Gold (AU)DRIPSS:
A Decision-Making Framework for Knowledge Management

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Rank

Principles

Accessibility: The ability of all users, including persons with disabilities, to use the digital object; *Examples in Practice:* Microsoft Office accessibility checker and the Adobe PDF accessibility checker

Usability: The ability to access and tailor information to users' needs; *Examples in Practice:* optical character recognition (OCR)

Discoverability: The ability to find and retrieve information; *Examples in Practice:* file naming conventions, metadata elements, and controlled vocabularies

Reproducibility: The availability of data and code files to qualitatively reproduce the key results of a paper or other research product or to support extensions and re-analyses; *Examples in Practice:* open source or ubiquitous file formats

Interoperability: A measure of the degree to which diverse systems, organizations, and/or individuals are able to work together to achieve a common goal; *Examples in Practice*: internationally recognized metadata standards

Preservability: The maintenance of a continuing and uncorrupted copy of a digital object, which guarantees the public faith or truthfulness of the digital object itself; *Examples in Practice:* fixity checks and repair

Scalability: The ability to accommodate an increasing number of digital objects and to process growing volumes of work gracefully; *Examples in Practice:* Identification of areas for reasonable scope expansion

Sustainability: The ability to maintain a process or object at a desirable level of utility and continue a project's goals, principles, and efforts to achieve desired outcomes; *Examples in Practice:* hosted software that requires less IT support; hiring a full-time data curator

Sources

World Wide Web Consortium's Web Accessibility Initiative. (2005). Introduction to web accessibility. Available at https://www.w3.org/WAI/intro/accessibility.php

Kahn, B. K., Strong, D. M., & Wang, R. Y. (2002). Information quality benchmarks: product and service performance. Communications of the ACM, 45(4), 184-192.Available at http://web.mit.edu/tdqm/www/tdqmpub/KahnStrongWangCACMApr02.pdf

Crow, R. (2002). The case for institutional repositories: a SPARC position paper. Available at https://uta-ir.tdl.org/uta-ir/bitstream/handle/10106/24350/Case%20for%20IRs_SPARC.pdf?sequence=1

Chang, A. C., & Li, P. (2015). Is economics research replicable? Sixty published papers from thirteen journals say 'usually not'. Finance and Economics Discussion Series 2015-083. Washington: Board of Governors of the Federal Reserve System, http://dx.doi.org/10.17016/FEDS.2015.083

Ide, N., & Pustejovsky, J. (2010, January). What does interoperability mean, anyway? Toward an operational definition of interoperability for language technology. In Proceedings of the Second International Conference on Global Interoperability for Language Resources. Hong Kong, China. Available at https://pdfs.semanticscholar.org/9b5c/62ce40fe2d2483f5b388a4112fb74626d766.pdf

Conway, P. (1990). Archival preservation practice in a nationwide context. The American Archivist, 53(2), 204-222. Available at http://www.americanarchivist.org/doi/pdf/10.17723/aarc.53.2.d0gt78p562832655

Bondi, A. B. (2000, September). Characteristics of scalability and their impact on performance. In Proceedings of the 2nd international workshop on Software and performance (pp. 195-203). ACM. Available at https://doi.org/10.1145/350391.350432

Badiru, A. B. (2010). The many languages of sustainability: IE's should push for better resource utilization across all fields. Industrial Engineer, 42(11), 30-35.

U.S. Department of Labor Employment and Training Administration. (2011). Tips for Program Sustainability. Available at https://www.doleta.gov/business/PDF/SustainTips.pdf

https://www.nature.com/articles/sdata201618

https://www.crl.edu/archiving-preservation/digital-archives/metrics-assessing-and-certifying/trac

Background

When everything is equally important, nothing is important.

Difficult Decisions

Librarians, archivists, and other digital object stewards are challenged with many competing priorities and often face the question: "which action will *best* support digital object management?" Though there is neither a simple nor a single right answer to this question, there is little guidance on how to balance the benefits and consequences that come from various trade-offs.

Examples of Existing Models

The FAIR Guiding Principles provide high-level direction for data management and stewardship practice. The four principles (Findable, Accessible, Interoperable, and Reusable) are each related but independent and can be implemented incrementally depending on circumstances and environment. It is not intended to be a standard – application is left intentionally vague as needs and priorities will vary. What is missing, however, is clarity on how the implementation of one principle – or lack thereof – may influence the effectiveness of the others. For example, which is more important - being Findable or being Interoperable?

Trustworthy Repositories Audit & Certification (TRAC) metrics are intended to serve as a tool for objective evaluation of a repository against a set of core criteria. Similar to FAIR, TRAC also allows for variations in implementation by taking into account the mission, priorities, and stated commitments of the repository in question, which creates room for subjective application of criteria. The downside of this flexibility, however, is the lack of guidance on importance. If a repository has to start somewhere – where? What might they be giving up if they focus on one section over another, and how does this affect the viability of their preservation strategy?

A Complementary Framework

Gold (AU)DRIPSS neither proposes an answer to nor a single solution for these difficult decisions. Instead, it acknowledges the necessity of trade-offs and seeks to provide a basis for conversation and more informed decision-making by outlining a broad range of considerations that should be taken into account and by providing practical applications and examples for each. It complements existing standards and ultimately asserts that it is less important *what* is decided than that the decision is informed and the ramifications are clear.

Examples of Trade-Off Scenarios

Interoperability vs. Discoverability

The information you collect about a collection of digital objects does not lend itself perfectly to any existing metadata standard. However, other units within your organization are already using an internationally recognized standard. Do you find a way to crosswalk your information to the standard, or do you create your own custom schema?

The answer to this most likely depends in great part on your audience/users (e.g., will they be more familiar with the information you collect or with common metadata standards?) and the possibility for future integration with other units in your organization. The authors have chosen to prioritize interoperability due to the needs and desire for consistency and integration with other initiatives in the Federal Reserve System.

Preservability vs. Usability

A researcher has provided data that can only be viewed using a specific version of proprietary software. However, there is an option to save the data as a PDF. Do you ingest the proprietary format (knowing many users will not have access to the software and that the file may not be accessible in the long-term as the software version becomes obsolete), ingest the PDF version (knowing it will be more accessible in the long-term but cannot be manipulated), ingest both versions, or investigate options to convert into an alternative open source format?

This will most likely depend on available time and resources, such as the ability to build an emulator and/or the ability to investigate alternative conversion options. Because of the low volume of current materials, the authors have chosen to pursue both objectives by ingesting the original and investigating options for migration of proprietary formats into open source preservation formats before ingestion, e.g., MatLab data file (.MAT) into a CSV.

Scalability vs. Discoverability

This is a classic More Product Less Process (MPLP) scenario. Do you withhold access to a backlog of objects while you meticulously attach in-depth item-level metadata, or do you release objects with minimal description knowing users will be less able to find objects and make logical connections between them?

This must be guided by the availability of time and resources, the potential for and identification of 'hidden' collections, and the skills, knowledge, and expectations of the intended audience. The authors are currently prioritizing discoverability because of the low volume of current materials and the high impact of item-level discoverability, given the nature of the collections and objects.

Attendees were asked to choose which principle they would prioritize first (gold star) and which they would prioritize second (silver star). The main purpose of the activity was not to come to a consensus or reveal insightful trends but to instead help show that prioritization depends on context and that choosing to prioritize one principle sometimes means giving another up.

While trying to make a decision, many attendees would ask "What type of data or collections are we talking about?", to which I would answer "Exactly." The nature and purpose of the initiative matters greatly when deciding which areas to focus on, as does the perspective of the individual making the decision. The distribution of votes might look very different at a conference for economists or national funders or other stakeholder types.

That said, the distribution for this conference ended up as follows:

First priority –

Discoverability (17)

Interoperability (4)

Usability (3)

Sustainability (3)

Accessibility (2)

Reproducibility (2)

Preservability (1)

Scalability (1)

Second priority –

Sustainability (9)

Usability (5)

Discoverability (5)

Preservability (4)

Scalability (4)

Reproducibility (3)

Interoperability (2)

Accessibility (1)