



Institutional repositories of universities in Maharashtra: Status quo

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Abstract

This study explores the present status of IR development in universities of Maharashtra. This study systematically analyzes the functionality, software used, type of content, origin of funding for IR development, and IR policy. Majority of the universities in Maharashtra which have its own IRs are functional. This shows that universities in Maharashtra are aware of IR monitoring and this is very positive. It highlighted that DSpace was the first choice of Maharashtra's universities for establishing IR. The content type of annual report was found in the majority of the IRs of the universities in Maharashtra. Researchers suggest that IR growth in Maharashtra can be accelerated if institutions that have IRs or institutions planning to establish IRs can allocate funds specifically for IR development and create codified IR policies for their institutions.

Keywords: institutional repository, Maharashtra, University, DSpace, library

Introduction

The university contributes to the human, social and economic status of the country or community. Students, faculty, alumni, community groups, governments as well as industry and professions are stakeholders of the universities. Universities and research institutes around the world are paying more and more attention to the creation and use of digital documents, including text, photographs, graphics, archives, blogs, websites, audio and video materials, television and radio broadcasts, which are preserved in digital form (Rao, 2007) [13]. The institutional repository (IR) helps many universities gain global recognition by capturing its institutional content and making it available to other scholars worldwide (Ukwoma & Okafor, 2017) [15]. Many academic and research institutes intend to use their IRs to offer research data services (Lee and Stvilia, 2017) [8]. In today's digital age, IRs play a crucial role in the research and scholarship sector. They act as a strategic asset for higher education institutions and efficiently gather the intellectual output of these institutions to aid in assessment, collaboration, outreach, teaching and institutional advancement. Furthermore, IRs have the potential to elevate the global presence and visibility of institutions and their community to a significant degree. To realize the full potential of an IR, it is essential to have a meticulous planning process in place, adequate support, and active participation from all members of the institution (Kanu A. Nagra, 2012) [10]. Theses, dissertations, seminar papers, projects, conference proceedings, administrative records, learning materials, and other types of grey literature could be included in the IRs (Anenene *et al.*, 2017) [3]. There are several advantages of the IRs for the institutions. The IR provides an opportunity to collect, store and disseminate institutionally generated content and it draws attention to universities and faculties. It is vital to note, however, that the IR movement is still in its early stages. Some of the difficulties mentioned include material sourcing, academic

cooperation, funding, indexing, personnel, and utilization. Despite these obstacles, there are several advantages to confronting them head on (Adebayo, 2009) [2]. Both the university and the author have advantage from open access IRs. The university increases reputation and visibility and all its institutional scholarly output in a single location and the author gets opportunities for international recognition. Additionally, it supports the learning and teaching capabilities of its patrons (Abdelrahman, 2016). Institutions, libraries, researchers, professors and students are all beneficiaries of IR implementation. Libraries play an important role in the effective execution of IR projects, hence librarians must be equipped with the essential ICT skills. Senior management support, clear and explicit rules on digitization and copyright clearance, proper budgetary allocation, and platform marketing are critical for the efficient deployment and operation of IR (Ngure *et al.*, 2015) [11]. The present study identifies Institutional Repositories of the Universities in Maharashtra and systematically analyzes their status, functionality, content type, software used, source of funding for IR development, and written IR policy etc. Also, in today's age of information technology, intellectual and learning materials continuously produced by university stakeholders. These intellectual and educational materials can be archived, preserved and disseminated through IR.

IR: some thoughts

Several researchers have expressed their views about IR in research papers, conference proceedings, books etc. In which they give its definition, characteristics, and objectives behind establishing IR.

“An Institutional Repository is an organization based set of services which the organization offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational

commitment to the stewardship of these digital materials, including long-term preservation, where appropriate, as well as organization and access or distribution” (Lynch, 2003) [9]. Roy, B. K., Mukhopadhyay, P., & Chandra Biswas, S. (2012) [12] stated possible reasons behind IR formation of any institutions i) supporting the open access movement; ii) providing access to publicly financed research; iii) providing open access to the institution's output; and iv) supporting preservation, among others.

IR is a digital collection for capturing and preserving the intellectual output of a single or multi-university community” (Crow, 2002) [5]. “An institutional repository is a database with a set of services to capture, store, index, preserve and redistribute a university’s scholarly research in digital formats” (Barton, M. R., & Waters, M. M., 2004) [4]. Dhanakar, M A., Nithyanandam, K., Pandian R. & Rajasekar, V. (2008) [6] defined IR as “An institutional repository is a set of services that a institute/university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members”.

According to Johnson (2002) [7], an IR has four features. They are as follows: institutionally defined; scholarly (containing the work of faculty, research staff, and students); cumulative and perpetual (the content will be kept for a long time); and open and interoperable (attentive to the OAI Protocol for Metadata Harvesting).

Universities in Maharashtra

According to the University Grants Commission (UGC), there are 1 Central University, 25 State Universities, 21 Deemed Universities and 19 Private Universities located at various locations in Maharashtra.

Research methodology

In this study, the IRs of universities in Maharashtra have been studied. For this study, the author compiled a list of available Central Universities, State Universities, Deemed Universities, and Private Universities in Maharashtra from the University Grants Commission website. Then the researcher visited the website of each university to identify if there is an institutional repository at the respective university. Survey and observation techniques were adopted

for the present study and data were collected through questionnaires from the university having IRs. In this study, identified Institutional Repositories of Maharashtra were evaluated based on their functional status, software used, content type, current status, source of funding, and IR policies.

Objectives of the study

- To find out the IRs available in Universities in Maharashtra.
- To identify the Software used to build IRs in Universities in Maharashtra.
- To identify types of content available in Institutional Repositories in Universities in Maharashtra
- To identify records available in IRs in universities in Maharashtra
- To identify the functional status of available IRs in universities in Maharashtra
- To study whether Maharashtra universities having IR have a written IR policy.
- To find out the current status of IRs in universities in Maharashtra.
- To find out the source of the funding of the IRs in universities in Maharashtra

Scope & limitation of the study

Institutional Repositories available on the Internet are considered for the study. Institutional Repositories that are non-functioning, available on the intranet, and have only the Institutional Repository tab on the institution's website are not considered for this study.

Data analysis and interpretation

Identified IRs of Universities in Maharashtra

The researchers identified 8 universities in Maharashtra that have their own IR. Table 1 shows identified IRs of universities in Maharashtra. 7 out of 8 universities filled in the questionnaire. Defense Institute of Advanced Technology (DIAT) university reported inability to fill out the questionnaire. As the data of the Defense Institute of Advanced Technology (DIAT) were unavailable, it was excluded from this study.

Table 1: Identified IRs of Universities in Maharashtra

Sr. No.	University Name	District	IR Name
1	Shivaji University, Kolhapur	Kolhapur	http://ir.unishivaji.ac.in:8080/jspui/
2	SNDT Women's University, Mumbai	Mumbai	http://120.63.216.208:8090/jspui/
3	Indira Gandhi Institute of Development Research, Mumbai	Mumbai	http://oii.igidr.ac.in:8080/xmlui/
4	Somaiya Vidyavihar, Mumbai	Mumbai	https://repository.somaiya.edu/
5	Kavikulaguru Kalidas Sanskrit University Ramtek	Nagpur	http://14.139.120.91:8082/xmlui/
6	Tilak Maharashtra Vidyapeeth, Pune	Pune	http://210.212.169.38/xmlui/
7	Gokhale Institute of Political & Economics, Pune	Pune	https://dSPACE.gipe.ac.in/xmlui/
8	Defense Institute of Advanced Technology, Pune	Pune	http://192.168.27.101:8080/jspui/

Functional status of identified IRs of Universities in Maharashtra

Table 1 shows the URLs of IRs developed by universities in Maharashtra. Only the IR URL of the Defense Institute of Advanced Technology (DIAT) was non-functional. It was observed that IR URLs of 7 (87.5%) out of 8 universities were functional while IR URLs of only 1 (12.5%) university were non-functional.

Identified IRs in Maharashtra by type of Universities

Maharashtra has 66 universities including Central Universities, State Universities, Deemed Universities and Private Universities. Fig. 1 shows the types of universities in Maharashtra that have developed IRs. It was found that 3 (37.5%) state universities, 4 (50%) deemed universities and 1 (12.5%) private university have developed their own IRs.

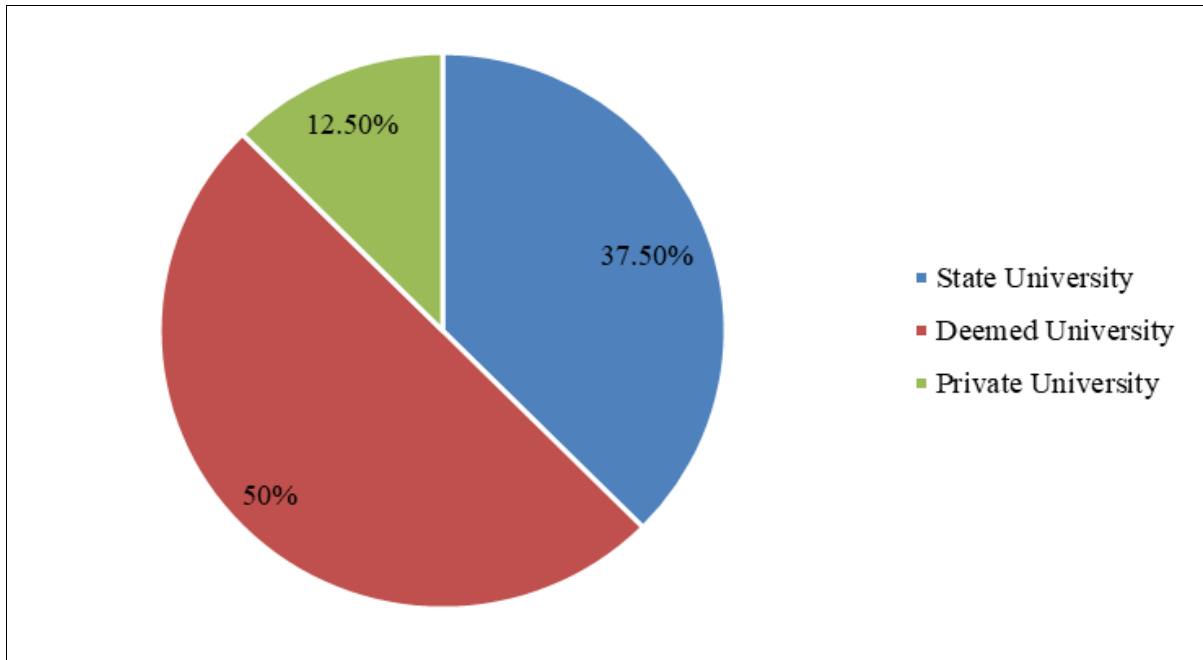


Fig 1: Identified IRs in Maharashtra by Type of Universities

Content type available in IRs of Universities in Maharashtra

In IR, various types of content are stored and preserved in digital form. The Table 2 provides information on the type of content in the IR of universities in Maharashtra. Annual reports (85.71%) were the most common type of content found in IRs of universities in Maharashtra. Followed by Thesis & Dissertations (71.43%); Conference proceedings/reports (71.43%); Newspapers

clippings/articles (57.14%); Question Papers (University/Institute/Competitive Exam) (57.14%); Project/ Research reports (42.86%); Journal articles (42.86%); Video, Audio, Multimedia Materials (42.86%); Photographs/Images were found in IRs of universities in Maharashtra. While the proportion of Books chapters, Books reviews and Programs, Software's were the least (14.29%) respectively in IRs of universities in Maharashtra.

Table 2: Content type available in IRs of universities in Maharashtra

Content Type	Frequency (N=7)	Percent
Annual reports	6	85.71
Thesis & Dissertations	5	71.43
Conference proceedings/reports	5	71.43
Newspapers clippings/articles	4	57.14
Question Papers (University/Institute/Competitive Exam)	4	57.14
Project/ Research reports	3	42.86
Journal articles	3	42.86
Video, Audio, Multimedia Materials	3	42.86
Photographs/Images	3	42.86
Preprints, Post-Prints	2	28.57
Research articles (Abstract & Full text)	2	28.57
Technical reports/papers	2	28.57
Books	2	28.57
Teaching materials such as files, images, videos, PPT presentations prepared by faculty/lecturers	2	28.57
Assignments, papers, and project prepared by a student	2	28.57
Manuscripts	2	28.57
Convocation address	2	28.57
Books chapters	1	14.29
Books reviews	1	14.29
Programs, Software's	1	14.29

Number of records in IRs of Universities in Maharashtra

Fig. 2 provides information on the number of documents in IR developed by universities in Maharashtra. It was observed that Gokhale Institute had the highest number of

(31434) documents in IR followed by SNDT Women's University, Mumbai (9200) while Indira Gandhi Development Research Institute, Mumbai had the least number (390) documents in IR.

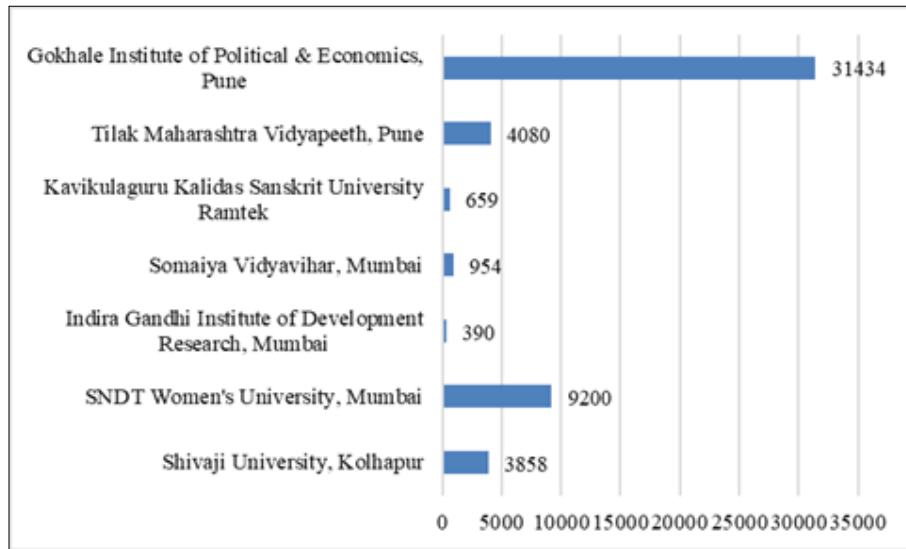


Fig 2: Number of records in IRs of Universities in Maharashtra

IR software used by universities in Maharashtra for IR development

Several IR software platforms are used to develop IR such as DSpace, Eprint, Greenstone, Digital Commons, WEKO, PURE, CONTENT dm, HAL, etc. Table 3 illustrates which IR software was used by universities in Maharashtra for IR establishment. It was found that all Maharashtra universities used DSpace IR software to develop the IR.

Table 3: IR software used by universities in Maharashtra for IR development

IR Software	Frequency (N=7)	Percent
DSpace	7	100
Other IR Software	0	0

IR Software Type

Both open source and commercial IR software are available in the market for IR development. Table 4 shows the types

of IR software used by universities in Maharashtra to build IR. However, it was found that all 7 (100%) universities in Maharashtra used open source software to develop IR.

Table 4: IR Software Type

IR Software Type	Frequency (N=7)	Percent
Open Source	7	100
Commercial	0	0

Present Status of the IRs of Universities in Maharashtra

The researcher divided IR development status into two categories in order to understand the current status of universities' IRs in Maharashtra: Developed and Developing. Fig. 3 illustrates present Status of the IRs of universities in Maharashtra. The current status of IRs (71.43%) of 5 universities in Maharashtra has 'Developed', while the current status of IRs (28.57%) of 2 universities has 'Developing'.

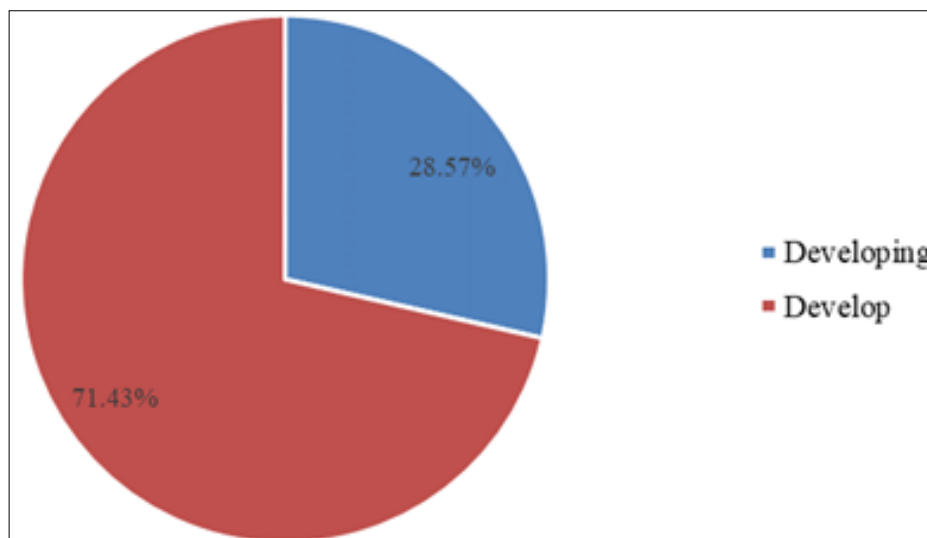


Fig 3: Present status of the IRs of Universities in Maharashtra

Source of funding of the IRs of Universities in Maharashtra

Fig. 4 shows how universities in Maharashtra have managed funding sources for IR development. Majority (85.71%) of

the university librarian said that part of the library budget is the main source of funding for IR development. While only 1(14.29%) of the university librarian said that departmental share was the source of funding for IR development.

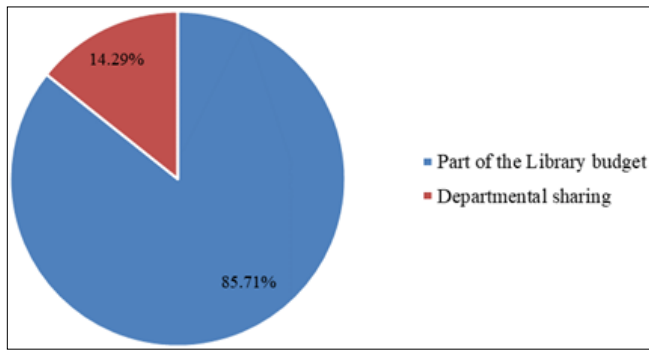


Fig 4: Source of funding of the IRs of Universities in Maharashtra

Dedicated budget improve the IR services

For establishing IR, a variety of things are required. Among them are ICT and physical infrastructure, as well as human resources. An organization needs a budget to meet this requirement. Table 5 shows whether a dedicated budget is required to improve IR services. All university librarians who participated in the survey felt that a dedicated budget would improve IR services.

Table 5: Dedicated budget improve the IR services

Dedicated Budget Improve the IR Services	Frequency (N=7)	Percent
Yes	7	100
No	0	0

Written IR policy of IR of Universities in Maharashtra

The IR Policy provides guidelines for material selection, stewardship, submission, preservation and access. Fig. 5 provides information on how many universities have a written IR policy. It shows that only 28.57% of universities have a written IR policy, while 71.43% of universities do not have a written IR policy.

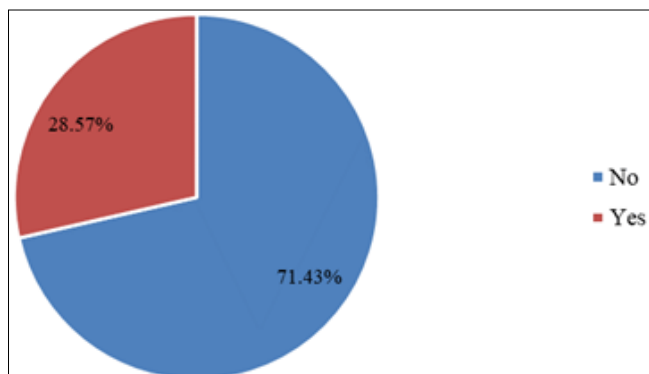


Fig 5: Written IR Policy of IR of universities in Maharashtra

Findings

- There were only 8 universities in Maharashtra which developed their IR.
- It was found that DSpace was the only IR software platform which was used for the development of IR in the universities of Maharashtra.
- In Maharashtra, deemed universities had the highest IR development rate (50%) compared to central universities, state universities, and private universities.
- It was found that among the universities in Maharashtra that developed IR Gokhale Institute of Political &

Economics, Pune has the highest number of records (31434) in IR.

- It was found that among the universities in Maharashtra that developed IR Indira Gandhi Institute of Development Research, Mumbai has the least number of records (390) in IR.
- It was observed that out of 8 IRs of identified universities in Maharashtra, URLs of 7 (87.5%) IRs were functional while URLs of 1 (12.5%) IR were non functional.
- The survey found that all universities in Maharashtra that developed IR tended to use open source software.
- It was found that 5 (71.43%) of the participating universities IR in Maharashtra had developed stage and only 2 (28.57%) universities IR in Maharashtra had developing stage.
- It was discovered that the most common item type in Maharashtra universities' IRs was annual reports (85.71%).
- According to librarians of participating universities in Maharashtra 6 (85.71%) university librarians agreed that the main source of funding for IR development was the library budget, while 1 (14.29%) said it was departmental sharing.
- It was found that 5 (71.43%) of universities didn't have a written IR policy, according to the survey.
- All the university librarians in Maharashtra who participated in the survey agreed that a dedicated budget would improve IR services.

Conclusion

It is certainly noteworthy that 5 (71.43%) of the surveyed universities had developed IRs. 8 universities IRs were identified in Maharashtra out of which 7 universities IRs (87.5%) had functional URLs. This is a very positive thing that universities in Maharashtra are conscious about IR monitoring. The universities in Maharashtra focused on using open source software to develop IR and their first choice was DSpace. Generally in Universities IR in Maharashtra Annual reports, Thesis & Dissertations, Conference proceedings/reports, Newspaper clippings/articles, Question Papers, Project/ Research reports, Journal articles, Multimedia Materials, Photographs/Images this item type were found. IR development in Maharashtra can be boosted in the future if the institutions that have its IR or the institutions that plan to establish the IR can provide a dedicated budget for IR development as well as develop a written policy of the institution on IR.

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