

# Community Engagement at Scale: NSF Centers of Expertise

## PEARC 2019 Panel

Daniel Crawford (MoISSI), Ewa Deelman (CI CoE Pilot),  
Von Welch (ResearchSOC, Trusted CI),  
Frank Wuerthwein (OSG), Mike Zentner (SGCI),  
Jason Zurawski (EPOC),  
Moderator: Ruth Marinshaw (Stanford University)

# Cyberinfrastructure Center of Excellence Pilot

Ewa Deelman, USC (PI)

Co-PIs:

Anirban Mandal, RENCi

Jarek Nabrzyski, Notre Dame University

Valerio Pascucci and Rob Ricci, University of Utah



Searching for gravitational waves



Understanding ocean and coastal ecosystems



THE INFRASTRUCTURE

89 PLATFORMS  
CARRYING OVER  
830 INSTRUMENTS  
PROVIDING OVER  
100,000 DATA PRODUCTS  
HAVE BEEN DESIGNED,  
BUILT, AND DEPLOYED.



Looking for exoplanets



Studying climate



The National Ecological Observatory Network: Open data to understand how our aquatic and terrestrial ecosystems are changing.



There are limited interactions  
and limited knowledge sharing  
among large facilities and large  
CI projects.

Manish Parashar (PI and Chair), Rutgers University and OOI  
Stuart Anderson, LIGO  
Ewa Deelman, USC  
Valerio Pascucci, University of Utah  
Donald Petravick, LSST  
Ellen M. Rathje, NHERI

## NSF Large Facilities Cyberinfrastructure Workshop



IceCube

September 2017 Workshop report at <http://facilitiesci.org/>

- **Establish a center of excellence** (following a model similar to the NSF-funded Cybersecurity Center Trusted CI as a resource providing expertise in CI technologies and effective practices related to large-scale facilities as they conceptualize, start up, and operate.
- Foster the creation of a facilities' CI community and establish mechanisms and resources to enable **the community to interact, collaborate, and share.**



## Develop a model and a plan for a Cyberinfrastructure Center of Excellence

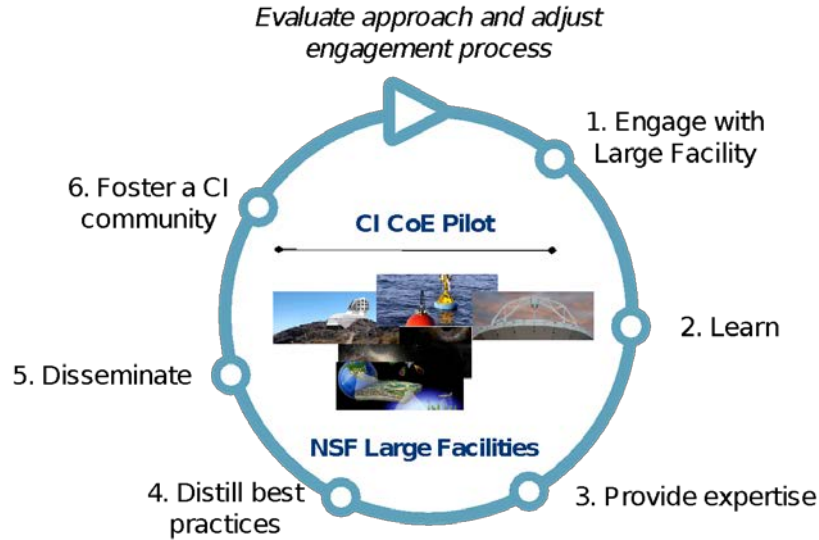
- Platform for knowledge sharing and community building
- Key partner for the establishment and improvement of Large Facilities with advanced CI architecture designs
- Grounded in re-use of dependable CI tools and solutions
- Forum for discussions about CI sustainability and workforce development and training
- Pilot a study for a CI CoE through close engagement with NEON and further engagement with other LFs and large CI projects.

10/2018-9/2020



1. Recognize the expertise, experience, and mission-focus of Large Facilities
2. Engage with and learn from current LFs CI
3. Build on existing knowledge, tools, community efforts
  - Avoid duplication, seek providing added value,
4. Prototype solutions that can enhance particular LF's CI
  - Keep a separation between our efforts and the LF's CI developments
5. Build expertise, not software
6. Work with the LFs and the CI community on a blueprint for the CI CoE

## Developing and improving Engagement Processes



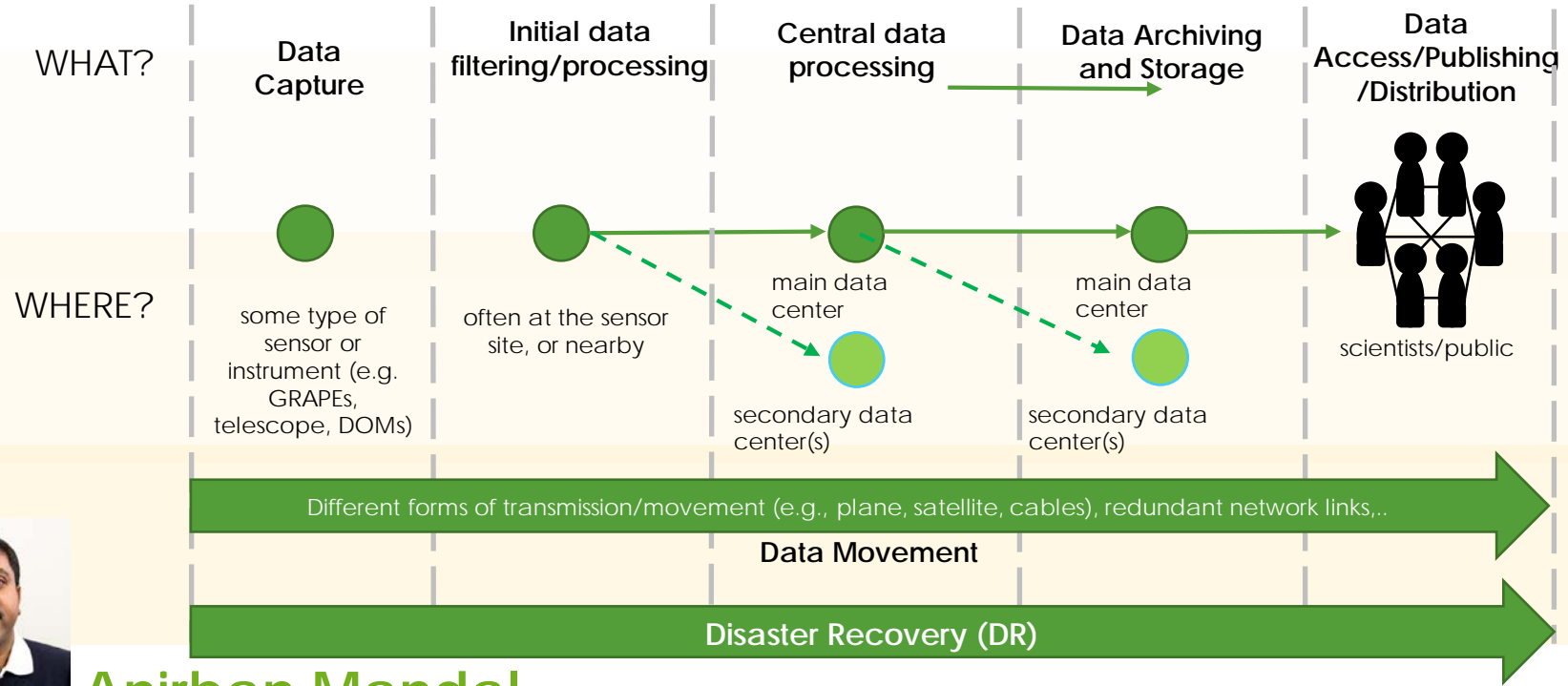
## Engagement with a Facility

- Engage at the management level, potentially seek introductions from NSF PO, participate in community meetings (LF Workshop)
- Initial virtual technical group discussions to define possible avenues of engagement
- In person meeting with a number of technical personnel
- Identify topics for engagement
- Set up working groups
- Follow up email and conference call discussions focused on particular topics/working groups
- Bigger group discussions/checkpointing
- Reports of engagement, gather feedback from the project engaged



- **Deep engagement:**
  - Identify a topic that is important and not-yet fully solved by the LF,
  - Conduct focused discussions, mix of virtual and in-person presence, hands-on work
  - Includes an engagement template that defines scope, sets expectations, identifies products
  - Work products: documents/papers, prototypes, schema implementations, demos
- **Topical discussions:**
  - Identify a topic that is important to a number of LFs
  - Facilitate virtual discussions, sessions at conferences, collect and share experiences, distill best practices
  - Discover opportunities for shared infrastructure
- **Community building: bringing in new members to the CI CoE Pilot effort**
  - Identify related efforts
  - Collect information and disseminate information about the broad community activities
  - Maintain a living resource for community information
- **Each engagement has a working group with a leader and a set of work products.**

- Data capture
- Data processing
- Data storage/curation/preservation
- Data access/visualization/dissemination
- Disaster recovery
- Identity management
- Engagement with Large Facilities



**Anirban Mandal**



1. Work with NEON to identify concrete collaboration points and actionable information we can provide

---

2. Based on NEON interactions develop a blueprint that can scale out the approach to other Large Facilities and beyond
3. Engage individual LFs: workshops, meetings, tele-conferences, attendance at project meetings and community events
4. Develop an online presence
5. Build a community around the planned CI CoE

*Learn from and collaborate closely with Trusted CI*