

Developing an Academic Institutional Repository: a Case at the General Sir John Kotelawala Defence University

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Abstract

An institutional repository is defined as an online locus for collecting, preserving, and disseminating the intellectual output of an institution in digital form, particularly a research institution (New World Encyclopedia, 2018). Generally it includes materials such as journal articles, conference papers, peer reviews, electronic versions of theses and dissertations from an academic institution. The main purpose of this study is to share the experiences of setting up an institutional repository (IR) at General Sir John Kotelawala Defence University (KDU) and make suggestions to overcome the challenges for sustainability of the repository. Empirical method is used with the participatory approach in this study. Furthermore, the study focuses on some key issues to be considered when developing the repository. The institutional repository of KDU library network has developed by using D-Space software and running with a separate internal server. Formulating repository policy framework, authority control, copyright issues and persuading the academic staff to deposit their publications were considered as major challenges in this study. In order to encourage research scholars to deposit their publication, librarians should follow the marketing strategies to emphasize the importance of the institutional repository.

Keywords: *Institutional repositories, University libraries, D-Space, Open access, Kotelawala Defence University, Copyright issues*

Introduction

In recent years, the way of scholarly communication has been changed due to technological advancement. Due to this, institutional repositories (IRs) has been emerged as an alternative channel for dissemination and communication research findings. Therefore institutional repositories are fast becoming significant players in the provision of scholarly communication and information resources as well (Tapfuma & Hoskins, 2019). As defined by Lynch (2013), a university-based institutional repository is “set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members”. Especially it will include the intellectual works of the university including research and teaching materials, and also documentation of the activities of the institution itself (Lynch, 2003). In Sri Lanka, most of the government universities and research institutions have explored the benefit of developing their institutional repositories to archiving the intellectual output of their faculty members and their

institutional materials. By understanding the value of visibility to local research, in 2011 National Digitization Project was launched by the National Science Foundation (NSF) in Sri Lanka. It was coupled with the National Network of Institutional Repositories project which was operated across academic, research and related institutions. Through this project it was able to explore the scholarly literature of local scholars and to have convenient online access to the entire documents. According to the National Science Foundation of Sri Lanka, from 2012 to 2017 it was able to benefited 32 research institutions and universities under this project. In parallel with this innovation some institutions also taking steps to create their institutional repositories to showcase their academic and intellectual output to the wider community without hindrance. With this technological advancement, Kotelawala Defense University also realized the value of having its own repository. The task has been taken by the library of General Sir John Kotelawala Defense University and project proposal was prepared to develop the institutional repository (IR) in parallel with the KOHA library management system. The project was started to initiate in year 2015 onwards. In order to initiate the project, the project proposal was tabled at the Library Committee Meeting and got the approval to proceed with the project. Subsequently KDU library reserved the responsibility in establishing, collaborating, managing, maintaining and disseminating the intellectual and research output of KDU.

This study is an effort to share the summary of experiences of setting up an institutional repository at General Sir John Kotelawala Defense University (KDU IR), aiming some key issues to consider and make suggestions to overcome the challenges for sustainability of the repository. In this effort, the study depict the methodology and tools used for developing the KDU institutional repository. The paper is organized in different sections which summarizes the history of the KDU IR, a description of the process followed to design and implement the repository, types of the content hosted, repository policy framework, authority control, copyright issues, difficulties faced in managing KDU IR and future plans were discussed.

Objective

The prime objective of this study is to discuss the experiences of setting up an institutional repository at General Sir John Kotelawala Defense University and make suggestions to overcome the challenges. Further to discuss future plans for the sustainability of the repository.

Methodology

The study based on a case study of General Sir John Kotelawala Defense University institutional repository (KDU IR) conducted using participatory research approach. This study provides detailed discussion of the setting up the KDU IR focusing on some key issues and make suggestions to overcome the challenges for successful implementation of the repository.

The paper outline the various steps involved in developing KDU IR. These include selecting an appropriate software for IR, installation & customizing D-Space, framing the IR policy, collection development of the IR and some key issues in developing the KDU IR.

Results and Discussion

1. Starting Out

The Institutional Repository project of General Sir John Kotelawala Defence University was initiated in year 2015 in parallel with the KOHA Library Management System and it was officially started in year 2017. The project was funded by the university and the responsibility was headed by the library of KDU. In order to initiate the project, the project proposal was prepared and discussed at the Library Committee Meeting and was taken the approval to proceed with the KDU IR. Due to unavailability of in-house expertise in KDU, an expert in this field was invited for initial installation and customization in this project. KDU IR is created by using D-Space Software and after the installation of the repository, it is maintaining by the KDU Library and host all the content on dedicated temporary server in a PC. It was given two web address for the KDU IR depending upon the capacity of the internal server. For the main content of the repository the web address was crated as <http://ir.kdu.ac.lk>. The IR provides access to KDU publications such as academic journal articles, conference proceeding articles & seminar papers, magazines, newsletters etc., research publications authored by faculty members, abstract of theses & dissertations which was submitted by the postgraduate students at KDU. Apart from these contents, through internal address (10.10.20.202) access provided for past question papers, e-books, scholarly articles provided through document delivery service. The KDU IR was first established internally and open to the web after set up a separate domain for IR.

2. Software Selection & Customization

Since there are number of software solutions available for setting up an IR, selecting of an

appropriate software was a major challenge in this project. In Sri Lanka, most of the government universities and research institutions used D-Space software when setting up their institutional repositories since it is an open source solution for IR. D-Space open source repository software developed by the Massachusetts Institute of Technology (MIT) and Hewlett-Packard (<http://dspace.org>). After selecting D-Space, an expert in the field was invited to download and installed on the repository server at KDU in January 2016. D-Space version 6.2 was installed on dedicated temporary internal server in a PC and a Linux Debian is used as operating system.

After installation of D-Space, the front-end and configuration files were customized by the invited expert in order to match with the university requirement and different communities and collections were created for faculties, departments and university as a whole. Except past question papers, all other collections are made available to public without a restriction. The interface of the KDU IR was customized by using KDU logo and was able to brand the service clearly as KDU IR.

3. Staffing

There were no extra manpower or funding provided for the project. Therefore, after customization of the IR, the library depended on existing library staff to create and maintain the repository. In addition to the initial setup and customization done by the expert, three academic librarians including 7 data entry staff was established to handle the initial development of the IR. Subsequently, one professional faculty liaison librarian appointed as a coordinator for the overall observation of the IR and two information assistants were given the responsibility for the data input task.

4. Organizing the repository

In D-Space, a repository is made up with a hierarchy of communities, collections, items, metadata and bitstreams (Lam & Chan, 2007). A document is uploaded as an item, which contains metadata including all the details of the document and a bundle of bitstreams, such as PDF or any other files type that hold the original content of the document. Items are included in collections, which comes under different communities (Lam & Chan, 2007).

Documents in the KDU Institutional Repository are organized by document types (communities) including KDU publications, research publications, theses & dissertations, university events and past exam papers. Each communities again sub grouped according to

academic faculties, year of the publication and finally nature of the university events (sub communities). They are further grouped according to the document types, subject discipline (collections). As of June 2019, the repository holds 1633 documents in 4 major communities. Conference papers, past exam papers, theses and dissertations constitute the major document types held in the repository.

5. Repository policies

Organization support, its positive insight and approval is very much important for building up and maintaining the IR collection. It requires continuous support for its sustainability in a positive manner. As mentioned in the above, KDU IR consist of research publications, university publications, theses & dissertations, and past questions papers. As mentioned by Oak & Patii (2015), developing a well-documented collection policy itself is a challenge for the librarians.

The official approval was taken for the items included in the KDU IR at the 8th Library Committee Meeting which was held on June 2018 and four major communities proposed to crate in the IR viz; KDU publications, Research publications, Thesis & Dissertations, Past exam papers.

The purpose of the KDU IR project is to allow the users acquire the possibility of immediate access to the results of scientific and research works on the global level. Further this will help to climb up the university ranking systems, which include Webometric and QS university ranking.

6. Document submission and processing

In order to decide which documents and how these documents collected for the KDU IR, the library had to prepare a special library committee paper on KDU IR and harvest research output and other publications in KDU. According to the library committee paper on KDU IR, it was decided to accept all faculty publications including journals, magazines, newsletters etc., individual publications by faculty members including journal articles, articles on conference proceedings/symposia, books & book chapters etc. Further, responsibilities were given for university authorities when collecting different types of documents to the KDU IR.

Although, the responsibilities were given for the university authorities, the library had to take more proactive approach to collect the documents for the repository as mentioned in their research study by Lam & Chan (2007). For example, the library had to discuss the matter at

each faculty board meetings to encourage faculty members to submit their publications to the IR Team, contacted individual faculty members to request for their complete publication lists and the full-text documents, visited faculty members profile in the faculty webpage and harvest full-text research papers and publications.

After collecting all the documents, if the electronic version was unavailable, the IR team had to convert original document into digitized document as PDF file. This process was applied for past paper collection. As library decided to include only abstract of theses and dissertations submitted by post graduate students of KDU and if an individual faculty member interested to include their PhD theses in the IR, those documents would be included with the author permission and all of them would be openly accessible.

7. Copyright issues

It was concern about the copyright issues regarding journal articles and other scholarly work done by the faculty members under publisher copyright policies. In order to support and encourage the authors, having an institutional statement of copyright was highlighted and following suggestions were proposed at the 8th Library Committee Meeting.

- If an author publishes his/her article open access, the final published version can be archived in institutional repository without any copy right issue and it can be made publicly accessible immediately.
- A pre-print is the author's version of the article before peer-review has taken place ("pre-print"). Preprints can be deposited in the IR without any copyright issue.
- If an author has transferred the copyright to a publisher, he/she needs to get permission from the copyright owner to archive it in the IR. If not, library can find the embargo period of the journal and help author publish it in IR after completion of the embargo period. This can be done using SHERPA/RoMEO database (see <http://www.sherpa.ac.uk/romeo.php>) or by contacting publishers directly with an official email. SHERPA service and the SHERPA partnership are both based at the Center for Research Communications at the University of Nottingham provides at compiling summaries of publisher self-archiving policies to find out embargo periods of journals.
- If copyright issue cannot be resolved, authors can publish their abstracts in the IR providing a link to the full-text article for easy reference.

The Challenges in Developing KDU IR

Building an institutional repository is a challenge regardless of its positive outcomes. The KDU library had encountered many difficulties and challenges while developing the IR. Finding the skillful manpower for the project was a major challenge. At the very beginning of the project, all library staff were trained by the invited expert in order to work with the IR task. Although it was given the formal training for data entry and handle the IR, real work experience of the library professionals is very much needed for the smooth functioning of the KDU IR. Therefore, with the existing workload, only one professional library staff is not enough to continue the sustainability of the IR.

Another burning issue was not having dedicated server with all specified requirements. At present, KDU IR is running in a temporary PC with limited space. This is a major drawback when uploading more documents in the IR. With this challenge it was decided to have two separate domain as external domain and the internal domain for two communities created on IR including past exam papers and KDU e-publications. This will be a major challenge for the sustainability of KDU IR.

Getting the faculty members involvement and enthusiasm in submitting documents to the IR was difficult task. It was observed that, there were some concerns regarding copyright issues and their attitudes towards archiving the research output. The library was taken some efforts to emphasis the impotency and the value of placing their research work on the repository. For example, paper submission to the KDU IR was discussed at every faculty board meetings to change their attitudes towards the paper submission to the repository. But, still they are reluctant to submit documents to the IR. Therefore, as emphasized by Oak & Patil (2015), it is needed to have some sessions on promoting the use of the institutional repository. This should be done by the library professionals as a promoter and collaborator in uplifting the institutional repository at global level.

Although it was proposed institutional copyright statement, it seems that there are misunderstanding among academics about copyright and rights they have re-use their publication after signing of the copyright transfer agreement with the publisher. Therefore, sometimes they are reluctant to submit their document to KDU IR. Further, it is very difficult to obtain correct version of the paper as submitted by the author for publication. Using authors' final version of the document raised the problems about the quality control and their final version of the document. Because, the final version of the document is very different

with the version that is finally published. Due this confusion, explaining these copyright policies is extreme difficult and frustrating of encouraging academics to deposit their documents. This was highlighted by Barwick (2007) as well.

As highlighted by Murugathas & Balasooriya (2014), standardization of bibliographic data is also remain as a challenge. This because of the diversity of personal name usage in different stages like after and before marriage, individuals may use their names in a different way. This may happen for the institutional names as well. For the same institution, different publications give various short forms for the same institution. This may occur data standardization issues. Indication of superscript and subscript characters are also very difficult in D-Space. Therefore, we had to give special attention to this issue in every documents when editing item meta-data.

Sustainability and Future direction

The continuous supervision and institutional support are crucial factors in ensuring the sustainability of the institutional repository. At the initial stage, the IR team had to work hard towards converting institutional publications such as conference proceedings of KDU to covert as PDF files before uploading in the IR. Still, we are struggling to get the sufficient documents from the academics to upload in the IR. Therefore, the positive attitudes towards self-archiving should be promoted with long-term strategic plan. It is very much important to have separate committee or group to monitor the developments of the KDU IR including legal issues, and any technical issues related to IR. The value and the impotency of IR should be emphasized at the staff induction programme or by organizing separate session on KDU IR in collaboration with the university Staff Development Center. Further to educate the dedicated staff for the IR project should be given continuous training on new developments of the system and also taking backup of the data at regular intervals is very much essential to adopt migration of data (Murugathas & Balasooriya, 2014). In future, KDU IR is having an aim by hosting digital collection on Defence related to Sri Lankan history further to harvest documents which have not sofa uploaded to the KDU IR with a proper strategic plan.

Conclusion

The paper presented some experiences in designing and developing the Institutional Repository at General Sir John Kotelawala Defence University. Selecting an appropriate software for IR, installation & customizing D-Space, framing the IR policy, collection development and major challenges in developing the KDU IR were focused in this study.

Sustainability of the repository depends upon the willingness of authors to deposit their scholarly publications. In order to persuade academics to submit their papers, it is essential to educate them about the importance of institutional repository. Therefore, the responsibility should be taken by the librarians by taking proactive steps. Further, they need to campaign for institutional support for the success of the repository. Sharing experiences and collaboration among universities and other research institutions those who have their own repositories is very much important to standardize the digitization project in the region. There should be a national level discussion about the repository criteria policy framework for the sustainability of the repository.

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