INDEPENDENT TECHNOLOGY ASSESSMENT WITHIN THE ESIP TESTBED

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EVALUATION NEED

Earth sciences technologies benefit from diverse perspectives and end-user input.
ESIP TESTBED

- Workspace for projects to mature and gain visibility.
- Funding mechanism for project development.
- Framework for technology evaluation.
• NASA’s Advanced Information Systems Technology (AIST) Program supports information technology development.

• A Technology Readiness Level (TRL) is used to assess project maturity.
BACKGROUND

• NASA’s Advanced Information Systems Technology (AIST) Program supports information technology development.

• A Technology Readiness Level (TRL) is used to assess project maturity.

• TRL assessment is internal only.

• Research to operations transitions have suffered from surprises in technology adoption.
ESIP/AIST COLLABORATION

ESIP was tasked with:

• Providing an independent assessment of AIST project TRL.

• Identifying opportunities/roadblocks for project infusion within the broader Earth science community.
EVALUATION GOALS

• Achieve consistency, traceability and defensibility of evaluation results.

• Be recognized as comprehensive and fair.

• Provide a valuable experience for PIs and project evaluators.
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<thead>
<tr>
<th>Task</th>
<th>Lead Time</th>
<th>Aug 1</th>
<th>Aug 15</th>
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**AIST**

**ESIP**

**Evaluators**
WORKFLOW

- AIST Selects Projects
- ESIP Selects Evaluators
  - Evaluators/AIST PIs Create Test Plan
  - Evaluators Carry Out Testing
  - Evaluators Fill Out Evaluation Structure
  - Evaluators Submit Final Report Content
  - ESIP Edits and Submits Reports to AIST

3 Projects
- ESIP solicits suggestions from PI.
- ESIP reaches out to community.

8 Evaluators:
- 1 Private Sector
- 1 Non-Profit
- 2 Federal Government
- 4 Academic
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Communicate with:
- Telecons
- Slack
- Wiki
- In-Person Meet-ups
- Email

1-2 Telecons
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Checklist for software development best practices
CHECKLIST FOR SOFTWARE DEVELOPMENT
BEST PRACTICES

Supportability
Portability
Testability
Accessibility
Community
Governance
Licensing
Copyright
Installability
Buildability
Learnability
Documentation
Understandability
Friendliness

200+ questions about software development
### CHECKLIST FOR SOFTWARE DEVELOPMENT

**BEST PRACTICES**

<table>
<thead>
<tr>
<th>Criteria Questions</th>
<th>Evaluation Criteria Summary</th>
<th>TRL Levels</th>
<th>Help</th>
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**200+ questions about software development**
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Content was KEY!
- AIST Reviews Reports
- PIs receive Final Reports
FEEDBACK

+ Multiple communication choices.
+ Compensation.
+ Selecting evaluators from potential infusion sites.

- Short evaluation period lead time.
- Software best-practices checklist overly complex.
LESSONS LEARNED

• Start evaluation with a technical exchange meeting.
  – Motivation
  – Challenges (Technology access)
  – Infusion Potential

• Diversify evaluation teams with domain and technical expertise.

• Each evaluation will be different, coordination and communication are KEY!
OUTLOOK

Provide the Earth sciences community with a novel, needed evaluation framework to improve technology development and infusion potential.
PARTICIPANTS

Evaluators

- UAF - Alaska Satellite Facility
- RWTH - RWTH Aachen University
- Oregon State University
- Florida International University
- SMU - Southern Methodist University
- ESRI
- USGS - U.S. Geological Survey
- National Weather Service

PIs

- JPL - Jet Propulsion Laboratory
- NASA
- Marshall Space Flight Center
- University of Alabama in Huntsville
THANK YOU!

Contact:
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