100th VLab Forum

Taking Stock: Progress Towards Improving R2O in NWS

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NWS R2O: A Strategic Concern

- NWS Strategic Plan 2000-2005:

"Reduce the time required to implement proven research and technology into operations"

- NWS Strategic Plan 2011:

"Develop, in partnership with the research community, common modeling and operating infrastructures as well as test beds to facilitate scientific and technological development and to accelerate the transition of research into operations"

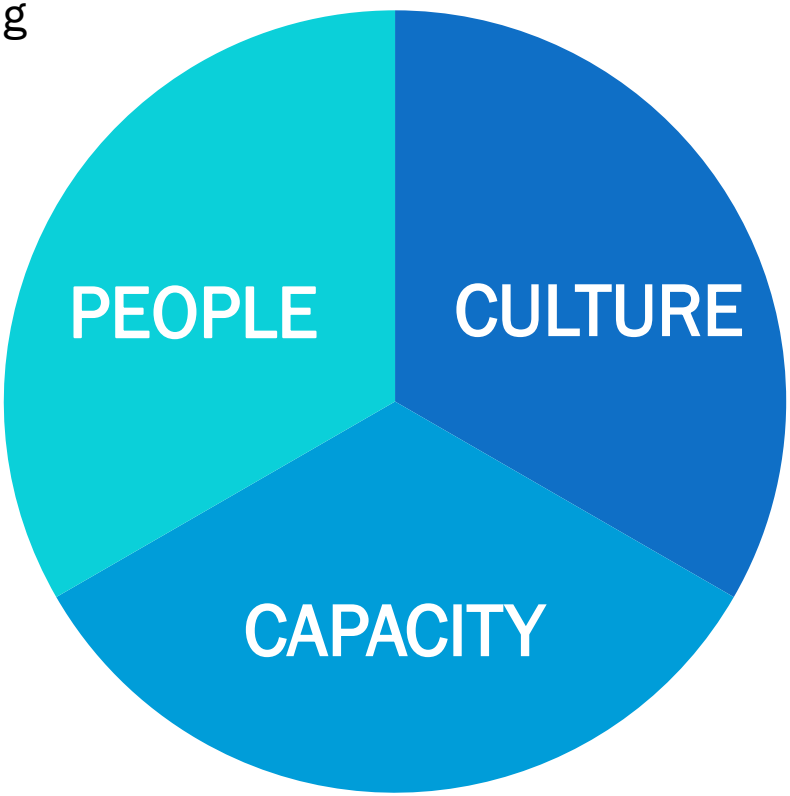
National Academy of Public Administration (NAPA) Study (2013)

"To ensure that NWS Research to Operations (R2O) and Operations to Research (O2R) receive appropriate priority and support, the Panel recommends that it consolidate the current distributed management of this function."

What has been brought to bear on R2O since 2009?

- NOAA Testbed and Proving Ground Committee
- STI Portfolio
- OSTI Headquarters office
- NOAA Line Office Transition Managers Committee
- R2O Policy
  - NAO 216-105
  - NWS Directive 80-8
- NWS Operations Proving Ground
- NOAA Virtual Lab
- NWS Governance
- SOO-DOH Projects
- R2O Funding Opportunities:
  - E.g. RTAP, USWRP, CSTAR, QWAQ, JTTI, etc
- Weather Research and Forecasting Innovation Act
- NWS Evolve Program Management Office
- Unified and Community Modeling

From September 2015
National SOO-DOH Meeting
College Park, Maryland



Three Key Factors to Successful R2O

- ***PEOPLE***
  - Skilled in application of new science and technology
- ***CULTURE***
  - Transparency, collaboration, and commitment to transition
- ***CAPACITY***
  - Efficient and adaptable IT Infrastructure

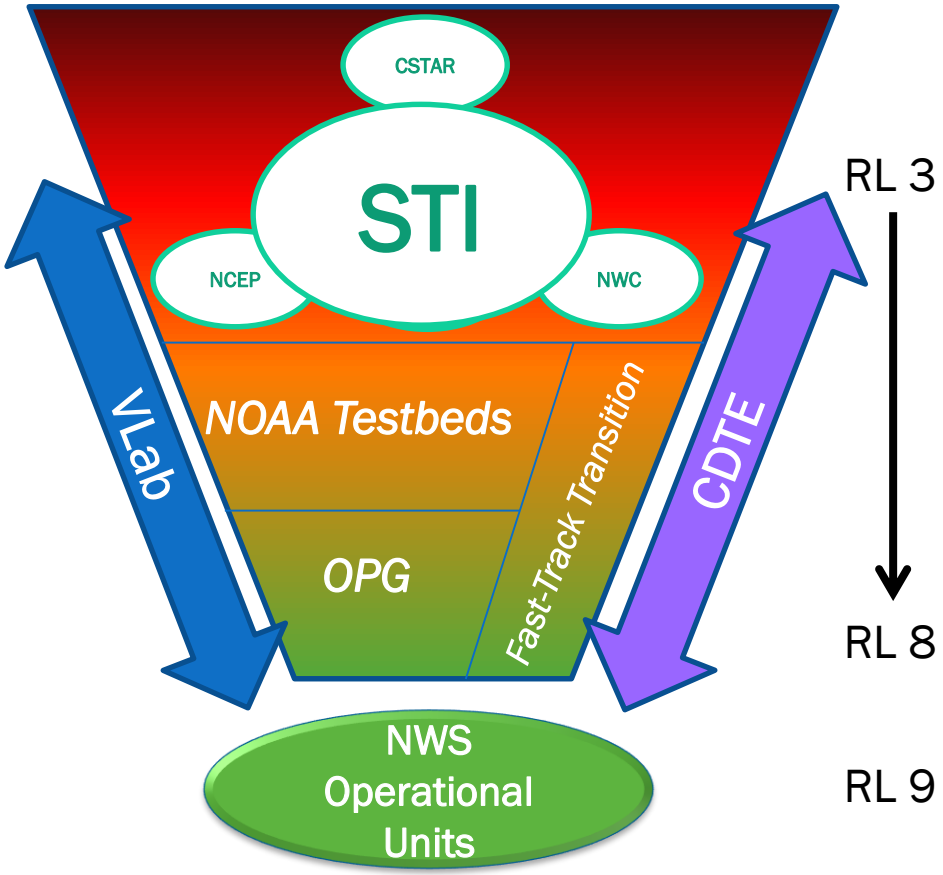
KEY PARTNERSHIPS FOR FIELD-DRIVEN R20

- **SOOs/DOHs/SSDs and National Development Orgs (EMC, MDL, NWS, NCEP Service Centers)**
  - **Agency Scientific Leadership**

- **SOOs/DOHs and ITOs**
  - **Enabling Distributed R2O**

From Talk-the-Talk to Walk-the-Walk

NWS SCIENCE AND TECHNOLOGY INTEGRATION

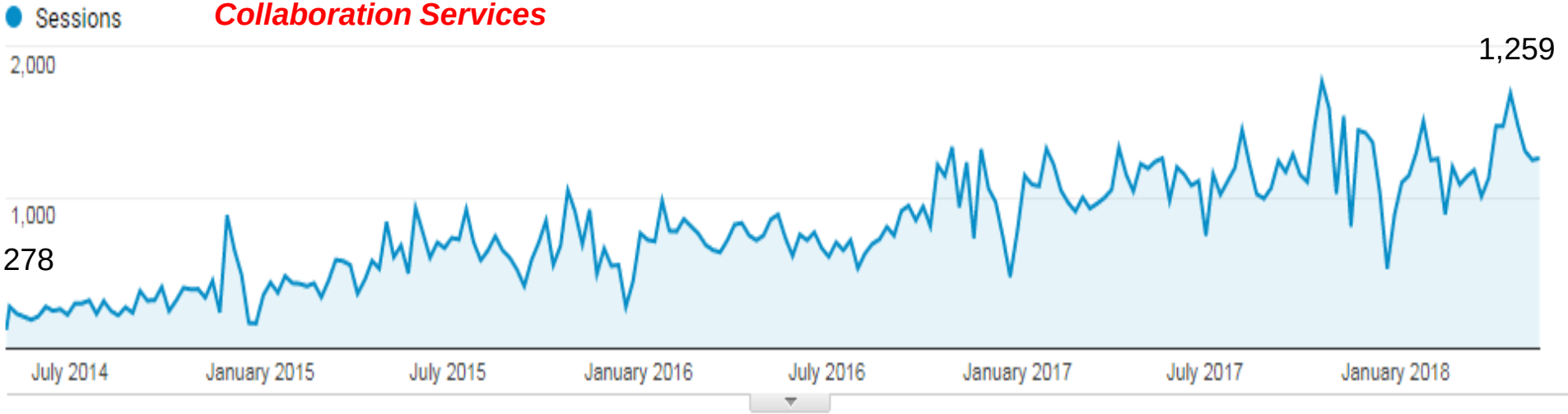


- Coordinate and manage local research applications and R2O for national implementation
- Ensure consistency
- Bring discipline to the R2O process
  - Development – Assessment – Implementation – Service Delivery

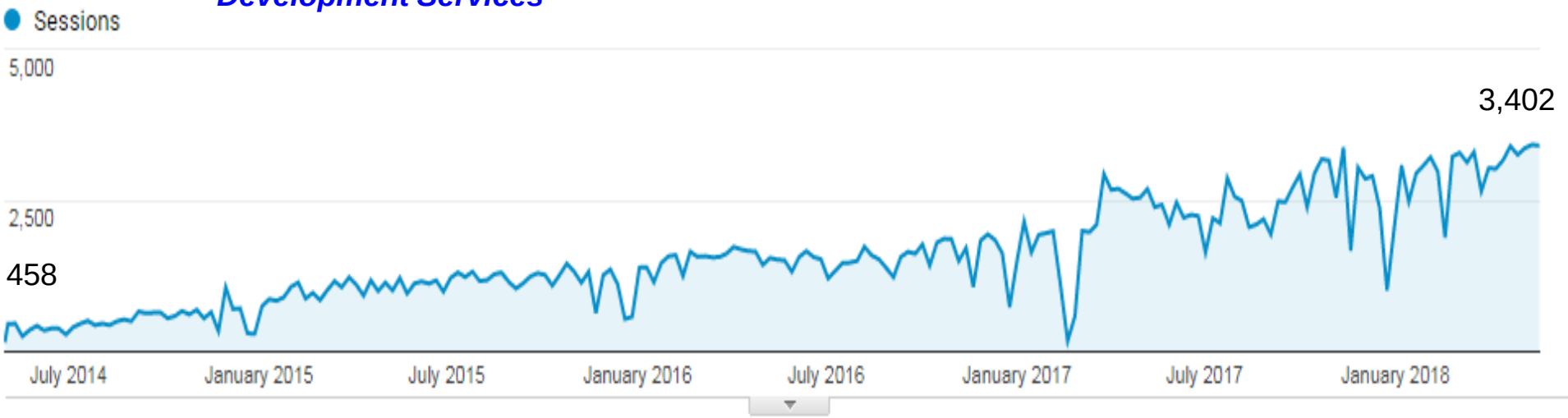
VLab Growth (4 years)

sessions/week

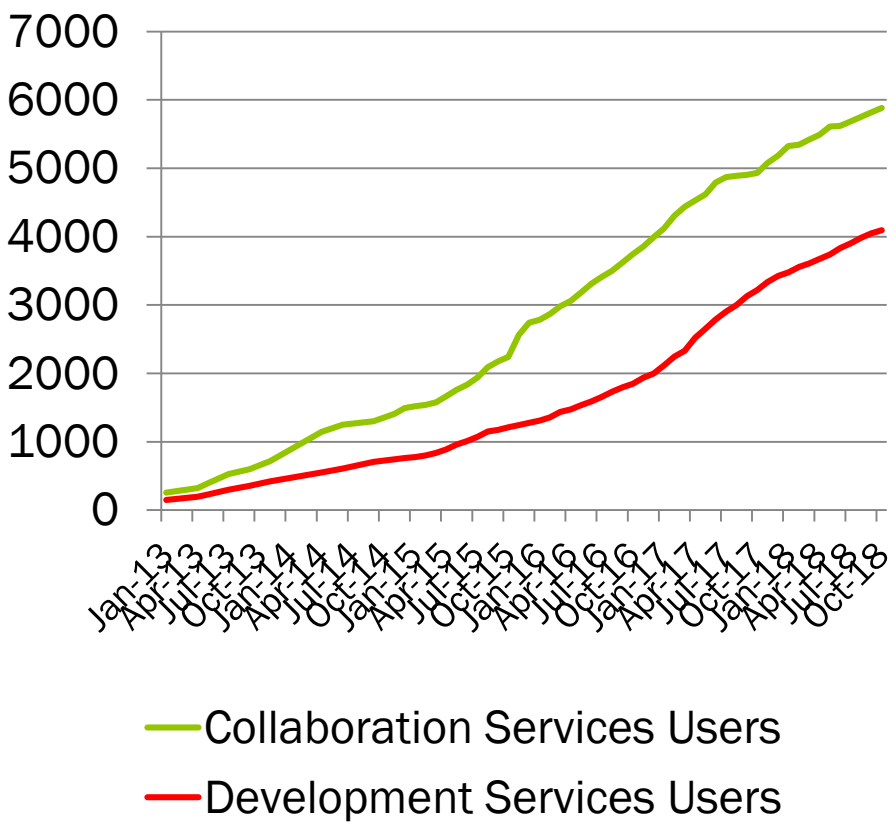
Collaboration Services



Development Services



VLab Status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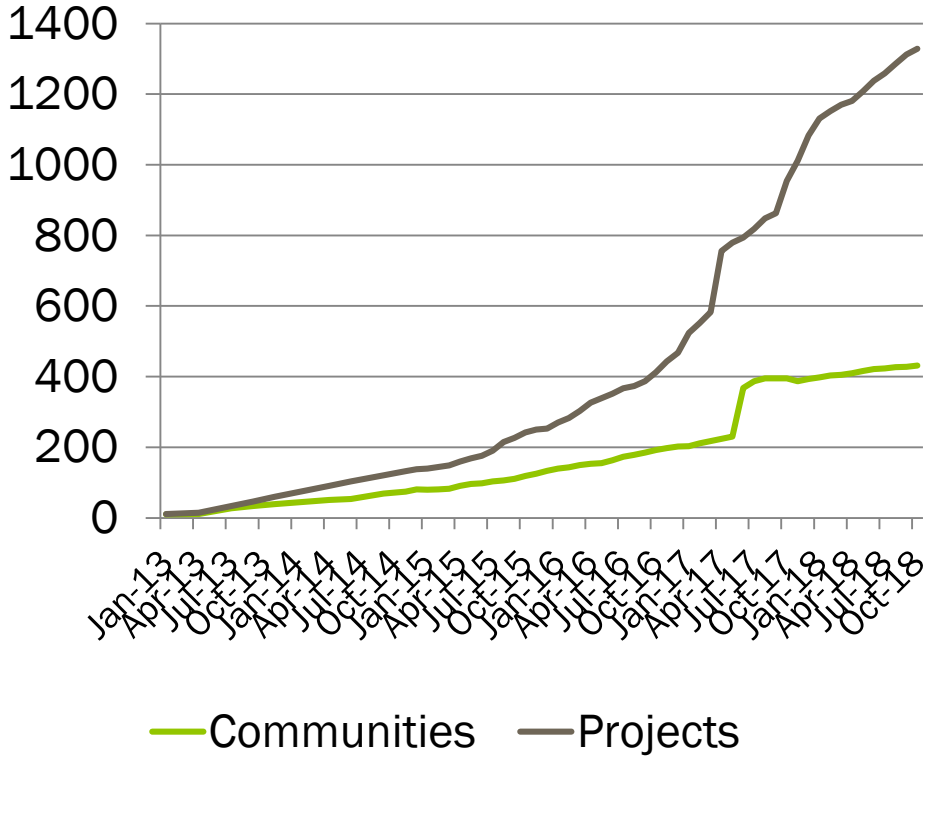
Collaboration Services Users
Development Services Users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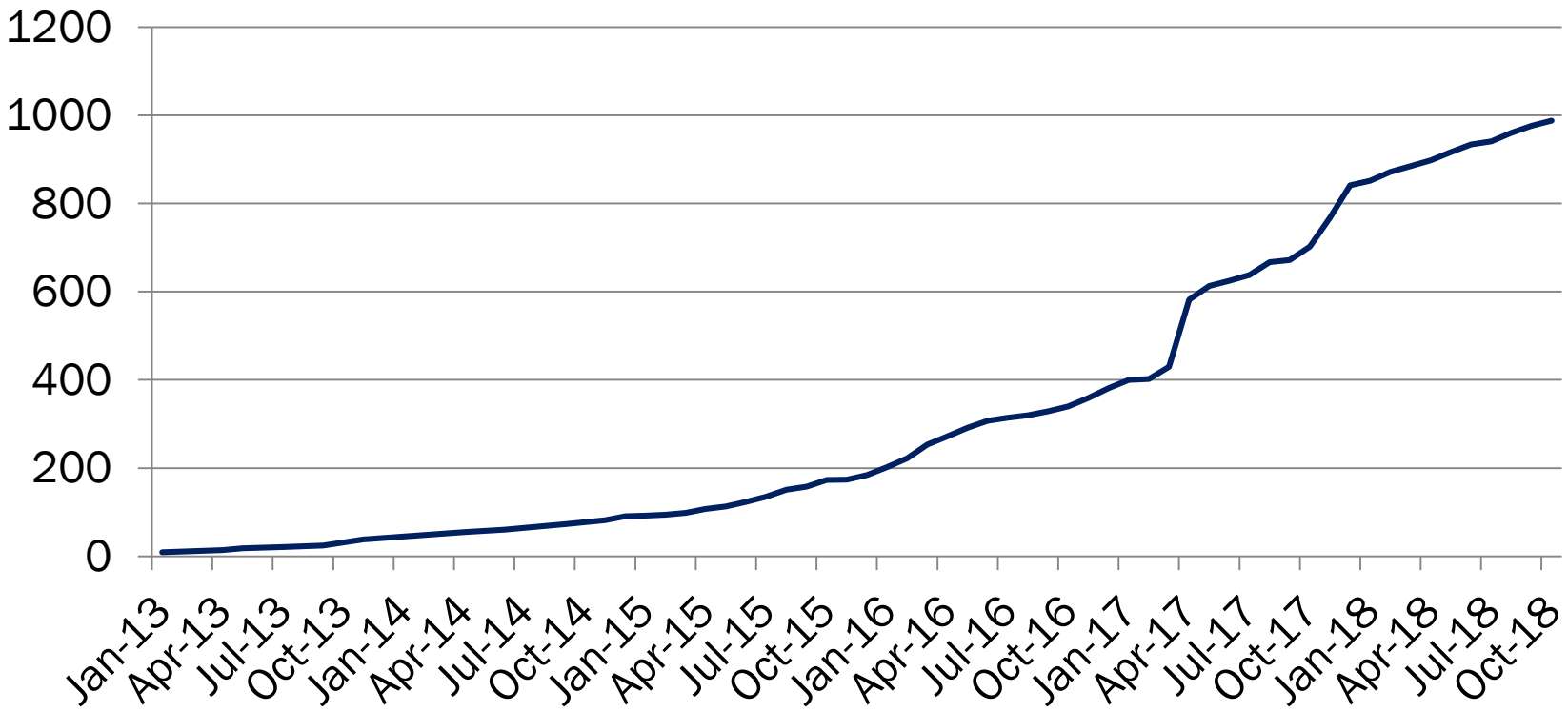
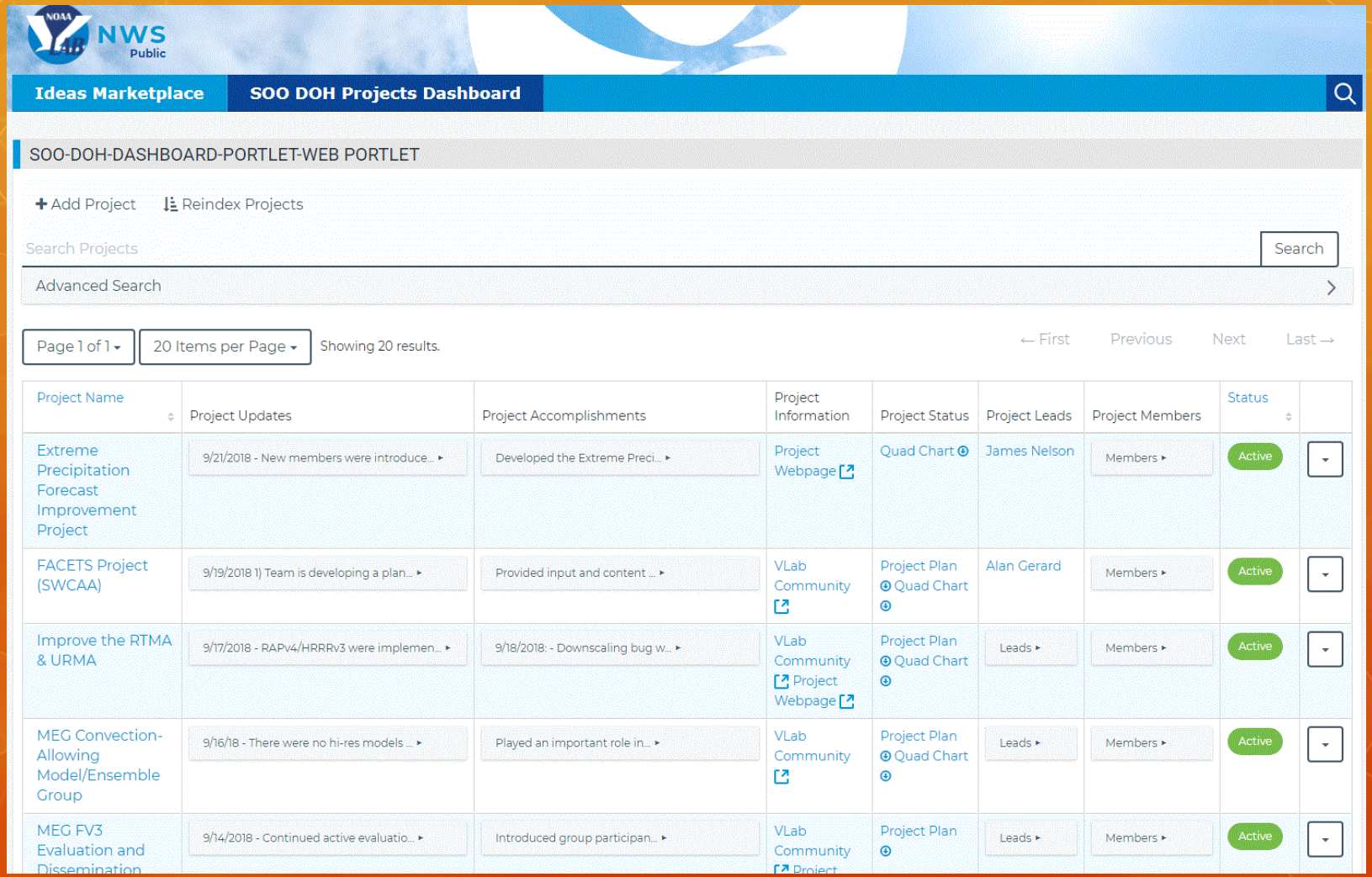
Communities
Projects

Number of VLab Software Repositories



SOO-DOH projects



SOO-DOH projects

	FY15	FY16	FY17	FY18	Total
# projects initiated	5	10	5	1	**21**
# projects completed	-	-	4	2	**6**

- 14 projects are currently active
- 4 projects are on track to be completed in FY19

Success Stories

- ProbSevere
- Near-Storm Environment Awareness (NSEA) Project
- Multi-Radar, Multi-Sensor (MRMS)
- NBM and RTMA Feedback Forums
- Weather Archive and Visualization Environment (WAVE)
- FV3GFS VLab Community and code management
- Satellite Training and Operations Resources (STOR) VLab community

- *PEOPLE*
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Where are we falling short? What opportunities exist?

- Backlog of RL8 projects awaiting implementation on major NWS operational systems (IDP, WCOSS, AWIPS).
- The O in NWS R2O generally means FISMA High, 24x7x365, and 99.99 uptime. This kind of operational system is expensive to maintain, inflexible to adapt, and slow to evolve. However, many potential R2O projects do not need this kind of a robust, high availability operating environment.
- O and M footprint growing inexorably. No formal sunsetting process in place.

  From Weather Act: A technology transfer initiative, carried out jointly and in coordination with the Director of the National Weather Service, and in cooperation with the United States weather industry and academic partners, to ensure continuous development and transition of the latest scientific and technological advances into operations of the National Weather Service and to establish a process to sunset outdated and expensive operational methods and tools to enable cost-effective transfer of new methods and tools into operations.

Take-aways

- Much tangible progress has been made towards improving NWS R2O over that last 9 years.
- We are doing much better at managing R2O and innovation within the agency.
- However, we are unable to onboard technically mature and scientifically validated R&D projects into operations at a sufficient pace, resulting in schedule delays and a growing backlog of projects waiting to transition.
- To alleviate this backlog, perhaps we need to consider establishing a tiered approach to NWS operations, rather than the current 'one-size fits all'.

Questions?

Thanks:
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