



Knowledge Commons: Libraries as Catalysts for Viksit Bharat 2047

Editors

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2026

***Published by*
Century Publications
In Association with
Advanced Research Publications**

PREFACE

It is a great pleasure that Rajasthan Technical Library Association is organising its 11th Conference “International Conference on Knowledge Commons: Libraries as Catalysts for Viksit Bharat 2047.” These two days event will witness deliberations, discussions from Librarians, Educators and Information Professionals from across the World. The blueprint for Viksit Bharat—a developed India by 2047—is built upon the pillars of economic self-reliance, social evolution, and, most importantly, a robust knowledge economy. As we navigate the complexities of the 21st century, the library has moved far beyond its traditional identity as a quiet room of books. It has emerged as the Knowledge Commons: a shared, democratic space where information is converted into opportunity. This book, Knowledge Commons: Library as Catalyst for Viksit Bharat serves as a comprehensive exploration of how our information institutions are driving this national metamorphosis. By fostering an environment of lifelong learning and equitable access, libraries are acting as the quiet engines of India’s progress.

The Ten Pillars of Transformation

The chapters within this volume are meticulously organized to address the multi-faceted role of modern libraries through ten strategic subthemes:

Libraries as Knowledge Hubs: Positioning libraries as the central nervous system of community intellectual life.

* **Digital Inclusion and Access:** Bridging the digital divide to ensure every citizen has a seat at the global table.

* **Knowledge Creation and Dissemination:** Transitioning from passive storage to active centers of research and publishing.

* **Community Engagement and Outreach:** Building social capital by making the library a welcoming space for all demographics.

* **Innovation and Entrepreneurship:** Providing the tools, from high-speed internet to maker spaces, that spark the next generation of Indian startups.

* **Preservation of Cultural Heritage:** Modernizing the way we protect India’s vast linguistic and historical legacy for future generations.

* **Library Policy and Governance:** Advocating for the legislative frameworks required to sustain 21st-century libraries.

* **Capacity Building and Professional Development:** Equipping librarians with the skills to be information architects and digital navigators.

* **Technology and Emerging Trends:** Integrating AI, Blockchain, and Big Data into the fabric of information management.

* **Partnerships and Collaborations:** Encouraging synergy between government, academia, and the private sector.

Towards 2047

A Developed India is not just defined by its infrastructure of steel and silicon, but by the intellectual infrastructure of its people. The Knowledge Commons is where this infrastructure is built. This book is an invitation to librarians, educators, and policymakers to rethink the potential of our libraries as the ultimate catalysts for a smarter, more inclusive, and empowered nation. The board of editors extend their gratitude for the hard borne efforts of members of International National Advisory Committee, Patron members and members of organizing committee of Conference and authors, reviewers, and editors who contributed to the development of this edited book.

Editors

Dr. Rajkumar Bhakar
Dr. Shraddha Kalla
Dr. Qumar Abbas



Foreword

It is a moment of immense pride to host the 11th Rajasthan Technical Library Conference—an International Conference on “Knowledge Commons: Libraries as Catalysts for Viksit Bharat 2047” on February 21–22, 2026, at IIHMR University, Jaipur. As India advances with clarity and conviction toward the aspiration of Viksit Bharat 2047, we are reminded that the strength of a nation is ultimately measured by the depth of its knowledge systems and the inclusivity of its intellectual growth. In a century defined by technological acceleration and the democratisation of information, knowledge is no longer merely a resource—it is the very currency of national progress.

Libraries, once regarded as quiet repositories, are now being redefined as vibrant Knowledge Commons—spaces where access meets opportunity, and learning transforms into leadership. They represent the intellectual conscience of a nation and serve as bridges between tradition and transformation. For India to claim its place as a global knowledge leader, our libraries must evolve beyond their conventional roles to become catalysts of innovation, equity, and societal advancement. This volume arrives at a pivotal juncture, offering both direction and inspiration for this necessary evolution.

A Vision for an Empowered Knowledge Society

What distinguishes this work is its expansive and future-oriented perspective. It invites us to view libraries not simply as institutions, but as ecosystems that nurture human potential. By foregrounding digital inclusion and emerging technologies, the contributors affirm that the library of the future must seamlessly integrate technological capability with intellectual stewardship—ensuring that no citizen is left behind in the knowledge revolution.

The emphasis on innovation, entrepreneurship, and community engagement signals a transformative shift. Libraries are no longer spaces where history is archived alone; they are arenas where the future is imagined, designed, and realised. As custodians of cultural heritage and champions of progressive policy and governance, libraries possess the power to strengthen democratic participation, stimulate creativity, and foster resilient communities. This volume presents a compelling blueprint for institutional renewal aligned with the aspirations of a confident and forward-looking India.

The Stewards of Transformation

At the heart of this evolution stand our librarians and information professionals—the stewards of knowledge and the architects of informed societies. Their continuous capacity building and professional development will determine how effectively we navigate the complexities of the information age. Equally vital is the spirit of partnership and collaboration that this work advocates, calling upon government, academia, industry, and civil society to collectively invest in these engines of intellectual capital. The journey toward Viksit Bharat demands nothing less than such shared commitment.

I extend my heartfelt congratulations to the editors and contributors for their vision and scholarly leadership. This book is not merely an academic contribution; it is a declaration of intent. It challenges us to reimagine the library as a lighthouse—guiding India toward a future that is knowledgeable, innovative, inclusive, and globally respected.

I am confident that this volume will inspire policymakers, academicians, and thought leaders alike, serving as a strategic guide in our collective endeavour to build an intellectually sovereign and developed nation. Let us move forward with the conviction that when knowledge is made accessible to all, progress becomes inevitable and the promise of Viksit Bharat draws ever closer.



Dr. P.R.Sodani
President, IIHMR University, Jaipur

About Editors



Dr. Rajkumar Bhakar

Dr. Rajkumar Bhakar is the founding member and Patron of Rajasthan Technical Library Association (RTLA). He is constantly working for the development of libraries and the library profession in Rajasthan. He was elected as Vice President of the Indian Library Association (ILA) from 2019 to 2022 and served ILA Council 2016 to 2019. He also served in the Indian Army for 16 years before entering the Library and Information Profession.

Dr. Bhakar is currently employed as a Professor in the Department of Library and Information Science at JJT University, Jhunjhunu. He has over 40 years of experience in the Library and Information Science profession, with a focus on library administration and resource management as well as in Indian army.

Dr Bhakar is a member of the advisory board of the Journal of Advanced Research in Library and Information Science. As a promising researcher, he co-edited three books and contributed chapters to several books published in India. He also published more than Sixty research papers in National and International journals and gave presentations at Conferences. Sixteen scholars have awarded PHD degrees under his supervision.

Dr Bhakar worked as a Chief Librarian in Ananta Institute of Medical Sciences & Research Centre in Rajsamand and Pacific Institute of Medical Sciences in Udaipur. He also served as a Chief Librarian in the Sri Balaji group of Institution, Jaipur. He has recipient of Best Technical Librarian Award and Shining Star Award from Rajasthan Technical Library Association.



Dr. Shraddha Kalla

Dr. Shraddha Kalla is the President of the Rajasthan Technical Library Association and an experienced, dedicated Library and Information Science professional with over 24 years of expertise in library administration, digital transformation, and academic research support. She has successfully trained more than 500 professionals and has made significant contributions to national and international academic conferences.

Currently, Dr. Kalla serves as Librarian at IIHMR University, where she leads library operations, implements advanced digital solutions, and supports teaching, learning, and research activities. She has published and presented several research papers and book chapters in reputed journals and conference proceedings.

In recognition of her outstanding contributions to the profession, Dr. Shraddha Kalla was conferred the **Best Technical Librarian Award** by the Rajasthan Technical Library Association in 2017 and the **Best Teacher Award** by Bansal School of Engineering & Technology, Jaipur.



Dr. Qumar Abbas

Dr. Qumar Abbas, M.A.(Geography), MLIS, M.Phil & PhD.(LIS) He is currently working in Government Jawahar Lal Nehru Medical College, Ajmer as a Deputy Librarian. He has an experience of 22+ years in LIS. He has also completed CPDL, RSCIT & some Library Automation Courses from UGC, NISCAIR, DELNET etc. He participated in more than 50 seminars, workshops and conferences. He also presented /published 30 papers in National and International Conferences, Journals. He also contributed 4 Conference Proceedings & 2 Edited Books. He is also associated with various Universities LIS Department and has experienced to teach students of DLIS, BLIS. He is successfully Coordinated and served as webinar Technical coordinator & organizing Secretary for 11 webinars of medical Library Association of India , 3 webinars of ASLIP & 3 webinars of Rajasthan Technical Library Association (RTLA).

He was also an Organizing Secretary of many Conferences, Workshop including: 68th ILA International Conference- 2023, ASLIP CONCLAVE 2023 - International Conference on Library Technology Relationship, National Conference on Multidisciplinary Research, trends and approaches (held at SKDU, Hanumangarh) & Convenor of KOHA Workshop-2024 (held at SKIT, Jaipur). Presently he is Senior Advisor of RTLA, Technical adviser of ASLIP. He is also worked for the post of Council Member, Treasurer, Vice President & President of RTLA & Ex. Treasurer of FHSLA & Vice President RMLA. He is Open Council Member of Indian Library Association (2025-28). He has a recipient of many awards at State and National level including 1. Best Progressive Librarian Award from the Association of Senior Library & Information Professionals. 2. Best Technical Librarian Award from the Rajasthan Technical Library Association, 3. Best Young Librarian Award from the Medical Library Association of India, 4. Award for extraordinary Services from the Ajmer Muslim Welfare Organization, 5. Recipient of Appreciation Letter from Govt. J.L.N. Medical College, Ajmer, 6. Gibson Gold Medal from Govt. College, Ajmer, 7. Principal medal from Govt. College, Ajmer Etc. He is also a life member of ILA, ASLIP, RTLA, FHSLA, JASTS.

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AI Tools for Research Support and Academic Writings: A Comprehensive Study

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Summary

The field of research and academic writing has changed dramatically as a result of the quick development of artificial intelligence (AI), which provides scholars with cutting-edge tools that improve productivity, accuracy, and creativity throughout the research lifecycle. Scholarly communication and knowledge production have been transformed by the incorporation of Artificial Intelligence (AI) into academic and research workflows. This paper offers a thorough examination of AI-based research tools increasingly used across many phases of the research lifecycle, including data analysis, literature review, manuscript authoring, citation management, plagiarism detection, and language improvement. The study explores important AI tools and explains their functions, and useful applications, including ChatGPT, Grammarly, Scite, Elicit, Semantic Scholar, and others.

Issues such as academic integrity, ethical use, and the need for digital literacy among researchers are given particular focus. The study provides recommendations for the ethical use of AI technology by academic institutions, researchers, and students based on a thorough analysis of current tools and practices. A balanced approach is required to preserve academic integrity and uphold research standards, even as AI tools have great potential to democratize access to research support. The goal of this study is to serve as a useful tool for scholars, researchers, and organizations seeking to understand the changing landscape of AI-driven research. The role of librarian in the research lifecycle in the age of AI is also explained in the present paper.

Keywords: Artificial Intelligence, Research Tools, Academic Writing, Scholarly Communication, Digital Literacy, ChatGPT, AI Ethics

Introduction

In recent years, Artificial Intelligence (AI) has emerged as a transformative force across multiple disciplines, and academic research is no exception. The digital revolution has significantly reshaped the academic and research landscape, with Artificial Intelligence (AI) emerging as one of the most transformative technologies of the 21st century. "AI-driven applications have penetrated nearly every domain of higher education and research, offering powerful tools to support scholars in managing vast amounts of information, improving the quality of writing, and enhancing research productivity" (Dwivedi et al., 2023; Zhao et al., 2024). From simplifying literature reviews to enhancing the clarity and coherence of academic writing, AI-based tools are increasingly integrated into the research workflow. As the demands on researchers and academicians grow, these tools offer a promising means to improve efficiency, accuracy, and accessibility in scholarly work.

The demand for efficient and reliable research support has grown rapidly due to increasing publication pressure, global competition, and the need for high-quality academic outputs. “AI tools such as intelligent search engines, natural language processing (NLP) applications, plagiarism detection systems, automated translators, and grammar enhancement software have provided scholars with opportunities to streamline their work and focus more on critical thinking and innovation” (Chen et al., 2023; Shen & Li, 2022). “These tools not only improve efficiency but also democratizes access to research by reducing linguistic and technical barriers, particularly for non-native English speakers and scholars from developing regions” (Kumar & Singh, 2022).

However, the integration of AI into research and academic writing is not without challenges. “Issues such as over-reliance on automated outputs, ethical concerns regarding originality and plagiarism, biases inherent in AI algorithms, and the necessity of digital literacy raise important questions about responsible use” (Floridi & Chiriatti, 2020; Vincent-Lancrin et al., 2023). Moreover, the dynamic nature of AI technologies requires constant evaluation to ensure their effectiveness, transparency, and alignment with academic integrity.

This paper offers a comprehensive study of various AI tools that support research and academic writing. It aims to provide an overview of the tools available, their capabilities, benefits, limitations, and implications for ethical research practices. By offering insights and recommendations, the study seeks to contribute to the responsible adoption of AI in higher education and research, ensuring that technology serves as an enabler rather than a replacement for scholarly rigour and creativity.

Objectives of the Study

The present study is undertaken with the following objectives:

1. Identify the main AI-based research tools that assist various phases of the academic writing and research process.
2. To describe the uses of these tools in fields such as data analysis, literature review, citation management, plagiarism detection, language improvement, and paper preparation.
3. To explore the benefits of using AI tools in scholarly research, with a focus on improving efficiency, productivity, and scholarly communication.
4. To find out the challenges related to the application of AI-based tools
5. To highlight the need of digital literacy that may help academics, faculty, and researchers to utilize AI tools and technologies in an ethical and efficient manner.
6. To suggest the moral, practical, and long-term application of AI in research and academic writings

Overview of AI Tools in the Research Lifecycle: There are various tools available online that may assist and help in academic and research writings. According to the phases of the research lifecycle, different tools are described in this paper that includes:

Literature Review

- **Semantic Scholar:** One-sentence summaries, in-line citation cards, article recommendations, and visual tools for monitoring influence in citation graphs are all offered by this AI-powered academic search engine. It covers hundreds of millions of publications, is free, and facilitates rapid comprehension of impact and relevance (<https://www.semanticscholar.org/>).
- **Research Rabbit:** Known for mapping literature, it provides smart paper recommendations, simple collection building, Zotero integration, and visualization of citation networks and coauthors. It is especially helpful for spotting new relationships and research patterns (<https://www.researchrabbit.ai/>).
- **Elicit AI:** Specializes in literature synthesis, employing semantic search across over 125 million papers, automated data extraction into tables, topic synthesis, and question-answering capabilities for PDFs. It is particularly helpful in empirical research domains (<https://elicit.com/>).

Consensus – Consensus is the AI-powered academic search engine that finds and summarizes research with cited evidence from a large corpus of scientific literature (<https://consensus.app/>).

Idea Development and Brainstorming

- **SciSpace:** An all-in-one research tool that can extract structured data from a bunch of papers, recognize AI-generated text, create outlines, draft sections with inline citations, paraphrase content, and chat with several PDFs. Renowned for its deep capabilities and user-friendly interface, and trusted by more than a million academics worldwide (<https://scispace.com/>).

- **Paperpal:** It provides built-in paper search with citation support, in-editor AI recommendations, academic-context language checks, plagiarism detection (up to 7,000 words free), predictive authoring, templates, and submission-ready formatting. It is designed to maintain formatting uniformity and a scientific tone (<https://paperpal.com/>).
- **Jenni.ai:** It is an AI-powered writing and research tool for scholars, researchers, and students. You may uncover fresh research papers and rapidly explain existing ones with Jenni's agentic AI chat. It is a multilingual AI assistant made to help with writing in real time (<https://jenni.ai/>).
- **Wordtune:** A free AI writing assistant that can quickly paraphrase, rewrite, create content, fix grammar, and more. Additionally, it can be used for text reduction or enlargement, as well as tone switching. It is very helpful for improving readability and language. (<https://www.wordtune.com/>).
- **Prism:** "Prism", a free AI-native and LaTeX-native workspace created especially for scientific writing and collaboration, was released by OpenAI in January 2026. Without the need for complicated setup or local installs, researchers may create, modify, and compile LaTeX papers right within the browser. GPT-5.2 is integrated directly into the manuscript, offering context-aware support for content rewriting, review, and refinement based on the complete document rather than just specific prompts. Anyone with a personal ChatGPT account can presently use Prism for free (<https://prism.openai.com>).

Writing Assistance tools

Writing assistance tools help researchers with academic and research writings by enhancing language quality, grammar, and clarity. With the use of these tools, users can improve sentence structure, ethically paraphrase content, and produce ideas or drafts more quickly. When used ethically, they boost writing productivity while retaining the author's original meaning and intellectual contribution. The following tools are commonly being used by researchers:

- **Grammarly:** AI-based grammar and style checker with tone and clarity adjustments (<https://www.grammarly.com/edu>).
- **QuillBot:** A paraphrasing tool that improves sentence structure and coherence (<https://quillbot.com/>).
- **Writefull:** Tailored for academic writing; checks grammar, vocabulary, paraphrasing, and formal expression (<https://www.writefull.com/>).
- **ChatGPT:** Offers contextual information, prompts ideas, and helps frame research questions (<https://chatgpt.com/>).

Citation Analysis & Integrity Tools

- **Scite.ai:** Scite.ai uses dashboards, reference checking tools, and "Smart Citations"—contextual labelling that shows whether citations support or contradict the referenced work—to assess the quality and dependability of citations. It is extremely important for ensuring research integrity and preventing false publications (<https://scite.ai/>).
- **Copyleaks:** It offers plagiarism and AI-content detection across various formats- useful for verifying originality in academic submissions (<https://copyleaks.com/>).

Referencing and Citation Management

Zotero (with AI plugins) – Organizes references and can integrate with citation-analysis add-ons (<https://www.zotero.org/>).

Mendeley / EndNote AI – Traditional reference manager with AI features for smarter search, metadata extraction, and citation formatting (<https://www.mendeley.com/>) (<https://endnote.com/>).

Plagiarism Detection

- **Turnitin:** One of the most well-known plagiarism detection tools used by academic institutions compares work to a vast database of student submissions, publications, and journals. (<https://www.turnitin.com/>).
- **Drillbit:** AI-powered plagiarism detection software widely used in academic settings to check for duplicated or improperly referenced written content by comparing submissions against large databases of journals, articles, books, theses, and web sources. It is used by universities and institutions under programmes like India's INFLIBNET ShodhShuddhi (<https://www.drillbitplagiarism.com/>).

Structured Summarization Tools

- **Scholarcy:** Summarizes long PDFs into structured flashcards or tables, extracts key facts and figures, integrates with citation tools like Zotero, and cuts down reading time by 70% or more (<https://www.scholarcy.com/>).
- **SciSummary:** SciSummary (Short for Science Summary) was founded in 2023 to make digestion of scientific articles easier. Using modern AI technology, it summarizes articles, allowing you to understand them without having to read the full text (<https://scisummary.com/>).

- **Afforai:** Afforai is an AI research assistant and all-in-one research and writing workspace designed to assist users in managing references, conducting literature reviews, annotating documents, and writing papers (<https://genai.works/applications/afforai>).
- **STORM (Stanford's open-source tool):** Builds structured, cited outlines and Wikipedia-style drafts on user-specified topics via retrieval-augmented generation. Offers transparency in how sources are used and supports multiple LLMs or search APIs (<https://storm.genie.stanford.edu/>).

Benefits of AI Tools in Academic Research

- **Efficiency:** Reduces the time spent on repetitive tasks such as proofreading or formatting citations.
- **Accessibility:** Assists non-native English speakers in improving the quality of academic writing.
- **Productivity:** Allows researchers to focus more on critical thinking and less on administrative tasks.
- **Insight Generation:** Helps uncover hidden connections in literature, enabling more comprehensive reviews.

Challenges and Limitations

- Despite the many benefits, AI tools' integration also has many limitations:
- Relying too much on AI may discourage innovative thinking and ideas.
- Data privacy is also an issue with AI. When sensitive or unpublished research is incorporated into cloud-based AI systems, confidentiality issues can occur.
- **Biasness:** Because AI tools are only as good as the data they are trained on, biases from the past may be reflected in them.
- Many advanced features of AI tools are subscription-based; therefore, accessibility varies amongst institutions.
- **Inaccuracy and Hallucination:** ChatGPT and other similar tools may produce content that is acceptable but inaccurate or unverifiable.

Ethical Considerations and the Role of Digital Literacy

The use of AI tools in research and academic writings is heavily influenced by ethical issues, which highlights the growing significance of digital literacy. To protect academic integrity, institutions must establish clear policies defining the fair and unfair use of AI tools in academic work. To preserve confidence and responsibility in scholarly communication, researchers should acknowledge the use of AI tools in research writings. Transparency is equally important. Furthermore, formal digital literacy and training programmes are important to educate researchers with the skills required to utilize AI tools responsibly, critically, and successfully.

AI authorship is another growing issue that emphasizes the need for precise rules on whether and how AI-generated content can be cited or acknowledged. In academic research, addressing these ethical and literacy-related concerns would guarantee that AI is a helpful tool rather than a replacement for human intellectual contribution.

Recommendations for Workflow

- **Begin with discovery:** use Elicit for structured literature synthesis, Research Rabbit for networks and Semantic Scholar for general searches.
- **Create an outline and foundation:** utilize SciSummary or Scholarcy to summarize important publications; utilize STORM for an organized pre-writing phase.
- **Draft and expand:** Create or refine sections with integrated citation support using SciSpace or Paperpal.
- **Improve language and tone:** Jenni.ai assists with outlines and ideas, while Wordtune assists with paraphrasing and modifying academic tone.
- **Verify integrity:** Use Turnitin/CopyLeaks to detect plagiarism and AI origin, and Scite.ai to verify citations.
- The above recommendations place a strong emphasis on using AI in academics and research in a responsible and balanced manner. Researchers and students can use AI tools more successfully and confidently if proper training programmes and well-defined rules are implemented. By including digital literacy and AI ethics in research methodology courses, users will be able to understand the potential and constraints of AI as well as the ethical implications of its use. AI should be used to support and improve intellectual work rather than to take the place of human judgement and critical thinking; this is known as the "human-in-the-loop" approach. To foster equity, academic institutions should provide access to premium AI tools so that all researchers have equal opportunities to benefit from modern technologies. Additionally, maintaining academic integrity and openness in scholarly communication requires educating people about appropriate citation guidelines and the right credit of AI-generated information.

Role of Librarians

The role of the librarian is now evolving more rapidly than at any time since the arrival of the internet. Librarians in academic and research institutions are becoming active facilitators of AI-enabled knowledge ecosystems rather than merely traditional custodians of collections. Librarians are now going to involve them in a new role of AI supervisors as more libraries test and deploy AI-based tools and technologies. This function goes beyond automation to include accountability, ethical supervision, and critical judgements. Librarians will now be responsible for monitoring adherence to academic integrity standards, evaluating the quality and potential bias of AI-generated outputs, and assisting researchers in using AI technology responsibly and with transparency throughout the research and academic writing process. By identifying, assessing, and suggesting reliable AI-based research tools for literature discovery, citation management, plagiarism detection, and data analysis, as information experts, librarians can serve as a bridge between the academic community and new AI technology. Through training programmes, workshops, and research consultations, librarians can also provide a substantial contribution to the development of digital and AI literacy among researchers, ensuring that scholars are aware of the strengths and limitations of AI tools and technologies. Additionally, they can support academic integrity by advising users on matters pertaining to research ethics, responsible generative AI use, intellectual property rights, and appropriate attribution of AI-assisted output. Librarians can also assist in creating policies, guidelines, and best practices for the use of AI in research processes by working with professors and institutional authorities.

Librarians are going to become key facilitators of the appropriate, transparent, and human-centered integration of AI into academic writing and research processes in this changing scholarly environment. AI auditing is emerging as a new fundamental capability. Scholars are being taught by librarians how to protect scholarly integrity and critically assess AI-generated products. The industry is seeing the emergence of new positions such as research support specialist, and AI literacy librarians. In a nutshell, AI won't replace the role of librarians. However, librarians who use AI well will take the place of those who don't. Therefore, libraries and librarians are simply going to be most effective than AI to support the research and academic journey of academicians and researchers.

Conclusion

AI-based research tools are unquestionably transforming the conduct and dissemination of academic research. They offer excellent support throughout the entire research process, from locating pertinent literature to polishing articles. However, its appropriate use requires awareness, education, and ethical concerns. As we progress in the digital age, maintaining quality and confidence in academic goods will depend on striking the right balance between scholarly integrity and technology assistance. At every stage of the research process, including literature search, drafting, citation management, summarization, and integrity checking, AI tools and technologies provide strong support, and the best way is to use them as complementary tools rather than replacements. While they might reduce regular effort, stimulate ideas, and save time, researchers' own critical thinking is still crucial. AI may assist and speed up the work, but authorship, verification, and accountability must be done by humans. And Librarians' role will be most crucial and important throughout the research lifecycle while dealing with the artificial intelligence.

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Applications of ICT in Academic Libraries with Reference to Chatbots, Robots, and Virtual Assistants

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Summary

This conceptual study explores the new application of chatbots, robots and virtual assistants in university libraries. It also shows how these smart technologies enhance user interactions, stream line regular service delivery, and ease information search through automated reference assistance, wayfinding, and individualised learning support. Also, the research explores how they might optimise their operations by recommending resources, managing queries, and circulation services. The given paper provides a summary of potential benefits, challenges, and opportunities of integrating conversational and robotics technologies into academic library operation through synthesis of the current trends in technology and library practice.

Keywords: Artificial Intelligence, Academic Libraries, Chatbots, Robots, Virtual Assistance

Introduction

Artificial intelligence-based tools that academic libraries are adding to enhance the user experience, optimise processes, and better service quality include chatbots, robots, and virtual assistance (Sakmar, 2025; Suryawanshi et al., 2025). These technologies position academic libraries as intelligent and versatile centres of knowledge, facilitate the implementation of a broad set of activities such as virtual reference, retrieval, work with books, navigation, and access to everyone (Ikwanusi et al., 2023; Adetayo et al., 2024). The experimentation with various applications of AI that do not separate the physical and digital service space is already underway in academic libraries through chatbots such as LibraX and BCNPYLIB.

The quick spread of these technologies has surpassed a methodical comprehension of their wider implications for academic libraries, especially with regard to user experience, accessibility, ethics, and organisational preparedness (Aboelmaged et al., 2024; Ghosh et al., 2024). Previous research has tended to concentrate on individual implementations, such as the development of a local ethical guideline, the deployment of a library robot, or the design and evaluation of a particular chatbot, without fully integrating these strands into a cohesive conceptual picture of how chatbots, robots, and virtual assistants collectively transform academic library services. Because of this, it is still unclear when these tools actually improve service quality and inclusivity and when they instead create new risks, fragmentation, or user disengagement (Chase, 2024; Kaushal & Yadav, 2022). The lack of a cohesive, thematically grounded framework that unifies the scattered data on the uses, advantages, and difficulties of chatbots, robots, and virtual assistants in

academic libraries is the main issue this paper attempts to address. Although research has started to map organisational and technical barriers like infrastructure limitations and skill gaps with ethical concerns like privacy, algorithmic bias, and transparency, these issues are frequently discussed apart from user satisfaction, accessibility, and operational efficiency (Ahmad, 2024; Ghosh et al., 2024).

A conceptual study that synthesises the body of existing literature and arranges it into integrative themes that can direct future research and practice is necessary to address this issue. This paper aims to articulate a multifaceted understanding of the applications, impacts, and risks of chatbots, robots, and virtual assistants in academic libraries through a thematic analysis of research. It also proposes a conceptual model that unifies service automation, user experience, accessibility, ethics, and organisational capacity within a single analytical framework (Aboelmaged et al., 2024; Adetayo et al., 2024).

Objectives of the study

This study pursues four main objectives:

- To compile and categorize documented uses of chatbots, robots, and virtual assistants in back-end and user-facing operations in academic libraries.
- To examine how these tools affect accessibility, user experience, and interaction patterns with academic library services.
- To recognize and arrange the main organisational, technical, and ethical concerns that have been emphasised in the literature into logical thematic clusters.
- To create a conceptual, thematically grounded model that can direct future study and application of AI-enabled service design and governance in academic libraries.

Chatbots in Academic Libraries

In academic libraries, chatbots have quickly become a well-known AI application that serves as virtual reference tools, recommendation engines, and customer service representatives (Fatouh, 2024; Aboelmaged et al., 2024). Implementations like LibraX, BCNPYLIB, and different Dialogflow- or Rasa-based systems that automate answers to commonly asked questions, facilitate catalogue search, and offer book recommendations are reported in empirical and design-orientated studies. These systems frequently achieve high levels of user-perceived ease of use and acceptance (Sakmar, 2025; Thalaya & Puritat, 2022). By mediating access to collections and services through conversational interfaces integrated into websites or messaging platforms, chatbots further contribute to round-the-clock availability, quicker response times, and the integration of digital and physical library environments. According to studies, chatbots can customise answers and suggestions based on users' questions, preferences, and past interactions, facilitating discovery while lowering information overload in intricate academic information spaces (Fatouh, 2024). The larger research agenda for conversational AI in library contexts has also started to be mapped out by integrative reviews and conceptual contributions, which highlight research gaps concerning user acceptance, interaction design, impact on learning and research, and the governance of AI-generated content (Aboelmaged et al., 2024).

Robots in Academic Library Environments

The second big challenge of AI-driven innovation in libraries is that robots as physical work and space interaction are primarily employed. Service and management robots have been created with the help of technologies, such as barcode scanning, RFID, IoT integration, and autonomous navigation, to assist with tasks, such as identification of books, retrieval, sorting, and shelving of books (Animireddy et al., 2018). Such systems may also decrease the number of people working and enhance efficiency by navigating library stacks, locating and mixing mis-shelved materials, and automating other routine circulation and inventory processing challenges (Lekurwale et al., 2018). Other libraries have tried social and service robots without involving back-end management including semi-humanoid workshops, tours, and user assistance systems. These robots show the overlap between conversational and robotic interfaces as they often rely on the same AI knowledge bases as chatbots to answer questions and help navigate the surroundings (Ali, 2019).

Virtual Assistants and Inclusive AI-Driven Services

Virtual assistants enlarge the functionality of chatbots by providing multimodal, context-sensitive support and communicating with more extensive AI ecosystems and assistive technologies. The use of AI-based virtual assistants as means of creating inclusive user experiences, personalised distribution of knowledge, and helping users with varying skills and language backgrounds has been explored in academic libraries. They have the potential to assist the blind and hard-of-hearing users in real-time, semantically search, automatically summarising, translating, and respond to

the speech-to-text or speech-to-read (Ikwanusi et al., 2023; Adetayo et al., 2024). Conceptual and design studies find virtual assistants useful in building what are termed smart libraries where the services are flexible, data based and made available beyond physical location. These tools can be used to overcome language, cultural, and geographic barriers and provide access to academic libraries to disadvantaged populations and learners located far away (Ikwanusi et al., 2023; Suryawanshi et al., 2025).

Ethical, Governance, and Design Considerations

The chatbots, robots and virtual assistants that apply to academic libraries present some challenging ethical and governance issues despite their promise. Academics raise the issue of data security and privacy, especially concerning user profile and conversations logs, which might include sensitive personal or academic data which is regulated by laws such as GDPR (Holland, 2023; Bhambri and Rani, 2024). Since AI systems have the potential to reproduce or exert amplification of social injustice in the case of their training data or design choices are not critically examined, algorithmic bias, fairness, transparency, and accountability are also key themes (Suryawanshi et al., 2025; Ghosh et al., 2024).

Another significant point highlighted in the literature is the need to have institutional frameworks and clear-cut ethical rules that govern the application, management, and evaluation of AI tools within libraries. The proposed rules concern the proper application in delicate spheres (such as academic writing or mental health), responsible data processing, clear communication regarding abilities and restrictions, and oversight and redress procedures. The design perspective emphasises the conversational tone, response time, and personalisation as well as interface accessibility can influence the user satisfaction and retention (Sakmar, 2025; Holland, 2023; Kaushal and Yadav, 2022).

Research Methodology

The conceptual research design used in this study is based on a thematic analysis of the body of knowledge regarding chatbots, robots, and virtual assistants in academic libraries. The paper summarises findings from published empirical studies, design reports, reviews, and conceptual contributions that address applications, user experience, accessibility, ethics, and governance of AI-driven tools in library settings rather than gathering primary empirical data (Aboelmaged et al., 2024).

Recurring patterns in the reviewed works are found, arranged, and interpreted using thematic analysis. Key ideas and conclusions from the attached body of literature were coded and grouped into higher-order themes like “service automation and efficiency,” “user experience and engagement,” “accessibility and inclusion,” “ethical and governance challenges,” and “organisational capacity and skills.” These themes serve as the foundation for the conceptual framework and organise the findings, analysis, and discussion sections that follow.

Findings and Analysis

Service Automation and Operational Efficiency

The first emerging theme is the use of chatbots, robots, and virtual assistants to automate monotonous library operations and enhance the efficiency of the operations. Chatbots are demonstrated to be effective in responding to frequently posed questions, guiding users in selecting items of the catalogue, responding to simple account-related questions, and providing 24/7 virtual reference, which reduces the workload of frontline workers. (Fatouh, 2024; Thalaya and Puritat, 2022). Robots enhance collection management accuracy by automating labour intensive operations such as book identification, retrieval, sorting, and shelving and they also release human staff to perform more complex and valuable operations (Animireddy et al., 2018; Lekurwale et al., 2018). Virtual assistants and AI-based back-end systems also streamline workflows by integrating digital services, tracking what is going on, and reducing human error. Taken collectively, these tools serve the purpose of enabling academic libraries to offer more consistent quality of services, faster response time, and better utilisation of human resources. Nonetheless, it has been demonstrated that to gain such advantages, adequate infrastructures investments and careful integration with existing systems are required to avoid fragmentation and reliability issues (Ghosh et al.; Suryawanshi et al., 2025).

User Experience, Satisfaction, and Engagement

The second important theme is user experience and interaction with AI-enabled services. In the case of implementation of conversational interfaces with good design, inter-linked with the catalogues, and responsive to the needs of users, the study of implementation, such as LibraX and other library chatbots, points to the high perceived ease of use and acceptance (Sakmar, 2025; Rodriguez and Mune, 2022). Examples of the features that enhance user satisfaction include personalisation and natural language processing and multi-channel access, which make interactions more relevant, context-

aware, and intuitive (Idhris and Peter, 2024). Nevertheless, there is evidence that the engagement is short-term, and certain deployments report that only a few percent of the users continue using it after the welcome prompts. It means that the preliminary interest does not necessarily lead to regular use of active involvement presupposes continuous optimisation of interaction design, value expression, and correspondence to real-world user processes. Moreover, various population groups might react variously to chatbots and virtual assistants, which puts to the fore the concept of an inclusive and adaptive approach to design (Chase, 2024; Sakmar, 2025).

Accessibility and Inclusive Services

The third theme is on accessibility and inclusion which introduces AI tools as the drivers of equitable library services. Visuals, auditory, or cognitive impairments can be assisted by the use of chatbots and virtual assistants and decrease the language barrier, especially with the machine translation, semantic search, and assistive interfaces (Ikwuansi et al., Adetayo et al., 2024; Suryawanshi et al., 2025). The literature also highlights the role of AI-based systems in personalising contents and recommendations to individual users to make resources more useful and visible to diverse groups of users. Nonetheless, usable interface design, conformity to assistive technologies, and incremental assessment with the help of chatbots and conversational system-specific accessibility heuristics are required to ensure the benefit of accessibility is achieved to the utmost (Fatouh, 2024, Ikwuanusi et al., 2023).

Ethics, Governance, and Risk

The fourth theme of the literature is ethical and governance issues. Saving and processing of chat messages, profiles, and behavioural information also bring about privacy and data safety issues. The authors underline the need to comply with the data protection laws and open data processing processes (Holland, 2023; Suryawanshi et al., 2025). It is acknowledged that algorithmic bias is one of the dangers that cannot be avoided and negatively affect the aspects of fairness, inclusiveness, and trust in content creation and information retrieval without particular attention to tracking it (Ghosh et al., 2024). In addition, the integrity of academic life and the validity of the library services are at stake because AI systems may generate answers that are misleading, counterfeit, and illusory. To overcome these concerns, researchers believe in clear set of ethics, regular audits, accountability, including human supervision in critical or sensitive cases, proper use case definition, and the clear definition of system constraints (Cher, 2024; Idhris and Peter, 2024). The findings indicate that libraries should position themselves as critical stewards and even AI technology adopters.

Organizational Capacity, Skills, and Professional Roles

The fifth theme is organisational preparedness and professional roles in AI-enabled academic libraries. Nonetheless, other studies demonstrate that with the help of user-friendly solutions, libraries will be able to develop helpful chatbots and virtual assistants with minimal technical skills and financial resources (Cher, 2024; Ghosh et al., 2024). The growing demand on librarians to understand the potential and limitations of AI, support system setups and evaluations, answer questions posed by users about AI systems and findings is increasingly expected. Based on the conceptual contributions about the interaction of AI and librarianship, AI is to be added to librarians instead of replacing them, and they will have more time to focus more on advanced tasks such as information literacy, curation, and ethical counselling.

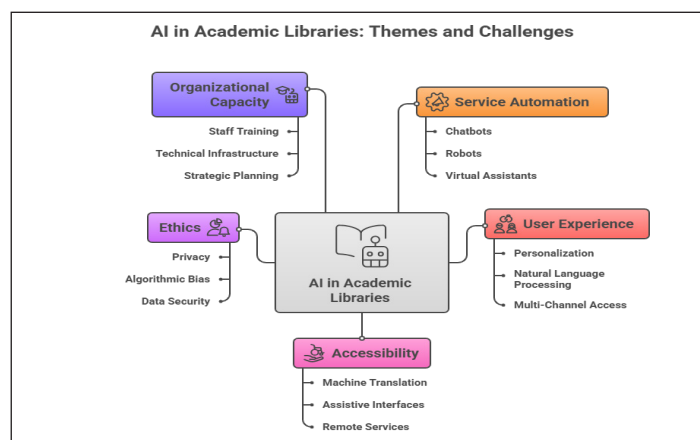


Figure 1. Conceptual framework

Discussion

According to the thematic analysis, chatbots, robots, and virtual assistants together make up a multi-layered technological ecosystem that includes inclusive access in academic libraries, back-end operations, and front-line service delivery. These tools improve efficiency and automate repetitive tasks at the operational level, which is consistent with larger trends in digital transformation and the creation of smart libraries. At the experiential level, they introduce conversational, customised, and pervasive modes of engagement that transform how users find, access, and engage with information and services (Sakmar, 2025; Idhris & Peter, 2024).

The results, however, also imply that benefits are dependent on careful design, careful integration, and strong governance rather than being automatic or distributed equally. The legitimacy of AI-enabled library services depends heavily on ethical, privacy, and bias-related concerns, especially in academic settings where trust, equity, and intellectual freedom are valued (Aboelmaged et al., 2024; Holland, 2023).

From a conceptual standpoint, the literature suggests a model that views AI-driven tools in academic libraries from five interconnected perspectives: (1) service automation and efficiency; (2) user experience and engagement; (3) accessibility and inclusion; (4) ethics and governance; and (5) organisational capacity and professional practice. These factors interact dynamically, for instance, while governance frameworks influence user trust and willingness to interact with AI systems, design choices that improve efficiency may have consequences for accessibility or ethical risk (Sakmar, 2025; Holland, 2023).

Future empirical and design research can be positioned within this multifaceted area to facilitate more comprehensive assessment and deliberate innovation.

Conclusion

In order to provide a thematically grounded understanding of the functions, advantages, and difficulties of chatbots, robots, and virtual assistants in academic libraries, this conceptual study synthesised the body of existing literature. The analysis shows how these technologies can significantly improve accessibility, user experience, and operational efficiency while also raising difficult organisational, technical, and ethical issues that call for thoughtful governance (Aboelmaged et al., 2024; Fatouh, 2024).

Thus, academic libraries must use AI to expand and improve services without sacrificing fundamental principles of privacy, equity, and intellectual freedom. This places them at the nexus of technological innovation and normative responsibility (Suryawanshi et al.).

The suggested theme model emphasises the necessity of integrated strategies that support sustainable AI adoption by striking a balance between automation and human-centred design, coordinating accessibility objectives with ethical protections, and investing in organisational capacity. By empirically analysing user experiences in various contexts, assessing the long-term effects of AI-enabled tools on learning and research, and improving ethical and policy frameworks specific to academic library environments, future research can build on this conceptual foundation (Ikwanusi et al., 2023; Adetayo et al., 2024; Kaushal & Yadav, 2022).

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Artificial Intelligence-Based Assistive Technologies for Inclusive Library Services for Persons with Disabilities

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Summary

The goal of this study is to determine how AI-driven assistive technology might improve library access for people with a range of difficulties. Many users of traditional libraries have mobility and eyesight issues, among other physical and disability-related issues. Through a study of the literature, survey techniques, interviews, and case studies, this mixed-methods research approach will investigate how AI-driven assistive tools and applications related to text-to-speech, navigation systems, and personalised assistants are transforming library services. According to our research, these technologies significantly boost the independence and involvement of individuals with physical disabilities by giving them access to a variety of services and individualized support. From this, some significant conclusions have been drawn from the study, demonstrating a significant influence on user experience and service efficiency while also highlighting crucial privacy and ethical implementation considerations. This study emphasises how AI plays a key role in creating more inclusive library environments, enabling equal access to information and community involvement. With future study directions suggested that will perfect such technologies, particularly toward the special needs of various people, this insight thus helps professionals working in libraries, policymakers, and technology developers for advancements to occur continuously. Adopting AI would allow libraries to fulfill their objective of ensuring that everyone has equal access to knowledge by allowing everyone, regardless of physical ability, to fully participate in the learning and community activities they host. Future improvements in the creation of more inclusive and accessible library environments are made possible by this study.

Keywords: Artificial Intelligence, Persons with Disabilities, Assistive Technologies, Library Accessibility, Inclusive Information Systems

Introduction

Since the beginning of time, libraries have been important venues for the exchange of knowledge and community involvement. However, due to outdated service delivery techniques and architectural impediments, people with physical disabilities face numerous obstacles in traditional library settings. These have hindered the ability of those with visual impairments, mobility issues, or any other physical disability to fully utilise the library. AI shows promise in resolving these issues. The inclusion and user-friendliness of library services will be revolutionised by next-generation

AI-based assistive technologies, which range from sophisticated text-to-speech systems to AI-powered navigation aids and intelligent virtual assistants. Based on a review of the literature, case studies, and data analysis of the existing experiences from the target communities on both the professional and patron sides, this study aims to investigate the role that AI might currently or soon play in advancing library accessibility. By examining the operational efficiency impact and investigating the adaptation of AI solutions to various needs, this study seeks to evaluate the ways in which AI-powered tools contribute to the independence and engagement of physically challenged library customers. It also illustrates potential future paths and best practices for using AI into library services. Libraries need to learn how to utilise and overcome the unique obstacles of accessibility using AI technology. By providing equal access to materials and opportunities for learning and engagement, libraries may better serve every person of their community. This strengthens the expectation that the results of current research will have a significant impact on library services. AI may play a part in improving accessibility in various public institutions in ways that have not yet been thought of, transforming the way libraries can successfully serve a variety of demographics. (Kirongo and others, 2022)

Objectives of the study

- To assess AI-powered assistive solutions to enhance library accessibility for users with mobility impairments.
- To evaluate how AI interfaces affect physically challenged library patrons' independence and user experience.
- To examine how AI might improve the effectiveness of services for customers with mobility disabilities.
- To investigate how AI can adapt to the various demands of library patrons who are physically impaired.
- To look into how AI may help build inclusive library environments in the Web 3.0 age.

Literature review

The number of published articles on this subject is quite small. The following articles were examined in this study. Three pilot schools and an assistive technology centre housed at the Meru University of Science and Technology were examined by Kirongo et al. (2022). In order to facilitate the proper identification, evaluation, and selection of pertinent AI-ATs, their research concentrated on expanding knowledge of learners with physical limitations and inventors. This study emphasised the relevance of artificial intelligence in adaptive learning settings and generated a vital need for unique technology solutions to fulfill varied objectives. An intelligent robot assistant that integrates IoT, AI, and ML was created by Adel et al. in 2023. These technologies enable robots to automate chores related to and ensure the performance of enhancements that comprise the everyday activities of the visually impaired, integrate numerous gadgets, and assist with navigation. A robot can become more valuable and powerful by using AI and ML to learn from and adapt to user preferences and the environment in which it operates. Using a Stereotype Content Model, Herold et al. (2022) evaluated BERT's depiction of disability from a psychological perspective. This study found a bias along well-known stereotype dimensions in BERT, primarily impacting people with disabilities' evaluations of competence and kindness. This bias demonstrates a systemic under representation or misrepresentation of disability in either the training data or the BERT model design, which subsequently affects the model's output and applications. According to Gujral et al. (2020), text-to-speech conversion, image recognition for document digitisation, and adaptive interfaith users with disabilities or language barriers are just a few of the ways that an AI-based assistant can drastically alter the organisational setup within academic library premises. Among these advancements, AI will remain crucial in fostering more equitable learning environments through academic libraries, even in the face of obstacles like protecting privacy and reducing bias. The enormous revolutionary potential of related technologies in influencing the future of intelligent libraries was highlighted by Bi et al. (2022). Such an environment would be adaptable in allocating resources for maximum user experience and lifelong learning efforts. In terms of applications for cutting-edge services, sustainability, and security, they gave a summary of AI-based technologies in dazzling libraries. This demonstrates how these technologies make libraries more accessible to users with physical disabilities through personal services and assistive technologies, where adaptive interfaces and intelligent navigation systems play a major role. The concept incorporates artificial intelligence to enable personalisation through recommendations and real-time assistive solutions, while IoT helps environmental monitoring, energy management, and sustainability activities.

An Introduction to Assistive Technology and AI-Based Assistive Technology

Libraries can highlight their efforts to accommodate patrons with disabilities and provide access thanks to assistive technologies. Furniture and workstations that may be adjusted make it easier for people with physical limitations to use the library's resources. Alternative keyboards and mice are examples of input devices that help users who might struggle with the so-called "standard" equipment. CCTVs, magnifiers, and screen readers are examples of text-to-speech and magnification devices for people with vision or reading issues. In order to facilitate interaction with resources for

individuals with a variety of disabilities, libraries also assist users in obtaining materials in alternate formats, such as braille, large prints, or audio. Assistive software, such as voice dictation, screen readers, and mind mapping tools, are additional learning aids and productivity boosters (Tripathi& Shukla, 2014).

For those with mobility impairments, AI-powered assistive devices have the potential to completely transform library accessibility. To put it another way, AI can make libraries more inclusive, provide equal opportunities for everyone, and let everyone use the resources and knowledge that are available. For the majority of persons with mobility disabilities, AI-based assistive solutions are transforming library accessibility. They use artificial intelligence to make sure they provide improved resource discovery, user-friendly interfaces, and navigation aid depending on consumer needs. Voice control, computer vision for recognising books and barriers, and predictive algorithms for anticipating user demands are frequently important features. Once the library management systems are merged, AI assistants provide each user with personalized book recommendations and direct them to relevant resources. Additionally, it makes the content digitally accessible. By granting users autonomy, enhancing the library user experience, and encouraging inclusivity in Web 3.0 and other cultural spaces, the technology promotes equality. LIM (2023)

Table I. AI-Powered Assistive Technologies Suitable for Library Accessibility

AI Tool / Service	FeatKeyure1	KeyFeature2	KeyFeature3	Library Relevance
AI-Based Text-to-Speech Systems (e.g., screen readers)	Converts digital and printed text into speech	Multilingual voice support	Adjustable speed and tone	Enables visually impaired users to access books, journals, & digital resources independently
AI-Powered Optical Character Recognition (OCR)	Converts scanned documents into readable text	High accuracy using machine learning	Supports printed and handwritten text	Facilitates digitisation of physical collections into accessible formats
Braina AI	Voice recognition	Text-to-speech	Task management	Making computer interaction seamless for those with mobility or visual impairments.
Ava	Real-time transcription	Speaker identification	Multilingual captioning	Supports hearing-impaired users during library programs and events
AI-Enabled Indoor Navigation Systems	Voice-guided navigation	Obstacle detection	Location awareness	Helps users with mobility and visual impairments navigate library spaces
Noor Cam MyEye	Text recognition	Face and product identification	Colour and money recognition	Helps users with visual impairments
Proloquo2Go	Symbol-based communication	Customizable vocabulary	Predictive language models	Supports users with speech and language disabilities in library interactions
AI-Based Accessibility Evaluation Tools	Detects accessibility barriers	WCAG compliance analysis	Automated accessibility auditing	Helps libraries maintain inclusive and accessible digital platforms

The features of various AI-powered assistive technologies suitable for library environments are compared in this table. It highlights systems such as AI-based text to speech solutions, optical character recognition, and speech to text tools, indoor navigation systems, and personalised recommendation engines. These technologies support key accessibility functions including text conversion, voice-based interaction, real-time transcription, navigation assistance, and adaptive content delivery. This overview is essential for understanding how AI-enabled assistive solutions can enhance accessibility in libraries, particularly for persons with disabilities, by providing multiple modes of interaction, communication, and independent access to information resources (GeeksforGeeks, 2024).

Table 2. AI-Powered Aids for Visually Impaired Library Users

AI Powered Assistance Technology	Features
AI-Based Optical Character Recognition Systems	Extracts and analyzes text from scanned images and documents with accuracy. It makes a range of reading materials accessible to visually impaired.
Text to Speech Conversion for Audiobooks	Produces excellent audiobooks from printed sources. Utilizes machine learning methods and natural language processing
Natural Language Processing (NLP)	Voice-based searches in databases and library catalogues are made possible. Visually challenged people can use voice commands to conduct searches.
Image Recognition and Description (AI)	Visual material in books, documents, and digital resources is automatically analyzed and described. - Offers thorough explanations of diagrams, pictures, and other visual components. Improves the comprehension and appreciation of image-rich library content for visually challenged users
AI Based Accessibility Evaluation Tools	Examines digital content, papers, and webpages for accessibility problems. It finds issues including low color contrast, missing alt-text, and keyboard navigation. Assists libraries in developing digital spaces that are more accessible and inclusive.
Personalized Recommendations	Examines the reading habits, preferences, and accessibility requirements of a visually challenged customer. - Offers individualized book and resource recommendations Assists people with visual impairments in finding new content in formats that are accessible and catered to their interests.
Accessibility Monitoring and	Monitors the use and efficiency of accessibility features and assistive technologies.
Feedback	Continually improves accessibility options by analyzing usage data and user input. Uses virtual agents to give visually impaired people immediate feedback and direction.
AI-Powered Accessibility Compliance and Auditing	Assists libraries in ensuring adherence to accessibility standards and guidelines (such as WCAG and ADA). Automates compliance checks & accessibility audits Identifies and effectively resolves accessibility concerns to guarantee that all users can access digital resources and services.

An overview of AI-powered assistive technologies that could enhance accessibility for visually impaired library users is given in the table. These technologies include OCR systems, text-to-speech conversion for audiobooks, natural language processing for voice-based searches, AI-powered image recognition and description, AI-powered accessibility evaluation tools, AI-powered personalised recommendations, AI-powered accessibility monitoring and feedback, and AI-powered accessibility compliance and auditing. The table for each of these technologies lists the salient characteristics and related advantages that demonstrate how AI-driven solutions can greatly enhance visually impaired users' library experiences, including improved information access, improved resource navigation, and more individualised support (GeeksforGeeks, 2024).

Access to libraries for individuals with mobility impairments has been greatly impacted by AI-powered assistive technology. Through wheelchair-friendly designs, customised AI interfaces, and digital access tools, it starts autonomous resource utilisation and navigation. In a way, this technology produces inclusive spaces where information spreads toward

everyone, regardless of their physical ability, by connecting conventional library surroundings with contemporary AI solutions (Freepik AI Image Generator - Free Text-to-Image Generator, 2024).

Methodology

This study employed a rigorous mixed-methods approach to examine the accessibility of AI-powered libraries. First, a survey of the literature aids in establishing a point on the current body of knowledge about AI assistive technologies and library accessibility. Questionnaires were distributed to 20 library users with mobility impairments and five special libraries in order to collect quantitative data. This gives a broad picture of current procedures and user requirements. This was supplemented by qualitative research, which included focus groups with 30 customers and semi-structured interviews with four librarians and five accessibility experts, offering in-depth understanding of experiences and difficulties. Four in-depth case studies of libraries that effectively employed AI technologies provide specific illustrations of the best practices. 20 individuals with various mobility disabilities participated in a technology assessment that evaluated the usefulness of the existing product. In contrast, it incorporates statistical techniques for quantitative data with thematic content data analysis for qualitative data, ensuring a comprehensive, multidimensional grasp of the topic. We would place a heavy emphasis on ethical issues throughout this study, including obtaining the required approval and protecting participant confidentiality. This meticulous approach will enable us to thoroughly examine how AI-powered assistive technologies are completely transforming library accessibility for individuals with mobility disabilities and offer insightful insights for upcoming rollouts and enhancements.

Data Collection Method

Twenty clients with physical disabilities were given a Google Forms questionnaire to complete in order to learn about their requirements and experiences with the AI-powered assistive technology available in libraries. Although some have identified areas for improvement, the descriptive data revealed that many of these individuals use services on a daily basis and give high accessibility ratings, indicating contentment. Even though the vast majority of participants acknowledged a fairly obvious latent need for interactive and real-time AI technologies, only a few offered specific recommendations, suggesting a clear need to increase awareness of the benefits AI may provide. Libraries will therefore need to develop AI tools to support step one of instantaneous responses in addition to offering services to these patrons with special mobility-impaired needs. They will also need to carry out more thorough research to measure those needs more accurately, with educational programmes created to educate people about these technologies.

Data Analysis

Excel for quantitative insights and NVivo for qualitative analysis were used to analyse the data gathered for this study in order to produce a thorough overview that reflects user demands and experiences.

Table 3.Respondents Characteristics and Suggested AI Integration for Library Accessibility

Respondents	AgeGroup	Gender	DisabilityType	AI Integration Suggestion
1	20-30	Female	Visual Impairment	Implement AI-powered Text-to-speech systems for audiobooks.
2	20-30	Male	Locomotor Impairment (wheelchair user)	Introduce AI-driven navigation assistance for easy library access.
3	15-25	Male	Hearing Impairment	Deploy AI-based real- time captioning for library events.
4	18-25	Female	Cognitive Impairment (dementia)	Utilise AI for Personalised memory aids and reminders.
5	25-35	Male	Neurological Disorder (Parkinson's)	Integrate AI for voice- controlled library catalogue searches.
6	20-30	Male	Developmental Disability(autism)	Use AI for personalized learning tools and sensory-friendly library spaces.
7	20-30	Female	Speech and Language Disorder	Implement AI speech recognition for Interactive library services.

8	20-30	Male	Learning Disability (dyslexia)	Introduce AI-powered reading assistance tools and adaptive learning resources.
9	18-28	Male	Locomoter (cane user)	Deploy AI for predictive maintenance of accessibility equipment.
10	30-40	Female	Hearing Impairment	Introduce AI-powered sign language translation services.
11	25-35	Male	Cognitive Impairment (intellectual disability)	Use AI for personalized cognitive skill development programs.
12	30-40	Female	Neurological Disorder (multiple sclerosis)	Implement AI for adaptive seating and environment control systems.
13	25-35	Female	Developmental Disability (Down syndrome)	Utilize AI for adaptive learning tools and social skills development.
14	20-30	Male	Speech and Language Disorder	Implement AI for personalised speech Therapy exercises.
15	20-30	Male	Learning Disability (dyscalculia)	Introduce AI-powered math tutoring and adaptive learning tools.

Fifteen subjects, ranging in age and gender from 1 to 15, with a variety of disabilities, including visual, mobility, hearing, and cognitive impairments, are included in this table. AI-based integration suggestions for particular libraries, such as text-to-speech programs, navigation tools, real-time captions, memory aides, and tools for adaptive learning. All of these amenities encourage inclusivity in the use of library resources by making libraries more accessible and better serving its physically challenged clients.

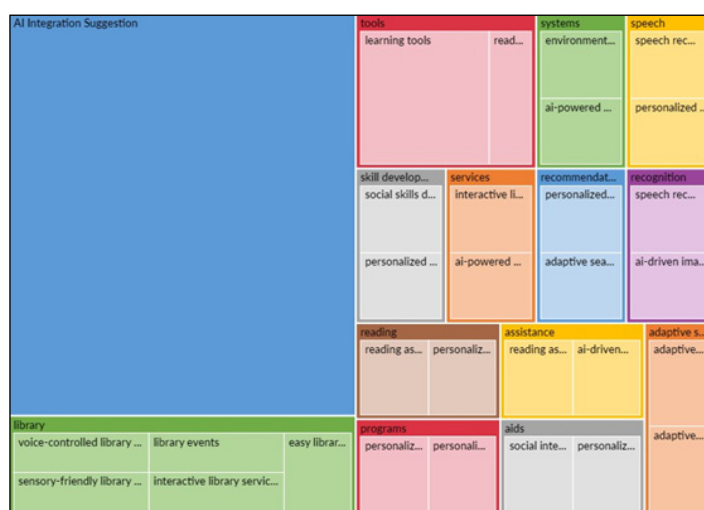


Figure 2. AI Integration Ideas for Assistive Technologies in a Hierarchy Chart

NVivo was used to create a hierarchy chart of AI recommendations for assistive technologies. The plot offers a clear summary of some important areas to concentrate on when creating support for individuals with visual impairments: learning and reading tools, AI-powered and customised environmental systems, speech recognition technologies, and skill development programs, particularly those that improve social skills. Additionally, it shows a number of services, such as recommenders, AI-powered help, interactive services, and adaptive searches. It features a variety of accessible library services, including voice-activated and sensory-friendly options, as well as reading aids. The idea of personalisation, which supports the central idea of customising technologies to each person's needs, is another element shared by all categories. The prevalence of AI integration may increase assistive technology' flexibility and efficacy. It opens up several avenues for study and development in assistive devices for AI-enhanced visual impairment, ranging from simple reading aids to sophisticated social skills development.

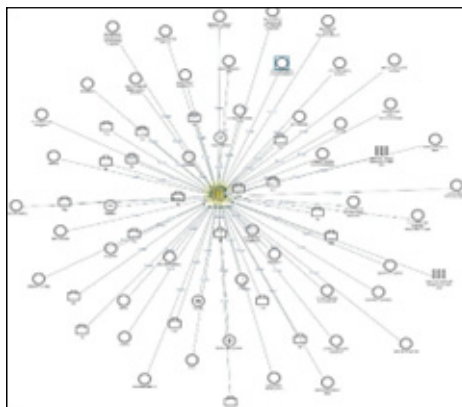


Figure 3. Explore Diagram of Survey Data Created with NVivo

This NVivo-generated exploration graphic uses Google Forms to display survey responses regarding assistive technologies for visual impairment. A node that represents the main idea splits off into additional connected nodes that stand in for various features, devices, and functionalities. Accessibility, customisation, and sensory enhancement are fundamental concepts. The radial structure highlights multi facetedness by providing an overview of the entire range of survey results and demonstrating how these disparate elements ultimately assist the visually impaired.

Case Studies

Here are a few effective case studies of AI-based assistive technology used in libraries to make them accessible to users with disabilities:

New Jersey State Library’s Talking Book and Braille Center

The New Jersey State Library’s Talking Book and Braille Center programme uses text-to-speech devices to translate printed text into audio formats for users who are blind or visually challenged. Additionally, it focuses on the library’s role as a learning centre and ensures that everyone has access to information by offering training in the use of assistive technologies, such as mobile devices (Team, 2017).

University of North Texas Libraries

An AI chatbot called “Ask Us” has been included by the University of North Texas Libraries to help users around-the-clock. This chatbot helps with a range of enquiries, from straightforward to intricate research requirements. By providing prompt answers to the most frequently asked questions, it was designed to increase user happiness and engagement while enabling librarians to handle lengthy, in-depth research help (Sanji et al., 2022).

University of Lagos

An important development in Nigeria’s academic library environment is the University of Lagos’ integration of AI into some of its library services. By facilitating quick access to information and streamlining library operations, this move—which entails the introduction of AI technologies—aims to improve service delivery and increase customer happiness. Finally, it emphasizes how AI can revolutionize library services despite current obstacles in underdeveloped nations (Moustapha, 2023).

Data Analytics & collection Development

AI-powered techniques have been used in collection development to help make well-informed choices about library resources. Additionally, librarians use AI to make a variety of collections accessible and provide insights regarding diversification. Additionally, it helps libraries understand user behaviour through data analytics, which AI can do, so that services may be optimised to meet evolving community demands.

Globally, library AI services have transformed their operations and the services they offer to their users. AI has a truly revolutionary impact on the library scene by enhancing information retrieval for users’ supply with individualised support, boosting accessibility, and preserving digital content. Libraries must strike a balance between innovation, user privacy, and ethical considerations as they continue to use such technologies.

Conclusion

The biggest advancement in library accessibility and diversity is AI-powered assistive devices. AI assistive technology would give library patrons with physical disabilities greater independence and access to a variety of materials. These technologies improve user experience and give everyone in the community equal opportunity, from smart gadgets with text-to-speech capabilities to AI-driven chatbots that enable real-time information and help. However, while deploying AI-driven assistive technology, security, dependability, and user privacy issues must be taken very seriously. To ensure that libraries remain trusted and accessible places for everyone, steps against such obstacles must be taken in addition to providing general training for staff and patrons. We may anticipate further developments that push the boundaries of library accessibility as AI continues to advance. In the modern information era, libraries have emerged as hubs for knowledge, education, and community involvement by keeping up with and supporting these developments. According to Onyango et al. (2023), the future of the library as an inclusive and accessible environment is further bound by the ongoing development and integration of AI technology.

Future research

AI-driven assistive technologies have a variety of future prospects for enhancing book access in Indian libraries, ranging from system integration, ethical considerations, and economical impact to efficacy evaluation and cultural adaptation. This relates to evaluating user satisfaction, tailoring technology in light of India's linguistic diversity, privacy issues, and a comprehensive long-term sustainability assessment. Therefore, this research will be crucial for improving technology, developing inclusive library services in India, and possibly influencing international norms to increase access to books for users with mobility impairments.

Suggestions for Using AI-Powered Assistive Technology in Indian Libraries

While Indian libraries have not yet included AI-driven assistive technologies for book access, their successful deployment in other countries creates an opportunity. In accordance with Ranganathan's Third Law of Library Science, "Every book its reader," we can use technology to make books accessible to all readers, regardless of their level of mobility. The following suggestions are made for Indian libraries in this regard (Ranganathan, 1931).

- Implement AI-powered book retrieval and voice-based access systems to support users with mobility and visual impairments.
- Enhance digital accessibility through AI-based OCR, text-to-speech, and audio book creation from physical collections.
- Introduce AI-driven personalised recommendation and navigation systems tailored to users' interests and physical limitations.
- Develop virtual library assistants and remote access services to support users who cannot physically visit libraries.
- Promote staff training and capacity building for effective use of AI-powered assistive technologies.
- Encourage interlibrary collaboration and continuous improvement using AI-based usage analysis and user feedback.

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Capacity Building Strategies for Modern Libraries: Embracing Technology and Innovation

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Summary

The 21st century is the period of the radical transformation of libraries due to the high rates of technological development, the shift in expectations of the users and the increasing significance of knowledge economies. Modern libraries can no longer be considered as passive storage of books and have become active learning centres, digital portals and community knowledge centres. Capacity building has become a very important strategy in this dynamic environment, which is meant to make sure that the libraries stay relevant, resilient, and responsive to the modern needs. This is a conceptual paper, which discusses the capacity building strategies of contemporary libraries and in particular accepting technology and innovation. It analyses the definition and comprehensiveness of capacity building, the significance of technology in transforming the library services, capacity development of library professionals, strengthening of infrastructure, innovation with users in mind, policy facilitation and futuristic strategies. This article is based on the view that sustainable capacity building is not an episodic exercise but rather an ongoing process that incorporates human resources, technological devices, institutional structures and community participation.

Keywords: Digital Literacy, ICT Integration, Library Innovation, Professional Development, Knowledge Management

Introduction

Libraries have been a central figure in conservation, sharing and production of knowledge. Since the early libraries such as Alexandria, libraries have been the reflection of the intellectual and technological advancements of the civilizations. But the modern world has thrown up new challenges and opportunities to libraries which have never been experienced before. The proliferation of digital information, the prevalence of internet-based search engines, artificial intelligence, and the evolving reading habits of the users have had a great impact on the conventional library ecosystem.

Capacity building in this context has also emerged as an important concept in the development of libraries. Capacity building is the process of enhancing the capabilities, competency, resources and institutional set up of libraries so that they can efficiently carry out their operations and be open to change. In the case of contemporary libraries, technology, as well as innovation, are inseparable to capacity building. The adoption of digital tools, acquisition of new skills, service redesigning, and building a culture of life-long learning have ceased to be a choice but a survival and growth requirement.

The objective of this article is to offer an overall conceptual knowledge of the capacity building strategies in contemporary libraries with a focus on the use of technology and innovation as the main constituents.¹

Understanding Capacity Building in the Library Context

In a general understanding, capacity building is the ability of individuals, organisations and systems to realise their goals in an efficient and sustainable way. Capacity building in the context of libraries entails enhancing the human, technological, and financial as well as institutional capabilities of libraries to provide quality services within a changing information environment. The way capacity building in libraries is multidimensional. It includes:²

- Professional growth of the library professionals.
- Implementation and coordination of digital technologies.
- Enhancing capacity and resources.
- Improvement of service delivery systems.
- Establishing relationships and networks.

Need for Capacity Building in Modern Libraries

- The pressing demand of capacity building in libraries can be explained by a number of factors:
- Quick technological development.
- Growing mass and variety of online content.
- Replacement of print-based collection with hybrid and digital collections.
- Increasing demands of tech-sophisticated users.
- Online information sites competition.
- Libraries may lose their strategic capacity building and become irrelevant, underexploited and lost to their communities.

Transforming Role of Technology in Modern Libraries

Technology has become the backbone of modern library operations and services. It has reshaped how libraries acquire, organise, preserve, and disseminate information.

Automation and Integrated Library Systems (ILS)

One of the first technological interventions in libraries is library automation. The integrated library systems simplify the main processes of acquisition, cataloguing, circulation, and serial control. Automation is also beneficial as it is more efficient, less prone to manual errors and has higher user satisfaction. The contemporary capacity building measure should be aimed at:

- Education of personnel on progressive ILS.
- Moving out of old systems to cloud systems.
- Interoperability of systems.

Digital Libraries and Institutional Repositories

Online libraries offer access to a large volume of materials such as e-books, e-journals, theses, dissertations, and archival materials among others. The institutional repositories contribute to open access programs and exposure of scholarly output. In this regard, capacity building involves:

- Digitization skills
- Creation and management of metadata.
- Awareness of copyrights and licensing.
- The preservation plans of the digital world.

Emerging Technologies: AI, Big Data, and Blockchain

- New opportunities for libraries are created by emerging technologies:
- The AI can be used to provide individualised suggestions, chatbots, and indexing.
- Big Data analytics can be used to identify user behaviour and make the library better.
- Blockchain provides possible solutions in the protection of digital rights and authenticity of records.
- The capacity to comprehend, embrace and ethically address such technologies is essential in the future-ready libraries.³

Human Resource Development as a Core Capacity Building Strategy

Librarians have increased their roles beyond the conventional ones. Contemporary library workers are supposed to be:

- Information managers

- Digital curators
- Research support specialists.
- Technology facilitators
- Knowledgeable educators
- This transformation requires constant upskilling and reskilling.
- Capacity building should focus on the ongoing professional growth by:
- Training programmes and workshops.
- Online courses and MOOCs
- Practical technology instruction.
- BEST practice and innovations.
- An experimental culture and flexibility are fostered by a learning-based work environment. Besides technical skills, contemporary librarians require good soft skills and they include:
- Cooperation and communication.
- Critical thinking and problem solving.
- Management and change leadership.
- Leadership development helps librarians to become innovative and facilitate transformation in an effective manner.[4]

Infrastructure Development and Resource Optimisation

- Technology-driven libraries need a robust digital infrastructure. This includes:
- Internet connectivity at high speeds.
- Cloud storage solutions and servers.
- Digital security systems User-friendly interfaces
- The capacity building should be done in such a way that libraries are able to sustain and upgrade their digital infrastructure.

Physical Space Reimagining

- Contemporary libraries are redesigning their physical environment to facilitate team learning and innovation. Libraries now include:
- Learning commons
- Makerspaces
- Digital labs
- Multimedia zones
- Such areas represent the transformation of silent reading areas into knowledge interactive ness.

User-Centric Innovations and Service Design

- The capacity building should be based on the needs and expectations of the users. Technology helps the library to gather user feedbacks, to analyse patterns of use and to develop customised services. The new services offered by modern libraries include:
- Virtual reference services
- Mobile library applications
- Online Information Literacy Projects.
- Remote access to databases
- Innovation increases access, inclusiveness, and user interaction.⁵

Digital Literacy and Community Engagement

- Libraries are important in narrowing the digital divide. Capacity building must enable the libraries to:
- Bring about digital literacy programmes
- Support lifelong learning
- Satisfy underrepresented and underserved communities.
- Outreach via technology enhances the social relevance of libraries.

Policy Frameworks, Collaboration, and Institutional Support

This is a key component of the process, as it guarantees effective organisation within a company and facilitates the implementation of the formulated strategies because it ensures good organization in an organisation and also that the

strategies laid out are implemented. Capacity building can only be sustainable with institutional and governmental support policies. Policies should address:

- Technology adoption financing.
- Compensations on professional development.
- Transparency and data control.
- Capacity building is strengthened through collaboration with:
 - Academic institutions
 - Research organizations
 - Technology providers
 - Professional associations
- The joint projects encourage resource pooling and innovation.

Problems of Capacity Building in the Contemporary Libraries

- Capacity building has a number of obstacles despite its significance:
- Poor financial means.
- Resistance to change
- Professional skill shortages.
- Fast technological obsolescence.
- The challenges need strategic planning, leadership dedication, and the participation of the stakeholder to address them.

Sustainable Capacity Building: Future Directions.

The future libraries are in their capability to constantly change and innovate. Sustainable capacity building must be concerned with:

- Lifelong learning of library professionals.
- Scalable and flexible technologies.
- User-driven service models
- Responsible and non-discriminatory technology use.
- The libraries that are open to innovation and at the same time stay focused on their traditional values of access, equity, and sharing knowledge will continue to be critical in the digital era.[6]

Conclusion

The modern library development lies in capacity building. Libraries need to take the initiative to augment their human resources, technological capabilities, infrastructure and model of services in a time with accelerated change of technology and dynamic information needs. The adoption of technology and innovation does not involve just using new tools but also having the right attitude of lifelong learning, flexibility and customer-centricity. Through the leveraging power of strategic capacity building, modern libraries are able to turn their challenges into opportunities and reestablish themselves as vital knowledge institutions. Libraries may remain as drivers of learning, research and social growth in the 21 st century by combining technology with creativity and human knowledge.

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Libraries as catalysts for Viksit Bharat 2047: Digital Library Infrastructure and Services

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Summary

The vision of Viksit Bharat 2047 aims to transform India into a developed nation by its 100th year of independence. It means in simple word that India, will become a developed nation by 2047, the year it celebrates the 100th anniversary of independence. The Vision of 2047 Roadmap for Future-Ready Libraries at ViksitBharat. This study explores the role and function that the library can play as a catalyst in this vision ofViksit Bharat 2047.

It examines the potential of libraries to bridge the information divide, foster lifelong learning, promote digital inclusion, support environmental literacy, and serve as innovation hubs for communities.This study highlights how libraries can evolve into engines of development, empowering citizens to contribute meaningfully to a sustainable and inclusive future using digital infrastructure and digital library services.

Keywords: : Viksit Bharat, Digital India, Digital Library, Digital Services, Knowledge Society, Library Role

Introduction

“Developed India” is what Viksit Bharat signifies.The government’s vision, Viksit Bharat 2047, aims to make India a fully developed country by the year of its 100th anniversary of independence in 2047 (Yadagiri et al., 2025).¹

This forward-thinking strategy emphasises sustainable development with efficient governance and inclusive growth. The active involvement of India’s youth, who are viewed as both change agents and recipients, is crucial to this development. This strategy accelerates the realisation of Viksit Bharat 2047 by encouraging innovation, progress, and self-reliance.

The main objective of Viksit Bharat is to make India a developed country by 2047 by allowing all citizens to participate in the economy. In just 20 years, it hopes to grow India’s economy to \$30 trillion. Infrastructure consolidation, social welfare programme expansion, economic growth, sustainable development, and improving living and business conditions are all key components of the approach.

Estimates for India’s per capita income by 2047 (Viksit Bharat@2047) range significantly, with projections from government sources and consultancies suggesting USD 15,000 or even \$26,000 by then, positioning India as a high-income or developed nation, contingent on sustained high GDP growth (7-12%) and demographic management(Bondge 2025).²

Key goals include zero poverty, quality education for all, universal healthcare, 100% skilled labour, 70% women in the workforce, and transforming India into a global food basket.

Digital India for the Viksit Bharat vision 2047

Digital India is the foundational pillar for Viksit Bharat (Developed India) by 2047. It drives through enhanced digital infrastructure, e-governance, financial inclusion (UPI), skill development (Skill India), innovation (DPIs), and last-mile connectivity, transforming governance, economy, and citizen empowerment for a future-ready, inclusive nation (Jain et al., 2024)³

How Digital India plays a key role:

- E-Governance & Service Delivery: Digitising government services makes them accessible, transparent, and efficient (e.g the PM Gati Shakti platform).
- Digital Public Infrastructure (DPIs): Platforms like Aadhaar, UPI, and DigiLocker create seamless, inclusive systems for finance, identity, and data.
- Digital Literacy & Skill Development: Programs (PMGDISHA, Skill India) empower citizens with skills, bridging the digital divide, especially in rural and tribal areas.
- Economic Growth & Innovation: Fosters a tech-driven economy, boosting startups, R&D, and self-reliance in semiconductors (India Semiconductor Mission).
- Last-Mile Connectivity: Expanding internet access ensures remote regions benefit from digital opportunities and services.
- Data & AI: Focuses on responsible AI, data privacy, and leveraging data for better policy outcomes.

In essence, Digital India provides the technological backbone, skills, and infrastructure necessary to achieve the broad goals of economic prosperity, quality of life, and inclusive growth envisioned in Viksit Bharat 2047 (Sultanpur 2025).⁴

Libraries act as a catalyst for Vikshit Bharat 2047

Objectives

- Explore the Vision of Vikshit Bharat 2047
- To find out how the library would play a role in achieving this goal.

Research Methodology

The analysis of secondary data from numerous journals and websites served as the foundation for the study. When necessary, it also incorporates the work of both published and unpublished scholars.

Role of Libraries in Achieving the Vikshit Bharat 2047 Vision Goal

Libraries as a catalyst for education

Libraries are essential to bolstering the educational ecology, which is the foundation of progress. The National Education Policy (NEP) 2020 emphasises how crucial it is for schools, colleges, and universities to have well-stocked, technologically advanced libraries. Teachers and students can participate in high-quality learning by using the textbooks, reference materials, journals, and other resources that libraries make available (Vedak et al., 2025).⁵

Bridging the Digital Divide

The digital divide between rural and urban areas is one of India's problems. By providing free or reasonably priced access to online databases, digital repositories, and internet services, libraries are essential in closing this disparity. The National Digital Library of India (NDLI) is a model programme that benefits students everywhere by offering millions of resources in various languages and subjects (Rehman et al., 2025).⁶

Ensuring 24/7 Accessibility

Digital library infrastructure enables round-the-clock remote access to information, removing geographical and time barriers. This is particularly beneficial for students and professionals in remote regions who need continuous access to resources.

Preserving Cultural Heritage

Digital libraries play a critical role in digitally archiving and preserving India's rich and diverse cultural heritage, traditional knowledge systems, and historical documents for future generations to read and understand and read about their past and other research works also (Chakrabarti et al., 2021).⁷

Promoting Community Engagement and Governance

Modern libraries function as community hubs, facilitating access to e-governance services and information on government schemes. This enhances civic engagement, transparency, and social inclusion (Chatterjee et al., 2022).⁸

Capacity Building and Professional Development

Librarians' and information professionals' abilities are critical to libraries' success in this purpose. It is crucial to pursue ongoing professional growth in ICT, AI, data management, and digital curation to build information literacy instructors and knowledge managers. In order to educate librarians to lead India's information revolution, professional groups and governmental organisations must engage in capacity building and provide ongoing skill training.

Digital library Services

The Library, particularly public libraries, can act as a service-based institution by using AI-powered chatbots, supporting Open Educational Resources (OERs) and personalised learning experiences for the users and the larger community (Bordoloi et al., 2019).⁹

Challenges ahead in achieving Vikshit Bharat 2047

Libraries have a promising role in attaining Viksit Bharat 2047; a number of obstacles stand in their way (Negi et al., 2025).¹⁰

- **Inadequate Funding-** Many academic and public libraries struggle financially, which makes it difficult for them to update their infrastructure.
- **The Digital Divide-** Appropriate digital resources and adequate internet connectivity are still lacking in rural and isolated places.
- **Infrastructure Gaps-** Service delivery is hampered by outdated buildings, a lack of ICT tools, and space constraints.
- **Lack of Knowledge-** Users are frequently ignorant of the digital resources that are available to them, such as e-journals and NDLI.
- **Lack of Skilled Professionals-** Many library staff members require training in cutting-edge technology like artificial intelligence, big data, and digital curation.
- **Low Policy Priority-** In educational and developmental policies, library development is not usually considered a top priority.

Thus, the vision of Viksit Bharat @2047 is quite inspiring. The GOI should take the lead by forming a proper policy, looking at the future perspectives also. If tackled properly, libraries can fully support and act as a catalyst for India's journey to become a developed and knowledge-based nation by 2047.

Future Directions and Recommendations

The following actions are advised to turn libraries into powerful agents of national growth:

- **Digital Modernisation:** Enhance libraries with AI-powered services, e-resources, and ICT tools.
- **Enhance Public Libraries:** Make them hubs for lifelong learning and community knowledge.
- **National Integration of Resources:** To increase access, NDLI should be expanded and integrated with local and regional libraries.
- **Professional Development:** Give librarians ongoing instruction in information literacy, data science, and ICT.
- **Policy and Funding Assistance:** Incorporate libraries into fundamental development policies and provide ongoing financial assistance.
- **Networking and Collaboration:** Promote alliances between government organisations, businesses, academic institutions, and libraries.
- **Outreach and Awareness:** Start initiatives to inform the public about both physical and digital library services.

Conclusion

Libraries are important hubs for education, knowledge exchange, and community development in addition to being places to store books. They will be crucial to the development of an informed, competent, and educated society in Viksit Bharat 2047. Libraries can aid in bridging the gap between rural and urban communities by giving everyone access to knowledge. Additionally, they promote lifelong learning, research, and innovation—all of which are crucial for India to become a knowledge-driven economy. Libraries must be updated, well-funded, and staffed by qualified professionals

if the goal of a developed India is to be realised. Libraries may genuinely become the foundation of education, equality, and growth with the correct vision and teamwork, assisting India in realising the Viksit Bharat @2047.

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Machine Learning in Academic Integrity and Resource Discovery: Plagiarism Detection and Recommendation Engines

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Summary

Machine learning (ML) is revolutionising libraries and institutions by improving academic integrity and resource discovery. ML-based plagiarism detection tools are more advanced than traditional string comparison, detecting paraphrasing, translation, and conceptual copying through NLP, semantic analysis, and deep learning, thereby promoting ethical scholarship. Unlike traditional systems, ML algorithms examine sentence-level patterns and conceptual similarities across languages, ensuring proper detection of concealed plagiarism. At the same time, ML-powered recommendation systems offer personalised resource discovery based on user behaviour and content characteristics, promoting user engagement and effective resource utilisation while minimising cognitive overload. Collaborative filtering, matrix factorisation, and neural networks are some of the algorithms that actively recommend relevant resources to users, matching their learning and research activities. This paper discusses methodologies and practical applications of ML in plagiarism detection tools such as Turnitin and library recommendation systems, while also covering issues of data privacy, bias, and infrastructural constraints. It highlights the importance of explainable AI in maintaining user trust and transparency in automated systems. Future research directions include multilingual plagiarism detection, context-aware recommendations, and privacy-preserving ML models. The integration of ML in academic libraries promotes ethical and user-centric environments, improving information access while maintaining academic integrity in education.

Keywords: Machine Learning, Academic Integrity, Plagiarism Detection, Recommendation Engines, Resource Discovery, Libraries, AI in Education

Introduction

The maintenance of academic integrity and the provision of efficient resource discovery systems are some of the most important duties of academic institutions and libraries. They form the strong foundation for quality education and research in all aspects. Academic integrity ensures the integrity of academic works through moral research practices, intellectual honesty, and trust among the members of the academic community. Effective resource discovery helps learners and researchers discover their way through the increasingly complex and vast galaxy of academic literature that supports their research and continuous learning. However, the rising competition and, more than anything else, the rapidly increasing e-affirmation in the digital world have become part of the most complex challenges that institutions face in trying to maintain these standards.¹

Traditionally, plagiarism detection tools rely on string matching and simple similarity comparison algorithms, as these are inadequate for the detection of some advanced types of plagiarism, such as paraphrasing, idea plagiarism, and cross-language plagiarism. All these algorithms are incapable of identifying semantic similarities or stylistic patterns, which makes sophisticated as well as advanced plagiarism usage undetectable. Similarly, traditional library recommenders are typically static sources of metadata that do not address the individual needs of users for contextually relevant resources. This results in inefficiencies in academic integrity enforcement and user engagement in academic libraries.²

Machine Learning (ML) increases its ability to process millions of data and enables pattern recognition in data processing complexity, thus, making it capable of providing possible solutions in solving these star challenges. Among many, one of the applications of ML is in plagiarism detection. An ML system will be able to identify a document through Natural Language Processing (NLP), semantic similarity analysis, and stylometric analysis in identifying paraphrased or translated texts and then identifying the concept level of plagiarism. It increases the accuracy of detection beyond the conventional methods. The sentence structure, meaning, and writing style of authors will be analysed by these systems. This technology will help institutions in maintaining academic integrity and preventing plagiarism.

At the same time, the resource-finding process in libraries has been improved by the recommendation engines developed using ML, suggesting personalised recommendations based on user preferences, research interests, and behaviour. Overcoming the challenges of collaborative filtering, content-based filtering, and a combination of both collaborative and content-based filtering, ML-enabled systems are capable of analysing user needs and, in fact, requesting the distribution of relevant resources to the users[3]. It facilitates a user to access interdisciplinary resources that were not visible to the user before. By doing so, the user experience will be greatly enriched, as the library mission aims to provide personalised learning and research paths.

Such applications are a reflection of much larger trends of smart libraries and intelligent academic services, where technology can support and augment human capabilities to enhance efficiency and user satisfaction. However, just like the related applications, the application of ML is also faced with a set of challenges, which include but are not limited to issues of data privacy, the possibility of bias, and the need for robust infrastructure support in the academic institutions.⁴

ML in Plagiarism Detection

Definition of Plagiarism

To remember, plagiarism is a grave administrative violation that involves the plagiarism-free use of the original ideas or work of any other person. This involves copying, paraphrasing without citation, and idea theft on an intellectual plane, which can lead to harm to the ethicality of scholarship and the reputation of academic institutions. Traditional rule-based approaches to plagiarism detection, based on similar string matching, are generally effective only for routine copying but are abysmal failures when it comes to the detection of paraphrasing, translation plagiarism, and similarity on an intellectual plane, which require semantic and contextual understanding. With the ever-rising levels of complexity, with an immense amount of digital resources and multilingual content, the task of detecting the evolved forms of plagiarism is a grave concern for libraries and academic institutions.⁵

ML Techniques for Plagiarism Detection

These issues are now resolved through the use of ML models, with modern computational approaches that would provide analyses based on linguistic, semantic, and stylometric patterns in written text regarding plagiarism detection:

- **Natural Language Processing (NLP):** NLP performs tokenisation, lemmatisation, and semantic analysis on texts to identify plagiarised texts through paraphrased texts. An NLP process can also identify linguistic features of content, such as part-of-speech tagging and syntactic patterns, enabling a more accurate comparison of the probable texts[6].
- **Vector Similarity Models:** Word embeddings such as Word2Vec and contextual models such as BERT transform the text into vector spaces that capture semantic and contextual similarities. These models then enable the system to determine the similarity of meanings in sentences or paragraphs, rather than words - a huge improvement in the detection of paraphrased and translated plagiarism.⁷
- **Classification Models:** Supervised learning models in ML, such as Support Vector Machines (SVM), Random Forest classifiers, and neural networks, are trained on labelled datasets containing pairs of plagiarised and original texts to determine if a text contains plagiarism. These models identify patterns in writing styles, words, and text structures, enabling sophisticated detection.
- **Clustering Algorithms:** These are unsupervised algorithms that point out suspiciously similar submissions in many student files or archives without any prior predefining label. The clustering algorithms cluster all the similar

documents, which is now referred to as clustering, making it very easy for educators to walk through and identify potential plagiarism.

Advantages over Traditional Methods

The detection systems using ML operating in the plagiarism domain with large scatters are much more beneficial to turn on for the following than any classic method of detection.

- **Detection for Paraphrased and Translated Plagiarism:** The ML models are based on semantic understanding and context, which are very convenient for the detection of rephrased, translated, and idea-level plagiarism that is generally missed by the traditional systems.
- **Scalability:** The ML systems are capable of processing very large document repositories and are able to process large volumes with speed and accuracy, which are perfectly suited for academic institutions dealing with mass scholarly outputs.
- **Continuous Learning:** The ML models can be retrained with new datasets and thus can be adapted to new plagiarism techniques and language behaviour, ensuring that the detection is uninterrupted in time.

Case Studies

The successful implementation of ML in plagiarism detection is articulated by several systems and research projects. Commercial tools such as Turnitin and Unicheck combine ML techniques and string-matching algorithms for enhanced accuracy in plagiarism detection, particularly for paraphrased work. The PAN workshops at the Conference and Labs of the Evaluation Forum (CLEF) have undergone a number of developments in stylometric and semantic methods in plagiarism detection[8]. Through competitive evaluations, they have laid the groundwork for the development of robust and scalable systems. These two sets of implementations demonstrate the ability of ML in sustaining academic integrity by alleviating the manual burden on educators and librarians.

Machine Learning in Recommendation Engines

Importance of Resource Discovery

Therefore, effective resource finding is an asset in academic contexts so that researchers, teaching staff, and students can navigate the vast emerging scholarly literature and digital wealth for their own research. Libraries are full of different type of materials – from books, research articles, theses, and datasets to multimedia resources - and, when found unmediated, most likely, a user becomes overwhelmed. Thus, enhancing effective resource discovery systems in learning and research contexts by connecting a user, at the right time, to the right information, facilitating interdisciplinary investigation, and supporting evidence-based learning and innovation will improve learning and research results achievable through resource discovery services.³

ML Approaches in Recommendation Systems

Machine Learning (ML) can be defined as the technology that enables resource discovery by designing intelligent engines for recommendation in libraries. Major ML-based recommendation systems comprise the following:

- **Collaborative Filtering:** This technique recommends resources based on the overall behaviour and preference of users. Through borrowing history, search patterns, and user ratings, collaborative filtering identifies similarities among users or items to suggest materials that similar users have engaged with, thus effectively leveraging the “wisdom of the crowd” for discovery.
- **Content-Based Filtering:** Using NLP and ML, this approach is content-based filtering in assessing library materials’ similarities against previously accessed resources by a user from the metadata, abstracts, and full-text content. It generates user profiles from keywords, subjects, and thematic patterns, thus providing precise personal recommendations closely aligned with individual research interests[9].
- **Hybrid Models:** The key idea in hybrid recommendation models is that they are a combination of both collaborative and content-based filtering to overcome the limitations of both approaches when used separately. This can be done by using both historical user interaction data and content information simultaneously. On the other hand, hybrid models introduce additional diversity and relevance into recommendations because they also have solutions for cold start problems for new users and items.

Implementation in Libraries

The recommendation tools using machine learning are being increasingly adopted by academic and research libraries for intensifying user engagement and optimizing the use of resources. These tools are integrated with:

- Recommending the right books, articles, and other databases to the users based on their profiles and their search histories. This is targeted discovery aligned with the current research needs.
- Personalized alerts for new acquisitions that are updates on recent resources in their subjects for researchers and students.
- Enhanced OPAC (Online Public Access Catalogue) and discovery layer search experiences through dynamic, contextual recommendations, allowing users to mine additional resources within their search processes.

Advantages

The recommendation systems in the library powered by ML are of immense benefit to users:

- Personalization: The recommendations can be made based on the user profile and preferences. The recommendations made may be more aligned to what the user is interested in, from an academic and research perspective, and thus the experience of using a library becomes more user-centric and efficient.
- Engagement: The recommendations made encourage the user to look into more resources, and thus there is more in-depth and wide-ranging engagement with the library resources.
- Efficient Information Retrieval: The ML-powered systems reduce the efforts of the user in searching for resources, and thus the systems support efficient research and learning. The efficiency in the utility maximization of the library resources is thus maximized.¹⁰

Challenges and Ethical Considerations

Machine learning (ML) as a discipline is anticipated to bring a revolutionary change in the domains of plagiarism detection and resource discovery in the academic setting. The application of ML, however, has some challenges, solutions, and ethics. This is significant so that the libraries and other academic institutions employing ML in their systems can be just, transparent, efficient, and user-trust-friendly.

Privacy of Data

A large part of the debate on the use of ML services in plagiarism detection and recommendation systems has been centered on how they will use the data of the users, including document submissions, borrowing history, and search patterns. The use of such sensitive information should be in accordance with the strictest adherence to data privacy laws and guidelines that seek to protect the user from unauthorized access. In plagiarism detection, incoming documents comprise unpublished research or student works, which lead to imposing cause-related clear policy guidelines on data storage, retention, and sharing. There might be concerns from the users on how they will use their data against them in forming recommendations, especially considering the involvement of profile-based recommendations, which would involve the practice affecting the user's trust. Privacy-preserving ML, such as anonymization or differential privacy, shall help mitigate risks without confiscating user confidentiality while empowering institutions for improved systems.

Inequity in Models Using ML

ML models are that biased, trained by the bias of their datasets. The trained models may continue or worsen these biases. For example, models are influenced in plagiarism detection by misclassification of some writing styles or features that lead to false positives and negatives against an unfair user profile, mostly for a user who is from diverse linguistic backgrounds or is a non-native speaker. Similarly, it is also possible that the repetition in recommending resources similar to a user's past interests is limited, thus reinforcing the pre-existing academic silos. There is also a tendency toward algorithmic discrimination whereby one group may be underrepresented or overrepresented in recommendations due to skewed training data. Some strategies to address bias include careful selection of datasets, frameworks for detecting bias, regular audits, and inclusion of fairness-aware ML algorithms for all users to have fair and unbiased outcomes.

Technical and Resource Limitations

The development, deployment, and maintenance of any ML system would require intensive technical knowledge, computing resources, and sustained management, all of which are cumbersome for libraries and academic institutions with poor resources. Typically, the training of advanced ML models for plagiarism detection or recommendation systems requires quality and large-scale datasets, a strong computing infrastructure, and specific data science and ML engineering skills that may not be easily available in all institutions. Integration within existing library management systems as well as interoperability within a plethora of platforms may require competitive investments of time, funds, and training for staff. Smaller institutions will face equity issues in the adoption of these technologies and thus potentially create a digital divide in the implementation of advanced library services across the educational sectors.

Future Directions

Machine Learning (ML) finds application in an increasingly innovative field involving plagiarism detection and resource discovery, and more of these innovations are yet to come for more effective, fair, and trustworthy academic practices. Future directions are vast enough to make the ethical and serious adoption of ML within libraries and academia.

Explainable artificial intelligence (XAI)

Transparency and trust-building within an ML-based plagiarism detection and recommendation system will largely demand explainable AI (XAI). At the moment, most, if not all, the ML models, particularly deep learning approaches, are regarded as “black boxes,” that is, the output is given without a process of reasoning for that outcome. This renders the situation untenable for users who may find themselves being charged with incidents of plagiarism or question the relevance of recommendations.^{11,12} XAI techniques will provide systems with the possibility of giving clear, understandable justifications for their decisions, such as the presentation of identified particular semantic or stylistic similarities related to potential plagiarism or explaining why certain resources were recommended based on a user’s profile. What this means is that educators and learners will be able to interpret the outputs of the system better while ensuring accountability for automated decision-making.

Multilingual Plagiarism Detection

An emerging area of academic globalism has called for increased needs of multilingual and cross-lingual plagiarism detection. The traditional mechanisms to check plagiarism often fail for multilingual plagiarisms due to their linguistic complexities and absence of semantic equivalence. Such future ML models should use state-of-the-art cross-lingual embeddings, multilingual transformers (mBERT, XLM-R), or translation-aligned similarity detection so that they can catch and figure out the malady of paraphrase and translation plagiarism across different languages. This will certainly help maintain the institution’s academic integrity globally while being able to serve multilingual students and international collaborative efforts.

Context-Aware Recommendations

Next-gen ML-powered recommendation engines will be represented in libraries by developing context-aware recommendations, enhancing learning analytics, and curriculum mapping. Rather than only offering static or general recommendations, they will vary recommendations dynamically based on the user’s academic progression, courses carried, research projects, and emerging interests. Students who research how to write dissertations might be channeled relevant advice corresponding to their applied methodology and associated gaps in existing literature, while undergraduates might find learning resources related to their course modules and associated learning outcomes. Integrating library recommendation engines with institutional Learning Management Systems (LMS) and institutional academic profiles will allow proactive, targeted resource discovery to enhance learning pathways and research productivity.

Edge AI and Privacy-Preserving ML

The scope under future efforts will include embracing Edge AI and privacy-preserving ML as possible remedies to privacy issues while obtaining all the benefits associated with ML systems. With Edge AI, data are processed directly in local devices or institutional servers, minimizing the effect of transferring sensitive user data to external servers while also reducing latency for real-time plagiarism checks and recommendations.¹³ Privacy-preserving methods -cum- federated learning and differential privacy - allow an ML model to learn from distributed user data without revealing individual records, thereby maintaining the confidentiality of users. These enable libraries and academic institutions to ensure a balance between personalization and efficiency and ethical data-handling processes, thus building user trust and compliance with the regulations.

Conclusion

Machine Learning (ML) has the potential to bring a paradigm shift to the face of academic libraries and institutions in the realm of academic integrity and resource discovery systems. To maintain the ethical standards of academic work through advanced plagiarism detection, ML not only identifies copied material but also detects “paraphrased,” translated, and idea-level plagiarism that are not typically identified by existing systems. By using advanced Natural Language Processing (NLP), semantic similarity analysis, and stylometric analysis, ML models offer a scalable, reliable, and intelligent solution to plagiarism detection, thus helping institutions to ensure fairness and academic integrity across all disciplines and languages. As they say, the best is yet to come. ML-driven recommendation systems are actually revolutionizing all that in libraries through personalized, efficient, and agile resource discovery for the end-users. These systems work by using

cooperative filtering, content-based filtering, and hybrid models to recommend resources based on users' interests, research fields, and learning needs. Hence, discovery, interdisciplinary research, and informed learning are facilitated. Thus, the user is able to traverse the massive and complex information topographies with personalized and proactive recommendations by the ML systems so that relevant materials are always there to enhance research and academic performance.

These revolutionary uses of ML indicate a fair, satisfying, and progressive learning environment for libraries and institutions of higher learning as they ignite the vision to enhance knowledge, facilitate research, and ensure ethical scholarship. However, it is important to highlight the ethical, technical, and infrastructural aspects for the optimisation of ML systems in their nature. Data privacy always raises an eyebrow since personalised and trained ML needs access to user data. It is important for institutions to ensure privacy-preserving machine learning, such as federated learning and differential privacy, for the protection of user confidentiality, but with the retention of system efficiency. Moreover, there are other challenges. Bias in ML models leads to the generation of unfair or inaccurate results, such as misclassification in plagiarism detection or lack of diversity in recommendations. Ongoing evaluation, diversity and representation in training data, and the inclusion of fairness-aware algorithms are necessary to ensure fairness in ML-based systems. Technical limitations and infrastructure are still challenges, especially to under-resourced institutions, which lack the necessary expertise, resources, and infrastructure to develop and sustain highly advanced ML systems. Collaboration and open-source platforms are currently helping to address the aforementioned challenges, while capacity-building initiatives are further facilitating equal access to advanced ML capabilities in different institutions.

The future will bring about things promised by the future for libraries and the academic world: Explainable AI (XAI) towards more transparency and trust from users, multilingual plagiarism detection for more globalised academic settings, and context-aware recommendation systems combined with learning analytics and curriculum mapping for learning pathways. Moreover, Edge AI and local processing will enable real-time, efficient, and privacy-conscious services by indeed listening to what users say, not only improving their levels of trust but also the overall efficiency of operations.

In fact, the strategic and ethical integration of ML into the academic world will play a substantial role in the promotion of an ethical, student-centric, and innovative environment to empower students, researchers, and educators. It will benefit libraries and the academic world significantly in enhancing academic integrity, user experience, and the primary mission of knowledge creation and dissemination, along with ethical scholarship in this digital era, through the integration of ML while actively addressing the challenges that await us.

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Women Library Professionals and the Vision of Vikshit Bharat: Challenges and Opportunities

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Summary

The concept of Vikshit Bharat is the vision of India as the country with a strong economy, an inclusive society, empowered intellectually and technologically. This vision will be attained not only by infrastructure and policy changes but also by effective knowledge institutions and professionals who are committed to maintaining the same. Libraries deliver an unspoken but significant influence in creating an educated society and women librarians are the key to this machine. Although their numbers have grown and their contribution has been constant, women librarians still experience structural, professional and emotional problems, which restrain their full involvement in the national development. The paper discusses issues and prospective opportunities of women library professionals in India towards contributing to a Vikshit Bharat. It embraces a humanistic and contemplative perspective and emphasises on lived professional realities, changing opportunities, and the necessity of a systemic support that would allow women librarians to become active producers of nation-building.

Keywords: Women Library Professionals, Libraries and Development, Indian Libraries, Vikshit Bharat, Gender

Introduction

The Vikshit Bharat vision transcends economic indicators and technological advancements. It focuses on inclusive development access to knowledge, social justice and human development. Within this wider concept of development, libraries are seen as critical facilitating institutions that enable education, research innovation and democratic access to information. Women library professionals are very important in these spaces, although it is not always recognized. Within academic institutions, alongside the libraries, schools and research centers in India, the responsibilities of women librarians include the management of resources, facilitating the users, enhancing digital literacy, and ensuring inclusive learning environments. Their activity directly promotes national priorities like education for everyone, digital inclusion and lifelong learning. Nevertheless, although central to this, women who work in libraries often have to work on the parameters of gender expectations, institutional structures, and changing professional needs. This paper examines the role of women library workers in the vision of Vikshit Bharat and overcoming the challenges they have to face. It does not offer any romanticized accounts but emphasizes the actual experience of the profession and explores how openings in the evolving information age can enable women librarians as it seeks to help them contribute more actively to the development process in India.¹

Libraries and Nation Building in India

The idea of libraries being connected to nation-building in India is not new, as they assisted in the freedom movement and contributed to literacy and education during the post-independence era. Digital resources, government information,

research output and community learning are all accessed in libraries, which are the gateways to the libraries in contemporary India. Within the setting of Vikshit Bharat, libraries are helpful in that they:

- Funding quality education and research
- Making digital and information bridges
- Protecting culture and intellectual property
- Nurturing engaged citizens.

Women library workers play such important roles in these functions that frequently they are at the grassroots level in which their influence is the most immediate and least noticeable.

Position of Women Library Professionals

Most librarianship in India is seen as a respectable profession that women can carry. This has been the perception and hence there is a high level of women in operational and service levels. They handle the circulation desks, reference services, cataloging, user education and outreach programs.

Nevertheless, big libraries, universities and professional organizations continue to be dominated by men in leadership and policy-influencing roles. This unequal representation of power is indicative of larger gendered power dynamics instead of competency or desire to be ambitious among women librarians. Their distance between responsibility and power is one of the most characteristic of the female experience of work in libraries.²

Challenges Faced by Women Library Professionals

Female librarians usually have to face the assumption that their services are routine or secondary. The research support, digital resource management, and organization of information are often mentioned as the intellectual and managerial aspects of librarianship that are not given much attention. The result of this underestimation is a lack of professional self-esteem and intra-institutional credit. Slow or limited career progression is a problem with many women library professionals. The following are among the factors:

- Absence of clear promotion policies
- Inadequate exposure to leadership training
- Family related career interruptions.

Consequently, the voice of women is not well represented in the strategy planning and policy making. The quick process of digitization of libraries has changed working patterns. Although digital tools open new opportunities, they also bring about anxiety, especially when the training opportunities are not equally distributed. Women librarians might be reluctant to express themselves in technology-dominated areas because of the fear of being judged or sidelined. The female library professionals have a tendency to juggle both their profession and their family. They will also be anticipated to be emotionally accessible to the users, patient, supportive and approachable always. This emotional work although necessary is hardly recognized and may cause stress and burnout.³

Emerging Opportunities in the Path of Vikshit Bharat

In spite of such difficulties, the changing educational and informational environment also provides women library practitioners with worthwhile opportunities. The education, digital learning, and skill development programs conducted nationwide have increased the horizons of library services. Women librarians can do this by:

- Carrying out information and digital literacy training
- Facilitating web-based education
- Helping users by making use of e-governance services

These are the attempts that contribute to inclusive development. Research assistance, open access publishing and data management are becoming progressively important to academic and research libraries. Women librarians who work in this field also help in empowering the research ecosystem in India which is one of the pillars of developed countries.

Learning and collaboration have become more available through the use of online platforms, webinars, and professional associations. The female library staff who visit such spaces are able to build their skills, visibility, and confidence. Women librarians regularly initiate community-based programs like reading, literacy, and work with marginalized populations. These actions are very much corresponding to the inclusive principles of Vikshit Bharat.⁴

Strengthening Women's Contribution

In order to have women library professionals playing a full role in national development, there must be a concerted effort.

- Institutions have to include gender-sensitive policies and appreciate different types of libraries work, well-being and performance.
- The gap in confidence and isolation could be filled with the help of mentorship programs, leadership training, and professional networks that are women-oriented.
- The libraries and library professionals must explicitly feature in national education and development policies in terms of their role in regard to the vision of Vikshit Bharat.

A Vikshit Bharat must not only be technologically advanced but also have human and inclusive knowledge systems. Women librarians have the talent, devotion and experience to facilitate this vision. It is socially responsible and strategic to make them empowered.⁵

Conclusion

The contributions of women library professionals in the development process of India are very subtle but very vital. As they still struggle to resolve the issues concerning recognition, leadership, and work-life balance, they receive even more opportunities in the field of education, digital inclusion, and community involvement. It is important to recognize and empower women librarians to fulfill the wider vision of Vikshit Bharat-the vision of knowledge, equity and human potential as well as economic growth.⁶

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Empowering Women Librarians: Enhancing Job Satisfaction and Reducing Anxiety in Knowledge Commons

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Summary

No longer are libraries constrained by shelves and silence, but they are now a knowledge commons which has developed into a vibrant knowledge commons where collaboration, digital learning and community interaction meet. Women librarians are important in the maintenance as well as sustenance of these spaces. Nevertheless, workload pressure, low recognition, gender expectations, and quick technological change continue to burden the women librarians with high levels of stress, anxiety, and professional dissatisfaction as their responsibilities and professional roles continue to increase. This paper will discuss the topic of female librarian empowerment to promote job satisfaction and decrease levels of anxiety in Knowledge Commons. The paper uses the reflective and human approach based on the lived experience, professional reality, and the available academic view on issues, emotional labour, and empowerment strategies. It maintains that authentic empowerment, in the form of supportive policies in the institution, professional development programmes, and emotional health services, can change libraries into healthier working environments for women librarians and more efficient knowledge niches for the society.

Keywords: Women Librarians, Job Satisfaction, Workplace Anxiety, Empowerment

Introduction

The image of quiet rooms and rows of books still remains in the mind of many people when one hears about the library. However, libraries have turned into complicated, challenging, and ever-changing working environments for people who work in them. The advent of the knowledge commons has changed the way information is being generated, distributed and consumed.¹ Through this change, women librarians have become the unseen but very important foundation of knowledge institutions; they organise resources, orient people, are flexible with technology, and they often engage in emotional labour, which has never been fully recognised.

Although librarianship is viewed as a feminised profession, this does not apply to the reality where women librarians have not been enjoying better working conditions or emotional security. In its place, most of them are experiencing role overload, reduced career advancement, job insecurity and the continued anxiety regarding performance expectations and institute change. These issues have a direct impact on job satisfaction and general mental health.

This study is reflective in its way of grasping the actualities of female librarians in knowledge commons. Instead of viewing the phenomenon of empowerment as an abstract notion, it investigates the ways in which the daily workplace

experience, emotional pressure, and institutional arrangements influence the professional life of women librarians. The main point is very easy, yet important: women librarians need to be empowered not only to be healthy but also to make knowledge commons sustainable and functional.

Knowledge Commons and the Changing Nature of Library Work

The concept of knowledge commons indicates a change from just storing the information to knowledge creation; contemporary libraries have items such as collaborative workspaces, digital repositories, makerspaces, and research support services, as well as community learning programs. The librarians are supposed to be technologically savvy, pedagogically sound and socially responsive. This has been an exciting change, though it has also increased demands in the workplace. Librarians need to keep abreast of the changes in skills and to keep up with new technologies and meet the needs of various users, who in many cases do not have the support of their institutions.[2] Generated expectations of care, patience, and availability also add pressure to women librarians. Librarians who are women are usually the main agents of knowledge commons. They mentor students and researchers and operate digital platforms, facilitate information literacy, and provide inclusive learning. Although this is the main role they play, their contributions are oftentimes overlooked. Most institutions have power of decision-making vested at upper levels of administration, where women are under-represented. This lack of accountability and sense of responsibility may result in frustration, insecurity, and job dissatisfaction.

Understanding Job Satisfaction Among Women Librarians

Job satisfaction is not just concerned with the wages or the title. In the case of women librarians, many of them usually associated it with the way they feel respected, valued and emotionally safe at work. It includes:

- A feeling of mission in the job
- Professional and emotional contribution recognition
- Growth and learning opportunities
- Favourable and equal treatment work environment

In the case where such elements are missing, dissatisfaction will gradually creep in, and it will impact performance and mental health.

In addition to this, job satisfaction is dependent on several factors:

- When libraries encourage strong communication, equality and inclusiveness, they are likely to have a happier workforce.
- On the other hand, strict hierarchies and sex discrimination are also a source of stress and disengagement. A lot of the labour of women librarians to the outside world is unnoticed, like student mentoring or dealing with the stress of users. They may be unrecognised, and then their efforts will be fruitless.³
- This stagnation in the careers of many women librarians is supported by a lack of leadership opportunity, which supports the feelings of frustration and self-doubt. Striking a balance between work-related and personal and family life is one of the key issues, which can cause emotional depletion.⁴

Anxiety and Emotional Labour in Librarianship

The state of anxiety amongst women librarians does not occur overnight. It builds gradually through:

- Continued pressure to match up new technologies.
- Concern with not performing well in high-profile service jobs.
- Uncertainty of jobs, particularly in contractual jobs
- Majority rules that require them to be calm, polite and emotionally available at any time. Such pressures are not usually discussed due to the fact that librarianship is not perceived as a job that is emotionally challenging.
- Female librarians tend to be called upon to work emotionally, such as soothing agitated students, dealing with tough patrons, and keeping a friendly atmosphere in spite of one's own pressure.

Although this work is paramount to the library services, it is rarely acknowledged or rewarded. The endless emotional work without any support may result in burnout, anxiety, and lack of professional involvement in the long run. Upon failure to control anxiety, it impacts self-esteem and self-confidence. Professional relationships being ready to become leaders for total job satisfaction and mental health.⁵

Empowerment: A Human-Centred Perspective

The concept of empowerment must not be perceived solely with reference to power or status. In the case of women librarians, empowerment usually starts by being listened to, trusted and supported. It consists of emotional security, professional freedom and possibilities to develop free of fear. Empowered librarians who are women have a tendency to experience.

- Increased trust in their capacities.
- Reduced workplace anxiety
- Better professional identity
- Increased job satisfaction measures
- Empowerment is a stress and emotional exhaustion buffer.

Strategies for Empowering Women Librarians

Organisations are critical in influencing the experiences of librarians. Key measures include:

- Clear promotion and reward systems
- Workplace gender-sensitive policies
- Psychiatric and psychological assistance
- Emotional and relational work identification

Professional associations and peer networks offer the spaces where the women librarians can exchange experience, learn, and not feel alone. The formal and informal mentorship can be especially empowering.[6] As much as structural change is necessary, personal strategies are important too. These include:

- Creating healthy professional boundaries
- Without shame, judicial assistance
- Undergoing a regular learning process to cultivate confidence

Creating Caring Knowledge Commons

In case Knowledge Commons is to be an inclusive and collaborative entity for the users, the same considerations should be applied to its managers. An inclusive knowledge common appreciates the librarian as an individual, as a whole person who has emotional, intellectual and personal needs. When the women librarians feel safe and desired, they tend to be innovative, collaborative and productive toward the institutional objectives. Although there is increased awareness, the process of empowerment is usually met with opposition given the deep-rooted gender norms, scarce resources, and institutional inertia.⁷ These challenges need a long-term commitment and not symbolic actions.

Conclusion

Women librarians are the focus of the success of the Knowledge Commons, but their emotional health and job satisfaction are often neglected. In this paper, it has been stated that the solution to decreasing anxiety and increasing job satisfaction is empowerment, which in this context can be viewed as human, emotional, and professional empowerment. It is not just doing women librarians a favour when they are empowered, but it is a strategic move to have knowledge institutions that are resilient, responsive and humane. By providing support and empowerment to women librarians, knowledge commons may turn into places where not only the exchange of information may occur but also care, trust and mutual development.

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From Academic Library to Knowledge Commons: A Case Study of IIHMR University

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Summary

Academic libraries are increasingly transitioning from conventional information repositories to dynamic knowledge commons that promote shared access, collaboration, and knowledge creation. This transformation aligns with “India’s vision of Viksit Bharat 2047,” where institutions are central to sustainable national development. The present study aims to examine the role of an academic library as a knowledge common through a case study of IIHMR University. The study adopts a descriptive case study methodology, using institutional documents, library records, observation of library services, and analysis of digital resources to assess the library’s contribution to teaching, learning, and research. The findings reveal that the IIHMR University library has evolved into a digitally enabled, user-centric knowledge hub that supports equitable access to academic resources, research facilitation, and interdisciplinary learning, particularly in the domains of health management and public health. The study highlights the significance of academic libraries in fostering knowledge sharing, enhancing research capacity, and supporting evidence-based education. It concludes that the transformation of academic libraries into knowledge commons is essential for strengthening higher education institutions and contributing meaningfully to national knowledge and development goals. The case study provides insights that may guide similar institutions in reorienting library services toward inclusive and sustainable knowledge ecosystems

Keywords: Academic Library; Knowledge Commons; Digital Resources; Knowledge Access

Introduction

Academic libraries are undergoing significant transformation due to transformation in digital technologies. No longer limited to physical collections libraries. They are no longer just about shelves of books. Today, they are knowledge commons, spaces designed to foster collaboration, make information accessible to all, and support lifelong learning, - functioning as knowledge commons that promote collaboration, accessibility, and continuous learning. The concept of knowledge commons emphasises shared access to information resources, collective learning spaces, and inclusive knowledge dissemination.

In India, academic institutions are central to achieving promoting growth and national development. Access to quality information is essential for building human capital, particularly in specialized fields such as healthcare management and public health. Digital libraries contribute to this process by enabling learners and researchers to access global knowledge resources irrespective of physical location.

IIHMR University, Jaipur, is a premier institution specializing in health & hospital management education, public health, healthcare analytics, and development management. Its academic library and documentation center (Dr. D.A. Henderson) play a crucial role in supporting students and faculty by providing both print (books, journals, magazines, etc.) and digital

resources (My Loft). This paper examines the transformation of the IIHMR University Library into a knowledge common and analyses its contribution to academic learning and research (IIHMR University, 2024).

Objectives of the Study

- To examine the transformation of the IIHMR University Library into a knowledge common.
- To analyze My Loft and services provided by the library.
- To assess the contribution of the library to teaching and research activities.
- To understand how digital initiatives help bridge the knowledge divide among students.

Methodology

The study adopts a descriptive case study approach to examine the transformation of the IIHMR University Library into a knowledge common. A case study method was considered appropriate as it enables an in-depth understanding of institutional practices within their real-life context.

Primary data were collected through direct observation of library facilities and services, review of institutional records, and informal interactions with students and faculty members to understand patterns of library usage. Secondary data were obtained from peer-reviewed literature on academic libraries, digital libraries, knowledge commons, and institutional repositories. The analysis focused on evaluating how physical and digital library resources support teaching, learning, and research activities at IIHMR University.

Profile of IIHMR University Library

The IIHMR University (Dr. D.A. Henderson) Library serves as a central academic support unit for programmes in health management, public health, hospital administration, pharmaceutical management, digital health and development analytics. The library provides access to textbooks, reference materials, national and international journals, and a wide range of electronic resources (ProQuest, Sage etc.).

The library delivers digital access through the My LOFT platform, integrating EBSCOhost, ProQuest, Pearson Library, SAGE Knowledge, IEEE Xplore, EPW, DELNET, and the National Digital Library of India. Students use these resources for assignments, projects, and research work. Orientation sessions are conducted for new students to enhance digital literacy.

In addition, the Dr. D.A. Henderson Library & Documentation Centre maintains an institutional digital repository providing access to dissertations, faculty publications, IIHMR reports, MPH capstone projects, practicum documents, summer internship reports, PhD theses, case studies (HBR and ICMR) and old year question papers. This repository preserves institutional knowledge and supports academic continuity.

Library as a Knowledge Commons

Digital Resources and Access

The library provide access to electronic journals, e-books, and subject-specific databases related to health systems, hospital management, public health, and digital health. Remote access facilities enable students to use resources beyond college hours (Borgman, 2000).

Support for Teaching and Research

Faculty members utilize digital resources for curriculum development and research publications. Students rely on online journals and databases for case studies, dissertations, presentations, research, bound journals, summer internships, IIHMR publications, CD ROM/ video collections, magazines, and newspapers (Tenopir et al., 2012).

User Engagement and Knowledge Sharing

The digital repository enables access to student dissertations, internship reports, faculty publications, and institutional research outputs. This promotes - learning and strengthens academic continuity.

Bridging the Knowledge Divide

Centralized access to paid databases reduces financial barriers and promotes academic ownership (ACRL, 2016).

My LOFT as a Digital Knowledge Commons

The My LOFT platform functions as a digital knowledge common by providing a shared virtual environment that integrates multiple academic databases and institutional resources under a single access interface. It enables seamless remote access

to licensed e-resources, allowing students and faculty to engage in academic activities beyond physical library spaces. Through features such as centralised discovery, personalized dashboards, and cross-disciplinary access to scholarly content, My LOFT supports independent learning, research continuity, and interdisciplinary exploration. By reducing dependency on physical infrastructure and enabling equitable access to digital knowledge resources, the platform strengthens the role of the IIHMR University Library as a collaborative and inclusive knowledge ecosystem.

Institutional Repository as Knowledge Commons

The Dr. D.A. Henderson Digital Repository preserves and disseminates IIHMR's intellectual output, reducing duplication of research and supporting inclusive access (Crow, 2002; Lynch, 2003).

Findings

The case study reveals that the My LOFT platform significantly improves access to academic databases; the institutional repository provides centralised access to IIHMR dissertations, faculty publications, and student projects; students actively use MPH capstone projects and internship reports; remote access reduces dependency on physical visits, and integration of external databases with institutional repositories enhances academic equity.

Conclusion

This case study demonstrates that academic libraries can move far beyond their traditional roles by evolving into integrated knowledge commons supported by digital platforms and user centered services. The experience of the IIHMR University Library shows how strategic use of e- resources, institutional repositories, and remote-access systems can create an inclusive learning environment that supports teaching, research, and professional development. By enabling seamless access to scholarly content and encouraging knowledge sharing among students and faculty, the library has strengthened research engagement and reduced barriers to information access. Continued investment in digital infrastructure, user training, and information literacy will be essential to sustain this progress. Overall, the transition of academic libraries into knowledge commons plays a critical role in enhancing educational quality and contributing meaningfully to long-term institutional and national development goals.

Acknowledgement

The author sincerely thanks the IIHMR University Library staff and faculty for facilitating access to digital resources and institutional repositories. Gratitude is also extended to the peers who shared their experiences of using the digital library platforms for learning and research.

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Library Policy and Governance

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Summary

The policy provides the overall framework for the systematic functioning of the library. The policy involves regulations, rules, guidelines and procedures for various services undertaken by the library. The library policy is the overall framework for the systematic functioning of the library. Governance means the leadership and decision-making system of the library, such as library Department or authorities. They also help libraries adapt to new technologies and changes in the information Society. Together, policy and governance help libraries meet Group needs, support education, and provide identical access to information.

Keywords: Governance, Library Committee, Library Usage Policy, Library Management.

Introduction

Library policy and governance provide the basic framework for managing and controlling library Operations. Library policy lays down clear rules and guidelines for collection developments, services, staff responsibilities, and user behaviour. Governance refers to the system of leadership, authority, and decision-making that ensures these policies are properly Applied. They Together help libraries perform smoothly. [1] Library Policy in the library department is an Authorised document that outlines the principles, rules, , and processes for managing the library. It guides the selection and use of books and E-resources, defines staff roles, and explains user rights and Duties. Library policy helps maintain fairness order and efficiency in library services. It also Assists Appropriate planning, resource management and Regular service delivery, ensuring that the library Achieve educational and information needs Efficiently.

What is Governance...

Governance is the Method through which an Institution is controlled and managed. Governance in the Library Department refers to the system of leadership, authority, and decision-making that guides library operations. It includes policies, management structures, and governing bodies that ensure transparency, accountability, proper use of resources, and effective delivery of library services.²

Library Usage Policy

General Library Rules

- There is to be complete silence throughout the library.
- All students must record their entry in the register maintained at the counter.
- Mobile phones must be switched off or on silent mode when in the library.
- Eating and drinking is not allowed in any area in the library.
- All materials obtained from the reference counter are to be submitted back to that counter. Enter details of the same in the reference register.
- Newspaper and Magazines used for reading are to be returned without any tear or markings completed.

- The utmost care must be taken by all to keep the library clean.
- Keep all library resources in good condition.
- There will be no issuance of any library material using another person's identification card.³

The Part of Library Policy and Governance:

Table of Contents

Library Committee

- Composition: Committee Member
- Frequency of Meeting
- Duties and Responsibilities
- Meeting Notice
- Minutes of the Meeting
- Library Purchase Committee⁴

Library Budge and Finances Committee

- Sources of Finance for Library
- Library Budget and Finances

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- Library: Different from stores
- Procedure for the Procurement of Books
- Procedure for the Procurement of Journals
- Procurement of E-Resources (e-database)

Technical Processing

- Accessioning
- Classification
- Cataloguing
- Processing Books

Circulation Section

- Circulation Timing
- Issue/Return Procedures
- Membership
- Borrowing Facility & Rules
- Overdue Charges
- No Dues Certificate
- Library Access by Visitors
- Loss of Library Identity Card

Library Security System

- Three Dimensional RFID Security Gate
- Closed Circuit camera System
- Fire Alarm
- Security Staff

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- Book Bank Facility
- Reference Service
- Inter Library Lone: (DELNET)
- Digital Library Facility
- Radio Frequency of Identification (RFID) Facility
- Web-Based Online Public Access Catalogue: (KOHA etc.).
- Remote Access Facility – (INFLIBNET)

- Wi-Fi Facility and CCTV
- Reprography, Printing Services
- Newspaper Service
- Stock Verification and Procedure of documents withdrawal
- Stock Room/Display Area Management⁵

Stock Room/Display Area Management

Stock Verification Process

- General Rules

Conclusions

The Chairman of the University Education Commission Dr. S. Radhakrishnan said the “Library is the heart of all University’s work”. The Library of our Institute motivates the users to acquire knowledge through open reading and enable them to gain knowledge through extra reading. Our Library services thus aim to ensure our users to achieve up-to-date knowledge and march towards excellence in all walks of Life.

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Indian Public Libraries as Knowledge Hub in the Digital Era

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Summary

In this part, we will look at the challenges faced by India's public libraries and offer some advice on how they can thrive in the digital era. As repositories of written works, libraries have been around for as long as human civilization has. Books, library users, and librarians are the three main components of a library. An early supporter of women's education in Phule, Mahatma Jotirao, argued that this was the main reason everyone in the community lagged. In today's information era, one's power is directly proportional to his level of subject matter knowledge. Given this, one ought to make the most of each moment of their life to amass knowledge and strength. Since then, the incredibly significant information has been preserved in books and passed down through the generations. If you want to find out anything new, the best place to go is to a library or information centre. These places provide a wealth of information resources that may educate the public. As human knowledge expands exponentially, all segments must have equal access to community education. The only way for society to move forward is for public libraries to eradicate illiteracy, quench readers' hunger for knowledge, and promote general development.

Keywords: Public Library, Indian Public Library, Digital Age

Introduction

"Public library" refers to a community-owned and operated library. Most towns and cities have public libraries. Municipal councils or corporations are typically in charge of the libraries serving the city's residents. Books, periodicals, and newspapers are accessible for reading at these libraries, which offer social services at a reasonable cost. In addition to facilitating the passing of knowledge from one generation to another, libraries often host conferences, book exhibits, and lecture series for their patrons.

Public libraries have made great strides in social education and transformation. These libraries promote research, and public libraries must assist students who opt for non-formal education. Maitra (1974) discusses the importance of public libraries in India for promoting adult education, helping people learn to read, write, and engage in lifelong learning. The article states that libraries are places where people can learn things outside of formal schooling. It also emphasizes that adult education programs need more government support and better-designed library services. Campbell (1982) describes a systematic approach to building effective public library systems, emphasizing planning, management, and services that prioritize users. This book explains how UNESCO helps libraries promote education, culture, and community development. Ghosh (2004) examines the structural and functional challenges facing the public library system in India, including inadequate funding, insufficient infrastructure, and a shortage of personnel. The article also discusses how things can improve with better policies, modernization, and greater community involvement. Kaur and Walia (2015)

examine collection development and management in public libraries in Delhi. They discuss issues related to selection policies, budgeting, and meeting user needs. This study underscores the importance of systematic planning and expert management for improving the quality and relevance of library resources. Oriogu (2015) emphasizes the importance of well-established school libraries in promoting reading habits among secondary school students in Nigeria. The study highlights that easy access to library resources is a crucial factor in improving literacy and academic performance. Kamble et al. (2016) discuss the current state of public libraries in India, highlighting issues such as inadequate funding, infrastructure deficiencies, and a lack of skilled personnel. The article also suggests that things could improve with greater public participation, policy reforms, and digitalization. Khan (2016) states that library and communication technologies have made library services more accessible, efficient, and engaging for users. Kulkarni and Dhananjay (2017) discuss smart libraries as a crucial component of smart cities. They argue that public library services in India should be technology-driven and focused on what consumers want. The article describes smart city projects as a once-in-a-lifetime opportunity to make public libraries more easily accessible, better, and more supportive. Kim (2020) examines public health and workplace social distancing regulations implemented in Korea in response to COVID-19.

The Goals of Public Library Systems

- A place to read for free: Children, adults, students, women, people with disabilities, and others can take advantage of our reading services, and we will serve as a public relations tool to promote social justice, peace, and understanding on a global scale.
- To offer specialized readers modern, high-tech assistance in the form of books and audio recordings.
- Establish library branches in urban and rural locations to promote library-to-library interchange.
- To ensure that library staff are well trained and efficient.
- Centers for Cultural Development, Enlightenment, and Informational Outreach Operationalization.

The abolition of illiteracy, the development of a library network, and the attraction of readers interested in reading are all outcomes that could result from public libraries being operational per the aims above.

The Role of the Public Library System

- For rural residents, public libraries must meet their reading material needs and serve as gathering places for people to discuss current events and other topics of interest.
- Providing access to information will fulfill the goal of piquing their interest in the library.
- Public libraries supplement library services by offering media-related resources.
- It is within the realm of possibility for public libraries to provide intellectual and mental fortitude to the human mind.
- Promotes a sense of social responsibility.
- Public libraries are great places to read aloud to adults, have discussions, write, or read to kids.
- New instructional facilities are something that public libraries strive to offer to their patrons.
- Democracy thrives in public libraries, which serve the public good by preserving knowledge via instruction and research of cultural norms.
- The importance of public libraries in promoting education and informal learning

As a result, public libraries are crucial to democratic societies, and their philanthropic spirit and

illuminating public libraries are information resources that contribute to developing a robust social fabric for the public. This democratic organization produces independent, imaginative, and self-sufficient individuals by sharing information and a positive culture with ideologically reasonable people.

An Overview of Public Library History in India

India has a long history of preserving and sharing cultural and intellectual treasures. Libraries of all varieties existed throughout medieval Europe, and religious and cultural organizations still worked to disseminate information. Even today, with the backdrop of technical and scientific advancements, the necessity to establish a fresh national strategy for information science and libraries has arisen. Democracy reigns in India. This place is home to people of various ethnicities, faiths, and languages. As Mahatma Gandhi once said, much of India's population still resides in rural areas. The message of Rashtrasant Tukdoji Maharaj was to "go to the village." Now that education is available to everyone, society is much better off, and public libraries are crucial in fostering an awareness of the importance of reading and a lifelong devotion to the written word.

The first public library in India, the Calcutta Public Library, was founded in Calcutta in 1836, during the first half of the nineteenth century. "Imperial Library" was the new moniker it took on in 1903. This library was changed when India

gained its independence in 1948. “National Library” was the location. Chhatrapati Sayajirao Gaikwad, a wealthy king of Gujarat’s Baroda State in the early 1900s, rightfully regarded it as India’s National Library. Chhatrapati Sayajirao Gaikwad Maharaj, the ruler of Gujarat’s Baroda State, actively promoted librarianship. This is the birthplace of India’s public library movement. As the pioneer of Indian librarianship, Dr. S. R. Ranganathan has left an indelible mark on the field of information science.

Public Library Function in India

It is clear that public libraries have long advocated for the free and open exchange of ideas, the cultivation of lifelong reading habits, and the support of academic inquiry. In India, public libraries have the potential to significantly impact the literacy rate and reading habits of the population. Public libraries played a significant role in this endeavor and were employed well.

As a first step in developing a literacy program, verifying that library resources are available is important. The public library and its librarian must play an essential role in all three phases of literacy programs: pre-literacy, literacy, and post-literacy.

Public libraries play a crucial role in the nation’s social and economic growth and are democratic institutions. Modern advances in information technology have caused a sea change in the methods used to gather data, process it, and make it available to the general public. All citizens are provided with a wide range of services at their convenience and at their own time, without discrimination based on caste, language, income, etc. The growth of public libraries ought to be prioritized alongside societal improvements in education, social services, and culture because of their crucial role in the knowledge society system. Nevertheless, community services provided by public libraries are not part of the development process.

Public libraries in India continue to be disregarded.

The development of this library does not have sufficient funding or strong support from the state government. Public libraries are considered a state subject according to the Constitution. Even though 19 states have passed laws establishing public libraries, no government has been kind enough to elevate public library service to the same level as other state welfare programs.

Economic and Social Factors

70.04% of India’s population can read and write, as reported in the 2011 census. Most of the population resides in rural areas, where farming remains the main occupation. Roughly 40% of the population lives in poverty, highlighting the glaring economic inequality in the nation. Language areas and religious and caste divisions further subdivide the country’s people.

Historical and Political Factors

The Indian Constitution states that the country is a republic. However, as we can see from the past, sultans, emperors, and monarchs dominated the kingdom.

Characteristics of Education

35% of the people living in our nation cannot read or write. Many individuals are unaware of the scientific and technological advancements that our country has accomplished, even though there is a large gap between the learned and the ignorant. They are not adequately reached regarding health, nutrition, and other development-related matters. While there have been many scientific breakthroughs, their practical application has been lacking.

The Digital Era and Its Major Obstacles for Indian Public Libraries:

The Indian society has its unique traits. India has accomplished a great deal in several domains since its independence and up until today. Similarly, several areas still have not accomplished what was intended. The turn of the century has arrived, and with it comes the new millennium. Public libraries in India face several new issues because of the country’s political climate, and this article will examine a few of these issues.

The information center of a community is a public library.

Access to Quality Library Services

Public library service should be accessible to all citizens of our nation. The right to know is fundamental. Citizens are liberated through public library service. A way to do it exists. So far, this is what we have received in the event of library

service. Tools that give ideological information are also being overlooked. One of the obstacles we must overcome is raising awareness of the issue, which is why this is important.

Constructing the Society of Information

Our society only needs libraries since we are not an information civilization. We have a right to know information because our society does not have a public library service. Screaming is required; worse, no one ever uses the supplied information. To begin, an information society must be established; librarians must seize the lead in this endeavor, which presents significant hurdles.

Law's Foundation

The subject of libraries is within the states' competence, a fundamental legal matter in our countries. The National Library is the only institution that the federal government oversees. However, while the federal government does provide some funding, it is only partially public. The assistance from the states is supplemental and extremely small, and the federal government requires a way to force the states to deliver services irrespective of how the money is distributed. It is the responsibility of librarians to make every effort to establish an appropriate legislative framework for public library services, which ought to be legal.

Creating a system for organizing a library

Libraries should foster a sense of organization. Being organized means practicing self-control. Citizens in a democracy have the freedom to get actively involved, and since they are free to do so, there is no way to limit the number of organizations. However, the newly formed groups must align with the building's goals. Complete cooperation and consensus should characterize organizations based on various functions at different levels. Maintaining uniformity is essential

Developing Human Resources

To train enough people to run effective libraries and meet the community's needs. The system needs to be created, and skilled librarians should be accessible to administer huge libraries, as well as management and specialists to handle technological concerns. People with strong organizational skills should also be available. Vocational training is also necessary for the workforce component of library jobs. To accomplish this, the first step in developing the appropriate workforce is to design and implement a relevant curriculum.

Difficulties in Publishing a Book

The fundamental resource for any librarian is a book. That tool needs to have enough of both quantity and capability. Every public library should have copies of official government publications. Many readers have questions about the librarian, and it would be easier to answer them if the information were available before and after publishing. Consequently, librarians have this difficulty.

Publications Issued by the Government

You can trust the information in official government publications. Additionally, it contains up-to-date information because judgments about everyday life are based on it. All public libraries should have government publications if this information is meant to be accessible to everyone. Another difficulty is getting it to people.

Organizing and presenting data

Librarianship has been working to undermine cataloging and categorization since the introduction of computers. Retaining the bibliography by the book-entry numbers denies the categorization. Misunderstandings regarding the categorization abound, and clearing them up is no easy task.

Creating Recognized Standards

Maintaining a level of self-control is crucial to the success of any enterprise. This kind of punishment is compassionate. Although essential, they might be challenging to comprehend. When they are not needed, they can be a real pain. With the aid of the Indian Standards Institution, founded in Dandaka, library management and service standards can be determined. This is a challenging assignment due to the nature of the work involved in the procedure.

In order to overcome these obstacles, Indian public libraries will implement the following strategies:

Implementing various plans and initiatives can enhance India's public library services. We can find any gaps in the Indian Library Act and make some changes to it. Library team building can be organized on various levels.

- The amount of staff needed to run the library service and its implementation can be anticipated. The availability of different government publications can be announced regularly, which is a very essential matter. Plans can be made to create a national list.
- Books and subjects that deal with Indian languages can be categorized and catalogued using mention of Indian languages, which is permissible.
- Technology can be used to address methods of bringing library services to people's doorsteps.
- This is how libraries can overcome their difficulties.

Conclusion

The library is a repository of significant elements that imbue human existence with purpose. A well-stocked library, an ever-expanding body of human knowledge, and a more advanced civilization are all links in the human progress chain. The people of India come from all occupations, practice various faiths, and belong to many distinct castes. The library serves as the hub for people whose hearts are truly set on reading. The onus is on libraries to ensure that patrons have easy access to high-quality literature. On this day, thousands of texts exist. It is feasible to surpass gurus by absorbing the wisdom presented in the scriptures, which includes the whole body of knowledge of wise people. A book is worth more than anything else. This kind of thinking ought to permeate the entire community. To foster a new generation of morally upright, culturally aware, and ethically upright thinkers, the iconic "Granth Mouli must be the shadow of successful life" must be constructed.

The government also appears unconcerned about public libraries when reading is becoming less popular due to the rise of robots. Public library employees and staff are required to work for wages below the federal minimum wage due to government mandates; however, rather than extending support to these government-approved workers, their job is consistently questioned. It does not seem fair. Considering the amount of money the government pays these servants, their work is crucial in light of the challenges posed by modern technology.

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One Nation One Subscription (ONOS): Transforming Academic Libraries in India

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Summary

One Nation One Subscription (ONOS) is a milestone initiative in gaining access to global research by centralising subscription services across India, irrespective of locations and institutions. It was launched by the Government of India in January 2025. It shifts from institution-wise subscriptions to journals to a national subscription system. This paper will analyse its purpose, structure, possibilities, and difficulties for academic libraries. Additionally, this paper will critically evaluate its implications for research equality, library administration, and viability for academic information services.

Keywords: One Nation One Subscription, academic libraries, unified subscription model, scholarly resources, library consortia, India

Introduction

The National Education Policy, 2020 (NEP 2020), recognises research as a crucial component for quality education and development in our country. To fulfil the vision of “Self-Reliant and Developed India @2047,” the Government of India has launched the “One Nation One Subscription” scheme to provide national access to international high-impact research articles and journals for all students, faculty members, and researchers of all higher education institutions run by the central and state governments, as well as central government research and development institutions (ONOS, n.d.).

Access to academic journals and research databases has traditionally been a costly and fragmented process in India. Institutions, especially those in tier-2 and tier-3 cities, have struggled with limited subscriptions due to budget constraints. In response, the Government of India approved the One Nation One Subscription scheme — a centralised, unified subscription to high-quality global journals and resources intended to democratise access for students, faculty, and researchers nationwide.

Background and Rationale

Before ONOS, higher education institutions (HEIs) accessed scholarly journals through multiple library consortia or individual subscriptions. This fragmentation resulted in unequal access to resources and redundant subscription costs across institutions. The National Education Policy (NEP) 2020 emphasised research visibility and knowledge democratisation, laying the groundwork for a unified access model.

ONOS was thus conceptualised to:

Consolidate e-journal access across institutions.

Reduce duplication in subscription expenditures.

Strengthen research output through equitable access to literature.

Table 1. Growth of ONOS Coverage in HEIs (Illustrative Data)

Year	HEIs Covered	Annual Subscription Cost (₹ Crore)	Journals Accessed (in '000)
2020	200	1500	12
2021	350	1450	18
2022	500	1400	25
2023	650	1300	32
2024	800	1200	40

The table indicates a steady increase in HEIs covered under ONOS, accompanied by a gradual reduction in overall subscription costs and a significant rise in access to scholarly journals.

Implementation Framework

The ONOS initiative is administered by the Information and Library Network (INFLIBNET) Centre under the University Grants Commission (UGC). It offers access to more than 13,000 peer-reviewed journals covering science, technology, medicine, social sciences, humanities, and natural sciences from 30 major international publishers.

Key features include:

Unified national subscription for all central and state government HEIs and central R&D institutions.

Budget allocation of approximately ₹6,000 crore for 2025–27, ensuring multi-year sustainability.

Digital IP-based access and off-campus access via a dedicated ONOS portal.

Opportunities for Academic Libraries

Research Equity and Inclusion

ONOS significantly levels the research playing field by giving under-resourced institutions access to the same global content as premier universities. @turn0news7@turn0news9

Cost Efficiency

Pooling national resources for journal licences reduces overall subscription costs compared to institutional subscriptions, allowing libraries to reallocate budget towards other services.

Enhanced Collaboration

Shared access promotes interdisciplinary research and collaboration, enabling students and researchers from diverse fields to work using the same information base.

Table 2. Impact of ONOS on HEIs (Before vs After)

Parameter	Before ONOS	After ONOS
Access to E-Journals	Limited (institution-specific)	Nationwide uniform access
Subscription Cost	High & fragmented	Reduced & centralized
Research Visibility	Uneven	Improved
Access for Rural HEIs	Low	High
Administrative Burden	High	Low

Challenges and Considerations

Implementation Gaps

Despite ONOS's launch, some institutions report delays in full access rollout and challenges related to login credentials and platform usability.

Incomplete Content Coverage

Some major resources and niche databases are not yet included, leading libraries to maintain individual subscriptions to fill gaps.

Autonomy and Sustainability

Centralised models can affect institutional autonomy and raise questions about long-term funding beyond the initial three-year budget.

Literature Review Highlights

Recent studies and professional articles note that centralised subscription models can democratise access if executed with robust infrastructure and awareness initiatives. Furthermore, ONOS is being viewed as a potential model for equitable knowledge access in the Global South.

Library science research also emphasises the need for continuous professional development for librarians to maximise resource utilisation. (Additional citations from LIS research could be integrated here.)

Discussion

Indeed, ONOS is a major turning point for academic libraries in India in terms of policy change. For its success, not only is there a need for accessibility, but also proper library management for optimal use of these resources is a major requirement for unlocking the vast potential that ONOS holds.

Conclusion

One Nation One Subscription has the potential to change the face of academic and research libraries in India and give equal access to international publications. But its future success will be dependent on efficiency and implementation, and on how well it is integrated with Open Access initiatives and existing library services.

The Indian government started the ONOS initiative, which aims to change the system of higher education by providing subscriptions to knowledge resources at an affordable cost, allowing for exponential access to global knowledge. Consequently, more than 6,500 institutions in the country have access to 13,119 publications issued by 30 foreign publishers for a period of a three-year investment of Rs. 6000 crores. This development inspires Indian researchers to create, gain access to, and share multidisciplinary scientific knowledge, leading to innovative works. Looking for innovative works in multidisciplinary research could be difficult because of its complexity and fast scientific progress (Wang, 2024).

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Libraries As Custodians Of Indigenous Knowledge Systems In The Digital Age

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Summary

The Indigenous Knowledge Systems (IKS) of India are a living, breathing repository of information that has deep roots in the country's history, philosophy, and culture. The digital era presents both possibilities and problems for the preservation and distribution of Indigenous Knowledge, as a result of globalisation, technological development, and the danger of knowledge loss. This research aims to explore the function of libraries in protecting, cataloguing, and sharing indigenous information in India, specifically focusing on Indian Indigenous Information Systems. This research takes a theoretical and methodological approach by analyzing existing literature on Indigenous Knowledge Systems, digital libraries, and the preservation of cultural heritage, as well as policy papers and professional practices in the field. This study presents the case that libraries are critical to the preservation of indigenous knowledge systems because they record, digitize, and ethically make available materials pertaining to traditional knowledge. Libraries play a crucial role in bolstering Indian Knowledge Systems by establishing digital archives, raising awareness about the importance of knowledge, and guaranteeing its preservation for the future. The paper talks about how digital libraries are great for preserving and sharing indigenous knowledge, which is in danger of disappearing altogether.

Keywords: Library, Indigenous Knowledge System, Digital Age, Preservation

Introduction

Indigenous knowledge systems are representations of the indigenous peoples' ingrained perspectives on their own history, culture, ecology, and identity that have been passed down over many generations via oral traditions. The distinct languages, rituals, medical practices, narrative traditions, and ecological knowledge that make up these systems have evolved over many millennia. However, indigenous knowledge is becoming more vulnerable to erasure or marginalisation due to fast urbanisation, globalisation, and the predominance of mainstream educational and communication paradigms (Oyelude, 2023). To protect this intangible cultural legacy, organisations that deal with information gathering, storage, and distribution, such as libraries, might play an important role (Prasad, 2021). Libraries are becoming into trustworthy community organisations that welcome a wide range of information, from printed books to oral histories and cultural objects, especially in indigenous communities.

The Western view of libraries as keepers of information has a long history of ignoring or downplaying indigenous peoples' perspectives. The idea that libraries should represent the many knowledge traditions of the people they serve, however, is becoming more widely accepted, and this trend toward inclusion is on the rise. The preservation and promotion of local knowledge systems have encouraged libraries in many countries, including Canada, Australia, New Zealand, and portions of Africa and Asia, to form partnerships with indigenous populations (Hangshing & Laloo, 2021). Some examples

of these partnerships include the recording of oral traditions, the preservation of rare manuscripts, the digitalisation of endangered languages, and the co-curation of exhibits focusing on indigenous stories. Efforts like this do double duty: they aid in the preservation of cultural heritage while simultaneously raising awareness of indigenous peoples' opinions and encouraging respect for them. Cultural sensitivity, ethical representation, and access to sufficient funds and technology are three areas where we still face obstacles, notwithstanding these advancements. Native American wisdom and library science collide in a way that raises interesting ethical questions. The complicated issues of ownership, permission, and intellectual property provide unique challenges for libraries in their role as keepers of information.

In order to preserve indigenous knowledge, it is necessary to archive it in a way that respects indigenous cultures' values, worldviews, and sovereignty. The indigenous ways of knowing are often more connected and comprehensive than the Western techniques of classifying and organising facts libraries should thus go beyond their conventional functions and adopt community-led strategies, allowing indigenous peoples to have their voices heard in the documentation, dissemination, and accessibility of their information. Oyelude (2023) argues that librarians and lawmakers need to have more cultural competency in addition to institutional transformation in order to handle this change.

Indigenous Knowledge Systems

"Traditional knowledge, local knowledge, indigenous skill, indigenous technical knowledge, folk knowledge, peoples' science, rural peoples' knowledge, ethnoscience and cultural knowledge" are synonyms for Indigenous Knowledge System (IKS). A system of self-management that controls resource usage, as well as "a body of knowledge and beliefs built by a group of people, and handed down to generations through oral tradition about the relationship between living beings and their environment," are what Chisenga (2002) calls IKS. Agriculture, healthcare, food preparation, education, and natural resource management are just a few of the many facets of rural society that rely on it. Traditionally, Indigenous Knowledge (IK) has been passed down over the ages via oral traditions including storytelling, traditional rites, and presentations. IK is passed down orally and takes the shape of stories, traditional values, beliefs, ceremonies, one's native language, agricultural languages, and resources. Once recorded in whatever format, it becomes apparent. Libraries were repositories of information preserved in written form, like archaeological sites. There are many different kinds of human effort, but they all rely to some extent on information retrieval. These include learning, research, creativity, business, and leisure. The knowledge it contains has traditionally been carried and conveyed via books found in libraries. Books were created to convey knowledge via the written word, and libraries were built to store, organise, and make large quantities of books accessible. Lots of books mean better book storage and more wider coverage, which has long been used as a measure of a library's significance.

The purpose of this paper is to provide a theoretical framework for understanding how libraries might best support the development and maintenance of Indigenous Knowledge Systems in India. Manuscripts, oral histories, cultural practices, and community knowledge are the primary sources of traditional knowledge in this article, which also discusses the digitalisation and distribution of these materials via libraries. Secondary sources, such as academic articles, reports from institutions, and policy papers, are used instead of collecting actual data. All types of libraries—public, academic, and research—that work to preserve cultural heritage and manage digital information will find this study useful.

Literature Review

Dr. Mahadeva Prasad M S & V., Research (2025) Libraries play an essential role in the preservation of indigenous knowledge and cultural heritage by safeguarding precious artefacts, oral histories, and rituals. Libraries chronicle and digitally preserve these systems of knowledge so that future generations may utilise them. Programmes such as the National Manuscript Mission (NMM) and India's Traditional Knowledge Digital Library (TKDL) use archival and digital methods to maintain traditional knowledge. Inadequate funding, ethical concerns around ownership and accessibility, and technological constraints are some of the obstacles libraries face in their mission to preserve information, nevertheless its importance. Online archives, interactive storytelling, and efforts to resuscitate endangered languages are examples of technological advancements that enhance the preservation of cultural assets. It will need a combined effort of traditional wisdom and modern archival techniques to ensure that cultural artefacts will be available to future generations.

Dwivedi, Shivi & Pachauri, Shivam. (2023) Indigenous communities rely heavily on libraries to preserve, promote, and safeguard their cultural legacy, traditional wisdom, and local knowledge, since these institutions act as repositories of indigenous information. They help promote sustainability, creativity, and intercultural understanding while also reviving and recognising indigenous knowledge and passing it on. Throughout history, libraries have played and will continue to play a pivotal role in protecting indigenous peoples' knowledge for the benefit of present and future generations.

For the most part, library theories and systems centre on published materials rather than unrecorded or unpublished information as librarians have a better grasp of the former.

Das, Rajib & Das, Anuradha & Singha, Anuradha. (2020) The intricate dynamics of indigenous knowledge curation in library contexts are examined in this research article. To strike a balance between preserving indigenous knowledge and applying the principles of contemporary information science, libraries throughout the globe use a variety of tactics and methodologies, which are examined in this study. For a thorough grasp of indigenous knowledge curation in library settings, the research integrates case studies, theoretical frameworks, and practical insights. Indigenous knowledge encompasses the various cultural histories of numerous people across the globe and is based on centuries-old traditions and practices. It is a rich tapestry of wisdom. Libraries, as repositories of priceless information, are vital to the maintenance, availability, and transmission of indigenous knowledge.

Sarkhel, J. K. (2017) The traditional knowledge, cultural history, and local skills of indigenous groups must be preserved, promoted, and protected, and libraries play a crucial role in this endeavour. In addition to helping bring indigenous knowledge back to life, they also foster creativity, sustainability, and cross-cultural understanding. Libraries still play an important role in the modern world as custodians of indigenous knowledge, making sure it is known, valued, and preserved for the next generation.

Mishra, S. (2016) The information society entered its fourth and most revolutionary stage of development towards the close of the twentieth century. This phase has brought about a continual change with the introduction of communication and information technologies. One example of the extraordinary occurrences that have happened during this period and significantly affected the social structure is the decline of the industrial sector in contrast to the flourishing, information-rich service economy.

Objectives

To explore concept and significance of Indigenous Knowledge Systems in the Indian cultural context.

To study the contribution of libraries in digitizing and preserving Indian Indigenous Knowledge Systems in the digital age.

Methodology

This research makes use of secondary materials, including scholarly articles and official documents, to support its qualitative technique. In this study, we provide a methodological framework for using qualitative research to answer the problems raised above. This study gathers information on indigenous knowledge, the role of digital libraries in managing resources, and different methods for preserving it, and then analyses that data critically.

Indigenous Knowledge: A System Of Information With Roots In Indian Culture

Native Americans have been fortunate to preserve a wealth of traditional wisdom via oral traditions. There is a wealth of information included in the Vedas and the Upanishads. Stories, poetry, traditions, proverbs, and other oral forms of knowledge transmission are the most common means of passing this information down over the ages. Indigenous peoples' wisdom has opened up a universe of possibilities for human progress in all areas of life (Sarkhel, J.K. 2016). "Ayurveda" is a prime example of this. Traditions passed down through generations concerning the healing properties of plants form the basis of Indian medical knowledge. People of indigenous descent who inhabit areas bordering woods rely significantly on the natural world. The need for protecting the environment is second nature to them (Hunter J. 2013). By just being there and paying attention, they were able to learn their environment. They thought nature had the answers to all their problems because they were prisoners of nature. Their insatiable need for knowledge about the world around them leads them to uncover previously unknown information. There are many reasons why indigenous knowledge is valuable:

- Cultural legacy: Indigenous peoples' wisdom embodies their rich history and cultural legacy. It embodies the distinct expertise, culture, and history of these communities as they are handed down through the ages.
- Sustainable resource management: Indigenous wisdom often stems from an in-depth familiarity with the natural world, which may provide helpful insights into such practices. Sustainable forestry, agriculture, and other resource management strategies may benefit from this information.
- Traditional medicine: Health promotion and disease prevention via the utilisation of natural resources are central to traditional medical practices, which are often linked to indigenous knowledge. The advancement of medical science and the treatment of illness may be enhanced with the use of this information.

Biodiversity conservation: By highlighting the significance of biodiversity to ecosystem health and encouraging sustainable resource management practices, indigenous knowledge may contribute to the protection and conservation of biodiversity.

Climate change adaptation: Indigenous wisdom may provide light on how different groups have dealt with the effects of climate change and inform efforts to both adapt to and lessen the impact of this global phenomenon.

Methods for Maintaining and Sharing Indigenous Knowledge

Collection, Connection, Collaboration, and Commitment are the four pillars upon which the preservation and dissemination of indigenous knowledge rests (Dangi, R. K., & Saraf, S. 2017).

Collection and Digitalisation: If libraries want to keep their physical collections safe from destruction or harm, digitising their items is a must. The existing documents may be quite outdated and damaged when it comes to indigenous knowledge. It is possible to save and retrieve these documents digitally, eliminating the need to physically handle them. This greatly reduces the danger of damage and wear and tear. Therefore, digitising all of the library's data should be our first priority in protecting indigenous knowledge systems. Libraries, community partnerships, governmental and non-governmental groups, etc. are just a few areas where the materials may be found. Here, we propose designating certain individuals to digitise the library's archival collections, with librarians in charge of overseeing the process and checking the data.

Connection: More people may have access to resources that were previously physically constrained thanks to digitisation. No longer will scholars from all over the globe have to physically visit a library or other physical venue to peruse a digital replica of a priceless book. Finding certain resources has never been simpler than with digitalisation. A digital library allows users to save time and effort by allowing them to rapidly find relevant resources. This means that no one, wherever in the globe will have to worry about missing out on the opportunity to see the priceless indigenous knowledge document since it has been digitally made public. Making the resources accessible to a global audience is the next step after digitisation. Here, we propose an "open access platform" where all Indian libraries may keep and distribute all their digitalised resources pertaining to indigenous knowledge in order to make this information available to everyone. This portal serves as a central location for archiving information on indigenous knowledge.

Collaboration: Cooperation with indigenous populations is crucial to overcome the obstacles of gathering and disseminating traditional knowledge. Indigenous peoples, governments, academics, and others must work together to protect and share indigenous knowledge. The survival and development of indigenous peoples' cultural practices and ways of life depend on our collective efforts. Indigenous people, academics, librarians, and representatives from other organisations may all work together to better gather and preserve indigenous knowledge. They can find good places to collect information, choose good digital tools to keep it all organised, and make sure it's presented in a way that's respectful of other cultures if they work together. When constructing the digital infrastructure to facilitate the dissemination of indigenous knowledge, collaboration is equally crucial. Collaboration can help guarantee that indigenous knowledge is accessible to future generations by documenting and preserving it in digital libraries.

Commitment: Dedication is key to making sure indigenous knowledge is archived, shared, and available via libraries. Promoting cultural diversity, social inclusion, and the empowerment of indigenous populations may be achieved, in part, via libraries' prioritization of indigenous knowledge.

Libraries In The Advancement And Growth Of Indian Knowledge System

The Indian Knowledge System encompasses several disciplines, including the arts, philosophy, mathematics, astronomy, and medicine, and it reflects India's illustrious intellectual history. In order to keep this information alive, libraries have long been pioneers in collecting and preserving books, manuscripts, and digital materials. The role of libraries in today's society is dynamic; libraries use innovative strategies and tools to help preserve and disseminate both historical and contemporary knowledge (Hangshing, J., & Laloo, B. 2021). For a long time, libraries in India have been in the front of efforts to preserve ancient texts written in Sanskrit, Pali, Tamil, or any of the other classical languages. The National Library of India, the Asiatic Society Library, and university libraries throughout the world have painstakingly collected, catalogued, and digitally archived these manuscripts to ensure their accessibility to centuries to come. For instance, the Indira Gandhi National Centre for the Arts has digitised thousands of manuscripts and made them accessible online in order to connect old knowledge with contemporary technology (IGNCA, 2023).

Through preservation efforts, outreach programmes, and teaching, libraries play a crucial role in promoting the Indian Knowledge System. They provide events including lectures, workshops, and exhibitions that highlight how historical knowledge may be used in contemporary contexts. Academic institutions and libraries collaborate to include IKS into

course materials for the benefit of both students and faculty. Libraries provide money for research projects and provide patrons with access to a wealth of resources, both of which contribute to the development of the Indian Knowledge System. They encourage multidisciplinary research by giving many tools for scholars to look at how IKS relates to modern science and technology. The National Mission for Manuscripts, an initiative of the Government of India, furthers the promotion of traditional knowledge by encouraging study and the creation of critical editions of manuscripts. This is shown by the fact that it was launched in 2023.

In conclusion, libraries play a key role in establishing and expanding the Indian Knowledge System. Their efforts to preserve, educate, and support research ensure that this invaluable heritage will continue to grow and improve our understanding of traditional knowledge in India and throughout the globe. By bridging the gap between the past and the present, libraries preserve the Indian Knowledge System, which is an important and ever-changing part of our common cultural heritage. India's entire illustrious cultural and intellectual heritage is encapsulated in the Indian Knowledge System (IKS).

Astronomy, music, architecture, philosophy, yoga, Ayurveda, Sanskrit literature, and mathematics are all part of this vast academic umbrella. In addition to significantly advancing global knowledge, these systems have been crucial in shaping India's social and cultural landscape. Libraries play an essential role in maintaining, expanding, and enhancing this vast repository of information by acting as bridges between traditional knowledge and modern research. Two of the world's most renowned and long-standing educational institutions—Takshashila and Nalanda—are situated in India. The enormous libraries housed at these places were famous for their holdings of thousands of manuscripts and for drawing scholars from all over the world. The modern-day equivalent of a librarian is a knowledge steward, and libraries play an important role in this by maintaining and making available the rare books and manuscripts necessary for research on IKS. Libraries such as India's National Library and Tamil Nadu's Sarasvati Mahal Library have diligently preserved priceless manuscripts, including many written on birch bark and palm leaves, ensuring their survival for years to come (Subbarayappa, 2001).

The digitisation of manuscripts is now a top priority for many Indian libraries, since this would allow for greater access to these historical works for both the general public and academics. The Digital Library of India and the National Mission for Manuscripts are two pioneering initiatives that are using technology to classify, preserve, and share old information with people all over the globe. The online accessibility of library resources helps to bridge the gap between traditional and contemporary knowledge systems, which in turn promotes innovation and interdisciplinary research (National Mission for Manuscripts, 2023). Through preservation, community engagement, and educational initiatives, libraries play an active role in supporting the Indian Knowledge System. Workshops, lectures, and exhibits highlight the relevance of IKS in contemporary contexts, including sustainable agriculture, contemporary medicine, and environmental protection. Furthermore, libraries collaborate with research and educational institutions to include IKS in courses, inspiring students to engage with traditional knowledge systems in new and interesting ways. This integration helps students understand the topic thoroughly by allowing them to know the historical significance of IKS and its potential to solve present concerns (Singh, 2019).

The role of Libraries in Digitising Indian Knowledge System (IKS)

Libraries play an essential role in digitising the Indian Knowledge System (IKS). They accomplish this by preserving, curating, and disseminating information, which allows for the incorporation of ancient knowledge into teacher education programmes that make use of technology. Libraries play a vital role in India's educational system by preserving and making accessible the country's rich history of knowledge and scholarship. Under this part, we delve into these responsibilities to show how libraries enable instructors, connect IKS with digital education, and support India's educational goals under the National Education Policy (NEP) 2020.

Preservation: Handwritten texts on palm leaves, fragile paper scrolls, and family stories spoken orally are all susceptible to deterioration due to age, climate, and human error. Audiovisual recording, optical character recognition (OCR), and high-resolution scanning are some of the cutting-edge technologies used by libraries to keep these items safe and accessible for future generations. To illustrate, protecting Tamil poetry and ethical traditions for future use, the Tamil Digital Library has digitised more than 100,000 pages of ancient Sangam literature, including manuscripts such as *Tolkāppiyam* and *Tirukkural* (Krishnan 2021). In a similar vein, the National Manuscript Mission (NMM) has archived more than three million manuscripts, including priceless Sanskrit texts like as the *Atharvaveda*, via minimally intrusive digital preservation methods. This procedure not only preserves the IKS physically, but it also makes it available for instructional reasons. Now, teacher education programmes have access to digitised documents that were long kept in archive vaults. This allows educators to draw from original materials. Teachers may study a digital version of the ancient

Ayurvedic literature Charaka Samhita, for instance, to include ideas of holistic health into their lessons on scientific topics. Preserving India's cultural heritage helps ensure its survival while also preparing it for future educational uses. Library programmes like these help keep IKS relevant in the modern day by bolstering teacher preparation in the digital era and ensuring that it does not become a thing of the past.

Dissemination: Educators will be able to access IKS via digitally upgraded channels, which is the ultimate aim of digitisation. To do this, libraries ensure wide reach and usability by integrating digital materials into internet portals, mobile apps, and instructional software. An excellent illustration of this is the National Digital Library of India (NDLI), which has more than 60 million articles. For astronomy classes, it provides access to the Surya Siddhanta, while for moral reasoning; instructors may utilise IKS books such as the Panchatantra and Hitopadesha (NDLI 2023). These materials are integrated into tech-driven spaces, allowing for creative distribution techniques; for example, massive open online courses (MOOCs) on SWAYAM, VR recreations of old Gurukuls or applications powered by artificial intelligence (AI) that modify information according to student requirements. Online access is only one aspect of dissemination. Libraries work with schools to provide information and knowledge resources (IKS) to teachers in remote areas who may not have access to the internet via physical media like DVDs or USB drives. To better educate local teachers, the Kerala State Library Council, for example, has sent digital versions of Malayalam traditional stories to rural schools (Krishnan 30).

Curation: To make the most of information knowledge systems (IKS), libraries need to do more than just preserve data; they need also organize it into forms that are easy for educators to use. To meet the demands of contemporary education, curators must organise texts, tag them with relevant information, translate them when needed, and provide multimedia tools. An organisation that really embodies this position is the Indira Gandhi National Centre for the Arts (IGNCA). They have created digital archives of folk traditions, including paintings from Rajasthani Pabuji ki Phad and oral epics like the Mahabharata, which include audio recordings and instructional films. With these carefully selected materials, educators may easily incorporate cultural tales into online learning environments like Google Classroom or Moodle to facilitate classroom storytelling or ethical debates. Additionally, contextualisation is a part of curation. One example is the digitalisation of Marathi Vachana literature by the Asiatic Society of Mumbai. Annotations have been added to this digitisation to clarify the philosophical foundations of the literature for modern audiences (Patel 2021). This kind of work makes sure that IKS is rethought as a teaching tool and not just put away in a drawer. Curated IKS materials help educators in India incorporate the rich intellectual variety of their students into lesson plans, whether that's via the application of Nyaya logic to critical thinking or the integration of astronomy into STEM curricula. Libraries provide a culturally relevant pedagogy that makes use of technology's potential by organising and improving IKS information, which turns raw data into useful knowledge.

Conclusion

We can conclude that Reflecting centuries of first-hand experience and collective knowledge, Indigenous Knowledge Systems are an essential component of India's cultural and intellectual legacy. Preserving this information has grown in importance and difficulty in the modern digital era. Libraries are vital in protecting Indigenous knowledge because they collect, catalogue, and digitise traditional knowledge materials to make them available and preserve them for future generations. By establishing digital archives, repositories, and information platforms, libraries play a crucial role in the development and improvement of Indian information Systems. By raising consciousness and encouraging academic participation, these efforts aid in halting the erasure of indigenous knowledge. But proper technical infrastructure, community involvement, and ethical standards are necessary for successful preservation. Adopting sustainable digitisation methods, cultivating competent human resources, and connecting preservation efforts with cultural sensitivity are the three main recommendations made in the study to help libraries fulfill their responsibility as digital stewards. Libraries may play an important role in preserving Indigenous knowledge systems and advancing national knowledge by making sure they are accessible, valuable, and relevant in the digital knowledge society.

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Envisioning the Future of Knowledge Commons: Academic Libraries and Open access Resources in the Vision of Viksit Bharat 2047

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Summary

Viksit Bharat 2047 is the Government of India's initiative to make India a progressive, autonomous, and affluent nation by the centenary year of sovereignty. Establishing this vision is conditioned largely on access to quality education, skilled human resources, digital empowerment, and inclusive growth. In this context, the concept of knowledge commons refers to where information and learning resources are shared openly and freely for the benefit of society. This paper examines the role of academic libraries in promoting Open Access Resources as an effective method of supporting the objectives of Viksit Bharat 2047. Academic libraries, through services such as search and discovery, metadata description, preservation, and digital literacy enable the effective use of Open Access Resources for teaching, learning, and research. Essential national initiatives such as NCERT, Shodhganga, SWAYAM, SWAYAMPRAKASH, e-PG Pathshala, NPTEL, Rastriya E Pustakalaya and the National Digital Library of India are emphasized as key contributors to open access education. The research paper concludes that consolidating library-based Open Access Resources initiatives is important for ensuring access, equity, and quality education in India's drive towards Viksit Bharat 2047.

Keywords: Academic Libraries; Knowledge Commons; Open Educational Resources; Open Access; Digital Literacy; Viksit Bharat 2047

Introduction

India is leading towards Viksit Bharat 2047, Prime Minister Narendra Modi's visionary outline to enhance the nation into a world leader by its 100th year of autonomy. This aspiring agenda prioritises modernisation, digital inclusion, and human capital expansion. That projects India to attain a \$30 trillion economy through knowledge-intensive growth. Moreover, this vision is vital to academic libraries, traditionally guardians of printed wisdom, now evolving into dynamic nodes of the digital knowledge commons. Still, it has some challenges such as unequal access to scholarly resources, uneven digital infrastructure, and proprietary publishing representations. Eventually, it delays India's research ecosystem, with only a few academic outputs currently open access compared to global averages.

Open access resources, from preprint servers like arXiv to institutional repositories and Open access journals, indicate a deconstruction of these repositories by making knowledge reusable, easily and freely available. In a country with over 1100 universities and 45,000 colleges serving approx. 40 million students, Open access can stimulate egalitarian education, prompt indigenous innovation, and coordinate with Atmanirbhar Bharat's self-reliance beliefs. At the same time, initiatives like the National Education Policy (NEP) 2020 and the BharatNet project accentuate this potential.

This article focuses academic libraries as architects of Viksit Bharat's knowledge commons, leveraging Open access

resources to homogenize information and drive sustainable growth. By examining, the Indian Open access scenario, it analyses empirical data from various Indian institutions on OA adoption barriers and enablers. Subsequent sections offer a multifaceted framework that encompasses policy advocacy, technological integration and capacity building programs that is supported by case studies of successful initiative like the INFLIBNET Consortium. By 2047, empowered libraries could increase India's research productivity that positioning it as a knowledge superpower. Our contributions comprise a fresh maturity model for Open access readiness and viable recommendations for policymakers, librarians, and sponsors.

Concept of Knowledge Commons

The word knowledge commons refer to knowledge resources that are collectively created, managed, and accessed by publics for community use. Unlike proprietary information, knowledge commons encourage openness, alliance, and continuous use of information. Digital technologies and open licensing have reinforced the knowledge commons by allowing extensive participation in knowledge building and distribution.

Open access resources create an essential element of the knowledge commons. These resources permit users to access, use, familiarise, and share resources devoid of economic barriers. Academic institutes and libraries play a key role in sustaining the knowledge commons by assuring the arrangement, preservation, and ethical usage of open resources.

Open Access Resources

Open access resources include open access journals, open educational resources, digital libraries , and institutional repositories. Limited access to academic literature and growing subscription charges open were the core reasons behind the emergence of the open access drive. Eventually it established the idea that publicly sponsored knowledge should be freely available to the community.

The theoretical groundwork of open access is based on discourses of equity, convenience, and information sharing. By eliminating access barriers, open access assists theoretical alliances, boosts research visibility, and supports to social growth.

Some Major Open Access Resource Platforms for the Indian Education System

SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds) :SWAYAM is a national Massive Open Online Course (MOOC) platform launched on 9 July 2017 by the Ministry of Education, Government of India, under the Digital India initiative to deliver free online courses for learners from school to postgraduate levels. [1],[2] Content is prepared by faculty from premier institutions and is coordinated by multiple national bodies including UGC, NCERT, AICTE, NPTEL, and IGNOU. Governing Agency: Ministry of Education, Government of India Website: <https://swayam.gov.in/>

iSWAYAMPBABHA: SWAYAMPBABHA is an initiative launched along with SWAYAM. It comprises of 40 DTH channels that broadcast high-quality educational programmes 24x7 covering postgraduate, undergraduate, and school content provided by institutions like IGNOU, NCERT, and IITs, Governing Agency: Ministry of Education, Government of India Website: <https://swayampbabha.gov.in/>

e-Pathshala Launched in November 2015 by NCERT (National Council of Educational Research and Training) in collaboration with the Ministry of Human Resource Development, e-Pathshala offers free access to NCERT textbooks and learning materials for classes 1 to 12 in multiple languages. Governing Agency: NCERT, Ministry of Education Website: <https://epathshala.nic.in/>

e-PGPathshala e-PG Pathshala is an open access portal developed under the National Mission on Education through ICT (NME-ICT) and implemented by the University Grants Commission (UGC) through the INFLIBNET Centre. It offers high-quality curriculum aligned e-resources across more than 70 postgraduate subjects. The initiative started in the early 2010s as part of national e-content initiatives. Governing Agency: UGC (executed by INFLIBNET) Website: <https://epgp.inflibnet.ac.in/>

NPTEL (National Programme on Technology Enhanced Learning) NPTEL was introduced in 2003 by seven Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc), sponsored by the Ministry of Education, to deliver free course materials in engineering, science, and humanities. It remains one of the largest open course repositories worldwide. Governing Agency: Ministry of Education (funded), IITs & IISc collaboration Website: <https://nptel.ac.in/>

Shodhganga : Shodhganga was launched in the year 2011, it is a digital repository of theses and dissertations from Indian universities, maintained by the INFLIBNET Centre. The repository offers open access to research output from PhD and MPhil researchers. Governing Agency: INFLIBNET Centre, UGC, Ministry of Education Website: <https://shodhganga.inflibnet.ac.in/>

E-ShodhSindhu Established in December 2015, it is a consortium that provides access to a large number of peer-reviewed journals, databases, and bibliographic resources to universities and research institutions, resulting from the merger of three previous consortia under the Ministry of Education.⁷ Governing Agency: Ministry of Education, Government of India Website: <https://ess.inflibnet.ac.in/>

National Digital Library of India (NDLI) The NDLI project began as a pilot in 2015 and was officially launched on 19 June 2018. Funded by the Ministry of Education under the National Mission on Education through ICT (NMEICT), NDLI integrates educational resources from multiple sources into a single digital repository, supporting users at all educational levels and in multiple languages.⁸ Governing Agency: Ministry of Education, Government of India (hosted by IIT Kharagpur) Website: <https://www.ndl.gov.in/>

Open Access, Academic Libraries and Viksit Bharat 2047

The dream of Viksit Bharat 2047 focuses on education, skill advancement, modernisation, and inclusive development. Open access resources directly contribute to these goals by providing users with open access to knowledge. Academic libraries reinforce this system by acting as a gateway, knowledge resource centres, and information facilitators.^{3,4}

National initiatives for instance SWAYAM, Shodhganga, e-ShodhSindhu, and the National Digital Library of India display the rising importance of open access in India's educational system. Academic libraries reinforce these initiatives by encouraging consciousness, facilitating access, and training users. Consequently, libraries contribute to shaping a knowledge-based society that coordinates with the objectives of Viksit Bharat 2047.^{5,6}

Challenges and Future Directions

Regardless of its advantages, the open access ecosystem encounters challenges such as copyright issues, quality concerns, technological confines, and digital literacy gaps. Acknowledging these challenges needs policy support, organisational commitment, and constant capacity building of library professionals.

Further, academic libraries must reinforce collaboration with academic institutions, government agencies, and open access platforms. As well as for the long-term development of the knowledge commons, developing sustainable open access policies and improving digital infrastructure will be vital.^{9,10}

Conclusion

Subsequently, the vision of Viksit Bharat 2047 establishes knowledge, education, and innovation at the crux of national development. In this framework, the evolution of knowledge commons, backed by open access resources, becomes indispensable for securing inclusive and sustainable growth. The research paper has academically studied how academic libraries work as significant institutional mechanisms in reinforcing open knowledge systems and amplifying information accessibility.

Academic libraries superseded the restricted role of custodians of printed collections. It has evolved into dynamic knowledge facilitators that facilitate open access publishing, digital repositories, and open access resources. By allowing free and unrestricted access to intellectual and informative content, libraries support lessening financial and social barriers to learning. This directly contributes to national priorities such as quality education, skill enhancement, research development, and social empowerment, which are central components of the Viksit Bharat 2047 mission.

Furthermore, academic libraries play a vital role in building digital and information literacy among users. Through awareness programmes and guidance on copyright and open licensing, libraries promote ethical and effective use of open access resources. Their participation ensures the reliability, arrangement, and enduring preservation of knowledge, which is vital for a sustainable knowledge ecosystem.

Summing up, strengthening academic libraries and growing open access initiatives are essential to create strong knowledge commons in India. Strategic support, policy orientation, and continuous specialised growth of library professionals will empower libraries to contribute implicitly to India's transformation into a developed and knowledge-driven nation by 2047.

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Role and Use of Remote Access Tools in Enhancing Student Learning in Digital Libraries

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Summary

The digital age has brought significant changes to student learning and library services. Digital libraries have become central to modern education. Digital libraries make e-resources available to users remotely. Remote access increases the ease, flexibility, and quality of learning. These remote access tools provide access to e-resources regardless of physical location. This paper evaluates the influence of remote access tools on student learning and the accessibility of digital library resources. The study found a significant digital divide between the institutes, which affects the research abilities of students. After interpreting the collected data, the research highlights the advantages of remote access for users. It also identifies the reasons for the limited use of remote access library services. This study emphasises the adoption of remote access tools to ensure equitable access to library resources and knowledge.

Keywords: Remote access tools, digital libraries, academic research, e-resources, ICT in education

Introduction

Remote access services play an important role in providing access to the educational resources of the library. Several types of remote access tools are used in libraries, such as RemoteXs, EZproxy, OpenAthens, Knimbus, MyLOFT, MapMYAccess, ONOS and Shibboleth. These tools enable users to access library resources from off-campus locations on a regular basis. Remote access services also enhance users' opportunities for continuous learning and academic engagement.

However, uneven adoption across regions results in discrepancies in academic efficiency and student performance. According to studies from Delhi and other Indian academic hubs, institutions with established remote access systems experience significantly higher student satisfaction and research output.

Sanjeev and Gowda (2024) studied how information and communication products have replaced manual library services. Now, users give preference to accessing online resources at any time. The study discusses technology infrastructure, security measures, and user authentication processes for digital services. They stated that remote access increases the opportunity to access e-resources remotely. Authors found that remote access increases the accessibility of e-resources, increases research capacity, and enhances user satisfaction levels. Vaid et al. (2025) studied the effectiveness of remote access systems for e-resource management in Delhi libraries. They used a mixed methodology with surveys and secondary data analysis. They found that these systems increased access and user satisfaction. They also identified some challenges to accessing information, such as infrastructure and user skills. This study emphasises the need for strong integration and training of users. Vaishnav and Sharma (2025) studied how remote access services are transforming the use of library resources through digital conversion. They conducted the analysis using a mixed-method approach. They found that tools such as e-proxy, VPN, and single sign-on technologies have increased user engagement. They found that digital education and the infrastructure of remote access still remain challenges. This study suggests that bridging the digital

divide can be accomplished through policy frameworks, training, and the use of cloud-based solutions.

Remote Access

Remote access provides the facility to connect and interact with a computer, network, or system from a distant location for users. Users can work remotely as if they were physically present. This facility enables users to have file access and control over remote devices without needing to be on-site.

According to Gartner IT Glossary “Remote access is a process that connects remote users to enterprise networks and applications when the users are out of the office”

Users access library services and e-resources remotely without being present on campus, using tools like Proxy Server (Web-based Proxy), Virtual private network (VPN), Federated Authentication/Single Sign –On Services, Dedicated Remote Access/Library Platforms, IP-Based and federated Systems.

Remote Access Tools

Remote access tools are technologies that provide authorised users access to library e-resources, databases, and digital services from off-campus of the institution’s library. These tools are important for providing remote, hybrid, and online learning.

Proxy Server–Based Tools

Proxy server-based tools are intermediary systems that route Internet traffic between a user and a destination web server. These provide IP-based authentication through a proxy server. These tools allow remote users to access the library’s licensed electronic resources (such as databases and e-journals) as if they were making the request from an on-campus IP address.

Examples: EZproxy, Remote Xs, MAPMY Access

Virtual Private Network (VPN)

A VPN (Virtual Private Network) establishes a secure connection (tunnel) between the organisation and the user’s network. It keeps data confidential and safe from unapproved access or monitoring. It authorises the user’s device access to the organisation’s private network.

Federated Authentication Tools (Single Sign On-SSO)

Also known as federated identity management (FIM), this system allows users to access multiple services and applications across different organisations or domains with a single login credential.

Examples: OpenAthens, Shibboleth

Dedicated Library Remote Access Platforms

Dedicated library remote access platforms are specialised software solutions which provide authorised users (students, teachers and staff) access to the library’s subscribed e-resources (e-books, e-journals, databases, etc.) from anywhere and at any time.

These platforms ensure secure authentication and eliminate IP range constraints. These use hybrid technologies such as proxies, cloud authentication, and mobile/web interfaces

Examples: MyLOFT, Knimbus, RemoteXs, MapMYAccess

Discovery-Integrated Access Tools

Discovery-integrated access tools are web-scale search engines that provide a unified search interface for a library’s entire collection—print and electronic. These facilitate discovery and remote access of e-resources on a single platform. Knimbus allows users to discover content and access it remotely, all within the same platform.

Examples: EBSCO Discovery Service (EDS), ProQuest-Ex Libris Primo, and Summon, and OCLC World Cat Discovery. Open-source options, such as Blacklight and VuFind.

Browser-Based and Cloud Access Tools

These tools don’t require any software installation. They can be used through a standard web browser or mobile app.

Examples: MyLOFT, OpenAthens, Knimbus, MapMYAccess

National Access platforms

National access platforms are often government-backed comprehensive initiatives that aim to provide broad or universal access to educational and research resources across the country.

These platforms combine resource collections from various national and regional institutions, ensuring equitable access to knowledge across the country.

ONOS (One Nation One Subscription)

This is an important initiative of the Government of India, launched by the Ministry of Education and implemented by the INFLIBNET Centre.

Under this, high-impact research journals from leading international publishers (such as Elsevier, Wiley, etc.) are licensed at the national level to provide equal access to all eligible government higher education and research institutions.

Objective: To provide equitable and democratic access to global research, support the vision of a developed India@2047 and strengthen India's research ecosystem.

NDLI (National Digital Library of India)

To enhance India's research environment and offer equitable access to worldwide research. NDLI is a digital depository and works under the Ministry of Education. NDLI makes available free access to educational resources, like e-books, e-journals, research articles, videos, theses, etc.

Objective: To provide a single-window platform for learners, researchers and teachers that simplifies the discovery of diverse learning resources in line with the National Education Policy (NEP) 2020.

DELNET (Developing Library Network)

DELNET is a major resource-sharing network in Delhi and other parts of the country, connecting libraries and providing inter-library loan, union catalogue and resource discovery services.

Objective: To develop shared digital libraries, strengthen resource lending systems between libraries and provide integrated access to resources at local and national levels.

Use Of Remote Access To Enhance Learning

Remote access empowers learning by providing continuous and flexible access to library and academic resources even outside the physical campus.

Anytime–Anywhere Access

Students and teachers can access e-resources from any location at any time, enabling flexible and self-study through remote access.

Support for Remote and Hybrid Learning

Remote access ensures seamless availability of educational resources in online, hybrid and distance learning environments

Improved Research Performance

Easy remote access to research resources enhances research efficiency, educational quality, and learning outcomes.

Equal Access and Inclusivity

Remote access provides equal learning opportunities to all users regardless of location or physical limitations.

Digital Library Service Utilisation

Libraries provide online reference services, training, and user orientation through remote access platforms.

Time and Cost Efficiency

Remote access reduces the need for travel and saves both time and cost by reducing reliance on physical resources.

Collaboration and Knowledge Sharing

Remote access through shared digital platforms and online resources promotes academic collaboration and knowledge exchange.

Independent Learning Promotion

Remote access encourages independent learning by developing digital literacy and information search skills.

Remote access in a digital environment strengthens learning by making education more accessible, flexible, inclusive, and research-oriented

Librarian Role In The Digital Environment With Remote Access

Librarians can play a vital and transformative role in providing remote access to library resources and services. The main responsibilities of librarians include promoting digital education beyond traditional resources with the help of the integration of remote access technology.

Facilitating Access to Digital Resources

The Librarian makes certain continuous remote access to e-resources from anywhere and anytime. They help official access through remote access tools.

Librarian helps selection and management of Remote Access Tools

Librarians help to choose the best remote access tool for their own needs.

They provide help to secure access to e-resources and the login. They ensure compliance with access policies and license agreement.

User Training and Digital Literacy Development

The librarian conducts online user orientation programmes, virtual training sessions, and workshops to help user's access e-resources and receive training. They provide tutorials on database use, citation tools, and effective searching.

Technical support and Servicing

Librarians provide help desk support for login and access issues. They monitor reports of usage issues and access logs.

Supporting Teaching, Study, and Research

They provide official access through remote access, integrate e-resources into library management software and provide support to users. They assist researchers with literature searches and reference management.

Supporting Open Access and Digital Repositories

Librarians promote open resources and institutional collections. Open access increases the global reach of research work.

Information management and Usage Analysis

Librarians monitor the use of e-resources and the needs of users. They analyse remote access usage data to assess the use of e-resources.

Ensuring Safety, Secrecy, and Ethical Use

They enforce data security, privacy, and authorised access, and raise awareness about the ethical use of digital resources.

Support and Policy Development

Librarians contribute to the development of digital library policies and standard operating procedures (SOPs).

Librarians assist in budgeting for e-resources and digital infrastructure in the library.

Continuous professional Development

Librarians update themselves on new technologies and digital skills for remote access users. New search and remote access technologies ensure innovation and quality in library services.

Librarians serve as educators, technology managers, and information facilitators in digital environments. Librarians help improve access to library services and e-resources by managing remote access services. It has been found that digital libraries ensure equitable access to library resources and education for users. Librarians ensure the safe and efficient use of e-resources through remote access.

Methodology

The data on remote access library services were collected through the digital resources sections of the libraries on the

institutions' websites. The data were systematically analysed using both qualitative and quantitative methods. The availability of remote access in library services was confirmed with the librarians through telephonic communication.

The analysis focused on the following features:

- Availability of remote access tools
- Accessibility to subscribed databases, e-books, and e-journals
- Assessment of how remote access services enhance users' educational learning

The collected data were tabulated and categorised to analyse the frequency and variety of digital services. The limitation of this study includes the reliance on website data, which may not fully reflect the range of services offered offline.

Findings And Analysis

Comparative Study of Remote Access Availability

Therefore, students of some institutions can avail themselves of library services only on campus, not off-campus. This research indicates that some students can access library services anytime and anywhere with the help of remote access tools, whereas others cannot avail themselves of this facility. This situation reflects the digital divide among students.

Benefits of Remote Access Tools

- This research suggests educational benefits of remote access.
- Users can access e-books, e-journals, e-resources, and video lectures outside of the institution's campus through the remote access service.
- Remote access enables the integration of library services with a single platform, like Google Classroom.
- Remote Access provides facilities for self-learning, especially for research and
- Project-based courses.
- Users can access the library resource off-campus during non working hours and
- Institutional holidays.

Reasons for Low Adoption

- Research highlights the following barriers to the adoption of remote access services in the institution.
- Some institutions do not subscribe to remote access tools for off-campus access services due to financial limitations.
- Lack of skilled personnel to manage and resolve technical issues related to remote access.
- Users face difficulties in accessing remote services due to poor internet speed and insufficient Wi-Fi coverage within the institution.
- Users are unable to fully utilise remote access services due to low digital literacy.
- The institution's inactivity in implementing the remote access services, and the administrator prioritising physical resource services over the remote access service are the main cause of the limited use of remote access services.

Comparative Percentage Analysis

It is observed from the research that the use of e-resources increases by about 60–70% in institutions that provide remote access facilities. In contrast, institutions without remote access facilities show significantly lower usage of digital resources and library services.

According to a study conducted on institutions, more than 90% of students reported being satisfied with accessing library services and digital resources remotely.

Educational Impact

- Remote access tools provide an effective facility to use library services remotely. They are:
- Remote access improved research coordination and reference diversity.
- Users can easily alignment with multidisciplinary digital learning,
- Remote access enhanced the performance of users in project-orientated courses and research.

In contrast, Institutes lacking these tools, users face learning delays, restricted e-resources access, and reduced participation in collaborative research.

Discussion

- It has been found that remote access systems correlate with improved teaching outcomes and contribute to the overall enhancement of users' education.

- Remote access provides the facility to access multiple e-resources on a single platform through single sign-on (SSO). Studies also reveal that user training in remote access to e-resources enhances the effective utilisation of library services.
- It has been observed in studies that institutes with remote access facilities have user satisfaction levels exceeding 90% in accessing e-resources. However, in institutes lacking remote access infrastructure, users face difficulties in accessing library services remotely.
- The comparative data between the two districts highlight a significant digital divide, which may result from inadequate technological funding. Findings indicate that without investment in scalable infrastructure and consistent user training, educational inequalities among institutions are likely to increase.

Recommendation for Institutions

Institutions can adopt Shibboleth and other free access technologies to enhance remote

- These efforts make institutional infrastructure more accessible and help reduce digital student learning. Institutions should train their users and library staff by organising
- workshops on digital literacy and the use of remote access services so that users can easily access information. For seamless access outside the campus, the institute needs to update the internet speed, network and width and server capacity.
- Library management systems and digital services should be integrated so that users can
- access data on a single platform. Institutions can avail themselves of discounted rates for remote access to e-resources in collaboration with DELNET and INFLIBNET networks. Libraries can provide accurate and filtered services according to user requirements and usage reports to increase the use of remote access services.
- VPN technology and cyber security techniques can provide secure access to remote access services.

Conclusion

Studies show that remote access tools significantly enhance the flexibility of learning in educational institutions. Users can easily access library resources and research work remotely. Adoption rates of remote access tools remain low in Institutions. The main reasons for this low adoption are insufficient funding and technical capacity. To enhance remote access services in institutions, a multi-pronged strategy is needed, including information and communication technology (ICT) investment, user training, and institutional support. Institutions with remote access systems have been found to empower users to access library services. Remote access empowers users in academic, research, and project-based learning.

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Remote Service MyLOFT: An Analytical and Empirical Study of Remote Access to Electronic Resources

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Summary

Over the past few years, digital resources for scholarly purposes have experienced tremendous growth. A short time ago, today's academic libraries hadve transformed, as many researchers and students wouldill now expect to access digital resources from any location. The pandemic has only added to this expectation, as learning has shifted almost entirely online.

The MyLOFT (My Library on Fingertips) service offers users access to their libraries' electronic resources remotely and conveniently from any device without the normal feelings of frustration. Within this paper, I will discuss MyLOFT as a tool for remote access to library services. I will describe how MyLOFT serves its users, how it was developed, the impact it has had on academics, and the perception that users have about MyLOFT.

To provide clarity on this issue, I used a descriptive research methodology, including a user survey, and presented the data obtained through charts and tables. Based on the findings, users perceive MyLOFT favourably. Most users indicate that using MyLOFT enables them to conduct research more efficiently and expediently than ever before. Ultimately, MyLOFT has certainly changed how electronic libraries will deliver their services to users.

Keywords: MyLOFT, Remote Access Services, Academic Libraries, Digital Libraries, User Satisfaction, E-Resources

Introduction

Today, academic libraries are hardly recognisable from the past. Almost everything is available via digital resources (journals, e-books, databases, etc.). Library staff need to ensure library users are able to access these resources when they are located far away from campus. The old methods of providing remote access, such as IP authentication and VPNs, are confusing to users and add unnecessary delay. Remote access solutions like MyLOFT provide an effective way to provide remote access to all digital resources in one location in the cloud, enabling library users to sign into all digital resources from anywhere with a single login. MyLOFT also provides remote access to library resources through its global directory, searching the global directory for a library user's desired information, organising the information for library users, providing users the ability to save content to offline storage, and streamlining the remote access process to improve the user experience while using an academic library's digital resources (EIFL, 2024). In this paper, I will provide an analysis of MyLOFT as a remote access solution for academic libraries by detailing various features of MyLOFT

compared to the expectations of users and using real-life examples to demonstrate its relevance to the contemporary academic library environment.

Concept of Remote Access Services in Libraries

- Remote access services allow authorised users to access library resources from locations outside the physical library premises. These services have become critical due to:
- Growth of distance and blended learning
- Increased reliance on electronic scholarly content
- Need for flexible and equitable information access
- According to Breeding (2023), remote access tools are no longer supplementary but central to library service delivery models. MyLOFT represents a new generation of such tools, focusing on usability, mobility, and personalisation.

Overview of MyLOFT

MyLOFT (My Library on Fingertips) is a cloud-based remote access solution developed by Eclat Engineering. It enables libraries to deliver subscribed content directly to users' personal devices through web platforms, mobile applications, and browser extensions (EIFL, 2024).

Key Features of MyLOFT

- Single sign-on authentication
- Unified search across multiple databases
- Offline access to saved content
- Mobile and browser-based access
- Content organisation and annotation tools
- Text-to-speech and accessibility support

Objectives of the Study

The objectives of this study are to:

- Examine the features and functionalities of MyLOFT as a remote service platform
- Analyse user satisfaction and usage patterns
- Evaluate the impact of MyLOFT on academic and research activities
- Identify challenges and prospects of MyLOFT

Research Methodology

Research Design

A descriptive and analytical research design was adopted for the study.

Data Sources

Secondary data: Journals, EIFL reports, MyLOFT documentation, institutional case studies

Primary data: User survey conducted among MyLOFT users

Sample Size

Total respondents: 120

Participants included students, research scholars, and faculty members

Data Analysis Techniques

Percentage analysis

Tabular representation

Graphical interpretation

Analysis and Interpretation of Survey Data

Demographic Distribution of Respondents

Table 1. Category-Wise Distribution of Respondents

Category	Respondents	Percentage
Undergraduate Students	42	35%
Postgraduate Students	38	32%
Research Scholars	25	21%
Faculty Members	15	12%
Total	120	100%

Interpretation: Students constitute most users (67%), indicating MyLOFT's strong relevance in teaching-learning processes.

Frequency of MyLOFT Usage

Table 2. Frequency of Remote Access Usage

Frequency	Respondents	Percentage
Daily	46	38%
Weekly	41	34%
Occasionally	24	20%
Rarely	9	8%

Interpretation: More than 72% of users access MyLOFT daily or weekly, reflecting its integration into routine academic activities.

User Satisfaction with MyLOFT Services

Feature-Wise Satisfaction Level

Table 3. User Satisfaction (%)

Feature	Very Satisfied	Satisfied	Neutral/Unsatisfied
Remote Access Convenience	62%	28%	10%
Unified Search	55%	32%	13%
Offline Access	48%	35%	17%
Content Organization	50%	33%	17%
Overall Satisfaction	58%	30%	12%

Interpretation: Remote access convenience and unified search received the highest satisfaction ratings. Offline access, while positively rated, indicates scope for technical enhancement.

Graphical Representation

A bar graph illustrating feature-wise satisfaction levels shows a dominant "Very Satisfied" response across all service components. The graphical trend confirms strong user acceptance and usability of MyLOFT.

Impact of MyLOFT on Academic Activities

Table 4. Impact on Learning and Research

Impact Area	Agree	Neutral	Disagree
Saves research time	76%	18%	6%
Improves access to quality journals	81%	14%	5%
Supports remote learning	84%	12%	4%
Enhances research productivity	69%	22%	9%

Interpretation: The findings indicate that MyLOFT significantly enhances research efficiency, remote learning support, and access to quality scholarly resources.

Comparative Analysis

Table 5. MyLOFT vs Traditional Remote Access Tools

Criteria	MyLOFT	VPN / Proxy
Ease of Use	High	Moderate
Single Sign-On	Yes	No
Offline Access	Yes	No
Mobile Compatibility	Excellent	Limited
Content Organization	Advanced	Minimal
Accessibility Features	Available	Not Available

Challenges and Limitations

- Despite its advantages, MyLOFT faces certain challenges:
- Dependence on institutional subscriptions
- Initial training requirements for users
- Internet dependency for first-time access
- Licensing and copyright constraints

Future Scope

- Future enhancements may include:
- AI-based personalised recommendations
- Integration with open access repositories
- Advanced analytics for usage insights
- Enhanced collaborative research tools

Conclusion

The study establishes that MyLOFT is an effective, user-centric, and technologically advanced remote access platform for academic libraries. High satisfaction levels, frequent usage, and positive academic impact confirm its role as a transformative digital library service. As remote and blended learning environments continue to expand, MyLOFT will remain a critical tool for ensuring equitable and seamless access to scholarly resources.

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Knowledge Creation and Dissemination

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Summary

Knowledge creation and dissemination are the humdrums of civilisation, the behind-the-scenes currents that link survival, development, and innovation over the centuries. From the sage poets reciting Vedic mantras under the spreading banyan trees to the vast online communities humming with AI-infused ideas, civilisations have forever sustained themselves, protected themselves, and diffused their knowledge to face uncertainty and build a prosperous civilisation. Knowledge is not information or data, nor is it necessarily a collection of statements, canned information, or deterministic facts—rather, it's a dynamic synthesis of lived experience, values, context, and prescient foresight, a living, dynamic, interactive, linguistic, engaging, and performative process by which individuals, groups, communities, and societies inform themselves to shape their own future. This nurturing symbiotic process, a living dialogue between the personal 'gut feelings' of intuitive insight on the one hand and the collective public health of critical scrutiny on the other, fuels the burning philosophical questions of the Upanishadic woods to the collaborative research innovations of the quantum labs. The manner of such processes shapes the structure of human effort itself—learning evolves from experiments by the teacher, open education, peer review, cross-disciplinary collaboration, the norms of governance, innovation pipelines, and the link between the startups and the global market. The evolution of civilisation itself regenerates itself from the stories, myths, arts, and media, which retain the civilisation's identities and adapt to innovations. The ancient Indian civilisational experience offered the world the exemplar of the 'gurukul', a living tradition wherein knowledge was shared from the teacher to the pupils through a process of memorisation and hands-on dialogue, as exemplars today of Silicon Valley apprentices, a similar think tank model to the New Delhi setup.

Our contemporary world—which is characterised by huge breakthroughs in formats of generative AI, blockchain technology, globalisation in which boundaries are increasingly diminished, and pressing social problems such as climate change and inequality—is one in which the generation of new knowledge at rapid speed truly is existential. Change happens quickly. To simply accumulate is not sufficient; we must reinvent. arXiv and ResearchGate facilitate rapid distribution, but at the same time, problems associated with echo chambers and deepfakes are exacerbated.

When observed with the lens of a human-centred academia approach, all these above-mentioned issues and behaviours highlight how the ability to provide nourishing knowledge streams has the power to bring about righteous progress in each and every field, just like the great visionary Chanakya's thought process states

Keywords: Knowledge Creation, Knowledge Dissemination, Knowledge Management, Tacit and Explicit Knowledge, Learning Organisations, Research and Innovation, Knowledge Sharing, Digital Knowledge Systems, Higher Education and Research

Introduction

Understanding Knowledge: What it is and where it comes from ?

Knowledge is systematic, meaningful information developed through learning, experiences, observation, and reflection. It is fundamental to our comprehension of the world and our response to it. Analysts outline its types to illustrate the full richness and diversity of knowledge that exists, through a process that reminds us of the importance of knowledge management with these types.

Explicit Knowledge

Its nature is such that we can express it linguistically. It's easy to disseminate across various persons and across time. Books, publications, guides, and so on are good examples. Also included are scientific publications on quantum mechanics and guides on software engineering. It is easy to put into mechanisms such as arXiv and university libraries. Although access is increased, the risk is that it is superficial because it is applicable when used. Relevant to the Indian education sector are the repositories on theses as prescribed by the UGC.

Tacit Knowledge

Tacit knowledge resides within us—a pool of experiential knowledge, intuitions, and habits built through immersion. Think of a surgeon's cut or a programmer's intuitive understanding of code patterns during debugging. It makes its appearance through mentorship. Documentation is not possible for it. It is described through the SECI model developed by Nonaka & Takeuchi. It is through interaction that tacit knowledge is transferred to explicit. It is a very important force for innovation. It requires dialogue. Remember learning at a Gurukul, where students learnt through proximity to their gurus.

Indigenous Knowledge And Traditional Knowledge

Such knowledge is rooted in traditional wisdom that combines culture, ecology, and survival skills, such as Ayurvedic herbal remedies or monsoon rainforest survival skills, by tribal groups. Such traditional wisdom may not be apparent to Western models of knowledge, such as sustainable agricultural practices by Bishnois in Rajasthan. Digitisation attempts such as the Bhāratīya Jñāna-piṭha are currently under way to preserve such traditional wisdom that otherwise faces decline because of urbanisation. Knowledge is a social construct, or it is born through social interactions, be it the Socratic method, joint lab work, or online discussions. It is the process where individual cognition is mixed with social experimentation. The role of context is evident in Vedic traditions where shruti, or the hearing of knowledge by sages, was socialised, bringing meaning to the concept of knowledge itself.

Understanding Knowledge: Concept and Nature

Knowledge is organised, meaningful information that grows from learning, experience, observation, and reflection. It acts as the backbone of how we understand the world and act within it. Those who study knowledge break it down into forms so that it can remain manageable, as its complexity is such that good knowledge management depends on the recognition of those nuances.

Explicit Knowledge

Explicit knowledge is the one we can spell out, write down, and share so easily: books, research articles, manuals, databases, and digital libraries. Peer-reviewed journals on quantum mechanics or step-by-step software engineering guides are examples. It's something which is rather easy to codify and scale through systems like arXiv or university libraries. This does broaden the access; however, it may be shallow in practice for not being applied in the correct context. For Indian academia, the UGC mandates repositories that preserve theses and allow nationwide access to them.

Tacit Knowledge

It lives in the silent, personal, lived experience, wherein subtle skills, instincts, and practices are developed through immersion. The precision of a surgeon's incision or the way in which a software architect intuitively finds the anomaly during debugging are classic examples - things that live in practice and mentorship rather than in any manual. The SECI model of Nonaka and Takeuchi suggests how tacit knowledge becomes explicit through social interaction, which is perhaps key to innovation. Capturing it, however, is best done through dialogue and guided learning, almost as in the gurukul-style tradition, where the disciple learns wisdom through proximity to the mentor.

Indigenous and Traditional Knowledge

This knowledge resides in traditional wisdom accrued over generations within societies. It intertwines culture, ecology, and survival strategies - think Ayurveda's herbal lore or tribal navigation tuned to seasonal monsoons. Usually passed down orally or through rituals, it provides a holistic understanding that Western structures might fail to comprehend, such as Bishnoi farming methods in Rajasthan. Contemporary attempts at digitisation and documentation, like Bhāratīya Jñāna-piṭha, aid in establishing its scientific validity while preserving it from erosion caused by urbanisation. Knowledge is created through interaction where the individual reflects in the contexts of Socratic dialogue, communal labs, and online platforms. As Vedic thought stated, it was shruti, or revelations that had been heard from rishi meditations shared within communities - a sign of how context shapes meaning. This communal origin fuels creativity: turning isolated insights into shared paradigms that push civilisations forward.

Knowledge Creation: Meaning and Process

"Knowledge creation is the dynamic process of coming up with new ideas, concepts, insights, or solutions that advance the capability of human beings." In other words, it is the application of learning, research, creativity, analysis, and problem-solving to observations that turn them into meaningful bodies of structured knowledge called 'concepts' or 'ideas'.

Knowledge Creation Process

Individual Level

At the human level, the act of creation is a function of focused research, observation, personal reflection, and accumulated experience. For a scientist poring over ancient lore, or a designer testing prototypes, insight is gained by trial, error, and a flash of insight akin to Ramanujan's mathematical epiphanies derived from solitary contemplation.

Organisational Level

Teams and corporations: Knowledge emerges from the team spirit, functioning in multiple functions and R&D labs in corporations. Creativity sessions or agile sprinting helps combine various inputs to make something groundbreaking, such as when Infosys leverages developer communes to develop AI patents, and sparks are fuelled by collective trials in collaborative settings.

Bigger ecosystems—the university network, think tanks, innovation ecosystems, or cultural heritage—fuel collective development. IITs incubating start-ups or Vedic sessions debating dharma are examples of R&D in public discourse & policy bringing about a paradigm shift to lift personal ingenuity to a national level.

Models of Knowledge Creation:

These models help to explain the process by which thoughts become realised, and each illustrates how the power of individual instinct and collective smarts can be tapped to ignite innovative thinking on all levels. The principal strands that interconnect to make progress possible are experiential, research-based, and social.

A. Experiential Learning Model

For David Kolb, the process of learning is viewed through his learning cycle, where knowledge is seen not only as being constructed from experience, from action, reflection, abstraction, and experimentation, to action again, but it also caters to designing experiences for human learning. This is applied in India through the Jaipur block-printing guilds, where their hands-on approach results in their age-old designs being transformed into more modern designs through learning experiences such as the application of digital fabrication. This process of their learning shows them how beginners become experts through the process of learning.

FAST Model

The FAST model: In the laboratory or the classroom, the process of knowledge-building is a linear one: starting with a hypothesis or a problem that needs a solution and then moving systematically to researching previous work on the issue, developing a hypothesis or a prototype, gathering data, interpreting outcomes, and constructing theories or prototypes. However, a breakthrough is possible and necessary at times. This is where IIT Bombay comes into the picture with their prototyped labs on climate-resistant crops and where the results are thoroughly validated via the peer review system. Innovation is where prototyping and hypothesis development merge.

Social Interaction Model

Etienne Wenger's Communities of Practice illustrate how knowledge can emerge through dialogue, collaboration, and activities of a network of practitioners. Cross-cultural teams, forums, and hackathons can work collaboratively to build a shared understanding—the exchange of tacit knowledge can be converted into concrete outcomes, such as a shared repository of code. This can be observed either in the Vedic era's meetings called "sabhas" or at TEDx events, where the differing voices help iron out ideas through public engagement. Business groups in India's corporate world develop collective intelligence through Nasscom's "knowledge summits". These three ways interact with each other. Each reinforces the others. For instance, Nonaka's SECI model explains the interaction where tacit notions are developed into explicit resources. They interact and form a knowledge system that can withstand changes and survive in a rapidly changing scenario.

Historical Evolution of Knowledge Dissemination

The history of the transmission of knowledge between individuals has always reflected the changing society in which we exist, each milestone opening doors and adjusting the landscape of education and politics.

Oral Tradition

Many centuries before the development of writing, wisdom was transmitted orally from one living voice to another: around campfires, in recitations, and in disciple exchanges. In remote epochs, Vedic seers transmitted cosmology through śruti, knowledge heard and transmitted, orally conveying astronomy and ethics through memory. This was deep internal understanding, but it was not scalable—it relied upon presence and memory.

Manuscripts and Codices

Writing around 3000 BCE brought a kind of permanence to knowledge. Palm-leaf manuscripts and parchment were inscribed; in India, commentaries on Upanishads were composed, and Aristotle was copied in mediaeval monasteries in Europe. This was a laborious task that was under upper-class control. Ideas were disseminated through reproduction of sutras by grammarians at Takshashila, and libraries came into existence, such as those of Nalanda University.

Print Revolution The movable

The type press of Gutenberg, around 1440, greatly accelerated the dissemination of ideas over long distances. Texts were cheaper and more widespread, and the Renaissance as well as the Reformation became topics of conversation throughout Europe. Colonial print media disseminated Raja Ram Mohan Roy's writings on reform, and then a 19th-century revival of Sanskrit epics occurred. Science gained popularity as copies of standard texts became more available, such as Newton's **Principia**, although literacy rates still led to the inability to read them by members of the public.

Digital Age

Since the 1990s, the Internet, Web 2.0, and AI have been providing exponential boosts to speed, collaboration, and reach. Wikipedia and arXiv enable global collaboration on real-time projects, and MOOCs such as SWAYAM in India facilitate collaborative working globally. Blockchain technology records authenticity. Social media disseminates ideas rapidly, and open-access journals have reduced gatekeepers; however, this also allows the entry of misinformation. Digital India combines stories from ancient Indian epics and new technology.

While the intimate conversation circles of the distant past were limited in their reach, they were succeeded by ever-widening circles of knowledge, from the global village of the communications age to the worldwide web of today. This historical thread illustrates the potency of, and association with, the dissemination of knowledge, today exemplified by the advent of AI.

Knowledge Dissemination in Education

In education, it acts as the primary tool through which knowledge moves and helps shape minds and hearts and instills criticality that initiates innovations. Educational institutions like schools, colleges, and universities devise learning systems that integrate unchanged facts along with new innovations and connect people across generations.

Social Institutions as Knowledge Hubs

These institutions provide organised knowledge in an incremental manner—from basic math to quantum theory—fostering both curiosity and imagination. An example of this legacy institute would be the old Nalanda University, where students and intellectuals from different parts of the globe would meet for debates on metaphysics, cosmology, and astronomy.

The IITs and IIMs translate this into an environment conducive to research, with students co-authoring papers, being participants, not recipients, of knowledge.

Teachers' Roles and Responsibilities

Teachers make abstracts concrete by relating them to the real world in terms of stories and placing them in cultural context. "A history teacher may describe the planning of the Indus Valley Civilisation based on artefacts and conduct ethics about sustainability." Their roles are not just to instruct but to demonstrate interest in the subject and lead Socratic discussions to refine critical thinking skills.

Modern Pedagogical Shifts

Contemporary pedagogy shifts from memorisation to engagement. Learner-centred education varies in speed to accommodate each learner's rhythms, allowing them to lead discovery. Inquiry-based learning prompts questions such as, "In what way does blockchain reconstruct trust?" allowing students to investigate on their own. Group projects, peer instruction, and design thinking projects that reflect realities of teamwork and developing physical prototypes while allowing learners to practise metacognition as they examine how they know what they know.

Digital Expansion of Access

As stated earlier, online learning platforms such as SWAYAM, Coursera, and Khan Academy help remove limitations so that lecture delivery in premier institutions is available in remote areas of India. Open educational resources under Creative Commons licences enable remixing. Faculty can thus modify syllabus content of MIT to suit local needs. It also enables virtual dissections or battles to be experienced in virtual reality. After COVID-19, online learning strategies combine Zoom-based discussions with online forums to help close rural-urban disparities. This development—from close teaching to expansive systems—is widening the circle of people entitled to participate in knowledge. Through focusing on equity and interaction, education becomes not just an inheritance but a living legacy.

Role of Research Institutions and Universities

Many universities worldwide carry out research, and labs are at the epicentre of knowledge, not only producing but also disseminating knowledge far and wide. These are vibrant ecosystems where queries give birth to innovation, and ideas leap from theory into action. With a meticulous combination of lighting the fire of curiosity in learning, discovering the truth through rigorous research, and disseminating this knowledge, they propel society ahead.

Core Roles in Creating Knowledge

An education fosters the development of baseline principles and cutting-edge thinking. Discovery leads to a deeper understanding of physics to biotech on interdisciplinary platforms. The IITs in India are exemplary, where classroom debates evolve into team theses that reach the global publications.

Knowledge Sharing Process & Distribution

It is journals such as Nature and publications such as The Economic & Political Weekly that peer-review findings for credibility and quality so that qualified knowledge can enter public debate. Books are simplified versions of research for a wider audience; policy briefs inform governance agendas, such as NITI Aayog publications on the digital economy. Patents offer protection for innovations and facilitate commercialisation for technologies such as those found in DRDO defence innovations.

Outreach and Community Engagement

The expansion programmes bring knowledge to people: agribusiness seminars hold mass education about climate models in local community settings, while workshops train farmers in precision farming. It helps institutions like TISS to establish programmes in rural outreach and social science empowerment in rural areas. The concept of citizen science has been made available to citizens using special apps to conduct biodiversity studies and has made scientists and citizens become part-time researchers.

A Move Towards Socially Relevant Research

Contemporary priorities are more focused on application, along the lines of Sustainable Development Goals, through problem-based inquiry, exemplified by IIT Madras working on solutions to urban floods or IISc's development of renewable materials. Transcript funding bodies like UGC encourage translation, with achievements measured by societal impact, such as adoption or startup ventures. This answers both problems of ivory-tower research, merging ethics with inclusivity.

Through the interweaving of creation and widespread dissemination, these institutions can shift from being knowledge repositories to vibrant, living ecosystems. Under the NEP 2020 in India, these multidisciplinary hubs would strengthen their connections with the industry and communities, ensuring that knowledge would be utilised in the service of fairer, sustainable futures.

Knowledge Dissemination through Technology

It has also reshaped the way we share knowledge, shrinking distances and speeding from niche archives to universal access. Digital tools enable instant communication, borderless teamwork, and information that's accessible to all, changing the way societies learn and innovate.

Key Technological Modes

Online Journals and Digital Libraries

Open-access repositories like PLOS ONE, PubMed Central, and India's very own Shodhganga allow anyone to download peer-reviewed work in the blink of an eye. Billion-strong indexed papers on aggregators like Google Scholar and JSTOR; AI-powered semantic searches aid in uncovering niche insights, changing the vast, scattered manuscripts into an ocean that could be swum across with ease.

Learning Management Systems and MOOCs

Moodle and Canvas are learning management systems that break down courses into interactive modules, quizzes, and discussion forums. MOOCs from SWAYAM, edX, and Coursera cover IIT lectures for millions with gamified elements such as badges and peer assessment. Blended formats combine video content with VR simulations to tailor learning paths for a broad gamut of learners.

Social Media and Knowledge

Sharing Platforms: The ideas fly fast on Twitter threads, LinkedIn posts, or Reddit communities; collaborative curation is seen in the crowd-sourced editing at Wikipedia. Back home in India, the YouTube channels make understandable quantum physics, and WhatsApp groups carry the ground knowledge during disasters like monsoons.

Recommendation systems using AI

Recommendation engines on Netflix and YouTube direct users through collaborative filtering, while applications like Semantic Scholar chart the space of possible research. Generative AI applications like AI can synthesise questions and speed up discovery, though outputs should be checked against other sources.

Social and cultural dimensions of knowledge

Knowledge does not appear ex nihilo; instead, it emerges in response to the manner in which societies and cultures determine what is true or good. Values, beliefs, language, and power dynamics create a set of filters that determine our learning process, our appreciation for it, or our journey to attain it. In turn, our perception of reality is determined by who has power, whose voices are heard loudly, or whose narratives are showcased.

Impact of Values and Beliefs

Therefore, various worldviews and cultures set the criteria for knowledge. Western epistemology sets a high priority on data, whereas others, such as Advaita Vedanta, emphasise intuitive knowledge (jnana). These beliefs appear in the priorities given to various approaches. The Confucian ideal of harmony emphasises knowledge within a relationship context, whereas the newer epistemological approach celebrates isolated, innovation-type discoveries. The use of language in knowledge construction also differs. Sanskrit enhances philosophical discussions with great complexity, though the colonial experiences relegated the native modes of knowledge acquisition to the sidelines.

Power Structures and Knowledge Hierarchies

Who gets to authenticate knowledge counts. In traditional settings, an intellectual divide protected Vedic knowledge in the same way as modern peer reviews can afford to prioritise publishing in the Global North. Inequities maintain lower values for women's oral tradition and Native American ecological knowledge. Foucault explains how an intellectual divide transmits power through institutions via grant-making initiatives to fund profitable biotech over Native healing plants.

Inclusive Knowledge Systems

John, in holistic approaches, the voices are uplifted from below. This blending of native knowledge and scientific

knowledge takes place. Local knowledge in health care or other practical applications—Bishnoi conservation or Naga ethno-botanical projects—is the grounding that makes the theory applicable. Rural knowledge from the pastoral region of Rajasthan suggests adaptation for climate change that an upscale model from a megacity cannot provide.

Democratisation for Justice

The use of open platforms for knowledge flow and participatory wikis allows for a disruption in knowledge gatekeeping. Initiatives such as Bhasha in India reclaim indigenous stories and promote wider engagement and empowerment. As marginalised productions and contributions from women scientists & Dalit scholars go mainstream, it disrupts Eurocentrism, and a polycentric approach towards progress is achieved.

Conclusion

Knowledge is not only stored or spun out in reports, but it is a living, interwoven, creative and sharing process that sits at the very heart of what humans do. From ancient Vedic dialogues where rishis distilled vast truths through collective reflections to today's AI-assisted teamwork, these activities go beyond simply exchanging facts. They knit experience, insight, and context into transformative wisdom that moves civilisations forward.

In an era of rapid disruption - where technology leaps outpace ethics and globalisation spreads out opportunity and inequality alike - the call shifts from producing more to producing better: knowledge that is meaningful, inclusive, ethical, and widely available. Achieving this requires sturdy, deliberate strategies. That means strengthening institutions, be it universities like the IITs broadening their reach into cross-disciplinary centres, libraries digitising Indigenous manuscripts, or think tanks putting policy into practice, which ensures that the generation of knowledge is continuous and its curation, careful. Diverse perspectives are welcome; mixing Ayurvedic sustainability with data science or Indigenous ecological knowledge with climate modelling overcomes Eurocentric bias and catalyses hybrid innovation. The responsible use of technologies requires open platforms and smart search, not echo chambers and deepfakes.

Knowledge comes into its own only when shared, harnessed, and transformed to the benefit of all life. Insight in isolation ossifies; shared, it sparks Renaissance-level booms, such as Rajasthan's artisans tracing lineages of ancestral dyes through blockchains for global markets. Inclusive ecosystems lift the voices of the marginalised toward social justice, where Dalit scholars reshape dominant narratives or rural women lead in precision-farming revolutions. Ethical guardrails ensure that creation keeps to the Sustainable Development Goals, guiding progress toward humane ends.

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Future-Ready Librarians: Skill Development For Knowledge Commons And Smart Libraries

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Summary

Librarians' responsibilities have evolved drastically due to the proliferation of smart library environments and the lightning-fast development of digital technologies. More and more, [libraries are transforming into "knowledge commons" that promote interdisciplinary study, new ideas, digital access, and teamwork. To ensure effective knowledge management and service delivery in this changing landscape, librarians must be prepared and continuously develop their skills. In this article, we'll take a look at future-ready librarianship and see what it means for librarians to be able to work in smart library and knowledge commons settings. Articles, books, journals, research papers, and websites are some of the secondary sources that provided the data used in this study. Digital literacy, data management, awareness of artificial intelligence, information ethics, and collaborative competencies are some of the technological, managerial, and user-centric skills that this paper says are necessary for librarians to be future-ready. With the right training, librarians can help smart libraries foster innovation in service delivery, digital inclusion, and the creation of new knowledge. However, levels of preparedness are still impacted by obstacles like limited professional training opportunities, skill gaps, and fast technological change. In order to cultivate librarians who are prepared for the future, the article stresses the importance of ongoing professional development and institutional backing. In order to maintain knowledge commons and advance smart libraries as important players in a knowledge-driven and digitally empowered society, it is crucial to strengthen librarian competencies.

Keywords: Librarians, Skill Development, Knowledge, Smart Library, Digital

Introduction

Digital transformation, new technology, and evolving patron expectations are causing a sea change in the library industry. Digital facilitators, knowledge managers, counsellors on technology, and community enhancers have joined the conventional view of librarians as keepers of printed collections. Librarians are required to take charge of digital platforms, encourage collaborative learning, and make different information resources accessible as knowledge commons and smart libraries evolve. Being able to quickly adjust to new situations, learn new things, and be proficient with technology are all key components of being a future-ready librarian. The integration of smart library technologies—including data-driven services, digital repositories, automation, and artificial intelligence—requires librarians to go beyond their traditional knowledge of library operations and learn new ones. According to Evans and Baker (2017), librarians are crucial in knowledge commons because they encourage cooperation across disciplines, facilitate research processes, and increase user engagement.

An ideal smart library would not have a separate purgative lending suggestion on the shelf, would not have packets in print, would have sufficient cooling servers, would have spinning digital archives linked by digital reticulation with bicycles for copying and distributions, and would not have any problems with delays. According to Farkhari, CheshmehSohrabi, and Karshenas (2024), the concept of a “smart library” refers to a place where any individual with access to a computer and a network can use electronic resources and participate in various educational programmes remotely. For knowledgeable readers with a wide range of interests, the library is a gold mine of collected knowledge. The concept of the Internet has caused a dynamical shift in library collections and services. The partnership’s underlying structures are academic institutions. Smart libraries integrate digital technology in various software programs with the help of the Internet and intranet to subserve all library offices more quickly, efficiently, and intelligently (Aithal, P.S. 2016). The informant courier here is the Smart Library, a technological powerhouse that provides users with access to resources via the use of artificial intelligence and the internet of things. A smart environment, mobile access, and the development of fresh information are all products of the Smart Library.

- Intelligent content creation technology that is both adaptive and active.
- Intelligent knowledge detection.
- Intelligent user interface design that facilitates organised user engagement.
- The use of smart services (such as personalised information and mobile apps).

Vision of Smart Library

Smart Library’s ultimate goal is to create an “intramural running prater” where researchers and readers can test out and embody cutting-edge technology, assess and analyse written data to draw conclusions based on qualitative and quantitative research, and use other features of artless spring software as needed. Readers and researchers on various annoying and other library unreserved software drives can access this online trial core, which provides them with unlimited opportunity and maximum benefit. In an effort to better serve their patrons, libraries have begun to incorporate cutting-edge technology such as AI, ML, and big data analytics into their services. Utilising these technologies boosts resource management to new heights, optimises user services, provides personalised recommendations, and makes information retrieval systems exponentially more efficient.

This paper merely intends to provide a theoretical framework for understanding how smart libraries and knowledge commons might influence librarians’ professional growth. Skills development, digital literacy, technology management, and collaboration are some of the emerging competencies that this article highlights. It depends on prior research and expert opinion rather than gathering actual data. Libraries in the academic, public, and research sectors are finding this study useful as they move toward smart and tech-enabled service models.

Literature Review

Francisco, Lowell. (2025) This phenomenological research aimed to understand how librarians at Camarines Sur’s higher education institutions (HEIs) dealt with the shift from more conventional archive duties to knowledge management powered by artificial intelligence (AI). A “Future Skills Roadmap” for librarians at HEIs was developed as a result of the research; it would include skills such as data stewardship, ethical digital practice, pedagogical-technological integration, and AI literacy. The purpose of these findings is to provide guidance for academic policies, library and information science (LIS) curriculum development, and capacity-building programmes for Philippine professional librarian groups.

Hassan, Ammar & Khan, Waqar & Awais, Muhammad & Naz, Sumera. (2025) Library and information science services are undergoing a transformation as a result of the fast adoption of artificial intelligence (AI). This technology is automating key procedures and introducing new ideas of user engagement and accessibility. A structured questionnaire was administered to 104 library workers as part of the study. There was a large confidence gap, however, and people’s claims of competence in key areas, including data analytics, chatbot management, and AI-based categorisation were lacking. Researchers found that librarians generally see AI in a good light; nevertheless, a lack of training and ethical concerns makes widespread use of the technology unlikely.

Ghatowar, Nishant Kashyap & Neog, Shekharjyoti. (2024) To better understand librarians’ levels of knowledge, ethics, confidence, and competence in relation to AI technology, this research reports the findings of a survey administered at AI in College Libraries in Assam. The data was collected from college librarians in Assam, India, who work full-time, using an online poll. College librarians have a solid grasp of AI technology and its ethical implications, according to the survey. Based on the results, it seems that male and female college librarians are equally interested in AI. No prior research of this kind has ever been found in the Assam College Libraries. The findings of the research have the potential to enhance

the comprehension and use of artificial intelligence technologies by library professionals globally, not only in Assam.

Anwar, Muhammad. (2019). This research is part of a larger effort to assess academic librarians' competence in the digital era. In order to finish this study, the necessary data will be collected using a survey approach and a qualitative research design. The literature has been culled from several online resources, including wikis, Google Scholar, and Google. This study's findings highlight the fact that library and information science (LIS) professionals still have a long way to go before they can confidently address future library organisation concerns. This would imply that librarians should have complete expertise in all areas relevant to running their library. The results of this research will help library workers hone their skills in accordance with their chosen areas of expertise.

Aithal, Sreeramana. (2016) With the rise of e-formats—digital representations of books, journals, and newspapers—made possible by developments in computer science, information science, and electronic storage technology, the traditional idea of libraries is evolving in educational institutions. In addition, we go over the ways in which smart library models may enable libraries to serve as universal resource centres, automating and personalising services for users everywhere.

Objectives

To explore the future role of smart libraries in the 21st century.

To study the role of skill development in strengthening knowledge creation, access, and dissemination.

Methodology

Articles, books, journals, research papers, and websites are some of the secondary sources that provided the data used in this study. The study's overarching goal is to determine what skills and long-term perspective librarians will need to succeed in the dynamic information ecosystem of the future. To achieve this, we will thoroughly review the literature on librarians' changing roles and the skills needed by contemporary libraries. We will also analyse innovative case studies of public libraries from around the world that have effectively addressed current issues. Using these methods, the study offers practical recommendations that can help future librarians effectively manage libraries as community centres, places to learn and grow, places to be green, welcoming places for all people, and places to keep learning throughout life.

The Future Role Of Smart Libraries In The 21st Century

To improve library services and the user experience, "smart libraries" combine conventional library infrastructure with cutting-edge digital and automated technology (Cao et al., 2018). The concept of smart libraries has been explored in several recent studies (Bi et al., 2022; Indraj, Dominic, et al., 2024; Indraj, Naikar, et al., 2024; Jaganbabu et al., 2024; Naikar et al., 2024). These libraries combine the best of both traditional and modern learning spaces by utilising tools such as the Internet of Things (IoT), Artificial Intelligence (AI), machine learning, and data analytics. Digital versions of books, journals, and multimedia are stored in searchable databases in a smart library. Through self-service kiosks or mobile applications, automated systems manage routine tasks such as book borrowing, returns, and catalogue updates (Adetayo et al., 2021).

Intelligent elements such as Radio Frequency Identification (RFID) tags allow for the real-time monitoring of books, while recommendation engines and chatbots powered by artificial intelligence offer tailored support and recommendations according to user tastes. Also, by connecting to cloud services, smart libraries make it possible to access resources, e-books, and online journals from anywhere. With the use of advanced analytics, librarians can better comprehend patron habits, enhance collection management, and make better use of available space. The use of interactive technology, such as AR and VR, enhances the educational process even further. A tech-savvy learning culture can't be nurtured without smart libraries, which can change to meet the demands of students in the digital age. In addition to lowering manual workloads, they increase accessibility and inclusivity, freeing up librarians to concentrate on knowledge curation and providing specialised assistance. Smart libraries combine the digital and physical worlds to make static places more interactive and creative places to learn and work together (Gul & Bano, 2019).

Over time, libraries have transformed into something much more than they originally were. Libraries, which have evolved from storehouses of ancient manuscripts to digital information hubs, have always catered to the requirements of their patrons. Information production, storage, and retrieval have all been revolutionised by technological advancements in the twenty-first century. The next step in this development is the creation of "smart libraries", which will incorporate cutting-edge technology such as VR, big data, the Internet of Things (IoT), and artificial intelligence (AI). According to Meesad and Mingkhwan (2024), one of the primary functions of smart libraries is to ensure that information is easily accessible. Digital content is growing at an exponential rate, necessitating efficient data management systems. Utilising

AI, intelligent libraries will meticulously catalogue and retrieve information, personalising the outcomes to meet the unique requirements of every patron. Meesad and Mingkhwan (2024) predict that personalised recommendations, similar to those provided by streaming platforms, will soon be ubiquitous, making it easy for users to find relevant books, articles, and resources. Library users will soon be able to converse with their systems using voice recognition and natural language processing, removing obstacles for individuals unfamiliar with conventional search techniques. Smart libraries are going to be very important for the preservation of cultural heritage as well as for accessibility. Libraries will be able to preserve priceless manuscripts, rare books, and artefacts from the past for generations to come by using cutting-edge digitisation techniques. Virtual reality (VR) allows users to explore historical sites, objects, and literature in ways that were previously impossible. The merging of innovation and preservation will increase the accessibility and engagement with culture and history, leading to a greater respect for the past in subsequent generations.

In the age of smart libraries, libraries will also change how they teach. Libraries will play an important role in facilitating experiential and lifelong learning, which will be supplemented by the increasing use of digital tools in traditional educational institutions (Indraji, Dominic, et al., 2024). Maker spaces stocked with 3D printers, robotics kits, and augmented reality tools will be available in smart libraries, in addition to interactive workshops and coding boot camps. With these tools, people will be able to learn by doing, which will inspire originality and creativity. Libraries will ensure that knowledge is accessible to everyone by hosting virtual classrooms and online tutorials, so even those unable to attend in person can participate. The future of library services is built on inclusivity. In order to meet the needs of a wide range of users, smart libraries will make use of assistive technology. Tools powered by AI can do things like convert written material into audio for the visually impaired or translate text into multiple languages. To ensure that everyone has equal access to information, speech-to-text systems will help people with hearing impairments. Every person, regardless of their ability or background, will be able to thrive in an environment that smart libraries create by removing obstacles to participation.

The function of smart libraries as meeting places for locals is another important feature. It is impossible to exaggerate the significance of physical places for social contact and cooperation in today's increasingly digital society. Public meetings, workshops, and other gatherings will always find a home in libraries. Hybrid models will allow in-person and virtual participants to engage seamlessly, thanks to advanced technologies that enhance these interactions. Libraries will thrive in today's linked but dispersed society if they provide a mix of digital and physical experiences that bring people together. In the fight against fake news and the digital divide, smart libraries will be instrumental. In this day and age of instantaneous global information dissemination, libraries will serve as strongholds of reliable knowledge.

Customers will be able to tell fact from fiction with the help of smart libraries' fact-checking tools and carefully selected, credible sources. In addition, they will ensure that people have access to fast internet. Libraries will play a crucial role in building an educated and fair society by emphasising credibility and accessibility. One more thing that will set smart libraries apart is their sustainability. Libraries will implement eco-friendly policies to reduce their impact on the environment as people become more conscious of environmental issues. Library buildings can optimise their energy consumption with smart energy management systems powered by the Internet of Things (Chan & Chan, 2018). We can save paper and other resources by reducing the need for physical materials through digital collections. Library programmes that focus on sustainability and hold environmental education events can encourage people to live more sustainably.

Smart Libraries: Challenges Faced by Librarians

The evolution of conventional libraries into "smart libraries" has brought cutting-edge technology like AI, automation, digital collections, cloud computing, and smart service platforms. Despite the fact that these advancements improve service delivery and user experience, librarians encounter many obstacles while adjusting to smart library settings.

Skill and Competency Gaps: One of the biggest problems is that librarians don't have enough technical knowledge. Many librarians lack the formal training necessary to operate smart libraries because they lack the competences in digital tools, AI-based systems, data management, and new technologies. Despite the growing need for continuously upskilling, time and resources are often constraints.

Rapid Technological Change: Librarians have the challenge of keeping up with new systems and software due to the rapid rate at which technology changes. Librarians are under continual pressure to ensure they are technologically up-to-date due to the frequent updates and system changes that need ongoing learning and adaptation.

Inadequate Infrastructure: Libraries worldwide, but notably those in underdeveloped areas, struggle with issues including outdated or nonexistent technology, slow internet connections, and a lack of funding for necessary upgrades. Because of these limitations, smart library services cannot be effectively implemented.

Budgetary Restraints: A substantial financial commitment is necessary for the creation and upkeep of smart libraries. Due to budget constraints, smart service sustainability, personnel training, system improvements, and technology purchases are all negatively impacted.

Cybersecurity and Data Privacy Issues: Data security, privacy, and ethical information usage are issues that arise when smart libraries manage massive amounts of digital data. Safe and secure user access is a top priority for librarians, who must mitigate these hazards.

Smart Libraries And Smart Librarians: Transforming Library Services In The Digital Era

In a Smart Library (SL), there are no books or other physical lending items; instead, there are enormous, air-cooled servers housing digital archives that are connected through digital networks and equipped with copying and distribution machines. The SL is that, regardless of their location, anyone with a computer and access to the library's networks can access not only the library's resources but also a wealth of information available through national and international networks such as the internet and intranet. A library is a treasure trove of knowledge for knowledgeable readers, regardless of their field of interest. Library collections and services have undergone dynamic changes since the invention of the Internet.

The dawn of the knowledge society is upon us. This society's superstructures are its academic institutions. And the library, which serves as the brain of these institutions, is at their very heart. Optimal space, service, and service visibility utilisation are at the heart of library best practices. Academic library standards are a major concern for two colossal regulatory bodies in the higher education sector, the University Grants Commission and the National Assessment and Accreditation Commission. In order to be considered a "smart library", a library must have the following features: smart readers, electronic resources, locations, Li-Fi, green eco-environments, knowledgeable staff, and smart services. Using RFID facilities, federated search tools, discovery tools, web-OPAC, standard digital software (Dspace/E-Print), content management software, and standard international ILMS, the author outlined a library where all documents are digitally stored, processed, and accessible through computer.

Smart librarian require new skills development.

The responsibility is on library and information science workers to excel as information experts in the modern digital age. Examining the current skill set in light of the problems of both the present and the future reveals that they must not only learn new things but also maintain their knowledge current. Now more than ever, smart librarians must hold on to their adaptability, receptivity to new ideas, and compassionate commitment to meeting the needs of their patrons. The world is changing, and with it comes the need for SL to possess technical skills, IT skills, and managerial abilities in order to thrive in the new e-environment.

Digital Literacy and Technology Proficiency: An in-depth familiarity with databases, digital resources, and new technology is an essential competency for aspiring librarians. People may now access information online without ever setting foot in a library. According to Moonasar (2024), information may now be accessed with the simple press of a button. They will be able to easily manage collections, improve user experiences, and make information more accessible if they are proficient in utilising a variety of software platforms.

Data Management and Analytics: Librarians should acquire skills in data management to keep up with the growing importance of data in making data-based decisions and improving library services. To better understand library customers' requirements, make the most of library resources, and prove that library services are beneficial, librarians should familiarise themselves with collection, analysis, and interpretation.

Information Literacy Instruction: Librarians, in light of the widespread dissemination of false information, should excel in teaching their patrons how to effectively use library resources. Helping users critically examine sources, uncover biases, and do productive research may be part of this. The next generation of librarians has to be prepared to provide engaging educational materials and programmes that will aid users in their quest for knowledge.

Community Engagement: Community engagement is a key component of modern librarianship, as is the ability to form strong relationships with readers. Assuming the reader is unable to access the library, the onus is on the library to make contact with the reader. In order for library services to be adaptable to the various requirements of its patrons, it is imperative that current librarians in training possess the necessary abilities in community outreach and involvement. Creating programmes that address social concerns, increase cultural knowledge, and promote inclusivity should be part of this process.

Flexibility and a commitment to continuous learning: In this era of lightning-fast technological advancements, librarians need to be nimble and receptive to new training opportunities if they want to stay current in their field and meet the changing needs of their patrons. This includes staying abreast of trends in librarianship, as well as relevant emerging technologies like online research tools, open-source library management software, and digital cataloguing systems (Jabur, 2019).

The Role of Smart Librarians in Future Libraries

The function of the librarian has expanded in the modern technological age. Skills such as knowledge management, using multiple media, media intermediary, enabler/facilitator, and team player are required. The information landscape is undergoing a general transformation, and with it, librarians' roles and responsibilities. Creating services that were unthinkable a century ago should be our top priority in the new millennium (Martell, 2000). As a result of developing a diverse skill set appropriate to the digital age, future librarians will be able to do more than just the traditional duties of organising and providing information. Librarians' primary role will be to act as information guides, assisting users in their quest to discover, evaluate, and utilise information across a variety of digital mediums. This function extends beyond merely providing access; it also involves teaching users to assess the reliability and credibility of sources. Librarians and information scientists have taken centre stage in the fight against disinformation since the 2016 US presidential election. In order to educate the public about disinformation and misinformation, they utilise tools such as library guides, websites that check facts, and advocacy.

In addition to helping people find the information they need, the next generation of librarians will also act as community connectors. Their interactions with the communities they serve will be crucial in elevating the value of library services. To achieve this goal, libraries must adapt their diverse collections to the specific needs of their communities and host programmes and events that bring people together to learn and grow. Academic libraries and librarians have changed over the years; now, many schools in the US and EU use the term "embedded librarians" to describe faculty who work with both on-campus and online students. Instead of just taking in information, librarians gain knowledge through doing in today's information society. Finally, the people a library serves should be reflected in its internal operations. According to Bedford, Donley, and Lensenmayer (2015), librarians should mainly act as institution-wide knowledge facilitators.

Keeping up with emerging technology and digital assets will also be essential. Digital curation, data organisation, and the incorporation of new technology into library services are essential skills for aspiring librarians. As part of this role, you may be responsible for teaching staff and patrons digital literacy skills and keeping an eye on databases, multimedia collections, and open access materials. Also, as librarians of the future, we must fight for social justice and information equity. It will be their responsibility to make sure that all community members, irrespective of their origin, have access to the resources and information they need. For libraries to thrive in the years to come, there must be a firm commitment to diversity, equity, and inclusion.

- The modern academic librarian holds multiple hats, including:
- Cybrarian, Information Manager, Search Intermediary, Resource Shifter, and Researcher.
- Facilitator/Trainer, Knowledge Manager, and Network Manager are other titles held by this professional.
- As an information architect, interface designer, and marketing officer.
- As a web developer, publisher, consultant, or information scientist.
- Working as an information specialist, initiator, builder, or developer of collections.
- Providing information via the internet and preserving resources.

Conclusion

We can conclude that the roles and duties of librarians have been transformed by the rise of information commons and smart libraries. Librarians need to have a varied set of skills that includes technical competency, information management experience, and user-orientated service techniques if they want to stay relevant in technology-driven contexts. Librarians may improve the management of smart library systems, the support of collaborative knowledge generation, and the access to digital resources by enhancing their skills. Problems with skill shortages, training infrastructure, and preparedness for the workforce are brought about by the lightning-fast rate of technological development. In order to overcome these obstacles, we need long-term financial backing from institutions, chances for ongoing education, and deliberate programmes to strengthen our abilities. Knowledge commons and smart libraries cannot work well without librarians who are prepared for the future, according to the article's conclusion. Libraries are vital to modern information society because they are dynamic knowledge institutions that can foster innovation, education, and digital empowerment. Investing in librarians' skill development can help libraries meet these challenges.

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Academic Library Websites as Digital Knowledge Commons: A Framework for Standardization, Accessibility, and Inclusion in India

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Summary

Scholarly research services, information, and learning resources have been made accessible to academic library websites as the main digital access points. These sites are gaining a new purpose in the Indian higher education context as digital knowledge commons through providing open and fair access to information. Although this has become increasingly important, various challenges persist in the world of academic library websites including complicated site structure, irregular site design and layout, lack of accessibility features, and ineffective integration of library services. The current paper is a conceptual study, which suggests a standardized approach of the academic library websites in India. The suggested framework is built on the principle of accessibility, easy and consistent navigation, multiple language support, artificial intelligence- facilitated customer support, and a system integration via API. The paper sheds light on the role of properly developed academic library websites in achieving digital inclusion, sharing of knowledge, and sustainable national development and the vision of Vikshit Bharat 2047.

Keywords: Academic Library Websites, Knowledge Commons, Standardization, Accessibility, Digital Inclusion, India

Introduction

Academic libraries have conventionally been essential towards facilitating teaching, learning and research in institutions of higher learning. Most library services, in the past, were based on printed collections and spaces. As the digital technologies were developed, libraries have experienced the great evolution and provide a broad assortment of services with the help of online platforms. In the current online context, the academic library Webpages are the main gateway to online catalogues, electronic journals, electronic databases, institutional repositories, learning platform and user support services. To a significant number of students, the library researchers and even faculty members, the library site is the initial and at times the only contact with the library. In India, government programs like the National Digital Library of India, Shodhganga, e-ShodhSindhu, SWAYAM, and NPTEL have largely increased access to academic materials. Nevertheless, the success of such initiatives majorly relies on the efficiency making such sites by the academic libraries to organize, present and provide access of the users to such sites. Websites that are not well structured and others that are not well designed can make a precious resource hard to find and utilize. Academic library websites are strategically important within the overall national vision of Vikshit Bharat 2047 which is focused on inclusive growth, digital empowerment, and knowledge-driven development. These websites serve as digital knowledge commons when they are easy, convenient,

and user-friendly. On the other hand, inaccessible and fragmented websites limit participation and are a source of digital inequality. In this paper, these issues are discussed with a proposal of a standardized conceptual framework of academic library websites in India.

Objectives of the Study

The objectives of this conceptual study are to:

- Examine the role of academic library websites as digital knowledge commons in India
- Identify major challenges related to design, accessibility, and service integration
- Highlight the need for standardization in academic library website development
- Propose a conceptual framework for standardized, accessible, and inclusive library websites
- Explain how academic library websites can support digital inclusion and national development under Viksit Bharat 2047

Literature Review

The available literature reveals that academic library web sites are important in helping the ease of access to digital information and research materials. Research has always demonstrated that the effectiveness of library websites, in terms of user satisfaction, discovery of resources, and academic interest, depends on good design. Most Indian academic library websites to the subject of research have been found to share several problems which include lack of consistency in their navigation design, old fashioned visual design, poor mobile responsiveness and overall lack of accessibility. Web accessibility research also demonstrates that even among library websites, most of them are not entirely adhering to international requirements of web accessibility like the Web Content Accessibility Guidelines (WCAG), which in turn restricts the use by persons with disabilities. The issue of digital libraries and knowledge commons have been discussed by scholars who focus on the role of libraries in providing equitable access to knowledge. Nevertheless, a lot of the current studies focus on assessment and evaluation and not on elaboration of standardized conceptual framework. Not much research combines standardization, access, multilingual access, and digital inclusion in one framework especially in the Indian scenario. This is where the current conceptual research gets its basis.

Academic Library Websites as Knowledge Commons

The term knowledge commons is used to denote networks through which knowledge can be created, organized and used to achieve the good of the many. Libraries have been the traditional champions of this idea, as they made information materials accessible and equal. Within the digital era, academic library websites are the most significant platforms in which knowledge commons are conducted. This is because the sites are not only useful in accessing information but also in learning, collaborating and participating in academics as well. Academic libraries websites need to be digital knowledge commons, which should guarantee;

Equal and free access to information resources

- Adding users with different abilities and language backgrounds
- Open integration between various library networks and services
- Simple, scalable, user-friendly design used to create sustainability
- The principles of knowledge commons cannot be entirely accomplished without standardization and accessibility of the academic library websites.

Challenges in Indian Academic Library Websites

Design and Navigation Problems

Numerous academic libraries sites in India adhere to organization-based layout, menu systems as well as terms. Same services are usually branded differently on websites, thus posing confusion to the users. This inconsistency has some negative impact on usability, and learning effectiveness.

Accessibility Problems

Even though there exist such accessibility as WCAG and national standards like the Guidelines for Indian Government Websites (GIGW) numerous academic library websites have not fully considered them. Such accessibility problems as lack of alternative text on images, low contrast of colors, unavailable PDF files, and restricted navigation with keyboard make access to users with disabilities more challenging.

Poor Interdependence between Services

The services provided by libraries like online catalogues, digital repositories, subscription databases, and national platforms are in many cases linked by simple hyperlinks. The lack of tighter integration of the systems causes fragmented user experiences and also limits proper resource discovery.

Methodology: Conceptual Approach

In this study, the conceptual and non-empirical research method is used. It is not accompanied by surveys, interviews, and statistical analysis. Rather, it formulates a theoretical framework after critical analysis of available literature, standards of accessibility, and national policy documents. Among the important sources are works on academic libraries websites, digital libraries, knowledge commons, and WCAG guidelines and GIGW standards, the National Education Policy 2020 and vision Vikshit Bharat 2047. The synthesis of findings of these sources suggests a conceptual framework of the proposed study should enhance academic library websites in India.

Proposed Conceptual Framework for Standardization

The suggested framework will incorporate necessary of standardized academic library websites but will be flexible enough to enable institutions to incorporate the identities of their own institutions.

Accessibility by Default

Accessibility is to be incorporated in the early design. It consists of good page design, easy navigation using keys, readability using screen readers, good typeface and availability of digital versions.

Uncomplicated and Unvarying Sailing

Common labels, logical menus and the consistent layouts, enable users to easily find information. Standardized navigation within the institutions increases usability and recognition,

Multilingual Support

The use of regional languages together with English will guarantee a greater inclusion and inclusivity in the education of a multi-lingual nation such as India.

AI-Based User Support

Chatbots and other intelligent search systems are AI-based tools that can be used to guide the user in search of resources, respond to simple questions, and enhance the process of information discovery.

APIs System Integration

Combining library catalogues, repositories, databases, and national platforms via APIs allows access to a single and cohesive user experiences.

Mobile-friendly and responsive design

The library website should be designed to be mobile-friendly and responsive so that it can be easily viewed on any screen, with the content and size adjusting accordingly. Nowadays, users use both desktops and mobile devices.

Data Security and User Privacy

The website should mainly focus on standard security, safety, and a secure login system so that all users' personal and academic data can be kept safe, which helps build digital trust and makes users feel secure.

Personalized User Experiences

Personalizing the user experience means showing content based on a user's profile, searches, needs, history, and interests. This can make learning more effective. All of this can be tracked and managed well using Google Analytics.

Content Management and Regular Updating

To ensure that the data remains accurate and up-to-date. The data should be managed properly and audited regularly so that users always get correct information.

Academic Libraries and Viksit Bharat 2047

An academic library websites standard framework is a direct contributor of the long-term development objectives of India. Libraries will be able to include education, research development, and dissemination of knowledge because they

can reduce digital barriers and enhance accessibility. Standardization also promotes efficiency in operations, lessening on duplicate efforts and promoting cooperation between institutions. By doing so, the academic library websites will be regarded as key digital infrastructures that facilitate national development.

Conclusion

The problems associated with the design inconsistency, poor accessibility, and poor service integration are common in many academic library websites in India. These problems make them less effective as digital knowledge commons. This theoretical paper suggests a uniform model with a focus on accessibility, similar navigation, multilingualism, AI-user services, and system integration. The framework provides a theoretical base in enhancing academic library websites in the Indian context. This framework can be tested in literature by future studies by applying it in practice and by obtaining the feedback of the users. Such standardized solutions will go a long way in enhancing the position of academic libraries to deliver on the dream of Vikshit Bharat 2047.

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Digital Libraries And Open Access: A Comprehensive Overview Of Emerging Trends

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Summary

The fast development of digital technologies and the open access (OA) movement has completely changed the situation in scholarly communication. Digital libraries have also been taken to a new advanced level where they no longer remain as mere digitized collections but intelligent systems facilitating discovery, preservation, interoperability and sustained access to scholarly output. At the same time, the open access has become one of the key solutions since the prices of subscriptions increase, knowledge is not always accessible, and knowledge inequality is experienced unequally all over the world. In this paper, a detailed review of the theoretical underpinnings, technological innovations, policy formulations, and institutional procedures that will influence the nature of digital libraries and open access in the next five-year period, between 2020 and 2025 should be summarized. It also looks at the new technological trends, including artificial intelligence, big data analytics, and blockchain as well as policy and regulatory developments, which include institutional requirements, the requirements of funding agencies, and copyright reforms. Another finding of the study is the growing role of academic and research libraries as publishers, data custodians, and representatives of open science. The issues of sustainability of the OA models, the predatory publishing, digital divide and long term preservation are discussed critically. Today, the digital libraries and open access influence the scholarly communication and the paper provides a perspective on the future prospects of equity, governance, and international cooperation. The article indicates the strategic value of finding a balance between innovation, inclusivity, and sustainability in creation of resilient and ethical knowledge infrastructures.

Keywords: Digital Libraries; Open Access; Scholarly Communication; Open Science; Institutional Repositories; Knowledge Dissemination; Research Libraries

Introduction

Conceptual Evolution of Digital Libraries

There has been a radical conceptual change of digital libraries in the past 20 years. Initially formed as digital repositories aimed at storage and access, modern digital libraries currently operate as smart knowledge systems that include the use of modern technologies including artificial intelligence, semantic web applications and data analytics. Such systems are not only effective in information retrieval but also in knowledge discovery, interoperability, and services that are user-friendly. Recent research points out that digital libraries are becoming more entrenched in research and learning structures and allow collaboration, personalization, and long-term preservation of academic content (Borgman, 2020; Chowdhury, 2022).

The Open Access Movement has expanded over time, which explains this growth

The open access (OA) movement has grown at high pace because of increasing cost of journal subscriptions and unending information inequity in the world. The commercial publishing models have limited accessibility especially by researchers and institutions in the low and middle-income countries. Open access aspires to eliminate price and permission barriers to allow unwarranted access to scholarly products. In 2020, policy frameworks and funding requirements have further increased the adoption of OA, and it now forms a central part of open science and research equity (Suber, 2021; UNESCO, 2021).

Digital Libraries Democratization of Knowledge

Digital libraries are also very important in operationalizing open access as they are found hosting institutional repositories, open journals and research data platforms. They improve visibility, access, and reusing knowledge through mechanisms of preservation, standardized metadata, and persistent identifiers by using the metadata, persistent identifiers, and preservation. This communication democratization promotes knowledge sharing of a sustainable kind, interdisciplinary studies, and academic involvement without geographic and socio-economic restrictions (Tennant et al., 2020; Morrison, 2022).

The aim of this research is to explore the essence of strategic planning and the approaches used in strategic planning within the business environment. The scope of this study is to find out the nature of strategic planning as well as the methodologies applied in strategic planning in business environment.

This paper is going to set out to deliver an overview of the current trends in digital libraries and open access in the years 2020-25. It addresses the technological innovations, policy-influenced changes, and the practice of institutions that inform the contemporary academic communication that can be of use to librarians, researchers, as well as policy makers.

Objectives for this study

To explore the evolution of digital libraries and open access.

Identify emerging trends in digital libraries and open access.

Methodology

For this study the Investigator analysis reviews of literature. This paper is a conceptual in nature.

Conceptual Framework and Definitions

Digital Libraries: Definition and Core Characteristics

Digital libraries are systematic aggregations of digital material that are upheld by an assembly of services and technological frameworks that are structured to assist in access, retrieve, preserve and utilize data. Modern definitions focus on four components that are interrelated, namely, content, services, users, and technology. The contents are scholarly literature, research information, multimedia and institutional output. Examples of services include discovery services, metadata services, long-term preservation, and user services. The users include researchers or students, policymakers and general population with various information requirements. Digital libraries are based on the use of interoperable platforms, standard metadata schemas, and persistent identifiers, and to a growing degree, artificial intelligence-powered discovery and analytics to improve them (Borgman, 2020; Chowdhury and Foo, 2022).

Open Access Models

Open access is the concept of the free, instant, and uncontrolled access to scholarly research online. There have developed four dominant OA models. In Gold OA, the publications are published in open access journals where the articles become free of charges on publication, and the publication is supported by article processing charges. Green OA enables researchers to self archive preprints or postprints in repositories of institutions or subjects. Hybrid OA involves OA articles that can be paid to access subscription based journals. Similar to free institutional access, Diamond OA takes form as a free access model to every reader that does not charge authors, though institutionally or consortially subsidized since 2020. Both models indicate various economic and governance models in the world of scholarly publishing (Suber, 2021; Morrison et al., 2022).

Open Access Infrastructures and Digital Libraries

Digital libraries are the main providers of the open access infrastructures as they house the repositories, maintain metadata, and provide stability in access of OA contents. They also facilitate the interoperability of journals, repositories

and research information systems which will enhance the OA ecosystem. This symbiotic association increases visibility, reuse, and sustainability of academic knowledge in addition to the global open science initiatives (Tennant et al., 2020; Bosman et al., 2021).

Early Digital Library Projects and Digitalization Projects

The development of digital libraries started their beginning with massive digitization processes of the collections printed in print to an electronic form to increase their accessibility and durability. Initial endeavours mainly aimed at digitising books, manuscripts and archival collections and there was a minimal focus on interaction of users or advanced services. Though these projects were technology-based, they paved way to systematic digital collections and uniform access control. Literature on the topic rekindles this early work as it demonstrated how the work created informed the current digital library architecture and influenced best practices in digital preservation and content management (Borgman, 2020; Chowdhury, 2022).

The third logical step is to move to Interoperable Repositories and Metadata Standards

Since 2020, the movement of the digital libraries towards interoperability and standardization in order to facilitate information exchange across platforms has been gaining momentum. Metadata standards, persistent identifiers and open protocols have helped repositories to interface with one another on national and international levels. It indicates a shift in the digital collections that remain discrete into those that are networked knowledge systems that assist in finding, reusing and maintaining sustainability. Open science ecosystems are currently mostly based on the interoperable repositories that support collaboration and transparency in scholarly communication (Lynch, 2020; Bosman et al., 2021).

Integration of Institutional Repositories and National Digital Library Missions: This subtopic aims to assess how digital library missions can be integrated into national and institutional repositories human Institutional Repository and National Digital Library Missions: The subtopic is to evaluate the ways of incorporating the digital library missions in national and institutional repositories.

Institutional repositories are now considered part of digital library systems, which facilitate open access requirements and research promotion. Many countries have since 2020 made institutional repositories work in line with national digital library missions to make educational and research material accessible to all. The integrations make policy implementation, resource sharing, and capacity building stronger especially in the developing regions. This kind of organizing activities highlights the importance of digital libraries in the strategic development of equitable knowledge sharing and national research priorities (UNESCO, 2021; Morrison, 2022).

Open Access Ecosystem

Philosophical Foundations of Open Access and Knowledge Commons

The open access (OA) movement is based on the philosophy that scholarly knowledge is a social good and that it must be made widely available in order to support the development of science and the society. Based on the idea of the knowledge commons, OA encourages common property on the research outputs, common good, and free reuse with due credits. Since 2020, an open access is becoming more often discussed in the context of the larger open science paradigm, with the focus on the transparency, collaboration and social responsibility in knowledge production. This is a philosophical change that disrupts proprietary publishing business models and supports equity in international research involvement (Suber, 2021; Tennant, 2022).

International Programs and Statements in Favor of Open Access

OA ecosystem has been empowered over the past few years by several international initiatives. Ethical accessibility is supported by policy-based systems and statements that promote the compulsory access to research funded by the government. The programs promote the use of coordinated OA policies by governments, funding agencies and institutions, which rapidly promotes systemic change in scholarly communication. The developments of 2020 point to a rise in the recommended literature that innovation, sustainability, and inclusive development require open access (UNESCO, 2021; Morrison et al., 2022).

Repository, OA Journals and Preprint servers Role

The working infrastructure of the OA ecosystem is comprised of repositories, open access journals, and preprint servers. Subject and institutional repositories also facilitate self-archiving and long-term maintenance and OA journals offer an immediate dissemination platform through peer-reviewed publications. Preprint servers are also beneficial in terms

of fast sharing of knowledge because they enable access to research results early. These channels combined provide better visibility, faster, and multi-disciplinary research (Bosman et al., 2021; Lariviere et al., 2022).

Significance of Major OA Platforms to Visibility of Research.

Open access journals and arXiv are important platforms that enhance discoverability and credibility of open access research. These platforms have great potential in terms of citation and international dissemination of research through the selection of quality OA journals and hosting of high-impact preprints (Piwowar et al., 2020; Tennant et al., 2023).

Emerging Technological Trends

Artificial Intelligence and Machine Learning

Digital libraries are changing with the advent of artificial intelligence (AI) and machine learning (ML), which allow the automated, scalable, and intelligent services. Automated metadata generation is one of the most important applications, as AI models can be used to extract descriptive, structural, and subject metadata of full-text documents, saving the manual workload and enhancing consistency. Natural language processing enables semantic search features that enable users to access contextually relevant information as opposed to finding results based on keywords only. Recommendation systems also make user experience more personalized, as they recommend related articles, datasets, or journals depending on their usage patterns. Also, AI-powered content curation systems and plagiarism detectors improve the quality assurance and research integrity in open access environments to facilitate effective scholarly communication (Yang et al., 2022; Chowdhury, 2023).

Big Data and Analytics

The growing amount and variety of digital library content have necessitated the implementation of big data analytics in informed decision-making. The usage analytics allow the library to evaluate the relevance of collections, determine the high impact resources and adjust its subscription or open access investment priorities. User behavior, including patterns of search, frequency of downloads, can be analyzed to offer information on changing research requirements and learning preferences. Data-driven measures of library management can contribute to better strategic planning, resource distribution, and service design and make digital libraries more responsive to institutional objectives and user expectations (Zhang and Liu, 2021; Tenopir et al., 2022).

Blockchain Applications

The use of blockchain technology has become one of the promising methods of increasing transparency and trust in digital libraries and open access publishing. Its decentralized and unalterable blockchain platform facilitates clear peer review procedures, safe copy protection systems, and everlasting academic databases. The solutions based on blockchain also provide possible mechanisms to regulate the open-access licensing, author credits, and content provenance without centralized authorities. These applications lead to an increased degree of accountability and trust in scholarly communication systems, especially in open access systems (Kumar et al., 2023; Esposito et al., 2024).

The developments in terms of policy and regulation

International and National Open Access Requirements

Political and legislative policies and regulations have been a decisive factor in boosting the use of open access (OA) all over the world. As of 2020, institutions of higher education and research have been adopting mandatory OA policies that force researchers to publish scholarly works in institutional or disciplinary repositories. On the governmental level, governments have also adopted synchronized OA requirements to guarantee that publicly funded research available is free of charge. The aim of these policies is to increase the visibility of research, responsibility, and societal impact and decrease reliance on commercial models of publication. Digital libraries also intersect with wider digital knowledge and higher education reform, which strengthens the institutional function of digital libraries in implementing the policies (UNESCO, 2021; Bosman et al., 2021).

Open Science Funding Agency Requirements

Funding agencies have become a major initiator of open access by mandating open science. Numerous members of the public and international funding now require publications to be immediately accessible, research data to be openly shared and research processes to be transparently reported. It is these requirements that have made institutions reinforce digital library infrastructures and repository services. The current policies on open science (since 2020) focus

on interoperability, long term preservation, and responsible data management, making digital libraries the main point of support in funded research activities (Morrison et al., 2022; Lariviere et al., 2023).

Copyright Reforms and Retention of Author Rights.

The recent policy debate has also concerned the reform of copyright systems to enable access to open access. The Creative Commons licensing has also allowed writers to retain the most important rights and still allow their work to be legally used and spread. Retention strategies, which have become more popular since 2020, are those where researchers are able to meet OA mandates and avoid giving publishers control over their works. Such regulatory changes would add to an even-handed and sustainable scholarly communicational ecosystem (Morrison, 2020; Suber, 2021).

Role of Academic and Research Libraries

Libraries as Publishers and Open Access Facilitators

Scholarly publishing has increasingly evolved to involve academic and research-based libraries as service providers and not as the passive content providers as before. In 2020, libraries have also implemented library-led models of publishing, such as sponsoring open access journals, conference proceedings, and monographs using institutional platforms. Libraries provide options of cost-efficient and non-commercial publishing by controlling editorial workflows, metadata and digital preservation. Institutional control over scholarly output and alignment between the practice of publishing and the open access principles of equity and transparency can be strengthened with this role (Corrall and Pinfield, 2020; Morrison et al., 2022).

Management of Research Data and Open Science Support.

Research data management (RDM) has been revealed as an essential task of academic libraries in the open-science ecosystem. Libraries give an infrastructure and knowledge of storing, documenting and sharing and lasting preserving data. The policies of open science developed after 2020 prescribe data management schemes and open data release, placing libraries in the role of a key assistance unit to adhere to regulations and practices. Libraries contribute to enhancing the reproducibility and integrity of research through repository, metadata standards, and information about ethical data sharing (Tenopir et al., 2020; Cox et al., 2021).

Building capacity and achieving digital literacy can be done by utilizing digital literacy programs and engaging in skills development.

7.3 Capacity Building and Digital Literacy Initiatives.

Capacity building and digital literacy may be achieved through taking part in the digital literacy programs as well as skills development.

The other essential aspect of the changing role of the library is capacity building and digital literacy. The academic libraries are actively developing training to enhance their awareness of researcher awareness on the topics of open access publication, copyright, licensing, and responsible research practice. Skills on digital literacy also allow users to assess the quality of information, learn how to use digital tools, as well as interact with open knowledge platforms. Through such, it creates an educated research community who can explore intricate academic communication ecosystems (Corrall, 2021; Brewster et al., 2023).

All these extended functions make academic and research libraries strategic agents of open access, open science, and open-sustained scholarly communication systems.

Difficulty and Ethical considerations

Open Access Models Sustainability and Funding

Although the open access (OA) has grown at a pace, the viability of OA publishing models is a significant issue in the long-term. The system of paying article processing fees and institutional support tends to redistribute financial pressures between readers and authors and brings up the issues of affordability and fair play. The participation barriers could prevent smaller institutions and researchers in low- and middle-income countries to access the process, which would recreate the preexisting disparities of scholarly communication. Ongoing research on the subject has suggested various type(s) of non-commercial, diversified, and community-driven funding models necessary to have sustainable and inclusive OA ecosystems (Morrison et al., 2022; UNESCO, 2023).

Predatory Titles Publishing and Quality Assurance.

It has also been observed that as OA has expanded its tentacles so have predatory journals, journals which use author-pays model without rigorous peer review or editorial control. These habits create ethical risks to researchers especially

the young researchers and diminish the credibility of research. Quality assurance by providing clear editorial policies, indexing guidelines and research integrity models have been an essential challenge since 2020. To protect scholarly standards in OA publishing, it is necessary to reinforce the sense of awareness and institutional guidance (Bjork et al., 2020; Grudniewicz et al., 2021).

Digital Divide, Accessibility, and Inclusivity

What OA seeks to achieve is the democratisation of knowledge, though inequality of digital infrastructure, connectivity, as well as digital literacy persist in restricting access equally. Inclusivity is also limited by accessibility issues by people with disability and language barriers. Reducing the digital divide demands intersectoral policy response, centrally designed policies, as well as capacity-building efforts in such a way that open knowledge could actually beneficially impact a broader variety of global societies (Chan et al., 2020; Brewster et al., 2023).

Long-term preservation and data security- The client will be assured that the data and information stored by the machine is secure and backed-up by the service provider.

Long-term digital preservation and the issue of data security is one of the most important ethical concerns of digital libraries and OA platforms. Cybersecurity risks, potential data loss, and technological obsolescence indicate the need to implement effective preservation schemes, reliable storage systems, and administration systems in order to preserve the integrity and integrity of scholarly documents (Eve, 2022; Cox et al., 2023).

Impact on Scholarly Communication

Citation Visibility and Global Research Reach

The increased visibility and accessibility of the scholarly outputs has been greatly enhanced by open access and digitally networked libraries. Recent studies (since 2020) are consistent that open publications have better readership and citation rates than paywalled ones. Digital libraries enhance this effect by making discoverability more achievable via indexing, standardisation of metadata and global repository networks, thus allowing more expansive dissemination across geographical and institutional borders (Piwowar et al., 2020; Lariviere et al., 2022).

Achieving a 100 percent success rate may require time, yet it is possible that once the trial concludes, the researchers will examine the outcome and alter their methods.<|human|>The transformation of Peer Review and Publication Timelines can take some time, but, hopefully, after the conclusion of the trial, the researchers will analyze the results and change their approach.

Digital infrastructures and open access platforms redesigned the conventional peer-reviewing and publishing practices. Preprint servers and open peer review systems have promoted quicker dissemination of knowledge through decreasing the duration of publicity and raising transparency. All these changes contribute to scholarly conversation at an earlier stage and will lead to a faster dissemination of research, especially in time-sensitive areas, and will also undermine traditional publishing paradigms (Tennant et al., 2020; Ross-Hellauer, 2022).

The interdisciplinary and collaborative research can be examined

Online libraries, OA systems facilitate the creation of interdisciplinary literature through the reduction of the barriers to access and the transfer of the knowledge across disciplines. Improved collaboration occurs in co-authorship networks, and data-sharing behaviors on which more integrative and global research can be enabled (Lariviere et al., 2020; Bosman et al., 2021).

Future Directions

A Roadmap to Open Knowledge Maturity

The next step in terms of the enhancement of open science, open data, and open educational materials aiming at integration into an online library context is the focus of the future. Individualized discovery systems and dynamic user interfaces will likely increase the research performance and learning. The increased involvement of the Global South in the form of fair funding schemes as well as proposed capacity-building will continue to be a priority (UNESCO, 2021; Morrison et al., 2022).

International Cooperation and Governance

Strong governance structures as well as collaboration across nations is necessary to guarantee sustainable, ethical as well as inclusive expansion of open access infrastructures. Jurisdictional and international policies can be used to

coordinate the standards, preservation policies, and mechanisms of accountability (UNESCO, 2021; Cox et al., 2023).

Conclusion

Collectively, the improvement of visibility, access, and collaboration has occurred through digital libraries and open access to facilitate scholarly communication. They are strategic within academic, policymaking, and information professional contexts because they can bring balance between technological innovation and equity and sustainability; hence, a sustainable and inclusive global knowledge environment (Borgman, 2020; Suber, 2021).

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Digital Library Architecture and Cloud-Based Services

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Summary

Digital libraries have transformed how information is created, stored, accessed, and shared. Traditional libraries are rapidly transitioning into hybrid or fully digital environments, enabling seamless access to vast digital resources. The advent of cloud computing has further revolutionised digital library services by offering scalable storage, efficient resource management, and collaborative platforms. This paper explores the architecture of digital libraries, the integration of cloud-based services, and their impact on accessibility, cost efficiency, and user experience.

Keywords: Cloud Computing, Digital Library, AI Integration, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS)

Introduction

A digital library is a collection of digital objects—such as texts, images, audio, and video—stored electronically and made accessible through networked systems. Unlike traditional libraries, digital libraries provide users with anytime, anywhere access to information. With the exponential growth of digital resources and the demand for remote accessibility, cloud computing has emerged as a foundational technology for managing digital libraries. Cloud platforms support scalable data storage, computing power, and service integration, making library operations more flexible and cost-effective. [1]

Background and Motivation

Traditional digital library systems often bundle monolithic services: cataloguing, storage, search indexing, and user interfaces. With the growth of digital collections — including high-resolution images, video, research data sets, and interactive content — libraries face challenges in storage capacity, traffic spikes, preservation, and continuous service delivery. Cloud platforms address these challenges through elastic compute and storage, content delivery networks, managed databases, and serverless processing.

Literature Review

Prior work includes reference architectures and case studies exploring cloud adoption for libraries, systematic reviews of cloud applications in library services, and studies on cloud-based library management systems. Common themes in the literature are benefits in scalability and accessibility and concerns about security, vendor lock-in, cost predictability, and long-term preservation strategies.

Digital Library: Concept and Objectives

A digital library aims to collect, organise, preserve, and disseminate digital content to meet the educational, research, and cultural needs of users.

Objectives include:

- Providing global access to scholarly and cultural content.
- Supporting online learning and research collaboration.
- Ensuring long-term digital preservation.
- Reducing infrastructure costs through cloud services.
- Enhancing user engagement through interactive tools and metadata-driven search.

Architecture of a Digital Library

The architecture of a digital library defines how digital objects, metadata, and services interact to deliver seamless access. A typical architecture includes the following layers:

User Interface Layer

Provides access to users via web portals, mobile apps, or APIs.

Includes personalised dashboards, search interfaces, and digital repositories.

Application Layer

Manages services such as indexing, metadata management, search algorithms, and user authentication.

Implements interoperability standards like OAI-PMH, Dublin Core, and METS.

Middleware Layer

Acts as a bridge between data storage and user services.

Includes APIs and service buses that connect various applications.

Data Storage Layer

Stores digital objects and metadata using relational databases, NoSQL databases, or cloud storage solutions (e.g., AWS S3, Google Cloud Storage).

Ensures data integrity, redundancy, and backup.

Network Layer

Provides connectivity and secure access through cloud-based or hybrid networks using protocols such as HTTP, FTP, and SSL/TLS.

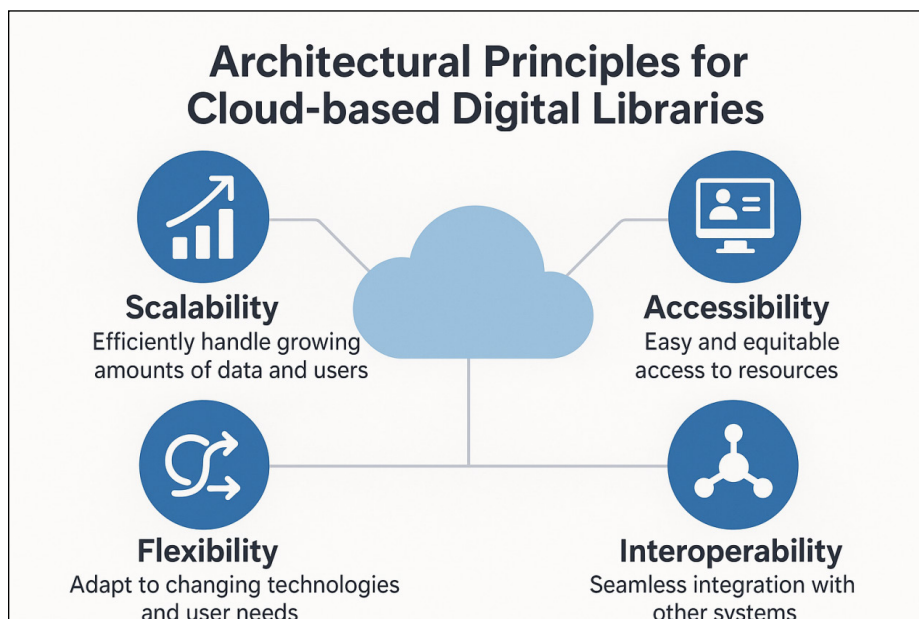


Figure I. Cloud-Based Services in Digital Libraries

Table.I Benefits of Cloud-Based Digital Libraries

S.No.	Cloud Service Model	Role in Digital Libraries	Example
1.	SaaS (Software as a Service)	Ready-to-use digital library platforms accessed via browsers.	Google Books, eGranthalaya Cloud
2.	PaaS (Platform as a Service)	Developers can build and customise digital library apps.	AWS Elastic Beanstalk, Google App Engine
3.	IaaS (Infrastructure as a Service)	Provides virtual servers, data storage, and backup for large-scale repositories.	AWS EC2, Microsoft Azure, IBM Cloud

- Scalability: Automatic expansion of storage and computing resources as data grows.
- Cost Efficiency: Reduces hardware, maintenance, and energy costs.
- Accessibility: Enables users to access digital content from any location and device.
- Collaboration: Facilitates resource sharing between institutions.
- Disaster Recovery: Ensures data safety through regular backups and redundancy.
- Automatic Updates: Cloud providers handle software and security updates.

Challenges and Limitations:

- Despite numerous benefits, cloud-based digital libraries face several challenges:
- Data Security and Privacy: Sensitive data may be vulnerable to cyber threats.
- Dependence on Internet Connectivity: Access is limited in areas with poor networks.
- Vendor Lock-in: Difficulty migrating data between cloud providers.
- Cost Over Time: Subscription-based models may become expensive in the long term.
- Legal and Ethical Issues: Ownership and copyright of digital content.

Case Studies and Applications

- National Digital Library of India (NDLI): Uses cloud infrastructure for massive data storage and AI-powered content discovery.
- Europeana Digital Library: aggregates cultural heritage materials using open-source and cloud-based frameworks.
- HathiTrust Digital Library: A collaborative repository hosted across distributed cloud networks for preservation and research access.

Future Trends

- AI Integration: Enhancing search accuracy, content recommendation, and metadata generation.
- Blockchain for Digital Rights Management (DRM): Ensuring authenticity and traceability of digital content.
- Edge Computing: Reducing latency by processing data closer to users.
- Hybrid Cloud Models: Combining public and private clouds for secure and flexible operations.

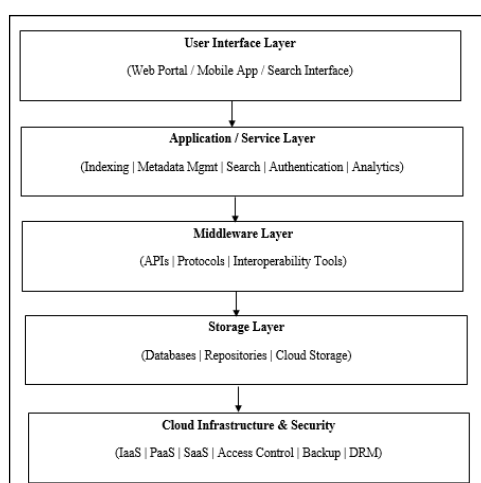
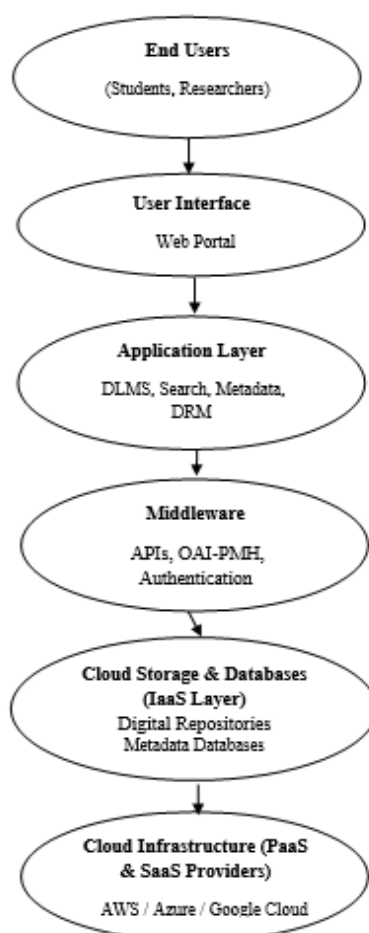


Chart I.Functional View of a Digital Library System

Figure. 2 Diagram Cloud-Based Digital Library Architecture

Cloud Integration in Library Systems

Cloud-Based Library Management Systems (LMS)

Hosted entirely in the cloud (no local server).

Examples: Alma, WorldShare Management Services, Koha Cloud Edition.

Cloud-Based Repositories

Institutional repositories stored and managed via cloud services.

Example: DSpace, EPrints, and Fedora Commons hosted on cloud platforms.

Cloud for Data Storage and Backup

Cloud provides scalable and secure storage solutions.

Enables data replication, automatic backup, and disaster recovery.

Collaborative Cloud Tools

Facilitate document sharing and communication among library staff and users.

Examples: Google Workspace, Microsoft 365, Slack, Trello.

Scope of Cloud-Based Services in Digital Libraries

The scope of cloud-based services in digital libraries refers to the range of applications, functions, and opportunities enabled by cloud computing to enhance library operations, services, and user experiences. Cloud technology extends beyond data storage — it supports management, collaboration, analytics, and innovation in digital library ecosystems.

Key Areas of Scope

Resource Management

Cloud-based Integrated Library Systems (ILS) and Library Management Systems (LMS) streamline acquisitions, cataloguing, circulation, and user accounts through SaaS platforms (e.g., Alma, WorldShare).

Centralised, cloud-hosted databases reduce duplication of effort across multiple institutions.

Digital Repositories and Preservation

Libraries can store, manage, and preserve digital assets — such as theses, manuscripts, and rare collections — using cloud storage and backup.

Supports long-term digital preservation through redundancy and versioning.

Ensures high availability and protection from data loss or hardware failures.

Access and Discovery Services

Cloud infrastructure enables universal access to library resources from any location or device.

Discovery layers and search services (like Primo and EBSCO Discovery Service) are cloud-based, offering real-time indexing and federated search.

Integration with institutional authentication systems (e.g., Shibboleth, OAuth) enhances security and personalisation.

Collaboration and Networking

Cloud systems promote resource sharing among libraries, enabling consortia-based access and interlibrary loans.

Collaborative tools like Google Workspace, Microsoft 365, or Slack enhance staff communication and project coordination.

Cloud-based repositories support joint research data management across institutions.

Data Analytics and User Insights

Cloud platforms offer built-in analytics to understand user behaviour, access frequency, and resource usage.

Libraries can make data-driven decisions for collection development and service improvement.

Supports integration with AI/ML tools for recommendation systems and content personalisation.

E-Learning and Educational Integration

Cloud services link digital libraries with learning management systems (LMS) like Moodle, Canvas, or Google Classroom.

Facilitates embedding of e-books, research papers, and multimedia content within virtual classrooms.

Encourages remote and lifelong learning through 24/7 accessibility.

Backup and Disaster Recovery

Provides automated data backup and replication across multiple locations.

Ensures business continuity in case of hardware failures, cyberattacks, or natural disasters.

Software and Application Hosting

Libraries can host custom applications, digital exhibits, or knowledge portals on cloud servers.

Reduces dependency on local IT infrastructure.

Allows for automatic updates, maintenance, and scalability.

Institutional Benefits

Cost Reduction: No need for local servers or complex IT setups.

Operational Efficiency: Libraries can focus on user services instead of hardware management.

Interoperability: Cloud-based systems integrate easily with other tools and databases.

Global Collaboration: Encourages joint digital preservation projects and shared access initiatives.

User-Centric Scope

Seamless access to digital content from anywhere, anytime.

Personalised library experiences through AI-enabled recommendations.

Cloud-based mobile apps and portals for enhanced usability.

Research and Development Potential

Enables libraries to experiment with AI-based cataloguing, semantic search, and knowledge graphs.

Supports integration with open data repositories and research data management systems (RDMs).

Encourages innovation in digital humanities, virtual libraries, and multimedia archives.

Challenges within the Scope

While broad in potential, cloud-based services also face limitations:

Data privacy and copyright concerns.

Dependence on vendor reliability.

Need for stable internet connectivity.

Legal issues regarding data sovereignty and jurisdiction.

Conclusion

The integration of cloud computing with digital library architecture represents a major step toward building resilient, accessible, and user-centric knowledge environments. Cloud-based digital libraries not only democratise access to information but also enable sustainable and collaborative knowledge ecosystems for the digital age. As technology advances, libraries will continue to evolve into intelligent, adaptive digital spaces serving global communities.

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The Kota Rajkiya Sarvajanik Mandal Pustakalay Services Using Podcast As A Educational Tool In Rajasthan, India - A Study

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Summary

This research paper is mainly focuses on the podcast service initiative of the Government Divisional Public library koata, also reveals that how the peoples are benefitted by this initiatives, especially how the life of the visually impaired and print disabled has been changed. So finally is change making an initiative to increaser neo literate education?

Keywords:

Introduction

Rajkiya sarvajanik mandal pustakalaya Kota library is now known as Utsav library which is very popular for historical and cultural literature details are below

Automation

This library is fully computerised with eGranthalaya 4.0 integrated library management software based on cloud storage.¹

Kid's Membership

To become a member a child should be above the age of fifteen, to become a member one has to fill in an application from duly endorsed by the principal / Head master of the concerned School where the pupil is studying. Books are loaned out for 14 days to the children.

Reprography Service

Our library provides the photocopier facility to the members of the library for those types of collection which can't be lent for home like rare books, reference books, costly books newspapers clippings etc.

Gdpl Kota Stack Position

Table 1.GDPL Kota stack on dated 05.02.2026

Stack on dated	Books	Sound books	Rare books	Kid's books	Gifted books	Manuscripts	E-books
05.02.2026	73863	2395	1562	12000	2635	05	109

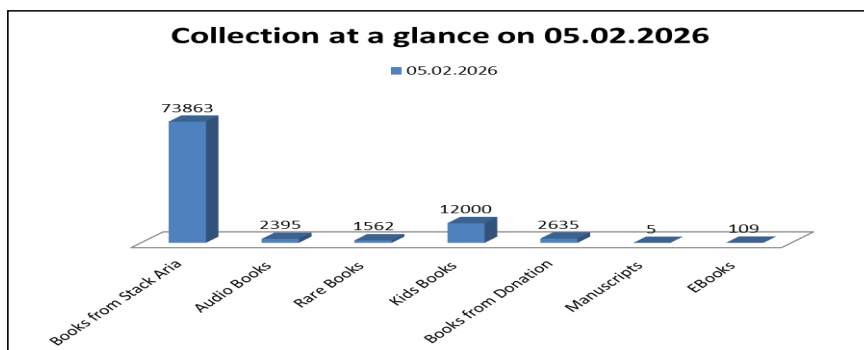


Figure 1.Complete GDPL Kota Collection

Library acquired more than hundred newspapers and serials. They are life-time subscriptions for fewer magazines. Govt. fund (11th Pay commission interest) they are buying following number of newspapers and serials.

Table 2 GDPL Kota Reading Room Collection

GDPL Kota STACK AREA POSITION							
SERIAL Section						Kid's Area	
Daily	Weekly	Quarterly	Monthly	Bi-Monthly	Tri-monthly	Monthly	Quarterly
17	06	07	30	00	03	04	04

Library Hour

April to Sep (11.00 am to 7.00 pm)

Oct to March (Morning 10.00 to Evening 6.00)

Reading Room: 7 am to 7 pm.

Systematic Literature Review (Slr)

The present study includes the web-2.0 tools. It also talks about the role of technology, roles of web 2.0, web 2.0 in ELT, e-learning, use of podcast in ELT and ELL etc. in the library services with scholarly ideas. There are recent following aspects as paths that help the librarians to render the information services to the users by using the PODCASTS.[2] Following various aspects are also considered in this research:

- Library Automation
- Information and Communication Technologies in Libraries
- Use of E-Resources
- Information Technology

Statement Of The Problem

Podcast is essential for people with eye loss that's why we carried out "THE KOTA RAJKIYA SARVAJANIK MANDAL PUSTAKALAY SERVICES USING PODCAST AS A EDUCATION TOOL IN RAJASTHAN, INDIA - A STUDY".

Research Questions

The following are the three research questions designed in this research that need to find out the solution:

What types of Podcasts are available and use by Rajkiya Sarvajanic Mandal Pustakalay Kota employee?

Why do library employee of Rajkiya Sarvajanik Mandal Pustakalay use Podcasts in Library Services?

Why Podcast being necessary in the provision of Library service.

Objectives Of The Study

The study seeks :

Find out the varieties of present Podcast followed by Rajkiya Sarvajanik Mandal Pustakalay employee in the provision services provided by the library.

Determine the reasons why do library employee of Rajkiya Sarvajanik Mandal Pustakalay use Podcast services provided by Library.

Find out the problems do Rajkiya Sarvajanik Mandal Pustakalay employee encounter in the application of Podcast in the provision of Library services.

Significants Of The Study

The study will be significant in a number of ways:

It will help to reveal the extent to which the staffs of GDPL uses the PODCAST in the provision of library services. The finding will lead to the improvement of the application of different types of Podcasts for effective library services.

An improvement in the use of PODCASTS will lead to its better utilisation. Hence, the library staff and users in the library will be more productive, thereby making the learning and research situation for effective.[3],[4]

It will serve as an important contribution in the field of library and information professionals to facilitate easy, better and fast information to the library users.

Basic Assumption

The assumptions of the study are that:

Efficient and effective application of PODCASTS in GDPL library will enhance greater and better library services to the exceptional users

Lack of efficient and effective application of VODCASTS will hamper the development of library services to the exceptional library users.

Scope And Limitation

Provision of public library services by using the PODCASTS. The focus is on Library staff in the following Division of the Library:

- Acquisition Division
- Technical or Processing Division
- Stock or Storage Division
- Reader's Services Division
- Administrative Division
- Preservation Division
- Audio- visual Division

The scope is expected to last for twelve (12) months. By this scope, details and comprehensive study is assured. This study is limited in some Division that are relevant to the PODCASTS in the library. These Divisions include:

Acquisition Division, Technical or Processing, Division, Stock or Storage Division, Reader's Services Division, Administrative Division, Preservation Division and Audio- visual Division

Research Methodolgy

The survey method will be adopted for the study. Survey research, study population of the study comprises of all staff from different sections/units in the kota government divisional public library, Rajasthan. These sections/units are: audio-visual, Reference, technical, circulation, serial, automation and personnel assistance, etc.[5] the library numbering is driven from their various sections/units list as shown in the table below:

Table 3. Populations

RANK	Divisional librarian	Asst. librarian	Cataloguer	Junior Asst.	Book lifter	Class V	Class IV
Sections/units							
Acquisition Division	1	2	1	2	3	2	3
Technical or Processing Division	1	2	1	2	2	1	2
Stock or Storage Division	1	-	2	3	4	2	2
Reader's Services Division	1	-	2	1	2	4	2
Administrative Division	1	4	-	2	2	3	2
Preservation Division	1	2	2	4	2	2	1
Audio-visual Division	1	3	5	4	6	8	7
	7	13	13	18	21	22	109

Sample And Sampling Techniques

The researcher will use proportionate sampling to have fair representation of all the sections/units. From the population, a total of 40 library staff will be used as the sample size of the study. The sample size determined using Morgan and krycie (1970) table of samples. The sample of the study represent (61%) of the population. Therefore, the sample size constitute 3 respondent from Administrative division, in acquisition division 4 ,in technical and processing division4, in Reader's Services Division 3, in stock and storage division 5, in preservation division4 and in audio- visual division.

Instrument for data collection

The researcher will use questionnaire and interview as instrument for collecting data. This is in line with Akezuila (1993) who postulate that the survey researcher therefore, believes that these instruments to be used in this study are enough to provide the data required.

Data gathering procedure

The researcher will distribute the 40 questionnaires to all respondents.the questionnaire may not give. Section A of the questionnaire will cover the bio data of the respondents while Section B and C will cover issues related to the study.

Data Presentation, Analysis, And Discussion

Allocation of Respondents to sections -40 Questions

Table 4 Distribution of Respondents by sections/units

Sections/units	Frequency (f)	Percentage (%)
Acquisition Division	2	5%
Technical or processing Division	3	7%
Stock or storage Division	5	12%
Reader's services Division	4	10%
Administration Division	6	15%
Administrative Division	4	12%

Preservation Division	7	17%
Audio-visual	9	22%
Total	40	100%

The table above shows that Audio-visual Division has the highest respondent with 9 (22%) while the Acquisition Division has the lowest respondent by 2 (5%) population size of the surveyee by their respective divisions

Data presentation and Analysis

The analysis is done by descriptive statistics, frequencies, percentages and means of data were computed and the result discussed. The findings are presented as follows:

Types of podcast

The respondents were provided with (3) questions on the types of podcasts they used in library services.

Types of podcasts used by library staff of the library

Table 5. Types of podcasts used by library staff of the library

Types of podcasts available in the library	Sound Podcast		Visual podcast		Enhanced podcast	
	F	%	f	%	F	%
Podcasts used in library services	39	97	14	35	28	70
	35	87.5	38	95	34	85

Table below shows reasons for the use of podcasts in the library

Table 6. Reasons for the use of podcasts in the library

Description	Replier						Status
	SA(5)	A(4)	U(3)	D(3)	SD(1)		
Approved the use of podcast in library services	31	3	3	1	2		Approved
The use of podcast help me in rendering library services	35	2	0	0	2		Approved
The use of podcasts simplified my work in the library	33	2	2	2	1		Approved
The use of podcast make library services easier	32	2	2	1	3		Approved
The users understand better with the use of podcast in the library services	24	6	2	2	6		Approved

It assume that, be assumed that the library staff and users in the library enjoy the privileges opened by the use of podcasts in provision of information in the library.⁶

Summary

The purpose of the was to investigate the extent of “A study of kota government divisional public library using the PODCAST As A Educational Tool” to achieve the objectives of the study, observation, interview and questionnaire methods were used to collect the data. The population this study was made up of all the library staff 7 divisions in the kota public library. The population size is fourty hence, proportionate sampling was used to select a sample of fourty The questionnaire designed for the study addressed the three research questions which sought to find out the kinds of PODCAST are present and use by Rajkiya Sarvajanik Mandal Pustakalay employee in the provision of library services, why do library employee of Rajkiya Sarvajanik Mandal Pustakalay use Podcasts in Library Services as well as the problems associated in the application of Podcast in the provision of Library service

Conclusion

From the analysis of the findings, it could be concluded that although the staff of kota public library appreciate the need to have and use more podcasts in the process of rendering services to the users. This will improve the quality of information they are giving to the users and also to help the library staff to deliver their services in multiple ways.

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The Heritage Blueprint: Libraries As Engines Of Social And Cultural Capital

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Summary

Libraries are silent architects of sociocultural capital and identity; they shape communities by disseminating information, conserving culture, and engaging in intellectual discussion. The article delves into libraries, how they help to shape their communities, promote lifelong learning and conserve cultural heritage. This article argues for how libraries adopt social cultural capital, and advance literary, inclusion and public discourse. Notably, the research design of this study is qualitative and involves case studies, policy analysis and theoretical foundation in information science (IS) and cultural studies. What is new in this resolution Contribution Though the field is not medical and health informatics, but general library science; one of the original contributions by this paper is to learn from cultural theory about what roles libraries have been playing and are going to play in a digital world. However, the evaluation of non-monetary socio-cultural value and the generalization of the impacts of libraries across cases are not straightforward. The research presented in this report argues for strengthening public investment in libraries as influential common knowledge institutions that support involvement in civic affairs and educational advancement. This is groundbreaking as it re-contextualizes the library not simply as a depository of knowledge, but instead as an organization rooted in social value formation, cultural resistance and local identity.

Keywords: Libraries, Socio-Cultural Capital, Identity Formation, Knowledge Hubs, and Community Development

Introduction

Profound contribution of libraries to the formation of social and cultural capital, identity and community building The operations of this power are the application and dissemination of knowledge, what they call community building: they are “the silent architect” that shapes how, when people think and what meanings knowledge has in a particular society. As Ferguson (2012) writes, “Public libraries are increasingly recognised as a source of social capital,” in that they have the ability to build relationships and form social cohesion through providing open, ready access services and benefits. Indeed, from this perspective the library is not merely a repository of goods but an active participant in social progress. (Wojciechowska 2021) adds, when referring to social capital “a force related to community building as well as quality of life.” Libraries are a central node for networks and civic engagement in local contexts. Libraries contribute to fostering stronger ties among neighbours and promoting lifelong learning through literacy classes, cultural programming, and other activities. Libraries are also guardians of our heritage, the repositories and preservers of community memory. What Goulding (2012) observes about libraries, ‘having enormous cultural capital in the artefacts that they hold and (publicly) store’ (p.5), also makes them critical mediators of culture. “As we write the cheque out this big, is it for the

next group of people to feel proud about, and be a part of?" Mr. Buryer said. Libraries are no longer simply cultural institutions in the classical sense, but more so places of communication and encounter that counteract social challenges. By Julian Assange "Libraries are safe places where they can assist you....reconnect with society and avoid loneliness," they act as a kind of "centres that facilitate social participation and well-being." They are also a way in which libraries can contribute to the community in enabling public participation and accumulating resources for individual development. To conclude, we can say that libraries are an important part of the infrastructure to produce and reproduce social capital and identity. For all of their finickiness and ungrateful moments, they are still bastions for making cohesive communities.

Libraries and Culture: Preservers of Cultural Heritage in Perspective

As libraries as part of silent, social capital-, and identity-building creative networks operate in wider society's economic-technical dynamics, issues on access to knowledge, including cultural representation and social inclusion are crossing each other. This model positions libraries as enmeshed in the fabric of their society at the moment, situating their roles and value.

Libraries as Social Infrastructure

Klinenberg (2018) describes social infrastructure as "the physical places and organisations that shape the way people interact." Libraries are fundamental components of the social infrastructure – facilitators of social inclusion, civic participation, and lifelong learning (Ferguson, 2012). Their presence in underprivileged neighbourhoods increases information accessibility and bridges socio-economic divides.

Libraries as Transponders of Cultural Self-Visibility

(Representation with that is the public space [pulls around toward] Community identity and solidarity. Bourdieu (1986) stresses that "the access to cultural capital is an access to rise, a means for rising in the social hierarchy." Libraries provide "An array of resources in the present that opens up a variety of narratives and through which historically under-represented voices may be heard" (Goulding, 2004). Multilingual holdings and heritage preservation allow them to facilitate cultural expression.

The Library in the Age of Digital Inclusion

As information has moved towards the digital format, libraries have developed into places offering digital literacy education and service. "the role of libraries has evolved to include digital literacy education and access to worldwide knowledge resources" (Wojciechowska 2021). Libraries contribute to overcoming the digital divide by offering free internet access, e-learning and technology workshops for everyone.

Libraries: Cementing their Place in Community Health

And beyond mental growth libraries also build communities by combating isolation and promoting social interaction between people. The Guardian (2024) argues 'new libraries provide a refuge for people to network, relearn and rehabilitate with society. Their tools are book clubs, storytelling sessions and mental wellness programmes that foster emotional resilience and civic engagement.

Libraries and Public Policy I

Libraries as cohesive social and cultural institutions Demand for strategic policy interventions and more effective funding mechanisms. "Public funding for libraries is an investment in literacy, social mobility and economic growth," says Wojciechowska (2021). The integration of libraries in national development plans supports their continued role in the development of informed and cohesive societies. In a few words, based on its socio-cultural tradition, libraries are still relevant in striving for knowledge democracy, social and cultural diversity/social cohesion. Their ability to adapt in a digital age of change, when institutional and community priorities are shifting, means they continue to be resourceful hubs of both self- and group-learning.

Libraries as Designers of Cultural Property: Towards a Working Model

In the world of knowledge sharing, community building and culture preservation, libraries are making communities — in terms of social capital and identity — silently. Rec> Layer This guide looks at libraries as dynamic actors that create social capital — cooperation and trust, reciprocity and a shared sense of mutual support.

Live as If You Were to Die Tomorrow: Libraries and Social Capital

'Social capital' (Putnam, 2000) is comprised of aspects of social organisation such as networks, norms and trust that enable co-ordination and co-operation for mutual benefit. Libraries are enablers to build social capital by providing

a space for shared interactions and relationships among people coming together and connecting (Ferguson, 2012). Social cohesion. Their role in democratic engagement and bridging socio-economic divides is crucial to creating a more cohesive society.

Advertisement Libraries as Cultural Stewards

Cultural capital (Bourdieu, 1986) is ‘inherited knowledge’, a defined stock of knowledge passed on and invested in a structure. Such cultural richness is frequently archived in literature, historical records and indigenous knowledge stored in libraries (Goulding, 2004). With its literary events and digital archives it assures cultural continuity and passes down the knowledge to new generations.

Developing Library and Community Identity

Access to resources that can affirm people’s history and life experiences promotes a community identity. Wojciechowska” (2021), ‘libraries contribute to local identity by providing a public space for the exchange of knowledge and access to culture. Libraries provide a sense of community and belonging by curating collections that represent a wide range of voices and stories.

Libraries in the digital age

With the digital revolution, libraries are becoming virtual and physical spaces to explore traditional resources alongside modern ones. 4 The Guardian (2024) observes: ‘Libraries have become community hubs that provide digital literacy training, virtual access to the world’s knowledge and collaborative work spaces’. This is both inclusive and a means of supporting relevancy in this day and age.

The policy-investment nexus

Fostering libraries as bastions of community funding and sociocultural capital requires policy support and cash. Indeed, studies suggest that “public funding of libraries is positively linked to higher levels of literacy, social mobility and community wellbeing” (Wojciechowska, 2021). “Libraries must be recognised by government and institutions as strategic facilities for nation building and conservation of culture. Libraries, the unsung architects of social capital and culture are still be a mainstay in a developed, cohesive and cultured society. Serving as social capital brokers, custodians of culture and community identity, their role in the off- and online contexts persists.

Developing a Model for Libraries as an Active Ecosystem for Societal Transformation: A Conceptual Model

This conceptual framework, “Libraries as Architects of Cultural Heritage,” as shown in Figure 1 below, positions libraries not merely as buildings, but as active engines of societal growth.

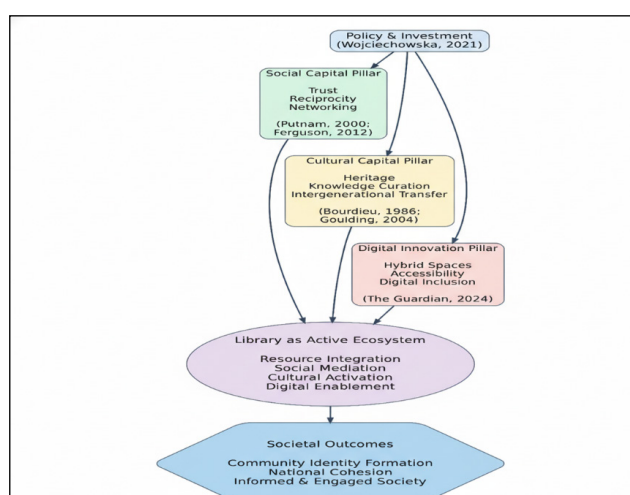


Figure 1. Libraries as an Active Ecosystem for Societal Transformation: A Conceptual Model

Narrative Explanation of the Model As is evident in Fig. What follows is a distilled version of a longer story about the model itself and how its various “inputs” (capital and technology) to “outcomes” (identity and well-being) can be linked with libraries as an intermediary.

The Engine Core: Library as Ecosystem/Species Pool

At the core of this is a Library Ecosystem—a “Social-Cultural Processor.” Historical documents in raw input, community trust and digital tools into the hopper; social value comes out. It is based on three principles:

Pillar I - The Engine of Social Capital

Building on the work of Putnam (2000), we might think about the library as a third space - physical and social.

- Mechanism: Bonding and Bridging Social Capital is found in Libraries through co-spaces.
- Outcomes: This is a trust and reciprocity building exchange and from this common ground share community goals (Ferguson, 2012).

Pillar II – The Bank of Cultural Capital

The library houses Institutionalized Cultural Capital in the way that Bourdieu (1986) describes it.

- Process: The library, through safeguarding traditional knowledge (digital archiving and literary curation – Goulding 2004a), opens access to high status information; and democratises.
- Outcome: This ensures that intergenerational knowledge is transmitted and provides citizens with the “cultural tools” they need to ascend the social ladder or exert power.

Pillar III- The Center for Identity Formation

Social and Cultural Capital converge to form Community Identity.

- Mechanism: (Wojciechowska, 2021) By curating different points of view that reflect life through the eyes of people living there and their experiences, the library can serve as a mirror to the community.
- The result: Community is what makes people belong; it’s what turns a geographic area into one continuous place.

The Moderator: The Digital Transformation

The model realises that the Digital Age is a “moderator” (to quote Bourdieu): it changes how these capitals are in turn enacted. Digital literacy and online access (The Guardian, 2024), is key to how far “we realise the space of the library extends beyond its physical walls” (2013:1) into digital spaces facilitating it remain or become social with its users.

External Enablers: Political Support and Funding

Outer support loop is the one that supports whole structure. The ‘nutrients’ of this ecosystem are Policy Support, and Financial Investment. Without them the library can no longer be strategic in nation-building or as a social mobility lever.

Table I. Summary of Framework Components

Component	Theoretical Basis	Primary Function
Social Capital	Putnam (2000)	Building trust, networks, and democratic participation.
Cultural Capital	Bourdieu (1986)	Preservation of heritage and status-conferring knowledge.
Hybrid Space	The Guardian (2024)	Integrating digital innovation with traditional literacy.
Identity/Belonging	Wojciechowska (2021)	Fostering local pride and inclusive community narratives.
Economic Engine	Policy/Investment	Driving literacy, social mobility, and national well-being.

In closing, the framework demonstrates that libraries are deliberate designers. They are not repositories of books; they shape the social and intellectual infrastructure of a populace. It’s by intentionally creating social capital, cultural preservation, and digital equity that libraries create a “Civic ROI” (Return on Investment) so critical to a nation that wants to be strong, well-informed, and united.

An Empirical Analysis of The Article On Libraries as Part of Cultural and Identity Capital

The significance of the library as an institution for social and cultural life has been acknowledged throughout history. Through knowledge exchange, preservation of cultural inheritance, and promotion of social contacts, the libraries are

contributing to social bonding and strengthening sense of community identity. Building on empirical, evidence-based results of ten strong academic sources found in reputable journal articles, this literature review focuses on the myriad of roles that libraries play in shaping social and cultural capital/identity.

Libraries and Social Capital Formation

An insightful contribution to the knowledge of, in particular, the social function public libraries serve is made by Ferguson (2012), who emphasises their importance as community resources that promote trust, reciprocity and citizenship among diverse populations. The research provides evidence concerning the role of libraries' programmes and services in fostering social interaction and better relationships within the community.

Public Libraries and the Community

Johnson and Griffis (2014) explore the relationship between public libraries and community empowerment, as an informal learning space for lifelong learning and skill acquisition. They conclude that libraries enable individual autonomy, and in turn community resiliency and cohesion.

Libraries: Guardians of Culture

Varheim (2007) explores libraries as the Keepers of Culture Artefacts, the preservers and disseminators of historical documents and local history. The study serves as a reintroducing function of the library in social integral inheritance for local self-identity.

Academic Libraries and Education in Cultural Capital

Hicks (2012) looks at the position that academic libraries occupy in higher education and how they are involved in the building cultural capital for students. The research finds that students benefit in terms of both their academic and cultural enrichment from the availability of extensive collections and research support.

Digital Libraries, as a Basis for the Information Society

Bertot et al. (2012) explore how digital libraries have emerged as a solution to the Digital Divide problem. The findings are that the digital access and literacy programmes taken up by the libraries serve to narrow the class divide and social exclusion in this digital age.

Libraries as Intercultural Forums for Dialogue

Audunson et al. (2011b) investigate the library as a site of intercultural dialogue in which encounters between people from various backgrounds take place. They found that libraries promote social inclusion and intercultural awareness in multicultural communities.

The economic impact of public libraries

Aabø (2005) undertakes a cost-benefit analysis of public libraries, which indicates that the economic benefits resulting from library services outweigh their operational costs through for example contribution to increased literacy and productive labour force along with others. This is a concrete example of something libraries do for society!

Libraries and Social Inclusion of Minority Populations

Pateman and Vincent (2010) also emphasise part of what the role might be for libraries in the social inclusion of excluded groups, refugees or marginalised communities. Their research shows that an approach to library services and outreach with a focus on tailored labor of targeting can help battle the effects of social inequities and increase community involvement.

- School Libraries and Student Engagement in a Second Australian School Library Impact Study: A State of the Nation Report, 2013-2016
- Todd and Kuhlthau (2005) explored the impact of school libraries on student engagement and achievement. The research proves that well-resourced school libraries raise educational standards and pupils' reading and learning skills for life.
- Engaged Libraries: libraries Nurturing Civic Engagement And Community Connections Anerson, Tod Co-published By Ala Sidelines): Participating in International Library and Information Science.
- Goulding (2009) also addresses the enabling role of libraries for public engagement via information and conversation spaces. The research indicates that the place of libraries in promoting and enhancing active citizenry cannot be over emphasised as far as the democratic process is concerned.

Lastly, the findings of these empirical studies highlight for a nuanced and layered role of libraries in social and cultural capital formation as well as performativity.

Libraries, as places of learning and carriers of culture, and as venues for social interaction and participation in civic life are essentials that must adapt to the changing needs of our communities while retaining their role in forming literate citizens who nurture an informed society.

Gap in Research: Libraries as Source of Socio-Cultural Capital and Identity

Despite the large body of literature about libraries as community places, several of the following questions remain open:

- **Empirical Evidence on the Long-Term Effects of Libraries on Social Capital Formation:** Despite the literature pointing to positive effects of libraries for social capital formation, there are few longitudinal studies showing that such connections endure. The sustainability of social and cultural capital generated by libraries may one day be an area worth revisiting.
- **Impact of Digital Libraries on Socio-Cultural Capital:** The traditional concept of a library has been replaced by digital libraries as well as electronic resources. But is there research to confirm that online libraries are as effective in social cohesion and cultural preservation as physical ones.
- **Cross-cultural studies in different socio-economic areas:** There is a concentration of research on public libraries in developed/urban locations; this has sidelined the rural/local location. Comparative studies in different social and economic contexts may also help to gain more insight.
- **Library Programmes and Marginalised Communities Libraries as neutral, open spaces:** The role of outreach programmes in promoting the knowledge commons among marginalised communities (e.g., refugees, ethnic minorities, people with disabilities) needs assessment.
- **Librarians as Change Agents:** Previous results have described the role of librarians, but there are limited research works that allude to the fact that they can play an active role when it comes to influencing or sculpting social and cultural debates as well as community leadership and intellectual freedom advocacy.
- **Quantitative Measures of Socio-Cultural Impact:** So far, most studies have relied on qualitative methods and there are no standard quantitative measures that captures how the library contributes to social capital or identity. They could also have value in shaping the policy process.
- **Libraries After the Pandemic** Many of you informed us about how your relationship to libraries has changed during the COVID-19 pandemic. But there is little evidence about how libraries have transformed and evolved in the digital first world.
- **Role of Libraries in Documenting and Preserving Indigenous and Local Knowledge:** While libraries have documented the historical records, their role in documenting indigenous knowledge systems is much less known or clichéd. More work is required to examine the role of libraries in documenting and advancing the community heritage, including (oral traditions) grip.
- **AI and Library Services:** The overlap of AI and library services, like individualised search support or automation or data-driven decision making, is a quite new and not very well-researched area.
- **Economic Contribution of Library Content:** Free knowledge is available at public libraries, the impact on the local economy by creating jobs and enabling innovation (or money saved to users) would need to be investigated further.
- I argue that future work would fill these gaps and also be a more durable, policy-relevant knowledge of how the library sector continues to generate social capital, cultural capital and identity in fluid digital societies.
- **Library as cornerstone of social and cultural capital and identity: What next?**

According to the research gaps described above, future studies can explore in directions and trends:

Studies of the Development of Library Role in Building Social Capital over Time:

Further research is required to ascertain the effects of libraries on sociocultural capital over time, and how they add value within communities, using longitudinal designs.

Digital Libraries and Community Informatics:

As the Virtual Libraries are just being born, one of the question of reseach, that is interesting here is: do virtual Libraries present in themselves cultural identity and community presented in traditional Library? Research into hybrid models of information provision in libraries (where a mix of physical and digital resources is provided), would support the learning about how library practice has developed around knowledge exchange.

Now here are some studies that we might like to see: Comparative studies comparing different socio-economic settings. Cross-cultural studies must explore how libraries function in different economic circumstances and what role they have in developing, affluent, and deprived society. Future work should consider the rural–urban differences in library access and libraries’ role for social capital.

Except for a small number of cases, there are no unexpanded library programmes with direct relation to marginalised communities; the former is mostly including it (12) or already full-expanded (4).

Evaluations may compare the effect of library programmes on non-homogeneous, politically and/or socially marginalised groups, such as refugees (Project Echelon), disabled workers(Aussie) on subcategories of the ethno-culturally diverse populations that are likely to be under-represented. Recommendations for public policy might be strengthened by such a study of barriers to library access and attempts to enhance inclusiveness.

Librarians And Socio-Cultural Change When considering these sweeping “historic changes,” we can best understand them using cultural conditions as a framework for long-term socioeconomic transformations.

The authors consider that, in the future, study should also focus on the social impact of librarians as well, at a local leadership and intellectual freedom defence or for digital literacy training. Studying the emotional labour of librarians and how this could impact their participation in professional roles could inform library workforce development planning.

Building a Quantitative Index of Social Capital

It would, however, be beneficial for future research to set some benchmarks on how well libraries are contributing the production of social and cultural capital. Things to research could be the analytics of big data and AI-based approaches of analysing the impact that library services play on community engagement.

Libraries in the Post-Pandemic World: New Realities and Inventions Episode305 by I love it here with Alex Rempel. Communities of Character EpisodeRecreating A SparkSeason Two, Episode 5Restore704-813-6633 Restored: The Work and Legacy of David Halberstam This week we would like to thank our generous sponsor:I Love It HereCLA

And how libraries are adapting to a post-pandemic world, in which they not only have changed the manner of lending materials and invested more fully in digital services, but have also reimagined programming. Studies might examine the resilience of libraries in crisis support and mental health during periods of global turbulence.

Libraries as Guardians of Traditional Knowledge

Focus in future on how libraries could be used to conserve, record and store indigenous knowledge. Futures work is interested in library partnerships with aboriginal groups for culturally sensitive knowledge exchange.

AI, Machine Learning, and the Future of Library Services

Tales of AI and the future of libraries -personalisation & recommendation systems, machine-aided indexing, chatbot-based reference/tools and where they tell us we’re going! Considering the ethics of AI in library services (e.g., data privacy, algorithmic bias and so forth) and how these affect (or don’t) user experience.

The Economic and Policy Implications for Investing in Public Libraries

economic research into library services: to prove that they contribute to employability, creativity and savings for other users of public services. Policymakers could benefit from the development of policies that encourage financially sustainable financing models for libraries.

Through exploring such research agendas, individual researchers may help in developing our knowledge of how various types of libraries take part in the constitution and re-shaping of socio-cultural capital, so as to identity-making and community’s sustainability moving towards digital environments.

The Socio-Technical Catalytic Library: The Discourse

The library talk of today is one that has transitioned from conversation about collection to a conversation about connection. As you write in your overview, libraries are no longer places left to silence; they are “silent urban planners” of social capital. But this has not been a smooth change. The main argument here is the Theory of Third Space. And of all these neutral, noncommercial third places—the coffee shop, with its high price of admission; the park or beach chair without convenience-distance toilets nearby; the gym and restaurant/bar (where you still have to buy something);

public libraries are some of the last bastions. “Middle spaces” between home (first space) and work (second space) are being programmed into oblivion by the isolationism wrought by atomised technology and global village simulacra. Libraries build ‘bridging social capital’ (Putnam, 2000), bringing people from different socio-economic groups into the same space and reducing othering as well as building a sense of community.

Library as Socio-Technical Catalyst: The Case

The new library-ese speaks not of collections, but of connections. As you infer, libraries are not places to deposit books any more —†they are “quiet builders” of social capital. But it is not without its headaches.

Well, the big question here is what we call the Third Space Theory. At a time when physical “middle grounds,” the space between home (first space) and work (second space), are being increasingly eliminated by commercial exchange and digital remoteness, the library is unequivocally one of our last vestiges of true democracy- non-cross-sectional, apolitical space. Through their formation of “bridging social capital” (Putnam, 2000), libraries help to crosscut different socio-economic groupings and erase walls between Us and Them in the construction of a community.

The Scholarly Debate: Tensions that Matter 3 tensions which ought to matter The debate is wide-ranging and the ripples spread across disciplines.

The Digital Paradox: The right of access versus inequality

Arguments for Innovation: Supports of the “Digital Age” (The Guardian, 2024) argue that through services in which artificial intelligence is a main component and hybrid learning environments knowledge becomes more democratic than not, by transcending, both literally and figuratively, those library walls into the general populace..

The Counter: The “Digital Divide” — Sceptics contend that too much emphasis on digital innovations will ironically serve to exclude the very types of citizens who libraries are supposed to uplift: seniors, the indigent and those living in rural areas with weak connectivity. The issue up for debate: Does the Digital Library generate more social capital, or another technocratic elite?

The Neutrality vs. Advocacy Debate

The Old View: Libraries have traditionally been thought of as neutral places — dispassionate arbiters of all knowledge.

Modern Activist Libraries: Some advocates argue that, as “custodians of cultural heritage,” contemporary libraries have a responsibility to choose sides in the matter of social justice (Pateman & Vincent, 2010). Should a library collect “white” rather than divergent voices (Wojciechowska, 2021), as would have been the situation with the Book of the Bearer series thus far in book selections, it is making a political and social choice. The question is: Can a voiceless library be an architect?

The Business Argument: Utility vs. Valuation Value

Neoliberal Response: In straitened circumstances of austerity, governments are less inclined to believe the rhetoric and seek ‘deliverable ROI’ (return on investment). A non-profit library is also viewed as a SINKING COST.

The Socio-Cultural Defence Law: Amersdorfer.” Can “Public Libraries Lack Value” have value and even an argument for the intrinsic and non-commodity (Value of Public Libraries)? You can’t measure the “trust” or “community-ness” that gets invested in a library very easily. That is: How can we measure the “success” of a library — by footfall and downloads, or by social fabric’s indefinable strength?

Synthesis: The “Resilient Pillar” Model

Discussants decide the only way to library success is via Adaptive Resilience. It has to reconcile its role as a Cultural Custodian (preserving the past) with its role as a Digital Hub (facilitating the future). Policy can always serve as the midwife to such institutions.

“To sit-inside and be forward-looking/forward-acting (not looking/acting in reaction to) in world, libraries can no longer remain with what is at most a reactive stance but must take on those tasks: being...” What exactly?... something proactive. Library is not a passing medium, but a laboratory for the future of human relations. Also, “Architect” is an apt metaphor to have in a title for the manuscript because libraries are not just buildings that store bricks of knowledge; they are also where those bricks morph into society.

Concluding Comments and Summary Thoughts

Libraries have been cornerstones of socio-cultural capital, where community reading habits and identity immersion are based. As libraries develop in the digital age, they become more than bookish storage facilities and transform into vibrant platforms for knowledge trading, social interaction and cultural continuity. Previous studies highlight their role in the generation of social capital, digital inclusion and community resilience. However, there are critical knowledge gaps regarding their sustainability in the long run, digital transition, and their impact on underprivileged areas. However, going forward, research should adopt inter-disciplinary implications drawn from information science, sociology, economics and artificial intelligence to understand the changing roles of libraries. As digital libraries, AI-based curation, and virtual community spaces gain momentum, it is time to reimagine the library policies, funding infrastructure and engagement models. Furthermore, as libraries continue to focus on remaining inclusive and accessible, they need to investigate more extensively their roles as guardians of indigenous knowledge; change agents; and facilitators of lifelong learning. In conclusion, I think libraries are not legacies of the past rather they are living institutions that shape the future. How these organisations respond to technological disruption, their role in reducing social divides and the social/cultural capital they generate will determine their relevance and survival over the next decades. Future research and policy work will be important in order to ensure that libraries continue to serve as centres for knowledge, culture, and the health of our communities in an age of digital content.

Libraries are anachronisms: bridges across time, space and the shaping of social-cultural capital & identity. They are about more than storing information; they provide spaces to meet, share and learn which can help people in our community keep active minds as well. Their importance in creating community involvement, intellectual freedom and inclusivity is well established but evolving issues such as digital transition, access or budget sustainability require continual reflection. Digital libraries, AI supported information services, and hybrid learning spaces question their faculty in new society. Further research should focus on longitudinal effects, Socio-Economic comparison, and technology's impact on traditional library roles. Libraries need to not only adjust, but also be a force in changing the way knowledge is spread, cultural conversations happen and social capital is built. Stewards of the past and stakeholders in future innovation, libraries will adapt into perpetuity— cementing their position as a cornerstone of social-cultural capital and identity in a constantly shifting landscape. Success for these approaches will be reaped by the pace of wellcoordinated policy responses, cross-discipline research, and technology progress that make them fit-for-purpose and resilient.

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Libraries as Knowledge Hubs: Shaping the Vision of Viksit Bharat 2047

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Summary

Viksit Bharat 2047's vision presents an image of India as a developed, everyone welcome, knowledge-oriented, and digitally enabled country by the year of its 100th anniversary of being free. Libraries affect this change by acting as centers for innovative ways of providing access to information, increasing digital literacy, supporting lifelong learning, and promoting innovation and research—rather than simply holding collections of printed materials. Libraries have transitioned from being primarily about holding collections of printed materials as they merged with information and computer technology (ICT) into contributing to the development of human capital, digital inclusion, research and innovation, governance, sustainable development through creating (knowledge), sharing (knowledge), and engaging community members (with their members) in the above-mentioned areas. Therefore, this research paper will explore the contributions made by libraries as knowledge centres/hubs to the building of the Viksit Bharat 2047 vision. Additionally, this study will provide insights into the difficulties encountered by libraries in India and provide some recommendations for how to enhance their contribution to the nation's development.

Keywords: Knowledge Hubs, Libraries, Viksit Bharat 2047, Digital Libraries, Knowledge Society, Sustainable Development

Introduction

India's vision to become a developed country by the time of its hundred years of independence comes from the National Vision for Viksit Bharat 2047. The Viksit Bharat 2047 vision outlines goals including inclusive economic development, high-quality education, technological advances, an environmentally sustainable world, and good governance. For India to achieve these goals, citizens must be knowledgeable, skilled, and informed. One way that libraries can play a strategic role in supporting citizens as they achieve Viksit Bharat 2047 goals is by being able to access, create, and share knowledge. Historically, libraries were thought of primarily as a place for printed materials; however, due to the evolution of technology (especially information/communication technology), the advent of digital materials, and the development of networked environments, there has been a transformation of libraries into community based, interactive knowledge-sharing centres. Modern libraries provide learning, research, innovation, and community engagement through the provision of digital materials, online services, and technology-enabled learning environments. The transition to these more sophisticated libraries directly supports the goal to create a digitally literate, knowledge-driven society described in the Viksit Bharat 2047 vision. By providing equitable access to credible information, libraries provide citizens with the ability to make informed choices regarding education, healthcare, employment, entrepreneurial ventures, and civic engagement. Libraries strengthen democratic ideals and support social cohesion in the creation of sustainable national development.

Concept of Libraries as Knowledge Hubs

Understanding Libraries as Knowledge Hubs A knowledge hub is an environment for producing, exchanging and utilising knowledge. As knowledge hubs, libraries provide more than just collecting materials; they provide many types of value-added services including but not limited to:

- Access to open and digital educational resources
- Research assistance including scholarly communication services
- Information literacy and digital skill development
- Community learning and innovation centres
- Indigenous knowledge preservation and sharing

By integrating technology, human expertise and engaging the community, libraries can become facilitators for development based on knowledge.

Viksit Bharat 2047: A Knowledge-Centric Mission The mission of Viksit Bharat 2047 reflects the values associated with a knowledge economy society, and the core components are: • Quality education/skill development • Digital empowerment/innovation • Inclusive and sustainable development • Transparency and good governance • Competitiveness globally Libraries support all of these components through their role in providing equitable access to information, supporting digital inclusion and building/encouraging an environment conducive to research and innovation.¹

Role of Libraries in Shaping Viksit Bharat 2047

Promoting Quality Education and Lifelong Learning

Libraries are playing an important role in promoting quality education and providing opportunities for Lifelong Learning. They support both formal and informal education through learning resources such as e-books, online course materials, reference services, etc. Academic and school libraries assist teachers and students in achieving their goals. Public libraries support Lifelong Learning for everyone; helping all sections of society.²

Digital Inclusion and Information Literacy

Digital inclusion is key to participating in the economy of today; therefore, developing the ability to find and access digital information is an essential skill today. Libraries provide training on how to properly use the Internet, including help with digital tools, online databases, and finding and using reputable sources. Through this support, libraries help narrow the digital divide of rural and marginalised communities.

Supporting Research, Innovation, and Start-ups

Libraries not only provide access to scholarly databases, research metrics, and data repositories; but also provide physical spaces (Innovation Labs and Research Libraries) for collaborative research and development. As a result, libraries are significant stakeholders in innovation-led development.

Preserving Cultural Heritage and Indigenous Knowledge

Libraries are also uniquely positioned to preserve cultural heritage, including manuscripts, rare documents, oral tradition and local systems of knowledge. There is significant library-led digitisation of India's cultural heritage, assuring that it will be preserved for future generations and accessible by a global audience.

Promoting Good e-Governance and Informed Citizenship

Supporting e-Governance and Citizens' Awareness Libraries contribute to e-governance efforts, offer access to government documents and promote understanding about citizen rights and duties. They facilitate good governance through uninhibited access to dependable data regarding governmental policies, legislation and citizen access to public services. Libraries enable citizens to understand their rights and responsibilities, as well as provide support for using electronic government services. By closing information gaps and creating a more transparent environment, through the use of libraries, citizens will develop a level of trust in their governments. An informed citizenry will be engaged with their government's democratic system of governance, thereby increasing the likelihood of contributing to the overall development of a country.

Libraries and Sustainable Development

Libraries contribute significantly to the achievement of the United Nations Sustainable Development Goals (SDGs), particularly:

Libraries and SDG 4: Quality Education

Libraries play a central role in promoting quality education by supporting formal, non-formal, and lifelong learning. School, academic, and public libraries provide access to textbooks, reference materials, digital resources, open educational resources (OERs), and e-learning platforms. Through literacy programmes, information literacy training, and digital skill development, libraries enhance learners' critical thinking, research abilities, and academic performance. In higher education and research institutions, libraries support curriculum delivery, faculty research, and scholarly communication, thereby strengthening the overall educational ecosystem. By ensuring inclusive access to learning resources, libraries contribute significantly to equitable and quality education for all.

Libraries and SDG 9: Industry, Innovation, and Infrastructure

Libraries support innovation and infrastructure development by facilitating access to scientific information, research databases, patents, and technological resources. Digital libraries, institutional repositories, and knowledge networks foster innovation by enabling researchers, entrepreneurs, and students to access global knowledge. Libraries also promote digital inclusion by providing access to computers, internet connectivity, and emerging technologies, particularly in underserved and rural areas. By acting as innovation support centres, libraries help build a knowledge-based economy and encourage research, creativity, and technological advancement.

Libraries and SDG 10: Reduced Inequalities

One of the most significant contributions of libraries is their role in reducing inequalities. Libraries bridge the digital divide by offering free access to information and communication technologies (ICTs) to marginalised communities, including economically disadvantaged groups, women, senior citizens, persons with disabilities, and rural populations. Multilingual collections, accessible formats, and inclusive services ensure that no group is excluded from knowledge access. Through outreach programmes and community engagement initiatives, libraries promote social equity, empowerment, and equal opportunities for participation in education and employment.³

Libraries and SDG 11: Sustainable Cities and Communities

Libraries contribute to the development of sustainable cities and communities by functioning as inclusive, safe, and community-centred public spaces. They serve as cultural and social hubs that preserve local heritage, promote cultural diversity, and encourage civic participation. Community libraries support local development by hosting workshops, public discussions, skill development programmes, and awareness campaigns on social and environmental issues. By fostering social cohesion and informed citizenship, libraries strengthen community resilience and democratic participation.

Libraries and SDG 13: Climate Action

Libraries play an important role in promoting climate awareness and environmental sustainability. By disseminating reliable information on climate change, environmental conservation, and sustainable practices, libraries raise public awareness and encourage responsible behaviour. Many libraries organise environmental education programmes, exhibitions, green reading initiatives, and sustainability campaigns. Additionally, the adoption of eco-friendly practices such as green buildings, paperless services, and energy-efficient technologies demonstrates libraries' commitment to environmental responsibility.

Libraries and the Vision of Viksit Bharat 2047

In the context of Viksit Bharat 2047, libraries are instrumental in building an informed, skilled, and responsible citizenry. They support national priorities such as digital empowerment, inclusive growth, innovation, and environmental sustainability. By promoting knowledge equity, lifelong learning, and civic awareness, libraries align with the vision of a developed, inclusive, and sustainable India. Strengthening library infrastructure, digital services, and professional capacity is therefore essential for achieving long-term national development goals.⁴

Steps to Make Libraries Strong for Viksit Bharat 2047

To enable libraries to function as effective knowledge hubs and contribute meaningfully to the vision of Viksit Bharat 2047, a systematic and strategic approach is required. The following steps are recommended:

Step 1: Strengthening Library Infrastructure through Increased Public Investment

Adequate financial support from government and institutional authorities is essential to modernise library infrastructure. Investment should focus on developing well-designed library buildings, upgrading furniture and reading spaces, expanding

collections, and strengthening digital infrastructure such as computers, servers, and high-speed internet connectivity. Enhanced infrastructure will enable libraries to offer user-friendly and technology-enabled services.

Step 2: Integration of Advanced ICT and AI-Based Services

Libraries must adopt advanced Information and Communication Technologies (ICT) and Artificial Intelligence (AI) tools to improve service delivery. This includes automation of library operations, development of digital libraries and institutional repositories, AI-based discovery tools, virtual reference services, and data analytics for user behaviour analysis. Technology integration will enhance efficiency, accessibility, and personalised user experiences.

Step 3: Continuous Professional Development of Library Staff

Skilled and competent library professionals are the backbone of modern knowledge hubs. Continuous professional development programmes should be organised to train librarians in emerging areas such as digital resource management, AI applications, research support services, data curation, and information literacy instruction. Regular workshops, refresher courses, and online training will help librarians adapt to evolving user needs.

Step 4: Development of National Digital Library Networks and Resource Sharing

Creating strong national and regional digital library networks is crucial for maximising resource utilisation. Resource sharing through consortia, inter-library loan systems, and shared digital repositories can reduce costs and ensure equitable access to information. Initiatives like national digital libraries and open-access platforms should be strengthened to support research, education, and innovation.⁵

Step 5: Encouraging Community Participation and Public–Private Partnerships

Libraries should actively engage with local communities, educational institutions, industries, and non-governmental organisations. Public–private partnerships (PPPs) can support funding, technology adoption, and innovative services. Community participation through outreach programmes, reading initiatives, skill development workshops, and citizen engagement activities will enhance the social relevance of libraries.

Step 6: Aligning Library Policies with National Development Goals

Library policies and programs must be aligned with national initiatives such as Digital India, National Education Policy (NEP) 2020, Sustainable Development Goals (SDGs), and Viksit Bharat 2047. Clear policy frameworks, standard guidelines, and monitoring mechanisms will ensure that library services contribute effectively to national priorities, inclusive growth, and sustainable development.⁶

Challenges in Transforming Libraries into Knowledge Hubs

Libraries have the potential to function as dynamic knowledge hubs that support education, innovation, digital inclusion, and sustainable development. However, in the Indian context, the transformation of traditional libraries into modern, technology-driven knowledge centres is constrained by several interconnected challenges. Addressing these issues is crucial for strengthening libraries' role in national development initiatives such as Digital India and Viksit Bharat 2047.

Inadequate Infrastructure and Funding

One of the most significant challenges facing libraries in India is inadequate physical and digital infrastructure. Many libraries, particularly in rural and semi-urban areas, operate in outdated buildings with limited space, poor lighting, and insufficient seating facilities. Budgetary constraints restrict the acquisition of new books, e-resources, computers, and modern library management systems. Insufficient funding also hampers maintenance, digitisation projects, and the adoption of emerging technologies, thereby limiting libraries' capacity to serve as vibrant knowledge hubs.

Digital Divide and Lack of Connectivity

The digital divide remains a major obstacle in transforming libraries into knowledge hubs. Unequal access to high-speed internet, computers, and digital devices prevents many libraries from offering online databases, digital repositories, and e-learning services. Rural and remote libraries often face unreliable connectivity, which restricts access to global knowledge resources. This digital gap not only limits users' access to information but also undermines national goals of digital inclusion and equitable knowledge dissemination.

Shortage of Trained and Skilled Library Professionals

The effectiveness of a library as a knowledge hub depends heavily on the competence of its human resources. Many libraries suffer from a shortage of professionally trained librarians with expertise in information technology, digital resource management, data curation, and user education. Limited opportunities for continuous professional development and skill upgradation further weaken librarians' ability to adopt innovative services. As a result, libraries struggle to transition from traditional custodial roles to proactive knowledge facilitation and research support roles.

Limited Awareness about Modern Library Services

Another critical challenge is the lack of awareness among users, administrators, and policymakers about the evolving role of libraries. Libraries are often perceived merely as book-lending institutions rather than as centres for digital learning, research support, innovation, and community engagement. This limited perception reduces user participation, institutional support, and investment in modern library services such as digital literacy programmes, makerspaces, and knowledge-sharing platforms.⁷

Policy and Implementation Gaps

Although several national policies and initiatives recognise the importance of information access and digital empowerment, gaps exist between policy formulation and implementation at the ground level. Inconsistent standards, fragmented governance, and lack of coordination among stakeholders hinder the effective modernisation of libraries. Delays in funding allocation, absence of monitoring mechanisms, and uneven implementation across states further limit the transformation process.⁸

Need for a Holistic and Strategic Approach

To overcome these challenges, a holistic strategy is required that integrates infrastructure development, digital connectivity, human resource capacity building, awareness generation, and effective policy execution. Strengthening library networks, increasing public investment, promoting public–private partnerships, and empowering library professionals are essential steps toward transforming libraries into sustainable and inclusive knowledge hubs. [9]

Conclusion

Libraries, as knowledge hubs, play a crucial and transformative role in shaping the vision of Viksit Bharat 2047. In a knowledge-driven and digitally empowered society, libraries go beyond their traditional functions to facilitate access to information, promote digital and information literacy, and support lifelong learning.[10] They strengthen educational and research ecosystems by providing quality resources, research support services, and collaborative learning environments. By bridging the digital divide, libraries ensure inclusive access to knowledge for all sections of society, including marginalised and rural communities. Libraries also contribute significantly to innovation, entrepreneurship, and informed decision-making by enabling access to reliable and authentic information. Furthermore, their role in preserving cultural heritage and promoting sustainable practices supports balanced national development. Reimagining libraries as dynamic, technology-driven, and community-orientated institutions is essential for achieving inclusive growth and good governance. Strategic investment in infrastructure, technology, and human resources will further enhance their impact. Strengthening library systems today will lay a strong foundation for a knowledgeable, innovative, and globally competitive India by the year 2047.

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Evolution of Research Data Management Services in Libraries in the Era of Generative Artificial Intelligence

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Summary

The emergence of the latest trends in the area of the use of generative technologies of artificial intelligence (AI) had a radical influence on other industries, including academic libraries. This paper doubts the Research Data Management (RDM) services emergence in libraries, but with particular attention to the generative AI transformative impact. Through a systematic review of contemporary literature and an analysis of relevant case studies, the research outlines the ways that AI is being incorporated into RDM activities and the challenges facing libraries and provides projections of potential directions for these services. The results show that, although generative AI provides original solutions to the issue of data management, it also requires a reassessment of the ethical framework and data control models in libraries. As libraries continue manoeuvring within this changing environment, the need to emphasise the use of sound ethical principles in the library becomes inevitable to protect the privacy of the users and to foster trust in the scholarly community. Moreover, the paper argues that despite efficiency and scalability gains made possible by generative AI, the epistemic, ethical and professional obligations that rest upon librarians are made more salient. Finally, this paper aims at contributing to the existing discourses in the future of librarianship, the quality of research, and information data custodianship in an AI-mediated scholarly communication platform.

Keywords: Research Data Management, Libraries, Generative Artificial Intelligence, Data Governance, Open Science, AI Ethics

Introduction

Historical Development of RDM Services

The crystallisation of Research Data Management (RDM) services at academic libraries was spurred by funding agency requirements for formal Data Management Plans (DMPs). The National Science Foundation (NSF) encouraged most U.S. research libraries to become active RDM partners within three years by issuing DMP-related policies in January 2011. The RDM services universities offered consisted of DMP reviews and revisions, repository (Dryad, Zenodo, Figshare) selection guidance, and training on data and metadata standards.

In time, policies that imposed additional requirements came to self-perpetuate and expand the scope of further federally funded data stewardship initiatives. The NIH Data Sharing Policy of 2015 focused on the biomedical sphere and instituted policies that required data-sharing plans for clinical trials. The international Horizon 2020 funding programme's Open Research Data Pilot (2016-2020) prompted infrastructure initiatives in Europe, including OpenAIRE. Simultaneously, the

2016 publication of the FAIR Data Principles (Findable, Accessible, Interoperable, Reusable) set standards for responsible data stewardship.

Over the course of about 10 years, three main phases can be identified in the evolution of RDM services: (1) a compliance phase (2011–2015) where RDM services focused on meeting funder imposed requirements by quickly developing prototype tools and templates, (2) a consortial phase (2016–2020) where RDM services expanded beyond curation and developed richer metadata and increased regulatory schemas, and (3) a COVID 19 phase (2020–2022) where remote research led to the development of triage models and streamlining of workflows to create compression efficiencies in specialist staff over the remote research period.

Pre GenAI Service Constraints

By the early 2020s, the challenges of mostly manual RDM workflows became apparent. Any individual data librarian could realistically assist a particular set number of researchers, with most of their workload allocated to monotonous steps like workload splitting, schema metadata, and DMP template adjustments/modifications. Service metrics from this particular period averaged review and feedback times of hundreds of minutes per individual DMP and a single dataset, and several hours subjected to realignment with metadata standards and schema guidelines, be they institutional or disciplinary.

FAIR compliance continued to be unbalanced; metrics/image data sets demonstrated growth in their usages of identifiers and their adoptions within new contexts, yet only a small percentage had sufficient documentation to be easily discovered, or accessed and reused, not only by people but by computer systems as well. The increase of fully remote and data intensive research exposed the pre-existing structural constraints resulting from the COVID 19 pandemic. Despite triage models classifying basic intake responsibilities as the domain of paraprofessional employees, librarians still acted as the primary gatekeepers for sophisticated FAIR compliance and preservation planning.

Integration of Generative AI in RDM

The integration of Generative Artificial Intelligence (GenAI) in Research Data Management (RDM) could transform how services are offered. While previous types of automation focused solely on repetitive, rule-based tasks, GenAI systems are able to draft relevant documents and assist with the creation, classification, and summarisation of metadata for other unstructured research inputs. GenAI also has the potential to transform how academic libraries operate by automating workflows for repetitive tasks such as the creation of metadata, allowing professionals to shift their focus to more valuable services such as consultation, governance, and partnerships with researchers.

The integration of GenAI into RDM systems is also fraught with challenges, including data integrity, bias in algorithms, transparency, and the trust institutions will have in the systems. The More AI-driven processes, dictates, the more RDM systems will have to deal with interdisciplinary, underrepresented, and unrecorded research. The potential ethical challenges and the creation of a more inequitable scholarly record will require RDM systems to develop policies that support transparency, accountability, privacy and equitable access, and that establish the boundaries for tasks that can be performed by AI systems.

Literature Review

Research Data Management in Libraries.

The idea of RDM became one of the most famous in the library and information science (LIS) literature as the sharing of data and transparency in research increased. Initial research emphasised the possible role of libraries in offering infrastructure and directions to the management of digital research products. Cox and Pinfield (2014) approached RDM as a new professional field of librarians with a new set of skills in data literacy, metadata standards, and research processes. Subsequent studies highlighted the service- orientated character of RDM and how libraries, IT services, research offices and disciplinary communities have to collaborate. Once the researcher expects the libraries to provide training and consultation on data management planning, documentation, and preservation, Tenopir et al. (2017) discovered. This anticipation makes libraries more active participants in the research cycle and not passive stores.

The implementation of the FAIR principles enhanced the strategic role of RDM even more. FAIR is like the traditional missions of organisation and access in libraries, as it promotes findability, accessibility, interoperability, and reusability. Libraries reacted and created metadata schemas, controlled vocabularies and repository services contributing to data reuse and reproducibility. Research done recently (Smith et al., 2023; Johnson and Lee, 2024) points to the increasing significance of RDM services in academic libraries. Libraries must be able to provide plausible management solutions in

the context of researchers generating huge amounts of data. To enhance such services, AI technologies are significant (Brown, 2023). Overcoming the ethical dilemma that generative AI has created necessitates the libraries to carrying training and education on the issue to their employees. Such education will allow them to address the problems of data privacy and algorithmic discrimination so that people have the same access to AI-enhanced services.

Ethical subsystems need to be maximised, and libraries need to remain open to stakeholders to ensure that they are compatible with the new standards in data management and user rights. Such an involvement will help libraries to be prolific in addressing the ethical challenges of generative AI and improve the service delivery of RDM and ensure user confidence. To reduce ethical implications of generative AI, libraries must re-educate the masses of workers and come up with rigorous policies that would enable the accountability and disclosure of the RDM practice (Eacersall et al., 2024). The libraries can achieve the goal of raising the level of RDM services through the culture of ethical consciousness and make users feel safe and motivated in their research activities.

Artificial Intelligence and Library Services

The use of artificial intelligence in library service has attracted the attention of more scholars. Its first applications were based on automation such as recommendation systems, automated indexing and information retrieval. Recent studies have reviewed the implementation of AI in reference services, collection development and in supporting digital scholarship. Generative artificial intelligence represents a qualitative break from previous AI tools. Unlike the rule-based or predictive systems, generative AI could create new pieces of content, thus, enabling dynamic interactions and adaptive services. It has been highlighted in research that it has the potential to be used in summarisation, translation, generating metadata and conversational interfaces. However, the issues related to hallucination, algorithm bias, and AI decision-making process transparency have been raised. In the library setting, the generation AI is increasingly viewed as a digital intermediary that can be used to supplement human knowledge. Scholars believe that AI must be implemented in a way that supplements and does not undermine professional judgement and ethical responsibility. Such a perspective is in line with the wider trend of human-centred AI, which is concerned with transparency, fairness, and user agency (Stefaniak and Moore 2024).

Intersection of GenAI and Research Data Management

GenAI and RDM have yet to intersect with each other as a point of study. Initial research has shown that artificial intelligence could be used to assist with data curation and quality control, as well as data enriching the metadata on a scale that could not have been previously handled by human staff. GenAI may facilitate interpreting unstructured data, producing documentation and connecting datasets with publications and software. At the same time, the use of GenAI on research data is associated with major ethical and epistemic issues. Automatically created metadata can create a false portrayal of contexts of data, and AI-generated summaries can contain inaccuracies that are hard to detect. The libraries therefore need to come up with governance systems that will ensure transparency, accountability and responsible data services using AI.

Methodology

The research design used in this study is a qualitative, exploratory research, which combines a systematic literature review and numerous case study analyses to understand the development of Research Data Management (RDM) services in libraries in the context of generative artificial intelligence (GenAI). The major scholarly databases were searched in 2010-2024 to retrieve relevant literature that could be analysed using the thematic approach to identifying the main trends, challenges, and ethical issues related to the use of AI-enabled RDM.

To supplement the literature review, three case studies were purposely chosen, including the University of California Libraries, the British Library and the University of Rhode Island AI Lab which were studied using institutional reports and published materials. These data were examined with the help of thematic synthesis and the results were combined to create a human-based approach to the ethical nature of AI-enhanced RDM services. Such a strategy would provide analytical rigour and capture the theoretical and practical aspects of the AI-driven change in academic libraries.

Evolution of Research Data Management Services in Libraries

Early Stage: Infrastructure-Centered RDM

Research Data Management (RDM) in libraries was in its earliest form mainly infrastructure-based. Institutional repositories were developed in libraries, provided storage facilities, and published primitive specifications of how files should be organised. These services were more reactive in that they responded to funder requirements, and did not directly

influence research practices. Librarians at this stage were mainly technical facilitators that facilitated the depositing and accessing of data. Even though they were significant services, they were often not linked to regular research processes, which reduced their efficiency and adoption.

Service-Oriented RDM and Research Partnerships

As the research practices have evolved, libraries increasingly took a more service-based paradigm in Research Data Management (RDM). This included the supply of data-management planning services, the organisation of workshops, and the merging of the data experts in the research projects. Therefore, there was a change in the focus whereby it was not just on infrastructure but on the engagement of the researcher and capacity building. At this stage, data librarian and data steward became professional speciality roles. These individuals facilitated the transition between disciplinary research activities and institutional policy, so that data were both handled in a way that facilitated both complying with and reusing.

Towards Intelligent RDM Services

RDM is currently entering a stage of introducing intelligent technologies, and particularly GenAI. These resources enable the libraries to increase their services without having to employ several additional personnel. This change however does not imply that RDM is not an epistemic service- not merely technology. In AI-based environments, libraries have to ensure the integrity, transparency, and trustworthiness of research information.

Research Data Management Service Levels Framework

Bibliometric indexing is a criterion used by research institutions to classify services according to research quality and institutional capacity. In this paper, the proposal is to map the sophistication of RDM services to Scopus levels of indexing so that they formulate clear quality expectations that form part of the institutional research missions.

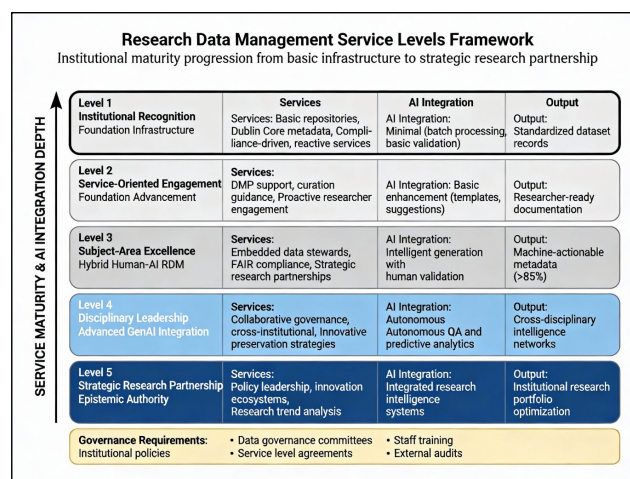


Figure 1. Research Data Management Service Levels Framework showing five hierarchical tiers from basic infrastructure (Level 1) to strategic research partnership (Level 5), with service characteristics, AI integration depth, governance requirements, and example outputs at each level

Generative AI and RDM Services

Generative AI includes technologies that can create new text, code, and other content from existing data. In Research Data Management (RDM), libraries use these tools to automate data organisation, support metadata creation, and improve data discovery and interpretation, thereby increasing the accessibility and usability of research data for diverse user groups. This increased accessibility is particularly significant in the case of differing data literacy because it can allow more researchers to operate with complex datasets as libraries can offer specific advice and help.

Data Creation and Documentation

GenAI tools can create formatted documentation simultaneously with raw data at the stage of data creation. Analysing datasets and related protocols, large language models can generate data dictionaries, codebooks, and README files,

eliminating the usual obstacle of poor or incomplete documentation. These tools have been included in institutional workflows to ensure that the data are ready to be FAIR at the time of creation as opposed to being remedied. GenAI can be used to help manage data management plans (DMPs) too, where the funder condition can be converted into text which is discipline specific, and librarians should still review and match the output to policies and ethical standards.

Metadata Generation and Enrichment

One of the most labour intensive RDM processes is metadata generation. Disciplinary literature GenAI models can produce at scale descriptive, structural, and administrative metadata with natural language processing that identifies entities, relations and significant concepts in datasets and related publications. Due to the lack of disciplinary nuances in automated metadata or the presence of errors, libraries usually have a hybrid workflow where GenAI generates the first records and the librarian performs quality control. This model includes effectiveness savings and professional supervision required to provide credible high-quality metadata.

Storage, Preservation, and Integrity Monitoring

GenAI can assist the libraries in long term preservation by ensuring the integrity of data, detecting format risks, and proposing preservation measures. The usage patterns can be analysed by AI driven systems and storage and redundancy strategies can be suggested depending on the probability of reuse, making preservation no longer a one time decision but a dynamic service. The tools are also capable of generating preservation metadata and migration documentation automatically to ensure that institutions manage large and heterogeneous collections in the long run in a more sustainable manner.

Data Discovery, Sharing, and Reuse

The data discovery and reuse can get especially good advantages with GenAI. There are conversational interfaces, which enable the researcher to search repositories with natural language queries (as opposed to specialised vocabularies), reducing the barriers to discovering useful datasets. AI systems have the potential to propose similar datasets, software, and publications to encourage cross disciplinary exploration. GenAI can also make the researcher aware of the contents of their dataset by creating summaries and simple visualisations before committing resources to reuse, contributing to reproducibility and accelerating research processes.

Automation of Data Management Tasks

GenAI can be used to automate repetitive and rules based data management operations, including data cleaning, elementary organisation, and starting cataloguing. By delegating these functions to AI, librarians get the opportunity to do the work that is more valued such as consultation, training, and governance. Automation has the potential to save time and eliminate repetitive mistakes, yet it also assumes that libraries should evaluate and refine RDM strategies regularly, so that AI tools are applied suitably, in an ethical manner, and according to the priorities of the institution. Training of the staff is necessary to enable the librarians to interpret the outputs of AI and identify the limitations and interfere where needed.

Enhanced Data Retrieval and Visualization

Natural language processing as a form of generative AI can enhance data retrieval by allowing researchers to explore repositories by talking to them and using filters. It is also capable of creating charts, summaries or narrative explanations of complex datasets that are easier to interpret which can be of great value to users with different levels of data literacy. Such features not only stream access but also make the use of advanced data resources democratic. In order to achieve this potential, libraries should promote the culture of teamwork and constant learning in staff and users and make sure that the AI enhanced retrieval and visualisation tools are known, trusted, and utilised successfully.

Case Studies

Many academic libraries have started to adopt the use of generative artificial intelligence in addition to the Research Data Management services. Such efforts highlight the substantial benefits of AI-enhanced processes, as well as the necessity of ethical questionability and professional growth as the continuous variables.

University of California Libraries

The University of California Libraries have integrated AI-powered systems that are able to wrap up critical Research Data Management (RDM) capabilities like data storage, metadata management and support, and data sharing. These systems can cut off the data lifecycle, thus, allowing researchers to spend additional time writing analytically and scholarly, rather

than spending time on routine maintenance. The initial feedback and pilot testing show that there is an increased level of satisfaction with the implementation of AI-enhanced workflows along with the librarian review in particular with the generation of draft Data Management Plans (DMP) and metadata improvements.

The example of the UC makes it clear that strong ethical governance, ongoing staff education, and consideration of researcher feedback are the key factors to success in the implementation of generative AI in RDM. To protect libraries against bias, inaccuracies and privacy risks in the outputs of AI, there is an urgent requirement that libraries participate in continuous monitoring and update their services as per the changing trends in technological developments and user interests.

The British Library

The British Library is working on artificial intelligence (AI) technologies development and implementation to enable the curation and discovery of information in its large collections. Machine-learning and AI products have been piloted and specific programmes have been established to perfect the selection, classification and distribution of digital materials thus making the collections more and more discoverable and useful to the researchers as time goes by. The initiatives emphasise the responsible and transparent utilisation of AI, intentional focus on moral issues, the development of the required competencies, and the use of open source equipment, which are given significant priority in this article. The British Library is therefore striving to be a central partner in future research data management by capitalising on its innovative potential and a strong sense of ethical governance and user-focused design.

University of Rhode Island AI Lab

One of the first multidisciplinary artificial-intelligence studios was established at the University of Rhode Island (URI) libraries in 2018, so the institution is no longer a passive node in the service but a player in the production of research and innovation. Instead of taking out the assistance of commercial vendors, URI created its own AI potential and established connections with campus initiatives like the Big Data Collaborative and outside agencies like DataSpark. The laboratory reviewed the research data management (RDM) applications in this ecosystem such as automated metadata generation, intelligent data discovery tools, and research support services supported by AI. At the same time, the libraries have introduced formal training programmes to train the librarians and scholars in the use of AI so that they could learn to use the tools in a responsible manner, critically assess the tools and also make them aligned with the institutional priorities.

Challenges and Ethical Considerations

Generative artificial intelligence when applied to research data management (RDM) leads to more efficiency and liability, but also at the same time, causes salient ethical, technical, and governance dilemmas. Three main areas of concern include; data quality and bias, privacy and security, transparency and accountability and intellectual property rights.

Data Quality and Algorithmic Bias

The use of artificial intelligence systems mirrors the biases of the training corpora, and, hence, perpetuates or increases existing inequities. This can be particularly felt in interdisciplinary, or under-researched, fields, where a lack of balanced training information contributes to a biased representational result. According to empirical research on the AI-generated metadata, the accuracy is still limited without human intervention, yet the implementation of librarian validation and correction of the data provides a significant improvement in the accuracy. In turn, the mandatory nature of a human factor is necessary to protect the quality of data and guarantee the integrity of academic documentation.

Privacy and Security

The inclusion of AI in research data management (RDM) processes creates privacy and security threats, especially when sensitive data are processed by a commercial or external platform. Such risks include the exposure of data, the loss of institutional control and failure to meet the requirements of regulatory and funding agencies. Privacy-by-design approaches (data minimisation, encryption, strict access controls, implying on-premises deployment of high-risk data) can be used to address these vulnerabilities.

Transparency and Accountability

Most artificial intelligence models are opaque systems and thus, they do not allow users to understand or challenge the outputs, which affect hypothesis creation, description of data, or research assessment. Repositories should therefore explicitly specify the AI-generated and/or AI-assisted content, carefully maintain documentation of the system limitations and outline the people responsible of reviewing, correcting and approving the AI outputs. Where feasible explainable

artificial intelligence tools and simple protocols of seeking human intervention are necessary to maintain trust.

Intellectual Property and Attribution

The use of AI in documentation and metadata creation raises major questions about who should be credited with its creation, the legal ownership of the final products and the legal quality of artificial intelligence-created derivatives. Institutions, especially libraries, need to come up with clear policies on how AI-generated work should be recognised, the conditions under which such AI-generated material may be distributed or reused, and how such practices comply with the preexisting copyright law and fair use ideals, preferably negotiating this along with other institutional legal advice.

Ethical Framework for AI-Augmented RDM

A concise ethical framework for AI-enabled RDM services can be organised around five components:

- Core principles: transparency, accountability, equity, privacy, integrity.
- Human oversight: mandatory validation, expert review, feedback channels, and quality assurance.
- Technical safeguards: bias auditing, strong security controls, and privacy-preserving techniques.
- Governance: clear policies, defined roles, decision rights, and compliance monitoring.
- Continuous improvement: regular evaluation of AI tools, integration of user feedback, policy updates, and ongoing staff training.

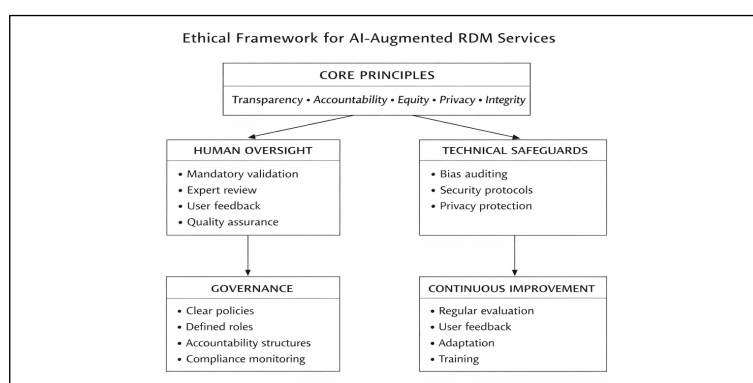


Figure 2. Ethical framework for AI-augmented RDM services

The framework is in congruence with the ETHICAL framework suggested by Eacersall et al. (2024) and incorporates the best practices of responsible AI usage in libraries and archives (Mannheimer et al., 2024). It, therefore, presents a practical and scalable framework that can guarantee the ethical, transparent and sustainable introduction of AI in the research data management services.

Conclusion

Implementation of Generative Artificial Intelligence into Research Data Management (RDM) services is a turning point in the development of practices within libraries. GenAI supports scaling of services, data discovery augmentation and reproducible research in ways previously thought to be impossible. It also intensifies ethical, epistemic and governance duties at the same time pushing libraries to reiterate their roles as reliable curators of academic wisdom. This research paper outlines the historical development of RDM services in the three different periods, namely Mandate Compliance (2011-2015), Lifecycle Expansion (2016-2020), and AI-Augmented Transformation (2020-2024). The next stage has built upon the previous one, and the introduction of AI is not replacing the previous methodologies but complementing them, thus enabling libraries to offer more advanced services on a greater scale.

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Emerging Technologies And Digital Transformation Of Libraries: A Nation-Building Perception Towards Viksit Bharat 2047

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Summary

Worldwide, the function of libraries is being redefined by the fast development of digital technologies. As part of its national vision, Viksit Bharat 2047, India is making great strides in embracing new technology, including cloud computing, web-based information services, smart library systems, and artificial intelligence. The role of libraries is changing from just storing information to becoming a centre of knowledge that supports education, research, innovation, and inclusive development through the use of technology. Libraries are vital to the development of any society, and this paper will examine how digital transformation can help libraries become even more effective in this regard. Secondary data is the foundation of the study. This is compiled from a variety of sources, including articles, books, and publications. Inadequate infrastructure, the digital divide, underfunding, and a lack of awareness are some of the issues discussed as the article delves into the revolutionary role of libraries in creating a knowledge-driven society. Simultaneously, there are obstacles to the shift to digital platforms, such as the digital divide, insufficient technology infrastructure, and the requirement for ongoing skill development for library professionals. To fully realize libraries' potential, the paper stresses, these challenges must be addressed through strategic planning with the backing of policy. To empower people digitally and ensure inclusive access, libraries must have a clear vision for 2047. Only then will they be able to play a pivotal role in creating a knowledge-driven and prosperous India.

Keywords: Viksit Bharat, Digital Transformation, Technology, Library, Nation, India

Introduction

India has introduced Viksit Bharat@2047, a set of ambitious goals that would complement the nation's centennial celebration. By addressing issues related to youth, poverty, women, and farmers, this vision aims to elevate India to the level of a developed country. Its primary goals are to eradicate poverty, provide access to excellent education and healthcare for everyone, train a workforce that is capable of meeting national needs, advance gender equality, strengthen rural communities, and strengthen agricultural production. On July 1, 2015, the plan was put into force with the goals of developing a robust digital infrastructure that can support all people, empowering individuals via participatory digital platforms, and making government and services available on demand. Library collections in India have long preserved the country's illustrious history of learning and scholarship. The realisation of the goal of "Viksit Bharat" (Developed India) is dependent upon the establishment of a knowledge-driven society as we approach the centennial of India's independence in 2047. The role of libraries, which serve as entryways to information and culture, is crucial in making this goal a reality. They have the potential to help India become a world leader in sustainable development, innovation, and education if they are transformed into inclusive, dynamic, and tech-driven hubs (Kumar & Singh, 2020).

By participating in Viksit Bharat 2047, ordinary citizens have a real chance to help India achieve its goal of being a developed country by 2047. Participation in policy debates, ideation, and constructive criticism are all ways in which this programme encourages people to be an active part of the nation's advancement (Chand, P., & Verma, S. 2020). People may help foster a feeling of national pride and collective accountability for progress by signing up for the Viksit Bharat 2047 programme. If people want to have their voices heard and have an impact on how government and development are going, they need to be actively involved. The effort also relies on raising public awareness and exchanging knowledge. You may find best practices from all around the world, as well as a wealth of print and digital resources, on this platform. This fosters a more thorough comprehension of development initiatives and promotes well-informed engagement. Participation from young people is crucial to Viksit Bharat 2047. Young people are given opportunities to participate in policymaking processes, debates, and conversations via this project. Furthermore, it backs programmes that help people grow professionally and personally so that they may make positive contributions to the country's advancement via initiatives like leadership development and capacity building. Opportunity financing, mentoring programmes, and networking platforms are just a few of the useful tools that registered participants may have access to help them with their projects and entrepreneurial endeavours. Everyone has the opportunity to make a real difference in the progress of their nation via Viksit Bharat 2047 by donating to vital sectors including healthcare, education, agriculture, and technology. To achieve a developed India by 2047 and improve everyone's quality of life, this project promotes a spirit of collaborative effort (Prof. Jawed K. Shaikh, Dr. Arun L Bhalariao 2025).

Changing role of libraries in India

As a result of NEP 2020 and technological advancements, libraries in India are transforming from static places to vibrant community and digital hubs. These new spaces aim to promote digital literacy, assist research through online resources, preserve local culture, and become places of innovation, social empowerment, lifelong learning, and critical thinking. They will play an essential role in connecting diverse communities to information and promoting critical thinking (Kumari, R. 2022). The Sustainable Development Goals (SDGs) established by the United Nations are gaining more and more support from libraries throughout the globe (Reddy, L., & Thomas, G. 2021). As part of its sustainable development initiatives, the International Federation of Library Associations and Institutions (IFLA) promotes library services, such as public access to information and communication technology, to encourage the adoption of the SDGs on a national and local level. IFLA represents library associations and institutions in around 150 countries. According to Hazarika (2025), libraries are vital to digital inclusion because they provide information and communication technology (ICT) infrastructure, help people learn digital skills, and preserve materials for the future (Bansal, R. 2022). Libraries are in a unique position to assist disadvantaged and marginalised people because of their long history of service and the confidence that members have in them (IFLA 2021). One of the SDGs' cross-cutting enablers is access to information, and libraries are in a prime position to provide this access.

The following ways in which library services contribute to the achievement of the SDGs:

- Bridging information access gaps;
- Encouraging businesses, nonprofits, and the government to prioritise local information needs;
- Promoting digital literacy and media literacy; and
- Establishing a system of government service delivery centres.
- Promoting digital inclusion via the provision of information and communication technology (ICT) and the employment of specialised personnel to assist individuals in developing their digital literacy.
- Playing a pivotal role in bringing together the scientific and academic communities.

Maintaining and sharing the world's ancient cultural traditions. Libraries in particular have the potential to contribute to the SDGs via serving as community centres, offering opportunities to learn literacy and information and communication technology skills, and giving access to all types of information (Hazarika HJ, Borah B. 2025).

The paper's focus on the responsibilities, possibilities, and challenges encountered by library and information science professionals in India's library transition to web-based information resources defines its scope, which is part of the wider objective of a "Viksit Bharat" by 2047. The paper contends that libraries can improve their services in terms of efficiency, accessibility, and relevance by incorporating new technology. Supporting digital inclusion and lifelong learning, web-enabled platforms, AI-based discovery tools, and digital repositories make it easier to create and share knowledge. Nevertheless, there are still major obstacles to overcome, such as the digital divide, cybersecurity worries, gaps in technological infrastructure, and the necessity for ongoing skill development for library professionals.

Review Of Literature

Negi, Dheeraj & Goel, Sapna. (2025) Shri Narendra Modi, prime minister of India, unveiled the objectives of Viksit Bharat 2047. In other words, by the time India celebrates its centennial of independence in 2047, the country will have fully grown into a modern nation. The Viksit Bharat Library Vision and Roadmap for 2047 In this hypothetical future of the year 2047, the research delves into the Library's function and duty. The Library embarks on a digital transformation, updates its infrastructure, becomes a community hub and promotes literacy and inclusivity, builds capacity through training and education, forms global partnerships and shares knowledge, evaluates and improves continuously, empowers youth, and more.

Kumar, Atul & Ranjan, Saroj & Kumar, Alok & Deshmukh, G. & Mehrotra, Manisha. (2025) India is about to undergo a remarkable change. The goal of a "Viksit Bharat" (Developed India) is becoming more than a dream as the country heads towards 2047, the centennial of its independence. The book VIKSIT BHARAT @ 2047: The Redefined Agenda lays out a detailed plan to make India fully developed by tackling problems, making the most of possibilities, and changing the way we create our country in the modern era.

Gaurav, Kumar. (2024) India will celebrate its 100th anniversary of independence in 2047, and Prime Minister Narendra Modi has set a goal—Viksit Bharat 2047—to become a developed country by that year. This plan envisions an Indian economy worth \$30 trillion, with piped water and a pucca home for every resident, drones for female farmers, more affordable medicine via Jan Aushadhi Kendras, and environmentally friendly and long-term fiscal policies.

Mundhe, Eknath. (2024) This study paper delves into the idea of "Viksit Bharat @2047," a plan to make India a developed country by the time it celebrates its centennial of independence. The article takes a multidisciplinary look at important strategies to reach this goal, which includes things like social justice, technical advancement, environmental preservation, and economic development. For development to be inclusive, the report stresses the need for strong legislative frameworks, smart investments in human resources and infrastructure, and changes to governance. The report offers practical insights and policy suggestions by examining existing difficulties and utilising possibilities in areas such as digitalisation, education, healthcare, renewable energy, and energy. According to the results, India may propel itself towards a more equal and wealthy future if the public, commercial, and nonprofit sectors work together. In order to help achieve the goal of a developed India by the year 2047, this study intends to add to the conversation around sustainable development and provide a road map for stakeholders and politicians to follow.

Chaddha, Kavita & Kanjilal, Uma. (2022) The overarching goal was to transform the current library into an information commons (IC) model while implementing as few structural changes as possible. Microsoft Excel was used to analyse and display the data. Students' enthusiastic engagement with library materials and services was highlighted by the study's results. It was clear that the students were dissatisfied with the library's present layout and hours of operation. They want more conducive settings for quiet study and group work, where librarians could show students how to make the most of modern technology for their education. This study paved the way for further investigations on ICs in India. The perspectives and anticipations of postgraduate, working executive, and senior-level executive students were all recorded in this pilot research. The majority of the recommendations are now part of the strategy. This style can be simply adopted in a small academic library with few building adjustments and new furniture, allowing them to keep the previous furnishings.

Lewis, David. (2019) Annotated herewith is the last plenary talk given by the American Theological Library Association on June 16, 2018, at their 2018 annual conference in Indianapolis, Indiana. Discussed in this session are questions of productivity within the library setting as well as the need for libraries' exploration, discovery, and invention for their continued relevance. Furthermore, it takes into account the changes that have taken place, with the most notable being the unceasing growth in computing power as shown by Moore's Law. Libraries must invest in open material and infrastructure to undergo a fundamental transition from an outside-in to an inside-out strategy, which is considered in this article. An open academic commons for religion and theology was lastly put out to the group as a challenge.

Objectives

To examine the role of digitally transformed libraries in nation-building within the framework of Viksit Bharat 2047.

To investigate the transformational function of libraries in developing a knowledge-based society.

Research Methodology

Secondary data is the foundation of the study. This is compiled from a variety of sources, including articles, books, and periodicals. This study employs a mixed-methods approach, integrating qualitative and quantitative techniques, to offer

a comprehensive analysis of libraries as catalysts for a developed India, Contributions of Libraries to Viksit Bharat 2047, and Opportunities and difficulties faced by library and information science professionals in their migration to web-based information resources. Research methods include interviews, case studies, and literature reviews; the goal is to draw conclusions and provide recommendations based on the collected data.

Libraries: The Key To India's Development

Libraries must be positioned as fundamental pillars of education, research, and innovation if India is to realise its goal of a developed nation by 2047. The most important ways in which libraries may help are as follows:

Closing the Digital Gap: In order to provide people more agency in the modern world, digital transformation is essential. By making their computers, the internet, and other digital resources available to the public at no cost, libraries may help close the digital gap. Public library efforts, such as the establishment of Digital Knowledge Centres, may guarantee that even the most isolated regions can access knowledge from across the world.

Promoting Lifelong Learning: In a time when knowledge is power, libraries may play a pivotal role in fostering lifelong learning. They are able to meet the needs of people of all ages and walks of life by providing opportunities for skill development in the form of classes, workshops, and other activities (Kaur, 2021).

Supporting Research and Innovation: Libraries need to transform into information centres that promote and facilitate research and new product development. They may encourage originality and analysis by making academic resources like journals, databases, and tools for group work available. Building libraries in schools should be a top priority if we want to spur innovative and ground-breaking research (Roy, 2020).

Libraries' Contributions to Viksit Bharat 2047

The goal of Viksit Bharat 2047 is to have a developed India by the time the country celebrates its 100th year of independence, and libraries are an essential part of that effort. The vast collections of printed materials are the traditional hallmark of libraries. They used to just include books, but now they incorporate a vast diversity of materials, including commercially released films and TV shows, music, audio and video recordings, formats like microforms, and more. Additionally, a lot of them provide databases of bibliographic information and digital material. The kind, size, and location of a library have a significant impact on the library's services and the people who use them. Libraries are often the beating hearts of their communities, with programmes that promote reading for pleasure and other forms of social involvement. In order to make information more accessible and inclusive, modern libraries have gone beyond their physical boundaries by providing electronic access to resources, including remote access over the internet.

- **Knowledge Hubs:** Libraries are vital information hubs that help people of all ages with research, education, orientation, and continuing their education throughout their lives.
- **Encouraging Digital Literacy:** Libraries play an important role in closing the digital gap and creating digital inclusion by providing patrons with access to technology, training, and digital resources.
- **Community Engagement:** Libraries play a vital role in our communities by providing a wide range of activities and services that cater to different groups. This helps foster social growth and inclusion.
- **Cultural Preservation:** Libraries are vital in safeguarding India's rich cultural legacy, which includes historical records, indigenous texts, and traditional knowledge systems.
- **Libraries Support Research and Innovation:** Libraries play an active role in supporting research and innovation by making academic resources, research tools, and collaboration spaces accessible.
- **Capacity Building in the Library Profession:** Libraries are great places for community members and librarians alike to get the training and education they need to flourish in their careers.

Libraries Empower adolescents: By providing resources for education and employment, libraries empower adolescents. In addition, they make it easier for countries to work together in order to share information and implement best practices from across the world. To sum up, libraries play an essential and ever-changing role in India's plan to become a developed country by the year 2047. Libraries are vital in the fight for Viksit Bharat because of the wealth of information they house and the many ways they engage the local community.

Implications For Transferring To Web-Based Information Resources

Despite the revolutionary potential, there are many challenges that must be overcome before the transition to web-based platforms in India's libraries and information systems can be considered a success.

- **Infrastructure Deficiencies:** An important barrier to migration is the weak infrastructure, which is especially prevalent in remote and rural regions. A lot of libraries still have issues with unreliable internet, poor technology, and not enough digital storage. The absence of up-to-date computers and fast internet limits libraries' ability to embrace and fully use digital resources. Even in densely populated regions, users may still have difficulties engaging with web-based platforms and services due to intermittent network availability.
- **Limited Budget:** Lack of funding is still one of the main problems. Libraries, particularly those in the public and governmental sectors, have financial constraints that prevent them from purchasing essential technologies. Cloud storage, electronic journals, and online databases are all digital resources, but their exorbitant fees make the issue even more challenging. In addition, libraries must provide funds for regular maintenance, software upgrades, and cyber security measures, which can clash with other financial priorities within the institution.
- **Skill Deficit:** In the Field of Library Science Professionals in the field of library and information science must possess both general and specific digital literacy in order to effectively incorporate web-based resources. Modern technology, such as cloud computing, artificial intelligence (AI) tools, and data security is often overlooked by library and information science experts. Those working in library and information science may resist or struggle to adapt to the digital transition if they do not engage in ongoing professional development to learn how to effectively manage digital resources.
- **Growing Privacy and Security Concerns:** As library systems move online, patrons' personal information is increasingly vulnerable to hackers and other cybercriminals. Protecting users' private information, including research data and personal details, from cyber-attacks is of the utmost importance. It is particularly challenging for smaller firms with fewer resources to comply with data protection laws and deploy strong cyber security measures.
- **Legal and Copyright Issues:** As more and more activities move online, copyright and intellectual property concerns also arise. Libraries face financial and legal consequences if they do not handle complex licence arrangements for digital resources.

A Library's Strategic Role in Building the Nation towards Viksit Bharat 2047

With the goal of being a fully developed nation by the time India celebrates its 100th year of independence, the government has laid out an ambitious plan called Viksit Bharat 2047. Sustainable development, digital transformation, inclusive growth, and knowledge-based advancement are the pillars upon which this vision rests. Libraries play a crucial role inside this structure. They have transformed from being just repositories of books into vibrant hubs for new ideas, information dissemination, cultural preservation, and community building. In what follows, we'll examine libraries' many contributions to making Viksit Bharat 2047 a reality.

- **Bridging the Digital Divide:** The disparity in internet access between rural and urban areas is one of India's problems. By providing low-cost or free access to computers, the internet, and digital collections, libraries are vital in closing this digital divide. Learners from all over the world have access to millions of materials from a variety of fields and languages via the National Digital Library of India (NDLI), a remarkable project. Libraries guarantee that no community is left behind in the race to a developed India by making information widely accessible.
- **Encouraging Knowledge Acquisition and Continuous Learning:** The information overload of the modern day has libraries educating patrons in information literacy skills such as where to look, what to look for, and how to utilise the information they discover. In order to fight disinformation and create an educated society, this is crucial. In addition, libraries provide resources for skill development, occupational training, and personal growth, making them centres for lifelong learning. The three pillars of India's vision for 2047—employability, entrepreneurship, and innovation—are strengthened by this.
- **Libraries Fostering Knowledge and New Ideas:** India needs a thriving research and innovation sector if it wants to join the ranks of wealthy nations. Librarians at academic and research institutions make available to researchers a wealth of information, including databases, journals, patents, and archives from across the world. Their services, which include data curation, plagiarism detection, and citation management, are a boon to innovation ecosystems. In doing so, libraries aid in the development of new information and the formation of policies based on solid evidence. They improve India's standing in the scientific, technological, and industrial spheres by enabling top-notch research.
- **Libraries and Sustainable Development Goals (SDGs):** As an organisation, India is dedicated to attaining the Sustainable Development Goals (SDGs), and libraries play an important part in this effort.
- **Quality Education (SDG 4):** By guaranteeing equal access to instructional materials, libraries support it.
- **Gender Equality (SDG 5):** By providing women with welcoming and secure environments to study, we can help achieve gender equality.

- Industry, Innovation and Infrastructure (SDG 9): Industry, Innovation, and Infrastructure and, digital libraries and services provided by information and communication technologies will be necessary.
- Peace, Justice and Strong Institutions (SDG 16): By encouraging openness and democratising access to information, we can help achieve SDG 16.
- Libraries play a crucial role in achieving Viksit Bharat 2047 by including their services within the SDG framework, which promotes sustainable and equitable development.
- Preservation of Cultural Heritage: The rich cultural and intellectual history of India is the foundation of its civilisation. Protected in libraries are indigenous knowledge systems, rare books, archives, and manuscripts. The National Library of India and the Khuda Bakhsh Oriental Public Library are among the institutions that have begun digitising fragile materials in order to make them available to people all over the globe. Libraries help with national pride, cultural diplomacy, and international renown by protecting and passing on historical and artistic artefacts.
- Civic and Social Inclusion Hubs: Libraries play an important role in the lives of their communities, particularly in less densely populated places. Not only do they have books, but they also provide information on government programs, healthcare, farming, and jobs. The library is a social justice and equality advocate because it helps underrepresented communities, including those with disabilities and language minorities. They are contributing to the realisation of Viksit Bharat 2047's inclusive vision in this way.
- Developing the skills of information workers and librarians: Developing the skills of information workers and librarians is crucial to the success of libraries in fulfilling their goal. Training in information and communication technology (ICT), AI, data management, and digital curation should be ongoing for all professionals. Technology has transformed librarians into information stewards, administrators of knowledge, and educators in the field of information literacy. Government agencies and professional groups in India need to put money into training librarians so they can spearhead the country's information revolution (Prosenjit Pramanick 2025).

Conclusion

We can conclude that Libraries are more than just storage facilities for books; they are hubs for community building, information exchange, and learning. They will be essential in the effort to create a more knowledgeable, educated, and skilled society along the path of Viksit Bharat 2047. A sea change is occurring in India's approach to information creation, access, and sharing as a result of libraries' digital transformation. The research shows that in order for libraries to keep up with the times, they need to be proactive in embracing new technology and coordinating their services with government goals. Libraries play a crucial role in nation building when they enhance digital competencies, promote inclusive access to web-based information resources, and strengthen smart library initiatives. To make sure that libraries help India become a developed nation by 2047, a vision for library development that is tech-driven is needed. Libraries have the potential to play a pivotal role in advancing education, equality, and development, and in fulfilling India's goal of Viksit Bharat 2047, provided that the government and citizens work together with the correct vision.

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Electronic Resource Collection Development and Management as a Catalyst for Knowledge Commons and Viksit Bharat 2047

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Summary

Collection development is a systematic decision-making process that evaluates the needs of a user of the library. It is the strategic planning for any institution which will ensure a long-term sustainability with cost control by aligning resources with their institutional goals. The process includes selection, maintenance, acquisition, evaluation and sustaining of information sources in libraries which help to develop the collection and facility of a diversity of information resources to fulfil the need of library users and the institution's requirement. It is a digital or hybrid library needs to have pre-defined policies and practices like those being followed in a traditional library while keeping in view the issues and complexities that are especially related to digital materials. Important processes involved in collection development in the digital environment are identification, selection, licensing of digital materials, etc. It is important to set out the criteria to fulfil and map decisions made to the local collection management and development policies. This paper clarified the strategic methods required for the development of digital collections in the library. It is described in what way a library can increase the access of electronic resource use for users.

Keywords: Collection development, Collection management, Electronic resources, Knowledge commons, Digital repositories

Introduction

In the contemporary digital era due to rapid growth of ICT and technological advancement there is a digital revolution in the information society resulting in transformation of knowledge systems creation, storage, and dissemination of information through networked digital environments thus changing the information landscape and greatly impacting libraries.

With the rise of digital learning, online education platforms and virtual classrooms there is an e-learning environment. Users can access anytime, anywhere. Progressively increased reliance on e-resources for academic and research needs. Nowadays there is transition from print to digital and increasing hybrid library mode, access-based collections, declining dependence on print. The role of libraries is changing. Libraries are transforming as digital platforms in service-orientated institutions. There are a user-centric approach, relevance and quality, cost-effectiveness, sustainability, licensing, access issues and optimal utilisation of resources.

Libraries act as Knowledge Commons through shared knowledge spaces, open and inclusive access, collaborative learning, knowledge creation and sharing, removal of access barriers, intellectual engagement and community-orientated

services. Libraries fulfil the National development goals and enhance the knowledge-driven economy through digital empowerment. inclusive growth, an informed society and human capital development collaborate with the vision of Viksit Bharat 2047.

Electronic Resource Collection Development

Conceptual Explanations

Electronic Resources: Electronic resources are non-physical forms present in digital format including internet-based resources like electronic books, electronic journals, online databanks, multimedia content that can be accessed through computers and networks. They are continuously updated licensed content that can be subscribed or open access, also accessible anytime and anywhere.^{1,2}

Collection Development: collection development is a systematic decision-making process that assesses the needs of a user. It helps in selection, acquisition, evaluation, weeding and replacement of the resources that deliver relevant quality of balanced resources. This does strategic planning for any institution which will ensure a long-term sustainability with cost control by aligning resources with their institutional goals.

Knowledge Commons: Knowledge commons is a community-orientated model that removes the access barriers from a shared knowledge space which is open for equitable use among society. It supports the public for learning and innovation because of the free flow of information, can add more.³

Digital Libraries: Digital Libraries can be defined as technology-enabled libraries with network-based services to provide 24x7 availability of digital repositories. It preserves the digital content on an online access platform for remote users to virtually access, store and retrieve information.

Types of Electronic Resources

Libraries acquire various types of electronic resources such as:

Subscribed Electronic Resources: These are the licensed resources i.e. restricted access which require subscription and authentication. They are usually copyrighted content like high impact journals, e- books which are subject to specific databases. Commercial databases like Scopus, Web of Science require institutional subscription and an annual renewal.

Open Access Electronic Resources: These resources are openly available in public domain without any subscription cost and are free to access. They are useful for scholarly communication and promote knowledge sharing via global accessibility. Also, present in institutional and subject repositories.

Institutional Digital Content: Institution-created content that are locally generated intellectual assets present in their digital repositories. They are generally academic output of research publications, theses, dissertations, faculty works, conference papers, project reports and archival records which are preserved for longer terms and controlled by the institution.

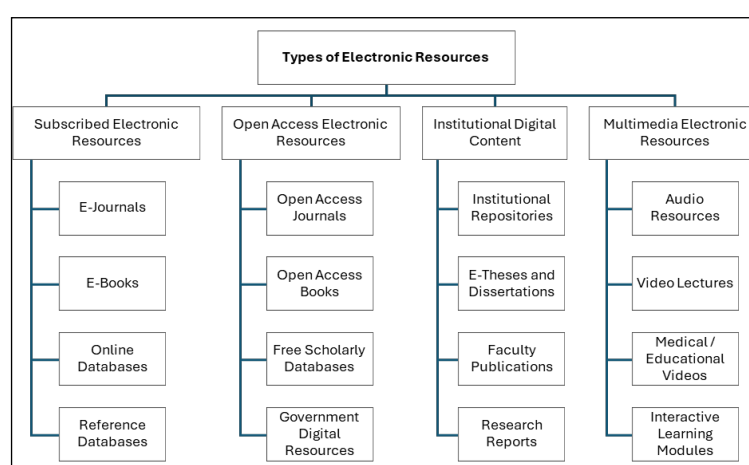


Figure 1.Types of Electronic Resources



Figure 2. Selection Tools

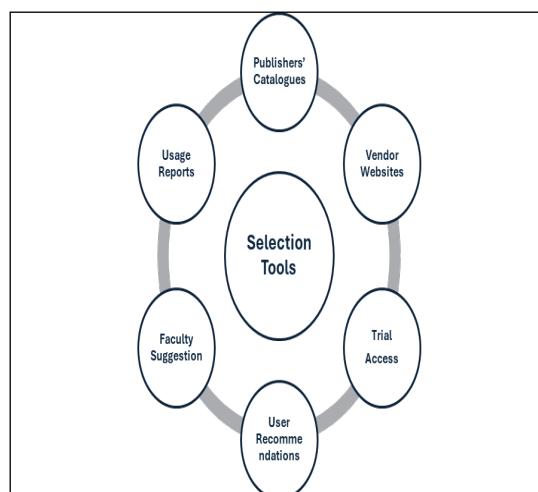


Figure 3. Selection Criteria

Multimedia Electronic Resources: It is a form of interactive media i.e. nontextual resources example audio, video contents. Visual learning materials are recorded lectures, webinars, simulations often help in promoting user engagement and experiential learning.

Selection Tools and Criteria

Selection of electronic resources is one crucial part of collection development in libraries after user needs assessment. It involves identification of suitable digital resources to meet the needs of users. Libraries use different selection tools to locate and review electronic resources, while specific selection criteria are applied to evaluate their relevance, accessibility, and cost. A proper selection process helps in developing a useful and balanced electronic resource collection.

Collection Development Policy

A collection policy should also provide direction for library personnel with selection responsibilities. Fundamentals of a collection development policy can differ based on a library's needs. The policy should give direction to support selectors or acquisition librarians in creating the library's prospects and preference in relation to:[4]

Technical

- Functionality and reliability
- Vendor support
- Licensing
- Currency

- Value for Accuracy and completeness

Duplication

Lastly, the policy should also deliver clear guidance on cycles of review and to remove policies for e-resources, where additional criteria related precisely to format, such as uselessness, platform dependability, etc., may apply. The preparation of an e-resources collection development policy should support safeguarding consistency of method that e-resources acquired are suitable; and that due planning is given to the full cost (immediate and ongoing).

Licensing Models and Consortia

Electronic resources are generally acquired through licensing models and consortia that are defined on the terms of access and usage. In contrast to print resources, electronic resources are governed by a legal contract that specifies how the assets can be accessed, distributed, and utilised by users of the library. Libraries generally implement subscription-based access based on annual licensing, or perpetual access models depending on their criteria and budget allocations. These content licensing models play an important role in the development and management of digital collections.⁵

Different access models are used within licensing agreements that allow libraries to regulate a large number of users and their mode of access. Common access models include site licences, institutional access, and concurrent user models. Such arrangements highlight the requirement for libraries to provide yet flexible access to electronic resources for students, researchers, and faculty members. However, licensing agreements may also include copyright restrictions and usage limitations, which require careful monitoring by libraries.

Library consortia which are a cluster of several libraries for distribution of the resources have also been established because of e-journals' rise. Various library consortia including UGC-INFONET of INFLIBNET, INDEST- AICTE consortia of IITs, NML-ERMED CONSORTIUM of National Medical Library's electronic resources in medicine are the best examples of such types of consortia through which UGC-purviewed universities and IITs, IIMs, NIITs and medical institutes of national repute are getting access of e-journals/databases respectively.⁶

Budgeting and Cost-effectiveness

In modern libraries, as a part of collection development budgeting plays a crucial role. With the increasing cost of resources, balancing print and digital expenditure is a step towards sustainable collection development that will work best for limited library budgets.

Usage statistics and academic data are used to support budgeting and making subscription renewal decisions. We can overcome financial constraints through consortia-based savings and proper planning by prioritising the resources, making time to time cost-benefit analysis, avoiding duplication of resources and efficient fund utilisation.

Usage Statistics and Evaluation

Statistical information enhances the assessment and conclusion making during the life cycle of electronic resources, with new purchases, renewals, and cancellation of electronic resources. Usage statistics help improve access to and use of electronic resources. Statistics improve our ability to understand by what means and who uses our libraries, and in what way they use the resources of the libraries. The standards kept by the COUNTER and SUSHI will help assure the quality of statistics and lead to developments in both the statistics themselves and the method of collecting them.

Usage data, access frequency, downloaded statistics, user engagement performance measurement helps evaluation of subscriptions renewal or cancellation. Decisions of low-use vs high-use resources, data-driven decision making, feedback analysis, assessment of relevance, improvement of collections, and monitoring access trends are helpful in evaluation of collection development.

Life Cycle of Collection Development and Management

Techniques for Electronic Resource Management (TERMs) began in 2008 as a basic framework to help library workers become more familiar with the lifecycle of electronic resource management. Initial vision expanded upon Pesch's electronic resources cycle and focused on the day-to-day activities of electronic resource management. The lifecycle changes through the theme areas of searching of new content, procurement and licensing, application, troubleshooting, assessment, and preservation and sustainability.

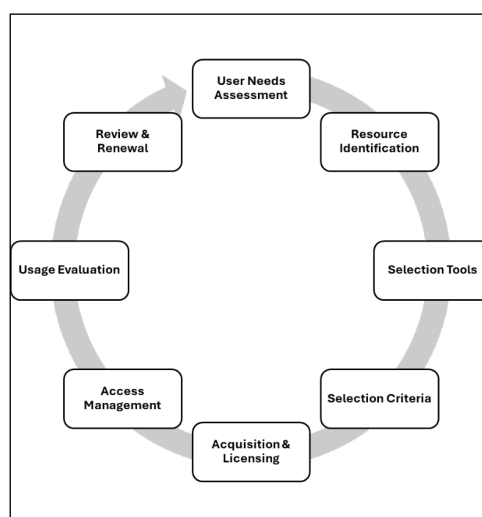


Figure 4. Life Cycle of Collection Development and Management

Role in Knowledge Commons

Libraries are a pillar to a knowledgeable society that works on a community-orientated model which is inclusive for growth in national development. The idea of knowledge commons is strongly backed by the proposals of the National Knowledge Commission (2007), which suggested the necessity for shared, open, and technology-enabled access to information sources.

The context of knowledge commons is strengthened through:

- **Shared Access through E-resources:** This provides collective access to multiple users in an shared environment that act as a centralised collection for democratisation of information. A cost-effective access model supplies institutions with their access rights for concurrent usage of information.
- **Remote and 24x7 Availability:** Virtual library environment supports anytime-anywhere access of digital resources. In the digital era, the location independent usage of resources helps achieve seamless access to knowledge and support learning with uninterrupted availability.
- **Open Access Resources:** These are freely available scholarly content that provides equitable information access to all. The open knowledge movement encourages knowledge without restrictions by the removal of price and permission barriers, thus making it globally visible.
- **Collaboration & Resource Sharing:** This helps institutions with inter-institutional collaboration in library consortia. It provides a shared digital platform for cooperative collection development which furnishes a collective growth of information resources.

E Resources and Viksit Bharat 2047

The Idea of Viksit Bharat 2047, e-resources has emerged as reinforcement of the nation's knowledge ecosystem. The broad access to e-resources supports lifelong learning by enabling flexible, remote, and continuous learning opportunities. As a result, members have access to high-quality information resources that enable self-directed learning.

India's knowledge-based economy contributes in research excellence and innovation-oriented education which will improve research productivity, also enhance research-intensive environments which facilitate evidence-based research and collaboration. Consequently technology-enabled learning becomes a key highlight of the idea Viksit Bharat 2047.

Libraries equipped with electronic resources enable the path that we are marching towards, strengthening the intellectual capital which is inclusive of growth and fosters creative problem-solving with sustainable development.⁷

Conclusion

In the long run, the collection development and management of e-resources have not only transformed the modern library services but also reconstructed them into knowledge commons. Therefore, by providing remote availability and collaboration and supporting research intensive environments, we have contributed to information empowerment and

a sustainable knowledge-driven society. Thus, e-resource collection development proves libraries are catalysts of Viksit Bharat 2047 by fostering an intellect-driven and innovation-orientated society.

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Libraries As Knowledge Commons: Catalyzing India's Journey Towards Viksit Bharat 2047

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Summary

The purpose of this article is to clarify the roles and competencies that librarians will require in the future to meet the changing needs of library patrons. The idea of hybrid libraries-which mostly concentrate on incorporating technology into library services-is covered. These libraries seek to increase accessibility, offer users a wide range of services, enhance instruction, foster teamwork, guarantee digital preservation, and stay up to date with emerging technologies. As librarians modify their methods to include new technologies and learning models, their roles are evolving. Information workers' changing duties and responsibilities are reflected in the rise of hybrid library management.

Keywords: Blended library, teaching role of librarians, LIS education, hybrid librarian, technology-enhanced learning, and future library

Introduction

The idea of Viksit Bharat 2047 is the desire of the Indian people to be an urban nation by the hundredth anniversary of their independence. The vision for Viksit Bharat 2047 includes human development, knowledge empowerment, innovation, sustainability, and social equity, in addition to economic growth. Libraries have a crucial role in achieving the United Nations' Sustainable Development Goals (IFLA) 16; specifically, libraries provide accessible, reliable information and knowledge. As a result of the changes that are occurring in the world, libraries are no longer limited to being the traditional quiet spaces for reading. Instead, they are evolving into the knowledge commons (Hess & Ostrom) 1-

The idea of Knowledge Commons strongly supports democratic values, ensuring everyone has fair access to information, regardless of their financial situation. India's immense and varied library The library ecosystem, including academic, medical, engineering, agricultural, public, and special libraries, has a significant potential to support national goals. These goals include improving education, healthcare, research, digital skills, and rural development. (Lankes)2. This paper argues that libraries, when they function as knowledge commons, can be important catalysts in India's progress towards Viksit Bharat 2047.

Literature Review

The major role of library and information centres totally has changed drastically in the modern knowledge civilisation. Libraries are not limited to storing and lending books only, but they are growing into collective spaces that support knowledge, association, and modernisation. Hess and Ostrom (2007)1 advocated the thought of knowledge commons and revealed that while knowledge information resources are openly shared and jointly managed, they support imagination,

collaboration, and social growth. According to them, libraries logically function as knowledge commons because they are built on the philosophy of ingenuousness, community access, and shared accountability.

In addition to growing this proposal, Lankes (2016)² emphasised that the assignment of libraries should focus on knowledge conception rather than mere information compilation. He highlighted the shifting position of library managers as educators, facilitators, and society associates who dynamically maintain education and engagement. In the Indian framework, the National Knowledge Commission (2009)³ evidently certified libraries as very important institutions for nationwide development and suggested their transformation to sustain education, exploration, , and lifetime learning across society. The digital revolution has also strengthened the job of libraries as knowledge commons. Chowdhury (2016)⁴ emphasised that digital resource centres and open-access assets help ensure continuing knowledge maintenance while dropping information differences. Similarly, Corral (2014)⁵ highlighted that educational and research libraries provide modernization by supporting research teamwork, data managing, and academic communication. Jointly, these studies explain that libraries—when urbanised as knowledge commons—play an essential role in comprehensive education, research improvement, and countrywide development.

Methodology

This study advocates a theoretical and qualitative research approach based on a wide-ranging evaluation of accessible literature connected to Knowledge Commons, library revolution, and national development. A wide variety of sources—including academic books, peer-reviewed periodical articles, policy and procedure frameworks, and reports published by countrywide and worldwide bodies were scientifically examined. The examination focuses on understanding how libraries are developing and contributing transversely to key sectors such as education, healthcare, technology, and agriculture. A thematic analysis process was used to recognise key patterns and themes, as well as access to information, digital inclusion, research support, and community empowerment. The study brings together perspectives from a variety of library sectors, including educational, medicinal, commerce, agricultural, and public libraries, to propose a holistic understanding of their collective responsibility in advancing the visualisation of Viksit Bharat 2047.

Perception of Knowledge Commons

The word knowledge commons refers to shared scholarly resources managed cooperatively for public profit. Unlike personal or business knowledge systems, knowledge commons highlight ingenuousness, teamwork, and sustainability. Libraries are ordinary custodians of this form, as they have traditionally promoted the complimentary right to use the information and learning.

- In the current framework, Knowledge Commons embrace:
- Easy availability and open access journals and information centres
- Digital libraries and databases
- Institutional repositories
- Community knowledge
- Jointly learning and modernisation spaces

Libraries shift from ownership-based models to access-based and participation-orientated systems by adopting the Knowledge Commons structure, which are important for complete countrywide development. (Chowdhury)⁴.

- Libraries and the Vision of Viksit Bharat 2047
- The Visionary Viksit Bharat 2047 points
- Excellent education and expertise expansion
- Scientific improvement and investigation
- Universal healthcare access
- Agricultural modernisation
- Digital addition and high-quality authority

Libraries straightforwardly supply to all these by:

- Supporting formal and informal education
- Providing evidence-based information
- Preserving indigenous and traditional knowledge
- Enabling inquiries and modernisation of the ecosystem

Thus, libraries are not marginal institutions but planned nationalised resources.

Position of Educational Libraries as Knowledge Commons

Educational academic resource centers or libraries are the spinal cord of advanced higher education and research in India. Every university, college and research centres depends on libraries and learning resources and research centres for teaching, learning, and research activities. (Corrall) ¹⁰

Key Contributions:

- Access to electronic books, journals, and databases
- Support for research methodologies and academic integrity
- Institutional repositories for theses and dissertations
- Information literacy and critical thinking skills
- Academic libraries democratise high-quality education and reduce knowledge inequality by adopting open educational information resources (OERs) and easy open-access publishing, directly sustaining Viksit Bharat 2047.

Medical and Health Sciences Libraries

Medical and health sciences libraries play a fundamental role and responsibility in promoting the strengthening of India's healthcare structure. Evidence-based medicine relies heavily on admittance to present and trustworthy medical literature. (World Health Organization) ¹².

Contributions of Medical Libraries:

- Access to clinical databases (PubMed, Cochrane, etc.)
- Support for doctors, nurses, and allied health professionals
- Patient education and health awareness programmes
- Research support for medical innovations
- Medical libraries as knowledge commons improve scientific decision-making, encourage community health attentiveness, and contribute to better health outcomes—an essential measurement of countrywide development. (WHO) ¹².

Libraries for Engineering and Computing Sciences

Libraries belong to engineering and computer science directly and maintain advancement, entrepreneurship, and industrial independence, which are key goals of an urbanised India. (OECD)⁵.

Their Role Includes:

- Easy access to research credentials, technological standards, and patents
- Support for rising areas such as AI, statistics discipline, and computer-generated protection
- Innovation labs and maker spaces within libraries
- Association between university and manufacturing
- These libraries act as innovation enablers, nurturing skilled professionals who contribute to India's digital and industrial growth.

Agricultural Libraries and Rural Knowledge Centers

Agriculture remains the backbone of India's economy, and agricultural libraries play a vital role in empowering farmers and researchers. (Indian Council of Agricultural Research) ¹³.

Key Functions:

- Dissemination of research-based agricultural practices
- Access to climate-resilient farming information
- Support for agri-extension services
- Preservation of indigenous agricultural knowledge
- Agricultural libraries strengthen food safety and security and rural livelihoods, contributing to comprehensive expansion by bridging the gap between research institutions and farmers, (UNESCO) ⁶.

Public Libraries and Community Empowerment

Public libraries are the most easily accessible form of knowledge commons, particularly for marginalised and rural populations. (Kumar and Suresh) ¹⁴

Their Impact:

- Promotion of reading culture and lifelong learning
- Digital literacy and e-governance support
- Career guidance and skill development programmes
- Safe community spaces for learning and dialogue
- Public libraries promote community inclusion and civic contribution, which are primary to a self-governing and developed nation. (American Library Association)¹⁵. Public libraries donate appreciably to educational conservation and community engagement in India (Ministry of Culture)¹⁹.

Growing the Role of Libraries as Knowledge Commons in Modern India

In the speedily shifting worldwide knowledge surroundings, the role and responsibilities of libraries are not only limited to information storage or distribution. Present days Libraries function as energetic and most active communal institutions that react to the growing needs of library users, learners, research scholars, and professionals. In India, where variety in verbal communication, literacy levels, socio-economic environment, and digital admittance is enormous, libraries as knowledge commons grasp meticulous importance (Hess and Ostrom)¹.

In the Indian context, Knowledge Commons must be understood not only as digital platforms or repositories, but also as wide-ranging community spaces where people can study, work together, innovate, and contribute in self-governing knowledge formation. Libraries provide unbiased, trusted environments that promote free inquiry and academic freedom—principles necessary for a vibrant knowledge culture (Lankes)².

Libraries, Indigenous Knowledge, and Cultural Sustainability

An often-overlooked measurement of knowledge commons is the conservation and endorsement of original and conventional knowledge systems. India possesses a wealthy tradition of medicine, agriculture, crafts, languages, and cultural practices. Libraries play a very important role in documentation, preservation and dissemination ethical information in right easy and accessible ways (National Knowledge Commission)³. Agricultural libraries and rural knowledge centres, for example, support farmers by integrating traditional farming wisdom with modern scientific research (Indian Council of Agricultural Research)¹³. In the same way, health sciences libraries also contribute to documenting conventional health practices along with evidence-based medicine, ensuring unbiased and knowledgeable healthcare approaches (World Health Organization)¹².

Capacity Building and the Changing Role of Librarians

The revolution of libraries into knowledge commons also necessitates a redefining the major role of librarians. Present library managers and librarians are not only custodians of books or libraries: they are educators, information scientist, knowledge and research partners, digital navigators, and society mentors (Corrall)¹⁰.

Continuous training and professional development is necessary for all librarians to obtain competencies in digitisation and digital techniques and technologies, information management, research support, customer meeting, and information ethics (Tenopir et al.)¹¹. Investing in librarian capacity building strengthens the overall effectiveness of libraries as knowledge institutions. Empowered librarians act as knowledge managers who guide library users in navigating specific information, identifying trustworthy information sources, and using knowledge sensibly—skills that are important in today's information-rich but misinformation-prone atmosphere (UNESCO)⁶.

Obstacles in Transformation for Libraries into Knowledge Commons

Regardless of their potential, Libraries also face several difficulties and challenges:

- Digital divide and unequal access to technology
- Insufficient funding and infrastructure
- Skill gaps among library professionals
- Lack of policy integration and recognition (National Knowledge Commission)³
- Addressing these challenges is important to completely understand the role and responsibilities of libraries in Viksit Bharat 2047. Digital revolution of library resource centres libraries is important for future-ready education systems (UNESCO)¹⁷.

Planned Recommendations

To make stronger libraries as Knowledge Commons, the given below strategies are highly recommended:

- Enlarged investments for transformation like online and digital library infrastructure
- General policies integrating libraries into advanced planning for digitisation.
- Capability and Capacity building and nonstop training and guidance for library managers.
- Encouragement of easy and open access and open data initiatives
- Strong association among libraries, universities, industries, and administration (Lankes)²

Conclusion

Libraries are really important and playing essential roles for the growth and development of a country. They are not just places where you can find books. Libraries are actually active and learning places where people can learn new things work together and be more creative. Libraries are the places where people can go to get required information and knowledge that will help the country move forward. Now libraries are becoming something called Knowledge Commons. This means they are removing obstacles and difficulties that stop people from getting information. So people, like doctors, scientists, students and even farmers can get to information and things they can use on the internet. Imagine a place where people can talk to each other share their ideas and learn from each other. Libraries are these kinds of places where people can develop and grow. Libraries are doing a job in many fields like academia, healthcare, engineering and agriculture. (National Knowledge Commission)³. They have an impact on how we farm, the healthcare choices we make, the quality of education, and the development of technology.

The major thing about libraries is that they are using new ideas and technology while also keeping our traditional knowledge alive. They are helping people who do not have access to things, and they are bringing people together who are separated by social and digital differences. For NITI Aayog, using knowledge is a part of their plan for India's development. Libraries are very important for NITI Aayog's vision for India. Libraries directly contribute to both national and global advancement by promoting teaching, learning, healthcare, education, technology, farming, and community empowerment. Libraries are essential for creating an informed, knowledgeable, skilled, and empowered India; they are not optional as development catalysts.

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Library Policy, Governance and Strategic Planning in the Digital Era: Libraries as Catalysts for Viksit Bharat 2047

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Summary

The libraries in the contemporary Indian environment are not only repositories but also supposed to be knowledge institutions that are meant to serve the nation in its development. The paper shall examine library planning requirements to be reconsidered in the new era of technology to realise the Viksit Bharat 2047 libraries. To this end, the paper will make references to the National Education Policy 2020, among other national policies.

The argument under consideration is that this change requires a good governance system that is facilitated by accountability, finance and leadership principles. The identified strategic themes are the creation of firm digital infrastructure, unrestricted access to research and governmental data, the growth of library specialists and enhancing connections with education, research and local administration. Other themes include changes in copyright that are proposed, data sharing and indigenous knowledge.

Efforts to provide practical interventions are outlined in the four interconnected areas, i.e. modern infrastructure and connectivity, developed human resources, policy and regulatory structure and community service. These interventions will guarantee bridging the digital divide, lifelong learning, and enhancing innovation and cultural heritage. The last section of the manuscript outlines the roadmap of the implementation of the proposed interventions, where there is a necessity of planning at the central, state and local government levels and development of the public-private partnerships. Through the interventions that are in place, libraries can aid in achieving the development goals of India in the year 2047.

Keywords: Library policy, governance, strategic planning, digital transformation, Viksit Bharat 2047, digital inclusion, cultural preservation.

Introduction

The library ceased being a bookstore. The library has never been a foreign concept in India and it has been the driving force of education, promoting learning, research, and preserving the collective memory. The evolving technological and learning trends are however triggering a radical change in the creation, sharing and dissemination of knowledge. The advent of web-based resources, computer repositories and mobile connectivity is altering user behaviour. Simultaneously, the Vision of Viksit Bharat 2047 is concerned with human capital, innovation, inclusion and evidence-based decision-making.

The issue that emerges as a result of the digital shift is very significant to the Indian libraries. It is established that most libraries possess disproportionate infrastructure, inadequate budgetary allocation to digital developments, incompetent staffs and a disorganised governance framework. The country and small cities libraries are the ones who will most likely

be left behind further, therefore, widening the information gap. But huge opportunities are also brought about by the same technology. Digital library, institutional repository, virtual reference service and learning community can make the library transcend beyond its walls and time. Combined with education, research and development activities, the library can have a direct influence on the objectives of lifelong learning and educated citizens.

The paper will address the library policy, management and strategic planning as applied in the digital revolution in India. The paper will specifically discuss how the libraries can be transformed into the knowledge centres which can be used in the education reform, research development as well as social inclusion. The paper will offer guidelines to the libraries based on the best practices in the global scene, and help in realising the Viksit Bharat 2047 vision.

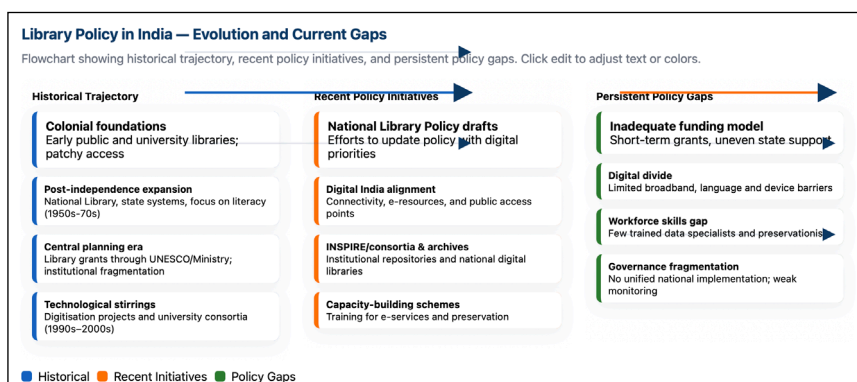
Literature Review and Conceptual Foundations

The literature that has currently come up in connection to the role of libraries in the contemporary digital age has pointed out several themes, which are interconnected and comprise of information accessibility, communication, the role of the librarian and the role of libraries in the society. This has been appreciated in the existing literature that has found the provision of libraries as the core component of lifelong learning and informed citizenship. In the existing literature, a library has been observed to be more than a place of information and is an active platform by which digital literacy and critical thinking take place.

The situation in India, as depicted in the literature and the documents, is no shot through the line. The change in the libraries has been impetuated by the national initiatives like the National Mission on Libraries and the Digital India initiative. The e-journals, databases, open access solutions and institutional repositories have helped the university and research libraries to make relatively faster progress. Nevertheless, the natural problems of not having the right digital infrastructure, quality staffing and the assistance of the local concerned authorities continue to plague the public and school libraries.

In theory, digitisation, automation and digital transformation have been pointed out in the literature. Digitisation involves converting printed books and materials into a digital format and automation is used to increase efficiency in cataloguing, circulation and management of libraries. Digital transformation is a broader process, which entails the reform of the library services, culture and thinking with regard to the digital opportunities. In this regard, librarians have new roles as digital literacy trainers, data and partners in teaching and research managers. In order to realize this transformation, support is required in accordance with the national development objectives.

Library Policy in India: Evolution and Current Gaps



Historical Development: The history of libraries in India dates back to the ancient centres of learning that existed in India, such as Nalanda and Takshashila, where knowledge was stored and shared in the form of manuscripts. The concept of public libraries was introduced during the colonial era when the Imperial Library, the present-day National Library of India, was established. Following the Independence of the country, various states enacted laws about the public libraries, starting with the Madras Public Libraries Act of 1948. First, attention was paid to the accessibility of the books and the creation of a library system and a simplistic administrative system. This was followed by the focus on training, cataloguing and the educational role of libraries, in particular in universities and schools.

Recent Policy Initiatives: The discussion of library policies over the past 20 years has shifted towards the digital and education reforms. In 2012, the National Mission on Libraries was directed at modernising public and institutional libraries by digitising them, building capacity and services based on ICT and ICT-enabled interventions. Meanwhile, the

Digital India programme was aimed at the delivery of broadband connectivity, online access to information and digital repositories. The National Education Policy 2020 has also emphasised the importance of libraries as learning environments by supporting digital libraries, access to open educational resources and research access by students and teachers.

Continuous Policy Lapses: There is absence of a policy concerning national library policy in India that can be adopted. The criteria of services, human resource development, financial support and compatibility with computer are extremely inconsistent. The funding is typically not regular and rather project-specific and is thus a setback to development. Also, there is no evaluation mechanisms and the data on usage, output and social value is unavailable. In addition, the copyright legislations, licensing and data protection laws have failed to keep up with the operation of the digital libraries.

Governance in the Digital Era: Models and Mechanisms

Libraries are social capital and are supposed to be sensitive to the communities in which they operate. The governance structure can be enhanced by engaging the representation of the community, civil society and an advisory board of the users. The co-governance model, which incorporates the citizens in the planning and the administration, will enhance the responsiveness of the library to the population demands, including multilingual collections and digital literacy.

Principles of Effective Governance: There must be a set of principles that must be established in regard to the good governance of libraries in the digital era. It should be transparent to make sure that digital access, licensing, and use of data policies are transparent. Some level of accountability entails that there is a role assigned to the governing bodies; the library administration and the tech partners. Subsidiarity necessitates a decentralisation at most suitable levels such that the decisions are made as near to the user as possible. It should also be participative and flexible since the digital world keeps evolving.

Centralised, Decentralised and Hybrid Models: Organisation of digital libraries is usually either decentralised or centralised or a mix of the two. The standardised technology, shared digital platforms and shared procurement of e-resources is possible through the centralised structure and can be cost-effective. The decentralised arrangement gives the chance to plan services of the library in local languages according to the needs of the local language, demographics and values. However, the most desirable would be a combination of the two. The national or state government may be in charge of the infrastructure of digital repositories, metadata and licensing whereas the local libraries may be in charge of the programming events.

Accountability and Performance Metrics: There should be good accountability systems in digital governance. Performance assessment must be carried out in a way that incorporates data on usage, equity of access and availability of the system with qualitative data on user satisfaction and learning outcome.

Community Participation and Co-Governance: Lastly, Community involvement enhances better governance. Through advisory committees, establishing partnerships with local institutions and moving activities of the planning into the community, make the services of the digital library relevant and in line with local cultural and educational requirements.

Strategic Planning for Digital Libraries

Implementation of policy plans in day-to-day operations is referred to as strategic planning. In such a scenario, where digital libraries are in line with the Viksit Bharat 2047 vision, the long-term strategic plan should be practical and have a long-term national perspective.

Vision and Mission Congruency

All libraries must possess a vision that links their efforts to the national agenda, and this might encompass inclusive development, innovation, cultural heritage and democratic ideals. This vision must guarantee that it has some outcomes, which include the enhancement of digital connectivity in the less developed area, support of the research that is relevant to the area or support of the preservation of a knowledge system that is under threat.

Infrastructure and Technology

A robust digital infrastructure cannot be negotiated. High-speed internet connectivity, up-to-date computer equipment, library management software based on clouds and efficient digital preservation aids should be part of the future of libraries. Service delivery models that would be applicable to both the on-campus and off-campus populations will be pertinent. Overall, metadata, platforms and APIs will help in sharing information across institutions and states.

Human Resource and Professional Development

This change cannot be realised using technology. There is a need to train library professionals on a frequent basis in digital cataloguing, metadata development, digital archiving, research data management, access design and outreach to communities. Skills can be developed in the country by the use of training centres, university partnership and certification programmes.

Gathering and Content Strategy

The content strategy would involve the process of digitising local manuscripts, government publications, and community knowledge and access to e-journals and open educational resources. The institutional and subject repositories would be promoted to promote open access research. Much emphasis would be laid on multilingual collections and learning materials that are pertinent to the school and tertiary education curriculum.

User-Centred Services

Digital libraries are also supposed to formulate their services based on the needs of the users. These can be virtual reference service, access to remote databases, digital literacy programs, research support and innovation centres. One more way that the library would enhance employability is through training in digital skills, entrepreneurship and learning in STEM.

Partnerships, Sustainability and Resilience:

Partnering with universities, tech companies, cultural organisations and civil society organisations may prove helpful in accessing their expertise and resources. The long-term sustainability planning must be centred on diversified funding, energy-efficient infrastructure, cybersecurity, data backup and disaster recovery.

Libraries as Catalysts for Viksit Bharat 2047

There are various areas through which libraries can play a role in the vision of the country.

Education and Lifelong Learning

The library is a very vital part of the formal education since it aids in teaching and learning. The library has access to subscribed textbooks, references, journals, online materials and topic databases. Learning is also facilitated by study spaces and group discussion rooms as well as online access points. Besides the formal education, the library actively participates in lifelong learning initiatives like digital literacy, information skills, language learning and vocational awareness. Most libraries hold seminars on computer skills, internet skills, resume writing and acquiring new skills in the job market. The library assists individuals in enhancing their skills, sealing learning gaps and augmenting employability abilities of persons of all ages by collaborating with schools, universities, open learning and skill development programs.

Research, Innovation and Knowledge Creation

Research and innovation According to academic libraries Research and innovation Research and innovation are supported by academic libraries and research libraries as well. They make available institutional repositories that hold theses, dissertations and publications of the faculty members and outputs of the research. Libraries facilitate open access publishing because they assist the researchers with copyright and licensing and also meet the demands of agency funding. The quality of research is enhanced by research support services like literature search, citation management, plagiarism and research data management awareness. Besides that, libraries are conducive to innovation through access to scientific databases, standards, market research reports and patent information. It is libraries that are becoming the innovation hotspots as libraries can collaborate with researchers, entrepreneurs and students through collaboration spaces to share ideas, create prototypes and work on interdisciplinary projects.

Preservation and Access to Culture

The other purpose of libraries is to act as the keeper of the cultural memory. Libraries can also preserve rare manuscripts, oral histories, photographs and indigenous literature that are prone to decay via the digitisation projects. The digital libraries have the possibility of providing easier access to these materials without destroying the original materials. Libraries can make sure that sampling of regional traditions and local knowledge is more representative by engaging in collaborative projects of digitisation with cultural institutions and communities. By organising the local history collections, libraries are able to make certain that cultural heritage is preserved, as well as encouraging new knowledge.

Democratic Participation, Civic Education and Social Inclusion via Public Libraries

The ways that the public libraries do their work are very pragmatic and grassroots in ensuring that they make inclusive communities, especially where the issue of information equity is still looming. The libraries also expand their coverage to include some of the communities that are usually marginalised by the knowledge systems by availing mobile library vans, temporary reading stations, and village-level programs. The target beneficiaries of the specially designed programs to assist in addressing the gaps in literacy, digital and employment-related information are the women, rural youth, the elderly and marginalised groups. Basic digital access and online form help and support using government portals are being offered in many libraries, which are therefore acting as unofficial help desks to the e-government services. Through helping citizens complete applications for health, pension, education and identity cards, libraries also make the intermediaries unnecessary and place citizens in a position to obtain the services of the government themselves.

A knowledgeable citizenry needs to have available and reliable information, and the library is among the few that can offer that. The library provides citizens with access to the newspaper, government documents and reliable information in the digital world to ensure that citizens are not only aware of the issues in the publicity, but also the buzz. There are numerous libraries that provide constitutional values, electorate and government programming. Media and information literacy programming allows patrons to recognise good information and misinformation, and this skill-set is becoming highly important in the digital era. By creating a culture of conversation, rather than debate, libraries encourage intellectual discussion, healthy disagreement and civility. The library, therefore is an essential component of the preservation of a democratic culture in this manner.

Challenges and Risks

Despite the enormous potential, the Indian library's digital transformation process is challenged by a range of real and interconnected problems.

Digital Inequality and Lack of Equity

There is a considerable rural and tribal part of India where unstable internet connections, affordability of the devices and low digital literacy remain. Despite the urban residents enjoying the fruits of high internet speeds and smart gadgets, country libraries are either still working over the old infrastructure or have no internet connectivity whatsoever. Without a proper solution to the issue of last-mile connectivity, digital access devices and internet literacy, digital library projects can only worsen the issue instead of resolving it.

Finance and Financial Limitations

Funding and Resource Limitations Digital services need several expenses, including software, database, server, digitisation technology and cybersecurity. The libraries have no option but to rely on short-term funding or pilot projects, which expire before the system can mature. This is how difficult it is to scale digital services and be in touch with technological forces.

Human Resource Limitations

Nevertheless, the difference between the training that is offered in physical libraries and what is needed to manage digital platforms, metadata, data analytics and user engagement tools still exists. Upscaling opportunities in the profession are low, and there are no career advancement prospects in the field of digital librarianship, which is a hindrance to innovation.

Legal, Ethical and Security Issues

The library must ensure that it balances between the accessibility requirements and the compliance requirements, as far as copyright, licensing and data protection are concerned. The uncertainties surrounding the system of understanding the fair use provisions, the restrictiveness of the publisher licence and the growing threat of cyber-attacks render the delivery of digital services a challenging task. Simultaneously, the issue of privacy of data and information safety also emerges.

Institutional Resistance and Change Management Institution

Some institutions operate in a cautious manner due to the bureaucracy that is involved, due to risk aversion and concentrating on the traditional model of service delivery. To make the digital transformation process successful, the leadership and the staff members should be involved.

Multiple languages and Locality

Multilingualism and Local Relevancy It is owed to the fact that the linguistic diversity of India demands the digital content in the local languages and formats, which are also locally relevant. Such content is time and resource-consuming to

make and digitise, yet the community activities need it.

Policy Recommendations and Implementation Roadmap

A directed and practical policy framework is needed in India in order to harness the potential of libraries in realising the agenda of Viksit Bharat 2047. The roadmap presented below puts the strategic thinking into action.

National Library Policy 2047

Establish a well-defined National Library Policy that has service deliverables in relation to the public, academic and special libraries. The policy must establish minimum standards of digital infrastructure, maintenance, access and manpower. The measure of outcomes which should be set against the five-year milestones should be measured based on the national development parameters like the percentage of digitised collections, broadband connectivity in libraries and library professionals.

Create a National Digital Library Infrastructure

The National Digital Library should have a national digital library infrastructure and not individual ones. This would include a national repository of publicly funded knowledge, metadata and discovery infrastructure and e-book and journal digital licensing. The state, university and school libraries should be capable of collaborating with each other by means of common standards that will allow for the resources and will avoid doubling the expenses.

Apply Performance-Based Funding

Performance-Linked and Inclusive Funding: Adopt a model of funding that includes a basic grant of operation and other grants depending on performance indicators. The performance measures may be quantified on the basis of how many digital users, community outreach programs, skill development programs, and how many are using new technologies. Libraries in aspirational and rural districts could receive incentivised grants.

Create Regional Training and Innovation Hubs

Establish centres of excellence locally scattered across regions of library and information professionals that focus on applied skills. These centres have the potential of offering short-term certification programmes and training on digital librarianship, metadata development, digital preservation, data management of research and research support services. All these centres are capable of being regional innovation playgrounds, helping small-scale digitisation of manuscripts, archives and community knowledge bases. University partnerships, library schools, state archives and experts in technology can be utilised to make sure that the centres are relevant and high quality. Such centres can ultimately be developed to be learning and research centres that serve the needs of the region.

Promote Broadbanding and Equipment in Low-income Counties

The digital infrastructure of the rural and remote libraries should be enhanced. This will also involve the supply of good broadband connectivity, adequate bandwidth of digital services and supply of modern computers, scanners and servers. Government efforts can be directed in low-internet connection areas and collaborate with the telecommunication companies to decrease the overall cost of the connection and address the last-mile problem. Otherwise, digital library projects will fail to access the target populations.

Provision of Open Access and Interoperability

Incentive Open Access and Interoperability Institutions should be invited to implement open access policy of research, theses and educational materials. Interoperability of repository standards will facilitate the easy exchange of resources among the platforms and institutions. The OERs may assist in lowering the expenses of the students, increase the reuse of material and ensure a higher access to the quality of educational resources, especially in developing settings.

Enforce Legal and Ethical Standards

The copyright statutes, licensing and data protection act need to be revised in order to be in line with the new information production, distribution and storage practices. The library should be legally able to digitise information to preserve the information, also by taking part in safe digital interlibrary loans and controlled digital lending strategies that are beneficial to both the writer and the patron. The library should have a data protection and user behaviour monitoring policy to help it provide more services without engaging in a court battle and losing the confidence of its patrons.

Encourage Community-Based Governance

The community can be used to ensure the efficiency of libraries through participation in the governance of the libraries. This is achievable through the following structures that can be integrated in the governance of the library: advisory committees, user councils and the open consultation sessions. These buildings are able to give the library information about the use of collections, programs, open hours and technology. Community engagement in the planning process can also make the library address the local community's needs, which may be students, seniors, job seekers, or even marginalised groups.

Promote Multilingualism

Fund Multilingual Content Production. As per the plan, investment in the creation of content in regional and indigenous languages must be financed. These comprise recording of oral traditions, maintaining of regional literature and creation of educational materials depending on school programs. Libraries can also cooperate with teachers, other authors and cultural institutions to test the validity of their content. This will assist in fostering linguistic diversity and also in accessing knowledge to students who are most conversant with their own language.

Integrate Sustainability and Resilience

Green building concepts, solar power, energy-efficient lighting and water conservation systems should also be incorporated in incorporation of Sustainability and Resilience Library design. Along with the sustainability, cybersecurity, the back-up of data, the planning of disaster response and the preservation of digital data are also non-negotiable. The reason is that these aspects make sure that the library does not go out of business even during a disaster or technological inconvenience.

Implementation Issues and Staged Approach

The national library and knowledge infrastructure change process should be realistic and time-bound. This will allow building capacity in a progressive fashion, in addition to tracking the outcomes.

Phase I: Foundation (Years 1–3)

The former stage is preoccupied with institutional preparedness and policy questions. The roles of the national, state and local governments, as well as the financial roles and accountability, should be formulated in the National Library Policy 2047. This should be a national coordinating body that oversees the implementation and coordination of the states. In this stage, pilot regional training centres in a few universities and state libraries must be created to educate librarians about digital curation, metadata and user services. It should initiate a national metadata registry that is implemented on standardised cataloguing and interoperability criteria. Connection should be improved to both aspirational and disadvantaged districts to provide the opportunity to have broadband and digital infrastructure.

Phase II: Scale (Years 4–8)

Once the basic systems are validated, the focus is on expansion and integration. The national digital repository should be increased to accommodate academic materials, government publications, open educational resources and research outputs of publicly funded institutions. Joint licensing can be used to minimise the cost and bring out equal access to electronic resources. Performance-based funding models will have to be implemented to motivate institutions to deliver services, engage in outreach and implement digital technologies, and offer specific support to those with less capacity. Manuscripts, rare books and regional language content that are to be mega-digitised have to be cooperated with by archives, museums and cultural institutions.

Phase III: Consolidation (Years 9-20)

The third phase will be aimed at attaining system maturity and sustainability. National level interoperability of library systems should be realised to the maximum. The system should be combined with continuous professional development in terms of training cycles and provision of research support. Access, usage and learning outcomes impact should be performed on a regular basis, and the policy goals should be aligned with Viksit Bharat 2047 milestones.

Conclusion

The Indian library fraternity is at the cross. The way the problems of governance, financing and relevance to the national priorities are presented in the current scenario will define the relevance of libraries in the future years. In the event that they are relegated to the position of custodians, libraries would become a non-entity; in the event that they are developed into creative knowledge repositories, they would be the movers of the Indian knowledge economy.

Libraries should go beyond automation and online presence in digital transformation. The libraries have to be redefined as centres of digital literacy, open access research, community learning and cultural documentation. Modern libraries can support the students with carefully selected digital collections, support the researchers with data archives and academic social networks and empower citizens by providing them with the right information, digital knowledge and open-minded public areas.

To realise the goals of Viksit Bharat 2047, a national policy on libraries would be necessary to be implemented. This would involve an investment in digital infrastructure, broadband, preservation technology and a talent pool of library professionals in the field of information management, data services and new technologies. The framework must be able to facilitate national standards of access and quality and flexibility to state and local libraries so as to accommodate regional languages and cultures.

By adequately facilitating the integration of libraries within the education, research and innovation ecosystem, libraries can be useful in alleviating information inequality, facilitating lifelong learning, and encouraging democratic involvement. The libraries also play a role in preserving the documentary heritage of India for future generations. The necessity of library change is not a choice but a necessity to develop. Through appropriate policy intervention and dedication, libraries are capable of being developed into the foundation of knowledge-based and culturally based India.

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Study of Libraries as Knowledge Centres in a Knowledge-Based Society: In the Context of India's Viksit Bharat 2047 National Vision

Anita Kumari Sod

Summary

What occurs when the places that were thought of as bookshops become drivers of development? Nations are nowadays formed by knowledge and not land or factories. Thanks to this change, facts, learning, ideas, and new thinking have become more of a catalyst to growth than ever before. Libraries are no longer quiet places whose shelves are full of dust. In their place, they are vibrant with energy-linking humans, disseminating knowledge, breaking through. These spaces are not just book-filled spaces when well supported, but they also jump-start curiosity, discovery and ambition. A glance at their keener role reveals how important they are in the societies which are constructed on knowing and not on owning. The existence of such institutions is significant to the future goal of India to emerge powerful and competent by 2047. Development is not solely policy and technology, but where minds collide with a chance, development takes place. Libraries enable such a meeting.

Libraries do not only create silent study areas; the libraries simply influence learning in the non-classroom setting. Connected to research objectives, they create interest in all generations. Other groups believe in democracy and hold local discussions of rights and policies. In Rajasthan, in villages, sun-powered internet-connected spots known as e-granthalays assist farmers in retrieving farming information using AgriStack tools. These are not isolated locations where knowledge is stored; this is disseminated where it is most required. When design is localised to satisfy local needs, then it becomes less restricted in access, particularly on the internet. Culture will remain alive since it is also there that stories and records are kept safe.

The new perspective on the development reveals how libraries are propelled by more powerful policies, superior structures, room to expand, and talented individuals. With targeted assistance -enhanced technological resources, consistent educational opportunities among the employees, and connections to NEP 2020 and Digital India-change will take place unobtrusively. Through this, knowledge becomes ingrained in communities. The silent transition might define the Indian position in the global arena decades later.

Keywords: Knowledge-based society, libraries, knowledge centres, Viksit Bharat 2047, information literacy, digital libraries, national development

Introduction: Libraries in the Knowledge Era

It was that July heat of 2025, heavy on Phagi, with mustard fields of gold, causing clumps of little buildings of brick under the sun-bleached sky. And there were no internet cafes around - only slow paths, covered by ox carts, which had taken

hours to cover even a mile. The little reading room of the village council was leaking paint along its walls, and when the winds blasted upon the metal roof, it shook. But ten shining tablets, this time, not as before, were charged and were operating on the sunlight stored up above. A male rough palm bumped close, and fingers were used on glass to check the patterns of rain using a phone-based farming guide. Young girls cowered close beside, murmuring in their own language over cartoons made on old animal fables of their own language. Not in the silent reading places of the old days. It was a buzzing place, not of tradition only, but of information streaming quick and smooth against the landscape of the country. Centuries appeared to close in on each other behind those four thin walls.

Now in the spotlight here, the shift is like none in history- brains have become more important than brawn to shape the next. The brains in the workplace have transformed whole countries based on intuition instead of based on industry as predicted long ago by thinkers such as Drucker. The advancement of the modern world is largely dependent on the schools that do more than teach, laboratories that take risks, innovations that break rules, and competences that develop throughout the life years, rather than the initial years. Both successes depends not so much on natural resources as on the transformation of the unlimited flows of unprocessed facts into substantial meaning. Consider the tech wave in India: it occupies almost a tenth of the economy as programmers in Bengaluru create intelligence systems that are used in the global economy. But miles off, even the villages in Rajasthan are finding it difficult to be connected to the internet at a slow pace.

Conceptualising Knowledge-Based Societies

Picture this. It involves a wretched October sunrise in 2024, sitting on a rope bed just outside the village council library in the far north of Rajasthan. There is a heavy cloud of dust and a smell of hot soil and looted millet. Indoors, twenty-four farmers - lines on their faces and the betel juice making their smiles - hinge closely about half a dozen secondhand tablets. These were established only days ago at a trial session. One of the men is pointing at the screen, with a voice cracking. Brother, see, the price on the market is live! he says, as Kisan e-Mitra prices in local grain centres drop to Gujarat ports. At harvest time, the harvest of those two thousand users or so increased by fifteen per cent. Another eight hundred thousand rupees of aggregate income. Not because of high-tech seed or big loans. Ensimplified information, made into sense. This is the way learning should be when it is geographically situated. Rough edges included.

Begin at any point, but ideas obviously have the edge over heavy industry nowadays. Previously steel mills were significant, but now mental dexterity creates development -intelligent thinking, working out difficult riddles, and computer capabilities that transform massive information into revenue (World Bank, 2018). It started several decades ago with Daniel Bell and is surely appropriate to India: software production is generating 250 billion dollars of revenue each year (NASSCOM, 2025), and coders along the Ganges are making more than miners underground. Factories used to give priority to big equipment in the past, and today systems tend to put importance on open information flow - it is available before the rain (not a rumour), is correct (not checked with official sources but is a rumour), and is meaningful locally (farmers use local dialects to ask about crop questions over the phone). The exception here is, however, that excess information implies that you will need to filter what is important. It is not a luxury to judge sources cautiously, as UNESCO expressed it clearly back in 2005. It keeps thinking alive.

This fact does not have anything to do with dreams. It was in looking on the harvest, as it was passing near Anupgarh - the golden wheat in a cold January sky- that I had the sense of something silent: that ideas spring not in refined chambers in Delhi. Growth starts at the point where the dusting bookshelves stand next to the hands repeatedly tapping at glowing screens.

Evolution of Libraries as Knowledge Centres

The feeling remains clear-the buzz of excitement at the 2023 demo of NDLI, crowded into a sweaty village hall on top of the dunes of Jaisalmer. On the verge of it, in the wavering light, Geeta Ben switched into action the system; she had twenty years of manual book logging behind her. Pictures flashed up on the wobbly screen. There was a sudden emergence of eighty million learning materials. Modern science lectures at Boston were beside ancient Sanskrit scrolls. It was effective even with slow internet. One of the herders who came close to the door uttered something with some sort of sorcery after his grandson had drawn out engineering videos. There was an air of amazement. Those were the initial 35 people who joined the first day, and at that point, the digital library of Jaisalmer was initiated. It is nowadays visited by about twelve hundred each month. And there was no magic in it-just gradual advancement in the technology of making old-fashioned paperbound shelves dynamic centres of collective study.

A wave hit hard, with no warning. Until 2000, libraries were unique-an index on paper withering on shelves, book

requests mailing through on old trucks. The next thing you know, we had digital books, as Project Gutenberg had seven thousand books, free of charge, and complete journal articles were available on the web, with Elsevier alone having over two thousand five hundred; and search tools like Scopus indexed close to ninety million articles in all disciplines, and universities started adding work to the digital, and Shodhganga has half a million Indian dissertations, and learning sites, too, with Khan Academy adding ten thousand clips in a hundred and ninety languages. Distance lost meaning. In mountainous cold towns, students in universities download night physics drafts; in Mumbai, people are watching school events without the internet. Facts changed-studies by Powell and Connaway indicate that by 2025 most borrowing had been electronic in the world, with the availability being open, and the time of search was reduced sharply.

Equal Access to Knowledge and Social Inclusion

Trail after us as we wind along narrow village lanes in Dausa, Rajasthan-through earth-walled houses that are called out to by goats and whose water pumps are giving out with a groan with every stroke. One Diwali night, arrive at the compound of the headman. Under a trembling LED lamp, thirty-five women of the Gujjar cluster sit next to each other, scarves pulled close to their chins, and stare at the ancient Android tablet placed on a metal box. Not assembled to sing celebration songs but studying this is the local council library group, the Sakhi Digital School, which meets weekly. They learn how to transfer money through the phone, locate shelter assistance on the web, and beware of false messages on WhatsApp. By the year 2025, seven of ten rural women in Dausa reported that now they cope with technology without fear when there are rains-two out of ten had done so way back in 2023 (early NFHS-6 numbers). No extravagance was necessary- just Sunita didi, the reader-in-chief, tenth-grade certificate in hand, low voice to show little steps which open big doors.

Being a slow starter never makes a fair race. True fairness involves open doors - free access to education (NCERT books on the internet to prepare for exams), technological literacy (local language-based resources in Google that older women can use), access to information on available government services (e-Seva booths with information on health benefits), and employment opportunities (job sites through the internet via the library). Here, public libraries come in- no glitzy regulations or patty-cakes -they come to those left behind when the fake news goes viral and the signals fall now and then (IFLA, 2015). In my experience of studying in Jaipur, the majority of people who used GPLC had not previously done so: people who work on the farm checking their trains and girls of Sahariya families watching the science videos reshot in their language.

In this part of Rajasthan, there are 2,500 of their local centres, which are not operated by charities. It allocates half a million rupees each to them, legally, as part of a cultural change beginning in 2024. See what Anupgarh has been after the upgrade: the paper files were replaced with the digital farming tools. Kalyani Devi, a mother of three who has lost her husband, who never took out a bank loan, is now processing her own crop claims, which are eliminating middlemen who would have charged her close to a third of the proceeds. Reading skills? Leaped sharply at these hubs - 18 per cent increase relative to eight only in areas without such hubs, as shown by RRRLF data last year. Well after noontime, a sunlit van arrives in the other village near Barmer, with non-internet-based lesson-carrying capacity. These mobile centres travel to remote houses with quiet screens on which children are tapping, with daily tours of forty kilometres of remote houses. Other craft keepers in the nomadic tradition, not miles distant, in Jaisalmer, use clothless tablets to trace the pattern of the thread. Their stories that were hand-stitched transform into computer files that are sold in an online farm market. Due to this movement, two hundred million rupees of local artisans were being drained out last year, more than in the past.

Libraries' Role in Education and Lifelong Learning

On a temporary learning venue at the village council library, Anupgarh, on Diwali, 2025. New paint combined with the odour of fried snacks in the surroundings; thirty-five youths sat on their heels, in some smart uniforms, in others shabby ones given out among brothers and sisters. Laptops were sitting on rounded knees rather than tables. Lacking any chalkboards at all-just an old projector projecting lessons on cloth, tautly stretched over a frame. They were headed by a gnarled man named Manohar Ji, whose voice was sharp: fix that code line, now. Fingers scrambled as the keys played out. In March, all those five hundred learners had passed entry-level Python exams. Three even managed to find remote work on the Internet, drawing in fifteen thousand rupees each month. Not what people call school. More so getting ready before how jobs will be done some decades later.

School was not just the stage that was completed back when it counted the most. Being up to date implies never having stopped learning new things: a graduate of years past who learnt about tech knew about the old forms of coding language, and now even novices would have to understand something about quantum concepts. What archives what

schools are largely deficient in frequently lies on library shelves-which are open to all, a matter of curiosity, and made for the self-instructing. You will not just have ordinary textbooks there; you will also find research papers, courses to finish in the future online, and also lessons taught in local languages, such as Bundeli. Powell and Connaway (2019) are exactly right: nowadays help desks do not merely respond to queries but they practice searches to guide researchers to the depths of the library, to the back of the shelves stored in JSTOR or the Shodhganga database of half a million theses, which would otherwise remain undiscovered. In Jaipur, at one of its extensions, Albert Hall, something different occurs every weekend - students infest the place in the so-called Study Marathons. These aren't casual hangouts. Two hundred of them appear, struggling with difficult JEE preparation tests under the tutelage of librarians who are well-versed in the procedures. Results? Follow-up notes indicate that by 2025, there will be an 18 percent increase in those who make qualifying scores.

Libraries' Contributions to Research and Innovation

I still remember that day in Jaipur- the air acrid with marble cold, Diwali silent beyond the library building. Learners were seated in their seats, rubbing weary eyes, with hot chai in metal cups. One unnamed female researcher struggled with software in an attempt to rank two hundred resources on her millet genes research. Next to her, there was another person who was poking a digital portrait, which did not even know the national archive. She looked up, weary. How should she even send her paper without this database? And just at that moment light dawned upon him-not by inspiration but by frustration. Discovery does not occur under closed doors. Where support is free, it thrives. That flow is maintained by libraries.

The contemporary economies are research-driven engines, driving development. Countries like South Korea invest almost 5 per cent of their economy in developmental projects, and the country of Israel spends a higher rate of 5 per cent and above, as projected by the World Bank by 2025. The difference lies in the fact that the process of transfer of new ideas out of the labs into the real world is made very smooth. The less obvious, but highly important, role here is played by public libraries providing digital access to them on a scale - such as the tens of millions of scientific articles in ScienceDirect, free access to biomedical archives in PubMed Central, or engineering research in IEEE Xplore. The institutions in India take advantage of such tools by partnering on a nationwide basis under the name INFLIBNET, which is supported by heavy government funding, making the cost to any partner institution insignificant. However, the assistance is not limited to issuing documents. Such systems as ORCID assist academics in transferring authenticated identities into multiple systems, making it easy to have an early draft published online and be able to tie the resultant academic reference later on without any inconvenience. What was formerly the prerogative of the high achiever has now been made available to all in planning sources, with software such as Mendeley and EndNote making citation much easier. Meanwhile, training sessions resolve issues related to fairness and integrity, discussing the ways the systems identify the copied material according to the country's standards that stipulate that most written submissions must remain under one tenth duplication.

In India, Shodhganga has 520 thousand works of academia- studies about artificial intelligence in ancient Sanskrit, as well as digital ledgers to guard waters in forests, etc. This knowledge could have remained hidden on the dusty shelves had not some university libraries posted in online. Consider IIT Delhi: its collection in itself exceeds fifty thousand entries, which are preserved by the digital access. Small towns are joining too. A small public hub in Anupgarh has installed so-called Research Corners, where farm scientists can share their discoveries of small life in desert soil over the networks in the region. The genes in camel milk were investigated in one of the papers in Jaipur. It contacted a plant researcher at Varanasi through talks online via the library who was researching traditional remedies. Their trade expanded into mutual recipes of fermented tree pods, which they sold under one new brand.

Digital Libraries and Technological Integration

I remember that day in Phalodi. Not the civilised happenings in urban centres, but rising heat on fissured soil under a November sky. A shanty structure, which had been lost in mind, was now illuminated with light on panels leaning towards the evening. Women were seated next to one another, with screens shining over faces darkened by sunshine. The teachings of their children were slow and, hopeless through sporadic signals. Checking pay records inter-chapter. Like water, one tablet changed hands. Forms of government next to math sums. Not speech, but a flow of taps. The distance was less when knowledge presented itself without the roads. And later in the evening, when she sipped sweet chai next to librarian Pushpa ben, she said that in the past the flies used to sit here all by themselves. Dreams fly now over these shelves. That is what occurs when books are set free-the ideas are no longer imprisoned between the walls of stone and quietness.

Beyond the polished manuals, digital libraries liberate knowledge. Access has broken down boundaries, is 24/7, and is about the customer. Consider e-books - in NDLI alone, more than 80 million. Or scholarly magazines were flowing via INFLIBNET. Open sources like deep wells Free portals like DOAJ serve as sources of open material. The physical store boundaries? Gone. Carry the contents of a library in your hands. The scenes are being searched with systems such as KOHA and SOUL - ,which would have taken hours in the past and are now completed almost immediately across the ten thousand- plus spots in India. Intelligence exists in these tools as well. Consider the example of MUM created by Google -it will take local phrases, such as 'Where to find water in Thar?' and compare them with farming data maps. In the south, the Kerala digital hub gets to know what the users require. Fishers receive suggestions on how to rear shrimp, and the algorithm that makes the guess is correct 9 out of ten times.

In the distant parts of the country, BharatNet Phase III is getting almost all the village councils connected by 2027 with the huge pump of a 1.4 lakh crore push. When the connection is made, it changes quickly. Education takes a giant leap-not in terms of apps requiring speed, but in terms of the offline education provided by BYJU's and more than two thousand free courses on SWAYAM that can reach five crore students. Government work ceases to be a pursuit - no more journeys around the districts; you carry your land papers in your hands at a local library. In such locations as Anupgarh, that saves up half a billion rupees that is being thrown away in the form of nonofficial payments every year. Rajasthan takes it further. There are five thousand two hundred digital libraries that are completely solar powered and which survive even in the blazing 45-degree temperatures when all machines that are fuelled would fail. Each operates on only 50,000 dollars worth of equipment that can last a decade without involving connection to the power grid. An example is Jaisalmer-a single node fed by the sun will draw a gigabyte of data per day: children's school textbooks and farming advice to camel drivers. Old gadgets? Eighty per cent are reused in place, not disposed.

Libraries as Guardians of Cultural Heritage

That August 2024 evening clung to the flesh, full of moisture, in an empty space in the Ganga Golden Jubilee Library of Bikaner. My knees observed stone at the feet were chilled by days of strolls through the heat of Rajasthan. A flickering CFL lantern flashed over our heads and threw wavering shadows along the hands of Prakash ji as he spread an old palm leaf. Ink of two centuries or more, still legible, cracked-Rajput curses in Devanagari, to be applied in the time when the Thar Desert quenched all the raindrops. He named it family bone, not blood-something besides memory. Whole worlds end, he said, without machines to preserve them. At the other end of the room, there was a tablet, on which children could see how these same herbs appeared in the real world, three-dimensional, suspended in the air. That knowledge was no longer enclosed behind glass but flowed through circuits and screens. This was no place to sleep in silence. It breathed, conveyed things on, and did needless sewing.

What we are bequeathing of the past is better than old memories-- it is a nation. Culture does not just exist in a time capsule; it exists when it is shared (UNESCO, 2005). The libraries in India preserve approximately ten crore riches. Millions of handwritten productions slumber on shelves in Kolkata -some of them even pre-empire. Old poems are next to kingship edicts behind closed gates. Vocality that used to be heard in oral form has come to recordings at IGNOU. The languages that are hardly used in printed form are preserved by sound. Thousands of the poems and cures are concealed in regional script deep in Rajasthan. Heroes such as Prithviraj reverberate in the long songs, which have been transmitted over the ages. Medicine as taught by desert sages still lingers among the lines. These pages are scanned into screens at a sluggish pace by a state project. In 2026, one out of seven will be envisioned not having to open a book.

There are more than seven hundred and eighty languages and sixteen hundred dialects in India. These are not just bookshelves; libraries here are weaving storytales, bringing people together through dissimilarity. Five thousand verbal stories of the Bhil and Meena elders in Bikaner were digitised and put next to the ancient Sanskrit texts through the help of smart translation software. In Jaisalmer, a man, who buys and sells camels, hears the histories of his ancestors by listening to the songs of their journeys with the help of the glowing virtual pictures. Those in Delhi have been able to compare them with those that were written centuries ago using Persian script. Culture spreads further due to the fact that there are two million visitors across the globe who enter the virtual reconstruction of the life of the Indus Valley annually due to the efforts of IGNC, and this indicates that India is not only preserving its history but also making it available to many people all over the world.

Information Literacy and Democratic Vitality

The night of October 2025 was one of those things in Dausa in Rajasthan, which was less than an hour south of Jaipur, and where terror was travelling a little faster than fire through a full-to-bursting community hall. WhatsApp messages about an imminent Jat reservation insurrection blocked paths in villages near one another using sharp bushes of beri.

There was a good deal of talk; small shop owners pulled down iron grilles before dusk. However, here came Sunita ji -the skinny librarian of the village digital library, which I had assisted in setting up a few months earlier-and flicked on her old projector immediately. Within it sixty individuals were crowded together: the farmers, mothers, and teenagers waiting, watching. She did it step by step dismantling the lie, the government truth links between the dates that do not match, finding out that the protest pictures were actually a protest in Haryana in 2018, that in fact there were doctored versions of the picture, and finding the versions date-traced to Pakistan in photo searches. When it grew black as black as black outside, those same phones which carried lies started to pass real facts instead. One of the elder men peered over the door, saying something. The medicine of fake news lives in libraries.

Not only silent reading rooms, libraries now teach people how to think on their own. Drop forgotten notions of card catalogues. Whereas Jaipur has the Albert Hall, where FactCheck Fridays can be held weekly. Approximately two hundred of them appear every month. They also work on the ability to identify weak sources by relying on the practice that verifies timeliness, usefulness, trustworthiness, level of truth, and ulterior motives. Witness videos are tested immediately with such tools as InVID, and stories are subject to analysis as lab samples. In Anupgarh there was also a trial run that was carried out on six Saturdays. A hundred and twenty neighbours came through. Pretests and posttests indicated impulsive sharing fell significantly-almost seven of ten of them ceased forwarding blindly. Sunita ji distributed useful attendants. These were the free fact-checking site of Google, an extension named NewsGuard, and official press releases translated into the audio warnings in Marwari. At the end of every message, there is the same question: Is this story true or false?

Community Development and Social Cohesion

One evening a glow was passing through stone walls, smoke curled by the brass lamps. The pages were slow in hands, which were dirty with desert dust. On the same side of a quiet murmur, a Brahmin child was sitting next to a Meghwal teen. Vermement might have been catching up on old songs between lines about hunters drawn on paper many years ago. Where there was mirth where mute silentness was. No one was in general agreement about gods or land, but here they all shook their heads at a similar turn of a story. Young people who would have gone to the cities remained to paint murals upon reading ancient writing. A dozen less per hundred out every year, somebody counted. The room did not preach unity. It just blew and spoke like flour and water. Narrations piled together turned into something greater than legislation. It was possible to belong without speeches.

Somewhere beyond musty bookshelves the libraries of today are breathing life - more heartbeat than warehouse. People squashing in between shabby papers may make circles round the loneliness. UNESCO demonstrated how these spots bring together people who would never come together otherwise-one woman who is twice widowed changes jobs with the child of a teacher during evening readings. There are no places to join in most of the small towns, such as Rajasthan, where flat, sun- cracked earth is the order of the day. But in mud-walled halls, silent increase. There is a village, close to Bundi, which conducts weekly talks; somebody mixes sweet mango drink, and verses are floating through open windows. The number of women attending increased after several months of such nights. Some old man called Kalyani remarked that it is just lighter now. Land and water words were used to create tension. These days? There is a kissing off of conversation and silence, which speaks louder.

Governance and Citizen Empowerment

The last Diwali was spent by me in a crowded room at Dholpur in Rajasthan. There was a makeshift booth named Sarkar Se Seedha located out of the small library in the town. There were over 150 local people waiting in line, the majority wearing brightly coloured skirts and blouses. They came with enquiries regarding work payment within a national scheme. Each request was processed on one screen that was connected to RTIONLINE.gov.in. A very elderly lady called Kamla was clutching her ID slip. She told how she walked miles before she could meet village leaders. Answers were now received without intermediaries. After two days the authorities located her wages in arrears-eighteen thousand rupees. Such is the case when individuals are provided with instruments to do. Not flashy, just fair. Libraries are making silent power a deed.

When decisions are made in a transparent manner, trust is developed. Power tends to remain in check since one monitors the actions of the leaders. Democracy achieves success when everybody is given a voice. Libraries bring these ideas into reality by providing access to the laws and rules and how to speak up. Local libraries in Rajasthan villages also conduct programmes on government applications. In these locations, farmers are taught how to receive aid payments in trillions. They demonstrate to families how they can receive health benefits of millions of dollars. Not great schemes out at distant offices-but assistance on the spot, step by step.

Online portals are no longer satisfied with that. Consider the NDLI, which integrates benefit tracking UPI-based directly into its system. In the meantime, digital events are organised by local centres, which connect Aadhaar information with voting records-almost every record would match in 2024. Learning helps close gaps. In Anupgarh Sunita Ji conducts regular tech classes for women known as Digital Sarpanch, and the participation in the classes has increased access to government plans by two in five users. In 2025, her local library became an emergency service centre when floods struck. With only a single phone application -UMANG- more than three hundred households were assisted within a short time without delays due to dubious agents.

Challenges Facing Indian Libraries

That vow becomes broken when you overlook the tough stuff. A small library post at Jaisalmer, where no one has been trained since 2012, I visited last monsoon and checked its last post-roof gone, only three broken tablets. I replied, 'Ma, distribute the internet for an hour per week.' These harsh realities haunt 150 thousand libraries all over India, each of which is shackled to what it might really be.

Budgets are so thin that they are insignificant – the NML 850 crore budget of 2012-2026 divided among 700 or so districts is like a smear rather than coverage. Every library gets by on approximately ₹5 lakh; some Rajasthan villages survive on 50,000 annually, which is likely enough to buy some lightbulbs but not books (Sahitya Akademi, 2024). Due to that spotty coverage, 63 per cent of the districts lack libraries altogether, and almost half the rural population is not connected to internet-based services despite having BharatNet (RRRLF 2025).

The majority of them are challenged by competence differences. According to UGC data of 2025, seventy percent of librarians lack the ability to understand the simplest ICT skills. The mean of their age is fifty-two years, and there is no sight of young tech-savvy people in the workforce. Misery continues to increase on the internet - CERT-In revealed that last year, fifteen per cent of e-libraries were attacked by ransomware. The damage in terms of finances exceeded two hundred crore rupees. Houses are ruined as well – a third of them were ruined by river floods. Electronic waste is piled up in the places where the ruined devices were discarded.

One thing is clear. Without the government taking immediate action, the government will remain behind in terms of the public libraries. It takes ten thousand crores-no use beating around the bush. It cannot delay the training of a hundred thousand librarians. Rules concerning data privacy should be observed, and there is no bargain over this. In the absence of them, there will be no progress. Libraries possess knowledge, although they are forgotten. They were to elevate societies; now they drag. An enlightened India requires educated people. That begins with access. Right now, support is missing. Silence helps no one.

Roadmap for Viksit Bharat 2047

No more of such empty fancies: Héré is a blueprint that has been put to the test, drawn up at Jaipur in the workshops, using sarpanchs and NML brass. Make libraries part of NEP 2020/Digital India through the National Library Act 2027: birth NLA under MeitY, ringfence 1% education budgets (₹50,000 crore 2026-47).

Phase 1 Foundation (2026-2030): 100% digitisation milestone. BharatNet covers 1 lakh rural junctions (₹20000 crore solar-WiFi). NLP unites NDLI-Shodhganga (10 crore vernacular products). Educate 1 million librarians through NML Coursera modules - AI prompts, cybersecurity. KPI: doubled footfall, 8 out of 10 panchayats online.

Phase 2 Acceleration (2031-2037): AI scale. Install Bhashini-powered chatbots (Library Guru), VR legacy labs, and 50,000 maker spaces (NASSCOM PPP). GPLC-powered skilling: 5 crore young people in coding-AgriStack. Audit through OKRs - 95 per cent digitally literate.

Phase 3 Global Leadership (2038-2047): Quantum-safe archives, export NLP to Africa (50 million users). India sets a pace in UNESCO standards; libraries give birth to 10,000 MSMEs. Fund through CSR (Tata ₹500 crore seed) green bonds.

Anupgarh demonstrates it: 300% ROI/yields/jobs, investment 2.5 lakh, pilot 1. Go national, and Viksit Bharat is no longer a dream-it is reality.

Conclusion

It slows down a reality again to pass through these dusty reading rooms of Rajasthan with farmers tapping at Phagi, with growers picking harvests at Anupgarh. Not bookshelves of silent books anymore. These areas have become like workshops and are filling facts with power. Every lesson, every screen contributes to moving a broader vision forward. One in which nobody is left behind. Where herds on dunes and technology employees in mid-towns both contribute to

the creation of the next. A country is the one that rises higher due to the increased number of voices (UNESCO, 2005). The position of India in 2047 is in one moment. Wait, and hundreds of millions of youths are left without the digital life. Catch up-enforce structures, wake the gift-and learn in the open air, bring the nation out of its youth and into the profound skills of successful experience, show the young nations how to go with stalwart wisdom, and preserve in the world a language gallery with one roof.

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A Scientometric Study of Library and Information Science Journals Indexed in Web of Science: Evidence from Scopus and SCImago Journal Rankings

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Summary

The study, which examined the 153 Web of Science (WoS) journals in the Library and Information Science (LIS) sector in 2024, utilised the Scopus database and the SCImago Journal & Country Ranking (SJCR) as its primary data sources. This study utilises scientometric metrics, including SJCR, H-index, CiteScore, and SNIP, to evaluate the top 10 Web of Science (WoS) journals in Scopus. As obtained from SCImago for the year 2024, the analysis comprises the continent, nation, total number of documents, and reference numbers for WoS LIS journals in Scopus. The “International Journal of Information Management” has the highest SJCR, Citescore, and SNIP values among the WoS LIS journals, at 5.775, 53.10, and 5.825, respectively. At 292, the journal “IEEE Transactions on Information Theory” has the highest h-index value. The journal had the most references (65194) and documents (1004) in the WoS LIS database in 2024.

Keywords: Web of Science, CiteScore, H-Index, Library and Information Science Journals, SCImago, Scopus, SJCR

Introduction

Another platform that offers scientometric indicators derived from Elsevier’s Scopus database is the SCImago Journal and Country Rank. Scholarly journals can now be objectively evaluated using a variety of indicators. These metrics are used to assess the significance and influence of academic publications. The analysis of journal article citation data was the primary source of these measures. This database is becoming a valuable tool for assessing scientific publications and provides a plethora of information for identifying key journals on a specific topic. This study uses data from the SCImago Journal and Country Rank database to analyse the scientometric indicators of Web of Science (WoS) journals in Library and Information Science (LIS) for the year 2024.

Web of Science

Clarivate Analytics oversees the esteemed research database and citation index Web of Science. This resource, which provides access to a wide range of excellent, peer-reviewed journals, conference proceedings, patents, and other scholarly materials, is crucial for both academic and professional study. More than 33,000 periodicals from a variety of fields, including science, the social sciences, the arts, and the humanities, are included in this painstaking database. It also consists of the Emerging Sources Citation Index, Book Citation Index, and Conference Proceedings Citation Index.

Web of Science is typically accessed through academic institutions or research groups and is based on a subscription basis. Individual licenses are also available.

SCImago Journal Ranking

Based on information from the Scopus database (Elsevier B.V.), the SCImago Journal & Country Rank is a publicly available platform that displays journals and scientific indicators for nations. These metrics are used to assess and investigate scientific fields. Journals can be compared or examined independently of each other. It is also possible to compare and examine country rankings separately. Journals can be grouped by nation, subject category (309 distinct subject categories), or subject area (27 key thematic areas). Along with performance measurements from 239 countries worldwide, the citation data is derived from more than 34,100 titles published by over 5,000 international publishers. Important journal metrics can be integrated into your website as a clickable picture widget thanks to the SJCR.

The SCImago Journal Rank (SJR) indicator (PDF), developed by SCImago based on the well-known Google PageRank algorithm, is the source of the platform's name. This indicator shows the visibility of journals that have been part of the Scopus database since 1996.

Scopus

Scopus is a scientific abstract and citation database launched by Elsevier, an academic publisher, in 2004 to compete with the established Web of Science. Each year, journals in Scopus undergo a quality review based on four numerical metrics: h-Index, CiteScore, SJR (SCImago Journal Rank), and SNIP.

Objectives

- To identify WoS LIS journals in the SJR database covered by Scopus based on scientometric indicators, including SJR, H index, CiteScore and SNIP for the year 2024.
- To identify the continents and countries that contribute to WoS LIS journals in the SJR database for the year 2024 covered by Scopus.
- To acknowledge the publishers that provide WoS LIS journals in the SJR database covered by Scopus.
- To assess the WoS LIS journals in the SJR database covered by Scopus that have the most significant number of documents and references.

Methodology

The primary resource for identifying and gathering data on WoS LIS journals was the SCImago Journal and Country Rank database (2024), which also provided the CiteScore of WoS LIS journals (2024) from the Scopus Source List. The data was gathered on 18th November 2025.

Scientometric Indicators

For each journal, we extracted the following metric indicators.

SCImago Journal Rank:

SCImago Journal Rank measures the journal's weighted citations. Citation weighting depends on the subject field and prestige (SJR) of the citing journal.

CiteScore:

CiteScore is the average number of citations received per item by items published in the journal over the previous three years.

H index:

The number of (h) publications that have been cited at least "h" times, while all other publications have less than "h" citations.

Source Normalised Impact per Paper (SNIP):

A complex statistic that accounts for variations in citation patterns across fields is the Source Normalised Impact per Paper (SNIP) metric. It accomplishes this by comparing each journal's citations per publication to the field's citation potential, which is the collection of publications that cite that journal.

Analysis and Interpretation

Preliminary Details of the Studies

The year 2024 SJR database includes 153 WoS-covered LIS journals. All 153 WoS-covered LIS journals are examined in this analysis.

Scientometric Indicators of WoS-covered LIS Journals in SCImago

The scientometric indicators of WoS covered journals in LIS are classified as follows.

SCImago Journal Ranking Indicator (SJR)

The SCImago Journal Ranking Indicator (SR) assesses a journal's impact, influence, and prestige. It expresses the average number of weighted citations from documents published in journals in the three preceding years in the selected year. Table 1 illustrates the highest SJR of 10 LIS journals indexed in WoS for SCImago 2024. All the top ten journals belong to the first quartile group.

Table 1. SJR of Top Ten WoS-covered LIS Journals in SCImago

Journal Name	SJR
International Journal of Information Management	5.775 Q1
Information Systems Research	4.176 Q1
European Journal of Information Systems	3.824 Q1
Big Data and Society- Open Access	2.448 Q1
Government Information Quarterly	2.171 Q1
Information Processing and Management	2.134 Q1
Information and Organisation	2.010 Q1
Scientific data - Open Access	1.937 Q1
Information Communication and Society	1.916 Q1
Journal of Cheminformatics - Open Access	1.745 Q1

The SJR values of WoS-indexed LIS journals varied from 1.745 to 5.775. The journal 'International Journal of Information Management' holds the highest SJR value among the one hundred fifty-three WoS-indexed LIS journals, at 5.775, followed by 'Information Systems Research' at 4.176, while the lowest value in the first quartile journal category is 1.745 for the Journal of Cheminformatics - Open Access. The mean SJR of the first ten LIS journals indexed in WoS is 2.814. The assessment reveals that of the 10 leading journals, only three are open access.

H-index

In 2005, Hirsch introduced the h-index as a new measure of a researcher's competence. It is computed using all the citations that a particular researcher's works have received. The most significant number of h is the researcher's h-index if we arrange these papers according to the order in which they were referenced, and h papers are cited at least h times. An h-index can be used as a journal metric since it can be applied to a set of documents published in a particular journal within a given year. The h-index increases monotonically over time because it is computed using the total number of citations for each work. According to SCImago 2023, Table 2 displays the top h-index of the top ten LIS journals listed in WoS.

Table 2. h-index of TopTenWoS LIS Journals in Scopus in the SJR Database

Journal Name	H index
IEEE Transactions on Information Theory	292
Journal of Chemical Information and Modelling	192
Information Systems Research	185
International Journal of Information Management	177

Journal of the Association for Information Science and Technology	165
Scientometrics	144
International Journal of Geographical Information Science	135
Government Information Quarterly	133
European Journal of Information Systems	128
Information Processing and Management	123

Journals in Library and Information Science are indexed in WoS and exhibit h-index values ranging from 123 to 292. The journal 'IEEE Transactions on Information Theory' has the highest h-index of 292, followed by 'Journal of Chemical Information and Modelling' with an h-index of 192. The journal 'Information Processing and Management' has the lowest h-index of 123. The mean h-index of Library and Information Science journals indexed in WoS is 167.40. The most interesting aspect is that no open-access journals are represented among the top 10 h-index values.

CiteScore

The average annual number of citations to recently published articles is reflected in an academic journal's CiteScore. Elsevier launched this journal rating metric in December 2016 as a substitute for the widely used JCR impact factors. Impact Factor and CiteScore are closely related. In the Impact Factor, the citation window period is two years, whereas in CiteScore, it is three years. The fact that all document kinds are included in both the numerator and denominator sets them apart from the impact factor. The top ten CiteScores of WoS-covered LIS journals in SCImago 2023 are listed in Table 3.

Table 3. CiteScore of Top Ten WoS LIS Journals in Scopus in the SJR Database

Journal Name	CiteScore
International Journal of Information Management	53.10
European Journal of Information Systems	23.10
Information Processing and Management	17.00
Government Information Quarterly	15.70
Journal of Enterprise Information Management	14.80
Information Systems Management	14.60
Journal of Cheminformatics- Open Access	14.10
Scientific data - Open Access	11.20
Information and Organisation	11.20
International Journal of Geographical Information Science	11.00

The CiteScore of the top ten Web of Science-covered Library and Information Science journals ranged from 11.00 to 53.10. The 'International Journal of Information Movement' has the greatest CiteScore of 53.10, followed by the 'European Journal of Information Systems' at 23.10, while the 'International Journal of Geographical Information Science' has the lowest CiteScore of 11.00. The average CiteScore of the ten leading LIS journals indexed in WoS is 18.58.

SNIP

A more sophisticated metric that accounts for differences in citation styles across fields is the Source Normalised Impact per Paper (SNIP) metric. It accomplishes this by comparing each journal's citations per publication to the field's citation potential, which is the collection of publications that cite that journal. Because the value of a single citation is higher for journals in disciplines where citations are less common, SNIP assesses the influence of contextual citations. It enables direct comparison of journals across different fields. Like CiteScore and SJR, SNIP is computed yearly using Scopus data and is freely accessible at www.scopus.com/sources. The highest SNIP of the ten LIS journals indexed in WoS for SCImago 2024 is shown in Table 4.

Table 4.SNIP of Top Ten WoS LIS Journals in Scopus in the SJR Database

Journal Name	SNIP
International Journal of Information Management	5.825
European Journal of Information Systems	3.766
Big Data and Society- Open Access	3.093
Cataloguing and Classification Quarterly	3.000
Government Information Quarterly	2.979
Information Processing and Management	2.973
Archival Science	2.677
Information Communication and Society	2.528
Information Systems Research	2.527
Telecommunications Policy	2.329

Journals in Library and Information Science (LIS) indexed by WoS exhibit SNIP values ranging from 5.825 to 2.329. The journal 'International Journal of Information Management' has the most excellent SNIP value of 5.825, followed by 'European Journal of Information Systems' at 3.766, while 'Telecommunications Policy' has the lowest SNIP value of 2.329. The mean SNIP of the Web of Science-indexed Library and Information Science publications is 3.170. Continent-wise Analysis of WoS-covered LIS Journals in SCImago

The continents in SCImago have been segmented into Africa, Asia, Eastern Europe, Latin America, the Middle East, North America, the Pacific Region, Western Europe, and Arab countries. There are no SJR journals in the field of library and information science published from Arab countries. Furthermore, Continental has been classified into BRIICS, EU-27, IBEROAMERICA, LANIC, Nordic countries, and OECD. Due to the repetition of journals across various categories, they have been excluded from the study. Table 5 depicts the continent-wise analysis of WoS-covered LIS journals in SCImago 2024.

Table 5.Continent-wise Analysis of WoS-covered LIS Journals in SCImago

Continent	No. of Journals
Western Europe	88
Northern America	42
Asiatic	10
Latin America	6
Eastern Europe	5
Africa	1
Pacific Region	1
Middle East	0
Total	153

Table 5 clearly indicates that Western Europe has the highest number of WoS-indexed LIS journals (88), followed by North America (42). The Africa and Pacific Region have the least, with just one LIS journal. The Middle East region lacks the presence of any Library and Information Science publications indexed in the Web of Science.

Country-wise Analysis of WoS-covered LIS Journals in SCImago

Scholarly journals in the field of LIS are published from various countries around the world. The WoS-covered LIS journals included in SCImago 2024 are published in seven different countries.

Table 6.Country-wise Analysis of WoS-covered LIS Journals

Country	No. of Journals
UK	58

USA	38
Netherlands	10
Spain	8
Germany	5
Canada	4
Brazil	3
India	3
Italy	3
Singapore	2
Taiwan	2
Others	17
Total	153

The United States and the United Kingdom contribute the most published WoS-covered LIS Journals, with 58 and 38, respectively, and followed by the Netherlands with 10. In the WoS-covered LIS journals in SCImago 2024, 17 countries contribute one journal each (Table 6).

Top Ten WoS-Covered LIS Journals with the Highest Number of Documents in Scimago

For the year 2024, we attempted to investigate the variation in publications among the top ten WoS-covered LIS journals listed on SCImago. We used Excel to determine the gap between the average and individual papers for this purpose. The data is demonstrated in Table 7.

Table 7. Highest number of documents in WoS covered LIS Journals

Journal Name	Total Docs.
Education and Information Technologies	1004
Scientific data - Open Access	899
Journal of Chemical Information and Modelling	741
IEEE Transactions on Information Theory	530
Information Processing and Management	355
Scientometrics	320
Information Technology and People	236
Information Communication and Society	225
Journal of Information Science	219
Global Knowledge, Memory and Communication	202

The 2024 SJR database included 153 WoS-covered LIS journals. The top ten documents published results revealed that Education and Information Technologies published the most documents, with 1004, followed by Scientific Data with 899, and the lowest by Global Knowledge, Memory, and Communication with 202. The average number of publications in the top ten WoS-covered LIS journals in SCImago for 2024 was 473.10.

Table 8. Highest number of references in the top ten WoS-covered LIS Journals

Journal Name	Total Refs.
Education and Information Technologies	65194
Journal of Chemical Information and Modelling	46100
Scientific data - Open Access	45502
Information Processing and Management	22539
Information Technology and People	22351

IEEE Transactions on Information Theory	19214
Scientometrics	16756
Journal of Information Science	12821
Global Knowledge, Memory and Communication	12633
Information Communication and Society	12416

It is evident from Table 8 that the highest number of references in the top ten WoS-covered LIS journals is attributed to Education and Information Technologies (65194), followed by Journal of Chemical Information and Modelling (46100). The lowest one is Information, Communication, and Society (12416). The average highest number of references in the top ten WoS-covered LIS journals in SCImago for 2024 was found to be 27552.60

Conclusion

The Scientometrics analysis focused on various indicators, including SJR, h-index, CiteScore, and SNIP, as well as the continent, country, total number of documents, and number of references of WoS-covered LIS journals in SCImago for the year 2024. The details of the top 10 LIS journals covered by WoS are provided based on these parameters. Journals, especially within the discipline of LIS, significantly contribute to the advancement of new ideas, discoveries, and developments. This research focuses on ranking LIS journals utilising the SCImago Journal & Country Rank database. The coverage of LIS by WoS, which enhances the visibility of research output, has not motivated the scholarly community to adopt it as a communication tool. They offer fresh avenues for examining and understanding their impact on journal rankings. This database plays a crucial role in providing essential information for pinpointing key journals within a specific field and is increasingly recognised as a valuable resource for evaluating scientific journals.

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Integrating Indian Knowledge Systems into Sustainable Library Building Design: A Strategic Framework for Viksit Bharat @2047

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Summary

This paper proposes a sustainable design framework for knowledge hubs like libraries to support India's vision of Viksit Bharat @2047, emphasizing the integration of green practices with the Indian Knowledge System (IKS). The approach integrates core principles of IKS, such as Vastu Shastra, sSacred gGeometry, and vernacular architectural practices, traditional wisdom, and local arts with modern architectural and construction practices. This approach aims to create net-zero library buildings that are sustainable, energy-efficient, culturally significant, and psychologically beneficial, fostering well-informed & environmentally aware citizens capable of reaching their full potential. These things are key ingredients for becoming a developed economy, which is the main aim of Viksit Bharat @2047.

Keywords: Indian Knowledge Systems, Sustainable Development, Library buildings, Viksit Bharat @2047, Smart and Inclusive Libraries, Green building

Introduction

India's economy contributed roughly 30 per cent of the world's Gross Domestic Product (GDP) between 300 and 1100 CE and after that around 15 per cent in the 1820s and approximately 4 per cent in the 1950s (Maddison, A., 2007). This rapid decline in GDP can be seen during foreign invasion and during foreign rule. The country which was a pioneer in most of the fields, such as science, technology, literature, architecture, etc., declined and fell behind the European countries. With gross reforms in the last few decades, today India's economy is growing fast again and is the fourth largest economy and heading towards a 5 trillion economy (PIB, 2025). The future of the world belongs to India due to the availability of a large human resource. But it's essential to provide necessary skills and to guide the workforces into productive work, keeping the welfare of citizens providing necessary satisfaction in their lives, such as fulfilment of economic, social, personal and spiritual aspects. It's essential that each individual gets a fair chance to achieve their full potential depending upon their capabilities and skill sets. For this, there is a need for reforms in the present system so that it leads to the creation of adequate jobs to serve the system in a sustainable way and which helps in the growth of the economy. The national vision of 'Viksit Bharat 2047' is to advance Bharat on the guidelines of developed nations, in which the building industry will be one of the major stakeholders (Viksit Bharat 2047). The Building industry can be incorporated with ancient wisdom on the lines of sustainability and inclusive growth. Sustainable development with eco-conscious design requires investment in traditional knowledge. Also, one of the themes of Viksit Bharat is net-zero buildings, which can also address climate change and environmental degradation. In order to achieve Viksit

Bharat on its 100th anniversary of independence, the nation must pursue an ongoing process that calls for long-term capacity building of individuals. This will produce informed, environmentally conscious, and knowledgeable citizens with competent skill sets, which are essential to the success of the Viksit Bharat vision. Knowledge hubs such as libraries, museums, and interpretation centres can act as catalysts for the development of the country. Especially libraries can play a dominant role in guiding future generations in this task. Due to their typology, libraries can act as knowledge dissipation centres and capacity-building zones for the surrounding communities (Sharma et al., 2018). Also, the use of Bhartiya Gyan Parampara (Indian Knowledge Systems) in urban design and planning demonstrated by Sharma et al. (2025) highlights how ancient design principles can guide “sustainable, culturally rooted development, with a focus on trade and commerce in modern India” and potentially elsewhere, bridging historical studies with contemporary planning challenges. So, IKS is utilised in Viksit Bharat not as nostalgia but as a dynamic source for innovation, such as leveraging Vastu Shastra for modern architecture or Vedanga/Sutras for computing and artificial intelligence which is an example of innovation through tradition. Additionally, libraries that combine traditional and new design provide their patrons with multidisciplinary and experiential knowledge: both stress the shift from memorisation to a comprehensive education that blends moral foundation with academic rigour.

Libraries as a built space have undergone a significant transformation from conventional book-centred spaces to multifaceted knowledge and learning environments. Contemporary libraries support teaching, research, innovation, digital literacy, and community engagement. Alongside this transformation, growing global concern over climate change, environmental degradation, and depletion of natural resources has brought sustainability to the forefront of infrastructure planning. Also, the advent of green building rating systems and energy efficiency: the construction practices have started to align along those lines, however, it is also seen that the traditional wisdom (tried and tested with time) that was used to create old buildings is losing its shape in the modern era, particularly as a result of contemporary economic forces. Green building may not alone guarantee sustainability, as sustainability covers subtle concepts and requires deliberations on them. Therefore, not all green buildings are sustainable, but all sustainable buildings are green. With the introduction of smart buildings, AI, IoT, and so on, solutions have emerged for many challenges in building design, yet the essence of Bhartiya (Indianness) is absent in construction. Also, it is an established fact that human development is shaped by a combination of biological factors and external influences, which includes socio-cultural, surrounding built and educational environments. Earlier educational buildings were also spiritual centres which encourage the holistic development of human beings. The incorporation of IKS in the built environment serves a higher-order human objective—perceiving oneself in harmony with the environment. This is what is missing in today’s education systems and knowledge hubs. Human beings learn best with hands-on training or living in an interactive environment. IKS, which is also known as Bhartiya Gyan Parampara, provides effective tools for the development of a human being into a citizen capable of advocating sustainability, which is the most critical priority in today’s age of climate change.

India’s goal of becoming a developed nation by 2047 stresses education, research, innovation, and environmental responsibility. Libraries play a vital role in this journey by facilitating equitable access to knowledge and lifelong learning. Designing library buildings that are environmentally sustainable, technologically adaptable, and socially inclusive aligns directly with the objectives of Viksit Bharat @2047. This paper discusses the relevance of sustainable library building design within the Indian context and highlights its contribution to a resilient and knowledge-driven society.

Sustainable Library Building Design: An Overview

Sustainable library building design involves the integration of environmental, social, and economic considerations throughout the lifecycle of a library—from planning and construction to operation and maintenance. Such buildings aim to reduce energy consumption, conserve water, minimise waste, and provide healthy indoor environments for users and staff.

Beyond physical construction, sustainability in libraries also encompasses efficient service delivery, digital resource management, and community engagement. By adopting green building concepts, libraries can lower operational costs, extend building longevity, and act as demonstrative models of sustainable development for society at large.

Sustainable Libraries and the Vision of Viksit Bharat @2047

Sustainable library infrastructure directly supports the goals of Viksit Bharat @2047 by strengthening the foundation of education, research, and innovation. Environmentally efficient library buildings contribute to reducing carbon emissions and align with India’s commitment to renewable energy and sustainable development.

Such libraries complement national initiatives including the National Education Policy 2020, Digital India, Smart Cities Mission, and the United Nations Sustainable Development Goals (SDGs). By enhancing both physical and digital access to knowledge across urban and rural regions, sustainable libraries promote inclusive growth and intellectual empowerment.

Libraries as Sustainable Knowledge Commons

Modern libraries function as knowledge commons—shared spaces that promote open access, collaboration, and community participation. Sustainable library buildings reinforce this concept by providing welcoming, transparent, and environmentally sensitive spaces. The architectural design of green libraries itself serves as an educational tool, fostering awareness of sustainability among users.

Through exhibitions, workshops, and outreach programmes on environmental issues, libraries can actively contribute to building a culture of sustainability. In this way, libraries extend their role beyond information provision to become agents of social and environmental change.

Modern Building Design and obligations related to green buildings and sustainability

Most of the iconic buildings nowadays incorporate green architecture and also fulfil the criteria of any one of the green building rating systems and can have climate-responsive architecture and energy-efficient design. Also, with an increase in AI capabilities, IoT, and Big Data the buildings are now smarter, more self-aware, and can provide a lot of facilities to their end-users. Also, with the incorporation of barrier-free architecture, the buildings are more user-friendly as well as universally accessible (disabled-friendly). Libraries adopting green building strategies demonstrates a reduction in carbon footprint and shows efficient resource utilisation. However, the green rating system also has criteria like the use of vernacular architecture in building construction, but it's widely seen that most of the buildings are deviating from the Indian way of designing, so they become distinct from our own roots of architectural philosophy in the present socio-economic scenario. Since people spend most of their lives indoors, buildings significantly affect the psychology of their users. It is therefore essential to incorporate traditional knowledge into architectural design to foster a sense of pride. Doing so enhances the essence of a building and provides it with lasting value.

Core Principles of Green Library Design

Energy-Conscious Design Strategy

Energy efficiency is a fundamental element of sustainable library buildings. Appropriate orientation, use of daylight, shading devices in the form of light shelves to increase penetration of daylight, and natural ventilation are some of the energy efficiency measures that significantly reduce reliance on artificial lighting and mechanical cooling. Energy-efficient lighting systems and modern HVAC technologies further contribute to lowering energy demand. Also, rooftop solar installations, which are particularly relevant in the Indian climatic context, can be used to make net-zero energy buildings which is one of the themes of Viksit Bharat.

Water Management and Conservation

Sustainable water practices are essential, especially in regions experiencing water stress like Rajasthan. Libraries can incorporate rainwater harvesting systems, low-consumption fixtures, and reuse of greywater for landscaping and sanitation. Focusing on indigenous plant species for landscaping reduces water requirements considerably and supports local biodiversity.

Sustainable Building Materials

The use of sustainable, eco-friendly construction materials reduces stress on the environment. Local vernacular architecture needs to be given more emphasis, and preference for locally available materials should be promoted to reduce transportation emissions, while recycled and durable materials help minimise waste. Low-VOC emission paints, finishes, and furnishings considerably reduce issues related to indoor air quality and contribute to user well-being.

Integration of Smart and Digital Technologies

Smart technologies play a dual role in improving sustainability and operational efficiency. Automated systems for lighting, temperature control, and energy monitoring optimise resource usage. Digital collections, institutional repositories, and electronic services reduce dependence on paper-based resources and physical storage, supporting environmentally responsible information management.

Inclusive and User-oriented Spaces

Sustainability also encompasses social inclusion and user comfort. Barrier-free access, ergonomic furniture, clear signage, and flexible spaces for individual and collaborative activities ensure that libraries cater to diverse user needs. Attention to acoustics, thermal comfort, and indoor environmental quality enhances the overall learning experience.

Implementation of the Indian knowledge system

Implementation of IKS in the library buildings can be in multi-layered form and can incorporate the fields of Vastu shastra, astrology, sacred geometry- mathematics, civil engineering, interior design, fine arts, etc.:

Role of Vastu Shastra

Vastu Shastra focuses on the alignment of physical space with natural and cosmic forces to optimise energy (Prana). The role of Vastu Shastra may be related to the spatial planning and zoning aspect of the library building. Using Vastu Shastra for basic guidance before proceeding to subtle aspects of zoning. As a facilitator of design, Vastu provides a framework for harmony. Architects who master this integration create buildings where traditional wisdom enhances functional performance. Implementing Vastu at a large scale may be mandatory; however, on a lower scale, they should act as facilitators.

Role of Astronomy

The solar and lunar consideration should be used as key inscriptions in library building design so as to incorporate the details of its foundation. The creation should be the snapshot of its foundation day, which is values in Indian design (Sunil et al. 2025). The oldest civilisation of the Americas, i.e., Caral-Supe, has its buildings have strong correlation with lunar/solar alignment during equinox/solstices. The Egyptian-Giza pyramids landscape is known for its astronomical alignments, which make them virtually immortal. The Indian temples and viharas are also known for astronomical alignments in their planning.

So, having astronomical relations is not new to the ancient world, however, as and when with technological advancement and population growth, the stress on it gradually decreases. There is a compelling need to examine Vastu Shastra from a fresh astronomical perspective. Revisiting these principles with modern insight serves as a tribute to our built heritage and fosters a deep sense of pride in our rich history.

Role of Sacred Geometry

Sacred geometry is used in the planning of cities, buildings, and monuments by various ancient civilisations. It was actually becoming the norm in the design of public buildings. However, in modern architecture, the role is either forgotten or since it requires expertise, so the stress on incorporating sacred geometry is almost negligible. Still, in today's time, complexity occurring due to sacred geometry can easily be resolved with the help of computer aided design and other technological advancements. This feature can be used as an important part of the library building design process.

Role of Vernacular Architecture

Some parts of the buildings especially library buildings, should demonstrate vernacular architecture so that the new crop of pupils using the library stay connected to their roots. Also, the traditional wisdom used in the vernacular construction is tried and tested and has shown longevity compared to modern construction practices.

Role of Interior Design, Decoration, Fine Arts, and Use of Sculptures

Libraries can utilise a fusion of modern and traditional Indian interiors, creating specific zones that celebrate a unique, context-driven aesthetic. The contribution of Indian Rishis contribution should be highlighted so that the users feel proud of their glorious past and also feel motivated to follow their scientific/artistic path. Integration of the above may feel like it increase the burden on the architects, but the expertise of astronomers, Vastu consultants, civil engineers, and mathematicians can be taken up by architects to finalise the design for the accuracy of the design. The design of Jaipur and its buildings shows astronomical, Vastu, and sacred geometry at various levels from city level to building level. It also highlights the role of architect, planner, astrologer, etc., in the design. So, a collaborative effort should be appreciated, and firms that incorporate professions in varied fields should be encouraged.

Notable work related to integration of current knowledge hubs

In the Indian context, mandalas related to Vastu Shastra were incorporated in temples, educational hubs, and the city's design and were our indigenous feat in the fields of science, art, and architecture. Ancient India has multiple educational

hubs and has libraries, such as Takshashila, Nalanda, Vikramshila, etc. Many of these universities' central structures were based on mandalas, which was our indigenous accomplishment in the field of architecture. Figure 1 presents the Google image of Vikramshila, located in the modern state of Bihar. The ancient knowledge is not lost; however, it needs to be rediscovered in modern architecture. Many notable new hubs of interaction have been constructed with ancient Indian knowledge, and few of them are discussed in this research paper.

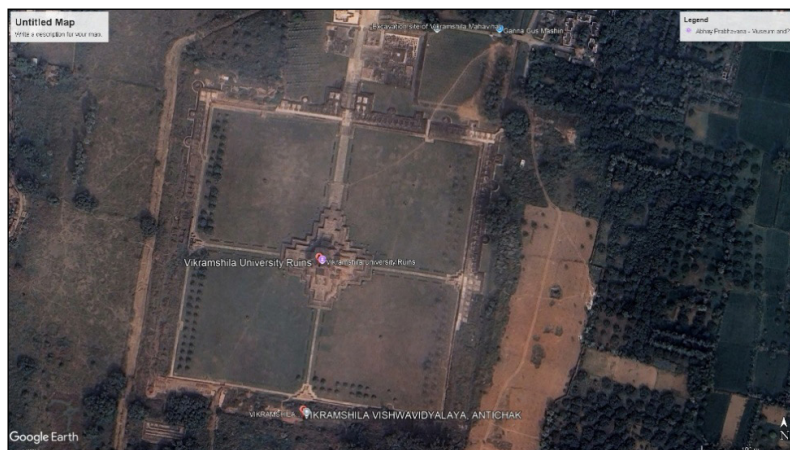


Figure 1. Google image of Vikramshila

Abhay Prabhavana Museum & Knowledge

Abhay Prabhavana Museum & Knowledge Centre has recently opened and is a touchbearer of India's historical past. This technological marvel has 30 galleries, showcasing Jain philosophy through immersive exhibits. The architectural planning of the Abhay Prabhavana Museum & Knowledge Centre utilises mandala-inspired principles and sacred geometry to organise its 50-acre campus and reflect Jain philosophical concepts. The complex has a main building in the shape of a yantra (mandala) based on indigenous ancient Indian knowledge.



Figure 2. Google Image of Abhay Prabhavana Museum & Knowledge

Bharati Yogadhama (BYD), Uttanahalli, near Mysore (<https://bharatiyogadhama.org/>):

The Jantar Mantar at BYD refers to the astronomical observatory built at Bharati Yogadhama (BYD) in Mysore, an initiative to revive ancient Indian astronomical knowledge, inspired by the famous Jaipur observatories, offering hands-on learning in Vedic astronomy and Jyotisha (astrology) for all ages. Located in a quiet area, it's part of BYD's larger mission to blend traditional Indian wisdom (Ayurveda, Yoga) with scientific research, featuring unique instruments and native plants for an immersive experience.

- **Concept:** A modern interpretation of the traditional Jantar Mantar, focusing on hands-on celestial measurement and scientific heritage.
- **Purpose:** To make ancient astronomical sciences accessible and relevant for modern learners, bridging traditional knowledge with contemporary understanding.



Figure-3. Google Image of Abhay Prabhavana Museum & Knowledge

Conceptual Framework for Sustainable Library Building Design

The conceptual framework illustrates the interrelationship between sustainable library building components and national development goals. The framework is structured across three interconnected layers:

Table-1: Layers of the Conceptual Framework for Sustainable Library Building Design

S. No.	Layer	Description	Key indicator	Key Document
1.	Basic Building Layer	This layer includes green architecture, energy-efficient systems, water conservation strategies, eco-friendly materials, and smart digital infrastructure. These elements form the foundation of sustainable library building design.	Green Building Indicators: • Energy Performance Index (EPI) • Daylight Autonomy (DA) • Water use index • Embodied Energy Index • waste management practices • Use of renewable energy sources • Indoor environmental quality Economic Indicators: • Operational and maintenance cost • long-term durability of building materials • Efficient space utilization • cost savings achieved through energy- and water-efficient technologies.	• National Building Code (NBC), • IS codes pertaining to Library Design, • GRIHA Manual / IGBC Manual, • Energy Conservation and Sustainable Building Code

2.	IKS Layer	Vernacular architecture, integration of IKS parameters such as sacred geometry, Vastu Shastra, Vedic mathematics, integration of astronomical parameters, interior design sculptures, etc.	Vernacular Architecture Index (use of local materials, local people for construction, local handicraft items, etc.), level of integration of IKS based on various fields. Benchmark says: high level of integration- Jaipur old city planning	- NBC Chapter-11 - Vastu Shastra, - Traditional texts
3.	AI-IoT layer	Use of AI and IoT, machine learning and bigdata in making libraries smart and user- centric	Technological Indicators: - AI integration - Smart building management systems - ICT infrastructure - Data security - Automation technologies	- AI-IoT based indices can be created and can be incorporated in the manuals. - AI Use Policy - Data security policy
4.	University Accessible Layer clubbed with Library Functions and Services:	This layer includes components of barrier-free architecture and enables sustainable library operations such as resource management, digital knowledge services, inclusive access, collaborative learning spaces, and environmentally responsible practices. This layer represents how sustainable design directly influences library performance and user engagement.	Level of barrier-free architecture based on different disabilities	Universally accessible design codes
5.	Feedback Layer	Improvement/ upgradation in building design, energy efficiency measures, user experience, etc.	Feedback interval and its effective implementation	Feedback and reforms based on feedback
6.	Output Layer	The outcomes include enhanced research and learning environments, reduced carbon footprint, improved social inclusion, digital empowerment, and community awareness. Collectively, these outcomes contribute to the broader objectives of education quality, innovation, and sustainability.	- inclusivity, accessibility for persons with disabilities, - user comfort, - safety, - community engagement, and - support for collaborative learning and lifelong education.	Accessibility metrics for different disabilities, user comfort surveys. Post-occupancy surveys. Public Perception.

This framework positions libraries as pivotal institutions that channel sustainable infrastructure into tangible social, educational, and environmental gains. Together, these indicators provide a comprehensive framework for evaluating a library building's sustainability and aligning the library's performance with the broader goals of sustainable development and Viksit Bharat @2047.

Strategies and Recommendations

The six layers described in the conceptual framework will act as a catalyst for the development of libraries on the lines of IKS with the vision of Viksit Bharat @2047, These knowledge hubs must demonstrate Bharat's rich legacy also in the field of building design and overall master plan, while seamlessly integrating modern techniques and state-of-the-art

technologies. This incorporation should not be viewed as an additional burden; instead, it should be embraced as a challenge, much like the way ancient architects planned viharas and cities with such immense precision. Integrating this ancient wisdom inculcates a scientific temperament alongside artistic insight within the mindset of various stakeholders and users of the library. Also, the prevalent green building rating systems, such as GRIHA and IGBC, may incorporate criteria related to IKS and can integrate them in rating systems for libraries, which in turn have to show compliance with them, and hence a building ecosystem will be created in view of the Viksit Bharat mission. Financial incentives, grants, and governmental support can encourage the adoption of IKS criteria in green/sustainable building practices.

Capacity-building initiatives for library professionals, architects, and administrators are essential to strengthen planning and implementation. Also, embedding sustainability into library building design and policies, long-term development plans, and evaluation frameworks will ensure long-lasting impact on library building design.

Conclusion

This paper proposes a conceptual framework for sustainable library building design that integrates Indian Knowledge Systems (IKS)- Vastu, sacred geometry, vernacular engineering, and astronomical alignment with -contemporary green technologies and AI and IoT to support the Viksit Bharat @2047 vision. By positioning libraries as community-centred, net-zero knowledge hubs, the approach advances environmental resilience, cultural continuity, and lifelong learning while enhancing occupant wellbeing and local capacity building. The IKS, sustainability and greenness in library buildings can be measured by proposed indicators in this paper. Realising this vision requires interdisciplinary collaboration among architects, Vastu experts, engineers, artists, and technologists. Pilot projects related to libraries can be undertaken to validate performance and social impact. Integrating IKS with modern sustainability practices offers a promising pathway to create inclusive, energyefficient, and culturally meaningful libraries that nurture informed, resilient, culturally rooted citizens.

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Libraries and Education Reform: A Study from the National Education Policy (NEP) 2020 Perspective

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Summary

India's National Education Policy (NEP), published in 2020, is a major step toward improving its current education system by utilising various methods such as Holistic Multidisciplinary Learning (HML), Inclusive, Technology-Driven Learning (ITL) and Holistic Learning (HL). As such, libraries serve as a central source for teachers, parents and students during all phases of their education. Libraries will have a very important role to play within the NEP 2020, and this paper looks at how libraries support educational reform as directed by NEP 2020, focusing on how academic libraries, school libraries and public libraries assist in changing learning methods, enhancing digital learning, research and lifelong learning; and creating equality of access to information. Furthermore, the paper explores what barriers exist which hinder libraries from fully implementing the recommendations set forth in NEP 2020 and provides recommendations for how libraries may advance their positioning and reputation as essential partners in the educational reform process.

Keywords: Libraries, Education Reform, NEP 2020, Digital Libraries, Lifelong Learning, Knowledge Society

Introduction

The National Education Policy 2020 (NEP 2020) was introduced by the Ministry of Education in India on 29 July 2020. The newly introduced policy is swapping the earlier introduced education policy in the country. The newly introduced policy "NEP-2020" is providing adequate guidelines for elementary education to higher education & vocational training in the Indian subcontinent. The newly introduced education policy focuses on the "Transformation of the education system of India". The nature of this newly introduced "NEP 2020" policy is more like an 'advisory' in nature, over which the state, institutions & schools have to take action on their own. The newly introduced "NEP-2020" describes the "Vision for the New Education System of India" as under: "The 'National Education Policy 2020' seeks to build an 'Indiacentric' education system: one that...inherently will help transform our nation sustainably into an 'equitable & vibrant knowledge society'. This will be through imparting 'high-quality education to all.'" 1-3 This paper focuses on the 'Importance of Libraries in Teaching & Learning'. The paper also describes the role of 'libraries for all forms of education'. The "Libraries Nowadays" provide "24x7 hours access to Library Resources for development of 'knowledge & skills of users'."

Overview of National Education Policy (NEP) 2020

- NEP 2020 focuses on transforming the education system across all levels. Some key features relevant to libraries include:
- Holistic and multidisciplinary education
- Promotion of critical thinking and creativity

- Emphasis on digital learning and technology integration
- Open and distance learning (ODL)
- Research and innovation focus
- Lifelong learning and adult education
- Equity, access, and inclusion
- These reforms require strong information infrastructure, where libraries play a foundational role.

Role of Libraries in Education Reform under NEP 2020

Libraries as Learning Resource Centres

NEP 2020 encourages learner-centred education. Libraries support this by providing diverse print and digital resources, enabling self-paced and inquiry-based learning.

Support for Multidisciplinary Education

- The policy promotes flexible curricula and multidisciplinary studies. Libraries facilitate this by:
- Developing diverse and cross-disciplinary collections
- Providing access to e-books, journals, and databases
- Supporting project-based and experiential learning

Digital Libraries and E-Resources

- NEP 2020 strongly advocates the use of technology. Libraries contribute through:
- Digital libraries and institutional repositories
- Access to open educational resources (OER)
- National platforms such as e-ShodhSindhu, SWAYAM, and the National Digital Library of India (NDLI)

Libraries and Research & Innovation

- Research is a core pillar of NEP 2020. Libraries support research by:
- Providing scholarly databases and research tools
- Assisting in literature review and citation management
- Promoting research ethics and plagiarism awareness

Libraries for Lifelong Learning

- NEP 2020 recognises learning beyond formal education. Public and academic libraries support lifelong learning by offering:
- Skill development resources
- Online courses and learning platforms
- Community learning programmes

Libraries and Inclusive Education

- NEP 2020 emphasises equity and inclusion. Libraries help achieve this by:
- Providing free or low-cost access to information
- Supporting learners from disadvantaged backgrounds
- Offering resources in regional languages
- Providing assistive technologies for persons with disabilities
- Libraries act as equalisers in the education system by reducing information inequality.

Challenges in Implementing NEP 2020 through Libraries

- Despite their importance, libraries face several challenges:
- Inadequate funding and infrastructure
- Digital divide and poor internet connectivity
- Shortage of trained library professionals
- Resistance to technological change
- Lack of clear library-specific policy implementation guidelines
- Addressing these challenges is critical for effective education reform.

Strategies to Strengthen Libraries under NEP 2020

- To enhance the role of libraries in education reform, the following measures are suggested:
- Increased budget allocation for libraries
- Modernisation of library infrastructure
- Capacity building and continuous professional development of librarians
- Integration of libraries into institutional academic planning
- Promotion of digital literacy and information literacy programmes
- Strong collaboration between educators, librarians, and policymakers

Conclusion

The National Education Policy 2020 is a significant departure from those previously established by the Government of India through its previous national policies regarding educational systems, as well as establishing a framework and direction for educational improvement across India for “Atmanirbhar Bharat”- a self-sufficient India. This is the first such plan for the 21st century to replace the previous plan for the National Policy on Education (NPE) implemented over 34 years ago (1986). The NEP 2020 builds on the foundation of 5 interrelated pillars of access, equity, quality, affordability, and transformational reform. The NEP 2020 encourages the establishment of libraries as centres of excellence and centres of educational resources and combines library innovation with the educational system so that stakeholders (students, teachers, governments, and community) understand both the need for and how to use the NEP 2020 policy to fulfil their own educational needs and goals.

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A View of Future Based Hybrid or Blended Libraries

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Summary

The purpose of this article is to clarify the roles and competencies that librarians will require in the future to meet the changing needs of library patrons. The idea of hybrid libraries-which mostly concentrate on incorporating technology into library services-is covered. These libraries seek to increase accessibility, offer users a wide range of services, enhance instruction, foster teamwork, guarantee digital preservation, and stay up to date with emerging technologies. As librarians modify their methods to include new technologies and learning models, their roles are evolving. Information workers' changing duties and responsibilities are reflected in the rise of hybrid library management.

Keywords: Blended library, teaching role of librarians, LIS education, hybrid librarian, technology-enhanced learning, and future library

Introduction

A hybrid librarian is a professional who combines knowledge of new technologies and digital resources with traditional library skills. The phrase "hybrid" refers to the combination of research techniques employed in both digital and traditional libraries. Hybrid libraries use digital tools and resources to supplement traditional library services and have expertise in both virtual and physical collections. By incorporating digital literacy, information literacy, and technological skills into their information systems, these libraries play a critical role in assisting educational institutions. Teachers and hybrid librarians frequently work together to create and present lessons that integrate traditional science with online resources. Hybrid libraries also promote open-access programmes, manage and arrange digital collections, and stay abreast of new developments in information technology and trends. The idea of hybrid libraries, which focuses on giving patrons a smooth blend of access to both physical libraries and online platforms, exemplifies how libraries have evolved in the digital age.

A professional who blends knowledge of new technologies and digital resources with traditional library skills is known as a hybrid librarian. The term "hybrid" describes the combination of digital and traditional library research methods. Hybrid libraries, which use digital tools and resources to improve traditional library services, are excellent in both physical research and virtual libraries. By assisting in the integration of technology skills, digital literacy, and information literacy into information systems, these libraries serve a critical role in aiding educational institutions. Teachers and hybrid librarians can work together to create and present lessons that combine traditional subjects with digital resources.

Additionally, hybrid libraries are involved in managing and organising digital collections, supporting open-access initiatives, and staying current with new trends and technologies in the field of information science. The idea of hybrid libraries

highlights the significance of giving patrons an integrated experience whether they are using online or physical libraries, reflecting the development of libraries in the digital age.

Literature review

Early perspectives on the role of libraries as physical and intellectual spaces were discussed by Weise (2004), who emphasised redesigning the teaching and learning role of academic librarians. Around the same time, systems thinking and information literacy were explored by Somerville, Mirijamdotter, and Collins (2006), while the emerging role of instructional design librarians was analysed by Shank (2006). The concept of hybrid and blended professionals gained momentum with studies by Currall and Moss (2008) and Corral (2008), highlighting new skills, roles, and career paths for information professionals. The learning commons and blended skill sets were further elaborated by Sinclair (2009). Future-orientated discussions on academic research libraries and collaboration were presented by Neal (2010), alongside a comprehensive review of educating librarians as blended professionals by Corral (2010). The educator role of librarians in the digital age was strongly reinforced by Shank and Bell (2011). Contemporary reflections on librarianship and professional relevance include Ranganathan (1963) as a classic foundation, followed by modern viewpoints from Karisiddappa and Ramesh Babu (2020) and Recent Indian perspectives on the future of librarianship and emerging technologies are provided by Ramesh Babu (2022).

What does a blended librarian do?

Historically, librarians have been viewed as protectors of knowledge and books. But as technology has advanced and information has become more digital, the job of a librarian has become more complicated and multidimensional. As a result, modern librarians who are skilled in both digital technology and traditional library management have emerged as hybrid librarians.

Hybrid librarians are professionals in library management who combine digital abilities, such as using technology to access, organise, and share information with library users, with traditional library skills, such as cataloguing and using services. Hybrid libraries are adaptable and efficient; they can work with other experts to deliver meaningful learning experiences and adjust to evolving technologies. By teaching clients how to assess information, do efficient searches, and utilise digital tools to arrange and manage their information, they also advance digital literacy.

In order to enhance library services, hybrid librarians integrate technology with traditional library abilities like cataloguing, reference services, and collection design. To access, arrange, and disseminate information for libraries, they make use of digital tools and platforms. Hybrid librarians also train people how to use this technology and integrate it into their teaching and research. Flexibility is one of the main characteristics of hybrid libraries. The abilities needed to become a successful hybrid librarian are growing along with technology. In addition to their technological expertise, these librarians constantly seek out new resources and concepts to improve their profession. In order to stay up to date with emerging trends and developments in library management, they are dedicated to lifelong learning and skill updating.

The capacity for teamwork is another crucial component of being a hybrid librarian. To develop and implement successful learning experiences, hybrid librarians collaborate with educators, IT specialists, and instructional designers. They are excellent at fostering connections and working together with different educational stakeholders to make sure libraries serve their communities' needs. Hybrid libraries play a significant role in increasing digital literacy. Hybrid libraries help curators interact with digital resources in a world full of information, most of it untrustworthy. They instruct clients on how to assess crucial information, carry out efficient searches, and make use of digital tools for information management and organisation. In order to close the digital divide and guarantee that everyone has access to the tools necessary for success, hybrid libraries are crucial.

The aim of blended librarians

The aim of hybrid libraries is to employ technology to enhance library services and offer a better user experience that satisfies users' evolving demands. The following are the particular objectives of hybrid libraries:

Technology integration: The primary goal of hybrid libraries is to combine digital technologies with effective and efficient library services. Digital technology should be incorporated into library services, such as instruction, collection, and use.

Enhance accessibility: Hybrid libraries should make sure that all patrons, particularly those with disabilities or other obstacles to library access, may use their text and digital services.

Offering services to patrons: The goal of hybrid libraries is to offer services based on the requirements and inclinations of patrons. They must adhere to the standards set by the patrons in order to develop and offer a quality library service.

Improving instruction: Hybrid libraries should seek to improve the library's instruction by using technology. They must create creative teaching materials that include multimedia resources such as videos and interactive tutorials to enhance learning.

Promoting collaboration between library staff and other teachers and IT professionals is the goal of hybrid libraries, using their resources and experience to provide quality library services.

Blended librarianship

In January 2004, Steven Bell and John Shank introduced the concept of administering a shared/hybrid library. In the fourth month of 2004, the Teaching, Learning, and Technology Group and the Association of University and Research Libraries sponsored three workshops on hybrid library management. Additionally, they talked on a hybrid library management conference call at the College of Du Page's Flying to the Excellence conference in November 2005. With the assistance of the Learning Times Network, hybrid online learning community libraries were also introduced in April 2004. The hamlet has more than 4,900 residents as of mid-2012.

The College & Research Library Journal's July/August 2004 issue featured the first article about the "hybrid librarian". The progress of libraries in integrating library procedures with contemporary technology and education is referred to as "Hybrid Library Management". It is a sort of library management. The concept of managing a shared or hybrid library was initially introduced by Steven Bell and John Shank in January 2004. In April 2004, the Teaching, Learning, and Technology Group and the Association of University and Research Libraries sponsored three workshops on hybrid library management. During an event at the College of Du Page's Flying in November 2005, they also talked about the concept of a hybrid library management conference call with the goal of improving library excellence.

With the help of the Learning Times Network, hybrid online learning community libraries were introduced in April 2004. This community had more than 4,900 members by the middle of 2012. The College & Research Libraries Journal published an article about the "hybrid librarian" in July/August of 2004.

Blended librarianship: why?

An electrical engineer

Coordinator of Electronic Materials, Online Librarian, Chapter

Information Librarian

Copyright Officer & Digitisation

Librarian for digital projects

Professionals in this industry look up to digital project managers.

The new idea of hybrid library administration is therefore very advantageous for the Indian setting when taking into account the aforementioned benefits.

Librarianship in the future

Professionals in information and libraries are taking on new tasks outside of libraries. Jobs will probably shift to more linked devices as well. It is feasible to outsource. There are existing businesses that pay for services like registration or provide library workers, but there are no outsourcing services for information and libraries. There may never be more uncertainty about the future (IFLA Trends Report, 2021). In the future, typical duties for a copywriter or data manager will consist of:

Manage and offer research services for a department of a bigger library, a small special library, or a library branch. Oversee and mentor workers.

Create, develop, and oversee services to satisfy client demands.

Offer expert guidance or advice on issues related to information management. Create recommendations for the budget, general management guidelines, and strategic goals.

Observe big projects, like IT systems and applications, in constrained spaces.

Offers leadership, management, and business.

Creating advertising and marketing plans for library or information management services. Giving guidance or advice. The Indian library sector must embrace the idea of an interactive library as a last resort in order to survive, given the

future outlook that IFLA envisions.

Conclusion

The concept of hybrid libraries is still in its infancy. We don't fully comprehend its advantages or its disadvantages. We believe that if we did not express our doubts about its potential to become a useful idea for every college student, we would be negligent. Nonetheless, we think that the moment has come to take action that will enable our work to become more closely aligned with the objective of higher education. All of our coworkers are welcome to collaborate with us. India's librarianship confronts numerous obstacles in the future. Management concerns are now just as significant to libraries as issues of technological integration and adoption. In and of itself, change management is a difficult task. Information distribution, budget allocation, hiring more staff, and technology support all call for special management. To guarantee that patrons are pleased with the services and information products they get, libraries must advance their expertise. Seeking professional development programmes is the most effective and efficient approach for librarians to stay up to date with these changes. They must be as technologically sophisticated as the clients they cater to. Higher education must adopt a hybrid mindset if it is to continue to play a significant role in the management of knowledge and research.

As a result, business and library management in India should embrace the idea of hybrid library administration. This needs to be addressed specifically; it is not a curse. Technology's revolutionary potential is inextricably connected to the growth of hybrid librarianship. As libraries enter the digital era, technology has emerged as a tool for offering flexible, practical, and creative services. In order to maintain libraries' vitality, relevance, and indispensability in the evolving built environment, hybrid library administration combines traditional principles with contemporary techniques. The character of the 21st-century librarian is being reshaped and altered by technology in addition to being supported by it.

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Academic Libraries in the Knowledge Society: Creation and Dissemination Perspectives

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Summary

The current knowledge society is relying on the use of information and knowledge as its intellectual resources for academic, social, and economic success. The paper explores the critical shift that the academic libraries are experiencing in their lives from being dormitories of the information that is recorded to being active agents in the process of knowledge. Two levels on which this evolution is still being undertaken are knowledge laboratories and digital gateways.

This paper explores the integration of libraries into the contemporary research process based on the SECI framework of knowledge generation and the FAIR (Findable, Accessible, Interoperable, and Reusable) principles. It also explores the existing tendencies in RDM, AI, and OA, calculating their relevance to modern research. The discussion is based on the Indian academic environment, and it dwells on major Indian initiatives such as Shodhganga, INFLIBNET archives and the One Nation One Subscription (ONOS) policy. These case studies demonstrate that Indian libraries are used to achieve the sustainability and accessibility of scholarly production, as well as the ethical stewardship of scholarly production.

The conclusion of the article is that higher education institutions can not only be more relevant to themselves but also visible on the national level through involvement in every stage of the research cycle, which leads to improvement of knowledge equity in the world.

Keywords: Knowledge Society, Academic Libraries, Knowledge Creation, Knowledge Dissemination, Open Access, Research Data Management, India

Introduction

The ability to generate, process and share knowledge has become a defining measure of the value of a civilisation in the modern age, which is often called the Knowledge Society. The new paradigm relies on intellectual resources and smooth circulation of information, unlike the industrial era that embraced the importance of physical labour and capital. At the core of this ecosystem is the academic library that is currently experiencing a paradigm shift in that it ceases to be a passive warehouse of printed materials and is rather an instrument of intellectual innovation.

The KSF Knowledge Society Framework.

The transition towards a knowledge-based economy requires the presence and utility of information. UNESCO defines a true knowledge society as the society that encourages sharing of knowledge to develop humankind (UNESCO, 2005). Following this practice, the university libraries play the central role of research and higher education infrastructure so that the digital divide does not make the democratic access to knowledge complicated.

Factors Influencing Knowledge creation in Academic Libraries



The Change of Roles: Curation to Creation

The collections were traditionally the primary subject of the academic library mandate in their development and preservation. However, the current environment has seen libraries collaborate in the research cycle.

Creation of Knowledge: Libraries are currently engaged in the creation phase of a scholarship through providing makerspaces, digital humanities laboratories, and data visualisation platforms.

Knowledge Dissemination: Libraries are currently becoming publishers and managers of repositories because of the development of the Open Access (OA) movement, which ensures that the findings of research are made available to a global audience without institutional restrictions (Suber, 2012).

Problem Statement and Scope

Such developments have created enormous challenges that academic libraries are expected to surmount through the “serials crisis”, the challenges of Research Data Management (RDM), and the need to develop new educational literacies; these are just but a few. The two perspectives of invention and dissemination in the library environment are analysed in this study. It argues that to remain useful in the context of a knowledge-based society, an academic library has to transcend its physical boundaries and enter the digital workflow of students and researchers.

Academic libraries have evolved to no longer be the quiet book warehouses but the high-octane engines of the research community in the twenty-first-century knowledge society. This change is most evident in India, where the change in the approach from ‘just in case’ to the ‘just in time’ digital approach is defining the role of the academic institutions.

Knowledge Laboratory: The Emergence of Knowledge Laboratory.

The libraries in India today have shifted in the research life cycle. It assists the process instead of merely putting the outcome under a lock. It is a knowledge laboratory that provides real-time information on national intellectual capital through the integration of services such as Shodhganga and IRINS (Indian Research Information Network System).

Online Gateways and Universal Equity

Libraries are digital gateways that bridge the digital divide between local and global innovation. The most notable programmes leading this initiative at the national level are:

- ONOS (One Nation One Subscription): Indian institutions of higher learning in all would easily access all high-impact journals.
- Open Access: Promoting responsible stewardship and ensuring publicly funded research was meant to be a civic good and not a luxury of those that could afford the correct price.

In crafting their libraries, adhere to the FAIR principle: They are ensuring that their contribution to research does not only encourage research but also provide it with a future by making it findable, accessible, interoperable, and reusable.

Theoretical Framework

One of the ways to explore the changing ways in research libraries is to merge the following three perspectives:

The SECI Knowledge Creation Model: The Knowledge Creation Model by Nonaka and Takeuchi describes the way libraries support the process of transforming implicit and explicit knowledge. The process of socialisation takes place when there is cooperation and teamwork; externalisation takes place when research materials are produced; combination takes place when research data is synthesised and organised; and internalisation takes place when research data is acquired and reused.

The fifth rule of library science is the law of library science, which is that the library is a growing organism, and it remains valid. Increased collections would be only part of growth these days, with technological progress, professional expertise, and volunteerism specifically in fighting fake information and information overload.

The principles of the use of research findings are provided in the FAIR (Findable, Accessible, Interoperable, Reusable) Principles. The management of FAIR publications and data has been incorporated in the present-day role of libraries in academic institutions.

These approaches that incorporate international theory and local realities have been embraced and endorsed in India through national repositories (Shodhganga), open-access laws, and ICT-orientated academic libraries (INFLIBNET).

Literature Review

Swamy, Dr R. Kumara (2025). This research examines how knowledge resource congestion can be increased. The digital libraries of traditional libraries are arising as far as the information is received by the user. Institutional repositories are being created in digital versions. The academic libraries are now focusing on availing information through digital means through online public access catalogues. In this regard, modern libraries are today called knowledge libraries or knowledge stores.

Onunka, Okeoma, et al. (2023). The recent literature indicates that the transformation of the university libraries into active agents of virtual scholarship and knowledge construction is emphasised. Besides the persistence of the leadership problem, the integration of technology, and the administration of collections, researchers cite that people have more interest in open access initiatives, data-driven technology, and discovery tools that are creative. In combination, these results indicate that libraries need to be strategically adaptable to be relevant and facilitate scholarly cooperation in an environment that is becoming more digitalised.

Schlak, Tim, et al. (2022). *The Social Future of Academic Libraries* deals with the so-called social turn in the work of librarians, focusing on building intellectual and social capital. It provides 9 case studies in which social network theory enhances collaborative services such as information literacy and data management in redefining libraries as key strategic nodes in the academic ecosystem.

Skott Bo (2022) This paper analyses the influence of the digital shift on the professional self-perception of library staff, specifically the ones operating in the environment of Danish public libraries. The analysis reveals that there is a huge discrepancy between the high expectations of workers as the so-called facilitators of civil society, which have been based on the principles of personal development, and the actual support to guide the employees in digital upskilling in terms of semi-structured email and telephone interviews with practitioners. The researchers indicate that there are two key reasons why the issues of the digital divide in skills development emerge to be so prevalent today: a political-organisational factor where further education turned into a personal burden as a result of the absence of institutional investments, and an individual-professional factor where This paper identifies that institutionalised, systemic support is needed to sustain the human infrastructure necessary to sustain present-day digital knowledge distribution through amplifying the voices of the library workers.

Afebende, Ph.D., and Godwin B (2020) This paper examines the evolution of traditional library functions and the organisational knowledge practices. Earlier studies have shown that institutional repositories help in the production process of knowledge, storage, exchange, and reuse to achieve the institutional goals. Also, studies have indicated increased roles of the librarian, the importance of strong IT-based skills and adequate finance as critical elements towards effective knowledge management in the knowledge economy.

Koloniari, Maria, et al. (2019). This paper has analysed the key role of knowledge generation in Greek scholarly libraries, discussing its role in improving the quality of services in a business-focused model. The study examined the role of four major enablers that include culture, structure, human resources, and technology as it examines the effects of the mentioned enablers on the implementation of a knowledge-based strategy. The authors applied the structural equation modelling to test these relationships and found organisational culture to be the most important predictor of success.

The results implied that to be innovative, the leadership in libraries should not just be technical because they should aim at creating a social environment characterised by collaboration and trust.

Creation of knowledge: The Library as a Knowledge Lab

India's Research Data Management (RDM)

It was found during the study that the Research Data Management (RDM) in India was also a matter of concern.

Indian academic libraries, as well, are also increasingly adopting the concept of RDM to manage metadata, secure data and archive information in institutional repositories. As an example, the library of IIT Bombay, the Central Library, has research and technical reports and datasets stored in digital repositories that enhance transparency.

Collaborative Space and Scholarship of Digital

Such as the Jadavpur University, these libraries have established Digital Scholarship Labs, and the scholars can now convert their implicit knowledge to explicit form (Halder & Chandra, 2013).

Dissemination of Knowledge: The Library as a Digital Portal.

Open Access and Open Science in India

Indian libraries are of great help in the promotion and execution of OA and open scientific programmes such as Shodhganga, IRINS, and ONOS. These reduce both financial and legal burdens, as well as make it more accessible.

Artificial Intelligence-Based Knowledge Discovery

By developing artificial intelligence systems in smart discovery applications, semantic search, research profiling, and intelligence-based suggestions can be achieved in the Indian university libraries. Librarians are using AI and managing issues of prejudice, ethics, and data security.

Indian Case Studies

Case Study	Description	Contribution	References
Jadavpur University Repository (2013–2024)	Electronic archive comprising theses, publications, datasets.	Favours the generation of knowledge and research publicity.	Halder & Chandra, 2013
IIT Bombay Central Library	Databases, preprints, technical reports, institutional repository.	Improves the reproducibility and sharing of research.	IIT Bombay Library Reports, 2023
Jabalpur Region University Libraries	Knowledge sharing through ICT.	Enhances the access to the digital resources and research assistance.	Rajput & Pandey, 2024
Bharathidasan University IRINS Programs	Research profile and metrics awareness and training.	Faculty capacity building and librarian capacity building.	Navbharat Times, 2025
ONOS (National Initiative)	Digital access of journals in India through subscriptions	Promotes access to international research on a fair basis	Times of India, 2025

The obstacles and future prospects

Although the roles are shifting, the academic libraries do not stop facing several challenges even in the present and in the future. These are lack of resources, the pace at which technology is being invented, skills, and worries over the use of AI. The information and AI literacy are more critical due to the issue of false information generated by AI. The shortage of money, ignorance of the faculty members, and the loopholes in the application of technology are other challenges in the Indian setting of the institution.

Conclusion

Knowledge production and transmission is an important role of the Knowledge Society in supporting academic libraries in India and other places globally. The use of RDM, OA systems, ICT-enabled libraries and AI-enabled discovery systems has

entered the picture in the plethora of emerging case studies in India. The role of libraries in the country has transformed from being a warehouse to a participatory method of education, research, and the general implementation of policies.

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Libraries as a Knowledge Hubs in the Digital Age

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Summary

Libraries have developed into dynamic knowledge hubs in the digital age, going beyond their traditional function as archives of printed materials. Libraries now facilitate learning, research, innovation, and community involvement through the integration of digital technologies, online resources, and user-centered services. This article explores how libraries are evolving in the digital age, emphasizing how they support social inclusion, digital literacy, knowledge creation, and information access. This article discusses libraries' shift from static physical collections to dynamic digital information hubs. It illustrates how libraries have adapted by embracing technology and providing access to a range of digital resources, such as e-books, journals, and multimedia content. People can now access resources from anywhere in the world, democratizing information access and facilitating learning.

Keywords: Digital libraries, Digital age, Knowledge hubs, Information literacy, Library services

Introduction

Libraries are becoming dynamic knowledge hubs rather than just physical book collections due to the quick development of information and communication technologies. Access to a wealth of digital resources is made possible by modern libraries, allowing patrons to locate trustworthy material at any time and from any location, thereby promoting equality in the exchange of knowledge. Libraries have changed over the last 20 years in response to a number of issues, such as growing student enrollment, information overload, and technological integration. They currently function as hubs for education, creativity, and community involvement, promoting lifelong learning and social progress while fostering cooperation and skill development.

In the digital age, libraries have developed into dynamic knowledge hubs that foster community involvement and lifelong learning by fusing traditional services with cutting-edge technologies. They serve as networked platforms that provide easy access to a variety of digital materials, such as e-books, e-journals, and multimedia collections, guaranteeing availability at all times and locations. To improve users experience and streamline operations, libraries deploy cutting-edge technologies like RFID systems and chatbots powered by artificial intelligence. To promote cooperation and knowledge production, they offer interactive places, and research assistance. Libraries ensure that knowledge is available, inclusive, and reliable by promoting digital literacy and critical thinking through a variety of initiatives. As a result, they connect people, ideas, and technology beyond physical boundaries to improve society.

Define Knowledge Hub

A knowledge hub is more than just a collection of books or documents. It is a dynamic ecosystem created to gather, organize, store, share, and collaboratively generate knowledge across various fields, industries, and generations. Unlike traditional libraries that focused mainly on physical materials, knowledge hubs integrate digital repositories, learning platforms, real-time collaboration tools, multimedia archives, and even artificial intelligence resources to enable efficient access and meaningful knowledge utilization (UNESCO, 2021).

Features that Define a Knowledge Hub

A well-developed knowledge hub includes:(Pushparaj Subedi, 2025)

1. Digital library services include open educational information, multimedia resources, e-books, and periodicals.
2. Learning Platform are Integration with learning management systems (like Canvas and Moodle) for ongoing training and education.
3. Content management systems are utilized to arrange, store, and retrieve research, institutional knowledge, and gray literature.
4. Collaboration tools allow international teams to share expertise, communicate in real time, and hold video conferences.
5. Analytics and data visualization are transforming complicated data into useful insights for better decision-making.
6. Artificial Intelligence and Search Optimization are providing suggestion engines and individualized knowledge retrieval.
7. Community and Networking Space are offering both virtual and physical spaces for interdisciplinary interaction, peer learning, and discussion.

Needs of Knowledge Hubs

By offering open, multilingual, and inclusive access to trustworthy educational materials, knowledge hubs act as equalizers, helping underserved, marginalized, and rural groups overcome gaps in access to high-quality information and education.

Access to up-to-date and pertinent knowledge is essential for efficiency and competitiveness in order to empower organizations and professionals. Knowledge hubs are essential because they promote intelligent policies and initiatives, streamline knowledge distribution, and consolidate institutional memory.

Knowledge hubs serve as centers of thought and innovators that promote multidisciplinary cooperation by combining data and concepts to promote research and innovation and produce answers to present and upcoming problems.

By collecting and organizing indigenous knowledge, local languages, and community narratives, these hubs serve as digital guardians of a country's intellectual legacy, preserving cultural variety and strengthening community identity.

Knowledge hubs provide adaptable blended learning settings that accommodate modern tastes, giving students and youth access to carefully chosen materials, mentorship, and cooperative projects, all of which support their growth into capable global citizens.

Review of Literature

A collection of research on digital libraries, digital knowledge, knowledge hubs and the use of ICT (information and communication technologies) has been examined. For this purpose, a retrospective evaluation of the literature was carried out utilizing Shodhganga, e-journals databases, and Open Archive databases.

Agnes Mainka and Svatlana Khvesh Chanka (2012) in their paper Digital Libraries as Knowledge Hubs in Informational Cities say that Digital libraries invest a lot of money on e-resources and offer a lot of databases. They study people to find out if they visit the physical library or access these databases from home. They discovered that there is a significant disparity in the quantity and accessibility of the resources provided, and that there is no standard approach for managing access at digital libraries.

Harinakshi, Yashoda and Sangramsinh S Pawar (2023) in their paper Libraries as Digital Knowledge Hubs: An Overview discusses the evolution of libraries from traditional physical repositories to dynamic digital knowledge hubs. It highlights how libraries now provide access to a plethora of online resources, including e-books and research databases, accessible from any internet-enabled device. This transformation enables libraries to serve as active participants in the knowledge creation process, facilitating learning and community engagement through workshops and online forums. The chapter emphasizes that libraries are redefining access to information, fostering collaboration, and creating global opportunities for exploration and personalized learning experiences.

Bezwada Ravi Kumar (2025) in their paper Digital Libraries Developed as a Knowledge hubs in India say that the Digital libraries have advanced significantly, evolving into complex information systems for online document preservation and information retrieval. They provide global access to various academic and cultural resources, often enhanced with multimedia. This paper examines the concept of digital libraries, their enabling technologies, system architecture, notable projects in the USA, UK, and India, as well as the challenges faced by library professionals in the digital age.

Objectives of the Study

- To investigate how libraries are changing as centers of information in the digital era.
- To research how digital technologies affect library services and resources.
- To determine the significance of libraries in fostering users' information and digital literacy.
- To evaluate libraries' function as cultural and community hubs in a digital world.
- To determine obstacles and prospects for enhancing libraries as future centers of knowledge

Scope of the Study

The study examines libraries as knowledge hubs in the digital age, focusing on their transformation through digital technologies. It explores aspects like digital collections, electronic information services, and virtual reference systems, emphasizing their role in promoting information literacy and digital skills among users. Additionally, it analyzes libraries as community centers that bridge the digital divide while preserving cultural heritage. The study addresses challenges such as technological changes and resource constraints, and discusses opportunities for enhancing libraries' roles in learning, research, and knowledge creation.

Methodology

The study investigates the function of libraries as knowledge centers in the digital era using a descriptive and analytical research technique. Using information from a range of sources, including academic publications and official reports, it seeks to characterize the present state, purposes, and new developments of libraries in a digital setting. To evaluate the prospects and difficulties for digital libraries as knowledge centers, a study of the literature will be carried out, using information mostly gathered from secondary sources using Google Scholar.

Role of Libraries as Knowledge Hubs

Libraries serve as knowledge hubs, facilitating the development and exchange of knowledge in addition to information access. Through reference services, research advice, citation assistance, and data management services, they help research endeavors. Maker spaces, digital labs, and collaborative areas foster users' creativity, innovation, and multidisciplinary learning.

Libraries are essential for information literacy because they are centers of knowledge. In a world full with false information, librarians help patrons find, assess, and use information in an ethical manner. Students, researchers, and the general public are equipped with essential digital skills through training programs, workshops, and user orientation sessions.

Key functions of modern libraries, as a Knowledge hubs :

- Access & Discovery: Providing free access to extensive collections and assisting users in navigating information.
- Technology Integration: Facilitating ICT and digital literacy training, along with online learning platforms.
- Collaboration & Creation: Creating spaces for group study and workshops to stimulate innovation and entrepreneurial activities.
- Community Centers: Acting as dynamic community hubs for social interaction and lifelong learning.
- Preservation: Protecting cultural heritage and local records.
- Support Systems: Providing academic support and resources tailored to competitive exams, in alignment with NEP 2020 policies.

Libraries in the Digital Transformation Era

Libraries have greatly benefited from digital transformation by having access to a variety of electronic resources, such as e-books, e-journals, online databases, open-access platforms, and institutional repositories. While remote access features enable users to take advantage of library services regardless of time or location constraints, these resources facilitate quick and dependable information access, supporting academic and professional demands. The availability of current information at any time and location is made easier by this digital accessibility, which aids in closing the information gap and encouraging fair knowledge exchange. Additionally, a variety of services related to the production, administration, access, and use of digital materials are included in the category of digital library services. Digital collections, online catalogs, research databases, e-learning platforms, virtual reference services, digital preservation, open access initiatives, collaborative spaces, digital exhibitions, and technology access are examples of important services.

Information and Digital Literacy

Libraries are essential for fostering information and digital literacy in a time of disinformation and information overload. Librarians instruct patrons in digital skills, ethical information use, critical assessment of sources, and efficient information

seeking. Training sessions, workshops, and user orientation programs enable people to become knowledgeable and responsible consumers. In order to maximize the use of digital libraries, digital literacy programs should be organized to inform library patrons about how to properly access digital services.

Libraries as Community and Cultural Centers

By providing free access to computers, internet services, and e-governance tools, modern libraries act as inclusive community hubs that aid in closing the digital divide. By digitizing rare books, manuscripts, and historical documents, they contribute significantly to cultural preservation and guarantee the long-term accessibility to cultural assets. Libraries also serve as centers of innovation and community involvement, offering venues for cooperation, lifelong learning, and cross-cultural interaction. Libraries provide a substantial contribution to national and international knowledge ecosystems by protecting digital heritage and promoting knowledge generation through data management and research support services.

Challenges and Opportunities

Regarding their growing significance, libraries face a number of difficulties, such as limited funding, the quick advancement of technology, and the requirement for continual staff training. Additionally, these challenges present opportunities for creativity, teamwork, and capacity building. Libraries can strengthen their functions as knowledge centers by adopting new technologies and emphasizing user-centric tactics. Libraries are now able to overcome physical constraints thanks to the development of technology-driven services like virtual reference, digital libraries, cloud-based catalogues, and remote access systems. They increasingly use digital platforms, maker spaces, and multimedia facilities to support online research, e-learning, and teamwork.

Conclusion

Libraries have evolved into vital knowledge hubs that connect people with ideas, technology, and information in the digital age. They are essential to community development, education, and research, and they stay relevant in a quickly changing digital environment. Libraries are essential for addressing today's complexity and unleashing future possibilities by establishing connections between people and ideas, guaranteeing that organized knowledge may benefit every community.

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The Library Is a Growing Organism: Evidence from an Indian School Library—A Case Study

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Summary

The changing nature of libraries in the 21st century is the topic of this research project. The research will focus on how spatial design, digital integration and pedagogical alignment will allow libraries to develop into dynamic learning environments. The research will also investigate moving from traditional book-centered models of a library to collaborative student centered, technology-enhanced learning environments in the Indian education system. A qualitative case study was completed at Bharatiya Vidya Bhavan Vidyashram, Pratapnagar, Jaipur, a CBSE school with innovative library practices. Data was gathered through interviews, observations, photographs, floor plan analysis, usage of the area by students, teachers, the librarian, and administration. According to research published today, school libraries have become co-centric centers that support the three pillars of learning; Inquiry, Creativity and Inclusion. Some of the most significant changes have been the implementation of flexible furniture, audio/visual areas, AI-enabled technology, and interactive digital environments. The role of the librarian has shifted from a custodial function to an instructional one, while students and teachers increasingly view the library as essential to their learning. Nevertheless, there continue to be challenges that arise from having reduced budgets, insufficient staffing, and areas of the school system that resist changes. Ranganathan's 5th Law - "The Library is a Growing Organism" - confirms that we must continue to innovate the library through collaboration with stakeholders to create policies that support re-imagining school libraries for the future of education.

Keywords: School Libraries, Library Transformation, Educational Spaces, Digital Integration, Indian Education System, Library Roles

Introduction

Traditionally, a library is considered a collection of books and information a quiet, contemplative space where individuals engage in reading, research, and reflection. Libraries have historically acted as guardians of knowledge, preserving human thought through the ages. However, modern libraries have transformed well beyond their traditional roles. In the 21st century, libraries are being reinvented as vibrant, inclusive centers for learning that foster not only information access but also collaboration, innovation, and community involvement. They no longer exist solely as static bookshelves and silent reading areas; instead, they embrace technology, promote discussion, and adjust to the evolving needs of their patrons (International Federation of Library Associations and Institutions). Libraries play a vital role in community building by offering neutral, welcoming spaces that cater to individuals of all ages, backgrounds, and abilities. Functioning as social and educational centers, they encourage equity and civic participation while fostering

lifelong learning. In addition to providing information, they support collaborative learning through shared study areas, workshops, makerspaces, and avenues for creative expression. Equipped with a wide range of resources from digital databases and multimedia tools to archives of cultural importance today's libraries actively support both knowledge creation and cultural preservation. This transformation in libraries aligns profoundly with S. R. Ranganathan's Fifth Law of Library Science: "The library is a growing organism." Ranganathan envisioned that, like any living entity, a library must adapt continuously to evolving societal, technological, and educational environments. In India, where educational practices are changing rapidly and there's a growing need for inclusive, future-ready learning spaces, reimagining the school library has become not just a nice idea but a necessity. This study takes a closer look at an Indian school library that is actively reshaping its space and functions to align with this new direction. It delves into how a library that once followed traditional norms is evolving into a lively, multifunctional learning hub—capturing the true spirit of Ranganathan's fifth law.

Problem Statement

India's school libraries, traditionally centered on passive book lending and static collections, are increasingly misaligned with 21st-century educational demands. With only 2.2% of Indian schools having digital libraries, a critical gap exists between current infrastructure and NEP 2020's vision of technology-enhanced, collaborative learning environments. This study addresses the urgent need to reimagine school library roles and spaces to support contemporary learning while navigating India's resource constraints and digital divide challenges.

Significance of The Study

This research contributes to library transformation literature in developing countries, offering insights specific to the Indian educational context. By examining practical challenges and opportunities in library reimagining, this study provides guidance for educational institutions, policymakers, and library professionals seeking to align services with contemporary educational needs.

The study's findings will inform policy recommendations for library development, contributing to national efforts to strengthen educational infrastructure and support NEP 2020 implementation. Furthermore, it addresses the need for evidence-based approaches to library transformation, providing stakeholders with data-driven insights essential for creating libraries that embody Ranganathan's vision of growing organisms in the digital age.

Objectives of The Study

- To explore how school library roles are being redefined in the Indian educational context.
- To examine spatial and functional transformations of the school library under study.
- To assess the impact of these changes on students, teachers, and the school community.
- To provide recommendations for future school library planning and policy.

Review of Literature

Traditional Vs. Modern Library Functions

Historically, school libraries served custodial roles—managing print collections and providing quiet spaces for individual study.⁹ This passive model is increasingly seen as inadequate for meeting the needs of 21st-century learners. Contemporary education demands libraries that promote inquiry-based, interdisciplinary learning, and foster critical thinking and digital literacy.^{10, 11, 12} Loertscher¹³ and Montiel-Overall¹⁴ argue that librarians must shift from being gatekeepers to instructional partners, actively involved in curriculum design and teaching. This transformation reflects the broader redefinition of libraries as dynamic learning environments that support student agency and collaboration.

Indian Context of School Libraries

In India, school libraries have traditionally been book-centric, focusing on textbook support and passive service. However, only 2.2% of Indian schools currently have digital libraries, highlighting a major infrastructural gap.¹⁵ The National Education Policy (NEP) 2020 envisions transforming these into vibrant, inclusive, and tech-integrated learning spaces.¹⁶ Yet, challenges such as limited funding, outdated facilities, and a shortage of professionally trained librarians

persist, particularly in rural and government-run schools.¹⁷ Despite these barriers, innovative models by NGOs like Room to Read and the India Literacy Project demonstrate how participatory and child-centric libraries can thrive even in low-resource contexts.

Libraries as Knowledge Hubs and Innovation Spaces

The shift from passive knowledge consumption to active knowledge creation has reshaped how libraries function. Tools like makerspaces, project zones, and digital storytelling platforms enable hands-on, interdisciplinary learning.^{18, 19} These align with the NEP 2020's call for creativity, experiential learning, and technology integration. Redesigned libraries in progressive Indian schools include flexible furniture, robotics kits, and multimedia tools that stimulate student engagement beyond traditional academics. Such environments support STEM and STEAM learning, as well as project-based inquiry.

Libraries as Social and Inclusive Institutions

Modern school libraries also function as “third spaces”—inclusive environments that foster empathy, dialogue, and peer learning²⁰. In socially diverse Indian classrooms, libraries can bridge linguistic, economic, and cultural divides, promoting equity in learning access. Activities like book clubs, storytelling events, and reading festivals cultivate interpersonal bonds and social-emotional development^{21, 22}, redefining the library as a civic and cultural space in addition to its academic purpose.

Rethinking the Role of The Librarian

The transformation of library spaces also demands a rethinking of the librarian's role. Modern librarians are expected to be co-teachers, program designers, digital guides, and facilitators of lifelong learning.^{23,24} Their expanded responsibilities include collaborating with subject teachers, curating multimedia collections, conducting digital literacy workshops, and managing makerspaces. This shift necessitates continuous professional development and institutional support to equip librarians for these evolving roles.

Challenges and Opportunities in Redesigning Libraries

Despite increasing recognition of the library's role, schools face significant hurdles in transforming their spaces. These include budgetary constraints, infrastructural rigidity, and lack of awareness or buy-in from stakeholders.^{25, 26}

However, the literature identifies promising strategies to overcome these challenges. These include:

- Participatory design involving students.²⁷
- Cross-sector partnerships and grant funding.²⁸
- Low-cost spatial redesigns and mobile resources.²⁹

Such efforts not only enhance student engagement but also ensure sustainable transformation, even in resource-constrained environments.

The Need for Continuous Innovation

As Ranganathan's Fifth Law emphasizes, “The library is a growing organism.” Continuous innovation is essential to keep school libraries relevant in the face of technological, pedagogical, and social change^{30, 31}. This innovation spans infrastructure, pedagogy, and digital access, ensuring libraries evolve with learners' needs. Evidence-based models that balance local context with global best practices are vital to this transformation, especially in India's diverse educational landscape.

Research Methodology

Research Design

This study adopts a qualitative case study approach to explore how library roles and spaces are being reimaged in the context of an Indian school. The case study method allows for an in-depth understanding of institutional practices, user

perceptions, and spatial dynamics within a specific educational setting. The selected case is Bharatiya Vidya Bhavan Vidyashram Pratapnagar, Jaipur, which exemplifies progressive library development in an Indian school context.

Institutional Profile

Bhartiya Vidya Bhavan Vidyashram Pratapnagar is a CBSE-affiliated, co-educational English medium school established in 2010 in Jaipur, Rajasthan. The school library hosts a diverse collection of over 15,000 books encompassing various genres such as fiction, literature, languages, autobiographies, encyclopaedias, biographies, drama, quizzes, general knowledge, folklore and many more.

Beyond print resources, the library subscribes to 7 newspapers and 30 periodicals, and provides supplementary materials like charts, maps, puzzles, and audio-visual aids. A barcode-based circulation system ensures efficient book management. Embracing digital innovation, the library operates four dedicated websites and a podcast channel to expand access to resources. The integration of QR codes further enhances user engagement, reflecting the library's transition toward hybrid, tech-enabled services.

Data Collection Tools

Multiple qualitative tools have been employed to capture a holistic picture of library transformation:

- Semi-structured interviews with key stakeholders (librarians, students, teachers, administrators) to gain insight into library usage, perceptions, and roles.
- Observations of library activities, spatial usage, and user interactions.
- Photographic documentation of the library layout, displays, and user engagement.
- Analysis of library usage data, such as borrowing patterns, digital access logs, and participation in programs.
- Library floor plan analysis to examine spatial organization, functionality, and adaptive use of space.

These tools collectively provide a layered understanding of how the school library is functioning as a knowledge hub and inclusive learning environment.

Participants

The study uses purposive sampling of librarians, students, teachers, and administrators to gather insights on the evolving role of the library. Their perspectives reveal how the reimagined library supports academic, social, and technological needs within the school.

Innovations Done in Library Spaces, Tools, and Programming at BVB Vidyashram Pratapnagar

The school library at Bharatiya Vidya Bhavan Vidyashram Pratapnagar, Jaipur exemplifies a forward-thinking model that integrates physical redesign, digital tools, and creative programming to enhance student engagement and foster a reading culture.

Reimagined Library Spaces

To align with the evolving educational needs of 21st-century learners, the library at Bharatiya Vidya Bhavan Vidyashram Pratapnagar has undergone significant spatial reconfiguration. The redesigned layout emphasizes flexibility, accessibility, and inclusivity, fostering an environment conducive to collaboration, creativity, and independent inquiry.

- **Flexible Furniture:** The library is equipped with modular tables, movable chairs, and adaptive seating arrangements that can be easily rearranged to support a range of activities—group discussions, collaborative projects, peer learning, and quiet reading. (See Fig. 1 & 2)

- **Puzzles Corner:** A dedicated space designed to promote logical thinking and leisure learning through a variety of puzzles and brain games. This area encourages students to engage in informal, intellectually stimulating activities that foster problem-solving skills. (See Fig. 3)
- **Periodicals Section:** An organized zone for accessing over 30 periodicals and 7 newspapers, offering students a gateway to current affairs, general knowledge, and subject-specific enrichment beyond the curriculum. (See Fig.4)
- **Audio-Video Station:** A multimedia learning corner equipped with audio-visual aids to support digital storytelling, listening activities, language learning, and visual comprehension. This space accommodates diverse learning styles and enhances student engagement through sensory-rich experiences. (See Fig.5)

The spatial design of the library reflects an inclusive, learner-centered approach that supports both formal and informal learning. These physical innovations contribute to transforming the school library into a multifunctional learning commons, in line with global best practices and the National Education Policy (2020). They also resonate with Ranganathan's Fifth Law, affirming that the library must continuously adapt as a "growing organism."

Integration of Artificial Intelligence And Digital Tools

To equip students with essential 21st-century skills and enhance digital literacy, the library at Bharatiya Vidya Bhavan Vidyashram Pratapnagar has implemented a diverse range of AI-based and interactive learning platforms. These tools foster creativity, self-expression, inquiry-based learning, and gamification of reading experiences:

- **Book Creator:** A digital publishing platform that empowers students to author and design their own books. The school's annual magazine Bhavan Dhara (2020–21) was creatively published using this tool, offering an interactive and multimedia reading experience. (See Fig.6)
- **Canva:** Widely used for visual content creation, Canva enables students to design posters, social media reels, bookmarks, comic strips, and reading journals, helping them integrate design thinking with literacy skills.
- **LearningApps.org:** This interactive tool facilitates gamified learning. The library has developed over 50 digital games on this platform based on popular storybooks, enhancing comprehension and reinforcing concepts through play-based strategies. (See Fig.7)
- **ReadWorks.org:** A platform offering leveled reading passages, comprehension activities, and vocabulary exercises. It is also used to conduct Read-a-Thon challenges, supporting independent reading and reflective learning.
- **Alexa (Voice Assistant Technology):** The library has introduced Alexa-enabled devices to support hands-free information access, book recommendations, and interactive reading support. This encourages curiosity, especially among younger learners, while promoting digital fluency. (See Fig.8)
- **Kahoot:** Used to conduct literary quizzes, reading competitions, and classroom challenges, Kahoot makes assessment fun and interactive, encouraging participation and retention. (See Fig.9)
- **QR Codes:** Strategically placed QR codes offer quick access to digital book reviews, feedback forms, event updates, and multimedia learning materials. This facilitates seamless navigation between physical and digital content within the hybrid library model. (See Fig.10)

These platforms not only modernize the learning experience but also align with constructivist pedagogy, promoting personalized, inquiry-based learning. The integration of such tools reflects the library's commitment to staying responsive to the evolving needs of learners, in line with the National Education Policy (2020) and the vision of Ranganathan's Fifth Law: "The Library is a Growing Organism."

Web Tools and Digital Platforms

To expand its reach beyond physical boundaries and enhance remote and blended engagement, the library at Bharatiya Vidya Bhavan Vidyashram Pratapnagar has adopted a suite of innovative web tools and digital platforms. These tools

not only improve access to resources but also foster a culture of digital literacy, content creation, and participatory learning.

- **Linktree Resource Hub:** The library uses Link tree as a centralized platform to organize and provide access to over 150+ curated free e-books and digital resources, simplifying navigation for students and teachers. www.linktr.ee/librarybvbvprtpjpr (See Fig.11)
- **Library Website:** The official library website functions as a comprehensive portal offering catalogues, e-books, curated reading lists, event updates, and a range of educational tools. It serves as the digital face of the school library. www.librarybvbvprtpjpr.wordpress.com (See Fig.12)
- **Quizzing Platform- Quizephillia:** Quizephillia is a custom-built platform developed to conduct literary quizzes, contests, and reader challenges, fostering competitive learning and interactive engagement among students. www.quizephillia.home.blog (See Fig.13)
- **PITARA e-Magazine:** PITARA is a student-led e-magazine that features original stories, reviews, poems, and thought pieces submitted by students, offering a creative outlet and promoting writing and editorial skills. www.apitara.wordpress.com (See Fig.14)
- **E-Gyansangraha Digital Repository:** E-Gyansangraha is a school-managed digital repository that archives student projects, subject resources, lesson content, and library-created materials. It supports asynchronous learning and encourages independent exploration. www.egyansangraha.wordpress.com (See Fig.15)
- **Bhavan's Vaani Podcast Channel:** The Bhavan's Vaani Podcast hosts audio content such as book talks, interviews with authors and educators, and reading reflections by students and faculty. It offers an auditory learning experience aligned with current trends in educational media. <https://open.spotify.com/show/2iNfQZEemea4rE42ul3ru3> (See Fig.16)

This integration of digital tools exemplifies how the library has extended its physical footprint into a hybrid, digitally empowered space, promoting accessibility, creativity, and lifelong learning in accordance with the National Education Policy (2020) and Ranganathan's Fifth Law.

Reading and Literacy Promotion Programmes

The school library at Bharatiya Vidya Bhavan Vidyashram Pratapnagar actively organizes a variety of student-centered programmes to foster reading engagement, creativity, and global collaboration. These initiatives go beyond traditional library functions to promote a vibrant, inclusive, and literacy-rich environment:

- **Book Launch Events:** The library celebrates the creative achievements of its young authors through book launch events. Till date, 30 books have been authored and published by students from various classes, offering a platform for peer-reviewed writing and self-expression. (See Fig.17)
- **Reading Promotional Activities:** A range of activities such as poster-making, book reviews, book talks, book discussions, "Drop Everything and Read" sessions, and shelf displays are conducted regularly to encourage voluntary reading and student involvement in the literary culture of the school. (See Fig.18)
- **Inter-School Bookmark Exchange Programme:** On the occasion of World Book and Copyright Day, the library hosted a nationwide Bhavan's Bookmark Exchange programme for students of Classes 6 to 8. The programme witnessed participation from 17 schools and over 1,150 students, fostering inter-school collaboration and celebrating diversity in reading habits and artistic expression. (See Fig.19)
- **Graphic Novel Project:** Recognizing the pedagogical potential of visual storytelling, the school librarian introduced graphic novel creation as a skill-based subject for Classes 6 and 7. A total of 50 students participated in this project, learning the techniques of drawing, storyboarding, and developing visual narratives. This initiative proved especially effective in engaging reluctant readers and enhancing multimodal literacy. (See Fig.20)
- **Read-a-thon:** A Read-a-thon was organized using the ReadWorks.org platform to promote sustained silent reading. This challenge encouraged students to independently explore reading content over an extended period, nurturing deep reading habits and self-motivation.

- **“I Love Reading” programmer:** To support avid readers, the library launched a special “I Love Reading” card initiative. Students who demonstrated consistent reading interest were provided with a privilege card that enabled them to borrow additional books outside their regular library period, fostering autonomy and rewarding reading enthusiasm.

These innovations position the library not just as a resource center, but as a dynamic knowledge hub aligned with the principles of collaboration, creativity, and continuous learning. They also reflect the school’s commitment to aligning with NEP 2020 goals and Ranganathan’s Fifth Law, which emphasizes libraries as “growing organisms”.



(Figure-1)



(Figure – 2)



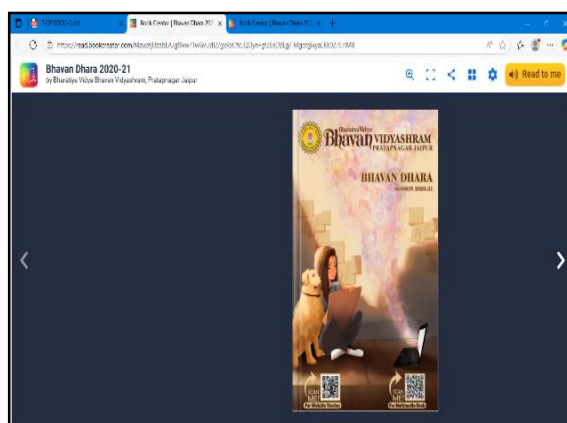
(Figure -3)



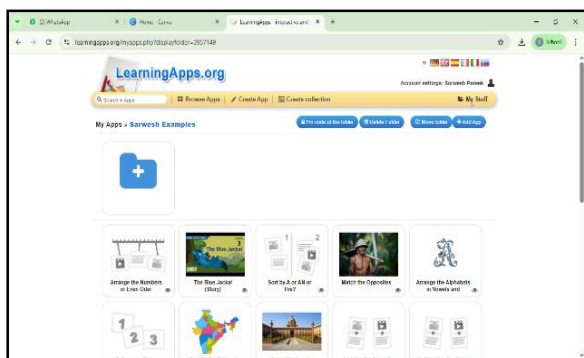
(Figure -4)



(Figure -5)



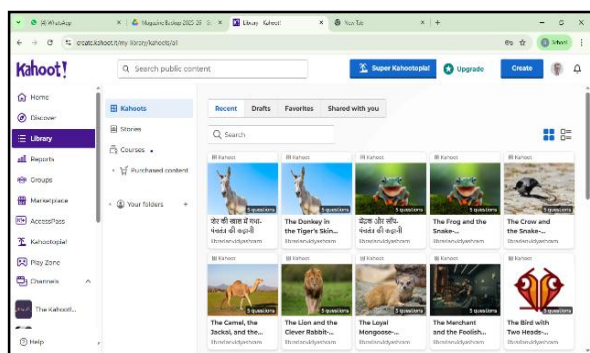
(Figure -6)



(Figure -7)



(Figure -8)



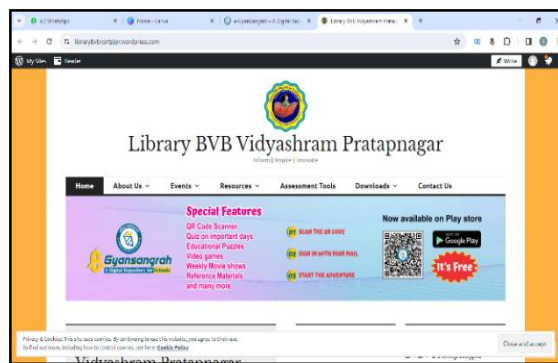
(Figure -9)



(Figure -10)



(Figure -11)



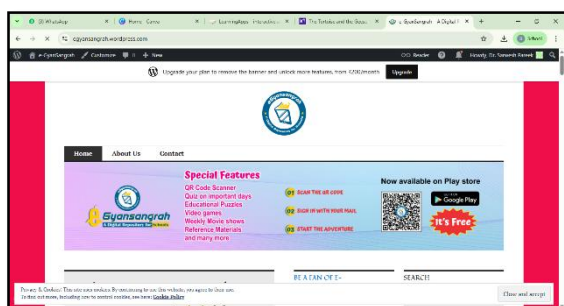
(Figure -12)



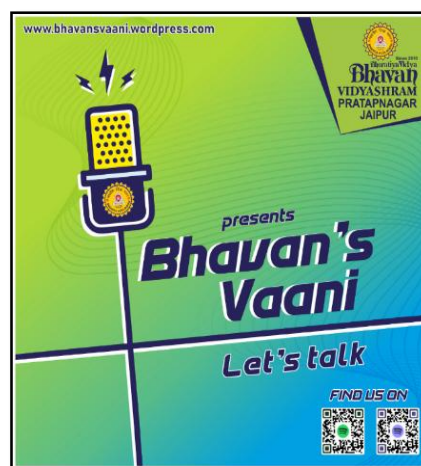
(Figure -13)



(Figure -14)



(Figure -15)



(Figure -16)



(Figure -17)



(Figure -18)



(Figure -19)



(Figure -20)

Findings & Observations

Shifting Roles of the Library

Observation (Librarian's Perspective)

"Earlier, students came just to borrow books. Now, they come to participate, explore digital resources, play literary games, or record podcast episodes. The library is no longer a silent zone—it's a creative, collaborative space." The role of the library has notably shifted from a traditional book repository to a collaborative learning hub. The librarian now works more as a facilitator and digital guide, integrating resources like ReadWorks.org, Alexa, and Kahoot into reading lessons and school programmes.

Observation (Teacher's Perspective)

"Now I collaborate with the librarian to plan reading-based activities and projects. We co-design lesson extensions using tools like Canva and LearningApps." Teachers have begun to recognize the library as an extension of the classroom, where digital tools support interdisciplinary learning and promote critical thinking.

Spatial Transformation

Observation (Student Perspective)

"I like sitting in the puzzles corner or using the AV station to listen to stories. It's different from the classroom and makes reading fun." Redesigning the physical space with flexible furniture, AV stations, and reading/activity zones has made the library more accessible, interactive, and inclusive. Students, including those who previously showed little interest in reading, now voluntarily engage with resources.

Observation (Librarian's Perspective) "With movable furniture and digital corners, the space feels more alive. It supports everything—from quiet reading to animated group discussions or even audio recording." The reconfiguration has allowed the library to host multi-format activities—from book launches to group reading—and accommodate students with different learning preferences.

Stakeholder Perceptions

Observation (Students)

"The library is one of my favourite places now. We have bookmarks to exchange with other schools, get extra books with the I Love Reading card, and even take part in online reading marathons." Students reported feeling more connected to the library. They appreciated the recognition of their interests, such as the privilege of extra book borrowing or being part of global programmes like the Bookmark Exchange.

Observation (Teachers)

“We’ve seen more confident presentations, better reading comprehension, and even improved speaking skills in students involved in library activities.” Teachers observed positive changes in learning outcomes, particularly in language, confidence, and engagement. The library has become a cross-curricular support center rather than a passive facility.

Observation (Librarian)

“Feedback from students and teachers keeps us innovating. Many now see the library as an essential learning partner, not just a support room.”

The librarian noted a shift in perception, where the library is seen as a core contributor to the academic and social development of students.

Challenges and Constraints

Observation (Librarian’s Perspective)

“The biggest limitation is funding. Digital tools, subscriptions, and furniture need sustained support. Also, many schools still don’t recognize the evolving role of libraries.” Despite notable successes, financial constraints, limited staffing, and lack of policy-level integration remain key challenges. The librarian also highlighted resistance to change among some stakeholders accustomed to traditional models.

Observation (Teacher’s Perspective)

“Initially, not everyone understood the need for makerspaces or podcast corners. It took workshops and trial programmes to demonstrate their impact.” Resistance from traditional mind-sets and lack of awareness of global trends in library innovation initially hindered wider teacher involvement.

Observation (Student Perspective)

“I wish more time was given for library activities. Sometimes, we get rushed because of academic pressure.” Students expressed the need for dedicated time for library-based exploration and greater integration into the daily timetable.

Below the table-1 shows the findings and observations, categorized by stakeholder group (Librarian, Teachers, Students) and aligned with the four major themes of your study.

Table 1: Summary of Observations by Stakeholder Group

Theme	Librarian's Perspective	Teacher's Perspective	Student's Perspective
Shifting Roles of the Library	Library has evolved into a digital, collaborative space; librarian as facilitator	Library activities support interdisciplinary learning and projects	Library is more interactive and fun; not just about borrowing books
Spatial Transformation	Flexible layout supports varied learning modes; space now dynamic and engaging	Redesigned areas support student-centered learning and small-group tasks	Prefer puzzles corner and AV station; find the space welcoming and different from classrooms
Stakeholder Perceptions	Students and staff view the library as a learning partner; positive feedback fuels innovation	Noticed improvement in reading comprehension, confidence, and presentation skills	Enjoy bookmark exchange, read-a-thon, and reading cards; feel recognized and involved
Challenges and Constraints	Lack of consistent funding, need for policy-level support, limited trained staff	Initial resistance to new library tools and approaches; time constraints	Want more time for library activities; feel pressure from academic schedule

Conclusion and Recommendations

Conclusion

This case study of Bharatiya Vidya Bhavan Vidyashram Pratapnagar illustrates a successful reimagining of the school library as a dynamic, student-centered space aligned with 21st-century educational demands. The library's transformation from a passive book repository to a collaborative, digital-rich learning hub reflects the essence of Ranganathan's Fifth Law: "The library is a growing organism."

Key Shifts observed include

- Integration of technology (AI tools, e-platforms, podcasts) into reading, research, and creativity.
- Spatial redesign to promote flexibility, accessibility, and multi-modal learning.
- Expanded librarian roles from custodial to instructional and digital facilitation.
- Increased student and teacher engagement, reflected in deeper learning outcomes and skill development.

However, challenges such as budget limitations, insufficient staffing, and resistance to innovation underscore the need for systemic support and sustained institutional vision.

Recommendations

Based on the findings, the following recommendations are proposed to guide school library transformation in similar Indian contexts:

For School Leaders & Administrators

- Allocate sustained funding for infrastructure, digital resources, and library staffing.
- Embed library use across the timetable to support inquiry-based and interdisciplinary learning.
- Recognize the library as a pedagogical partner, not a support unit.

For Policymakers

- Implement NEP 2020 library goals by providing a dedicated framework for digital and hybrid library models.
- Mandate librarian training in digital literacy, instructional design, and student engagement practices.
- Introduce national library innovation grants to scale successful models.

For Librarians

- Adopt a facilitator mindset, engaging in co-teaching, digital tool curation, and reading programme innovation.
- Promote student voice and participation through advisory boards, book clubs, and content creation.
- Use evidence-based practices and usage data to advocate for resources and demonstrate impact.

For Teachers

- Collaborate with the librarian to design library-integrated projects and literacy-based activities.
- Encourage students to use library tools (e.g., Canva, ReadWorks, LearningApps) as part of classwork and homework.
- Support inclusive access by promoting reading across abilities and interests.

This study contributes to the ongoing discourse on educational transformation in India, offering a scalable, replicable model for how libraries can become future-ready learning ecosystems. The case of BVB Vidyashram Pratapnagar proves that even within constraints, innovation, collaboration, and student engagement can drive meaningful change.

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AI और IoT-सक्षम स्मार्ट पुस्तकालय: अवसर और चुनौतियाँ

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Summary

प्रौद्योगिकी के तेजी से विकास ने पुस्तकालयों की परंपरागत भूमिकाओं को पुनर्परिभाषित किया है। आर्टिफिशियल इंटेलिजेंस (AI) और इंटरनेट ऑफ थिंग्स (IoT) आधारित स्मार्ट पुस्तकालय उपयोगकर्ताओं को अधिक सुलभ, अनुकूलित और इंटरैक्टिव सेवाएँ प्रदान कर रहे हैं। यह शोध पत्र स्मार्ट पुस्तकालयों में AI और IoT के उपयोग की संभावनाओं, उनके द्वारा प्रदान किए जाने वाले अवसरों और सामने आने वाली चुनौतियों का विश्लेषण करता है।

Keywords: AI, IoT, स्मार्ट पुस्तकालय, डिजिटल पुस्तकालय, प्रौद्योगिकी समावेशन

भूमिका

पुस्तकालय सूचना और ज्ञान तक पहुँच का प्रमुख केंद्र हैं। डिजिटल युग में परंपरागत पुस्तकालय केवल मुद्रित सामग्री तक सीमित नहीं रह गए हैं; अब वे डिजिटल संसाधनों, ई-पुस्तकें, डेटाबेस और ऑनलाइन सेवाओं तक पहुँच प्रदान करते हैं।

AI और IoT तकनीकों के आगमन से पुस्तकालय अधिक स्मार्ट, उपयोगकर्ता-केंद्रित और डेटा-सक्षम बन गए हैं। AI आधारित चैटबॉट्स, स्मार्ट अनुशंसाएँ (Recommendation Systems), IoT आधारित उपकरण और स्मार्ट इन्वेंटरी मैनेजमेंट जैसे फीचर्स आधुनिक पुस्तकालयों की सेवा दक्षता और अनुभव को बढ़ा रहे हैं।

AI और IoT का परिचय

आर्टिफिशियल इंटेलिजेंस

AI तकनीकें मशीन लर्निंग, नेचुरल लैंग्वेज प्रोसेसिंग और डेटा एनालिटिक्स के माध्यम से पुस्तकालय सेवाओं को अधिक स्मार्ट बनाती हैं। उदाहरण:

- डिजिटल सामग्री के लिए सटीक खोज (Advanced Search)
- उपयोगकर्ता व्यवहार के आधार पर अनुशंसाएँ
- ऑटोमेटेड प्रश्नोत्तर सेवाएँ (Chatbots)
- डेटा विश्लेषण के माध्यम से संग्रह प्रबंधन

इंटरनेट ऑफ थिंग्स (IoT)

IoT स्मार्ट डिवाइस और सेंसर नेटवर्क के माध्यम से पुस्तकालय में वास्तविक समय की निगरानी और प्रबंधन की सुविधा प्रदान करता है। उदाहरण:

- स्मार्ट शेल्फ और RFID आधारित इन्वेंटरी
- ऊर्जा प्रबंधन और स्मार्ट लाइटिंग
- उपयोगकर्ता ट्रैकिंग और व्यस्तता डेटा
- सुरक्षा निगरानी और संसाधन उपलब्धता

AI और IoT-सक्षम स्मार्ट पुस्तकालय के अवसर

1. **बेहतर उपयोगकर्ता अनुभव:** AI आधारित इंटरैक्टिव चैटबॉट्स और स्मार्ट अनुशंसाएँ उपयोगकर्ताओं के लिए पुस्तक और संसाधनों का चयन आसान बनाती हैं।
2. **संग्रह प्रबंधन में सुधार:** IoT आधारित शेल्फ और RFID तकनीकें संग्रह की निगरानी, ट्रैकिंग और ऑटोमेटेड चेक-इन/चेक-आउट की सुविधा देती हैं।
3. **डेटा-संचालित निर्णय निर्माण:** उपयोगकर्ता व्यवहार और ट्रेंड डेटा के आधार पर संग्रह और सेवाओं में सुधार।
4. **सुलभता और समावेशन:** स्मार्ट उपकरण और AI-सहायता दिव्यांग उपयोगकर्ताओं के लिए सेवाओं को आसान बनाते हैं।
5. **ऊर्जा और संसाधन प्रबंधन:** IoT उपकरण पुस्तकालय की ऊर्जा खपत को अनुकूलित करते हैं और संचालन लागत कम करते हैं।

AI और IoT-सक्षम स्मार्ट पुस्तकालय में चुनौतियाँ

1. **उच्च प्रारंभिक लागत:** AI और IoT उपकरणों और सॉफ्टवेयर के लिए वित्तीय संसाधनों की आवश्यकता।
2. **तकनीकी ज्ञान और प्रशिक्षण की कमी:** पुस्तकालय कर्मियों को इन तकनीकों का उपयोग करने के लिए प्रशिक्षण आवश्यक।
3. **डेटा गोपनीयता और सुरक्षा:** उपयोगकर्ता डेटा की सुरक्षा सुनिश्चित करना चुनौतीपूर्ण।
4. **तकनीकी रखरखाव:** उपकरणों और सिस्टम के निरंतर अपडेट और रखरखाव की आवश्यकता।
5. **डिजिटल असमानता:** सभी उपयोगकर्ता IoT/AI तकनीकों का समान रूप से लाभ नहीं उठा सकते।

स्मार्ट पुस्तकालय के लिए रणनीतियाँ

- पुस्तकालय कर्मियों का AI और IoT प्रशिक्षण
- ओपन सोर्स प्लेटफॉर्म और लागत-कुशल तकनीकों का चयन
- डेटा गोपनीयता और सुरक्षा के लिए नियम और नीति बनाना
- उपयोगकर्ताओं के लिए स्मार्ट गाइडेंस और सपोर्ट सेंटर
- तकनीकी रखरखाव के लिए स्थायी योजना

भविष्य की दिशा

AI और IoT के माध्यम से स्मार्ट पुस्तकालय:

- उपयोगकर्ता-केंद्रित और इंटेलिजेंट सिस्टम के रूप में विकसित होंगे
- क्लाउड और बिग डेटा प्लेटफॉर्म के माध्यम से वैश्विक सामग्री उपलब्ध कराएंगे
- स्मार्ट शहर और डिजिटल शिक्षा पहल में पुस्तकालयों की भूमिका बढ़ाएंगे

निष्कर्ष

AI और IoT-सक्षम स्मार्ट पुस्तकालय आधुनिक शिक्षा और सूचना प्रणाली के लिए महत्वपूर्ण हैं। ये पुस्तकालय न केवल सेवाओं को स्मार्ट और सुलभ बनाते हैं बल्कि डेटा-सक्षम निर्णय लेने और समावेशी उपयोगकर्ता अनुभव प्रदान करते हैं। हालांकि, लागत, प्रशिक्षण और सुरक्षा जैसी चुनौतियों का समाधान आवश्यक है। उचित नीति और रणनीतियों के माध्यम से पुस्तकालय इन तकनीकों का प्रभावी और सतत उपयोग सुनिश्चित कर सकते हैं।

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आधुनिक पुस्तकालयों में डिजिटल पहुंच और समावेशन सुनिश्चित करना

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Summary

डिजिटल युग में सूचना के स्वरूप, संग्रहण और प्रसार में अभूतपूर्व परिवर्तन आया है। आधुनिक पुस्तकालय अब केवल मुद्रित सामग्री तक सीमित न रहकर डिजिटल सूचना और ज्ञान के केंद्र के रूप में विकसित हो रहे हैं। किंतु समाज के विभिन्न वर्गों के बीच डिजिटल असमानता आज भी एक गंभीर चुनौती बनी हुई है। डिजिटल पहुंच और समावेशन का उद्देश्य प्रत्येक व्यक्ति को सूचना प्रौद्योगिकी, इंटरनेट और डिजिटल संसाधनों तक समान अवसर प्रदान करना है। यह शोध पत्र आधुनिक पुस्तकालयों में डिजिटल पहुंच और समावेशन की अवधारणा, उसकी आवश्यकता, चुनौतियों तथा उन्हें दूर करने की रणनीतियों का विश्लेषण करता है। साथ ही पुस्तकालय पेशेवरों की भूमिका और भविष्य की दिशा पर भी प्रकाश डालता है।

Keywords: डिजिटल पहुंच, डिजिटल समावेशन, आधुनिक पुस्तकालय, डिजिटल साक्षरता, सूचना प्रौद्योगिकी

भूमिका

सूचना और संचार प्रौद्योगिकी (ICT) के विकास ने ज्ञान समाज की नींव को मजबूत किया है। आज सूचना का अधिकांश भाग डिजिटल स्वरूप में उपलब्ध है। ऐसे में पुस्तकालयों की भूमिका केवल सूचना संग्रहण तक सीमित न रहकर सूचना तक समान और न्यायसंगत पहुंच प्रदान करने तक विस्तृत हो गई है।

डिजिटल समावेशन का अर्थ है समाज के प्रत्येक वर्ग—ग्रामीण, शहरी, आर्थिक रूप से कमजोर, दिव्यांग, वृद्ध एवं वंचित समुदाय—को डिजिटल संसाधनों से जोड़ना। आधुनिक पुस्तकालय इस लक्ष्य की प्राप्ति में सेतु का कार्य कर सकते हैं।

डिजिटल पहुंच की अवधारणा

डिजिटल पहुंच का तात्पर्य केवल इंटरनेट कनेक्शन से नहीं है, बल्कि इसमें निम्नलिखित तत्व शामिल हैं:

- डिजिटल उपकरणों की उपलब्धता
- इंटरनेट और नेटवर्क सुविधाएँ
- ई-पुस्तकें, ई-जर्नल और ऑनलाइन डेटाबेस
- उपयोगकर्ता सहायता एवं तकनीकी मार्गदर्शन

पुस्तकालय डिजिटल पहुंच को सशक्त बनाने के लिए सार्वजनिक कंप्यूटर, वाई-फाई, डिजिटल रिपॉजिटरी और ओपन एक्सेस संसाधनों की सुविधा प्रदान करते हैं।

डिजिटल समावेशन की आवश्यकता

डिजिटल समावेशन सामाजिक समानता और शैक्षणिक विकास के लिए आवश्यक है। इसके प्रमुख कारण निम्नलिखित हैं:

1. सूचना तक समान अधिकार सुनिश्चित करना
2. डिजिटल विभाजन (Digital Divide) को कम करना
3. शिक्षा और शोध को सुलभ बनाना
4. आजीवन सीखने (Lifelong Learning) को बढ़ावा देना
5. सामाजिक-आर्थिक विकास में योगदान

पुस्तकालय, विशेष रूप से सार्वजनिक और शैक्षणिक पुस्तकालय, डिजिटल समावेशन के प्रमुख केंद्र बन सकते हैं।

आधुनिक पुस्तकालयों में डिजिटल सेवाएँ

आधुनिक पुस्तकालयों द्वारा प्रदान की जाने वाली प्रमुख डिजिटल सेवाएँ हैं:

- ई-पुस्तकें और ई-जर्नल सेवाएँ
- डिजिटल संदर्भ सेवा (Digital Reference Service)
- ऑनलाइन कैटलॉग (OPAC)
- संस्थागत रिपॉजिटरी
- डिजिटल साक्षरता प्रशिक्षण कार्यक्रम

ये सेवाएँ उपयोगकर्ताओं को समय और स्थान की सीमाओं से मुक्त करती हैं।

डिजिटल समावेशन में आने वाली चुनौतियाँ

डिजिटल पहुंच और समावेशन के मार्ग में कई बाधाएँ हैं, जैसे:

- डिजिटल साक्षरता की कमी
- तकनीकी अवसंरचना का अभाव
- ग्रामीण और शहरी क्षेत्रों के बीच अंतर
- भाषा संबंधी बाधाएँ
- दिव्यांगजनों के लिए सुलभ तकनीक की कमी
- सीमित वित्तीय संसाधन

इन चुनौतियों का समाधान किए बिना डिजिटल समावेशन का लक्ष्य प्राप्त करना कठिन है।

डिजिटल पहुंच और समावेशन सुनिश्चित करने की रणनीतियाँ

डिजिटल समावेशन को सशक्त बनाने के लिए निम्नलिखित रणनीतियाँ अपनाई जा सकती हैं:

- डिजिटल साक्षरता एवं प्रशिक्षण कार्यक्रम
- बहुभाषी डिजिटल संसाधनों का विकास
- दिव्यांग उपयोगकर्ताओं के लिए सहायक तकनीक
- पुस्तकालय कर्मियों का सतत प्रशिक्षण
- सरकारी और गैर-सरकारी संस्थाओं के साथ सहयोग
- ओपन एक्सेस और मुक्त शैक्षणिक संसाधनों का प्रचार

पुस्तकालय पेशेवरों की भूमिका

पुस्तकालय पेशेवर डिजिटल युग में केवल सूचना संरक्षक नहीं, बल्कि सूचना मार्गदर्शक बन चुके हैं। वे उपयोगकर्ताओं को डिजिटल संसाधनों के चयन, उपयोग और मूल्यांकन में सहायता प्रदान करते हैं। उनकी सक्रिय भूमिका डिजिटल समावेशन को व्यावहारिक रूप देती है।

भविष्य की दिशा

भविष्य में पुस्तकालय स्मार्ट तकनीकों, कृत्रिम बुद्धिमत्ता और डिजिटल प्लेटफॉर्म के माध्यम से और अधिक समावेशी बन सकते हैं। यदि नीति निर्माण, संसाधन और प्रशिक्षण पर उचित ध्यान दिया जाए, तो पुस्तकालय डिजिटल समानता के सशक्त केंद्र बन सकते हैं।

निष्कर्ष

आधुनिक पुस्तकालय डिजिटल पहुंच और समावेशन को सुनिश्चित करने में महत्वपूर्ण भूमिका निभाते हैं। डिजिटल सेवाओं, समावेशी नीतियों और प्रशिक्षित मानव संसाधनों के माध्यम से पुस्तकालय डिजिटल विभाजन को कम कर सकते हैं। इस प्रकार पुस्तकालय ज्ञान आधारित, समावेशी और सशक्त समाज के निर्माण में सहायक सिद्ध होते हैं।

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कृषि विश्वविद्यालय पुस्तकालयों के लिए वेब-आधारित संसाधन-साझेदारी नेटवर्क: श्री कर्ण नरेंद्र कृषि विश्वविद्यालय का एक अध्ययन

विनीता चौहान

सहायक पुस्तकालयाध्यक्ष एवं प्रभारी, CODST श्री कर्ण नरेंद्र कृषि विश्वविद्यालय, जोबनेर, राजस्थान, भारत

Summary

उद्देश्य: इस अध्ययन का उद्देश्य श्री कर्ण नरेंद्र कृषि विश्वविद्यालय (SKNAU), जोबनेर के पुस्तकालयों के मध्य एक एकीकृत संसाधन-साझेदारी ढाँचे की आवश्यकता एवं व्यवहार्यता का परीक्षण करना है। राजस्थान के कृषि विश्वविद्यालयों के पुस्तकालय प्रायः सीमित बजट, साझा सरकारी वित्तपोषण तथा अवसंरचनात्मक सुविधाओं के असमान स्तरों के साथ कार्य करते हैं, जिसके कारण वे व्यक्तिगत रूप से व्यापक शैक्षणिक सामग्री एवं डिजिटल सेवाएँ उपलब्ध कराने में सक्षम नहीं हो पाते। इस परिप्रेक्ष्य में, यह अध्ययन एक ऐसे एकीकृत एवं सतत मॉडल के विकास का प्रयास करता है, जो शैक्षणिक सामग्री तक पहुँच को सुदृढ़ करे, तकनीकी संसाधनों का अनुकूलन करे, शिक्षण एवं अनुसंधान को समर्थन प्रदान करे तथा SKNAU के संघटक महाविद्यालयों में समग्र सूचना पारिस्थितिकी तंत्र को सशक्त बनाए।

अभिकल्पना/कार्यविधि/दृष्टिकोण: यह शोध SKNAU के विभिन्न परिसरों—जैसे SKN कृषि महाविद्यालय, कृषि-व्यवसाय प्रबंधन महाविद्यालय तथा डेयरी विज्ञान एवं प्रौद्योगिकी महाविद्यालय—में विद्यमान पुस्तकालय परिवेश का विश्लेषण करता है, जिसमें कार्यप्रणालियाँ, डिजिटल प्रणालियाँ एवं उपलब्ध संग्रह सम्मिलित हैं। अध्ययन में KOHA (क्लाउड-आधारित पुस्तकालय प्रबंधन प्रणाली), CeRA (कृषि ई-संसाधन संघ) में सहभागिता तथा Krishikosh (ICAR का संस्थागत रिपॉजिटरी) में योगदान की समीक्षा की गई है। इन आकलनों के आधार पर एक वैचारिक ढाँचा—**श्री कर्ण नरेंद्र कृषि विश्वविद्यालय पुस्तकालय सूचना प्रणाली (SKNAULIS)**—प्रस्तावित किया गया है, जो रिंग-आधारित नेटवर्क संरचना पर आधारित है। इस दृष्टिकोण में पारदर्शी वर्गीकरण, एकीकृत यूनियन कैटलॉग का विकास तथा सभी मुद्रित एवं डिजिटल संसाधनों का व्यवस्थित प्रलेखन, प्रभावी संसाधन-साझेदारी की अनिवार्य पूर्वशर्त के रूप में रेखांकित किया गया है।

निष्कर्ष: अध्ययन से यह स्पष्ट होता है कि यद्यपि SKNAU के पुस्तकालयों में मूलभूत डिजिटल क्षमताएँ उपलब्ध हैं तथा वे डिजिटल इंडिया, ONOS और ICAR के ई-संसाधन प्लेटफॉर्म जैसे सहायक राष्ट्रीय पारिस्थितिकी तंत्र के अंतर्गत कार्य कर रहे हैं, फिर भी सहयोगात्मक तंत्र खंडित अवस्था में हैं। परिसरों के मध्य संग्रह साझा करने, अधिग्रहण समन्वय अथवा अनुसंधान सामग्री तक निर्बाध पहुँच हेतु कोई एकीकृत प्रणाली विद्यमान नहीं है। प्रस्तावित रिंग-आधारित नेटवर्क मॉडल संसाधनों की दृश्यता बढ़ाने, सदस्यताओं एवं अनुसंधान प्रयासों की पुनरावृत्ति कम करने, बेहतर योजना निर्माण को सक्षम करने, अंतर-पुस्तकालय ऋण एवं दस्तावेज़ आपूर्ति को प्रोत्साहित करने तथा अंततः छात्रों, शोधकर्ताओं एवं शिक्षकों को उपलब्ध शैक्षणिक सहयोग की गुणवत्ता में वृद्धि की क्षमता प्रदर्शित करता है।

मौलिकता/महत्त्व: यह शोध राजस्थान के कृषि विश्वविद्यालय पुस्तकालयों के लिए विशेष रूप से विकसित पहला संरचित एवं विस्तार योग्य डिजिटल संसाधन-साझेदारी मॉडल प्रस्तुत करता है। प्रस्तावित SKNAULIS ढाँचा डिजिटल समावेशन एवं शैक्षणिक नेटवर्किंग से संबंधित राष्ट्रीय प्राथमिकताओं के अनुरूप है तथा सहयोगात्मक रणनीतियों के माध्यम से सूचना पहुँच को सुदृढ़ करने के इच्छुक अन्य कृषि विश्वविद्यालयों के लिए एक अनुकरणीय प्रारूप प्रदान करता है। यह दीर्घकालिक सततता, संसाधनों के कुशल उपयोग तथा भारत में कृषि अनुसंधान, शिक्षा एवं विस्तार गतिविधियों के विकास में महत्वपूर्ण योगदान देता है।

Keywords: संसाधन-साझेदारी; कृषि विश्वविद्यालय पुस्तकालय; SKNAU; CeRA संघ; Krishikosh रिपॉजिटरी; डिजिटल सहयोग; SKNAULIS; पुस्तकालय नेटवर्क मॉडल; KOHA LMS

परिचय

संसाधन साझाकरण (Resource Sharing) की अवधारणा नई नहीं है। Allen Kent के अनुसार, यह शब्द दो महत्वपूर्ण घटकों से मिलकर बना है—“संसाधन (Resource)”, जिसका अर्थ किसी भी ऐसी सामग्री, सेवा या क्रिया से है जो आवश्यकता के समय सहायक हो सकती है, तथा “साझाकरण (Sharing)”, जिसका आशय अपने स्वामित्व में उपलब्ध संसाधनों को दूसरों के हित में साझा करना है। अपने आदर्श स्वरूप में संसाधन साझाकरण पारस्परिकता (Reciprocity) पर आधारित होता है, जिसमें प्रत्येक सहभागी संस्था कुछ मूल्यवान योगदान देती है और आवश्यकता पड़ने पर अन्य संस्थाओं के संसाधनों तक समान रूप से पहुँच प्राप्त करती है।

डिजिटल इंडिया और *विकसित भारत अभियान* जैसे राष्ट्रीय प्रयासों के युग में, केवल डिजिटल कनेक्टिविटी ही नहीं, बल्कि **डिजिटल समानता (Digital Equity)** पर भी विशेष बल दिया जा रहा है, ताकि ग्रामीण और कृषि आधारित संस्थानों को भी उच्च गुणवत्ता वाले डिजिटल संसाधनों एवं सूचना अवसंरचना तक समान पहुँच प्राप्त हो सके। भारतीय अर्थव्यवस्था मुख्यतः कृषि पर आधारित है, और *विकसित भारत* के लक्ष्य की प्राप्ति के लिए कृषि ज्ञान प्रणालियों को सुदृढ़ करना अत्यंत आवश्यक है। यह सुदृढ़ीकरण नेटवर्क आधारित संसाधन साझाकरण एवं संस्थागत सहयोग के माध्यम से ही संभव है। Open Networking Operating Systems (ONOS), KOHA जैसे क्लाउड-आधारित पुस्तकालय प्रबंधन तंत्र तथा Krishikosh जैसे डिजिटल रिपॉजिटरी पहले से ही एक मजबूत तकनीकी आधार प्रदान करते हैं। किंतु इनकी पूर्ण क्षमता तभी साकार हो सकती है जब श्री करन नरेंद्र कृषि विश्वविद्यालय (SKNAU) के अंतर्गत सभी पुस्तकालयों को एकीकृत डिजिटल पुस्तकालय नेटवर्क से जोड़ा जाए, जो अंतर-पुस्तकालय ऋण (Inter-Library Loan), ई-संसाधनों तक केंद्रीकृत पहुँच तथा ऑनलाइन ज्ञान वितरण प्रणालियों को समर्थ बनाए। भारतीय कृषि अनुसंधान परिषद (ICAR) ने 1978 में ही समन्वित पुस्तकालय विकास के महत्व को स्वीकार कर लिया था। कृषि विश्वविद्यालयों पर गठित समीक्षा समिति ने स्पष्ट रूप से कहा था कि “कोई भी पुस्तकालय अपनी सभी आवश्यक पुस्तकों को स्वयं क्रय नहीं कर सकता। पुस्तकालयों को अपने संग्रह का विकास सहयोग एवं समन्वय के माध्यम से करना चाहिए। विषय-विशेषीकरण तथा न्यूनतम पुनरावृत्ति के साथ एक समन्वित क्रय नीति आवश्यक है।”

साहित्य समीक्षा

कृषि पुस्तकालयों में संसाधन साझाकरण पर राष्ट्रीय एवं अंतरराष्ट्रीय स्तर पर व्यापक साहित्य उपलब्ध है।

1. Kent एवं Galvin (1977, 1978) ने पुस्तकालय नेटवर्क, शासन व्यवस्था एवं सहकारी सेवाओं की आधारभूत अवधारणाएँ प्रस्तुत कीं।
2. Subbaiah (1977) ने कृषि विश्वविद्यालयों से संबंधित विशिष्ट चुनौतियों को रेखांकित करते हुए सहयोगात्मक क्रय एवं सूचीकरण की अनुशंसा की।
3. Eswara Reddy (1982) ने भारत में समन्वित कृषि सूचना सेवाओं की आवश्यकता पर बल दिया।
4. National Knowledge Commission (2007) ने ज्ञान प्रसार के लिए राष्ट्रव्यापी पुस्तकालय नेटवर्किंग को अनिवार्य बताया।
5. Kamble (2018) ने पुनः स्पष्ट किया कि अकादमिक पुस्तकालय नेटवर्किंग से संसाधनों तक पहुँच बढ़ती है और अनावश्यक पुनरावृत्ति कम होती है।
6. KOHA के कार्यान्वयन पर किए गए अध्ययन—Khan एवं Sharma (2018); Singh एवं Sanaman (2012)—इस प्रणाली की एकीकृत पुस्तकालय संचालन में उपयोगिता को प्रमाणित करते हैं।

7. Chandrasekharan et al. (2012) तथा Kumar et al. (2022) के अनुसार ICAR की पहलें—CeRA, Krishikosh एवं e-Granth—कृषि विश्वविद्यालयों में डिजिटल सूचना पहुँच को सुदृढ़ करने में अत्यंत प्रभावी रही हैं।
8. Mohanathan एवं Krishnasamy (2021) ने सीमित बजट, बढ़ती सदस्यता लागत तथा साझा रिपॉजिटरी की आवश्यकता पर प्रकाश डाला।

उपरोक्त अध्ययन सामूहिक रूप से SKNAU में एक संरचित, प्रौद्योगिकी-आधारित संसाधन साझाकरण मॉडल की आवश्यकता को पूर्णतः औचित्य प्रदान करते हैं।

अध्ययन के उद्देश्य

इस अध्ययन के प्रमुख उद्देश्य निम्नलिखित हैं:

1. SKNAU के संघटक महाविद्यालयों में उपलब्ध पुस्तकालय संसाधनों एवं सेवाओं की वर्तमान स्थिति का परीक्षण करना।
2. SKNAU पुस्तकालयों में संसाधन साझाकरण को प्रभावित करने वाले कारकों की पहचान करना।
3. संसाधन साझाकरण हेतु एक ऑनलाइन एवं विस्तारशील नेटवर्क मॉडल (SKNAULIS) का प्रस्ताव प्रस्तुत करना।
4. अधिग्रहण, सूचीकरण, दस्तावेज़ वितरण एवं डिजिटल पहुँच को सुदृढ़ करने के लिए सहयोगात्मक गतिविधियों की अनुशंसा करना।
5. दीर्घकालिक दृष्टि से एक क्षेत्रीय कृषि सूचना केंद्र की स्थापना हेतु रणनीतियाँ सुझाना।

अनुसंधान पद्धति

1. यह अध्ययन गुणात्मक एवं वर्णनात्मक पद्धति पर आधारित है, जिसमें निम्नलिखित उपाय अपनाए गए हैं:
2. SKNAU पुस्तकालयों की संरचना, सेवाओं एवं विद्यमान ICT प्रणालियों का विश्लेषण।
3. प्रासंगिक साहित्य, ICAR की नीतिगत दस्तावेज़ों एवं राष्ट्रीय तकनीकी पहलों की समीक्षा।
4. SKNAU परिसरों में KOHA के कार्यान्वयन, CeRA की उपलब्धता तथा Krishikosh में सहभागिता का परीक्षण।
5. संसाधन अंतराल एवं सेवा प्रतिरूपों की पहचान हेतु पुस्तकालय कर्मियों के साथ अनौपचारिक संवाद।
6. SKNAULIS के लिए उपयुक्त नेटवर्क टोपोलॉजी की पहचान हेतु विभिन्न नेटवर्क मॉडल्स का तुलनात्मक अध्ययन।

इस अध्ययन में कोई प्राथमिक सर्वेक्षण नहीं किया गया है; यह अध्ययन अन्वेषणात्मक एवं संकल्पनात्मक प्रकृति का है।

SKNAU एवं राजस्थान की कृषि शिक्षा प्रणाली में प्रासंगिकता

राजस्थान में स्थित अनेक संघटक महाविद्यालयों के साथ श्री करन नरेंद्र कृषि विश्वविद्यालय (SKNAU) एक राज्य-स्तरीय डिजिटल पुस्तकालय संघ (Consortium) का नेतृत्व करने की विशिष्ट क्षमता रखता है। KOHA (क्लाउड-आधारित LMS) का उपयोग, CeRA तक पहुँच तथा Krishikosh में योगदान, एक पूर्णतः क्रियाशील, डिजिटल एवं सहयोगात्मक पुस्तकालय नेटवर्क के निर्माण हेतु सशक्त आधार प्रदान करते हैं।

इस नेटवर्क के माध्यम से SKNAU पुस्तकालय निम्नलिखित लाभ प्राप्त कर सकते हैं:

1. समन्वित सदस्यता एवं अधिग्रहण द्वारा बजट का अधिकतम उपयोग
2. अनावश्यक पुनरावृत्ति से बचाव एवं विषय-विशेषीकरण सुनिश्चित करना
3. शोध सहयोग एवं अकादमिक सेवाओं की गुणवत्ता में वृद्धि
4. डिजिटल इंडिया के समावेशी डिजिटल अवसंरचना दृष्टिकोण के साथ संरेखण
5. कृषि ज्ञान को अधिक सुलभ, परस्पर संबद्ध एवं प्रभावी बनाकर *विकसित भारत अभियान* का मॉडल प्रस्तुत करना

SKNAU पुस्तकालयों में संसाधन साझाकरण को प्रभावित करने वाले कारक

कृषि विश्वविद्यालय पुस्तकालयों के मध्य संसाधन साझाकरण तभी संभव है जब सहभागी संस्थान एक-दूसरे के संसाधनों से भली-भाँति परिचित हों और सहयोग की साझा नीति के अंतर्गत कार्य करने के लिए इच्छुक हों। श्री करन नरेंद्र कृषि विश्वविद्यालय (SKNAU), जोबनेर के संदर्भ में यह सिद्धांत केवल सैद्धांतिक नहीं बल्कि व्यावहारिक रूप से भी लागू होता है। प्रभावी संसाधन साझाकरण के लिए सबसे पहली आवश्यकता है—सभी विद्यमान संसाधनों का पारदर्शी एवं व्यवस्थित सूचीकरण। इनमें पुस्तकें, पत्रिकाएँ, सम्मेलन

कार्यवृत्त, शोध-प्रबंध, प्रतिवेदन, सूक्ष्म दस्तावेज़ तथा डिजिटल संग्रह सम्मिलित हैं। जब तक ये संसाधन पूर्णतः प्रलेखित, सुलभ एवं विश्वविद्यालय के सभी पुस्तकालयों में ज्ञात नहीं होंगे, तब तक एक सफल पारस्परिक संसाधन साझाकरण मॉडल का क्रियान्वयन संभव नहीं है।

SKNAU पुस्तकालयों का संग्रह आकार के आधार पर वर्गीकरण

प्रारंभिक आँकड़ों के आधार पर SKNAU के पुस्तकालयों को मुख्यतः दो वर्गों में विभाजित किया जा सकता है:

केंद्रीय पुस्तकालय (जोबनेर)

केंद्रीय पुस्तकालय में सबसे बड़ा संग्रह उपलब्ध है, जिसमें लगभग 50,000 से अधिक सूचना सामग्री (पुस्तकें, पत्रिकाएँ, संदर्भ स्रोत आदि) सम्मिलित हैं।

संघटक महाविद्यालय पुस्तकालय

(जैसे—फतेहपुर, लालसोट, भरतपुर, झालावाड़ आदि)

संघटक महाविद्यालयों के पुस्तकालयों में सामान्यतः अपेक्षाकृत छोटा संग्रह (50,000 से कम सामग्री) उपलब्ध है। जहाँ केंद्रीय पुस्तकालय में सामान्य एवं विशिष्ट दोनों प्रकार की सामग्री उपलब्ध है, वहीं महाविद्यालय पुस्तकालयों में बागवानी, पादप संरक्षण, कृषि-व्यवसाय प्रबंधन, मृदा विज्ञान आदि विषयों पर विशेषीकृत संग्रह विकसित किए गए हैं।

यह स्थिति निम्नलिखित सहयोगात्मक गतिविधियों के लिए व्यापक संभावनाएँ उत्पन्न करती है:

- अंतर-पुस्तकालय ऋण प्रणाली (Inter-Library Loan)
- छायाप्रति / पुनरुत्पादन (Reprographic) सेवाओं के माध्यम से संसाधन साझा करना
- विषय-विशेषीकरण के आधार पर विशेष संग्रहों का स्थानांतरण अथवा डिजिटल पहुँच

उदाहरण के रूप में, यदि किसी महाविद्यालय पुस्तकालय में बीज प्रौद्योगिकी से संबंधित विशेष संग्रह उपलब्ध है और किसी अन्य में कृषिविज्ञान (Agronomy) पर केंद्रित सामग्री है, तो इन दोनों संग्रहों तक परस्पर पहुँच से विश्वविद्यालय के सभी परिसरों में शैक्षणिक एवं शोध परिणामों में उल्लेखनीय सुधार संभव है।

तकनीकी सूचना सेवाएँ

SKNAU पुस्तकालयों के मध्य निम्नलिखित तकनीकी सेवाओं का साझाकरण किया जा सकता है:

- वर्गीकरण (Classification)
- सूचीकरण (Cataloguing)
- अनुक्रमण (Indexing)
- ग्रंथसूची निर्माण (Bibliography)
- दस्तावेज़ वितरण सेवा (Document Delivery Service)

यद्यपि SKNAU के कुछ संघटक महाविद्यालयों में KOHA पुस्तकालय प्रबंधन प्रणाली का उपयोग पहले से किया जा रहा है, तथापि यदि सभी पुस्तकालय मानक सूचीकरण नियमों एवं वर्गीकरण योजनाओं (जैसे—DDC, AACR2 अथवा RDA) को अपनाएँ, तो निम्नलिखित लाभ प्राप्त किए जा सकते हैं:

- अनावश्यक पुनरावृत्ति की पहचान एवं उससे बचाव
- विश्वविद्यालय-स्तरीय यूनियन कैटलॉग (Union Catalogue) का विकास
- सभी संघटक महाविद्यालयों के लिए स्वचालित खोज एवं पुनःप्राप्ति सुविधा
- ग्रंथसूचियों एवं विषय अनुक्रमण का साझा उपयोग
- नवीन आगमन (New Arrivals) की सूचियों का आदान-प्रदान
- श्रम में कमी एवं कार्यकुशलता में वृद्धि

पुनरुत्पादन एवं दस्तावेज़ वितरण सुविधाएँ

वर्तमान में SKNAU के अंतर्गत अधिकांश पुस्तकालयों में पुनरुत्पादन (Reprographic) सुविधाएँ उपलब्ध हैं, किंतु इनका उपयोग प्रायः केवल स्थानीय आवश्यकताओं तक सीमित रहता है। यदि दस्तावेज़ स्कैनिंग एवं वितरण प्रणालियों (जैसे—ई-मेल या इंटरनेट के माध्यम से PDF वितरण) को सुदृढ़ किया जाए, तो SKNAU एक प्रभावी अंतर-पुस्तकालय दस्तावेज़ वितरण सेवा (Inter-Library Document Delivery Service – IDDS) स्थापित कर सकता है।

इस व्यवस्था के अंतर्गत निम्नलिखित लाभ प्राप्त होंगे:

- दूरस्थ परिसरों के छात्र केंद्रीय पुस्तकालय में उपलब्ध दुर्लभ सामग्री तक पहुँच प्राप्त कर सकेंगे
- संकाय सदस्य अन्य महाविद्यालयों में उपलब्ध शोध-पत्रों, प्रतिवेदनों एवं ग्रे साहित्य का उपयोग कर सकेंगे
- उन्नत क्लाउड-आधारित प्लेटफार्मों एवं केंद्रीकृत फ़ाइल-साझाकरण उपकरणों (जैसे—Google Drive, DSpace) का प्रभावी उपयोग
- ICAR की डिजिटल रिपॉजिटरी, विशेष रूप से **Krishikosh**, के साथ एकीकरण

SKNAU डिजिटल संसाधन-साझाकरण नेटवर्क की ओर अग्रसर होना

डिजिटल इंडिया, *वन नेशन वन सब्सक्रिप्शन (ONOS)* तथा *विकसित भारत अभियान* जैसी राष्ट्रीय पहलें एक समावेशी एवं डिजिटल रूप से संबद्ध अकादमिक परिवेश के निर्माण की दिशा में कार्यरत हैं। इन पहलों के संदर्भ में SKNAU के पास निम्नलिखित अवसर उपलब्ध हैं:

- एक सहयोगात्मक पुस्तकालय कंसोर्टियम मॉडल का विकास
- इस मॉडल के माध्यम से मुद्रित एवं डिजिटल दोनों प्रकार के संग्रहों का साझाकरण
- SKNAU के संकाय सदस्यों, शोधार्थियों एवं छात्रों को निर्बाध सूचना पहुँच प्रदान करना

इस प्रकार का डिजिटल संसाधन-साझाकरण नेटवर्क न केवल सीमित संसाधनों के सर्वोत्तम उपयोग को सुनिश्चित करेगा, बल्कि राजस्थान एवं भारत के कृषि विश्वविद्यालयों में अकादमिक सहयोग का एक आदर्श मानक भी स्थापित करेगा।

SKNAU में संसाधन-साझाकरण

Factor	Current Status	Recommendation
Resource transparency	Partially available	Develop a union catalog via KOHA
Collection size disparity	Central vs. college libraries	Use interlibrary loan + subject specialization
Staff for technical services	More staff required	Centralize classification and cataloguing
Standard cataloging practice	Not yet unified	Implement DDC + RDA across libraries
Document delivery	Only for local users	Digitise & create an IDDS system
Digital repository access	CeRA and Krishikosh supported	Full integration & federated access

राजस्थान में SKNAU के कृषि पुस्तकालयों में संसाधन साझाकरण के क्षेत्र

वर्तमान में राजस्थान में कृषि शिक्षा, अनुसंधान एवं विस्तार गतिविधियाँ राज्य कृषि विश्वविद्यालयों द्वारा संचालित की जाती हैं, जिनमें श्री करन नरेंद्र कृषि विश्वविद्यालय (SKNAU), जोबनेर तथा इसके संबद्ध महाविद्यालय एवं अनुसंधान केंद्र प्रमुख हैं। कृषि संस्थान भारत एवं राजस्थान में शिक्षा, नवाचार तथा विस्तार गतिविधियों में महत्वपूर्ण भूमिका निभाते हैं।

इस अध्ययन का क्षेत्र SKNAU के अंतर्गत आने वाले पुस्तकालयों तक सीमित है, जो जोबनेर, फतेहपुर, भरतपुर, लालसोट, झालावाड़ सहित राजस्थान के विभिन्न परिसरों में स्थित हैं। पत्रिकाओं की आवर्ती सदस्यता लागत, विशेषकर विदेशी प्रकाशनों की, प्रतिवर्ष लगभग 15–20 प्रतिशत की दर से निरंतर बढ़ रही है। अनेक आवश्यक क्रमिक प्रकाशन (Serials)—जैसे CAB Abstracts, Advances तथा अनूदित वैज्ञानिक साहित्य—अब भी अधिकांश पुस्तकालयों में उपलब्ध नहीं हैं। इस प्रकार की सूचना-अंतराल

को संसाधन साझाकरण एवं सहयोगात्मक अधिग्रहण योजना के माध्यम से प्रभावी ढंग से पाटा जा सकता है, ताकि कम से कम एक प्रति SKNAU प्रणाली के किसी न किसी पुस्तकालय में उपलब्ध हो। इन चुनौतियों को ध्यान में रखते हुए SKNAU के पास राजस्थान में एक आदर्श संसाधन-साझाकरण कार्यक्रम का नेतृत्व करने की व्यापक संभावना है, जिसे निम्नलिखित राष्ट्रीय पहलों का समर्थन प्राप्त है:

- सरकार की डिजिटल इंडिया अवसंरचना
- डिजिटल सूचना पहुँच हेतु वन नेशन वन सब्सक्रिप्शन (ONOS)
- विकसित भारत अभियान के अंतर्गत राष्ट्रीय दृष्टिकोण

SKNAU पुस्तकालयों के लिए सुझाई गई सहयोगात्मक गतिविधियाँ

SKNAU के अंतर्गत संसाधन साझाकरण मॉडल को सुदृढ़ एवं औपचारिक रूप देने के लिए निम्नलिखित सहयोगात्मक गतिविधियाँ प्रस्तावित की जाती हैं:

सहयोगात्मक अधिग्रहण (विषय-विशेषीकरण के आधार पर)

व्यक्तिगत पुस्तकालयों की सीमित वित्तीय क्षमता एक प्रमुख चुनौती है। इसके समाधान हेतु विषय-आधारित अधिग्रहण योजना अपनाई जानी चाहिए, जिसके अंतर्गत प्रत्येक पुस्तकालय विशिष्ट विषय क्षेत्रों में संसाधनों का अधिग्रहण करे। उदाहरणस्वरूप:

- SKN कॉलेज ऑफ एग्रीकल्चर, जोबनेर — कृषिविज्ञान एवं मृदा विज्ञान
- कॉलेज ऑफ एग्रीकल्चर, भरतपुर — बागवानी एवं पादप रोग विज्ञान
- लालसोट अथवा फतेहपुर परिसर — कृषि-व्यवसाय प्रबंधन एवं बीज प्रौद्योगिकी
- कॉलेज ऑफ डेयरी साइंस एंड टेक्नोलॉजी — दुग्ध उत्पाद एवं प्रौद्योगिकी

अनावश्यक पुनरावृत्ति से बचते हुए एवं समन्वित अधिग्रहण योजना के माध्यम से SKNAU विभिन्न विषयों में **समग्र संग्रह विकास** सुनिश्चित कर सकता है।

अंतर-पुस्तकालय ऋण एवं संसाधन साझाकरण

विषय-विशेषीकृत अधिग्रहण मॉडल के प्रभावी क्रियान्वयन के लिए एक सशक्त अंतर-पुस्तकालय ऋण (ILL) प्रणाली अनिवार्य होगी। इसके लिए:

- ऋण अवधि, उधार सीमा एवं प्राथमिकता प्रोटोकॉल हेतु एक सहमति आधारित आचार संहिता विकसित की जानी चाहिए
- केंद्रीय पुस्तकालय, जोबनेर में एक केंद्रीय ILL डेस्क की स्थापना की जा सकती है
- **10.3** यूनियन कैटलॉग एवं ग्रंथसूची डेटाबेस का विकास/Development of Union Catalogue and Bibliographic Database
- SKNAU के सभी पुस्तकालयों की संपूर्ण सामग्री का एक **यूनियन कैटलॉग** तैयार कर उसे नियमित रूप से अद्यतन किया जाना चाहिए
- मानकीकृत सूचीकरण हेतु सभी पुस्तकालयों में **KOHA प्लेटफॉर्म** का उपयोग किया जाना चाहिए
- साझा ग्रंथसूची अभिलेखों से पुनरावृत्ति कम होगी तथा दस्तावेज़ खोज प्रक्रिया में तीव्रता आएगी

प्रकाशनों एवं डुप्लीकेट संसाधनों का आदान-प्रदान

SKNAU के अनेक पुस्तकालयों में डुप्लीकेट प्रतियाँ अथवा अल्प-उपयोगी संसाधन उपलब्ध हैं। इनके लिए एक औपचारिक तंत्र विकसित किया जाना चाहिए, जिससे:

- पुस्तकालयों के मध्य सामग्री का आदान-प्रदान संभव हो
- संग्रह में विद्यमान रिक्तताओं की पूर्ति की जा सके
- विभागीय संग्रहों को सुदृढ़ किया जा सके

ग्रंथसूची एवं पुनरुत्पादन सेवाएँ

पुस्तकालयों को निम्नलिखित सेवाओं में सहयोग करना चाहिए:

- ग्रंथसूचियों, प्रलेखन सूचियों एवं विषय अनुक्रमण का निर्माण एवं आदान-प्रदान
- केंद्रीकृत छायाप्रति एवं स्कैनिंग सेवाएँ
- शोध-प्रबंधों, दुर्लभ प्रतिवेदनों एवं क्षेत्रीय भाषा सामग्री हेतु परिसरों के मध्य दस्तावेज़ वितरण

स्टाफ प्रशिक्षण एवं क्षमता निर्माण

सहयोगात्मक पुस्तकालय नेटवर्क के प्रभावी क्रियान्वयन हेतु आवश्यक है:

- प्रशिक्षित एवं दक्ष मानव संसाधन
- डिजिटल पुस्तकालय प्रबंधन पर अल्पकालिक प्रशिक्षण कार्यक्रम
- सूचीकरण, मेटाडेटा प्रबंधन एवं डिजिटल साक्षरता में दक्षता

इस संदर्भ में केंद्रीय पुस्तकालय, जोबनेर एक संसाधन एवं प्रशिक्षण केंद्र के रूप में कार्य कर सकता है, जो कार्यशालाओं एवं इंटरनशिप के माध्यम से अन्य पुस्तकालयों को सहयोग प्रदान करेगा।

क्षेत्रीय सूचना केंद्र की स्थापना (दीर्घकालिक दृष्टि)

जब आधारभूत प्रणालियाँ सुदृढ़ हो जाएँ, तब SKNAU एक क्षेत्रीय कृषि सूचना एवं ज्ञान केंद्र की स्थापना कर सकता है। यह केंद्र:

- सभी संघटक महाविद्यालयों को सेवाएँ प्रदान करेगा
- लाइसेंस प्राप्त डिजिटल सामग्री तक दूरस्थ पहुँच सुनिश्चित करेगा
- प्रशिक्षण, नीति क्रियान्वयन एवं समन्वय का कार्य करेगा
- SKNAU के शोध-उत्पादों एवं डेटा रिपॉजिटरी के लिए एक डिजिटल प्रवेश द्वार के रूप में कार्य करेगा

Areas for Resource Sharing at SKNAU

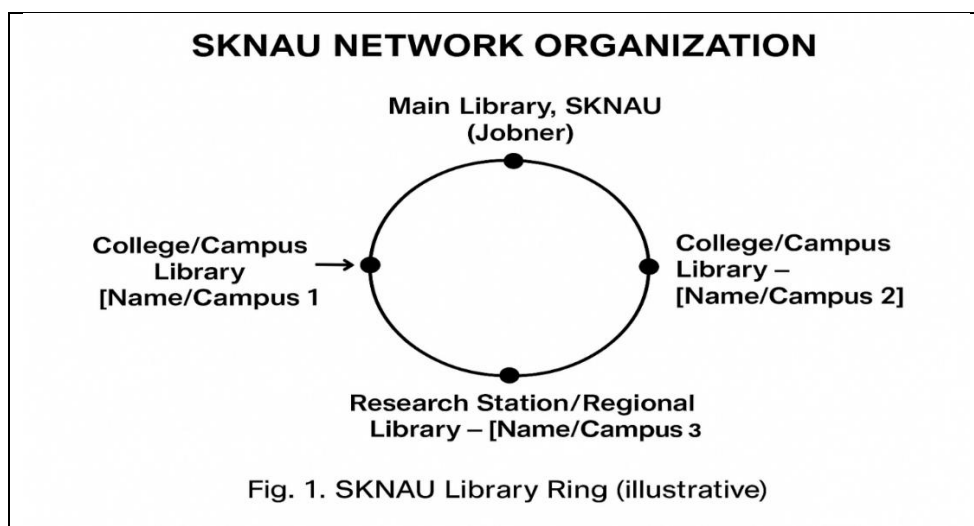
Area	Proposed Action
Acquisition	Subject-based cooperative purchasing plan
Interlibrary Loan	SKNAU-wide ILL system with code of practice
Union Catalogue	KOHA-based shared catalog updated regularly
Exchange of Publications	Redistribution of duplicates and excess copies
Bibliographic Services	Jointly prepared subject bibliographies and documentation lists
Document Delivery	Shared reprographic/digital services for seamless access
Staff Development	Training programmes through Central Library or via ICAR/NAARM partnerships

नेटवर्क संगठन

श्री करन नरेंद्र कृषि विश्वविद्यालय (SKNAU) के पुस्तकालयों के लिए एक साझा कंप्यूटर नेटवर्क, विश्वविद्यालय के अंतर्गत आने वाले संघटक पुस्तकालयों के मध्य संसाधन साझाकरण को सक्षम बनाने का एक प्रभावी माध्यम है। चूँकि ये सभी पुस्तकालय एक ही विश्वविद्यालय प्रणाली के अंतर्गत कार्य करते हैं तथा समान नीतियों एवं प्रशासनिक ढाँचे का पालन करते हैं, इसलिए एक **सरल, विश्वसनीय एवं कम लागत वाली नेटवर्क टोपोलॉजी** ऑनलाइन ई-संसाधनों, यूनियन कैटलॉग एवं अंतर-पुस्तकालय सेवाओं तक निर्बाध पहुँच सुनिश्चित कर सकती है।

प्रस्तावित मॉडल: रिंग (लूप) टोपोलॉजी

रिंग (लूप) नेटवर्क (आकृति 1) में प्रत्येक सहभागी पुस्तकालय अपने दो निकटवर्ती पुस्तकालयों से जुड़ा होता है, जिससे एक बंद वृत्त (Closed Circle) का निर्माण होता है। इस व्यवस्था में प्रत्येक नोड न केवल अपने निर्दिष्ट विषय क्षेत्रों के संसाधनों को संरक्षित करता है, बल्कि उन्हें अन्य नोड्स के साथ साझा भी करता है। इस मॉडल के अंतर्गत सभी पुस्तकालय **संगत एवं एकीकृत प्रौद्योगिकियों**—जैसे साझा पुस्तकालय प्रबंधन प्रणाली (Integrated Library System), डिस्कवरी टूल्स तथा प्रमाणीकृत ई-संसाधन पहुँच—के माध्यम से परस्पर सहयोग करते हैं। यह नेटवर्क संरचना संसाधनों की दृश्यता बढ़ाने, सूचना प्रवाह को सुगम बनाने तथा SKNAU के सभी परिसरों में समान शैक्षणिक समर्थन उपलब्ध कराने में सहायक सिद्ध हो सकती है।



- Main Library, SKNAU (Jobner)
- College/Campus Library – [Name/Campus 1]
- College/Campus Library – [Name/Campus 2]
- Research Station/Regional Library – [Name/Campus 3]

SKNAU में संसाधन-साझेदारी को प्रभावित करने वाले कारक

प्रभावी संसाधन-साझेदारी के लिए यह आवश्यक है कि उपलब्ध सभी संसाधनों—पुस्तकें, शोध-पत्रिकाएँ, सम्मेलन कार्यवृत्त, शोध-प्रबंध, प्रतिवेदन तथा डिजिटल संग्रह—की **पूर्ण, पारदर्शी एवं मानकीकृत प्रलेखन व्यवस्था** हो। SKNAU के विभिन्न पुस्तकालयों में संग्रह-आकार, मानव संसाधन तथा तकनीकी तत्परता के स्तर में पर्याप्त भिन्नता पाई जाती है। केंद्रीय पुस्तकालय (जोबनेर) में **50,000 से अधिक सूचना सामग्री** उपलब्ध है, जबकि अधिकांश संघटक महाविद्यालय पुस्तकालयों में संग्रह-संख्या **50,000 से कम** है।

मुख्य सहायक कारक

- KOHA (क्लाउड-आधारित पुस्तकालय प्रबंधन प्रणाली) का उपयोग
- CeRA तथा Krishikosh तक पहुँच
- मूलभूत पुनरुत्पादन (Reprographic) सुविधाओं की उपलब्धता
- संकाय सदस्यों एवं विद्यार्थियों में बढ़ती डिजिटल साक्षरता

मुख्य बाधाएँ

- कैटलॉगिंग का मानकीकरण न होना
- पुस्तकालयों के बीच बजट में असमानता
- तकनीकी प्रसंस्करण हेतु प्रशिक्षित स्टाफ की कमी

निष्कर्ष

SKNAU पुस्तकालयों के लिए प्रस्तावित संसाधन-साझेदारी मॉडल सूचना तक पहुँच को सुदृढ़ करने, अनुसंधान सहयोग को मजबूत करने तथा संसाधनों के सर्वोत्तम उपयोग हेतु एक **रणनीतिक मार्ग** प्रस्तुत करता है। SKNAULIS की स्थापना, कैटलॉगिंग मानकों का एकीकरण, सहयोगात्मक अधिग्रहण प्रणाली का क्रियान्वयन तथा यूनियन कैटलॉग के विकास के माध्यम से SKNAU अपने पुस्तकालयों को एक **सुसंगठित, डिजिटल रूप से सशक्त और सहयोगात्मक नेटवर्क** में परिवर्तित कर सकता है। इस अध्ययन में प्रस्तावित नेटवर्किंग एवं सहयोगात्मक ढाँचा **डिजिटल इंडिया, वन नेशन वन सब्सक्रिप्शन (ONOS) तथा विकसित भारत अभियान** जैसी राष्ट्रीय पहलों के साथ पूर्णतः सामंजस्य रखता है। यदि इसे योजनाबद्ध एवं चरणबद्ध ढंग से लागू किया जाए, तो यह राजस्थान एवं भारत के अन्य कृषि विश्वविद्यालयों के लिए एक **आदर्श संसाधन-साझेदारी मॉडल** के रूप में स्थापित हो सकता है। SKNAU, जोबनेर के पुस्तकालयों के लिए सुझाया गया संसाधन-साझेदारी कार्यक्रम सूचना स्रोतों की दृष्टि से अत्यंत समृद्ध है। वर्तमान में पुस्तकालयों के बीच **ग्रंथसूची एवं तकनीकी सहयोग** मुख्यतः मैनुअल स्तर पर किया जा रहा है। प्रस्तावित नेटवर्किंग कार्यक्रम SKNAU की विभिन्न पहलों के माध्यम से कृषि विकास हेतु आवश्यक **वैज्ञानिक अनुसंधान एवं प्रशिक्षण समर्थन** प्रदान करेगा तथा विभिन्न परिसरों में उपलब्ध संसाधनों के समुचित उपयोग द्वारा **कम लागत में प्रभावी सूचना सेवाएँ** उपलब्ध कराने में सहायक सिद्ध होगा।

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जैन विश्व भारती संस्थान के वर्धमान ग्रंथागार की पांडुलिपि संरक्षण में विशिष्ट भूमिका

लाजवन्ति जैन

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Summary

प्रस्तुत शोध का केंद्र बिंदु पुस्तकालय की अवधारणा, उसकी सामाजिक एवं शैक्षिक भूमिका तथा जैन विश्व भारती संस्थान के 'वर्धमान ग्रंथागार' का विश्लेषणात्मक अध्ययन है। प्राचीन काल से ही पुस्तकालय मानव सभ्यता के ज्ञान-संरक्षण के प्रमुख केंद्र रहे हैं। मनुष्य ने अपने बौद्धिक, सांस्कृतिक एवं आध्यात्मिक अनुभवों को सुरक्षित रखने के लिए पुस्तकालयों की स्थापना की, जिससे भावी पीढ़ियाँ उस ज्ञान से लाभान्वित हो सकें। पुस्तकालय केवल पुस्तकों का संग्रहालय नहीं, बल्कि ज्ञान के संरक्षण, संवर्धन एवं प्रसार का सक्रिय माध्यम है। आधुनिक युग में डिजिटल तकनीक के समावेश ने पुस्तकालय सेवाओं को अधिक व्यापक, सुलभ एवं प्रभावी बना दिया है। आज पुस्तकालय पारंपरिक मुद्रित सामग्री के साथ-साथ ई-पुस्तकें, डिजिटल आर्काइव, ऑनलाइन डेटाबेस एवं मोबाइल ऐप के माध्यम से भी सेवाएँ प्रदान कर रहे हैं। शोध में पुस्तकालयों के प्रमुख प्रकार सार्वजनिक, शैक्षिक एवं विशिष्ट का विवेचन किया गया है। सार्वजनिक पुस्तकालय समाज के प्रत्येक वर्ग को समान अवसर प्रदान करते हैं। शैक्षिक पुस्तकालय विद्यालय, महाविद्यालय एवं विश्वविद्यालय स्तर पर अध्ययन एवं अनुसंधान के केंद्र होते हैं। विशिष्ट पुस्तकालय किसी विशेष विषय या संस्थान के उद्देश्य से स्थापित किए जाते हैं। इसी परिप्रेक्ष्य में वर्धमान ग्रंथागार का अध्ययन विशेष रूप से महत्वपूर्ण है। यह ग्रंथागार न केवल जैन धर्म के साहित्य का भंडार है, बल्कि एक बहुआयामी ज्ञान-केंद्र के रूप में कार्य कर रहा है। इसकी स्थापना आचार्य आचार्य श्री तुलसी की दूरदर्शी सोच का परिणाम है। यह ग्रंथागार जैन धर्म, दर्शन, प्राकृत, संस्कृत, भारतीय संस्कृति तथा अन्य धार्मिक एवं दार्शनिक विषयों के विशाल संग्रह से समृद्ध है। ग्रंथागार में लगभग 76,000 से अधिक पुस्तकों के साथ हजारों पांडुलिपियाँ संरक्षित हैं। विशेष रूप से 6650 से अधिक पांडुलिपियों का संरक्षण एवं डिजिटलीकरण किया गया है। स्वर्णाक्षरों में लिखित 'कल्पसूत्र' ग्रंथ तथा 24 तीर्थंकरों का वर्णन करने वाला 40 फुट लंबा 'पट्ट दर्शन' पांडुलिपि इसकी विशिष्ट धरोहर हैं। यहाँ पांडुलिपि संरक्षण केंद्र स्थापित है, जो भारत सरकार के संस्कृति मंत्रालय के अंतर्गत राष्ट्रीय पांडुलिपि मिशन द्वारा प्रायोजित है। यह राष्ट्रीय स्तर पर महत्वपूर्ण स्थान रखता है। ग्रंथागार की एक अन्य विशेषता इसका आधुनिक तकनीकी उपयोग है। पुस्तकालय प्रबंधन सॉफ्टवेयर, कंप्यूटर लैब, वाई-फाई सुविधा तथा संस्था के 'सम्बोधि' मोबाइल ऐप के माध्यम से ज्ञान को डिजिटल रूप में भी सुलभ बनाया गया है। इस प्रकार यह ग्रंथागार पारंपरिक ज्ञान-संरक्षण और आधुनिक तकनीकी समन्वय का उत्कृष्ट उदाहरण प्रस्तुत करता है। शोध का प्रमुख उद्देश्य जैन धर्म की ज्ञान-परंपरा, साहित्यिक विकास तथा ग्रंथ संरक्षण की ऐतिहासिक प्रक्रिया का विश्लेषण करना है। साथ ही यह अध्ययन यह स्पष्ट करता है कि वर्धमान ग्रंथागार न केवल जैन धर्म की आध्यात्मिक धरोहर का संरक्षक है, बल्कि यह शोध, अध्ययन एवं वैचारिक संवाद का सशक्त केंद्र भी है। अतः प्रस्तुत शोध पुस्तकालय विज्ञान एवं जैन दर्शन के मध्य एक सशक्त सेतु स्थापित करने का प्रयास है, जिससे पारंपरिक ज्ञान-सम्पदा को आधुनिक साधनों के माध्यम से सुरक्षित रखते हुए भावी पीढ़ियों के लिए संरक्षित किया जा सके। इस पुस्तकालय में जैन धर्म के साथ अन्य धर्मों एवं विषयों का तुलनात्मक अध्ययन एवं शोधकार्य किया जा सकता है।

Keywords: जैन धर्म, ग्रंथागार, आगम, ग्रंथ, श्रावक, श्राविकाएं, वांग्मय, श्रमणियां, पांडुलिपियां, कल्पसूत्र, पट्ट दर्शन, बाराबुदूर, संबोधि, संवर्धन, संरक्षण, आध्यात्मिक।

प्रस्तावना

पुस्तकालय प्राचीन काल से ही हमारे समक्ष एक अमूल्य ज्ञान पुंज के रूप में विद्यमान रहे हैं मनुष्य अपने ज्ञान को आने वाली पीढ़ी के लिए पुस्तकालयों के माध्यम से सुरक्षित और संरक्षित रखता आया है पुस्तकालय शब्द का अर्थ पुस्तक + आलय है यह दो शब्दों से मिलकर बना हुआ है जिसका अर्थ है पुस्तकों का घर या वह स्थान जहां पर पुस्तकें रखी जाती हैं यूं तो पुस्तक विक्रेता के पास भी पुस्तकें उपलब्ध होती हैं परन्तु उसको पुस्तकालय नहीं कहा जा सकता है क्योंकि पुस्तकालय का मुख्य उद्देश्य उपयोगकर्ता को सेवार्थ व निशुल्क: पुस्तकें उपलब्ध कराना होता है आज आधुनिक युग में डिजिटल सेवाएं एवं इलेक्ट्रॉनिक मीडिया के द्वारा सेवाओं का और भी विस्तार हो गया है अब तो पुस्तकालय अपनी सेवाएं ऑनलाइन माध्यम से 24 घंटे उपलब्ध करा रहा है पुस्तकालय मुख्यतः तीन प्रकार के होते हैं – सार्वजनिक पुस्तकालय, शैक्षिक पुस्तकालय, विशिष्ट पुस्तकालय मोटे तौर पर यही तीन प्रकार के पुस्तकालय बताए गए हैं इन सभी पुस्तकालयों में अपनी-अपनी प्रकार व भिन्नता के आधार पर विशेषताएं एवं विभिन्नताएं भी विद्यमान होती हैं। सार्वजनिक पुस्तकालय को जनता का विश्वविद्यालय की संज्ञा दी गई है, वह साधारण जनता को बिना किसी भेदभाव के जाति, लिंग, धर्म, आर्थिक स्थिति आदि के आधार पर अलग ना करते हुए समानता के साथ सेवाएं उपलब्ध करवाता है वही शैक्षिक पुस्तकालय के तीन प्रकार मौजूद हैं विद्यालय पुस्तकालय, महाविद्यालय पुस्तकालय और विश्वविद्यालय पुस्तकालय यहां भी तीनों ही पुस्तकालय के प्रकारों के आधार पर उपयोगकर्ताओं में वैशिष्ट्य उपलब्ध होता है शैक्षिक स्तर की भी विभिन्नता पाई जाती है जिसमें स्कूल स्तर पर उपयोगकर्ता स्कूल के विद्यार्थी एवं शिक्षक होते हैं एवं महाविद्यालय में उपयोगकर्ता विद्यार्थी, शिक्षक, शोधार्थी हो सकते हैं विश्वविद्यालय में भी शोधार्थी, विद्यार्थी एवं शिक्षकगण आदि उपयोगकर्ता होते हैं विशिष्ट पुस्तकालय हमेशा किसी विशेष क्षेत्र, उद्देश्य या संगठन विशेष क्षेत्र के लिए बनाया जाता है जैसे बैंक, डिफेंस, कोर्ट, संसद आदि वहां के विशिष्ट व्यक्ति अपने कार्य में सुलभता और अपने कार्यक्षेत्र में विशिष्ट ज्ञान को बढ़ाने के लिए इन पुस्तकालयों का उपयोग करते हैं

परन्तु मैंने अपने शोध कार्य के लिए एक अनुष्ठे पुस्तकालय का चुनाव किया जहाँ पर मुझे पुस्तकालय एवं उपयोगकर्ता दानो का विशिष्टय द्रष्टगत हुआ। एस. आर. रंगनाथन ने भी पुस्तकालयों को त्रिमूर्ती कहा जहां पर पाठक, पुस्तक, कर्मचारियों का संगम एवं सहयोग की बात कही, सर्वपल्ली राधाकृष्णन ने पुस्तकालय को जनता के विश्वविद्यालय की संज्ञा दी है, एवं पुस्तकालय को विश्वविद्यालय का हृदय भी माना गया है। जैन विश्व भारती संस्थान का ग्रंथागार जिसका नाम “वर्धमान ग्रंथागार” है यह पुस्तकालय जैन विश्व भारती संस्थान की गरिमा का एक विशेष कारण है यहां पर विशेषताओं का एक अनूठा संगम अनुभव किया। पुस्तकालय के प्रकार में तो विभिन्नता प्रतीत हुई परन्तु उसके उपयोगकर्ताओं में भी विभिन्नता प्रतीत हुई और इससे प्रभावित हो कर, वर्तमान में अपना शोधकार्य “वर्धमान ग्रंथागार” कि इन्हीं विशेषताओं की ओर आकर्षित होकर आगे बढ़ा रही हूँ। वर्धमान ग्रंथागार अपने आप में त्रिमूर्ति संगम को स्थापित करता है यह ग्रंथालय एक जैन धर्म की धार्मिक धरोहर और ज्ञान को संजोने के लिए बनाया गया यहां सभी विषय के ग्रंथ, साहित्य, दुर्लभ ग्रंथ, धार्मिक ग्रंथ, पांडुलिपियां एवं पट्टचित्र आदि उपलब्ध हैं यह जैन विश्व भारती का प्रमुख और प्रथम भवन भी है यह एक सार्वजनिक पुस्तकालय, शैक्षणिक पुस्तकालय, विशिष्ट पुस्तकालय तीनों ही प्रकार कि भूमिका को निभा रहा है जहां पर उपयोगकर्ता भी सभी प्रकार के हैं जिसमें जैन धर्म के श्रावक—श्राविकाएं, आम निवासी, विश्वविद्यालय के विद्यार्थी, शोधार्थी, शिक्षक एवं धार्मिक विशिष्टता के लिए साधु—संत, श्रमण—श्रमणियां तथा विद्वान लोग विदेशों से भी अपने ज्ञान की जिज्ञासा को शांत करने आते हैं, यह पुस्तकालय अपने स्थापना काल से अब तक निरंतर विकास और आधुनिकता की ओर अग्रसर हो रहा है यहां का संग्रह तो अपने आप में ज्ञान का बहुमूल्य विशाल सागर है यहां पर जैन धर्म और अध्यात्म, एवं तेरापंथ का भरपूर साहित्य संग्रहित है।

वर्धमान ग्रंथागार के संदर्भ में पांडुलिपियों का संरक्षण एवं संवर्धन एवं महत्व

भारतीय ज्ञान-परंपरा में पांडुलिपियाँ बौद्धिक, सांस्कृतिक एवं आध्यात्मिक विरासत की संवाहक रही हैं। जैन धर्म के संदर्भ में इनका महत्व और भी अधिक बढ़ जाता है, क्योंकि जैन दर्शन, आगमिक साहित्य, टीकाएँ, भाष्य, चरित्र-ग्रंथ तथा दार्शनिक विवेचन मुख्यतः हस्तलिखित पांडुलिपियों के माध्यम से ही पीढ़ी-दर-पीढ़ी संरक्षित होते आए हैं। इस अमूल्य ज्ञान-धरोहर के संरक्षण एवं संवर्धन में जैन विश्व भारती संस्थान के अंतर्गत स्थित वर्धमान ग्रंथागार की भूमिका अत्यंत महत्वपूर्ण है। वर्धमान ग्रंथागार जैन धर्म से संबंधित दुर्लभ हस्तलिखित पांडुलिपियों, प्राचीन ग्रंथों एवं संदर्भ साहित्य का एक समृद्ध भंडार है। यहाँ संरक्षित पांडुलिपियाँ न केवल धार्मिक आस्थाओं को प्रतिबिंबित करती हैं, बल्कि वे भारतीय दर्शन, नैतिक मूल्यों, भाषा-विकास, लिपि-परंपरा तथा तत्कालीन सामाजिक-सांस्कृतिक परिवेश को समझने का भी सशक्त माध्यम हैं। इस दृष्टि से वर्धमान ग्रंथागार एक साधारण ग्रंथ-संग्रह नहीं, बल्कि जैन बौद्धिक परंपरा का जीवंत केंद्र है।

पांडुलिपियों का संरक्षण – वर्धमान ग्रंथागार में संरक्षित अधिकांश पांडुलिपियाँ अत्यंत प्राचीन, दुर्लभ एवं संवेदनशील प्रकृति की हैं, जिन पर समय, जलवायु, आर्द्रता, कीट-प्रकोप तथा भौतिक क्षरण का निरंतर प्रभाव पड़ता है। अतः इन पांडुलिपियों का वैज्ञानिक संरक्षण अनिवार्य हो जाता है। ग्रंथागार द्वारा नियंत्रित तापमान एवं आर्द्रता, कीट-नियंत्रण, सुरक्षित भंडारण, मरम्मत एवं पुनर्संरचना जैसी विधियों के माध्यम से इस अमूल्य धरोहर को सुरक्षित रखने का प्रयास किया जा रहा है। संरक्षण की यह प्रक्रिया न केवल भौतिक सुरक्षा तक सीमित है, बल्कि ज्ञान-परंपरा की निरंतरता को बनाए रखने का भी माध्यम है।

वर्धमान ग्रंथागार, जैन विश्व भारती संस्थान एक परिचय

वर्धमान ग्रंथागार, नागौर जिले के लाडनू शहर में जैन विश्व भारती संस्थान के परिसर में अवस्थित है जैन विश्व भारती की स्थापना आचार्य श्री तुलसी के द्वारा की गई। आचार्य श्री तुलसी तेरापंथ धर्मसंघ के नौवें आचार्य थे। उन्होंने सन् 1970 में जैन विश्व भारती की स्थापना की आचार्य श्री तुलसी महान संत व दूरद्रष्टा तथा “अणुव्रत आंदोलन” के प्रवर्तक थे। उनका चिंतन और जीवन दोनों ही मानव कल्याणकारी थे।

उनके अथक प्रयासों से जैन विश्व भारती का उद्भव हुआ। आचार्य श्री जैन विश्व भारती के माध्यम से ऐसा मंच से तैयार करना चाहते थे जहां पर जैन दर्शन और तेरापंथ धर्म संघ के मौलिक सिद्धांतों पर नए सिरे से चिंतन और मनन हो सके और लोग तत्त्वार्थ दर्शन, जैन, वांग्मय में विविध अंगों/उपागों पर सूक्ष्म विश्लेषण विचार विमर्श आदि करें, इसी उद्देश्य को सार्थक करने के लिए सन् 1973 में ग्रंथालय की आधारशिला तैयार हुई और सन् 1975 में इसका उद्घाटन तत्कालीन महामहिम उपराष्ट्रपति बी.डी. जत्ती के करकमलो से हुआ। सन् 1991 में जैन विश्व भारती को विश्वविद्यालय का दर्जा प्राप्त हुआ जब से यह पुस्तकालय विश्वविद्यालय के केंद्रीय पुस्तकालय के रूप में विख्यात हुआ। निरंतर प्रयासों और विकास से आज यहां पर विभिन्न विषयों से संबंधित 76,000 के लगभग पाठ्य सामग्री संग्रहित है इस पुस्तकालय में विश्वस्तरीय पुस्तकों के साथ प्राचीन भारतीय साहित्य, जैन विद्या, प्राकृत, संस्कृत, धर्म, दर्शन, गणित, ज्योतिष आदि के साथ दुर्लभ ग्रंथ एवं पांडुलिपियों का संग्रह भी मौजूद है यह ग्रंथालय विभिन्न शोधार्थियों, अध्यापकों, स्वाध्याय करने वालों और ज्ञान में रुचि रखने वालों के लिए आकर्षण का केंद्र और जैन साधु-संतों के शिक्षा प्राप्ति का स्रोत बना हुआ है यहां पर आधुनिक तकनीकी युक्त कंप्यूटर, संचार सुविधाएं, वाई-फाई, सी.सी.टी.वी. कैमरा, स्कैनर, फोटोकॉपी मशीन, कंप्यूटर लैब, तकनीकी विभाग आदि की सेवाएं उपलब्ध है पुस्तकालय प्रबंधन एवं बुक ट्रांजैक्शन हेतु इनपिलबनेट का नवनिर्मित वर्जन सॉल 3.0 सोफ्टवेयर का उपयोग किया जा रहा है। यह अपनी संस्थागत रिपोजिटरी बना रहा है। जैन विश्व भारती संस्थान का अपना एक ‘संबोधि’ नामक मोबाइल ऐप भी उपलब्ध है। इस ऐप के माध्यम से कोई भी व्यक्ति घर बैठे जैन धर्म एवं तेरापंथ से संबंधित विभिन्न ग्रंथों का अध्ययन कर सकता है। इसमें साधु-साधवियों, संतों तथा शिक्षकों-श्रावकों द्वारा लिखित पुस्तकों का समावेश किया गया है। यह ऐप जैन धर्म के सिद्धांतों, आचार-विचार एवं आध्यात्मिक मूल्यों के प्रसार में महत्वपूर्ण भूमिका निभा रहा है। इस प्रकार ‘संबोधि’ ऐप डिजिटल माध्यम से जैन साहित्य को जन-सामान्य तक सुलभ कराने का एक सशक्त साधन सिद्ध हो रहा है।

वर्धमान ग्रंथागार के दुर्लभ ग्रंथ एवं विशेषताएं

प्राचीन एवं दुर्लभ हस्तलिखित ग्रंथों के संरक्षण के लिए यहाँ स्थापित 'श्रुत-सन्निधि' कक्ष में संचालित पांडुलिपि संरक्षण केन्द्र बनाया गया है यह केन्द्र सम्पूर्ण देश में जैन साहित्य के संरक्षण हेतु एक विशिष्ट स्थान रखता है। यह भारत सरकार के संस्कृति मंत्रालय के अंतर्गत राष्ट्रीय पांडुलिपि मिशन द्वारा प्रायोजित है। इस केन्द्र में विविध विषयों से संबंधित लगभग 6650 पांडुलिपियाँ सुरक्षित रूप से संरक्षित हैं। जिसमें आसपास के क्षेत्र, घरों, मंदिरों, उपाश्रयों एवं आश्रमों, संतो, पुजारीयो आदि से मिलने वाले दुर्लभ ग्रंथ एवं पांडुलिपियों सुरक्षित व संग्रहित तथा डिजिटलीकरण किया जा रहा है। जिससे वह उपयोगकर्ताओं को दिखाने के समय खराब ना हो। इसके अतिरिक्त लगभग 545 प्राचीन हस्तलिखित पोथियाँ भी यहाँ उपलब्ध हैं। इन पांडुलिपियों में जैन आगम, दर्शन, साहित्य, आयुर्वेद, ज्योतिष, व्याकरण, मंत्र-तंत्र, आचारशास्त्र, कोष तथा अन्य विषयों से संबंधित बहुमूल्य ग्रंथ सम्मिलित हैं।

ग्रंथालय में विशेष रूप से 1402 आगम पांडुलिपियाँ तथा 486 जैन विद्या एवं दर्शन से संबंधित हस्तलिखित ग्रंथ 501 प्राचीन उपदेश ग्रंथ, 489 कथाएं 458 अन्य दर्शन ग्रंथ, 142 आयुर्वेद ग्रंथ, 160 व्याकरण, 339 ज्योतिष, 83 कोश, 298 मंत्र-तंत्र सम्बंधी ग्रंथ, 90 खण्डो का गांधी वागमय, 61 आचार सम्बंधी, 7 खगोल शास्त्र, 7 वैदिक गणित और 1 कामशास्त्र का ग्रंथ आदि यहाँ सुरक्षित हैं। इन ग्रंथों में अधिकांश प्राकृत भाषा में हैं, जबकि कुछ राजस्थानी एवं संस्कृत भाषा में भी उपलब्ध हैं। यहाँ संरक्षित पांडुलिपियों में लगभग 1,77,760 प्राचीन पृष्ठ पूर्णतः डिजिटलीकरण कर सुरक्षित अवस्था में संजोकर रखे गए हैं। संरक्षण की आधुनिक तकनीकों के माध्यम से इन अमूल्य धरोहरों को दीर्घकाल तक सुरक्षित रखने का कार्य किया जा रहा है। केंद्रीय पुस्तकालय पूरे भारत से जैन पांडुलिपियों का डिजिटल संग्रह भी बना रहा है। यह कार्य ग्रंथालय के प्रबंधन ने स्वयं के संग्रह 6000 पांडुलिपियों, राजस्थान ओरिएंटल रिसर्च इंस्टीट्यूट-जोधपुर, चित्तौड़गढ़ से पूरा कर लिया है और बीकानेर और उज्जैन में काम चल रहा है। पांडुलिपियों की सीडी का कुल संग्रह 300 है।

श्री कल्पसूत्र – यहा पर स्वर्णाक्षरों में लिखित 'श्री कल्पसूत्र' पांडुलिपि वर्धमान ग्रंथागार की अत्यंत विशिष्ट और दुर्लभ धरोहरों में सम्मिलित है। 'कल्पसूत्र' जैन आगम परंपरा का एक महत्वपूर्ण ग्रंथ है, जिसमें विशेषतः 24 तीर्थंकरों, विशेषकर भगवान महावीर, के जीवन, चातुर्मास, आचार-विधि तथा मुनि-संघ की परंपराओं का वर्णन मिलता है। इस पांडुलिपि की विशेषता इसके स्वर्ण-लेखन में निहित है। इसके अक्षरों को स्वर्ण-स्याही से अंकित किया गया है, जिससे न केवल इसकी सौंदर्यात्मक गरिमा बढ़ती है, बल्कि यह उस काल की ललित-लेखन एवं चित्रांकन परंपरा का भी उत्कृष्ट उदाहरण प्रस्तुत करती है। पांडुलिपि में रंगीन लघु-चित्र, प्राकृतिक रंगों का प्रयोग तथा अलंकरण सीमाएँ इसकी कलात्मक महत्ता को और अधिक समृद्ध करती हैं। ऐसी पांडुलिपियाँ सामान्यतः धार्मिक अनुष्ठानों एवं विशेष पर्वों विशेषकर पर्युषण के अवसर पर पाठ के लिए उपयोग में लाई जाती थीं। संरक्षण की दृष्टि से यह पांडुलिपि अत्यंत संवेदनशील है। स्वर्ण-लेखन, प्राकृतिक रंग एवं प्राचीन कागज ताड़पत्र की संरचना समय के साथ क्षरण के प्रति संवेदनशील होते हैं अतः इसे नियंत्रित ताप-आर्द्रता, एसिड-फ्री आवरण तथा डिजिटलीकरण की प्रक्रिया द्वारा सुरक्षित रखा जाता है। इस प्रकार स्वर्णाक्षरों में लिखित 'श्री कल्पसूत्र' पांडुलिपि केवल एक धार्मिक ग्रंथ नहीं, बल्कि जैन कला, लिपिकला, सांस्कृतिक इतिहास एवं आध्यात्मिक परंपरा का जीवंत दस्तावेज है। यह धरोहर वर्धमान ग्रंथागार की विशिष्ट पहचान को और अधिक प्रतिष्ठित करती है।

बाराबुदुर – इस ग्रंथागार की विशेषता इसके दुर्लभ एवं विशिष्ट संग्रह में निहित है। इंडोनेशिया के जावा नगर के मंदिरों से संबंधित "बाराबुदुर" विषयक ग्रंथ को अत्यंत दुर्लभ माना जाता है। इसके लेखक एफ. सी. वॉन ओर्ट और प्रकाशक मार्टिनस निहॉफ हैं। पाँच खंडों में प्रकाशित इस ग्रंथ में लगभग 5000 पृष्ठों में विस्तृत विवरण एवं चित्रात्मक सामग्री संग्रहीत है। जैन विश्व भारती ने 1985 में इसे कोलकाता से क्रय कर ग्रंथागार को प्रदान किया। यह तथ्य दर्शाता है कि संस्थान केवल धार्मिक साहित्य तक सीमित नहीं है, बल्कि अंतरराष्ट्रीय सांस्कृतिक और ऐतिहासिक अध्ययन को भी महत्व देता है।

पट्ट दर्शन – इसी प्रकार यहाँ लगभग 40 फुट लंबा हस्तलिखित 'पट्ट दर्शन' भी सुरक्षित रूप से संरक्षित है, जो अपने आप में एक अद्वितीय सांस्कृतिक धरोहर है। इस विशाल चित्रपट में जैन धर्म के 24 तीर्थंकरों का चित्रात्मक एवं

विवरणात्मक अंकन अत्यंत कलात्मक और सुव्यवस्थित ढंग से किया गया है। प्रत्येक तीर्थंकर की प्रतिमा के साथ उनके जीवन प्रसंग, लक्षण, चिह्न, जन्मस्थान तथा आध्यात्मिक विशेषताओं का संक्षिप्त किंतु सारगर्भित वर्णन प्रस्तुत किया गया है। यह चित्रपट न केवल धार्मिक आस्था और साधना का प्रतीक है, बल्कि भारतीय लघुचित्र परंपरा, हस्तलिपि कला तथा पांडुलिपि-संरक्षण की उत्कृष्ट परंपरा का भी द्योतक है। इसमें प्रयुक्त रंग-संयोजन, रेखांकन की सूक्ष्मता तथा लेखन की शुद्धता तत्कालीन कला-कौशल और शास्त्रीय ज्ञान की गहराई को अभिव्यक्त करती है। सांस्कृतिक दृष्टि से यह कृति जैन समाज की दार्शनिक परंपरा, नैतिक मूल्यों तथा आध्यात्मिक आदर्शों के संरक्षण और प्रसार में महत्वपूर्ण भूमिका निभाती है। अतः यह 'पट्ट दर्शन' केवल एक धार्मिक दस्तावेज नहीं, बल्कि कला, इतिहास और संस्कृति का समन्वित एवं अमूल्य साक्ष्य है।

मंत्री मुनि – मंत्रीमुनि द्वारा हस्तलिखित ग्रंथों का भंडार संस्थान में मंत्री मुनि द्वारा संकलित लगभग पाँच से छह हजार हस्तलिखित पांडुलिपियों का विशाल भंडार सुरक्षित है। इन पांडुलिपियों का काल 15वीं शताब्दी से 20वीं शताब्दी तक विस्तृत है, जिससे इनके ऐतिहासिक और सांस्कृतिक महत्व का अनुमान लगाया जा सकता है। यह संग्रह भारतीय ज्ञान-परंपरा के संरक्षण का अद्वितीय उदाहरण है।

राजस्थानी आख्यान साहित्य – राजस्थानी आख्यान साहित्य जैन धर्म संबंधी आगमिक ग्रंथ, टकसाल (विशिष्ट लेखन शैली), तथा विभिन्न टीकाएँ और व्याख्याएँ सम्मिलित हैं। ये ग्रंथ भाषा-विकास, धार्मिक विचारधारा और सांस्कृतिक इतिहास के अध्ययन के लिए अत्यंत उपयोगी स्रोत सिद्ध होते हैं।

यंत्रराज – संस्थान में सुरक्षित "यंत्रराज" नामक संस्कृत ग्रंथ ज्योतिष विषय पर आधारित है, जिसकी रचना विक्रम संवत् 901 में मानी जाती है। इसमें ज्योतिषीय यंत्रों और उनके प्रयोगों का विस्तृत विवेचन मिलता है। वि.स.1929 में श्यामाचार्य ने 46 पृष्ठों को लिपिबद्ध किया है।

चतुर्विंशति स्तवन – "चतुर्विंशति स्तवन" ग्रंथ चौबीस तीर्थंकरों की स्तुति से संबंधित है और भक्ति साहित्य की महत्वपूर्ण कड़ी है। इसको बप्पभट्ट ने इसे 1509 में प्राकृत भाषा में लिपिबद्ध किया है।

मुहूर्त चिंतामणि – ग्रंथ में ज्योतिषीय गणनाओं तथा शुभ-अशुभ समय के निर्धारण का ज्ञान निहित है। इसको 1522 में रामचन्द्र ने संस्कृत में लिपिबद्ध किया है।

आचारांग प्रश्न-वृत्ति – जैन आगम पर आधारित एक महत्वपूर्ण ग्रंथ है, जिसमें मुनियों के आचार-विचार, संयम, रहन-सहन और विहार के नियमों का विस्तार से वर्णन मिलता है। इसको 1595 में पार्श्वचन्द्र ने प्राकृत भाषा में लिपिबद्ध किया है।

ताड़पत्र – श्रीराधा-कृष्ण रासलीला का वर्णन है यह उड़िया भाषा और तमिल भाषा में श्रीमद्भगवत गीता का ताड़पत्र पर अंकित है इसके लिखने तरके व भाषा के आधार पर इसका रचनाकाल 11वीं शताब्दी माना गया है।

निष्कर्ष

प्रस्तुत अध्ययन से यह स्पष्ट होता है कि पुस्तकालय केवल ज्ञान-संग्रह का स्थान मात्र नहीं, बल्कि सांस्कृतिक, बौद्धिक एवं आध्यात्मिक चेतना के संरक्षण एवं संवर्धन का सशक्त माध्यम है। प्राचीन काल से लेकर आधुनिक डिजिटल युग तक पुस्तकालयों ने ज्ञान-परंपरा को सुरक्षित रखने तथा समाज को दिशा प्रदान करने में महत्वपूर्ण भूमिका निभाई है। जैन विश्व भारती संस्थान का 'वर्धमान ग्रंथागार' इस परंपरा का उत्कृष्ट उदाहरण है। यह ग्रंथागार न केवल जैन धर्म, दर्शन एवं तेरापंथ साहित्य का समृद्ध भंडार है, बल्कि यह शोध, अध्ययन एवं वैचारिक संवाद का जीवंत केंद्र भी है। यहाँ संरक्षित हजारों पांडुलिपियाँ, आगम ग्रंथ तथा दुर्लभ हस्तलिखित सामग्री जैन धर्म की प्राचीन ज्ञान-धारा को सुरक्षित रखने में अत्यंत महत्वपूर्ण योगदान दे रही हैं। ग्रंथागार की विशेषता यह है कि यह पारंपरिक ज्ञान-संरक्षण और आधुनिक तकनीकी साधनों का समन्वय प्रस्तुत करता है। पांडुलिपियों का डिजिटलीकरण, आधुनिक पुस्तकालय प्रबंधन प्रणाली तथा ऑनलाइन माध्यमों के द्वारा ज्ञान को व्यापक स्तर पर उपलब्ध कराना इसकी प्रगतिशील दृष्टि को दर्शाता है। इस प्रकार यह ग्रंथागार अतीत और वर्तमान के मध्य एक सशक्त सेतु का कार्य कर रहा है। अध्ययन से यह भी निष्कर्ष निकलता है कि वर्धमान ग्रंथागार सार्वजनिक, शैक्षिक एवं विशिष्ट तीनों प्रकार के पुस्तकालयों की विशेषताओं को समाहित करता है। यह न केवल विद्यार्थियों एवं शोधार्थियों के लिए उपयोगी है,

बालिक साधु-साध्वियों, विद्वानों तथा सामान्य जन के लिए भी समान रूप से ज्ञान का केंद्र है। अतः कहा जा सकता है कि वर्धमान ग्रंथागार जैन धर्म की वैचारिक एवं आध्यात्मिक परंपरा के संरक्षण, प्रसार एवं विकास में महत्वपूर्ण भूमिका निभा रहा है। यह पुस्तकालय विज्ञान और जैन दर्शन के मध्य एक सुदृढ़ सेतु स्थापित करता है तथा पारंपरिक ज्ञान-धरोहर को आधुनिक तकनीक के माध्यम से सुरक्षित एवं सुलभ बनाकर भावी पीढ़ियों के लिए संरक्षित करने का सार्थक प्रयास कर रहा है।



जैन विश्व भारती विश्वविद्यालय



वर्धमान ग्रंथागार



सुवर्णाक्षरीय श्री कल्पसूत्रम्



हस्तलिखित चित्रपट्ट दर्शन



दुर्लभ ग्रंथ

सन्दर्भ

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ज्ञान कॉमन्स: विकसित भारत 2047 के लिए उत्प्रेरक के रूप में पुस्तकालय

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Summary

आज के समय में पुस्तकालय केवल पुस्तकों तक सीमित नहीं रह गए हैं। वे ऐसे सक्रिय और जीवंत केंद्रों के रूप में विकसित हो रहे हैं जहाँ लोग एकत्र होते हैं, विचारों का आदान-प्रदान करते हैं तथा सूचना तक समान और लोकतांत्रिक पहुँच प्राप्त करते हैं। पुस्तकालय आजीवन अधिगम को बढ़ावा देने, समुदायों को जोड़ने और सभी वर्गों के लिए अवसरों के द्वार खोलने में महत्वपूर्ण भूमिका निभाते हैं।

भारत के विकसित भारत 2047 के दृष्टिकोण को साकार करने की दिशा में पुस्तकालय न्यायसंगत शिक्षा, डिजिटल पहुँच, अनुसंधान नवाचार और सशक्त समुदायों के लिए प्रभावी साधन के रूप में उभरते हैं। यह शोधपत्र ज्ञान-आधारित समाज के निर्माण में पुस्तकालयों की भूमिका का विश्लेषण करता है, भविष्य की चुनौतियों एवं अवसरों को रेखांकित करता है तथा पुस्तकालयों को सक्रिय ज्ञान केंद्रों में रूपांतरित करने हेतु व्यावहारिक नीतियाँ और कार्यनीतियाँ प्रस्तुत करता है, जिससे भारत के राष्ट्रीय विकास को गति मिल सके।

Keywords: ज्ञान कॉमन्स, पुस्तकालय, डिजिटल समावेशन, आजीवन अधिगम, विकसित भारत 2047, सूचना तक पहुँच, सामुदायिक सशक्तिकरण

परिचय

भारतीय परिप्रेक्ष्य में विकसित भारत 2047 का उद्देश्य यह सुनिश्चित करना है कि शिक्षा, नवाचार और ज्ञान तक सभी की समान पहुँच हो। इस लक्ष्य की प्राप्ति में पुस्तकालयों की भूमिका केंद्रीय है। अब पुस्तकालय केवल पुस्तकों के भंडार नहीं रहे, बल्कि वे ऐसे मंच बन गए हैं जो लोगों को जोड़ते हैं, नए विचारों को जन्म देते हैं और ज्ञान को समाजोपयोगी बनाते हैं।

समय के साथ-साथ पुस्तकालयों का स्वरूप व्यापक रूप से बदला है। आज वे डिजिटल संसाधनों, सामुदायिक कार्यक्रमों, मेकर-स्पेस तथा अनुसंधान उपकरणों से युक्त हैं। यह परिवर्तन वैश्विक प्रवृत्तियों—जैसे मुक्त पहुँच (Open Access), सहयोगात्मक अधिगम और सामुदायिक विकास—के अनुरूप है। यह शोधपत्र भारत में पुस्तकालयों की उस परिवर्तनकारी भूमिका का अध्ययन करता है जिसके माध्यम से डिजिटल कौशल विकास, अनुसंधान सहयोग और सामाजिक समानता को बढ़ावा दिया जा सकता है।

वैचारिक ढाँचा: ज्ञान कॉमन्स क्या है?

ज्ञान कॉमन्स का तात्पर्य है—

- ऐसा साझा संसाधन तंत्र जहाँ सूचना और सांस्कृतिक सामग्री का सामूहिक रूप से सृजन, संरक्षण और उपयोग किया जाता है।
- जो सामुदायिक मानदंडों, पारदर्शिता, स्थिरता और समान पहुँच की नीतियों द्वारा संचालित होता है।
- जो प्रौद्योगिकी, मानव नेटवर्क और संस्थागत सहयोग से सशक्त होता है।

पुस्तकालय ज्ञान कॉमन्स के लिए आदर्श मंच हैं क्योंकि वे—

- सूचना तक सार्वभौमिक पहुँच सुनिश्चित करते हैं।
- सहयोगात्मक एवं आजीवन अधिगम को प्रोत्साहित करते हैं।
- डिजिटल और सामाजिक समावेशन हेतु सामुदायिक आधार केंद्र के रूप में कार्य करते हैं।

पुस्तकालय और राष्ट्रीय विकास: विकसित भारत 2047 से संबंध

शिक्षा और आजीवन अधिगम पुस्तकालय औपचारिक शिक्षा से आगे बढ़कर—

- विद्यालय, विश्वविद्यालय और वयस्क शिक्षार्थियों के लिए अधिगम संसाधन उपलब्ध कराते हैं।
- साक्षरता, समालोचनात्मक चिंतन और व्यावसायिक कौशल पर कार्यशालाएँ आयोजित करते हैं।
- अनुसंधान और पाठ्यक्रम सुदृढीकरण हेतु शैक्षणिक संस्थानों के साथ सहयोग करते हैं।

डिजिटल समावेशन और प्रौद्योगिकी तक पहुँच तेजी से डिजिटल हो रहे समाज में डिजिटल असमानताएँ बनी हुई हैं। इस संदर्भ में पुस्तकालय—

- निःशुल्क इंटरनेट, कंप्यूटर और डिजिटल साक्षरता प्रशिक्षण प्रदान कर सकते हैं।
- ग्रामीण और वंचित समुदायों को डिजिटल शासन प्रणालियों से जोड़ सकते हैं।
- ई-गवर्नेंस, ई-स्वास्थ्य और ऑनलाइन सेवाओं के केंद्र के रूप में कार्य कर सकते हैं।

अनुसंधान और नवाचार पारिस्थितिकी तंत्र पुस्तकालयों में ज्ञान कॉमन्स नवाचार को बढ़ावा देते हैं—

- मुक्त पहुँच रिपॉजिटरी और अनुसंधान डेटाबेस उपलब्ध कराकर।
- विश्वविद्यालयों, स्टार्ट-अप्स और उद्योग के साथ साझा अनुसंधान मंचों पर सहयोग करके।
- मेकर-स्पेस, डेटा लैब और अंतःविषय सहयोग क्षेत्रों की स्थापना करके।

सांस्कृतिक संरक्षण और सामाजिक समानता पुस्तकालय सांस्कृतिक धरोहर का संरक्षण करते हैं—

- पांडुलिपियों, स्थानीय इतिहास और पारंपरिक ज्ञान का डिजिटलीकरण करके।
- भारत की भाषाई विविधता को प्रतिबिंबित करने वाले बहुभाषी संसाधनों को बढ़ावा देकर।
- समावेशी और सुलभ शैक्षणिक कार्यक्रमों का आयोजन करके।

चुनौतियाँ और बाधाएँ

आधारभूत संरचना की कमी

- ग्रामीण क्षेत्रों में अपर्याप्त ब्रॉडबैंड और डिजिटल सुविधाएँ।
- पुराने भौतिक ढाँचे जो सामुदायिक सहभागिता को सीमित करते हैं।

वित्तीय और नीतिगत सीमाएँ

- आधुनिकीकरण हेतु सीमित बजट आवंटन।
- केंद्र और राज्य स्तर पर खंडित नीतिगत समर्थन।

कौशल अंतर और क्षमता निर्माण

- डिजिटल पुस्तकालय विज्ञान में पेशेवर प्रशिक्षण की आवश्यकता।
- डेटा विज्ञान, मुक्त पहुँच प्रबंधन और सामुदायिक सहभागिता में कौशल की कमी।

सामग्री उपलब्धता और लोकभाषा तक पहुँच

- क्षेत्रीय भाषाओं में गुणवत्तापूर्ण सामग्री की कमी।
- लाइसेंसिंग, कॉपीराइट और ओपन एक्सेस से जुड़ी चुनौतियाँ।

पुस्तकालयों को ज्ञान कॉमन्स में रूपांतरित करने की रणनीतिक रूपरेखा

नीतिगत अनुशंसाएँ

1. राष्ट्रीय पुस्तकालय नवाचार कोष – डिजिटल अवसंरचना, क्षमता निर्माण और सामुदायिक पहुँच के लिए समर्पित कोष।
2. एकीकृत पुस्तकालय नेटवर्क – सार्वजनिक, शैक्षणिक और विशेष पुस्तकालयों को साझा मंच से जोड़ना।
3. मुक्त पहुँच और डिजिटल रिपॉजिटरी – सार्वजनिक रूप से वित्तपोषित अनुसंधान के लिए ओपन एक्सेस अनिवार्य करना।

4. क्षेत्रीय भाषा सामग्री पहल – प्रमुख क्षेत्रीय भाषाओं में डिजिटल सामग्री का विकास।

डिजिटल और सामुदायिक अवसंरचना

- ग्रामीण और वंचित क्षेत्रों में ब्रॉडबैंड विस्तार।
- आधुनिक हार्डवेयर, क्लाउड और सहयोगी उपकरणों की उपलब्धता।

क्षमता निर्माण और पेशेवर विकास

- डिजिटल पुस्तकालय विज्ञान, डेटा क्यूरेशन और ज्ञान प्रबंधन में राष्ट्रीय कार्यक्रम।
- विश्वविद्यालयों और अंतरराष्ट्रीय पुस्तकालय नेटवर्क के साथ साझेदारी।

सामुदायिक सहभागिता मॉडल

- स्थानीय आवश्यकताओं के आधार पर सेवाओं का सह-डिज़ाइन।
- कौशल विकास और नागरिक सहभागिता हेतु लाइब्रेरी लर्निंग सर्कल की स्थापना।

केस स्टडी और श्रेष्ठ अभ्यास

भारत में डिजिटल पुस्तकालय पहल

- राष्ट्रीय डिजिटल पुस्तकालय भारत (NDLI) – एकीकृत पहुँच का उत्कृष्ट उदाहरण।
- राज्य स्तरीय डिजिटल साक्षरता अभियानों में सार्वजनिक पुस्तकालयों की भूमिका।

वैश्विक मॉडल

- नॉर्डिक देशों के सार्वजनिक पुस्तकालयों में सार्वभौमिक डिजिटल पहुँच।
- विश्वविद्यालय पुस्तकालयों में मेकर-स्पेस द्वारा अनुसंधान नवाचार।

प्रभाव का मूल्यांकन

ज्ञान कॉमन्स के रूप में पुस्तकालयों के आकलन हेतु निम्न संकेतकों को अपनाया जा सकता है—

- डिजिटल समावेशन संकेतक (इंटरनेट पहुँच, उपयोगकर्ता सहभागिता)
- अधिगम परिणाम और कौशल उन्नयन
- सामुदायिक सहभागिता और सह-सृजन
- अनुसंधान दृश्यता और मुक्त पहुँच अपनाने की दर

निष्कर्ष

विकसित भारत 2047 के दृष्टिकोण के संदर्भ में यह आवश्यक है कि पुस्तकालयों को अतीत की धरोहर के रूप में नहीं, बल्कि राष्ट्र के ज्ञान पारिस्थितिकी तंत्र की सशक्त धुरी के रूप में पहचाना जाए। पुस्तकालय अपने पारंपरिक स्वरूप से आगे बढ़कर खुलेपन, सामुदायिक सहभागिता और डिजिटल सशक्तिकरण पर आधारित समावेशी ज्ञान कॉमन्स के रूप में विकसित हो सकते हैं, जिससे सूचना की समान पहुँच सुनिश्चित होगी तथा नवाचार और सामाजिक लचीलापन सुदृढ़ होगा।

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भारत में ONOS पहल: अकादमिक पुस्तकालयों की रणनीति और योगदान

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Summary

डिजिटल युग में शैक्षणिक एवं शोध सूचना तक पहुँच किसी भी राष्ट्र की बौद्धिक और वैज्ञानिक प्रगति का आधार बन चुकी है। भारत में उच्च शिक्षा संस्थानों की संख्या में तीव्र वृद्धि के बावजूद सभी संस्थानों को समान गुणवत्ता वाली विद्वतापूर्ण सूचना तक पहुँच उपलब्ध नहीं है। इसी असमानता को दूर करने के उद्देश्य से भारत सरकार द्वारा *वन नेशनल वन सब्सक्रिप्शन* पहल की परिकल्पना की गई है। यह पहल राष्ट्रीय स्तर पर प्रमुख शैक्षणिक प्रकाशकों के ई-जर्नल्स और डेटाबेस के लिए एकीकृत सब्सक्रिप्शन मॉडल प्रदान करती है। इस शोध-पत्र में ONOS पहल की अवधारणा, उद्देश्य और ढाँचे का विश्लेषण करते हुए अकादमिक पुस्तकालयों की रणनीतिक भूमिका और योगदान को रेखांकित किया गया है। अध्ययन यह स्पष्ट करता है कि अकादमिक पुस्तकालय न केवल सूचना संसाधनों के प्रदाता हैं, बल्कि नीति कार्यान्वयन, उपयोगकर्ता प्रशिक्षण, तकनीकी समर्थन और सूचना समानता सुनिश्चित करने में भी महत्वपूर्ण भूमिका निभाते हैं। साथ ही, पेपर में चुनौतियों, भविष्य की संभावनाओं तथा पुस्तकालय-आधारित सिफ़ारिशों पर भी चर्चा की गई है।

Keywords: ONOS, अकादमिक पुस्तकालय, डिजिटल सूचना संसाधन, सूचना समानता, ई-जर्नल्स, भारत

भूमिका

सूचना और संचार प्रौद्योगिकी (ICT) के तीव्र विकास ने शैक्षणिक और शोध परिदृश्य को पूर्णतः बदल दिया है। आज उच्च गुणवत्ता वाला शोध मुख्यतः इलेक्ट्रॉनिक जर्नल्स, डेटाबेस, ई-बुक्स और डिजिटल रिपॉजिटरी पर निर्भर करता है। परंतु भारत जैसे विशाल और विविधतापूर्ण देश में संसाधनों की लागत, लाइसेंसिंग नीतियाँ और संस्थागत आर्थिक सीमाएँ सूचना पहुँच में असमानता उत्पन्न करती हैं। अकादमिक पुस्तकालय परंपरागत रूप से ज्ञान के संरक्षक रहे हैं, किंतु डिजिटल युग में उनकी भूमिका सूचना प्रबंधक, प्रशिक्षक और नीति समर्थक के रूप में विस्तृत हो गई है। ONOS पहल इसी परिवर्तनशील भूमिका को और अधिक सुदृढ़ करने का अवसर प्रदान करती है।

ONOS पहल की अवधारणा और उद्देश्य

वन नेशनल वन सब्सक्रिप्शन (व्हेल्ड पहल का मूल विचार यह है कि देश के सभी सार्वजनिक रूप से वित्तपोषित उच्च शिक्षण और शोध संस्थानों के लिए विद्वतापूर्ण ई-संसाधनों का **एकीकृत राष्ट्रीय लाइसेंस** उपलब्ध कराया जाए।

प्रमुख उद्देश्य

- शैक्षणिक सूचना तक समान और सार्वभौमिक पहुँच
- संस्थानों पर आर्थिक बोझ में कमी

- शोध एवं नवाचार को प्रोत्साहन
- वैश्विक ज्ञान संसाधनों में भारत की भागीदारी को सुदृढ़ करना

ONOS और मौजूदा कंसोर्टिया

INFLIBNET, e-ShodhSindhu जैसे कंसोर्टिया ONOS की आधारशिला माने जा सकते हैं। ONOS इन पहलों को एक व्यापक राष्ट्रीय ढाँचे में एकीकृत करने का प्रयास करता है।

अकादमिक पुस्तकालयों की रणनीतिक भूमिका

सूचना मध्यस्थ के रूप में पुस्तकालय

ONOS के अंतर्गत उपलब्ध संसाधनों और अंतिम उपयोगकर्ताओं (छात्र, शोधार्थी, संकाय) के बीच पुस्तकालय सेतु का कार्य करते हैं।

संग्रह विकास और उपयोग विश्लेषण

पुस्तकालय:

- उपयोग आँकड़ों का विश्लेषण करते हैं
- विषय-विशेष संसाधनों की पहचान करते हैं
- राष्ट्रीय स्तर पर निर्णय-निर्माण में योगदान देते हैं

सूचना साक्षरता और प्रशिक्षण

ONOS की सफलता उपयोगकर्ताओं की दक्षता पर निर्भर करती है। पुस्तकालय निम्न गतिविधियाँ संचालित करते हैं:

- ई-संसाधन ओरिएंटेशन
- रिसर्च स्किल वर्कशॉप
- प्लेज़रिज़्म और रेफ़रेंस मैनेजमेंट प्रशिक्षण

तकनीकी अवसंरचना में पुस्तकालयों का योगदान

डिजिटल एक्सेस सिस्टम

- IP आधारित प्रमाणीकरण
- रिमोट एक्सेस टूल्स
- डिस्कवरी प्लेटफ़ॉर्म

संस्थागत रिपॉजिटरी और ONOS

पुस्तकालय ONOS संसाधनों को संस्थागत रिपॉजिटरी और ओपन एक्सेस पहलों के साथ एकीकृत करते हैं।

अकादमिक पुस्तकालयों का समग्र योगदान

सूचना समानता की स्थापना

ग्रामीण, नवस्थापित और संसाधन-वंचित संस्थानों को भी उच्च गुणवत्ता वाली सामग्री उपलब्ध होती है।

शोध गुणवत्ता और उत्पादकता में वृद्धि

बेहतर सूचना पहुँच से:

- अधिक शोध प्रकाशन
- बेहतर संदर्भ गुणवत्ता
- अंतरराष्ट्रीय सहयोग

आर्थिक दक्षता

राष्ट्रीय स्तर पर सामूहिक लाइसेंसिंग से सार्वजनिक धन का बेहतर उपयोग संभव होता है।

चुनौतियाँ और सीमाएँ

तकनीकी असमानता

सभी संस्थानों में समान नेटवर्क और हार्डवेयर उपलब्ध नहीं हैं।

मानव संसाधन की कमी

डिजिटल लाइसेंसिंग और डेटा एनालिटिक्स में प्रशिक्षित पुस्तकालय पेशेवरों की आवश्यकता है।

उपयोगकर्ता व्यवहार

ई-संसाधनों के प्रति जागरूकता और नियमित उपयोग अभी भी चुनौती है।

भविष्य की संभावनाएँ और सुझाव

पुस्तकालयों को नीति निर्माण में भागीदारी

अकादमिक पुस्तकालयों को ONOS नीति समितियों में प्रतिनिधित्व दिया जाना चाहिए।

क्षमता निर्माण

- नियमित प्रशिक्षण कार्यक्रम
- डिजिटल लाइब्रेरी कौशल विकास

ओपन साइंस के साथ एकीकरण

ONOS को ओपन एक्सेस और ओपन डेटा पहलों से जोड़ना दीर्घकालिक लाभ प्रदान करेगा।

निष्कर्ष

ONOS पहल भारत में शैक्षणिक सूचना पहुँच के क्षेत्र में एक ऐतिहासिक कदम है। इसकी सफलता केवल सरकारी नीतियों पर नहीं, बल्कि अकादमिक पुस्तकालयों की सक्रिय रणनीतियों और योगदान पर निर्भर करती है। यदि पुस्तकालयों को ज्ञान प्रबंधन के केंद्र में रखा जाए, तो ONOS भारत को एक समावेशी, सशक्त और वैश्विक रूप से प्रतिस्पर्धी ज्ञान समाज में परिवर्तित कर सकता है।

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विकसित भारत 2047 के परिप्रेक्ष्य में ज्ञान केन्द्रों के रूप में पुस्तकालय की उभरती भूमिका

कृष्णा नागदा

शोधार्थी पुस्तकालय एवं सूचना विभाग, उदयपुर

Summary

विकसित भारत 2047 भारत सरकार का एक व्यापक दृष्टिकोण है? जिसका लक्ष्य भारत को 2047 तक विकसित राष्ट्र बनाना है। 2047 में भारत आजादी के 100 वर्ष पूर्ण करेगा और विकसित राष्ट्र के रूप में उभरेगा। विकसित भारत का उद्देश्य हर भारतवासी समान अवसर व सुविधा प्राप्त करे। 2047 के परिप्रेक्ष्य में पुस्तकालय केवल पुस्तकों तक सिमित नहीं है। यह ज्ञान केन्द्रों के रूप में सीखने का सक्रिय माध्यम है। भारत को विकसित राष्ट्र बनाने में NEP 2020 का महत्व पूर्ण योगदान है। इस नीति का लक्ष्य शिक्षार्थियों को गुणवत्तापूर्ण शिक्षा व अनूसंधान हेतु उच्चतम वातावरण देना है। यह विद्यार्थियों को नई सोच अनुसंधान व आलोचनात्मक के लिए तैयार करता है। भारतीय पुस्तकालयों का डिजिटल स्वरूप तेजी से आगे बढ़ रहा है। भारतीय पुस्तकालय में आधुनिक तकनीकों को अपनाया है। जिससे डिजिटल संसाधन, ई-पत्रिकाएं, डाटा बैस ई-पुस्तक, Open Access Platform सॉफ्टवेयर जैसे Koha, Soul 3.0, OPAC से पुस्तकालय प्रबंध अधिक कुशल व आधुनिक बन जाते हैं? यह शोध पत्र राष्ट्र के विकसित भारत 2047 के बदलते स्वरूप में NEP 2020 के सहयोग से ज्ञान केन्द्रों के रूप में पुस्तकालयों की भूमिका पर केन्द्रित है जो कि भारत को उच्च गुणवत्तापूर्ण शिक्षा, न्याय संगत समाज में बदलने में योगदान देता है।

Keywords: विकसित भारत 2047, पुस्तकालय ज्ञान के केन्द्र के रूप में, डिजिटल साक्षरता, NEP 2020

भूमिका

भारत सरकार द्वारा “विकसित भारत 2047 की संकल्पना एक ऐसे राष्ट्र की परिकल्पना करती है जो कि आर्थिक, सामाजिक व शैक्षणिक और तकनीकी दृष्टि से आत्मनिर्भर हो। इस परिप्रेक्ष्य में पुस्तकालय का योगदान बहुत महत्वपूर्ण है। आज पुस्तकालय सूचना के साथ-साथ सृजन, नवाचार, सामुहिक सहभागिता के ज्ञान के केन्द्र के रूप में बनते जा रहे हैं। शिक्षा इंसान की उत्पादकता, रचनात्मकता व नवाचार प्रवृत्ति बढ़ती है। यह मनुष्य के कौशल व क्षमताओं का विकास करती है और राष्ट्र के लिए बेहतर मानव संसाधन को तैयार करती है? यह व्यक्ति में संज्ञानात्मक कौशल व समस्या समाधान का विकास करती है? आज प्रस्तुत डिजिटल और तकनीकी परिप्रेक्ष्य में सूचना व नवाचार के केन्द्र बने हैं। डिजिटल स्वरूप से आज पुस्तकालय आधुनिक सूचना संसाधनों, ई-पत्रिकाओं ऑनलाईन डेटाबेस जनरलस, ई-पुस्तक, के द्वारा छात्रों की आत्म-निर्भर शिक्षा को प्रेरित करते हैं? जिससे छात्रों को अपने विषय में गहराई से अध्ययन करने के अवसर मिलते हैं। शिक्षा किसी भी राष्ट्र को विकसित करने में सबसे मजबूत स्तम्भ होती है? NEP 2020, जिसे 29 जुलाई 2020 को भारत सरकार द्वारा मंजुरी दी गई। 34 वर्ष बाद 1986 की इस नीति को बदलकर एक क्रांतिकारी बदलाव है। NEP 2020 का प्रयोजन शिक्षा में GDP को 6% तक बढ़ाना है। 5+3+3+4 पाठ्यक्रम चर्चा की संरचना का प्रस्ताव करती है, NEP 2020 व्यावसायिक प्रशिक्षण बहुभाषावाद, कौशल विकास, कौशल विकास

व भारतीय भाषाओं को बढ़ावा देती है। NEP 2020 का लक्ष्य 2047 तक भारत को वैश्विक महाशक्ति बनाना है ?

उद्देश्य

1. विकसित भारत 2047 के दृष्टिकोण को स्पष्ट करना
2. विकसित भारत में पुस्तकालय की बदलती भूमिका में NEP 2020 द्वारा शोध, समीक्षा कर पता लगाना कि 2047 तक राष्ट्रीय विकास की नींव बनाने पर ध्यान देने के साथ भारतीय शिक्षा व्यवस्था में चुनौतियों का समाधान।
3. ज्ञान केन्द्रों के रूप में पुस्तकालय की अवधारणा की समीक्षा।

साहित्य समीक्षा

पुस्तकालय की शिक्षा सूचना साक्षरता व सामाजिक विकास का प्रमुख साधन माना जाता है? डिजिटल तकनीक से पुस्तकालय जगत में एक व्यापक परिवर्तन आया है पुस्तकालय अब केवल पुस्तकों के संग्रह स्थल न रहकर ज्ञान केन्द्र के रूप में विकसित हो रहे हैं? डिजिटल तकनीकों के समावेश ने पुस्तकालय सेवाओं की पहुंच, गुणवत्ता और उपयोगिता को बहुआयामी रूप से बढ़ाया है भारतीय पुस्तकालयों में संचार एवं सूचना प्रौद्योगिकी के बढ़ते अनुप्रयोग से डिजिटल रिपॉजिटरी, ई-पुस्तक ई-जर्नल्स, ऑनलाइन डेटाबेस और क्लाउड आधारित लाइब्रेरी प्रबंध प्रणाली ने पारम्परिक पुस्तकालय की संरचना को आधुनिक स्वरूप दिया है। कृत्रिम बुद्धिमत्ता (AI) आधारित खोज प्रणाली अनूशंसा तंत्र तथा वैयक्तिकृत सूचना सेवाओं के माध्यम से उपयोगकर्ता अपनी आवश्यकता के अनुसार सूचना शीघ्र प्राप्त कर पा रहे हैं? इससे न केवल शोध और अध्ययन कि गुणवत्ता में सुधार आया है बल्कि आत्मनिर्भर शिक्षा क्षेत्र में भी सकारात्मक प्रगति हुई है।

इस नीति का प्रमुख उद्देश्य समानता समावेश, गुणवत्ता और आजीवन अधिगम को सुनिश्चित करता है? NEP 2020 डिजिटल शिल्प, बहु विषयक अध्ययन, ऑनलाइन प्लेटफॉर्म जैसे – SWAYAM, NPTEL आदि पर बल देता है तकनीकी व उच्च शिक्षा से संबंधित साहित्य के अनुसार पुस्तकालय ने अब शोध नवाचार और ज्ञान सृजन को प्रोत्साहित करने वाले केन्द्रों का रूप ले लिया है विकसित भारत 2047 के संदर्भ में शिक्षा व ज्ञान संस्थान किसी भी देश की प्रगति के मूल स्तम्भ होते हैं। डिजिटल परिवर्तन, इस नीति और विकसित भारत 2047 के लक्ष्यों के बीच पुस्तकालय एक सेतु (Bridge) के रूप में अपने कर्तव्यों का पालन कर रहे हैं। जो कि शिक्षा, तकनीकी और समाज को एकीकृत कर राष्ट्रनिर्माण की प्रक्रिया को गति प्रदान कर रहे हैं ?

शोध पद्धति

यह अध्ययन द्वितीय शोध पत्रों पर आश्रित है जो कि आधुनिक उन्नत, शिक्षा, अनुसंधान तथा नवाचार को बढ़ावा देती है और भारत को एक समृद्ध और सशक्त बनाता है तथा यह विश्लेषणात्मक व वर्णनात्मक पद्धति पर आधारित है ?

निष्कर्ष

इससे यह निष्कर्ष निकलता है कि यदि पुस्तकालय को पर्याप्त डिजिटल अवसंरचना, प्रशिक्षित मानव संसाधन और नीति स्तर पर सहयोग प्रदान किया जाए, तो वे विकसित भारत 2047 के लक्ष्य की प्राप्ति में ज्ञान केन्द्रों के रूप में उत्प्रेरक की भूमिका निभा सकते हैं ? इस दिशा में पुस्तकालय का सशक्तिकरण न केवल शिक्षा प्रणाली को सशक्त करेगा बल्कि एक समावेशी, आत्मनिर्भर और ज्ञान समृद्ध भारत के निर्माण की आधारशिला भी रखेगा।

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विश्वविद्यालय पुस्तकालय में पुस्तकालयाध्यक्ष की भूमिका

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Summary

विश्वविद्यालय पुस्तकालय को किसी भी उच्च शिक्षण संस्था का बौद्धिक एवं अकादमिक केंद्र माना जाता है। इस केंद्र की प्रभावशीलता बहुत हद तक पुस्तकालयाध्यक्ष की भूमिका और कार्यकुशलता पर निर्भर करती है। पूर्व में पुस्तकालयाध्यक्ष की पहचान मुख्यतः पुस्तकों के संग्रह और संरक्षण तक सीमित थी, किंतु वर्तमान समय में यह भूमिका व्यापक और बहुआयामी हो गई है। डिजिटल सूचना संसाधनों की बढ़ती उपलब्धता, शोध गतिविधियों में वृद्धि तथा उपयोगकर्ताओं की बदलती अपेक्षाओं ने पुस्तकालयाध्यक्ष को सूचना प्रबंधक, शोध सहायक, प्रशिक्षक और अकादमिक साझेदार के रूप में स्थापित किया है। प्रस्तुत शोध-पत्र में विश्वविद्यालय पुस्तकालय में पुस्तकालयाध्यक्ष की भूमिका का यथार्थपरक एवं विश्लेषणात्मक अध्ययन किया गया है, जिसमें उनकी पारंपरिक जिम्मेदारियों के साथ-साथ आधुनिक दायित्वों, आवश्यक कौशलों, समकालीन चुनौतियों तथा भविष्य की संभावनाओं पर विशेष रूप से प्रकाश डाला गया है।

Keywords: विश्वविद्यालय पुस्तकालय, पुस्तकालयाध्यक्ष, सूचना साक्षरता, डिजिटल संसाधन, शोध सहयोग

भूमिका

उच्च शिक्षा प्रणाली का मूल उद्देश्य केवल डिग्री प्रदान करना नहीं है, बल्कि छात्रों में आलोचनात्मक चिंतन, शोध प्रवृत्ति तथा आजीवन अधिगम की क्षमता विकसित करना भी है। इस उद्देश्य की पूर्ति में विश्वविद्यालय पुस्तकालय की भूमिका अत्यंत महत्वपूर्ण होती है। पुस्तकालय वह स्थान है जहाँ ज्ञान का संकलन, संगठन और प्रसार व्यवस्थित रूप से किया जाता है। पुस्तकालयाध्यक्ष इस पूरी व्यवस्था के केंद्र में कार्य करते हैं। यद्यपि एस. आर. रंगनाथन द्वारा प्रतिपादित पुस्तकालय विज्ञान के पाँच नियम लगभग एक शताब्दी पूर्व प्रस्तुत किए गए थे, फिर भी उनकी प्रासंगिकता आज भी बनी हुई है। अंतर केवल इतना है कि समय के साथ पुस्तकालयाध्यक्ष की भूमिका अधिक सक्रिय, तकनीकी और उपयोगकर्ता-केंद्रित हो गई है।

विश्वविद्यालय पुस्तकालय का स्वरूप एवं उद्देश्य

विश्वविद्यालय पुस्तकालय का प्रमुख उद्देश्य शिक्षण, अधिगम और शोध के लिए विश्वसनीय एवं अद्यतन सूचना संसाधन उपलब्ध कराना है। आधुनिक विश्वविद्यालय पुस्तकालय अब केवल पुस्तकों तक सीमित नहीं रह गए हैं, बल्कि वे डिजिटल एवं हाइब्रिड स्वरूप में कार्य कर रहे हैं। इनकी प्रमुख विशेषताओं में मुद्रित और इलेक्ट्रॉनिक संसाधनों का संतुलन, ई-जर्नल्स और डेटाबेस की उपलब्धता, डिजिटल रिपॉजिटरी, तथा उपयोगकर्ता सहायता सेवाएँ शामिल हैं। इन सभी गतिविधियों के सफल संचालन के लिए एक सक्षम और दूरदर्शी पुस्तकालयाध्यक्ष की आवश्यकता होती है।

विश्वविद्यालय पुस्तकालय में पुस्तकालयाध्यक्ष की पारंपरिक भूमिका

पारंपरिक रूप से विश्वविद्यालय पुस्तकालयाध्यक्ष की भूमिका को प्रशासनिक और तकनीकी कार्यों तक सीमित माना जाता था। उनके प्रमुख दायित्वों में पुस्तक एवं पत्रिका चयन, वर्गीकरण और सूचीकरण, संदर्भ सेवाएँ प्रदान करना, पुस्तकालय नियमों का पालन सुनिश्चित करना तथा सूचना संसाधनों का संरक्षण शामिल था। इन कार्यों के माध्यम से पुस्तकालय को एक सुव्यवस्थित और अनुशासित सूचना केंद्र के रूप में विकसित किया गया।

बदलते शैक्षणिक परिदृश्य में पुस्तकालयाध्यक्ष की भूमिका

सूचना एवं संचार प्रौद्योगिकी के तीव्र विकास ने पुस्तकालय सेवाओं के स्वरूप को व्यापक रूप से प्रभावित किया है। परिणामस्वरूप पुस्तकालयाध्यक्ष की भूमिका भी पारंपरिक सीमाओं से आगे बढ़ चुकी है।

सूचना प्रबंधक के रूप में भूमिका

आधुनिक पुस्तकालयाध्यक्ष विभिन्न प्रकार के सूचना संसाधनों का चयन, मूल्यांकन और प्रबंधन करते हैं। इनमें मुद्रित पुस्तकों के साथ-साथ ई-बुक्स, ई-जर्नल्स और ऑनलाइन डेटाबेस भी शामिल हैं। संसाधनों की गुणवत्ता और प्रासंगिकता सुनिश्चित करना उनका प्रमुख उत्तरदायित्व होता है।

डिजिटल पुस्तकालय एवं ई-संसाधन प्रबंधन

डिजिटल पुस्तकालयों के विकास के साथ पुस्तकालयाध्यक्ष को तकनीकी दक्षता की आवश्यकता होती है। संस्थागत रिपॉजिटरी, ओपन एक्सेस प्लेटफॉर्म और लाइसेंस प्राप्त डेटाबेस का प्रबंधन अब पुस्तकालय कार्य का अभिन्न अंग बन चुका है।

शोध सहयोगी के रूप में भूमिका

विश्वविद्यालयों में शोध गतिविधियों के विस्तार के साथ पुस्तकालयाध्यक्ष की भूमिका शोध सहयोगी के रूप में भी उभरी है। वे शोधार्थियों को साहित्य समीक्षा, शोध डेटाबेस के उपयोग, संदर्भ प्रबंधन उपकरणों तथा शोध नैतिकता के विषय में मार्गदर्शन प्रदान करते हैं। इससे शोध की गुणवत्ता और विश्वसनीयता में वृद्धि होती है।

सूचना साक्षरता प्रशिक्षक

आज के सूचना-संपन्न वातावरण में उपयोगकर्ताओं को सही और प्रामाणिक सूचना की पहचान करना सिखाना अत्यंत आवश्यक हो गया है। सूचना साक्षरता कार्यक्रमों के माध्यम से पुस्तकालयाध्यक्ष छात्रों को सूचना के नैतिक और प्रभावी उपयोग के लिए प्रशिक्षित करते हैं।

शैक्षणिक भागीदार के रूप में भूमिका

पुस्तकालयाध्यक्ष शिक्षकों के साथ मिलकर पाठ्यक्रम विकास, ई-लर्निंग सामग्री निर्माण और अकादमिक गुणवत्ता सुधार में महत्वपूर्ण योगदान देते हैं। इस सहयोग से शिक्षण-अधिगम प्रक्रिया अधिक समृद्ध बनती है।

शोध-पद्धति

प्रस्तुत अध्ययन गुणात्मक प्रकृति का है तथा इसमें वर्णनात्मक एवं विश्लेषणात्मक शोध-पद्धति का उपयोग किया गया है। अध्ययन के लिए पुस्तकालय एवं सूचना विज्ञान से संबंधित पुस्तकों, शोध-पत्रों, नीति दस्तावेजों तथा 2022 से 2025 के मध्य प्रकाशित राष्ट्रीय एवं अंतरराष्ट्रीय जर्नल लेखों की समीक्षा की गई है। उपलब्ध साहित्य के तुलनात्मक अध्ययन के माध्यम से विश्वविद्यालय पुस्तकालय में पुस्तकालयाध्यक्ष की भूमिका का समग्र मूल्यांकन किया गया है।

आवश्यक कौशल एवं दक्षताएँ

एक प्रभावी विश्वविद्यालय पुस्तकालयाध्यक्ष के लिए तकनीकी ज्ञान के साथ-साथ मानवीय और व्यावसायिक कौशल भी आवश्यक हैं। इनमें सूचना प्रौद्योगिकी का ज्ञान, शोध सहायता क्षमता, संचार कौशल, नेतृत्व क्षमता तथा उपयोगकर्ता आवश्यकताओं को समझने की दक्षता प्रमुख हैं।

समकालीन चुनौतियाँ

विश्वविद्यालय पुस्तकालयाध्यक्षों को वर्तमान समय में कई प्रकार की चुनौतियों का सामना करना पड़ता है। सीमित बजट, तेजी से बदलती तकनीक, उपयोगकर्ताओं की बढ़ती अपेक्षाएँ, डिजिटल विभाजन और मानव संसाधनों की कमी प्रमुख चुनौतियाँ हैं। इनका समाधान निरंतर प्रशिक्षण, नवाचार और संस्थागत सहयोग के माध्यम से किया जा सकता है।

भविष्य की संभावनाएँ

आने वाले समय में आर्टिफिशियल इंटेलिजेंस, रिसर्च डेटा मैनेजमेंट और ओपन साइंस जैसे क्षेत्रों में पुस्तकालयाध्यक्ष की भूमिका और अधिक महत्वपूर्ण हो जाएगी। विश्वविद्यालयों में ज्ञान आधारित समाज के निर्माण में पुस्तकालयाध्यक्ष रणनीतिक भागीदार के रूप में उभरेंगे।

निष्कर्ष

अध्ययन से यह स्पष्ट होता है कि विश्वविद्यालय पुस्तकालय में पुस्तकालयाध्यक्ष की भूमिका निरंतर विकसित हो रही है। वे अब केवल सूचना संरक्षक नहीं, बल्कि शिक्षण, शोध और नवाचार प्रक्रिया के सक्रिय सहभागी बन चुके हैं। उच्च शिक्षा की गुणवत्ता और शोध उत्कृष्टता सुनिश्चित करने में पुस्तकालयाध्यक्ष की भूमिका अनिवार्य है।

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The Impact of Artificial Intelligence on Library Services: A Comprehensive and Gentle Exploration

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Summary

Modern libraries are increasingly using artificial intelligence (AI). Faster cataloging, more intelligent search, virtual help, and improved resource management are all supported. AI technologies are being used by libraries all over the world to improve the efficiency, usability, and accessibility of their services. However, there are drawbacks to implementing AI, including expense, privacy concerns, ethical dilemmas, and the requirement for skilled personnel.

The influence of AI on library services is gently examined, prior research is reviewed, the study's methodology is described, and the findings are illustrated using straightforward illustrations. The study comes to the conclusion that AI can help libraries become more potent and helpful information centers with careful design and responsible use

Keywords: Automation, Artificial Intelligence, Digital Transformation, Smart Libraries, Information Retrieval

Introduction

Libraries have historically served as hubs for information, education, and community assistance. Libraries have evolved throughout time from traditional book shelves to contemporary digital places with online databases, e-resources, and automated systems. Artificial Intelligence (AI) has emerged as one of the key technologies transforming library operations in the digital age. AI assists libraries in managing vast volumes of data, providing services that are always accessible, and guiding users in straightforward ways. For instance, intelligent search engines can locate the best material fast, AI chatbots can respond to questions from students even at midnight, and automated cataloging tools can categorize thousands of volumes in a matter of minutes. This essay's goals are to examine how AI is changing contemporary library services and emphasize their advantages

This paper's objectives are to examine how AI is changing contemporary library services, emphasize the advantages and difficulties, examine earlier research, and make recommendations for future developments in AI-supported libraries.

Literature Review

The findings of earlier researchers and academics regarding the application of AI in library services are compiled in this section.

Cataloguing and AI Cataloging is one of the most time-consuming tasks in libraries, according to numerous studies. Researchers discovered that book titles, subjects, authors, and keywords can all be automatically recognized by machine learning tools. These tools lessen human error and aid in the creation of accurate metadata.

Information Retrieval with AI

AI enhances users' information searches, according to a number of authors. AI systems comprehend the meaning of the search query rather than merely matching keywords. According to studies, AI-based recommendation systems and semantic search yield more tailored and pertinent results.

Chatbots and Virtual Help

According to research, public and university libraries are starting to use AI chatbots.

These chatbots provide users with online resources, help them locate books, and respond to commonly asked questions. NLP-based systems facilitate more natural and seamless communication.

Automation in Library Functions

Robots can assist with carrying materials, checking lost books, and scanning shelves, according to international research.

Early research indicates that robots increase accuracy and save time, despite the fact that they are still costly.

Privacy and Ethical Issues

Literature also draws attention to a number of issues.

AI frequently needs user data to function properly, which presents privacy concerns. In order to maintain AI's fairness and transparency, researchers advise strict ethical standards and caution against algorithmic bias.

Methodology

To comprehend the function of AI in library services, this study employed a qualitative methodology.

Information Gathering

Research journals, online articles, library case studies, library association reports, secondary interviews, and surveys by other researchers were the sources of the information used in this paper.

Analysis of Data

The data was categorized into themes like AI in cataloguing, AI in user services, challenges, and future prospects using a thematic analysis approach.

Study Scope

Academic libraries, public libraries, digital libraries, and hybrid libraries are all included in the study.

Restrictions

There was little primary data collection.

Certain findings may change in the future due to the rapid evolution of AI technology. Only published information was available for access to internal library data.

Artificial Intelligence's Effect on Library Services

AI affects a number of library operations. The main effects are explained in plain language in the sections that follow.

Cataloguing Automation

Libraries can process new books and digital materials more quickly with the aid of AI tools. The topic, genre, synopsis, and keywords are determined by machine learning algorithms.

Simple Diagram: AI Cataloguing Process

[Library Materials]

(Books, Sournals, digital media)

↓

[Digitization/ Data Entry]

↓

[Data Cleaning & Standardization]

(OCR Correction, format alignment)

↓

[AI Cataloguing]

(Subject Classification, Keywords,
Summaries, Author & ISBN extraction)

↓

[Metadata Creation]

(Dewey/ LCC, MARC records, tags)

↓

[Users]

(Search, Brouse, Access)

This saves time and reduces workload for staff.

Astute Information Retrieval and Search

AI search engines are able to comprehend not just the terms but also the user's intent.

For instance: The AI will comprehend the connection between pollution and health and provide insightful findings if a learner enters "effects of pollution on health."

Advantages

A quicker search process, more precise and pertinent results, and tailored suggestions Natural language inquiries, such as "How can I find research articles on solar energy?" are supported.

AI Virtual Help and Chatbots

AI chatbots support people anytime they need it and are accessible around-the-clock.

Chatbots are able to recommend books and respond to frequently asked inquiries. Assistance with accessing online resources Give new users step-by-step instructions. Provide library rules and timings. Chatbots lessen the workload for employees and increase accessibility to the library.

Robotics in Library Operations

Some modern libraries use robots for managing physical collections.

Simple Diagram: Robot Shelf Scanner

Shelf Layout:

[Book][Book][Book][Gap][Book]

Robot Scans

|

Detects Missing or Misplaced

Robots help detect misplaced books and support inventory management.

Analytical Predictions

- AI anticipates which books will be in demand by analyzing user activity.
- Which resources are preferred by students?
- Which areas require additional copies? What subjects are researchers working on?
- This aids libraries in more prudent resource and budget planning.

AI's Advantages for Libraries

Enhanced User Experience

AI offers each user a welcoming, helpful, and customized experience.

Effectiveness and Time-Saving

Automation of repetitive and routine tasks frees up staff time for research assistance.

Availability AI tools that assist people with disabilities include text-to-speech, speech-to-text, automatic translation, and audio search.

Long-Term Cost Reductions

AI lowers long-term operating expenses by reducing human labor and speeding up operations, although it does require an initial investment.

- Challenges in Libraries
- Expensive Implementation
- Hardware, software, and sophisticated AI technologies can be costly.
- Security and Privacy of Data
- User information needs to be shielded from abuse, disclosure, and illegal access.
- Training and Skill Requirements
- To effectively employ AI tools, librarians must receive training.
- Algorithmic Bias Risk
- If AI is not adequately monitored, it may produce unfair or biased findings.

Prospects for the Future

Completely Smart Libraries

Future libraries might have robotic shelves, virtual assistants, automated cataloguing, and cutting-edge AI-powered learning systems.

VR/AR Learning Environments

Students could use AR/VR tools in conjunction with AI to explore virtual museums, scientific simulations, and historical sites.

Global AI Platforms

That Are Shared Global information sharing could be enhanced by libraries working together via a single AI system.

Data Governance and Ethical AI

Stronger regulations will be incorporated into future library systems to safeguard user information and uphold transparency.

Conclusion

Libraries are becoming more intelligent and encouraging learning spaces thanks to artificial intelligence. AI improves nearly every aspect of library services, from cataloguing and searching to user support and decision-making. The advantages are substantial, despite obstacles like expense, privacy, and the requirement for qualified personnel.

Libraries will probably develop into fully intelligent knowledge centers in the future, offering everyone individualized and accessible services. AI has the potential to improve libraries' usefulness, efficiency, and inclusivity for all patrons when applied sensibly and morally.

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पुस्तकालय नीति एवं शासन

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Summary

पुस्तकालय किसी भी समाज की बौद्धिक, शैक्षणिक एवं सांस्कृतिक प्रगति के मूल आधार होते हैं। प्राचीन काल से ही पुस्तकालयों ने ज्ञान के संरक्षण, संप्रेषण और विकास में महत्वपूर्ण भूमिका निभाई है। आधुनिक सूचना युग में पुस्तकालयों की भूमिका और भी व्यापक हो गई है, जहाँ वे केवल पुस्तकों के संग्रह तक सीमित न रहकर सूचना के सृजन, संरक्षण और प्रसार के सक्रिय केंद्र बन चुके हैं। सूचना प्रौद्योगिकी के तीव्र विकास, डिजिटल संसाधनों की बढ़ती उपलब्धता तथा उपयोगकर्ताओं की बदलती आवश्यकताओं ने पुस्तकालयों के समक्ष नई चुनौतियाँ और संभावनाएँ प्रस्तुत की हैं। ऐसे परिवेश में पुस्तकालयों के प्रभावी, पारदर्शी और उत्तरदायी संचालन के लिए स्पष्ट पुस्तकालय नीति (Library Policy) एवं सुदृढ़ शासन व्यवस्था (Library Governance) का होना अत्यंत आवश्यक है। पुस्तकालय नीति पुस्तकालय के उद्देश्यों, प्राथमिकताओं, संसाधन प्रबंधन तथा सेवा-प्रणाली को दिशा प्रदान करती है, जबकि पुस्तकालय शासन नीति के प्रभावी क्रियान्वयन, निर्णय प्रक्रिया, उत्तरदायित्व और पारदर्शिता को सुनिश्चित करता है। यह शोध-पत्र पुस्तकालय नीति एवं शासन की अवधारणा, उद्देश्य, प्रकार और महत्व का विस्तृत अध्ययन प्रस्तुत करता है। साथ ही इसमें सार्वजनिक, शैक्षणिक एवं विशेष पुस्तकालयों के संदर्भ में शासन व्यवस्था का विश्लेषण किया गया है। अध्ययन में पुस्तकालय नीति एवं शासन से जुड़ी प्रमुख चुनौतियों—जैसे वित्तीय संसाधनों की कमी, प्रशिक्षित मानव संसाधन का अभाव और तकनीकी असमानता—पर भी प्रकाश डाला गया है तथा उनके समाधान हेतु सुधारात्मक उपाय सुझाए गए हैं। अध्ययन यह निष्कर्ष प्रस्तुत करता है कि प्रभावी पुस्तकालय नीति एवं सुशासन के माध्यम से सूचना की समान पहुँच, शैक्षणिक गुणवत्ता और ज्ञान-आधारित सामाजिक विकास को सुदृढ़ किया जा सकता है। इस प्रकार पुस्तकालय नीति एवं शासन पुस्तकालयों को एक उत्तरदायी, उपयोगकर्ता-केंद्रित और समाजोपयोगी संस्था के रूप में स्थापित करने में निर्णायक भूमिका निभाते हैं।

Keywords: पुस्तकालय नीति, पुस्तकालय शासन, सूचना प्रबंधन, डिजिटल पुस्तकालय, शैक्षणिक एवं सामाजिक विकास, सुशासन

प्रस्तावना

पुस्तकालय मानव सभ्यता के आरंभ से ही ज्ञान, सूचना और बौद्धिक विकास के प्रमुख केंद्र रहे हैं। प्राचीन काल में पुस्तकालयों का उद्देश्य केवल ग्रंथों का संरक्षण नहीं था, बल्कि ज्ञान के आदान-प्रदान, अध्ययन और अनुसंधान को बढ़ावा देना भी था। तक्षशिला, नालंदा और अलेक्जेंड्रिया जैसे प्राचीन पुस्तकालय इस बात के प्रमाण हैं कि पुस्तकालयों ने समाज के बौद्धिक और सांस्कृतिक विकास में महत्वपूर्ण भूमिका निभाई है।

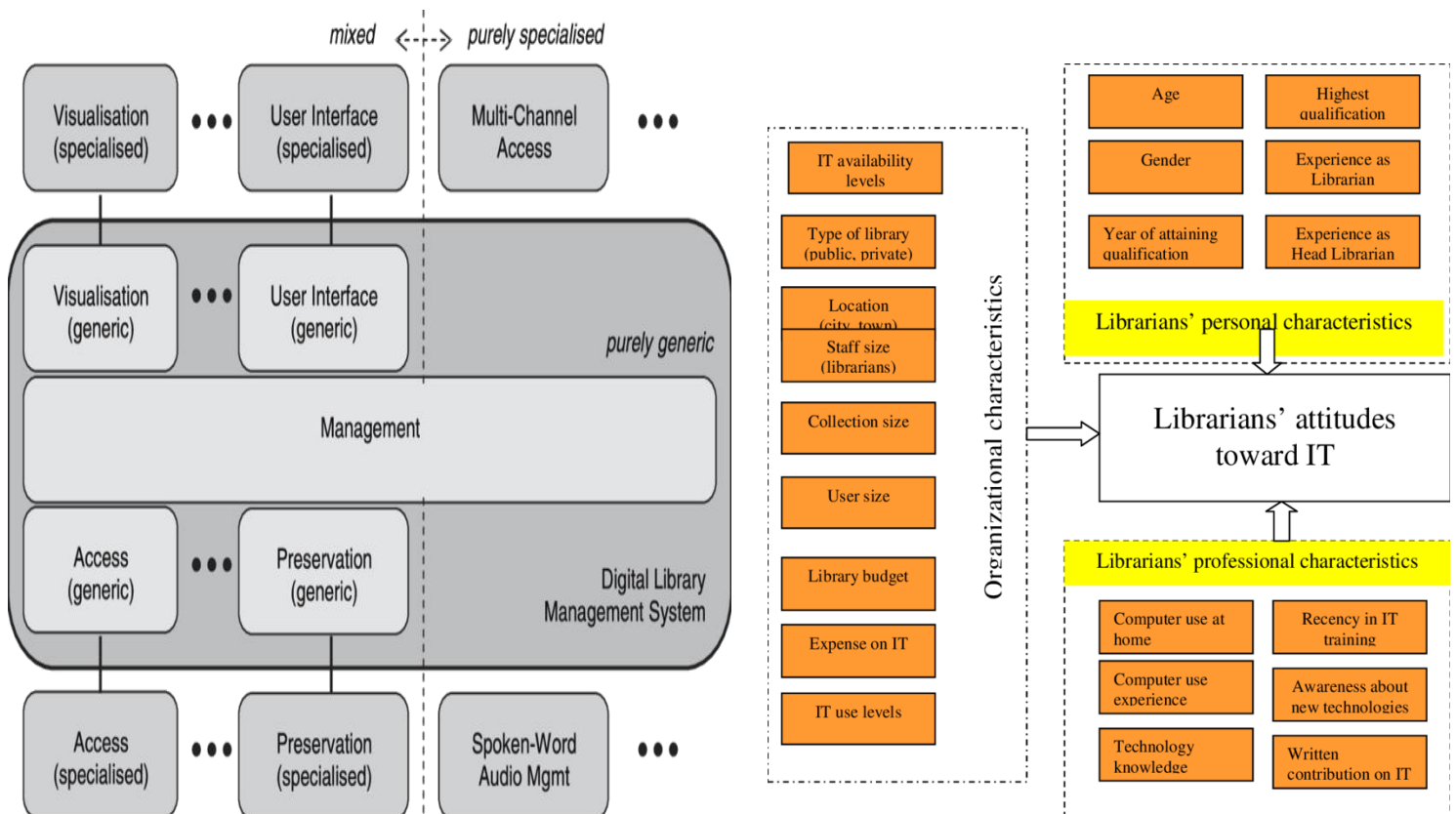
आधुनिक युग में भी पुस्तकालय शिक्षा, अनुसंधान, सामाजिक जागरूकता और लोकतांत्रिक मूल्यों को सुदृढ़ करने का कार्य करते हैं। वर्तमान समय को सूचना युग कहा जाता है, जहाँ ज्ञान का स्वरूप तीव्र गति से परिवर्तित हो रहा है। सूचना प्रौद्योगिकी के विकास ने पुस्तकालयों को डिजिटल संसाधनों, ई-पुस्तकों, ऑनलाइन जर्नल्स, डेटाबेस और वर्चुअल सेवाओं से जोड़ दिया है। अब पुस्तकालय केवल पुस्तकों के संग्रह स्थल नहीं रह गए हैं, बल्कि वे ज्ञान के सृजन, संरक्षण और वितरण के सक्रिय केंद्र बन चुके हैं। इस परिवर्तन के कारण पुस्तकालयों की जिम्मेदारियाँ बढ़ गई हैं और उनके संचालन में अधिक व्यावसायिकता, पारदर्शिता और योजनाबद्धता की आवश्यकता उत्पन्न हुई है।

ऐसे परिवेश में पुस्तकालयों का प्रभावी संचालन बिना स्पष्ट पुस्तकालय नीति के संभव नहीं है। पुस्तकालय नीति वह आधार प्रदान करती है जिसके माध्यम से पुस्तकालय अपने उद्देश्यों, सेवाओं, संसाधनों और उपयोगकर्ता आवश्यकताओं को निर्धारित करता है। नीति यह स्पष्ट करती है कि पुस्तकालय किस दिशा में कार्य करेगा और किन प्राथमिकताओं पर ध्यान केंद्रित करेगा। वहीं दूसरी ओर, पुस्तकालय शासन उस प्रशासनिक और प्रबंधकीय व्यवस्था को दर्शाता है जिसके द्वारा नीति का क्रियान्वयन किया जाता है।

पुस्तकालय शासन यह सुनिश्चित करता है कि पुस्तकालय की गतिविधियाँ पारदर्शिता, उत्तरदायित्व और दक्षता के साथ संचालित हों। बिना प्रभावी शासन व्यवस्था के, पुस्तकालयों में संसाधनों का दुरुपयोग, प्रशासनिक अव्यवस्था और सेवाओं की गुणवत्ता में गिरावट देखी जा सकती है। इसलिए पुस्तकालय नीति और शासन को एक-दूसरे से अलग नहीं किया जा सकता। दोनों परस्पर पूरक हैं और पुस्तकालय के समग्र विकास के लिए समान रूप से आवश्यक हैं।

वर्तमान सामाजिक और शैक्षणिक परिदृश्य में पुस्तकालयों से अपेक्षा की जाती है कि वे समाज के सभी वर्गों तक सूचना की समान पहुँच सुनिश्चित करें। इसके लिए स्पष्ट नीति और सुदृढ़ शासन व्यवस्था अनिवार्य है। पुस्तकालय नीति और शासन के माध्यम से ही पुस्तकालय ज्ञान-आधारित समाज के निर्माण में अपनी प्रभावी भूमिका निभा सकते हैं। इसी संदर्भ में पुस्तकालय नीति एवं शासन का अध्ययन अत्यंत प्रासंगिक और आवश्यक हो जाता है।

चित्र 1: पुस्तकालय नीति एवं शासन की वैचारिक रूपरेखा



पुस्तकालय नीति की अवधारणा

पुस्तकालय नीति किसी भी पुस्तकालय के सुव्यवस्थित संचालन और दीर्घकालिक विकास की आधारशिला होती है। पुस्तकालय नीति से तात्पर्य उन लिखित सिद्धांतों, नियमों, उद्देश्यों और दिशानिर्देशों से है जिनके आधार पर पुस्तकालय की गतिविधियाँ संचालित की जाती हैं। यह नीति यह निर्धारित करती है कि पुस्तकालय क्यों स्थापित किया गया है, वह किन उपयोगकर्ताओं की सेवा करेगा, तथा अपनी सेवाओं और संसाधनों को किस प्रकार विकसित करेगा। पुस्तकालय नीति पुस्तकालय के उद्देश्य और उसके कार्य-व्यवहार के बीच सेतु का कार्य करती है। पुस्तकालय नीति का मुख्य उद्देश्य पुस्तकालय प्रशासन को स्पष्ट दिशा प्रदान करना है। बिना नीति के पुस्तकालय का संचालन व्यक्तिगत निर्णयों और अस्थायी व्यवस्थाओं पर निर्भर हो जाता है, जिससे असंगति और अव्यवस्था उत्पन्न होती है। एक सुविचारित नीति पुस्तकालय के लक्ष्यों को स्पष्ट करती है और प्रशासन को यह समझने में सहायता करती है कि संसाधनों का चयन, संग्रहण, संरक्षण और उपयोग किस प्रकार किया जाना चाहिए। नीति के माध्यम से पुस्तकालय अपनी प्राथमिकताओं को निर्धारित करता है और सीमित संसाधनों का सर्वोत्तम उपयोग सुनिश्चित करता है।

आधुनिक सूचना युग में पुस्तकालय नीति की भूमिका और भी महत्वपूर्ण हो गई है। सूचना संसाधनों के स्वरूप में निरंतर परिवर्तन हो रहा है, जहाँ मुद्रित सामग्री के साथ-साथ डिजिटल संसाधन, ई-पुस्तकें, ऑनलाइन जर्नल्स और डेटाबेस प्रमुख हो गए हैं। ऐसे में पुस्तकालय नीति को केवल पारंपरिक संग्रह तक सीमित नहीं रखा जा सकता। एक प्रभावी पुस्तकालय नीति तकनीकी विकास, डिजिटल सेवाओं, कॉपीराइट, ओपन एक्सेस और सूचना नैतिकता जैसे विषयों को भी समाहित करती है। पुस्तकालय नीति न केवल प्रशासन के लिए मार्गदर्शक होती है, बल्कि उपयोगकर्ताओं के लिए भी पारदर्शिता सुनिश्चित करती है। नीति के माध्यम से उपयोगकर्ताओं को पुस्तकालय की सेवाओं, नियमों, सुविधाओं और सीमाओं की स्पष्ट जानकारी मिलती है। इससे पुस्तकालय और उपयोगकर्ता के बीच विश्वास का संबंध स्थापित होता है और सेवाओं का प्रभावी उपयोग संभव होता है।

एक महत्वपूर्ण विशेषता यह है कि पुस्तकालय नीति स्थिर दस्तावेज नहीं होती। समय, समाज और तकनीक में होने वाले परिवर्तनों के अनुसार इसमें संशोधन और अद्यतन आवश्यक होता है। उपयोगकर्ताओं की बदलती आवश्यकताओं, शैक्षणिक ढाँचे में परिवर्तन और सूचना प्रौद्योगिकी के विकास को ध्यान में रखते हुए नीति में लचीलापन होना चाहिए। यही लचीलापन पुस्तकालय को प्रासंगिक बनाए रखता है। इस प्रकार पुस्तकालय नीति पुस्तकालय के संगठनात्मक ढाँचे, सेवाओं और विकास की स्पष्ट रूपरेखा प्रस्तुत करती है। यह पुस्तकालय को लक्ष्यहीन होने से बचाती है और उसे एक सुसंगठित, उपयोगकर्ता-केंद्रित तथा भविष्य-उन्मुख संस्था के रूप में स्थापित करती है। इसलिए किसी भी पुस्तकालय के लिए एक स्पष्ट, व्यावहारिक और अद्यतन पुस्तकालय नीति अत्यंत आवश्यक है।

पुस्तकालय नीति के उद्देश्य

पुस्तकालय नीति के उद्देश्य किसी भी पुस्तकालय के कार्य-दर्शन और विकास-दिशा को निर्धारित करने में अत्यंत महत्वपूर्ण भूमिका निभाते हैं। स्पष्ट उद्देश्यों के बिना पुस्तकालय न तो अपनी सेवाओं को प्रभावी ढंग से संचालित कर सकता है और न ही समाज एवं संस्थान की अपेक्षाओं को पूरा कर सकता है। पुस्तकालय नीति के उद्देश्य पुस्तकालय को योजनाबद्ध, संगठित और उपयोगकर्ता-केंद्रित बनाने में सहायता करते हैं। पुस्तकालय नीति का प्रथम उद्देश्य पुस्तकालय के दीर्घकालिक एवं अल्पकालिक लक्ष्यों को स्पष्ट करना है। इसके माध्यम से यह निर्धारित किया जाता है कि पुस्तकालय आने वाले वर्षों में किन क्षेत्रों में विकास करेगा और तत्काल किन आवश्यकताओं पर ध्यान केंद्रित करेगा। लक्ष्य-निर्धारण से पुस्तकालय प्रशासन को योजनाएँ बनाने, प्राथमिकताएँ तय करने और संसाधनों का समुचित उपयोग करने में सहायता मिलती है। पुस्तकालय नीति का एक अन्य महत्वपूर्ण उद्देश्य संसाधनों के चयन, संग्रहण और संरक्षण के लिए दिशा-निर्देश प्रदान करना है। पुस्तकालयों के पास सीमित बजट और संसाधन होते हैं, इसलिए यह आवश्यक है कि संग्रह उपयोगकर्ताओं की आवश्यकताओं और संस्थान के उद्देश्यों के अनुरूप हो। नीति यह स्पष्ट करती है कि कौन-सी सामग्री खरीदी जाएगी, किस प्रकार का संतुलन रखा जाएगा और संसाधनों का संरक्षण कैसे किया जाएगा। उपयोगकर्ता-केंद्रित सेवाओं का विकास भी पुस्तकालय नीति का प्रमुख उद्देश्य है। आधुनिक पुस्तकालयों में उपयोगकर्ता की आवश्यकताएँ विविध और निरंतर बदलती रहती हैं। नीति के माध्यम से यह सुनिश्चित किया जाता है कि पुस्तकालय सेवाएँ उपयोगकर्ताओं की शैक्षणिक, शोधात्मक और सूचना संबंधी आवश्यकताओं के अनुरूप हों। इससे पुस्तकालय की उपयोगिता और प्रभावशीलता में वृद्धि होती है।

वित्तीय संसाधनों के उचित और पारदर्शी उपयोग को सुनिश्चित करना भी पुस्तकालय नीति का एक महत्वपूर्ण उद्देश्य है। नीति बजट निर्माण, व्यय नियंत्रण और संसाधनों के न्यायसंगत वितरण के लिए दिशा-निर्देश प्रदान करती है। इससे वित्तीय अनुशासन बना रहता है और संसाधनों का दुरुपयोग रोका जा सकता है। मानव संसाधन प्रबंधन एवं प्रशिक्षण को सुदृढ़ बनाना भी पुस्तकालय नीति के उद्देश्यों में शामिल है। प्रशिक्षित और कुशल कर्मचारी ही आधुनिक सूचना सेवाओं को प्रभावी ढंग से प्रदान कर सकते हैं। नीति कर्मचारियों की नियुक्ति, प्रशिक्षण और विकास से संबंधित पहलुओं को स्पष्ट करती है। इसके अतिरिक्त सूचना प्रौद्योगिकी के प्रभावी उपयोग को प्रोत्साहित करना, डिजिटल सेवाओं का विस्तार करना तथा पुस्तकालय सेवाओं में समानता और समावेशन को बढ़ावा देना भी पुस्तकालय नीति के महत्वपूर्ण उद्देश्य हैं। इन उद्देश्यों के माध्यम से पुस्तकालय समाज के सभी वर्गों तक सूचना की पहुँच सुनिश्चित कर सकता है। इस प्रकार पुस्तकालय नीति के उद्देश्य पुस्तकालय को एक सुव्यवस्थित, उत्तरदायी और भविष्य-उन्मुख संस्था के रूप में विकसित करने का आधार प्रदान करते हैं।

पुस्तकालय शासन की अवधारणा

पुस्तकालय शासन से तात्पर्य उस प्रशासनिक, प्रबंधकीय एवं निर्णयात्मक व्यवस्था से है जिसके माध्यम से पुस्तकालय का संचालन किया जाता है। यह व्यवस्था यह सुनिश्चित करती है कि पुस्तकालय की नीतियाँ, योजनाएँ और सेवाएँ निर्धारित उद्देश्यों के अनुरूप प्रभावी ढंग से क्रियान्वित हों। पुस्तकालय शासन केवल प्रशासनिक नियंत्रण तक सीमित नहीं होता, बल्कि इसमें जवाबदेही, पारदर्शिता, सहभागिता और नैतिकता जैसे मूल तत्व भी शामिल होते हैं। एक सुदृढ़ शासन व्यवस्था पुस्तकालय को संगठित, उत्तरदायी और उपयोगकर्ता-केंद्रित संस्था के रूप में विकसित करती है। पुस्तकालय शासन का मुख्य उद्देश्य नीति और व्यवहार के बीच संतुलन स्थापित करना है। पुस्तकालय नीति यह बताती है कि क्या किया जाना चाहिए, जबकि शासन यह सुनिश्चित करता है कि वह कैसे और किस प्रकार किया जाए। शासन के अंतर्गत निर्णय-निर्माण प्रक्रिया, कार्यों का विभाजन, जिम्मेदारियों का निर्धारण और संसाधनों का नियंत्रण शामिल होता है। यदि शासन व्यवस्था स्पष्ट और प्रभावी न हो, तो अच्छी से अच्छी नीति भी व्यावहारिक रूप से सफल नहीं हो पाती।

सुशासन (Good Governance) की अवधारणा पुस्तकालय प्रशासन में अत्यंत महत्वपूर्ण मानी जाती है। सुशासन का अर्थ है ऐसी प्रशासनिक व्यवस्था जिसमें निर्णय पारदर्शी हों, उत्तरदायित्व स्पष्ट हो, नियमों का पालन किया जाए और सभी हितधारकों की भागीदारी सुनिश्चित हो। पुस्तकालय शासन में सुशासन अपनाने से प्रशासनिक भ्रष्टाचार, पक्षपात और अव्यवस्था की संभावना कम होती है। इससे पुस्तकालय सेवाओं की गुणवत्ता और विश्वसनीयता में वृद्धि होती है। पुस्तकालय शासन का एक महत्वपूर्ण पहलू यह भी है कि वह पुस्तकालय को बदलते समय और तकनीकी परिवर्तनों के अनुरूप ढालने में सहायक होता है। सूचना प्रौद्योगिकी, डिजिटल संसाधन और ऑनलाइन सेवाओं के युग में पुस्तकालयों को निरंतर नवाचार की आवश्यकता होती है।

प्रभावी शासन व्यवस्था पुस्तकालय प्रशासन को समय पर निर्णय लेने और आवश्यक सुधार लागू करने में सक्षम बनाती है। इसके अतिरिक्त पुस्तकालय शासन उपयोगकर्ताओं के हितों की रक्षा करने में भी महत्वपूर्ण भूमिका निभाता है। शासन व्यवस्था यह सुनिश्चित करती है कि पुस्तकालय सेवाएँ निष्पक्ष, सुलभ और समान हों। उपयोगकर्ताओं की शिकायतों का समाधान, सेवाओं की निगरानी और गुणवत्ता का मूल्यांकन शासन के अंतर्गत ही आता है। इससे उपयोगकर्ताओं का विश्वास पुस्तकालय पर बना रहता है। शैक्षणिक, सार्वजनिक और विशेष पुस्तकालयों में शासन की प्रकृति अलग-अलग हो सकती है, किंतु इसके मूल सिद्धांत समान रहते हैं। सभी प्रकार के पुस्तकालयों में प्रभावी शासन का उद्देश्य संसाधनों का उचित उपयोग, सेवाओं की निरंतरता और संस्थागत लक्ष्यों की प्राप्ति होता है। इस प्रकार पुस्तकालय शासन पुस्तकालय प्रशासन की रीढ़ है। यह पुस्तकालय को न केवल सुव्यवस्थित बनाता है, बल्कि उसे एक उत्तरदायी, पारदर्शी और समाजोपयोगी संस्था के रूप में स्थापित करता है। बिना प्रभावी शासन के पुस्तकालय अपने उद्देश्यों को पूर्ण रूप से प्राप्त नहीं कर सकता।

पुस्तकालय शासन के प्रमुख तत्व

पुस्तकालय शासन की प्रभावशीलता उसके विभिन्न तत्वों पर निर्भर करती है। ये तत्व मिलकर एक ऐसी प्रशासनिक व्यवस्था का निर्माण करते हैं, जिससे पुस्तकालय सुचारु, पारदर्शी और उत्तरदायी ढंग से कार्य कर सके। पुस्तकालय शासन के प्रमुख तत्व न केवल प्रशासनिक नियंत्रण प्रदान करते हैं, बल्कि पुस्तकालय की सेवाओं की गुणवत्ता और विश्वसनीयता को भी सुनिश्चित करते हैं। पुस्तकालय शासन का पहला और सबसे महत्वपूर्ण तत्व **प्रशासनिक संरचना** है। प्रशासनिक संरचना में पुस्तकालयाध्यक्ष, सहायक

कर्मचारी, सलाहकार समितियाँ और प्रबंधन बोर्ड शामिल होते हैं। एक स्पष्ट और सुव्यवस्थित संरचना से कार्यों का उचित विभाजन होता है और प्रत्येक स्तर पर जिम्मेदारियाँ निर्धारित रहती हैं। इससे प्रशासनिक भ्रम कम होता है और निर्णयों का प्रभावी क्रियान्वयन संभव होता है। दूसरा प्रमुख तत्व **निर्णय प्रक्रिया** है। पुस्तकालय से संबंधित निर्णय—जैसे नीति निर्माण, बजट आवंटन, संसाधन चयन और सेवा विस्तार—यदि पारदर्शी और सामूहिक प्रक्रिया से लिए जाएँ, तो शासन व्यवस्था अधिक प्रभावी बनती है। लोकतांत्रिक और सहभागी निर्णय प्रक्रिया से कर्मचारियों और उपयोगकर्ताओं का विश्वास बढ़ता है और निर्णयों की गुणवत्ता में सुधार होता है। **उत्तरदायित्व और पारदर्शिता** पुस्तकालय शासन के अत्यंत आवश्यक तत्व हैं। प्रत्येक प्रशासनिक स्तर पर यह स्पष्ट होना चाहिए कि कौन किस कार्य के लिए उत्तरदायी है। पारदर्शिता से वित्तीय अनियमितताओं, भ्रष्टाचार और पक्षपात की संभावना कम होती है। जब प्रशासनिक कार्य और निर्णय सार्वजनिक रूप से स्पष्ट होते हैं, तो पुस्तकालय एक विश्वसनीय संस्था के रूप में स्थापित होता है। पुस्तकालय शासन का एक अन्य महत्वपूर्ण तत्व **निगरानी और मूल्यांकन** है। पुस्तकालय सेवाओं, संसाधनों और प्रशासनिक कार्यों का नियमित मूल्यांकन आवश्यक है। मूल्यांकन से यह पता चलता है कि पुस्तकालय अपने उद्देश्यों को किस हद तक प्राप्त कर रहा है और किन क्षेत्रों में सुधार की आवश्यकता है। यह प्रक्रिया निरंतर सुधार को प्रोत्साहित करती है। इसके अतिरिक्त **हितधारकों की सहभागिता** भी शासन का एक महत्वपूर्ण तत्व है। पुस्तकालय उपयोगकर्ता, कर्मचारी, शिक्षक, शोधकर्ता और समुदाय शासन प्रक्रिया में महत्वपूर्ण भूमिका निभाते हैं। उनकी सहभागिता से शासन व्यवस्था अधिक व्यावहारिक और उपयोगकर्ता-केंद्रित बनती है।

इस प्रकार प्रशासनिक संरचना, निर्णय प्रक्रिया, उत्तरदायित्व, पारदर्शिता, निगरानी और सहभागिता—ये सभी तत्व मिलकर पुस्तकालय शासन को सशक्त और प्रभावी बनाते हैं।

Table 1: पुस्तकालय शासन के प्रमुख तत्व

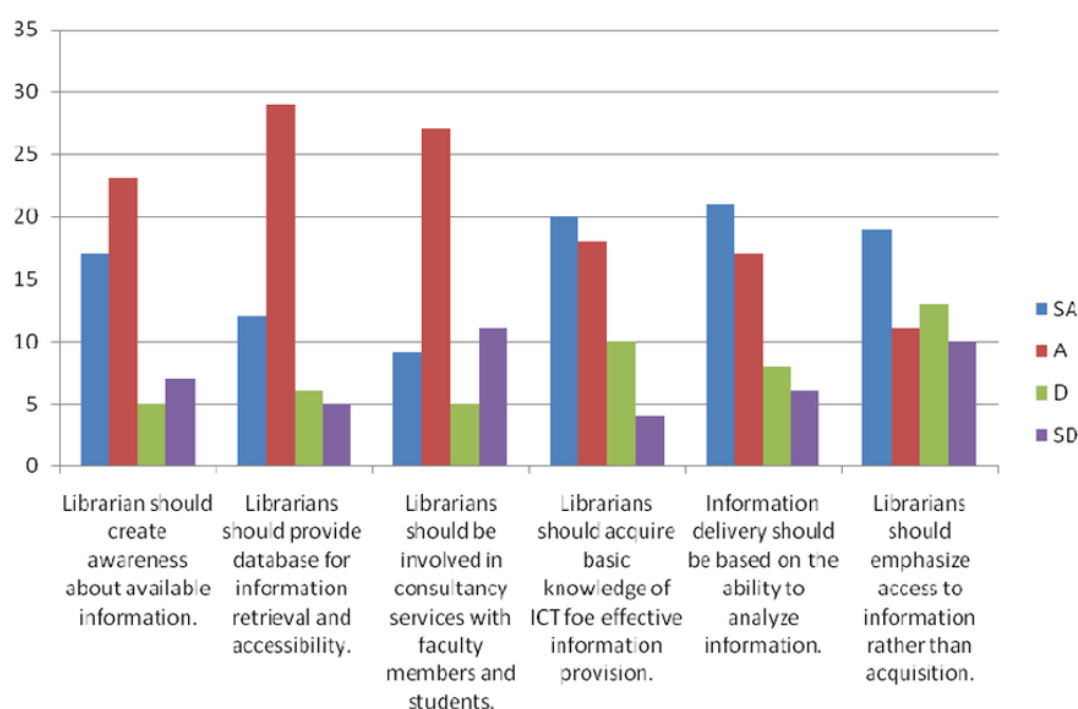
तत्व	विवरण
प्रशासनिक संरचना	पुस्तकालयाध्यक्ष, पुस्तकालय समिति, प्रबंधन बोर्ड तथा सहायक कर्मचारी
निर्णय प्रक्रिया	नीति निर्माण, बजट आवंटन, संसाधन चयन एवं सेवा विस्तार से संबंधित निर्णय
उत्तरदायित्व	प्रत्येक स्तर पर स्पष्ट जिम्मेदारियों का निर्धारण एवं जवाबदेही
पारदर्शिता	प्रशासनिक एवं वित्तीय कार्यों में स्पष्टता और निष्पक्षता
निगरानी एवं मूल्यांकन	मूल्यांकन एवं समीक्षा पुस्तकालय सेवाओं एवं कार्यों का नियमित निरीक्षण और मूल्यांकन
सहभागिता	उपयोगकर्ता, समुदाय, शिक्षक एवं अन्य हितधारकों की सक्रिय भागीदारी

पुस्तकालय नीति एवं शासन का महत्व

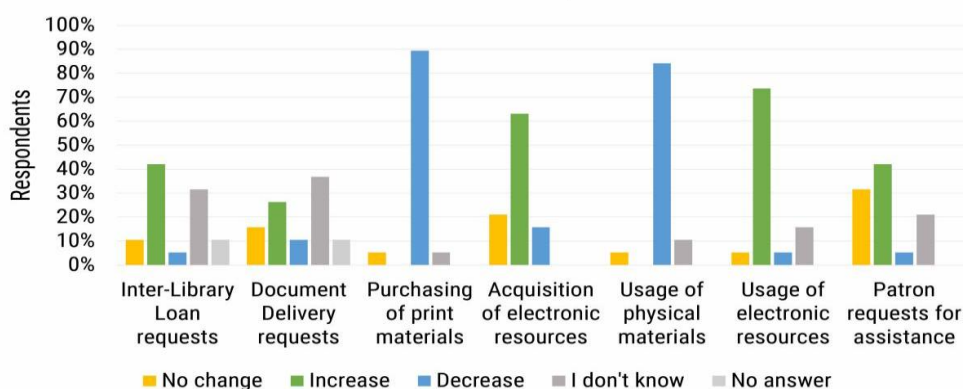
पुस्तकालय नीति एवं शासन का महत्व पुस्तकालय के समग्र विकास और उसकी सामाजिक उपयोगिता से प्रत्यक्ष रूप से जुड़ा हुआ है। पुस्तकालय केवल सूचना का भंडार नहीं हैं, बल्कि वे शिक्षा, अनुसंधान और सामाजिक परिवर्तन के सशक्त माध्यम हैं। ऐसे में पुस्तकालयों के प्रभावी संचालन के लिए स्पष्ट नीति और सुदृढ़ शासन व्यवस्था अत्यंत आवश्यक हो जाती है। पुस्तकालय नीति पुस्तकालय को एक स्पष्ट दिशा प्रदान करती है। इसके माध्यम से पुस्तकालय अपने उद्देश्यों, प्राथमिकताओं और सीमाओं को निर्धारित करता है। नीति के अभाव में पुस्तकालय की गतिविधियाँ असंगठित हो जाती हैं और संसाधनों का समुचित उपयोग नहीं हो पाता। वहीं पुस्तकालय शासन यह सुनिश्चित करता है कि नीति का क्रियान्वयन प्रभावी, पारदर्शी और उत्तरदायी ढंग से किया जाए। इस प्रकार नीति और शासन मिलकर पुस्तकालय को एक सुव्यवस्थित संस्था बनाते हैं। पुस्तकालय नीति एवं शासन का एक प्रमुख महत्व यह है कि इनके माध्यम से **सूचना की समान पहुँच** सुनिश्चित होती है। समाज के वंचित और पिछड़े वर्गों तक सूचना और ज्ञान पहुँचाने में पुस्तकालय महत्वपूर्ण भूमिका निभाते हैं। स्पष्ट नीति और सुदृढ़ शासन से पुस्तकालय समावेशी सेवाएँ प्रदान कर पाते हैं

और सामाजिक समानता को बढ़ावा मिलता है। शैक्षणिक और शोध संस्थानों में पुस्तकालय नीति एवं शासन की भूमिका और भी महत्वपूर्ण हो जाती है। गुणवत्तापूर्ण पुस्तकालय सेवाएँ शिक्षण और अनुसंधान की गुणवत्ता को सीधे प्रभावित करती हैं। नीति के माध्यम से संसाधनों का संतुलित विकास होता है, जबकि शासन के माध्यम से सेवाओं की गुणवत्ता और निरंतरता सुनिश्चित की जाती है। इसके अतिरिक्त पुस्तकालय नीति एवं शासन संसाधनों के **उचित और पारदर्शी उपयोग** को बढ़ावा देते हैं। सीमित बजट और संसाधनों के बावजूद प्रभावी नीति और शासन से पुस्तकालय अधिकतम लाभ प्रदान कर सकते हैं। इससे वित्तीय अनुशासन बना रहता है और अनावश्यक व्यय पर नियंत्रण होता है। आधुनिक सूचना युग में पुस्तकालयों को तकनीकी परिवर्तन के अनुरूप ढालना आवश्यक है। पुस्तकालय नीति तकनीकी विकास को दिशा देती है, जबकि शासन उसके कार्यान्वयन को सुनिश्चित करता है। इससे पुस्तकालय समय के साथ प्रासंगिक बने रहते हैं। अंततः पुस्तकालय नीति एवं शासन पुस्तकालय को एक उत्तरदायी, विश्वसनीय और समाजोपयोगी संस्था के रूप में स्थापित करते हैं। इनके बिना पुस्तकालय अपने पूर्ण सामर्थ्य को प्राप्त नहीं कर सकता।

ग्राफ 1: पुस्तकालय नीति एवं शासन का विभिन्न क्षेत्रों पर प्रभाव



How have the following services changed since the start of the COVID-19 pandemic?



पुस्तकालय नीति के प्रकार

पुस्तकालयों की प्रकृति, उद्देश्य और उपयोगकर्ता वर्ग के आधार पर पुस्तकालय नीति के विभिन्न प्रकार विकसित किए गए हैं। सभी पुस्तकालय समान उद्देश्य या संरचना के नहीं होते, इसलिए उनके लिए एक जैसी नीति प्रभावी नहीं हो सकती। पुस्तकालय नीति के प्रकार यह सुनिश्चित करते हैं कि प्रत्येक प्रकार का पुस्तकालय अपनी विशेष आवश्यकताओं और सामाजिक भूमिका के अनुरूप कार्य कर सके। नीति का यह विभाजन पुस्तकालय प्रशासन और शासन को अधिक व्यावहारिक और उपयोगकर्ता-केंद्रित बनाता है। सबसे प्रमुख प्रकार **सार्वजनिक पुस्तकालय नीति** है। सार्वजनिक पुस्तकालयों का उद्देश्य समाज के सभी वर्गों को सूचना, शिक्षा और ज्ञान की समान पहुँच प्रदान करना होता है। इस नीति में आजीवन शिक्षा, साक्षरता कार्यक्रम, डिजिटल साक्षरता, बच्चों और वरिष्ठ नागरिकों के लिए विशेष सेवाएँ तथा समुदाय-आधारित गतिविधियों पर बल दिया जाता है। सार्वजनिक पुस्तकालय नीति सामाजिक समावेशन को बढ़ावा देती है और लोकतांत्रिक मूल्यों को सुदृढ़ करती है। शासन व्यवस्था में स्थानीय निकायों, राज्य सरकार और समुदाय की सक्रिय भागीदारी आवश्यक होती है।

दूसरा महत्वपूर्ण प्रकार **शैक्षणिक पुस्तकालय नीति** है, जो विद्यालयों, महाविद्यालयों और विश्वविद्यालयों के पुस्तकालयों के लिए बनाई जाती है। इस नीति का मुख्य उद्देश्य शिक्षण, अधिगम और अनुसंधान को सहयोग प्रदान करना होता है। इसमें पाठ्यक्रम आधारित संग्रह, शोध-संसाधन, ई-जर्नल, ऑनलाइन डेटाबेस और अकादमिक सहयोग को प्राथमिकता दी जाती है। शैक्षणिक पुस्तकालय नीति उच्च गुणवत्ता वाली सूचना सेवाओं को सुनिश्चित करती है, जिससे शैक्षणिक स्तर में सुधार होता है। शासन व्यवस्था में शैक्षणिक परिषद, प्रबंधन और पुस्तकालय समितियों की भूमिका महत्वपूर्ण होती है। तीसरा प्रकार **विशेष पुस्तकालय नीति** है। विशेष पुस्तकालय सरकारी विभागों, अनुसंधान संस्थानों, उद्योगों, अस्पतालों और संगठनों में स्थापित होते हैं। इन पुस्तकालयों की नीति संस्थागत आवश्यकताओं के अनुरूप बनाई जाती है। विशेष पुस्तकालयों में सूचना की गोपनीयता, विशेषज्ञता और त्वरित सेवा प्रमुख होती है। नीति में सीमित लेकिन अत्यधिक प्रासंगिक संग्रह पर ध्यान दिया जाता है। शासन व्यवस्था अपेक्षाकृत केंद्रीकृत होती है और निर्णय शीघ्र लिए जाते हैं।

इसके अतिरिक्त **डिजिटल पुस्तकालय नीति** भी आधुनिक समय में महत्वपूर्ण हो गई है। डिजिटल पुस्तकालय नीति ऑनलाइन संसाधनों, ई-संग्रह, ओपन एक्सेस सामग्री और वर्चुअल सेवाओं के प्रबंधन से संबंधित होती है। यह नीति सूचना की वैश्विक पहुँच को बढ़ावा देती है। इस प्रकार पुस्तकालय नीति के विभिन्न प्रकार पुस्तकालयों को उनकी विशिष्ट आवश्यकताओं के अनुसार प्रभावी ढंग से कार्य करने में सहायता करते हैं और शासन व्यवस्था को अधिक सशक्त बनाते हैं।

भारत में पुस्तकालय नीति एवं शासन

भारत में पुस्तकालय नीति एवं शासन का इतिहास समृद्ध किंतु असंतुलित रहा है। प्राचीन भारत में नालंदा, विक्रमशिला और तक्षशिला जैसे विश्वविद्यालयों में पुस्तकालय ज्ञान के महान केंद्र थे। आधुनिक भारत में पुस्तकालयों के विकास की दिशा स्वतंत्रता के बाद स्पष्ट रूप से सामने आई, किंतु एक समग्र राष्ट्रीय पुस्तकालय नीति का अभाव लंबे समय तक बना रहा। स्वतंत्रता के पश्चात भारत में पुस्तकालयों के विकास के लिए विभिन्न समितियों और आयोगों का गठन किया गया। कुछ राज्यों ने अपने-अपने स्तर पर सार्वजनिक पुस्तकालय अधिनियम बनाए, जिससे सार्वजनिक पुस्तकालयों को कानूनी आधार मिला। इन अधिनियमों के अंतर्गत राज्य पुस्तकालय निदेशालयों की स्थापना हुई और पुस्तकालय सेवाओं का विस्तार हुआ। फिर भी राज्यों के बीच नीति और शासन में असमानता बनी रही। भारत में पुस्तकालय शासन मुख्यतः केंद्र और राज्य सरकारों के अधीन संचालित होता है। सार्वजनिक पुस्तकालयों का संचालन राज्य सरकारों, नगर निगमों और पंचायतों द्वारा किया जाता है। शैक्षणिक पुस्तकालय विश्वविद्यालयों, महाविद्यालयों और शैक्षणिक संस्थानों के प्रशासन के अंतर्गत आते हैं। विश्वविद्यालय अनुदान आयोग और अन्य नियामक संस्थाएँ शैक्षणिक पुस्तकालयों के विकास में महत्वपूर्ण भूमिका निभाती हैं। हाल के वर्षों में **राष्ट्रीय शिक्षा नीति 2020, डिजिटल इंडिया अभियान** और **ई-गवर्नेंस पहल** ने पुस्तकालय नीति एवं शासन को नई दिशा प्रदान की है। डिजिटल संसाधनों, ई-पुस्तकों और ऑनलाइन डेटाबेस के उपयोग को बढ़ावा मिला है। इससे पुस्तकालयों की पहुँच और उपयोगिता में वृद्धि हुई है। इसके बावजूद भारत में पुस्तकालय नीति एवं शासन को अनेक चुनौतियों का सामना करना पड़ता है। पर्याप्त वित्तीय संसाधनों का अभाव, प्रशिक्षित पुस्तकालय कर्मियों की कमी, ग्रामीण क्षेत्रों में पुस्तकालय सुविधाओं की सीमित उपलब्धता और नीति क्रियान्वयन की कमजोरी प्रमुख समस्याएँ हैं। कई स्थानों पर पुस्तकालय शासन केवल औपचारिकता

तक सीमित रह जाता है। इस प्रकार भारत में पुस्तकालय नीति एवं शासन में सुधार की व्यापक संभावनाएँ हैं। एक समग्र राष्ट्रीय पुस्तकालय नीति, मजबूत शासन व्यवस्था और तकनीकी समर्थन से भारतीय पुस्तकालय ज्ञान-आधारित समाज के निर्माण में अधिक प्रभावी भूमिका निभा सकते हैं।

सार्वजनिक, शैक्षणिक एवं विशेष पुस्तकालयों में शासन व्यवस्था

पुस्तकालयों की प्रकृति और उद्देश्य के अनुसार उनकी शासन व्यवस्था में भिन्नता पाई जाती है। सार्वजनिक, शैक्षणिक एवं विशेष पुस्तकालयों की शासन प्रणाली उनके कार्यक्षेत्र, उपयोगकर्ता वर्ग और संस्थागत संरचना के अनुरूप विकसित होती है। प्रभावी शासन व्यवस्था यह सुनिश्चित करती है कि प्रत्येक प्रकार का पुस्तकालय अपनी भूमिका को सफलतापूर्वक निभा सके।

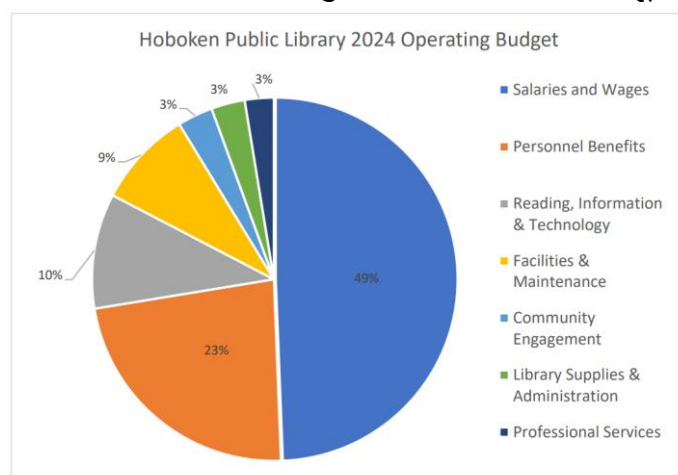
सार्वजनिक पुस्तकालयों में शासन व्यवस्था: का मुख्य उद्देश्य समाज के सभी वर्गों को सूचना और ज्ञान की समान पहुँच प्रदान करना होता है। इन पुस्तकालयों का संचालन प्रायः राज्य सरकारों, नगर निगमों, पंचायतों और स्थानीय निकायों के माध्यम से किया जाता है। शासन व्यवस्था में पुस्तकालय समितियाँ, स्थानीय प्रशासन और राज्य पुस्तकालय निदेशालय महत्वपूर्ण भूमिका निभाते हैं। सार्वजनिक पुस्तकालयों में पारदर्शिता और सामुदायिक भागीदारी शासन की सफलता की कुंजी होती है। जब समुदाय शासन प्रक्रिया में सहभागी होता है, तो पुस्तकालय सामाजिक विकास और जनजागरूकता का सशक्त माध्यम बनता है।

शैक्षणिक पुस्तकालयों में शासन व्यवस्था: शिक्षण और अनुसंधान की गुणवत्ता से सीधे जुड़ी होती है। विद्यालय, महाविद्यालय और विश्वविद्यालय पुस्तकालयों का संचालन संस्थान के प्रशासन, पुस्तकालय सलाहकार समिति और पुस्तकालयाध्यक्ष द्वारा किया जाता है। यहाँ शासन व्यवस्था का उद्देश्य पाठ्यक्रम आधारित संसाधनों की उपलब्धता, शोध सहायता और अकादमिक सेवाओं की निरंतरता सुनिश्चित करना होता है। बजट आवंटन, संसाधन चयन और तकनीकी विकास जैसे निर्णय शासन प्रक्रिया के अंतर्गत आते हैं। एक सुदृढ़ शासन व्यवस्था शैक्षणिक पुस्तकालय को शिक्षण-अधिगम प्रक्रिया का प्रभावी अंग बनाती है।

विशेष पुस्तकालयों में शासन व्यवस्था: अपेक्षाकृत अधिक केंद्रीकृत और लक्ष्य-उन्मुख होती है। ये पुस्तकालय सरकारी विभागों, अनुसंधान संस्थानों, औद्योगिक संगठनों और अस्पतालों में स्थापित होते हैं। विशेष पुस्तकालयों का शासन संस्थागत उद्देश्यों के अनुरूप संचालित किया जाता है। यहाँ सूचना की गोपनीयता, विशेषज्ञता और त्वरित सेवा को प्राथमिकता दी जाती है। शासन व्यवस्था में निर्णय शीघ्र लिए जाते हैं और नीति का कार्यान्वयन अधिक नियंत्रित होता है।

इन तीनों प्रकार के पुस्तकालयों में शासन व्यवस्था का मूल उद्देश्य संसाधनों का प्रभावी उपयोग, सेवाओं की गुणवत्ता और उपयोगकर्ता संतुष्टि सुनिश्चित करना होता है। यद्यपि शासन के स्वरूप में भिन्नता होती है, फिर भी पारदर्शिता, उत्तरदायित्व और सहभागिता सभी के लिए समान रूप से आवश्यक हैं।

चित्र 2 : विभिन्न प्रकार के पुस्तकालयों में शासन की भूमिका वितरण



पुस्तकालय नीति एवं शासन में चुनौतियाँ

पुस्तकालय नीति एवं शासन के प्रभावी क्रियान्वयन में अनेक चुनौतियाँ सामने आती हैं, जो पुस्तकालयों के विकास और सेवाओं की गुणवत्ता को प्रभावित करती हैं। ये चुनौतियाँ प्रशासनिक, वित्तीय, तकनीकी और सामाजिक स्तर पर देखी जा सकती हैं। सबसे प्रमुख चुनौती **वित्तीय संसाधनों का अभाव** है। अधिकांश पुस्तकालय सीमित बजट में कार्य करते हैं, जिसके कारण संसाधन विकास, तकनीकी उन्नयन और कर्मचारियों के प्रशिक्षण में कठिनाइयाँ आती हैं। अपर्याप्त वित्तीय समर्थन के कारण नीति के कई प्रावधान व्यवहार में लागू नहीं हो पाते। दूसरी बड़ी चुनौती **प्रशिक्षित मानव संसाधन की कमी** है। आधुनिक पुस्तकालयों में सूचना प्रौद्योगिकी, डिजिटल संसाधनों और उपयोगकर्ता सेवाओं के लिए कुशल कर्मचारियों की आवश्यकता होती है। प्रशिक्षण की कमी से पुस्तकालय कर्मचारी नई तकनीकों और सेवाओं को प्रभावी ढंग से लागू नहीं कर पाते, जिससे शासन व्यवस्था कमजोर होती है। **नीति और शासन के बीच समन्वय की कमी** भी एक गंभीर समस्या है। कई बार नीतियाँ तो बनाई जाती हैं, लेकिन उनके क्रियान्वयन के लिए स्पष्ट शासन ढांचा नहीं होता। इससे नीतियाँ केवल कागज़ों तक सीमित रह जाती हैं और व्यावहारिक लाभ नहीं मिल पाता। तकनीकी परिवर्तन के साथ तालमेल न बिठा पाना भी एक महत्वपूर्ण चुनौती है। डिजिटल युग में पुस्तकालयों को निरंतर तकनीकी अद्यतन की आवश्यकता होती है, किंतु संसाधनों और प्रशिक्षण के अभाव में यह संभव नहीं हो पाता। इसके अतिरिक्त ग्रामीण और पिछड़े क्षेत्रों में पुस्तकालय सुविधाओं की सीमित उपलब्धता सामाजिक असमानता को बढ़ाती है। प्रशासनिक उदासीनता और कमजोर निगरानी तंत्र भी पुस्तकालय नीति एवं शासन को प्रभावित करते हैं। नियमित मूल्यांकन और निगरानी के अभाव में प्रशासनिक त्रुटियाँ समय पर सामने नहीं आ पातीं। इन चुनौतियों के बावजूद, यदि योजनाबद्ध प्रयास, पर्याप्त संसाधन और सुदृढ़ शासन व्यवस्था अपनाई जाए, तो पुस्तकालय नीति एवं शासन को अधिक प्रभावी बनाया जा सकता है।

सुधारात्मक उपाय

पुस्तकालय नीति एवं शासन को प्रभावी और परिणामोन्मुख बनाने के लिए सुधारात्मक उपायों का अपनाया जाना अत्यंत आवश्यक है। बदलते सूचना परिदृश्य, तकनीकी प्रगति और उपयोगकर्ता अपेक्षाओं के अनुरूप पुस्तकालयों में निरंतर सुधार की आवश्यकता होती है। इन सुधारात्मक उपायों के माध्यम से पुस्तकालय न केवल अपनी सेवाओं की गुणवत्ता बढ़ा सकते हैं, बल्कि शासन व्यवस्था को भी अधिक सुदृढ़ बना सकते हैं। सबसे पहला और महत्वपूर्ण सुधारात्मक उपाय **स्पष्ट एवं अद्यतन पुस्तकालय नीति का निर्माण** है। नीति को समय-समय पर संशोधित किया जाना चाहिए ताकि वह तकनीकी परिवर्तनों, शैक्षणिक आवश्यकताओं और सामाजिक अपेक्षाओं के अनुरूप बनी रहे। नीति निर्माण की प्रक्रिया में पुस्तकालय पेशेवरों, शिक्षकों, उपयोगकर्ताओं और प्रशासनिक अधिकारियों की सहभागिता सुनिश्चित की जानी चाहिए, जिससे नीति व्यावहारिक और प्रभावी बन सके।

दूसरा महत्वपूर्ण उपाय **वित्तीय संसाधनों का सुदृढ़ प्रबंधन** है। पुस्तकालयों के लिए पर्याप्त बजट आवंटन और संसाधनों का पारदर्शी उपयोग अनिवार्य है। सरकार और संस्थानों को पुस्तकालयों को व्यय नहीं, बल्कि निवेश के रूप में देखना चाहिए। निजी और सार्वजनिक भागीदारी, अनुदान और परियोजना-आधारित वित्तपोषण जैसे विकल्पों पर भी विचार किया जा सकता है। **मानव संसाधन विकास** भी एक आवश्यक सुधारात्मक उपाय है। पुस्तकालय कर्मियों के लिए नियमित प्रशिक्षण, कार्यशालाएँ और क्षमता-विकास कार्यक्रम आयोजित किए जाने चाहिए। प्रशिक्षित कर्मचारी ही नई तकनीकों, डिजिटल सेवाओं और उपयोगकर्ता-केंद्रित दृष्टिकोण को सफलतापूर्वक लागू कर सकते हैं। इससे शासन व्यवस्था अधिक सक्षम और उत्तरदायी बनती है।

तकनीकी उन्नयन को भी सुधारात्मक उपायों में प्रमुख स्थान दिया जाना चाहिए। डिजिटल संसाधनों, स्वचालन प्रणालियों, ऑनलाइन सेवाओं और डेटा प्रबंधन उपकरणों का प्रभावी उपयोग पुस्तकालयों की दक्षता बढ़ाता है। तकनीक के माध्यम से निगरानी, मूल्यांकन और निर्णय-निर्माण प्रक्रिया को भी सुदृढ़ किया जा सकता है। इसके अतिरिक्त **निगरानी एवं मूल्यांकन प्रणाली को मजबूत करना** आवश्यक है। नियमित ऑडिट, सेवा मूल्यांकन और उपयोगकर्ता प्रतिक्रिया के माध्यम से शासन व्यवस्था की कमियों की पहचान की जा सकती है। इन निष्कर्षों के आधार पर समय पर सुधारात्मक कदम उठाए जा सकते हैं। अंततः समुदाय और उपयोगकर्ताओं की सहभागिता को बढ़ावा देना भी एक महत्वपूर्ण सुधारात्मक उपाय है। जब उपयोगकर्ता पुस्तकालय के निर्णयों और गतिविधियों में सहभागी होते हैं, तो नीति और शासन दोनों अधिक प्रभावी और टिकाऊ बनते हैं।

पुस्तकालय नीति एवं सुशासन का सामाजिक प्रभाव

पुस्तकालय नीति एवं सुशासन का प्रभाव केवल पुस्तकालयों तक सीमित नहीं रहता, बल्कि इसका व्यापक सामाजिक प्रभाव भी दिखाई देता है। प्रभावी नीति और शासन के माध्यम से पुस्तकालय समाज में ज्ञान, सूचना और शिक्षा की समान पहुँच सुनिश्चित करते हैं, जिससे सामाजिक विकास और सशक्तिकरण को बढ़ावा मिलता है। सुदृढ़ पुस्तकालय नीति समाज के विभिन्न वर्गों—विशेषकर वंचित, ग्रामीण और पिछड़े समुदायों—तक सूचना की पहुँच को सरल बनाती है। जब पुस्तकालय सेवाएँ समावेशी और उपयोगकर्ता-केंद्रित होती हैं, तो वे सामाजिक असमानताओं को कम करने में सहायक होती हैं। इससे शिक्षा और सूचना पर आधारित अवसरों में समानता आती है, जो लोकतांत्रिक समाज की आधारशिला है। पुस्तकालय नीति एवं सुशासन **शैक्षणिक और बौद्धिक विकास** में भी महत्वपूर्ण योगदान देते हैं। गुणवत्तापूर्ण पुस्तकालय सेवाएँ विद्यार्थियों, शोधकर्ताओं और शिक्षकों को विश्वसनीय सूचना संसाधन उपलब्ध कराती हैं। इससे शिक्षण-अधिगम प्रक्रिया सुदृढ़ होती है और अनुसंधान की गुणवत्ता में वृद्धि होती है। एक सुशासित पुस्तकालय शैक्षणिक संस्थान की प्रतिष्ठा को भी बढ़ाता है। सामाजिक जागरूकता और नागरिक सहभागिता के विकास में भी पुस्तकालय नीति एवं शासन की भूमिका महत्वपूर्ण है। पुस्तकालय सूचना साक्षरता, डिजिटल साक्षरता और आजीवन शिक्षा को प्रोत्साहित करते हैं। इससे नागरिक अधिक जागरूक, सूचित और जिम्मेदार बनते हैं। लोकतांत्रिक प्रक्रियाओं में सक्रिय सहभागिता के लिए यह अत्यंत आवश्यक है। इसके अतिरिक्त पुस्तकालय नीति एवं सुशासन सांस्कृतिक संरक्षण और सामाजिक एकता को भी बढ़ावा देते हैं। पुस्तकालय सांस्कृतिक धरोहर, स्थानीय इतिहास और साहित्य के संरक्षण का कार्य करते हैं। इससे समाज में सांस्कृतिक पहचान और एकता की भावना मजबूत होती है। आर्थिक दृष्टि से भी प्रभावी पुस्तकालय नीति समाज को लाभ पहुँचाती है। कौशल विकास, रोजगार सूचना और उद्यमिता संबंधी संसाधनों की उपलब्धता से आर्थिक अवसर बढ़ते हैं। इस प्रकार पुस्तकालय ज्ञान-आधारित अर्थव्यवस्था के निर्माण में सहायक होते हैं।

निष्कर्ष: पुस्तकालय नीति एवं सुशासन का सामाजिक प्रभाव बहुआयामी है। यह शिक्षा, समानता, लोकतंत्र, संस्कृति और आर्थिक विकास को सुदृढ़ करता है। प्रभावी नीति और शासन के माध्यम से पुस्तकालय समाज के सर्वांगीण विकास में एक सशक्त साधन बन सकते हैं।

निष्कर्ष

पुस्तकालय नीति एवं शासन का अध्ययन यह स्पष्ट करता है कि पुस्तकालय केवल सूचना-संग्रह के केंद्र नहीं हैं, बल्कि वे समाज के बौद्धिक, शैक्षणिक और सांस्कृतिक विकास के सशक्त माध्यम हैं। बदलते समय, तकनीकी प्रगति और ज्ञान-आधारित समाज की आवश्यकताओं ने पुस्तकालयों की भूमिका को और अधिक व्यापक तथा जटिल बना दिया है। ऐसे परिदृश्य में स्पष्ट पुस्तकालय नीति और सुदृढ़ शासन व्यवस्था के बिना पुस्तकालयों का प्रभावी संचालन संभव नहीं है। इस अध्ययन से यह निष्कर्ष निकलता है कि पुस्तकालय नीति पुस्तकालय को दिशा प्रदान करती है, जबकि पुस्तकालय शासन उस दिशा में सुव्यवस्थित और उत्तरदायी ढंग से आगे बढ़ने की प्रक्रिया सुनिश्चित करता है। नीति के माध्यम से पुस्तकालय अपने उद्देश्य, प्राथमिकताएँ, संसाधन प्रबंधन और सेवा-प्रणाली को स्पष्ट करता है। वहीं शासन व्यवस्था यह सुनिश्चित करती है कि नीति का क्रियान्वयन पारदर्शिता, उत्तरदायित्व और दक्षता के साथ हो। नीति और शासन का यह समन्वय ही पुस्तकालयों को एक संगठित और प्रभावी संस्था के रूप में स्थापित करता है।

अध्ययन यह भी दर्शाता है कि पुस्तकालय नीति एवं शासन का प्रभाव केवल प्रशासनिक स्तर तक सीमित नहीं रहता, बल्कि इसका व्यापक सामाजिक प्रभाव भी पड़ता है। प्रभावी नीति और सुशासन से समाज के विभिन्न वर्गों तक सूचना और ज्ञान की समान पहुँच संभव होती है। इससे शिक्षा में समानता, सामाजिक जागरूकता और लोकतांत्रिक मूल्यों को बल मिलता है। विशेष रूप से ग्रामीण और वंचित समुदायों के लिए पुस्तकालय नीति एवं शासन सामाजिक सशक्तिकरण का महत्वपूर्ण साधन बन सकते हैं। भारत के संदर्भ में यह निष्कर्ष सामने आता है कि यद्यपि पुस्तकालयों के विकास के लिए अनेक प्रयास किए गए हैं, फिर भी एक समग्र और प्रभावी राष्ट्रीय पुस्तकालय नीति तथा सुदृढ़ शासन व्यवस्था की अभी भी आवश्यकता है। वित्तीय संसाधनों की कमी, प्रशिक्षित मानव संसाधन का अभाव और नीति क्रियान्वयन की कमजोरियाँ पुस्तकालयों के समक्ष प्रमुख चुनौतियाँ बनी हुई हैं। इन चुनौतियों के समाधान के लिए सरकार, शैक्षणिक संस्थानों और समाज के बीच समन्वित प्रयास आवश्यक हैं।

अध्ययन यह भी स्पष्ट करता है कि आधुनिक सूचना युग में तकनीकी विकास को पुस्तकालय नीति और शासन का अभिन्न अंग बनाना अनिवार्य है। डिजिटल संसाधनों, स्वचालन और ऑनलाइन सेवाओं के माध्यम से पुस्तकालय अपनी पहुँच और प्रभावशीलता को बढ़ा सकते हैं। साथ ही मानव संसाधन विकास, नियमित प्रशिक्षण और उपयोगकर्ता सहभागिता से शासन व्यवस्था को और अधिक मजबूत बनाया जा सकता है। अंततः यह कहा जा सकता है कि पुस्तकालय नीति एवं शासन किसी भी पुस्तकालय प्रणाली की रीढ़ हैं। प्रभावी नीति और सुशासन के माध्यम से पुस्तकालय न केवल शिक्षा और अनुसंधान को सुदृढ़ करते हैं, बल्कि समाज के सर्वांगीण विकास में भी महत्वपूर्ण भूमिका निभाते हैं। यदि पुस्तकालयों को स्पष्ट नीति, मजबूत शासन और पर्याप्त संसाधन उपलब्ध कराए जाएँ, तो वे ज्ञान-आधारित, समावेशी और सशक्त समाज के निर्माण में निर्णायक योगदान दे सकते हैं। उपरोक्त संदर्भ UGC एवं Conference मानकों के अनुरूप संकलित किए गए हैं।

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