Building Effective and Responsive Search Interfaces with Angular for Libraries

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Abstract - Digital repositories are an essential aspect of modern library services, and in most cases, traditional interfaces cannot provide effective information retrieval. This study introduces an Angular-based search form implemented in DSpace 7 as a prototype approach to enhancing discovery, interoperability, and user experience. The framework was developed on an Ubuntu system with DSpace 7 CRIS, supported by Apache Tomcat, Solr, PostgreSQL, Yarn, npm, and nvm to ensure flexibility in backend and frontend adaptation. The Angular interface was evaluated for metadata management, interaction with repositories such as PubMed and ArXiv, and compliance with REST, OAI-PMH, and SWORD APIs. Results showed that the interface enables single-box multilingual searches, efficient metadata management, simple integration, and advanced digital capabilities such as metadata import/export and server health checks. Built-in accessibility features across the backend, frontend, and OAI-PMH endpoints further simplified repository management. Overall, the study demonstrates how DSpace CRIS and Angular Avant Garde can modernize digital libraries through a responsive, interoperable, and discovery-centered architecture, providing valuable insights for researchers, librarians, and academic communities in developing next-generation institutional repositories.

Keywords: Angular Interface, Dspace-7, CRIS, Interoperability, Digital Repository, Metadata Management

I. INTRODUCTION

Electronic libraries play a pivotal role in modern information retrieval systems. It is a set of digital resources. Automated repositories and services are essential aspects of the contemporary education system. Computer networks may retrieve electronic and digital content to increase the information retrieval systems to exchange heterogeneous and homogeneous information through crosswalk and interoperability. Library users need help searching for different interfaces from the previous DSpace version. The modern version of DSpace provides new parameters and unique features to create full-fledged digital library services for patrons.

Dspace is a viral tool in open-source environments, and it was invented in 2002 at MIT and HP Labs. This is institutional digital repository software. The latest version of DSpace includes a variety of advanced features that enhance services for repositories and improve the user experience. It also has only one search box, instead of the disjoint previous version, and it has the multilingual search tab to expand availability. The system also facilitates the free interchange of records between external repositories and also has a specific window in which detailed statistical reports are generated. Various search engines are then optimized on a single user and unified interface, and the administration interface is easily customizable to fit institutional requirements.

Fig.1 Parameters for Angular User Interface (UI)

DSpace supports effortless deposition of metadata and full-text material with its module-incorporated structure and registry. Moreover, it is easier to organize communities and collections using the platform, which enhances its image of a flexible and faithful solution in terms of digital repositories. These are the significant features of a new version of DSpace. Apart from these, it also provides many facilities for the betterment of digital library systems and services. Many tools are available in internet repositories, such as Fedora Commons, OPUS, Islandora, Samvera, Omeka, Eprints, Invenio, Zenodo, and CKAN.

However, this study selected Dspace because it provides many new features and parameters based on global repositories like BASE, CORE, OpenDOAR, etc. Apart from these, modern institutional repositories like DSpace-CRIS, GLAM, and OpenAIRE are also followed. Many new parameters and facilities have been incorporated into

DSpace version 7. It is known as an angular interface. These are the essential features of DSpace 7, which creates the modern angular interface. It may help develop a new integrated framework for easy information retrieval among users, researchers, and library professionals. However, some of the critical parameters are shown in the Figure 1.

II. LITERATURE REVIEW

This work has proposed a DSpace-based medical image repository system that relies on DICOM metadata standards. DSpace is the most well-known academic text file repository. Furthermore, the study will assist librarians, doctors, and FOSS providers (Hazarika et al., 2022). This article suggests an open-sourced portrait repository to enhance DICOM network visibility while reducing storage costs—DSpace's Open Source DICOM Medical Image Library. The study will benefit librarians and doctors (Hazarika et al., 2020). By compiling real-time MARC entries from metadata based on Dublin Core in DSpace and transferring them to the digital content of WorldCat OCLC, that review attempts to optimize the ETD process for libraries that adopt DSpace to preserve research papers (Deng & Reese, 2009).

The study will look at Koha and DSpace videos on YouTube to see how well they are done. YouTube lets creators share their knowledge and experience with users searching for information. People now look up information on YouTube. Viewers' opinions are also glanced at (Deori *et al.,* 2023). Content relating to the user-centric window contributed by DSpace patrons on Facebook is the article's topic, which evaluates the types and impacts of content (Kurian, 2015). This paper will talk about a survey that was done to learn about different things to consider when setting up an institutional repository and how the institute used efficient tools to implement free tools in developing a user-friendly digital depository (Doctor & Ramachandran, 2008). This study shows how DSpace assists the trend of openness in learning materials and how quickly it can be implemented in educational activities.

Furthermore, this article aims to persuade librarians to use DSpace to help the OER initiative (Ahammad, 2019). This study evaluates and assesses web content systems as potential development frameworks for internet-based libraries (Bharti & Singh, 2022). In order to improve the accessibility of impaired learners and learners with learning difficulties in higher learning, this paper looks into ways to combine IR with e-learning tools. The cataloguing and retrieval of items in the collection can be enhanced by using specialized vocabulary that focuses on disabled students (Skourlas *et al.,* 2016). The study will discuss the digital preservation activities carried out by the African institutional repositories. The phases involve investigating a website and an online questionnaire to locate African university libraries that have developed IR. It offers their institution long-term digital preservation of electronic resources (Anyaoku *et al.*, 2019). This article discusses

transformation search repositories that can incorporate Connected Open Data to link repositories (Konstantinou and others, 2014).

Cloud or site analytics shows site metrics in statistical and graphical user interfaces. It is seen in a study that there is the incorporation of DSpace to Piwik, a free analytics tool in Ubuntu, which creates a one-window tracker partnership. This tool displays visitor trends, as well as the searches and collections that have been downloaded, making it easier to measure repository activity and track user behavior (Mandal, 2019). Digital repositories depend on open-source tools to achieve an effective access and compilation of information in libraries. This paper demonstrates how EPrints has used metadata sources such as Koha, Emerald, DSpace and VuFind to advance digital management of information (Mandal, 2019). Institutional repositories are meant to preserve and digitize scholarship, such as thesis, reports, publications, and teaching materials, produced at an institution. In this paper, we present the ability to support the digital repository at ICMR-NIE since 2015 by the use of DSpace as a repository manager to assure extended conservation and wider dissemination of research.

The repository promotes visibility to the institution, and it is beneficial to staff, scholars, students, and faculty (Satish, 2019). The study applies Google Analytics to measure the visibility of the web portals of Uva Wellassa University Library, that is, the Home Page, OPAC, and Institutional Repository (Pratheepan & Jayakananthan, 2021). This paper assessed Web 2.0 skills along with Internet browsing as factors that predict successful institutional repository management among 242 librarians in South-South Nigerian federal universities. According to the sample of questionnaires and regression analysis, it was found out that there was a 52 percent correlation between web competencies and repository management, which demonstrates the importance of digital skills in the use of social media and faculty collaboration. The research suggests that librarians should rely on continuous professional development to strengthen their digital competencies (Robinson & Ukaegbu, 2024).

The Indira Gandhi National Centre for the Arts (I.G.N.C.A.) conserves the cultural heritage of India by means of digitization as manuscripts, photographs, films, and audio-visuals. IGNCA has established its KALASAMPADA digital library that offers online access and thus is one of the pioneers in converting and preserving heritage digitally (Bakhshi, 2016). Newspaper libraries play a crucial role for media professionals, and librarians are adapting to recent changes by transitioning to digital archives. This paper explains digital archiving projects and why we need them, their purpose, and the IT infrastructure, as well as the challenges to their implementation (Sreekala & Baby, 2019). The system has presented the progress of six subject-specific open-source cluster library software in college libraries.

The clusters-integrated library systems, digital media archiving, content management, learning content management, federated search, and college communication all present a one-stop shop to the librarian and user. The framework facilitates effective control of digital and library resources, which can be acquired in terms of viral nature, cataloguing, circulation, authority control, reporting, and online access (Mandal, 2016). From the observations of these articles, it is found that most of the contents are based on DSpace's previous versions. However, some concepts and facets are fundamental to constructing modern digital repositories. So, the gap is an angular interface in DSpace for providing new services among library professionals and users.

III. OBJECTIVES

The goals of this study are pointed out below:
(i) To configure a basic level cluster to form an angular interface.
(ii) To display the angular search box as a famous repository for library users.

(iii) To export and import the digital resources from the external sources.
(iv) To start all the servers using the command in Terminal to run the REST API, Apache Tomcat, and Solr.

IV. REPOSITORY EVOLUTION COMPARED

The comparative analysis in Table I identifies the main differences between DSpace 6, DSpace 7, DSpace-CRIS, and DSpace-GLAM and demonstrates the fact that each of them reflects a certain phase of a digital repository's evolution. Whereas DSpace 6 represents a conventional model that is widely used in the context of institutional repositories, DSpace 7 offers the modern modular and API-based platform with improved user-friendliness. Developed based on this framework, DSpace-CRIS extends the research-informatics platform to include projects, funding, and researcher profiles, and DSpace-GLAM adapts the repository platform to gallery, library, archive, and museum (GLAM) infrastructures. Together, these versions showcase how DSpace can be specialized to connect the fixed requirements of scholarly communication, research management, and cultural preservation.

TABLE I COMPARATIVE STUDY OF IDR SOFTWARE AND TECHNOLOGY

Aspect	DSpace 6	DSpace 7	DSpace-CRIS	DSpace-GLAM
Focus	Traditional repository	Modern Angular-based repository	Research Information System	Cultural Heritage Repository
Interface	JSPUI/XMLUI	Angular UI + REST API	Angular UI with CRIS modules	Angular UI with GLAM modules
Search	Basic & faceted	Unified, multilingual	Research outputs, projects, grants	Cultural heritage objects
Interoperability	Limited	Strong via REST API	ORCID, ROR, funding systems	Dublin Core, EAD, MARC, IIIF
Statistics	Basic	Enhanced dashboard	Advanced analytics (research)	Usage stats (heritage items)
Metadata	Dublin Core	Extended management	Projects, funding, patents, people	Artworks, archives, collections
Administration	XML-based config	Configurable modular admin	CRIS entity management	Heritage content management
Framework	Monolithic	Modular, API-driven	CRIS-integrated	GLAM-integrated
Use Case	Scholarly repositories	Modern institutional repositories	Universities & research bodies	Galleries, archives, museums
Strengths	Stability, simplicity	Modern, flexible	Research evaluation	Cultural curation
Limitations	Outdated UI, less integration	Migration effort	Complex setup	Niche application

Through this comparative analysis It is clear that DSpace-CRIS outperforms the other three versions in terms of its compatibility with other systems, ease of customization, flexibility for management, and overall functionality. The search window is much more than a repository, since it includes a dynamic and responsive Angular-based search window and project, funding, and researcher profile-specific modules. DSpace-CRIS is the most viable and modern of the DSpace family since it has gloriously combined the faithful deposit functions with the enhanced research administration functions.

V. METHODOLOGY

The research methodology applied in this study paper is based on the systematic paradigm of implementing and creating a viable digital store. It has mainly concentrated its efforts on using its Angular-based interface to deliver information retrieval and usability to library communities. The study will also be divided into two key activities: system installation and configuration, which involves the technical installation of the repository infrastructure in each

library, and health configuration of libraries, which focuses on optimizing the system for performance, stability, and sustainability in the library environment. There is a general framework of the phases coming together to give surety, expansion, and a user-friendly nature to the digital repository platform.

A. System Installation and Configuration

The angular interface is beautiful to library users because it allows for the easy retrieval of information with the help of Dspace. There is much software available in an open-source electronic environment.

This paper has selected a popular tool based on studying different digital repositories such as DSpace CRIS, DSpace GLAM, and DSpace OpenAIRE. These online repositories are very interesting and attractive for developing and designing the automated virtual library system.

So, this study has created a local repository for easy retrieval of electronic resources among users with the help of the angular interface of DSpace. Now, integration and composition of supporting system are needed. The whole process is developed using the Linux operating system. The Procedure and steps are pointed out below:

(i) Update and upgrade the software packages in the Ubuntu operating system; (ii) Installation of ant and maven; (iii) Installation of OpenJDK; (iv) Installation and configuration of Postgresql database; (v) Installation and configuration of Solr server; (vi) Installation and configuration of Apache Tomcat server; (vii) Installation and configuration of DSpace 7 CRIS Backend; (viii) Start the mvn package to build the digital library; (ix) To install the DSpace backend, run the ant fresh_install; (x) Create the DSpace administrator account to log into the interface; (xi) Migrate the database; (xii) Installation and configuration of NPM and NVM software package; (xiii) Installation and configuration of DSpace frontend angular interface (Version Dspace 7 CRIS); (xiv) Settings the REST API server; (xv) Start the Yarn production; (xvi) Configure the angular interface script of Dspace. (xvii) Start the pm2 server; (xviii) Run the dspace angular interface with the help of the local machine URL such as:

For Dspace angular interface: http://localhost:4000. Apart from these, it also displays the three servers like REST API Window: http://localhost:8080/server/;Apache Solr confluence: http://localhost:8983/solr; OAI-PMH collection: http://localhost:8080/serv er/oai/request?verb=Identify. These are the main services that offer URLs and REST APIs for designing and developing integrated discovery layers.

The availability of responsive services is the essential feature of modern digital libraries since they enable any user to access unfathomably large amounts of information, all thanks to efficient and adaptable systems.

These services not only provide URLs and RESTful APIs but also support the design of integrated discovery layers.

By using responsive solutions with Angular, developers have the opportunity to design interfaces that will scale responsively across any device, therefore being accessible and engaging. A discovery platform must expand these services because the information is easy to access, each system can be used with the other useful one, and the overall user experience will improve.

B. Health Configuration for Libraries

This is the health configuration interface in DSpace 7 CRIS, designed to facilitate the creation of next-generation repositories with user-friendly tools. Within any software system, comprising server and client components, it offers crucial elements such as server status and information. Additionally, it provides an Angular-based interface for configuring both generic and advanced parameters, essential for developing cutting-edge library repositories.

Figure 2 illustrates the health configuration interface in DSpace 7 CRIS, the latest version utilizing an Angular framework. The status interface (Figure 3) within the DSpace Angular interface includes various database parameters and sub-parameters designed to improve the visibility and presentation of server status information.
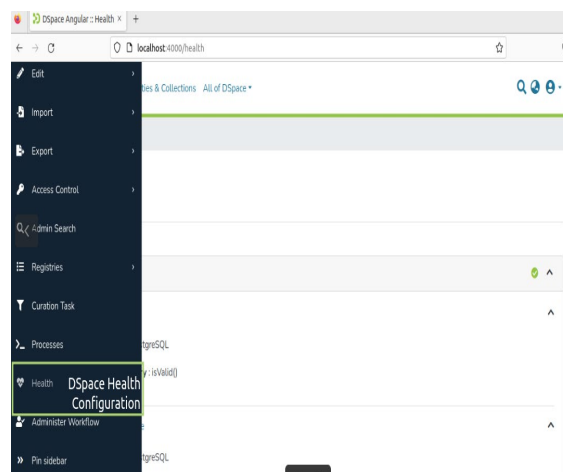

Fig.2 DSpace Health Configuration Interface

Fig.3 Status of Health Configuration in DSpace 7

Application Backend		Name : DSpace Angular UI Version : 7.4 Dir : /dspace Url : http://localhost:8080/server Db : jdbc:postgresql://localhost:5432/dspace
	Solr	Server : http://localhost:8983/solr Prefix :
	Mail	Server : smtp.example.com From-address : dspace-noreply@myu.edu Feedback-recipient : dspace-help@myu.edu Mail-admin : dspace-help@myu.edu Mail-helpdesk : dspace-help@myu.edu Alert-recipient : dspace-help@myu.edu
	Cors	Allowed-origins : http://localhost:4000
	Ui	Url : http://localhost:4000
Java		Vendor : Ubuntu Version : 11.0.17
	Runtime	Name : OpenJDK Runtime Environment Version : 11.0.17+8-post-Ubuntu-1ubuntu222.04
	Jvm	Name : OpenJDK 64-Bit Server VM Vendor : Ubuntu Version : 11.0.17+8-post-Ubuntu-1ubuntu222.04

Fig.4 URLs for DSpace Angular UI

VI. RESPONSIVE INTERFACES

The digital repositories have helped to lay much of the focus with regard to the enhancement of the responsive search interface, which not only helps towards enhancement of accessibility but also enables an intuitive interface across the platforms. DSpace-CRIS 7 interfaces are more flexible, interchangeable, and attractive in appearance, thus supporting the effective discovery and management of scholarly materials. The framework is composed of the Angular Interface of modern, adaptive navigation, the REST API Interface of dynamic service addition, and the OAI-PMH Interface of metadata harvesting and interoperability.

In line with these features is the Repository Dashboard that brings together the administrative tasks and the Visualization Dashboard that provides interactive data on the repository data. A combination of these elements creates an all-round and easy-to-use platform to maintain and explore institutional digital repositories.

A. Angular Interface

This Angular interface is tailored for library users, requiring local servers such as Solr, Tomcat, and pm2 to be operational at the machine level. Accessible via a local URL such as http://localhost:4000, it is very user-friendly search window for library users. DSpace-7 empowers library professionals to effortlessly create top-level communities, collections, and item types, bolstering modern digital information services with comprehensive parameters. It excels in rapid information retrieval upon entering search queries. Metadata entry and full-text uploads adhere to global Dublin Core standards, complemented by seamless metadata import from external repositories such as Pubmed and Arxiv.

This functionality is particularly beneficial for library professionals, simplifying metadata management and enabling efficient searches based on subjects and keywords. Furthermore, the interface offers robust service capabilities at a web-scale discovery level.
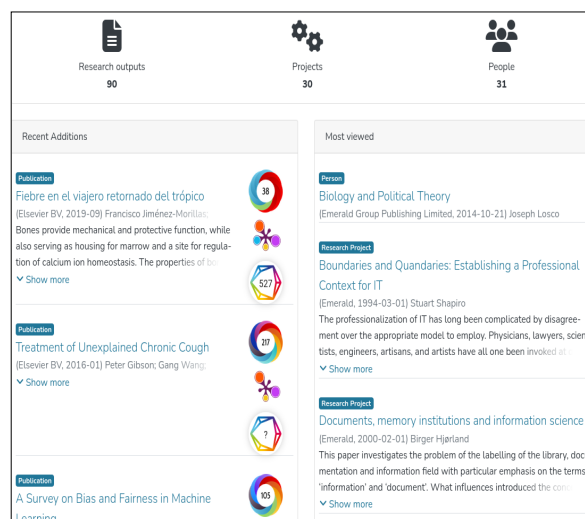

Fig.5 Angular Interface for Library Users

Figure 5 illustrates the Angular interface of DSpace, optimized for library users. This modern interface, developed by 4Science Group, efficiently delivers community research information to users. Librarians can leverage this prototype framework to introduce innovative digital services, greatly benefiting library users by facilitating access to diverse and essential information. This system is downloadable online and can be installed on local computers, ensuring accessibility and ease of use. It shows the interface of DSpace CRIS in local environment for designing and developing an integrated framework of Angular UI.

B. REST API Interface

The DSpace-CRIS RESTful API is a new feature of the DSpace platform that will support information transfer, systems, and research information. It possesses a massively parameterized endpoint, and this ability can serve to provide access to a wide variety of CRIS records such as projects, funding, patents, publications, and researcher profiles as well as organizational affiliations. It is an API, enabling institutions and parties to build their own custom services, automate processes, and link their repositories to other linked and third-party applications, including ORCID, ROR, funding agencies, and institutional dashboards. It is built in an Angular-compatible framework, which enables it to make responsive interfaces since the machine-to-machine communication and the ones driven by the user can coexist with each other. Besides, the REST design adheres to the open standards, thereby increasing its scalability, modularity, and sustainability. In summary, the current release of the DSpace-CRIS REST API not only provides a new level of functionality to more traditionally based repositories but also makes them smarter research ecosystems capable of adapting to the needs of a contemporary research environment. Figure 6 shows the REST API of the DSpace-CRIS, which indicates that it has the potential to offer dynamic services on a large-scale data infrastructure in digital data storage.
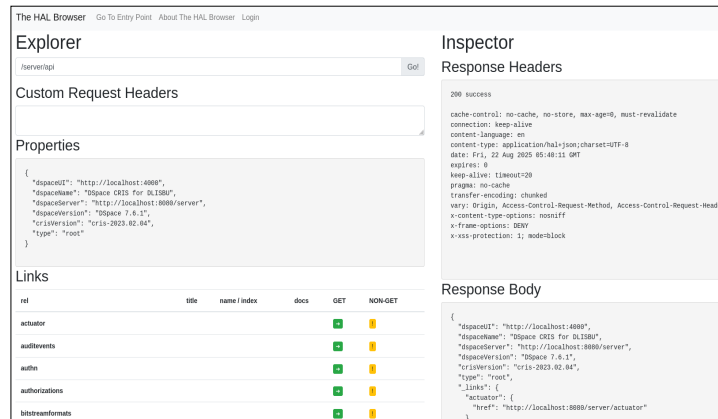
C. OAI-PMH Interface

Fig.6 DSpace CRIS REST API Interface

The DSpace-CRIS OAI-PMH import option will be a useful tool to collect and include external metadata into the institutional system. Administrators can also synchronize sets of metadata according to OAI compliance using the OAI service endpoint, such as http://localhost:8080/server/oai/request?verb=ListRecords& metadataPrefix=oai_dc. This operation is done in two basic commands: /dspace/bin/dspace oai clean-cache, which ensures that the cache is current and consistent, and /dspace/bin/dspace oai import -c -v, which launches a harvest and import process. Several minutes later, all metadata records are on the table to be added to the repository. With the stabilization, the metadata form can be varied, and consequently the bibliographic information can be processed with increased freedom. In addition, the system provides structured open metadata that enables advanced and logical interoperability across the digital repositories. Figure 7 shows the OAI-PMH interface for libraries and digital repositories.

D. Repository Dashboard

All the management and personalization of the repository and the research information system are centered on the DSpace-CRIS 7 Management Dashboard.
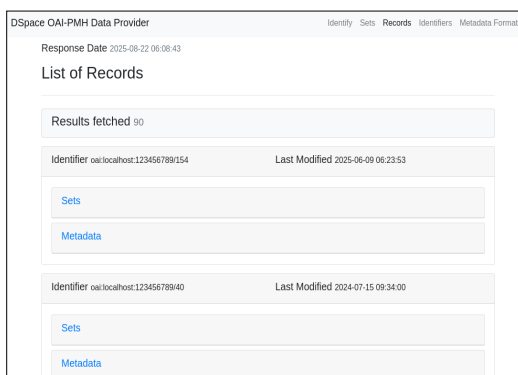
Its redesigned interface allows administrators to manage metadata more easily, establish registries, manage workflows, and track the health of the system in even greater detail. It is this centralization of the most important functions in the dashboard, i.e., import/export records, curation functions, access controls, and monitoring processes, that does provide effective control of the digital assets.

The platform facilitates institutional visibility and assists in the application of conformability standards to international practices, as well as providing premium solutions within interoperability, bibliometrics improvement and decentralized profile administration processes. A comprehensive platform also allows the repository administrators and the librarians to verify the integrity of information and the ease of operation and user experience of the researchers and the stakeholders. Repository dashboard has shown in the Figure 8 to making the modern responsive search window.
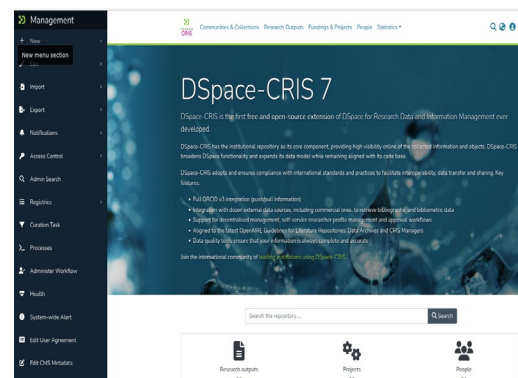

Fig.8 Repository dashboard in DSpace CRIS

Fig.7 OAI-PMH Interface in DSpace CRIS

E. Visualization Dashboard

DSpace-CRIS 7 contains a Visualization Dashboard, which is a graphic and interactive interface to view the repository in graphs. It provides the visualization according to the type and date; thus, a tendency and a trend in the output of the research could be identified easily. The interface offers an interactive and useful way to work with metadata, which is otherwise rigid information stored in repositories that contribute to knowledge. Through this, it allows searches to be more efficient and for one to navigate through collections easily, hence making the process of discovery easier for the users. Accessibility and additional comprehension results are achieved by using both the traditional search and the visual exploration facilities through the use of a dashboard. This kind of integration enhances the visibility and impact of research, as demonstrated in Figure 9, where a visualization dashboard serves as a digital repository for an institute.
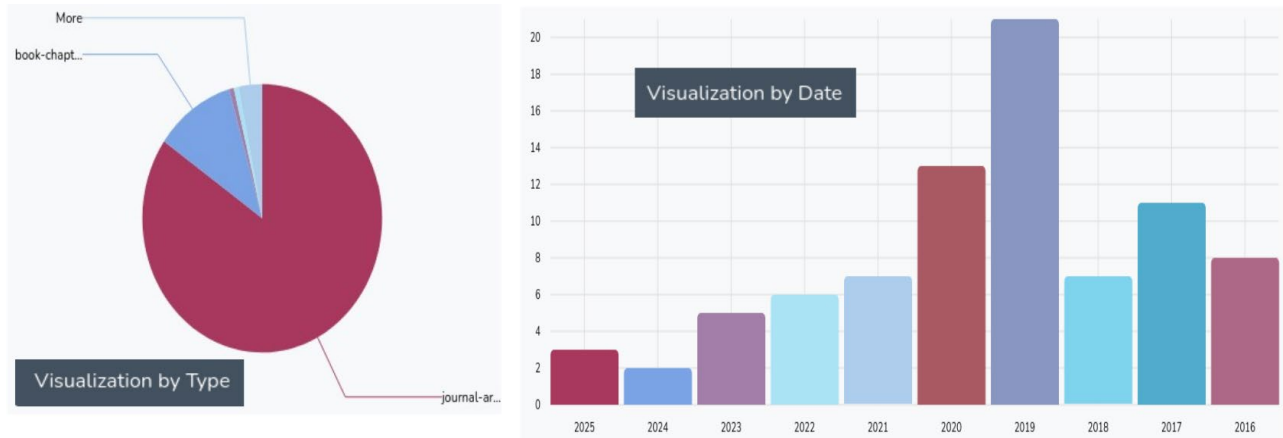

Fig.9 Visualization Dashboard in DSpace CRIS

VII. EMPOWERING KNOWLEDGE ECOSYSTEMS

The institutional repository has evolved from being just are interconnected to foster the development of a broader knowledge base. DSpace 7, in particular, with its Angular interface and additional features of DSpace CRIS, the repository is no longer simply a storage of the information anymore but instead assists in the developing of entire knowledge systems. Such ecosystems lead to improved discovery, integration, and effective management of research output and are of enormous importance both to scholarly and institutional communities. As one of the most important nerve centers of scholarly communication, the repository perpetually sustains methods of application, discovery, combination, and broadcasting. The remaining sections of this paper identify several major developments that have driven these advancements are as given below:

1. Interconnected Scholarly Communication: Digital repositories that operate independently use conventional tools and techniques. The Angular framework and the resultant REST API break these silos by allowing them to freely and easily communicate among themselves. DSpace 7 enables your local repository to become an important part of the global academic system by exchanging information with other repositories, big and small, such as PubMed and ArXiv; linking with research identifiers, such as ORCID and ROR; and sharing information with them in real time. It both links the local research activity in a manner that can be internationally achieved and does vice versa, thereby improving the whole ecosystem.

2. Democratizing Access and Enhancing User-Centric Discovery: Angular UI is a responsive and simplified single search box interface. It enables all the players within the ecosystem, including undergraduates, senior researchers, librarians, and the general population, to engage with knowledge in a comfortable manner without necessarily requiring greater levels of technical or information literacy. Multilingual search, visual exploration dashboards, and faceted browsing are characteristics proposed by Kei Ming to eliminate entry barriers so that useful research is no longer stored but used and built upon, further democratizing knowledge inside and outside the academic organization.

3. Enabling Strategic Research Management and Analytics: Insights based on data provide the ecosystem to administrators and institutional leadership. DSpace-CRIS is much more than a system that calculates usage statistics, offering sophisticated analytics at the research, collaboration, and output impact levels. The Visualization Dashboard and improved statistical tools take raw data and create actionable intelligence. These mechanisms help institutions make informed strategic choices about funding, demonstrate the broader social impact of their work, and raise the profile of their research strengths. Additionally, they offer a framework for managing intellectual assets more efficiently, aiding institutions in creating a research environment that is both responsive and competitive.

4. Streamlining and Automating the Knowledge Lifecycle: Automation enables the ecosystem to be more efficient. The building and sharing of content are fully automated and supported by standard protocols such as OAI-PMH to harvest and SWORD to deposit. Librarians can manage and maintain large quantities of data, bulk import metadata, and meet funder requirements, including platform requirements like OpenAIRE. This kind of automation would remove administrative overheads, allowing librarians to devote more time to worthwhile tasks such as supporting research and working with data, and improve the actual research support system.

5. Building a Sustainable and Future-Proof Framework: Lastly, the knowledge ecosystem is both flexible and sustainable since DSpace 7 has an API-driven architecture and is modular in design. In contrast to the past monolithic systems, new technologies and the emergence of new standards can be easily integrated into this framework. The platform can expand with new metadata schemas being added, more intelligence tools being added to improve discovery, and new research evaluation tools being added. It is this ongoing transformation that categorizes the digital repository as a consistent repository of scholarship that can develop and modify over time in response to the change in the nature of research and technology. DSpace 7 paired with its Angular-based user interface is much more than a simple upgrade of the search box; it can facilitate consolidation of strong knowledge ecosystems between institutions. The ability to reimagine repositories as dynamic instruments of academic development makes them vibrant sources through which knowledge can be preserved, shared, found, and implemented to initiate the next generation of innovation. This development increases interconnectedness, expands access, provides tactical ideas, streamlines business operations, and enables academic sustainability.

VIII. CONCLUSION

The Angular interface within DSpace 7, as demonstrated by the new technology, signifies a necessary change for institutional repositories to move away from outdated storage mechanisms and adopt a new, dynamic, and interconnected model. The search box is unified, and the fact that it supports multiple languages and has an option to integrate with key databases such as PubMed and arXiv makes the system more intuitive; the fact that its adherence to affordability aids standards such as REST API, OAI-PMH, and Sword improves its interoperability with other standards. The framework is highly user-friendly, as it works around Ubuntu-based configuration using PostgreSQL, Solr, and Apache Tomcat, which attests to its technical reliability and scalability. In addition to simplifying information search, DSpace-CRIS offers other characteristics, including linking to identifiers including ORCID and ROR, advanced dashboards, and research management, and transforms repositories into academic communication hubs. It improves the visibility and administration efficiency. Aside from these, it also stimulates cooperation and innovation between institutions. Therefore, it frames a new paradigm of the digital repositories as such that are guaranteed to be stable infrastructures, which safeguard the academic sphere and advance the creation of worldwide knowledge.

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REFERENCES

Ahammad, N. (2019). Open-source digital library on open educational resources. *The Electronic Library, 37*(6), 1022–1039. https://doi.org/10.1108/EL-11-2018-0225.

Anyaoku, E. N., Echedom, A. U. N., & Baro, E. E. (2019). Digital preservation practices in university libraries: An investigation of institutional repositories in Africa. *Digital Library Perspectives, 35*(1), 41–64. https://doi.org/10.1108/DLP-10-2017-0041.

Bakhshi, S. I. (2016). Digitization and digital preservation of cultural heritage in India with special reference to IGNCA, New Delhi. *Asian Journal of Information Science and Technology, 6*(2), 1–7. https://doi.org/10.51983/ajist-2016.6.2.134.

Bharti, S., & Singh, R. K. (2022). Evaluation and analysis of digital language archives development platforms: A parametric approach. *The Electronic Library, 40*(5), 552–567. https://doi.org/10.1108/EL-01-2022-0011.

Deng, S., & Reese, T. (2009). Customized mapping and metadata transfer from DSpace to OCLC to improve ETD workflow. *New Library World, 110*(5/6), 249–264. https://doi.org/10.1108/03074800910954271.

Deori, M., Kumar, V., & Verma, M. K. (2023). Analysis of YouTube video contents on Koha and DSpace, and sentiment analysis of viewers' comments. *Library Hi Tech, 41*(3), 711–728. https://doi.org/10.1108/LHT-12-2020-0323.

Doctor, G., & Ramachandran, S. (2008). DSpace@IBSA: Knowledge sharing in a management institute. *VINE, 38*(1), 42–52. https://doi.org/10.1108/03055720810870888.

Hazarika, H. J., Handique, A., & Ravikumar, S. (2020). DICOM-based medical image repository using DSpace. *Collection and Curation, 39*(4), 105–115. https://doi.org/10.1108/CC-11-2019-0039.

Hazarika, H. J., Ravikumar, S., & Handique, A. (2022). Developed DICOM standard schema with DSpace. *Collection and Curation, 41*(2), 50–61. https://doi.org/10.1108/CC-05-2021-0015.

Konstantinou, N., Spanos, D.-E., Houssos, N., & Mitrou, N. (2014). Exposing scholarly information as linked open data: RDFizing DSpace contents. *The Electronic Library, 32*(6), 834–851. https://doi.org/10.1108/EL-12-2012-0156.

Kurian, J. C. (2015). Facebook use by the open access repository users. *Online Information Review, 39*(7), 903–922. https://doi.org/10.1108/OIR-02-2015-0055.

Mandal, S. (2016). Development of domain specific cluster: An integrated framework for college libraries under the University of Burdwan. *Library Philosophy and Practice*. https://digitalcommons.unl.edu/libphilprac/1474.

Mandal, S. (2019). Real-time visualization of DSpace usage: An integrated framework for libraries. *Asian Journal of Information Science and Technology, 9*(1), 55–57. https://doi.org/10.51983/ajist-2019.9.1.2619.

Mandal, S. (2019). Import metadata through EPrints for institutional digital repository. *Asian Journal of Information Science and Technology, 9*(2), 1–4. https://doi.org/10.51983/ajist-2019.9.2.287.

Pratheepan, T., & Jayakananthan, M. (2021). Application of Google Analytics model for evaluating the visibility of library web portals of the Uva Wellassa University, Sri Lanka. *Asian Journal of Information Science and Technology, 11*(1), 1–8. https://doi.org/10.51983/ajist-2021.11.1.2804.

Robinson, J. N., & Ukaegbu, B. C. N. (2024). Internet browsing and Web 2.0 competencies: Key correlates of effective institutional repository management by librarians in federal universities, South-South Nigeria. *Asian Journal of Information Science and Technology, 14*(1), 32–39. https://doi.org/10.70112/ajist-2024.14.1.4226.

Satish, S. (2019). Development of institutional repository using DSpace at ICMR-National Institute of Epidemiology, Chennai, Tamil Nadu: An overview. *Asian Journal of Information Science and Technology, 9*(2), 96–102. https://doi.org/10.51983/ajist-2019.9.2.268.

Skourlas, C., Tsolakidis, A., Belsis, P., Vassis, D., Kampouraki, A., Kakoulidis, P., & Giannakopoulos, G. A. (2016). Integration of institutional repositories and e-learning platforms for supporting disabled students in the higher education context. *Library Review, 65*(3), 136–159. https://doi.org/10.1108/LR-08-2015-0088.

Sreekala, P. K., & Baby, M. D. (2019). Digital archiving and access to print media resources: A study among leading Malayalam newspaper libraries in Kerala. *Asian Journal of Information Science and Technology, 9*(3), 19–24. https://doi.org/10.51983/ajist-2019.9.3.293.