Full Length Research Paper

Institutional Repositories as an Online Archival Service: A Quantitative Study of Open Access Institutional Repositories of Japan As Registered In Opendoar (As On 12th March 2015)

[1]Mr. Ambhore Sagar P., [2]Dr. Khaparde Vaishali .S. and [3]Ms. Ranveer Vishakha B.

[1]Research Student, Dept .of Library & Information Science, Dr. Babasaheb Ambedkar Marathwada, University, Aurangabad. (MS) Japan. Email: ambhore.sagar02@gmail.com
[2]Professor and Head, Dept .of Library & Information Science, Dr. Babasaheb Ambedkar Marathwada, University, Aurangabad. (MS) Japan. Email: khapardevaishali@gmail.com
[3]Research Student, Dept .of Library & Information Science, Dr. Babasaheb Ambedkar Marathwada, University, Aurangabad. (MS) Japan. Email: ranveer.vishakha@gmail.com

The study reports the functioning of institutional repositories in Japan. Various aspects like nature of Institutional repositories (IR), type of open access IR, content types, content language, repository software used, subjects covered, availability of preservation and full text re-use policies and their growth rate were analyzed. Open DOAR website and the websites of individual institutional repositories were browsed to collect the required data. 145 IRs of Japan are registered in open DOAR as on 12/03/2015. 142 (98%) of the open access IRs are operational in Japan. 139 (96%) open access IRs in Japan content belong to institutional repository type. 130 (89%) IRs in Japan have journal articles, 69 (47%) of them have theses, 62 (42%) of them have Theses and dissertations and 32IRs (22 %) have Conference and workshop papers. 142 (97%) institutional repositories have contents in Japanese language. Dspace software has emerged as the most used IR software in Japan open access IRs. 96 IRs (66 %) use Dspace software. 123 (88%) of them have not defined their preservation policies. 109 IRs (75%) are multi-disciplinary in nature viz they have contents on many subjects. 20 IRs each have contents on Health and Medicine and 10 IRs have contents on Science General. 133 IRs (96 %) have not explicitly defined their full data item re-use policies. The birth of IRs took place in the middle of 2005 in Japan. The year 2010 could see the formation of around 50 IRs. Kyushu University Institutional Repository tops with 383877 records, followed by Archives of Kyoto University Research Information Repository with 149377 records. The study can be further extended to research the individual IRs of Japan or a comparison of related IRs of Japan. It acts as a guide to the authorities concerned to see where IRs in Japan are and what they lack. It acts as a yardstick to the authorities to bring out a' Japanese IR Standard ' to standardize the content and presentation of Irs.

Keywords: Institutional repositories, open DOAR, content types, repository software, preservation policy, growth rate.

INTRODUCTION: INSTITUTIONAL REPOSITORY

An IR may be defined as an on-line locus for collecting and preserving – in digital form the intellectual output of an institution, particularly a research institution (Wikipedia). According to Lynch (2003) an institutional repository is a "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. 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. (Crow, 2002& Ware, 2004) characterized an institutional repository as open, interoperable, cumulative, perpetual, contributes to the process of scholarly communication in collecting, storing and disseminating the scholarly content. The Scholarly Publishing and Academic Resources Coalition (SPARC) position paper declared that "Institutional repositories are digital collections capturing and preserving the intellectual output of a single or multi-university community, providing a critical component in reforming the system of scholarly communication a component that expands access to research, reasserts control over scholarship by the academy, increases competition and reduces the monopoly power of journals, and brings economic relief and heightened relevance to the institutions and libraries that support them (Crow, 2002).

OBJECTIVES OF AN IR

(Gibbons, 2004) presented compelling reasons for why an organization would want to establish an IR including providing an infrastructure for preservation of digital content, lowering the barrier to document distribution, creating a centralized digital showcase in which research, teaching, and scholarship can be highlighted, and facilitating wider distribution. (Yeates, 2003) also listed the benefits of IRs, such as: extending the range of knowledge sharing, existing investment in information and content management systems can be leveraged; and more flexible ways of scholarly communication are available. Academic institutions would also reap these benefits.

LITERATURE REVIEW

(Chen & Hsiang, 2009) they conducted studies on Japanese institutional repositories revealed that Open Access repositories are not widespread and the percentage of institutional repository systems in Japanese countries is about 4-10 percent except in mainland China which has a centralized institutional

repository system for about 300 universities. On the other hand, the numbers of institutional repository systems in Japan and Korean universities are increasing very quickly (Lee 2008). As for Japan, Fernandez (2006) asserts that the lack of infrastructure for establishing institutional repositories is a major barrier to the growth of institutional repositories in the country. Several Japanese studies have reported isolated findings of institutional repository growth on a broad spectrum, such as in Japan (Fernandez 2006), Japan (Mukarami and Adachi 2006), China (Zhong 2009), Taiwan (Chen and Hsiang 2008), and Japan (Kiran and Chia 2009), and they reported a slow progress. Kiran and Chia (2009) reported that the adoption of institutional repositories in Japan is rather low, even in the country's top four research-intensive universities. Zhong (2009) used data from the Registry of Open Access Repositories (ROAR).

(Khaparde, 2011) Abstract Knowledge is the totality of ideas, conserved through human civilization and knowledge management (KM) is a process, which converts the internal and external information of the organization into actionable knowledge. KM has emerged as a key concern of organizations. Better management of knowledge within the organization leads to improved innovation and competitive advantage. Developing an effective KM system requires a well-balanced approach.

(Khaparde & Pawar, 2013) studied the authorship pattern and author's collaborative research in Information Technology with a sample of 17917 articles collect from LISA during 2000-2009.The average number of authors per article is 1.80. In the study the degree of collaboration (C) during the overall 10 years (2000-2009) is 0.71 but the year wise degree of collaboration is almost same in all the years of mean value 0.49. According to 10 years of period, the multi- authorship articles are higher and predominant on single authorship. The study found that the researches in Information Technology are keep toward team research or group research rather than solo research.

(Khaparde, 2013)The paper studied the Bibliometric Analysis of Research Publication of Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, from 1975 to 2012. It analyzed all the 774research publications from the 144 journals. It examines year- wise distribution of papers, authorship pattern, journal in which author publish, it revealed that the number of publications has increased consistently from the year 1975 to the year 2012. 25% of the total publications have been made in 2009, 2010, and 2011. And the majority of the publications are made with 4 authors. And also the majority of the research paper published in journal of heterocyclic chemistry.

(Ambhore & Khaparde ,2014) they analysed The Directory of Open Access Journals (DOAJ) lists open

access scientific and scholarly journals, that meet high quality standards by exercising peer-review or editorial quality control and are free to all from the time of publication based on the Budapest open access initiative. Total 31 free online journals were accessed through DOAJ and analyze based on country, language, subject headings, keywords, their accessibility and availability of archives of online journal in Agricultural Biology

(Ambhore & Khaparde, 2015) conducted a study on an evaluation of planetary science repositories in DOAR. The paper provides detailed picture of repositories under Earth and Planetary Science (EP Sci.) category available in Directory of Open Access Repositories (DOAR). In this study EP SCI. repositories EP SCI. ted in Directory of Open Access Repositories (DOAR) are analyzed for number of items archived so far, software used, type of material archived in these repositories etc. Out of 75 repositories Earth and Planetary Science in DOAR. The study discloses the leading countries with repositories providing EP SCI. content and also highly used software used in these repositories.

(Ranveer, 2015) Scientometrics analysis of 110 articles published in the international journal The Collection Building during the year 2005 – 2009 are taken to observe the distribution of contributions , authorship pattern , geographical distribution of contributions and the number of pages used in each volume. Result indicate that highest numbers of papers have been written by single authors

(Shirsat; Khaparde; Ranveer; & Ambhore 2015) The paper provided detailed picture of repositories under Business and Economics (BE) category available in Directory of Open Access Repositories (DOAR). In this study BE repositories listed in Directory of Open Access Repositories (DOAR) are analyzed for number of items archived so far, software used, type of material archived in these repositories etc. 215 repositories listed under Business and Economics in DOAR were searchable. The study discloses the leading countries with repositories providing BE content and also highly used software used in these repositories.

OBJECTIVES OF THE STUDY

The objectives of the present study are to study the IRs of Japan in terms of
1. Operational status
2. Type of open access repositories
3. Repository software used
4. Content types
5. Subjects
6. Most frequently used languages
7. Availability of preservation and full-text re-use policy and
8. Growth rate

METHODOLOGY

The modus operandi of our study underwent the following phases.

1. First of all, the Open DOAR directory was browsed to find out the institutes which were registered therein.
2. Institutional repository statistics was done to get required data to answer the objectives of the study.
3. Then, the URLs of the selected universities were browsed for cross checking and verification
4. Tables were used to show the output of the study.

Findings:-

Operational Status of IRs in Japan:

Table 1 shows that 98 % (142) of the open access IRs are operational in Japan. and 03 of them (2%) Trials are the repositories.

Type of Institutional repositories:

The IR may of different types: institutional (run by a institution or department), disciplinary (a cross institutional subject repository), aggregating (an archive aggregating data from several subsidiary repositories) or a governmental (repository for government data).

Table 2 shows that 139 (96%) open access IRs in Japan content belong to institutional repository type. They are run by various institutes, universities or departments. While 05of them (3%) are the archives that aggregate data from several subsidiary repositories, just 01 of them (1%) is the discipline-oriented repository.
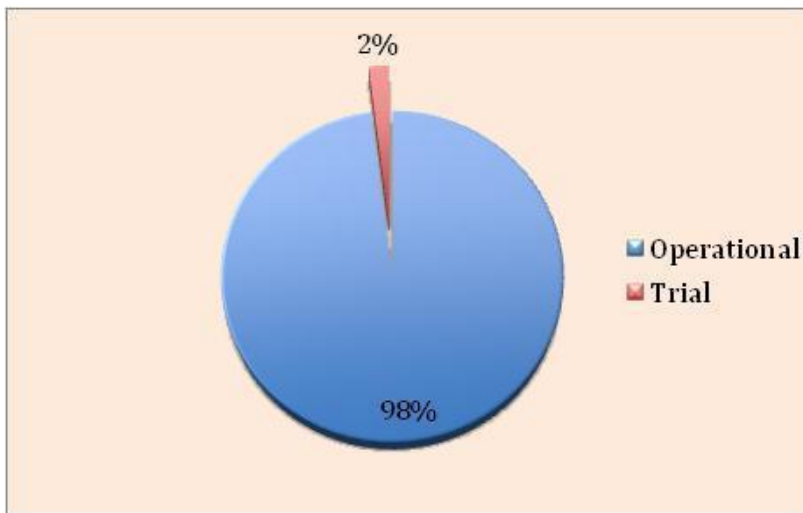
Content Types in Irs:

The IRs in Japan possess different kinds of materials namely journal articles, conference and workshop papers, theses and dissertations, book, chapters and section, multi-media and audio visual materials and some learning objects. 130 (89%) IRs in Japan have journal articles, 47 % (69) of them have theses, 62 (42%) of them have Theses and dissertations and 32 IRs (22 %) have Conference and workshop papers. 31 (21%) IRs contains books and book chapters and only 28 (19%) of them have Other special item types. Table 3

Language content:

Table 4 shows that Out of 145, 142 (97%) institutional repositories have contents in Japanese language. 61 % of IRs have contents in English and 2% of IRs each have contents in Chinese.
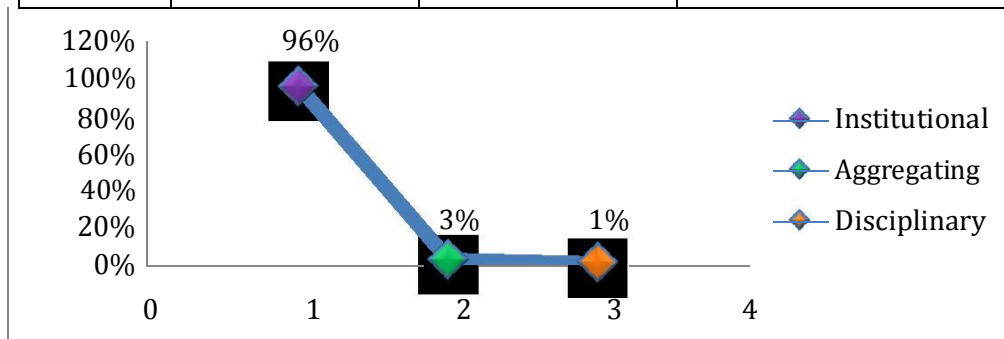
Table 1: Operational Status

Sr.No.	Operational Status	Nuber of Open Access Repositories	% of Repositories
1	Operational	142	98%
3	Trial	3	2%
	Total	**145**	**100%**

Table 2: Open access IR Type as on 30/01/2015

Sr.No.	IR Types	Number of Open Access Repositories	% of Repositories
1	Institutional	139	96%
2	Aggregating	5	3%
3	Disciplinary	1	1%
	Total	**145**	**100%**

Table 3: Content types

Sr.No.	Content types	Number of Open Access Repositories	% of Repositories
1	Journal articles	130	89%
2	unpublished reports and working papers	69	47%
3	Theses and dissertations	62	42%
4	Conference and workshop papers	32	22%
5	books, Chapters and sections	31	21%
6	Other special item types	28	19%
7	Learning Objects	21	14%
8	Multimedia and audio-visual materials	20	13%
9	Bibliographic references	8	5%
10	Datasets	6	4%
11	Software	2	1%

Table 4: Language of the contents

Sr.No.	Content types	Number of Open Access Repositories	% of Repositories
1	Japanese	142	97%
2	English	89	61%
3	Chinese	4	2%
4	German	3	2%
5	Korean	2	1%
6	French	1	1%
7	Latin	1	1%
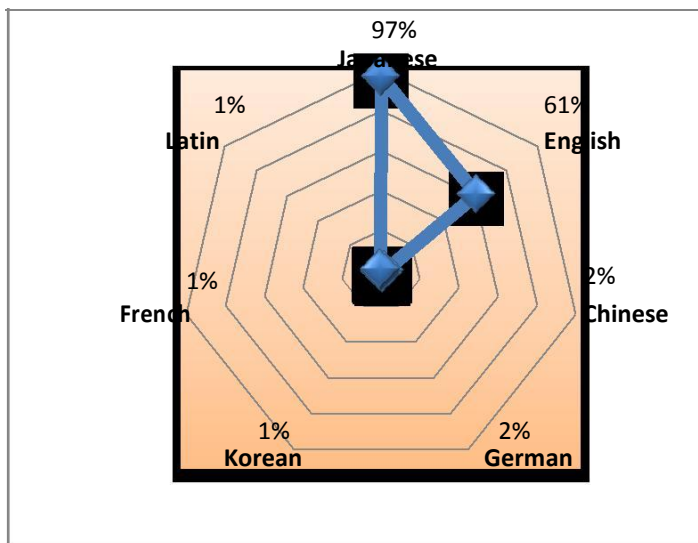
Table 5: Use of Repository Software

Sr.No.	Repository Software	Number of Open Access Repositories	% of Repositories
1	Dspace	96	66%
2	XooNlps	14	10%
3	Unknown	6	4%
4	Earmas	6	4%
5	e-Repository	4	3%
6	iLiswave-J	4	3%
7	WEKO	4	3%
8	Other	11	7%
	Total	**145**	**100%**
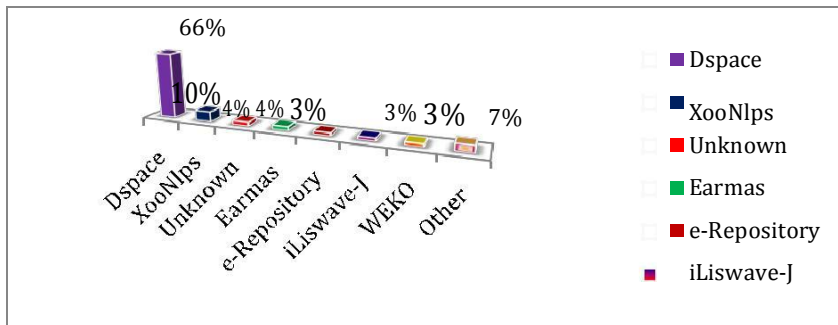
Table 6: Availability of preservation policies

Sr.No.	Recorded Preservation Policies	Number of Open Access Repositories	% of Repositories
1	Unknown	3	2%
2	Unstated	14	10%
3	Undefined	123	88%
	Total	**140**	**100%**

Repository Software:-

Table 5 depicts that Dspace software has emerged as the most used IR software in Japan open access IRs. 96 IRs (66%) use Dspace software. While 14 IRs (10%) use XooNlps, only 6 (4%) IRs use Unknown software.

Recorded Preservation policies:-

Table 6 shows that 14 (10%) institutional repositories have not stated their preservation policies in their web portal. 123 (88 %) of them have not defined their preservation policies.

Table 7: Subjects in IRs of Japan

Sr.No.	Content Types	Number of Open Access Repositories	% of Repositories
1	Multidisciplinary	109	75%
2	Science General	10	6%
3	Agriculture, Food and Veterinary	3	2%
4	Biology and Biochemistry	1	0.6%
5	Earth and Planetary Sciences	2	1%
6	Mathematics and Statistics	1	0.6%
7	Health and Medicine	20	13%
8	Technology General	8	5%
9	Electrical and Electronic Engineering	1	0.6%
10	Mechanical Engineering and Materials	1	0.6%
11	Arts and Humanities General	5	3%
12	Fine and Performing Arts	1	0.6%
13	Geography and Regional Studies	3	2%
14	History and Archaeology	5	3%
15	Language and Literature	5	3%
16	Philosophy and Religion	1	0.6%
17	Social Sciences General	4	2%
18	Business and Economics	5	3%
19	Education	7	4%
20	Law and Politics	5	3%
21	Library and information Science	1	0.6%
22	Management and Planning	1	0.6%
23	Psychology	1	0.6%

Subjects of Irs:

Table 7 shows that 109 IRs (75 %) are multi-disciplinary in nature viz they have contents on many subjects. 20 IRs each have contents on Health and Medicine and 10 IRs have contents on Science General. Eight IRs contain digital contents on Technology General and 07 IRs have materials on Education. Five IRs each have contents on the subjects business and economics, history and archaeology, & law and politics.

Data re-use policies:-

Table 8 shows that a majority of 133 IRs (96 %) have not explicitly defined their full data item re-use policies. 2 IR

has Unstated policy rights for re-use of full data items and 2 IRs have permitted the re-use of full data items for not-for-profit purposes.
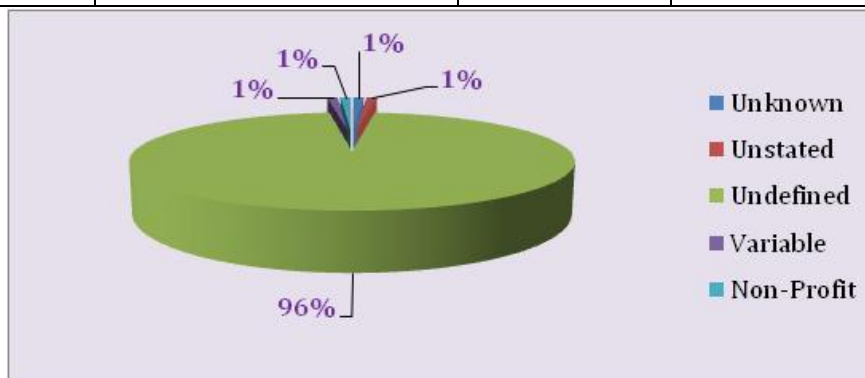
Growth of IRs in Japan:-

Table 9 shows the growth of IRs in Japan. The birth of IRs took place in the middle of 2005 in Japan. There is no much growth in 2008 and 2009. The year 2010 is considered to be the golden period for Japanes IRs since around 50 were established in that year. There is no much growth of IRs during the period 2011-2014.
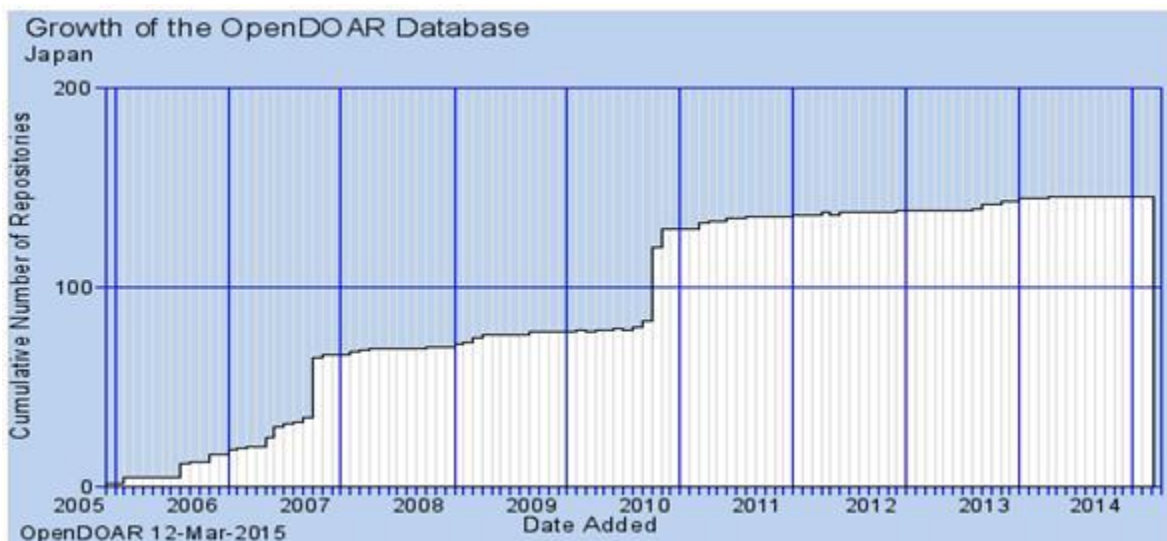
Top Contributors:-

Table 10 shows that Kyushu University Institutional

Table 8: Definition of full-text re-use policies

Sr.No.	Availability of data re-use policies	Number of Open Access Repositories	% of Repositories
1	Unknown	2	1%
2	Unstated	2	1%
3	Undefined	133	96%
5	Variable	1	1%
6	Non-Profit	2	1%
	Total	**140**	**100%**

Table 9: Growth of the Japanese Open DOAR Database

Repository tops with 383877 records, followed by Kyoto University Research Information Repository with 149377 records and PDBj (Protein Data Bank Japan)with 97180 records. Out of top 20 contributors, 15 are hosted by the Universities. There are 5IRs possessing more than 40,000 records.

CONCLUSION

Though IR system in universities and institutes of higher education/research in Japan is still in its infant stage from global point of view, it is happened to be one of the viable and rich Asian countries in terms of number of IRs and

Table 10: IRs with highest number of records

Sr. No.	Repository Name	No. Records
1	Kyushu University Institutional Repository	383877
2	Kyoto University Research Information Repository	149377
3	PDBj (Protein Data Bank Japan)	97180
4	Chiba University's Repository for Access To Outcomes from Research	88476
5	TOhoku University Repository	49168
6	Osaka University Knowledge Archive	49132
7	Hokkaido University Collection of Scholarly and Academic Papers	45866
8	Prometheus-Academic Collections	44698
9	Ochanomizu University Web Library - Institutional Repository	35962
10	Kanazawa University Repository for Academic Resources	35226
11	Okayama University Scientific Achievement Repository	35095
12	UT Repository	31575
13	Tsukuba Repository	30923
14	Nagasaki university's Academic Output SITE	28027
15	DSpace at Waseda University	27699
16	JAMSTEC Repository	27660
17	Hiroshima University Institutional Repository	27650
18	Gifu University Institutional Repository	24840
19	Osaka Kyoiku University Repository	24168
20	Tokyo Women's Medical University-Information & Knowledge Database	23066

the digital contents they possess. 145 IRs are registered in Open DOAR enabling the users an open access usage. Other institutes including various universities also may let their local intellectual output flow in the mainstream of open access platform. A kind of standardization, uniformity and consistency may be insisted upon in the creation and maintenance of these IRs. More web 2.0 tools may be added to enable the

easy sharing of contents among the users community. A national level policy on IR development may be drafted aiming at standardization of publication of intellectual output of one's own institution. National and international bodies in the field of digital libraries may come forward to take up these promising and prospective issues.

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