

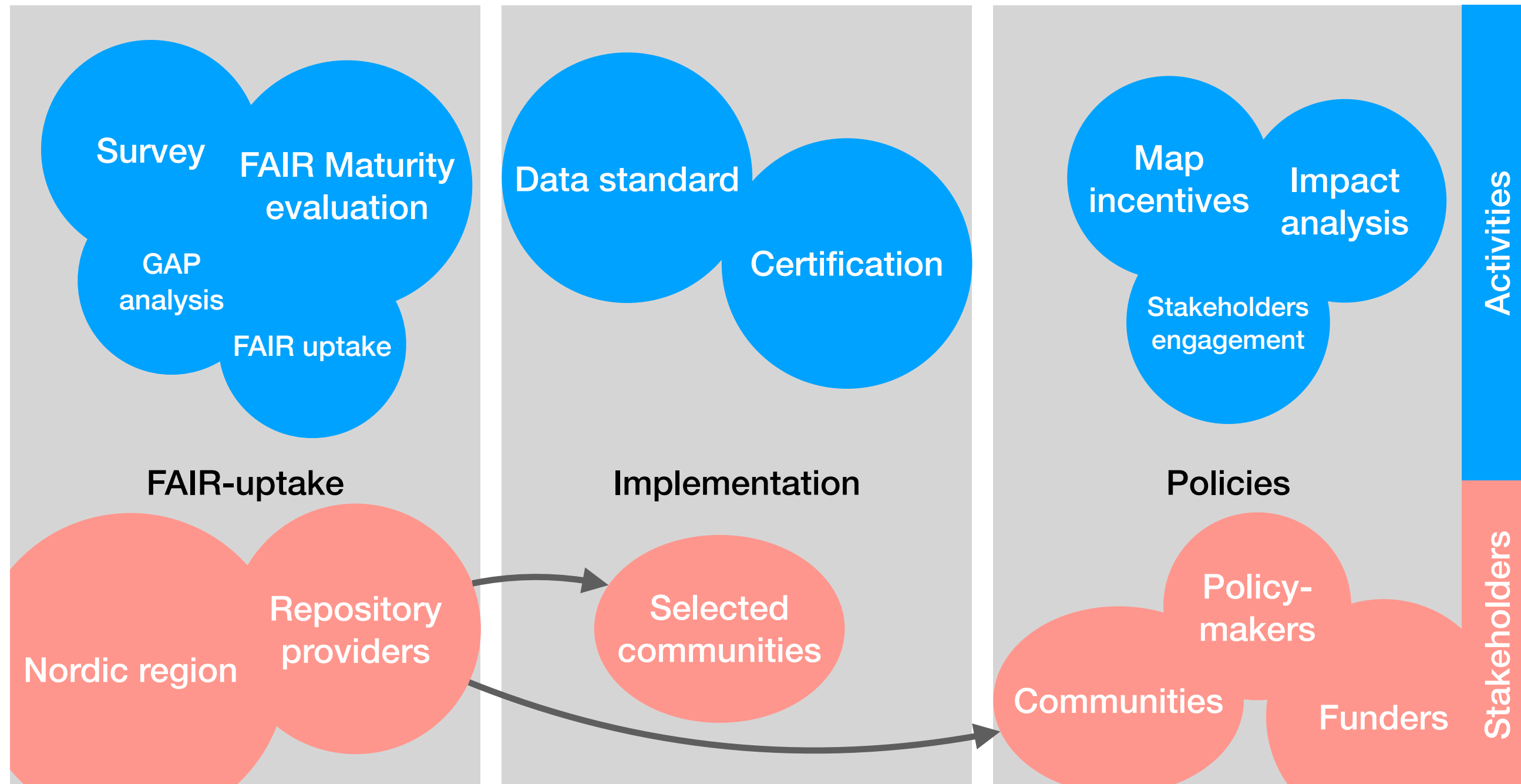
# **EOSC-Nordic WP4 FAIRification STEP4 Oct 7, 2021**

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NeIC/Nordforsk  
WP4 lead

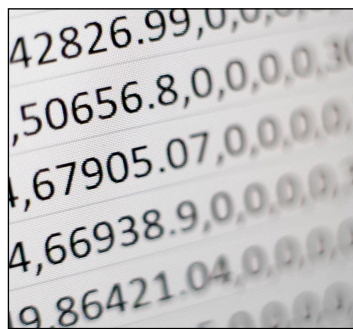
EOSC-Nordic project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 857652



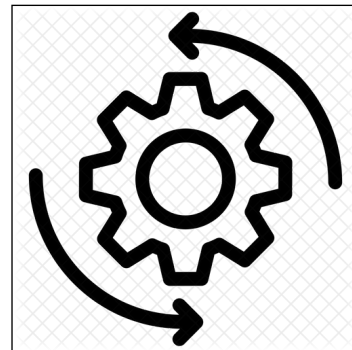
# EOSC-Nordic WP4: FAIR data



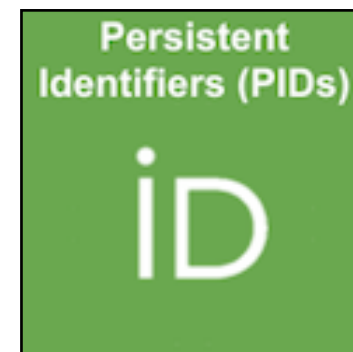
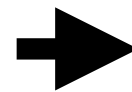
# Measuring FAIR uptake



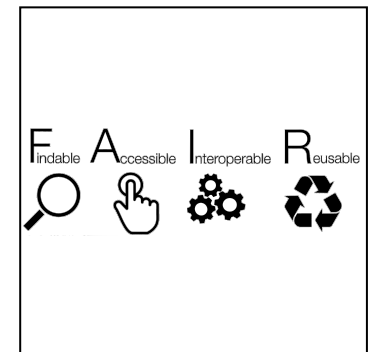
Collected ~100  
research data  
repositories  
in the Nordic+Baltic



FAIR assessments of  
all datasets using fully  
machine-actionable  
metadata



24% of repos do  
NOT provide  
PIDs or GUIDs  
(identifiers)



Average  
FAIR score 24%,  
higher for  
mature / certified  
repositories

<https://docs.google.com/spreadsheets/d/1MBTMXb5SleaBKiyEzImgJtQtxNS1zZTgTvTk9A2vgdc>

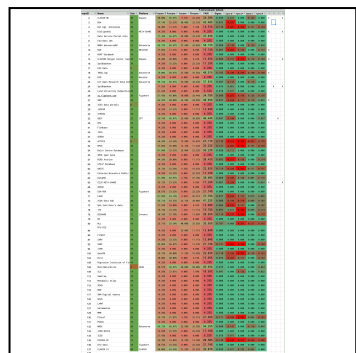
Expose the results to repos/communities, so that they can use the feedback from the tool as a guideline to improve their FAIRness

| F-UJI evaluator (latest) |                            |      |            |         |         |         |         |        |       |           |           |           |           |   |   |
|--------------------------|----------------------------|------|------------|---------|---------|---------|---------|--------|-------|-----------|-----------|-----------|-----------|---|---|
| repoID                   | Name                       | Date | Platform   | F-score | A-score | I-score | R-score | FAIR   | Sigma | ilgma (F) | ilgma (A) | ilgma (I) | ilgma (R) |   |   |
| 2                        | CLARIN-DK                  | 40   | Dspace     | 50.00%  | 66.67%  | 9.72%   | 22.22%  | 34.30% | 0.036 | 0.072     | 0.000     | 0.124     | 0.000     | X | X |
| 3                        | DDA                        | 20   |            | 57.14%  | 33.33%  | 50.00%  | 33.33%  | 43.48% | 0.073 | 0.293     | 0.000     | 0.000     | 0.000     |   |   |
| 4                        | Det Kgl. bibliotek         | 20   |            | 30.00%  | 13.33%  | 5.00%   | 7.22%   | 14.57% | 0.118 | 0.307     | 0.294     | 0.131     | 0.154     |   |   |
| 6                        | Kielipankki                | 10   | META-SHARE | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     | X | X |
| 7                        | Data Service Portal Aila   | 10   |            | 71.43%  | 66.67%  | 25.00%  | 33.33%  | 47.83% | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 8                        | Fairdata IDA               | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 9                        | NMBU dataverseNO           | 16   | Dataverse  | 85.72%  | 66.67%  | 37.50%  | 43.05%  | 58.15% | 0.050 | 0.148     | 0.000     | 0.129     | 0.038     |   |   |
| 10                       | NSD                        | 20   | NESSTAR    | 37.86%  | 13.33%  | 0.00%   | 8.89%   | 16.74% | 0.087 | 0.283     | 0.168     | 0.000     | 0.112     | X |   |
| 11                       | HUNT Databank              | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 13                       | CLARINO Bergen Center repc | 20   | Dspace     | 30.00%  | 20.00%  | 7.50%   | 6.67%   | 15.65% | 0.096 | 0.153     | 0.313     | 0.118     | 0.104     | X | X |
| 16                       | Språkbanken                | 10   |            | 14.29%  | 33.33%  | 0.00%   | 22.22%  | 17.39% | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 17                       | ESS Data                   | 9    |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 18                       | TROLLing                   | 22   | Dataverse  | 75.00%  | 56.67%  | 27.50%  | 35.55%  | 48.91% | 0.103 | 0.240     | 0.244     | 0.160     | 0.160     | X |   |
| 19                       | EED                        | 10   | Nesstar    | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 20                       | UiT Open Research Data Dat | 20   | Dataverse  | 85.72%  | 66.67%  | 32.50%  | 44.44%  | 57.83% | 0.047 | 0.147     | 0.000     | 0.118     | 0.000     |   |   |
| 24                       | Språkbanken                | 13   |            | 17.59%  | 0.00%   | 0.00%   | 0.00%   | 5.35%  | 0.016 | 0.063     | 0.000     | 0.000     | 0.000     | X | X |
| 25                       | Lund University Humanities | 20   |            | 21.43%  | 0.00%   | 0.00%   | 0.00%   | 6.52%  | 0.018 | 0.073     | 0.000     | 0.000     | 0.000     |   |   |
| 26                       | su.figshare.com            | 20   | Figshare   | 51.43%  | 45.00%  | 10.00%  | 29.44%  | 34.78% | 0.098 | 0.287     | 0.196     | 0.126     | 0.136     |   |   |
| 27                       | SND                        | 20   |            | 64.29%  | 50.00%  | 42.50%  | 38.89%  | 48.69% | 0.077 | 0.220     | 0.171     | 0.118     | 0.057     | X |   |
| 28                       | ICES data portals          | 8    |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 29                       | JASPAR                     | 10   |            | 14.29%  | 33.33%  | 0.00%   | 11.11%  | 13.04% | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 30                       | STRING                     | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 32                       | GBIF                       | 22   | IPT        | 59.74%  | 66.67%  | 25.00%  | 38.89%  | 46.44% | 0.047 | 0.180     | 0.000     | 0.000     | 0.057     |   | X |
| 39                       | HPA                        | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 41                       | Fishbase                   | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 45                       | ISIG                       | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 47                       | GERDA                      | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 49                       | ACTRIS                     | 8    |            | 46.43%  | 33.34%  | 12.50%  | 16.67%  | 27.17% | 0.139 | 0.312     | 0.356     | 0.231     | 0.178     |   |   |
| 52                       | NPDC                       | 20   |            | 37.86%  | 35.00%  | 13.75%  | 17.22%  | 25.22% | 0.127 | 0.259     | 0.366     | 0.151     | 0.178     |   |   |
| 54                       | Bolin Centre Database      | 12   |            | 61.90%  | 33.33%  | 25.00%  | 22.22%  | 36.23% | 0.028 | 0.111     | 0.000     | 0.000     | 0.000     |   |   |
| 55                       | SMHI open data             | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 57                       | NIRD Archive               | 20   |            | 44.29%  | 20.00%  | 0.00%   | 11.11%  | 20.43% | 0.093 | 0.311     | 0.168     | 0.000     | 0.114     |   |   |
| 60                       | GTN-P Database             | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 62                       | UNITE                      | 20   |            | 35.72%  | 33.34%  | 6.25%   | 16.67%  | 22.83% | 0.114 | 0.220     | 0.342     | 0.111     | 0.171     |   |   |
| 63                       | Estonian Biocentre Public  | 10   |            | 14.29%  | 33.33%  | 0.00%   | 22.22%  | 17.39% | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 64                       | DataDOI                    | 18   |            | 61.90%  | 62.97%  | 2.78%   | 27.78%  | 38.40% | 0.068 | 0.208     | 0.108     | 0.081     | 0.116     |   |   |
| 65                       | CELR META-SHARE            | 20   |            | 35.72%  | 33.33%  | 0.00%   | 5.56%   | 17.39% | 0.057 | 0.220     | 0.000     | 0.000     | 0.057     | X | X |
| 66                       | AHEAD                      | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 68                       | USN RDA                    | 10   | Figshare   | 28.57%  | 33.33%  | 0.00%   | 22.22%  | 21.74% | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 71                       | LOAR                       | 19   |            | 61.65%  | 63.16%  | 2.63%   | 26.31%  | 37.76% | 0.077 | 0.243     | 0.153     | 0.079     | 0.085     |   |   |
| 72                       | AIDA Data Hub              | 20   |            | 65.71%  | 43.33%  | 23.75%  | 30.00%  | 41.52% | 0.080 | 0.188     | 0.219     | 0.099     | 0.103     |   |   |
| 73                       | QoG Institute's data       | 10   |            | 31.43%  | 10.00%  | 0.00%   | 6.67%   | 13.48% | 0.084 | 0.276     | 0.161     | 0.000     | 0.107     |   |   |
| 76                       | JYX                        | 20   |            | 35.72%  | 33.34%  | 1.25%   | 11.11%  | 19.78% | 0.093 | 0.073     | 0.342     | 0.056     | 0.114     |   |   |
| 78                       | B2SHARE                    | 12   | Invenio    | 38.10%  | 27.78%  | 0.00%   | 13.89%  | 20.65% | 0.118 | 0.275     | 0.343     | 0.000     | 0.172     |   |   |
| 79                       | DH                         | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 80                       | NLL                        | 10   |            | 25.71%  | 53.34%  | 40.00%  | 35.55%  | 35.65% | 0.101 | 0.060     | 0.281     | 0.211     | 0.187     |   |   |
| 84                       | RTU RIS                    | 10   |            | 14.29%  | 0.00%   | 25.00%  | 11.11%  | 13.04% | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 85                       | FinBIF                     | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 87                       | SARV                       | 10   |            | 14.29%  | 33.33%  | 0.00%   | 11.11%  | 13.04% | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 92                       | SSRI                       | 15   |            | 42.86%  | 26.67%  | 0.00%   | 13.33%  | 21.74% | 0.131 | 0.362     | 0.338     | 0.000     | 0.169     |   |   |
| 94                       | IINH                       | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 100                      | QsarDB                     | 20   |            | 35.72%  | 30.00%  | 11.25%  | 15.55%  | 22.83% | 0.110 | 0.220     | 0.323     | 0.128     | 0.163     |   |   |
| 104                      | Bird                       | 20   |            | 30.00%  | 40.00%  | 0.00%   | 6.67%   | 16.96% | 0.074 | 0.222     | 0.137     | 0.000     | 0.137     |   |   |
| 106                      | Migration Institute of Fin | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 108                      | Musiikkiarkisto            | 4    | CKAN       | 28.57%  | 66.67%  | 50.00%  | 50.00%  | 45.65% | 0.016 | 0.000     | 0.000     | 0.000     | 0.064     |   |   |
| 109                      | SLS                        | 14   |            | 14.29%  | 23.81%  | 0.00%   | 7.94%   | 10.56% | 0.041 | 0.000     | 0.156     | 0.000     | 0.052     |   |   |
| 113                      | SweFreq                    | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 114                      | Metabolic Atlas            | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 115                      | SEAD                       | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 116                      | NOW                        | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 117                      | SNM Digital Assets         | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 120                      | GEUS                       | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 123                      | LARM                       | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 127                      | Garamantas                 | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 129                      | MMB                        | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 130                      | PlutoF                     | 20   |            | 35.72%  | 31.67%  | 3.75%   | 16.11%  | 21.96% | 0.111 | 0.220     | 0.333     | 0.092     | 0.167     |   |   |
| 131                      | MIDAS                      | 10   |            | 14.29%  | 0.00%   | 0.00%   | 0.00%   | 4.35%  | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 132                      | NMDC                       | 20   | Dataverse  | 85.72%  | 66.67%  | 32.50%  | 35.55%  | 54.35% | 0.048 | 0.147     | 0.000     | 0.118     | 0.046     |   |   |
| 133                      | IINH BIOTA                 | 10   |            | 14.29%  | 33.33%  | 0.00%   | 22.22%  | 17.39% | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 134                      | ICOS                       | 20   |            | 21.43%  | 0.00%   | 0.00%   | 0.00%   | 6.52%  | 0.018 | 0.073     | 0.000     | 0.000     | 0.000     |   |   |
| 135                      | CESSDA DC                  | 14   |            | 34.70%  | 19.05%  | 14.29%  | 12.70%  | 20.50% | 0.139 | 0.335     | 0.313     | 0.234     | 0.208     |   |   |
| 136                      | DTU data                   | 10   | figshare   | 28.57%  | 33.33%  | 0.00%   | 22.22%  | 21.74% | 0.000 | 0.000     | 0.000     | 0.000     | 0.000     |   |   |
| 137                      | CLARIN IS                  | 20   | CLARIN     | 50.00%  | 63.34%  | 21.25%  | 22.22%  | 35.87% | 0.039 | 0.073     | 0.103     | 0.092     | 0.000     |   |   |
| 138                      |                            |      |            |         |         |         |         |        |       |           |           |           |           |   |   |





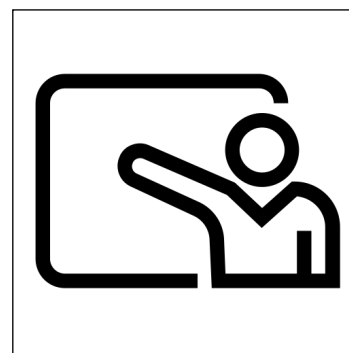
# Supporting FAIR uptake



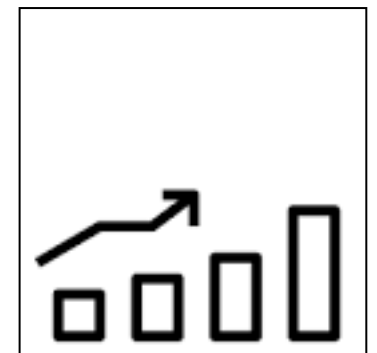
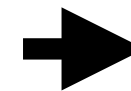
Prepared results  
and shared with  
the community



Offered community  
recommendations  
based on  
results



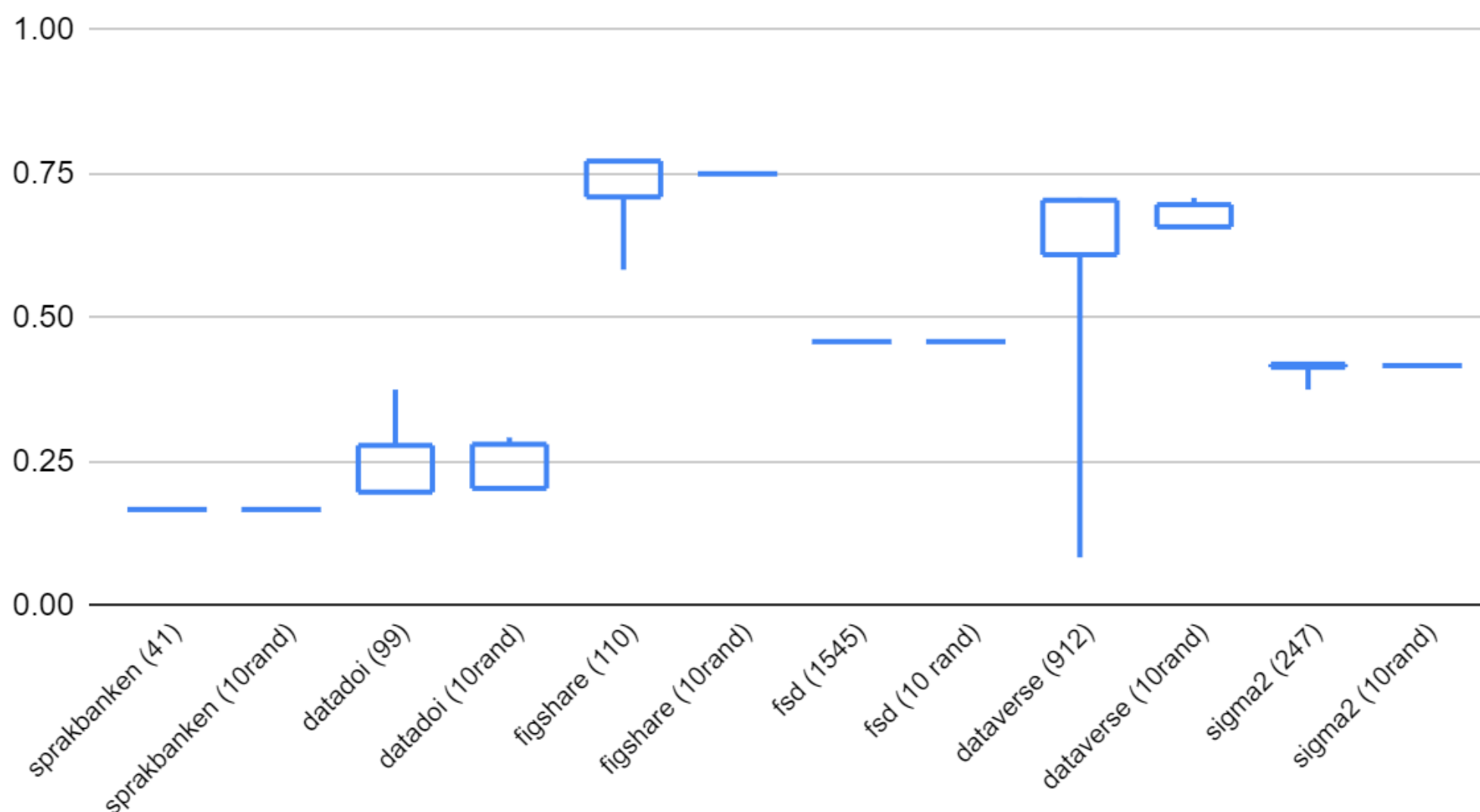
Community  
workshops  
held with >300  
attendees in total



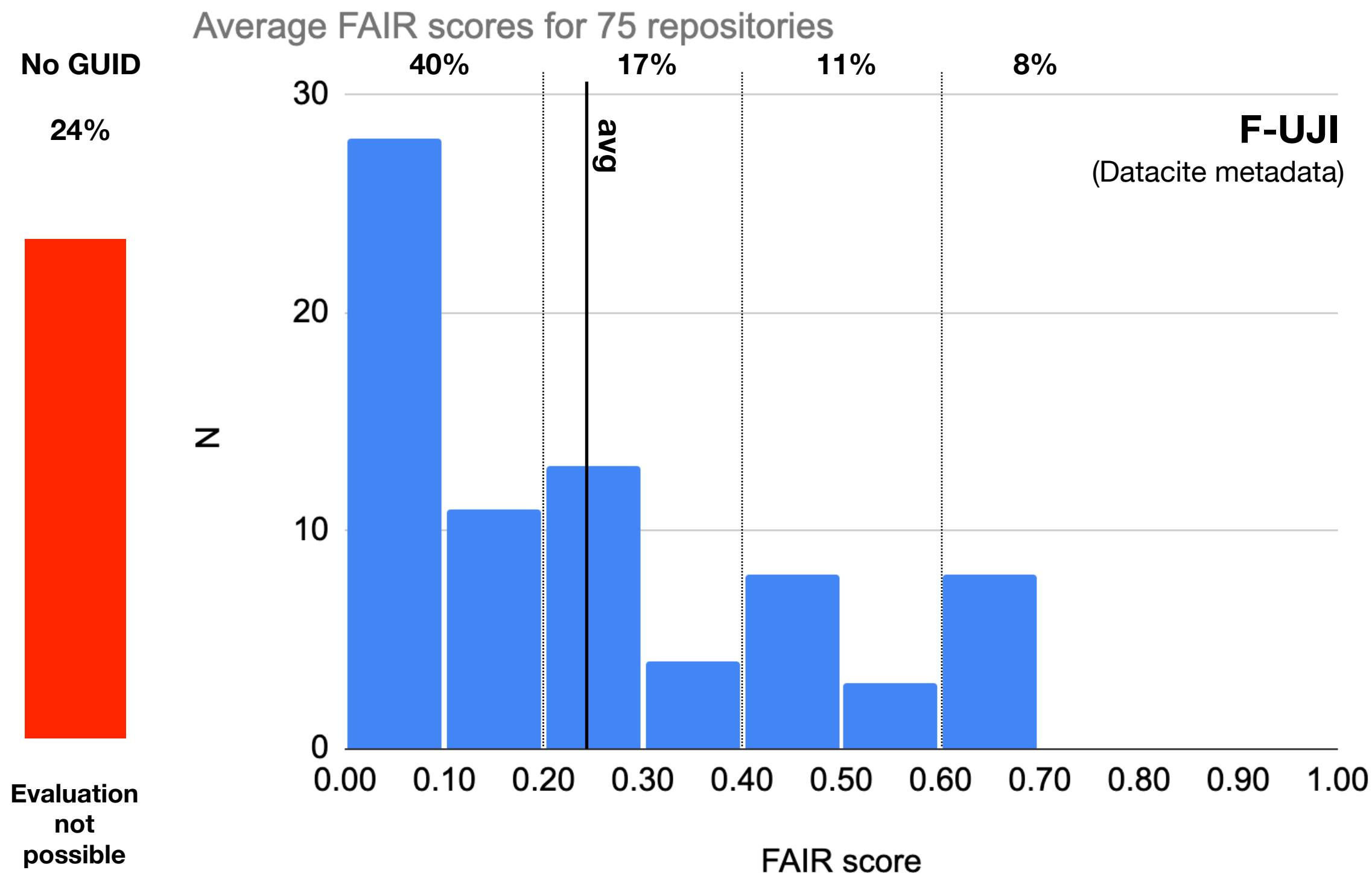
Directly gauge  
uptake by repositories  
by measuring their  
FAIR score

# N=10 approximation test

FAIR score

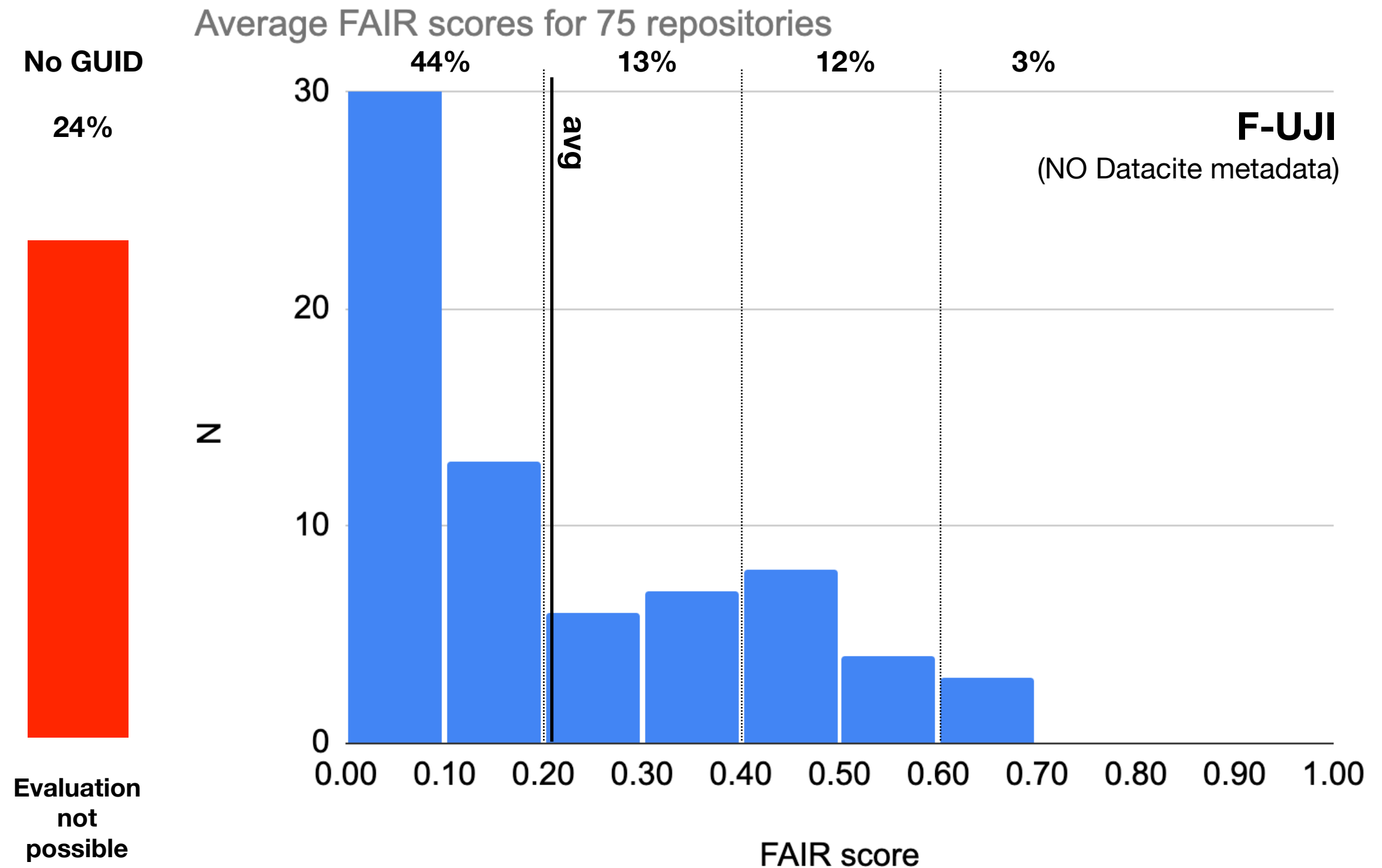


# FAIR uptake



98 repositories (75 evaluated)

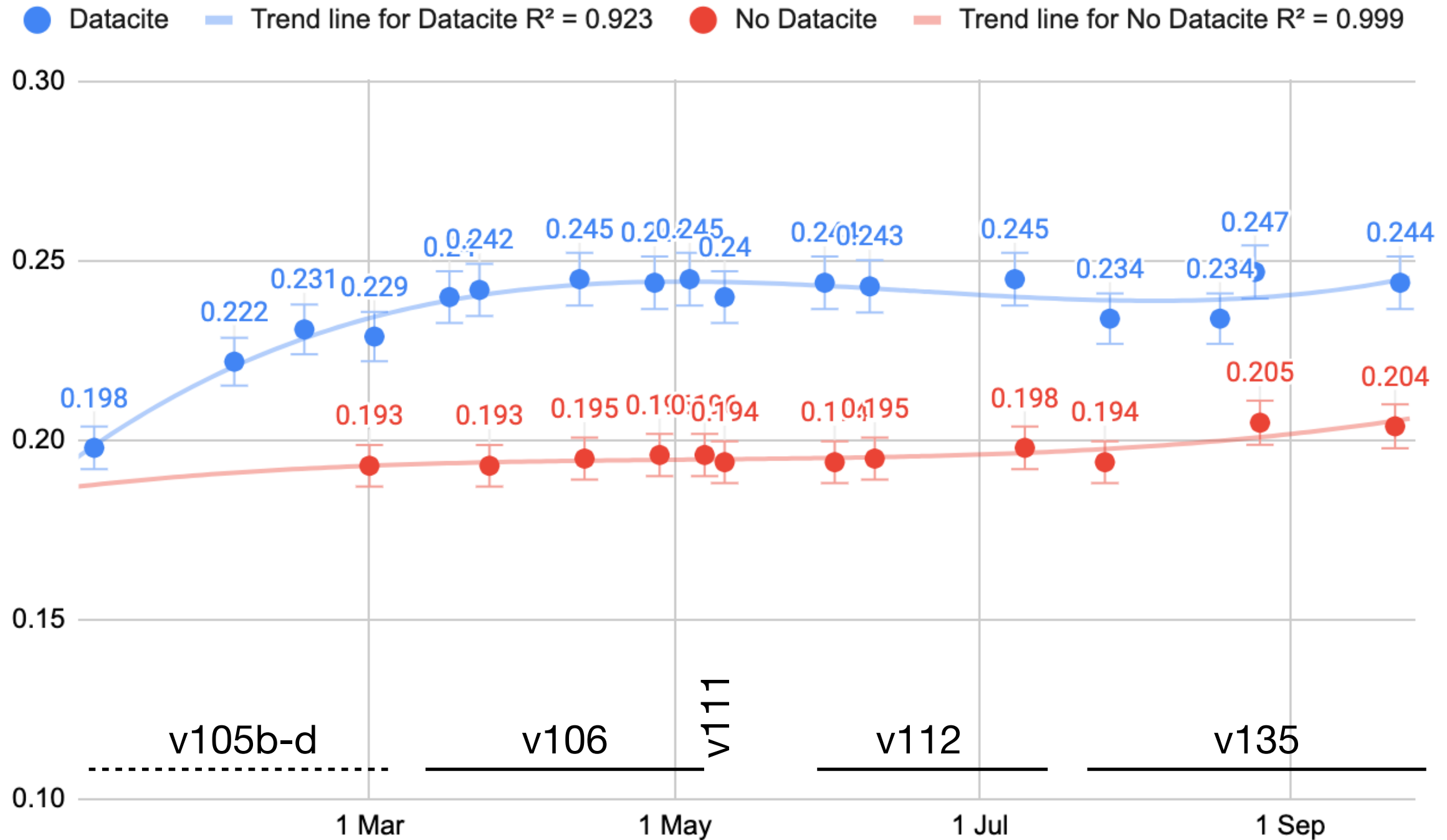
# FAIR uptake



**98 repositories (75 evaluated)**

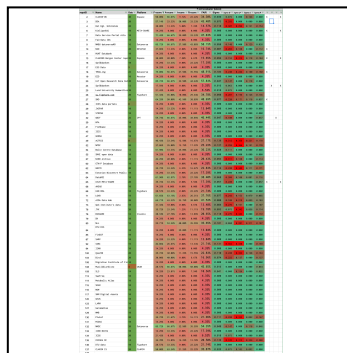


# FAIR score evolution



# Additional activities

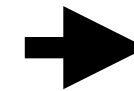
**Certification + FAIR**



Measured  
FAIR maturity



Certification status of  
repositories

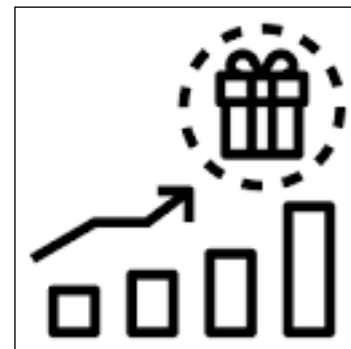


**Test proposed  
FAIR certification  
scheme (by  
FAIRsFAIR)**

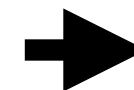
**FAIR  
incentives  
study**



Conducted  
interviews on  
policies FAIR  
incentives



Result  
dissemination  
and stakeholder  
liaising



**Aim to bring  
stakeholders inline  
with OS**

# WP4 highlights

- Surveyed 98 data repositories in the Nordic and Baltic region and collected 877 datasets from 75 repos
- Developed a streamlined pipeline for executing FAIR assessments (using F-UJI tool) of these datasets on a monthly basis – a fully machine-actionable evaluation process
- NOTE: 24% of the sample cannot be evaluated due to lack of GUIDs/PIDs
- The average score of the 75 evaluated repositories is  $0.244 \pm 0.007$
- Repositories running on mature platforms score an average of  $0.43 \pm 0.02$ , while repositories that are certified score an average of  $0.30 \pm 0.03$ . There is no detectable score difference between generic and domain specific repositories
- Providing support to selected repositories on i) CoreTrustSeal certification or self-assessment and ii) FAIRification of datasets and repositories guidance
- FAIR is still poorly supported in the communities / repositories (currently 1/3 of the datasets do not pass any test, while 2/3 score less than 33%). We hope to detect and quantify a steady rise in the average FAIR score.

# The End