

Repositioning Libraries as National Knowledge Infrastructure for Viksit Bharat 2047

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ABSTRACT

India's Vision Viksit Bharat 2047 sets a clear national mandate to transform the country into a developed, knowledge-driven, and innovation-led economy by the centenary of its independence. Achieving this vision requires positioning libraries as core national infrastructure rather than peripheral support systems. This article argues that libraries must be strategically integrated into governance, research, and innovation frameworks as enablers of digital inclusion, evidence-based policymaking, and knowledge equity. It critically examines their transition from traditional repositories to intelligent, data-driven, and user-centric knowledge hubs, drawing on institutional practices such as the IIT Delhi Library system. The analysis highlights the urgent need to scale digital transformation, research support services, open access, and the adoption of emerging technologies, including artificial intelligence and data analytics. It calls for policy-driven investment, capacity building, and institutional alignment to strengthen library ecosystems as a prerequisite for a globally competitive, sustainable knowledge economy under Viksit Bharat 2047.

Keywords: Developed India 2047, Digital Transformation in Libraries, Evidence-Based Governance, Knowledge economy, Research and Innovation Ecosystems, Viksit Bharat 2047.

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INTRODUCTION

Viksit Bharat means Developed India. Viksit Bharat 2047 is the government's vision to drive the mission of making India a completely developed nation by its 100th anniversary of independence in 2047. The vision is based on four pillars: Yuva (Youth), Garib (Poor), Mahilayen (Women), and Annadata (Farmers) (Government of India, 2023; NITI Aayog, 2024).

Libraries for Viksit Bharat 2047 initiatives focus on transforming libraries into vibrant, digital, and community-focused knowledge hubs. These spaces are designed to support India's development goals by integrating AI, open resources, and inclusive digital technologies, aiming for equitable access to knowledge, promoting lifelong learning, and serving as catalysts for social innovation.

The concept of a knowledge-driven economy has become central to national development strategies worldwide. India's Vision Viksit Bharat 2047 seeks to position the country as a developed nation characterised by economic growth, technological advancement, and global leadership in research and innovation. Within this broader framework, knowledge institutions,

particularly libraries, play a foundational role in enabling access to information, fostering innovation, and supporting evidence-based decision-making (OECD, 2020).

Historically, libraries were viewed as custodians of non-digital knowledge. However, the rapid proliferation of digital technologies, coupled with the exponential growth of research data, has fundamentally transformed their roles. Today, libraries are increasingly recognised as active contributors to research ecosystems, offering advanced services such as research analytics, data management, scholarly communication support, and digital literacy training.

This article examines how libraries can serve as a strategic knowledge infrastructure to achieve the goals of Viksit Bharat 2047. It explores the transformation of library services, the integration of emerging technologies, and the expanding role of libraries in research support and policy frameworks (Figure 1).

Key Elements

Key elements of this vision include:

- **Digital Transformation and AI:** Modernising public and higher education libraries through the integration of artificial intelligence, machine learning, and digital repositories.
- **Knowledge Hubs:** Transforming libraries into community centres (learning commons) that provide



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smart technologies and foster collaboration, moving beyond their traditional role as mere book repositories.

- **Empowering Communities:** Ensuring equitable access to information across rural and urban areas to bridge the digital divide.
- **Indian Knowledge Systems (IKS):** Preserving and integrating India's rich traditional knowledge systems alongside modern education.
- **Sustainable Infrastructure:** Developing sustainable, community-driven library systems aligned with the National Education Policy 2020 to promote equitable and inclusive development.

- **Cultural Preservation:** Libraries play a central role in documenting, digitising, and preserving regional languages, traditional knowledge systems, and cultural heritage.
- **Empowering democracy and inclusivity:** They ensure equal access to information for everyone, providing resources in multiple regional languages and supporting democratic participation by offering access to legal, government, and policy documents.
- To achieve this vision, libraries are shifting from traditional repositories to active, smart community agents that require updated infrastructure, funding, and skilled library professionals.

Why Libraries Matter in Viksit Bharat 2047

Libraries constitute a foundational pillar in the realisation of Viksit Bharat 2047, serving as a critical knowledge infrastructure that underpins national development. They function not merely as repositories of information but as dynamic enablers of research, innovation, and evidence-based decision-making. By providing equitable access to digital resources, technologies, and information services, libraries act as vital gateways to digital inclusion, particularly for underserved and marginalised communities. Furthermore, they play a transformative role in fostering lifelong learning by supporting formal education, skill development, and continuous knowledge acquisition across all segments of society. In the context of governance and public policy, libraries increasingly emerge as strategic partners by facilitating access to government information, supporting data-driven policy research, and promoting informed citizen participation. Collectively, these roles position libraries as indispensable catalysts in building a robust knowledge economy; indeed, without strong, future-ready library systems, the vision of a developed, inclusive, and innovation-driven India remains incomplete (OECD, 2020; World Bank, 2021; UNESCO, 2022).

Key roles of libraries in shaping a developed India by 2047 include:

- **Digital transformation and bridging the divide:** Modern libraries serve as crucial access points to high-speed internet, digital tools, and e-resources, ensuring that rural and marginalised communities gain digital skills in e-governance, online banking, and cybersecurity.
- **Knowledge and innovation hubs:** Libraries support research, skill development, and vocational training, offering collaborative spaces such as hacker or maker spaces to promote innovation.
- **Lifelong learning and education support:** By providing books, e-journals, and educational databases, libraries support the National Education Policy 2020 by enabling continuous learning for all age groups, acting as vibrant community centres.

Libraries as Knowledge and Research Enablers

Libraries play a crucial role as knowledge and research enablers in realising Viksit Bharat 2047, significantly strengthening the country's research and innovation ecosystem. They provide seamless access to high-quality scholarly content, including journals, databases, and digital resources, thereby supporting advanced academic inquiry and evidence-based research. Beyond access, libraries offer sophisticated research support services, such as bibliometrics, scientometrics, data analytics, and visualisation tools, that help scholars assess research impact and identify emerging trends. They also contribute to the development of rigorous scholarship through systematic review support and by facilitating evidence-based policy research. In addition, libraries uphold research integrity by providing similarity-checking services and guidance on ethical publishing practices. The promotion of institutional repositories and open-access initiatives further ensures wider dissemination and long-term preservation of research outputs, enhancing their accessibility and impact. Collectively, these functions position libraries as strategic partners in advancing global research visibility and strengthening national innovation capacity, thereby aligning closely with the broader objectives of building a knowledge-driven, innovation-led economy under the Vision Viksit Bharat 2047 framework (World Bank, 2021; UNESCO, 2022; Lu and Lin, 2024).

Vision Viksit Bharat 2047 and Knowledge Ecosystems

Vision Viksit Bharat 2047 represents India's long-term national mission to transform itself into a fully developed nation by the centenary of its independence. It envisions not only accelerated economic growth but also a structural transformation toward a knowledge-driven and innovation-led society. The vision aims to position India as a \$30 trillion economy while ensuring development is inclusive, digitally empowered, and globally competitive, particularly in research, technology, and education. Central to this vision is the creation of a robust ecosystem that promotes intellectual capital, technological advancement, and equitable access to opportunities. The Viksit Bharat 2047

framework is anchored in five core pillars: sustained economic growth, comprehensive human capital development, deep digital transformation, transparent and effective governance, and a strong commitment to sustainability and social inclusion. Together, these pillars aim to foster a balanced model of development that integrates economic progress with social equity and environmental responsibility. Within this broader national agenda, knowledge institutions, especially libraries, play a pivotal role as enablers of information access, digital inclusion, lifelong learning, and research excellence, thereby contributing significantly to the realisation of a developed, self-reliant India (Government of India, 2023; NITI Aayog, 2024).

Vision Viksit Bharat 2047 envisions India as:

- A developed nation.
- A \$30 trillion economy (aspirational).
- A digitally empowered society.
- A global leader in research and innovation.

The vision is anchored in five core pillars:

- Economic growth.
- Human capital development.
- Digital transformation.
- Good governance.
- Sustainability and social inclusion.

Knowledge ecosystems are central to all these pillars. Libraries, as key nodes within these ecosystems, facilitate access to information, support research, and enable lifelong learning. Without strong libraries, the development of a knowledge economy remains incomplete.

Libraries and Digital Transformation

In the context of Digital India and the broader vision of Viksit Bharat 2047, libraries are undergoing a profound digital transformation, repositioning themselves as dynamic digital knowledge hubs and critical components of national knowledge infrastructure. They provide seamless remote access to a wide range of electronic resources, enabling users to engage with scholarly content anytime and anywhere, thereby transcending physical boundaries. The integration of artificial intelligence into library systems has significantly enhanced discovery by enabling intelligent search, recommendation tools, and automated services, thereby improving both the user experience and research efficiency (Lu and Lin, 2024; Ardyawina *et al.*, 2025; OECD, 2020).

Libraries are also developing and maintaining digital repositories that preserve and disseminate institutional knowledge, ensuring

long-term access to scholarly outputs and enhancing research visibility. In addition, they play a pivotal role in research data management by supporting data curation, storage, sharing, and compliance with emerging open science frameworks. Equally important is their contribution to digital literacy, as libraries design and deliver training programmes that equip users with the skills required to access, evaluate, and effectively use digital information. The promotion of Open Educational Resources (OER) further democratizes access to knowledge, supporting inclusive, equitable, and affordable education.

Collectively, these initiatives underscore the transformation of libraries into integrated digital ecosystems that not only support research and learning but also enable innovation, strengthen evidence-based practices, and advance digital inclusion, aligning closely with the national agenda of building a digitally empowered and knowledge-driven society under Viksit Bharat 2047.

Digital transformation is thus a defining characteristic of contemporary libraries. Key components of this transformation include:

- Remote access to electronic resources.
- AI-enabled discovery tools.
- Digital repositories.
- Research data management systems.
- Digital literacy initiatives.
- Open Educational Resources (OER) (Figure 2).

What Libraries Have to Offer for 2047

To effectively contribute to the realisation of Viksit Bharat 2047, libraries must strategically leverage their multifaceted strengths across expertise, infrastructure, services, and leadership. At the core of this transformation are skilled information professionals with competencies in metadata creation, knowledge organisation, and research impact assessment, enabling efficient discovery and meaningful utilisation of information resources (ACRL, 2022; OECD, 2020).

In terms of infrastructure, libraries are evolving into technologically advanced knowledge ecosystems supported by digital platforms, institutional repositories, and collaborative learning commons that facilitate knowledge exchange and innovation. Their service portfolio has expanded significantly to include bibliometrics and research analytics, research data management services, and comprehensive scholarly communication support, thereby strengthening the entire research lifecycle from creation to dissemination.

Equally critical is the leadership role of libraries in shaping institutional and national knowledge strategies through strategic knowledge planning, the development of digital policy frameworks, and the establishment of robust knowledge



Figure 1: Vision Viksit Bharat: <https://viksitindia.com>

governance mechanisms. Collectively, these capabilities reposition libraries from traditional service providers to strategic partners and thought leaders in advancing a knowledge-driven, innovation-led, and digitally empowered India, aligned with the national vision of Viksit Bharat 2047.

Research Support and Scholarly Communication Ecosystems In Academic Libraries

Libraries are increasingly central to research and innovation ecosystems, serving as critical enablers of knowledge creation, dissemination, and impact. Their role has expanded from traditional support functions to that of integrated research partners and strategic knowledge infrastructure. Academic libraries now provide a comprehensive suite of research support services, including access to high-quality scholarly content, bibliometric and scientometric analysis, systematic review support, plagiarism detection and research integrity services, and training on reference management tools. In addition, libraries play a pivotal role in advancing research data management by supporting data curation and stewardship, metadata creation and standardisation, and the sharing and long-term preservation of research data in alignment with emerging open science frameworks (World Bank, 2021; cOAlition S, 2021; SPARC, 2022).

Libraries also contribute significantly to the scholarly communication lifecycle by assisting researchers with journal selection, publication strategies, compliance with open-access publishing requirements, and copyright and licensing issues. At a broader level, the global shift toward open access is fundamentally transforming scholarly communication by enhancing the

accessibility, visibility, and impact of research outputs. In this evolving landscape, libraries serve as key facilitators by aligning institutional practices with international open science movements such as Plan S, the United States' 2026 open access mandates, and China's open science strategies.

Within the Indian context, national initiatives such as One Nation One Subscription (ONOS) and the Aakashganga Open Access Platform represent significant policy interventions aimed at democratizing access to knowledge and strengthening research visibility. Collectively, these developments position libraries as central actors in advancing open, inclusive, and globally competitive research ecosystems, directly supporting the broader objectives of a knowledge-driven and innovation-led India under the vision of Viksit Bharat 2047 (Office of the Principal Scientific Adviser, 2024; Research Information, 2024).

How Libraries Can Transform to Support Viksit Bharat Mission 2047

To effectively support the Viksit Bharat Mission 2047, libraries must undergo a comprehensive transformation from traditional book repositories into strategic knowledge hubs that actively contribute to national development. This transformation involves strengthening research quality through advanced research support services, including analytics, research data management, and mechanisms to uphold academic integrity, such as plagiarism detection. Libraries also play a critical role in enabling evidence-based governance by providing legislative research support, facilitating knowledge management, and ensuring data validation and transparency for informed

policymaking. In the digital era, they are equally instrumental in combating misinformation by promoting digital literacy, deploying AI-enabled discovery tools, and expanding access to federated electronic resources (Figure 3). Furthermore, libraries foster a robust innovation ecosystem by supporting national initiatives such as One Nation One Subscription, integrating with the National Digital Library, and promoting open access to scholarly knowledge. Through these multidimensional functions, libraries not only enhance research excellence and policy effectiveness but also empower citizens and institutions, thereby positioning themselves as key drivers in achieving the vision of a knowledge-driven, digitally empowered, and innovation-led Viksit Bharat by 2047 (OECD, 2020; World Bank, 2021).

CHALLENGES, OPPORTUNITIES, AND STRATEGIC DIRECTIONS FOR LIBRARIES IN VIKSIT BHARAT 2047

As India advances toward the vision of Viksit Bharat 2047, libraries face a complex landscape of challenges alongside significant opportunities that will shape their transformation into strategic knowledge infrastructure. Among the key challenges are the persistent digital divide and issues of equitable access, particularly across rural and underserved regions, which limit the inclusive reach of library services. Budgetary constraints continue to restrict investments in advanced technologies, infrastructure, and resource acquisition, while the rapid pace of technological change demands continuous adaptation and upgradation of systems. Additionally, skill gaps among library professionals in emerging areas such as artificial intelligence, data analytics, and research data management pose a critical barrier



Figure 2: Developed India Mission 1947-2047: <https://viksitindia.com>



Figure 3: Viksit Bharat Vision 2047 realisation depiction through libraries: <https://viksitindia.com>.

to effective transformation (Ardyawina *et al.*, 2025; Lu and Lin, 2024; UNESCO, 2022).

However, these challenges present substantial opportunities for re-envisioning library systems. The integration of artificial intelligence and big data analytics offers the potential to enhance discovery systems, personalise user services, and strengthen research support. The global expansion of open-access initiatives provides libraries with a strategic avenue to democratise knowledge and increase research visibility. Furthermore, greater collaboration with research institutions, government bodies, and policy organisations can position libraries as key contributors to evidence-based governance and national development. The development of smart, technology-enabled library ecosystems that combine digital platforms, data-driven services, and user-centric design further reinforces their evolving role as dynamic knowledge hubs.

In this context, a set of strategic directions is essential to align library systems with national priorities. Strengthening digital infrastructure across public and academic libraries is fundamental to ensuring equitable and scalable access to knowledge resources. Investment in capacity building and continuous skill development of library professionals is critical to harness emerging technologies effectively. Promoting open access through institutional repositories and national initiatives will enhance the dissemination and impact of research. The integration of artificial intelligence and data analytics into library services will enable more efficient, responsive, and innovative knowledge delivery. Finally, libraries must be positioned as strategic partners in governance and policy-making processes, contributing to data-driven decision-making and reinforcing their role as indispensable pillars of a knowledge-driven, innovation-led, and digitally empowered India under *Viksit Bharat 2047*.

CONCLUSION

The vision *Viksit Bharat 2047* must be understood not merely as an economic aspiration but as a comprehensive knowledge-transformation agenda, in which libraries serve as a foundational national knowledge infrastructure. India's ambition to emerge as a \$30 trillion economy and a global leader in research and innovation is increasingly underpinned by the scale and effectiveness of its digital and knowledge ecosystems.

Recent national developments highlight the magnitude of this transformation. As of 2025, India's digital economy contributes approximately 11-13% of GDP, with over 960 million internet users, reflecting unprecedented expansion in digital access and participation. The country's Digital Public Infrastructure (DPI), including platforms such as Aadhaar, UPI, and DigiLocker, has achieved global scale, with UPI alone processing over 20 billion transactions per month, demonstrating the power of interoperable, inclusive digital systems. These developments

provide a compelling model for reimagining libraries as integrated components of national digital infrastructure, capable of delivering knowledge services on a similar scale and efficiency (Ministry of Electronics and Information Technology, 2025).

Within the research ecosystem, transformative initiatives such as ONOS aim to provide access to 13,000+ scholarly journals across more than 7,413 institutions, benefiting over 98,96,264 users and significantly democratising access to high-quality research. Similarly, the establishment of the ANRF and the expansion of India's AI ecosystem under the IndiaAI Mission signal a strategic shift toward data-intensive, innovation-driven research environments. In parallel, frameworks such as the Digital Personal Data Protection (DPDP) Rules 2025 reinforce the importance of ethical data governance, an area where libraries play a critical stewardship role (Office of the Principal Scientific Adviser, 2024; Ministry of Electronics and Information Technology, 2025; Government of India, 2023; IndiaAI, n.d.).

In this rapidly evolving landscape, libraries are uniquely positioned to serve as bridges between data, technology, and society. Their transformation into AI-enabled, data-driven, and user-centric knowledge hubs enables them to support advanced research services, including research analytics, data management, open access dissemination, and scholarly communication, while simultaneously advancing digital literacy and inclusive knowledge access, particularly for underserved communities.

As India continues to expand its higher education ecosystem and digital platforms such as the National Digital Library of India (NDLI) and National Digital Education Architecture (NDEAR), the efficiency with which knowledge is curated, discovered, and applied will be a decisive determinant of global competitiveness. Libraries, therefore, must evolve beyond their traditional roles to become active engines of knowledge activation, contributing to evidence-based policymaking, combating misinformation, and enabling informed citizen participation.

However, realising this vision requires sustained policy support, investment in digital infrastructure, and capacity building in emerging domains such as artificial intelligence, data analytics, and research data management. Addressing challenges related to digital inequity, resource constraints, and skill gaps will be critical to ensuring that library ecosystems can operate at the scale and sophistication demanded by national priorities.

Ultimately, the future of India's knowledge economy will depend on how effectively it strengthens its library systems as interconnected, intelligent, and inclusive knowledge networks embedded within the broader digital public infrastructure. Libraries are no longer peripheral support institutions; they are strategic national assets that enable the creation, dissemination, and application of knowledge at scale. A robust, future-ready library ecosystem is therefore not optional; it is indispensable for realising a resilient, knowledge-driven, innovation-led, and

globally competitive India, fully aligned with the aspirations of Viksit Bharat 2047.

ABBREVIATIONS

AI: Artificial Intelligence; **ANRF:** Anusandhan National Research Foundation; **APC:** Article Processing Charge; **DPDP:** Digital Personal Data Protection; **DPI:** Digital Public Infrastructure; **GDP:** Gross Domestic Product; **IKS:** Indian Knowledge Systems; **IIT:** Indian Institute of Technology; **NDLI:** National Digital Library of India; **NDEAR:** National Digital Education Architecture; **NEP:** National Education Policy; **OER:** Open Educational Resources; **OECD:** Organisation for Economic Co-operation and Development; **ONOS:** One Nation One Subscription; **SDGs:** Sustainable Development Goals; **SPARC:** Scholarly Publishing and Academic Resources Coalition; **UPI:** Unified Payments Interface.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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