# Navigating the FAIR Frontier: Assessing the Prospects of Implementing FAIR Principles in Research Data Management for Academic Libraries in Zimbabwe.

**Presentation By**

Women's University in Africa

Addressing Gender Disparity and Fostering Equity in University Education

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# Presentation outline

1. **Introduction**
2. **Methodology**
3. **Findings**
4. **Conclusion**

# 1.0 Introduction

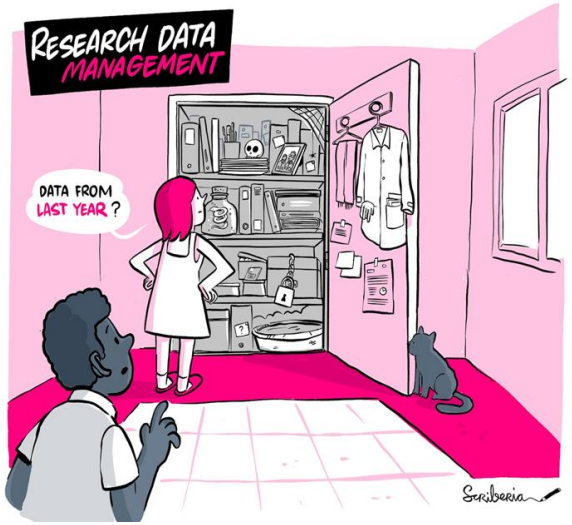
- **RDM** is the organisation, documentation, storage and preservation of research data that is generated during the research process (Chigwada, 2021).
- research data can be in many forms(physical or digital)
- **FAIR Principles-** initially articulated in 2016
- Findable, Accessible, Interoperable, Reusable (Wilkinson et al., 2016).
- -set of principles that define best practices for RDM
- **Importance**
  - Enhances visibility, accessibility, and impact of research data.


# FAIR Principles Adoption in Academic Libraries

-Academic libraries are pivotal actors in advancing FAIR principles -aligned RDM services

1. -they are critical nodes in research ecosystem,
2. - they are also information custodias,
3. - and they advance for FAIR principles,which aligns with Open Science Intiatives (Czerniewicz & Goodier, 2020).

-However, the practical implementation of FAIR principles in academic libraries has complex challenges (Boté-Vericad et al., 2024).



# Context

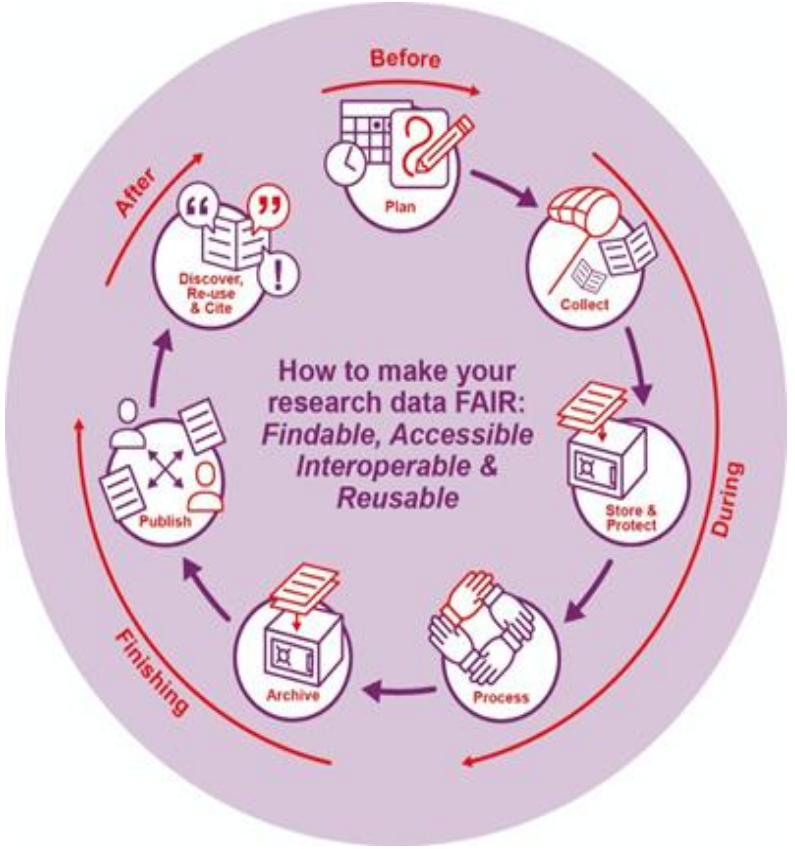
-In developed nations the implementation of FAIR principles has been on the rise since their initial articulation

-major funding agencies, institutions and policy frameworks have incorparated FAIR principles in RDM (European Commission, 2021)

- in developing countries FAIR principles are gaining momentum although it faces unique challenges and opportunities (Boté-Vericad et al., 2024).

-Zimbabwean academic libraries face unique environment.

-rationale for this study stems from the need to understand how FAIR principles have been effectively adapted and implemented in Zimbabwe.



# Research Objectives

1. Identify the current RDM infrastructure and policy environments in Zimbabwean academic libraries.
2. Examine librarians' and researchers' awareness and capacity regarding FAIR principles.
3. Assess the challenges and prospects for FAIR implementation tailored to Zimbabwe's socio-technical context.

# Methodology

**Approach:** Mixed-methods research (Creswell & Plano Clark, 2017).

- Quantitative: Surveys (n=187).
- Qualitative: Semi-structured interviews (n=9).

- **Population derived from:**
  - Academic librarians, researchers, Post- graduate students (PhD).
  - At private and state universities in Zimbabwe.

- **Data Analysis:**
  - Thematic coding (qualitative).
  - Descriptive statistics (quantitative).

# Findings

# Infrastructure Assessment

**Table 1: Research Data Management Infrastructure Assessment**

| Infrastructure Component | Institutions with Capability | Percentage | Quality Rating (1-5) |
|---|---|---|---|
| Institutional Repository | 6 | 100% | 2.8 |
| Data-specific Repository | 2 | 33% | 2.2 |
| Persistent Identifier System | 3 | 50% | 2.5 |
| Metadata Management System | 4 | 67% | 2.1 |
| Data Backup/Preservation | 5 | 83% | 2.3 |
| High-speed Internet (>50Mbps) | 2 | 33% | 2.0 |
| Reliable Power Supply (>95% uptime) | 1 | 17% | 1.8 |
| Dedicated Data Storage (>10TB) | 3 | 50% | 2.4 |
| Data Management Policy | 1 | 17% | 2.0 |
| Staff with RDM Training | 4 | 67% | 2.6 |

**Quality ratings: 1=Poor, 2=Below Average, 3=Average, 4=Good, 5=Excellent

**Key Insight:** Infrastructure is basic and insufficient for comprehensive FAIR implementation.

# Awareness of FAIR Principles

**Table 2: FAIR Principles Awareness Levels by Stakeholder Group**

| | Low (0-40) | Moderate (41-70) | High (71-100) |
|---|---|---|---|
| Librarians | 12% | 58% | 30% |
| Researchers | 43% | 48% | 9% |
| Post-Graduate Students | 57% | 36% | 7% |

**Overall Average Score: 52.3 (SD = 18.7)

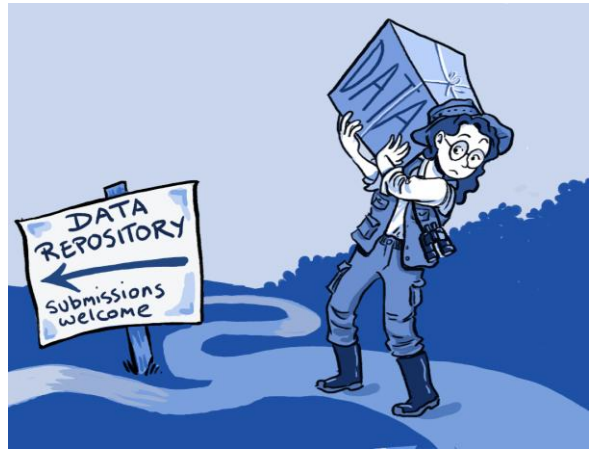
**FAIR Awareness Scores (Scale: 0-100)

**Key Insight:** Librarians have higher awareness than researchers and post- graduate students, but practical application remains limited.

# Barriers to FAIR Implementation

## Table 3: FAIR Implementation Barriers

| Barrier Category | Specific Barrier | Frequency (%) | Mean Severity (1-5) | SD |
|---|---|---|---|---|
| **Infrastructure/Technical** | | | | |
| | Unreliable internet connectivity | 89.3% | 4.2 | 0.8 |
| | Limited storage capacity | 76.5% | 3.8 | 0.9 |
| | Lack of specialized software | 82.4% | 3.6 | 1.0 |
| | Inadequate backup systems | 71.1% | 3.5 | 1.1 |
| **Policy/Governance** | | | | |
| | Absence of RDM policies | 78.1% | 3.9 | 0.9 |
| | Unclear data ownership rules | 68.4% | 3.7 | 1.0 |
| | Limited institutional support | 73.8% | 3.8 | 0.8 |
| | Lack of compliance monitoring | 65.2% | 3.4 | 1.1 |
| **Capacity/Skills** | | | | |
| | Insufficient staff training | 84.5% | 4.1 | 0.7 |
| | Limited technical expertise | 79.7% | 3.9 | 0.9 |
| | Time constraints | 91.4% | 4.3 | 0.6 |
| | Competing priorities | 87.2% | 4.0 | 0.8 |
| **Cultural/Organizational** | | | | |
| | Resistance to data sharing | 62.6% | 3.2 | 1.2 |
| | Lack of incentives | 74.3% | 3.6 | 1.0 |
| | Traditional research practices | 58.8% | 3.1 | 1.1 |
| | Fear of data misuse | 55.6% | 3.0 | 1.2 |




**Severity scale: 1=Minor barrier, 2=Moderate barrier, 3=Significant barrier, 4=Major barrier, 5=Critical barrier

**Key Insight:** Infrastructure and capacity constraints are the most critical barriers

# Opportunities and Enablers

## Table 4: FAIR Implementation Enablers

| Enabler Category | Specific Enabler | Frequency (%) | Mean Effectiveness (1-5) | SD |
|---|---|---|---|---|
| **Institutional Support** | | | | |
| | Senior leadership commitment | 82.4% | 4.1 | 0.8 |
| | Dedicated funding allocation | 89.3% | 4.4 | 0.7 |
| | Policy development | 76.8% | 3.9 | 0.9 |
| | Staff development programs | 91.4% | 4.2 | 0.6 |
| **External Collaboration** | | | | |
| | Regional consortia | 78.6% | 3.8 | 0.9 |
| | International partnerships | 71.7% | 3.7 | 1.0 |
| | Donor support | 84.5% | 4.0 | 0.8 |
| | Professional networks | 68.4% | 3.5 | 1.1 |
| **Technical Solutions** | | | | |
| | Cloud-based platforms | 73.8% | 3.6 | 1.0 |
| | Open-source tools | 86.1% | 3.8 | 0.9 |
| | Shared infrastructure | 79.7% | 3.9 | 0.8 |
| | Automated systems | 65.2% | 3.4 | 1.2 |

**Effectiveness scale: 1=Not effective, 2=Slightly effective, 3=Moderately effective, 4=Very effective, 5=Extremely effective

**Key Insight:** Dedicated funding and external collaboration are critical enablers for FAIR implementation

# Recommendations

**Phased Implementation Strategy**

1. **Phase 1:**
   - Develop basic RDM policies and persistent identifier systems.
   - Address immediate infrastructure gaps (e.g., internet connectivity).
2. **Phase 2:**
   - Build capacity through targeted training programs.
   - Establish dedicated data management roles in libraries.
3. **Phase 3:**
   - Expand infrastructure (e.g., repositories, metadata systems).
   - Integrate with international data discovery networks. (Cox et al., 2019; Tenopir et al., 2022)

# Conclusion

- **Summary:**
  - Zimbabwean academic libraries face significant barriers but also have strong potential for successful FAIR implementation.
  - Strategic, incremental approaches are key to success.
- **Call to Action:**
  - Invest in infrastructure, capacity building, and regional collaboration.
  - Align efforts with international standards while addressing local contexts.

# THANK YOU