OPTIMIZING   RESEARCH

FOR GREATER DISCOVERY

SCIENCE MANAGEMENT

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Data Management in Research

- ◎ Challenges
- ◎ Policies and resources
- ◎ Data Management Plans
- ◎ Electronic Data Capture

OVERVIEW

Challenges in Research Data Management

- **Research data is Big Data**
  - Volume
  - Variety
  - Velocity
  - Veracity
  - VALUE!!!

- Data management is critical in deriving maximum value from research data

- Dedicating resources can be difficult

- Data lives in silos

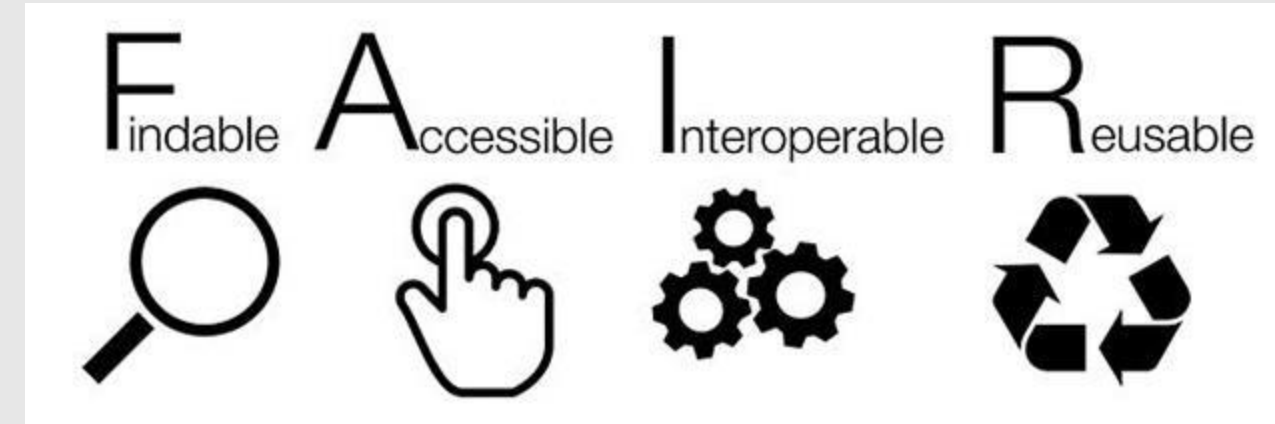- Cross-discipline and multi-modal approach to data management

Policies and Initiatives

- OECD
  - OECD Principles and Guidelines for Access to Research Data from Public Funding (2007)

- Funders internationally are requiring Data Management plans
  - National Institute of Health (U.S.)
  - National Science Foundation (U.S.)
  - European Research Councils
  - Research Council (U.K.)

- Canada:
  - Tri-Agency Statement of Principles on Digital Data Management (2015)

Resources

- FAIR Principles
  - Findable
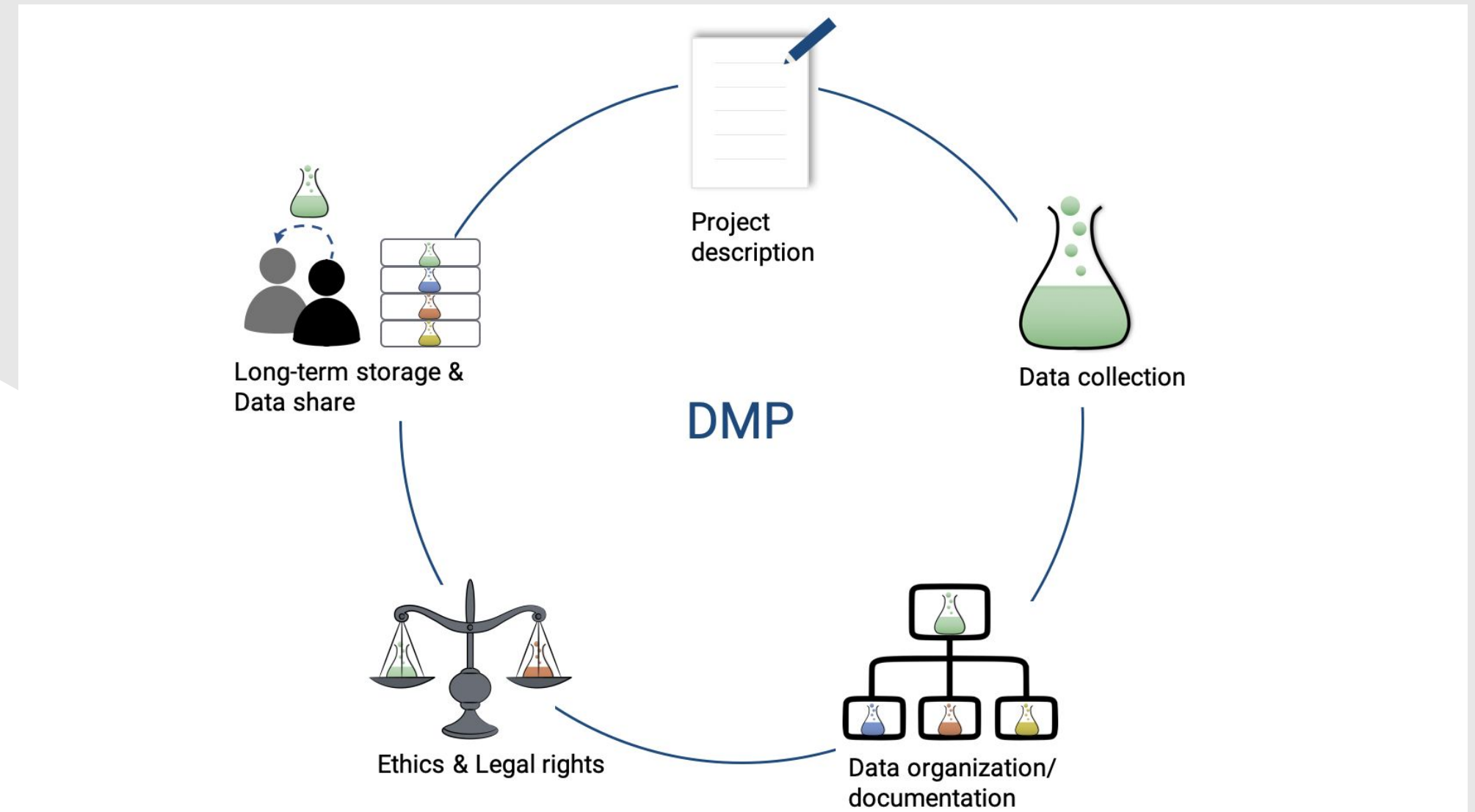 - Accessible
  - Interoperable
  - Reusable
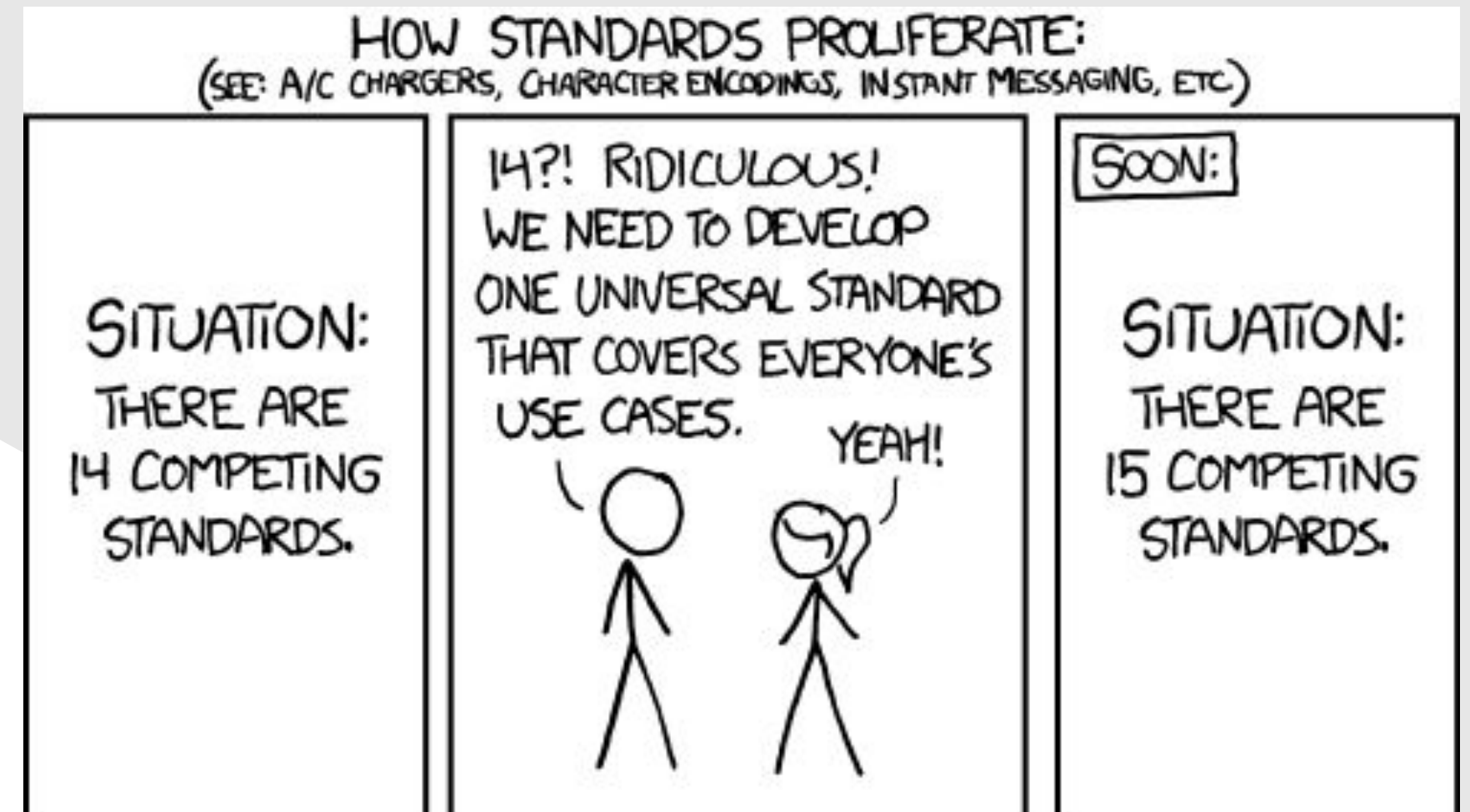 - https://www.go-fair.org/

- Portage Network
  - https://assistant.portagenetwork.ca

- Data Management Plans will help frame and orient your needs

- Data Management Plans outline:
  - Data Collection
  - Documentation and Metadata
  - Storage and Back-up
  - Preservation
  - Sharing and Reuse
  - Responsibilities and Resources
  - Ethics and Legal Compliance

Project description

Data collection

Long-term storage & Data share

DMP

Ethics & Legal rights

Data organization/ documentation

Standards

- Understand the standardization efforts applicable to your field
- Utilize existing standards as closely as possible
- Standards increase data quality, enable reusability and increase data longevity

- Examples:
  - GA4GH
  - BIDS
  - NINDS
  - CDISC
  - …

Electronic Data Capture

- Open Source and Community Edition options

- Check with your institutions

- Pool resources and utilize single installations

- Types of software:
    - REDCap
    - LabKey
    - Arvados
    - XNAT

THANK YOU

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