

Reimagining Academic Libraries in Taiwan

中英對照演講稿（修訂版）

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Slide 1 | INTERNATIONAL LECTURE

中文講稿

各位日本私立大學圖書館協會的同道，大家好。非常高興有機會和各位分享臺灣大學圖書館近年的發展與轉型。今天的題目是「重新想像臺灣的大學圖書館：從知識基礎設施到 AI 賦能創新」。

我想談的不只是 AI 工具，而是一個更根本的問題：當大學、學習方式與研究環境都在改變時，大學圖書館應該成為什麼？我會從學習、研究，以及整個大學機構三個層次來思考。

English Script

Good morning, everyone. It is a great pleasure to join colleagues from the Japan Association of Private University Libraries. Today, I would like to share how academic libraries in Taiwan are changing.

My title is “Reimagining Academic Libraries in Taiwan: From Knowledge Infrastructure to AI-Enabled Innovation.”

This talk is not only about AI tools. I would like to ask a more basic question: when universities, learning, and research are all changing, what should the academic library become? I will look at this question from three levels: learning, research, and the institution as a whole.

Slide 2 | Roadmap

中文講稿

今天的演講分成六個部分。首先，我會簡要說明臺灣大學目前面臨的挑戰；第二，談這些變化如何影響大學圖書館；第三，重新思考 AI 時代圖書館的價值。

接著，我會介紹臺灣一些正在發生的轉型案例，再提出未來大學圖書館的三項策略性角色。最後，我會談幾項可以實際採取的行動，以及臺日合作的可能方向。

English Script

My talk has six parts. First, I will briefly discuss the major challenges facing universities in Taiwan. Second, I will look at how these changes affect academic libraries. Third, I will reconsider the value of the library in the AI era.

Then I will introduce several examples of transformation in Taiwan, propose three strategic roles for the future academic library, and end with practical actions and possible areas for Taiwan-Japan collaboration.

Transition / Let me begin with the broader higher education context.

Slide 3 | 01 Key Challenges Facing Taiwanese Universities

中文講稿

第一部分先從大學本身開始。因為圖書館不是獨立存在的；大學的環境改變，圖書館的任務也一定會跟著改變。臺灣的大學目前最明顯的背景，是少子化、學校定位的重新調整，以及 AI 帶來的快速變化。

English Script

Let me begin with the university itself. The library does not exist separately from the university. When the university changes, the mission of the library must also change.

In Taiwan, three important background conditions are demographic contraction, the need for clearer institutional differentiation, and rapid change driven by AI.

Slide 4 | Five pressures are converging on universities

中文講稿

我把目前大學所面臨的壓力整理成五項。第一是人口，學生人數減少而人口老化；第二是財務，尤其對高度依賴學費的大學而言，招生減少會直接影響收入。

第三是差異化。當學生變少，每一所大學都必須更清楚回答：自己的特色與使命是什麼？第四是學習型態改變，包括混合學習、終身學習與更彈性的學習路徑。第五是 AI，它已經進入課程、評量、學術誠信與治理。

所以這張投影片最重要的一句話是：大學正在改變，圖書館不能再以過去的假設來規劃未來。

English Script

I see five pressures coming together. The first is demography: smaller student cohorts and an aging population. The second is finance. For universities that depend heavily on tuition, fewer students can quickly become a financial problem.

Third is differentiation. When the student population becomes smaller, every university needs a clearer mission and identity. Fourth, learning is changing through hybrid, lifelong, and more flexible pathways. Fifth is AI. AI now affects curriculum, assessment, academic integrity, and governance.

So the key message here is simple: the university is changing, and the library cannot plan its future based on yesterday's assumptions.

Slide 5 | Taiwan Higher Education: A Long-Term Demographic Challenge

中文講稿

先看臺灣高等教育的規模。2025 年共有 149 所高等教育機構，其中 49 所公立、100 所私立。也就是說，大約三分之二是私立大學。

這一點對今天的日本聽眾可能特別值得注意，因為臺灣與日本都有相當大的私立高等教育機構。當招生人口下降時，私立大學通常更直接受到學費收入與財務壓力的影響。因此，少子化不只是招生問題，也是大學經營與圖書館資源配置的問題。

English Script

Let us first look at the size of higher education in Taiwan. In 2025, Taiwan had 149 higher education institutions: 49 public and 100 private. In other words, about two-thirds are private.

This may be especially relevant to a Japanese audience because both Taiwan and Japan have large private higher education sectors. When the student population declines, private universities can be more directly affected through tuition income. So demographic change is not only an admissions issue. It also affects university finance and, eventually, library resources.

Slide 6 | First-Year Student Population 大學一年級學生人數

中文講稿

這張圖可以更清楚看到長期趨勢。2020 年大學一年級學生約 22.9 萬人，2023 年降到 19.5 萬，預估 2028 年約 18.6 萬。

2030 年可能暫時回升到 22.1 萬，但這主要是特定出生世代造成的短期反彈，並不代表少子化趨勢逆轉。到 2041 年，預估一年級學生約 15.1 萬。

因此，我們不能只看某一年的上升或下降，而要看到長期結構性的收縮。對圖書館而言，這代表未來必須用更有限的資源，創造更清楚、也更可被看見的價值。

English Script

This slide shows the long-term trend more clearly. Taiwan had about 229,000 first-year university students in 2020. The number fell to about 195,000 in 2023 and is projected to be about 186,000 in 2028.

There may be a temporary rebound to around 221,000 in 2030, mainly because of a particular birth cohort. But this does not reverse the long-term demographic trend. By 2041, the number is projected to fall to about 151,000.

So we should not focus on a single year. The larger picture is long-term contraction. For libraries, this means creating clearer value with more limited resources.

Slide 7 | AI is not merely changing university technology; it is changing how universities teach, assess, govern, and define academic responsibility. AI 改變的不只是大學的科技，而是教學、評量方式、治理及學術責任。

中文講稿

除了人口之外，AI 是另一個關鍵變項。AI 改變的不只是大學使用什麼科技，而是大學如何教、如何評量、如何治理，以及如何界定學術責任。

例如，在課程上，我們要問學生應該「用 AI 學什麼」，也要問他們應該「了解 AI 的什麼」。在評量上，如果 AI 可以生成答案，我們如何知道學生真正學會了什麼？在學術誠信上，AI 使用應如何揭露、查證與註明？在治理上，誰制定規範、管理風險並負責？

這些問題都不是資訊中心或圖書館單獨可以解決的，但圖書館應該是其中的重要參與者。

English Script

AI is another major force. It is not simply changing the technology used by universities. It is changing how universities teach, assess, govern, and define academic responsibility.

For curriculum, we need to ask both what students should learn with AI and what they should understand about AI. For assessment, if AI can generate an answer, how do we know what the student has really learned? For academic integrity, how should AI use be disclosed, checked, and attributed? And for governance, who sets the rules, manages risks, and takes responsibility?

These are not questions that the library can solve alone, but the library should be an important partner in addressing them.

Transition / These university-level changes bring us directly to the library.

Slide 8 | 02 Key Challenges Facing Academic Libraries in Taiwan

臺灣的大學圖書館的關鍵挑戰

中文講稿

接下來進入第二部分：大學圖書館本身面臨哪些挑戰？我想把焦點放在四件事：能見度、專業量能、對大型平台的依賴，以及不斷擴張的責任。

English Script

Now let me move to the second part: the challenges facing academic libraries themselves. I will focus on four issues: visibility, professional capacity, dependence on major platforms, and expanding responsibilities.

Slide 9 | Overview of Academic Libraries in Taiwan

臺灣學術圖書館現況概覽

中文講稿

先簡單看臺灣大學圖書館的現況。臺灣有 149 所高等教育機構；大專校院圖書館仍擁有大約 6,179 萬冊紙本館藏，同時提供大量數位資源。

在使用方面，一個很清楚的長期現象是紙本借閱下降，而數位資源使用增加。這也常伴隨實體進館與傳統借閱服務重要性的下降；但這不表示圖書館不再被使用，而是使用方式逐漸轉向線上與數位環境。

另一方面，臺灣很早就發展聯盟採購、館際互借與資源共享，因此「合作」一直是臺灣大學圖書館的重要特色。這張投影片只是現況概覽，後面我會再談圖書館如何進一步轉型。

English Script

Let me first give a brief overview. Taiwan has 149 higher education institutions. Academic libraries still hold about 61.8 million print volumes, together with extensive digital resources.

In use patterns, we see a long-term decline in print circulation and growing digital resource use. In many libraries, this is also associated with less reliance on physical visits and traditional borrowing. This does not mean that libraries are no longer used. Rather, library use is increasingly taking place in digital environments.

Taiwan also has a long history of consortial purchasing, interlibrary loan, and resource sharing. Cooperation has therefore been an important feature of Taiwanese academic libraries for many years. This slide is only an overview; later I will show how these libraries are transforming.

Slide 10 | Funding Strategies: Approaches to funding at national and private universities 經費策略：國立與私立大學的經費來源與配置

中文講稿

經費來源方面，國立與私立大學的條件並不完全相同。國立大學有政府基本需求補助、校務基金及各類國家型計畫；私立大學除了高教深耕計畫與私校獎補助，也較依賴學費、校友捐款與企業支持。

對私立大學而言，少子化形成一條很直接的壓力鏈：學生變少，學費收入下降；大學預算更緊，圖書館經費也更容易受到影響。

因此，未來圖書館不能只談「需要更多預算」，還必須更清楚證明自己的投資如何支持學習、研究與大學的發展目標。

English Script

Funding conditions are not the same for public and private universities. Public universities receive government operating support and can also use university funds and national project funding. Private universities also receive public project support, but they are generally more dependent on tuition, private-school subsidies, donations, and corporate support.

For private universities, demographic decline can create a very direct chain: fewer students, lower tuition income, tighter university budgets, and greater pressure on library budgets.

So libraries cannot only say that they need more money. They also need to show clearly how library investment supports learning, research, and institutional goals.

Slide 11 | Consortia and Strategic Alliances in Taiwan's Academic Libraries 大學圖書館的聯盟與策略合作

中文講稿

面對經費與資源壓力，臺灣大學圖書館長期依靠合作來擴大能力。電子資源方面，有聯合議價與共同採購；實體與文獻資源方面，有 NDDS、RapidILL 等館際資源分享機制；區域或大學系統之間，也發展一卡跨校借閱與代還。

這些合作的意義不只是節省經費。它也提醒我們：在今天這個環境裡，單一圖書館很難獨自擁有所有資源與專業能力。未來「共享能力」會比過去更重要。

English Script

Taiwanese academic libraries have long used collaboration to expand their capacity. For electronic resources, consortia support negotiation and shared purchasing. For physical and document resources, systems such as

NDDS and RapidILL support interlibrary sharing. University systems and regional alliances also offer cross-institutional borrowing and return services.

The value of cooperation is not only cost saving. It reminds us that no single library can own every resource or every kind of expertise. In the future, shared capacity will become even more important.

Slide 12 | Six forces are reshaping academic libraries

中文講稿

我把目前的營運環境整理成六股力量。第一是人口與經濟壓力；第二是 AI 逐漸成為資訊查詢的第一入口；第三是搜尋與內容平台愈來愈集中。

第四是開放科學，使圖書館增加研究資料、開放取用與保存責任；第五是政策與價值，包括權利、隱私、學術誠信與公平近用；第六是相互依存。

最後這一點很重要。這些壓力不是各自獨立的，而是彼此交織、相互放大。所以我們面對的不是六個分開的小問題，而是整個學術資訊環境的改變。

English Script

I summarize the current operating environment as six forces. First, demographic and economic pressure. Second, AI is becoming a first point of inquiry. Third, search and content are increasingly concentrated on major platforms.

Fourth, open science creates new responsibilities for research data, open access, and preservation. Fifth, libraries must deal with rights, privacy, integrity, and equitable access. And sixth, these forces are interdependent.

This last point is important. These pressures do not operate separately. They interact and amplify one another. So we are not facing six small problems. We are facing a change in the whole scholarly information environment.

Slide 13 | A highly digital library can become less visible

中文講稿

這裡出現一個很有意思的悖論：圖書館越數位化，反而可能越不容易被使用者看見。

今天很多學生與研究者不是先進入圖書館網站，而是先到 Google、出版社平台，或直接使用生成式 AI。可是背後很多知識資源，仍然是圖書館付費購置、取得授權、組織整理並長期保存。

所以問題不是圖書館「沒有被使用」，而是圖書館的價值常常變得不可見。這也是為什麼後面我會強調：圖書館必須讓自己的價值重新被看見。

English Script

Here we see an interesting paradox: the more digital the library becomes, the less visible it may become.

Many students and researchers no longer begin with the library website. They begin with Google, publisher platforms, or generative AI. Yet many of the knowledge resources behind their work are still paid for, licensed, organized, and preserved by the library.

So the problem is not simply that the library is “not used.” The problem is that library value can become invisible. This is why I will later emphasize the need to make library value visible again.

Slide 14 | Responsibilities expand while staffing capacity tightens

中文講稿

另一個問題是人力。傳統工作並沒有消失：採訪、詮釋資料、取用與保存仍然必須做。但是新的工作一直增加，包括 AI 素養、研究資料、證據整合、權利與隱私，以及 AI 評估。

真正的困難是，很少有圖書館可以為每一個新領域聘一位專家。因此，未來的人力策略不能只是「增加人數」，而是要思考如何重新培養館員能力、如何跨部門合作，以及如何跨館共享專業人才。

English Script

Another challenge is staffing. Traditional work has not disappeared. Libraries still need acquisitions, metadata, access, and preservation. But new responsibilities keep growing: AI literacy, research data, evidence synthesis, rights and privacy, and AI evaluation.

The real problem is that very few libraries can hire a specialist for every new area. So the workforce strategy cannot simply be “hire more people.” We need to rethink staff development, cross-unit collaboration, and shared expertise across institutions.

Transition / These challenges lead to a more fundamental question about library value.

Slide 15 | 03 The Value of Academic Libraries in the AI Era

中文講稿

前面談的是挑戰。接下來我想轉向一個更重要的問題：在 AI 時代，大學圖書館真正的價值是什麼？這一部分是整場演講的核心。

English Script

So far, I have focused on challenges. Now I would like to turn to a more important question: what is the real value of the academic library in the AI era? This is the central part of my talk.

Slide 16 | What must the academic library become?

中文講稿

當高等教育規模縮減，而且 AI 成為資訊查詢的重要入口，我們必須問：未來的大學圖書館必須成為什麼？

我認為答案不是再增加一個聊天機器人。圖書館當然可以使用 AI，但它更重要的角色，是成為支持學習、研究與大學機構韌性的可信賴知識基礎設施。

也就是說，我們不是和 ChatGPT 比誰回答得比較快，而是要提供 AI 本身不一定能保證的東西：可信賴的證據、權利治理、長期保存與專業判斷。

English Script

As higher education contracts and AI becomes an important first point of inquiry, we need to ask: what must the academic library become?

My answer is: not simply another chatbot. Libraries can certainly use AI, but their more important role is to become trusted knowledge infrastructure for learning, research, and institutional resilience.

In other words, we should not compete with ChatGPT on who can answer faster. We should provide what AI alone cannot always guarantee: trustworthy evidence, rights management, long-term preservation, and professional judgment.

Slide 17 | Library value is shifting from transactions to processes

中文講稿

這也代表圖書館價值的單位正在改變。過去我們常用一次檢索、一次借閱、一次資料庫使用來計算服務成果。這些指標仍然有用，但已經不夠。

未來更重要的是：我們是否進入學生的學習路徑？是否進入研究者的研究流程？是否協助建立可以追溯的證據鏈？

所以圖書館的價值正在從 individual transactions，也就是單次服務，轉向 learning and research workflows，也就是融入學習與研究流程。從「提供答案」，走向「守護知識可以被信任的條件」。

English Script

This also changes the unit of library value. In the past, we often counted a search, a loan, or a database session. These measures are still useful, but they are no longer enough.

A more important question is: are we part of the student's learning pathway? Are we part of the researcher's workflow? Do we help build a traceable chain of evidence?

So library value is shifting from individual transactions to learning and research workflows—from delivering answers to safeguarding the conditions under which knowledge can be trusted.

Slide 18 | Three pillars of trustworthy knowledge infrastructure

中文講稿

我把「可信賴知識基礎設施」分成三個支柱。第一是 Evidence，也就是可信證據。來源要可以追溯，檢索要盡量完整，要知道文獻是否被撤稿，也要能查證資料的來源與歷程。

第二是 Infrastructure，包括授權、隱私、系統互通，以及服務的持續性。第三是 Capability，也就是人的專業能力，包括 AI 素養、研究方法、公平支持與專業判斷。

請注意，這三個支柱缺一不可。只有技術，沒有可信證據，不夠；只有資源，沒有人的判斷，也不夠。

English Script

I describe trusted knowledge infrastructure through three pillars.

The first is Evidence: traceable sources, complete retrieval, awareness of retractions, and clear provenance. The second is Infrastructure: licensing, privacy, interoperability, and continuity. The third is Capability: AI literacy, research methods, equitable support, and professional judgment.

All three are necessary. Technology without trustworthy evidence is not enough. Resources without human judgment are also not enough.

Slide 19 | The library should not compete with general-purpose AI

中文講稿

因此，我認為圖書館不需要和通用型 AI 正面競爭。AI 很擅長速度、整合、規模與便利性。圖書館則應該守護證據、權利、知識記憶、持續性，以及共享的專業能力。

這裡我想特別強調：圖書館的價值不再只是一個個查詢，而是整個大學的知識環境。

所以我們的方向不是「再做一個 chatbot」，而是建立可信賴的知識基礎設施。

English Script

For this reason, I do not think libraries need to compete directly with general-purpose AI. AI is very good at speed, synthesis, scale, and convenience. Libraries should safeguard evidence, rights, institutional memory, continuity, and shared capability.

The key point is this: the unit of value is no longer the individual query. It is the institutional knowledge environment.

So our goal is not simply to build another chatbot. It is to build and maintain trusted knowledge infrastructure.

Slide 20 | Services must move upstream in the research lifecycle

中文講稿

這個概念在研究支援上特別清楚。傳統上，圖書館主要在研究者需要找文獻時介入，也就是 discovery 階段。但現在我們應該往研究生命週期的前端與後端延伸。

研究開始前，可以協助研究問題界定、證據盤點與資料管理計畫；研究進行中，可以協助可重現的檢索紀錄、權利與隱私，以及研究資料紀錄；研究完成後，可以支持開放取用、資料保存與研究能見度。

這不是說圖書館要取代研究者，而是更早參與，才能在整個研究生命週期中發揮更具策略性的價值。

English Script

This idea becomes especially clear in research support. Traditionally, libraries often entered the research process at the discovery stage—when researchers needed to find literature. Today, we need to move both upstream and downstream.

Before research, libraries can support question framing, evidence landscape reviews, and data management planning. During research, we can support reproducible search documentation, rights and privacy, and data records. After research, we can support open access, data preservation, and research visibility.

This does not mean replacing the researcher. It means engaging earlier so that the library can contribute more strategically across the research lifecycle.

Transition / With this value proposition in mind, let us look at what is already changing in Taiwan.

Slide 21 | 04 Transformation of Academic Libraries in Taiwan in the AI Era

中文講稿

前面建立了價值主張，現在進入第四部分：臺灣的大學圖書館實際上正在如何轉型？我會用幾個例子說明，轉型不只是導入 AI，而是平台、工作流程、服務與專業角色一起改變。

English Script

With that value proposition in mind, let us now look at what is actually changing in Taiwanese academic libraries. The examples show that transformation is not only about adopting AI. Platforms, workflows, services, and professional roles are changing together.

Slide 22 | Academic Libraries in Taiwan Are Transforming at Three Levels

中文講稿

我把目前的轉型整理成三個層次。第一是後臺工作流程，包括詮釋資料、採購、授權與分析。第二是前臺使用者體驗，包括資訊發現、參考服務、推薦與教學。第三是機構治理，包括證據、權利、資料與機構記憶。

這三個層次很重要，因為它提醒我們：AI 不只是讀者看到的聊天介面。真正深層的轉型，往往發生在後臺流程與機構治理。

English Script

I organize current transformation into three levels.

The first is the back office: metadata, acquisitions, licensing, and analytics. The second is the front stage: discovery, reference, recommendation, and teaching. The third is the institutional level: evidence, rights, data, and institutional memory.

This three-level view is important because AI is not only a chatbot that users can see. Deeper transformation often happens in back-office workflows and institutional governance.

Slide 23 | Migration to next-generation Library Services Platforms (LSP)

中文講稿

第一個基礎性的轉型，是導入新一代 Library Services Platform，也就是 LSP。LSP 為什麼重要？因為它可以整合紙本與電子資源的工作流程，採用雲端作業，提供 API 與系統互通，也能支援分析與流程自動化。

更重要的是，LSP 正逐漸成為 AI 服務的基礎架構。臺灣已有不少大學採用 Alma 等平台。

但是我要強調：平台現代化不是目的。換系統本身不等於轉型；真正的目的，是利用新的基礎設施重新設計服務。

English Script

A basic form of transformation is migration to a new Library Services Platform, or LSP.

Why do LSPs matter? They integrate print and electronic workflows, support cloud-based operations, provide APIs and interoperability, and enable analytics and workflow automation. Increasingly, they also provide infrastructure for AI-enabled services.

A number of Taiwanese academic libraries now use platforms such as Alma. But I want to stress one point: platform modernization is not the destination. Changing systems is not transformation by itself. The real goal is to use the new infrastructure to redesign services.

Slide 24 | 20 TWAUG member libraries / institutions (2026)

中文講稿

這張投影片列出臺灣 Alma 使用者群的部分成員。可以看到，從北部到中南部，包括國立與私立大學，都已採用或參與這類新一代平台。

我不需要逐一介紹這些學校。這張圖真正要說的是：LSP 在臺灣已經不是少數學校的實驗，而逐漸形成一個使用者社群。當多所學校使用相近的平台，也更有機會分享經驗、流程設計與專業知識。

English Script

This slide lists members of the Taiwan Alma Users Group. We can see both public and private universities across northern, central, and southern Taiwan.

I will not go through every institution. The main point is that LSP adoption is no longer an isolated experiment. It is becoming a community of practice. When institutions use similar platforms, they can also share experience, workflow design, and professional knowledge.

Slide 25 | Alma and other LSP are embedding AI into core staff workflows

中文講稿

下一步是 LSP 與 AI 的結合。AI 開始進入館員的核心工作流程。

在效率方面，可以協助詮釋資料處理、批次補充資料與題名比對；在互動方面，可以用自然語言提問，再依角色權限執行工作，但仍保留人工確認；在分析方面，則可以協助趨勢與異常偵測，以及決策支援。

這裡的重點不是「AI 自動做完所有事情」，而是人機協作。AI 處理速度與規模，人負責確認、脈絡與專業判斷。

English Script

The next step is the combination of LSPs and AI. AI is beginning to enter core staff workflows.

For efficiency, AI can assist with metadata, batch enrichment, and title matching. For interaction, staff can use natural-language questions and role-based actions, while keeping human confirmation. For insight, AI can support analytics, signal detection, and decision support.

The key idea is not that AI does everything automatically. It is human-AI collaboration: AI provides speed and scale, while people provide confirmation, context, and professional judgment.

Slide 26 | Transformation of Academic Libraries and Other Examples of AI Applications

中文講稿

第一個臺灣案例是臺灣大學圖書館的 SLIM。2025 年，臺大在整合查詢系統中導入 AI Research Assistant。

使用者可以直接用自然語言提出研究問題，系統會提供五篇相關學術文獻、AI 生成的主題概覽，以及延伸研究問題。

我認為這個案例的意義，是資訊發現從傳統的「輸入關鍵字、得到結果清單」，開始走向 AI-assisted research，也就是 AI 輔助研究探索。當然，AI 產生的內容仍然需要使用者查證，來源也必須回到原始文獻。

English Script

The first Taiwanese example is NTU Library's SLIM system. In 2025, NTU introduced an AI Research Assistant into its discovery environment.

Users can ask a research question in natural language. The system provides five relevant scholarly sources, an AI-generated overview, and related research questions.

The significance is that discovery is moving beyond "enter keywords and receive a list of results" toward AI-assisted research exploration. Of course, AI-generated content still needs verification, and users should return to the original sources.

Slide 27 | 2023 | — AI-powered reference & consultation AI 智慧館員「曉書」從 Reference 開始 2024 | AI Picks You — Personalized book recommendations

中文講稿

這裡我放了一個公共圖書館案例，因為它很能說明 AI 服務如何逐步演進。國立公共資訊圖書館從 2023 年的 AI 智慧館員「曉書」開始，2024 年發展個人化選書，2025 年進一步做語意與自然語言找書，2026 年則進入 AI 與數位館藏共創的 PLUS Space。

所以可以看到一條很清楚的路徑：從回答問題，到推薦；從推薦到資訊發現；最後再走向創作。

雖然這不是大學圖書館案例，但它提醒我們，AI 服務不必停留在 chatbot。

English Script

I also include one public library example because it shows how AI services can evolve over time.

The National Library of Public Information began with the AI librarian “Xiaoshu” in 2023. It then developed personalized book recommendations in 2024, semantic and natural-language discovery in 2025, and an AI and digital co-creation space in 2026.

So we can see a clear path: from answering questions, to recommendation, to discovery, and finally to creation.

Although this is not an academic library, it reminds us that AI services do not need to stop at the chatbot stage.

Slide 28 | Tamkang University Library: AI Across Front- and Back-Office Workflows

中文講稿

淡江大學圖書館的案例很有意思，因為它同時呈現前臺與後臺的 AI 應用。

前臺的「小書僮」提供 24 小時的圖書館諮詢，運用自然語言處理辨識使用者需求。後臺的「AI 編目格格」則協助歐語圖書分類與編目，減少重複性工作。

所以這個案例的重點是：AI 正從讀者看得到的服務，逐步進入館員的專業工作流程。這也會改變未來館員所需要的能力。

English Script

Tamkang University Library is interesting because it shows AI in both front-stage and back-office work.

At the front stage, the “Little Book Attendant” provides 24/7 library consultation and uses natural-language processing to identify user needs. In the back office, the “AI Cataloging Assistant” supports the classification and cataloging of European-language materials and reduces repetitive work.

The key point is that AI is moving from visible user services into professional staff workflows. This will also change the skills librarians need in the future.

Transition / So far, we have seen AI in discovery and library workflows. Let us now look at a different form of transformation: methods and research support.

Slide 29 | CYCU Digital Humanities Hub: The Library as a Methods Laboratory

中文講稿

接下來我想介紹中原大學圖書館的數位人文實驗室。這個案例和前面的 AI 諮詢服務不太一樣，它不是以 chatbot 為核心，而是把圖書館定位為一個 methods laboratory，也就是「研究方法實驗室」。

它提供文本與資料分析、資料視覺化、GIS 與空間分析、AI 與數位創作、AR/VR，以及方法諮詢與工作坊。

這裡最重要的轉變是：圖書館不只回答「資料在哪裡」，還進一步協助師生思考「我可以用什麼方法分析這些資料、形成新的研究問題與知識？」

因此，圖書館的角色從 Resource Access，也就是資源取用，進一步走向 Methods Support，也就是方法支援。這也說明數位學術服務不一定從 AI 開始，但可以和 AI、資料分析及研究方法整合。

English Script

Next, I would like to introduce the Digital Humanities Hub at Chung Yuan Christian University Library. This example is different from the AI consultation services we have just seen. It is not centered on a chatbot. Instead, it positions the library as a kind of methods laboratory.

The Hub supports text and data analysis, data visualization, GIS and spatial analysis, AI and digital creation, AR and VR, as well as methods consultation and workshops.

The important shift is this: the library does not only answer, “Where can I find the information?” It also helps students and researchers ask, “What methods can I use to analyze these materials and develop new questions and knowledge?”

So the role moves from resource access to methods support. It also shows that digital scholarship does not have to begin with AI, but it can integrate AI with data analysis and research methods.

Transition / From methods support, we can move further into research data, responsible AI, and AI-enabled research services.

Slide 30 | AI-Enabled Research Support and Service Innovation: Additional Examples

AI 賦能研究支援與服務創新：其他案例

中文講稿

從數位人文的方法支援，再往研究支援與 AI 治理延伸，我們可以看到陽明交通大學與成功大學兩種不同的發展方向。

陽明交通大學透過 Dataverse 支援研究資料的共享、保存、引用、授權、發現與再利用；同時在負責任 AI 與 AI 素養方面，強調來源查核、AI 使用揭露、隱私與智慧財產，以及研究者責任。這代表圖書館從資訊管理，進一步走向研究資料與負責任 AI 的治理。

成功大學則偏向 AI 賦能的服務與研究引導。它將生成式 AI 與既有圖書館服務系統整合，提供智慧諮詢與服務導引，同時運用 Web of Science Research Assistant、Scopus AI 等工具支援文獻探索、資訊整合與研究發現。

這兩個案例放在一起，可以看到圖書館的研究支援正在向兩端擴展：一端是資料與治理，另一端是 AI 輔助的研究流程。

English Script

From digital humanities and methods support, we can move further into research support and AI governance. Here, National Yang Ming Chiao Tung University and National Cheng Kung University show two different directions.

NYCU uses Dataverse to support research data sharing, preservation, citation, licensing, discovery, and reuse. It also emphasizes responsible AI and AI literacy, including source verification, disclosure of AI use, privacy and intellectual property, and researcher accountability. This represents a move from information management toward research data and responsible AI stewardship.

NCKU takes a stronger AI-enabled service and research-navigation approach. It integrates generative AI with existing library service systems for intelligent consultation and service navigation, and provides tools such as Web of Science Research Assistant and Scopus AI for literature discovery, synthesis, and research exploration. Together, these two cases show research support expanding in two directions: toward data and governance on one side, and toward AI-assisted research workflows on the other.

Transition / These institutional examples point to a broader change in professional roles.

Slide 31 | Emerging Roles of Academic Libraries in the Digital and AI Era

數位與 AI 時代大學圖書館的新興角色

中文講稿

前面幾張投影片介紹的是個別案例。現在我們把這些案例放在一起，就可以更清楚看到大學圖書館「角色」本身正在發生什麼變化。

在研究資料與開放科學方面，館員從資訊資源支援者，逐漸成為 Research Data Steward；在數位典藏與數位人文方面，從館藏與典藏管理者，走向 Digital Scholarship and DH Partner；在資訊素養方面，也從傳統資訊素養教育，延伸到 AI 與學術素養；而參考與教學服務，則進一步發展為數位學術與學習支援。

這裡我要特別強調：這不是「新角色取代舊角色」。採訪、編目、典藏、參考服務仍然重要。真正的變化，是在原有專業基礎上，加入資料、AI、研究方法與跨領域合作能力。

所以這張投影片其實是前面案例的總結，也為下一張「從 AI 導入到人機協作」做準備。

English Script

The previous slides presented individual cases. If we now bring them together, we can see more clearly how the professional role of the academic library is changing.

In research data and open science, librarians are moving from information resource support toward the role of Research Data Steward. In digital collections and digital humanities, collection and archive work is expanding toward Digital Scholarship and DH Partnership. Information literacy is extending into AI and academic literacy. And reference and instruction are developing into broader digital scholarship and learning support.

I want to stress that the new roles do not replace the traditional ones. Acquisitions, cataloging, preservation, reference, and instruction remain important. The change is that libraries are adding new capabilities in data, AI, research methods, and interdisciplinary collaboration.

So this slide summarizes the cases we have just seen and prepares us for the next point: the move from AI adoption toward human-AI collaboration.

Transition / With these emerging roles in mind, we can now summarize the larger direction of change.

Slide 32 | Taiwan's Academic Libraries in Transition: From AI Adoption to Human-AI Collaboration

中文講稿

把前面的案例整合起來，我認為臺灣大學圖書館正處於「從 AI 導入走向人機協作」的階段。

AI 擴展的是速度、規模、整合、自然語言互動、個人化與自動化；館員增加的則是來源查核、專業判斷、情境與倫理、權利與隱私，以及品質把關。

因此，真正的轉型不是「AI 取代館員」，而是重新分配人與 AI 各自最適合做的工作。臺灣的大學圖書館也正逐步從單純資源提供，更深入融入學習與研究流程。

English Script

Bringing these examples together, I would describe Taiwanese academic libraries as moving from AI adoption toward human-AI collaboration.

AI expands speed, scale, synthesis, natural-language interaction, personalization, and automation. Librarians add source verification, professional judgment, context and ethics, rights and privacy, and quality assurance. So transformation is not simply “AI replaces librarians.” It is about redesigning the division of work between people and AI. Taiwanese academic libraries are gradually moving beyond resource provision and becoming more deeply integrated into learning and research workflows.

Transition / These examples show the direction of change. Now let us ask what the library should become.

Slide 33 | Redefining the Academic Library: Three Strategic Roles for the Future

中文講稿

前面是「現在正在發生什麼」。接下來第五部分，我想從案例走向未來定位：大學圖書館應該成為什麼？

我提出三項策略性角色：Learning Partner、Research Partner，以及 Institutional Partner。也就是從 service provider，進一步成為大學的 strategic partner。

English Script

So far, I have discussed what is already changing. In this fifth section, I would like to move from current examples to future positioning: what should the academic library become?

I propose three strategic roles: Learning Partner, Research Partner, and Institutional Partner. In other words, the library moves from being mainly a service provider toward becoming a strategic partner of the university.

Slide 34 | What Should the Academic Library Become?

中文講稿

這三個角色可以用三組動詞理解。學習夥伴要建立素養、融入學習並促進學生成功，最後培養 capable learners。

研究夥伴要協助界定研究、支援研究，並促進研究成果的傳播與保存，目標是 trustworthy research。

機構夥伴則要串聯知識、治理知識與 AI，並強化機構韌性，最後形成 resilient institutions。

所以這三個角色其實是一條很清楚的邏輯：人、研究、機構。

English Script

We can understand the three roles through three sets of actions.

The Learning Partner builds literacies, embeds support in learning, and enables student success. The outcome is capable learners.

The Research Partner helps frame research, supports the research process, and helps share and preserve research. The outcome is trustworthy research.

The Institutional Partner connects knowledge, governs knowledge and AI, and strengthens resilience. The outcome is resilient institutions.

So the three roles follow a simple logic: people, research, and institution.

Slide 35 | Building the Literacies for Learning in the AI Era

中文講稿

先看 Learning Partner。過去資訊素養教育常教學生如何找資料、使用資料庫。這些仍然重要，但 AI 時代還要加入 AI literacy 與 critical literacy。

更重要的是，素養教育不能只停留在圖書館的一次性講習，而要進入課程、作業、探究、閱讀與寫作。

最後的目標不是學生會使用某一個資料庫或某一個 AI 工具，而是他們能在 AI 環境中學習、判斷、創造，而且知道何時應該相信、何時應該查證。

English Script

Let us begin with the Learning Partner. Traditional information literacy often taught students how to search and use databases. These skills are still important, but the AI era also requires AI literacy and critical literacy. More importantly, literacy education should not remain a one-time library workshop. It needs to enter courses, assignments, inquiry, reading, and writing.

The final goal is not that students know one database or one AI tool. The goal is that they can learn, evaluate, and create in an AI environment—and know when to trust and when to verify.

Slide 36 | Supporting the Entire Research Lifecycle

中文講稿

第二是 Research Partner。這裡我把研究支援分成三個階段：Frame、Do and Manage、Share and Preserve。

前端包括研究問題、證據盤點、系統性檢索與資料管理計畫；研究進行中包括文本與資料分析、研究資料管理、可重現流程、權利與隱私、詮釋資料與研究紀錄；後端則包括開放取用、資料共享、永久識別碼、研究能見度與長期保存。

圖書館的角色因此從 information discovery，走向支持一個更可信、可重現且可持續的研究生命週期。

English Script

The second role is the Research Partner. I divide research support into three stages: Frame, Do and Manage, and Share and Preserve.

At the front end, libraries can support question formation, evidence landscapes, systematic searching, and data management planning. During research, they can support text and data analysis, research data management, reproducible workflows, rights and privacy, metadata, and documentation. At the later stage, they can support open access, data sharing, persistent identifiers, research visibility, and long-term preservation.

The library therefore moves beyond information discovery toward supporting a more trustworthy, reproducible, and sustainable research lifecycle.

Slide 37 | Stewarding the University's Knowledge Infrastructure

中文講稿

第三是 Institutional Partner。這個角色比較容易被忽略，但我認為未來非常重要。

大學裡有出版成果、研究資料、學位論文、機構檔案與教師研究資訊。這些知識往往分散在不同系統。圖書館可以協助把它們串聯起來，再處理權利、隱私、AI 治理、來源歷程與存取政策，最後透過保存、互通、資訊發現與再利用，使它們成為可信賴的機構資產。

當這些知識具有良好結構、來源清楚、權利可管理，它們也更適合未來的 AI 應用。這就是所謂 AI-ready knowledge。

English Script

The third role is the Institutional Partner. This role is sometimes less visible, but I believe it will become very important.

Universities hold publications, research data, theses, institutional archives, and faculty information. These knowledge assets are often spread across different systems. Libraries can help connect them, govern rights, privacy, AI use, provenance, and access policies, and then support preservation, interoperability, discovery, and reuse.

When institutional knowledge is well structured, clearly sourced, and properly governed, it is also better prepared for future AI applications. This is what I mean by AI-ready knowledge.

Transition / The three roles give us a vision. The next question is how to act on it.

Slide 38 | 06 Moving Forward: Strategic Priorities for Academic Libraries

中文講稿

有了三個角色之後，最後一部分要回答的是：我們如何從願景走向行動？我不想用一個非常理想化、所有圖書館都必須做到的清單，而是提出幾個可以依各校條件逐步推進的策略。

English Script

After defining the three roles, the final question is: how do we move from vision to action?

I do not want to propose an idealized checklist that every library must complete. Instead, I will suggest several strategic directions that institutions can adapt to their own missions and capacities.

Slide 39 | Three Strategic Priorities

中文講稿

我認為有三項優先事項。第一，Make Value Visible，讓價值被看見。要清楚說明圖書館如何貢獻於學習、研究與大學目標。

第二，Embed in Workflows，融入核心流程。不要只提供獨立的服務，而要進入課程、研究與機構工作流程。

第三，Build Shared Capacity，建立共享能力。包括館員能力、可信賴的基礎設施，以及跨校合作。

這三項其實互相關聯：價值要被看見，就必須真正進入核心流程；要進入核心流程，又需要足夠的專業與共享能力。

English Script

I suggest three strategic priorities.

First, Make Value Visible. Libraries need to show clearly how they contribute to learning, research, and institutional goals.

Second, Embed in Workflows. We should move from stand-alone services toward deeper integration with teaching, research, and institutional processes.

Third, Build Shared Capacity. This includes staff capability, trusted infrastructure, and cross-institutional collaboration.

These three priorities are connected. To make value visible, the library needs to be part of core workflows. And to enter those workflows, it needs strong professional and shared capacity.

Slide 40 | One Future, Different Pathways

中文講稿

但我也要特別強調：不是每一所圖書館都需要做所有事情。策略必須從大學使命出發。

研究型大學可能優先發展研究資料、開放科學、AI 治理與學術傳播；教學與學生導向的大學，可以把學生成功、課程整合與數位能力放在前面；技職型或區域型大學，則可能更重視產業資訊、地方知識、社區參與與終身學習。

所以我們可以有共同方向，但不需要有完全相同的路徑。

English Script

But I want to emphasize one point: not every library needs to do everything. Strategy should begin with institutional mission.

Research-intensive universities may prioritize research data, open science, AI governance, and scholarly communication. Teaching- and student-centered universities may focus more on student success, curriculum integration, and digital capability. Professional or regional universities may emphasize industry information, local knowledge, community engagement, and lifelong learning.

So we can share a common direction without following exactly the same pathway.

Slide 41 | From Vision to Action: A Practical Roadmap

中文講稿

這張投影片把行動分成三個階段：NOW、NEXT、TOGETHER。

NOW 是盤點與聚焦：先知道我們現在用了哪些 AI、有哪些風險、研究者最需要什麼、系統與資料在哪裡、館員能力缺口在哪裡。

NEXT 是試行與融入：不要一次做很多，而是選一到兩項高價值服務開始，並把 AI 素養、研究資料管理、系統互通與館員培訓逐步融入日常工作。

TOGETHER 是共享與擴展：共同建立 AI 指引、教學模組、研究支援網絡、共享平台與跨校專業發展。

我的建議可以濃縮成一句話：Start small. Embed what works. Scale through collaboration. 從小處開始，把有效的做法融入日常，再透過合作擴大。

English Script

This slide organizes action into three stages: NOW, NEXT, and TOGETHER.

NOW means identify and prioritize. Understand how AI is already being used, what the risks are, what researchers need most, where institutional data and systems are, and where staff capability gaps exist.

NEXT means pilot and embed. Do not try to do everything at once. Select one or two high-value services and gradually embed AI literacy, research data support, interoperability, and staff development into regular work.

TOGETHER means share and scale. Develop shared AI guidelines, teaching modules, research-support networks, platforms, and professional development.

My advice can be summarized in one sentence: Start small. Embed what works. Scale through collaboration.

Transition / Beyond individual institutions, collaboration can help us scale these efforts.

Slide 42 | Moving Forward Together: Taiwan–Japan Collaboration

中文講稿

最後，我想把視野從臺灣拉到臺日合作。臺灣與日本的制度不同，但面臨的挑戰非常相似：少子化、AI、研究支援、人力與知識基礎設施。

我認為可以有三種合作方式。第一，Learn Together，共同學習，例如 AI 素養、研究資料管理與詮釋資料。第二，Build Together，共同建立指引、能力框架、培訓資源與可信賴基礎設施。第三，Experiment Together，共同試行 AI 服務、研究支援模式與跨機構知識發現。

情境不同，但挑戰相通；透過合作，我們可以一起建立更強的能力。

English Script

Finally, I would like to broaden the discussion from Taiwan to Taiwan–Japan collaboration. Our systems are different, but many challenges are similar: demographic change, AI, research support, staffing, and knowledge infrastructure.

I see three forms of collaboration. First, Learn Together—for example, AI literacy, research data management, and metadata practices. Second, Build Together—shared guidelines, competency frameworks, training

resources, and trusted infrastructure. Third, Experiment Together—joint pilots in AI-enabled services, research support, and cross-institutional discovery.

Our contexts may be different, but our challenges are shared. Collaboration can help us build stronger capabilities together.

Transition / Let me close by returning to the central idea of trust.

Slide 43 | WHEN AI MAKES ANSWERS ABUNDANT... 當 AI 讓答案變得無所不在..... TRUST BECOMES EVEN MORE IMPORTANT. 信任就變得更加重要。

中文講稿

最後，我想用一句話結束今天的演講：當 AI 讓答案變得無所不在，信任就變得更加重要。

AI 可以很快產生答案，但更多答案不一定等於更好的知識。因此，大學圖書館未來的核心責任，不是和 AI 比速度，而是守護可信賴知識的基礎。

作為學習夥伴，我們培養有能力的學習者；作為研究夥伴，我們支持可信賴的研究；作為機構夥伴，我們協助建立更具韌性的大學。

所以，如果今天只留下三個詞，我希望能是：Capable Learners. Trustworthy Research. Resilient Institutions.

謝謝各位。也期待未來臺灣與日本的大學圖書館有更多交流與合作。

English Script

Let me close with one message: when AI makes answers abundant, trust becomes even more important.

AI can generate answers very quickly. But more answers do not necessarily mean better knowledge. The future responsibility of the academic library is therefore not to compete with AI on speed, but to safeguard the foundations of trusted knowledge.

As a Learning Partner, we help develop capable learners. As a Research Partner, we support trustworthy research. As an Institutional Partner, we help build resilient institutions.

So if you remember only three phrases from my talk, I hope they are these: Capable Learners. Trustworthy Research. Resilient Institutions.

Thank you very much. I also look forward to more exchange and collaboration between academic libraries in Taiwan and Japan.