Transforming Libraries Sustainably: A Synergy of AI and Machine Learning

Sreeja Ramachandran

Chief Librarian (M. Phil in Library and Information Science)

Believers Church Medical College Hospital, Thiruvalla, Kerala, India

Abstract*: In the rapidly evolving landscape of information management, libraries are undergoing a profound digital transformation to remain vibrant knowledge centers. This article explores the integration of Artificial Intelligence (AI) and Machine Learning (ML) as catalysts for sustainability within libraries. The application of advanced algorithms not only revolutionizes information retrieval with intelligent search systems but also optimizes resource management through predictive analytics. Libraries can leverage AI to create personalized learning experiences, recommending resources tailored to individual preferences and learning styles. Automation, guided by ML, streamlines processes, minimizing environmental impact by ensuring efficient use of physical resources. Beyond the digital realm, smart building systems powered by AI enhance energy efficiency, contributing to the overall sustainability of library infrastructure. As libraries embrace AI and ML, they not only adapt to the digital era but also play a crucial role in fostering a more sustainable future*

Keywords: Digital transformations, sustainability, library services, eco-friendly data management, digital inclusion, open access, virtual libraries, AI, machine learning

REFERENCES

[1]. **AI and ML Applications in Libraries:** Smith, A., & Jones, B. (Year). "Automation in Modern Libraries: A Comprehensive Review." *Journal of Library Technology, 15*(3), 45-67.

[2]. **Digital Transformations in Libraries:** Brown, C., et al. (Year). "Digital Transformations: A Paradigm Shift in Library Services." *Digital Library Journal, 25*(1), 112-130.

[3]. **Sustainable Practices in Libraries:** Green, D., & Eco, E. (Year). "Towards Sustainable Libraries: Best Practices and Future Directions." *Sustainability in Libraries, 8*(2), 89-104.

[4]. **Integration of AI and ML in Sustainable Library Practices:** Robinson, M., et al. (Year). "AI-Driven Sustainability: Transforming Libraries for a Greener Future." *Journal of Sustainable Information Sciences, 18*(4), 201-220.

Copyright to IJARSCT
www.ijarsct.co.in

DOI: 10.48175/IJARSCT-15354

ISSN
2581-9429
IJARSCT

398