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Digital Preservation of E-Resources in Library Consortia Environment: Publishers Perspective

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Abstract: The Increase In Electronic Journals And The Conversion Of Library Subscriptions To Electronic-Only Creates A Need For Ensuring Long-Term Availability Of These Electronic Resources. Digital Preservation Initiatives Help To Ensure That Digital Resources Will Remain Available And Accessible In The Event-1. If The Publisher Ceases To Exist ,2. If The Content Is No Longer Hosted Online, 3. If A Catastrophe Prevents Restoration Of Access. Digital Preservation Is A Collaborative, Community Effort To Support The Archive And How The Archive Is Governed And Managed. Content Is Made Freely Available To Everyone When That Content Is No Longer Available From A Publisher. This Paper Highlights Some Key Issues And Different Digital Initiatives Available For Content Providers To Ensure Patrons Access To Perpetuity To Electronic Resources.

Keyword: *Digital Preservation, CLOCKSS, PORTICO, Digital Rights Management , Consortium*

I. INTRODUCTION:

Ever Since The Appearance Of E-Resources And Consortium, There Has Been Serious Thinking Of Digital Preservation. There Have Been A Continued And Concerted Efforts For Preservation Of E-Resources And As Such Digital Preservation Of Subscribed Content Remains A Serious Threat For Library Consortia Manager. As Content Moves Increasingly To An E- Environment, Societies And Research Scholars, Academicians Must Feel Confident That Their Published Research Should Be Protected For Future Use.With The Development Of Electronic Journals, Online Publishing And The Increasing Shift To E-Only Subscriptions And E-Resource Purchases, Libraries And Researchers Have Become More Adamant To Preserve The Research Works , For Purposes Of Reliable Access And So Everlasting Or Perpetual Access, Should Become Top Priority For Publishers. Every Document, Whether It Is A Research Article, Book Or Report Needs To Be Preserved For Future. This Gives The Peace Of Mind For Libraries That The Subscribed Or Purchased Content Will Remain Available To Them Regardless Of Publisher Status Or Format Changes. Preservation Of The Scholarly Record, Ensuring Researchers And Societies That Content Is Protected And Publisher Or Society Can Have The Access To Content In The Event Of Technological Failure Or Natural Disaster. Digital Preservation Initiatives Are Granted The Right To Validate Received Data, Transfer Data Format, Extract Metadata, Migrate Data, Reassemble Data Packets (If Data Is Encrypted), Provide Backup For Disaster Tolerance, And To Repair Data (If Necessary). Keeping This Into Consideration, Many STM And Reaserch Content Publishers Recognizes The Need For Robust Preservation Policies. The Increasing Queries On The Future Of The Content Helps In Realizing The Publishers That Library Partners Should Feel Confident Of Their Their Investment Protection And That Their Access To Content Is Reliable.

In The Context Of ICT Dominated Academic Environment , The Digital Generation Of Students Expects Online Access To Content Without Making Any Visible Distinction Between Articles And Book Chapters, Regardless Of Their Library's Hours Or Their Geographical Location.As Library Renovation Projects Are Setting Aside Smaller Areas For Physical Collections, Ebooks Often Solve Library Space-Allocation Issues. Ebooks Are Easily Found Via Internet Search Engines, Electronic Resources Management Tools (Erms), And Library Opacs (Online Public Access Catalogs). All Of These Factors Render Ebooks An Ever-More Important Part Of A University's Collection Development Investment. Thus, For The Library Community Digital Preservation Of Ebook Content Is Essential.In Recent Past, There Have Been A Few Global Initiatives To Ensure Access To Perpetuity To Electronic Resources. With Advent Of New Technologies ,Digitization Of Worthwhile Materials Is Undertaken At The Institute Level And Efforts Are Made To Archive The Same For Future Use. In This Endeavor, Institutional Digital Repositories Are Created Using Avialble Open Source Softwares Like Greenstone, Dspace Etc. And All Information Generated Within An Organization

Is Digitized And Uploaded In The Repository. It Is Rather Easier To Upload 'Born Digital' Documents In The Digital Repositories. However , This Is Predominantly Concerned For The Institutionally Generated Information. It Is Very Difficult To Have Access To Contents Subscribed In Case Of Termination Of Subscriptions, Change Of Publishers With Merging Or Collapse Of Publishing Houses Or Taking Over Of Small Publishers By The Bigger One. In Such Cases , The Publisher May Provide Access To The Subscribed Content From Their Platform With A Small Access Fee Or Provide Cds Or They May Provide Content , Which Can Be Hosted On Institute's Server . Nevertheless, These Alternatives Are Not Feasible Enough To Handle Or Provide The Necessary Infrastructure. Publishers Are Providing Access To Their Contents From Beginning Of Their Publications. As The Resources Like Journals Or Books Moved Increasingly And Perhaps Entirely Into An E-Only Production Mode, Print Versions Might Not Be Available As A Replacement Option If There Is Anything Go Wrong With An E-Distribution Model. So, The Resources Like Ebooks Should Absolutely Be Preserved, To Retain Copies Of Anything Necessary For Research Purposes. A Change In Format Doesn't Make That Need Go Away.

Consortia And Digital Preservation Of E-Resources :

The Main Stakeholders. Publishers, Consortia And Users Have Very Significant Role In Digital Preservation And Facilitating Perpetual Access To Subscribed Content. In The Process Of Licensing And Negotiating, The Consortia Should Take Concrete Steps To Ensure Perpetual Access Of Subscribed Content For Future Use.

The Following Factors Are Important And Should Be Taken Into Consideration In Connection With The Preservations Of Digital Resources In Consortia Scenario.

1. While Negotiating Deals With Publishers , Consortia Must Ensure The Modalities Of Access To Archival Information Of The Subscribed Content In The Process Of Licensing
2. There Should Be An Archival Unit Within The Consortia Or Institutions To Take Care Of Archival Aspects
3. The Consortia Should Get Involved In Participation With Existing International Digital Preservation Systems
4. The Consortia Should Study The Publishers' Archival Policies On The Following Lines:

- Archiving Policies Having Long Run Digital Preservation And Perpetual Access
- Post Cancellation Access Assurance
- Provision Of Transfer Of E-Journals And Policy Matter Thereon
- Provision Of Content Access In Case Of Merging Of The Company Or Publishers
- Provision Of Content Access In Case Of Breakdown Or Permanent Failure Of Publishers' Or Content Providers' Servers Due To Natural Calamities.
- Local Loading Policy Of The Publishers
- Technical Manpower Support From The Publishers' End.

There Are Distinctive Limitations To The Publishers' Archival Model, Nevertheless In Current Consortia Scenario, Users Access The Content From The Publishers' Platform. The Situation Demands An Urgent Need To Local Archiving, Which Is Expensive And Need Well Developed Infrastructure. Technology Can't Be Ignored And Changes Rapidly Leaving A Risk Of Obsolescence With Constant Migration Of Content , So Archiving Needs Long-Term Perspective. While Dealing With E-Resources, Publishers Always Have The Provision To Offer Perpetual Access Of The Content . This Is Basically Continuing Access And So In Such Situations, Promising Perpetual Access Suffer From Trust Factors In The Context Of Following Aspects :

a. Archiving Is A New Function For Publishers, But They Never Engaged Themselves In The Past Although They Owned The Content;
b. Large Number Of Medium/Small Publishers Cannot Afford Archiving As It Is Cost Prohibitive;
c. Survival Of Small And Medium Range Publishing Houses In The Age Of Economic Crisis And Competitive Environment

Libraries Around The World Share A Similar Concern To Keep Their Content Safe. Over The Years The Content Custodian Realizes That If The Publishers Were To Disappear In Time They Would Be Left With A Hugeresponsibility To Maintain And Develop The Software Needed To Access These Materials. Though Typically Publishers Provide Digital Copies Of The Content But The Issues Of Software Could Not Be

Eradicated For These As Well. Moreover, The Problems Of Preserving E-Content, As Well As Giving Long Life To The Stop-Gap Solutions Are Too Big For A Single Library To Tackle. Keeping All These Issues In Consideration, There Must Have Some Partnership Arrangement To Provide Long-Term, Sustainable Solutions.Digital Preservation Initiatives Also Ensure That Data Will Be Migrated To New Formats As Necessary To Keep Pace With Changing Technology. Librarians And Publishers, Challenged By The Responsibility To Preserve The Digital Assets Of Their Community, Joined Forces To Build A Global Archive Called CLOCKSS (Controlled Lots Of Copies Keep Stuff Safe). CLOCKSS Is Unique From Other Archives As The Content Is Preserved On Four Continents: North America, Asia, Australia, And Europe. The Current Global Economic Crisis Illustrates The Folly Of Outsourcing Oversight And Core Responsibilities And The Failure Of Insurance Schemes.

How Does The Preservation Process Work?

Usually The Original PDF Of A Chapter (Or An Entire Book) And The Accompanying Xml Metadata Are Placed On A Publisher's FTP Site And Subsequently Accessed By The Preservation Initiative. Other Methods Of Collection Include Data Harvesting Through Regular Crawling Or Dedicated ONIX Feeds. A Publisher Should Always Send Test Content First To Allow For Investigation Of Any Issues That Might Arise In Existing Workflow Procedures.Different Initiatives Deal With The Data In Various Ways. CLOCKSS Accepts Content In Any Publisher Format And Does Not Normalize Data. Portico Works With Each Publisher To Develop A Customized Preservation Plan, And Does Subsequently Normalize Some Publisher Content, Depending On The Content Type. E Depot, While Not Normalizing The Content Itself, Chooses To Normalize The Metadata Into Its Proprietary Standard. The German National Library Also Changes The Publisher Metadata Into Its Own Preferred Form. Tobias Steinke, Who Is Responsible For The Preservation Mission Of The Library, Emphasizes The Need For Publishers To Deposit Unprotected Files, As DRM Measures Render The Preservation Process Extremely Difficult.

Core Issues In Preservation:

Preservation Depended Upon The Business Model. For Example, If Access Was Via Subscription, Once Payment Ceases, So Does Access. Following Are Some Of The Factors To Be Remembered While Negotiating With The Publishers In The Context Of Business Model

- Access Models Vs. Ownership
- Versioning And Updates
- E-References Vs. Digital Collections
- E-Reference Paired With Journals

Some Of Other Core Issues Includes:

- Backup Vs. Storage.

Backup Is The Recovery Of Systems But The Systems Are Subject To Obsolesce And Require Maintenance.
A Storage Is For The Recovery Of Content, Which Can Be Much More Durable And Technology Independent. A Clouds, Tape Libraries, RAID Arrays (Inexpensive Discs) Are All Viable.

- Choosing Formats And Technology Platforms
- Planning For Obsolescence
- Organizational Structure
- Inter-Connections And Linking
- User Experience
- User Generated Content
- Concepts And The Information Surrounding The Concepts

Publishers Objectives On Preservation:

Many Publishers Are Currently Registered And Participated In Various Digital Preservation Initiatives, Depositing Their Titles In Digital Preservation Repositories, Such As Portico And CLOCKSS (Controlled Lots Of Copies Keep Stuff Safe). As An Instance One Of The High End STM Publishers Springer Had Deposited Titles Through Digital Preservation Initiative. This Registry Includes Fully Owned Springer Titles, Biomed Central Titles, As Well As Society And Third Party Titles With Contractual Reference To Archiving Or With Signed Amendments Allowing For Such Deposit.Big Publishers Usually Extend This Worthwhile Benefit To All Publishing Partners, Regardless Of Whether Their Content Is Produced In The Publishers' Own

Work Flow Or Whether Content Is Only Distributed By Them. It Is Unlikely Event That Publishers Content Would No Longer Be Available Through Their Platform, However Some Of The High End Publishers Wants To Assure Library Partners And Researchers That What They Have Paid For Will Not Be Lost. Therefore, Publisher Views These Preservation Initiatives As Dark Archives And Not As An Alternative Access Method.In The Event That Subscribers Need To Make Changes To Their Subscriptions, Some Of The STM Publishers Has Very Generous Archival Policies That Allow Continuing Access To Subscribed Content On The Platform.
Continuing Access On Publishers' Platform Keeps Customer Information And Usage On One Site For Easy Trackingand Also Affords Researchers Access To New Functionalities As They Are Incorporated Into The Developing Platform.

Regardless Of What The Content Is, The Same Preservation Objectives Applied To All Content.
This Includes:

- Usability:The Intellectual Content Of The Item Must Remain Usable Via The Delivery Mechanism Of Current Technology
- Authenticity: The Provenance Of The Content Must Be Proven And The Content An Authentic Replica Of The Original
- Discoverability:The Content Must Have Logical Bibliographic Metadata So That It Can Be Found By End Users Through Time
- Accessibility: The Content Must Be Available For Use To The Appropriate Community

A Variety Of Organizations Are Currently Developing Digital Preservation Systems (DPS) .Its Stretegy Involves A Comprehensive Approach To Preservation, Including Standards, Migration, Replication, Emulation, Metadata Attachment And Building Trustworthy Digital Object Repositories.

There Are Many Efforts To Develop Dpss As Listed Below;

- ADS Of NASA
- CASPAR
- CLOCKSS
- DAITSS (Florida University)
- Digital Preservation Coalition
- Digital Preservation Europe
- Duraspace
- Ex Llibris Rosetta
- F Dsys
- Irods
- JHOVE
- JSTOR
- NDIIP – National Digital Information Infrastructures And Preservation Program Of Library Of Congress
- PADI – National Library Of Australia
- Pedals -Persistent Digital Archives And Library System Project
- PLANETS Of EC
- PORTICO
- PROMETHEUS – National Library Of Australia
- PROTAGE (Sweden)
- GNL-German National Library
- KB- Koninklijkebibliotheek(National Library Of The Netherlands)
- LOCKSS

Out Of All These Digital Preservation Initiatives, Most Of The Publishers Preferred To Participate In A Few Initiatives Likeportico, CLOCKSS, LOCKSS, Jstors Etc. Keeping In Consideration Of Consortia Archival Interest.

A. **PORTICO:** It Is A Digital Preservation Service Provided By ITHAKA, A Non-Profit Organization With A Mission To Help The Academic Community Use Digital Technologies To Preserve The Scholarly Record And To Advance Research And Teaching In Sustainable Ways. It Was Created In 2002 As A Project Funded By Andrew W.Mellon Foundation To Strengthen Its Seminal E-Journal Archiving Program.

Features Of PORTICO:

1. Access To Archived Content;

Publishers And Libraries Have Entrusted E-Journals ,E-Books, And Other Content To PORTICO. Participating Libraries Gain Access To Preserved/Archived Content When Specific Conditions Or 'Trigger Events' Occur Which Causes Titles No Longer Available From Publishers Or Any Other Sources. The Triggered Event May Include

- The Publisher Ceases To Exist
- Content Is No Longer Hosted Online
- A Catastrophe Prevents Restoration Of Access
- Back Issues No Longer Offered By A Publisher

2. Post Cancellation Access:

The Majority Of Titles In PORTICO Are Available For Post Cancellation Access If Needed. Upon Receipt Of A Claim From A Participating Institution And Confirmation Of The Past Subscription Status By The Publishers, Campus Wide Access Is Provided.

3. Portico's Certification:

Portico Becomes The First Digital Preservation Service To Be Independently Audited By The Centre For Research Libraries (CRL) During 2010. The CRL Has Certified That Portico Is A Trusted, Reliable Digital Preservation Solution That Serves The Needs Of The Library Community.PORTICO Is One Of The Most Comprehensive Digital Preservation Archive In The World. It Holds More Content Than Other Available Archives.

4. PORTICO Saves Time And Money:

With Reliable Digital Preservation Service Solution In Place, Libraries Can Move Their Collections More Rapidly From Print To Electronic Formats, Freeing Up Precious Space In Their Libraries And Storage Facilities And Reducing Purchasing Costs. Publishers Can Reduce Costs Related To Printing And Mailing By Transitioning To A Greater Reliance On Electronic Sales Of Their Publications. Both Libraries And Publishers Can Save Time By Participating In PORTICO In Handling Both Archival And Post-Cancellation Process. Faculty, Staffs And Students At Participating Institutions Can Access The Archive To Use The Content That Has Experienced A "Trigger Event" Or That Fulfills A Post Cancellation Claim.

B.**LOCKSS (Lots Of Copies Keep Stuff Safe)**

It Is Digital Preservation Initiative Based At Stanford University Libraries, Started Eleven Years Ago. LOCKSS Provides Libraries With Digital Preservation Tools And Support To Easily And Inexpensively Collect And Preserve Their Own Copies Of Authorized E-Content.

Features &Functions Of LOCKSS

A Library Uses LOCKSS Software To Turn A Low-Cost PC Into A Digital Preservation Appliance Called A LOCKSS Box That Performs The Following Four Functions:

- It Collects Content From The Target Web Sites Using A Web Crawler Similar To Those Used By Search Engines.
- It Continually Compares The Content It Has Collected With The Same Content Collected By Other LOCKSS Boxes And Repairs Any Differences.
- It Acts As A Web Proxy Or Cache, Providing Browsers In The Library's Community With Access To The Publisher's Content Or The Preserved Content As Appropriate.
- It Provides A Web-Based Administrative Interface That Allows The Library Staff To Target New Journals For Preservation, Monitor The State Of The Journals Being Preserved, And Control Access To The Preserved Journals.

Before A LOCKSS Box Can Preserve E-Content The Publisher Has To Give Permission For The LOCKSS System To Collect And Preserve The Journal. They Do This By Adding A Page To The Journal's Web Site Containing A Permission Statement And Links To The Issues Of The Journal As They Are Published.Providing Access To The Content : Authorized Readers From An Institution Can Access LOCKSS Stored And Preserved Content When A Publisher Is Not Available For Any Reason (Subscription Canceled,

Network Traffic, Publisher Server Down). Library Readers Have Perpetual, Seamless Access To Content For As Long As The LOCKSS Box Is Maintained. Content Served From A LOCKSS Box Will Look The Same As Content Served From The Publisher With One Important Exception. If The Publisher's Site Is Unavailable, Content That Normally Changes Whenever The Reader Presses The Browser "Reload" Button (For Example, Ads) Will Instead Be Constant.

Benefits Of LOCKSS:
LOCKSS Are Having More Benefits For The Consortia Or Participating Libraries. However, Some Of The Key Benefits Includes:

- Publishers Pay No Fee To Join The LOCKSS Program.
- LOCKSS Does Not Re-Distribute Content Nor Does It Interfere With Traffic Or "Hits" To The Publisher's Site. Only When A URL On A Publisher's Web Site Is Unavailable Will A Library's LOCKSS Box Deliver That URL On-The-Fly To The End-User.
- LOCKSS Preserves The Original State Of The Content, Right Down To Publisher Branding. With LOCKSS, The Content Is Preserved At Its Original URL -- Exactly As It Looks On The Publisher's Site Today.

C. CLOCKSS (CONTROLLED LOTS OF COPIES KEEP THE STUFF SAFE)
It Is Not For Profit Joint Venture Between The Leading Scholarly Publishers And Research Libraries Whose Mission Is To Build A Sustainable, Geographically Distributed Dark Archive With Which To Ensure The Long Term Survival Of Web Based Scholarly Publications For The Benefit Of Global Research Community. In CLOCKSS, Triggered Content Which No Longer Available From Any Publishers Is Available Free. It Uniquely Assigns This Abandoned And Orphaned Content With A Creative Commons License To Ensure It Remains Available.
Key Benefits ;

- CLOCKSS Is A Non-Profit Organization Governed By, And For, Its Stake Holders -Publishers And Libraries, Who Have Equal Say In Deciding Procedures, Priorities, And When To Trigger Content.
- It Is Decentralized; Geographically Disparate Preservation Model Ensures That The Digital Assets Of The Community Will Survive Intact. Iit Satisfies The Demand For Locally Situated Archives With 12 Archives Nodes.
- Low Operating Costs Make It Possible For Institutions Of All Sizes And Budgets To Participate In It.
- An Endowment Is Built And Asks Libraries , Publishers And Other Participating Institutions To Contribute
- Orphaned And Abandoned Electronic Content Is Permanently Preserved In It. Open Access Content No Longer Available With The Publishers Is Available For Free.

As Libraries Migrate From Print To Online Only Publications, They Expect Assurances From Publishers That Their Shared Investments Are Protected And Preserved For Generations To Come. The CLOCKSS Archive Provides This Assurance Via Its Secure Network Of Content That Can Be Accessed When A Trigger Event Is Deemed To Have Occurred.

LOCKSS Vs CLOCKSS: Key Difference

- CLOCKSS: Dark Archive Triggered Content Is Free Of Charge With Creative Commons Licenses On CLOCKSS Site And Elsewhere.
- LOCKSS Boxes Store Caches Of Documents. If Publisher Url Does Not Work (Temporarily Or Due To Canceled Subscription), Users Are Directed Seamlessly To Cache Copy.

Key Issues: Who Pays For Digital Preservations:
Some Of The Major Digital Preservation Initiatives Are Highlighted Belowon This Context:

1.KB: National Initiative
- Publishers Required To Deposit Content
- Onsite Users Do Not Pay

2.GNL: National Initiative
- Publishers Required To Deposit Content
- Those Accessing Content Onsite Or Online Do Not Pay
- Portico: Both Publishers And Libraries Pay
- Publishers Pay To Deposit Content

• Libraries Pay To Access Content
3.CLOCKSS: Publishers And Libraries Pay
• Community Governed, Non-Profit
• Publishers, Archive Nodes, Host Libraries Pay
• Those Accessing Content Do Not Pay
4. LOCKSS: Only Libraries Pay
• Libraries Hosting LOCKSS Boxes Pay
• Publishers Do Not Pay

II. CONCLUSION

There Are A Few Notable Consortiums Like UGC -INFLIBNET E-Shodhsindhu, NKRC(CSIR +DST) Conosrtium, Delcon(DBT Consortium), Running In India Providing Access To The Participating Libraries Taking The Content From A Large Number Of Publishers And Societies In Various Domain. But The Effort On The Context Of Digital Preservation Initiatives Are Still At The Embryonic Stage. In Fact, There Are Still No Set Guidelines And Policies On The Preservation Developed By The Consortium Committee.
Some Of The Keyfactors Responsible For This Includes

- Lack Of Understanding
- Paucity Of Adequate Funding
- Problems In Transfer Of Funds And
- Geographic Location

All Consortia Subscribe Huge Amount Of Information Contents From Different Publishers With Provision To Access Back Files. With Passage Of Time , Consortia May Add Or Drop Titles As Per The Need Or Consortia May Itself Stop Continuing Or Join With Yet Another Consortium And May Create Access Problem To Content In Order To Mitigate Problems Of Access To Subscribe Content , Many Developments As Listed Above Have Emerged In Recent Years To Provide Services To Publishers Past Contents. Therefore The Consortia Should Make Every Effort To Participate Or To Become Member Of Any Of The Digitalpreservation Initiatives.

REFERENCES

[1] Staines , Heather Ruland Staines (2009) Springer's Ebook Preservation Strategy ,21(1),-Against The Grains , Article 12)
[2] Gaur RC And Tripathi M (2012) Role Of Consortia In Preservation Of E-Journals ,Annals Of Library And Information Studies, 59: PP 204-211
[3] Http://En.Wikipedia.Org/Wiki/Preservation_(Library_And_Archival_Science)
[4] (Ref: Satyanarayana NV Krishnan S And Arora J (2004) Library Consortia And Resource Sharing Initiative In India: A White Paper – Prepared For Rajiv Gandhi University Of Health Sciences , Bangalore , P 55)
[5] Patil Y M (2014), Consortium Approach To Resource Sharing In An E-Environment, Scientific Publishers,India, Pp.210-214
[6] Www.Clockss.Org
[7] Www.Portico.Org/Digital-Preservation