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Study on Digital Archives Standard for Library Automation System

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Outline

- Motivation
- System Requirement
- Technique Analysis
- Conclusion

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Motivation

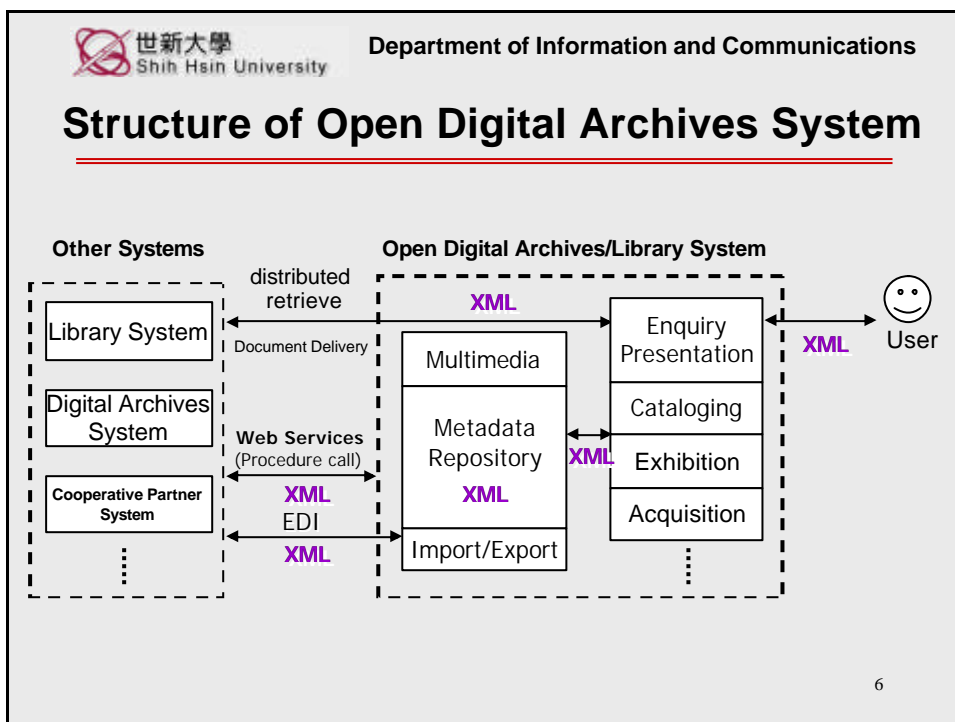
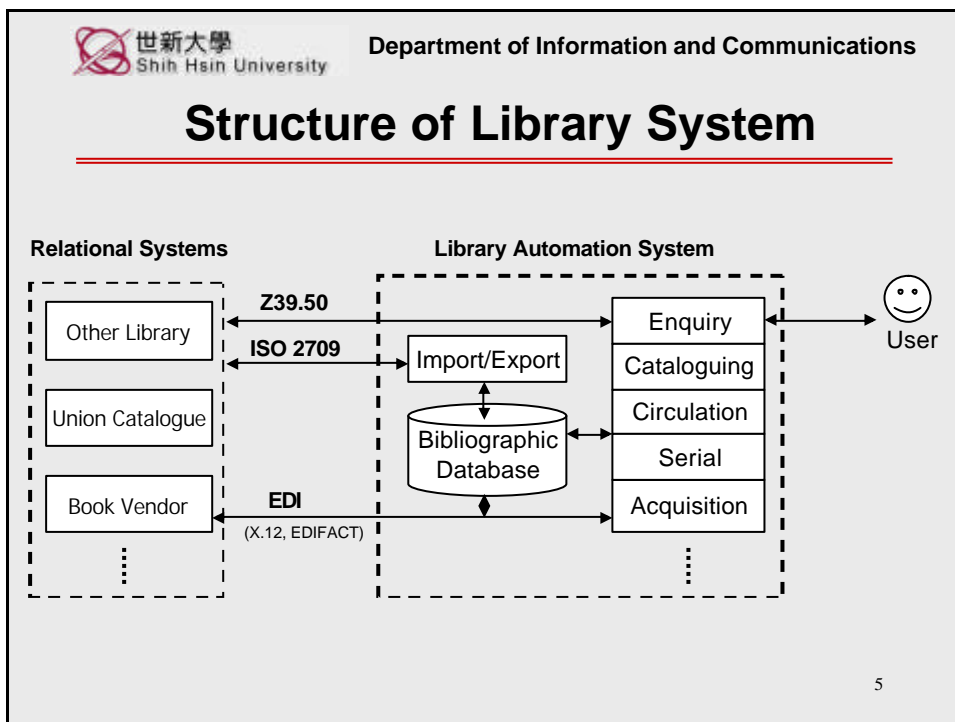
- The scope of library system processing archives similar to the digital archives
- Existing library system work and relative application technology, protocol are not appropriate for the applied requirement of digital archives entirely
- The application systems of international digital archives projects are also not appropriate for the library automation system

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System Scope

- Library automation system
 - Digital description and automatic service of entity publication (books and non- book material)
 - Physical archives + Digital description
- Digital library system
 - Completely digital information and service
 - Digital archives + Digital description
- Digital archives system
 - Digitize the material, record the description (metadata), and present or disseminate these digital objects
 - Physical archives -> Digital Object + Digital description

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Requirements for Information Management

- The document must simultaneously contain both of the description data (metadata) and the digital object (multimedia)
- The demand of data structure for digital archives
- The mechanism of interoperability among systems or content

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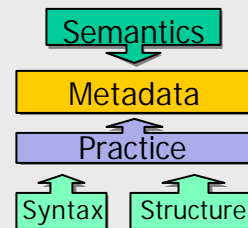
Requirements of Digital Archives System

- Internal Process
 - Syntax: XML
 - Semantic: Metadata
 - Digital Object: Multimedia
 - Storage: XML Database / Relational Database
- External Process (Interoperation)
 - Distributed Enquiry: OAI-PMH
 - Remote Procedure Call: SOAP
- Backup and sharing
 - Data Exchange: XML format

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Standard in Library System

- Internal process
 - Standard: MARC
- External process
 - Standard: Z39.50, X.12/EDIFACT
- Backup and sharing
 - Standard: Z39.50, ISO2709



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Technique Analysis: Syntax of Markup Standard

- Limitation of ISO2709
 - Only three fields: tag, subfield, indicator
 - Unable to identify the variety of MARC categories
 - Unable to recognize the character code
 - Unable to present directly in webpage
- XML: flexibility, simplicity, and readability
 - Widely used in metadata of digital archives as main syntax and format

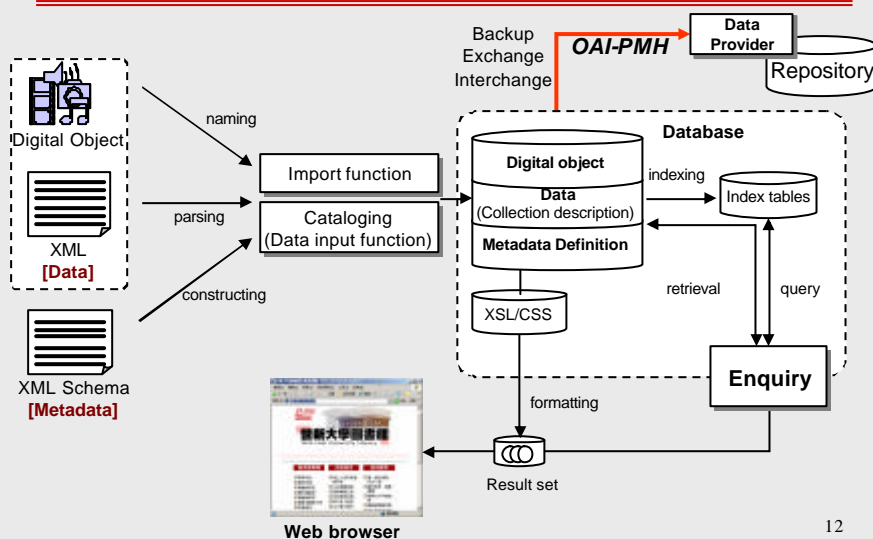
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Technique Analysis: Distribution Enquiry

- Limitation of Z39.50
 - Different servers interpret queries differently
 - Must wait for a lot of record transfer and post-processing for the result
- OAI-PMH (Open Archives Initiative metadata harvesting protocol)
 - To facilitate the efficient dissemination of content
 - Opening up access to a range of digital materials

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The system workflow diagram



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Conclusion

- The library automation system cannot directly handle data format from digital archives, or directly exchange data with other digital archives systems.
- The major reasons are the data structure which include metadata definition, exchange format, interoperability protocol do not support XML directly.
- Some standards above are under revision or have been revised to XML standard.
- It still is necessary to enhance the promotion and application in system service, and to raise the level of library collection and services.

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Thank you.

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Z39.50 vs. OAI-PMH

- Z39.50 is more complexity
 - Manage session and result set, filter the records returned...
- OAI protocol is more simple
 - Not intend to replace other approaches
 - Provide an easy-to-implement and easy-to-deploy alternative

