

Editorial Introduction

Data for Development: Ranganathan's legacy for Advancing Sustainable Solutions through Information

Usha Mujoo Munshi
India International Centre, New Delhi
umunshi@gmail.com

Gitanjali Yadav,
National institute of Plant Genome Research, New Delhi
gy@nipgr.ac.in

Peter Murray-Rust
Yusuf Hamied Department of Chemistry, University of Cambridge
pm286@cam.ac.uk

Daisy Selematsela
University of Witwatersrand, Johannesburg
daisy.selematsela@wits.ac.za

This special issue of *Annals of Library and Information Studies* on 'Data For development' delves into the critical role of data in achieving sustainable development goals. We convene a distinguished group of scholars across a broad range of sub-themes in the Data Science landscape, including but not limited to Information Science, Computing, Data Science, Librarianship, Technology and Biodiversity to explore the multifaceted potential and challenges of harnessing data for positive change.

Several articles in this thematic collection celebrate the legacy of Shiyali Ramamrita Ranganathan, the Father of Library Science, also the first editor of this journal. The year 2024 marks the centenary of the Father of Library Science, S.R. Ranganathan's entry into his first professional position at the University of Madras. The world needs Ranganathan's vision and his commitment to both equity and technology, as he included 'children, the physically disabled, artisans, newly literate adults, the intellectually disabled, working-class individuals, and individuals with niche interests' on both the intellectual and verbal planes. In the colon classification, the first major faceted classification system contributed by him, Ranganathan presaged the knowledge systems of modern day (NoSQL databases, name-value pairs, RDF, Wikidata) and we believe he would be active in adopting and championing these today.

For this special issue, we are also joined by the global CODATA and Data Science researchers and practitioners with several papers contributed by members working towards knowledge liberation following FAIR data principles.

The articles within this collection offer a comprehensive examination of the data-for-development landscape. We explore a range of themes critical to bridging the information gap and empowering data-driven decision-making in the Global South:

- **Empowering Libraries:** The concept of "Library Carpentry" equips librarians with data management and analysis skills. This empowers them to enhance existing services and introduce new, data-driven information resources that directly benefit communities.

- **Metrics for Open Data:** Establishing robust metrics to evaluate the reusability of open data is essential. This ensures its long-term value and contribution to research. The issue explores frameworks that consider not just data quality and accessibility, but also factors like knowledge-based metrics (citations) and value-based metrics (impact on policy or innovation).

- **Economic Benefits of IRDM:** Analyzing the economic benefits of Integrated Research Data Management (IRDM) reveals its transformative potential. IRDM practices can significantly enhance research efficiency, reproducibility, and collaboration, ultimately leading to increased research productivity and a stronger foundation for evidence-based policymaking.

- **Data Sharing in Sustainable Development:** We analyze research data policies of journals promoting Sustainable Development Goals (SDGs) to identify areas for improvement in data sharing practices. By fostering a culture of open data, researchers can contribute to a more collaborative and impactful research landscape.

Beyond these core themes, the issue delves into several specific applications of data science for development:

- **Geospatial Data for Invasive Species Management:** The importance of geospatial data for monitoring and managing invasive species is explored. This knowledge is crucial for mitigating their impact on ecosystems, economies, and human well-being.

- **Semantic Analysis for Climate Adaptation:** Through a data-driven approach, semantic analysis offers valuable insights into climate adaptation strategies. By examining textual data, we can identify patterns, trends, and emerging themes, informing more effective decision-making. This approach can help us understand climate adaptation responses and develop more effective strategies for vulnerable communities. The application of semantic analysis for understanding climate adaptation strategies is presented.

- **Text Mining for Climate Policy:** Text mining offers a powerful tool for policy making to combat climate change. By analyzing vast amounts of scientific literature, we can identify correlations and extract key insights to guide policy decisions.

- **Research Data Management:** This issue also delves into the critical realm of research Data Management through a series of illuminating case studies. By examining real-world examples, the goal is to equip researchers with the insights and tools necessary to navigate the complexities of data stewardship and maximize the scientific impact of their work.

- **AI & Ethics:** In today's Data-driven world, navigating the intersection of AI and ethics is crucial. To ensure a responsible future, researchers, policymakers, and industry leaders must collaborate to establish guidelines and safeguards. This special issue focuses on key ethical issues that must be addressed in the AI landscape

Finally, the issue highlights the importance of open-source software for knowledge liberation, along with Open Science principles and Diamond Open Access models, in making scientific knowledge a public good, particularly benefiting the Global South. It emphasizes the role of community efforts and digital

technologies in fostering equity, sustainability, and development, while addressing CODATA's contribution to advancing Data for Development through improved information extraction, access, and reusability

By bringing together these diverse perspectives, this special issue aims to contribute to a deeper understanding of the intersections between information science and global development. We hope to inspire further research, innovation, and collaboration in leveraging data as a powerful tool for building a more sustainable future.

Call to Action: The global development community faces a multitude of complex challenges. This special issue serves as a springboard for exploring how Data Science and Information Science can be harnessed to address these challenges. We encourage researchers, policymakers, librarians, and technologists to come together to develop innovative solutions that empower communities and promote sustainable development on a global scale.

To fully realize the potential of data for development, it is imperative to bridge the gap between data producers, users, and policymakers. This special issue provides a platform for dialogue and knowledge sharing, inviting engagement with the findings and contributions to the ongoing discourse on data-driven solutions for global challenges.

As citizens around the globe confront unprecedented challenges, innovative solutions are essential, and we reiterate that the modern world needs Ranganathan's vision and his commitment to both equity and technology, and this special issue acts as a catalyst for harnessing data to address these complexities. We advocate collaboration and knowledge sharing among researchers, policymakers, and practitioners to unlock the full potential of data for development.

Finally, the Editors would be remiss if they did not acknowledge the significant contributions of our authors. Their insightful research has enriched this special issue, providing invaluable knowledge for researchers, academics, and practitioners in the field of information and data science. We extend our sincere gratitude to the CSIR- NIScPR for their support in bringing this special issue on 'Data for Development' to fruition.