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Government of India Websites: A Study

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ABSTRACT

Ministries of Government of India have hosted their own websites across the World Wide Web so as to provide the world a view of the functioning of the Indian Government. It is essential these have to be up to the mark to represent the nation in an appropriate manner. But, despite this scale of involvement, there has been relatively little analysis of contents and visibility of these websites. This study highlights the importance of online government information in India and shows how far these websites have been able to make an impact on the society. The paper aims to examine the websites for their linking and content presence, and also to find out their web impact factor. The research methodology adopted for the study is investigative in nature. It includes observation of the selected websites from different points of view like number of webpages, web impact factor, and number of rich files. Data analyses and interpretation show that for each of the indicator used in this study, there were a different set of websites which achieved the topmost ranks. The findings of this study highlights the standing of these websites against the average values and show that different ministries excelled from different points of view.

Keywords: Government of India, websites, webometrics, web impact factor

1. INTRODUCTION

Information is required at national level to give support to the nation in economic development, in social development as well as in management and decision making. Information is considered to be vital for the development of individual, society and as such of nation. Information is important to obtain, store, process, retrieve and display the right information for the right decision.

With the advent of Internet and Information and Communication Technology (ICT), it has become essential for every government body to host a website. By having a website, a government body can have maximum impact over a large number of people employing minimum resources and time. Therefore, it is indispensible for the government to host an impactful website of their own. Apart from this, a website allows a government body to bring all its information together, even if its sub-bodies are placed at geographically dispersed places. Thus, inclusion of ICT within government bodies can bring about development of government itself.

The government acquires and disseminates information in practically every field of governance and for understanding of the national issues.[1] Though the government publications perform these duties with extensive coverage, yet these remain unidentified by users, for whom they are majorly created. The Government of India has gone in for hosting its information on the web so that it becomes more accessible to users. As the government activities have increased tremendously, so has the volume and diversity of information generated by it. The Government of India has emerged as a vital group engaged in generating, collecting, and disseminating information in the country.

2. OBJECTIVES OF THE STUDY

The Government of India consists of three major organs. These are: Legislative (Parliament including Lok Sabha and Rajya Sabha), Executive (Central Ministries and Departments), and Judiciary (Supreme Court, High Court, and District Courts). The ministries, being an integral part of the government, have to be such that they represent the nation in an upright manner. Many ministries have their own websites to provide a view of functioning of the government. But, despite the scale of involvement, there has been relatively little analysis of contents and visibility of their websites. This brings us to an unavoidable stand wherein an analysis of the linking

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and visibility of these websites has become extremely vital. The present study was carried out to examine the linking on websites of Central Ministries under the Government of India and to find out their web impact factor (WIF) and amount of information present on these websites in the form of rich files.

3. SCOPE AND LIMITATIONS

The executive organ of the Government of India presently consists of 48 ministries, but only 41 have their own website[2]. Remaining seven are depicted via websites of their departments. Websites of ministries only were considered for this study and not those of their departments. These were excluded due to the comprehensiveness of the already selected Central Ministries. The 41 websites selected for this study were.

- Ministry of Civil Aviation (CIVIL)
- Ministry of Coal (COAL)
- Ministry of Consumer Affairs, Food and Public Distribution (CAF&PD)
- Ministry of Corporate Affairs (CA)
- Ministry of Culture (CULT)
- Ministry of Defence (DEF)
- Ministry of Development of North Eastern Region (DNER)
- Ministry of Earth Sciences (ES)
- Ministry of Environment and Forests (E&F)
- Ministry of External Affairs (EA)
- Ministry of Finance (FIN)
- Ministry of Food Processing Industries (FPI)
- Ministry of Health and Family Welfare (H&FW)
- Ministry of Home Affairs (HA)
- Ministry of Housing and Urban Poverty (H&UP)
- Ministry of Human Resource Development (HRD)
- Ministry of Information and Broadcasting (I&B)
- Ministry of Labour and Employment (L&E)
- Ministry of Law and Justice (L&J)
- Ministry of Micro, Small and Medium Enterprises (MS&ME)
- Ministry of Mines (MINE)
- Ministry of Minority Affairs (MA)
- Ministry of New and Renewable Energy (N&RE)
- Ministry of Overseas and Indian Affairs (O&IA)
- Ministry of Panchayati Raj (PR)
- Ministry of Parliamentary Affairs (PA)
- Ministry of Personnel, Public Grievances and Pensions (PPG&P)
- Ministry of Petroleum and Natural Gas (P&NG)
- Ministry of Power (POWER)
- Ministry of Railways (RAIL)
- Ministry of Rural Development (RD)
- Ministry of Social Justice and Empowerment (SJ&E)
- Ministry of Statistics & Programme Implementation (S&PI)
- Ministry of Steel (STEEL)
- Ministry of Textiles (TEX)
- Ministry of Tourism (TOUR)
- Ministry of Tribal Affairs (TA)
- Ministry of Urban Development (UD)
- Ministry of Water Resources (WR)
- Ministry of Women and Child Development (W&CD)
- Ministry of Youth Affairs and Sports (YA&S)

4. METHODOLOGY

The methods, used to assess information content provided on the Internet, utilise various criteria to review the information presented on the websites. These criteria range from accuracy to availability of the content and its quality to quantity. The research methodology adopted for present study was investigative in nature. It included observation of selected websites from different points of view like number of webpages, WIF and number of rich files. This methodology included:

- Online searching.
- Calculation of WIF.
- Finding number of rich files.
- Data analyses and interpretation.

5. WEBOMETRICS

Being a global information network, initially developed for scholarly use as mentioned and now inhabited by a diversity of users, the web constitutes an obvious research field for bibliometrics, scientometrics, and informetrics. Webometrics is the quantitative analysis of web phenomena, drawing upon informetric

methods, and typically addressing problems related to bibliometrics. Webometrics was triggered by the realisation that the web is an enormous information repository The web has its own citation indexes in the form of commercial search engines useful for researchers to exploit. One of the most visible outputs of webometrics is the ranking of world universities based upon their websites and online impact.

Björneborn and Ingwersen[3] used an information science-related definition of webometrics as "the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the WWW drawing on bibliometric and informetric approaches".

This definition thus covers quantitative aspects of both the construction and usage sides of the web embracing the four main areas of webometric research and also encompasses hybrid forms like webpage content analysis, link structure analysis, usage analysis, etc.

6. INDICATORS USED

The indicators used in this study comply with the quantitative aspect of the links and information being provided on a website. These indicators[4] are:

(i) *Size (Number of webpages)*: This includes webpages coming under a domain, and being indexed by the search engine. A strong web presence attracts new links and citations worldwide. This data, however, only provides an insight into quantitative aspect of information on the website and not the quality. Thus, for more rigorous results, other indicators have been used.

(ii) *Visibility (Total number of inlinks)*: The number of unique inlinks received by a domain is a measure that represents visibility and impact of the published material, and although there is a great diversity of motivations for linking, a significant fraction works in a similar way as bibliographic citation.

(iii) *Web Impact Factor* (*Number of inlinks/Number of webpages)*[5]: WIF was proposed by Almind and Ingwersen[6] and was inspired by the Journal Impact Factor as its acceptable implication in web-based environment. WIF is a measure of the frequency with which a webpage of a website is linked at a given point in time. A higher WIF represents greater reputation of a website.

(iv) *Rich Files*: Number of webpages supporting different file formats, like Portable Document Format (.pdf), Microsoft Word (.doc), and Microsoft PowerPoint (.ppt). The success of self-archiving and other repositories related initiatives can be roughly represented by this data.

7. DATA ANALYSIS

Analysis of data was related to information provided by ministries of Government of India on their websites. A comparative analysis of data with regard to the presence of information was studied, and its visibility on web was calculated. The number of webpages along with rich files was also examined. Thereafter, interpretations were made based on the analyses.

7.1 Weblink Analysis

The web is a dynamic platform to host information. This is thus a snapshot study conducted in the time window of three months, for the purpose of webometric analysis. The data was collected month-wise over a period of three months (i.e., March-May 2009) so as to generalise the reliability of the data during this time. Also, if the data is collected over a large period of time, it results in extremities in the behaviour of a website which makes it difficult to generalise it.

Table 1 gives number of webpages and number of inlinks for websites in alphabetical listing of the selected ministries. It shows that among all ministries, EA had the highest number of webpages while PR had the lowest number of webpages. From 'inlink' columns in Table 1, it was seen that in the first month of data collection FIN had highest number of inlinks followed by EA in April and RAIL in May. ES had the lowest number inlinks for the first two months of data collection followed by H&UD, which replaced it in the third month. Table 1 also shows that in some of the ministries the number of webpages is decreasing. This may be ascertained by the fact that along with addition of information on a website, it is extremely essential to remove the webpages having obsolete and thus trivial information to maintain the worthiness of a website. This also helps in efficient searching for updated information on the website.

7.2 Web Impact Factor

The calculation of WIF requires number of webpages and number of inlinks to a website (given in Table 1). Table 2 shows the WIF for selected ministries. The last column in Table 2 gives average of three months for ease of ranking. It shows that YA&S had the highest impact on web with far more the number of inlinks as compared to the number of webpages on its website. It was followed by HA while RAIL came next, which also exceeded WIF value of YA&S in the last month.

7.3 Rich Files

The rich files require corresponding softwares for viewing. These readers are mostly the ones who are widely used all across the world, or can be downloaded from the link given alongside the links to the file itself.

Table 1. Number of webpages and inlinks of selected websites of the ministries of Govt. of India

Ministry	March 09		April 09		May 09	
	Pages	Inlinks	Pages	Inlinks	Pages	Inlinks
CIVIL	644	1183	690	1173	536	1607
COAL	1156	509	1125	527	1034	488
CAF&PD	3380	994	3823	962	2619	1160
CA	964	2006	914	2132	828	2857
CULT	553	231	565	252	497	1432
DEF	10450	3954	11518	4286	6972	4461
DNER	879	108	998	106	527	115
ES	441	62	490	69	214	126
E&F	10925	8579	10855	8735	7932	9072
EA	21916	10835	21155	14948	17686	16598
FIN	10192	12311	9250	13006	8513	15004
FPI	10660	917	10910	893	8716	1198
H&FW	12636	8257	13646	9645	10435	15419
HA	1087	4364	1006	4089	900	5220
H&UP	1009	83	1084	90	738	91
HRD	16262	6488	17645	7263	11548	6786
I&B	2561	1589	3180	1522	956	5043
L&E	3285	1173	3325	1174	2923	1546
L&J	888	2891	854	1900	864	3024
MS&ME	209	177	186	199	208	378
MINE	353	116	509	385	474	945
MA	228	163	228	179	248	1176
N&RE	2564	1795	2455	1764	2170	2250
O&IA	491	507	514	544	682	2625
PR	46	113	46	133	35	619
PA	893	344	923	349	837	1303
PPG&P	2288	143	2610	154	1780	2699
P&NG	769	1148	801	1175	667	1533
POWER	1945	1631	1619	1799	1133	2994
RAIL	6746	10967	7652	10319	6663	45550
RD	3835	1656	3947	1677	3598	4295
SJ&E	1582	1318	1916	1188	1466	4271
S&PI	3732	2316	3975	2235	3340	3637
STEEL	401	252	359	261	287	310
TEX	1763	1083	1672	1047	1681	1241
TOUR	362	196	384	227	338	674
TA	1347	466	1312	495	1265	1447
UD	775	1013	781	1023	760	1607
WR	1638	1389	1649	1224	1539	1446
W&CD	1630	1223	1570	1132	1343	2250
YA&S	101	539	92	539	213	1259

Table 2. Calculation of web impact factor for selected ministries of Govt of India

Ministry	March 09	April 09	May 09	Average
CIVIL	1.837	1.700	2.998	2.178
COAL	0.440	0.468	0.472	0.460
CAF&PD	0.294	0.252	0.443	0.330
CA	2.081	2.333	3.450	2.621
CULT	0.418	0.446	2.881	1.248
DEF	0.378	0.372	0.640	0.463
DNER	0.123	0.106	0.218	0.149
ES	0.141	0.141	0.589	0.290
E&F	0.785	0.805	1.144	0.911
EA	0.494	0.707	0.938	0.713
FIN	1.208	1.406	1.762	1.459
FPI	0.086	0.082	0.137	0.102
H&FW	0.653	0.707	1.478	0.946
HA	4.015	4.065	5.800	4.626
H&UP	0.082	0.083	0.123	0.096
HRD	0.399	0.412	0.588	0.466
I&B	0.620	0.479	2.335	1.145
L&E	0.357	0.353	0.529	0.413
L&J	3.256	2.225	3.500	2.993
MS&ME	0.847	1.070	1.817	1.245
MINE	0.328	0.756	1.994	1.026
MA	0.715	0.785	0.710	0.737
N&RE	0.700	0.719	1.037	0.818
O&IA	1.033	1.058	3.849	1.980
PR	2.457	2.891	3.400	2.916
PA	0.385	0.378	1.557	0.773
PPG&P	0.063	0.059	1.516	0.546
P&NG	1.493	1.467	2.298	1.753
POWER	0.839	1.111	2.643	1.531
RAIL	1.626	1.349	6.836	3.270
RD	0.432	0.425	1.194	0.683
SJ&E	0.833	0.620	2.913	1.456
S&PI	0.621	0.562	1.089	0.757
STEEL	0.628	0.727	1.080	0.812
TEX	0.614	0.626	0.738	0.660
TOUR	0.541	0.591	1.994	1.042
TA	0.346	0.377	1.144	0.622
UD	1.307	1.310	2.114	1.577
WR	0.848	0.742	0.940	0.843
W&CD	0.750	0.721	1.675	1.049
YA&S	5.337	5.859	5.909	5.701

Table 3. Number of rich files for selected ministries of Govt of India

Ministry	MARCH 09				APRIL 09				MAY 09			
	.pdf	.doc	.ppt	Total	.pdf	.doc	.ppt	Total	.pdf	.doc	.ppt	Total
CIVIL	203	7	1	**211**	218	7	1	**226**	226	7	1	**234**
COAL	579	3	4	**586**	618	3	4	**625**	596	3	4	**603**
CAF&PD	224	230	0	**454**	288	257	1	**546**	292	259	1	**552**
CA	511	1	0	**512**	508	1	0	**509**	510	1	0	**511**
CULT	190	72	0	**262**	309	90	0	**399**	334	79	0	**413**
DEF	203	66	0	**269**	213	32	0	**245**	201	620	0	**821**
DNER	1250	2	0	**1252**	1260	4	0	**1264**	1270	5	0	**1275**
ES	92	34	1	**127**	94	28	1	**123**	88	33	1	**122**
E&F	2560	1020	22	**3602**	2540	979	24	**3543**	2490	1060	24	**3574**
EA	649	7	10	**666**	691	9	10	**710**	756	9	10	**775**
FIN	3170	23	1	**3194**	3340	22	2	**3364**	3270	22	2	**3294**
FPI	386	28	16	**430**	399	26	16	**441**	409	26	16	**451**
H&FW	8720	750	16	**9486**	9100	789	18	**9907**	11500	858	17	**12375**
HA	701	53	3	**757**	771	104	3	**878**	814	106	3	**923**
H&UP	781	0	6	**787**	751	0	5	**756**	713	0	5	**718**
HRD	1890	84	52	**2026**	1710	87	50	**1847**	1710	79	50	**1839**
I&B	370	37	0	**407**	679	39	0	**718**	545	48	0	**593**
L&E	1600	234	18	**1852**	1650	220	3	**1873**	2020	266	38	**2324**
L&J	461	43	0	**504**	448	47	0	**495**	481	47	0	**528**
MS&ME	157	0	0	**157**	183	0	0	**183**	152	0	0	**152**
MINE	216	0	0	**216**	221	15	0	**236**	217	0	0	**217**
MA	169	0	0	**169**	217	0	0	**217**	222	0	0	**222**
N&RE	514	3	0	**517**	573	3	0	**576**	596	3	0	**599**
O&IA	46	57	0	**103**	46	50	0	**96**	46	51	0	**97**
PR	15	0	0	**15**	15	0	0	**15**	16	0	0	**16**
PA	106	0	0	**106**	105	0	0	**105**	102	0	0	**102**
PPG&P	1610	47	5	**1662**	1800	5	0	**1805**	1930	6	0	**1936**
P&NG	321	148	0	**469**	330	150	0	**480**	337	144	0	**481**
POWER	982	39	37	**1058**	930	40	38	**1008**	375	39	37	**451**
RAIL	4930	125	30	**5085**	4820	132	25	**4977**	4850	125	27	**5002**
RD	2780	66	30	**2876**	2810	3130	35	**5975**	2750	3140	38	**5928**
SJ&E	856	0	1	**857**	853	0	1	**854**	862	0	1	**863**
S&PI	1290	55	0	**1345**	1250	46	0	**1296**	1370	42	1	**1413**
STEEL	280	3	6	**289**	136	9	6	**151**	230	1	6	**237**
TEX	1110	0	0	**1110**	1260	0	0	**1260**	1240	0	0	**1240**
TOUR	175	2	0	**177**	173	1	0	**174**	179	3	0	**182**
TA	159	0	0	**159**	151	0	0	**151**	152	0	0	**152**
UD	928	20	13	**961**	886	20	14	**920**	944	20	13	**977**
WR	678	10	0	**688**	486	12	0	**498**	495	15	0	**510**
W&CD	707	239	32	**978**	640	214	30	**884**	640	217	30	**887**
YA&S	20	0	0	**20**	22	0	0	**22**	22	0	0	**22**
Total	**42589**	**3508**	**304**	**46401**	**43494**	**6571**	**287**	**50352**	**45952**	**7334**	**325**	**53611**

Also, many of the files were provided in different formats so that the user can access the file in desired format. The comprehensive file-type-wise data regarding the number of rich files has been displayed in Table 3 in a month-wise manner for March, April and May 2009.

Health and Family Welfare ranked first in all months of data collection. Ministry of Railways came second but only in the first month. The second place was taken by RD in the later two months. In the last two months of data collection, RAIL came at number three. Thus, H&FW hosted highest number of rich files on its website. It bypassed, by a large margin, the RAIL, which was followed by the RD at the third place on average. Also, number of .pdf files exceeded the number of .doc and .ppt files which were not adequate for almost all the ministries.

8. FINDINGS

For the each indicator used in this study, there were a clearly different set of websites of the ministries, which achieved the topmost ranks. Thus, different ministries excelled from different point of view. There was a ministry with as high as 21916 webpages, and a ministry with a WIF as strong as 6.84. On the other hand there was a ministry with lowest number of webpages at 35 only, and a WIF of 0.06. Then, there was a ministry with a total of 11500 rich files, and contrastingly there was one with only 15 files. Thus, the websites of the selected ministries proved to be a bag of mixed beans where all variety, ranging from highest to the lowest, can be found.

8.1 Webpages and Inlinks

On average, EA hosted the highest number of webpages on the web followed by HRD and H&FW. Also, FIN ranked second followed closely by FPI, where as RAIL took the first position with an average number of 22279 inlinks. Figure 1 depicts that only a quarter or 10 selected ministries have above average number of webpages on its website. With the total average of 3309 number of webpages per website, majority of miniseries fall below even that average.

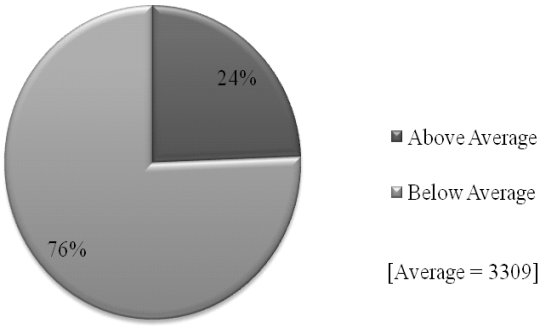

Figure 1. Average distribution of ministry websites on the basis of number of webpages.

8.2 Web Impact Factor

Ministry of Youth Affairs &Sports ranked number one in its impact on web with far more number of inlinks as compared to number of webpages on its website. It leads with a WIF of 5.70 followed by HA at the second position with a WIF of 4.6 and RAIL with a WIF of 3.3. WIF accounts for the visibility of a website on the web.

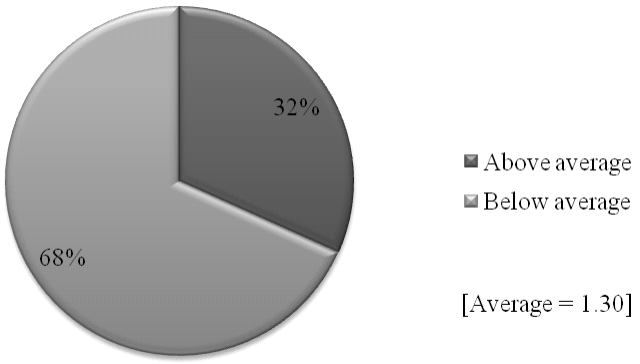

Figure 2. Average distribution of ministry websites on the basis of web impact factor.

A total average WIF was 1.30, which is not considered satisfactory. Considering the importance of websites, this value should have been high. But, due to lack of inter-networking among government websites themselves, this value is not yet agreeable. Figure 2 shows that in meeting average value, WIF is better than the number of webpages. Around 32 per cent of the ministries had above average WIF while 68 per cent still remain below it.

8.3 Rich Files

Health and Family Welfare hosts the highest average of rich files on its website, i.e., 10589. It is separated by a huge margin from RAIL which is then closely followed by RD with an average of 4936 files. Figure 3 shows that only a small percentage of websites meet the required average of hosting rich files on websites. This was also not satisfactory with a whooping 78 per cent of websites coming below average.

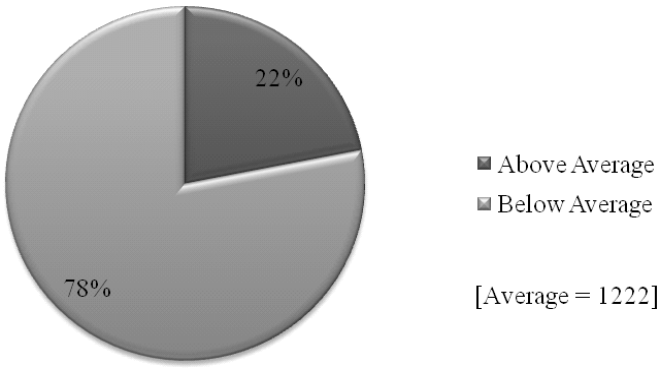

Figure 3. Average distribution of ministry websites on the basis of rich files.

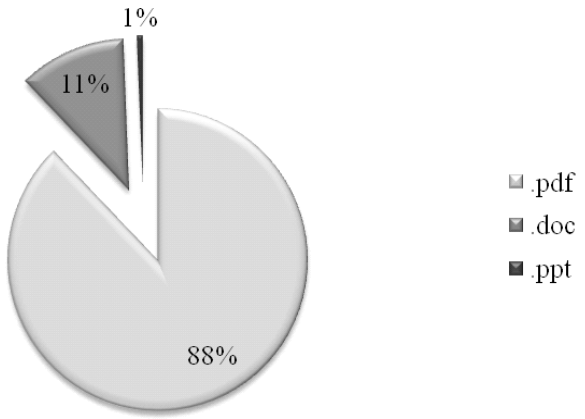

Figure 4. Category-wise distribution of ministry websites of rich files.

Figure 4 shows that a chief portion of the rich files hosted by the websites consist of .pdf files. While, .doc files have its share with 11 per cent .ppt staggers behind with a measly 1 per cent. Also, none of the ministries host an equal number of all types of rich files.

9. SUGGESTIONS

On the basis of findings, the following suggestions are recommended for improvement of the websites of the ministries covered in this study:

(i) The websites of some ministries like PR and YA&S with minimum number of webpages should increase webpages indexed by the search engines, so that it becomes easier for the surfer to get access to the information provided by these.

(ii) Websites should also go in for hosting maximum number of publically accessible rich files to help the users to utilise their information.

(iii) In addition to providing maximum information, the ministries should also try to provide information in different formats for the ease of the users accompanied by the language in which the information is given in the rich files and the software required to open them.

(iv) The ministries also have to do a lot in field of publicising themselves on web, to attain a greater number of hits from its users.

(v) If website is visited more often, it would lead to fulfilling of the third law of library science, i.e. "Every book, its reader" or rather "All information, its user".

10. CONCLUSION

From the study, it can be concluded that EA ranked in the first position with respect to number of webpages among the various selected ministries. EA also lead all the ministries with maximum webpages in a single month which no other ministry could achieve during the course of this study. YA&S lead WIF ranking. The ministry had highest number of inlinks with respect to its webpages. This ministry also managed to grab a second highest WIF in a single month from all the WIF values analysed in this study, the first being RAIL for the same month. H&FW was ranked on the top for presence of rich files. It also boasted the fact that no other ministry was able to match even its lowest value during the 3 months of data collection.

REFERENCES

1. National Portal of Government of India. http://www.India.gov.in

2. Government of India Directory. http://www.goidirectory.gov.in

3. Björneborn, Lennart & Ingwersen, Peter. Toward a basic framework for webometrics. *J. Amer. Soc. Inf. Sci. Technol.,* 2004, **55**(14), 1216.

4. Aguillo, Isidro F. Methodology. http://www.webometrics.info

5. Li, Xuemei. A review of the development and application of the Web impact factor. *Online Inform. Rev.* 2003, **27(**6) 407-17.

6. Almind, T.C. & Ingwersen, P. Informetric analysis on the www. *Journal of Documentation,* 1997*,* **53(**4), 404-26.

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