Learning DSpace 7 and possibilities in the Information management world...
About DSquare Technologies

✓ Registered Service Provider & Tier 1 Certified Partner for DSpace since 2014.

✓ 30+ deployments across Education, Judiciary, Public Sector Units, Central/State Government, Research, Healthcare, etc. verticals globally.

✓ Managing 98 million plus pages for the Indian Judiciary and volume incrementing at a rapid pace.

✓ Comprehensive technology Eco-system to manage journey starting from Data generation till conversion in the knowledge.

Our Accreditations...

#startupindia

GeM assessed DMS OEM

DPIIT Recognized Startup

DSpace Certified Partner

Numbers speaks about our experience & ecosystem

800 million documents managed across Judicial, PSU, Central/State Gov, Education, and Research.


6 Value added solutions for Content Intelligence, Semantics & Multilingualism, Capture, Content Aggregation, & Data Visualization.

Our growth Journey

![Graph showing growth over years]
Eco system of Technologies helping in Data to Knowledge Journey...

Data
- Production Document Capture workflow
- Multilingual PDF OCR
- Dynamic feeds transformation

Information
- Thesaurus & Ontology Management
- Rapid DSpace hosting
- AI based Key phrase extraction

Knowledge
- InfoSpace
  - Hybrid DMS & Workflow Management on DSpace
- Knowledge Hub
  - Collaborative Knowledge Management on DSpace
- Open source Business Intelligence solution
DSquare Technologies Overview

Success stories...
## Business Objectives of Digital Repository in Institutions

<table>
<thead>
<tr>
<th></th>
<th>Preservation</th>
<th>Search &amp; Distribution</th>
<th>Content Security</th>
<th>Compatibility</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Digital Preservation of Contents</td>
<td>1. Multiple search options (parametric, full text)</td>
<td>1. Role based content access</td>
<td>1. Compatibility across multiple platforms i.e. mobile, tablet, laptop etc.</td>
<td>1. Possibility of data backup and restore by business users</td>
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<tr>
<td>4</td>
<td>Defining Taxonomy</td>
<td>management for easy</td>
<td>4. Content accessibility across multiple platforms</td>
<td>4. Possibility of integration with other systems for seamless working</td>
<td>4. Lesser dependency on IT for maintenance and change request management</td>
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<td>5</td>
<td>Defining Metadata</td>
<td>content accessibility</td>
<td></td>
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<tr>
<td>6</td>
<td>Capable of preserving multiple file types</td>
<td>across multiple platforms</td>
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<tr>
<td>7</td>
<td>Scalable system for managing large volume of content</td>
<td>Support for collaborative public services</td>
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<td></td>
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<td></td>
<td>Miscellaneous</td>
<td></td>
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<tr>
<td></td>
<td>1. Archives specific solution</td>
<td></td>
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<td></td>
<td>2. Monetizing contents</td>
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Evolution in Librarian profile

CONVENTIONAL LIBRARIANS

- Cataloguing and keeping track of library materials
- Advising academics on materials for their courses
- Making sure all users can access library resources & responding to requests from stakeholders
- Promoting the library’s resources
- Managing budgets and projects

INFORMATION LEADERS

- Managing broader canvas to curate relevant content.
- Regulating information flow.
- Creating Information Architecture and intelligence around content.
- Focus shift from curating content to contextualizing information.
- Enabling content-based insights for decision making.
- Promoting both contents and policies.
- Addressing budgets and projects.
DSpace History

DSpace a fully open source information management platform developed by MIT & HP Labs in 2002. Improved since then by Community for Community to manage millions of records.

Managing entire life cycle of your information

Capture – Organize – Preserve – Disseminate securely

Consistent Roadmap

<table>
<thead>
<tr>
<th>Year</th>
<th>Version</th>
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</thead>
<tbody>
<tr>
<td>2002</td>
<td>1.0</td>
</tr>
<tr>
<td>2012</td>
<td>3.0</td>
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<tr>
<td>2013</td>
<td>4.0</td>
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<tr>
<td>2015</td>
<td>5.0</td>
</tr>
<tr>
<td>2016</td>
<td>6.0</td>
</tr>
<tr>
<td>2021</td>
<td>7.0</td>
</tr>
</tbody>
</table>

User Base
3,000+ listed installations

Geographical Presence
~ 140 Countries

Indian User Base
~ 300 listed installations

Code Contributors
140 listed contributors

User Support
Registered Service Providers
Well established community forums
DSpace 7
Functional Overview

Capture
- Online content submission with maker – checker workflow
- DOI based import from PubMed, Datacite, Crossref, etc.
- Bulk data import & REST APIs based data push
- Custom metadata during capture
- Globally recognized DOI generation for performance tracking

Security
- User based access control
- Storage hierarchy-based access
- Request a copy option for restricted items

Technology base
- Angular & Java based solution
- Windows, Linux, Unix OS Support
- PostgreSQL / Oracle RDBMS
- Compatible with multiple browsers

Object Profiling
- Object profiling using custom metadata
- Community, collection, Item level indexing
- Full Text indexing
- Researcher’s Profile & integration with ORCID
- Relationship among various object types, e.g., Researcher & Reports, Journal & Article.

Organizing Information
- Configurable Taxonomy
- Organization specific Taxonomy
- Nonproprietary format for backend content storage

Distribute
- Accessibility from multiple platforms
- Item level unique URI for sharing

Search
- Metadata & operators-based Search
- Phonic Search
- Full Text Search
- Faceted Search and Discovery

Integration
- Open Rest APIs for Content Pull, security,
- OOTB integration with other open-source solutions
DSpace 7
Key Highlights...

BUSINESS USE

✓ Entities framework enabling profiling of different object types and contextualizing information.
✓ Metadata import from prominent sources like Crossref, ORCID, Web of Science, etc.
✓ Consent management introduction for GDPR and other PII related requirements.
✓ International Image Interoperability Framework (IIIF) Support added.

TECHNICAL USE

✓ Developed using Java Springboot and Angular.
✓ Independent backend and frontend applications integrated using REST APIs adding to scalability and flexibility.
✓ Upgraded Solr search engine version and decoupling from core DSpace for better utilization of the search engine.
✓ Enhanced integration with external applications.

Above is merely the tip of the iceberg, visit DSpace 7 release notes for more details
https://wiki.lyrasis.org/display/DSDOC7x/Release+Notes
Time for action.... DSpace 7 walkthrough and hands-on practice.
Betterment possibilities in DSpace 7
Few examples

- Advanced Search page with Boolean options
- "Did you mean" doesn't exist on search page
- Search Facets on all Home, Community, and Collection pages
- Search Facet customizations per Community or Collection
DSpace
from Digital Library to the Information Management Platform...

Digital Library

Hospital Records Management

Collaborative Knowledge Management System

Research Information System (RIS)

Document Management System for Office and other Institutional records

Managing Archives artifacts (Images, Audio, Video etc.)

E-Court and Case files management System for Judiciary
Climbing the Information Management maturity curve

Eco-system around Knowledge Management

### 1. Bulk Information Aggregation from various sources
- Bulk feeds from various sources
- Bulk feeds via RSS/XML/CSV
- Feeds from Open Access: News, papers, books, Magazines & Journals
- Feeds configure various regulations in RSS Feeds

### 2. Intelligence Management
- Ongoing enhancement of Ontology by SMEs
- Institution specific Ontology Management
- Ontology feed to submission form
- Feeds push for keywords extraction
- Dynamic Feeds Transformation Solution
- Keywords pushed to module for consolidated feeds to Knowledge Hub
- Feeding consolidated feeds to Knowledge Hub for validation and cataloging

### 3. Knowledge Management Solution
- Manual Submission by Authorized Users
- Feed validation Process by SMEs
- Structured Data Storage in File system
  - PDF, DOCX, TIFF, MP3, MOV etc.
- DSpace provides entire ecosystem around DSpace platform helping institutions at different level of its maturity curve in moving to the next level. Institutions can pick modules of its choice in flexible services model as per priorities.

### 4. Content access and collaboration by users
- Internal Content consumers performing search, retrieval, collaboration
- External Content consumers performing search, retrieval & Collaboration

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Climbing the Information Management maturity curve
Office Document Management use case

Document Scanning Client enabling scanning of physical documents

Direct upload of electronic documents by Users

Using existing database for Smart Indexing and reducing errors

Server based batch PDF OCRing for Full Text

Secured Storage, Indexing, Retrieval and Workflow in InfoSpace on DSpace

Future enhancements Roadmap

Future enhancements Roadmap

ERP, CRM, BPM Solutions...

Controlled Vocabulary & Thesaurus Solution for Intelligent DMS

Automated Keywords extraction for Insights & Classification of Documents

Open Source Business Intelligence for data visualization and detailed Dashboards

Value added solution outside standard DMS

Secured Information Search & Retrieval

Users Collaborating with Workflow, noting and Documents linking

Users seeking MIS

Retrieval Request from external IT Applications using APIs

REACH US AT: SALES@D2T.CO | SUPPORT@D2T.CO | WWW.D2T.CO
Ontology Management

Key Features & Benefits

Key Features

1. **Configurable Keywords** / Key Phrase Vocabulary by authorized users.
2. Provision of **defining relationships between terms** - Thesaurus / related / synonyms from other languages etc. for enhanced indexing/searching
3. Possibility of **importing external vocabularies** on standard SKOS/RDF standards
4. **Support API based integration** with multiple applications
5. **Access control** management and **auditability** of actions performed
6. Tight integration with **AI based insights extraction** and automated indexing in the case file management

Benefits

1. **Central solution for managing domain specific ontologies** and can be utilized across different applications and courts
2. Scalable model for concepts management
3. Empowering **subject experts to manage domain specific ontologies** with lesser dependency on IT resources
4. **Addressing issue of semantics and managing uniform metadata** creation **across organization**
5. Enhanced analytics and conversion of data in knowledge
6. Base dataset for automated classification of documents or keywords/phrase extraction
7. **Reusable dataset for future expansion** in Machine learning and Artificial intelligence.
### Ontology Management
Prominent domains using the solution

<table>
<thead>
<tr>
<th>On the Web</th>
<th>Biology &amp; other scientific disciplines</th>
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<tr>
<td>Vocabularies are often used in building the information architecture for websites, data repositories, information systems, thereby providing terms for indexing and retrieval of information objects.</td>
<td>CVs are widely used in biology for classification of living organisms (e.g. taxonomies of living organisms, classifications of cross-species anatomical entities).</td>
</tr>
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<table>
<thead>
<tr>
<th>Public health and medicine</th>
<th>International Organizations</th>
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<tr>
<td>Public health and medicine have CVs in various forms (terminologies, thesauri, ontologies) for defining categorizations and classifications for biomedical investigations, diseases, symptoms, medical errors, etc.</td>
<td>Actively use CVs to standardize terms and translations in international affairs. The most notable examples are the United Nations terminologies translated into six main languages of the UN to eliminate ambiguity in terms used in international communication.</td>
</tr>
</tbody>
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<table>
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<tr>
<th>GLAM (Galleries/Libraries/Archives/Museums)</th>
<th>Computer science</th>
</tr>
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<tbody>
<tr>
<td>GLAM (Galleries/Libraries/Archives/Museums) have used CVs for a very long time to describe their objects and resources, build catalogues and information systems.</td>
<td>Data mining, knowledge extraction, or conversation AI use CVs to classify entities and objects in text or speech recognition (Named Entity Recognition and Named Entity Disambiguation, e.g. CVs used to categorize intent in conversation with a robot).</td>
</tr>
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Ontology Management
Making content intelligent
We are listening...

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