未來大學圖書館的挑戰與合作
-以圖書館資訊系統為例

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內容

- 圖書館資訊系統面臨的挑戰

- 未來資訊環境的趨勢

- 危機與轉機

- 開放性圖書館資訊系統環境（Kuali OLE）

- 結論

圖書館資訊系統面臨的挑戰

- 數位資訊環境改變迅速
  - 數位內容更加多元化
    - 電子書、電子期刊、電子雜誌、電子地圖、數位音樂、照片、動畫、3D模型、虛擬實境…
  - 資料格式不斷改變
    - DOC、PDF、ePUB、XML、GDF、WAV、MP3、GIF、JPEG、3DS、OBJ
- 圖書館主要的自動化系統，以處理（實體）圖書資料而設計，較無法因應大環境的改變

- 數位內容載體與軟體的改變迅速
  - 載體：讀者使用的終端數位內容載體，不斷更新
    - 個人電腦、平板電腦、電子書閱讀器、智慧型手機…
  - 軟體：讀者使用的閱讀、聆聽與學習的平台功能
    - 閱讀電子書或文章時的註記、社群心得分享….
- 圖書館資訊系統目前較無法滿足讀者終端軟硬體的需求，整合性較不足
  - 廠商各自開發，雖有共通標準（如電子雜誌），但不容易整合

圖書館資訊系統面臨的挑戰（續2）

- 與學校行政系統串接
  - 圖書與期刊採購模組與會計系統的串接
  - 學生註冊（報到）、休學或離校等與教務系統的串接
  - 機構典藏系統與研發系統的串接
  - …
- 與學生學習系統串接
  - 選課系統、線上學習、學生學習履歷等系統的串接
  - …
- 需要更具備擴充性，較具彈性的無縫串接機制功能

圖書館資訊系統面臨的挑戰（續3）

- 圖書館系統間的串接與合作機制不足
  - 目前圖書館系統大多處理本館的館藏
    - 雖有館際間的文獻傳遞或圖書互借服務，但資訊系統串接不容易
  - 聯合目錄建置不易
    - 目前NDDS系統，每年都需要各館上傳館藏資料
      - 一年更新一次，造成資料正確性不足
    - 臺聯大系統的作法：透過primo系統串接，館藏資料狀態正確
- 圖書館系統的資料格式，雖有國際的標準（MARC21 、 FRBR等），但整合性仍不足

新世代圖書館服務平台

- 新一代圖書館自動化方案的特色(Marshall Breeding in "Beyond the ILS:A New Generation of Library Services Platforms)
  - 完整地管理圖書館的資源，包含印刷、電子與數位化資源（Comprehensive management of library materials including electronic, digital, and print.）
  - 原始設計就是以多租戶軟體型態提供雲端的軟體服務(Designed to be deployed through multi-tenant software as a service.)
  - 書目與電子館藏是建立在可分享的知識庫上(Reliance on shared knowledge bases for bibliographic and e-content holdings)
  - 服務為導向的架構(Service-oriented architecture)
  - 網頁基礎為介面的館員工作環境(Reliance on Web-based interfaces for staff functionality)

Library Services Platform

- **Library**-specific software. Designed to help libraries automate their internal operations, manage collections, fulfillment requests, and deliver services
- **Services**
  - Service oriented architecture
  - Exposes Web services and other API's
  - Facilitates the services libraries offer to their users
- **Platform**
  - General infrastructure for library automation
  - Consistent with the concept of Platform as a Service
  - Library programmers address the APIs of the platform to extend functionality, create connections with other systems, dynamically interact with data

Library Services Platforms – Functional

- Manages electronic and print formats of materials
- Replaces multiple incumbent products
- Extensive Metadata Management
  - MARC, Dublin Core, BIBFRAME, etc
- Multiple procurement workflows
  - Purchase, License, DDA
- Knowledgebases
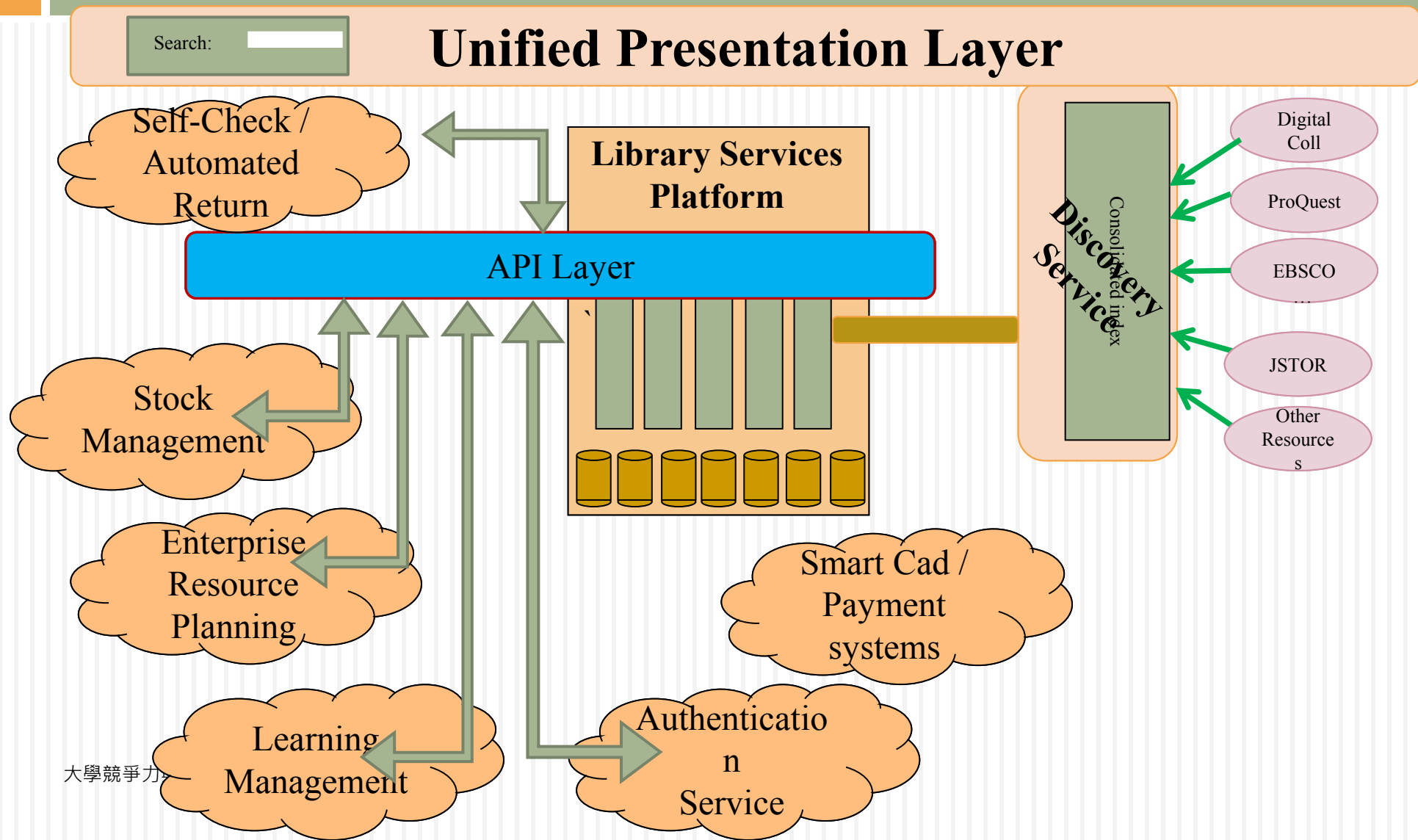- Built-in collection analytics

資料來源：Breeding, M. (2016). Library systems report
http://americanlibrariesmagazine.org/2016/05/02/library-systems-report-2

Library Services Platforms – Technical

- Beyond Client/Server Computing
- Multi-tenant platforms
- Web-based interfaces
- Services-oriented architecture
- Exposes APIs for extensibility and interoperability
- Interoperable

資料來源：Breeding, M. (2016). Library systems report
http://americanlibrariesmagazine.org/2016/05/02/library-systems-report-201

新世代圖書館服務平台管理模式

Unified Presentation Layer

Search:

Self-Check / Automated Return

Library Services Platform

API Layer

Discovery Service

Consolidated index

Digital Coll

ProQuest

EBSCO…

JSTOR

Other Resources

Stock Management

Enterprise Resource Planning

Smart Cad / Payment systems

Learning Management

Authentication Service

大學競爭力

Library Services Platforms

Category	WorldShare Management Services	Alma	Intota	Sierra Services Platform	Kuali OLE
Responsible Organization	OCLC.	Ex Libris	ProQuest	Innovative Interfaces	Kuali Foundation
Key precepts	Global network-level approach to management and discovery.	Consolidate workflows, unified management: print, electronic, digital; Hybrid data model	Knowledgebase driven. Pure multi-tenant SaaS	Service-oriented architecture Technology uplift for Millennium ILS. More open source components, consolidated modules and workflows	Manage library resources in a format agnostic approach. Integration into the broader academic enterprise infrastructure
Software model	Proprietary	Proprietary	Proprietary	Proprietary	Open Source

危機即是轉機

□ 危機

  □ 圖書館資訊系統面臨前所未有的挑戰

  ■ 資訊大環境的改變迅速

  □ 圖書館經費的刪減

  ■ 建置下一代資訊系統經費嚴重不足

□ 轉機

  □ 新世代圖書館資訊服務平台的開放資源

  ■ 合作共同建置與營運

  ■ 資源分享更加緊密（如聯合目錄）

Open Library Environment(OLE)

大學競爭力與圖書館價值研討會－淡江大學圖書館
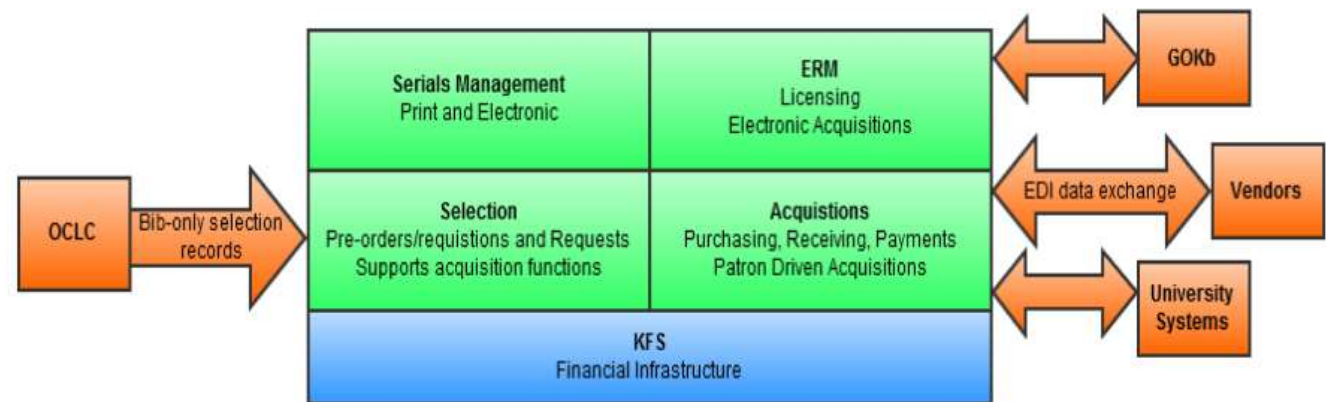
Kuali OLE 四大模組

Select and Acquire module

- Encompasses Financial, Selection, Acquisitions, Receiving, Payment/Invoicing, Licensing, and Electronic Resource Management (ERM)
- Supports operational processes for demand-driven acquisitions of library resources

Describe and Manage Module

- "Cataloging" is the term most commonly used in academic libraries for what OLE defines as Describe and Manage activities.

- OLE's user-friendly interface allows library staff to create and manage core metadata relating to library resources such as bibliographic data, localized holdings, and electronic resources access information.

大學競爭力與圖書館價值研討會 - 淡江大學圖書館
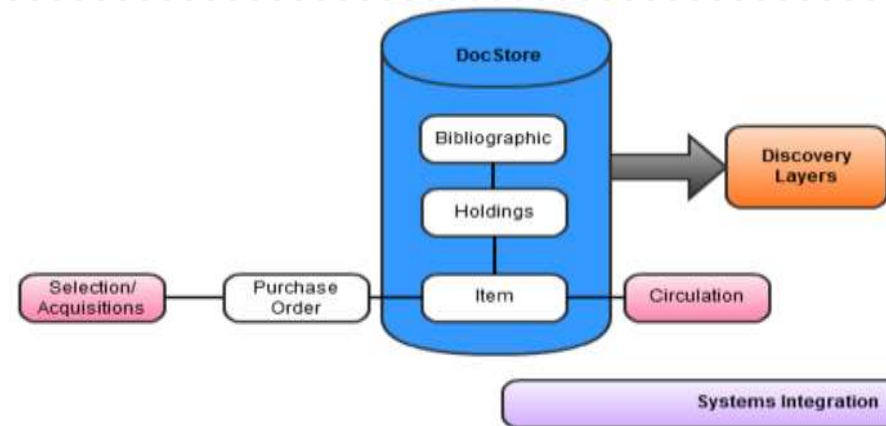
Deliver Module
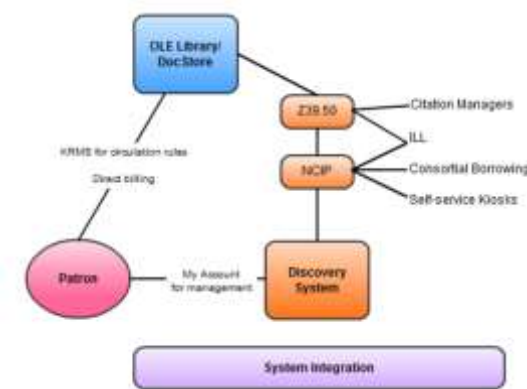
- Covers the interactions between the library, its collection, patrons and discovery systems and provides the basic features/functions to manage these processes.

- OLE circulation is based on the ability to link patron data to item data in various combinations under various circumstances and conditions.

- OLE allows any library to select a wide range of options to meet local circulation policy requirements, e.g., patron-related blocks, item-related blocks, loan periods, notice types and notice frequency, etc.

Systems Integration

- Link between the modules
  - Select and Acquire, Describe and Manage, Deliver, and Kuali Rice
- A common middleware suite built as a service oriented architecture (SOA).
- Design of interoperability with institution-wide applications such as: Identity management, acquisitions/financial accounting, course and learning management, and student information systems.

結論
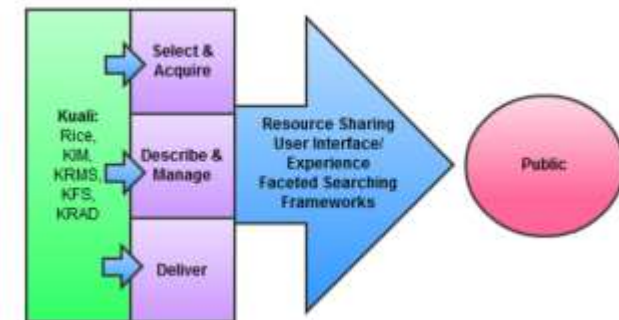
- 圖書館面臨無數的挑戰與困境
  - 資訊環境快速改變
  - 經費與資源逐年減少
  - 需要更加積極面對挑戰
- 化危機為轉機
  - 合作與聯盟，參與OLE開發？
- 台灣圖書館界需要建置合作且共享的雲端化資訊系統
  - 符合各圖書館需求
  - 資源分享更加有效率且合作更密切
  - 永續發展

大學競爭力與圖書館價值研討會 - 淡江大學圖書館