

CHALLENGES OF DIGITAL AGE FOR LIBRARIANS: PROBLEMS AND ISSUES IN BUILDING INSTITUTIONAL REPOSITORIES

*A S Chandel*¹
*Muhammad Mezbah-ul-Islam*²

1. Introduction

Modern trend of globalization and rapid technological changes have given many challenges to the library profession. Information technology made a significant impact on knowledge management and knowledge repositories. Today profession has to struggle hard to sustain and survive its status, which was not earlier realized and felt. At the same time advent of technological advances have added prestige to the professional, provided its application are used effectively to benefit the users of information by providing them *whatever whenever wherever* information is needed. Today's library has no library hrs, no place and no institution. Online access to large number of resources has resulted into de-institutionalization breaking all boundaries of accessibility and availability. Today's users have no patience and cannot wait for information. He expects information on a single click on his laptop, iPod or even on mobile. He prefers to search on universal catalogue or on knowledge access system not even union catalogue, not to talk of local catalogue. Collection of physical artifacts is no more preferred media of information. Accessibility is more important than ownership, though ownership of resources has its own advantages. The challenge of entering digital world has to be faced and accepted by the profession by building digital repositories.

Most of us may agree with the opinion of Marchionini (1999) that the digital libraries are the logical extensions and augmentation of physical libraries [traditional libraries], and that digital libraries are distinguished by a focus on the integration of services through a 'holistic treatment' of interface location, time and language and system.

Literature on digital libraries has been growing since 1980's. Today, there is large number of articles and books on the subject discussing various issues pertaining to digital libraries and their challenges. The technology has been converging and landscape has been changing. Digital future which was not clear during early 1980's got well established by the end of the 1990's. Now we are in digital age and general interest in digital libraries and digital resources are exploding globally and their growth is continuously. Paperless society which was predicted in 1978's by Lancaster (1978) was not believable at one time which has become reality in the present digital age. Digital library, virtual library, electronic library are in common use forming common platform for majority of information users. All libraries today, are trying to go digital as fast as possible aiming to build up their digital

¹ UGC Visiting Professor & Dept. of Library & Information Science, North-Eastern Hill University, Shillong, Meghalaya, India.

² Associate Professor, Dept. of Information Science & Library Management, University of Dhaka, Bangladesh.

collection. DL has become important part of the collection development. This has multiplied the professional commitment and responsibilities. To acquire, convert, process and maintain such resources need specialized knowledge, competence, commitment and management skill.

2. Why Digital Library

Advent of information technology took present world to the present digital age. But as on today, it is the users whose preference is for digital resources. Digital resources are preferred media of information by the users, though traditional libraries are also coexisting having their own advantages. Therefore, future of libraries lies in adoption of latest technology to store and manage more and more information for expeditious access with convenience beyond physical structure of library. Information users of today are least reliant on physical structure of libraries. Users' expectation at the same time has changed; they like to have libraries on their desktop computers or on any other convenient device like iPod or mobile. The change from traditional libraries to digital libraries was inevitable and the acceptability of this change is not an option with the profession but the compulsion to survive. Rightly observed by Biddiscombe (1996) that it is not possible to remain as we are; it would be necessary to everyone to re-examine traditional methods and systems in the light of end user need and demands. Today, coherent access to a large . organized repositories of digital resources can be provided in a digital library world, without the users being aware all the underlying complexities inherent in mapping of digital resources and content, and without the need to identify the separate elements of such knowledge, because all such resources can be seamlessly integrated (Wang, Mei-Yu,2003). Marchionini and Maurer (1995) described a scenario of the digital future in which teachers and students have access to information resources and tools that have been both physically and conceptually inaccessible to users. Digital technology enables the full range of holdings in our museums, libraries, and archives – audio, video, print, photographs, artworks artifacts, and other resources – to be catalogued, organized, combined in new ways, and made accessible to audiences in new ways. Digital technology connects more people to the resources and services that only museums and libraries can provide (IMLS, 2005).

The main benefits of the digital libraries can be summarized as under:

- Improved and fast accessibility with multiple access points
- Integrated approach to multiple resources of multiple disciplines
- Provides solution to space problems
- Preservation is added advantage (which could be main objective of digitization in certain cases)
- Provides convenience in use
- Time and energy saving in finding information

Nevertheless, having above advantages of DL, it requires special skill, ability and equipments and is fully IT dependent. If IT deceives which has every possibility of doing so, whole digital world and its resources may disappear within no time However, it is the call of the knowledge society to have information in digital format for convenience of use in spite of its certain pitfalls.

3. Problems and Issues

Large number of digitisation projects has been launched by many libraries all over the world. Still many libraries particularly in developing countries including India and Bangladesh are even today in take off stage. Those libraries which had started digitisation a decade ago or earlier are constrained today to change their infrastructure and re-plan their digitisation projects. Those libraries which are yet to plan for digitisation have both advantages and disadvantages. Main advantage of new entrants into digitisation projects is that they can have latest infrastructure particularly hardware and software required for digitisation. Moreover, they are in a better situation to learn a lot from the experiences of other libraries which had initiated these projects much earlier.

3.1 *Nature of the Project to be undertaken*

Infrastructure is the basic requirement to launch any digitisation project. The planning would depend upon the nature and the scope of the proposed project. However, principles of planning mostly remain the same which should be done at least for next five years if not more.

3.2 *Kinds of Material to be Digitised*

Libraries are mainly focusing on the following projects:

- Institutional Repository
- Digitisation of fragile materials which are in danger of being lost in near future; such as old manuscripts, old photographs, old music recordings, newspapers, cultural artifacts etc.
- Local history collection/country history
Digitisation of books which are not under copyright restricts but are often referred
- Creation of special databases; like children collection, collection for disabled,
etc., endangered/threatened species of plants and animals
- Archival of ethno-musicological videos that capture the multitude of cultural practices including costumes, ritual practices and dance – that are integral to fully understanding musical expression.

Important deciding and choice factor for launching a digitisation project is the probability of use at local as well as global level. First priority should be to serve your own users and the community. Therefore, different libraries may have different priorities according to the demand of the local community. Even Institutional Repositories which are being given priority by many academic institutions have different scope. It is a fact that everything cannot be digitised even if sufficient funds and manpower are available. Even if it is done, it

may not be cost effective. For example if a digitised resource is accessed a few times in a year, it amounts to wrong choice of digitisation of that resource. The proposed project should be cost effective in view of its usability. The main principle in deciding what to digitise out to be that material [which] meets a documented local need and that need should be met better with digital collection than a print one (Miller, 2002).

3.3 *Organisation and Repackaging of 'Digitally Born' Material*

There could be a possibility of selection, collection and organisation of already digitally born material that may prove useful to the institution. This would require capturing of such resources, creation of their metadata and uploading of the relevant files. This would skip the scanning stage which is required to convert printed material to digital.

3.4 *Digitisation for Preservation*

Every nation should have a good archival systems so that historical memory can be permanently preserved. The society is going to face digital delusion in the near future. Most of these libraries seemed to be at crossroads with regard to planning their future directions for digital archiving (Gatenby, 2002). So far as digital archiving is concerned it is relatively a new discipline though, microfilming and microfiche technology are quite old and still are in use with advantages and disadvantages of its technology. 'Digital preservation combines policies, strategies and actions that ensure access to information in digital formats over time' (ALCTS, 2007).

3.5 *Objectives of Digital Preservation*

The objectives of digital preservation have been summarised as under:

- Each item in the archive is quality assessed and functional to the fullest extent by current technical capability
- A gathering schedule can be individually tailored for each selected title taking into account its publication schedule or the frequency with which the website changes, thus enabling the content gathered to be as complete as possible
- Each item in the archive can be fully catalogued and therefore can become part of national bibliography
- Each item in the archive can be made accessible via web to readers immediately because permission to do so can be negotiated with the publisher
- The 'significant properties' of individual resources and classes of resources can be analysed and determined
- Sites that are inaccessible to harvest robots can be identified and achieved using other methods, by arrangement of other methods with the author (Phillips, 2005).
- Digital resources can be controlled or sold or purchased/licensed
- Contains objects that may not be obtainable in printed format
- Facility of remote access
- Comparatively economical in the long run

- Increased readership
- Easy identification of relevant information from millions of records
- Could be Interactive
- Availability of pre-print copy before publication, thus reducing time lag
- Automatic Alerting Service (user oriented service, interest profile, selective dissemination of information, etc.).

4. Building Digital Repositories

The present knowledge society has a lot of expectations from the libraries and to meet these expectations is challenging target for the profession. Knowledge society also expects resources '*free-for-all*' conveniently available in digital form. Generation of any information and scholarly publications should reach right consumers/users who could be the beneficiaries of the findings of every scientific investigation Today's information users look for information in digital format, therefore building digital databanks has become the necessity for all libraries. Information seeking behaviour of all users has entirely changed. The confronting problem with the libraries is to decide what to digitize, where to begin with. All resources cannot be digitized due to various of lack of resources, nor would be cost effective. We have to fix the right priorities so that our digital repositories are useful to our users. Local clientele deserves preference. Every institution is expected to offer set of services to its community based upon its digital resources. Every academic institution has its own intellectual capital which paradoxically are not available to its own community not even to the creator of such has resources. Authors themselves are not able to access their own contribution.

4.1 Institutional Repositories (IRs)

In narrow sense IRs capture, preserve, and disseminate an institution's collective intellectual capital in the form of text, audio, video, images, learning material in any forms and format. Johnson (2002) defines IR as any collection of digital material hosted, owned or controlled, or disseminated by college or university, irrespective of purpose. It is a digital archival of intellectual products or any academic contributions. Of course, IRs are not confined to colleges and universities alone. More than one institution may join collectively in this academic venture. The present need is to have collective institutional repositories which will have larger database to share.

Authors should have right to access their intellectual capital even if they are not copyright holders. In the context of Ranganathan's law it is 'Information/Knowledge for All' Ranganathan would have amended his first law in the light of e-library. Present knowledge society expects that every information and knowledge which has been generated should be made available to all. To enable equitable and universal access to knowledge resources, libraries should be encouraged to create their

own digital resources by digitizing reading and research material generated by their own institutions in different languages, which can be shared at all levels, more on local level. It can be one of the significant initiatives of institutional library, which can add value to professional contribution as well as to the institution. This initiative and contribution of the library would enable to build repository of intellectual capital of the institution with permanent asset by way of capturing, dissemination and preserving the intellectual output of the faculty and researchers. Above all, such initiative no doubt may be an important step not only to fulfill the mission and objectives of the institution concerned but would also enable to join global system of information exchange and interoperable repositories in the interest of global society.

Copyright and IPR: Open source, open library and open access including institutional repositories have direct conflict with copyright of the publishers and authors on their intellectual output. If every information and resource is going to be freely and openly available irrespective of their copyright, which is expected from open source and open access libraries. There are many issues arising relating to copyright. Some publishers do however permit open access to either at the stage of post-prints or reprints. Some journals, for instance in the field of chemistry, have an 'embargo' on submission policy stating that they will not accept papers for review that have been made publicly available on the internet. As a matter of fact authors of the papers should have the first copyright on his work. Publishers should not enjoy the exclusive right. By doing little editing work, publishers or editors should not own the exclusive responsibility of intellectual contribution. However, in the prevailing situation authors who have already transferred copyrights to the publishers merely for the sake of publication shall have to request the publisher to get back the rights to host it in IR of his own parent institution. It is, encouraging to note that some publishers have liberal attitude of granting these rights as a standard practice to the authors and their institutions for self archiving and posting in IRs. In one of the surveys conducted on publishers showed that 45% of them allow archiving of pre and post-print, 20% allow post-print only, 11% allow post-print only whereas 22% don't allow formally. Some conditions that are imposed by the publishers are as follows reported by Lomangino (2006):

- i) E-print cannot appear before the printed version, or articles are embargoed for 6 or 12 months before posting.
- ii) Publisher's final PDF must/must not be used for self-archiving purposes.
- iii) Posting allowed only on non-profit sites.
- iv) Un-referred preprint must be removed and replaced with post-print after publication.

v) Link to publisher statement regarding copyright must be included with the Article.

4.1.1 Core Features of IR

According to Library Technology Reports (2004) I R has the following features:

- Digital content
- Community-driven & focused
- Institutionally supported
- Durable & permanent
- Accessible content

These features are briefly discussed below:

4.1.1.1 *Digital Content*: IRs are supposed to have only digital resources, independent of physical collection. It could be treated as supplementary to physical collection.

4.1.1.2 *Community- Driven and Community-Focused*: It is community which creates IR. It is collective efforts where every individual of the concerned community is expected to contribute by way of depositing his/her intellectual contribution in the repository. It is by the community and for the community, eventually resources belong to the global community for common benefits.

4.1.1.3 *Institutional Support*: To compile IR is a long term and continuous project which is likely to go on growing from time to time. Traditional library of printed material may lose its importance in near future, but may not be replaceable completely. IRs should not be treated as the replacement of traditional libraries. Both would continue and perform their respective roles. These should be considered as complementary and supplementary to each other. Digitization or compilation of IR involves a lot of expenditure to establish digital lab and it would require recurring expenditure to run it which needs institutional support and patronage. If library does not get institutional support, project of IR is likely to fail. Administration should consider it as on-going project involving recurring expenditure and make long term budgetary provision to continue it.

4.1.1.4 *Durable and Permanent*: IR is going to be a permanent asset whereas other digital material may not be available permanently. Whatever resources we subscribe or purchase are likely to be stopped or discontinued during the course of time if they don't continue their commercial value. Since IRs are supported by the institutions, so are likely to be taken care of for longer duration. Authors should be made to realize that their contributions will remain for perceivable future in the repository which may not be otherwise possible with the publishers. We don't have control over other digital resources

created and controlled by other agencies that may disappear any time without notice. Contributors to the IR should be made to realize that their publications/intellectual input get systematically organized through IR which otherwise shall remain scattered. At one point of time authors may lose track of their intellectual output. IRs organise their material and convert into digital format for easy retrieval. This is an additional advantage to the contributors. Authors so that they have some incentive to participate in developing IR.

4.1.1.5 *Accessible Content*: IRs are expected to be accessible locally as well as globally. However, some resources may be denied access or may be given restricted or limited access. IRs are capable of controlling access to its digital resources which fall under copyright restricts. However, we feel that institutions have genuine and legitimate rights on their own intellectual capital even falling under copyrights at least on Local Area Network. It should be understood that digital repositories are not a replacement for journal subscription or other digital resources, however, can be useful supplementary resource to other existing resources. It is advantageous to faculty in preserving their published works and contributions for future. Preservation is useful to the institution as well as to the submitters to the IR. Faculty need to be apprised about this advantage so that they extend their cooperation in participation in building IR.

5. Core Functions

The core functions or the stages of IR are:

5.1 *Material Submission*: The research materials are to be deposited in the IR by the individual contributor which could be by way of submission of the reprint/ pre-print/unpublished paper to the coordinator of IR by any preferred mode. Since this is a continuous process so it has to be made as simplified as possible so that the authors could make the submission as easily as possible. However, contributors should be provided adequate training to familiarize them with the software being used. The contributors need to be made most comfortable in the submission of contents. The policy document should include detail of submission. It is better if printed material is collected from the contributors and submission is made by the library professional themselves.

5.2 *Quality Control*: Institutional repository may not only bring credit to the institution but is likely to bring discredit in the absence of quality control. Therefore, quality of the contents has to be ensured for the prestige of the institution. Question arises who should control the quality of the contents going into IR? Firstly, it is difficult to command the cooperation of the authors to participate in this cooperative venture. If they cooperate, they may withdraw their participation as soon as their

contributions at any point of time is rejected to be included in the IR. This is very delicate and crucial decision. In case of university, the appropriateness of the contents to be included in the IR should be taken at departmental level to be further submitted to the respective editorial committee which should be constituted for each discipline/subject. Quality control is important to maintain the credibility and prestige of the institution as well as contributors.

5.3 *Editorial Committees:* Before contents of submission are finally accepted for inclusion in IR by an appropriate body/authority, subject or editorial committee whatever the case may be should approve the submission. Formation of different subject editorial committees would be useful to maintain the standard so that contents of the IR are authentic and worth sharing.

5.4 *Scanning Process:* The documents duly approved have to be scanned under appropriate resolution so that digitized material is easily and clearly readable which depends upon the quality of original documents. Scanning and uploading the scanned files with the metadata have to be done carefully which is not merely a manual work as is often considered.

5.5 *Policy Document:* Before IR starts functioning, it is important to prepare policy document to be approved by the competent authority describing guidelines about the contents, submission such as who can make submission, who is authorized to review and edit, whether access is to be provided to all or it would be restricted, etc. This policy document would help in taking right decision as per guidelines laid down in the document. This may be revised from

5.6 *Metadata Creation:* Creation of metadata forms the basis for retrieval. This needs subject expertise and professional competence for proper analysis of contents of the items to be stored in the IR. Assigning keywords and subject descriptors are very crucial and important work. Adding the thesaurus facilities in the software would be additional advantage in searching, however it is highly intellectual activities which requires subject expertise in various disciplines. It is important to have appropriate standard format for entering metadata which would depend upon the type of material to be digitized and posted in the IR. The present requirement is to have different worksheets for data input for different types of material as coverage of IRs is of that nature which may range from books to journal articles, conference/seminar proceedings, project reports, theses, chapters in the books, lecture notes, audio video, graphic material and any other information sources useful to the institution etc. It is not convenient to cover all these different types of sources in a single worksheet.

6. Why Institutional Repository Deserve Priority?

The impact is significant and everlasting. It is long-term investment and cost effective. Some of the apparent advantages and impacts are:

6.1 Advantages

i) In the present invisible academic world, bringing visibility to e-resources has become increasingly important, otherwise intellectual output would remain hidden within the possession of publishers. IRs have the potential to serve as tangible indicators of an institution's quality and demonstrate the scientific, societal, and economic relevance of its research activities, thus increasing the institutional visibility, status and public value. (Crow, 2009).

ii) It is often experienced that the contributions of eminent authors/scientists of their parent institutions remain unknown to other members of the same academic community, though such contributions may be known and available elsewhere where their work is accessible through subscription or any other terms and conditions of accessibility. Recapturing and repackaging of your own such resources become mandatory for library profession and deserves priority. It so happens that libraries may be subscribing to many e-resources available online in which the contributions of their own faculty members and researchers may not be available and may remain scattered and diffused in various databases unknown to the parent institutions they are serving. Resultantly, institutional own resources are not readily and easily accessible to their own authors and parent institution and its beneficiaries. It was observed that authors' own publications are not accessible to them, which are only available on publishers' websites, on subscription. It looks quite odd that contribution of the author is not accessible to himself/herself whereas the same is accessible to others.

iii) This compilation, which may involve initially considerable efforts and finances but in the long run, it is going to be most *cost effective* product. Libraries which are not in a position to subscribe highly priced journals or databases, IR may serve as a substitute to such databases in the long run and would be able to meet particularly the information needs of their academic community to certain extent. IR is going to be a *permanent asset* for present and future use of the institution. The resources which are available today online may not be available tomorrow. Availability of e-resources is quite unpredictable. Moreover, perpetual access and owning them is not affordable. Publishers may also not go for permanent archival due to some or the reason. In such cases, the possibility of permanent archival and accessibility may raise doubts. But when resources are in your own repository, *permanent ownership* and *preservation* both are ensured. Preservation becomes more important since future viability of specific commercial publishers cannot be assured (Buechler and Boateng, 2005). Nicholas (2005) states that if we presume that institutional repositories don't fulfill the role of digital

preservation archives, and commercial e-journals industry is the real focus for digital preservation, then e-prints in IR are to be viewed as current awareness tools, full of ephemera – they are useful but transient. This statement implies that preservation aspect of e-resources should be taken into account while going for IR so that it fulfills both the functions of accessibility and long-term preservation.

iv) When the product is posted on the website of the institution, usability would be multiplied provided their content analysis for retrieval is made logical and effective. It is presumed that due to the dual availability: *one in scholarly journal* (website of the publishers) and *one in institutional repository* would increase the usability as well as productivity. It has been proved that open access sources are used and cited more than other sources that have restricted access. Though modern trend focuses on accessibility rather than ownership nevertheless advantages of ownership cannot be undermined. IR provides ownership as well as accessibility combining the advantages of both. Accessibility under ownership of others pre-supposes dependence whereas, ownership is dependence free.

v) IRs are going to serve as indexes/indicators of the quality of scholarship and strength of their academic contributions. This demonstration of value can translate into tangible benefits, including the funding from both private and public sources that derives in part from an institution's status and reputation (Crow, 2009).

vi) IRs as open access reduces the time lag and delay between acceptance and publication of papers particularly in reviewed journals. Hence, currency of information is maintained more in IR than getting them published in scholarly journals.

vii) IR also enables to cover unpublished papers or even published ones in conferences/seminars proceedings, which don't get their coverage in indexing and abstracting journals/databases. Hence, remain inaccessible, which IR can bring into the notice of the information consumers.

viii) Information retrieval in IRs can be made more effective by educating the users in formulation of search queries and search commands amenable in the software. Library professionals' input for improved retrieval could be available in IRs.

ix) SPARC Checklist (Crow, 2009). states that institutional repositories provide a critical catalyst and component in reforming the system of scholarly communication by expanding access to research, reasserting control over scholarship by academy, and bringing heightened relevance to the institution and libraries that support them; and have the potential to serve as tangible indicators of an institution's quality and to demonstrate the scientific, societal, and economic relevance of its research activities, thus increasing the institutional visibility, status, and public value.

7. Problems

7.1 *Authors' Participation and Cooperation:* Advantages are many as discussed above but there are some confronting problems associated with building IRs. Firstly, it is not easy to convince the authors to participate in the project. Their preferences remain for publishing their research output in scholarly journals with high impact factor. They may be in the opinion that articles posted in IR may not carry as much value and weight on author's CV as would be in peer-reviewed journals, established journals as has been proved in many studies. Nevertheless, citation has been proved much more of open access resources. It is hard to make the case for IRs to faculty says Mitchell (Albanese, 2009). If they are willing to publish as well as submit in IR, arrangement with the publishers to seek permission to do so is implied. This negotiation is not easy. This would depend upon the policies of the publishers, whether they permit or refuse to do so. However, some of the publishers have liberal policy to allow hosting of the intellectual products in IRs before or after publication in their journals. Even if authors are willing to contribute, they may not have all the reprints of their published works readily available. Copyright issue is also one of the hindering factors, and authors and institution are apprehensive of consequences of violation of copyright, though it should fall under '*fair use*' under copyright acts especially if made available on intranet only.

7.2 *Institutional Commitment:* Though library professionals are eager and enthusiastic to enter into digital world by taking up digitization projects in the form of IR or digitization of other material useful to the institution which needs institutional support in the form of financial assistance and additional manpower etc. It is quite expensive to establish good digital lab for every institution. Therefore, only selected few can afford to experiment with such projects. It needs to be incorporated in the mission statement of the institution so that it becomes mandatory activity of the library or any other unit which is assigned this job. Administrative support as well as cooperation of contributors both are essential for the success of IR.

7.3 *Manpower Requirement:* Though application software like DSpace and Greenstone and e-print required for digitization are open source, nevertheless their customization and proper use need specialized knowledge and training which most of institutions are lacking. Many projects have failed due to lack of suitable manpower. Digitization is not a simple activity which requires competence of content analysis of subject matter for effective retrieval. Problems are many, even then efforts and initiatives are required. Association of Research Libraries Task Force concluded that IRs are '*unusually successful*' therefore, deserve to be created. Manpower with knowledge of various subjects, expertise in database design and creation and computer knowledge is required. Most of the libraries are under-

staffed for their day-to-day work and cannot afford staff for digitization whereas, IR would require exclusive staff for the job.

In the light of the above, following issues would arise seeking solutions:

- *Is every intellectual output going to be free (free-for-all? If so, will the publishers and authors accept it and under what terms and conditions?*
- *What would be the consequences and impact of such trend on publishing industries?*
- *Whether authors would be agreeable to put their scholarly pre-publications in their institutional repository? In this regard, Cervone, F (2004) made his observation that they (authors) are concerned [with] adding material to an IR and feel that it can impede other, more traditional publication opportunities. However, authors have different reactions and views on this.*
- *What would be the reaction of the editorial board of scholarly publications if they find that the paper, which they are going to include for publication, is already available on open access? Will they have the same interest to accept the paper for publication as without pre-hosting in the respective institutional depository? But publishers also shall have to make some compromises. Some of the publishers have already agreed to allow the institution to include e-version of published papers in IR. However some may differ and may have their own policy in this regard as discussed earlier. Is it not the legitimate right of the authors and their institutions to reserve the right to archive their own intellectual output for non-commercial and academic purpose without any interference and formal permission from the publishers to whom copyright has been given, merely to publish the article?*
- *What would be the impact of dual accessibility and availability in institutional repository as well as with publishers?*
- *If network of institutional repositories at local, regional and national levels come into being, which is quite expected, what would be its impact on subscription of journals and marketing of information products? This may become serious concern of the publishers at later stage in view of this development.*

A group of librarians in focus group conducted in Washington, D.C. also raised such questions like:

- How do IRs and availability of open access journals affect library purchase decisions?
- What is the economic situation in libraries these days?

- What are academic and research libraries doing with regard to making the resources in their collections more discoverable?
- Are they involved in institutional repository? (Kaser, 2009).

Violation of copyright is becoming more and more prevalent. Google, Yahoo and many other such agencies are fighting legal battles with the copyright holders. Even then millions of documents which are governed under copyright are being made available as open access documents with access to few pages only. Books published as recently as in 2007-08 are available to access though they fall under copyright act. One school of thought does not believe in copyright. They are fighting for copyright free movement. They believe that every intellectual product should be made freely accessible without the restriction of copyright. However, it is easier to say than to implement such thinking. Presently publishers are not threatened with this development. In case open access movement catches up in near future, publishing trade is definitely going to be affected.

Copyright issues would no longer be an obstruction and are resolvable. The privileges of the producers of intellectual contents cannot be withdrawn and denied even if copyright is given to the publishers to publish the papers at least for self-archiving and host it in IRs. In view of this, many publishers are agreeable to allow the authors and their institutions to post their publications on their IR, which have been already published. However, post-print permission to host their publications in institutional repository seems to be legitimate right of authors and the institutions. Even pre-publication of e-resources in IR may be feasible and acceptable to the publishers in due course of time. In case of post-print, permission by the publishers that causes delay in accessibility of resources, thereby may affect their currency in IR which is important especially in science and technology research. Authors' preferences may continue to publish in scholarly journals rather than putting it in IR or in their own websites. Nevertheless, some authors prefer to make their contributions as open access rather than going for commercial publication since open access, open library and IR are to be popularized in the interest of more usability of resources. Example of Harvard University which resolved to put all their publications in its own IR.

Conclusion

It is encouraging to note that faculty of Arts, Sciences at Harvard University made history unanimously passing a revolutionary resolution about a open access mandate which states that faculty is required to give to the university, copies of their research, along with nonexclusive license to distribute them electronically (Albanese, 2009). There had been failures and successes in building IRs and there had been reasons for negative and positive results. IRs provide an infrastructure to store and distribute their

previously underused gray literature. And for some IRs are a mechanism by which to bypass traditional publishers and work toward a possible solution to the current scholarly communications crisis (Library Technology Reports (2006). But it is important and timely that digital repositories are to be launched by all the modern libraries along with IRs. They could be merged together for better use. Professionals should not have any doubt that majority of information users want maximum of the information in digital format. This requirement has to be met successfully by all the libraries to meet the information needs of users of digital age.

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This paper considers some of the major issues concerning collection management in academic libraries in a rapidly changing environment. Specifically, this paper reflects on core values, scholarly communication issues, acquisition activities, access and delivery issues, and innovation. What is collection management in the digital age? Our environment is fast-paced, driven by rapid changes in information technology, emerging areas of interdisciplinary research, a profusion of new digital resources, budget constraints, changes in teaching practices and learner expectations, and shifting institutional policies and priorities. What happens to collection management in this sea of information resources and formats, access methods, and budgetary choices? "Libraries and Digital Strategy" AMIGOS Congress, 1-2 October, 2015 Sustainable institutional repositories: issues and challenges for capturing and sharing scientific knowledge Zsuzsa Debreczeni, Librarian Bank for International Settlements, Switzerland Abstract The number of repositories maintained by research institutions to preserve and disseminate digital scientific output continues to grow vigorously, as does the number of open repositories. Central banks, for example, pursue macroeconomic research projects and publish the results as an adjunct to their primary role of implementing monetary policy and managing monetary systems. The issue of sustainability for repositories is challenging, with the Keywords: Digital libraries, human-computer interaction, social issues in computing, developing countries, internationalization. Introduction to the chapters in this section. Digital libraries are large, organized collections of information objects. Unlike the New World, where most of the research on technological aspects of digital libraries originates, Asia has an exceptionally rich cultural heritage. One of the key problems with information distribution via the Web is that it disenfranchises. 7. developing countries. Although the Web does not extend into the homes of the socially disadvantaged in developed countries either, various national programs are working to provide access (such as the Bill and Melinda Gates Foundation grants to public libraries). Institutional digital repositories provide institutions an opportunity to establish a prime location that collects and preserves the resources in digital form. Scholars invested demand for the online publishing, networking, and good research are driving the demand for extensive access. Institutional digital repository, which may be called an extension of digital library, is now becoming a platform for the sharing of knowledge. An Institutional Repository consists of formally organized and managed collections of digital content generated by faculty, staff and students at an institution. The proliferation of digital scholarship raises serious and pressing issues about how to organize, access, and preserve it in perpetuity. PDF | This article defines digital library and its content. It also discusses various functions of content management with special reference to digital | Find, read and cite all the research you need on ResearchGate. Access to library collection for remote users has long been a challenge for librarians. For centuries, they have managed warehouse of documents by acquiring, cataloguing and classifying. Large digital repositories are required multiple level of mass storage media (e.g., disk, tape, etc.) and mechanical robots to locate and mounts the media. Various supercomputer centers are using.