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Guest Editorial

Sustainable Development of Libraries Through Innovative Technologies

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Libraries are transforming themselves from print documents to digital and electronic platforms by maintaining cultural assets in a fast-moving Information technology environment. Since their inception, libraries have been more efficient stakeholders in protecting, preserving and disseminating knowledge. It tends to their ability to support the global goal of sustainability. The issue "Sustainable Development of Libraries through Innovative Technologies" emphasises the challenges encountered in modern-day technologies, especially in the Artificial Intelligence era.

This editorial work addresses the new technologies, case studies and fair use in the sustainable development of libraries. It will also give a prospect to understand that the libraries are equipped with an inclusive and robust structure for the future.

In 2015, the United Nations gave the SDGs (Sustainable Development Goals) to advocate for lifelong learning and empowering communities. Libraries are one of the pillars that contribute by sharing such goals, information, and knowledge resources with the communities in achieving SDGs. Libraries are trying to adopt innovative technologies to provide pinpointed and research-based services. They now understand the present scenario and upcoming challenges, so they are adopting new technologies and reviewing their vision and procedures. Libraries are now engaged in developing capabilities to develop their collection and services by implementing new era technologies like Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML), Virtual Reality (VR) and Augmented Reality (AR), Blockchain and Cloud Computing. It will help to provide services to their communities beyond the boundaries. Automatic data curation and generation of metadata are changing the entire information retrieval paradigm.

The use of intelligent technologies like AI systems is responsible for offering an enhanced experience to users. Libraries are trying to engage voice-search platforms, Chatbots, discovery tools and Generative AI Tools to create an inclusive information access environment. Energy-efficient data centres and digital collections help reduce the carbon footprint of physical materials, allowing for sustainable online access. Cloud-based Integrated Library Management Systems promote teamwork and resource sharing, while RFID and IoT technologies enhance inventory management and user services, making better use of physical resources.

Contemporary libraries surpass traditional roles to become centres for innovation and learning in their communities. They offer makerspaces, digital media labs, and collaborative workstations that encourage creativity and digital skill development. These spaces, often equipped with tools like 3D printers and robotics kits, help close the digital divide by providing access to technology for those who may lack it. This change allows libraries to actively participate in creating knowledge, supporting SDG 4 (Quality Education), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 10 (Reduced Inequalities).

Advances in technology significantly enhance access to library services, obliterating physical barriers with mobile apps, remote digital libraries, and accessible websites. It is particularly useful in underprivileged rural communities, where cloud technologies and mobile-centred strategies provide level playing fields for education. Libraries also strongly focus on multilingual and accessible digital interfaces for people with disabilities, seniors, and language minorities. They employ technologies such as screen readers and translation platforms to promote inclusivity. Additionally, the proliferation of open access repositories, Open Educational Resources (OERs), and institutional knowledge-sharing platforms facilitates knowledge equity, which is an important sustainability component.

Libraries have a significant role in maintaining our intellectual heritage, which has dramatically shifted in the digital age. Digitisation efforts, aided by technologies such as high-resolution scanning, optical character recognition, and machine learning-based indexing, facilitate preserving historic manuscripts and documents while minimising physical degradation. Cloud-based digital preservation systems facilitate long-term storage and disaster recovery. Meanwhile, libraries are going green with solar power, sensor lighting, and paperless services as a priority. The 'Green Libraries' movement supports the environment by helping to save natural resources like trees, coal, and water.

The implementation of new technologies is never easy because it demands financial assistance, skilled professionals and continuous maintenance. There are also significant gaps in infrastructure and digital literacy in several areas. As libraries use AI-driven analytics, data privacy and ethics concerns become more urgent. Collaboration between policymakers, educational institutions, funding agencies, and technology providers is essential to tackle these issues. Supporting continuous professional development and encouraging teamwork will empower librarians to lead and navigate the ongoing digital changes.

The sustainable development of libraries is an ongoing effort driven by innovative thinking, community involvement, and insight into technology. By integrating new technologies, libraries can enhance their resilience and relevance while adjusting to and influencing digital trends focused on human and environmental needs. This special issue of the DESIDOC Journal of Library and Information Technology includes scholarly works that explore this transformative process, such as the use of AI in legal information systems and studies of various digital platforms. As the guest editor, I encourage readers to engage with these insights, promote academic exploration, advocate for policy changes, and drive practical progress in library communities, ultimately aiming for both technologically skilled and socially and environmentally responsible libraries.

The special issue titled "Sustainable Development of Libraries through Innovative Technologies" reminds us that sustainability covers economic, social, and institutional resilience. In the library context, sustainable development focuses on building strong, adaptable, and inclusive information systems that can handle disruptive changes while continuously providing value to their communities. Today, innovative technologies lead this transformative path. These technologies present both new opportunities and challenges. A significant change is the move from physical libraries to digital platforms researchers use more frequently. This shift, boosted by movements like Open Access, redefines libraries that were once exclusive repositories of copyrighted works.

This special volume combines a range of insightful research papers and case studies that examine these important areas. Our contributors, experts and academics from various fields, highlight the challenges and possibilities of integrating cutting-edge technologies. They address advancements in intelligent information retrieval through AI, the role of AI in academic processes, user experience in accessing digital materials, the human aspect of sustainability, historical and future perspectives on user well-being, and legal and ethical considerations in the digital age. Each article offers valuable insights into how libraries can leverage these technological innovations not just to survive but to thrive in the digital age.

As the guest editor, I firmly believe that the insights in these articles will motivate further research and provide practical advice to library professionals who act as catalysts for the sustainable development of libraries. I extend my heartfelt thanks to all the authors for their valuable contributions, the reviewers for their careful efforts, and the DJLIT editorial team for their unwavering support in putting together this important volume.