

DSpace Digital Library transformation to Collaborative Knowledge Hub



Agenda

1

About dais & Krishikosh

1. Opening notes - Lyrasis
2. Introduction - Speaker
3. Krishikosh overview

2

World we were living in and Covid19

1. Conventional engagement method
2. Mitigation strategy due to Covid19 crisis
3. Challenges faced...

3

Lets give a fresh look to DSpace

1. DSpace looked as IR conventionally
2. DSpace as Knowledge Hub
3. Phased approach and its advantages

4

Other possibilities on DSpace and About DSquare Technologies



Executive Summary

1. Conventional education system has gone through **paradigm shift due to pandemic**

- Adopted **Virtual Classes** (Remote meetings)
 - Digital repository for study material
 - In person **peers interaction** switched to **digital chats**
-

2. **Challenges emerged** for students and institutions

- Multiple **parallel tracks for learning** (Video Conf., Learning Management, Digital Library)
 - **Limitation** in frequent consultation
 - Need to refer multiple applications
 - All of above **results in difficulty in developing context**
-

3. **DSpace as a Knowledge Hub** rather than a Digital Library

- **Single point** for all Learning material, recordings and other contents
- **Accessing Lectures recordings**, corresponding **study material** and **peer exchange** on content **in single window**
- **Collaborative environment** enabling teachers and students exchanging thoughts and **generating knowledge**
- **Innovative tweaks** for keeping **cost of ownership low**



About Speakers

Dr. Amrender Kumar Jha

Principal Scientist (Agricultural Statistics)

Agricultural Knowledge Management Unit (AKMU), Indian Agricultural Research Institute (IARI)

Program Head – Krishikosh (Central Knowledge Bank for Agricultural Contents)



DSquare Technologies (DuraSpace Registered Service Provider and Contributor)

Partner in ideation, implementation and maintaining Krishikosh



About Krishikosh

Krishikosh was founded in **May, 2009** as an **Open Access Initiative** providing platform to Agricultural Institutes to host its contents.

90 Member Institutions  **201k** Items / **~40 Million** Pages stored¹

~19 Million visits from **178** countries until now...²

5 Top visitor countries respectively...



USA



India



China



Russia

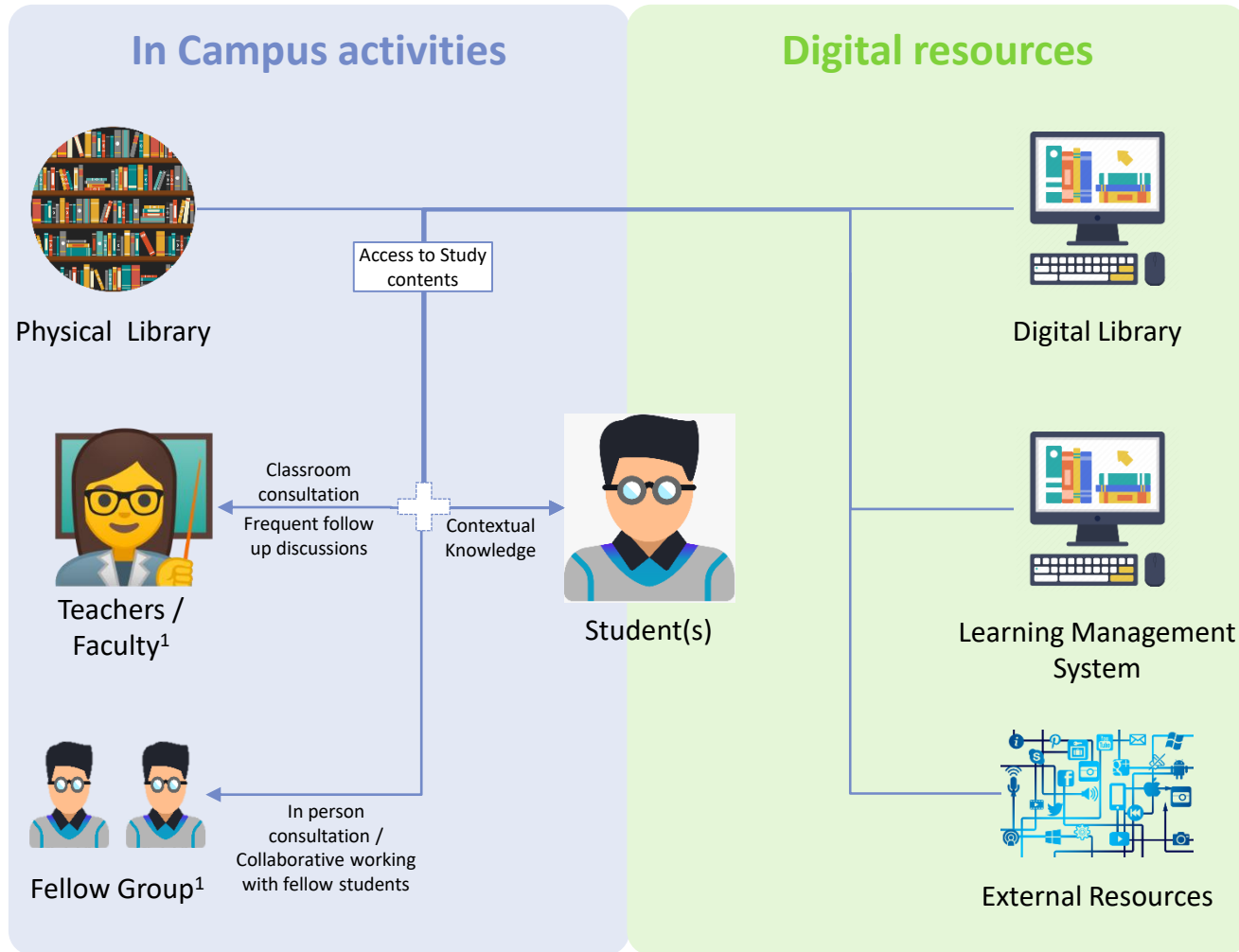


Philippines



Conventional way and pandemic effect

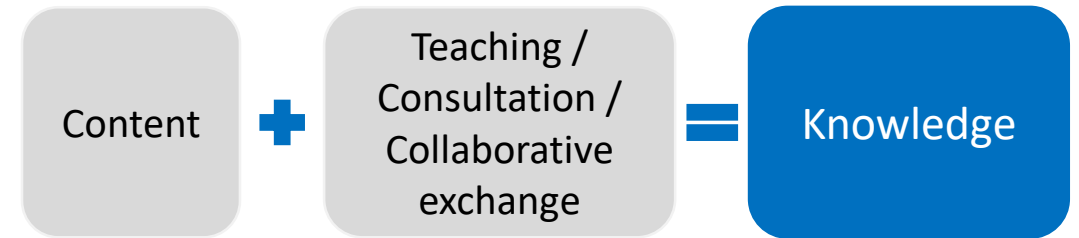
World we were living in...



1 In person activities within campus/institution

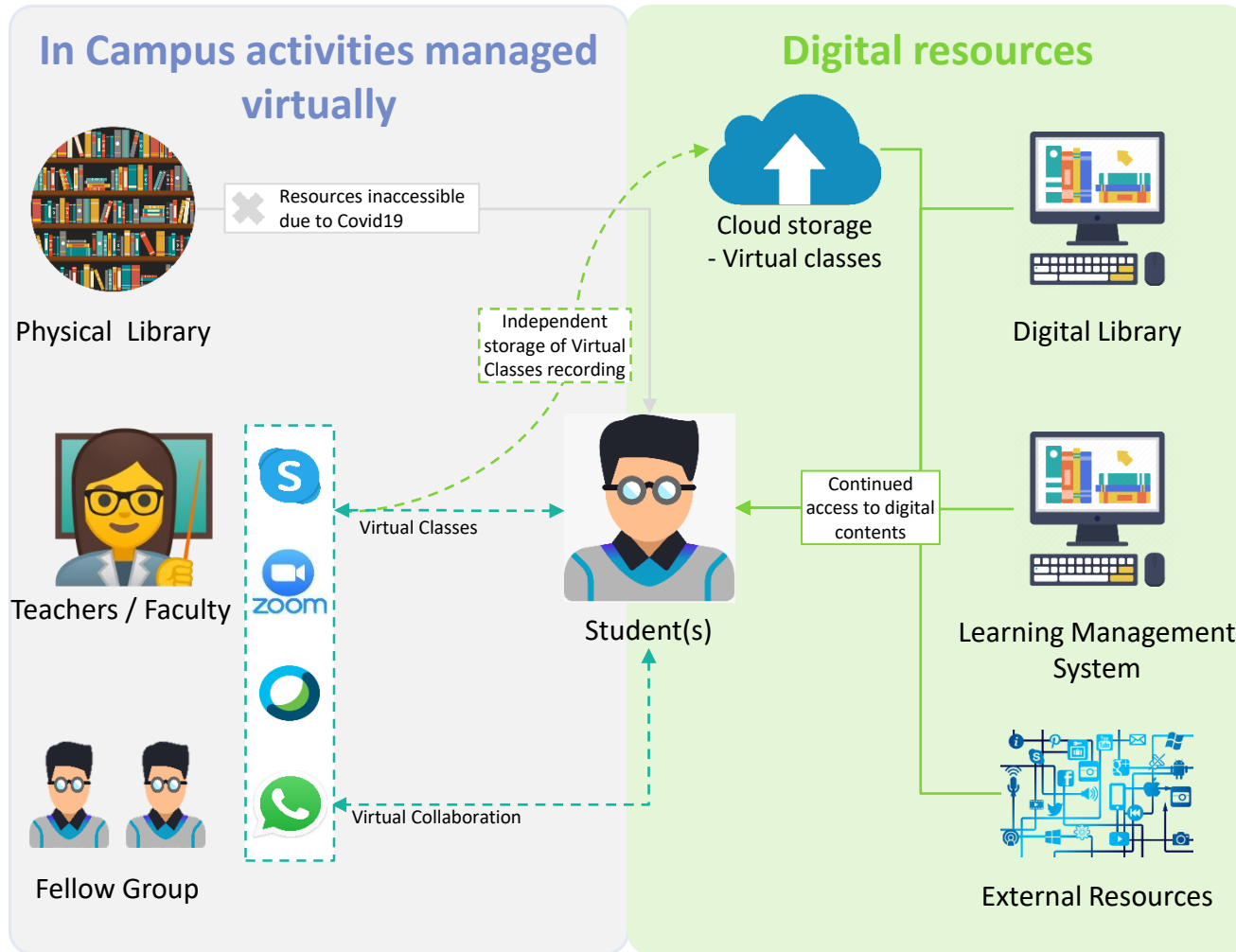
Highlights

1. Students accessing contents from in campus libraries & Digital resources
2. Gaining contextual understanding of contents using
 - a. Classroom sessions
 - b. In-person follow up discussions
 - c. Collaborative working with fellow students



Conventional way and pandemic effect

Best possible mitigation measures adopted by institutions...

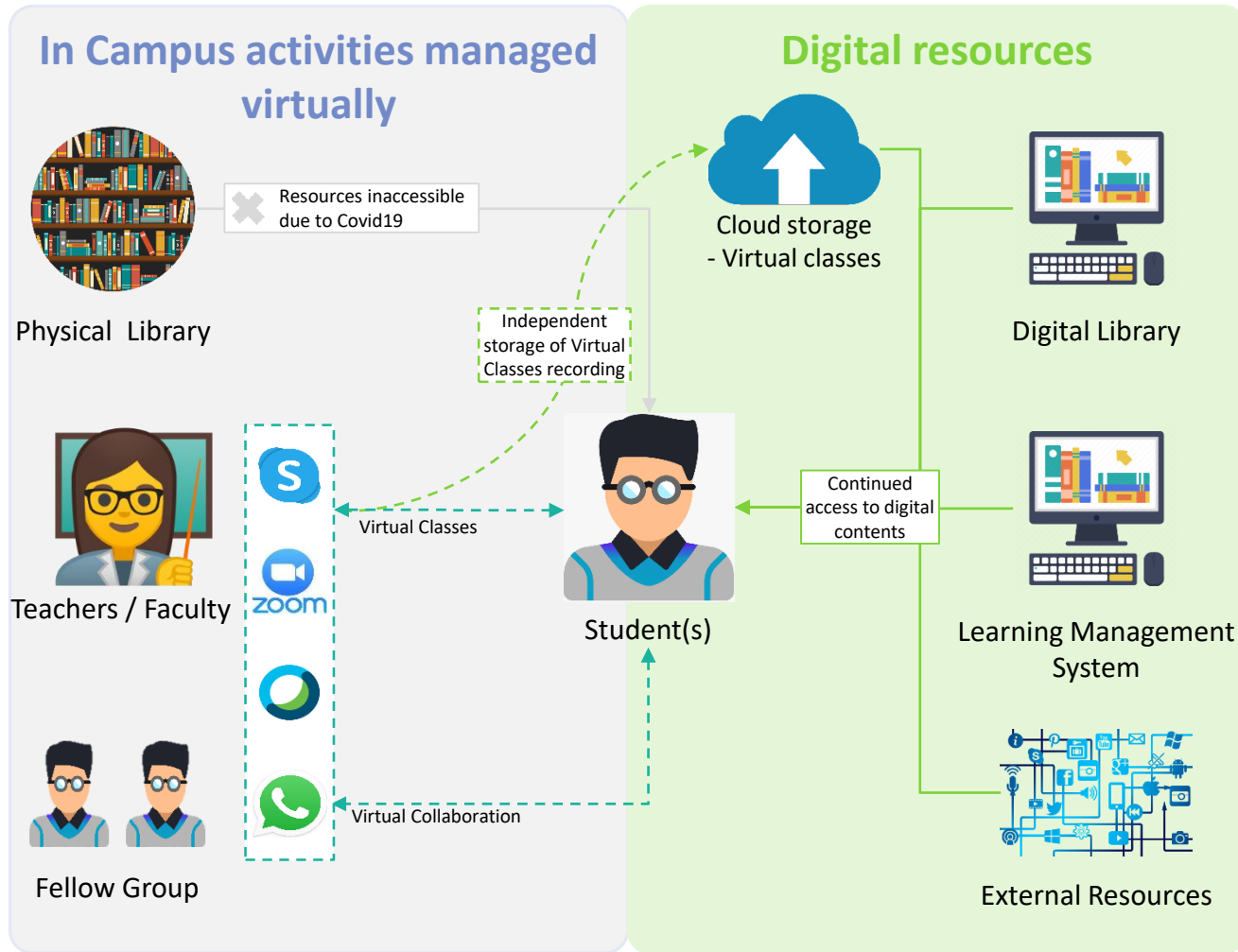


Changes adopted as mitigation strategy

1. Virtual meeting platforms like Zoom / Webex / Skype etc. for classroom sessions
2. Fellow students collaboration via Skype / WhatsApp / Zoom etc. platforms
3. Corresponding contents accessed from independent content repositories
4. Courses / contents hosted on learning management portal
5. Assignments / work submission via independent E Mails / learning management portal

Conventional way and pandemic effect

...that came with some challenges for students and faculties



Key challenges faced...

1. Difficulty in developing context due to Zero relationship between contents, lectures and other related items
2. Limitation in frequent consultation with faculty due to remote engagement
3. Users need to refer multiple applications for accessing various contents
4. Approach lacks ability of converting contents into knowledge for long term benefits

Lets give a fresh look to DSpace

DSpace as we all know – an Institutional Repository



Security

1. User based access control
2. Storage hierarchy based access
3. Request a copy option for restricted items



Capture

1. Document submission using maker – checker workflow
2. Import of multiple file types
3. Custom metadata during capture



Integration

1. Open Rest APIs
2. OOTB integration with other open source solutions



Metadata

1. Provision of custom metadata
2. Community, collection, Item level indexing
3. Full Text indexing



Distribute

1. Accessibility from multiple platforms
2. Item level unique URI for sharing



Store

1. Configurable Taxonomy
2. Organization specific Taxonomy
3. Nonproprietary format for backend content storage



Platform

1. Java based solution
2. Windows, Linux, Unix OS Support
3. PostgreSQL / Oracle RDBMS
4. Compatible with multiple browsers



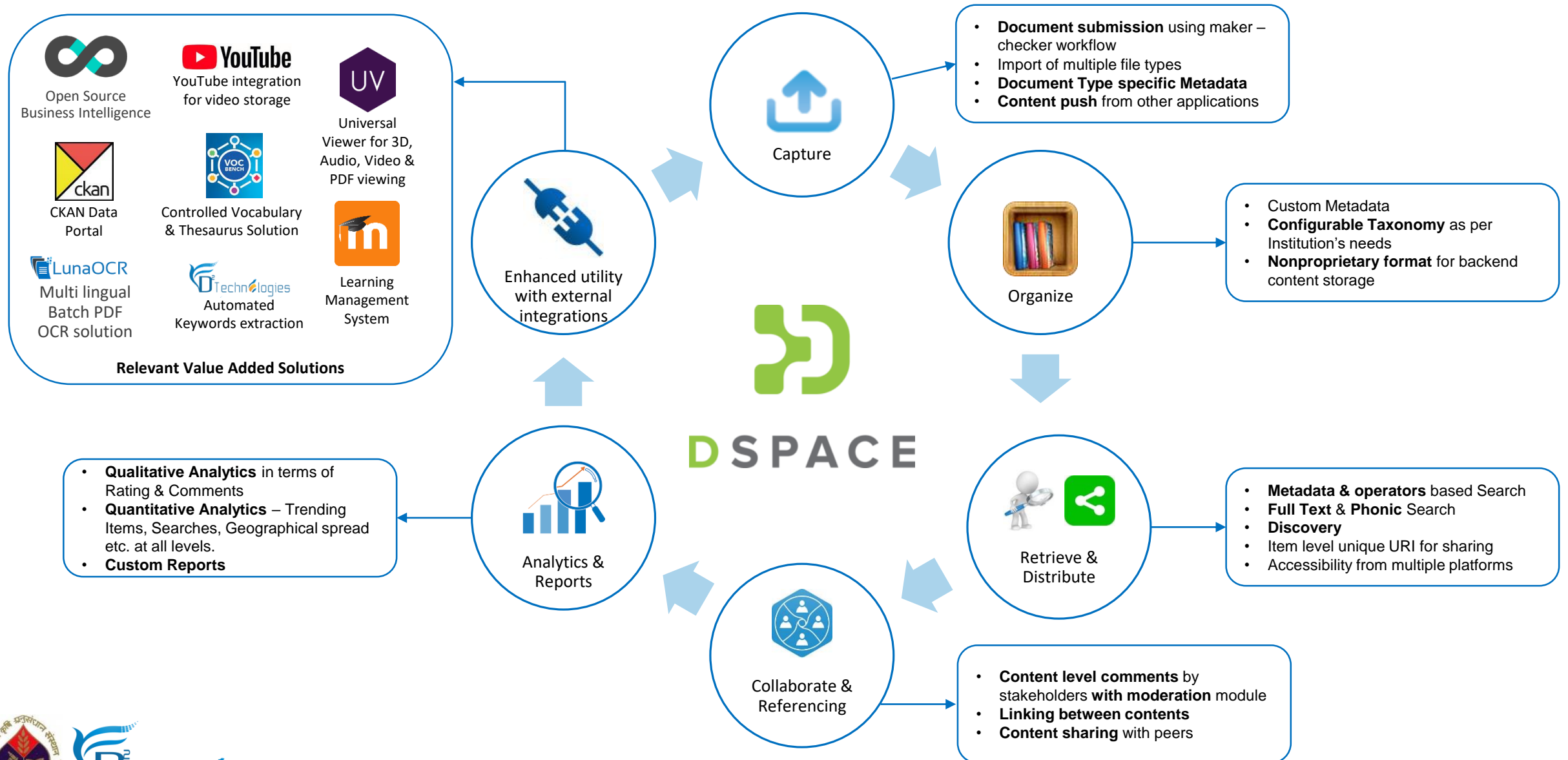
Search

1. Metadata & operators based Search
2. Phonic Search
3. Full Text Search
4. Faceted Search and Discovery



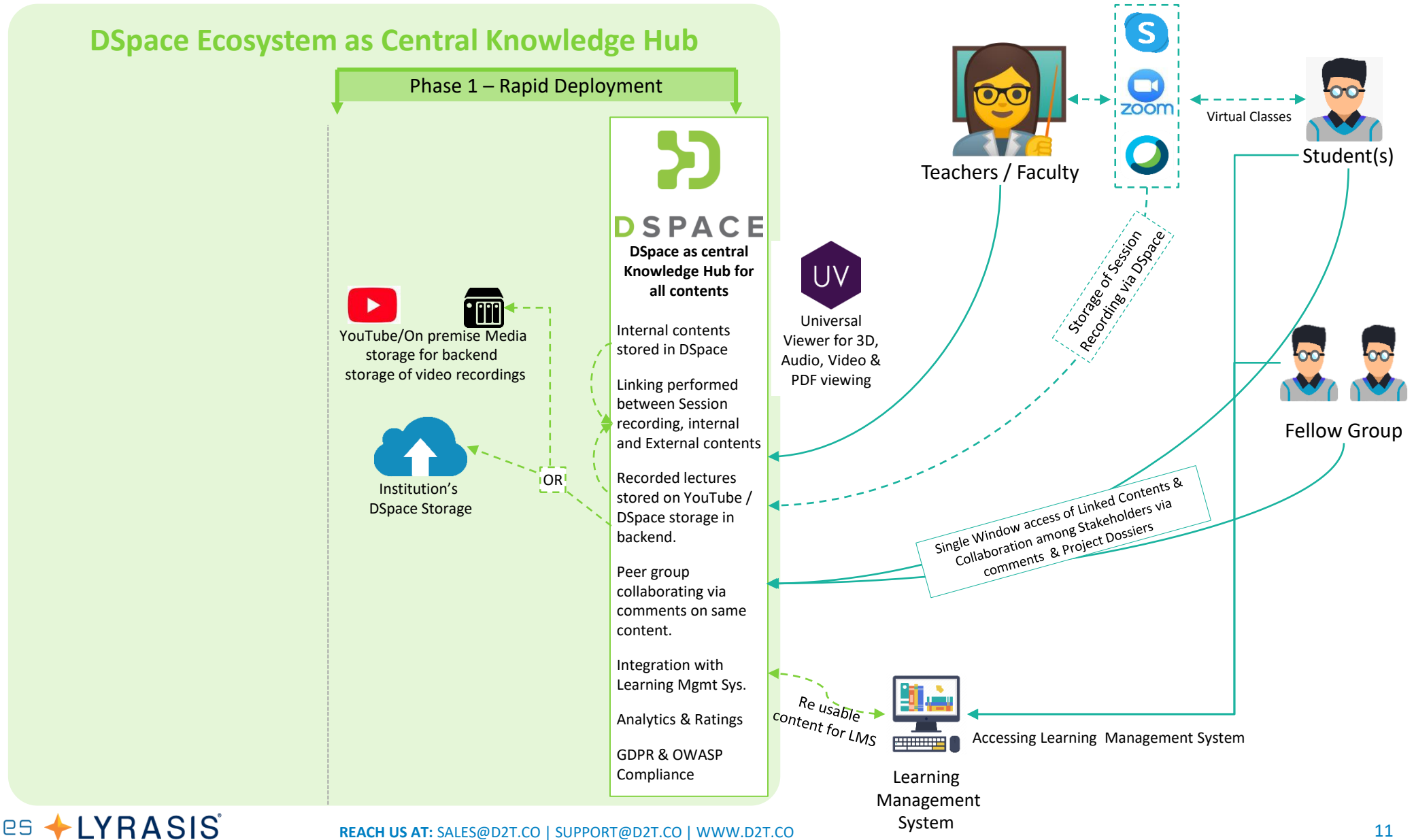
Lets give a fresh look to DSpace

Let's see DSpace again as a Collaborative Knowledge Hub



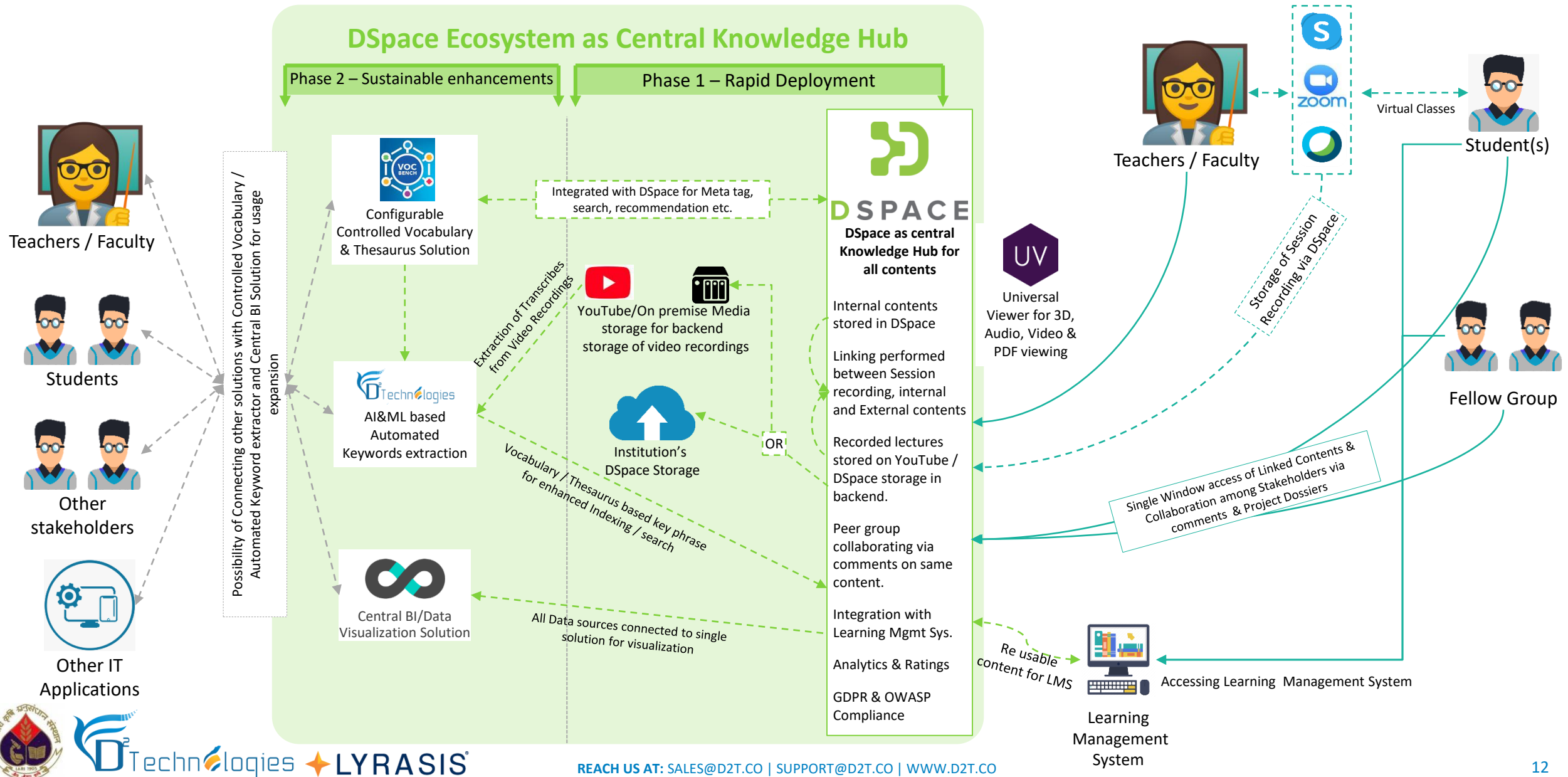
Lets give a fresh look to DSpace

Rapid tweaks for mitigating immediate challenges



Lets give a fresh look to DSpace

Further enhancement with complementary solutions




Potential advantages of DSpace as Knowledge Hub...

1. Better context by referring all related contents together (course contents, lectures, external contents etc.)
2. Collaborative environment for Users to interact on contents
3. Phased approach for meeting immediate challenges and enhancing gradually
4. Sustainable and scalable model
5. Flexible approach as per our priorities
 - a. Choice of media storage on free external media platform or internal storage
 - b. Keep upgrading with complementing solutions
 - c. On premise / Hosted solution
6. Benefits of complementary solutions
 - a. Integrated controlled vocabulary help in organizing contents systematically and enhanced searching
 - b. Keywords extraction solution help in converting data / information into knowledge
 - c. Extending knowledge generated in DSpace to other applications



About DSquare...

DSquare Technologies has expertise in providing innovative solutions for Information Management & Processing on World known Open source platforms.

 We help you in converting data & information into Knowledge.

Achievements

- ✓ Registered Service Provider & Contributor of DSpace
- ✓ 20+ deployments in multiple continents
- ✓ Managing 98 million plus pages for High Courts & Supreme Court of India
- ✓ Central Agricultural Knowledge bank in India
- ✓ Solution for Education, Govt., Corporate, Knowledge Management and many more...
- ✓ Vast addons, Capture solution, BI Solution and Process automation tools on open source. Well Integrated with each other.



Technologies we work with...



Production Document Capture workflow



Multi lingual Batch PDF OCR solution



DSpace OpenSource Knowledge / Documents Management



Superset - Business Intelligence solution



Robotics Process Automation and Workflow Solution



CKAN Data Portal



Universal Viewer for 3D, Audio, Video & PDF viewing



Controlled Vocabulary & Thesaurus Solution



Automated Keywords / Key phrase extraction Solution

Our footprints...



...and Accreditations



Few success stories on DSpace by DSquare Technologies



CSO Partnership
for **Development Effectiveness**



NCIPM



DSquare's Offering

On DSpace platform

Solution for everyone...

1. Document Management System for Office and other Institutional records
2. Knowledge Portal for remote learning / Digital Library for Institutional repositories
3. DSpace for managing artifacts in Archives (Images, Audio, Video etc.)
4. DSpace for Hospital Records Management
5. Research Information System
6. DSpace to integrated with ERP, BPM and other IT systems of any institutions
7. Courts Records Management for case files management

And many other possibilities...

Some of unique Add-ons on top of Open source DSpace platform:

1. Modern UI with Mobile first approach
2. Real-time data analytics & Reports
3. Content Rating / User Comments modules
4. IP Range/Active Directory based access / subscription Module
5. Browser based content viewer
6. E-commerce solution
7. Enhanced Security: GDPR and OWASP Compliant
8. Digital Signature, Dynamic Watermarking and XMP Metadata embedding
9. Third party application integration
10. Add-hoc Workflow, version control, favorites.



Target Markets & Business Model

Education / Culture	Judiciary	Corporate	Federal	Healthcare
Knowledge Portal for remote learning / Digital Library	Case files management	Office DMS	Public facing records portal	Medical Records Management
Artefacts Management Portal with E Commerce	DMS for law firms	Vendor Invoice portal	Internal Documents Management System	
Research Information Management		Knowledge Bank	Knowledge Bank	
Student Records Management		Tasks Automation		

Administrative Records management

Solution available in RTL in Arabic and LTR along with GDPR Compliance

Business Model

1. Hosting / On-Premise
2. SaaS
3. Perpetuity
4. Co-branding
5. Box Products / Project based development





Thank You...

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Appendix

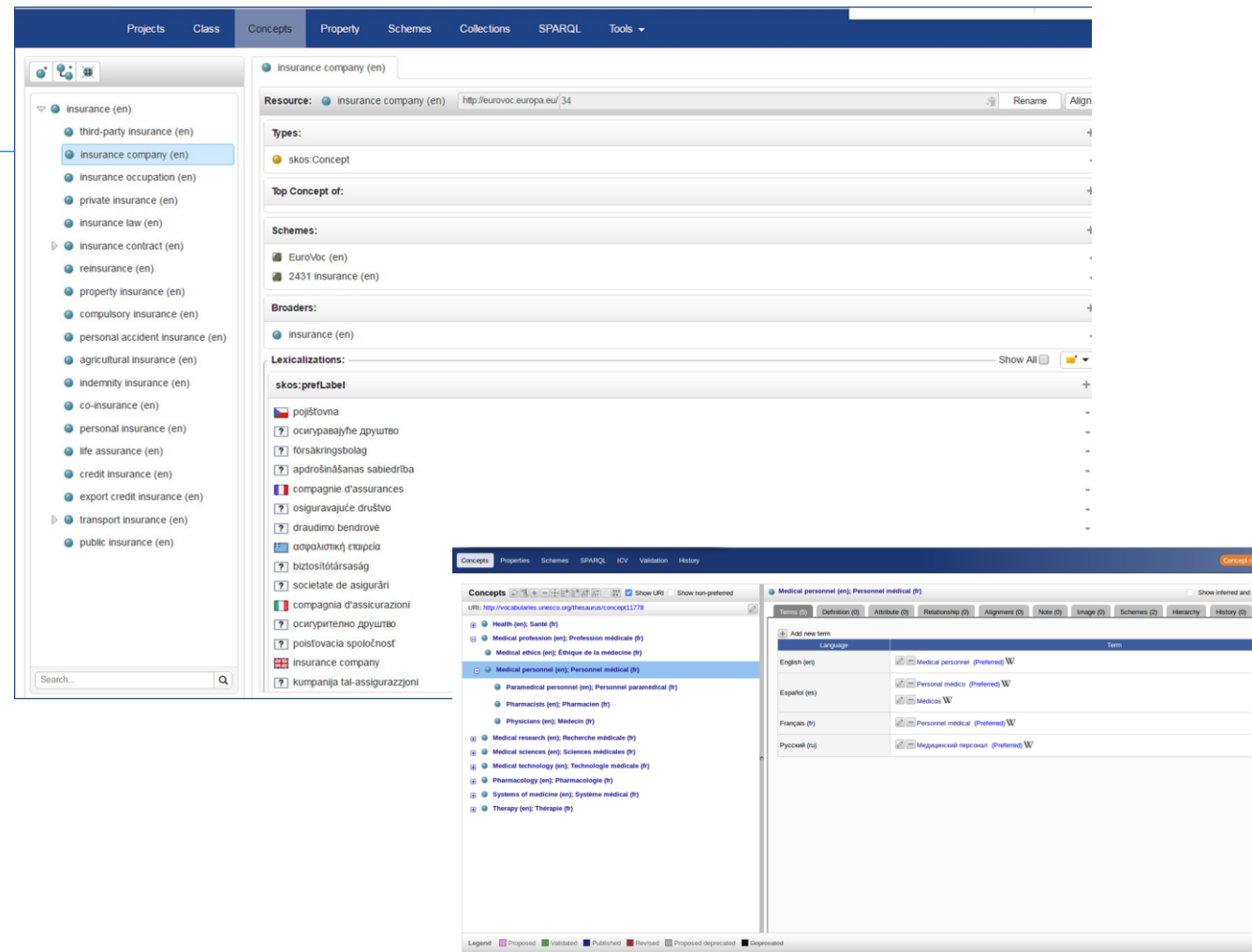


Value added solutions

Controlled Vocabulary Solution

Overview

Controlled vocabulary is an organized arrangement of words and phrases used to index content and/or to retrieve content through browsing or searching. It typically includes preferred and variant terms and has a defined scope or describes a specific domain.



Automated Keywords extraction

Machine learning based automated keywords extraction on the basis of controlled vocabulary developed by Department. In depth analysis of documents and extracting keywords on pre defined logics. Human intervention reduced for enhancing automated output.



Value added solutions

Controlled Vocabulary Solution

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

Benefits

1. Central solution for managing keywords for multiple DSpace instances
2. Scalable model for keywords management
3. Enabling business user to manage domain specific vocabulary and less dependency on IT resources
4. Uniformity in Keywords added by various users
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.



Value added solutions

Superset - Central Business Intelligence Solution



A modern, enterprise ready business intelligence web application.

1. Explore your data
2. Create interactive dashboard from multiple DSpace instances
3. Shareable and embeddable charts and dashboards
4. Configurable charts/dashboard
5. Access control management for defining roles
6. Expandable usage beyond DSpace's databases
7. Support data visualization from ad hoc CSVs
8. More than 32 visualization types
9. SQL editor in browser for complex dashboard building by domain experts

