



# The Digital Library status of Korea (DL System & Contents)

2018. 12. 12



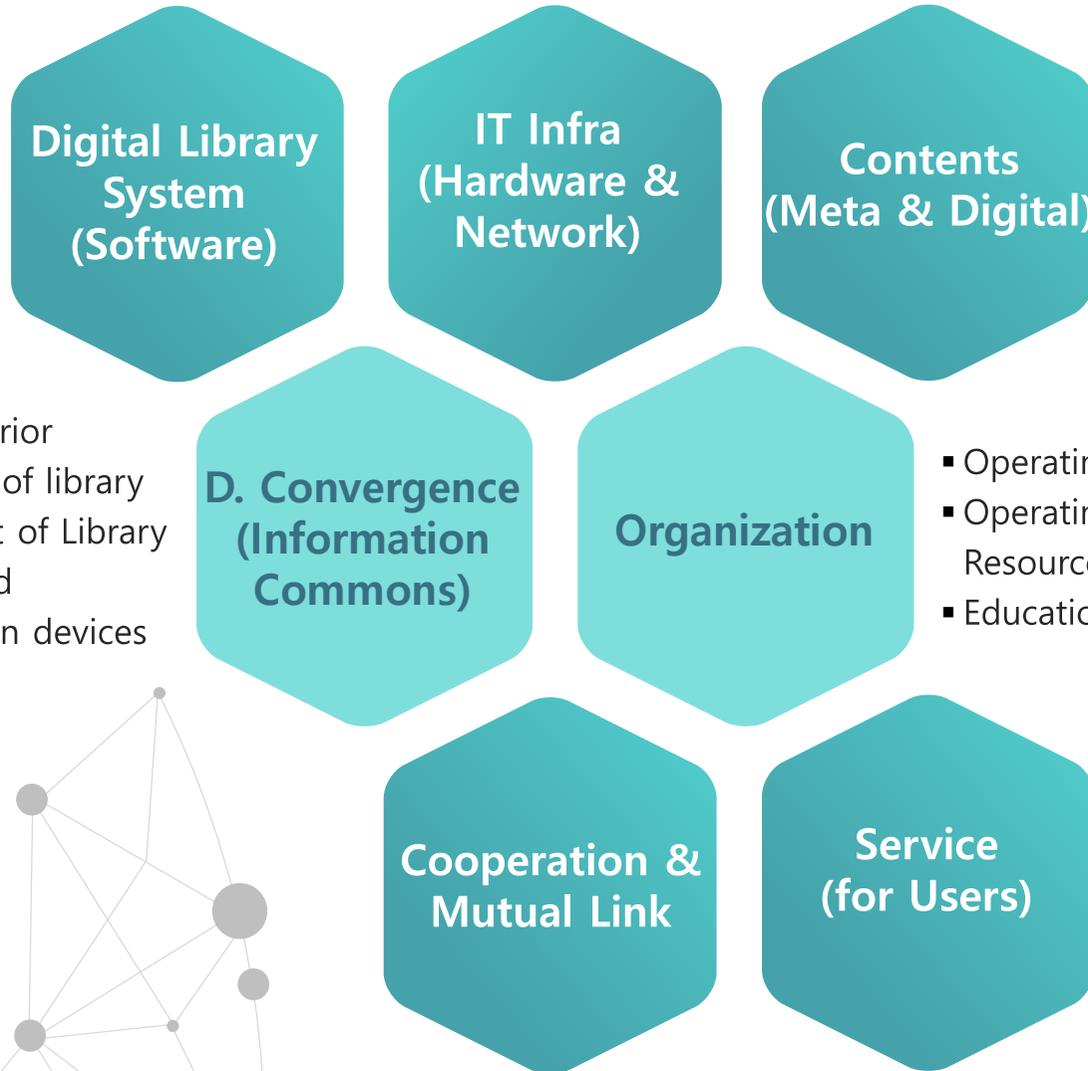
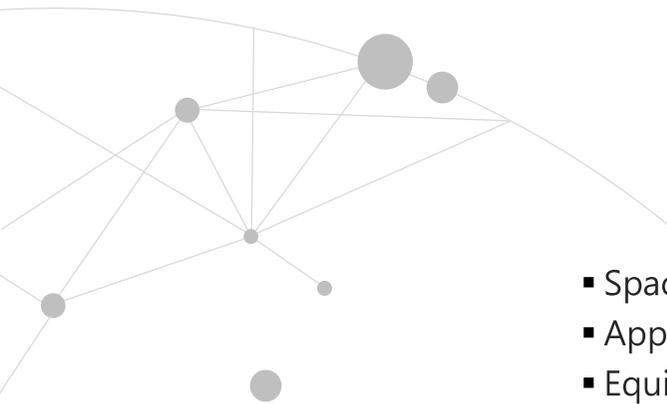
**Jeong Ho, Choo**  
Futurenuri CEO



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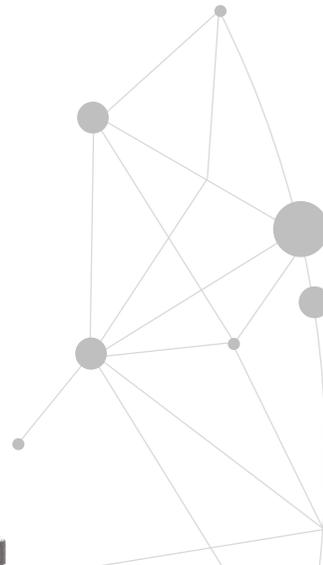
1. Elements of digital library
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# 01. Elements of digital library

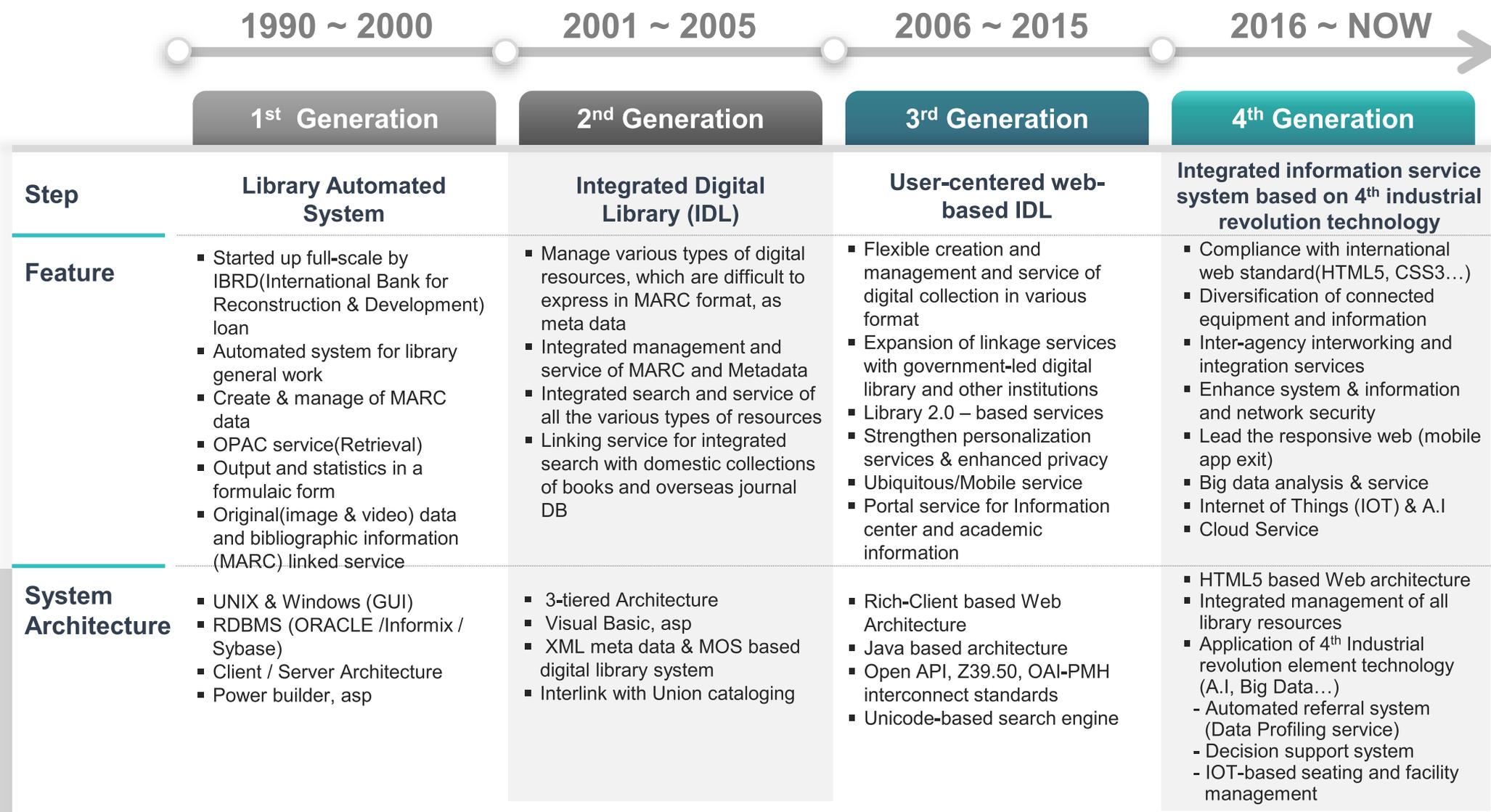


- Space Interior
- Appliance of library
- Equipment of Library
- RFID Based Automation devices

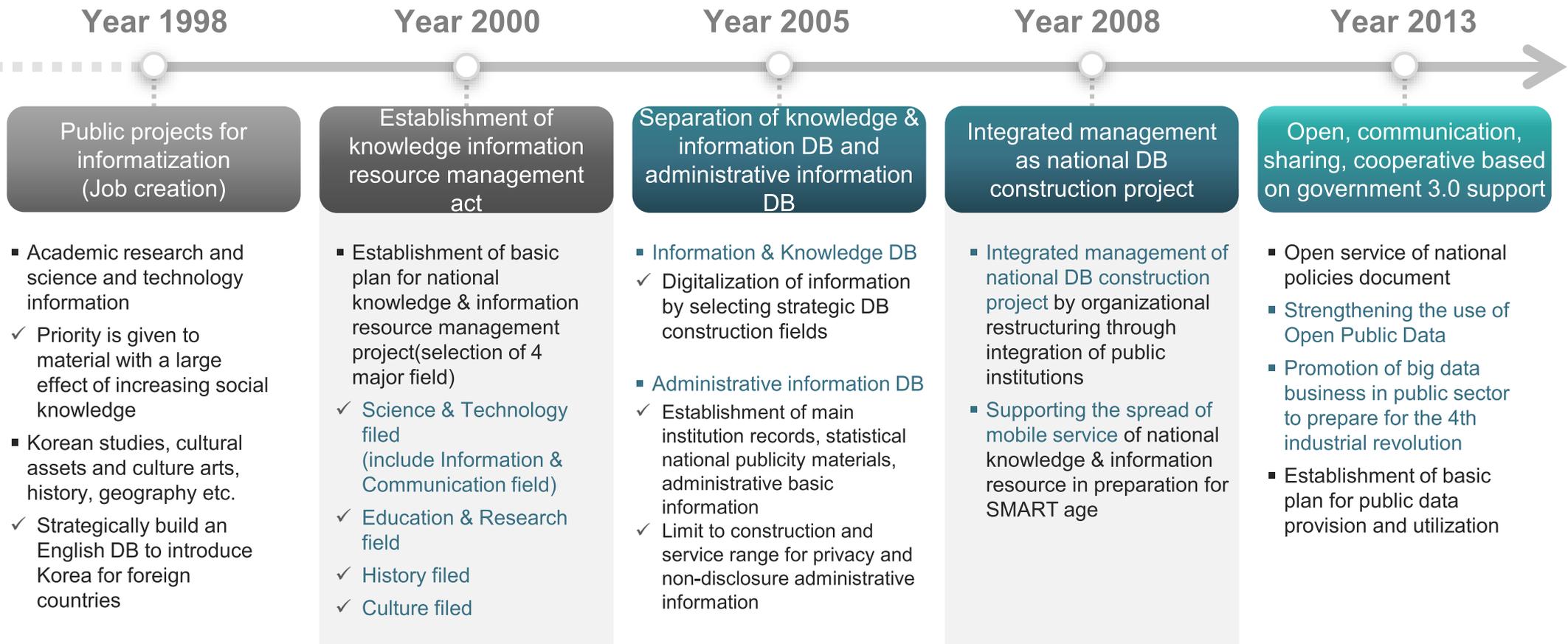
- Operating organization of DL
- Operating Human Resources (Staff)
- Education



## 02. Development process of digital library in Korea



# 03. Development of digital contents by Government-led



- National knowledge resources means computerization of public academic administrative data held by national institutions do that they can be shared online
- The national knowledge portal is a representative site that serves the national knowledge information DB and provides integrated search for all institutions and citizens utilize high quality knowledge information

Source : Korea Information & Culture Promotion Agency(11.2016) "Investment analysis and long-term development plan of knowledge information resource management project"  
 Korea Information Society Agency (10.2017) "2017 National information white book"

# 04. The case of digital contents construction for national knowledge information

National knowledge Portal Digitization Status (base on year 2010)

Area	Category	Number	Area	Category	Number
Science technology	<ul style="list-style-type: none"> <li>Report of National Research and Development</li> <li>Science and Technology Citation Index in Korea(KSCI)</li> <li>Advanced Science DB</li> <li>Specialized information of Industrial technology</li> <li>Current Status, High Technology and Academic Material of Marine Fisheries Research</li> </ul>	87,592,558	Culture	<ul style="list-style-type: none"> <li>Information of National treasure, treasure and cultural property</li> <li>Information of museum in Korea</li> <li>Information of Performing arts</li> <li>Information of Art works &amp; artist</li> </ul>	5,998,786
	Education & Research			<ul style="list-style-type: none"> <li>Journal List and Full-text</li> <li>Domestic Theses and Overseas Academic Theses</li> <li>Political, Economic and Social Statistics</li> <li>Science Information of Defense</li> <li>Full-text DB involved with Supporting the Legislative activities of the National Assembly</li> </ul>	
Total				Other area	<ul style="list-style-type: none"> <li>Industry Statistics and Policy Trends involved with Information and Communication Technology</li> <li>Research report on construction and transportation technology</li> <li>Research report on industrial economy trends</li> <li>Statute interpretation, administrative judgment information, etc.</li> </ul>
					143,529,861

Since the launch of the service in November 2001, 1,389 out of research agency have been providing an integrated search environment for about 300 million knowledge information resources.

41.6% is history geography field and 30% is science and technology field in distribution of national knowledge DB

# 05. National digital library service case # I

## National Library of Korea

KOLIS : Korea Library Information System

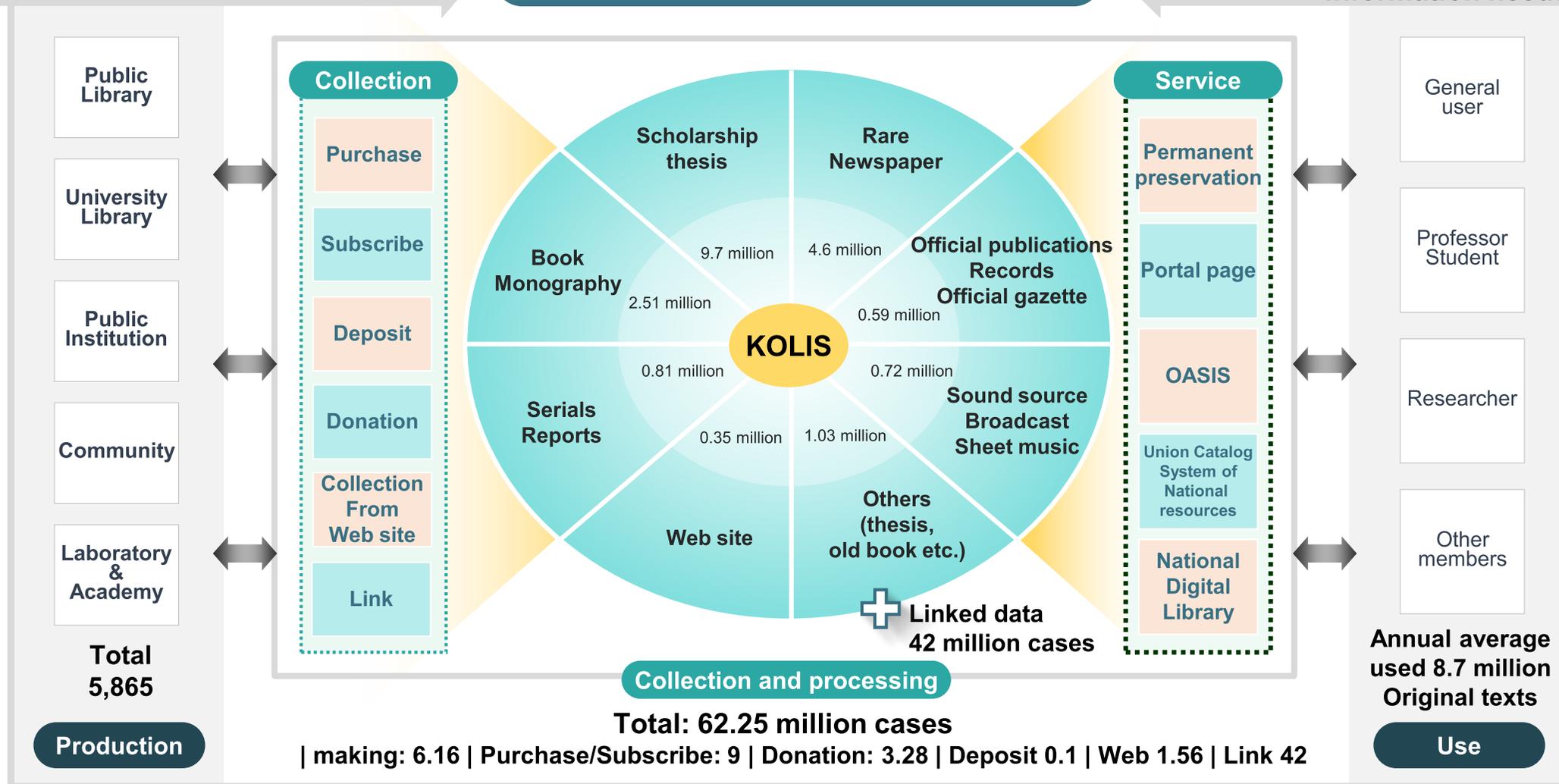
OASIS : Online Archiving & Searching Internet Sources

(Based on 15.10.2018)

Build high-quality data

Perform national library responsibilities

Efficiently coping with various information needs

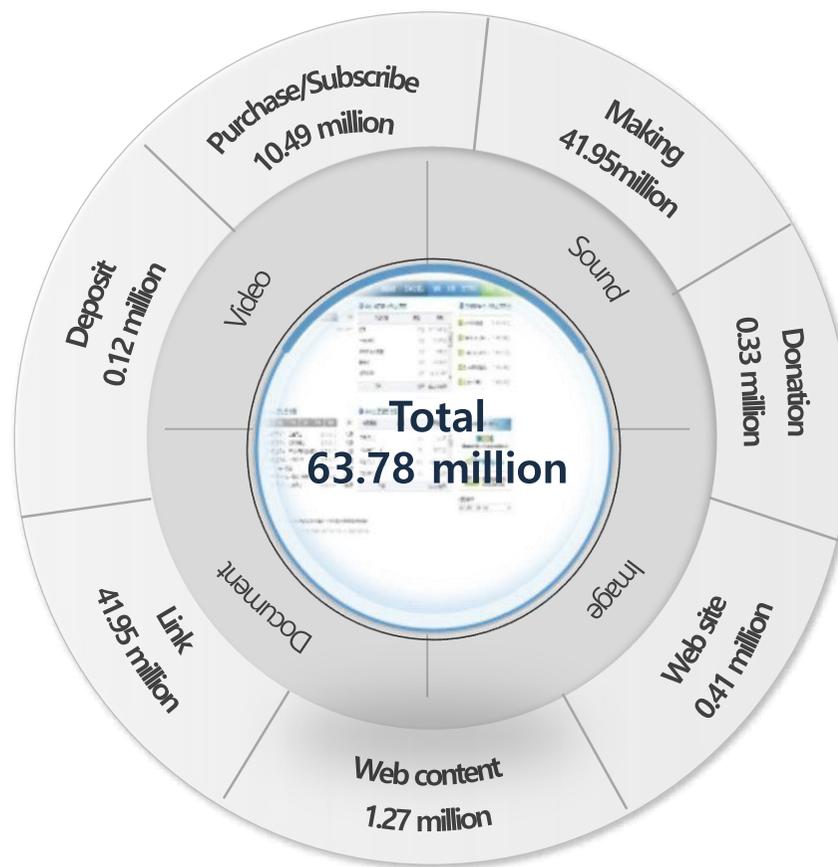


# 06. The case of type and construction methods of digital contents

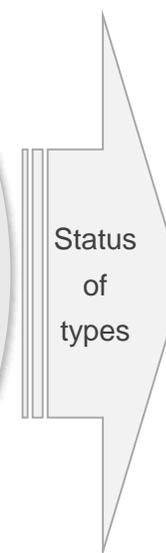
## Construction type of digital contents

Type	Detail
<b>Self Making</b>	Scan and construct metadata of own collection
<b>Purchase / Subscribe</b>	Register with system and construct metadata of purchased or subscribed contents from publisher or industry
<b>Donation</b>	Register with system and construct metadata of donated material from individual or organization
<b>Deposit</b>	Register with system and construct metadata of Deposited material from individual or organization
<b>Web contents</b>	Collect and register with system, construct metadata of on-line digital contents
<b>Web site</b>	Collect by engine and construct metadata of Web site involved with Korea
<b>Link</b>	Collect and Register by OAI methods of offered digital contents from government

## Statistics of construction type



(Based on 03.12.2018, Unit : Ten thousand)



	Type	Number
<b>Image</b>	jpg	710
	tif	112
	tiff	28
	gif	34
	png	6
	<b>Subtotal</b>	<b>890</b>
<b>Document</b>	pdf	569
	hwp	37
	epub	10
	ppt	1
	<b>Subtotal</b>	<b>617</b>
<b>Video</b>	cpi	123
	mp4	14
	wmv	3
	asf	20
	avi	18
	<b>Subtotal</b>	<b>178</b>
<b>Sound Audio</b>	mp3	46
	wav	4
	<b>Subtotal</b>	<b>51</b>
<b>Link</b>	URL	4,195
<b>Others</b>	excel etc	498
<b>Total</b>		<b>6,378</b>

# 07. National digital library service case #II

## Korea Education & Research Information Service

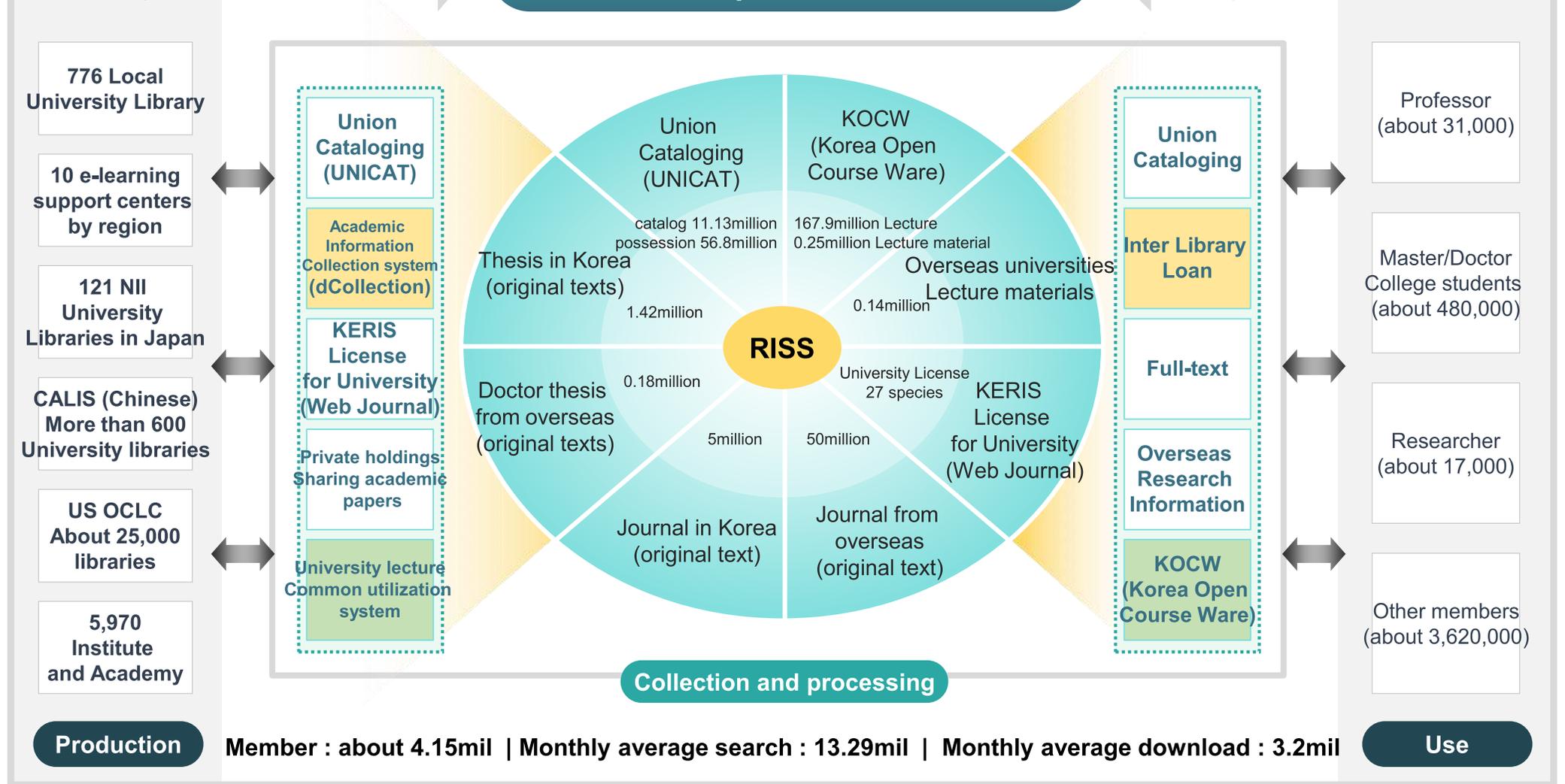
RISS : Research Information Sharing Service

(Based on 12.2017)

Advanced Collaboration System  
for University Libraries

Enhancing Nation Research  
Competitiveness

Establishment of common utilization  
system of academic information



# 08. National digital library service case #III

## The National Assembly Library

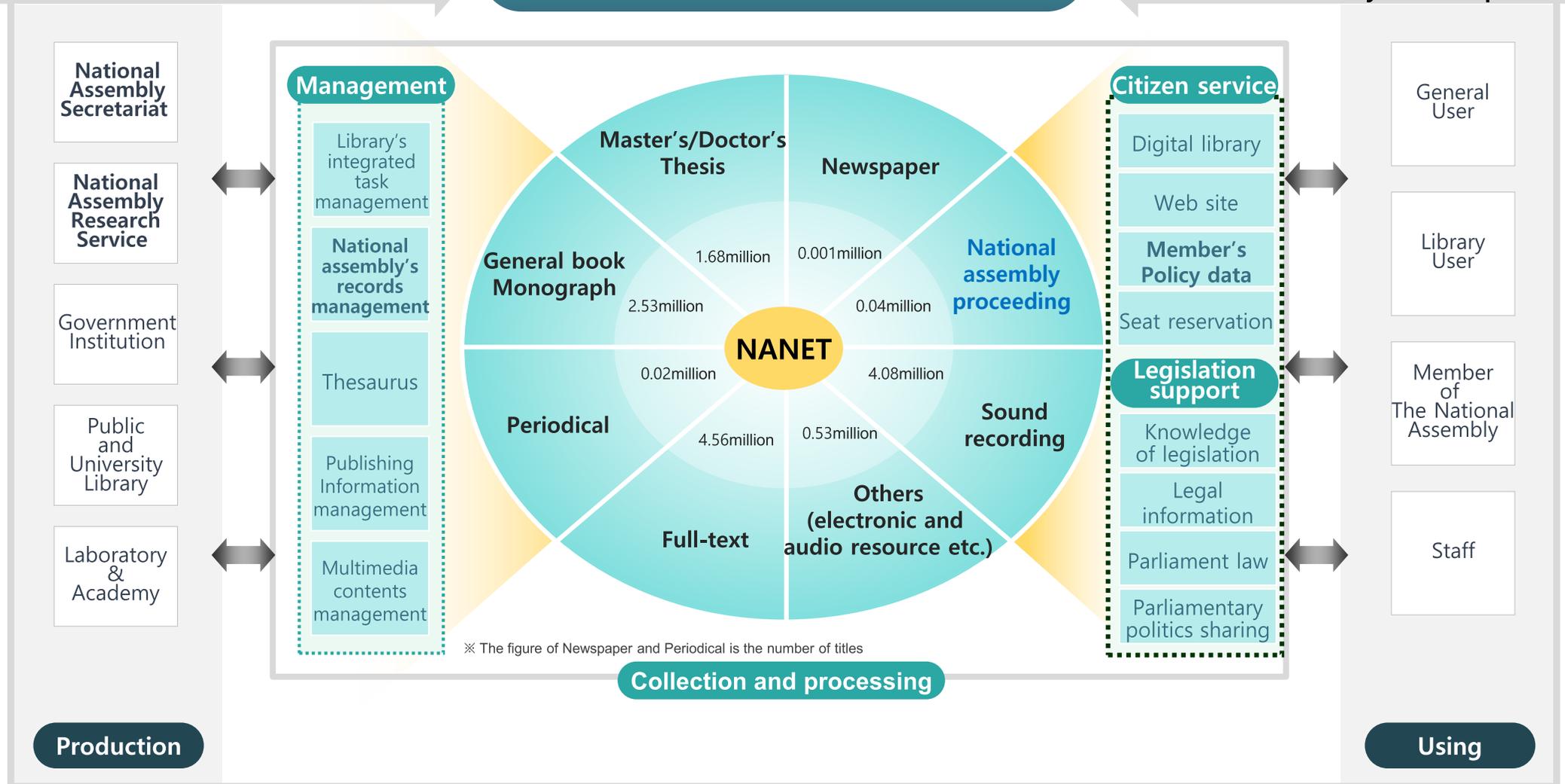
NANET : The National Assembly Library NETwork

(Based on 01.2018)

Provide with Knowledge of legislation,  
Materials of decree and collection

Responsibility of  
Korea's Law library duty

Provide with high-quality service to  
the national assembly and the public



# 09. About us (Instruction of Futurenuri Inc.)

## - Status & History

### General Status

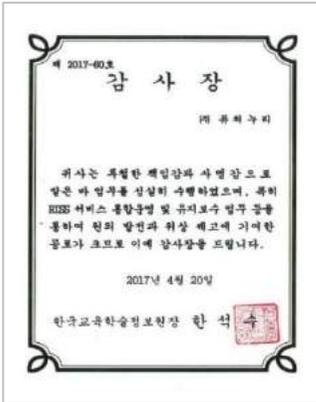
- ❖ Location : Seoul, Korea
- ❖ Year of Establishment : 2007  
(Total about 27 years including independent ago)
- ❖ Business performance : about US\$12,000k [Including FNDG(Branch)]
- ❖ Human resources : about 130persons
- ❖ Hold over 20 programs and patents (additional registration in progress)
- ❖ Largest share in the Korea DL market

### Major History

- Announced IoT-based Integrated Resource Management System (2017)
- Education Business(e-Learning & e-Test Solution) M&A (2016)
- Announced Big data-based Decision support System for managers & Auto recommend System for users (2016)
- Announced HTML5 & pure web-based Integrated Digital Library System TULIP5 by first in Korea (2015~2016)
- Announced Web-based Integrated Digital Library System TULIP by first in Korea (2010)
- Corporation Laying Institution Establishment (2007)
- Futurenuri, inc. Establishment (2007)
- Announced XML-based Library Automation System & Digital Library System by first in Korea (1994)
- Renamed to 'Future InforNet' from 'TriGem Information System' (2000)
- Announced Window-based Library Automation System by first in Korea (1994)
- Started up Digital Library Departments in 'TriGem Information Systems, inc' (1992)

# 09. About us (Instruction of Futurenuri Inc.)

## - Certification



KERIS Appreciation Plaque (2017)



The Hidden Champion Corporation certified by the Ministry of Employment and Labor (2017)



Korea Military Academy's Appreciation Plaque (2015)



Korean Consumer Preference Brand Grand Prize (2017)



Vietnam People's Police Academy Appreciation Plaque (2017)



Hitech Award Solution of Year (2011)



## Awards & Prizes

- The High-Seoul Brand Corporation certificated by Seoul City (2017)
- The Hidden Champion Corporation certificated by the Ministry of Employment and Labor (2017)
- Vietnam People's Police Academy Appreciation Plaque (2017)
- KERIS Appreciation Plaque (2017)
- Korean Consumer Preference Brand Grand Prize (2017)
- Korea Military Academy's Appreciation Plaque (2015)
- The Head of Dong-gu, Deagu Appreciation Plaque (2012, 2016)
- Hitech Award Solution of Year (2011)

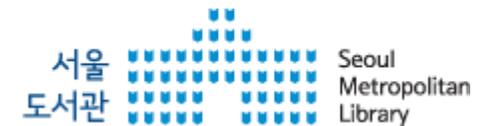


# 09. About us (Instruction of Futurenuri Inc.)

- Reference

## Over 500 Library & Major Government Project

330 Public Library



45 Public Institution/Laboratory



120 University/Collage

13 Cloud

10 Company



### Oversea (7 Nations, 29 Libraries)

- NEEL establishing Project (Uzbekistan)  
- Navoy Nat'l Lib. + 20 Region Lib.
- Carol I Univ. Library (Romania)
- Peoples Police Academy (Vietnam)
- Mongol International Univ. (Mongolia)
- National Library (Colombia)
- Nizami Pedagogical Univ. (Uzbekistan)
- Eastern Studies Univ. (Uzbekistan)
- President Library (Kazakhstan)
- Kim-ilsung University (North Korea)

# Integrated Digital Library System & New Technology



# About Instructor

## CHOI SUNGSUK



- **Graduated from Yonsei University (1994)**
  - Majored in Library and Information Science
  - Senior Librarian
- **Engaged in Digital Library Business (1994 ~ Now)**
  - System establishing Consulting & Planning
  - Project Managing for Digital Library System
  - Development, Marketing, Training Manager
- **Vice President of Futurenuri, Inc**

# Table of Contents

1. Introduction of FutureNuri, Inc.
  - 1) Overview of company
  - 2) Technical Capability for DL
  - 3) Business Result (Korea/Overseas)
  
2. About Integrated Digital Library System
  - 1) Thinking about Library & Technology
  - 2) Concept
  - 3) Infrastructure
  - 4) Software
  - 5) Digital Convergence
  
3. Q & A

1. Introduction of FutureNuri, Inc.
  - 1) Overview of company
  - 2) Technical Capability for DL
  - 3) Business Result (Korea/Overseas)

# 1. Introduction of FutureNuri, Inc.

## 1) Overview of Company



### Overview

Since 1994

Over  
130 Employees  
(110 Engineers)

Over \$12M  
(Annual sales)

### Enterprise Field

Digital Library  
System

E-Learning  
system

System  
Integration &  
Maintenance

Choice &  
Concentration

Consulting

Research/  
Development

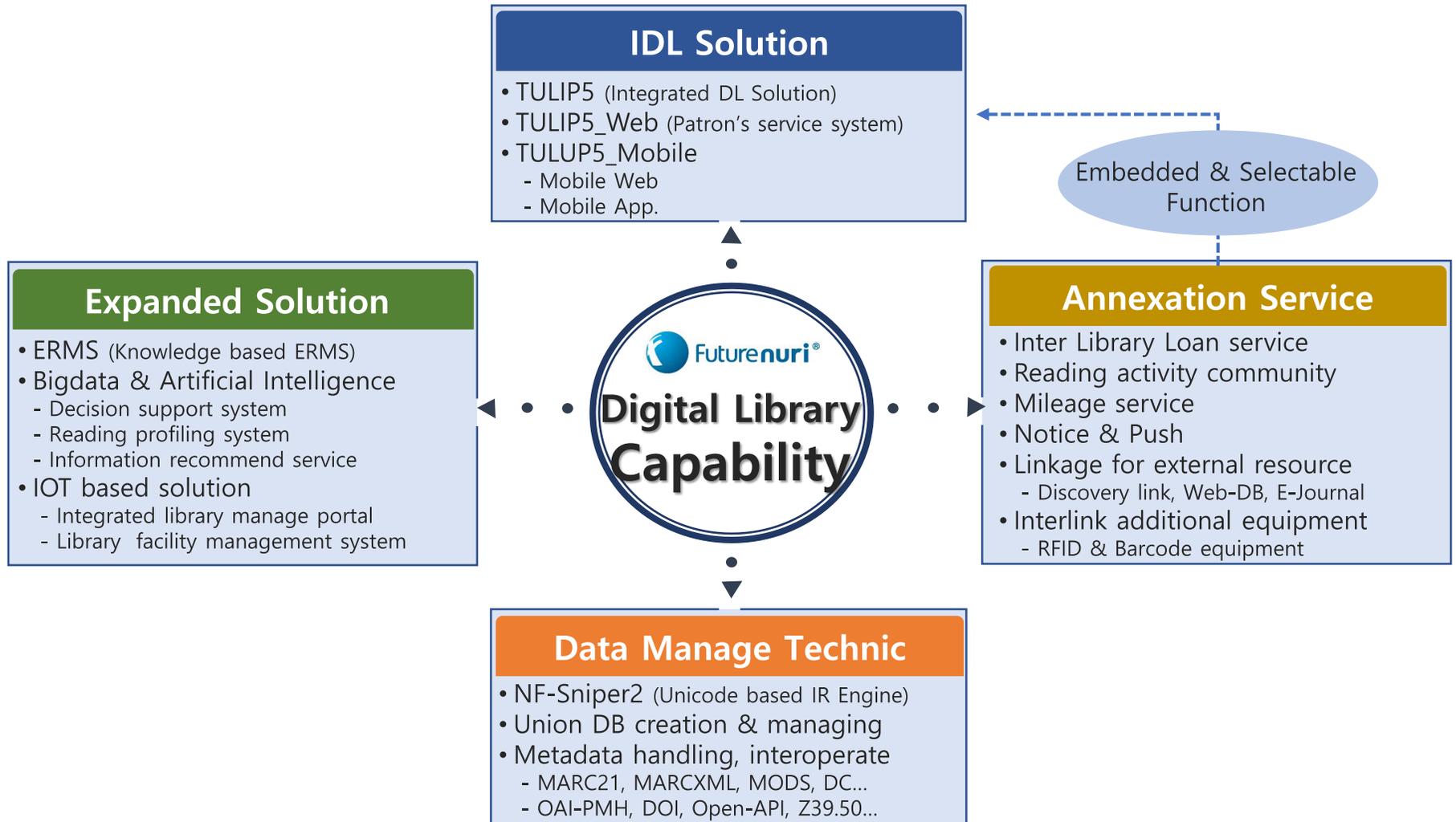
Administration  
support

System establishing  
/ Management

Product supply/  
Management

# 1. Introduction of FutureNuri, Inc.

## 2) Technical Capability for DL



# 1. Introduction of FutureNuri, Inc.

## 3) Business Results

### Korea Market

Business		Description	References in Korea
<b>DL Solution</b> - TULIP - TULIP Web Service - Mobile (Web & App.) - IR Engine - ETC..	University	Delivery & Implement to University Library	<ul style="list-style-type: none"> <li>• Yonsei University</li> <li>• Korea University</li> <li>• Ewha Womens University</li> <li>• About 120 Universities in Korea</li> </ul>
	School	Delivery & Implement to School Library	<ul style="list-style-type: none"> <li>• Cheongshim International Middle &amp; High School..</li> </ul>
	Public Library	Delivery & Implement to Public Library	<ul style="list-style-type: none"> <li>• Seoul Metro city Library</li> <li>• Daejeon/Chonnam/Gyungbuk Province</li> <li>• About 330 Libraries</li> </ul>
	Government	Delivery & Implement to Library of Government	<ul style="list-style-type: none"> <li>• Ministry of Statistics Korea</li> <li>• National Information Society Agency</li> <li>• About 30 Clients</li> </ul>
	Company	Deliver & Implement to Company's Library & Reference Room	<ul style="list-style-type: none"> <li>• SAMSUNG Industrial</li> <li>• LG Chemical</li> <li>• About 20 Companies</li> </ul>
<b>National Library Service Network</b>	Center for National Library Service Network	Establishing National Digital Library Center National Union DB National Library Service network	<ul style="list-style-type: none"> <li>• National Library of Korea (National DL)</li> <li>• National Assembly Library</li> <li>• Supreme Court Library of Korea</li> <li>• Korea Education Research Information Service</li> </ul>
<b>Consulting</b>	All Clients	Consulting Service for Establishing DL system	National Library of Korea, Etc..
<b>Maintenance</b>	All Clients	Maintenance Service for Established System	About 200 Clients

**“Over 500 Libraries & @”**

# 1. Introduction of FutureNuri, Inc.

## 3) Business Results

Overseas



## 2. About Integrated Digital Library System

- 1) Thinking about Library & Technology
- 2) Concept
- 3) Infrastructure
- 4) Software
- 5) Digital Convergence

## 2. About Integrated Digital Library System

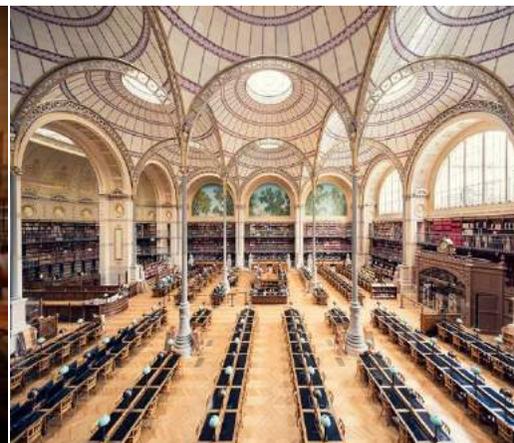
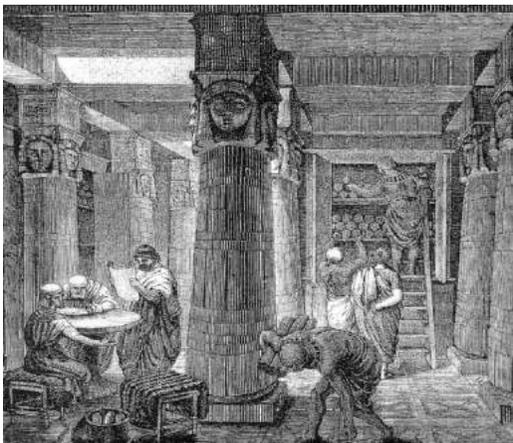
# 1) Thinking about Library & Technology

Preview

# Library

*Collecting and organizing human knowledge, experience, and cultural assets to support education and intellectual and productive activities of the new mankind and preserve all of them.*

**Human history = “The Library is humanity itself” = Human Future**



# Library and National Competitiveness



*With the advent of knowledge and information society,  
Libraries have become an indicator of national competitiveness*



### What is Integrated Digital library?

*Integrated Digital Library is a latest electronic library system architecture that integrates the achievements of continuous library computerization.*

*It is includes automation of library operations, integrated management of electronic resources, and portal services for users.*



- Traditional library
- Handling library work by hand
- Card catalog

- Handling library work by computer
- DB Accumulate & Usage
- MARC, OPAC

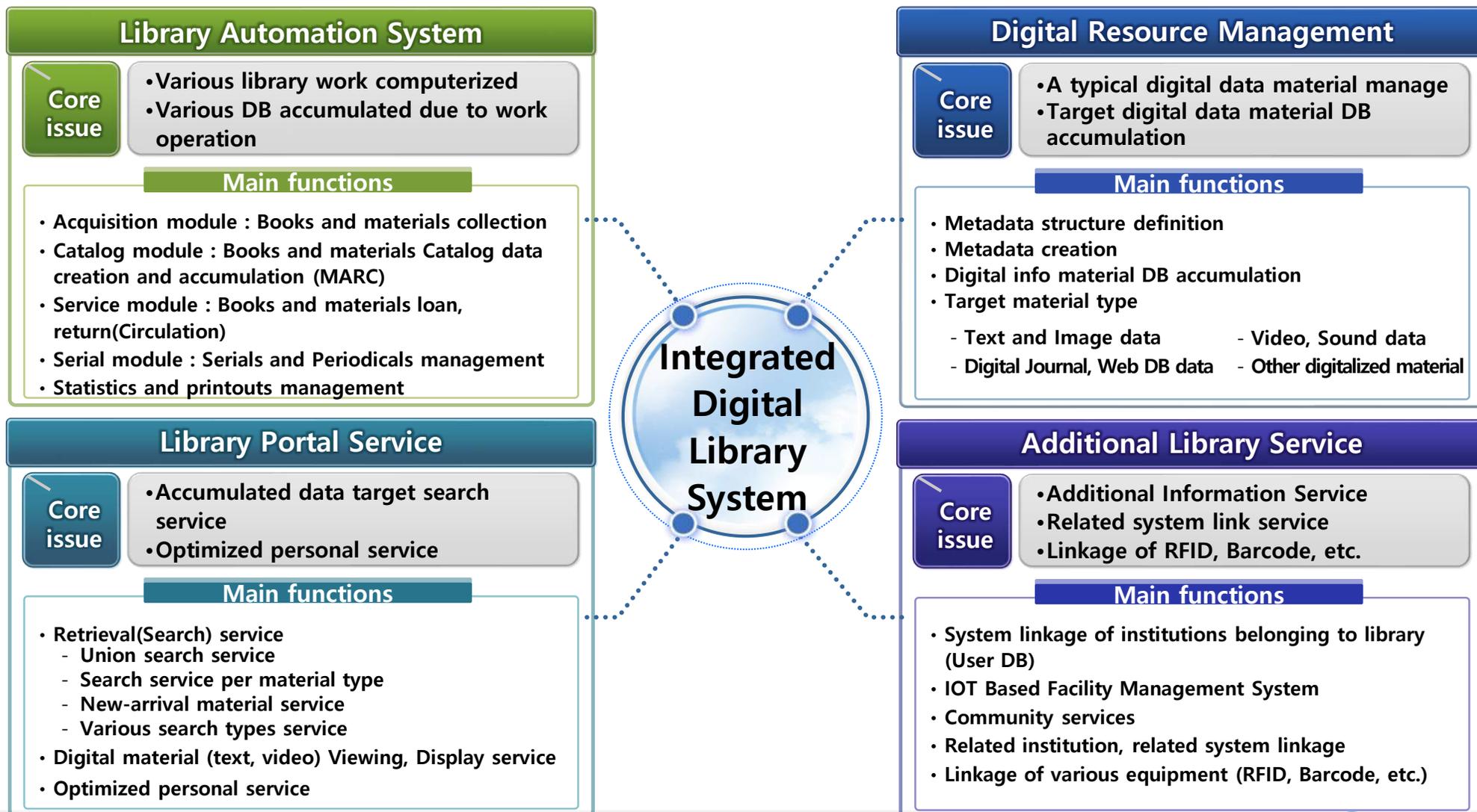
- Evolution of Automated library
- Electronic resource management & Services

- Evolution & Integrate of Step#2 and Step#3
- Integrate all function / resources / services

## 2. About Integrated Digital Library System

### 2) Concept

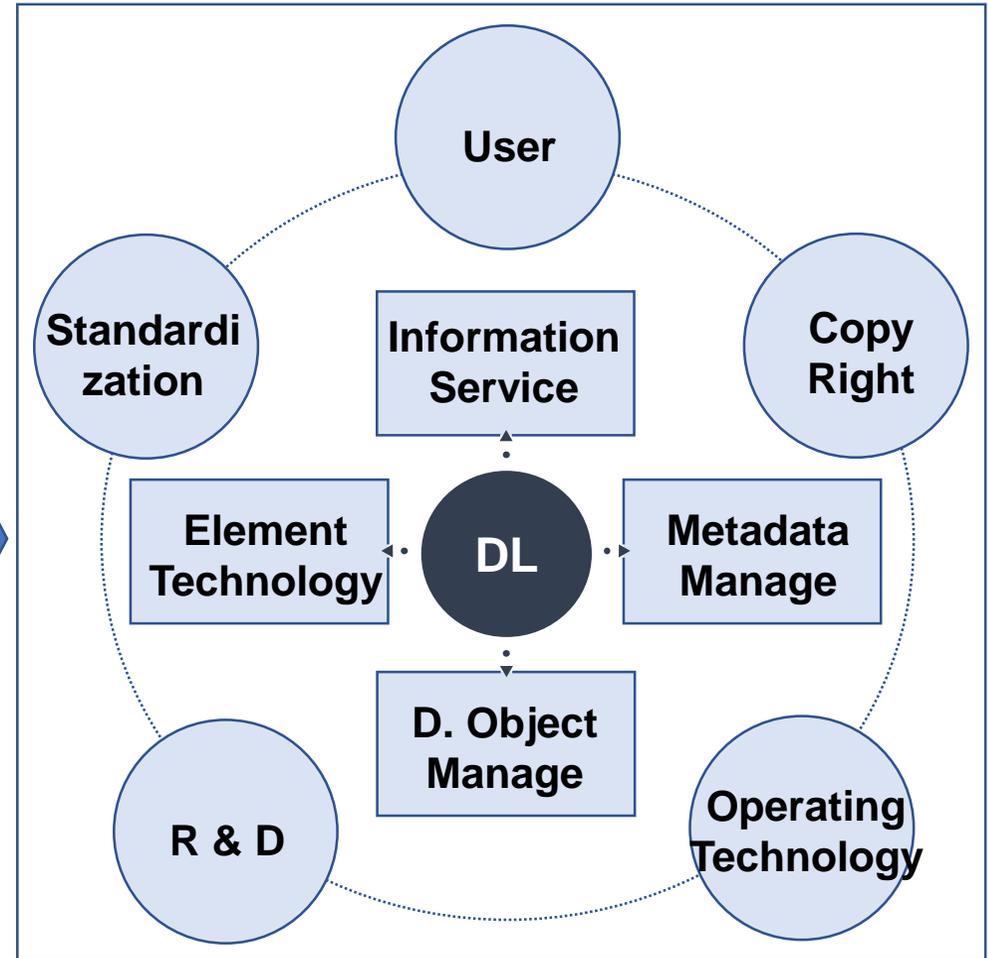
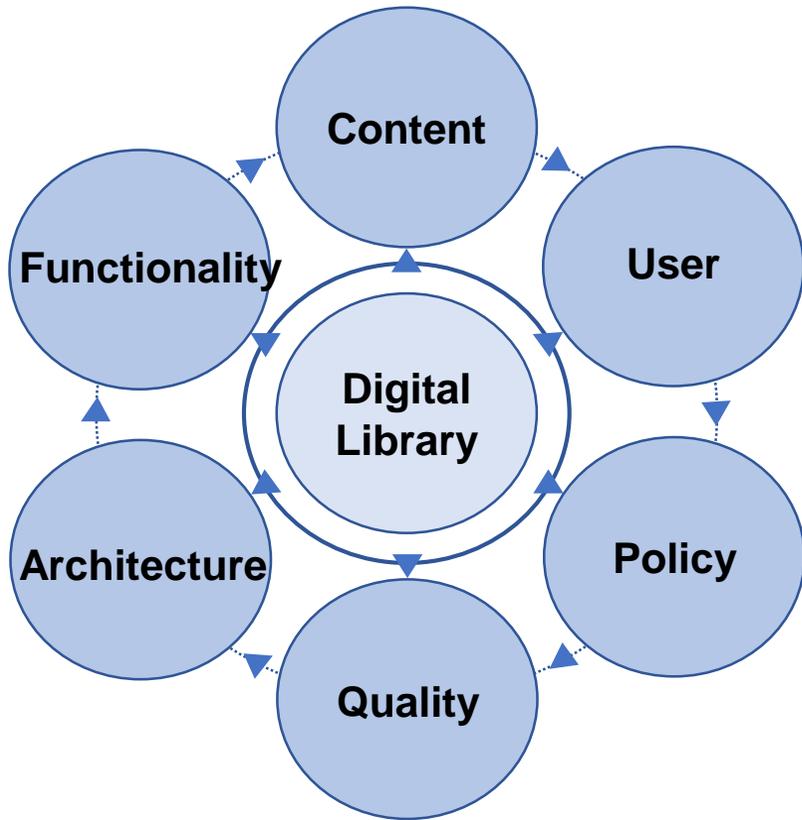
### Viewpoint of Function



## 2. About Integrated Digital Library System

### 2) Concept

### Operation Framework of IDL



[ 6 Elements of DL Operation Framework ]

[ Digital Library Operation Framework Model ]

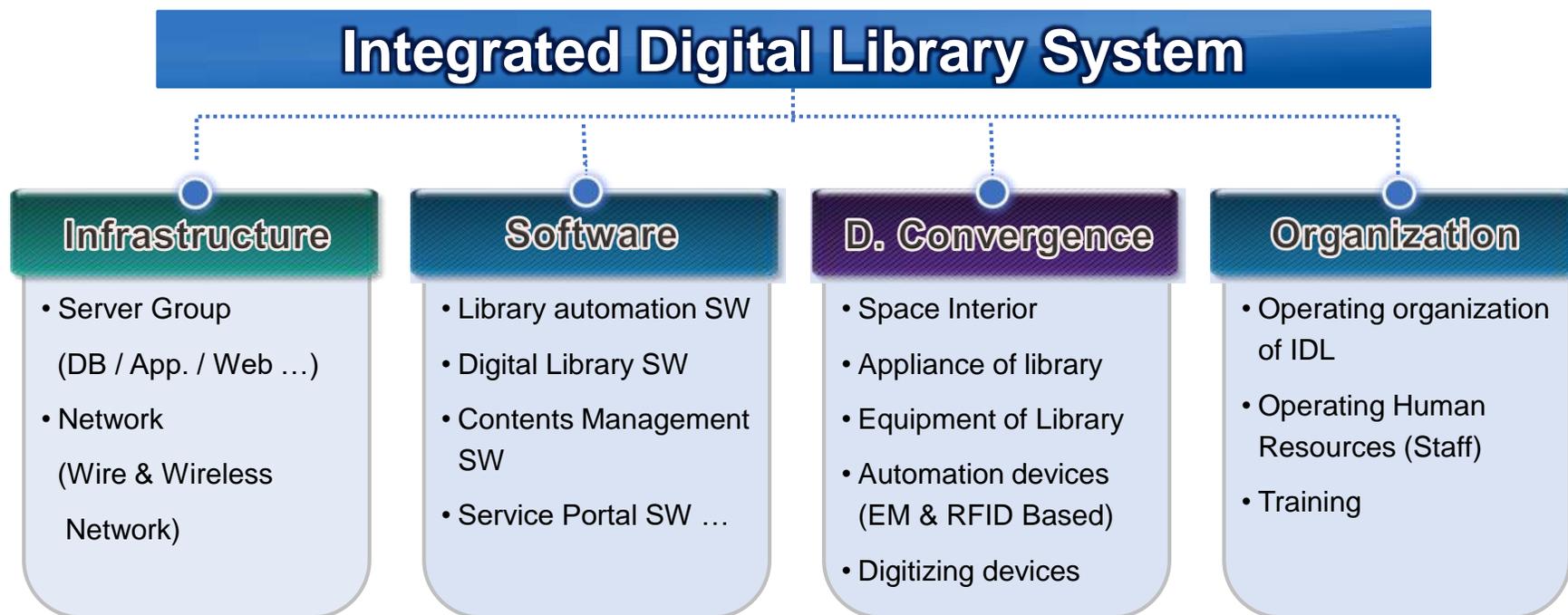
## 2. About Integrated Digital Library System

# 2) Concept

## Components of IDL

For successful establishing of Integrated Digital Library system,  
Should consider the following points.

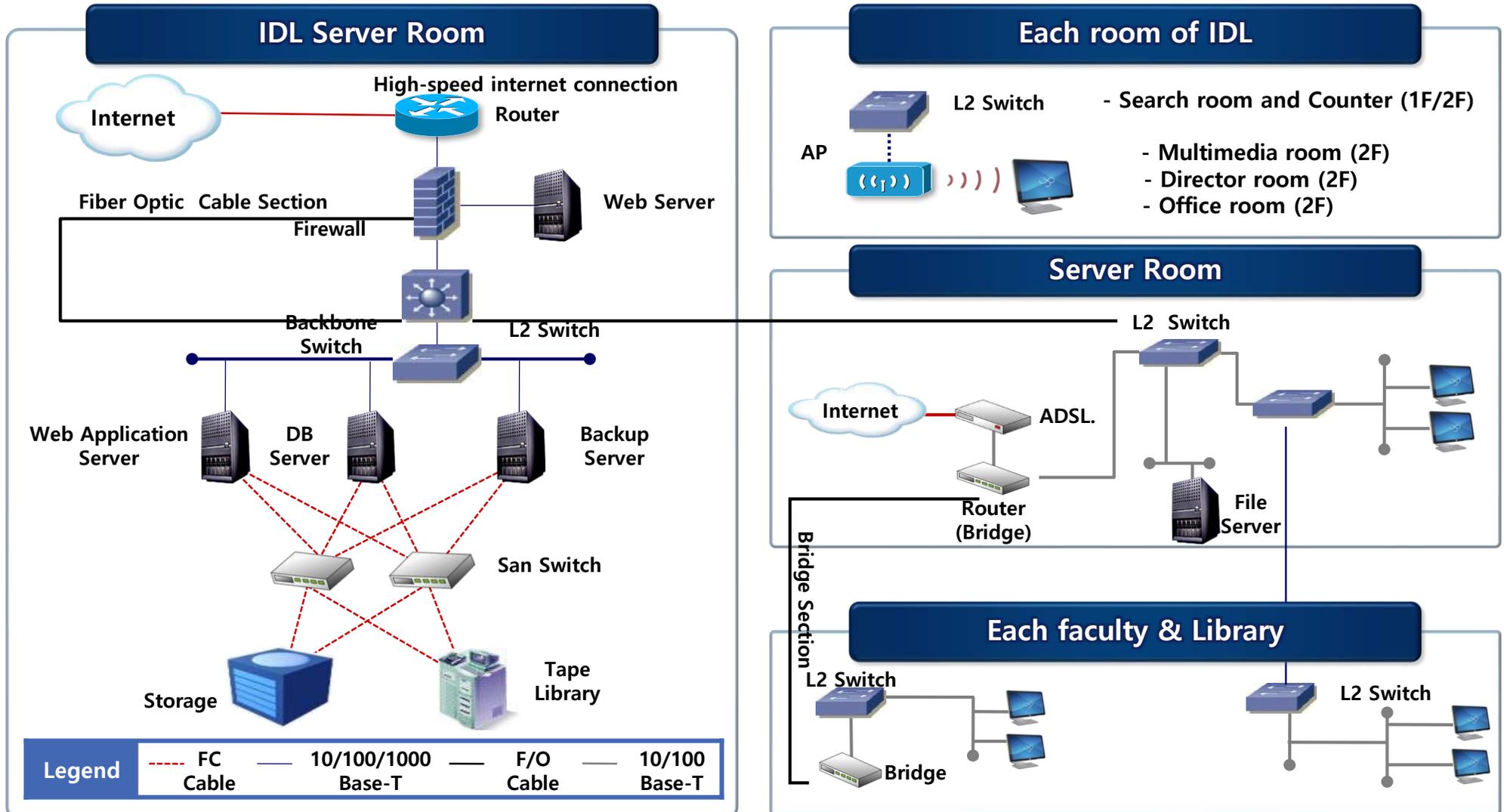
- Infrastructure (Server & Network)
- Digital Convergence
- Management & Service SW
- Operating Organization & Staff



## 2. About Integrated Digital Library System

# 3) Infrastructure

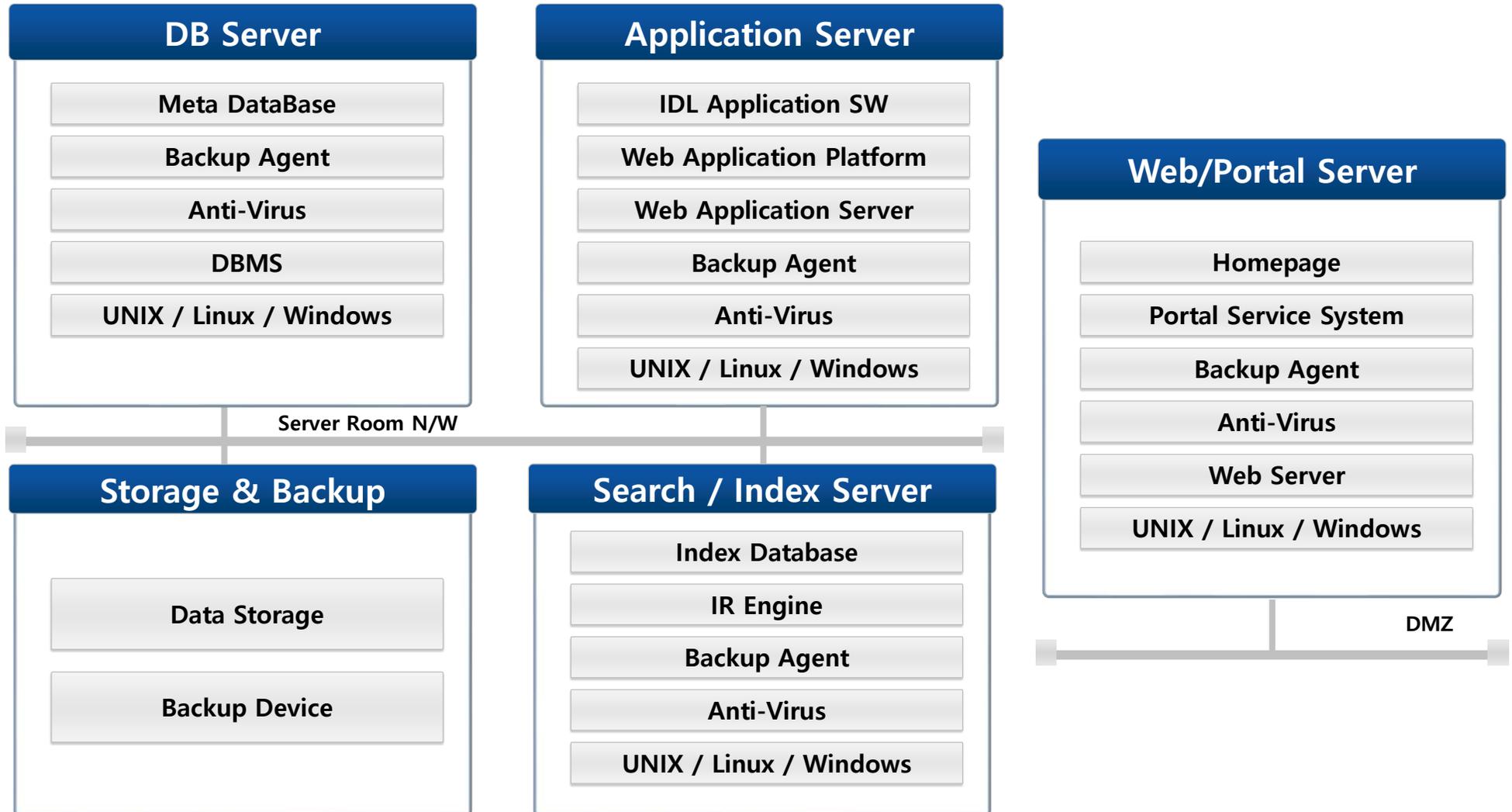
## Example of Server & Network



## 2. About Integrated Digital Library System

# 3) Infrastructure

## Example of Server & Network



## 2. About Integrated Digital Library System

# 4) Software (For Librarian)

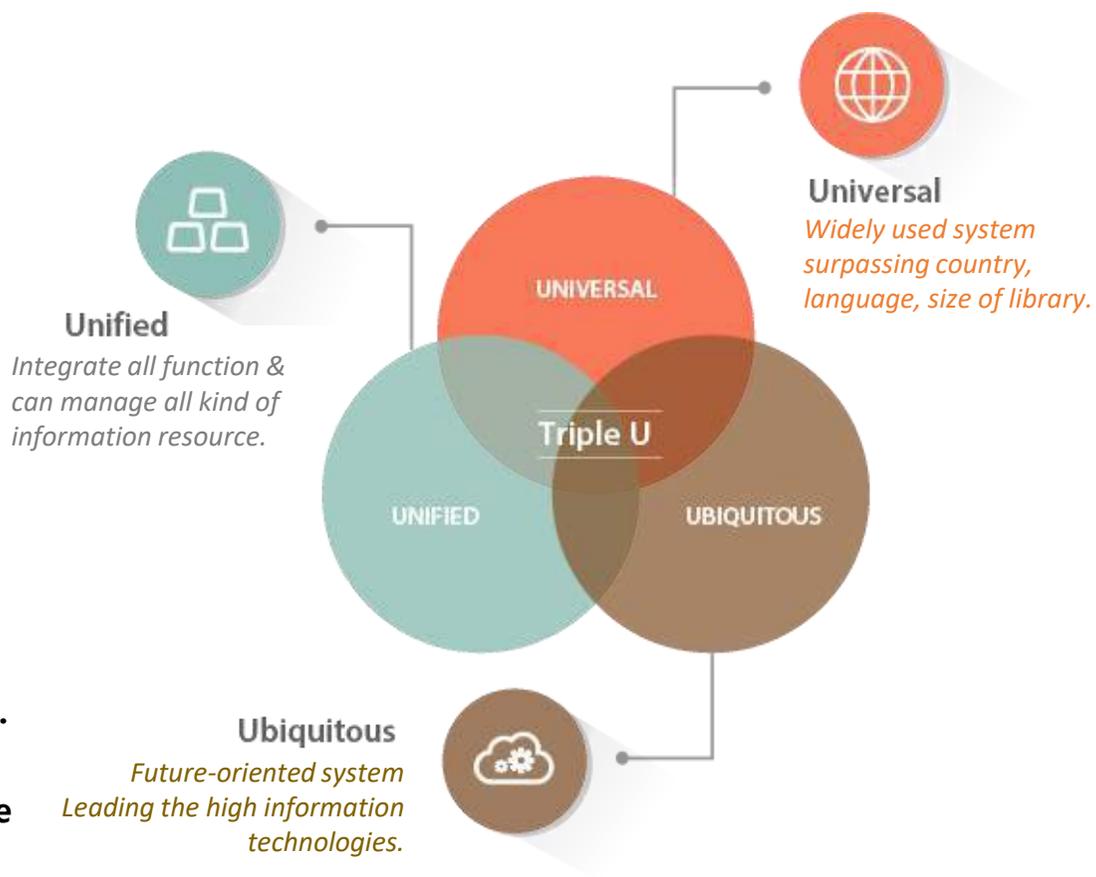
## Introduce Integrated Digital Library solutions



# TULIP

Triple U Library Information Portal

**TULIP is a system that completely observes the international standard, can commonly apply to any nation, language, library types. Supports HTML 5 based web environment, and is a future-oriented spearhead integrate digital library solution.**

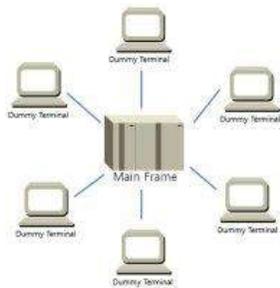


## 2. About Integrated Digital Library System

# 4) Software (For Librarian)

## Computing Technology

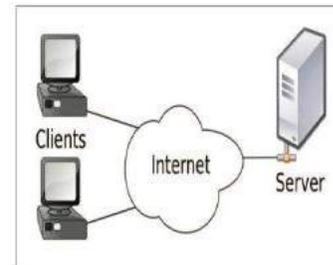
### Web Based Operating



Main Frame Computing



Desktop Computing



Client / Server Computing



Web / Clouding Computing

- Accessibility
- Compatibility
- Operational Convenience
- Cost advantage
- Easy of Maintenance

## 2. About Integrated Digital Library System

# 4) Software (For Librarian)

## Features & Strengths

Web-based system that comply with advanced technology & standard

Application	<ul style="list-style-type: none"> <li>✓ TULIP 5</li> <li>✓ TULIP Web 5</li> <li>✓ Mobile Web &amp; App.</li> </ul>	<ul style="list-style-type: none"> <li>Any OS / Browser</li> <li>Unicode Based IR Engine</li> <li>Reporting Tool</li> </ul>
UI/Framework	<ul style="list-style-type: none"> <li>✓ Web UI &amp; UX Platform</li> <li>✓ Consider future maintenance &amp; scalability with UI/Framework technology application</li> </ul>	
Comply Standards	<ul style="list-style-type: none"> <li>✓ HTML5, JAVA SCRIPT, CSS3, etc...</li> <li>✓ Unicode, MARC21, MODS, Z39.50, OAI-PMH, etc..</li> </ul>	
Support Multi Browser	 Internet Explorer  Google Chrome  Firefox  Safari X-Internet Browser available	
Support Multi-OS	 Windows  iOS  Linux  ANDROID  Windows Phone	



## 2. About Integrated Digital Library System

# 4) Software (For Librarian)

### Various standard for DL

Applied Area & Segments		Major Standard
Digital Object	Produce	HTML
	Packaging	XML
Information Service	Web Protocol	HTTP
		SOAP
	Integrated Search	Z39.50
		SRU
		OAI-PMH
	Contents Distribute	RSS
	User Authentication	LDAP
		Shibboleth
	Semantic Web	RDF
		OWL
Topic Map		

Applied Area & Segments		Major Standard
Metadata	Contents	Dublin Core
		MODS
		EAD
	Collection	RSLP CD Schema
DC Collection AP		
Copy Right	Copy Right Language	ODRL
		XrML
		CCL
Etc	Identification	DOI
		OpenURL
	Usage Statistics	COUNTER
		SUSHI
	Character Code	ASCII
		ISO 8859
		UNICODE
Etc.		

## 2. About Integrated Digital Library System

# 4) Software (For Librarian)

## Features & Strengths

### Multilingual code management function

- ★ Easy multi-lingual system UI creation through Multi-lingual code management function
- ★ High quality system implement by translation & supervision with each country's experts (Librarian, System engineer)
- ★ Provide stable system by language code management instead of re-development

### Language Code Management

번호	언어 코드	언어명	언어명(한글)	언어명(영어)	언어명(러시아)	언어명(중국어)	언어명(일본어)
1	kor	한국어	한국어	Korean	русский язык	한국어	한국어
2	eng	영어	영어	English	русский язык	영어	영어
3	spa	스페인어	스페인어	Spanish	русский язык	스페인어	스페인어
4	chi	중국어	중국어	Chinese	русский язык	중국어	중국어
5	rus	러시아어	러시아어	Russian	русский язык	러시아어	러시아어
6	vie	베트남어	베트남어	Vietnamese	русский язык	베트남어	베트남어
7	jpn	일본어	일본어	Japanese	русский язык	일본어	일본어

번호	언어 코드	언어명	언어명(한글)	언어명(영어)	언어명(러시아)	언어명(중국어)	언어명(일본어)
10000	kor	한국어	한국어	Korean	русский язык	한국어	한국어
10001	eng	영어	영어	English	русский язык	영어	영어
10002	spa	스페인어	스페인어	Spanish	русский язык	스페인어	스페인어
10003	chi	중국어	중국어	Chinese	русский язык	중국어	중국어
10004	rus	러시아어	러시아어	Russian	русский язык	러시아어	러시아어
10005	vie	베트남어	베트남어	Vietnamese	русский язык	베트남어	베트남어
10006	jpn	일본어	일본어	Japanese	русский язык	일본어	일본어



[Korean]



[English]



[Chinese]



[Spanish]



[Vietnamese]



[Russian]

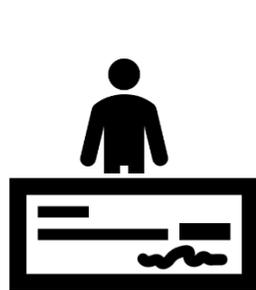
## 2. About Integrated Digital Library System

# 4) Software (For Librarian)

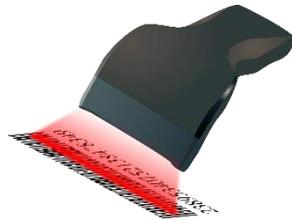
## Features & Strengths

### Barcode & RFID Interlocking function

- ★ User ID Barcode & RFID Card can be read by the TULIP system
- ★ Various types of circulation is supported (ex. Special Loan)



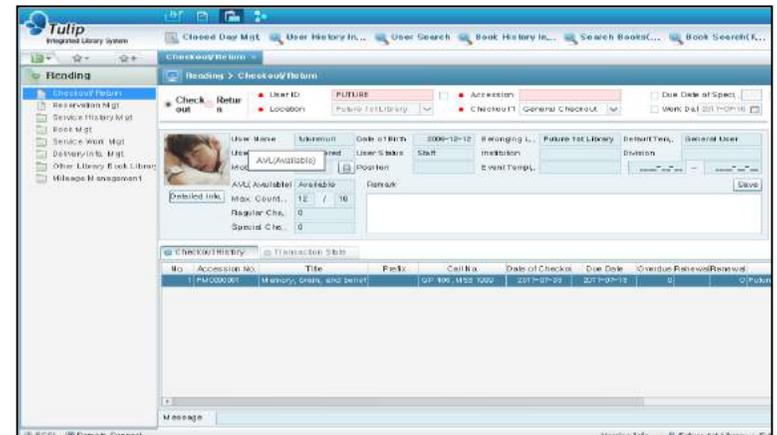
[User ID Card]



RFID



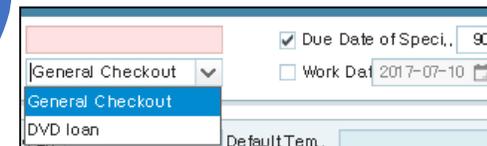
[Read]



[Check Out]



Book / Document

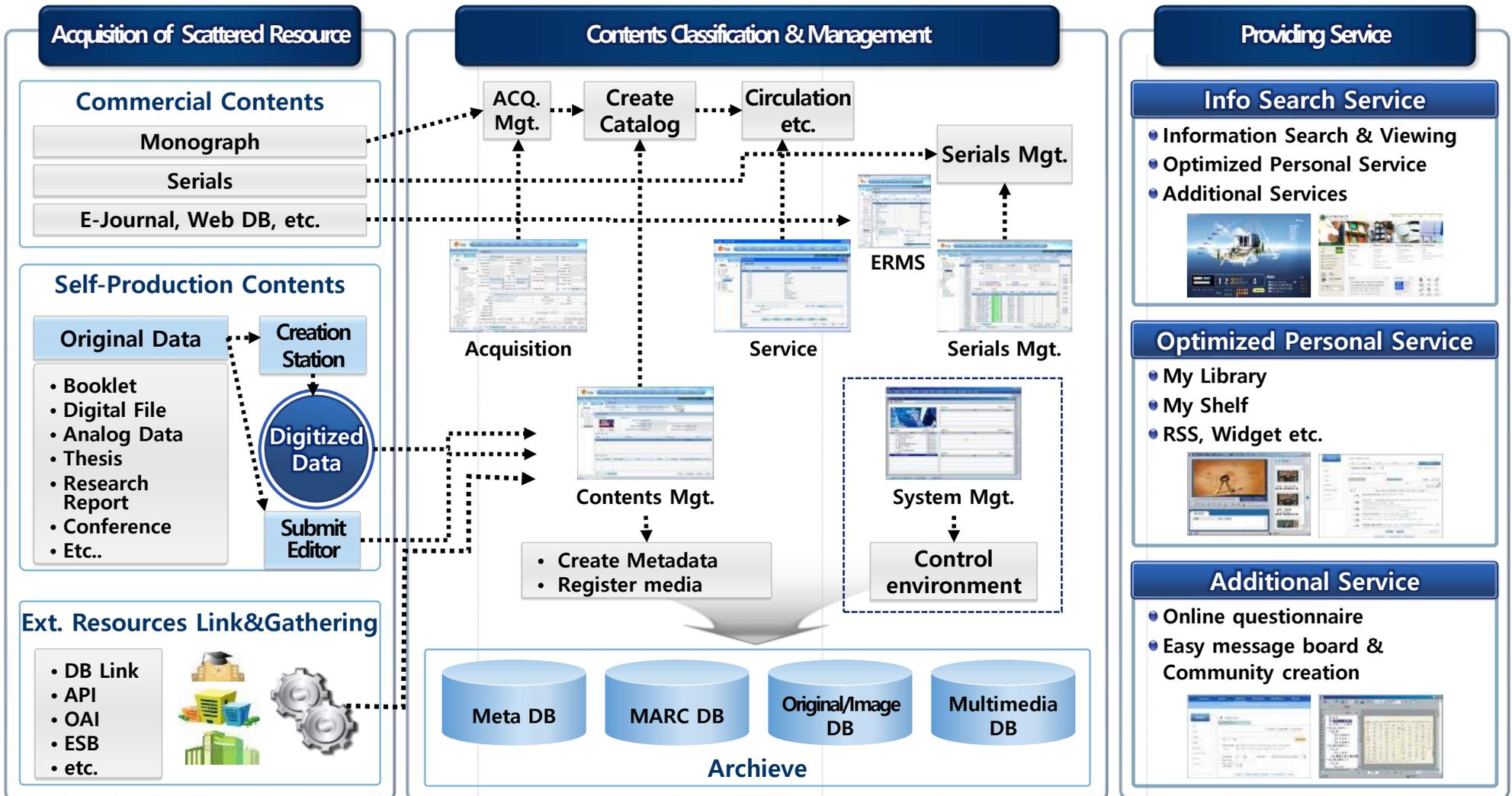


[Set the Loan Type]

## 2. About Integrated Digital Library System

# 4) Software (For Librarian)

## Business Flow



# 2. About Integrated Digital Library System

## 4) Software (For Librarian)

**ACQ**

- Monograph Acq.
- Purchase
- Remittance
- Gifting
- Donation
- Claim
- Serials Acq.
- Purchase
  - Request
  - Re-Subscription
  - Select
  - Request Estimate
  - Order
  - Handover Item
  - Handover Data
  - Handover Complet
  - Cancel
- Remittance
- Adjustment
- Gifting

**Contents**

- Catalog
  - Brief Bib, Info
    - Bibliography
    - Bib, Pool
    - Recycle Bin
  - Urgent Processing
  - Takeover
  - Handover
  - Article Index
    - Total No. of Articles
    - Holding Article
    - Non-Holding Article
    - Recycle Bin
  - Contents Mgt.
  - [NoDomain] ImsiEbc
  - eBook
  - Video Room
  - Recycle Bin
  - Media Mgt.

**Service**

- Loan/Return
  - Loan/Return
  - Reservation Mgt.
  - Reimbursement Mgt.
  - Loan State
  - Return State
  - Holdings Mgt.
  - Repository Mgt.
  - DDS(Document Delivery)
  - User Request
  - Request Mgt.
  - Offer Mgt.
  - Institution Mgt.
  - Cancelled Data
- Course Reserved Book
  - Request
  - Reserved
  - Reference
  - Course
- Collections Mgt.
- Collection Mgt.
  - Takeover Data
  - Location Mgt.
  - Binding Mgt.
  - Damage Mgt.
  - Lost Item Mgt.
  - Discard Mgt.
  - Completed Item of Rei
  - Collection Inventory

**Serials**

- Mgt, Info.
- Check-in Object
  - Check-in All
  - Checkin-My Folder
  - Checkin from Other B
  - Quick Check-in
  - SISAC Checkin
- Claim Object
  - Claim
  - Claim-All
  - Claim-My Folder
- Missing Issue
- Binding
  - Binding Object
  - Order Object
  - Receipt Object
- Registration
  - Routing
  - Content-copy
  - Loan/Return
  - Loan/Return Status L
  - Export Check-ins
- Additional Work

**ERM**

- Acquisition
  - Selection Mgt.
  - Estimate Mangement
  - Order Mgt.
  - Receipt Mgt.
  - Remit Mgt.
  - Subscription Mgt.
  - Subscription History M
  - Deleted Data Mgt.
- Catalog
  - Subject Mgt.
  - Institution Mgt.
  - Interface Settings
  - Package Mgt.
  - Bib, Info, Mgt.
  - Electronic Resource M
  - Check Electronic Med
- URL Checker
- Import/Export
  - Import Mgt.
  - Register Import File
  - Verify Import File
  - View Import File
  - Field Mgt.

**System**

- Use Authority
- Set SVC Authority
- IP Mgt.
- Common Regulation
- Local Rule - Administ
- Storage Server Mgt.

**Configuration**

- Local Rules
- LAS Mgt.
- User Mgt.
- Acquisition
- Catalog
- Loan/Return
- Serials
- DL Mgt.
- Rule Mgt.
- Wrk-form Pool Mgt.
- Collection Mgt.
- Web Mgt.
- Web Collection Mgt.
- Bulletin Board Manag
- New Book Mgt.
- Web Menu Mgt.
- Administrator Mgt.
- ERM Mgt.
- IP Mgt.
- Staff Mgt.
- Consortium Mgt.
- Currency Exchange M
- Credit Mgt.
- Deposit Mgt.
- Budget Mgt.
- Send Mail
  - Mail Code Mgt.
  - Mail Options Mgt.

**Code Mgt.**

- Common Code Mgt.
- Prefix/Location Mgt.
- Division Code Mgt.
- Mapping Code Mgt.
- Department Mapping C
- User Mapping Code M

**Printed Out Mgt.**

**Tulip Manager**

- Language Mgt.
- Term Message Mgt.
- Program Mgt.
- Menu Mgt.

Access all affairs through single sign in (Subdivide system use authority)

Support unified environment of LAS+DL Affairs (Including CMS/ERMS)

Integrated setting/management such as Configuration, Code Mgt., Printed output, etc.

## 2. About Integrated Digital Library System

# 4) Software (For Librarian)

Flexible Establishing

	Model # 1	Model # 2	Model # 3
Model			
Summary	<ul style="list-style-type: none"> <li>• Establishing Own System</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple libraries share one system</li> </ul>	<ul style="list-style-type: none"> <li>• Cloud service</li> </ul>
Detail	<ul style="list-style-type: none"> <li>• IDL Infra (Server/Network..)</li> <li>• Own IDL System</li> <li>• IOT Based expended Solution</li> <li>• Etc</li> </ul>	<ul style="list-style-type: none"> <li>• IDL Infra (Server/Network..)</li> <li>• Shared IDL System</li> <li>• IOT Based expended Solution</li> <li>• Etc</li> </ul>	<ul style="list-style-type: none"> <li>• Cloud service based system</li> </ul>
Market	<ul style="list-style-type: none"> <li>• Big library</li> <li>• University / Public / Government</li> </ul>	<ul style="list-style-type: none"> <li>• Middle ~ Small library</li> <li>• Education / Public / Enterprise / Government ...</li> </ul>	<ul style="list-style-type: none"> <li>• Small library</li> <li>• School / Public / Etc.</li> </ul>
Remark			<ul style="list-style-type: none"> <li>• Need Cloud center</li> </ul>

## 2. About Integrated Digital Library System

# 4) Software (For Users)

### • Union / Unit search

- Quick Searching
- Brief / Detail searching
- Limit search by data type
- Various search term
- Collection search
- Result Direct Display
- Result Sorting, Re-search

### • IR Engine

- Unicode based IR
- Integrated search
- Facet service
- Multilingual search
- Library2.0 service
- Indexing/Searching
- etc...

### • Open API link

- Search via Open API
- Integrated search internal & external information
- Link service for Google, Flickr, Youtube, etc...
- Book image display via Open-API

### • Link external resource

- E-Book, Audio book
- E-learning contents

### • Link Discovery service

- Discovery Service link
- EDS, Summon, Primo..

## Powerful Searching

## Link & Extension search



- Responsive Web based service portal

- Mobile Hybrid App.

## Optimized personal service

## Enhanced convenience service

### • My Library

- Managing private information
- Managing activity history
- Loan extend/reservation

### • My eShelf

- Easy user interface
- Managing interesting data
- Folder creation/manage

### • Participate & Share service

- Tag, Tag-cloud, Review
- RSS, SNS linkage

### • SDI service

- Selective Dissemination of Information

### • Widget service

- Set-up my widget

### • Research support service

- Subject Research Help

### • Convenience service

- Use training
- Mileage service

### • Mobile service

- Mobile Web / Mobile App.

### • Communication service

- On-line reference service
- On-line survey
- Reading community

### • Etc..

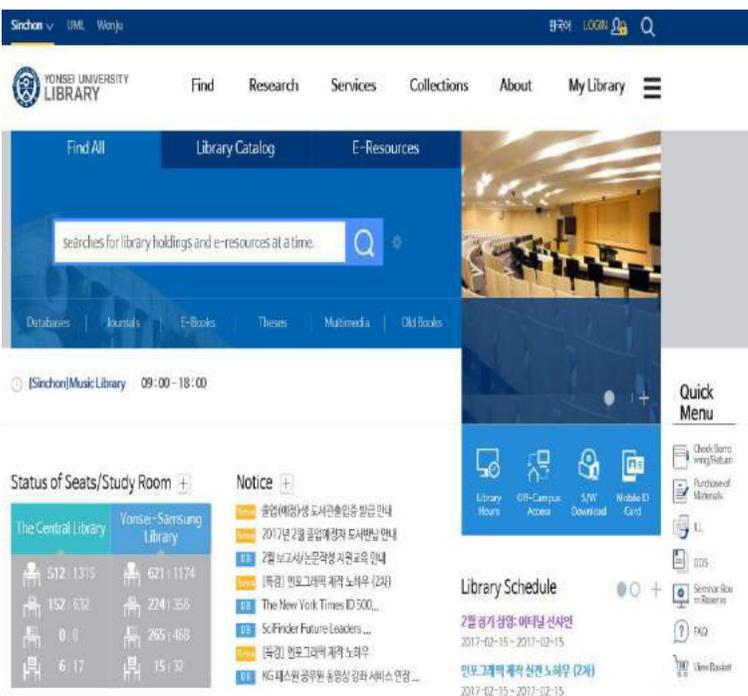
- Purchasing subscribe (Online book store link)
- Document Delivery Service
- Inter Library Loan service

# 2. About Integrated Digital Library System

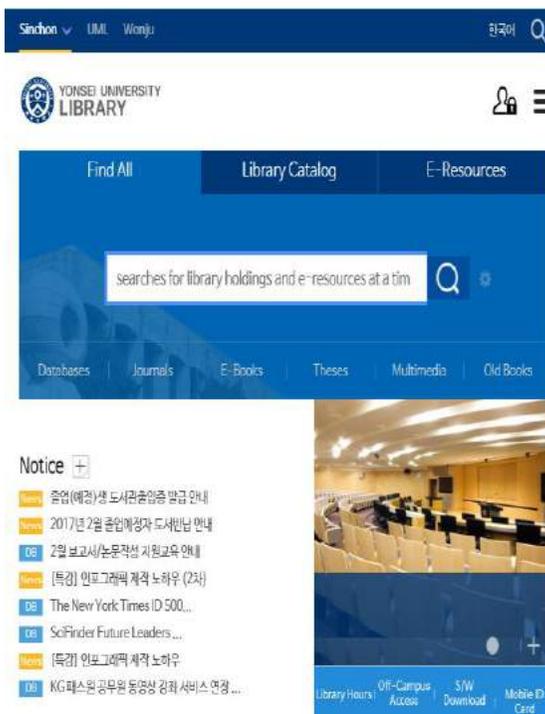
## 4) Software (For Users)

### Responsive Web

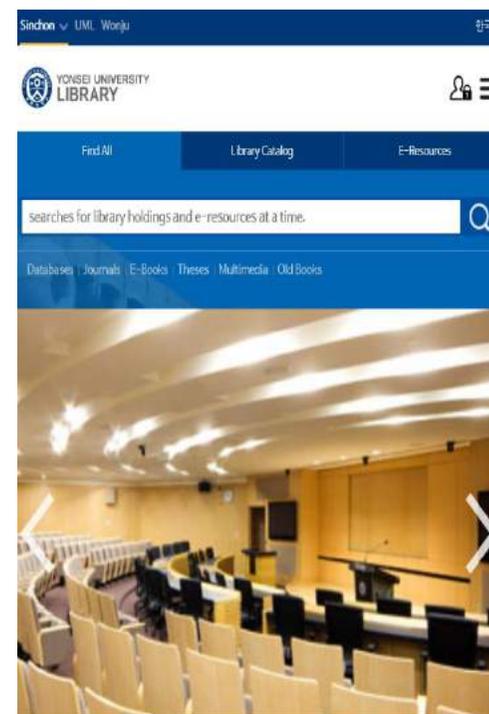
UI for PC users



UI for tablet users



UI for Mobile device users



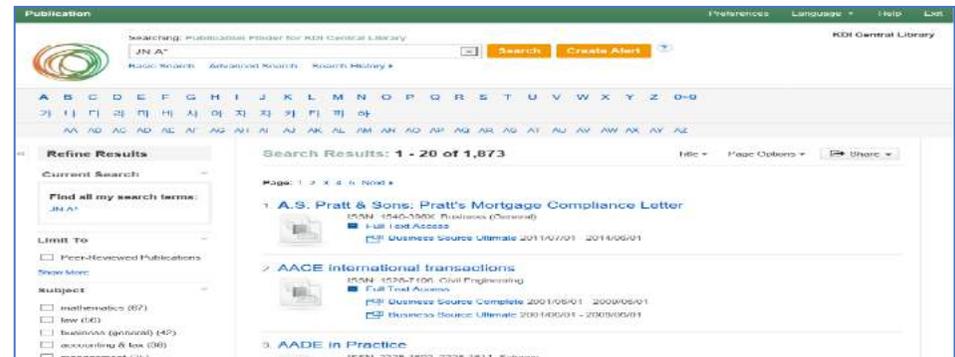
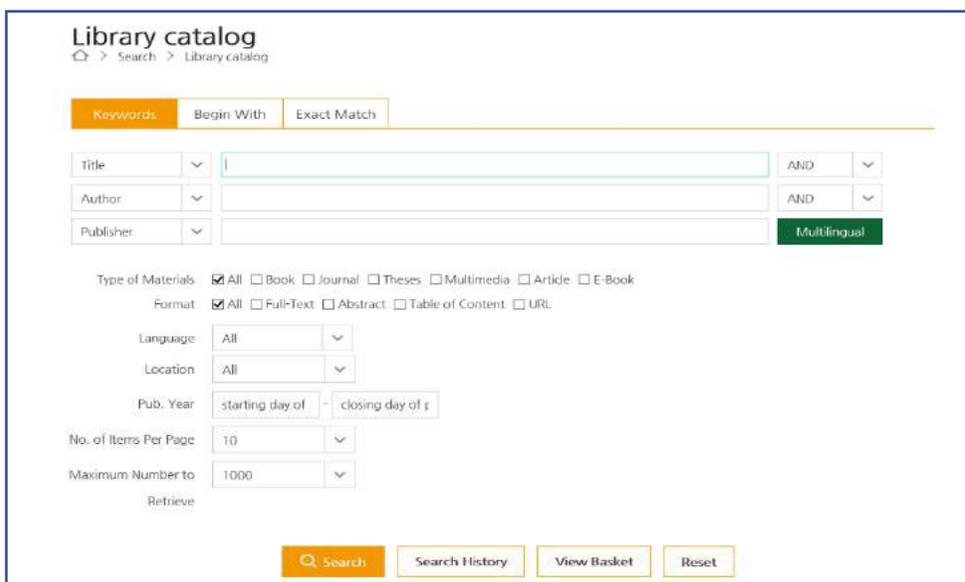
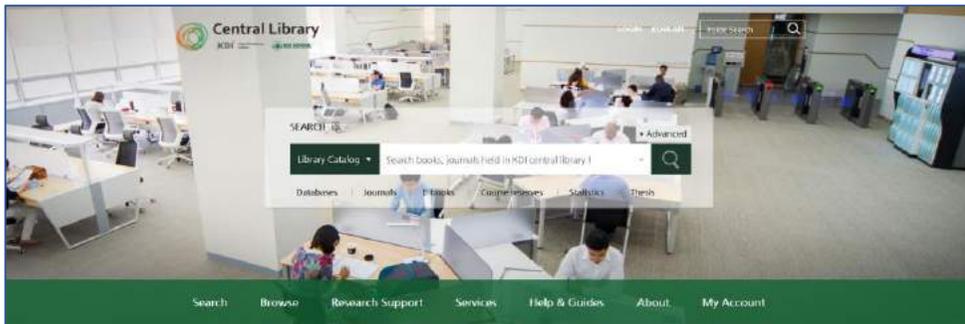
• Responsive web >> Automatically adjusted to the screen size of devices (PC, Tablet, Mobile phone, etc)

# 2. About Integrated Digital Library System

## 4) Software (For Users)

### Various Search Method

• Provide suitable search method & screen for each search target



# 2. About Integrated Digital Library System

## 4) Software (For Users)

### Providing search Results

- Brief screen of search results
- Facet & Connecting Open API : Re-sort search results, represent cover image by connecting internet bookstore

Search Keyword [Keywords/ All] [three kingdom] [Location:]

80s total output of 80 matches

Restrict Result

Material Type

- Monograph(67)
- Video(7)
- Thesis(6)

Author

Publisher

Publication Year

1952 - 2016 Search

Language

- English(40)
- Korean(30)
- Chinese(10)

Location/Material Room

- [Sinchon] Yonsei University Library(65)
- [Sinchon] Korean Classics(10)
- [Int] Underwood M.

11. **Three kingdom**s and Chinese culture

Besio, Kimberly Ann  
State University of New York Press  
2007

Books

[Int] Underwood M. Library [UML812.36 Y007a]

12. Romance of the **three kingdoms**, v. 1

羅貫中  
Tuttle Pub. : Distributed in North America by Tuttle Pub.,  
2002

Books

[Sinchon] Yonsei University Library [812.36 002a]

13. The Romance of **three kingdoms**, v. 2

羅貫中  
Silk Pagoda  
2005

Books

[Sinchon] Yonsei University Library [812.36 005a]

- Detail screen of selected search result

Full Record Search Full Record

Back to the Search Result Search Page

Send Put to Basket View Basket View MARC

**How to think like Leonardo Da Vinci: seven steps to genius every day**

**Type of Material** 단행본

**Personal Author** Gelb, Michael

**Title Statement** How to think like Leonardo Da Vinci: seven steps to genius every day / Michael J. Gelb

**Publication, Distribution, etc.** New York, N.Y. : Dell Pub., [2000]

**Physical Description** xiv, 321 p. : ill. ; 22 cm

**ISBN** 0440508274 (pbk.) :

**Bibliography, Etc. Note** Includes bibliographical references (p. 310-315)  
pt. 1 Introduction: your brain is much better than you think -- Learning from Leonardo -- Practical approach to genius -- Renaissance, then and now -- Life of Leonardo da Vinci -- Major accomplishments -- pt. 2 Seven Da Vincian principles -- Curiosity -- Dimostrazione -- Sensazione -- Stumato -- Arte/scienza -- Corporalita -- Connessione -- Conclusion: Leonardo's legacy -- pt. 3 Beginner's Da Vinci drawing course -- Il Cavallo: rebirth of a dream -- Leonardo da Vinci chronology: life and times

**Formatted Contents Note**

**Subject Added Entry- Personal Name** Leonardo, da Vinci, 1452-1519

**Subject Added Entry- Topical Term** Creative thinking  
Problems, exercises, etc

**Holdings Information**

All | Science

No.	Location/Material Room/Shelf	Call No.	Accession No.	Availability	Due Date	Make a Reservation	Branch Loan	Missing Book in Stack
1	Science /	153.35 L581ga	121088453	Available				Report

**Book Review** Tag

+ Add Book Review (Login is needed.)



## 2. About Integrated Digital Library System

# 4) Software (For Users)

## Optimized Personal Service

### My book shelf / My Collection

**인기책장**

중등도서관 추천도서 [우수학습도서 : 영어]

중등도서관 추천도서 [2010년 상반기 우수과학도서 : 과학일반장학부주]

중등도서관 추천도서 [2011년 (초기) 우수문학도서 : 외국, 수필, 평론]

dreamMemex의 시조의 [경과와 회록]

**최근 작성된 코멘트**

**최근 작성된 리뷰**

**인기태그**

**공지사항**

### Reading propensity analysis

**이 달에 대출한 책 / 반납한 책**

이 달에 대출한 책: 0% | 이 달에 반납한 책: 6%

**대출양상총계** 2014년 1월 | 연도: 2014년 1월 | 대출이수: 19 | 반납이수: 4

**좋아하는 장르**

**좋아하는 문학장르**

**좋아하는 작가리스트**

# LARCHIVEUM

“ Expansion of contents beyond library area ”



*Convergence using information and communication technology*



Archives



Library



Museum

**Another trend for Special libraries**

## 2. About Integrated Digital Library System

# 4) Software (New Trends)

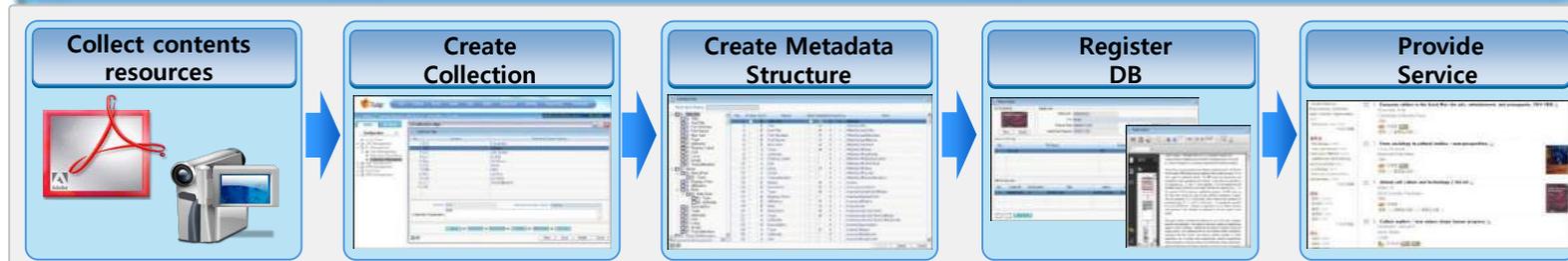
### Expansion of Manage contents using CMS

#### Contents Management System function for Collection service

- ★ Built-in Contents Management System function for Specialized Collection Service.
- ★ Support both of [Create collection method through editor] & [Selection and setting method through web manager]



#### Contents Management Process



# 2. About Integrated Digital Library System

## 4) Software (New Trends)

### Expansion of Manage contents using CMS

#### Library Collections

Enjoy various online/offline collections of Yonsei University Library.



#### Yonsei Digital Collection

- Yonsei University Theses
- Old & Rare Books
- Christian Classic Lit.
- Christian Classic Mag.
- Yonsei Churchu
- Yonsei European Studies
- Yonsei Business Res.
- Lecture of Pastor Bae

#### Collection by Exhibition Corner

- Yonsei's MUST Reads
- Librarian's Recommends
- Excellent Academic Books
- Faculty Publications
- Dong-ju Yoon Collection
- Career Collection
- Donated Books
- TRCCS
- Window On America

#### Video/Etc. Collection

- Oriental Classics 2012
- Yeonsi's Movie Picks
- YonShelf

연세춘추는 1935년 9월 1일 왕간한 연진타임즈를 모태로, 1953년 6월 15일 피난합하던 1957년 연세춘추 제호로 오늘에 이르고 있습니다. 연세대학교 발전의 역사 대학 언론의 효시로서의 의미를 지니는 매우 귀중한 사료입니다.

[List](#)

- 1953년 이전
- 1953년
- 1954년
- 1955년
- 1956년
- 1957년
- 1958년
- 1959년
- 1960년
- 1961년
- 1962년
- 1963년
- 1964년
- 1965년
- 1966년
- 1967년
- 1968년
- 1969년
- 1970년
- 1971년

#### Full Record

☰ Search/Full Record

◀ Back to the Search Result    Put to Basket    Save My shelf    XML    Export

**완공된 백양로, 연세의 품으로 돌아오다. 연세춘추, 제1760호: 4-5면(1)**

<b>Title Info</b>	Title: 완공된 백양로, 연세의 품으로 돌아오다
Part Name	연세춘추, 제1760호: 4-5면(1)
Name	
NamePart	김아영, 이정은, 윤인희, 김광영, 박규환, 권준호
<b>Origin Info</b>	DateIssued: 2015
DateOther	2015년 11월 2일
<b>Physical Desc</b>	ription: Form: 상중보도

[Write Book Reviews](#)

#### 완공된 백양로, 연세의 품으로 돌아오다



연세대학교 백양로 신관 개관식 현장

New Road, Great Way



# 2. About Integrated Digital Library System

# 4) Software (New Trends)

## Expansion of search Results using Open-API

### One stop search of external resources using Open-API

The screenshot shows a search interface with the following elements:

- Search Interface:** Includes tabs for 'All', 'Data', 'E-Resource', 'KU Collection', and 'Internet Resource'. A search bar contains the keyword 'science' and shows '500x total output of 256,897 matches'.
- Search Results:** Lists various external resources such as RISS Domestic Journal Paper (25,265), RISS Overseas Journal Paper (5,154,795), RISS Thesis (44,767), RISS Monograph (122,942), RISS Academic Journal (0), NDSL Dissertation (2,181,201), Aladin (2,091), Google Books (281), Domestic Patent (44,974), Overseas Patent (579,334), Daum Book (45,181), Naver Book (0), Amazon (1,757,530), WorldCat (2,364,218), YouTube (64,554), Flickr (1,268,662), and Wikipedia (15).
- Sample Highlight:** A yellow starburst labeled 'SAMPLE' points to a specific result: 'Bioinformatically detectable group of novel regulat...'. The text below it reads: 'The present invention, relates to a first group of novel genes, and a second group of novel operon-like genes, here identified respectively encoding 2080 G4M genes, and 5635 GR... with comprising the nucleic acid molecules; and methods and systems for detecting GAM and GR...'.
- Other Results:** Includes 'WorldCat Search Result' (Total 2,364,218 Matches), 'Science, Michels, John, 1825-', 'Nature, Lockyer, Norman, Sir, 1836-1920', 'Science news, Science Service, Society for Science & the Public', 'Science verse, Siewicka, Jon', and 'Tracking trash : Hotsam, jetsam, and the science of ocean motion, Burns, Loree Griffin'.
- YouTube Search Result:** Shows a video titled 'Hit the road Jack!' with a description: 'In memory of Jack Hassell Sept. 04, '02 - Mar. 27, '07 - I posted this video June 03, '06 after he was discharged from the transplant unit, Jack Passed away peacefully surrounded with Love at the Children's Hospital of Philadelphia, from complications from pneumonia and after a 4 and a year battle, a diagnosis of NEMO Primary Immune Deficiency and Ectodermal Dysplasia, two rare genetic disorders. His treatment included a Stem Cell Bone Marrow transplant, in the short 4 and a years he helped science gain more knowledge for this rare genetic condition and through this knowledge to help other children with this same condition. Support NEMO research here www.andy.org.mt www.andy.org.mt'.



This section displays three search engine interfaces:

- YouTube:** Shows a video player with a man speaking, and a list of related video thumbnails on the right.
- Google Scholar:** Displays search results for 'practicing bioinformatics: a process approach to library and information science'. It lists several books, including 'practicing bioinformatics: a process approach to library and information science' by CD Kimbrell (2004) and 'practicing bioinformatics: a process approach to library and information science' by CD Kimbrell (2007).
- WorldCat:** Shows a search results page with the heading 'Find items in libraries near you'. It includes a search bar and a list of search results, such as 'The WorldCat on your mobile phone!' and 'Now for WorldCat.org, New iPhone app with WorldCat connectivity'.

# 2. About Integrated Digital Library System

## 4) Software (New Trends)

### Expansion of search Results using Open-API

- Provide Integrated search result display

Academic Articles

Library Holdings

e-Journal & Database

eBooks

Academy Articles of Overseas

Audio & Video Works

External Resources  
(National Digital Library)

Library Website

Link to another search engine

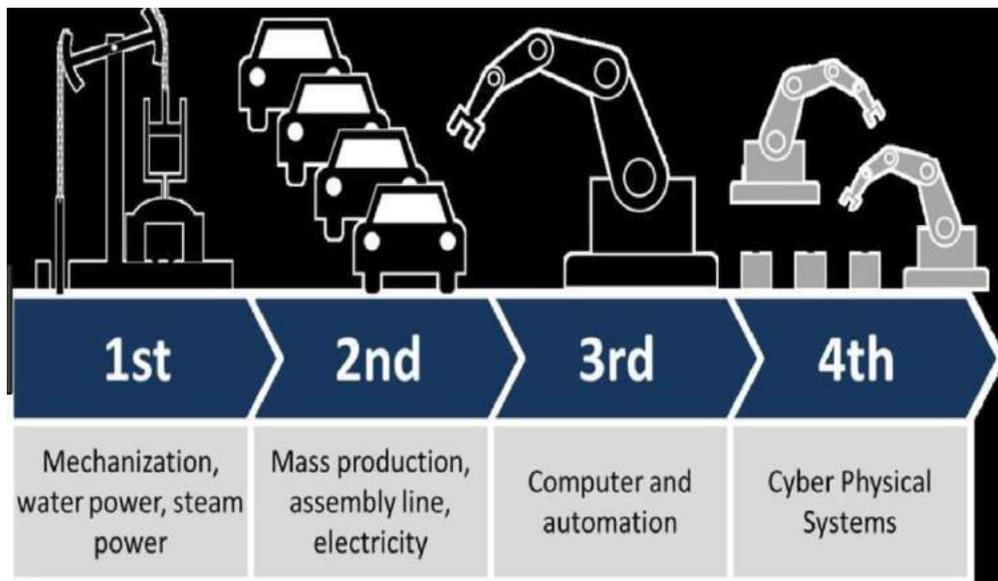
## 2. About Integrated Digital Library System

# 4) Software (New Trends)

### Viewpoint of Technology



“ Library’s response to New technology trend ”



## Intelligence + Information Correspondence of Digital Library System

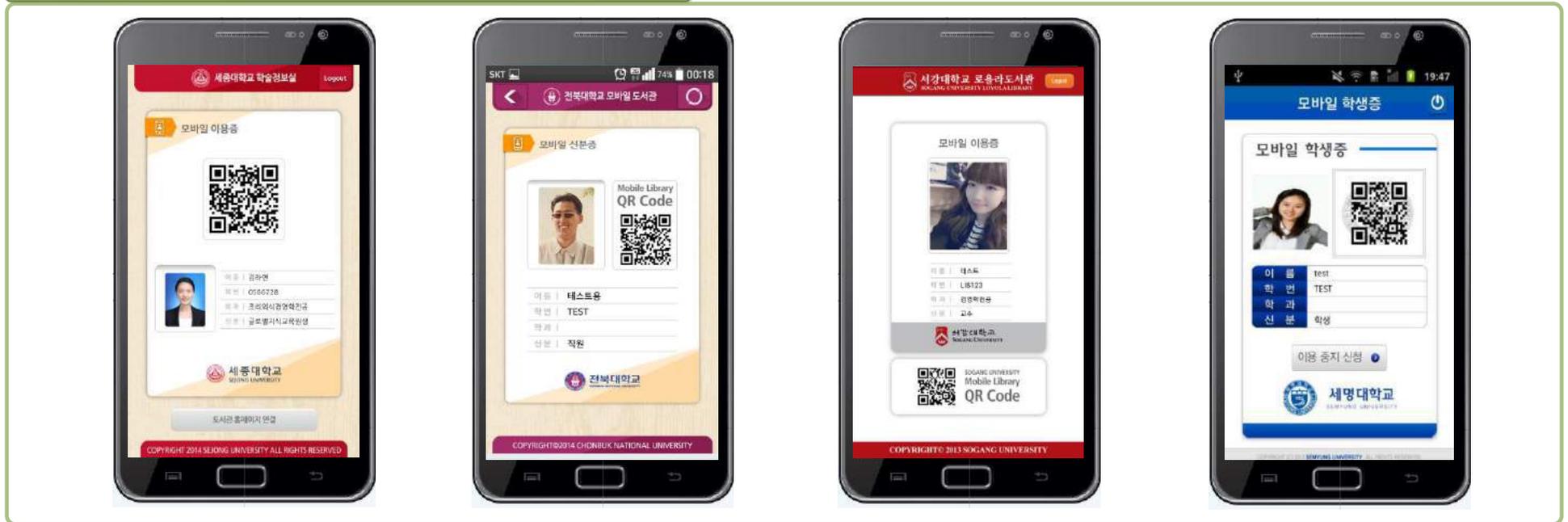


## 2. About Integrated Digital Library System

# 4) Software (New Trends)

## IOT Based Facility manage

### Mobile Library ID Card Issuing



- Issuing mobile library card with QR code method helps to use library service which needs user authorization such as library access control system, seat allocation system.
- Solve the library work problems caused by student ID card or being delayed card issuance.
- Offer user convenience by student card on smart phones.
- QR code on library card includes security functions.
- Enhance security through functions of image capture protection of QR code and manager valid time setting.

## 2. About Integrated Digital Library System

# 4) Software (New Trends)

## IOT Based Facility manage

### Seat allocation management of reading room



- Mobile based system with optimized screen and functions on smart devices helps to have seat allocation, reservation, management of reading rooms without any restriction of location or time about library reading rooms.
- Search available seats in each reading room.
- Support Request / Determination / Extension / Return functions of seat allocation.
- Offer manager functions such as policy setting, user management, statistical search.
- Available seat allocation by connecting with Kiosk and access gates.

## 2. About Integrated Digital Library System

# 4) Software (New Trends)

## IOT Based Facility manage

### Seat management of Multimedia room



- ① PC seat/time reservation and issuance of library multimedia room : seat status, reservations and connected construction.
- ② Seat selection : select PC seats which user wants to use after checking empty seats.
- ③ Show a message about reservation check.
- ④ Check reservation status : available to check reserved date, time and usages counts / functions which can check seat availability and cancel reservation.

## 2. About Integrated Digital Library System

# 4) Software (New Trends)

## IOT Based Facility manage

### Group Study Room (Seminar Room) Management



- Mobile based system with optimized screen and functions on smart devices helps to reserve, issue and manage group study rooms or seminar room in library.
- The number of group study room/ reserved date/ beginning time/ request termination/ reservation with inputting a companion.
- Set usage time by setting time unit.
- Set minimum people to be requested by requesting with at least minimum people in each group study room.

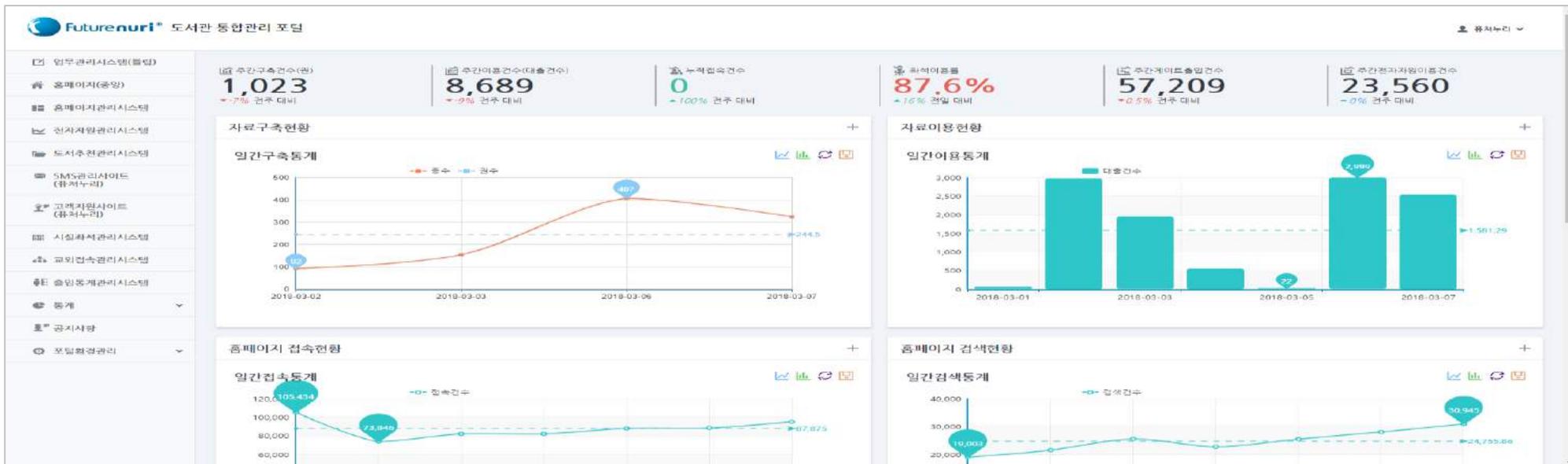
## 2. About Integrated Digital Library System

# 4) Software (New Trends)

## Integrated Manage Portal

### Integrated management portal system

Integrated management and configuration of all systems operated by the library



Dashboard  
(Monitoring)

Target System  
Management

Target System  
Analysis & Statistics

Portal System  
Management

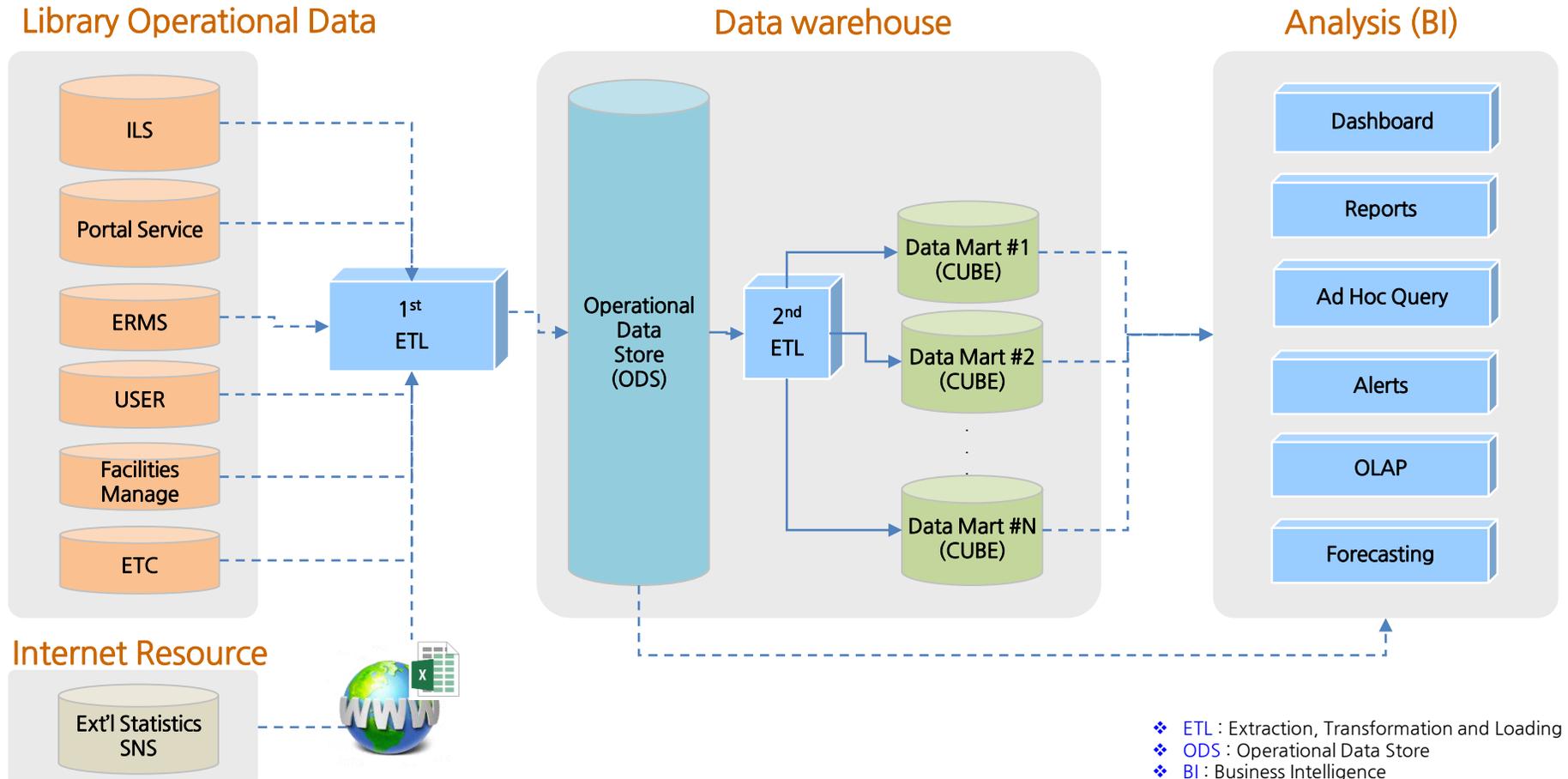
## Decision support system for library management strategy

1. Extract, transform, and load decision-critical data from multiple operating systems in the library and external resources.
2. Built a data warehouse (DW).
3. Provides comprehensive analysis environment through data visualization.
4. Systems that support scientific and fact-based decision making.

## 2. About Integrated Digital Library System

# 4) Software (New Trends)

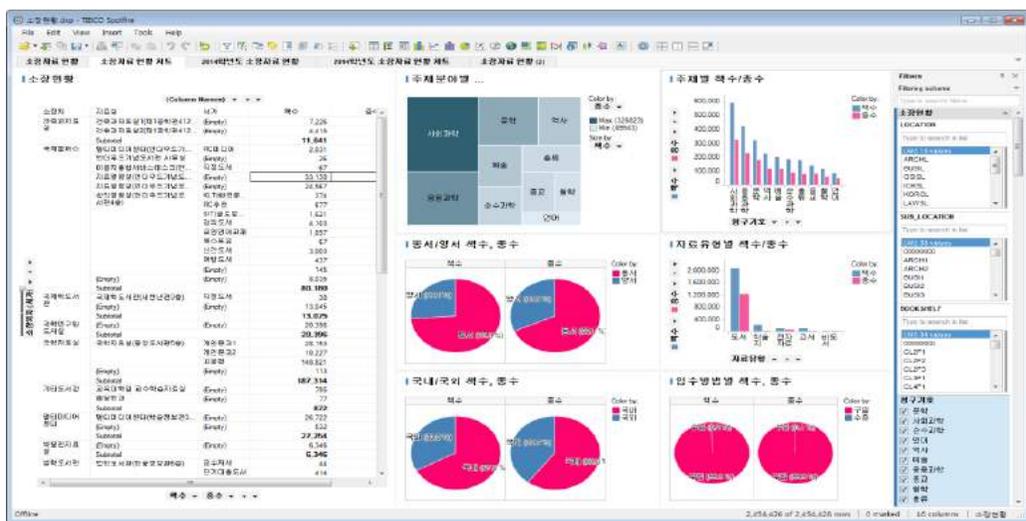
## Solution using Big-Data & AI



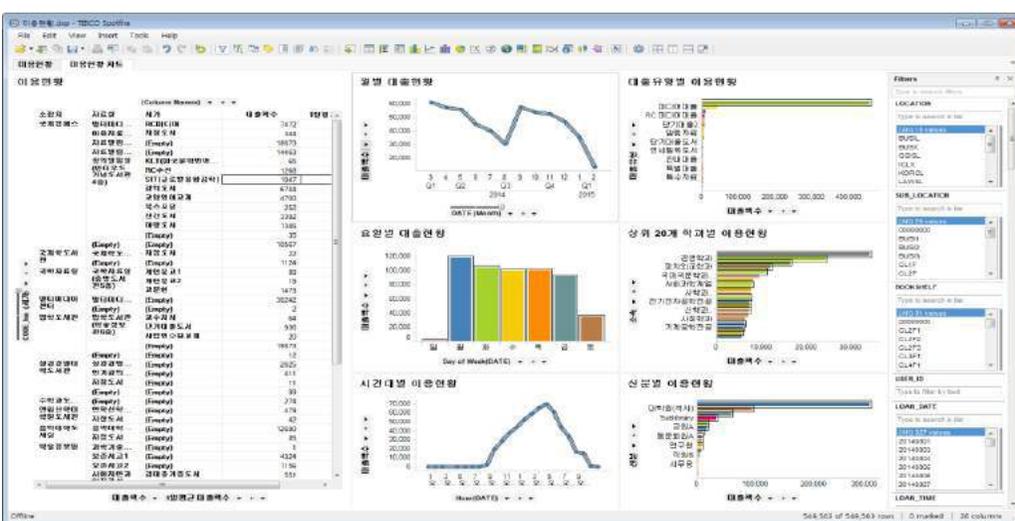
# 2. About Integrated Digital Library System

# 4) Software (New Trends)

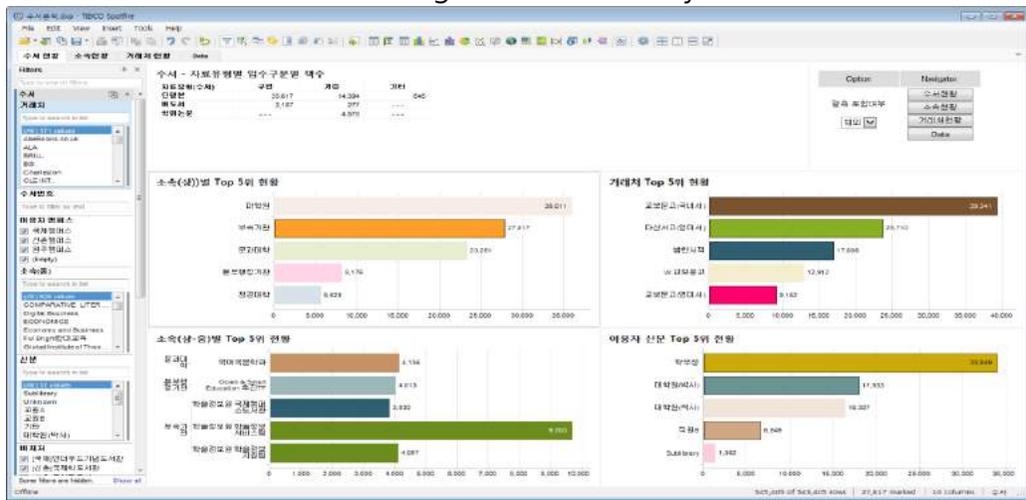
## Solution using Big-Data & AI



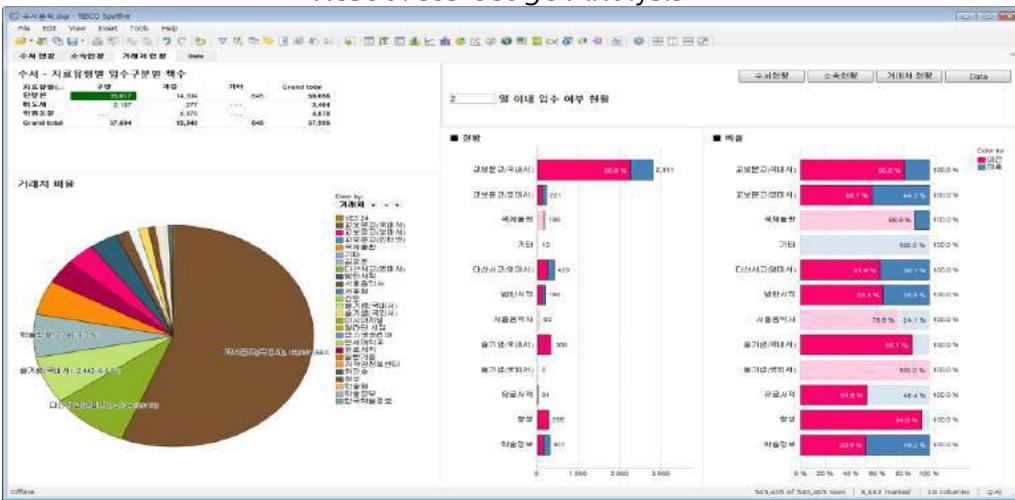
Holding Resources Analysis



Resources Usage Analysis



Resources Purchase Analysis



Purchase Account Analysis

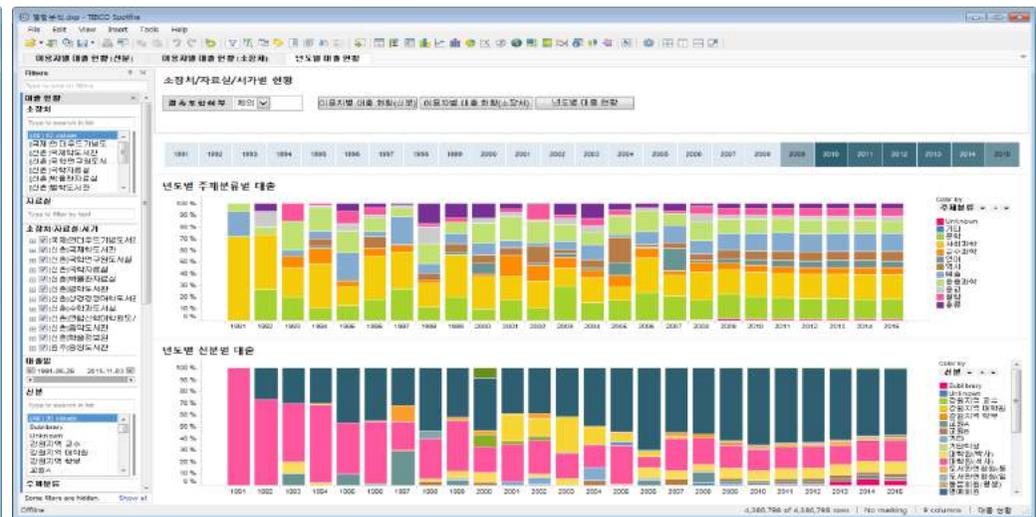
# 2. About Integrated Digital Library System

## 4) Software (New Trends)

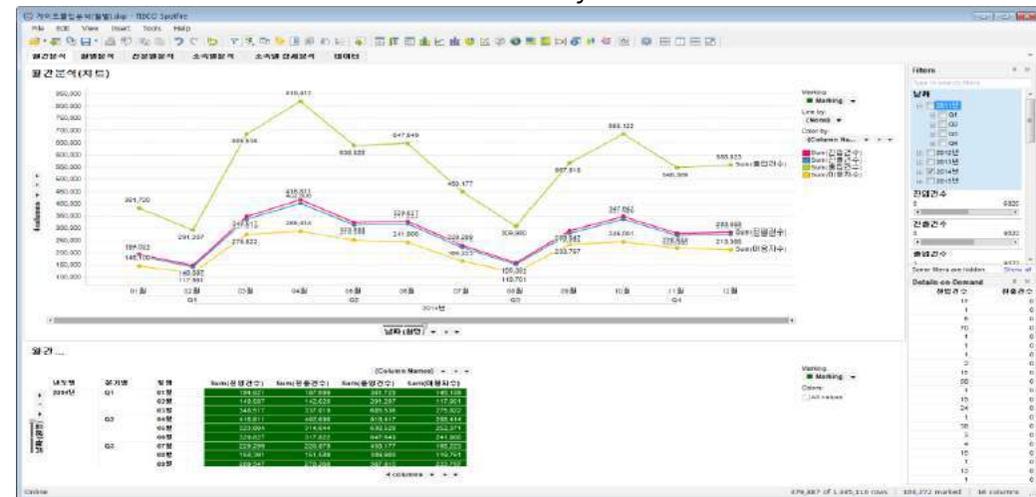
### Solution using Big-Data & AI



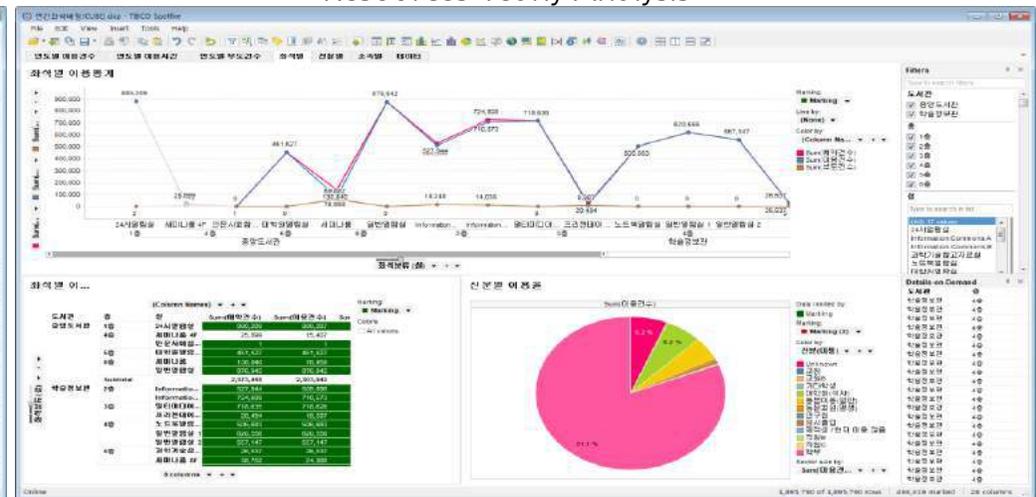
User Analysis



Resources Yearly Analysis



Visiting status Analysis

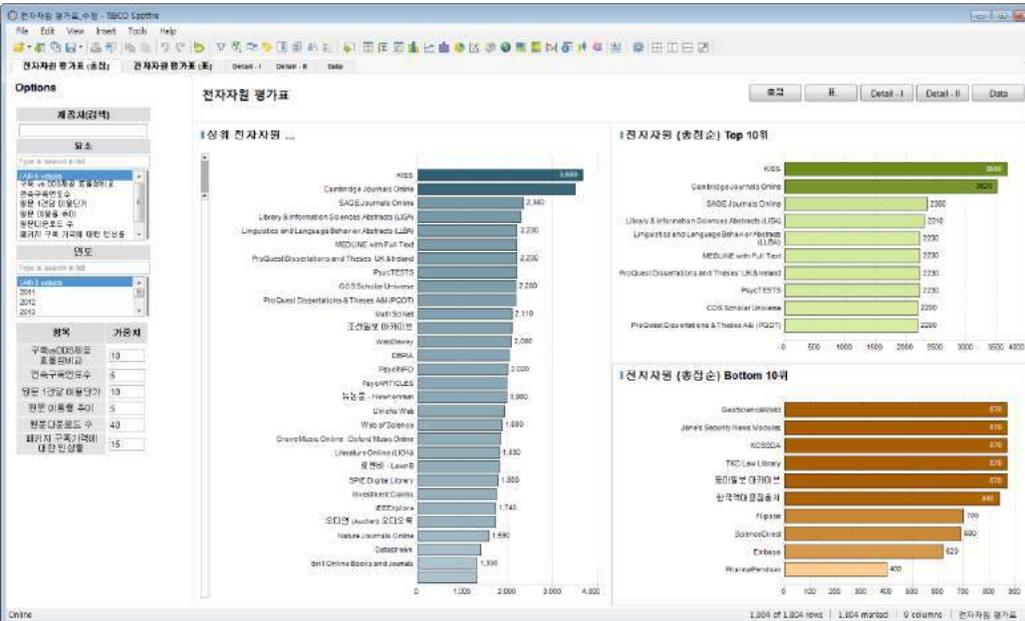


Seat Usage Analysis

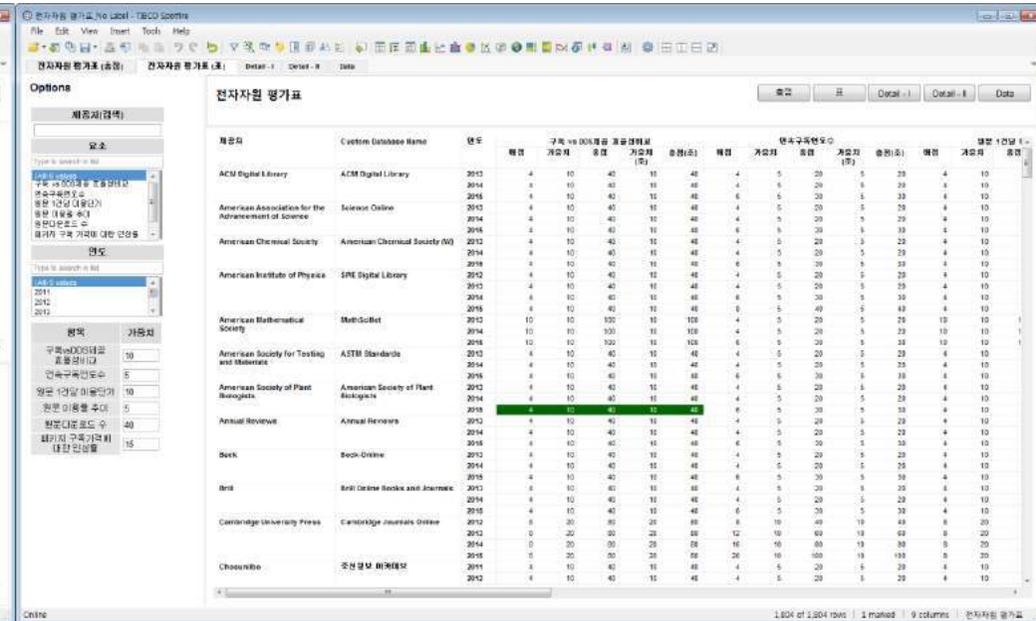
# 2. About Integrated Digital Library System

## 4) Software (New Trends)

### Solution using Big-Data & AI



Electronic Resources Usage Analysis (Brief)



Electronic Resources Usage Analysis (Detail)

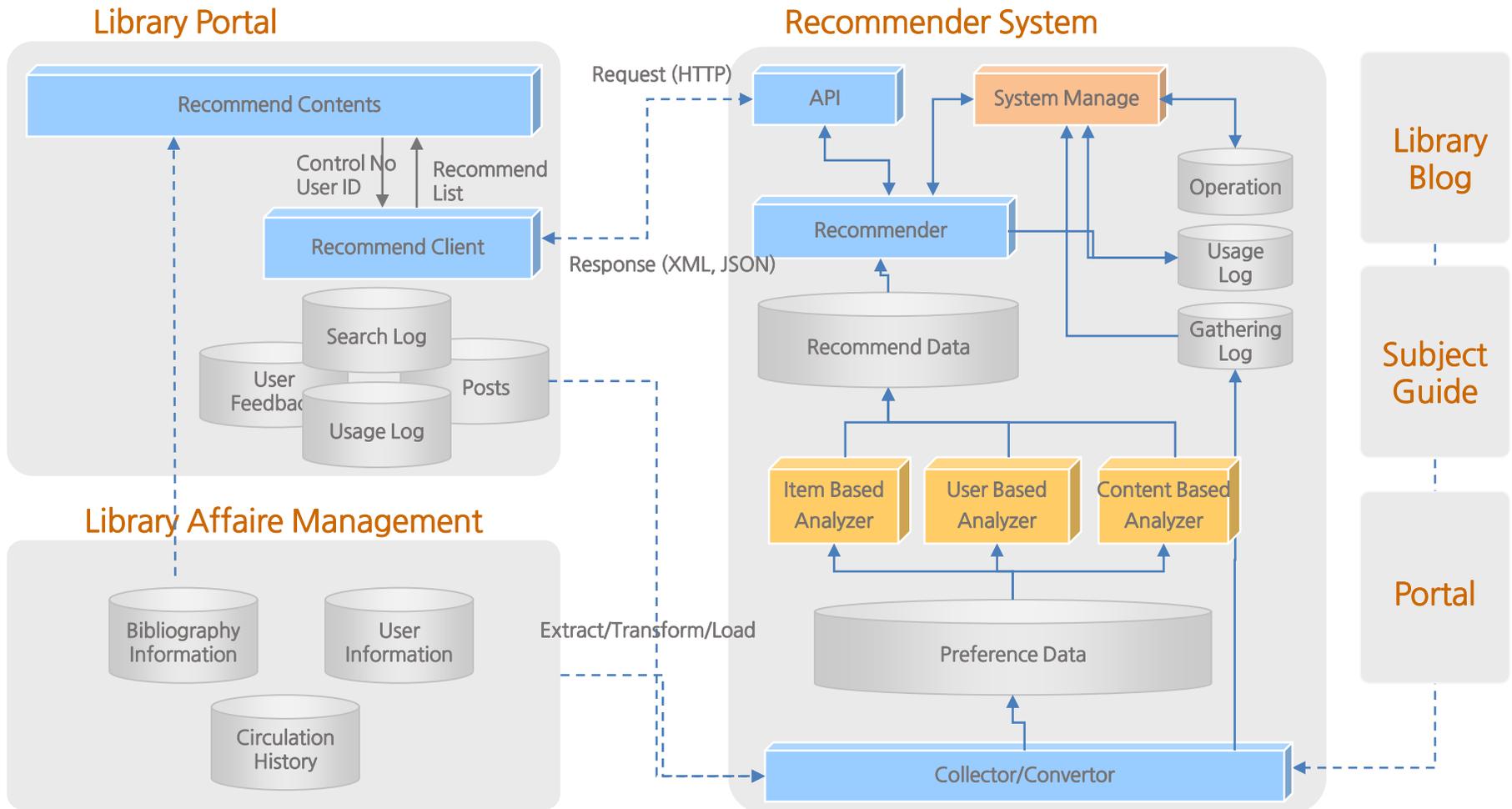
## Information Recommend System

- Optimized referral engines for libraries (collaborative filtering, content-based books, posts, query suggestion engines)
- Initial construction and automatic update of learning data by ETL tool
- Provides system management, recommender management, learning data collection management, real-time monitoring, and dashboard functions through administrator's homepage
- In addition to production resources within the library, it also collects and learns external resources such as library blogs and topic guides, and recommendation services
- Provide dedicated screen for individual recommendation content by user

## 2. About Integrated Digital Library System

# 4) Software (New Trends)

Solution using Big-Data & AI





## 2. About Integrated Digital Library System

# 4) Software (Total System Diagram)

Library Manager



Efficient  
Decision making

Big Data Analyze & AI Technology

Library Decision Support System

Information Recommend System

User



Various  
Recommend Svc.

DB Layer

LAS/DL

Homepage

ERM

User  
Management

Facilities  
Management

Access Control

Etc. Data

Integrated Library Management Portal

LAS / DL  
Control

Homepage  
Control

Facilities  
Control

Statistics

Linkage  
Control

Etc. System  
Control

Open API

Int'l Resource Manage

IELS

Acquisition

Cataloging

Circulation

Serials

Set-up

Statistics

Ext'l Resource Manage

Subscribe Mgt.

ERM

Linkage Mgt.

Open API / Web service

Gathering Mgt.

OAI\_PMH / DB Link

Facility Manage

Access Control

Reading Seat Mgt.

Room Mgt.

KIOSK

RFID

Barcode/EM

USER PORTAL

Responsive Web  
Multi-Lingual Service

Library Service Portal (Homepage)

Log-in

Search  
Service

My Library

Communi-  
cation

Additional  
Service

Etc.

Contents Management System

# Information Commons

*It is a space where can integrate digital resources and library resources, various services can be provided by experts, and freely accessing and sharing information resources.*

- Access to OPAC
- Searching Internet & Academic DB
- Usable workstation for office SW
- Produce, process, store various media
- Providing various utilization training
- Help users utilize information on their own



## 2. About Integrated Digital Library System

# 5) Digital Convergence

## Digital Library Interior

Information Commons spaces



Video conferencing room



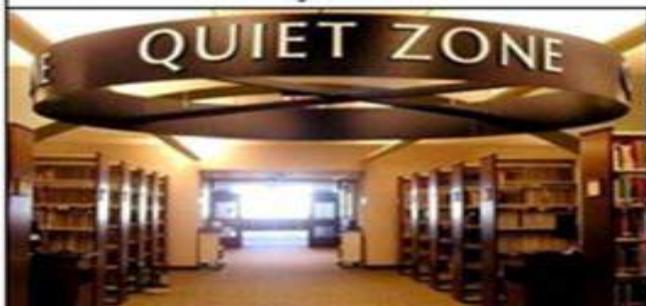
Group study room



Study carrels



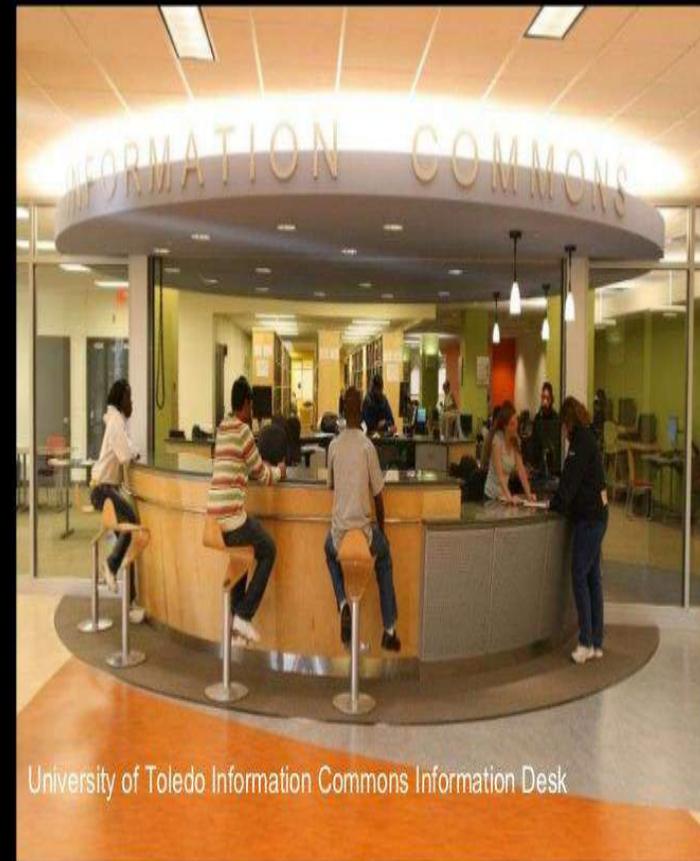
Soft seating



Quiet study area



Computer workstations

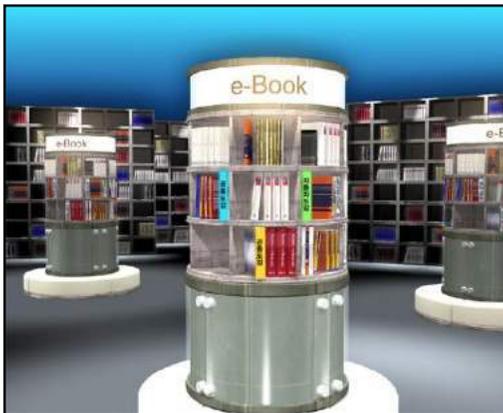


University of Toledo Information Commons Information Desk

## 2. About Integrated Digital Library System

# 5) Digital Convergence

## Digital Library Devices



### Key points

Offers library introduction and various digital informational contents through user friendly interface.

## 2. About Integrated Digital Library System

# 5) Digital Convergence

## Digital Library Devices

Digital Pond



- 63" PDP with various environmental compositions such as pond
- Touch sensor with fish application
- Various background templates, leads, and environmental compositions

eBook

- Multimedia electronic book experience corner
- Connected to DB with search



Digital Board



## 2. About Integrated Digital Library System

# 5) Digital Convergence

## Digital Library Devices



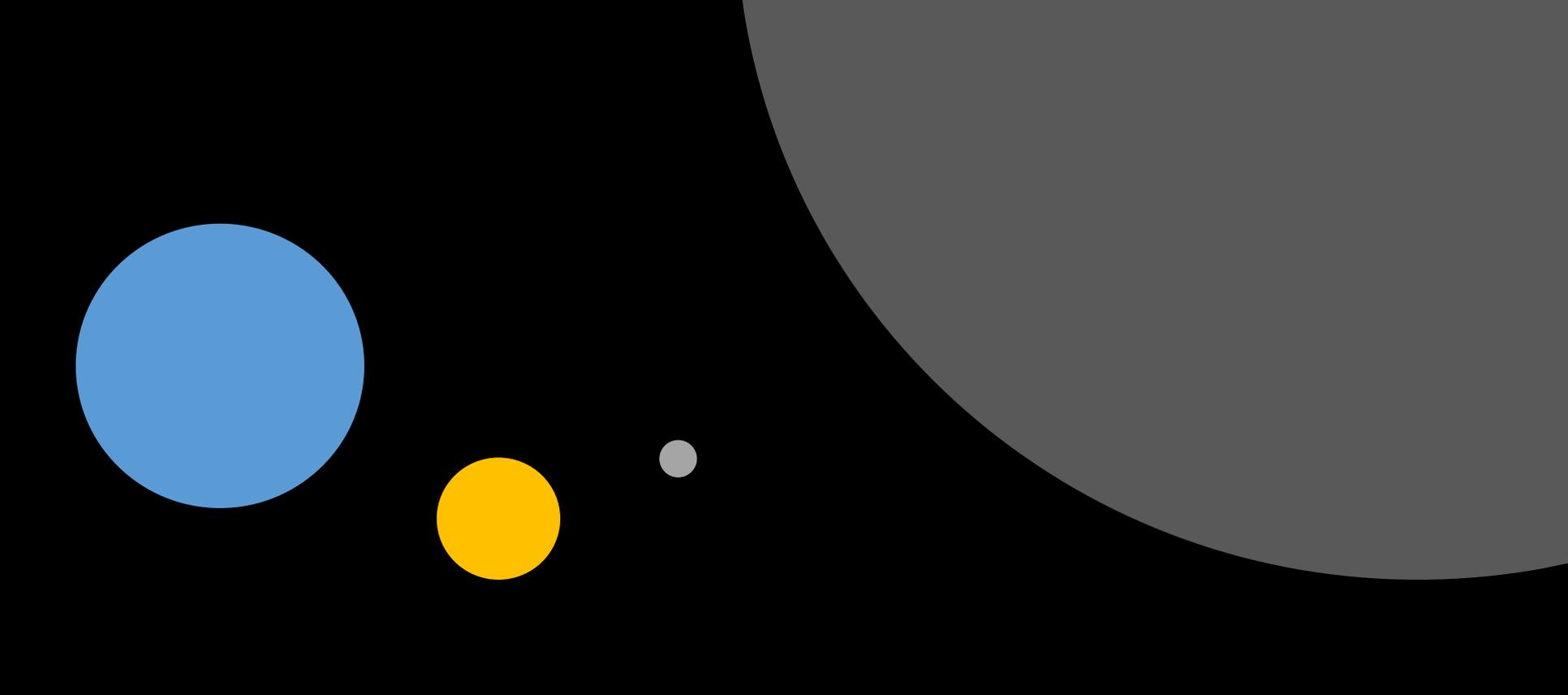
# **TULIP Demonstration**

**Q & A**

# Thank You for Attention !!

For more information..  
Please contact to below

<http://www.futurenuri.com>  
[csslib@futurenuri.com](mailto:csslib@futurenuri.com)  
+82-10-3791-5341



**ทิศทางและเทคโนโลยี  
ห้องสมุดดิจิทัลในยุคไทย  
แลนด์ 4.0**

ทรงพันธ์ เจิมประยงค์

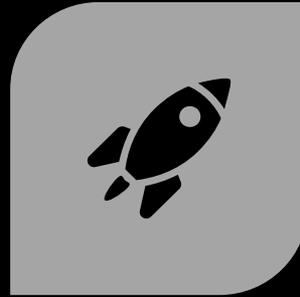
ภาควิชาบรรณารักษศาสตร์  
คณะอักษรศาสตร์  
จุฬาลงกรณ์มหาวิทยาลัย

songphan.c@chula.ac.th

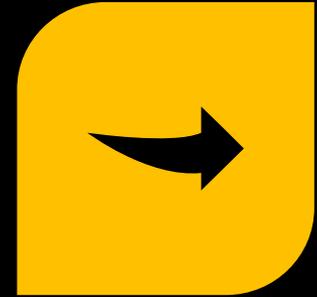
# AGENDA



DIGITAL LIBRARIES



EMERGING TECHNOLOGIES



THAILAND 4.0

# DIGITAL LIBRARIES

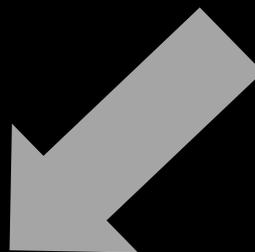
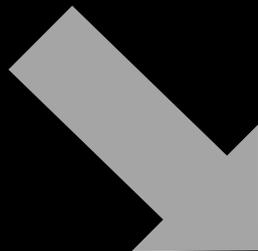


Digital Collection

# DIGITAL LIBRARIES

Born digital

Digitized



Digital Collection

# DIGITAL LIBRARIES

Audio

Text

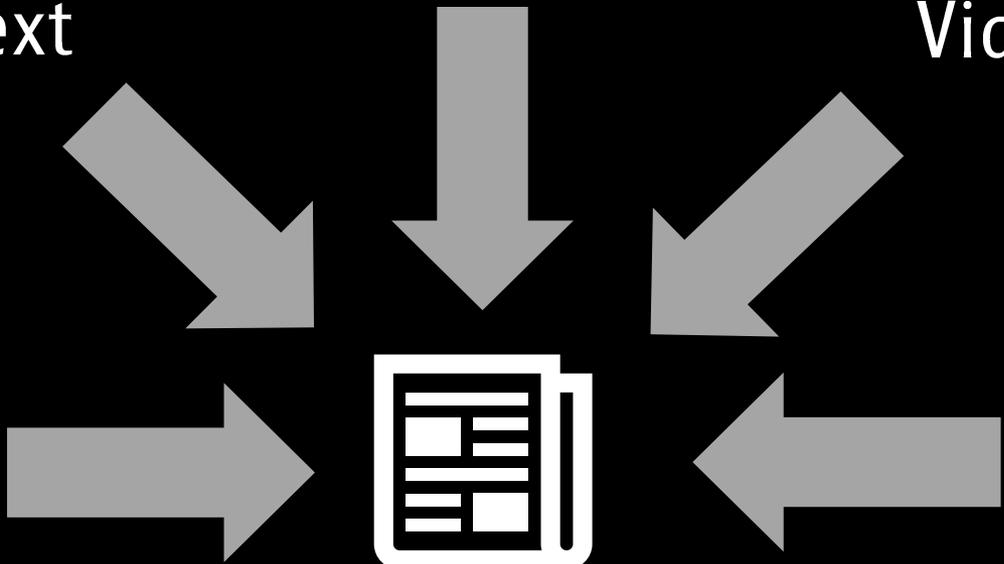
Video

Traditional  
media

Multimedia



Digital Collection



THERE has been considerable discussion of late as to the possible length of time that the petroleum supply of the United States and the world will hold out. With the development of the automobile and other motor vehicles and engines, the use of petroleum and its products for fuel has become of first importance from an industrial standpoint. J. S. Cullinan of Houston, Texas, has been prominently identified with the petroleum industry for more than forty years. He has seen the production of the world grow from a little more than ten thousand barrels a day to approximately one million barrels a day. He knows every phase of the industry. It is Mr. Cullinan's belief that the United States Government should adopt a vigorous and far-reaching policy of conserving the crude petroleum supply of this country in order to have on hand a reserve of the fuel for the Navy in future years. In discussing the petroleum industry Mr. Cullinan said:

"When we exhaust the last oil pool the lights will go out in over two hundred million homes, labor will stand idle, investments aggregating billions of dollars will be thrown into the scrap heap, and a large mass of the most ingenious and likewise some of the most stupid legislation ever written in the statute books will become a dead letter. Petroleum directly enters into the life of every civilized human being, and there is no line of business that does not at some point demand petroleum or its products, for it lights the pathway for the rich, lubricates most every wheel in commerce, and propels a large percentage of them, and during the last quarter of a century it has produced more materials for writers, orators and speakers than any other known product of the world. There is no greater tragedy in the life of a people than the extermination or exhaustion of a useful and dependent natural resource. The problem is one that merits the most careful and painstaking examination of the capitalist, the laborer, the tradesman, the manufacturer, the housewife and every man and every woman.

"A brief review of the industry can not fail to convince the most indifferent of the tremendous impor-

depth of sixty-eight feet. Down to the year of 1870 benzine, the lighter product obtained in refining petroleum, from which the naphtha series and gasoline are now manufactured, was considered a useless product. In order that it might be utilized as much as possible, it was frequently mixed with kerosene up to the year 1900. Internal combustion engines were developed commercially in 1885, the first using natural gas as a fuel. It may be interesting to note here that while approximately sixty per cent of the mechanical horse power of the United States, other than hydroelectric power, is now of the internal combustion type, up to the year 1884 the textbooks and scientists declared the principle on which the internal combustion engine is operated to be impossible. The automobile was developed commercially in the year 1900. We now have upward of five million commercial and pleasure vehicles in the United States, which are estimated to consume upward of thirty million barrels of gasoline per annum. The manufacture and operation of trucks and automobiles is now understood to give employment to upward of 1,250,000 of our population, the national annual outlay representing in investment and expense nearly double the total Government outlay for rivers and harbors since 1776.

"The total marketed petroleum production of the United States in ten year periods beginning with 1875 in round numbers follows: In 1875, 8,800,000 barrels; 1885, 21,900,000 barrels; 1895, 52,900,000 barrels; 1905, 134,700,000 barrels; 1915, 290,000,000 barrels. The total marketed petroleum production of the United States from 1895 to 1915, inclusive, is 3,627,720,593 barrels. It will be noted from the above tabulation that the production more than doubles each ten year period. After a careful study and investigation made by the United States Geological Survey a few years ago, the total petroleum deposits in the United States were estimated to not exceed twenty-five million barrels. The commercial development of petroleum has taken place entirely within my lifetime. It is just possible, so far as the United States is concerned, that the development and the exhaustion of the supplies may

during the life of your children and mine. Modern civilization as developed is absolutely dependent upon petroleum; yet today, I dare say, there is not a man living who has a remote idea of a satisfactory substitute, all of which would seem to demand action, and not oratory, on the part of those responsible for the welfare of the United States and perpetuating the race. All nations depend largely upon the United States for petroleum supplies in the form of fuel oil, lubricants or gasoline. Petroleum is going to be as much a factor in determining naval battles as vessels and armament, and this point should not be overlooked. The nation that controls the oil fields will have a superior navy, if indeed it does not render obsolete the battle-ships of the other nations, for fuel is as necessary as steel in fighting battles at sea.

"We had as well dismiss from discussion any hope that nature will replenish the supply of petroleum during the life of the present fields. Scientists tell us that it is probable that the hydro-carbons of which fuel is composed may be restored by the processes of nature every twenty-six thousand years, during which period we are told the position of the earth in relation to the north and south poles may be completely reversed, and fuel will be again created in the land portion of the earth's surface. But there is no speculator in oil sufficiently bold to deal in futures quite that far away. Certainly the present generation need not consider it."

#### *Petroleum in the East Indies*

During the last twenty years the petroleum industry in the Dutch East Indies has undergone a complete change. Prior to 1901 kerosene was the only product of importance; now benzine, liquid fuel, lubricating oil, asphalt, and paraffin wax are produced. The output of crude petroleum in 1915 was 1,616,645 tons and 1,569,216 tons in 1914.

Oil-driven engines of moderate power are being called for in increasing numbers by English farmers. Some of these are made in England and others are imported. Engines of about  $2\frac{1}{4}$ -horse power



ॐ नमो विष्णु कथाय ॥ कालाक्षरगणनामोयदव कवदशनं वकाथाकि । ककवि  
शारुथवमानुयवमंरुद्वि यमाना ॥ यवमानुकावालीग्रलि कथुकायवाः  
कुलंथव । अथुगुणानिथु ॥ आरुवमंलभकरुवकिमात्रा ॥ यवाशावडाः  
वस्थायासानसाहनीथाः सः कथिप्रिकाथुमालेथुकिमाकद्विगुणयवि  
माणाः ॥ अथु कुलथुमाणा द्वादसाविस्मयमाया कमुथनयकिनावकुदंशयथ

ॐ द्वाभिकं कथिं ॥ नाभाललाठविथुकशीवाथुवकुलासथा । कथुद्वि कुलव  
कुलकविथुकं वथु कुलः । विस्मयः ॥ अथु कुलंललाठ विस्मयथु कुलाथु  
अथुथावकुवकुलीकुमः ॥ आकाशकुद्वि कुलथुथुली ॥ कथुयासाः  
थाद्वयथुमअमभनसु प्रणा । कथुआः मुरुभाव कंवनथनप्रवस  
मं ॥ अथुवकुलं वस्मिः कथयकिनडाक कथुया विववः ॥ अथुया कुलथुमाणा

ॐ आदना कथाय ॥ आदी कुलं कुथाजीव कुवकुव कुणाथ ककाथः ॥ विथुलकुमा  
दंमकुवमथानुथु कुलः ॥ आकुलकुल्याना साधुया शुभाकथासाः  
कथु कुलं मकुयावकुवकु ॥ लमनववासाः ॥ आकुलसिभाककाथुद्वनथु  
कथिसागिका नाशा । ककना शयवासानुविकासा कुलंरुवकि ॥ यथुनाथ  
थुद्वडा अथुदी कुला अथुसासा । अमथुयुलकं अद्विषणा कुलवकु ॥ कथा



ASAF ZMIRLY

SEATTLE



**THAI CAVE RESCUE**

**OFFICIAL: "BOYS ARE NOT SUITABLE" TO DIVE OUT YET**

Brian Wiederspan | Trimix Instructor, United Team Diving

4:03 ET

**HLN**



หน้าแรก

เกี่ยวกับสมาคม

ประกาศา

ข่าวสารและกิจกรรม

สินค้าและบริการ

ชมรม

การจัดการองค์ความรู้

สืบค้นข้อมูล

ติดต่อเรา

มูลนิธิวิปัญญา



สมาคมห้องสมุดแห่งประเทศไทย  
 ในพระราชูปถัมภ์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี  
 ร่วมมือกับ ตลาดหลักทรัพย์แห่งประเทศไทย



CARE THE BEAR

Change the Climate Change

"ECO-EVENT"

ขอเชิญเข้าร่วมโครงการ

Library : Care the Bear

เพื่อขยายบทบาทและการมีส่วนร่วมของห้องสมุดในการร่วมสร้างการเปลี่ยนแปลงในชุมชนและสังคมอย่างเป็นรูปธรรม  
 และช่วยสร้างจิตสำนึก ปลูกฝังพฤติกรรมรักษาสิ่งแวดล้อม ตลอดจนการลดภาวะโลกร้อน  
 เพื่อเป็นแบบอย่างที่ดีให้แก่ชุมชนรับส่วนในการช่วยกันดูแลรักษาสิ่งแวดล้อม

กรุณาส่งแบบตอบรับภายในวันที่ : 21 ธันวาคม พ.ศ.2561

คลิกที่นี่ เพื่อเข้าร่วมโครงการ

สอบถามข้อมูลเพิ่มเติมที่ : โทร 02-734-9022, 089-893-9397 หรือ 091-536-5396

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สมาคมฯ

กิจกรรม  
งานสัมมนา

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องค์ความรู้

วารสาร  
ห้องสมุด

วารสาร  
วิจัย

ข่าวสมาคม  
ห้องสมุด

ลงทะเบียน



สมัครสมาชิก

ข่าวสารและกิจกรรม

ทะเบียนสมาชิก

การสัมมนาเชิงปฏิบัติการ  
และการประชุมใหญ่สามัญ

ขอเชิญร่วมการสัมมนา  
วิชาการ เรื่อง ทิศทางและ

ขอเชิญเข้าร่วมโครงการ  
LIBRARY : CARE THE

ทำเนียบนามห้องสมุด



สมาคมห้องสมุดแห่งประเทศไทยฯ  
@ThaiLibraryA

- Home
- Posts
- Videos
- Photos
- Events
- About
- Community
- Info and ads

Create a Page



Like Following Share

Send Message

Create post

Write a post...

- Photo/Video
- Tag friends
- Check in
- ...

**Community** See all

- Invite your friends to like this Page
- 4,014 people like this
- 4,051 people follow this
- Ruchareka Wittayawuttikul and 47 other friends like this or have checked in

Posts

**สมาคมห้องสมุดแห่งประเทศไทยฯ**  
26 November at 09:57 · 🌐

ยังเปิดอบรมอยู่นะคะ  
ดูรายละเอียดได้ที่ <http://tla.or.th/.../news-and-.../activities-2561/217-25610808-2>



**About** See All

- 089 893 9397
- Typically replies within a few hours
- Send message
- www.tla.or.th
- Library
- Price range ££
- Opens tomorrow
- Closed now
- Suggest Edit

```
43 <body <?php body_class()></div>
44 <div id="fb-root"></div>
45 <script>(function(d, s, id) {
46     var js, fjs = d.getElementsByTagName(s)[0];
47     if (d.getElementById(id)) return;
48     js = d.createElement(s); js.id = id;
49     js.src = "//connect.facebook.net/en_US/sdk.js#xfbml=1&version=v2.6&appId=299040003000000";
50     fjs.parentNode.insertBefore(js, fjs);
51 } (document, 'script', 'facebook-jssdk'));</script>
52 <div id="page" class="site">
53     <a class="skip-link screen-reader-text" href="#content"><?php esc_html_e( 'Skip to content', 'twentyfour' );></a>
54     <header id="masthead" class="site-header" role="banner">
55         <div class="site-branding">
56             <div class="navBtn pull-left">
57                 <?php if ( is_home() && $xpanel['homepage-style'] == 1 ) { ?>
58                     <a href="#" id="openMenu"><i class="fa fa-bars fa-3x"></i></a>
59                 <?php } else { ?>
60                     <a href="#" id="openMenu2"><i class="fa fa-bars fa-3x"></i></a>
61                 <?php } ?>
62             </div>
63             <div class="logo pull-left">
64                 <a href="<?php echo esc_url( home_url() ) ?>">
65                     
66                 </a>
67             </div>
68             <div class="search-box hidden-xs hidden-sm pull-left ml-10">
69                 <?php get_search_form(); ?>
70             </div>
71             <div class="submit-btn hidden-xs hidden-sm pull-left ml-10">
72                 <a href="<?php echo get_page_link( $xpanel['submit-link'] ) ?>" class="submit">
73                     <?php echo esc_html( $xpanel['submit-link'] ); ?>
74                 </a>
75             </div>
76             <div class="user-info pull-right mr-10">
77                 <?php
78                 if ( is_user_logged_in() ) {
79                     <?php echo esc_html( get_current_user() ); ?>
80                 } else {
81                     <?php echo esc_html( 'Log in' ); ?>
82                 }
83             </div>
84         </div>
85     </header>
86 </div>
87 </body></html>
```





# DIGITAL LIBRARIES

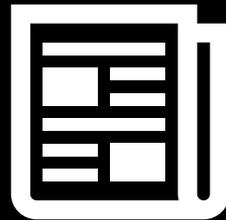
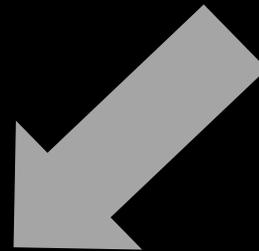
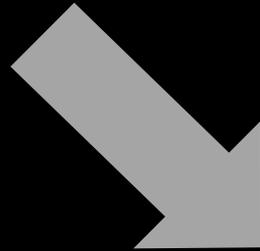


Digital Collection

# DIGITAL LIBRARIES

Organization

Access/Dissemination



Digital Collection

เข้าถึงได้ (accessible)  
เกี่ยวข้อง (relevant)  
เป็นประโยชน์ (useful)  
ใช้งานได้ (usable)  
มีประสิทธิภาพ (efficient)

**VALUE**

**Present**

(Providing the right answer)

**Past**

(Representing the history)

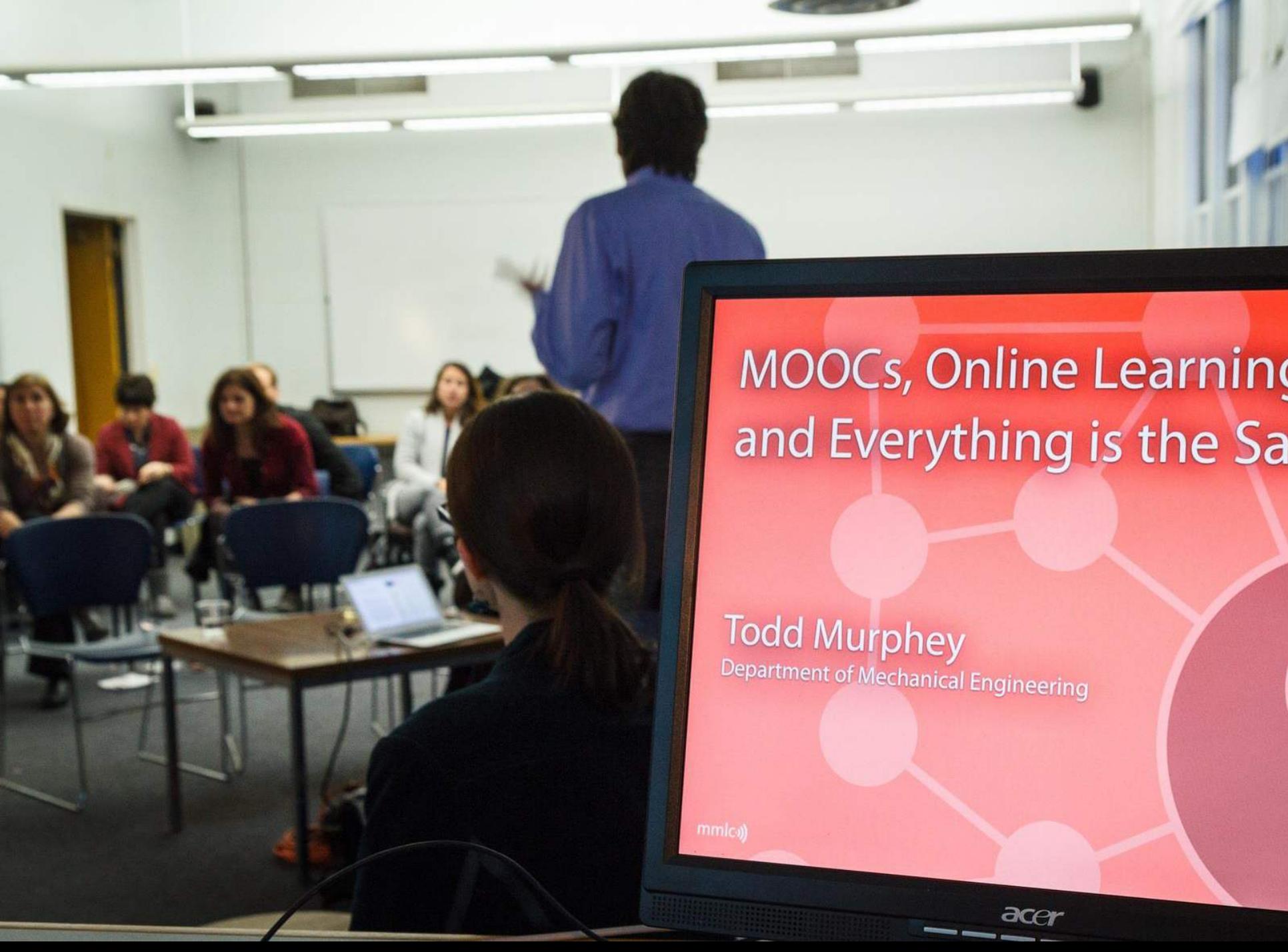


**Future**

(Securing availability for the future)



## **Digital Libraries in Context**

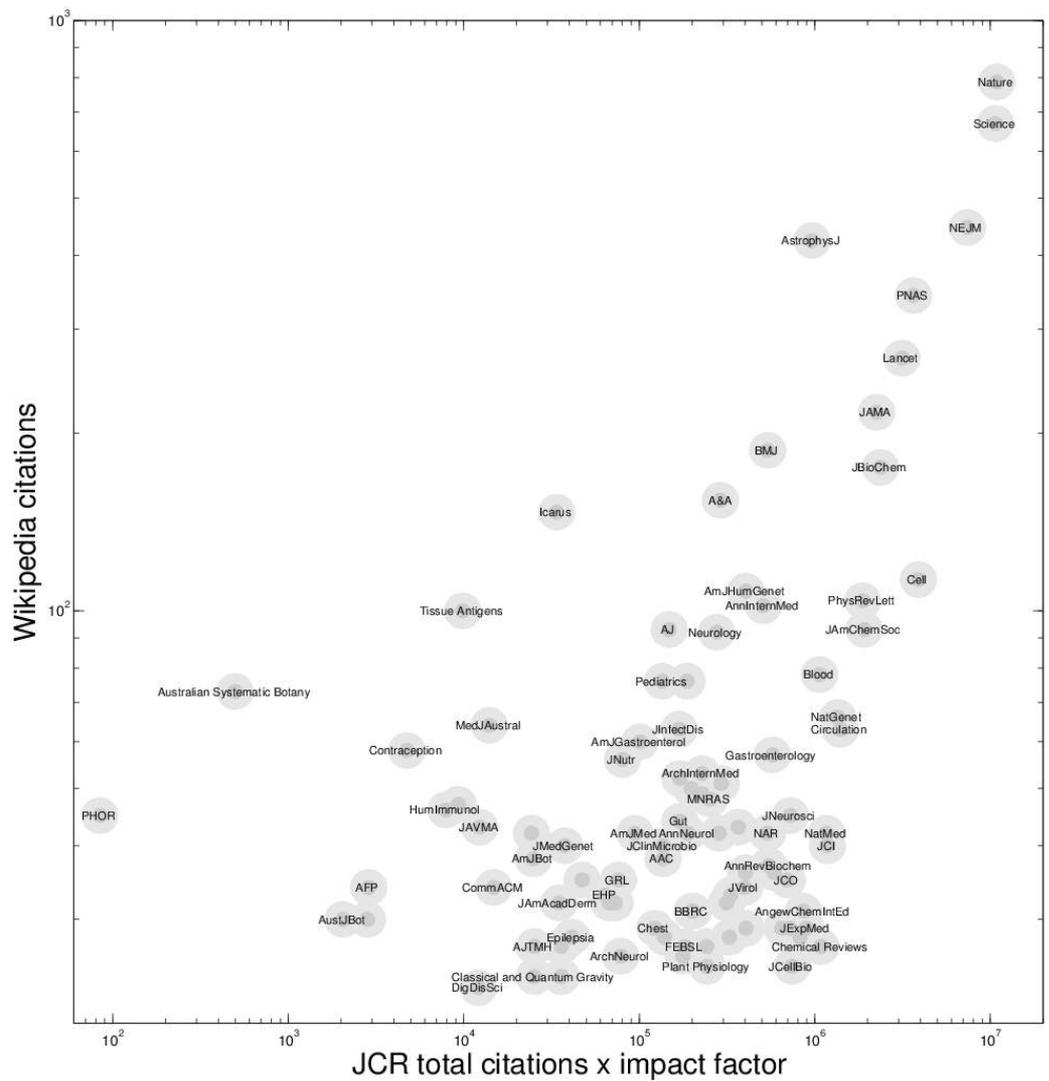


MOOCs, Online Learning  
and Everything is the Sa

Todd Murphey  
Department of Mechanical Engineering

mmlc))

acer







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OF AMERICA

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## Join us for DPLAfest 2019: Future Shapers, Culture Makers

Taking place in Chicago on April 17-18, 2019, DPLAfest will explore how libraries, archives, museums, and other cultural organizations across the country leverage technology to serve, inform, and empower communities.

Learn more

# Case Studies

Online Exhibitions

[Browse all Exhibitions >](#)





**Internet Archive** is a non-profit library of millions of free books, movies, software, music, websites, and more.

 344B	 19M	 4.7M	 4.6M	 1.7M	 344K	 3.2M	 186K	 305K
---	--	---	---	---	--	---	---	---

 [GO](#)[Advanced Search](#)

### Announcements

Stories that Move Us

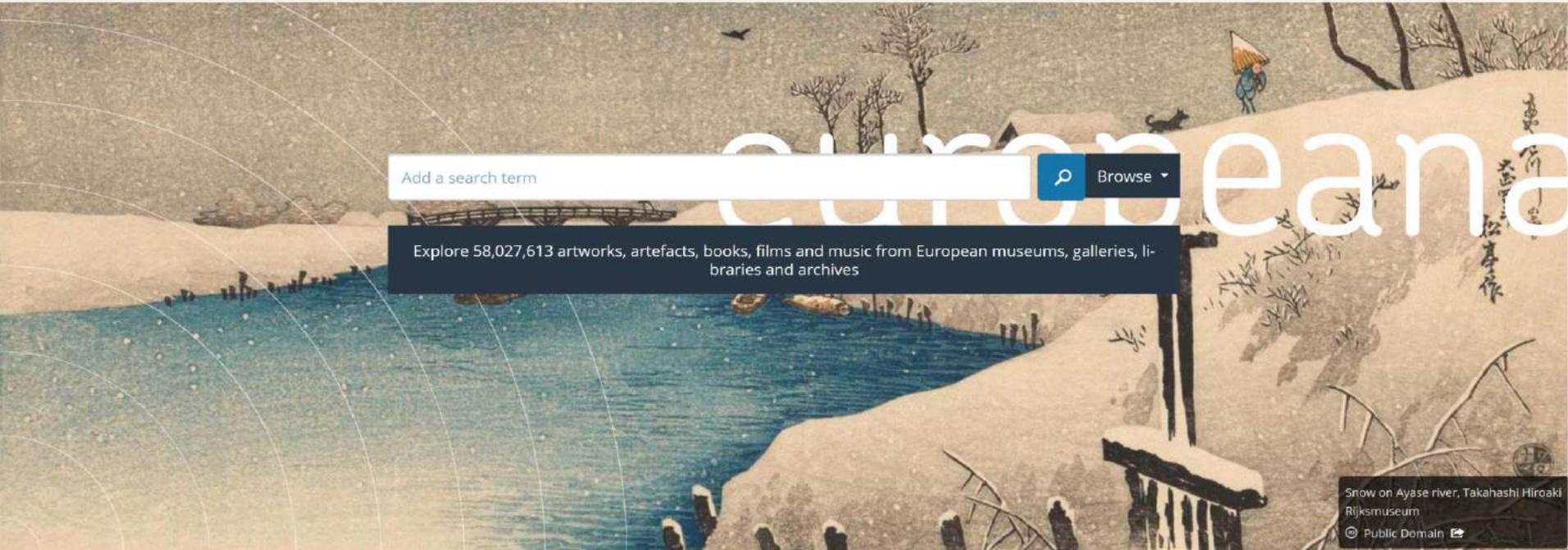
Archiving as Activism: Environmental Justice in the Trump Era

DJ Spooky's QUANTOPIA: THE EVOLUTION OF THE INTERNET

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## Top Collections at the Archive

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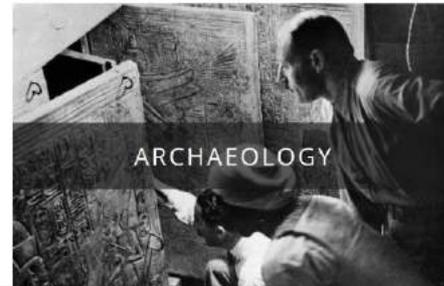
Snow on Ayase river, Takahashi Hiroaki  
Rijksmuseum  
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1914-1918



ARCHAEOLOGY



ART



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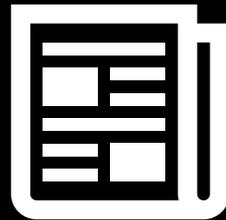
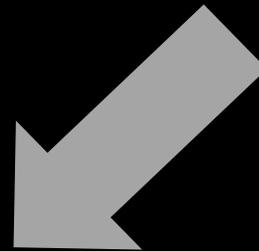
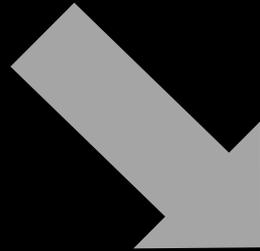
The image features a large, dark, irregularly shaped ink blot or splatter in the center, set against a white background. The blot has a textured, grainy appearance with some lighter areas, suggesting it was made with a brush or a thick marker. The words "DARK ARCHIVES" are printed in a bold, white, sans-serif font, centered within the dark blot. The overall aesthetic is gritty and industrial.

# **DARK ARCHIVES**

# DIGITAL LIBRARIES

Organization

Access/Dissemination



Digital Collection

# เทคโนโลยี

---

การแปลงให้อยู่ในรูปดิจิทัล

---

การจัดระบบข้อมูล

---

การสกัดข้อมูล

---

การแลกเปลี่ยนข้อมูล

---

ระบบแนะนำ

---

ระบบค้นคืน

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การประมวลผลภาษาธรรมชาติ

---

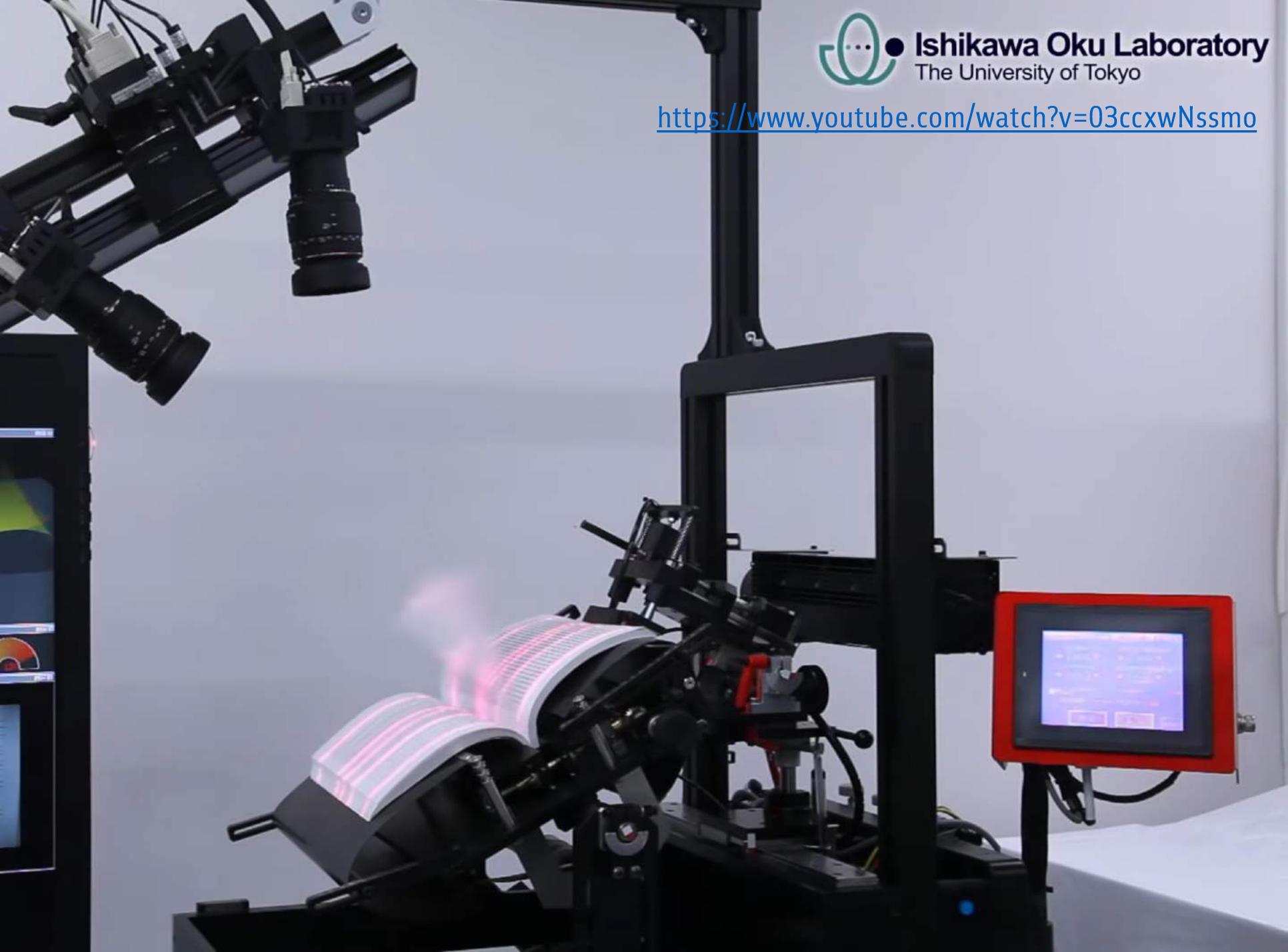
การสงวนรักษา

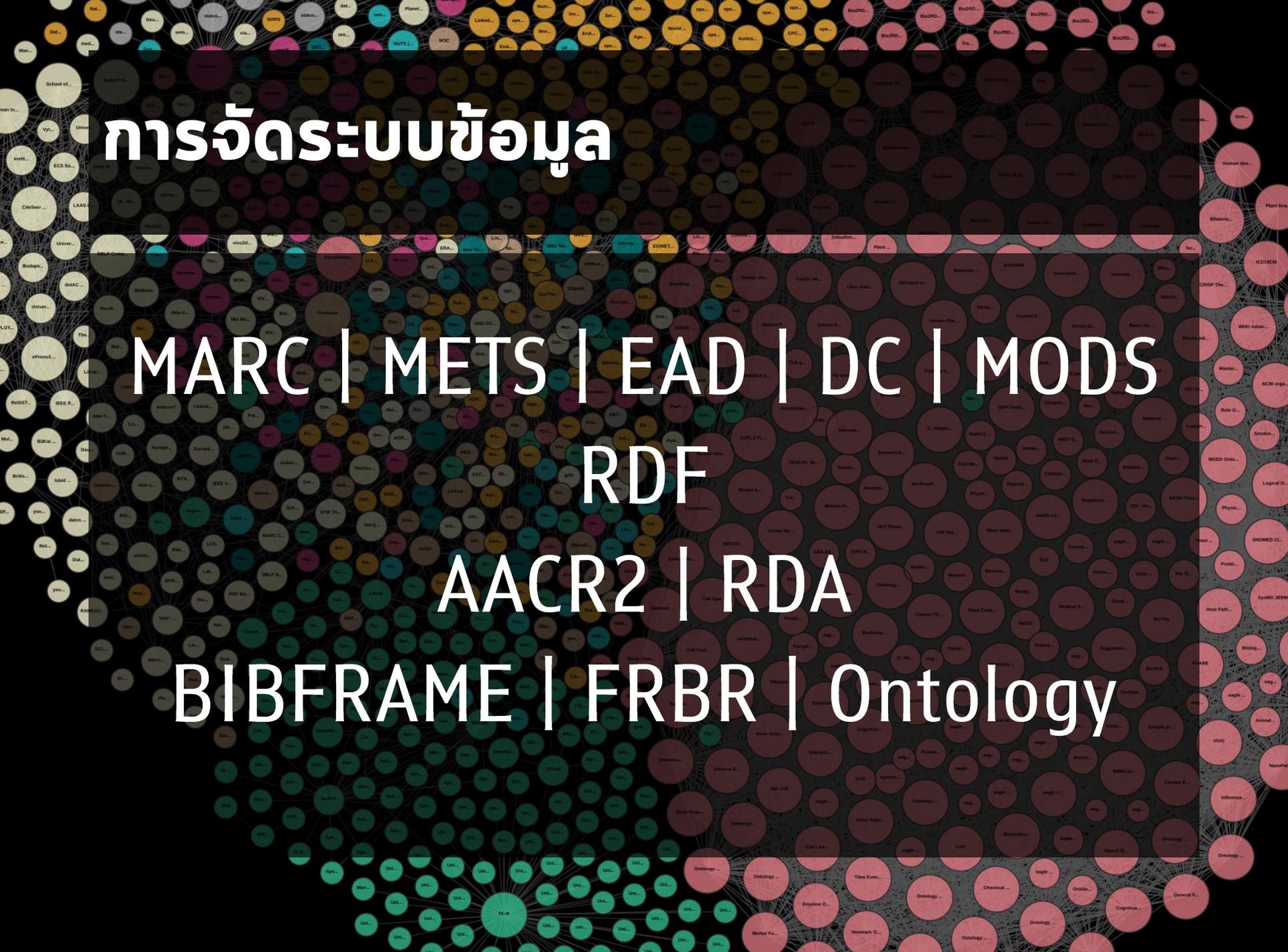
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Right Management

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ลูกค้าสัมพันธ์





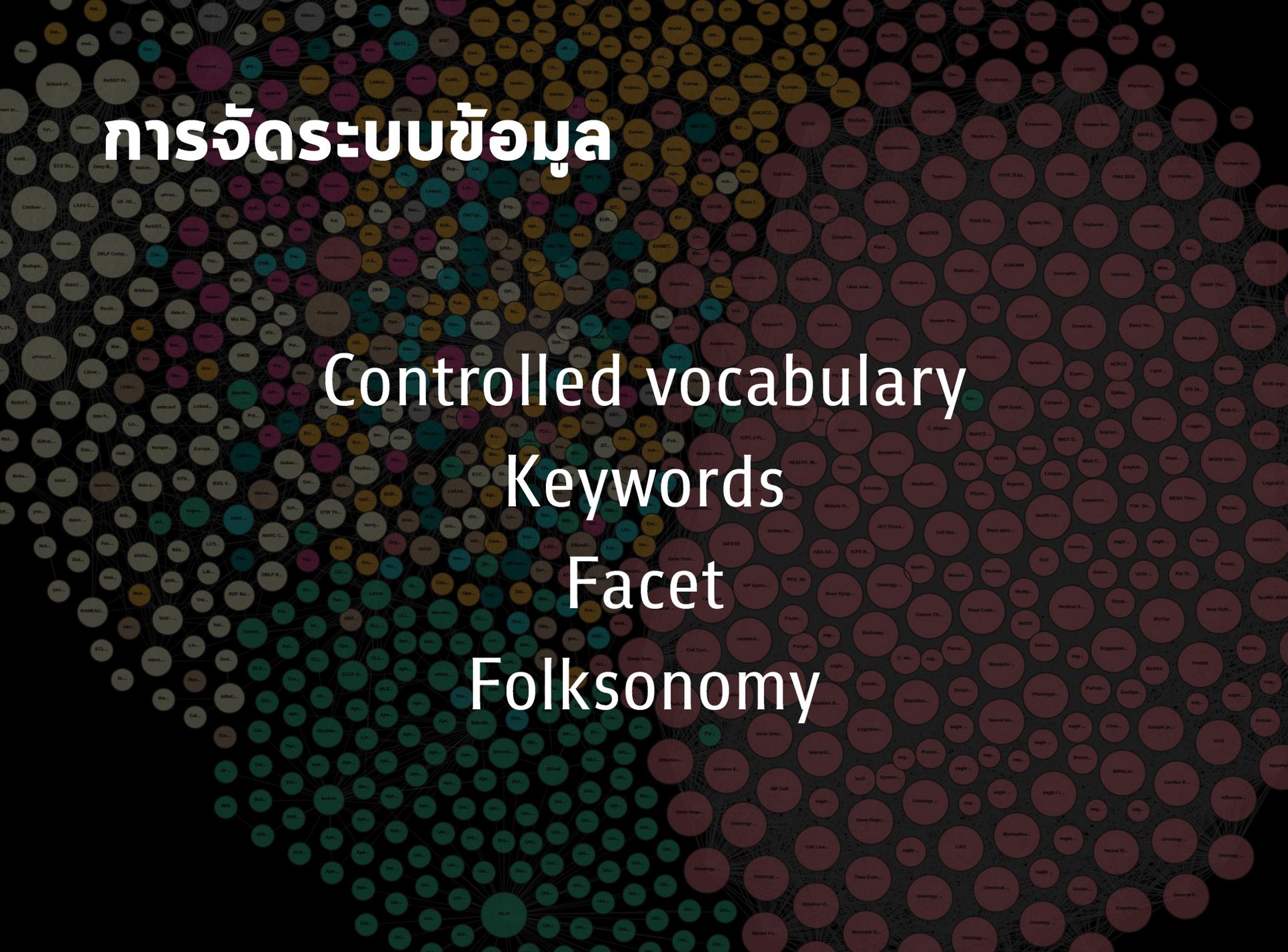
# การจัดระบบข้อมูล

MARC | METS | EAD | DC | MODS

RDF

AACR2 | RDA

BIBFRAME | FRBR | Ontology



# การจัดระบบข้อมูล

Controlled vocabulary

Keywords

Facet

Folksonomy

# Welcome to Wikipedia,

the free encyclopedia that anyone can edit.

5,766,435 articles in English

- Arts
- Biography
- Geography
- History
- Mathematics
- Science
- Soc
- Tech
- All p

## From today's featured article



**Benjamin Tillman** (1847–1918) was the Democratic Governor of South Carolina from 1890 to 1894 and a United States Senator from 1895 until his death in 1918. A white supremacist who opposed civil rights for blacks, Tillman led a paramilitary group of Red Shirts during South Carolina's violent 1876 election. In 1895, he led the South Carolina constitutional convention that re-established white majority and ensured white rule for more than half a century. On the floor of the U.S. Senate, he frequently ridiculed blacks, and boasted of having helped to kill them during the 1876 campaign. He was known as "Pitchfork Ben" after he threatened to use a pitchfork to prod that "bag of beef", President Grover Cleveland. He was the primary sponsor of the Tillman Act (1907), the first federal campaign finance reform law, which banned corporate contributions in federal political campaigns. **(Full article...)**

Recently featured: [Enrico Fermi](#) · [Brachiosaurus](#) · [Japanese battleship Nagato](#)  
[Archive](#) · [By email](#) · [More featured articles](#)

## Did you know...

- ... that the critically endangered **Eyrewell ground beetle** (*pictured*) is known from just one locality—a pine plantation which is currently being cut down and turned into dairy farms?
- ... that after he was diagnosed with a heart condition, rodeo cowboy **Louis Brooks** agreed to retire if he won a second All Around Cowboy



## In the news

- Scientists announce that **Voyager 2** has left the heliosphere and entered interstellar space, becoming the second man-made object to do so.
- In South American association football, the Copa Libertadores pre-finals concludes with River Plate (*captain* [Gerardo Martino](#), *pictured*) defeating Boca Juniors in the **final**.
- The sample-return spacecraft **OSIRIS-REx** arrives at the 101955 Benu.
- Former U.S. President **George H. W. Bush** dies at the age of 94.
- Magnus Carlsen defeats Fabiano Caruana to retain the **World Chess Championship**.

**Ongoing:** [Yellow vests movement](#)

**Recent deaths:** [Robert Bergland](#) · [Lyudmila Alexeyeva](#) · [Belinda Carlisle](#) · [Larry Hennig](#)

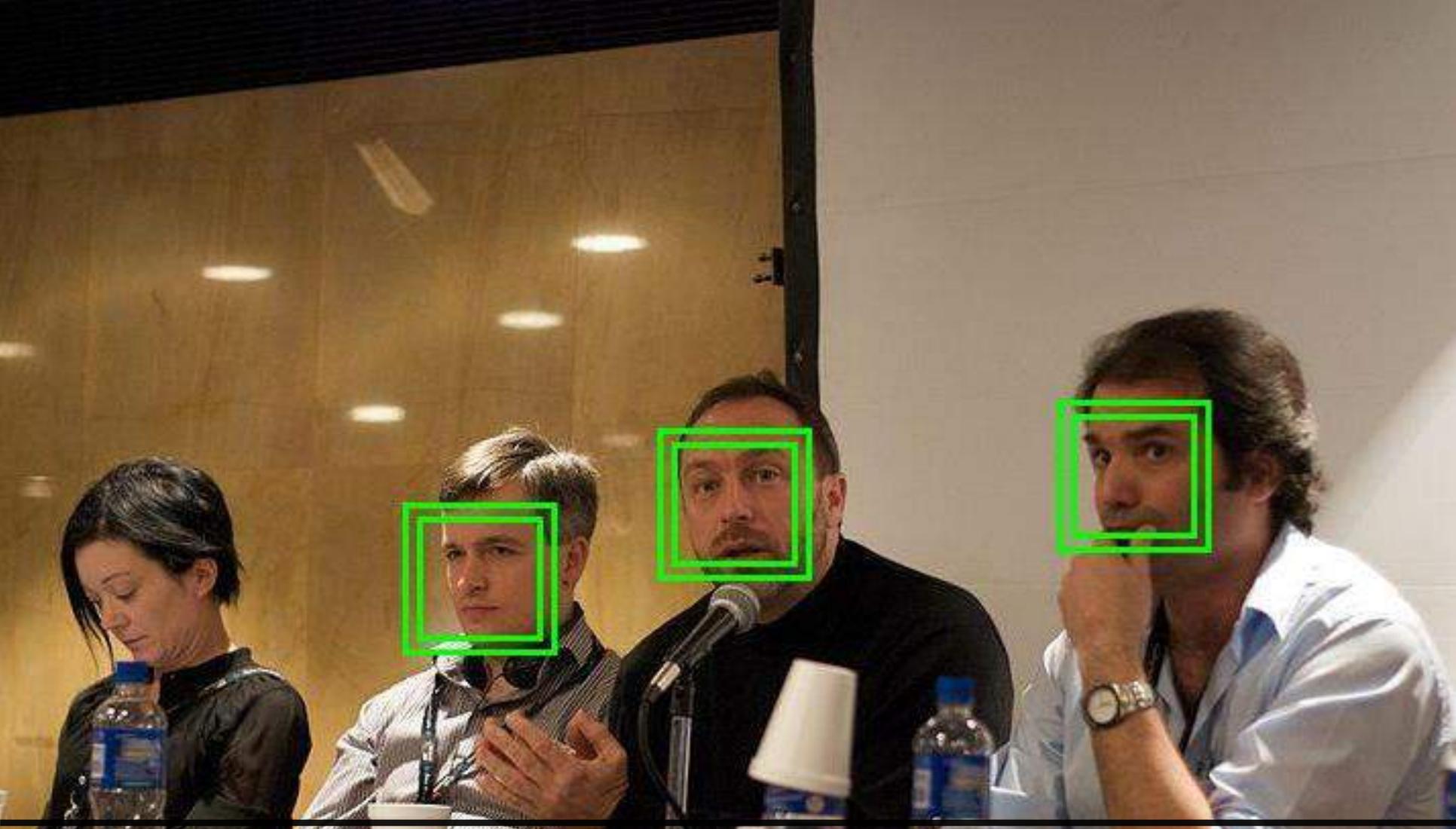
## On this day

**December 11**

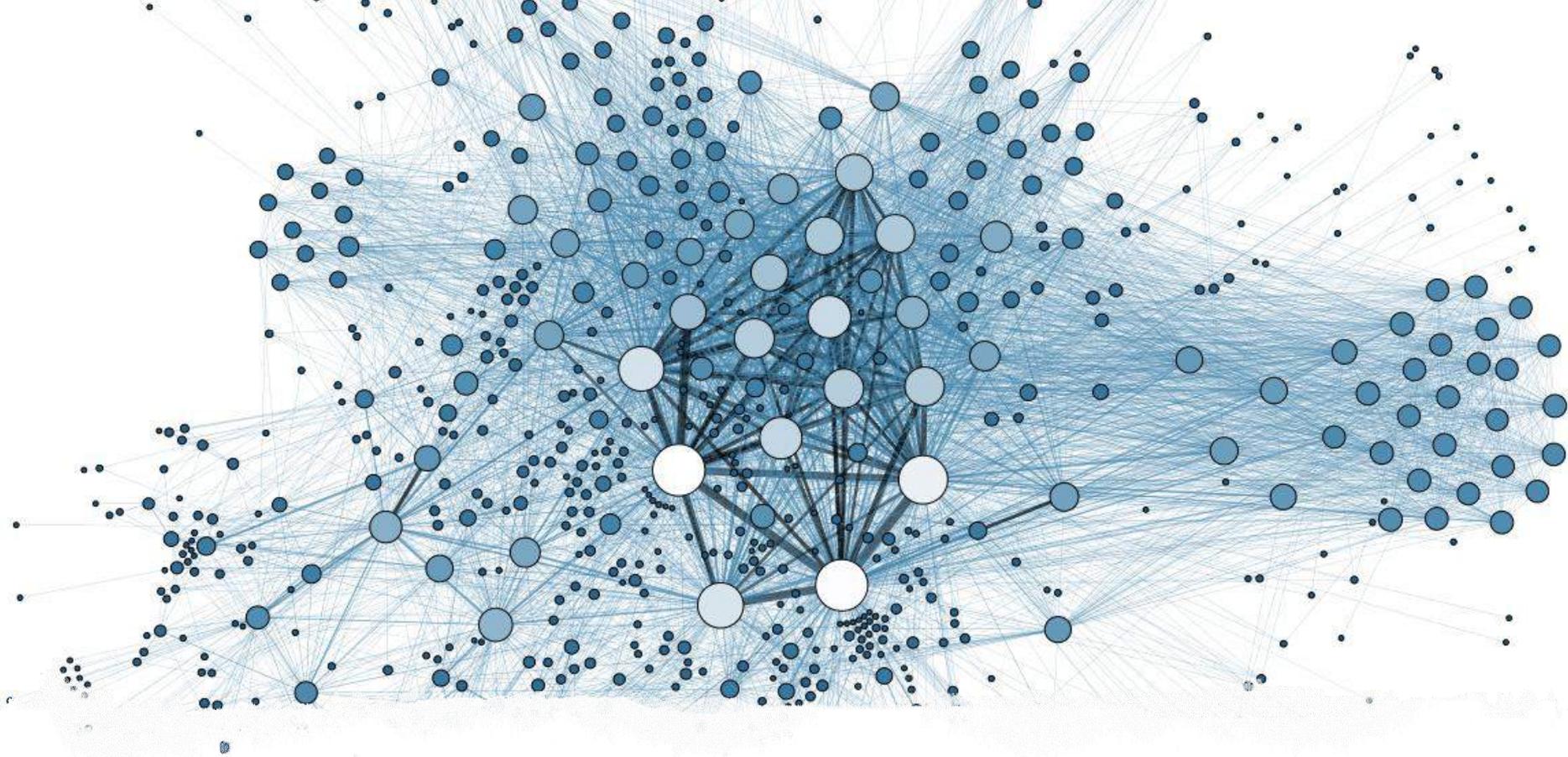
- 1789 – The **University of North Carolina**

การจัดระบบข้อมูล

Semantic Web



**การสกัดข้อมูล**



## การแลกเปลี่ยนข้อมูล

- Z39.50
- OAI-PMH
- OpenURL

Bought this item also bought



Beasts  
Magical



The Noble Collection  
Fantastic Beasts Magical  
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Building Card Game |  
Official Harry Potter...  
★★★★★ 607  
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Items related to this item (What's this?)

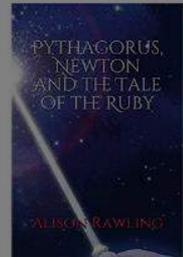
# ສະບັບແກນຳ



ian



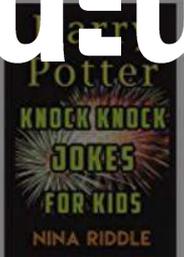
Candace Center Stage  
Candace Cameron Bure  
  
By Candace Cameron Bure,  
star of the hit TV series Full  
House and Fuller House, tells  
the story of a little girl who  
loves to dance.  
★★★★★ 45  
Just released  
Hardcover  
\$14.73 ✓prime



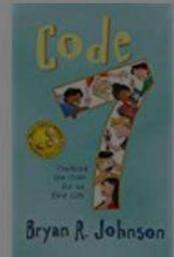
PYTHAGORUS, NEWTON  
AND THE TALE OF THE  
RUBY  
Alison Rawling  
  
Will they find the stolen ruby  
in time? Read this exciting  
children's book based in an  
underwater school to see if  
Pythagorus & Newton save  
the day.  
★★★★★ 1  
Paperback  
\$8.89 ✓prime



Diaries of a Dragon  
Beatriz Rare  
  
A lovely story about the value  
of friendship and overcoming  
exclusion. Come with Titan,  
the little dragon, on his  
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Paperback  
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Jokes for Kids: The  
Unofficial Book of Funny  
Laugh-out-Lou...  
Nina Riddle  
★★★★★ 8  
Paperback  
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Code 7: Cracking the Code  
for an Epic Life: (funny,  
fast-paced stories for ages  
7-10)  
Bryan R. Johnson  
  
7 Kids crack the code for an  
Epic Life! Funny and fast-  
paced for boys and girls. Kid-  
tested, parent-approved.  
Mom's Choice Award Gold  
Winner 2018  
★★★★★ 29  
Kindle Edition  
\$3.99



Superhero for a Day  
Dustin Brady  
  
With non-stop action, huge  
plot twists, and tons of  
humor, this is the perfect  
book to give to an 8-12-year-  
old boy who hates reading.  
★★★★★ 27  
Paperback  
\$7.99 ✓prime

The U  
Potter  
Trainin  
Versio

The Un  
Spellb  
Trainin  
Version  
Michae  
★★★★  
Paperb  
\$10.54



About 48,300,000 results (0.39 seconds)

The feature matrix of users can be defined as where is used to characterize the user's explicit **feedback**, is used to characterize the user's **implicit feedback**, denotes the set of all items that user gave **implicit feedback**, and denotes the **implicit** feature vector of item . Nov 12, 2015

Exploiting Explicit and Implicit Feedback for Personalized Ranking  
<https://www.hindawi.com/journals/mpe/2016/2535329/>

# ระบบค้นคืน

[PDF] Collaborative Filtering for Implicit Feedback Datasets - Yifan Hu  
[yifanhu.net/PUB/cf.pdf](http://yifanhu.net/PUB/cf.pdf)

by Y Hu - Cited by 1617 - Related articles

In an **implicit** model, once the user gives approval to collect usage data, no additional explicit **feedback** (e.g. ratings) is required on the user's part. This work conducts an exploration into algorithms specifically suitable for processing **implicit feedback**.

A Gentle Introduction to Recommender Systems with Implicit Feedback

<https://jessesw.com/Rec-System/>

May 30, 2016 - Regardless of this disadvantage, **implicit feedback** is usually the way to go. Hulu, in a blog post about their recommendation system states:.

Exploiting Explicit and Implicit Feedback for Personalized Ranking

<https://www.hindawi.com/journals/mpe/2016/2535329/>

by G Li - 2016 - Cited by 17 - Related articles

Nov 12, 2015 - The feature matrix of users can be defined as where is used to characterize the user's explicit **feedback**, is used to characterize the user's **implicit feedback**, denotes the set of all items that user gave **implicit feedback**, and denotes the **implicit** feature vector of item

- ผลตอบกลับที่ชัดเจน

- การให้คะแนน

- การแนะนำ

- ผลตอบกลับแอบแฝง

- ประวัติการใช้งาน

- ระยะเวลาที่ใช้งาน

- แบบแผนการสืบค้น

เครือข่ายรูปแบบการสะกดต่าง ๆ บน Twitter

2122 of 2122 nodes

# การประมวลผล ภาษาธรรมชาติ

## คำอธิบาย

โหนดสีน้ำเงิน คือ คำที่ปรากฏในพจนานุกรม

โหนดสีเหลือง คือ คำที่สะกดผิดหรือคำที่เกิดขึ้นใหม่

ขนาดของโหนด แสดงจำนวนความถี่ของการปรากฏ

# การสงวนรักษา

- LOCKSS - “lots of copies keep stuff safe”
- Blockchain?
- Emulation?
- Migration?
- Persistent archives



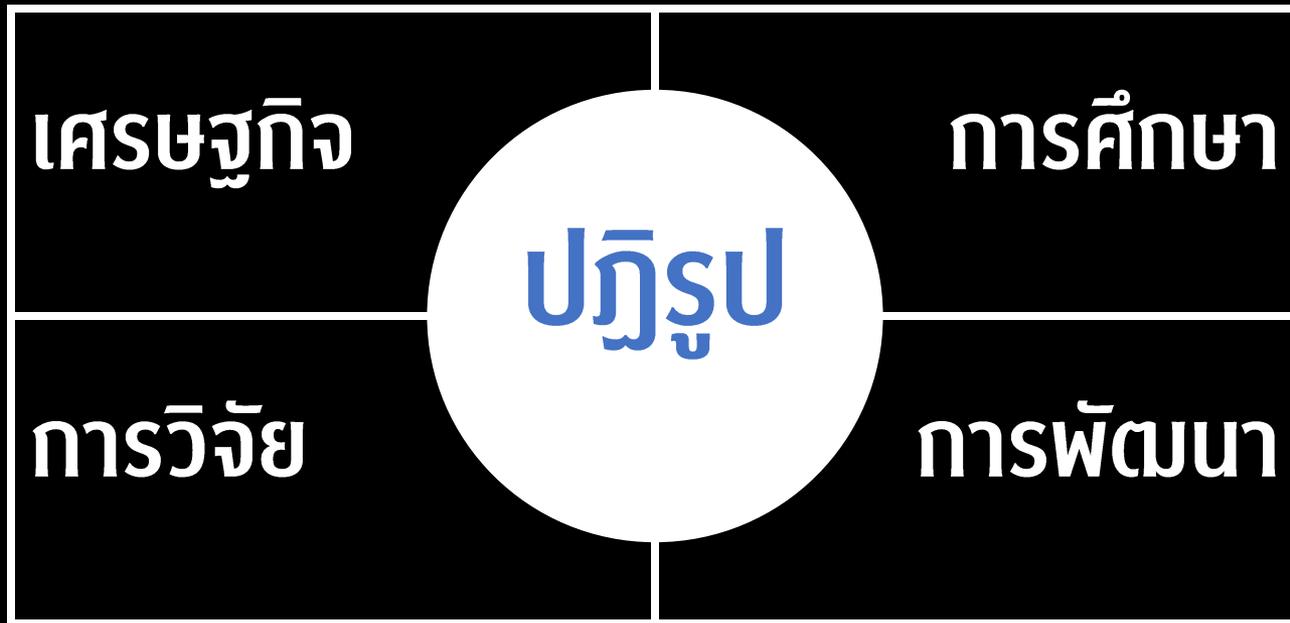
# **Right management**

- Classification
- Licensing



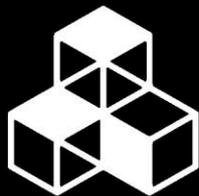
Another Cinema  
[m.me/1836204219812050](https://m.me/1836204219812050)

# Thailand 4.0



# Thailand 4.0

สู่ความได้เปรียบในเชิงการแข่งขัน



ด้วย นวัตกรรม และ ความคิดสร้างสรรค์

# Thailand 4.0

บริการ  
มูลค่าต่ำ



บริการ  
มูลค่าสูง

# Thailand 4.0

แรงงาน  
ทักษะต่ำ



แรงงาน  
ความรู้

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นำเข้า  
เทคโนโลยี



ผลิต  
เทคโนโลยี

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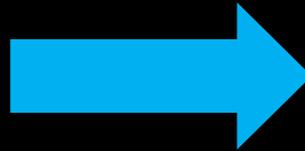
ทำมาก  
ได้น้อย



ทำน้อย  
得多

# ประเทศไทย 4.0

ทำมาก  
ได้น้อย

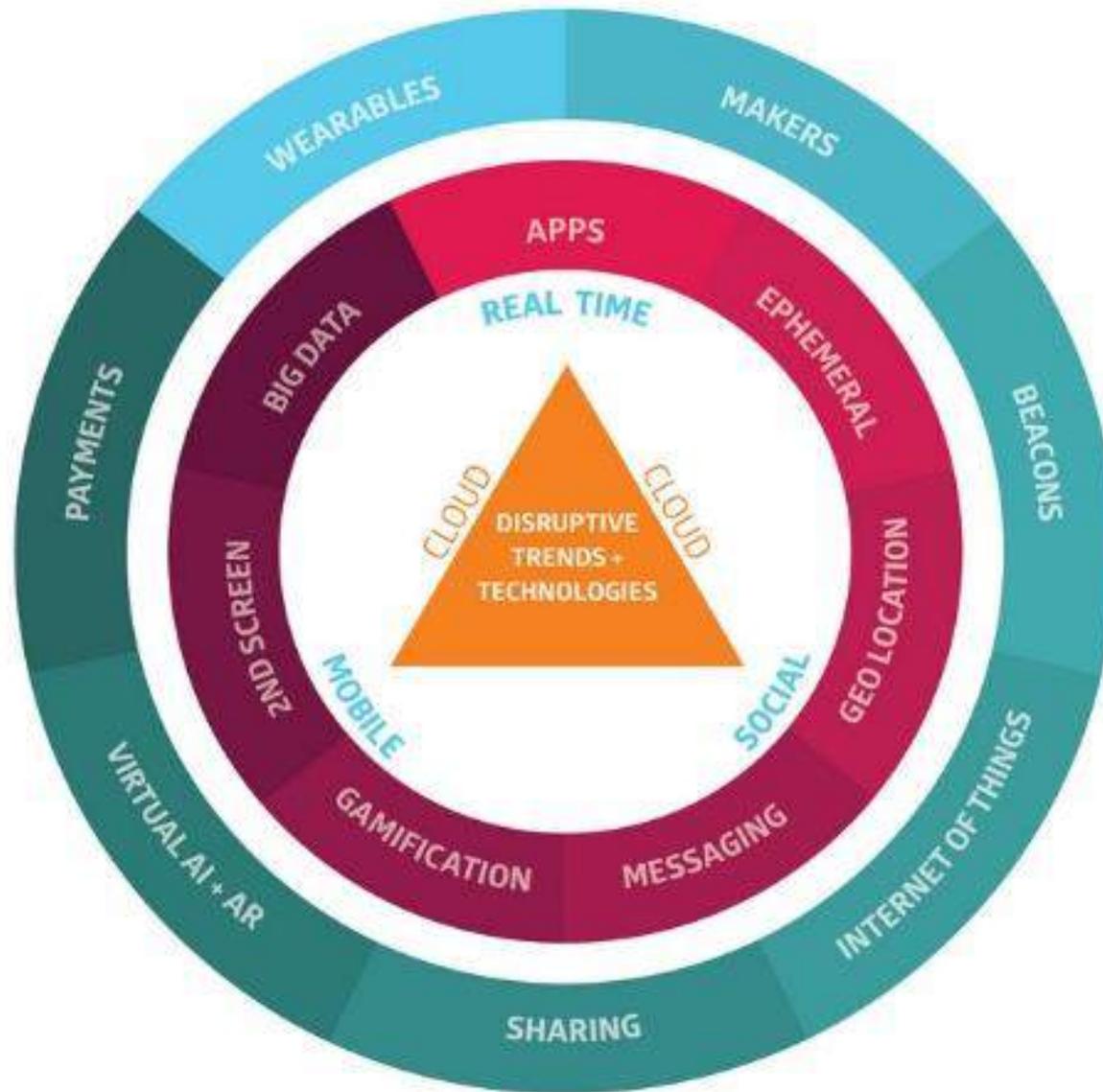


ทำน้อย  
ได้มาก

- อุตสาหกรรม
- สินค้าโภคภัณฑ์
- ซื่อขายสินค้า

- เทคโนโลยี
- นวัตกรรม
- ซื่อขายบริการ

# THE WHEEL OF DISRUPTION



Within the Wheel of Disruption, the "Golden Triangle" is encircled by other emergent technologies and sectors affected by mobile, social, and real-time, such as big data, geo-location, cloud, and more.

# Thailand 4.0

## กลุ่มเป้าหมาย

---

1. กลุ่มอาหาร เกษตร และเทคโนโลยีชีวภาพ
2. กลุ่มสาธารณสุข สุขภาพ และเทคโนโลยีทางการแพทย์
3. กลุ่มเครื่องมืออุปกรณ์อัจฉริยะ หุ่นยนต์ และระบบเครื่องกลที่ใช้ระบบอิเล็กทรอนิกส์ควบคุม
4. กลุ่มดิจิทัล เทคโนโลยีอินเทอร์เน็ตที่เชื่อมต่อและบังคับอุปกรณ์ต่าง ๆ ปัญญาประดิษฐ์และเทคโนโลยีสมองกลฝังตัว
5. กลุ่มอุตสาหกรรมสร้างสรรค์ วัฒนธรรม และบริการที่มีมูลค่าสูง

## Parental Education Banishing School Recess



NOTE  
of  
Time

Under pressure from parents and the star  
a waste of precious time. Benjamin O.  
York Times; "We are intent on impro-  
hanging on the monkey bars."

The schoolyards in Atlanta  
running, talking, or laughing  
years ago, the district  
new Atlanta elementary

Other schools have banished recess  
arise from outdoor play. Administrators  
walls, and a shortage of teachers

All work and no play...  
Olga Luzzati, a professor  
She recently conducted  
who do not have

Wrestling  
Play  
needed

Give  
Playing  
Time

What  
Schools  
Should  
Do

The  
Know  
How  
to  
Play

สังคมอุดมข้อมูลเชิงประจักษ์