Metrics discussion

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Question 1: How do we build trust in the data related to the metrics for success?

- To a certain extent “trust” is a luxury - even getting data is difficult in many circumstances!
- Information from multiple sources is helpful - consistency between metrics/datasets is a more useful goal than guaranteeing reliability.
- Auditing input data is in principle useful, but time-consuming and tedious. Spot checking, identifying suspicious inputs/users/data streams may be more useful. Above all, it’s crucial to be clear about how data is collected and processed.
- How much we care about “trust” depends on the questions we’re asking and the audience - it’s important to try to provide qualitative/quantitative estimates of uncertainty.
- “Alt metrics” like social media engagement are valuable as a composite, but unreliable on their own.

Question 2: What are the challenges relating to gathering metrics of success?

- Self-reporting is biased and incomplete (e.g., survey data, PI self-reporting of information). Web scraping/searching is similar, if you're looking for citations/acknowledgment.
- Defining the research question (or "success") is a crucial step to choosing the metrics; this is not always obvious at the outset, sometimes iterative.
- Knowing who your stakeholders are and what they care about is crucial, and impacts the gathering of metrics. (And can be a moving target if your stakeholders don't quite know what they want.)
- We're all struggling with ROI (and possibly the ROI of defining metrics and collecting data in support of them)

Question 3: How are we currently using the data related to our project metrics, to inform or revise, our processes/actions/decision-making?

- Informing future acquisitions
- Getting ahead of what users need rather than reacting.
- Informing future proposals (internal and external) and software development efforts
- Informing outreach efforts and strategy
- Targeted surveys can inform strategic choices about use of funding, but there's a tension between breadth and specificity in terms of number of responses.
- User questions inform public software roadmap

Question 4: What are the considerations for developing or improving on the "responsible metrics" for assessing the CI projects and defining benchmarks for success?

- Need to make sure that the metrics you're collecting can inform the right people at the right level of detail (e.g., CFO vs. research support staff)
- The entire process, from data collection to analysis to presentation, needs to be transparent and clear in order to build trust.
- **Considerations:** is the data being collected elsewhere? What are the possible biases? Is there stakeholder buy-in for collecting additional information to inform metrics (this is not cost-free)? Can we get information from alternate sources, even if it requires a lot of data transformation?
- Software packages: would be helpful for funding agencies to define a core set of metrics they care about and that you have to report (like, e.g., NSF REU or NIH shared instrumentation grants)