DM/Community Interaction Strategy

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The Need for Community Interaction (1/2)

- After decades of R&D and years of construction, the LSST is almost here!
- We need to spread the word on what LSST data and services will look like, and prepare the community to make the best use of them.
The Need for Community Interaction (2/2)

- Much of LSST design is frozen at this point (telescope, camera, filters, etc.).
- Two elements where some flexibility remains is deployment (cadence), and data management (flavors and details of data products and services).
Data Management

• DM Mission: “Stand up operable, maintainable, quality services to deliver high-quality LSST data products for science and education, all on time and within reasonable cost.”

(http://ls.st/ldm-294)
Data Management

Rephrased to a scientist’s point of view:

1. Understand what data products and services would maximally enable LSST science, within budget and schedule constraints.

2. Design and build a system delivering those.

3. Communicate the designs, receive feedback, act on it.

Access and analysis services →

Data Products (http://ls.st/dpdd)
Organization of DM-Comm’ty Interactions

- In Data Management, the System Science Team serves as the interface between the stakeholders (the community) and the Engineering team.

- LSST Science Collaborations are our proxy for the overall community.
DM System Science Team

Responsibilities

- Support the DM Subsystem Scientist in ensuring the DM System meets the LSST science objectives.
- Communicate with the science community and internal stakeholders to understand their needs, identifying the aspects to be satisfied by the DM Subsystem.
- Liaison with the science collaborations to understand and coordinate any concurrent science investigations relevant to the DM Subsystem.
- Develop, maintain, and articulate the vision of DM products and services that is responsive to stakeholder needs, balanced across science areas, well motivated, and scientifically and technologically current.
- Work with the DM Project Manager and DM Technical Managers to communicate and articulate the DM System vision and requirements to the DM construction team.
- Identify, develop, and champion new scientific opportunities for the LSST DM System, as well as identify risks where possible.
- Develop change proposals and/or evaluate the scientific impact of proposed changes to DM deliverables driven by schedule, budget, or other constraints.
- Lead the Science Validation of the deliverables of the LSST DM System.

Average effort ~0.5 FTE

Typical Communication Modes

“Consult”: Resolve remaining design and requirements questions

Example: Current baseline for DIAObject catalogs calls for the computation of features to enable training of ML classifiers; need to understand which features to use. Will use the TVS SC as a vehicle to understand the options.

“Inform”: Keep the community apprised of LSST DM Status and Plans

Example: Presented the LSST Science Platform to the SC Chairs

Example: Presentation to the Solar System SC on the status and plans for MOPS (August 9th, 2017)

“Teach”: Communicate what LSST will deliver (and receive feedback)

Example: Held a 2-day workshop with the UK SWG in April 2016.
Points of Contact

**Community:** We use the LSST Science Collaborations as a proxy for the overall community. Advantages:

- Leverages SC organization; communicate/organize through the Chair, rather than individually with members
- Note: some special considerations for int’l contributors’ communities (e.g., Chile, UK, France)

**DM:** Designated Points of Contact (liaisons)

- Every SC has (or will have) a member of the DM SST who designated as their liaison.
- These PoCs work with SC chairs satisfy both DM and SC needs.
- They’re meant to be generally “plugged in” to collaboration work and plans, so they can identify and advise both the Project and the SCs on potential issues.
Primary Communication Channels

Meetings, Conferences, Workshops

Opportunity to reach large audiences at once. Reaches broad communities.


Collaboration Telecons (incl. SWG telecons)

Opportunity to keep the SC appraised of DM progress & understand SC plans.

Example: Attending DESC leadership telecons.

Mailing lists and community.lsst.org

General discussion venue.

Example: Discussions on (various) DESC mailing lists on LSST plans for photometric redshifts.

+ a well organized and maintained website
Issues and Work in Progress

• DM is still implementing all aspects. Not all liaisons have been named, or they haven’t started attending collaboration telecons. Delayed by the DM replan work, but hope to finish this fall.

• Some aspects still missing, a website being a key one (next slide).

• Need to better differentiate between different communities, and appropriately use communication tools we have available (see following slides)

• Resources remain an issue; it’s (too) easy to neglect communication.
Thinking Ahead: LSST Data Website

- Our lsst.org website is largely aimed towards the general science-oriented public.
- To complete the DM communication structure, we’d benefit from a science products-oriented one:
  - [http://dm.lsst.org](http://dm.lsst.org) (though currently too software oriented; see next slide)
  - Place to learn about the planned data products and services
  - Links to existing simulated products, prototype services
  - Place to learn about DM development plans and progress
  - Place to learn about Community interaction mechanisms and tools (points of contact, tools, etc.)
  - Data-related publications, presentations
- Analogous to what other missions have deployed by their “data processing” arms (e.g., WFIRST). Natural path towards the LSST Archive website in operations.
- Not clear we have the resources to maintain it; should try.

IPAC WFIRST website: a possible model for making project information better discoverable by the community.
Thinking Ahead: LSST Community vs. LSST Stack Community

- We’re beginning to distinguish between the “LSST Community” and the ”LSST Stack Community”.
  - **1. LSST Community**: the community of scientists interested in using LSST data and services for research.
  - **2. LSST Stack Community**: the community of people interested in running or modifying the LSST processing software.

- The two overlap, but have (sometimes significantly) different expectations or needs. **The former is likely to be significantly larger.**
  - E.g., compare the number of people who have used SDSS data, vs. who have run Photo.

- We’ve so far put the emphasis on supporting community #2. This had the effect of sometimes confusing or giving the wrong impression to community #1.
  - E.g., a typical LSST user will not be expected to use the LSST stack or reduce the data themselves. Most users shouldn’t be trying to build it.
  - We haven’t yet offered LSST-like simulated datasets, emphasized data model documentation, broadly offered LSST-reprocessed data, and similar products. These may be more interesting to community #1.

- We need to support both communities, with appropriate mechanisms.
Summary

• DM is putting into place an organized community interaction effort, in order to fulfill the Construction mandate to deliver data products and services the community needs, within budget and schedule constraints.

• The effort is led by the DM System Science Team, centered around designated liaisons, with Science Collaborations serving as an organized proxy for the overall community.

• Not all aspects have been established yet (e.g., website) as resources remain an issue, but progress is being made.
Backups
How should this work in practice

• The collaboration chairs have monthly meetings with the PST; a chance to discuss high-level issues (this is broader than just DM)
  • The Chairs pass this information to the collaborations

• DM Liaisons will attend regular collaboration telecons. A chance to connect on a weekly or fortnightly basis.
  • This will not be a one-size-fits all arrangement; all collaborations are subtly different (some require more than one liaison, depending on DM needs)

• We are looking into establishing (at least) a quarterly “DM status update” calls with each science collaboration. The Solar System SC meeting last week may be a good model.
  • A chance for any collaboration member to be kept appraised of DM progress
Supporting Contributions to DM Software

• Most LSST DM software is open source and available on github

• For those interested in trying the LSST codes (as well as our own developers), we’ve made extensive documentation available on how to install and run it. For example:
  • [http://developer.lsst.io](http://developer.lsst.io)
  • [http://pipelines.lsst.io](http://pipelines.lsst.io)

• We’re open to community interaction and contributions to the LSST software, with a number of mechanisms to enable these:
  • Bug reports and contributions: [Github Issues](https://github.com/lsst)
  • StackOverflow-like message board: [http://community.lsst.org](http://community.lsst.org)
  • Real-time chat: [Slack](https://Slack.com)