



Software at RDA & International initiatives

Morane Gruenpeter (Software Heritage, Inria)

research data sharing without barriers
rd-alliance.org

Morane Gruenpeter | Software Source Code IG



Software in Research has multiple facets



It plays different roles:

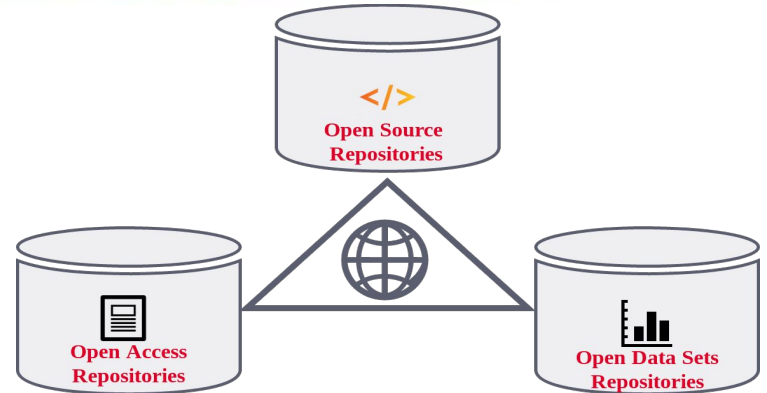
- As a **tool**
- As a research **outcome** or result
- **As the object** of research

The same software can be an **outcome** for one team, a **tool** for a different team and a **research object** another different team.

Motivation - *Software is not just another type of data*

*“Make sure **the specific nature of software** is recognized and not considered as “just data” particularly in the context of discussion about the notion of FAIR data.”*

2019: the **Opportunity Note** by the French national Committee for Open Science's Free Software and Open Source Project Group ([Clément-Fontaine, 2019](#))

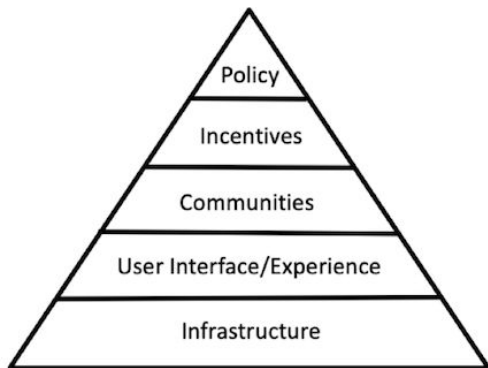


“Open Scientific knowledge [includes] open source software: source code must be included in the software release and made available on openly accessible repositories”.

Open Source in [UNESCO recommendations for Open Science](#), November 2021



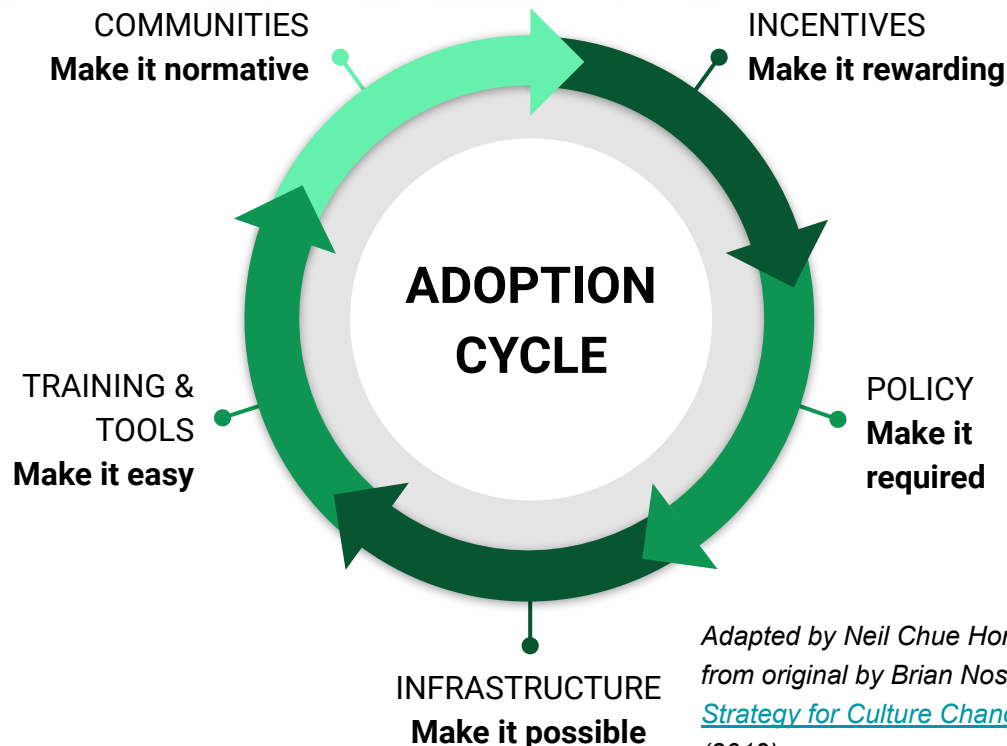
Goal: Make software a first class output



Make it required
Make it rewarding
Make it normative
Make it easy
Make it possible

Pyramid from Strategy for Culture Change: Brian Nosek (2019)
<https://www.cos.io/blog/strategy-for-culture-change>

Culture Change Pyramid



Adapted by Neil Chue Hong
from original by Brian Nosek:
[Strategy for Culture Change](#)
(2019)

The Software Source Code IG - created in 2017

Co-chairs:

- Neil P. Chue Hong
- Julia Collins
- Morane Gruenpeter

Past chairs:

- Roberto Di Cosmo
- Tom Honeyman
- Mingfang Wu

TAB Liaison: Laure Haak

Objectives:

A forum for discussing **Research Software** inside RDA

- issues on **management, sharing, discovery, archival** and **provenance** of software source code.
- It will pay special attention to **source code** that generates research data and plays an **important role** in scientific publications.

Software source code

The Knowledge is in the Source Code

“Source code provides a view into the mind of the designer.”

Len Shustek, 2006
Computer History Museum

```
0000000 0000 0001 0001 1010 0010 0001 0004 0128
0000010 0000 0016 0000 0028 0000 0010 0000 0020
0000020 0000 0001 0004 0000 0000 0000 0000 0000
0000030 0000 0000 0000 0010 0000 0000 0000 0204
0000040 0004 8384 0084 c7c8 00c8 4748 0048 e8e9
0000050 00e9 6a69 0069 a8a9 00a9 2828 0028 fdfc
0000060 00fc 1819 0019 9898 0098 d9d8 00d8 5857
0000070 0057 7b7a 007a bab9 00b9 3a3c 003c 8888
0000080 8888 8888 8888 8888 288e be88 8888 8888
0000090 3b83 5788 8888 8888 7667 778e 8828 8888
00000a0 d61f 7abd 8818 8888 467c 585f 8814 8188
00000b0 8b06 e8f7 88aa 8388 8b3b 88f3 88bd e988
00000c0 8a18 880c e841 c988 b328 6871 688e 958b
00000d0 a948 5862 5884 7e81 3788 1ab4 5a84 3eec
00000e0 3d86 dcb8 5cbb 8888 8888 8888 8888 8888
00000f0 8888 8888 8888 8888 8888 8888 8888 0000
0000100 0000 0000 0000 0000 0000 0000 0000 0000
*
0000130 0000 0000 0000 0000 0000 0000 0000 0000
000013e
```

https://en.wikipedia.org/wiki/Binary_file

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https://en.wikipedia.org/wiki/The_Human_Condition_%28Magritte%29

René Magritte, 1933, *The Human Condition*



Chronology

BOF RDA P9, *Barcelona April 2017*
motivations => 60 participants

RDA P10, *Montreal September 2017*
motivations, survey of ontologies, metadata

RDA P11, *Berlin March 2018* - idea for a
dedicated identification WG

RDA P13, *Philadelphia April 2019* **FAIR for
Software Source Code** and launch of the
SCID WG

RDA VP15, *Virtual March 2020*
Discussion about the creation of a new group,
the **FAIR4RS WG**

RDA VP16, *Virtual November 2020*
Existing efforts and practices in Academia

RDA VP17 *Virtual November 2020*
Scholarly infrastructures and quality
requirements of software source code

RDA P20 *Gothenburg March 2023*
Policy and incentives => **PRO4RS WG**

RDA P21 *Vienna October 2024*
Metadata & metrics

RDA VP22 *Virtual May 2024* Infrastructures

Software Source Code IG - ongoing conversation

Outcomes from the spawned Working Groups:

- **Research Data Alliance/FORCE11 Software Source Code Identification WG (2020).** Software Source Code Identification. Use cases and identifier schemes for persistent software source code identification (V1.0). <https://doi.org/10.15497/RDA00053>
- **Research Data Alliance/FORCE11/ReSA FAIR4RS WG** Chue Hong et al. (2022). FAIR Principles for Research Software version 1.0. (FAIR4RS Principles v1.0). Research Data Alliance. DOI: <https://doi.org/10.15497/RDA00068>

What's next?

You can join here:

<https://www.rd-alliance.org/groups/software-source-code-ig>

Members

Aaron Braun
Alessia Bard
Alice Allen
Andre Schaff
Angelina Kraft
Aslam Ghumra
Bridget Walker
Carmi Cronje
Christian Page
Christopher Brown
Daniel Nüst
Dieuwertje Bloemen
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Francoise Genova
Gerry Ryder
Gribonval Rémi
Ian Bruno
Ivonne Anders
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Johan Gustafsson
Jonathan Tedds
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Kerstin Helbig
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Stephan Druskat
Stephanie Cheviron
Tibor Kálmán
Tom Honeyman
Tovo Rabemanantsoa
Victoria Stoddien
Wolmar Nyberg Åkerström
Yojana Gadiya

* Taken on October 21st 2023

> 200
Members

Software at RDA and in academia

- Related past groups & outputs:
 - RDA, ReSA and FORCE11 [FAIR for Research Software Working Group](#) (FAIR4RS WG)
 - WG completed: FAIR principles for research software (published in 2022)
 - RDA & FORCE11 [Software Source Code Identification WG](#)(SCID IG)
 - WG completed: Output published in September 2020
 - FORCE11 [Software Citation Implementation Working Group](#) (SCIWG)
 - WG completed
- Related software sessions during P23:
 - PRO4RS
 - [Policies in Research Organisations for Research Software \(PRO4RS\) WG: Update from Policies in Research Organisations for Research Software \(PRO4RS\) WG](#)
 - Reproducibility IG
 - [Reproducibility IG: Reproducibility at RDA and beyond: What do we know and what do we need](#)
 - FAIR4ML
 - [FAIR for Machine Learning \(FAIR4ML\) IG: FAIR4ML IG Activity Updates and Feedback](#)

SciCodes Consortium

Consortium of registries and repositories that accept research software

<https://scicodes.net/>

- Open community of **registries and repositories** in different domains
 - 37 resources (registries/repositories)
- Forum to discuss **best practices**
- Collaborative work towards **CodeMeta** adoption
- Monthly meetings & presentations
 - Interested? Join us! <https://scicodes.net/meetings/>



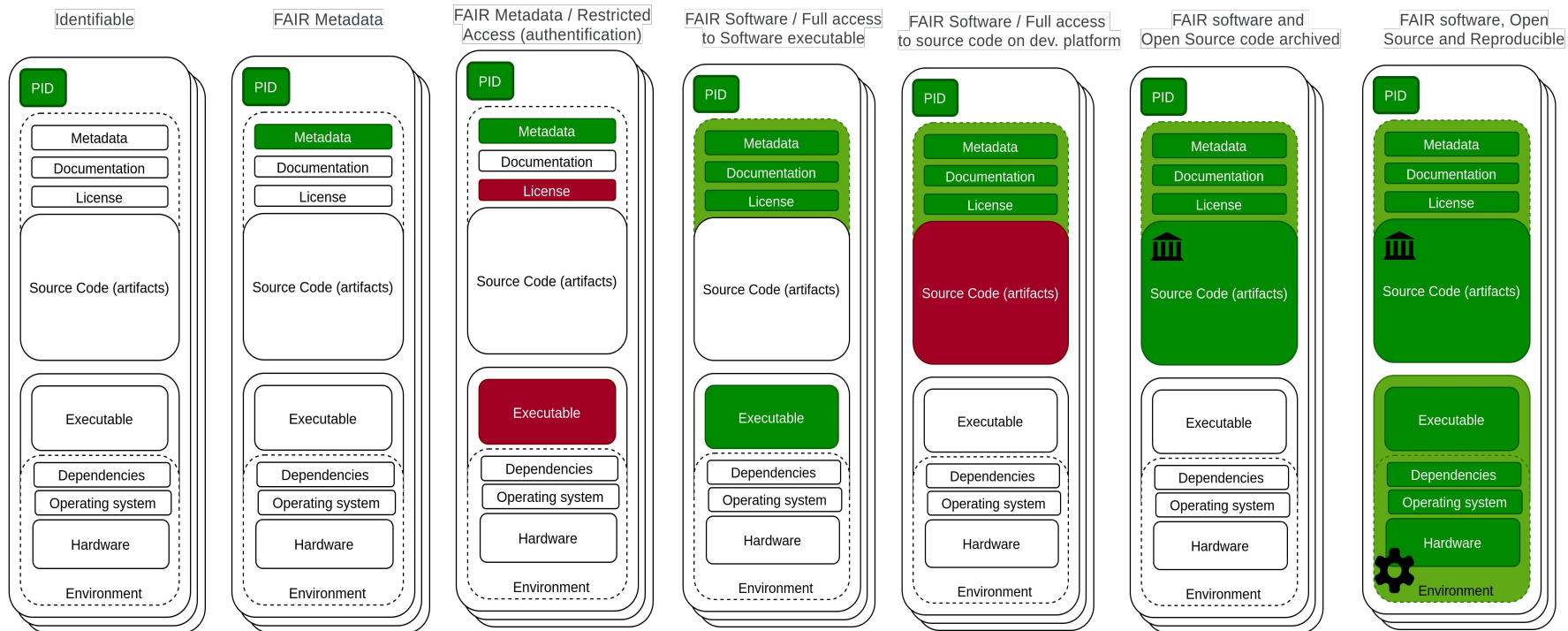
FAIR4RS Principles

The screenshot shows the Zenodo interface for the document 'FAIR Principles for Research Software (FAIR4RS Principles)'. At the top, there is a search bar and navigation links for 'Communities' and 'My dashboard'. The document title is 'FAIR Principles for Research Software (FAIR4RS Principles)', published on May 24, 2022, version 1.0. It has 10K views and 6K downloads. The authors listed are Chue Hong, Neil P., Katz, Daniel S., Barker, Michelle, Lamprecht, Anna-Lena, Martinez, Carlos, Psomopoulos, Fotis E., Harrow, Jen, Castro, Leyla Jael, Gruenpeter, Morane, Martinez, Paula Andrea, Honeyman, Tom, Struck, Alexander, Lee, Allen, Loewe, Axel, van Werkhoven, Ben, Jones, Catherine, Garjo, Daniel, Plomp, Esther, Genova, Françoise, Shanahan, Hugh, Leng, Joanna, Hellstrom, Maggie, Sandström, Malin, Sinha, Manodeep, Kuzak, Mateusz, Hertenich, Patricia, Zhang, Qian, Islam, Sharif, Sansone, Susanna-Assunta, Pollard, Tom, Atmojo, Udayant Dwi, Williams, Alan, Czerniak, Andreas, Niehaes, Anna, Fouilloux, Anne Claire, Desinghu, Bala, Goble, Carole, Richard, Céline, Gray, Charles, Erdmann, Chris, Nüst, Daniel, Tartarini, Daniele, Rangelova, Elena, Anzt, Hartwig, Todorov, Ilian, McNally, James, Moldon, Javier, Burnett, Jessica, Garrido-Sánchez, Julián, Belhajame, Khalid, Sesink, Laurents, Hwang, Lorraine, Tovani-Palone, Marcos Roberto, Wilkinson, Mark D., Servillat, Mathieu, Liffers, Matthias, Fox, Merc, Mijiković, Nadica, Lynch, Nick, Martínez Lavanchy, Paula, Gesing, Sandra, Stevens, Sarah, Martínez Cuesta, Sergio, Peroni, Silvio, Solland-Reyes, Stian, Bakker, Tom, Rabemanantsoa, Tovo, Sochat, Vanessa, Yehudi, Yo, and RDA FAIR4RS WG. The document is indexed in OpenAIRE and is associated with the FORCE11 and FAIR for Research Software (FAIR4RS) communities. A description at the bottom states: 'To improve the sharing and reuse of research software, the FAIR for Research Software (FAIR4RS) Working Group has applied the FAIR Guiding Principles for scientific data management and stewardship to research software, bringing together existing and new community efforts. Many of the FAIR Guiding Principles can be directly applied to research software by treating software and data as similar digital research objects. However, specific characteristics of software — such as its executability, composite nature, and continuous evolution and versioning — make it necessary to revise and extend the principles. This document presents the first version of the FAIR Principles for Research Software (FAIR4RS Principles), and includes explanatory text to aid adoption. It is an outcome of the FAIR for Research Software Working Group (FAIR4RS WG) based on community consultations that started in 2019. The FAIR for Research Software Working Group was jointly convened as a Research Data Alliance (RDA) Working Group, FORCE11 Working Group, and Research Software Alliance (ReSA) task Force. The RDA Software Source Code Interest Group is the maintenance home for the principles. Concerns or queries about the principles can be raised at RDA plenary events organized by the SSC IG, where there may be opportunities for adopters to report back on progress. The full maintenance and retirement plan for the principles can be found on the RDA website.'

The banner is for a '2021 Webinar Series Highlighting RDA Outputs', hosted by RDA-US. The main topic is 'FAIR Principles for Research Software (FAIR4RS WG)'. The speakers are Morane Gruenpeter (Paris, Software Heritage, France), Daniel S. Katz (University of Illinois Urbana-Champaign, United States), Carlos Martínez (Netherlands eScience Center, The Netherlands), and Neil Chue Hong (University of Edinburgh, United Kingdom). The registration link is <https://bit.ly/FAIR4RSsept>. The event is part of the #RDAwebinar series, scheduled for September 23rd at 17:00 UTC.

Chue Hong, N. P., Katz, D. S., Barker, M., Lamprecht, A-L, Martinez, C., Psomopoulos, F. E., Harrow, J., Castro, L. J., Gruenpeter, M., Martinez, P. A., Honeyman, T., et al. (2022). FAIR Principles for Research Software version 1.0. (FAIR4RS Principles v1.0). Research Data Alliance. DOI: [10.15497/RDA00068](https://doi.org/10.15497/RDA00068)

Open Science pillar: More than just FAIR



FAIR4RS Governance - SSC IG role

Maintenance and Retirement Plan:

1. The FAIR4RS principles were the outcome of broad, inclusive and extensive public consultation, No single institution or body has ownership over recommendations of the FAIR4RS working group.
2. The RDA Software Source Code Interest Group is the maintenance home for the principles.
3. The form of the principles will remain fixed for 2 years from the release of a 1.0 version (until 2024)
4. 2024: a broadly consultative and open review will be conducted by ReSA, in collaboration with RDA and FORCE11 members and any additional bodies relevant at that time

The planning for this review has started - calls for input / participation coming later this year

Save ~~your~~ any code now!



Software Heritage
THE GREAT LIBRARY OF SOURCE CODE

<https://save.softwareheritage.org/>

Save code now

Software Heritage Archive

Save code now

Enter a SWHID to resolve or keyword(s) to search for in origin URLs

Features

- Search
- Downloads
- Save code now
- Help

Origin type: git (1)

Origin url: (2)

Submit (3)

Help: Browse save requests

A "Save code now" request takes the following parameters:

Let's work together

morane@softwareheritage.org

<https://www.softwareheritage.org/>