NDLI: VISION & MISSION

WINNER „Billionth South Asia Award 2017:
in Learning and Education Category
for Android Mobile App

REGIONAL (SOUTH VII) IDR WORKSHOP
INDIAN MARITIME UNIVERSITY, VISAKHAPATNAM CAMPUS

NANDA GOPAL CHATTOPADHYAY
nandgc@gmail.com
Chief Technical Officer
NDLI Project, NME-ICT, MHRD
Indian Institute of Technology Kharagpur

22-APR-2019
BUILD UP
NATIONAL DIGITAL LIBRARY OF INDIA
AS A NATIONAL KNOWLEDGE ASSET –
THE KEY DRIVING FORCE FOR EDUCATION, RESEARCH, INNOVATION, AND KNOWLEDGE ECONOMY IN INDIA
NDL Mission

TO CREATE A 24X7-ENABLED INTEGRATED NDLI AS A UBIQUITOUS DIGITAL KNOWLEDGE SOURCE OF THE NATION – CATERING TO IMMERSIVE E-LEARNING FOR ALL LEARNERS AT ALL LEVELS IN ALL AREAS

TO INITIATE A MOVEMENT FOR INTEGRATED DIGITAL LEARNING ACROSS INDIA
NDL Motto

INCLUSIVE & OPEN
Libraries are more important to the education system than the institutions such as schools, colleges and universities

– Rabindranath Tagore
National Digital Library: Issues

**User-side**
- Wide geographic expanse & Large population
- Huge number of students
- Large number of institutions
- Varied linguistic diversity
- Severe lack of Teachers

**Provider-side**
- Wealth of digital content
  - Books and Articles
  - ETD
  - Question Papers and Solutions
  - Video Lectures - MOOCs
  - Simulations & Animations
  - NMEICT Projects
  - Data
  - ...
- No single-window search
- Google search uses keyword – no metadata search
- Widely varied DL technology
- Lack of Interactivity, Vernacular support
- Low integration between content and learning system
- Weak ecosystem between learners and teachers
National Digital Library of India: Service Architecture

- Content Creation
- Content Search
- Learning Content
- Experience-based Learning
- Multi-Lingual Content
- Mobile Apps
- Authoring Services
- Acquisition Services
- Dissemination Services
- Digital Repository
- Learning Services
- Personalization Services
- Localization Services
- Open Services...
- Digital Library
- Multi-faceted Interface
- Content Borrowing
- Content Access
- APIs

National Digital Library of India
Use Models

- Content Access
  - Physically Challenged
  - Researchers
  - Learners
  - Professionals

- Web Content Harvesting
  - Institutional Digital Repositories
  - Web Content
  - Educators

- Content Contribution
  - Contributing Institutions

- Learning Management System
  - NDLI Repository

IIT Kharagpur
22/04/2019
Nanda Gopal Chattopadhyay, NDLI, IIT, Kharagpur
Presentation Model

- Not a new library – an umbrella
- Collects and ingests metadata only
- Presents full-text from source view
- Provides:
  - Search
  - Browse
Objective and Scope

TARGETS CONTENTS, STAKEHOLDERS, CONTRIBUTORS, USERS, ARCHITECTURE, AND THE BIG PICTURE

S R Ranganathan Laws

• Books are for use
• Every reader his [or her] book
• Every book its reader
• Save the time of the reader
• The library is a growing organism
Objectives

- A 24X7-enabled Infrastructure for NDLI with single window search facility – To include h/w systems, n/w, s/w tools, applications and interoperability
- Harvest IDR across institutions of the nation to provide integrated access
- Facilitate institutes to disseminate existing content and create new digital content
- Immersive E-learning environments at multiple levels spanning across
  - All academic levels – school to life-long learning
  - All disciplines – Science, Arts, Engineering, Medical, Law, and
  - All languages – used as medium of instruction.
- Interfaces in Indian Languages & for DA
Digital Contents

- Digital, Surrogate
- Content at NDLI
  - Born-digital object
  - Digital surrogate of a physical object
  - Digital metadata of physical object
- Metadata at NDLI
  - NDLI does not store contents
  - NDLI only ingests metadata for Search & Browse
  - Content (Full-text) is delivered from Source

A content is included (metadata ingested) in NDLI if it is expected to have educational value

- 7679334-abstract-image-of-tunnel-with-binary-language.jpg
- https://www.123rf.com/profile_carloscastilla
- 450 pixels X 376 pixels
- 72 dpi
- Royalty Free
Range of Contents

Institutional Digital Repository of Contributing Institutes

Institutional and Open Contributions. Multi-modal, Multi-faceted

Research and Professional Institutions, Central / State University

Institutions of School & Higher Education, Boards

Faculty Publications, ETD (Electronic Thesis & Dissertation): DSc-PhD-Masters-Undergrad, Research Projects

Books & Periodicals, Open Access Journals, E-Books & Subscribed E-Resource

Annual Reports, Project Reports, Convocation, Working Papers, Others

Encyclopaedia Dictionaries Directories Others

Lecture Slides, Videos, Class Notes, Courseware

Term Papers, Assignments, Solutions

Lab Experiments, Manuals, Case Studies

Question Banks (JEE / GATE / NET / CAT), Model Answers

Datasets, Benchmarks, Models, Maps, Software

Manuscripts, Painting, Sculpture, Music, Dance, Drama

Audio & Video Content
Content View Architecture

Vertical-Specific Custom Interface and Search

- Textbook, Lesson View
- Domain Metadata
- MCQ / MSQ / ...
- Data Browser
- App Launcher
- Search
- Browse

Content Baseline

Generic Interface and Search

- School Vertical
- Domain Vertical (Medical/ Legal/...)
- Competitive Exam Vertical
- Data Vertical
- Application Vertical

...
Architecture

- Index Management
  - Ingestion of Metadata
  - Indexing of Metadata for Search

- Content Management
  - Dissemination of local contents

- Learning Management
  - Creation of Content
  - Handling learning interactions
# Stakeholders

## Roles and Responsibilities

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Roles and Responsibility</th>
</tr>
</thead>
</table>
| Government    | 1. Sponsor and facilitator  
                  2. Content Contributor  
                  • Ministries / Departments  
                  • R & D Labs                                                                                                                                       |
| Institutions  | 1. Host Institution – IIT Kharagpur  
                  2. Contributing Institution – Supporting IDR\’s  
                  3. Participating Institution – Providing Users & Feedback                                                                                 |
| Public        | 1. Use and Feedback  
                  2. Metadata by Crowd Sourcing  
                  3. Content by Crowd Sourcing                                                                                                                  |
| Industry      | 1. Technology Providers                                                                                                                                       |
| Publishers    | 1. Metadata Provider  
                  2. Content Provider (under various licensing schemes)                                                                                   |
Contributors

CFTI, State and Central Universities, R & D Labs, Govt. Deptts., Free Portals, Publishers, etc.
The Big Picture

Knowledge Repository: Internet, Mobile

National Digital Library of India

Credit Transfer and Virtual Certification (NAD)

SWAYAM, SWAYAM Prabha, GIAN

SWAYAM: instrument for self-actualisation

School, Certificate, Diploma, UG & PG: Internet

SWAYAM Prabha: 32 DTH, 24x7

School, UG, PG, Open U, IIT PAL: TV – DTH

Up to 20 credits from MOOCs

National Digital Initiative in Education
• Registration is **Open to all**
• Registration Types:
  - **Individual**
    - Registers directly
  - **Institutional**
    - By request from Institution
    - Managed by authenticated Nodal Person
    - Convenient for bulk upload of users
Individual Registration Process

1. Go to https://www.ndl.gov.in or https://ndl.iitkgp.ac.in

2. Register (free) using email ID

3. An automated mail goes to e-mail id of the Registrant with a link

4. Registrant needs to click the link to activate and complete registration

5. In worst case, if the mail cannot be traced, please Click “Account Recovery” button and set a new password.

6. Login and enjoy NDLI on the web

7. Alternatively, download the NDLI mobile app
Bulk Registration Process

1. Institute identifies a Nodal person

2. Nodal person sends the list of all users of the Institute (e-Mail ID, First Name, Last Name) in a CSV file

3. Nodal person send it to ndl-support@iitkgp.ac.in

4. Automated mail goes to each user with a link within 48 hours

5. User needs to click the link to activate and complete his/her registration

6. In worst case, if the mail cannot be traced, please ask User to Click “Account Recovery” button and set a new password.

Note:

1. Collect the users’ personal eMail that they regularly use

2. Ensure that the users remember their eMail and NDLI password

3. Verification of eMail is a must
Walkthrough

Where the mind is without fear and the head is held high
Where knowledge is free
Where the world has not been broken up into fragments
By narrow domestic walls
Where words come out from the depth of truth
Where tireless striving stretches its arms towards perfection
Where the clear stream of reason has not lost its way
Into the dreary desert sand of dead habit
Where the mind is led forward by thee
Into ever-widening thought and action
Into that heaven of freedom, my Father, let my country awake.

– Rabindranath Tagore
Landing Page

National Digital Library of India

18,245,269 items hosted in NDL India

About NDL India
Learning Resource Type
Subject Domain
Featured Sources
News and Events

Educational materials are available for users ranging from primary to post-graduate levels

Member Log-In
E-mail address
Enter your password

Account recovery
Register

22/04/2019
Search Result Page

magnetism

Magnet and Compass - Magnetism, Magnetic Field, Magnets
Source: PhET Interactive Simulations
Classroom | Homework
Abstract: Ever wonder how a compass worked to point you to the Arctic? Explore the interactions between a compass and bar magnet, and then add the earth and find the surprising answer! Vary the magnets strength.

Magnets and Electromagnets - Magnetism, Magnetic Field, Electromagnets
Source: PhET Interactive Simulations
Classroom | Homework
Abstract: Explore the interactions between a compass and bar magnet. Discover how you can use a battery and wire to make a magnet! Can you make it a stronger magnet? Can you make the magnetic field reverse?

Magnetism without magnets
Source: IEEE Xplor Digital Library
Author: Ryder, J.D.
UG and PG
Abstract: The earliest discoveries of electromagnetism are briefly recounted. The work of Volta (primary battery), Oersted (generating a magnetic field by a current) and Ampere (solenoid) is described.

Magnetic Rag, Score Magnetic
Source: World eBook Library
Author: Joplin, Scott
Reading
Abstract: [Abstract text]

Content type
All
Text
Audio
Video
Presentation
Simulation
Image
Animation

Refine search results
Author
Subject Category
Educational Degree
Difficulty Level
Educational Level
File Format
Language
Learning Resource Type
Source

25 results found in 0.8366 secs
Institutional Repository  IIT Bombay

Institutional repository of IIT Bombay is a research produced at IITB. Here we present a selection of our best research including full-text of book chapters, conference/proceeding papers, technical reports, journal pre-prints & post-prints, working papers, Patents and others like annual reports etc.
Email: dspace@iitb.ac.in

Please use this identifier to cite or link to this item: http://dspace.library.iitb.ac.in/xmlui/handle/100/1441

Title: Transport, magnetic, and Sn-119 Mossbauer studies on magnetically ordered valence fluctuating compound SmRuSn3

Authors: MAZUMDAR, C
HOSSAIN, Z
NAGARAJAN, R
GODART, C
DHAR, SK
GUPTA, LC
PADALIA, BD
Transport, magnetic, and 119Sn Mössbauer studies on magnetically ordered valence fluctuating compound SmRuSn3


Citation: J. Appl. Phys. 79, 6349 (1996); doi: 10.1063/1.361996
View online: http://dx.doi.org/10.1063/1.361996
View Table of Contents: http://jap.aip.org/resource/1/JAPIAU/v79/i8
Published by the American Institute of Physics.

Related Articles
Valence fluctuation and electron–phonon coupling in La66–xCexAl10Cu20Co2 (x = 0, 34, and 68) metallic glasses
Intermediate valency of Eu in a cubic intermetallic compound Ce0.5Eu0.5Pd3
Transport, magnetic, and Sn-119 Mossbauer studies on magnetically ordered valence fluctuating compound SmRuSn3

<table>
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<tr>
<th>Author</th>
<th>Mazumdar, C. • Hossain, Z. • Nagarajan, R. • Godart, C. • Dhar, S. K. • Gupta, L. C. • Padalia, B. D. • Vijayaraghavan, R.</th>
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<td>Publisher</td>
<td>AMER INST PHYSICS</td>
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<td>File Format</td>
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<td>English</td>
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<tr>
<td>Subject Keyword</td>
<td>cerusn3</td>
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Abstract
SmRuSn3 is a unique compound among the known Sm-based valence fluctuation (VF) systems. Its crystallographic structure has two inequivalent Sm sites and Sm ions at only one of them are in VF state while the Sm ions in the other site orders magnetically. Our (119)Mossbauer studies show a quadrupolar splitting at the Sn site, consistent with the noncubic symmetry of the Sn site. A broadening of the Mossbauer spectrum is seen due to magnetic ordering of the material. The transferred hyperfine field at Sn site at 4.2 K is small. (©) 1996 American Institute of Physics.

<table>
<thead>
<tr>
<th>Education Level</th>
<th>UG and PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Resource Type</td>
<td>Article</td>
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Chapter Five

MAGNETISM AND MATTER
# Search Filter Page (Video)

<table>
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<th>Title</th>
<th>Source</th>
<th>Author</th>
<th>Content Type</th>
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<td>Electricity and magnetism: Magnetism 5</td>
<td>World eBook Library</td>
<td>Sal, Khan</td>
<td>Video</td>
</tr>
<tr>
<td>Electricity and magnetism: Magnetism 2</td>
<td>World eBook Library</td>
<td>Khan, Sal</td>
<td>Video</td>
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<tr>
<td>Electricity and magnetism: Magnetism 3</td>
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<td>Sal, Khan</td>
<td>Video</td>
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<tr>
<td>Electricity and magnetism: Magnetism 7</td>
<td>World eBook Library</td>
<td>Sal, Khan</td>
<td>Video</td>
</tr>
</tbody>
</table>
Browse (by Subject) Page

Natural sciences & mathematics → Mathematics → General principles of mathematics

Total graph and its characteristics
Source: Dhirubhai Ambani Institute of Information and Commu...
Project
Abstract: Graphs constructed by applying some specific rule to any given graph are called auxiliary graphs. Such graphs are often used to translate one graph problem into another. Auxiliary graphs can be viewed View more

Counting spanning binary trees of labelled undirected graphs
Source: Dhirubhai Ambani Institute of Information and Commu...
Project
Abstract: The number of spanning binary trees on a connected labelled undirected graph is an important quantity which is closely related to the reliability of the graph as a network. Many problems and their app View more

Study on shock graphs: graph representation of objects
Source: Dhirubhai Ambani Institute of Information and Commu...
Project
Abstract: A shock graph is an abstraction of a two-dimensional shape of an object. It represents the shape as a graph, using its boundary information. In this thesis, we study the shock graph representation View more

Embedding binary trees and caterpillars into the hypercube
Source: Dhirubhai Ambani Institute of Information and Commu...
Project
Abstract: Embedding graphs is an important and well-studied theory in parallel computing. Finding the embedding of trees into hypercubes is an important, interesting and difficult problem. This work studies the View more

Acyclic edge coloring of complete r-partite graphs

IIT Kharagpur 22/04/2019
National Licensing

- An initiative by eSS:
  - e-ShodhSindhu: Consortium for Higher Education Electronic Resources

- Licensing being negotiated with Publishers
  - Institutional License:
    - Accessible from within designated institutional network: IP filtered
  - NDLI Supported License:
    - Accessible if requested from NDLI: Concurrent use-basis
## Access Options

<table>
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<tr>
<th>Access Type</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Open</strong></td>
<td>Full-text available to all (Example: NCERT)</td>
</tr>
<tr>
<td><strong>NDL Users</strong></td>
<td>Full-text available through NDLI, <em>not directly</em> from Source (Example: South Asia Archive)</td>
</tr>
<tr>
<td><strong>Limited Access</strong></td>
<td>Part of text available but full-text requires authorization by Source authority (Example: IISER, Bhopal)</td>
</tr>
<tr>
<td><strong>Subscribed</strong></td>
<td>Full-text available from institutions that have subscribed to the Source (Example: Springer)</td>
</tr>
<tr>
<td><strong>Restricted</strong></td>
<td>Full-text access requires authorization by Source authority and separate login to the Source (Example: IIT Jodhpur)</td>
</tr>
</tbody>
</table>
Refine Search: Access Restriction

- Access Restriction

- Enter your search key...

- Subscribe (36,754)
- Open (300,024)
- Author (9,159)
- NDL (8,064)
- Limited (417)

- Subject Category
- Educational Degree
- Difficulty Level
- Educational Level
- File Format
- Language
- Learning Resource Type
- Source

- Magnet and Compass - Magnetism, Magnetic Field, Magnets
  - Source: PhET Interactive Simulations
  - Classroom | Homework

- Magnets and Electromagnets - Magnetism, Magnetic Field, Electromagnets
  - Source: PhET Interactive Simulations
  - Classroom | Homework

- Magnetism without magnets
  - Source: IEEE Xplore Digital Library
  - Author: Ryder, J.D.
  - UG and PG

- Magnetism: Magnetic Materials
  - Source: WatchKnowLearn

- Magnetism: Explaining Magnetic Properties

685,051 results found in 1.3480 secs

IIT Kharagpur
22/04/2019
Refine Search: Access Restriction
Other Indian Language Interface

NDLI BENGALI

NDLI GUJARATI
Other Indian Language Interface

- Kannada
- Marathi
- Tamil
- Oriya
NDLI Mobile App

Available on Android and iOS and in UMANG

NDLI M-SITE: Landing page

UMANG APP
Institutional Roles and Responsibilities

TERMS OF REFERENCE TO CONTRIBUTE TO NDLI

The *worth of a librarian should* be gauged by his power of attracting and looking after such circles by acting as the intermediary of an intimacy of relationship between *reader and the library*. – *Rabindranath Tagore*
## Roles and Responsibilities

### Host Institution

- **IDR**
  - Support for Setting up IDR
  - Installation CD
  - Manual
  - Training
  - IDR Service, if needed

- **Metadata**
  - NDL Metadata Standard
  - Creation, Curation Workflow

- **User**
  - Institutional Registration for Nodal Person
  - Bulk Addition of Users

- **Ongoing Support**
  - Over email, phone
  - Hands-on at NDL, if needed

### Contributing or Participating Institution

- **IDR (CI only)**
  - Setup IDR in Institutional LAN
  - Register with OPENDOAR / ROADMAP
  - OAI-PMH compliance for harvesting
  - OAI-ORE compliance for full-text access
  - Allow external access & Update regularly

- **Content (CI only)**
  - Add Content
  - Encourage faculty, students, staff to contribute
  - Create and Curate Metadata

- **User**
  - Register as an Institution

- **Promote**
  - Organize Workshop
  - Identify and Integrate Source
Technology of NDLI

METADATA ENGINEERING

USER INTERFACE & EXPERIENCE TRACKING
• Metadata Standard
• Metadata Acquisition
Metadata Standard

Source: http://courseweb.ischool.illinois.edu/~butler9/LIS501b/current.html
Metadata Standard

• Metadata
  ○ Is primarily **textual information** relating to Content
  ○ Includes information that enables users to **identify, discover, search, browse, interpret**, or **manage** Content
  ○ Includes **hyperlinks** that direct users to Content on the Source
  ○ May include an **expressive description** of the Content

• Metadata Standard
  ○ Defines **common understanding of the semantics** of the data
  ○ Ensures **correct and proper use** and interpretation of the data
  ○ Defined through a **set of fields, vocabs** (optional), and **instructions** for fill-up
NDLI Metadata Design Challenges

- **Wide** category of resources
  - Generic metadata or domain specific?
- **Openness** of repository
  - Closed metadata standard may fail to describe a new resource
- **Scale** is enormous
  - Manual annotation is infeasible
  - Automatic annotation guided by crowd sourcing?
Metadata Requirements Specs

• To describe any digital resource
  - Generic content metadata
    - Contributor, Description, Language, Format etc.

• To describe domain specific resources
  - Educational content metadata
    - Educational level, ToC, Type of learning material etc.
  - Thesis metadata
    - Institution, advisor, degree, researcher
NDLI Metadata Standard

- NDLI Metadata Standard v 1.0 is an **Open Virtual Standard**

- Schema is categorized into three profiles:
  - **Generic Metadata:**
    - Describes general attributes of the contents
    - Adopted from [Dublin Core Metadata Standard](http://www.dublincore.org)
  - **Educational Metadata:**
    - Describes the educational attributes of the resources and helps in enumerating properties of the contents relevant to teaching-learning process
    - Adopted from [Learning Resource Metadata Initiative (LRMI)](http://www.lrmi.org)
  - **Thesis Metadata:**
    - Describes dissertation or thesis related metadata fields
    - Adopted from [Shodhganga Thesis Metadata Standard](https://shodhganga.inflibnet.ac.in)
  - More profiles may be added in future

- Uses the **namespace of Dublin Core (dc.)**
Metadata Acquisition
### Acquisition Scenarios

<table>
<thead>
<tr>
<th>Locate Content</th>
<th>Acquire Metadata</th>
</tr>
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<tbody>
<tr>
<td>• Harvest Institutional IDRss</td>
<td>• Creation</td>
</tr>
<tr>
<td>• Crawl Websites</td>
<td>o Manual</td>
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<tr>
<td>• In Bulk – from Publishers</td>
<td>o Automated</td>
</tr>
<tr>
<td>• Donated by Source</td>
<td>• Translation</td>
</tr>
<tr>
<td>• Source-supported API</td>
<td>o Format</td>
</tr>
<tr>
<td>• ...</td>
<td>o Standard / Schema</td>
</tr>
</tbody>
</table>

- **Creation**
  - Manual
  - Automated
- **Translation**
  - Format
  - Standard / Schema
- **Curation**
  - Manual
  - Assisted
- **Ingestion**
Challenges in Metadata Acquisition

- Different sources follow different norm in annotation
  - Automation of curation
- Errors in sourced data
  - Error listing
  - Manual curation
- Errors in manual annotation
  - Review step before actual submission in database
  - Manual curation
- Set up norm/guideline
  - Controlled vocabulary
Translation Issues

- Variation in Subject classification standards
  - Dewey Decimal Classification (DDC)
  - Library of Congress Classification (LCC)
  - Library of Congress Subject Headings (LCSH)

- Mapping terminology for different languages
  - **Translate** when equivalent terminology is present
  - **Transliterate** otherwise
NDLI Metadata Extraction Toolkit

- Automated metadata extraction workflow
- Syntactic metadata extractor
  - Author name, ISBN, Publisher, dates etc.
- Table of content extractor
- Wikification for keyword extraction
- Learning resource metadata
- Toolchain for metadata extraction

Once completed and tested, the toolkit will be released to public and open-sourced
• Aggregation in the Wilderness:
Varying metadata schema, lack of awareness, embargo, quality of data and multifarious challenges led the team to innovate on a sustainable workflow
HOW DOES NDLI COPE WITH COPYRIGHT AND LICENSING ISSUES
Copyright is a bundle of rights given by the law to
- Creators of literary, dramatic, musical and artistic works and
- Producers of cinematograph films and sound recordings

Rights are:
- reproduction of the work,
- communication of the work to the public,
- adaptation of the work and,
- translation of the work

Creator / Author is the first Owner
Ownership (Title) can be transferred (assigned)

A license encapsulates the rights & privileges that a copyright holder grants to someone else vis–a–vis something they have created
NDLI principles as follows:

- Vast Majority of Metadata is Not Subject to Copyright Restrictions
- NDLI’s Partners Share the NDL’s Commitment
- NDLI Asserts No Rights Over its Database of Metadata and Dedicates its Contributions to the Public Domain
- Free and Unencumbered Access to Metadata

• **SURROGATOR:**

1. QUERY
2. QUERY
3. RESULTS
4. RESULTS + ACCESS RIGHTS
5. FIND SURROGATES
6. CITATION
7. ARTICLES +RELATED_ARTICLES + CITED_BY
8. SURROGATES

- Makes available pre-print copies of academic resources that are otherwise unavailable to learners
- A customizable application that can identify surrogates for access-restricted publications in digital libraries
- Surrogator can make a case for the evolution of specific subject matters through pre-print indexing and open up a whole new realm of research
- Application is being tested through NDLI, can easily be extended to other digital libraries
Project Status
<table>
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<tr>
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<th>Event Description</th>
<th>Date Range</th>
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<td>1</td>
<td>National (General) IDR WS @ IIT Kharagpur</td>
<td>15/17-June-15</td>
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<td>2</td>
<td>Regional (North-East-I) IDR WS @ IIT Guwahati</td>
<td>04/05-July-15</td>
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<td>24/25-Aug-15</td>
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<td>25/26-Mar-16</td>
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<td>10</td>
<td>Regional (West-II) IDR WS @ IISER, Pune</td>
<td>05/06-Oct-16</td>
</tr>
<tr>
<td>11</td>
<td>National (Medical) IDR WS @ AIIMS, New Delhi</td>
<td>20/21-Oct-16</td>
</tr>
<tr>
<td>12</td>
<td>Regional (Central-I) IDR WS @ NIT, Raipur</td>
<td>18/19-Nov-16</td>
</tr>
<tr>
<td>13</td>
<td>National (Legal) IDR WS @ NUJS, Kolkata</td>
<td>09/10-Dec-16</td>
</tr>
<tr>
<td>14</td>
<td>Regional (East-I, NIT) IDR WS @ NIT, Rourkela</td>
<td>13/14-Jan-17</td>
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<tr>
<td>15</td>
<td>Regional (Central-II) IDR WS @ ABV-IIITM, Gwalior</td>
<td>09/10-Feb-17</td>
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<tr>
<td>16</td>
<td>Regional (East-II) IDR WS @ University of Calcutta</td>
<td>10/11-Mar-17</td>
</tr>
<tr>
<td>17</td>
<td>Regional (South-IV) IDR WS @ SPA, Vijayawada</td>
<td>21/22-Apr-17</td>
</tr>
<tr>
<td>18</td>
<td>Regional (West-III) IDR WS @ MNIT, Jaipur</td>
<td>12/13-May-17</td>
</tr>
<tr>
<td>19</td>
<td>Regional (North-III) IDR WS @ IIT-BHU, Varanasi</td>
<td>02/03-Jun-17</td>
</tr>
<tr>
<td>20</td>
<td>Regional (South-V) IDR WS @ P N Panicker Foundation</td>
<td>20/21-Jun-17</td>
</tr>
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</table>
### NDLI IDR Workshops (Contd.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Workshop Details</th>
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<tbody>
<tr>
<td>21.</td>
<td>Regional (North-IV) IDR WS @ IIAS, Shimla, 21/22-Sep-17</td>
</tr>
<tr>
<td>22.</td>
<td>Regional (East-III) IDR WS @ IIT Dhanbad, 24/25-Nov-17</td>
</tr>
<tr>
<td>23.</td>
<td>Regional (West-IV) IDR WS @ Goa Engineering College, 18/19-Jan-18</td>
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<tr>
<td>24.</td>
<td>Regional (North-V) IDR WS @ IIT Ropar, 16/17-Mar-18</td>
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<tr>
<td>25.</td>
<td>Regional (North-VI) IDR WS @ University of Jammu, 06/07-Apr-18</td>
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<tr>
<td>26.</td>
<td>Regional (North-VII) IDR WS @ IICA, Manesar, 07/08-Sep-18</td>
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<tr>
<td>27.</td>
<td>Regional (East-IV) IDR WS @ IIT Patna, 17/18-Sep-18</td>
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<tr>
<td>28.</td>
<td>Regional (West V) IDR WS @ NMISM, 12/13-Dec-18</td>
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<tr>
<td>29.</td>
<td>Regional (North-VIII) IDR WS @ BITS Pilani, 25/26-Feb-19</td>
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<tr>
<td>30.</td>
<td>Regional (South-VI) IDR WS @ MAHE Manipal, 07/08-Mar-19</td>
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<tr>
<td></td>
<td>Event Description</td>
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<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1.</td>
<td>National VC Address over NKN, 03-Feb-16</td>
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<tr>
<td>2.</td>
<td>National VC Address over NKN, 26-Sep-16</td>
</tr>
<tr>
<td>3.</td>
<td>Regional (North-I) User WS @ Jamia Millia Islamia, New Delhi, 20-Oct-16</td>
</tr>
<tr>
<td>4.</td>
<td>Regional (South-I) User WS @ Pondicherry, New Delhi, 16-Nov-16</td>
</tr>
<tr>
<td>5.</td>
<td>User WS @ SPOC workshop of NPTEL Local Chapter Colleges of East Zone, IIT Kharagpur, 23-Dec-16</td>
</tr>
<tr>
<td>6.</td>
<td>Interaction with Publishers @ P N Panicker Foundation, Trivandrum, 05-Jan-17</td>
</tr>
<tr>
<td>7.</td>
<td>Lecture @ Training Workshop for Librarians’ @ P N Panicker Foundation, Trivandrum, 06-Jan-17</td>
</tr>
<tr>
<td>8.</td>
<td>Regional (South-II) User WS @ Trivandrum, 20-Jun-17</td>
</tr>
<tr>
<td>9.</td>
<td>TEQIP III, CET &amp; CEP, IIT Kharagpur, 06-Feb-18</td>
</tr>
<tr>
<td>10.</td>
<td>Regional (North-III) User WS @ Chandigarh University, 15-Mar-18</td>
</tr>
</tbody>
</table>
NDLI User Workshops (Contd.)

12. TEQIP IV @IIT Kharagpur, 28-Jun-18
13. Regional (East-I) User WS @ Splendour School, Kharagpur, 10-July-18
14. Regional (East-II) User WS @ DAV Model School, Kharagpur, 11-July-18
15. Regional (East-III) User WS @ St.Agnes School, Kharagpur, 12-July-18
16. Regional (North East-I) User WS @ Pub Kamrup College, Kamrup, Assam, 19-July-18
17. User WS on 68th Foundation Day of IIT Kharagpur, 18-August-18
18. Regional (North East-II) User WS @ Shankardev Sishu Vidya Niketan, Mangaldai, 21-August-18
19. Regional (North East-III) User WS @ Faculty Higher Secondary School, 24-Aug-18
20. Regional (North East IV) User WS @ Patidarrang College, 28-August-18
21. Regional (North East V) User WS @ Puthimari College, 29-August-18
22. Regional (North East VI) User WS @ Gauhati University, 13-September-18
NDLI Public Library Workshops

1. Regional (North-I) User WS @ Directorate of Public Libraries, Jammu, 11-Dec-17
2. Regional (South-I) User WS @ Directorate of Public Libraries, Chennai, 22-Mar-18
3. Regional (South II) User WS @ Directorate of Public Libraries, Hyderabad, 13-May -18
4. Regional (North II) User WS@ Directorate of Public Libraries, Jaipur, 22-Jun -18
Library Automation and Management Workshop

- OSSLM 2018: National Workshop for Open-Source Software for Library Management @ IIT Kharagpur, 7/12-May-18
- OSSLM 2017: National Workshop for Open-Source Software for Library Management @ IIT Kharagpur, 12/17-Jun-17
- OSSLM 2016: National Workshop for Open-Source Software for Library Management @ IIT Kharagpur, 13/18-Jun-16
• eduPreneurship @ GES 2018, 03/04-Feb-18 –IIT Kharagpur
• eduPreneurship @ GES 2017, 04/05-Feb-17-IIT Kharagpur
Copyright Workshop

National Workshop on Copyright Issues in Digital Libraries @ IIT Kharagpur
9th Feb - 10th Feb 2018

Focused on three things:

Are our librarians familiar with the Indian Copyright Act (2012)?
What are their rights?
What can one do beyond the Copyright Act that will not be considered infringement?
International Relations: How far have we come and where do we go from here?
Progress, feedback and feasibility - National Organizations and International Relations SIG (SIGNOIR)
Conducted in short presentation and roundtable discussions mode with Focus on BRICS | 26th Aug 2018

Presentation
National Digital Library of India - International Engagement: Experiences and Lessons learned

Speakers
- National Library of Russia
- National Library of China (Silk Road International Library Alliance)
- National Library of South Africa (BRICS Alliance of Libraries)
- National Digital Library of India
Let’s work together: collaborating and partnering to achieve IFLA’s vision
Conducted in short presentation and roundtable discussions mode | 29th Aug 2018

Presentation
Taking advantage of digital innovation in the National Digital Library of India

Speakers
Special Session by Christine Mackenzie, President-elect of IFLA on IFLA’s Global Vision Report Summary. The theme was Collaboration, Vision 7 in the summary report while deliberations was around the visions of Advocacy and Young professional. Partha Pratim Das spoke on Digital Innovation.
Kristian Jensen (Co-Chair, UNESCO-NDL WS) highlighted the collaboration between NDLI and British Library on the India project and spoke highly of working together.
Buhle Mbambo-Thata - African Library & Information Associations & Institutions
Allison Dobbie - Auckland Council, Govt of New Zealand
Ana María Talavera Ibarra - Pontificia Universidad Católica del Perú
Christine Mackenzie - Australian Library and Information Association
Partha Pratim Das
The session was coordinated and moderated by Ms. Deborah Jacobs, the Director of Global Libraries at the Bill and Melinda Gates Foundation
IFLA Cultural Heritage in the Community: Assessing the Impact of Digital Libraries
Conducted in long presentation and end-of-session joint Q&A mode | 29th Aug 2018

Presentation
Analytics and Impact Assessment in National Digital Library of India

Speakers
Charles Henry – CLIR talked about NDLI as a potential partner in PANGiA project.
Wan Wong – National Library of Australia (Trove)
Susan Reilly – National Library of Qatar (Qatar Digital Library)
Jeanne Drewes – Library of Congress (Digitization)
Partha Pratim Das – National Digital Library of India
NDLI International Event (Contd.)


- Themes
  - Digital Library Technologies
  - Standards and Interoperability
  - Search and Information Retrieval
  - Designing for the User
  - Access & Rights
  - World Digital Libraries

- Participating Libraries, Projects
  - Europeana Foundation (EU, The Netherlands)
  - National Library of New Zealand (DigitalNZ),
  - National Library of Australia (TROVE),
  - Tainacan Project (Brazil),
  - German Digital Library,
  - National Library of The Netherlands,
  - National Library of South Africa,
  - National Library of Nepal, and
  - British Library (UK)
  - Google Scholar
  - Microsoft Academic
  - Participants from Belgium, Canada, USA, Bangladesh

22 speeches spread over 9 sessions and 4 panel discussions, 30 speakers from over 12 countries
NDLI International Event (Contd.)

- Consultative Meeting with FINNA.FI: National Library of Finland @ Helsinki, Finland, 04-Sep-17

- Consultative Meeting with Europeana Library @ The Hague, The Netherlands, 16-Mar-17

- ICDL 2016 [Embedded WS], New Delhi, 13/16-Dec-16
NDLI National Events

- NDLI-NE-RC (North-East Regional Center) inauguration at IIT Guwahati, 20-Apr-2018
- ETAL 2015: National Seminar on *Emerging Trends in Academic Libraries* @ IIT Kharagpur, 21-Aug-15
NDLI Participations (Keynote)

- 11th National Conference on Recent Advances in Information Technology (READIT-2018)-Indira Gandhi Centre for Atomic Research-8th- 9th Aug 2018- Prof. Partha Pratim Das
- IS-RPLS-DRS: International Seminar on Rejuvenating Public Library Services through Digital Reference Sources-Jadavpur University-22nd Feb - 23rd Feb 2018-Prof. Partha Pratim Das and Dr. B Sutradhar
- Emerging Trends and Technologies in Libraries and Information Services (ETTLIS-2018)-Bennett University-21st - 23rd Feb 2018-Dr. B Sutradhar
- LTC 2018: Library Technology Conclave-Goa University-23rd - 25th Jan 2018- Dr. Plaban Kumar Bhowmick
- National Conference on Role of Academic Libraries for Excellence in Research-IISER, Bhopal-18th - 19th Jan 2018-Dr. B Sutradhar
- DHDS 2018: International Seminar on Digital Humanities and Digital Societies in the Contemporary World-Calcutta University-18th - 19th Jan 2018-Dr Plaban Kumar Bhowmick & Debarshi Kumar Sanyal
NDLI Participations (Keynote) (Contd.)

- IWTPLA: International Workshop cum Training Programme on Library Automation, Satyajit Ray Film and Television Institute (SRFTI)-SRFTI-13th Nov - 18th Nov 2017-Prof. Partha Pratim Das and Dr. B Sutradhar
- CALIBER 2017, 4th Conference on Re-Envisioning Role of Libraries: Transforming Scholarly Communication-Anna University, Chennai-2nd - 4th Aug 2017-Dr. B. Sutradhar
- Conference on Open Access – The Road to Freedom, Society for Information Sciences-CSIR-IICB-7th - 8th Apr 2017
- National Consultation on the National Mission of Reading-P N Panicker Foundation, Trivandrum-1st - 2nd Mar 2017
- PLANNER 2016 [Embedded WS]-North Eastern Hill University, Shillong-9th Nov 2016
NDLI Participations (Invited Lecture)

- Short Term Course (STC) on "Smart and Green Information and Communication Technology (SGICT)-Jadavpur University-17th May 2018-Debarshi Kumar Sanyal
- IPLC 2017: 3rd Indian Public Libraries Conference, New Delhi-IPLM-3rd - 5th Oct 2017-Prof. Partha Pratim Das and Dr. B Sutradhar
- 4th NKN Annual Workshop-JNTU Hyderabad-21st - 22nd Jan 2016
- ETD 2015 India-JNU New Delhi-5th- 6th Nov 2015
- Workshop @ INDEST Meet-IISER Mohali-29th- 30th Apr 2015
NDLI Participations

- Annual Steering Committee Meeting of Rights Statements 2018-New York Public Library-8th Jun 2018-Prof Partha Pratim Das, Dr. B Sutradhar
- RightsStatements.org, Steering Committee Meeting, The Hague, The Netherlands-Europeana Foundation-7th - 8th Sep 2017-Prof. Partha Pratim Das
- mBillionth 2017 Awards, New Delhi-mBillionth South Asia-4th Aug 2017-Prof. Partha Pratim Das, Dr. B Sutradhar, Dr Plaban Bhowmick
- Summer School on Document Analysis: Document Informatics 2017-CEERI, Pilani-23rd- 28th Jan 2017
- Digital Archive Inauguration-Presidency University-16th Jan 2017-Nanda Gopal Chattopadhyay, Dr Plaban Kr Bhowmick
NDLI Participations
(Tech Demonstration)

• Canadian Undergraduate Computer Science Conference (CUCSC) - University of Calgary, Canada - T. Y. S. S. Santosh
• Demo Track in ACM India Joint International Conference on Data Sciences and Management of Data (CoDS-COMAD '18) - Goa University - 11th - 13th Jan 2018 - T. Y. S. S. Santosh
NDLI Participations (Paper Presentation)

- 7th International Conference on Advances in Computing, Communications and Informatics (ICACCI 2018) - 19th Sep - 22nd Sep 2018 - PES Institute of Technology, South Campus, Bangalore, Karnataka, India – Dr. Debarshi Kumar Sanyal
- 22nd International Conference on Theory and Practice of Digital Libraries (TPDL 2018) - 10th Sep - 13th Sep 2018 - Faculty of Engineering, University of Porto – Ms. Susmita Sadhu
NDLI Live:
www.ndl.gov.in
https://ndl.iitkgp.ac.in/
NDLI on Facebook:
https://www.facebook.com/NDLIndia/
NDLI on Twitter:
https://twitter.com/NDLIndia
NDLI on Linkedin:
https://www.linkedin.com/company/ndlindia/
NDLI on YouTube:
https://www.youtube.com/c/NDLIndia
NDLI Project:
https://ndlproject.iitkgp.ac.in/
Publications

1. Poonam Anthony and Plaban Kumar Bhowmick Learning to Retrieve Related Resources in Bibliographic Information Network, has been accepted in the Joint Conference on Digital Libraries (JCDL 2019), Urbana-Champaign, Illinois, USA on June 02-06, 2019

2. Susmita Sadhu, Automatic Segmentation and Semantic Annotation of Verbose Queries in Digital Learning, Presented in 22nd International Conference on Theory and Practices of Digital Libraries held at Faculty of Engineering of the Universities of Porto (FEUP), September 10-13, 2018


5. Debarshi Kumar Sanyal, Semantic Search in Digital Library, Presented in International Seminar on Digital Humanities and Digital Societies in the Contemporary World, January 18-19, 2018


Status ...

- **Items:** 2.53Cr+
- **Metadata:** Version 1.0 of Standard Published
- **Sources:** 208 (IDRs: 100+)
- **Registered Users:** 5.0M+
- **Daily Website Hits:** ~11K+
- **Android App Download:** 1.11M
- **iOS App Download:** 57K+
- **Daily Android / iOS Hits:** ~11K+
- **Registered User Institutions:** ~9K
- **Languages:** 300+
- **Learning Resource type:** 90+
- **Subject domain:**
  - Most of the major educational areas
  - Educational Level: School Level (Class-I to XII), UG and PG
NDLI Outreach: NDLI Club

NDLI Club Vision

Realize the Read India Mission by inculcating reading and content sharing habit among learners
NDLI Club Mission

- Dissemination: Learn
- Participation: Share
- Creation: Grow
NDLI Club Architecture

- Educational Institute
- NDLI Club
- Thematic Area
- NDLI Core
- NDLI Club Governance
- Institute Level Club
- Theme specific activities

IIT Kharagpur 22/04/2019
NDLI Club Thematic Areas

- Reading and Recreation
- Academic Development
- Career Development
- Capacity Building
NDLI Club: Type of Activities

- Reading Challenge
- Lecture Series
- Story Talk Session
- Go Fish Session
- Write On Session
- Role Play Session
- Draw Session

- Quiz
- Hackathon
- Question / Solution Creation
- Translation
- Annotation
- Digitization
NDLI Club Reward Mechanism

- Participation in activities earn points
- Points vary on type of activities
- Accumulated points based periodic rewards
NDLI Structure

- Each Club tied to an Institution
  - Students, teachers, librarian, staff, administrators, parents/guardians of students may be members
  - No public Club for the time being; may be taken up later
- Club Structure
  - Patron: Head of the Institute
  - President: Teacher In-charge of Club
  - Secretary: Student In-charge of Club
  - Executive Members (optional): One student and one teacher from each department
  - Members: Volunteering students, teachers, librarian, staff, administrators, parents/guardians of students
NDLI Club Set up

- Club Formation: Head of the Institute
- Club Registration: On the Club website
- Club kickoff
  - Through a workshop/webinar
    - To be conducted by an Institute/NDLI person
    - To be attended by Patron, President, Secretary, all Executive Members and all Members of the Club
  - Workshop/Webinar to familiarize participants
    - About contents of NDLI and how to use NDLI effectively
    - How to register users in NDLI
    - Kind of activities that a Club can undertake
    - May contain a short activity
NDLI Club Operation

- **Club ramp up**
  - The teacher and the student lead of each department:
    - To register in Club all the teachers and students of the department
    - To train all the teachers and students on contents of NDLI and how to use NDLI effectively
    - To discuss the kind of activities that the Club should undertake
    - To motivate the teachers and students to make others member of the Club

- **Club functioning**
  - Conduct events at regular intervals (typically once in a month)
    - Record reward points earned by members
  - Publicize Club in the Institute
    - Put up posters at strategic locations
    - Give talks at various student meets/forums
    - Send periodic e-mail communication
  - Conduct Award ceremony (say once in a quarter/half-year)
    - Showcase winners
  - Submit Activity Report with metadata
NDLI Club: Arrangement & Infrastructure

- Large country: Impossible to cover a good section of readers/learners physically and centrally
- Conceived in Virtual-cum-Physical mode
- A web-based platform for Virtual mode planned
- Most of the activities will be conducted in Virtual mode using the web-based platform which may be for members of an individual club or members of a group of clubs
- Some activities may be carried out in physical mode, which mostly will remain limited to members of an individual club
- For overall management to cover the entire country a hierarchical council conceived
# NDLI Club Council

## Governing Body

<table>
<thead>
<tr>
<th>National Nodal Agencies</th>
<th>Country Leads</th>
<th>Executive Leads</th>
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<tbody>
<tr>
<td>MHRD &amp; NDLI</td>
<td>Chief Manager</td>
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<td>AICTE</td>
<td>Regional Managers</td>
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<td>UGC</td>
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<td>CBSE</td>
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### Institutes/Clubs

<table>
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### Executive Leads

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<th>Institutes/Clubs</th>
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<tbody>
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</tbody>
</table>
NDLI Club: Current Status

- Web based platform development is in progress
- Pending platform availability, some Clubs have been set up in Physical mode and activities are being conducted in Physical mode
- Once the web based platform is available these Physical Clubs will migrate to the platform and continue activities mostly through the platform
NDLI Club: Initiation

- Till the web based platform is available, you may start setting up Physical Club and carry out activities in Physical mode
  - Set up the Club following the standard Club structure
  - Register the Club using a Google form
  - Record Club details and activities in a Google sheet
- Launch the Club through a half-day Workshop
- Workshop structure
  - Short inauguration
  - Overview of NDLI & how to use NDLI
  - Registering participants in NDLI
  - Registering the Club
  - Registering participants as Members of the Club
  - Carry out one short sample activity
NDLI Club: NDLI Support

- NDLI Contact person for Club Kickoff: Dr. Vignesh Sornamohan – vignesh@ndl.gov.in/ vigneshjnu@gmail.com; 9999654458

- Growing the Club
  - Each Executive Member, representing a Class, to get the students of his/her Class registered in NDLI as well as Member of the Club
  - Plan and organize activities (typically 2-hour) on monthly basis
  - The 1st monthly activity may be a training session on NDLI followed by a short competition oriented activity

- Support from NDLI
  - Training the Club office bearers and Executive Members
  - Providing materials to conduct the training session on NDLI
  - Setting up Google forms and sheets for registration of Clubs and recording activities conducted
  - Providing contents and tips to conduct Club activities
  - Providing some reward for best Club in the Cluster/Region
Summary

The only thing that you absolutely have to know (may use Google, though), is the URL of NDLI:

`www.ndl.gov.in`

Rest you find in NDLI

Why are you waiting?

- An umbrella over all IRs of India
- User-Centric Design
  - Multi-lingual Indic Interface
  - Multi-faceted Search
  - Multi-modal Filters
  - User Experience Tracking for Personalization
- Rich Set of Contents
  - National Licensing
  - Domain / Usage -focused Verticals
- Metadata Engineering
  - Metadata Standard
  - Open Source Toolkit
- NDLI Services
  - Open APIs for 3rd party development
- Platform for Educational Ecosystem where all stakeholders participate, contribute and benefit
- Spearheads NDLI Movement

'"The only thing that you absolutely have to know, is the location of the library.'

Albert Einstein
NDLI Dedicated to the Nation

By Shri Prakash Javadekar
Hon’ble Minister of HRD
Thank you

For any help Contact: ndl-support@iitkgp.ac.in;
Phone: +91-3222-282435

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