GSD Success Metrics Working Group - Interim Report

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Background

This document serves as an interim report of the activities of the GSD Success Metrics Working Group. This working group was established to address one of the recommendations put forth by the Panel members of the GSD Science Review held in September 2015. Specifically, the panel recommended "To identify, track and embrace broader metrics of GSD's success, even if those metrics are outside of GSD's direct or sole influence, with a particular focus on key stakeholder outcomes."

A cross-organization working group was formed to address this recommendation, with the objectives to
- Identify existing metrics being tracked that could be extended GSD wide
- Generate new ideas for performance metrics that could be tracked
- Of the comprehensive list of metrics identified, determine which metrics to move forward with for GSD
- Determine an implementation plan for those selected metrics

Status of Activities

The working group has met three times, with additional offline work in the interim using Google Drive for collaboration. The group identified several metrics that were being tracked at various levels within GSD, ranging from project-level to GSD-wide efforts. The metrics were broadly grouped into two categories:
- Organizational: Organizational improvements have an indirect benefit to our stakeholders
- Product (and service)-specific: Product and service improvements have a direct benefit to our stakeholders

Following is a high level summary of the metrics that have been identified to pursue, either long-term or near-term.

Organizational metrics:
- Measures of diversity and inclusion, motivated by the philosophy that a diverse organization yields more diverse ideas and innovation: Diversity would be tracked via lab demographics as an indicator of how well GSD is organized and managed to ensure a diverse workforce.
- Measures generated from employee satisfaction surveys. GSD has implemented an annual survey to track employee satisfaction in several areas, which can be considered an indicator of how well GSD is organized and managed to optimize the conduct and planning of research.
- Tracking annual number of partnerships: The number and types of partnerships, as well as the longevity of partnerships, is an indicator of how well GSD is leveraging relationships with collaborators to maximize research outputs.

- A measure of the effectiveness of our financial management, by tracking spending relative to established financial plans: This is an indicator of how efficiently and effectively GSD executes its research given the Division goals, resources, and constraints.
- Tracking annual funding broken out by source, which is an indicator of the involvement and commitment NOAA and external collaborators.

Possible Product and Service Metrics:
- Tracking number of publications and number of references: Already tracked at the GSD level, this is an indicator that GSD conducts preeminent research and provides meritorious and significant contributions to the scientific community.
- Tracking number of successful transitions of research to operations. This is an indicator of the relevance of GSD's contributions, and extends beyond R2O to include R2X-- R2A (Applications) and R2U (Understanding).
- Economic Value of GSD products: While this may not be an ongoing metric, NOAA's Office of the Chief Economist conducts cost-effectiveness and impacts analysis of NOAA organizations, which could be of value in communicating the benefits of GSD products and services to the the public and other stakeholders.
- Direct performance metrics of GSD products and services, which would be indicators of the impact of GSD work on operations. Examples include
    - Measuring HRRR performance in the context of aviation operations, tying HRRR enhancements to reduced number of weather delays.
    - Measuring product performance using operational criteria relevant to various sectors such as aviation and renewable energy.
    - Initiating performance baselines for newer ensemble and probabilistic products for long-term tracking, using traditional verification metrics such as reliability.
- Tracking access to GSD products, which would be an indicator of relevance. Examples include
    - Counts of hits/usage of GSD web sites, possibly using google analytics
    - Volumes of downloads from GSD web sites
- Tracking outreach metrics, another indicator of the relevance of GSD work. Examples (currently being done for SOS) include
    - Counts of visitors to GSD product demos
    - Counts of teachers educated

Next Steps

Recently, there has been a separate but related effort by Susan Cobb to develop materials to communicate the impacts of GSD research on the economy, industry, public safety, and computing. The backing data collected for these materials will be explored to see if there are additional, related metrics that would be beneficial to track.

The working group will reconvene in late August to review the items listed above, and identify which to pursue near-term and which to pursue long-term. Additionally, the working group will develop a recommended implementation plan that could be put in place to track GSD's performance. The implementation plan is targeted for the September time frame.