Digital Resource Center Initiatives in India with special reference to Research Institutions and R & D Organizations in Karnataka: An analytical study

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Abstract: Digital resource center initiatives are vertebral column for development of digital resource management in the informative world and Information Communication Technology (ICT) become inevitable in the present e-information explosion. The heavy usage of digital and electronic resources has increased expectations of professional experts, so to meet the needs and expectations of the user's one stop solution is adopt modern ICT facilities. The present study focuses on DLI (Digital library initiatives) in India, especially in Research Institutional Research & Development Organizations information resource centers, ICT facilities, Information services offered, professional expertise in research institutions and R & D organizations in Karnataka.

Keywords: Information Communication Technology (ICT); Digital Library Initiatives; Research Institute; R & D Organization.

1. Introduction

Digital library Initiatives (DLI) and digital resource centers are made information access very easy due technological advancement particularly in Information Communication Technology (ICT) has converted globe in to modern informative globe, information available anywhere in the world can be accessed through the present ICT facilities. Modern-day resource centers are adopting new technologies to fulfill the needs and requirements of the users than before. Research institutes and research organizations resource centers are providing innovative services to their user community; still the advancement of technology has made information professionals to bite nails in some issues. The present situation demands professional expertise, technical expertise, ICT infrastructure requirement and proper electronic and digital resources for developing good user oriented modern resource centers. With this in background the researcher conducted a study analyze the ICT facilities, digital resource center initiatives, LIS services offered to the end users, for the investigation purpose the researcher has randomly selected fourty Research Institute and Research & Development (R & D) Organizations resource centers in Karnataka, the significant state in India.

2. Need for the study

The recent proliferation of research in digital resource centers woks has given rise to creation of number of working digital resource centers around the World. These digital resource centers have been defined, designed and developed differently. Therefore the experiences that one might have gained from one particular digital resource centers might not be the same with other digital resource centers. Number of studies on these areas can be seen in the literature. In India awareness and importance of digital resource centers and electronic information services is gradually increasing which can evidenced by a number of conferences and seminars held yearly and also the number of digital resource centers consortia are working in this country. While a national policy on digital resource centers is still pending, a number of individual digital resource centers efforts have emerged. But there are norms and policy practices on these programmes and projects. Most of them are taken on ad hoc and random basis. So as a first step there is need for preparation of a check list on what are the materials to be digitized and what constitutes the initiatives. The need for this study has implied to do an inventory of ongoing or completed digital resource centers project and the future programmes and initiatives. In this context the study is very important and is the base for the need of the study.

3. Objectives of the study

The major objectives of the study are:

1. To study in detail the concept of digital resource center and the availability and use of resources which are utilized for the projects and programmes of Digital resource center initiative.
2. To know the availability of infrastructure facilities in selected institutions to execute the digital resource center activities and services
3. To know the categories of digital sources and services that can included in these projects and programmes.
4. To investigate the digital resource center projects and programmes existing in selected research institutions and organizations in Karnataka State.
5. To examine the Information and Communication Technology (ICT) skills possessed by the information professionals working in choosen information centers to maintain the digital resource center towards its continuous sustenance.
6. To put forward some suggestions towards the improvement of digital resource center initiatives in Research Institutions and R & D Organizations in Karnataka.

4. Methodology of the study

A well-structured questionnaire was designed keeping in view of the objectives of the study. The questions were simple consisting of both open and closed ended questions. The structured questionnaire was distributed to fourty selected research institutes and research & development organizations information scientists and professionals, for this purpose the principal researcher has visited personally all the forty information centers in different parts of Karnataka. The response was

positive and the professionals working in these organizations encourage the researchers to complete the task in time. After obtained the completed the questions were tabulated using statistical package and the same were analyzed.

5. Analysis of the Data and Interpretation

5.1 Background information about Information Scientists/ Information Professionals

Table-1: Back ground data about Information Scientists/ Professionals

Sl. No.	Personal Information	Groups	Respondents	%	Cum.%
1	Sex	Male	22	55.00	55.00
		Female	18	45.00	100.00
2	Age	30-50	26	65.00	65.00
		50+	14	35.00	100.00
3	Educational Qualification	Prescribed	35	87.50	87.50
		Over Prescribed	5	12.50	100.00
4	Experience	< 15 years	21	52.50	52.50
		> 15 years	19	47.50	100.00
5	Members to Professional Forum	Yes	38	95.00	95.00
		No	2	5.00	100.00

It can be observed from the table-1 that 22 (55.00%) of the respondents are male respondents or i/c scientists and rest of them i.e., 18 (45.00%) of them are female professionals were working in different Research Institutes and R & D organizations of Karnataka. The maximum numbers of respondents are >50 years of age group and 35 (87.50%) of them are have prescribed educational qualification. The above average 21(52.50%) respondents are less than 15 years of experience. It was interesting to note that majority 38 (95.00%) of the respondents were enrolled as a member in various professional discussion to forms.

5.2 Institutional and Contextual information of Resource Center

Table-2 Research Institutions and R & D Organizations background Information

Sl. No.	Institutional Information	Groups	Respondents	%	Cum. %
1	Organization Type	Research Institute	31	77.50	77.50
		R & D Organization	9	22.50	100.00
2	Resources Center Users	Scientists	223	1.90	79.80
		Administrators	2158	18.30	
		Research Students	9450	79.80	100.00
3	Resource Access Type	Open Access	23	57.50	57.50
		Closed Access	-	-	
		Mixed Access	17	42.50	100.00
4	Data Security & Disaster	Yes	39	97.50	97.50
		No	1	2.50	100.00
5	Source of Finance	State Government	6	15.00	
		Central Government	32	80.00	95.00
		International Agencies	2	5.00	100.00

The state of Karnataka is the hub of Information Technology and research institutes and R & D organizations covering different research field. From the table-2, it was observed there are 31 (77.50%) research institutes and 9 (22.50%) R & D organizations are conducting research in different areas. These institutes and

organizations are having large of research scholars i.e., 9403(79.80%) followed by administrators and scientists. The majority 23 (57.50%) of the information centers are following open access system followed by mixed access 17 (42.50%) i.e., both open access as well closed access to e-resources. All are adopted good security and disaster management system i.e., (97.50) and majority 32(80.00%) of the libraries are funded by the central government and only 6(15.00%) libraries funded by state government.

5.3 The major Information Services offered by resource centers

Research information centers are service oriented centers to support to parent organization and institutions, whose primary goal is to identify, collect, organize, store and provide access to information through variety of information services. Since from early days resource centers are offering variety of information services depending on the scientists/end users' needs and also based on resources and facilities available in resource centers now they have expanded their range of services with the emergence of electronic and digital scholarly resources with blending of ICT. The table-3 presents the various information services including electronic services provided by the research institutes and R & D Organizations in Karnataka State.

Table-3: Resource Centers Services

Sl. No.	Resource center Services	Yes		No	
		Yes	%	No	%
Information Services					
1	Current Awareness services (CAS)	40	100		
2	SDI	33	82.50	7	17.50
3	Reference	40	100		
4	Refferral	33	82.50	7	17.50
5	Bibliographical Service	31	77.50	9	22.50
6	Indexing and abstracting	25	62.50	15	37.50
7	Article alert & Content Page	6	15.00	34	85.00
8	DDS	8	20.00	32	80.00
9	Information Literacy	3	7.50	37	92.50
10	Literature Search	2	5.00	38	95.00
Electronic Information Service					
1	E-CAS	32	80.00	8	20.00
2	E-DDS	6	15.00	34	85.00
3	Online Access to Databases	35	87.50	5	12.50
4	E-Bibliographic Service	26	65.00	14	35.00
5	OPAC , Web OPAC	40	100.00		
6	Virtual Reference	4	10.00	36	90.00
7	E-Bulletin board	1	2.50	39	47.50
8	Ask/Chat	18	45.00	22	55.00

Electronic information services have became the vital part of research and scientific life in the 21st century. It has rapidly changed the way of seeking and disseminating information particularly in research and development organization. All the research and R & D resource centers (40) under the study are providing Current Awareness (CAS) and Reference services. These services are necessary for the scientific community to update current development in their respective field, subsequently 33(82.50%) centers are providing SDI and referral services. 31(77.50%) and 25(62.50%) centers are offering bibliographical service and indexing and abstracting service respectively. Only 8(20.00%) centers are supplying documents through document delivery

service (DDS). Though the information literacy progammes and literature search services are most essential services for the scientific community but only few research centers are offering these services. On the other hand the research and R & D resource centers are adopted extensively information and communication technology (ICT) to provide electronic and online services. It was observed from the table all the resource centers are fully equipped and providing OPAC and WebOPAC access facility to search and retrieve the documents available in the resource centers followed by online access to database i.e., 35(87.50%) and E-current awareness service 32(80.00%). 26(65.00%) and 24 (60%) centers providing E-bibliography service CDROM search facility. It is interesting to note that 18(45%) centers are offering ask and chat services to scientific community.

5.4 Professional Expertise among the Information Scientists /e-resource managers

With the technological advancement and emerging innovative technology the information professionals need to have through knowledge and its application to ensure resource centers appropriate management, its operation and providing effective information services to user's community. In this context the researcher want to know the level of professional expertise in handling and troubleshooting, ILMS, OPAC, Web portal management, various tools and search techniques, building and management of resource centers and institutional repository. It was good to know that all most all the professionals and information scientists expressed that they have sufficient knowledge on the above attributes.

Table-4: Professional Staff Expertise

Sl. No.	Professional Staff Expertise	Yes		No	
		No.	%	No.	%
1	Competency and troubleshooting	38	95.00	2	5.00
2	Integrated Management System	40	100.00	-	-
3	OPAC and WEB OPAC	40	100.00	-	-
4	Web Portals	40	100.00	-	-
5	Institutional Repository	33	82.50	7	7.50

5.5 Digital Resource Centers Initiatives

Table-4: Digital Resource Centers Initiatives in Research Institutes and R & D Organization

Sl. No.	Digital Resource Centers Initiatives	Yes		No	
		No.	%	No.	%
1	Research Institutes	11	27.50	29	72.50
2	Research and Development Organizations	6	15.00	34	85.0

Out of 40 research samples 31 are research institutes, in that 11 of them are set up the digital resource center, organize, disseminate and preserve the digital resources properly. On the other hand out of 9 R & D Organizations, 6 are developed the fully equipped resource centers.

6. Major Findings of the Study

- Out of fourty research sample resource centers, 31 (77.50%) are Research Institutes and 9 (22.50%) are R & D organizations, conducting research in different fields in Karnataka of India.

- Majority of the 22 (55.00%) of the respondents are male professionals or i/c scientists and rest of them i.e., 18 (45.00%) of them are female professionals were working in different research institutes and R & D organizations of Karnataka.

- Majority 23 (57.5%) of the information centers are following open access system followed by mixed access 17 (42.50%) i.e., both open access as well closed access to their user's for accessing research materials.

- It was observed from the study all the resource centers are fully equipped and providing OPAC and Web-OPAC access facility to search and retrieve the resources available in the center followed by online access to database i.e., 35(87.50%) and E-current awareness service 32(80.00%).

- It was good to know that all most all the professionals and information scientists working in Research Institutes and R & D Organizations in Karnataka expressed that they have sufficient professional knowledge to handle IMS, digital resources and IR.

- It was found that the most of research Institutes and R& D organization libraries are having good infrastructure and ICT facilities.

- Almost all the research centers are having good collection of print and non print collection including E-database & E-journals and they are providing quite good number of services to their users.

- Out of 40 research sample centers, 32 are research institutes 11 of them are set up the well-equipped digital resource centers, they organize, disseminate and preserve the digital resources very properly. On the other hand out 9 R & D organizations 6 of them are developed the very good resource center.

7. Suggestions

- Nearly half the research institute and R & D resource centers in Karnataka is head by the nonprofessionals. It is recommended from the study that, the concerned competent authorities need appoint professionally qualified Information Scientist to management and provide better information services to scientific community.

- The professionals working in the research institutes and R & D organizations are not taken any membership from the professionals association. Therefore strongly suggest from the study that, the professional working in these institute should take membership both National and International association to uphold the professional values and image.

- The professionals working in research institute and R & D organizations under study are having good expertise in handling modern technological tools, techniques and strategies blending with availability of all state of the art technologies it need be collaborated scholarly and intellectual work for over success of information centers.

- Further the networking of all the information centers in India in general and Karnataka in particular to facilitate greater resource sharing between and among the Research Institutions and R & D Organization it minimize the cost of resources and maximize user satisfaction.

- Though the ICTs are widely available with professional expertise, only few are initiated the digital resource centers and Institutional repositories. So study strongly suggests that, all the research

centers and R & D organizations need to develop Institutional Repositories (IR) for scholarly digital resources and services.

8. Conclusion

The technological emerging trends and growing convergence in digital technology, networking, processing and storage technologies, and computer networks has provided a means whereby information can be stored, retrieved, disseminated and duplicated in a fast and efficient manner and can be accessible anywhere, anytime and also in a desired mode or format. This implies that digital resource technologies are by now well established and understood throughout where information is a key input in the organization development and provide a competitive advantage over others. The Research and Development (R & D) organizations and higher educational institutions are the potential users of the most information resources, either in the form of 'born-digital' materials or the archival digital resources. The universities and more so the R & D Organization Information Centers in particular, have been on the dynamic path of development of the so-called 'digital collection or digital information centers', It is stated by Dillion (1999) that most current resource centers based on a working model conceptualized in the 19th century are simply not structured to handle the current volume of records, journals, multimedia and other electronic resources.

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