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## Rethinking Data Governance: A Three-Pillar Approach for Public Universities

*Wednesday 15 October 2025 15:17 (11 minutes)*

Strategic and responsible management of research data is essential for Higher Education Institutions (HEIs) such as Universidad Nacional in Costa Rica, particularly within the context of Low and Middle-Income Countries (LMICs) given the existing challenges such as budgetary constraints, demands for transparency, and increasing expectations concerning social, economic, and environmental impacts. The Universidad Nacional, Costa Rica (UNA) has just completed 52 years of education, during which it has generated knowledge through theoretical and methodological deepening, experience in teaching, research, and extension activities, as well as dialogue with the people and sectors with which it is linked.

With the goal of contributing to the transformation of that knowledge in a sustainable resource the Institution has developed a strategy for Open Science (OS), a process in which the Vice-Rector for Research (VI) has been a leader finding ways to implement a systematic approach based on international standards that optimize the quality, accessibility, and usability of research data.

Three axes have energized the VI management of the strategy:

1. Institutional Data Management Capacity:  
In this axis the VI has encouraged and supported the generation and actualization of institutional regulations on open science including the protection for products and authors, as well as the appropriate technological platforms for open data management. A lot of intra-institutional negotiations had and must be done in this axis because there are a lot of stakeholders involved here, from the departments for technology to the Institutional Assembly and from secretarial personnel to high level researchers.
2. Community Capacity Building on Open Science:  
After assessing the needs and strengths on OS of UNA, the VI team developpe a capacity building plan that has strengthened the practice of OS in the research community, as well as that of publishers and librarians. The work with authorities and researchers from the faculties, centers and sites has been emphasized in the design of data management plans, the use of data sets, the data curation for the institutional repositories, the strengthening of diamond route in our journal and the implementation of the FAIR and CARE principles in the research.
3. Data Availability for Informed Decision-Making:  
UNA has made considerable progress in promoting OS over the past decade; however, greater VI involvement is required to standardize and streamline data availability, facilitating access to FAIR data for institutional decision-making. Clear adherence to FAIR principles will be central to the success of the Open Research Data Portal (Portal Abierto de Datos de Investigación - PADI), ensuring research data is efficiently discoverable, accessible, and shareable, both nationally and internationally.

The establishment of PADI marks a critical step in advancing UNA's scientific research and enhancing data-driven governance. It will enable authorities and researchers to effectively identify capacity-building needs, promote research communication, improve international visibility, foster strategic partnerships, and strengthen data literacy within the academic and broader community.

Currently, much of UNA's data is already findable and accessible through institutional repositories and various other platforms. However, data distribution across multiple locations hinders effective reuse. PADI will integrate and structure this data comprehensively, promoting a robust culture of data reusability. Encouraging this reuse among the research community remains challenging, necessitating continued advocacy and education.

Interoperability is particularly vital within LMIC academic contexts, facilitating multidisciplinary and cross-institutional collaboration while maximizing resource utilization. Establishing clear interoperability standards ensures seamless data integration across diverse platforms, maximizing efficiency and research impact.

Employing advanced tools for interactive data visualization offers considerable advantages. Technologies such as Tableau, Power BI, R (Shiny, ggplot2), Python (Dash, Plotly), and open platforms like CKAN or Dataverse allow intuitive and impactful interactions with open data. These tools provide swift, clear interpretation of complex datasets, supporting informed decision-making at academic, community, and governmental levels ([https://rpubs.com/ricardoc\\_07/1269700](https://rpubs.com/ricardoc_07/1269700)).

In conclusion, PADI aims to deliver diversified content architecture combining interoperable databases, dynamic visualization capabilities, and open-access platforms. Such infrastructure promises efficient and strategic data management, positioning Universidad Nacional as a leader in applying scientific knowledge to enhance social welfare, thereby reinforcing its institutional commitment as “the necessary university.”

Session Format: Workshop

Objectives:

- Validate a prioritized pillar approach for strengthening data governance in HEIs.
- Gather inputs to develop an open data governance model applicable to LMIC higher education.

Desired Outcomes:

- Systematic compilation of participant recommendations for creating an open data governance framework in LMIC HEIs.

Agenda:

- Opening (10 min): Proposal Presentation.
- Dialogue and Experience Sharing (10 min): Interactive discussion.
- Exploration (30 min): Ideation board session exploring data management, governance, and the proposed three pillars.
- Closing (30 min): Kahoot session focused on essential elements for a governance model in LMIC contexts.
- Wrap-up (10 min): Session summary and closing remarks.

Additional Material:

[https://www.canva.com/design/DAGg\\_WH8wro/6ZOIDAIp1huchQaqT5OcuQ/edit?utm\\_content=DAGg\\_WH8wro&utm\\_campaign=des](https://www.canva.com/design/DAGg_WH8wro/6ZOIDAIp1huchQaqT5OcuQ/edit?utm_content=DAGg_WH8wro&utm_campaign=des)

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