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Webometric Analysis of Open Access Institutional Digital Repositories in Southern Asia

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Abstract

Website is the face of an organization or institution. This webometrics Analysis is important idea on the Institutional Digital Repositories (IDR) in Southern Asia. This paper presents to highlight the Digital Items/Total Titles with various scores and Web ranking of the IDR in Southern Asia. Google.com and SocScibot4 are Use for data collection and designing self-link, in-link, external link and mapping visualization of this sites. In this study, a selected search engine (Google) is used to find out the number of link webpages in each IDR in Southern Asia with different types of links i.e. hyperlinks (self-link, in-link and external link). Five special key words like site:URL/site Address, link:URL/site Address, link:URL/site Address AND site:URL/site Address, link:URL/site Address NOT site:URL/site Address and link:URL/site Address AND NOT site:URL/site Address (five Boolean search statement methods) used to collect data for each IDR in Southern Asia and an advanced tool SocScibot4 is used for link network visualization.

Keywoeds: IDR in Southern Asia*, Webometrics, Web Impact Factor, Web Link, web Mapping, IDR in India.*

1. Introduction

The Webometric is to measure the impact of websites by the number of links and followers. It can be defined as the ratio of web pages, self-link, in-link, external link to an Institutional Digital Repositories (IDRs) in Southern Asia and measure to the number of Digital Items/total titles at the IDR. The paper attempts to analyze and rank IDR in Southern Asia on the basis of Google search engine and mapping of the links using SocSciBot4.

The rapid changes and growth education in most countries, the open access institutional digital repositories play a major role for exchanging experiences between them. They developed their web site for putting the information and experiences of them. The web site has become a major way to hold the information regarding academics, education, research activities. The web sites content general and specific information of an organization and provide a lot of services related to education and research activities. The webometric is a method to test the performance and find out the various impact factors of web sites. A web site consists of various WebPages, text, image, audio-video and others digital documents with a common Uniform Resource Locator (URL). A websites needs a minimum one web server to host in internet.

2. Review of Literature

Bjorneborn and Ingwersen (2001) explained webometrics, investigating the nature and properties of the Web drawing on modern informetric methodologies. This article attempts to selected areas of webometric research and performance are reviewed as a frame for selected quality and content analyses and problems with measuring Web Impact Factors (WIF) are discussed. Partly discuss on bibliometric, methodologies used in bibliographic and citation databases.

Thelwall (2001) has discussed to studied academic Web crawler and to study links to six UK universities. He explains the links between UK, Australia and New Zealand universities where both crawler and AltaVista were used. The number of academic staff members were used to represent the size of university replacing webpage as WIF denominator.

Smith and Thelwall (2002) had explained the results of an experimental study of knowledge exchange between disciplines and subfields of science, on bibliometric methods based. The goal of this analysis is the knowledge exchange between disciplines at a global level, the discussed to Limitations of analyses of interdisciplinary impact at the journal level.

Mukhopadhyay (2004) discussed the webometrics investigation at different levels of domain system. He had explored the calculation of web impact factor for Top Level Domain (ccTLD), Sub Level Domain (SLD) related to education and research. He discus Generic Top Level Domain(gTLD), International Top Level Domain(iTLD) and Country Code Top Level Domain(ccTLD).

Wang (2005) had analyzed the online information of academic institutions, mainly from the users' angle and inherently bibliographic, these criteria tend to be general in nature and fail to differentiate the qualities of websites at similar quality levels. The evaluation criteria from webometric perspectives that utilize measurable data and tangible information are needed for more informed assessment. The purpose of this article is to introduce and apply essential webometric criteria to supplement the conventional criteria to improve information literacy instruction.

Jalal, Biswas and Mukhopadhyay (2008) had discussed the link analysis for the state universities of West Bengal that IIT Kharagpur, and Uttar Banga Krishi Vishwavidyalaya got the first rank and the last position from the point of view of webometric ranking.

Nwagwn and Agarin (2008) have used the AltaVista search engine for data collection on web links randomly from 1000 selected web pages of 30 Nigerian universities to study the pattern and frequency of outlinks and inlinks. The websites have a total of 44,567 links, representing an average of 45 links per page.

Ortega and Aguillo (2008)   had explained to this paper is to study, the link relationships in the Nordic academic web space – comprised of Swedish, Finnish and Danish academic web domains with the European through social networks. This

networks analysis to detect sub-networks within the Nordic network, the position and role of the different university web domains and to understand the structural topology of this web space.

Giesecke (2011) had explained to Institutional repositories that are a comparatively new activity for higher education. This study defined most often as a set of services and the challenges of institutions are facing in creating repositories, will analyses the fund of managing repositories, and will offer a model for creating a successful set of service.

Mohammed (2013) had explained to information and communication technology (ICT), and electronic publishing has opened new progress for scholars to communicate and disseminate their findings to one another of the society. The development of Internet technology has also provided academic and research institutions with a very high level web.

Tafaroji, Tahamtan, Roudbani & Sedghi (2014) explained a paper of a webometric analysis of web sites of medical universities of Iran. The number of web pages, external inlinks, rich files and the total rank for 43 universities with active web sites were calculated by using Majestic SEO, Google, Yahoo and Bing search engines.

Hujer (2014) had analyzed the paper Webometrics which is growing big momentum now a days. On the low level the majority of webometric studies use a classification. When classification is not defined outside of the webometric study, its establishing is tedious human coder work. The process is laborious and result depends on a particular researcher. The patterns in URL can be used in for an automated establishing of classification via tagging, using principle of grounded theory. As such, the patterns in the URL will reduce amount of work in classifying and eliminate the human opinion factor from the process.

3. Objectives of the study

The objectives of the study are:-

i. To calculate various Web impact factors to selected IDRs in Southern Asia.

ii. To find out the most enriched IDRs.

iii. To evaluate the websites on the basis of deferent parameters and ranking them.

iv. To find out the major components of the web sites like total number of web pages, various link webpages (self-link webpages, in-link webpages, external-link webpages).

v. To analysis of the websites of selected IDRs by using the collected data those are collected from selected search engine.

vi. To visualize link mapping among the IDRs in Southern Asia by using the tool SocSciBot4 (http://socscibot.wlv.ac.uk/)

4. Methodology

In this research work, Institutional Digital Repositories websites have been taken from official website of OpenDOAR (http://v2.sherpa.ac.uk/opendoar/). In OpenDOAR there are list of websites from different countries. The numbers of websites of IDRs are 4124 (on 10/04/2019) according to countries. There are five countries by region are- Africa (202), Americas (1127), Asia (797), Europe (1892) and Oceania (106). In Asia countries, there are total number of IDRs are 797. It is farther divided Asian countries into- Central Asia (13), Eastern Asia (381), south-Eastern Asia (149), southern Asia (137) and Western Asia (117). The area of the dissertation research work of this study is southern Asia (137). The southern Asia is farther divided into – Bangladesh (14), India (86), Iran (Islamic Republic of) (17), Nepal (1), Pakistan (4) and Sri Lanka (15). The research works have been done on these countries on the basis of collected sample Institutional Digital Repositories websites.

4.1 Selection of Search Engine

The Google search engine (https://www.google.com) has been selected for the data collection of the study through five special keywords (Table-1).

Table-1: Explanation of special keywords using this paper

Special Keywords	Explanation
site:URL/site address	Retrieve the number of WebPages at the website under a URL/website or domain name.
link:URL/site address	Retrieve the number of WebPages with a hyperlink with the specified URL/website or domain name
link:URL/site address AND site:URL/site address	Retrieve the number of WebPages under a URL/website or domain name which provides hyperlinks to this URL/website or domain name, i.e. self – links pages (links from the same website).
link:URL/site address NOT site:URL/site address	Retrieve the number of links incoming from other websites, Ii.e. inlink / backlink pages
link:URL/site address AND NOT site:URL/site address	Retrieve the number of WebPages not under a URL/website or domain name, i.e. external - link pages.

After comprehensive study of openDOAR, total number of IDRs available in Southern Asia is 137 (as on 10.04.2019) from deferent countries - Bangladesh (14), India (86), Iran (Islamic Republic of) (17), Nepal (1), Pakistan (4) and Sri Lanka (15).

A sample size has been determined on the basis of a sample selection formula designed for this research study (in table-2).

Table-2: Formula selection for sample size

Country	No. of samples
Bangladesh	14*30%=04
India	86*30%=26
Iran (Islamic Republic of)	17*30%=05
Nepal	01 (full taken)
Pakistan	04 (full taken)

Sri Lanka	15*30%=05
Total samples of IDR Websites	**45**

From the country Bangladesh, India, Iran and Sri Lanka, the sample sizes are selected 30% of IDRs. The rest two countries Nepal and Pakistan have 01 and 04 IDRs which are less than 05, so they are taken as full as samples. So, finally the total sample size is 45.

Table – 3: List of selected sample IDRs websites for Southern Asia (11.04.2019 to 15.04.2019)

SL. No.	Country	Repository Name	Repository URL	Software Name	Digital Items (Total titles)
1	Bangladesh	BRAC University Institutional Repository	http://dspace.bracu.ac.bd	DSpace [version 5.4]	8622
2	Bangladesh	Knowledge Repository	http://dspace.icddrb.org	Dspace [version 6.0]	6083
3	Bangladesh	Daffodil International University Institutional Digital Repository	http://dspace.daffodilvarsity.edu.bd:8080	Dspace [version 1.8.2]	2536
4	Bangladesh	EWU Institutional Repository	http://dspace.ewubd.edu	Dspace [version 4]	2431
5	India	ShodhGanga: A reservoir of Indian theses	http://shodhganga.inflibnet.ac.in	Dspace[version 1.8.2]	218494
6	India	KrishiKosh	http://krishikosh.egranth.ac.in	Dspace[version 6]	151667

7	India	Social Science Cyber Library	http://socsccybraryamu.ac.in	Other (CALIBRE)	146571
8	India	Open Access Repository of IISc Research Publications	http://eprints.iisc.ernet.in	Eprints[version 3.3.10]	48286
9	India	NOPR	http://nopr.niscair.res.in	Dspace[version 5.5]	42633
10	India	Digital repository of West Bengal Public Library Network	http://dspace.wbpublibnet.gov.in:8080	Dspace [version 1.8.2]	35416
11	India	eGyankosh	http://www.egyankosh.ac.in	Dspace	33974
12	India	DSpace@GIPE	http://dspace.gipe.ac.in	Dspace [version 5.4]	25581
13	India	Dspace at IIT Bombay	http://dspace.library.iitb.ac.in	Dspace [version 1.8.0]	22257
14	India	KRISHI Publications and Data Repository	https://krishi.icar.gov.in	Dspace	15039
15	India	DigitalLibrary@CUSAT	http://dspace.cusat.ac.in	Dspace [version 1.6.1]	11301
16	India	IACS Institutional Repository	http://arxiv.iacs.res.in:8080	Dspace	7941
17	India	DRS at National Institute Of Oceanography	http://drs.nio.org	Dspace [version 5.5]	7894
18	India	Indian Institute of Astrophysics Repository	http://prints.iiap.res.in	Dspace	7207
19	India	EPrints@IITD	http://eprint.iitd.ac.in	Dspace [version 1.8.2]	7060
20	India	RRI Digital Repository	http://dspace.rri.res.in	Dspace	6713

21	India	National Aerospace Laboratories Institutional Repository	http://nal-ir.nal.res.in	EPrints[version 3.2.0]	6384
22	India	IR@Goa University	http://irgu.unigoa.ac.in	Dspace[version 4.2]	5562
23	India	Research Archive of Indian Institute of Technology Hyderabad	http://raiith.iith.ac.in	Eprints	4345
24	India	Dspace @ Vidyasagar University	http://inet.vidyasagar.ac.in:8080	Dspace [version 6]	3941
25	India	DSpace at IUCAA	http://repository.iucaa.in:8080	Dspace [version 5.2]	3915
26	India	Digital Repository @ IIT Gandhinagar	http://repository.iitgn.ac.in	Dspace	3457
27	India	Vidya Prasarak Mandal – Thane	http://dspace.vpmthane.org:8080	Dspace	3383
28	India	ePrints@MoES:Open Access Digital Repository	http://moeseprints.incois.gov.in	Eprints	3152
29	India	Dspace@NITR	http://dspace.nitrkl.ac.in	Dspace [version 4.2]	3109
30	India	Institutional Repository of the Anjuman-I-Islam's Kalsekar Technical Campus	http://www.aiktcdspace.org:8080	Dspace[version 4.0]	1890
31	Iran	Tabriz University of Medical Sciences Repository	http://dspace.tbzmed.ac.ir	Dspace	28401
32	Iran	Mashhad University of Medical Sciences	http://eprints.mums.ac.ir	Eprints	9464

		Repository			
33	Iran	Simorgh Research Repository	http://eprints.kmu.ac.ir	Eprints[version 3.3.8]	8918
34	Iran	Qazvin University of Medical Sciences Repository	http://eprints.qums.ac.ir	Eprints	7310
35	Iran	Bushehr University of Medical Sciences Repository	http://eprints.bpums.ac.ir	Eprints	6866
36	Nepal	Madan Puraskar Pustakalaya	http://madanpuraskar.org	UNSPECIFIED	46326
37	Pakistan	Pakistan Research Repository	http://prr.hec.gov.pk	DSpace [version 4.2]	9104
38	Pakistan	eCommons@AKU	http://ecommons.aku.edu	Other (Digital Commons)	386
39	Pakistan	Ewing Memorial Library Digital Archives	http://cdm16779.contentdm.oclc.org	Contented m	202
40	Pakistan	AHKRC Digital Library	http://www.ahkrc.org	Greenstone	Not found, server error 400
41	Sri Lanka	Central Environmental Authority Repository	http://cea.nsf.ac.lk	Dspace	18273
42	Sri Lanka	Digital Repository, University of Kelaniya	http://repository.kln.ac.lk	Dspace[version 4.1]	17501
43	Sri Lanka	National Science Foundation of Sri Lanka, Digital Repository	http://dl.nsf.ac.lk	Dspace[version 1.7.2]	15079

44	Sri Lanka	Digital Repository, University of Moratuwa	http://dl.lib.mrt.ac.lk	Dspace[version 3.2]	7588
45	Sri Lanka	Digital Repository of the University of Peradeniya	http://dlib.pdn.ac.lk	Dspace	6279

Table-3 has illustrated the detail of 45 IDRs from deferent countries with their total number of items in their repositories (as on 11.04.2019 to 15.04.2019).

4.2 Calculation of Web Impact Factors (WIFs)

Now, we have shown the calculation Simple Web Impact Factor (SWIF), Self Link Web Impact Factor (SLWIF), In Link Web Impact Factor (ILWIF) or Revised Web Impact Factor (RWIF), External Link Web Impact Factor (ELWIF).

The WIF provides quantitative tools for ranking, evaluating, categorizing, and comparing web sites, top-level domains and sub-domains. There are three types of link. links within the same site self-links, links coming into a site from other sites inlinks or backlinks, and Outgoing links from web pages are here named external links or outlinks. There are types of WIF: Simple WIF, self-link WIF, in-link (revised) WIF and external-ink WIF.

Table-4: Calculation of Web Impact Factor (WIF)

Simple WIF (SWIF)	Total number of links / hyperlinks (external-link and self-link web pages)(LWP) / Total number of web pages (NWP)
Self-link WIF (SLWIF)	Total number of self-link web pages / Total number of web pages (NWP)
Inlink / Revised WIF (ILWIF / RWIF)	Total number of in-link web pages / Total number of web pages (NWP)
External-link WIF (ELWIF)	Total number of external-link web pages / Total number of web pages (NWP)

Table - 5: Ranking of Web Impact Factors for selected IDRs in Southern Asia

Sl. No.	IDR Name and URL	Country	NWP (a)	LWP (b)	SLWP (c)	ILWP (d)	ELWP (e)	SWIF (b/a)	Ranked by SWIF	SLWIF(c/a)	ILWIF(d/a)	ELWIF(e/a)
1	National Aerospace Laboratories Institutional Repository, http://nal-ir.nal.res.in	India	7590	10800000	11600000	14000000	15700000	1422.92	1	1528.33	1844.53	2068.51
2	AHKRC Digital Library, http://www.ahkrc.org	Pakistan	09	295	02	01	02	32.78	2	0.22	0.11	0.22
3	Digital Repository, University of Moratuwa, http://dl.lib.mrt.ac.lk	Sri Lanka	39900	543000	3800	3430	3760	13.61	3	0.10	0.09	0.09
4	National Science Foundation of Sri Lanka, Digital Repository, http://dl.nsf.ac.lk	Sri Lanka	27100	362000	15500	3340	15500	13.36	4	0.57	0.12	0.57
5	DRS at National Institute Of Oceanography, http://drs.nio.org	India	18100	194000	2050	1490	1810	10.72	5	0.11	0.08	0.10
6	Dspace at IIT Bombay, http://dspace.library.iitb.ac.in	India	19900	203000	1830	1820	2000	10.20	6	0.09	0.09	0.10
7	DSpace at IUCAA, http://repository.iucaa.in:8080	India	2450	22200	420	386	433	9.06	7	0.17	0.16	0.18
8	KRISHI Publications and Data Repository, https://krishi.icar.gov.in	India	38300	301000	4290	5320	5700	7.86	8	0.11	0.14	0.15
9	EPrints@IITD, http://eprint.iitd.ac.in	India	5670	43300	1090	759	1000	7.66	9	0.19	0.13	0.18
10	Central Environmental Authority Repository, http://cea.nsf.ac.lk	Sri Lanka	16300	83400	310	192	310	5.12	10	0.02	0.01	0.02
11	Mashhad University of Medical Sciences Repository, http://eprints.mums.ac.ir	Iran	6860	32700	416	234	256	4.77	11	0.06	0.03	0.04
12	Digital Repository @ IIT Gandhinagar, http://repository.iitgn.ac.in	India	3330	15500	515	182	445	4.65	12	0.15	0.05	0.13
13	Indian Institute of Astrophysics Repository, http://prints.iiap.res.in	India	10700	31500	1170	1100	1100	2.94	13	0.11	0.10	0.10
14	RRI Digital Repository, http://dspace.rri.res.in	India	4930	11400	1650	1270	1450	2.31	14	0.33	0.26	0.29
15	Daffodil International University Institutional Digital Repository, http://dspace.daffodilvarsity.edu.bd:8080	Bangladesh	2990	5830	327	299	389	1.95	15	0.11	0.10	0.13
16	Pakistan Research Repository, http://prr.hec.gov.pk	Pakistan	41000	65700	7070	5740	6960	1.60	16	0.17	0.14	0.17
17	Digital Repository, University of Kelaniya, http://repository.kln.ac.lk	Sri Lanka	61000	96000	3770	3820	4020	1.57	17	0.06	0.06	0.07
18	Dspace@NITR, http://dspace.nitrkl.ac.in	India	6740	9980	2340	1410	2220	1.48	18	0.35	0.21	0.33
19	Knowledge Repository, http://dspace.icddrb.org	Bangladesh	14500	17300	14200	4710	13400	1.19	19	0.98	0.32	0.92
20	Simorgh Research Repository, http://eprints.kmu.ac.ir	Iran	11300	13000	770	721	809	1.15	20	0.07	0.06	0.07
21	Dspace @ Vidyasagar University, http://inet.vidyasagar.ac.in:8080	India	5430	5710	1050	1040	1040	1.05	21	0.19	0.19	0.19
22	DigitalLibrary@CUSAT, http://dspace.cusat.ac.in	India	6810	6840	929	419	683	1.00	22	0.14	0.06	0.10
24	eCommons@AKU, http://ecommons.aku.edu	Pakistan	22200	19800	8880	3380	9170	0.98	23	0.40	0.15	0.41
23	IACS Institutional Repository, http://arxiv.iacs.res.in:8080	India	3740	3650	564	590	618	0.98	23	0.15	0.16	0.17
25	Research Archive of Indian Institute of Technology Hyderabad,	India	17700	14800	790	647	780	0.84	24	0.04	0.04	0.04

#	Repository	Country	NWP	LWP	SLWP	ILWP	ELWP	SWIF		SLWIF	ILWIF	ELWIF
	http://raiith.iith.ac.in											
26	Social Science Cyber Library, http://socsccybraryamu.ac.in	India	2130	1660	1540	37	1460	0.78	25	0.72	0.02	0.69
27	Qazvin University of Medical Sciences Repository, http://eprints.qums.ac.ir	Iran	11600	7080	517	420	567	0.61	26	0.04	0.04	0.05
28	Institutional Repository of the Anjuman-I-Islam's Kalsekar Technical Campus, http://www.aiktcdspace.org:8080	India	3560	2050	1180	1170	998	0.58	27	0.33	0.33	0.28
29	eGyankosh, http://www.egyankosh.ac.in	India	94100	53400	9480	6550	9070	0.57	28	0.10	0.07	0.10
30	IR@Goa University, http://irgu.unigoa.ac.in	India	7460	3680	1660	1660	1660	0.49	29	0.22	0.22	0.22
31	NOPR, http://nopr.niscair.res.in	India	126000	56800	31500	18900	30700	0.45	30	0.25	0.15	0.24
32	ePrints@MoES:Open Access Digital Repository, http://moeseprints.incois.gov.in	India	9350	3720	1340	1210	1330	0.40	31	0.14	0.13	0.14
33	BRAC University Institutional Repository, http://dspace.bracu.ac.bd	Bangladesh	66500	20700	6300	5600	6210	0.31	32	0.09	0.08	0.09
35	Bushehr University of Medical Sciences Repository, http://eprints.bpums.ac.ir	Iran	15300	4700	929	916	963	0.31	32	0.06	0.06	0.06
34	KrishiKosh, http://krishikosh.egranth.ac.in	India	63900	19600	12100	11300	12700	0.31	32	0.19	0.18	0.20
36	EWU Institutional Repository, http://dspace.ewubd.edu	Bangladesh	16800	5070	1710	1310	1410	0.30	33	0.10	0.08	0.08
37	Open Access Repository of IISc Research Publications, http://eprints.iisc.ernet.in	India	74000	20900	4260	3090	4280	0.28	34	0.06	0.04	0.06
38	Madan Puraskar Pustakalaya, http://madanpuraskar.org	Nepal	59000	15100	289	243	158	0.26	35	0.01	0.01	0.01
39	Digital Repository of the University of Peradeniya, http://dlib.pdn.ac.lk	Sri Lanka	19100	4640	3140	893	2590	0.24	36	0.16	0.05	0.14
40	DSpace@GIPE, http://dspace.gipe.ac.in	India	48200	11300	10700	9070	9340	0.23	37	0.22	0.19	0.19
41	ShodhGanga: A reservoir of Indian theses, http://shodhganga.inflibnet.ac.in	India	2080000	461000	386000	375000	403000	0.22	38	0.19	0.18	0.19
42	Digital repository of West Bengal Public Library Network, http://dspace.wbpublibnet.gov.in:8080	India	144000	22200	18600	16700	18300	0.15	39	0.13	0.12	0.13
43	Vidya Prasarak Mandal – Thane, http://dspace.vpmthane.org:8080	India	5230	413	235	201	477	0.08	40	0.04	0.04	0.09
44	Tabriz University of Medical Sciences Repository, http://dspace.tbzmed.ac.ir	Iran	24900	1270	137	202	308	0.05	41	0.01	0.01	0.01
45	Ewing Memorial Library Digital Archives, http://cdm16779.contentdm.oclc.org	Pakistan	831	08	787	05	806	0.01	42	0.95	0.01	0.97

[NWP- Number of Web Pages, LWP- Link Web Pages, SLWP- Self Link Web Pages, ILWP- In Link Web Pages, ELWP- External Link Web Pages, SWIF- Simple Web Impact Factor, SLWIF- Self Link Web Impact Factor, ILWIF- In Link Web Impact Factor, ELWIF- External Link Web Impact Factor]

In the Table-5, the deferent WIFs are evaluated and the IDRs are ranked by Simple Web Impact Factor (SWIF). The IDR National Aerospace Laboratories Institutional Repository (http://nal-ir.nal.res.in) has ranked 1 and having scored 1422.92 from

India. The second position has occupied AHKRC Digital Library (http://www.ahkrc.org) and having second 32.78. The Ewing Memorial Library Digital Archives (http://cdm16779.contentdm.oclc.org) has ranked last with second 0.01. Also this table saws other web impact factor with its scores. The details finding has been discoursed in result section.

5 Link Network Diagrams

Figure -1: Link Network Diagram –Links among selected IDRs in Southern Asia
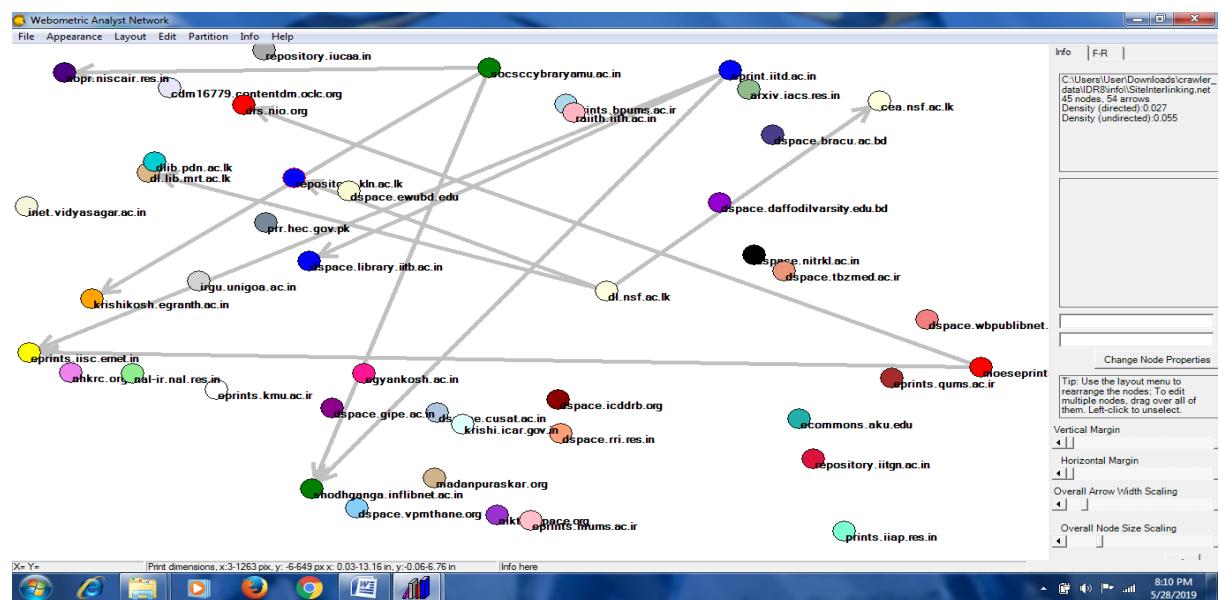
The Figure-1 has shown the links among 45 (sample) IDRs. The 13 IDRs in Southern Asia are linking with one another and some IDRs are not linking to any other IDR.

Figure-2: Link Network Diagram –Links among selected IDRs in India
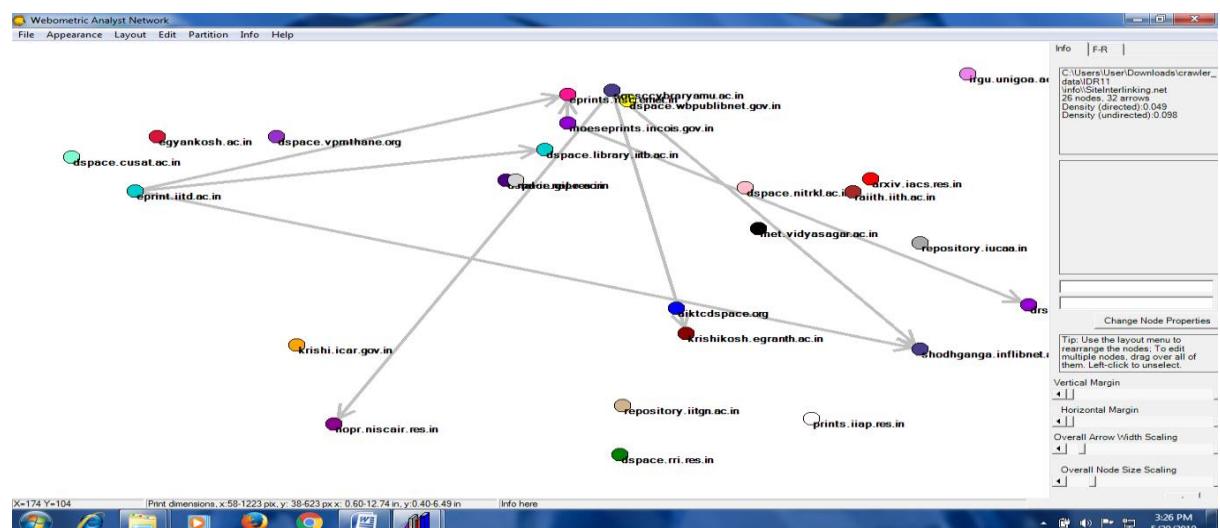
In the Figure-2, there 26 selected IRDs from India. Only 9 IDRs are linking with one another and some of IDRs are not linking to any other.

6 Alternative Document Model (ADM)

Alternative Document Model (ADM) to collect the link data for Institutional Digital Repositories in Southern Asia. The raw data is collected using web crawler, i.e. SocSciBot4 for IDRs and ADM count summary for selected websites of IDR in Southern Asia in Table-6.

Table-6: ADM counts summary for selected websites of IDR in Southern Asia (Collection date 12/05/2019)

Name	Page Inlinks	Directory Inlinks	Domain Inlinks	Site Inlinks	Page Outlinks	Directory Outlinks	Domain Outlinks	Site Outlinks
dspace.bracu.ac.bd	0	0	0	0	0	0	0	0
dspace.icddrb.org	0	0	0	0	0	0	0	0
dspace.daffodilvarsity.edu.bd	0	0	0	0	0	0	0	0
dspace.ewubd.edu	0	0	0	0	0	0	0	0
shodhganga.inflibnet.ac.in	71	3	2	2	0	0	0	0
krishikosh.egranth.ac.in	1	1	1	1	0	0	0	0
socsccybraryamu.ac.in	0	0	0	0	3	3	3	3
eprints.iisc.ernet.in	71	3	2	2	0	0	0	0
nopr.niscair.res.in	1	1	1	1	0	0	0	0
dspace.wbpublibnet.gov.in	0	0	0	0	0	0	0	0
egyankosh.ac.in	0	0	0	0	0	0	0	0
dspace.gipe.ac.in	0	0	0	0	0	0	0	0
dspace.library.iitb.ac.in	70	2	1	1	0	0	0	0
krishi.icar.gov.in	0	0	0	0	0	0	0	0
dspace.cusat.ac.in	0	0	0	0	0	0	0	0
arxiv.iacs.res.in	0	0	0	0	0	0	0	0
drs.nio.org	1	1	1	1	0	0	0	0
prints.iiap.res.in	0	0	0	0	0	0	0	0
eprint.iitd.ac.in	0	0	0	0	210	6	3	3
dspace.rri.res.in	0	0	0	0	0	0	0	0
nal-ir.nal.res.in	0	0	0	0	0	0	0	0
irgu.unigoa.ac.in	0	0	0	0	0	0	0	0
raiith.iith.ac.in	0	0	0	0	0	0	0	0
inet.vidyasagar.ac.in	0	0	0	0	0	0	0	0
repository.iucaa.in	0	0	0	0	0	0	0	0
repository.iitgn.ac.in	0	0	0	0	0	0	0	0
dspace.vpmthane.org	0	0	0	0	0	0	0	0
moeseprints.incois.gov.in	0	0	0	0	2	2	2	2
dspace.nitrkl.ac.in	0	0	0	0	0	0	0	0
aiktcdspace.org	0	0	0	0	0	0	0	0
dspace.tbzmed.ac.ir	0	0	0	0	0	0	0	0
eprints.mums.ac.ir	0	0	0	0	0	0	0	0
eprints.kmu.ac.ir	0	0	0	0	0	0	0	0
eprints.qums.ac.ir	0	0	0	0	0	0	0	0

eprints.bpums.ac.ir	0	0	0	0	0	0	0	0
madanpuraskar.org	0	0	0	0	0	0	0	0
prr.hec.gov.pk	0	0	0	0	0	0	0	0
ecommons.aku.edu	0	0	0	0	0	0	0	0
cdm16779.contentdm.oclc.org	0	0	0	0	0	0	0	0
ahkrc.org	0	0	0	0	0	0	0	0
cea.nsf.ac.lk	1	1	1	1	0	0	0	0
repository.kln.ac.lk	1	1	1	1	0	0	0	0
dl.nsf.ac.lk	0	0	0	0	4	4	3	3
dl.lib.mrt.ac.lk	2	2	1	1	0	0	0	0
dlib.pdn.ac.lk	0	0	0	0	0	0	0	0

(Source: SocSciBot4, 12/05/19)

ADM counts summary for selected websites of IDR in Southern Asia during May 2019 is been reflected in Table-6. The details in the table are extracted using SocSciBot4. The link network diagram of selected websites in IDR in Southern Asia has been reflected in the Figure-1.

7 Results and Findings

7.1 Web Impact Factors

The primary objective of research work is to find out the various WIFs, i.e. - (i) SWIFs, (ii) SLWIFs, (iii) ILWIF or Revised WIF, (iv) ELWIFs. The SWIF is the ratio of total number of WebPages (all indexed WebPages of search engine) and total number of WebPages of all link/hyperlink WebPages (LWP) of a website. All link/hyperlink WebPages refers the all external-link and self-link WebPages. The Table 5 reveals the ranking of SWIFs for selected websites of IDRs in Southern Asia. The website htp://nal-ir.nal.res.in of "National Aerospace Laboratories Institutional Repository" from the country India ranked No.1. It has 7590 NWP and 10800000 LWP. The SWIF of this website is 1422.92. The lowest SWIF is 0.01 of the Website http://cdm16779.contentdm.oclc.org (Ewing Memorial Library digital Archives) from Pakistan and its rank is 42.

The website htp://nal-ir.nal.res.in of "National Aerospace Laboratories Institutional Repository" from the country India has ranked No.1 position according to all WIFs.

7.2 Link Mapping of the Websites of IDR of Southern Asia

The web crawler SocSciBot4 (http://socscibot.wlv.ac.uk) has been based to collect the reviewed data for link mapping of the web site of IDR from Southern Asia. The various link network diagrams have been drawn for link map of the websites according to SWIF, SLWIF, ILWIF, ELWIF, selected websites of IDR in Southern Asia, selected website of IDR in India, all websites of IDR in Southern Asia, all websites of IDR in India.

The Figure-1 has shown the links among 45 selected websites of IDR. The 13 IDRs in Southern Asia are linking with one another and some IDRs are not linking to any other IDR.

The Figure-2 has displayed 26 selected IRDs from India. Only 9 IDRs are linking with one another and some of IDRs are not linking to any other.

8 Conclusions

A Webometric Analysis of Open Access Institutional Digital Repositories in Southern Asia is an unexplored area of webometric study. This study gives a clear idea about the information provided by the selected of websites of the 45 IDRs in Southern Asia. All data collection of IDR from selected search engine. This research work revealed the various web impact factor according to number of web pages, self link pages, external link pages, in-link pages. The webometric analysis is basically applied to web pages or web site to retrieved information and also collect data for the purpose of ranking different ranking methods used this approach their strategies. It has been observed from the research work selected 45 IDRs websites from in Southern Asia are well link with each other.

Finally it may conclude that all though WIF has been widely used as webometric indicates to judge the quality of website. These paper open the door to further studies of other new areas of the webometric analysis.

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