

The Role of Digital Culture in Knowledge Management Implementation in Algerian University Libraries

دور الثقافة الرقمية في تطبيق إدارة المعرفة في المكتبات الجامعية الجزائرية

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Received 30/12/2024

Accepted 30/11/2025

• Abstract:

This paper investigates the role of digital culture in the implementation of knowledge management in Algerian university libraries. It explores the deployment of contemporary digital tools and technologies in managing diverse knowledge assets, with a specific focus on their operational implementation. By situating digital culture and knowledge management within established theoretical paradigms, the study identifies their core components. Particular attention is directed toward the integration of digital competencies in optimizing knowledge management practices in Algerian libraries across domains, including human capital, technological infrastructure, organizational culture, and procedures such as knowledge acquisition, classification, preservation, dissemination, and practical application. Additionally, the analysis addresses challenges of digital competences literacy among librarians and library users in Algerian libraries. The findings affirm that embedding digital culture within knowledge management strategies significantly enhances information accessibility, drives innovation, and fosters collaborative engagement in Algerian university libraries.

Keywords:

Digital Culture; Knowledge Management; University Libraries; Algerian University Libraries.

الملخص:

تبحث هذه الورقة دور الثقافة الرقمية في تطبيق إدارة المعرفة في المكتبات الجامعية الجزائرية. وتستكشف توظيف الأدوات والتقنيات الرقمية المعاصرة في إدارة أصول المعرفة المتنوعة، مع التركيز بشكل خاص على تطبيقها العملي. ومن خلال وضع الثقافة الرقمية وإدارة المعرفة ضمن الأطر النظرية الراسخة، تحدد الدراسة مكوناتها الأساسية. ويؤجّه اهتمام خاص نحو دمج الكفاءات الرقمية في تحسين ممارسات إدارة المعرفة في المكتبات الجزائرية عبر مجالات متعددة، تشمل رأس المال البشري، والبنية التحتية التكنولوجية، والثقافة التنظيمية، وإجراءات مثل اكتساب المعرفة، وتصنيفها، وحفظها، ونشرها، وتطبيقها العملي. بالإضافة إلى ذلك، يتناول التحليل تحديات الإلمام بالكفاءات الرقمية لدى أمناء المكتبات ومستخدميها في المكتبات الجزائرية. وتؤكد النتائج أن دمج الثقافة الرقمية ضمن استراتيجيات إدارة المعرفة يُحسّن بشكل كبير إمكانية الوصول إلى المعلومات، ويدفع عجلة الابتكار، ويعزز المشاركة التعاونية في المكتبات الجامعية الجزائرية.

الكلمات المفتاحية:

الثقافة الرقمية؛ إدارة المعرفة؛ المكتبات الجامعية؛ المكتبات الجامعية الجزائرية.

• Introduction

The landscape of modern society is increasingly shaped by radical advancements in digital and technological sector. This shift has catalyzed the emergence of “digital culture”, a pervasive phenomenon that has become integral to institutional operations and individual practices particularly within sectors such as higher education and university libraries. The latter, as critical hubs for knowledge dissemination and academic support, must adapt to the evolving exigencies of a digital era, incorporating digital culture to enhance their knowledge management frameworks.

Managing knowledge effectively in university libraries now necessitates leveraging state-of-the-art digital tools and technologies to streamline processes such as the collection, organization, preservation, and dissemination of information. This study examines the role of digital culture in strengthening knowledge management practices within Algerian university libraries. Through a comprehensive analysis of the digital environment and its inherent challenges, this study underscores the significant potential of digital culture to facilitate improved access to and circulation of knowledge among students, researchers, and faculty members.

– Problem Statement

In response to the swift advancements in digital technologies, Algerian university libraries are increasingly compelled to integrate digital cultural norms and practices within their knowledge

management strategies. This integration is crucial for optimizing information organization, storage, and retrieval systems to effectively meet the escalating academic and research demands.

However, the transition towards robust digital knowledge management systems is fraught with challenges. These include the scarcity of advanced digital infrastructure, a deficit in digital literacy among library personnel, and resistance to deviating from traditional management methodologies. This transition requires not only technological upgrades but also significant changes in mindsets and operational procedures. Therefore, this study explores a critical question: What role does digital culture play in enhancing the effectiveness of knowledge management in Algerian university libraries?

– **Research Sub-questions**

1. What are the hallmark features of digital culture within Algerian university libraries?
2. How does digital culture intersect with knowledge management in Algerian university libraries?
3. What are the primary challenges hindering the digital transformation of university libraries?
4. How can digital technologies improve the efficiency and efficacy of knowledge management systems?

– **Research Significance**

The integration of digital culture within Algerian university libraries is transformative, enhancing the efficiency and quality of library services to support a dynamically changing academic environment. By embracing digital culture, libraries are poised to make substantial advancements in several crucial areas which can be summarized as follows:

1. **Facilitating Access to Knowledge:** Digital culture enables libraries to provide databases and digital libraries that facilitate swift access to academic information and resources. This immediate access to a rich and varied content repository significantly expands users' knowledge bases and enhances their research capabilities.
2. **Enhancing Electronic Knowledge Management:** Through the implementation of advanced systems, libraries can efficiently organize and store information, thus simplifying its retrieval. The use of modern technologies ensures that library patrons experience seamless search functionalities, enabling them to locate the necessary resources efficiently and quickly.
3. **Boosting Operational Efficiency:** Digital culture contributes to operational efficiency by automating administrative tasks and reducing the routine burdens on library staff. This shift allows personnel to concentrate on improving user services and developing more effective academic support strategies.
4. **Promoting Academic Collaboration:** The adoption of digital culture enhances collaboration among educational and research institutions.

5. Supporting Distance Education: As digital libraries facilitate the provision of academic and scientific resources online, students and faculty members can access vital information regardless of their geographic locations; this capability is instrumental in advancing open and flexible educational models.
6. Preserving Knowledge Heritage: The digitization of rare books and manuscripts is a critical function of digital libraries, aiding in the preservation of cultural and intellectual heritage for future generations. This proactive approach not only safeguards these valuable assets from physical degradation but also enhances their accessibility without risking damage or loss.
7. Enhancing Libraries as Academic and Research Hubs: Finally, digital culture expands the role of university libraries beyond traditional boundaries, enabling them to support scientific research and provide cutting-edge educational resources. This expansion cements the library's status as a central component of the academic infrastructure, pivotal in both educational and research endeavors.

In sum, through these advancements, digital culture profoundly improves the quality of services offered by Algerian university libraries, aligning them with the needs of a knowledge-driven society in the digital era.

– Research Objectives

This study aims to achieve a comprehensive set of objectives summarized as follows:

- **Analyze the Impact of Digital Culture:** Investigate how digital culture influences knowledge management practices in university libraries, with particular emphasis on alterations in work methodologies and the dynamics of interactions between library personnel and students.
- **Evaluate Digital Culture Tools:** Explore the digital tools and technologies currently employed in Algerian university libraries, examining their applicability in facilitating knowledge management.
- **Investigate Digital Gaps:** Identify and analyze the existing digital deficiencies within Algerian university libraries, proposing strategic measures to bridge these gaps and thereby bolster knowledge management capabilities.
- **Provide Recommendations:** Develop evidence-based recommendations aimed at enhancing knowledge management in Algerian university libraries through the reinforcement of digital culture. This includes advocating for comprehensive training programs and the allocation of necessary resources.
- **Highlight Challenges:** Address the challenges faced by Algerian university libraries in adopting digital culture and propose practical solutions to overcome them.

- **Explore International Experiences:** Conduct a comparative analysis of digital culture and knowledge management practices in Algerian university libraries against those of international counterparts, drawing insights.
- **Assess the Impact of Digital Culture on Education and Research:** Analyze how digital culture can augment the role of libraries in supporting educational and scientific research activities within Algerian universities.
- **Research Methodology:**

This study employs a descriptive methodology, deemed particularly appropriate for exploring the influence of digital culture on knowledge management within Algerian university libraries. This approach facilitates an in-depth examination of existing studies and research relevant to the topic, allowing for effective comparisons and the identification of gaps in both knowledge and methodology.

- **Data Collection Tools:**

Data collection was primarily conducted through observation, focusing on the environments of Algerian university libraries to evaluate the presence and impact of digital culture on knowledge management practices. Additionally, the study incorporated insights from prior research addressing similar themes.

1. Literature Review

In the Arab academia, the study by Arabi Mahfoud and Haroun Samira, 2023 entitled "*The Level of Digital Culture Among Algerian University Students in Light of E-Learning Requirements*",¹ aimed to investigate the level of digital culture among Algerian university students within the context of e-learning requirements. Adopting a descriptive-analytical methodology, it examined the realities of Algerian universities, focusing on students' behaviors and their interaction with modern technologies. The findings indicated that the participants demonstrated proficiency in employing digital tools and actively engaging with the internet and social media platforms.

In relation to "The Level of Digital Culture Among Algerian University Students in Light of E-Learning Requirements" and "The Role of Digital Culture in Knowledge Management Implementation in Algerian University Libraries," notable intersections can be identified, although the topics address distinct domains. Both of them focus on digital culture but apply it to different operational contexts:

- The first topic emphasizes assessing students' digital competencies and their adaptability to the demands of e-learning, highlighting the necessary digital skills for accessing educational content and performing academic tasks online.

¹ Arabi Mahfoud, Haroun Samira. (2023). "The Level of Digital Literacy among Algerian University Students in Light of E-Learning Requirements." *Journal of Economics and Human Development*, Vol. 14, No. 1.

- Conversely, the second topic examines how digital culture enhances and facilitates knowledge management within university libraries, particularly through the organization, exchange, and accessibility of digital resources.

The overlap between these two areas lies in how the digital literacy of students directly impacts their ability to employ electronic library services effectively. Consequently, higher levels of digital literacy among students correlate with improved engagement with library knowledge management systems. Furthermore, fostering digital culture within educational institutions enhances students' experiences in accessing and exploiting available resources.

- The study of Nour-Eddine Gouali, 2023. *"Knowledge Management in University Libraries: IT-Based Tools"*. This study examines the role of knowledge management in university libraries amidst the rapid advancements in information and communication technologies. Through a descriptive-analytical methodology, the study explores theoretical and practical dimensions of knowledge management systems, focusing on tools driven by modern information technologies. The results underscore the importance of innovative applications and methodologies that enhance the efficiency of managing various knowledge assets in university libraries. These findings further reveal how such tools improve library performance while reducing the time and effort required to manage information effectively.

The first topic, *"The Role of Digital Culture in Knowledge Management Implementation in Algerian University Libraries,"* examines how digital culture influences and supports knowledge management. Specifically, it highlights how digital culture fosters individual awareness and engagement with digital tools, thereby facilitating knowledge exchange and promoting collaboration within university libraries.

In contrast, the second topic, *"Knowledge Management in University Libraries: Tools Based on Information Technology,"* focuses on the technical aspects, analyzing the tools and systems that enable knowledge management. These include content management systems and artificial intelligence technologies, which play a pivotal role in the storage, organization, and retrieval of knowledge. Furthermore, these tools enhance service delivery, ensuring that libraries can meet the needs of their users efficiently and effectively.

– **Points of Intersection:**

- **Reliance on Digital Technology:** Both topics emphasize the essential role of digital technology in supporting knowledge management.
- **Improving Knowledge Management Efficiency:** Both focus on advancing the effectiveness of knowledge management practices within university libraries.

– **Points of Divergence:**

- **Scope:** The first topic prioritizes the role of digital culture in shaping user engagement and behavior, whereas the second highlights the technical systems and tools used for knowledge management.
- **Primary Roles:** Digital culture fosters awareness and facilitates the intentional and informed use of digital tools, while technological tools provide the structural means to implement and operationalize knowledge management practices effectively.

In summary, digital culture serves as the foundational environment that nurtures informed and conscious engagement with digital tools, while technological systems act as the operational enablers of knowledge management in university libraries.

Moreover, the study titled "*The Role of Knowledge Management in Enhancing the Effectiveness of Digital Transformation: An Applied Study on Employees of Scientific Libraries at Mansoura University*"² by Ali Younes Ibrahim et al. (2024) investigates the contribution of knowledge management to advancing digital transformation within the scientific libraries of Mansoura University. Positioned within the broader context of knowledge-based societies, this research aligns with the objectives of sustainable development. Adopting a comprehensive survey methodology instead of sample-based approaches, the study ensures the inclusion of all available data from the libraries. The findings reveal a significant positive correlation between the research variables and dimensions, alongside the distinct impact of knowledge-sharing and application dimensions on digital leadership and the implementation of business strategies.

The first topic examines how digital culture facilitates knowledge management by improving technological use and strengthening the digital competencies of library staff. In contrast, the second topic focuses on how knowledge management practices drive digital transformation and optimize employee performance.

– Points of Intersection

Both topics emphasize the interplay between knowledge management and technology within the context of university libraries. They share a common objective: to enhance operational efficiency and service delivery by fostering staff skill development and leveraging knowledge resources effectively.

– Points of Divergence

While the first topic highlights *digital culture* as a foundational element for advancing knowledge management practices, the second emphasizes *knowledge management* as a strategic enabler of digital transformation.

² Ali, Younis et al. - *The Role of Knowledge Management in Enhancing the Effectiveness of Digital Transformation: An Applied Study on Employees of Scientific Libraries at Mansoura University* - Arab International Journal of Technology and Information Data - Vol. 4, No. 4, October 2024, pp. 125-158.

On a global scale, the study by C. Muscogiuri, C. Niederée, and M. Hemmje, titled *"Digital Libraries in Knowledge Management: An E-Learning Case Study,"*³ investigates how digital libraries facilitate knowledge management within e-learning contexts. It emphasizes the role of digital libraries as critical repositories of explicit knowledge that enable the creation of new insights and foster the dissemination of knowledge across various fields. The study outlines the concept of a knowledge supply chain, which begins with specialized content created by authors and culminates in the enhancement of individual learning. Furthermore, it identifies digital libraries and e-learning systems as pivotal technologies for preserving and delivering knowledge in the digital era.

Employing a comparative methodology, the study explores the integration of knowledge management principles into digital libraries as a means to enhance intellectual preservation and streamline access to information. The findings underscore the importance of embedding modern administrative frameworks to optimize content management and improve information retrieval systems.

Despite both topics examining the interplay between digital tools and knowledge management, they diverge in their focus:

The first study, *"Digital Libraries in Knowledge Management: An E-Learning Case Study"* emphasizes the role of digital libraries in advancing knowledge management within the context of e-learning. It investigates how digital tools and electronic platforms are employed to enhance access to resources and facilitate knowledge exchange among students and researchers. In contrast, our study shifts attention to digital culture as a driving force in adopting and applying knowledge management processes. It explores how cultural engagement with digital technologies shapes effective usage within Algerian university libraries, emphasizing user interaction and organizational adaptation.

2. Definition of Digital Culture

Digital culture refers to the influence of information technology and the internet on how individuals interact with technology in both personal and professional contexts. It encompasses contemporary methods and tools that promote innovative and efficient task completion. Additionally, it represents the cultural shifts brought about by the evolution and widespread adoption of digital technologies, particularly the internet and the World Wide Web. Central to digital culture is the development of a mindset that integrates previously separate cultural elements, fostering collaboration regardless of geographical distance.

Lesley Osborne, Director of the Policy and Digital Research Alliance at the Australian Media and Communications Authority, defines digital culture as “the skills and capabilities needed to participate in the digital economy, including the ability to use, understand, and interpret digital

³ Muscogiuri, C., Niederée, C., & Hemmje, M. - *Digital Libraries in Knowledge Management: An E-Learning Case Study* - International Journal of Digital Libraries - Vol. 4, 2004, pp. 31-35.

communications.” She notes that Australia has prioritized digital culture nationally, implementing numerous programs with a special emphasis on schools.

Similarly, Tessa Jolls, President of the Center for Media Literacy, describes digital literacy as “the ability to access and analyze digital content.” She highlights the necessity of teaching digital culture to children, emphasizing her organization’s work in developing strategies and methods to equip educators with effective ways to deliver this content (*Digital Culture, Islam Online*).

Digital culture also encompasses the values, beliefs, and practices that emerge within society due to the extensive use of digital technologies. It is characterized by increased access to knowledge, enhanced collaboration, the formation of social networks, and the capacity to create and share content in innovative ways. By encouraging interactions that were previously impossible, digital culture fosters new forms of communication, creativity, and collaboration. As digital technologies continue to spread, digital culture evolves accordingly, shaping how individuals engage with and exchange ideas, as well as how they generate and disseminate new content. This broad concept spans a range of activities, including the use of digital technologies in communication, production, consumption, and collaboration⁴.

Slack (2022) defines digital culture as a work environment influenced by digital tools and technologies. In organizations with advanced digital cultures, employees rely on technology to enhance collaboration and innovation, while also providing customers with products, services, and support⁵.

Kerner (2024) similarly defines digital culture as a collection of patterns, behaviors, and values that develop from the use of digital technologies. This extensive term includes smartphones, social media, digital collaboration tools, enterprise content management, cloud infrastructure, and software-as-a-service, alongside digital environments such as the internet, which forms the foundation of the contemporary digital world⁶.

Drawing on these definitions, digital culture highlights the transformations brought about by technology in the lives of individuals and communities. It merges modern communication approaches with emerging forms of thinking, involving a spectrum of skills—such as effectively understanding and exploiting digital tools—that enable people to engage productively with these technologies. Its significance lies in broadening access to knowledge, fostering social collaboration, and inspiring creativity in generating and sharing content. This transformation introduces new communication methods and ways of exchanging ideas, opening up possibilities for ongoing innovation, particularly as digital technologies gain prominence in various fields.

⁴ Ibrahim, Youssef - "Digital Culture: What It Is and Its Importance to Society" - <https://jawak.com/Digital-culture>

⁵ L'équipe Slack - *Culture digitale : qu'est-ce que c'est ?* - 29 juillet 2022 - <https://slack.com/intl/fr-fr/blog/collaboration/what-is-digital-culture>

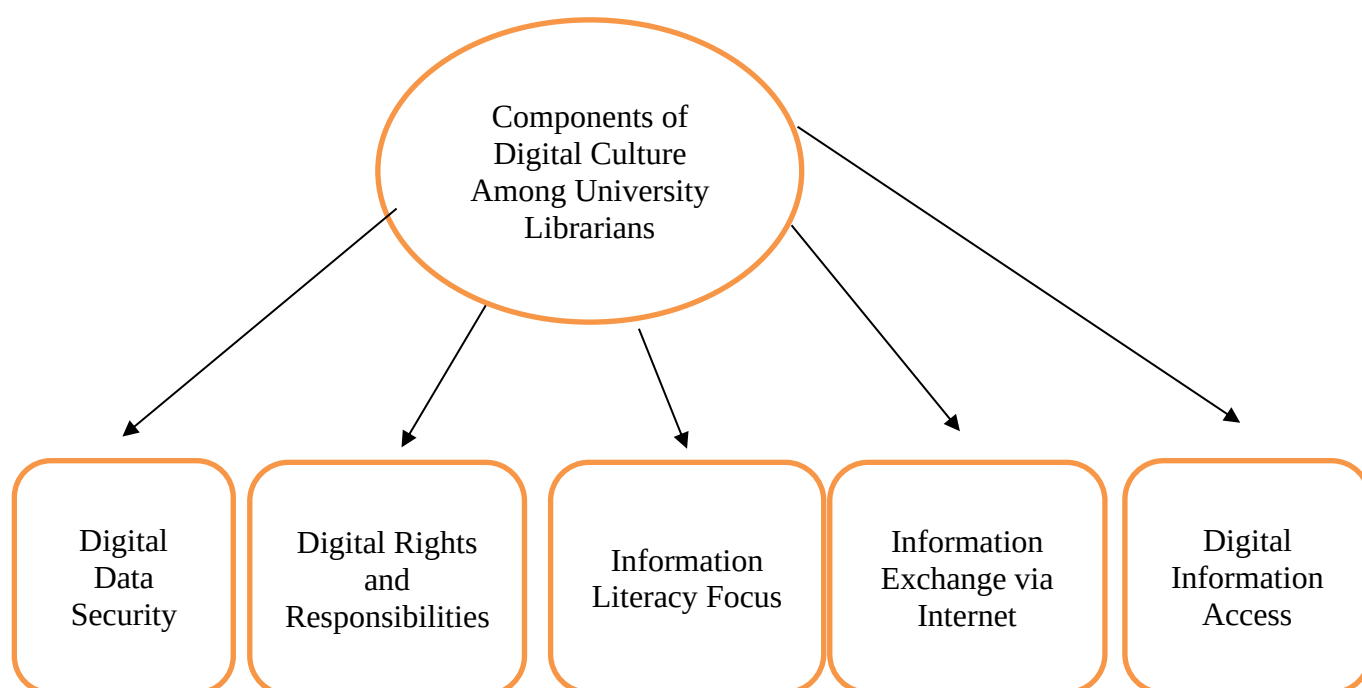
⁶ Sean Michael Kerner - *Digital Culture* - 2024 - <https://www.techtarget.com/contributor/sean-m-kerner>

Operationally, digital culture can be defined as the collective set of contemporary technical capabilities and methods that accommodate ongoing technological developments, enabling flexible work while reducing time and effort.

2.1 Components of Digital Culture Among University Librarians

University library personnel are endowed with a variety of digital culture components that facilitate easy access to information and adaptability to library-level changes. This section delineates these components and explores their interrelationships:

Figure 1: Components of Digital Culture among University Librarians



Source: Hassanein, 2022⁷

As observed in Figure 1, the digital culture components within university libraries play a crucial role in enhancing knowledge management and facilitating the provision of effective digital information services. The accessibility of digital information is essential, enabling librarians to supply students and researchers with sophisticated electronic resources. This accessibility not only promotes academic interaction but also supports collaborative research projects across universities and libraries, thereby broadening the knowledge base. Furthermore, navigating the challenges of information literacy is pivotal for librarians as they guide students towards effective research methodologies and the use of digital resources. Additionally, adhering to digital rights and

⁷ Asmaa, Sayed Mohamed Hassanein. "Distance Education and Its Impact on Developing Digital Culture Among University Students: An Applied Study on the Departments of Documentation, Libraries, and Information at Al-Azhar University." *Journal of the Faculty of Arabic Language in Menoufia*, no. 37, 2022.

responsibilities is vital in maintaining ethical standards and legal compliance, which in turn safeguards intellectual property rights and copyright laws. Lastly, ensuring data security is paramount for protecting user privacy and maintaining the confidentiality of the information available in library databases.

3. Definition of Knowledge Management

Knowledge management (KM) is a structured process encompassing the discovery, generation, utilization, organization, dissemination, and application of knowledge within organizations. It supports administrative activities, decision-making processes, and problem-solving efforts. KM fosters organizational awareness and facilitates the acquisition and sharing of collective expertise to achieve institutional goals and missions. It also enhances task efficiency across departments, contributing to long-term competitiveness. Furthermore, KM emphasizes the creation of a conducive cultural environment for acquiring, transferring, and sharing knowledge. This systematic approach manages knowledge assets to create value and achieve strategic objectives through processes such as knowledge storage, evaluation, and sharing⁸.

This definition highlights KM as a core element in enhancing institutional performance. It enables the identification, consolidation, and application of knowledge in administrative functions. KM transcends information storage, promoting a collaborative organizational culture that fosters interaction and maximizes the use of available knowledge for effective decision-making and problem-solving.

Wiig defines KM as a process involving planning, organizing, controlling, coordinating, and synthesizing knowledge assets and intellectual capital within an organization. It includes leveraging individual competencies and capabilities to achieve competitive advantage. KM emphasizes maintaining, utilizing, and disseminating intellectual capital while ensuring the availability of necessary tools to achieve its objectives⁹.

Wiig's perspective frames KM as a systematic effort to coordinate and plan the use of knowledge to enhance organizational competitiveness. This involves structuring intellectual capital management and ensuring the alignment of resources and strategies with institutional goals.

KM can also be described as a knowledge-centric management approach that incorporates both explicit and tacit knowledge. These forms of knowledge are employed to develop strategies aimed at improving organizational performance. KM encompasses activities and outcomes that optimize intellectual capital use within business operations.

⁸ Arrar, Alaa. "Definition of Knowledge Management." January 6, 2019. Accessed via: <https://mawdoo3.io/article/4508>.

⁹ Star, Shams. "Knowledge Management: Its Concept, Types, and Dimensions." May 9, 2021. Accessed via: <https://www.starshams.com/2021/05/knowledge-Management.html>.

Another perspective defines KM as the systematic sharing of information to achieve specific objectives, such as fostering innovation, avoiding duplication, and enhancing competitive advantage¹⁰.

Additionally, KM involves organizing, storing, and distributing knowledge within organizations to ensure rapid and effective access to necessary information. This approach enhances operational efficiency and reduces costs related to information retrieval¹¹.

Wray (2024) emphasizes KM as the process by which organizations collect, organize, update, and share information with stakeholders, including employees, customers, and partners. It also encompasses technologies that enable the storage, retrieval, and updating of knowledge¹².

From these definitions, KM emerges as a strategic framework designed to collect, organize, and apply knowledge within organizations. Its objectives include fostering innovation, reducing redundancy, and enhancing competitive excellence. By leveraging explicit and tacit knowledge, KM supports informed decision-making, improves institutional performance, and strengthens organizational efficiency.

Table 1: The Relationship Between Key Knowledge Management Concepts and Their Impact on Institutional Performance

Concept	Definition	Core Elements	Impact
Knowledge Management	A process aimed at enhancing institutional performance through the comprehensive exchange and use of knowledge.	Production, application, organization, and exchange of knowledge.	Improves competitiveness, supports decision-making, and fosters innovation.
Planning and Organization	Involves developing strategies for storing and distributing knowledge within the institution.	Managing processes related to knowledge and its distribution among individuals.	Enhances coordination and increases the effectiveness of knowledge utilization.
Investment in Intellectual Capital	Entails leveraging and developing knowledge to enhance the organization's intellectual assets.	Employing intellectual capital to generate new value.	Strengthens competitive advantage through the effective use of knowledge.

¹⁰ Mona. "The Concept of Knowledge Management and Its General Dimensions." April 4, 2022. Accessed via: <https://www.almrsal.com/post/551772>.

¹¹ IBM. "What Is Knowledge Management?" Accessed via: <https://www.ibm.com/topics/knowledge-management>.

¹² Wray, Harry. "What Is Knowledge Management? A Guide for 2024." April 2, 2024. Accessed via: <https://www.zendesk.com/blog/knowledge-management>.

Knowledge Exchange Methods	Focuses on fostering knowledge within the organization and encouraging communication among individuals.	Sharing data between employees, teams, and departments.	Promotes innovation, collaboration, and improves the efficiency of teamwork.
Impact on Institutional Performance	Enhances efficiency by exploiting available knowledge and making data-driven decisions.	Encourages creativity, reduces duplication of effort, and increases decision-making efficiency.	Boosts institutional efficiency, enhances competitive excellence, and achieves strategic goals.

Source: By the researchers

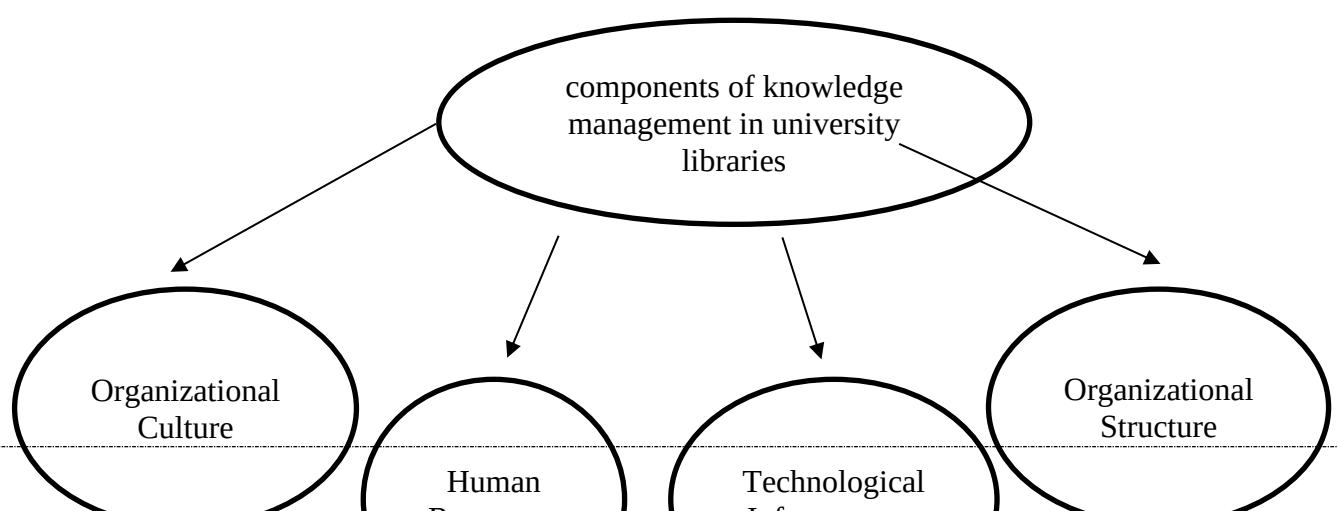
Table 1 illustrates that knowledge management is a holistic strategic process designed to enhance institutional performance by facilitating the acquisition and exchange of knowledge across individuals and departments. This involves key activities such as organizing, planning, and investing in intellectual capital, which collectively bolster the organization's competitive advantage and support precise decision-making alongside innovative problem-solving approaches.

Furthermore, knowledge exchange within an institution fosters a collaborative environment that drives innovation while reducing redundant efforts. This increases operational efficiency and effectiveness. Such an integrated approach to knowledge management not only provides a competitive edge but also strengthens the institution's ability to achieve its strategic goals and adapt to evolving market demands more effectively.

3.1 Knowledge Management Components in University Libraries

University libraries possess essential components that underpin the effective implementation of knowledge management. These components are designed to modernize and enhance the practices of library staff across all levels. Below is an overview of these core elements:

Figure 2: Knowledge Management Components in University Libraries



Source: Misbah, M., 2015¹³

As illustrated in Figure 2, the components of knowledge management in university libraries are comprised of four fundamental elements: organizational structure, technological infrastructure, human resources, and organizational culture. Each of these components plays a crucial role in enhancing knowledge management practices within these institutions.

The organizational structure facilitates the coordination of internal relationships and ensures a seamless flow of information. This structure fosters collaboration and the effective exchange of knowledge among staff members, thereby enhancing operational efficiency. Meanwhile, the technological infrastructure provides advanced tools and systems for the efficient storage, retrieval, and dissemination of information. These technologies not only support academic research but also improve accessibility to essential resources for both staff and users. Moreover, human resources represent a cornerstone of effective knowledge management. The presence of skilled and continuously trained personnel ensures the library's capacity to deliver superior knowledge-based services. Additionally, organizational culture forms the foundation of a dynamic knowledge environment. A supportive culture fosters innovation, collaboration, and the exchange of ideas. By encouraging individuals to share their expertise and experiences, the library cultivates an enriched ecosystem that drives knowledge creation and dissemination.

In conclusion, the integration of these components is indispensable for achieving effective knowledge management in university libraries. Any shortcomings in these areas could undermine the library's ability to manage, distribute, and provide access to knowledge.

3.2 The Nexus Between Digital Skills and the Enhancement of Knowledge Management Practices in University Libraries

This section examines the integral relationship between digital skills and the implementation of knowledge management practices in university libraries, focusing on three key dimensions: human resources, technological tools, and organizational culture. These interconnected elements underpin processes such as knowledge acquisition, organization, storage, dissemination, and application, as elaborated below:

¹³ Misbah, Mohamed Mahmoud. "Components of Knowledge Management in Saudi University Libraries and the Reality of Their Implementation." Lecturer in Libraries and Information at Benha University, Umm Al-Qura University, Saudi Arabia, 2015.

– Human Resources

Human resources constitute the cornerstone of knowledge management in university libraries, serving as the primary agents for generating and transforming individual knowledge into institutional knowledge. Library staff, often referred to as "knowledge workers," represent the intellectual capital of these institutions. Their collective expertise and active engagement directly influence the library's success in achieving its objectives. A competent workforce must combine theoretical knowledge with practical expertise, encompassing fields such as digital resource management, web-based applications, and contemporary knowledge classification systems. To this end, continuous education, professional development, and self-directed learning are indispensable, enabling employees to integrate theoretical understanding with hands-on experience. Such integration ensures the effective creation, dissemination, and application of knowledge in library operations.

Innovation and collaboration further amplify the value of human resources in knowledge management. Library staff should be encouraged to share insights, collaborate with colleagues, and engage actively with users to foster a cohesive and adaptive work environment. Key roles of information specialists in this context include:

- Identifying and addressing students' knowledge needs.
- Collecting, processing, and disseminating knowledge across organizational levels.
- Evaluating and refining knowledge repositories to bridge existing gaps¹⁴.

– Technological Tools

The application of technology in knowledge management is essential, particularly in institutions such as university libraries that focus on aggregating, organizing, and disseminating knowledge. Technology serves as a catalyst for enhancing operational efficiency and expediting access to information, thereby strengthening knowledge processes and elevating academic and research performance.

In university libraries, the role of technology is exemplified through various applications, including document processing systems that facilitate the electronic archiving of materials, ensuring swift and reliable retrieval. Decision support systems further contribute by analyzing data and offering informed recommendations tailored to the knowledge requirements of students and faculty. Additionally, expert systems provide authoritative and knowledge-based content, empowering academics to make informed, evidence-based decisions.

A critical aspect of knowledge management in libraries involves maintaining equilibrium between tacit knowledge—requiring interpersonal interactions and direct exchange of expertise—and explicit knowledge, which is stored in databases and digital repositories. Advanced technological

¹⁴ Gouali, Nour El-Din. "Knowledge Management in University Libraries: IT-Based Tools." *Journal of Library Science*, vol. 15, no. 1, 2023, pp. 149-183.

tools enable the preservation and accessibility of explicit knowledge via databases and electronic networks. Concurrently, digital communication platforms facilitate the exchange of tacit knowledge across diverse channels ¹⁵.

– Organizational Culture

The role of organizational culture in knowledge management cannot be overstated, as it establishes the environment necessary for fostering collaboration and knowledge sharing among staff. A strong culture promotes skill development, innovation, and effective knowledge transfer. Key initiatives to strengthen organizational culture include conducting workshops and internal training programs that promote collaboration, encouraging innovation to address challenges and improve service quality, and fostering trust among employees to enable the free exchange of ideas without fear of criticism. To further reinforce this culture, institutions must adopt policies that protect intellectual property rights and acknowledge individual contributions. Digital tools, such as electronic archiving systems, play an essential role in accelerating knowledge processes and enhancing accessibility. Additionally, recognizing and rewarding employees who actively contribute to knowledge management—whether through monetary incentives or professional recognition—serves to motivate and inspire continued engagement.

Despite challenges such as resistance to change and resource constraints, effective planning and change management strategies can create a sustainable knowledge ecosystem. By fostering an environment that supports innovation and collaboration, university libraries can position themselves as dynamic and forward-thinking academic institutions ¹⁶.

Table 2: Digital Skills in the Context of Knowledge Management in University Libraries

Human Resources	Technological Tools	Organizational Culture
Enhanced through the cultivation of advanced digital competencies and continuous professional development.	Involves the strategic integration of cutting-edge technologies to optimize knowledge management processes.	Focuses on fostering a collaborative environment that encourages innovation, supports creativity, and promotes continuous learning and development.

Source: Developed by the researchers

Table 2 highlights the three fundamental components of knowledge management in university libraries: human resources, technological tools, and organizational culture. Digital skills form the cornerstone of human resource development, equipping staff with the capabilities to efficiently manage and deliver digital information to students and researchers. This is further strengthened through continuous training in state-of-the-art technologies, enhancing their competencies in knowledge organization and dissemination. Technological tools, including digital databases and

¹⁵ Obaid, Issam. "Application of Knowledge Management in Institutions." April 4, 2016. Accessed via: <https://www.linkedin.com/pulse>.

¹⁶ Benane, Karima, and Benlalam, Semhane. "Information Technology as an Approach to Knowledge Management: An Analytical Theoretical Perspective on the Dialectical Relationship." *Al-Risala Journal for Human Studies and Research*, vol. 6, no. 4, 2021

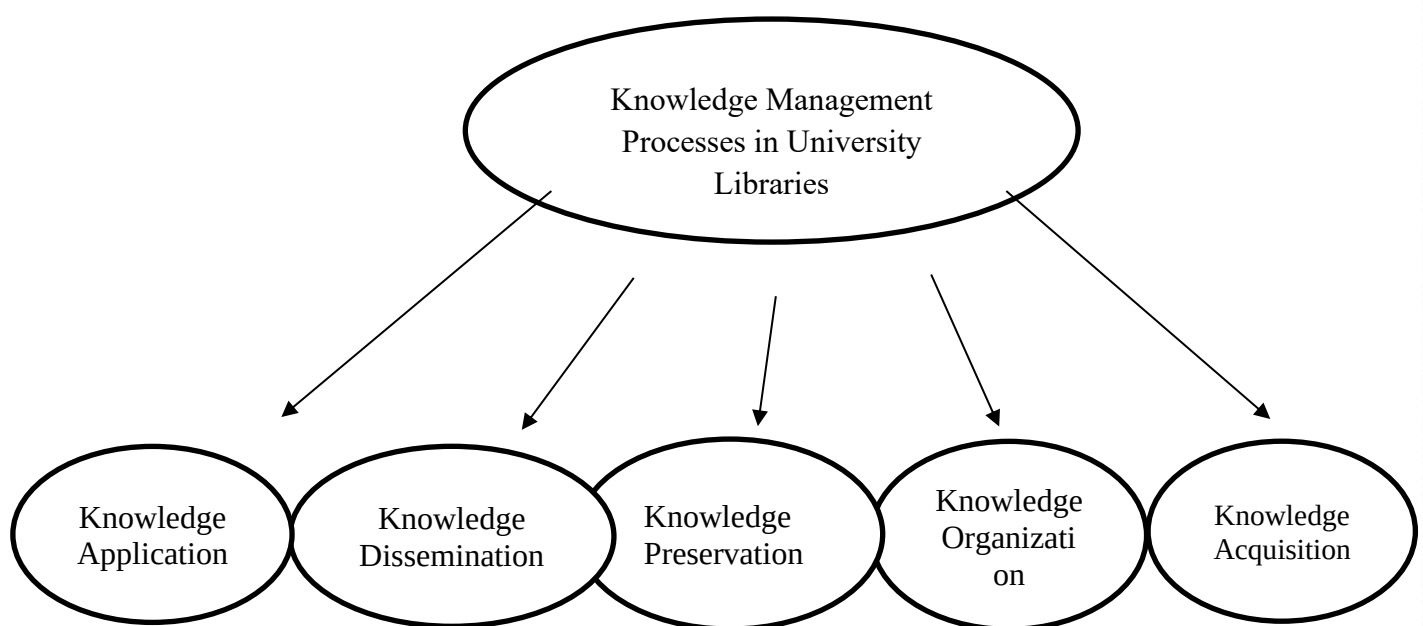
advanced cataloging systems, play a crucial role in enabling rapid access to academic resources. These tools streamline knowledge management processes, supporting library staff in meeting the evolving informational needs of their user base effectively. Moreover, an organizational culture that fosters collaboration, innovation, and lifelong learning creates an optimal environment for knowledge sharing and the enhancement of library services. Such a culture encourages teamwork, facilitates the exchange of ideas, and drives the implementation of advanced library practices.

– Knowledge Management Processes in University Libraries

Knowledge management processes have the potential to transform the operational framework of university libraries, particularly in light of advancements in technology, organizational structures, and human resources—elements that are central to the knowledge generation process. However, to effectively implement these processes—encompassing knowledge collection, organization, storage, transfer, and application—it is essential to understand them within their original context, primarily in economic institutions and entrepreneurial settings. These environments inherently differ from the academic landscape of university libraries.

In university libraries, the adaptation of these processes necessitates a nuanced approach, particularly with the integration of digital skills. Below, we explore these key processes in the context of their digital influence:

Figure 3: Knowledge Management Processes in University Libraries



Source: (Odibat, 2021)¹⁷

Figure 3 outlines the critical processes underpinning knowledge management in university libraries, emphasizing their integration with advanced digital proficiencies.

¹⁷ Odibat, Walaa. "What Are the Knowledge Management Processes in Business Organizations?" May 29, 2021. Accessed via: <https://www.e3arabi.com>.

Knowledge acquisition involves the systematic gathering of informational resources from a wide range of sources, including books, academic journals, electronic databases, and institutional research. Digital skills are indispensable in this process, using discovery systems, metadata harvesting tools, and specialized bibliographic platforms to ensure accurate and timely access to diverse resources. Additionally, tools such as digital surveys and online user feedback forms enable libraries to capture the evolving needs of their academic communities with precision.

Knowledge organization focuses on structuring and categorizing acquired information to facilitate ease of access and retrieval. This process is achieved using integrated library systems (ILS), digital knowledge repositories, and metadata standards. Digital expertise is crucial for implementing controlled vocabularies, classification schemas, and indexing practices aligned with international bibliographic standards. Advanced search functionalities further support efficient resource discoverability tailored to user-specific queries.

Knowledge preservation ensures the secure and sustainable storage of academic resources in both digital and physical formats. Libraries employ digital preservation tools such as institutional repositories, cloud-based archives, and trusted digital repositories (TDR) to protect intellectual assets from data loss or unauthorized access. Librarians are expected to acquire advanced competencies in digital preservation technologies, including cloud storage infrastructure, big data management systems, and sophisticated backup solutions, to uphold the sustainability and retrievability of stored knowledge. Furthermore, the archived knowledge must be systematically structured within secure and reliable digital ecosystems.

Knowledge dissemination represents the process of sharing and distributing knowledge across academic and research communities. Libraries use platforms such as open-access repositories, learning management systems, and virtual reference services to facilitate seamless knowledge transfer. Digital tools, including email alerts, video conferencing technologies, and collaborative platforms, enhance engagement and collaboration among students, researchers, and faculty.

Knowledge application marks the final stage in leveraging acquired knowledge to enhance academic and administrative performance. Within the context of university libraries, this entails employing technology-driven research methods, designing and executing research projects, and delivering advisory services to students and faculty members based on available information. Digital skills play a crucial role in advancing this process by providing data analysis tools that enable libraries to deliver innovative and tailored services, such as developing interactive digital libraries or enhancing advanced online search tools.

This framework underscores **the symbiotic relationship between digital skills and knowledge management in university libraries**. By integrating these processes with advanced library technologies, libraries ensure the rapid flow, quality, and accessibility of knowledge while addressing the dynamic needs of their academic users. In the digital age, knowledge management has evolved to include the adoption of cutting-edge tools and techniques, fostering user engagement and delivering innovative educational resources. This relationship exemplifies the notable

advancements in university libraries, underscoring the necessity for librarians and library staff to possess robust digital skills to ensure effective knowledge management. Moreover, leveraging digital technologies significantly enhances the capacity of university libraries to deliver services characterized by efficiency, adaptability, and innovation. This progression ensures that the needs of students and academics are met within the framework of the digital knowledge era.

4. Digital Skill Challenges for Librarians and Users in University Libraries

University libraries play a pivotal role as repositories of knowledge, serving students and researchers alike. Information specialists are at the core of library operations, tasked with adapting to technological and organizational advancements. However, these libraries face numerous challenges that impede operational efficiency and affect the performance of librarians. The following discussion outlines these challenges:

- **Challenge 1: Advancing Technologies for Digitizing Analog Materials**

The creation of comprehensive electronic resources necessitates the digitization of traditional materials, such as manuscripts, images, and recordings. This process requires balancing the preservation of original materials with producing high-quality digital copies. The absence of standardized guidelines exacerbates this challenge, complicating the evaluation of digitization quality. Furthermore, libraries must employ advanced tools to automate the extraction of implicit metadata, such as pagination and indices, thereby enhancing accessibility to digitized content¹⁸.

- **Challenge 2: Digital Preservation**

Effective digital preservation requires sophisticated infrastructure and advanced technical skills among librarians to safeguard digital content and maintain its accessibility over time. Users also face challenges due to varying levels of digital literacy. Addressing these issues necessitates consistent investment in infrastructure and training to ensure the sustainability of digital knowledge management systems.

- **Challenge 3: Financial Support**

Financial limitations remain a significant hurdle in the development of digital skills among librarians and users. Libraries need dedicated funding to train personnel, upgrade infrastructure, and maintain robust digital tools. Furthermore, budgets must accommodate the costs of regular updates, equipment maintenance, and internet connectivity to keep pace with technological advancements. Without adequate financial support, achieving efficient digital transformation remains unattainable.

- **Challenge 4: Content Management**

Digital content management demands advanced competencies from librarians to curate and organize resources effectively, while users need sufficient skills to navigate and utilize these resources. Continuous training programs and collaborative initiatives are essential to empower

¹⁸ Hayek, Hiyam. (2017). "Challenges of Digital Libraries." January 31, 2017, via the link: <https://www.blog.naseej.com>

librarians to provide comprehensive guidance and enable users to fully engage with the library's digital offerings, reinforcing the library's role as a center for knowledge dissemination.

- **Challenge 5: Digital Literacy**

A lack of awareness and proficiency in digital skills significantly hampers the optimal use of library services. Ongoing professional development is necessary to ensure librarians remain adept with emerging technologies, while users require tailored educational programs to enhance their interaction with digital resources. The absence of such initiatives limits the library's potential, emphasizing the importance of workshops and training sessions to promote digital literacy among all stakeholders.

- **Challenge 6: Confidentiality**

Safeguarding user data and ensuring the confidentiality of digital transactions are critical challenges in the digital library environment. Librarians require advanced digital security skills to protect sensitive information, while users need support in maintaining their privacy when accessing online resources. Robust security systems and comprehensive training are imperative to uphold data protection standards.

- **Challenge 7: Adaptability to Changes**

The fast-paced evolution of digital technologies necessitates continuous adaptability from both librarians and users. Librarians must remain up-to-date with advancements in digital tools and seamlessly integrate them into library operations. Users, on the other hand, often require assistance transitioning from traditional to digital platforms. Strategic training programs and supportive environments are crucial to help both groups adapt effectively.

- **Challenge 8: Collaboration and Advocacy**

Digital collaboration and advocacy skills are vital for fostering engagement and interaction within library ecosystems. Librarians must develop these competencies to effectively connect with users and promote the library's services. Similarly, users must adapt to new collaborative tools. Cultivating a culture of digital collaboration and advocacy ensures that libraries can maximize the benefits of digital transformation¹⁹.

Addressing the challenges associated with digital skills among librarians and users in university libraries necessitates the implementation of strategic and targeted solutions to enhance library operations and service delivery. These strategies should prioritize fostering an environment that optimizes the integration and use of diverse information resources. By effectively mitigating these challenges, university libraries can significantly enhance their operational efficiency, meeting the dynamic needs of the academic community with greater precision.

¹⁹ Wajiz, Bot, "Challenges Facing Libraries in the Digital Era," via the link:
<https://www.ejaba.com/question>

5. Recommendations

To overcome challenges and optimize operational efficiency within university libraries, the following proposals are advanced:

- **Develop Comprehensive and Regular Training Programs for Librarians:** Implement ongoing training sessions on electronic search tools, information management techniques, and advanced digital systems, including electronic library management platforms.
- **Enhance Digital Infrastructure:** Upgrade technological systems, including hardware and networks, to ensure swift access to digital content. Libraries must invest in modern software tailored for library management and academic research facilitation.
- **Integrate Digital Skills into Academic Curricula:** Embed digital literacy courses into academic programs to train students on effective utilization of digital tools for research, analysis, and documentation.
- **Foster Interlibrary Collaboration:** Establish knowledge-sharing platforms among university libraries at both local and international levels. Regularly organize collaborative workshops for librarians to exchange insights and familiarize them with global advancements in library sciences.
- **Raise User Awareness:** Conduct targeted awareness campaigns to educate students and faculty about the significance of digital libraries and contemporary research methodologies. Interactive workshops should be tailored to enhance users' abilities in accessing and utilizing digital resources effectively.
- **Secure University Leadership Support:** Advocate for sustained financial and administrative backing from university leadership to ensure adequate resources are allocated for infrastructure upgrades, staff development, and operational sustainability.

These measures aim to elevate the digital proficiency of librarians and users alike, thereby reinforcing the pivotal role of university libraries in fostering education and advancing academic research.

• Conclusion

In summary, the transition to digital culture in knowledge management is not merely a technological evolution but a transformative shift that redefines the essential functions of university libraries as hubs of intellectual engagement. This evolution fosters innovative interactions between users and academic ecosystems, enabling faster and more efficient knowledge accumulation and dissemination, ultimately driving research innovation and reinforcing libraries' positions as strategic and intellectual nuclei.

In the Algerian context, this transformation offers a vital opportunity to align knowledge management practices with international standards. However, its success hinges on a well-defined strategy addressing challenges such as limited digital infrastructure, enhancing staff competencies, and fostering policies that promote openness and collaboration among libraries and academic institutions. Achieving this vision requires a unified commitment to embedding digital

transformation as a core element of building a globally competitive knowledge society, capable of contributing substantively to knowledge production and exchange.

This study has yielded the following key findings:

- **Facilitating Information Access:** Digital culture ensures expedited access to a wealth of resources and references.
- **Encouraging Collaboration:** Advanced digital tools enable seamless knowledge sharing and interaction.
- **Enhancing Administrative Efficiency:** Digital knowledge management systems streamline classification and retrieval processes.
- **Overcoming Infrastructure and Training Gaps:** Addressing technology and staff training deficiencies remains a pressing challenge.
- **Stimulating Innovation:** Digital culture fosters an environment conducive to innovation and lifelong learning in university libraries.

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