

Metrics for Scientific Software



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WSSSPE3 - Metrics Breakout Group

- Metrics are important for
 - Scientific impact
 - Discovery
 - Reducing duplication
 - Software evaluation
- Barriers
 - No common set of metrics collected
 - Projects need to see it is useful to collect them
 - No commonly-used standard for collecting and presenting metrics

Survey

- Participants
 - Scientific Software Elements (SSE) and Scientific Software Integration (SSI) NSF SI2* awardees
 - Sent to 90 Principal Investigators (February 2016 - June 2016)
 - 19 participants
- Motives
 - Understand the current best practices
 - Collect and document a meaningful set of metrics for scientific software
 - Find a common set of productive metrics
 - Raise awareness about using metrics
 - Promote software sustainability within the scientific software community

*NSF Software Infrastructure for Sustained Innovation; see <http://nsf.gov/si2>

Survey (cont.)

- Survey Questions
 - What metrics did you list in your proposal?
 - Are there any additional metrics you are collecting now?
 - Were there any metrics you were not able to collect?
 - Were there any metrics you found unuseful?
 - Did collecting metrics improve your software?

Metrics for Scientific Software Survey

The Metrics for Scientific Software working group from WSSPE (Working towards Sustainable Software for Science Practice and Experiences) is collecting and analyzing information on metrics currently used by awardees funded by the NSF Software Infrastructure for Sustained Innovation program.

① Software/Project name:

② Are the software components developed through your award correctly listed at this web site:

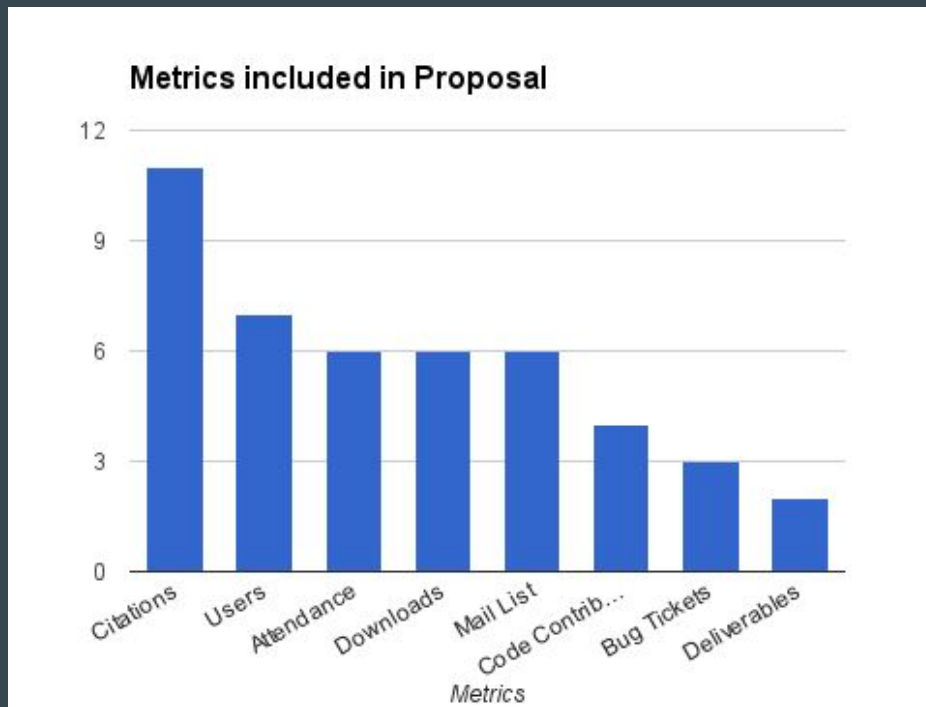
<https://sites.google.com/site/softwarecyberinfrastructure/software/software>

If this information is not accurate please list all software components generated through your award here.

③ What metrics did you list in your SSI/SSE proposal or agree to before your award for these software components?

Results

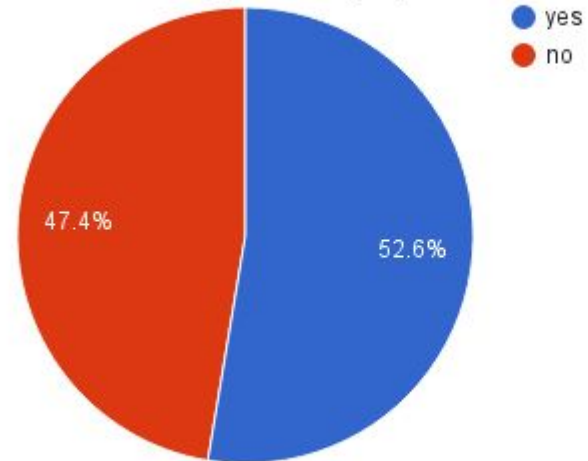
- Metrics included in Proposal
 - Most: Number of external citations and acknowledgements
- Additional Metrics
 - Scientific software performance metrics
- Unable to Collect
 - Number of Downloads
- Not useful Metrics
 - Number of Downloads



Results (cont.)

- Awareness that metrics are important
- Useful metrics are often difficult and tedious to collect

Did you find collecting metrics led to improving the software (e.g. quality, usefulness, sustainability, reliability...)?



WSSSPE4 - Moving Forward

- Should we expand the survey?
 - Are there other groups of scientific software developers we can contact?
 - Are there any questions that should be added?
- Are there tools and procedures that can be developed to make metric collection easier?