Lesson 1

10:30 – 11:00

What is a sustainability plan?

Meredith Goins

DOI: 10.5281/zenodo.8208593

sustainability, *n*.

1. The quality of being sustainable by argument; the capacity to be upheld or defended as valid, correct, or true.

2.

a. The quality of being sustainable at a certain rate or level.

b. *spec.* The property of being environmentally sustainable; the degree to which a process or enterprise is able to be maintained or continued while avoiding the long-term depletion of natural resources.

"sustainability, n." *OED Online*, Oxford University Press, March 2023, www.oed.com/view/Entry/299890. Accessed 11 July 2023.

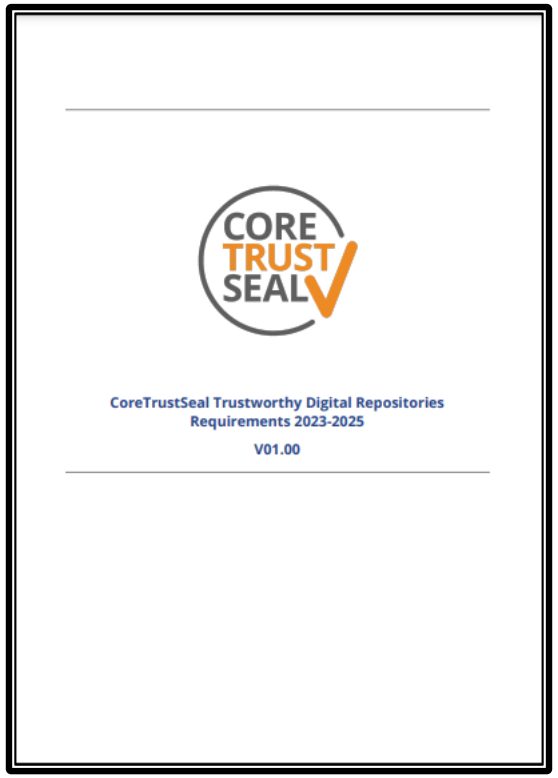
Governance and resources (R05) with evidence seen as:

- “Descriptions and diagrams of governance bodies, groups and hierarchies.
- Timescales for provision and renewal of funding for operational costs and recruitment; it is understood that permanent, ongoing funding cannot be perfectly quantified or guaranteed.
- Evidence that the repository is, or is hosted by, a recognized institution (supporting long-term stability and sustainability) appropriate to its Designated Community.
- Demonstrate that the repository can meet its obligations, including sufficient funding for staff resources, IT resources, and a budget for external engagement when necessary.” p. 12

CoreTrustSeal Standards and Certification Board. (2022). CoreTrustSeal Requirements 2023-2025 (V01.00). Zenodo. https://doi.org/10.5281/zenodo.7051012

Governance and resources (R05) with evidence seen as:

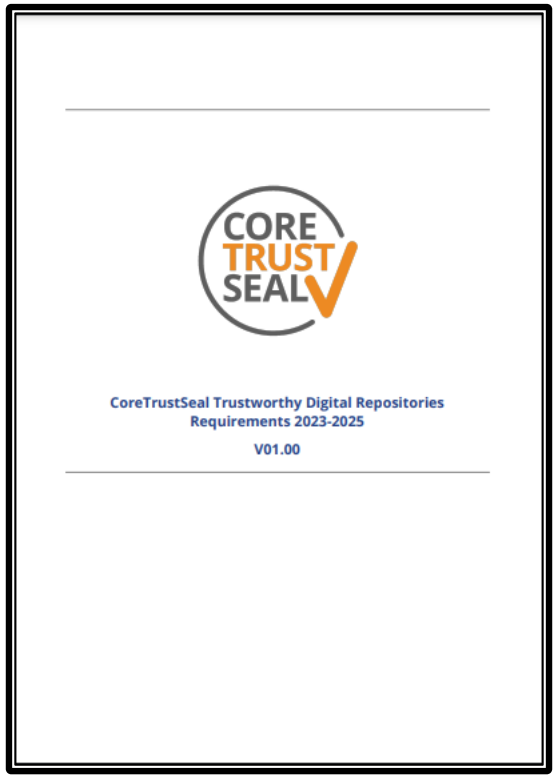
- “Descriptions and diagrams of governance bodies, groups and hierarchies.
- **Timescales for provision and renewal of funding for operational costs and recruitment; it is understood that permanent, ongoing funding cannot be perfectly quantified or guaranteed.**
- Evidence that the repository is, or is hosted by, a recognized institution (supporting long-term stability and sustainability) appropriate to its Designated Community.
- Demonstrate that the repository can meet its obligations, including sufficient funding for staff resources, IT resources, and a budget for external engagement when necessary.” p. 12



CoreTrustSeal Standards and Certification Board. (2022). CoreTrustSeal Requirements 2023-2025 (V01.00). Zenodo. https://doi.org/10.5281/zenodo.7051012

Governance and resources (R05) with evidence seen as:

- “Descriptions and diagrams of governance bodies, groups and hierarchies.
- Timescales for provision and renewal of funding for operational costs and recruitment; it is understood that permanent, ongoing funding cannot be perfectly quantified or guaranteed.
- **Evidence that the repository is, or is hosted by, a recognized institution (supporting long-term stability and sustainability) appropriate to its Designated Community.**
- Demonstrate that the repository can meet its obligations, including sufficient funding for staff resources, IT resources, and a budget for external engagement when necessary.” p. 12



CoreTrustSeal Standards and Certification Board. (2022). CoreTrustSeal Requirements 2023-2025 (V01.00). Zenodo. https://doi.org/10.5281/zenodo.7051012

Governance and resources (R05) with evidence seen as:

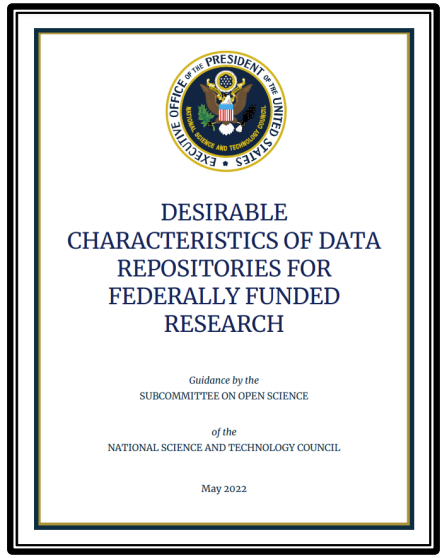
- “Descriptions and diagrams of governance bodies, groups and hierarchies.
- Timescales for provision and renewal of funding for operational costs and recruitment; it is understood that permanent, ongoing funding cannot be perfectly quantified or guaranteed.
- Evidence that the repository is, or is hosted by, a recognized institution (supporting long-term stability and sustainability) appropriate to its Designated Community.
- **Demonstrate that the repository can meet its obligations, including sufficient funding for staff resources, IT resources, and a budget for external engagement when necessary.**” p. 12

CoreTrustSeal Standards and Certification Board. (2022). CoreTrustSeal Requirements 2023-2025 (V01.00). Zenodo. https://doi.org/10.5281/zenodo.7051012

DESIRABLE CHARACTERISTICS OF DATA REPOSITORIES FOR FEDERALLY FUNDED RESEARCH

Table 1. Desirable Characteristics of Repositories for Managing and Sharing Data Resulting from Federally Funded or Supported Research

Organizational Infrastructure	**Free and Easy Access**	The repository provides broad, equitable, and maximally open access to datasets and their metadata free of charge in a timely manner after submission, consistent with legal and policy requirements related to maintaining privacy and confidentiality, Tribal and national data sovereignty, and protection of sensitive data.
	Clear Use Guidance	The repository ensures datasets are accompanied by documentation describing terms of dataset access and use (e.g., reuse licenses and need for approval by a data use committee).
	Risk Management	The repository has documented capabilities for ensuring that administrative, technical, and physical safeguards are employed to comply with applicable confidentiality, risk management, and continuous monitoring requirements for sensitive data.
	Retention Policy	The repository provides documentation on policies for data retention.
	Long-term Organizational Sustainability	The repository has a plan for long-term management of data, including maintaining integrity, authenticity, and availability of datasets; has contingency plans to ensure data are available and maintained during and after unforeseen events.



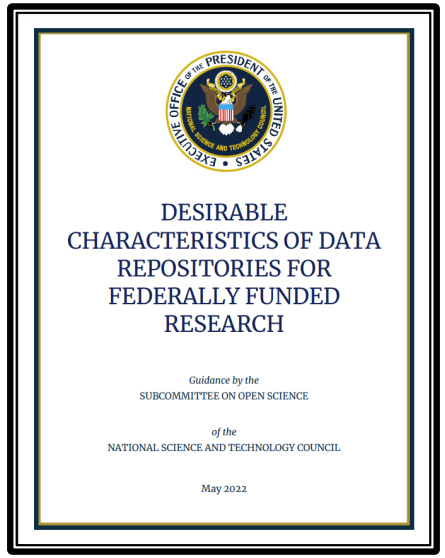
Technology	**Authentication**	The repository supports authentication of data submitters. The repository has technical capabilities that facilitate associating submitter PIDs with those assigned to their deposited digital objects, such as datasets.
	Long-term Technical Sustainability	The repository has a plan for long-term management of data, building on a stable technical infrastructure and funding plans.
	Security and Integrity	The repository has documented measures in place to meet well established cybersecurity criteria for preventing unauthorized access to, modification of, or release of data, with levels of security that are appropriate to the sensitivity of data (e.g., the NIST Cybersecurity Framework: https://www.nist.gov/cyberframework).

The National Science and Technology Council, Desirable Characteristics of Data Repositories for Federally Funded Research, 2022, DOI: https://doi.org/10.5479/10088/113528

DESIRABLE CHARACTERISTICS OF DATA REPOSITORIES FOR FEDERALLY FUNDED RESEARCH

Table 1. Desirable Characteristics of Repositories for Managing and Sharing Data Resulting from Federally Funded or Supported Research

Organizational Infrastructure	**Free and Easy Access**	The repository provides broad, equitable, and maximally open access to datasets and their metadata free of charge in a timely manner after submission, consistent with legal and policy requirements related to maintaining privacy and confidentiality, Tribal and national data sovereignty, and protection of sensitive data.
	Clear Use Guidance	The repository ensures datasets are accompanied by documentation describing terms of dataset access and use (e.g., reuse licenses and need for approval by a data use committee).
	Risk Management	The repository has documented capabilities for ensuring that administrative, technical, and physical safeguards are employed to comply with applicable confidentiality, risk management, and continuous monitoring requirements for sensitive data.
	Retention Policy	The repository provides documentation on policies for data retention.
	Long-term Organizational Sustainability	The repository has a plan for long-term management of data, including maintaining integrity, authenticity, and availability of datasets; has contingency plans to ensure data are available and maintained during and after unforeseen events.



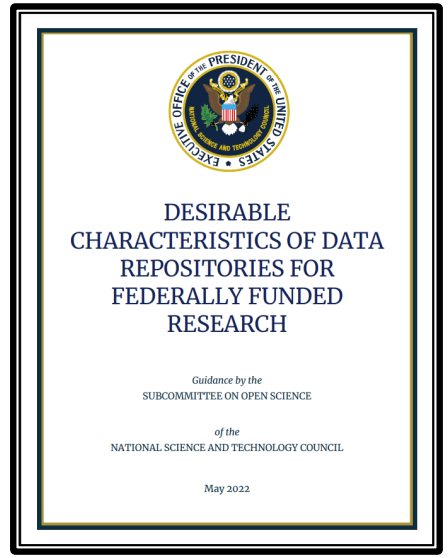
Technology	**Authentication**	The repository supports authentication of data submitters. The repository has technical capabilities that facilitate associating submitter PIDs with those assigned to their deposited digital objects, such as datasets.
	Long-term Technical Sustainability	The repository has a plan for long-term management of data, building on a stable technical infrastructure and funding plans.
	Security and Integrity	The repository has documented measures in place to meet well established cybersecurity criteria for preventing unauthorized access to, modification of, or release of data, with levels of security that are appropriate to the sensitivity of data (e.g., the NIST Cybersecurity Framework: https://www.nist.gov/cyberframework).

The National Science and Technology Council, Desirable Characteristics of Data Repositories for Federally Funded Research, 2022, DOI: https://doi.org/10.5479/10088/113528

DESIRABLE CHARACTERISTICS OF DATA REPOSITORIES FOR FEDERALLY FUNDED RESEARCH

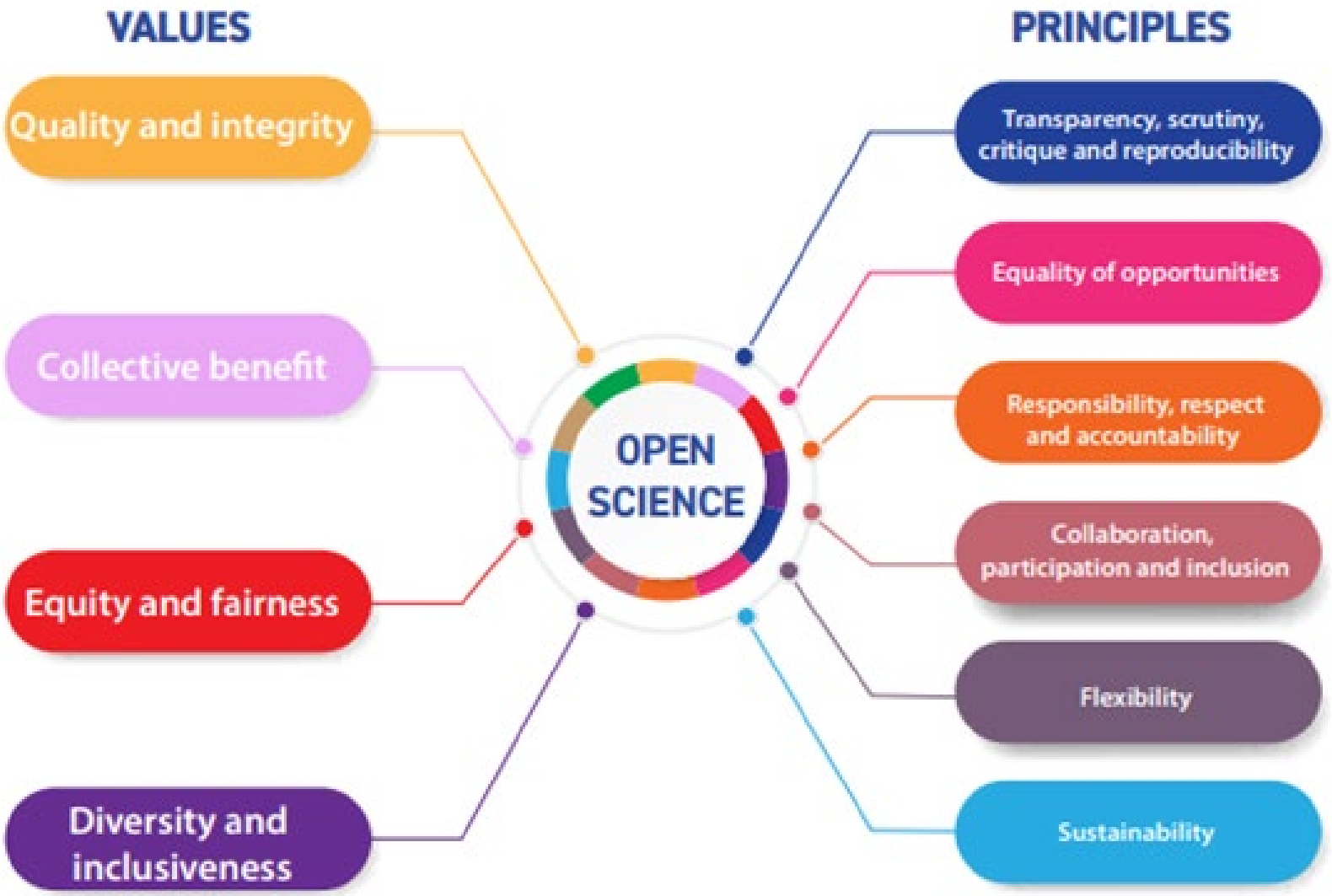
Table 1. Desirable Characteristics of Repositories for Managing and Sharing Data Resulting from Federally Funded or Supported Research

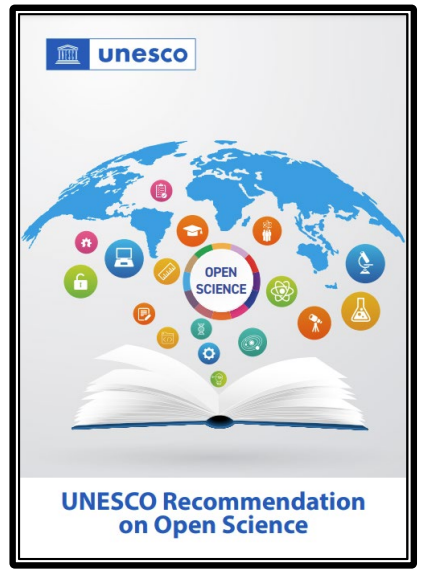
Organizational Infrastructure	**Free and Easy Access**	The repository provides broad, equitable, and maximally open access to datasets and their metadata free of charge in a timely manner after submission, consistent with legal and policy requirements related to maintaining privacy and confidentiality, Tribal and national data sovereignty, and protection of sensitive data.
	Clear Use Guidance	The repository ensures datasets are accompanied by documentation describing terms of dataset access and use (e.g., reuse licenses and need for approval by a data use committee).
	Risk Management	The repository has documented capabilities for ensuring that administrative, technical, and physical safeguards are employed to comply with applicable confidentiality, risk management, and continuous monitoring requirements for sensitive data.
	Retention Policy	The repository provides documentation on policies for data retention.
	Long-term Organizational Sustainability	The repository has a plan for long-term management of data, including maintaining integrity, authenticity, and availability of datasets; has contingency plans to ensure data are available and maintained during and after unforeseen events.



Technology	**Authentication**	The repository supports authentication of data submitters. The repository has technical capabilities that facilitate associating submitter PIDs with those assigned to their deposited digital objects, such as datasets.
	Long-term Technical Sustainability	The repository has a plan for long-term management of data, building on a stable technical infrastructure and funding plans.
	Security and Integrity	The repository has documented measures in place to meet well established cybersecurity criteria for preventing unauthorized access to, modification of, or release of data, with levels of security that are appropriate to the sensitivity of data (e.g., the NIST Cybersecurity Framework: https://www.nist.gov/cyberframework).

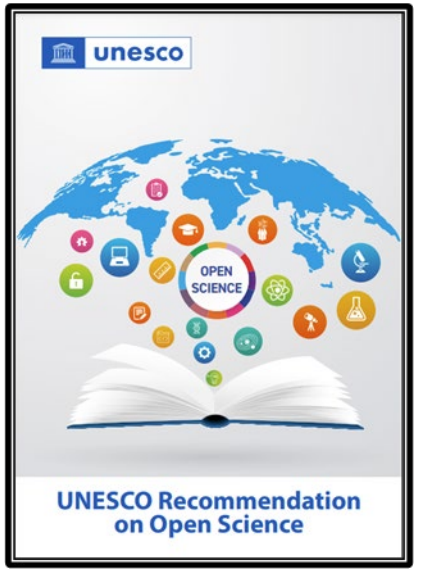
The National Science and Technology Council, Desirable Characteristics of Data Repositories for Federally Funded Research, 2022, DOI: https://doi.org/10.5479/10088/113528





UNESCO (2021). UNESCO Recommendation on Open Science https://unesdoc.unesco.org/ark:/48223/pf0000379949

f. ***Sustainability:*** to be as efficient and impactful as possible, open science should build on long-term practices, services, infrastructures and funding models that ensure the equal participation of scientific producers from less privileged institutions and countries. Open science infrastructures should be organized and financed upon an essentially not-for-profit and long-term vision, which enhance open science practices and guarantee permanent and unrestricted access to all, to the largest extent possible.



UNESCO (2021). UNESCO Recommendation on Open Science https://unesdoc.unesco.org/ark:/48223/pf0000379949

A sustainability plan answers the following:

- How will your institution sustain the repository after initial grant funds expire?
- What your organization's plan and capacity is to ensure the long-term sustainability of the repository?

"sustainability, n." *OED Online*, Oxford University Press, March 2023, www.oed.com/view/Entry/299890. Accessed 11 July 2023.

Business models will change and differ by repository due to:

- Funding stream
- Host institution
- Domain vs. generalist
- Open data requirements
- Stage of the repository
- Purpose of the repository
- Services repository offers

OECD (2017), "Business models for sustainable research data repositories", *OECD Science, Technology and Industry Policy Papers*, No. 47, OECD Publishing, Paris, https://doi.org/10.1787/302b12bb-en.

Figure 6. Elements of a research data repository business model

Source: Authors' analysis.

OECD (2017), "Business models for sustainable research data repositories", *OECD Science, Technology and Industry Policy Papers*, No. 47, p. 38 OECD Publishing, Paris, https://doi.org/10.1787/302b12bb-en.

Table 1. A summary of the major pros and cons of the various funding sources

Funding Source	Pros	Cons
Structural funding	• Compatible with open data principles. • Longer-term stability. • Larger-scale and efficiencies. • Flexible as to allocation.	• Fixed, multi-year may not scale easily. • Competes with research funding. • Too many eggs in few baskets.
Host or institutional funding	• Compatible with open data principles. • Longer-term stability. • Efficiencies through sharing services. • Close to researchers (customers).	• Limited purview, with focus on local community. • May lead to fragmentation of domain data and lower interoperability. • Limited incentive to add value to data and develop related services.
Annual deposit-side contract	• Compatible with open data principles. • Demand oriented and scales with demand (data ingest).	• Unpredictable year-to-year and involves high transaction costs (managing contracts). • Limited engagement with, or focus on, data users. • May lead to fragmentation and loss of scale if many players, or monopolies if few players.
Data deposit fees	• Compatible with open data principles. • Demand oriented and scales with demand (data ingest). • Researchers price sensitivity ensures cost constraint. • Open data is part of research and its funding.	• Cost disincentive to depositing, so depends on strong mandates. • May lead to low level of curation to contain costs (price). • May be difficult for repository to compete for deposits with comparable repositories that do not charge.

OECD (2017), "Business models for sustainable research data repositories", *OECD Science, Technology and Industry Policy Papers*, No. 47, p. 42 OECD Publishing, Paris, https://doi.org/10.1787/302b12bb-en.

Table 1. A summary of the major pros and cons of the various funding sources

Funding Source	Pros	Cons
Data access charges (subscriptions or use fees)	• Users pay for what they want, so funding reflects value. • More market-oriented approach may provide incentive for cost constraint.	• Not compatible with open data principles and many funder mandates, limiting the potential market size. • Charges limit use and will reduce the value of data. • Revenue scales with use and not ingest or curation costs. • Vulnerable to funding cuts.
Contract services and project funding	• Compatible with open data principles. • Can increase contact between staff and clients. • Potential for innovation.	• Short-term and not a sustainable sole revenue source. • High transaction costs, chasing money. • Revenue does not scale with data ingest or use (costs). • Inflexible as to allocation of funding.
Diversification of revenue sources	• No single source of failure. • Can maintain compatibility with open data principles. • Flexible and enables experimentation with new services.	• May lead to higher transaction costs (managing multiple funding sources). • May lead to Mission drift.

Source: Authors' analysis.

OECD (2017), "Business models for sustainable research data repositories", *OECD Science, Technology and Industry Policy Papers*, No. 47, p. 42 OECD Publishing, Paris, https://doi.org/10.1787/302b12bb-en.

Typology of Revenue Sources

1) Structural (central contract)
2) Hosting Support (indirect or direct support through institutional hosting)
3) Annual Contract (from depositing institution)
4) Data Deposit Fee (may be paid by researcher, RPO or publisher, may originate with funder)
5) Access Charge (for the data or for value-adding services)
6) Projects (to develop infrastructure or value-adding services)
7) Private Contracting (services to parties other than core funder)

OECD (2017), "Business models for sustainable research data repositories", *OECD Science, Technology and Industry Policy Papers*, No. 47, p. 22 OECD Publishing, Paris, https://doi.org/10.1787/302b12bb-en.

Lesson 2

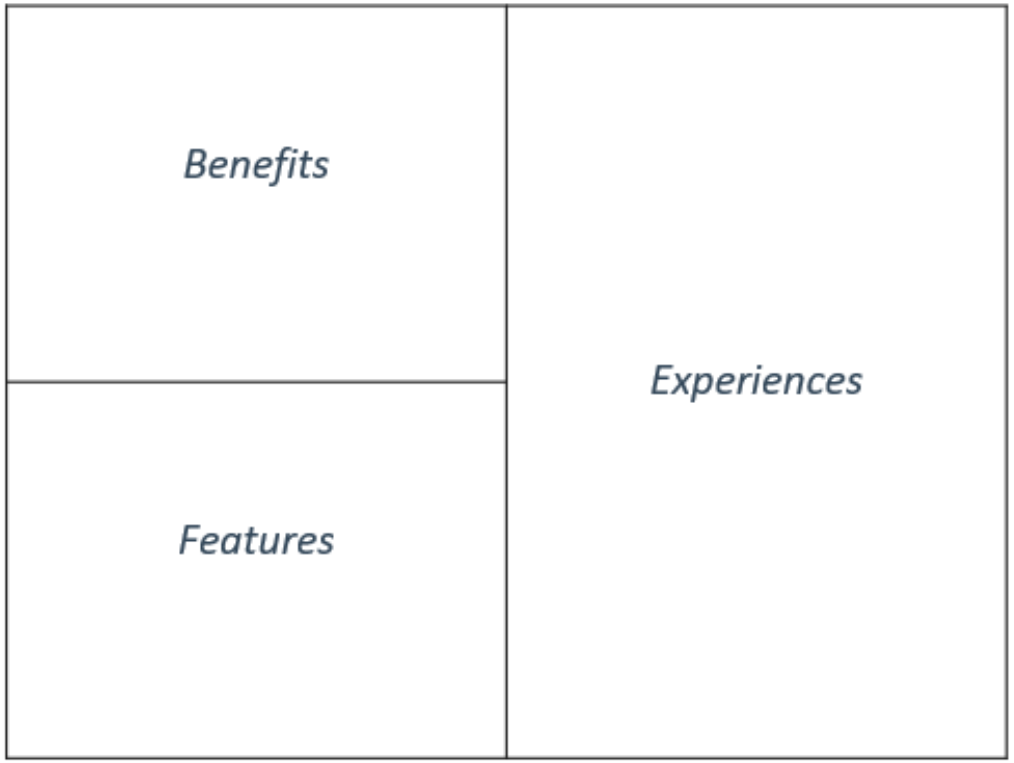
1:30 – 2:00

Value Propositions

Meredith Goins

Product description

Customer description

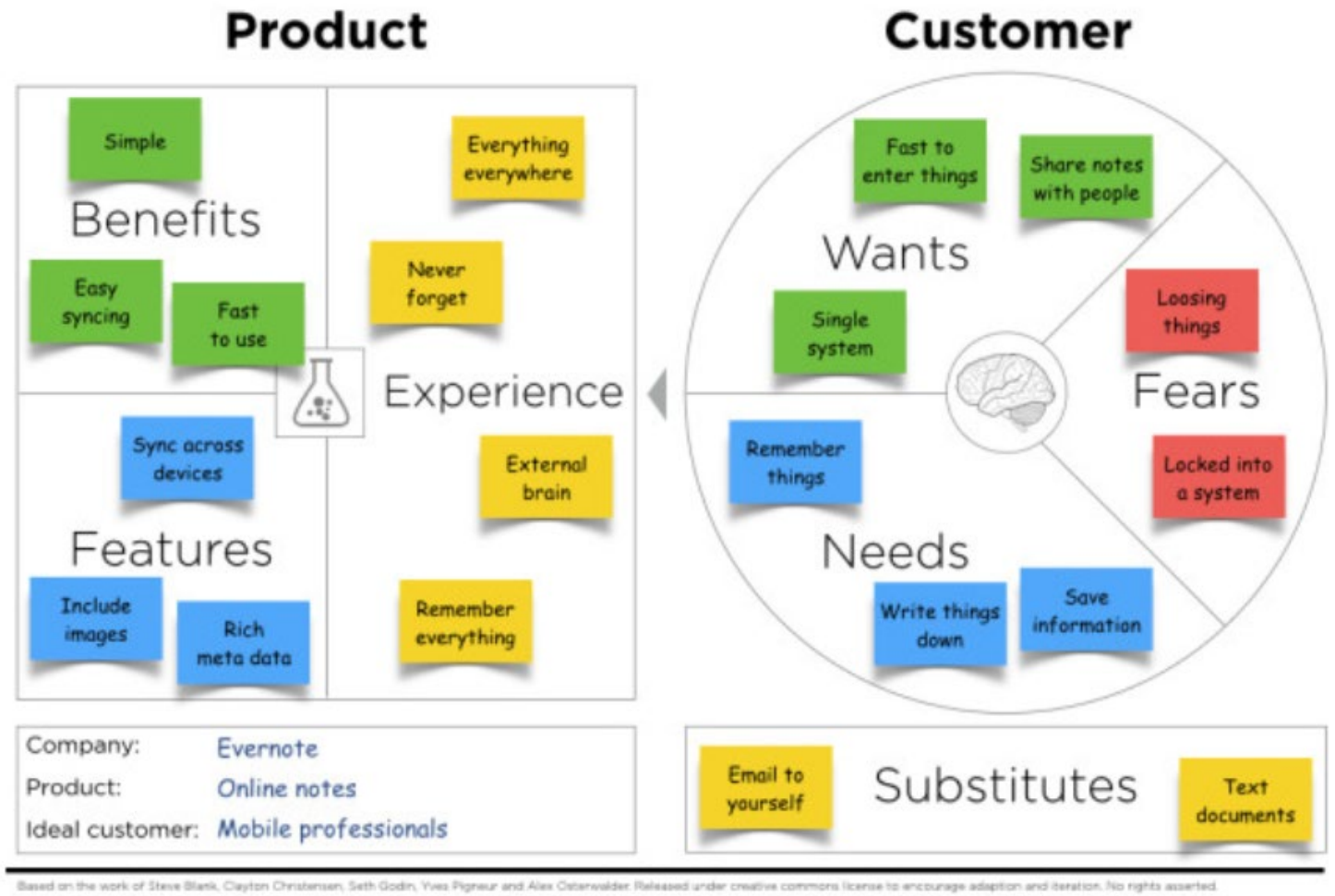


Company:
Product:
Ideal Customer:

Substitutes

https://www.peterjthomson.com/2013/11/value-proposition-canvas/

Value Proposition Canvas



Evernote's value proposition is anchored on simplicity and speed.

https://www.peterjthomson.com/2013/11/value-proposition-canvas/

Elements of a value proposition

1. **Headline**
   Describes the benefit the user will receive as a result of utilizing your repository

2. **Subheadline or paragraph**
   Elaborate on the headline explaining in detail who your repository serves and why.

3. **Graphic**
   Use a visual element to depict your repository's value

Elements of a value proposition

1. **Headline**
   Describes the benefit the user will receive as a result of utilizing your repository

   WDS exists to make repositories awesome!

2. **Subheadline or paragraph**
   Elaborate on the headline explaining in detail who your repository serves and why.

3. **Graphic**
   Use a visual element to depict your repository's value

Elements of a value proposition

1. **Headline**
   Describes the benefit the user will receive as a result of utilizing your repository

   WDS exists to make repositories awesome!

2. **Subheadline or paragraph**
   Elaborate on the headline explaining in detail who your repository serves and why.

   WDS members enjoy membership in a trustworthy community of excellence that benefits from services such as training, letters of support, early career activities, and the leadership of and advocacy for repositories.

3. **Graphic**
   Use a visual element to depict your repository's value

WDS exists to make repositories awesome!

WDS members enjoy membership in a trustworthy community of excellence that benefits from services such as training, letters of support, early career activities, and the leadership of and advocacy for repositories.

Towards a FAIRer World

23 FEB 2023 | EVENTS

WDS Repository Sustainability Summit 2023

16 MAY 2023 | EVENTS

RISH

KYOTO UNIVERSITY FOUNDED 1897 KYOTO JAPAN

WDS Member Highlight: Research Institute for Sustainable Humanosphere (RISH)

9 MAY 2023 | UNCATEGORIZED

World Data System Members' Forum

16 MAY 2023 | EVENTS

Lesson 3

4:00 – 4:30

Know your audience

Meredith Goins

Know your audience

First, consider your current stakeholders.

Look in your files:

- Contracts with individuals you hold, either as a buyer or supplier
- Current and previous funders
- Current and previous staff (internal stakeholders)
- Current and previous board members
- Current and previous research institutions you've worked with
- Current and previous depositors
- Current and previous users
- Policymakers

Review social media and marketing accounts

1. Are there regular accounts that interact with you?
2. Newsletter subscribers (tool updates on GitHub count too!)

Know your audience

Next, brainstorm on who your potential stakeholders could be.

- Who would you like to fund you?
- What companies do you wish you could purchase from?
- Who are your competitors?
  - Who are their funders? Staff? Governing entity?
- Which research institutions are on your dream list to work with?
- Who do you wish would access your repository?

Know your audience

Two worksheets to do as take-home assignments tonight:

- Identify and describe your current stakeholders
- Identify and describe your potential stakeholders

4:30 to 5:00 Close of day one

Review Friday Agenda
Picture time!

Friday Agenda

8:15 – 9	Continental breakfast
9:00 – 10:30	Funder's Panel
10:30 – 11:30	Lesson 4
12:00 – 1:00	Networking lunch

Think about the following for tomorrow:

1. What do you want to learn from US funders?
2. What do you need from US funders to move forward in making your repository sustainable?
3. How many repositories do we need?
4. What should the repository landscape look like down the road?

Lesson 4

10:30 – 11:00

Communicating your need

Meredith Goins

Communicating your need

Different stakeholders have different communication styles

Use plain language and visualizations

storytelling with data

https://www.storytellingwithdata.com/

Use your resources

- Students
- University offices
  - Development
  - Sponsored Research
  - Communications/Marketing

PRSA

TOASTMASTERS INTERNATIONAL

AMA | AMERICAN MARKETING ASSOCIATION

Communicate what?

Measure impact

- How much data do you support?
- How many citations have the data had?

Make science case

- Explain why your field(s) must have this repository
- What is scientifically valuable to others?

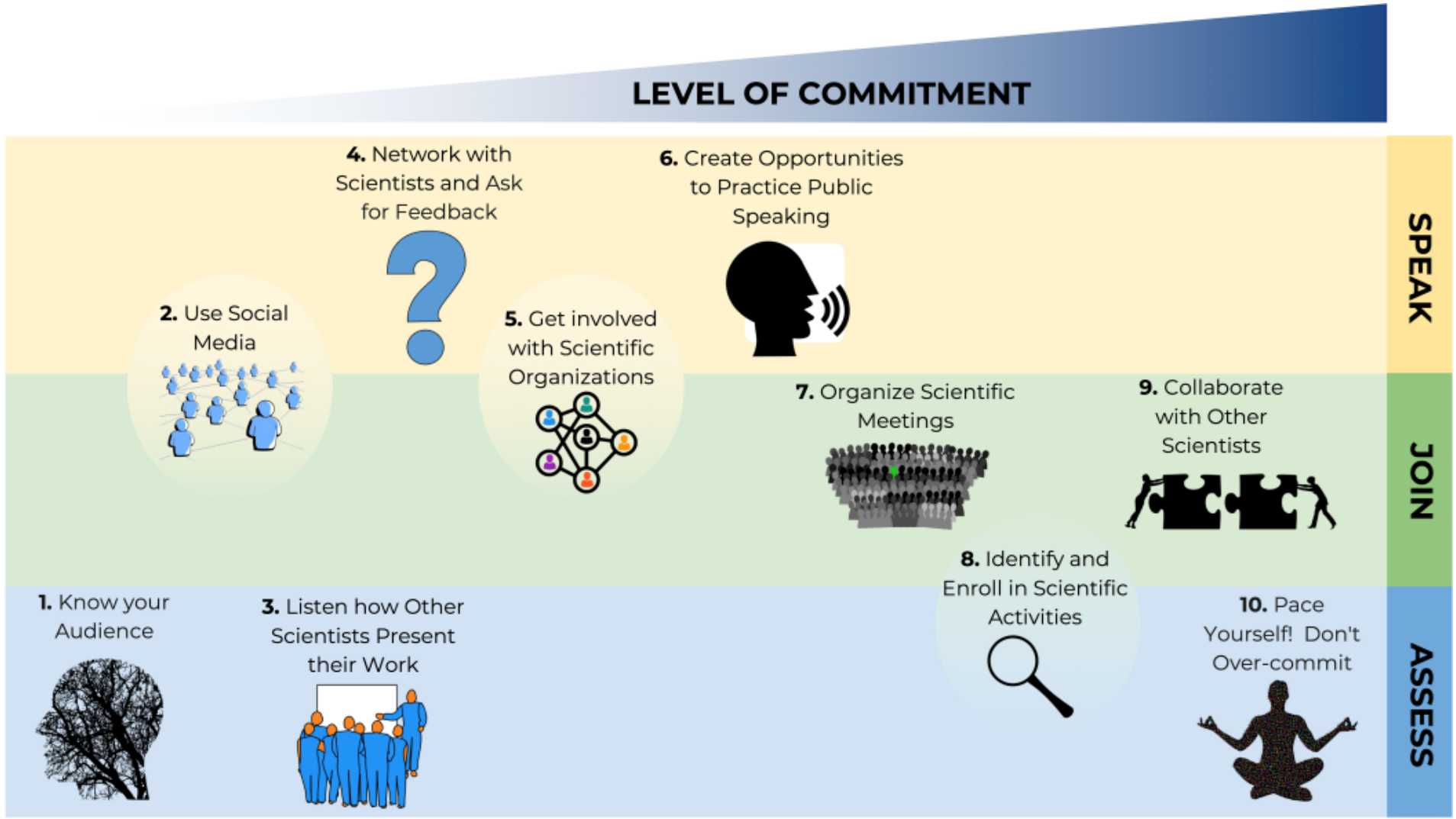
Measure value

- Must know the audience – value to whom?

Make an economic case

- Cost optimization
- Impact on use
- Impact on long-term costs

Inform & educate



Bautista C, Alfuraiji N, Drangowska-Way A, Gangwani K, de Flamingh A, Bourne PE (2022) Ten simple rules for improving communication among scientists. PLoS Comput Biol 18(6): e1010130. https://doi.org/10.1371/journal.pcbi.1010130

Training

AAAS Communication toolkit - https://www.aaas.org/resources/communication-toolkit

AGU Sharing Science Program - https://www.agu.org/Share-and-Advocate/Share

Contact your scientific union or national professional organization for their talking points for policymakers. You can find some that will be adaptable for your personal use.

Putting it all together

Lesson 1 – What is a sustainability plan?

1. Mission and Vision
2. Repository stage
3. Funding sources – pick at least 2!
4. Product/service mix
5. Revenue sources
6. Cost optimization

Lesson 2 – Value Proposition

1. Product description
2. Customer description

Lesson 3 – Know your audience

1. Current stakeholders
2. Potential stakeholders

Lesson 4 – Communicating your need

1. Use information gathered to share further
2. Let's put that sustainability plan in writing!