders;
- Collecting and curating digital output;
- Managing and measuring research and teaching activities;
- Providing a workspace for work-in-progress, and for collaborative or large-scale projects;
- Enabling and encouraging interdisciplinary approaches to research;
- Facilitating the development and sharing of digital teaching materials and aids, and supporting student endeavours, providing access to theses and dissertations and a location for the development of e-portfolios.

There is a popular type of DRs called ‘Subject repositories’ (sometimes called disciplinary repositories bring together digital content from similar research or areas of interest onto one platform; they are seen as a good way to present the results of research by collection/theme. These repositories store a variety of information including research publications and objects of different kinds. Examples of subject repositories include arXiv, PubMed Central, and Chemistry Central.

Some platforms with repository features (document storage) are also available but that are not repositories in its defining meaning. These platforms are meant for researchers that helps them to find out a network and collaborate their research output. In this sense the below-mentioned actually cannot be counted as repository. A special and specific featuring of such platforms is that they have control over the access which is placed for public domain and when tried to access requires a sign-in account. It does mean that they are not considered open access. These include: ResearchGate, Academia.edu and Mendeley, etc.

Texas Digital Library:

Some institutions have given much required attention to these areas and maintain the operations on institutional level. For example, the Texas Digital Library has its own DSpace digital repositories for its member institutions. It allows them reliable online access to their scholarly and pedagogic output. The member institutions can collect, store, preserve, and disseminate digital content – including documents, audio files, images, and datasets – all within a secure, professionally managed environment in the Amazon Cloud. TDL digital repositories use DSpace, a widely-used open source repository software that can manage and preserve all types of digital content and facilitates indexing of that content by commercial search engines, such as Google.

The Texas Digital Library provides lot of academic and technological benefits to its members in the following way:

- promotes the principles of open access by providing opportunities for faculty self-archiving
- ensures the long-term preservation and accessibility of digital assets
- provides access to unpublished research of faculty, research staff, and students
- preserves and disseminates a wide variety of content beyond traditional scholarly articles, including datasets, learning objects, electronic theses and dissertations, audio-visual content, and presentations.
- helps universities fulfill obligations to make publicly funded or non-profit-funded research available on an open access basis
- allows universities to capture digital e-learning courseware so they can expand on existing programs
- encourages access and sharing among disciplines and institutions
- showcases an institution's faculty and student output, and through participation in the Texas Digital Library consortium, the scholarly contributions of the entire state

Popular Depositories :

Dspace <http://www.dspace.org/>: This software was originally created as a collaborative research project between the Hewlett Packard labs and the Massachusetts Institute of Technology Libraries over a period of two years from 2000 to 2002. DSpace software is easy to install and was created as a platform to build an institutional repository.

GNU E-Prints <http://www.eprints.org/software/> E-prints also was developed to provide greater access to research material, but can also be used for many purposes such as teaching resources, museum exhibits and administrative materials] and can also be configured to act as an archive of published research material such as journals, books, theses, pre-prints and technical reports.

Fedora [Flexible Extensible Digital Object and Repository Architecture]

<http://fedora.redhat.com/> Fedora began in 1997 as part of a funded research at Cornell University and further developed in collaboration with the University of Virginia Library Research Group. Fedora is as described in their website 'a powerful digital object that supports multiple views of each digital object and the relationships among digital objects'. Fedora is different software because the model is abstract; making no difference what kind of data is represented by the digital object including text, images, video, sound etc, making this software is a flexible tool for archival and institutional repositories as well as a good resource option for education and teaching.

Before we have decided to set up an institutional repository, an exhaustive list of issues and topic are required to be thought upon:

- What type of content can be deposited?
- The standard format for different types of content.
- The formatting guidelines that ought to be followed by contributors.
- What is the maximum storage space allocated to each contributor?
- Who is eligible to deposit, and what can they deposit?
- Who is responsible for copyright vetting?
- What is the procedure for withdrawing/removing a paper from the repository?
- The access levels — Who can read what? What can be repurposed?
- What is the name of the repository?
- How to digitize documents that are only available in print?

CONCLUSION:

Instructional repositories for academic advancement in HEIs can be realized only after a better plan and policy for procurement of tools, manpower and finance towards setting up and maintenance. However, a strong will to raise

standards of an institution removes all the barriers. HEIs can also connect and opt for free softwares available online, or they can connect to other institutions with membership plans and make available their research output to the global academic community. HEIs themselves can get benefitted by the global resources regarding advanced research on different topics and disciplines as it opens up wide doors to the fresh research. Connectivity and inter-linking of interdisciplinary research can only be realized with a liberal outlook in academics and that highly depends on storage, dissemination and retrieval mechanism developed purposefully for it.

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