

**Partnership between university libraries and the private sector in digitization
projects: the "Systhen" project as a model for library digitization.**



Siham haddad

University Of Algiers 2, Algeria sihamhaddad02@gmail.com

Received date: 02/12/2025

Accepted date: 14/12/2025

Publication date: 01 /01/2026

Abstract :

*Digitization has become a fundamental pillar in the development of higher education institutions. University libraries have shifted from traditional spaces dedicated to the preservation of books to digital hubs for the production, organization, and dissemination of knowledge. Given the limited technical capacities within universities, the need has emerged for strategic partnerships with the private sector in order to provide advanced and sustainable digital solutions. In this context, the present study examines the partnership between university libraries and the private sector in digitization projects, focusing on the case of **Systhen**, a company specialized in digitization and electronic document management (GED). The study aims to analyze the dimensions of this partnership by highlighting Systhen's experience as a technical partner in the digitization of Algerian university libraries under the initiative "Towards Fourth-Generation Libraries." Systhen has adopted an integrated digital ecosystem that includes professional scanning equipment such as the **COPIBOOK OS**, and the **LIMB™ Suite** software package (Capture, Desktop, and Gallery), which enables image processing, metadata management, and the publication of content through interactive digital library platforms.*

Keywords:

University Libraries; Private Sector; Digitization; Library Digitization; Systhen Project

1 .Introduction:

Digitization has become one of the key pillars in the development of higher education institutions. University libraries are no longer merely repositories for books and documents; they have evolved into digital knowledge centers that contribute to the production, preservation, and facilitation of access to information. This transformation has created an urgent need for advanced technological solutions that go beyond the traditional capacities available within universities, thereby opening the door to strategic partnerships with the private sector, particularly companies specialized in information technologies and digitization services.

Within this context, partnerships with technology firms such as **Systhen** represent a leading model of integration between academic expertise and technological innovation. These collaborations enable university libraries to benefit from advanced digital infrastructures, specialized software for managing digital resources, and dedicated technical support that ensures both the sustainability of digitization projects and the effectiveness of the services they provide.

The significance of this topic extends beyond its technological dimension. It intersects with critical issues related to governance, funding, knowledge protection, and the development of human capital within university libraries. For this reason, the present study aims to shed light on the concept of partnership in digitization initiatives, exploring its rationale, mechanisms, and the main challenges it faces. Special emphasis is placed on the experience of **Systhen** as an applied model from which similar institutions may draw valuable insights

2.Research Problem :

As university libraries face increasing demands to upgrade their digital infrastructure and enhance the delivery of knowledge services, a central issue emerges: how can collaborations with the private sector be leveraged to implement effective digitization projects? Furthermore, what key factors ensure that these partnerships remain successful and sustainable while safeguarding digital assets and maintaining quality access to information?

this study examines the experience of **Systhen** as a practical model, highlighting both the effective strategies employed and the challenges encountered in the digitization of university libraries.

3.Study Hypotheses :

If strategic partnerships are established between university libraries and the private sector, as in the case of Systhen, along with effective management of digital infrastructure and continuous technical support, this will lead to the successful implementation of digitization projects, improve the quality of access to

knowledge, and ensure the sustainability of digital resources, while overcoming technical, financial, and administrative challenges.

4. Significance of the Study:

This study holds considerable importance as it emphasizes the impact of collaborations between university libraries and the private sector on advancing digital infrastructure and enhancing the quality of information services. The Systhen experience offers a practical example that allows libraries to adopt best practices in digitization projects, fostering the sustainability of digital resources, strengthening management effectiveness, and developing human capital, thereby effectively supporting both education and research

5. Research Objectives :

- Emphasizing the role of partnerships between university libraries and the private sector in digitization initiatives.
- Exploring Systhen's experience as a practical example of successful collaboration.
- Examining the factors that promote the success and sustainability of digitization projects.
- Highlighting the technical, administrative, and financial challenges encountered in digitization efforts.
- Contributing to the formulation of national digital policies founded on cooperation and integration.
- Suggesting best practices to improve access to knowledge and safeguard digital resources in university libraries.

6. Scope and Limitations of the Study :

6.1- Subject Scope:

This study focuses on the partnership between university libraries and the private sector in digitization projects, illustrated by the Systhen project

6.2- Time Scope:

It corresponds to the period during which this study was conducted .

6.3 - Geographical Scope :

This paper covers the libraries of the faculties, the Library of the Institute of Physical Education and Sports, and the Central Library of the University of Algiers 3, within the framework of the project "Towards Fourth-Generation Libraries."

First:TheoreticalFoundations of the Study :

1. Concept of Public-Private Partnership (PPP):

A public-private partnership (PPP) is defined as a long-term contractual arrangement in which a public entity (such as a university or university library) collaborates with a private organization (a company or technology firm) to finance, develop, operate, and maintain a project serving the public interest, with risks and benefits shared between the two parties (1).

In the context of digitization in university libraries, such a partnership refers to a strategic collaboration between libraries and technology or information.

2. The Concept of Digitization in University Libraries

Digitization in libraries is the process of converting traditional library materials such as books, journals, documents, or other media into a digital format that can be stored, processed, and retrieved electronically. The aim of digitization is to facilitate access to information, preserve materials from deterioration, and expand their availability through digital networks and the Internet (02)

3. Objectives of Digitization in University Libraries (3) :

- Facilitating Access to Scientific Resources:

Enabling students and researchers to access books, theses, articles, and manuscripts anytime and anywhere .

- Protecting University Heritage and Rare Documents

Preserving manuscripts, old theses, photographs, and university archives from damage or loss through digital copies.

- Supporting Scientific Research and Distance Learning

Providing electronic resources that assist students in self-learning and help researchers access information quickly.

- Enhancing Library Services and Service Efficiency

Implementing automation for cataloging, circulation, electronic catalog searches, and streamlining collection management.

- Saving Time and Effort and Reducing Costs

Reducing paper usage, alleviating pressure on the physical library, and facilitating resource sharing among universities.

- Strengthening Academic Partnerships and Information Sharing

Enabling university libraries to exchange data and digital manuscripts through unified networks (such as university networks and institutional repositories).

- Ensuring Long-Term Preservation of Documents

Storing digital copies on secure servers, with easy retrieval in case the original materials are lost.

4. The Integrative Relationship between Libraries and Private Sector Institutions in a Digital Environment

The integrative relationship between university libraries and the private sector is a strategic collaboration based on pooling efforts and sharing resources to achieve common goals in developing digital infrastructure and information services.

In the context of the global digital transformation, university libraries require technological and financial support beyond their own capacities, which the private sector can provide through its technical expertise, digital innovations, and financial resources. Conversely, this partnership offers private sector institutions the opportunity to engage with the academic community and contribute to the advancement of research and education.

Thus, the relationship between the two parties is based on integration rather than replacement: libraries contribute their academic expertise and knowledge content, while the private sector provides technical tools and digital solutions. This collaboration results in an effective and sustainable digital transformation that enhances service quality and facilitates access to knowledge (4).

Second Section: Practical Framework of the Study: The "Systhen" Model as a Partner in Library Digitization

1. Introduction to Systhen:

Systhen is a French company specialized in digitization and electronic document management (EDM). It is an extension of Spigraph, a company renowned for its long-standing expertise in scanning solutions and digital transformation for organizations. Founded in 2000, its headquarters are located in Saint-Quentin-Fallavier.

The company provides comprehensive solutions in document digitization, content management, electronic archiving, and digital invoicing, along with consulting, installation, training, and technical support services. It also relies on strategic partnerships with global brands such as Epson, Canon, and Kodak Alaris, ensuring high-quality hardware and software solutions.

Systhen's activities have expanded to Europe, as well as North and West Africa, through digitization and archiving projects in educational, administrative, and banking institutions, making it one of the leading actors in digital transformation and knowledge management.

With over two decades of experience, Systhen aims to help institutions accelerate their transition to a secure and efficient digital work environment, combining technology and human expertise in information management (5).

2. Presenting a Practical Model (The Systhen Model) for Collaboration in University Library Digitization:

This section provides a technical report on a library digitization project using advanced technological solutions, offered by Systhen in collaboration with I2S, a company specialized in scanning technology. The project aims to develop a modern digital system for managing and archiving documents and digital content.

1 Project Objectives:

- Digitizing books and documents using advanced scanning technologies.
- Providing a digital library that facilitates searching and information retrieval.
- Improving content management and offering a comprehensive online user experience.
- Ensuring the protection of original documents and meeting international digital archiving standards.

2 Equipment and Technologies Used:

2.1 COPIBOOK OS Book Scanner:

The COPIBOOK™ OS scanner was selected for the digitization process. It is a professional scanner with the following features:

- **High-Resolution Camera:**
 - * 71 megapixels, ensuring clear and sharp images.
 - * Scanning resolution of 400 dpi for documents up to A2+.
 - * Overhead scanning capability without a glass plate to protect old books.
- **High Speed and Performance:**
 - * Scanning time of less than 1 second per page, with a full cycle under 3 seconds.
 - * Capable of scanning up to 1,000 pages per hour (two pages per scan).
- **Advanced LED Lighting:**
 - * Uniform lighting that preserves color quality and avoids harmful UV rays.
 - * Generates no heat, ensuring books and documents are not damaged.

- **Smart Image Enhancement Functions:**

- * Automatic correction of colors and page curvature distortions.
- * BoostPic™ technology for improved image quality.
- * Supports scanning of large documents such as maps and newspapers.

2.2 Software Used:

2.2.1 LIMB™ Capture Software – Main Features:

- **Control of the COPIBOOK OS Scanner:**

- * Functions as the main control interface for the COPIBOOK OS book scanner, allowing users to adjust technical settings such as:
 - Selecting scan resolution (DPI) for high-quality images.
 - Choosing scan color modes: color, black & white, or grayscale.
 - Adjusting lighting, brightness, and contrast to ensure clear images.
- * Supports different scanning modes, including:
 - Scanning with a glass plate to ensure flat page alignment.
 - Scanning without a glass plate to protect old and fragile books.
- * Manual or automatic operation for easy control of the scanning process.

- **Automatic or Manual Image Processing:**

After scanning, LIMB™ Capture processes images to provide optimal quality through:

- * **Automatic Page Recognition:**
 - Automatically detects page boundaries and crops unwanted edges.
 - Distinguishes between single and double pages and separates them automatically if needed.
- * **Optical Error Correction:**
 - Removes shadows caused by page folds or uneven lighting.
 - Corrects page tilt or skew to achieve straight alignment.
 - Enhances image sharpness and readability.
- * **Color, Brightness, and Contrast Management:**
 - Automatically adjusts color saturation to preserve original colors.

- Adjusts lighting and brightness for clear, evenly illuminated documents.
- Supports BoostPic™ technology using AI algorithms to enhance image quality.
- **File Saving in Multiple Formats:**
LIMB™ Capture provides a wide range of file formats to ensure compatibility with archiving and document management systems:
 - * **TIFF:** Suitable for long-term archiving.
 - * **JPEG:** Compressed high-quality images, ideal for online viewing.
 - * **PNG:** Lossless image format for documents requiring high precision.
 - * **PDF / PDF-A:** Save documents as single or multi-page PDFs, with OCR support for searchable text.
 - * **JPEG 2000:** Modern format offering high-quality compression without loss of detail.
 - * **Automatic or Manual Saving:**
 - Files can be saved automatically according to pre-defined templates.
 - Users can review each image before saving to ensure quality.
- **Advanced Settings in LIMB™ Capture:**
 - * **Optical Character Recognition (OCR) Management:**
 - Supports OCR to convert text in images into searchable and editable digital text.
 - Supports multiple languages such as Arabic, English, French, etc., enabling easy document content recognition.
 - Text can be extracted from books and documents and converted to Word or PDF files with searchable content.

2.2.2 LIMB™ Desktop Software:

- An integrated platform for processing and managing digital files.
- Provides OCR tools to convert images into editable text.
- Supports archiving standards such as METS, ALTO, and Dublin Core.
- Allows management and structuring of digital content, including adding metadata.

2.2.3 LIMB™ Gallery Platform for Digital Library Management:

- Offers a modern user interface for searching and browsing the digital library.
- Supports full-text search, enabling searches within books and articles.

- Allows documents to be displayed as thumbnails, timelines, or on geographic maps.
- Supports content sharing on social media, enhancing knowledge dissemination.

3. Project Implementation Phase

The library digitization project is executed systematically to ensure the conversion of physical documents into high-quality digital content, providing easy search and retrieval through advanced systems such as **COPIBOOK OS** and **LIMB™ Suite**. The project is divided into seven main phases, each containing detailed steps to ensure successful implementation.

Phase 1: Planning and Preliminary Study

Objective: Develop a detailed plan covering requirements, resources, and costs to ensure efficient project execution.

Detailed Steps:

1. **Define project scope and digitization requirements**
 - * Identify targeted document types:
 - Books
 - Administrative and archival records
 - Historical newspapers and magazines
 - * Analyze the condition of the documents:
 - Are there damaged papers requiring special handling?
 - Do documents contain clear text or require OCR?
 - Are large-format documents requiring specialized scanning equipment?
 - * Define quality requirements:
 - Required scanning resolution
 - Appropriate lighting (LED)
 - Output formats: PDF, TIFF, JPEG, XML
2. **Select suitable hardware and software**
 - * Choose scanners (e.g., **COPIBOOK OS**) based on:
 - Document sizes: A4, A3, A2, A0
 - Productivity rate (pages per hour)
 - Compatibility with digital preservation and management systems
 - * Select supporting software, such as:

- **LIMB™ Capture** – for managing scanning workflow and image enhancement
 - **LIMB™ Desktop** – for organizing content and adding metadata
 - **LIMB™ Gallery** – for publishing digital content online
3. **Develop a work plan and timeline**
- * Break the project into clearly defined phases with deadlines
 - * Assign project team roles:
 - Scanner operators
 - Image processing and correction specialists
 - Metadata and cataloging staff
 - * Determine the budget required for each phase

Phase 2: Document Preparation for Digitization

Objective: Prepare documents to ensure optimal scanning quality.

Detailed Steps:

1. **Document cleaning and preparation:**
 - * Remove staples, clips, and plastic covers
 - * Ensure papers are not stuck together or damaged
 - * Arrange pages in correct order to prevent content loss
2. **Pre-scan document inspection:**
 - * Determine optimal scanning settings:
 - Color or black-and-white scanning
 - Whether to use a glass plate or scan without cover to protect fragile documents
 - * Ensure document stability on the scanner before starting

Phase 3: Scanning Process

Objective: Convert physical documents into high-quality digital images.

Detailed Steps:

- Operate **COPIBOOK OS** scanners
- Adjust technical settings:

- * Select appropriate image resolution
- * Adjust lighting and contrast to avoid shadows or reflections

Begin scanning:

- * Use **LIMB™ Capture** to manage workflow and automatically enhance image quality
- * Verify clarity and quality of images after each batch
- * Save initial files in TIFF or JPEG formats for further processing

Phase 4: Image Processing and Quality Enhancement

Objective: Improve the clarity and usability of digital documents.

Detailed Steps:

- Correct errors and enhance images using **LIMB™ Desktop**:
 - * Remove shadows and scanning distortions
 - * Correct colors and remove unnecessary backgrounds
 - * Crop excess margins to improve text clarity
- Apply **Optical Character Recognition (OCR)** to make text searchable

Phase 5: Organizing and Archiving the Digital Collection

Objective: Create a structured digital archive for easy search and retrieval.

Detailed Steps:

- Implement a systematic digital filing system
- Ensure metadata is accurate and consistent
- Categorize documents for easy access

Phase 6: Publishing and Providing Access via LIMB™ Gallery

Objective: Enable users to access digital documents online.

Detailed Steps:

- Upload files to **LIMB™ Gallery**
- Import files into the system and verify data integrity
- Set access levels and permissions for different user groups
- Enhance user experience with search tools:
 - * Keyword search using OCR
 - * Navigation through categories, timelines, and interactive maps

Phase 7: Monitoring and Continuous Development

Objective: Ensure system sustainability and continuous improvement.

Detailed Steps:

- Monitor system performance and analyze usage data:
 - * Track search queries and download counts
 - * Identify frequently accessed documents to improve visibility
- Update and add new documents regularly
- Schedule digitization of additional documents
- Enhance search and analytical functions for higher accuracy

General Note on the University Library Digitization Project

For the libraries of faculties and the Library of the Institute of Physical and Sports Education at University of Algiers 03, by Systhen Company

In the context of analyzing the services and benefits provided by library digitization solutions, and based on our expertise in library science and information technology applications, the main positive aspects of the offer can be summarized as follows:

- **Expertise and Leadership in the Field:** The company has extensive experience in digital transformation and electronic document management, giving it a leading position in this sector.
- **Ensured Digital Process Efficiency:** Leveraging years of experience, digitization processes are executed smoothly and rapidly, while maintaining the highest quality standards.
- **Comprehensive Hardware and Software Solution:** The company provides an integrated digital package covering all phases, from hardware (scanners) to software specifically designed for university library needs.

- **Variety of Digital Imaging Solutions:** The offer includes a wide range of scanners, including multifunctional, large and small industrial scanners, as well as book scanners, providing flexible options for different types of documents.
- **Ease of Use and Setup:** The software features an intuitive, user-friendly interface with simplified settings, enabling operation without advanced technical knowledge.
- **Advanced Quality Control System:** The software offers sophisticated tools for image quality monitoring, with both manual and automatic settings to detect and process problematic images (e.g., blank or duplicate images) accurately.
- **Batch Document Processing:** The system allows documents to be processed in batches (Par Lot) or via automated workflows, enhancing work efficiency.
- **Metadata Retrieval from CSV Files:** The software supports importing metadata from CSV files, facilitating data integration with other systems.
- **Importing Images from Multiple Sources:** The system allows importing digital images from various devices, including microfiche, microfilm, smartphones, digital cameras, and computers.
- **Support for Various File Formats:** Scanned images can be saved in multiple digital formats suitable for different uses.
- **Reduced Digital File Sizes:** The system provides image compression techniques during saving, optimizing storage space without compromising quality.
- **Automated Image Processing:** Large volumes of scanned images can be automatically enhanced and corrected, saving time and increasing efficiency.
- **Multilingual Optical Character Recognition (OCR):** The system supports high-accuracy OCR, enabling documents to be converted into searchable and editable digital text in multiple languages.
- **Professional Training Programs:** The company offers specialized training courses to ensure optimal system use and successful digital document management.
- **Multiple Search Interface Options:** The system allows customization of the end-user search interface according to user needs, enhancing information access experience.
- **Content Management System (CMS):** The integrated CMS enables easy creation, management, and editing of content without advanced technical knowledge.
- **Advanced Security Measures:** The system provides robust security to protect digital data and ensure confidentiality.

- **Perpetual License:** The system offers a permanent license, with additional fees required for future updates.
- **Z39.50 Protocol Compatibility:** The system allows bibliographic data exchange between KOHA and SYSTHEN programs, facilitating integration with other library systems.
- **Technical Support and Regular Maintenance:** The offer includes periodic maintenance services to ensure continuous and efficient operation.
- **Electronic Document Management (GED):** The system can be used for managing administrative documents and institutional secretarial tasks, enhancing operational efficiency.
- **Unlimited User Accounts:** The system allows the creation of an unlimited number of user accounts, enabling effective user management without restrictions.

Conclusion

The analysis clearly shows that digitization has become a strategic necessity for the development of university libraries, enabling them to keep pace with the global digital transformation in education and research. The experience demonstrates that public-private partnerships, especially with IT-specialized companies like **Systhen**, play a crucial role in the success of digitization projects by providing advanced technological solutions, professional expertise, and supporting services that ensure the sustainability of digital infrastructures.

The study also emphasizes that successful partnerships require more than technical solutions they demand good governance, strategic planning, sustainable funding, and the development of skilled human resources capable of managing and maintaining high-quality digital content. The work of **Systhen** in university library digitization stands as a compelling example of effective collaboration between universities and the private sector, contributing to the creation of next-generation smart libraries that enhance research, education, and the preservation of knowledge for future generations.

Therefore, the study recommends the adoption of national digitization policies for higher education that prioritize collaboration between universities and technology providers, while promoting investment in digital infrastructure and the development of specialized human resources, ultimately supporting the transition toward a sustainable knowledge-based society.

Bibliography :

1- Ministère de l'Économie, des Finances et de la Relance. (2021). *Les partenariats public-privé (PPP) : définition et principes*. Paris : Direction générale du trésor.

2- الحمراوي، أحمد. 2018. تكنولوجيا المعلومات في المكتبات: الرقمنة وخدمات المعرفة. القاهرة: دار الفكر العربي. ص. 45.

2- Bulletin des bibliothèques de France (BBF). 2020 "Bibliothèques universitaires : les défis de l'acculturation numérique". Marc Martinez, 2

4 - Cacaly, S. (2019). *La bibliothèque à l'heure du numérique*. Paris : Éditions du Cercle de la Librairie

5 -Systhen. (2022). *Spigraph France change de nom et devient Systhen* [Communiqué de presse]. Saint-Quentin-Fallavier : Systhen.

Disponible sur :

https://www.systhen.com/app/uploads/2023/11/Communique_presse_systhen_2022.pdf