Best Practices Used by XSEDE to be Highly Successful with Project Management in a Large, Distributed, Virtual Team

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XSEDE
Extreme Science and Engineering Discovery Environment

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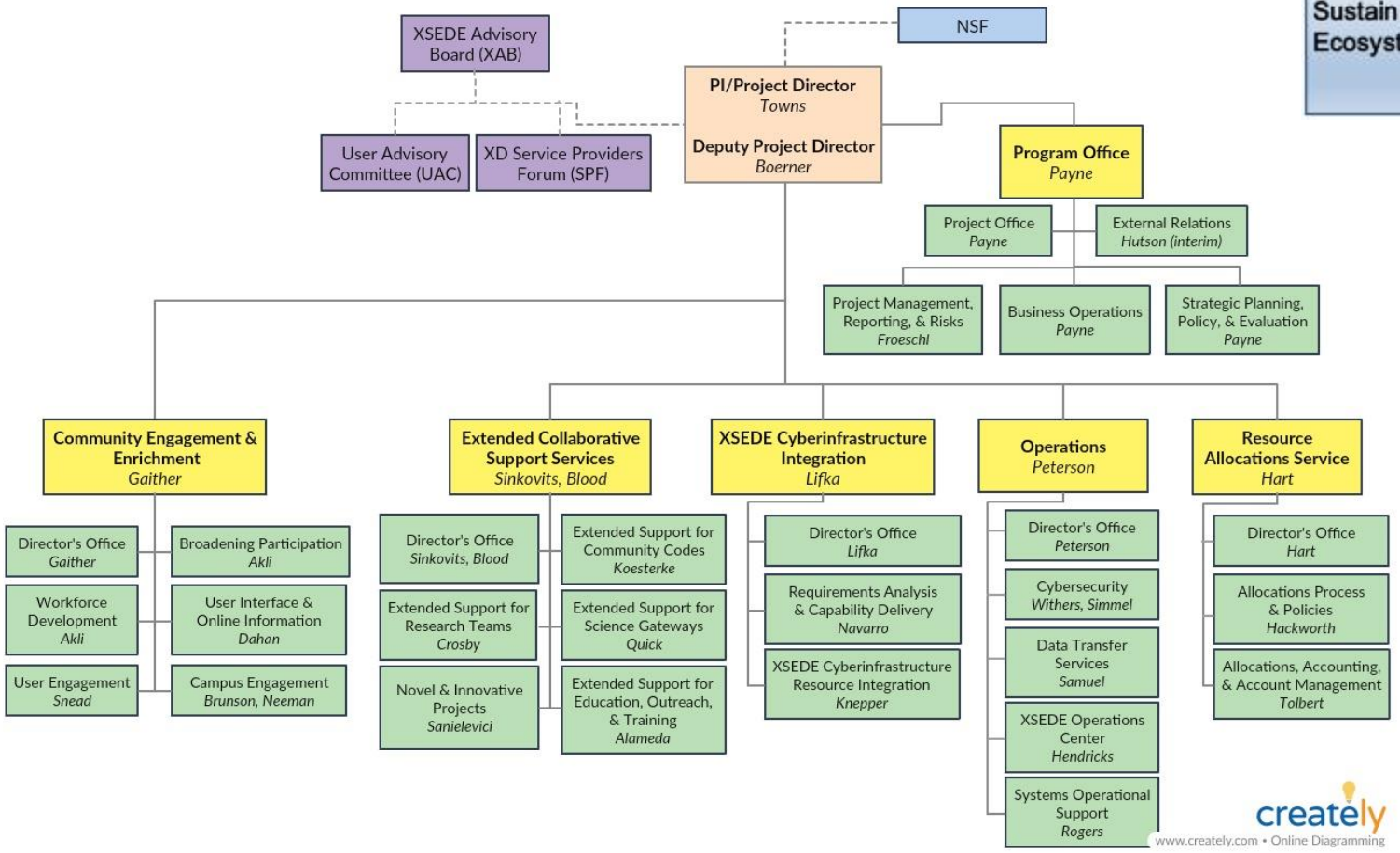
About XSEDE

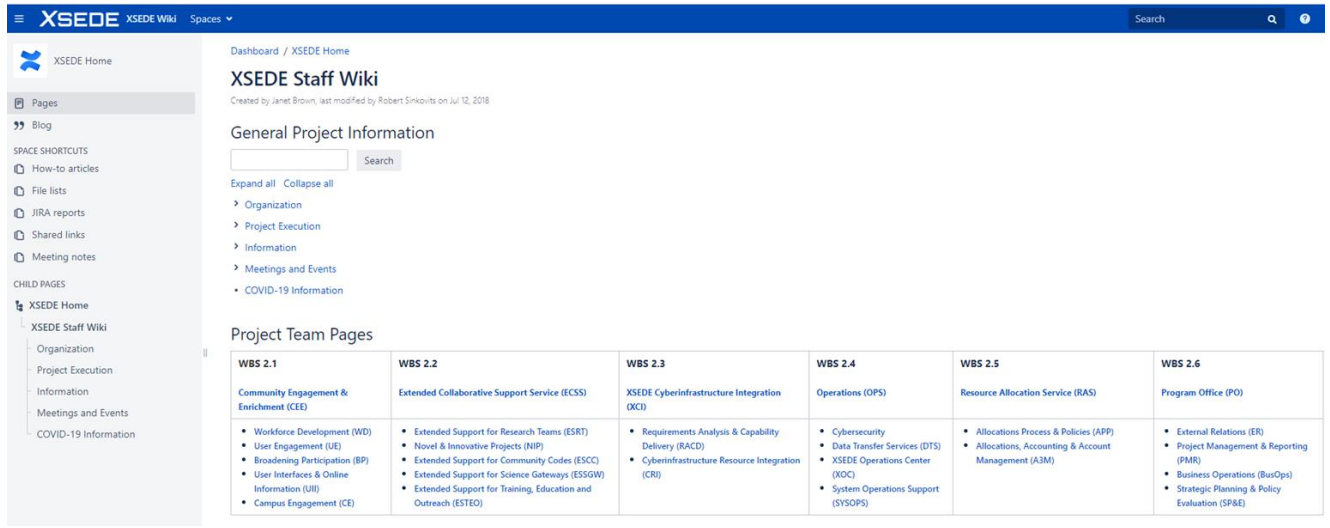
www.xsede.org



Deepen and Extend Use	• *Deepening use (for existing communities)* • *Extending use (to new communities)*	WBS 2.2 ECSS
	• *Preparation the current and next generation (workforce development)* • *Raise awareness of the value of advanced digital services*	WBS 2.1 CEE
Advance the Ecosystem	• *Create and open and evolving infrastructure* • *Enhance the array of technical expertise and support services*	WBS 2.3 XCI
Sustain the Ecosystem	• *Provide reliable, efficient, and secure infrastructure* • *Provide excellent user support services*	WBS 2.4 Operations WBS 2.5 RAS
	• *Effective and productive virtual organization* • *Innovative virtual organization*	WBS 2.6 Program Office

Communication

Confluence



Atlassian JIRA

Google Drive

zoom

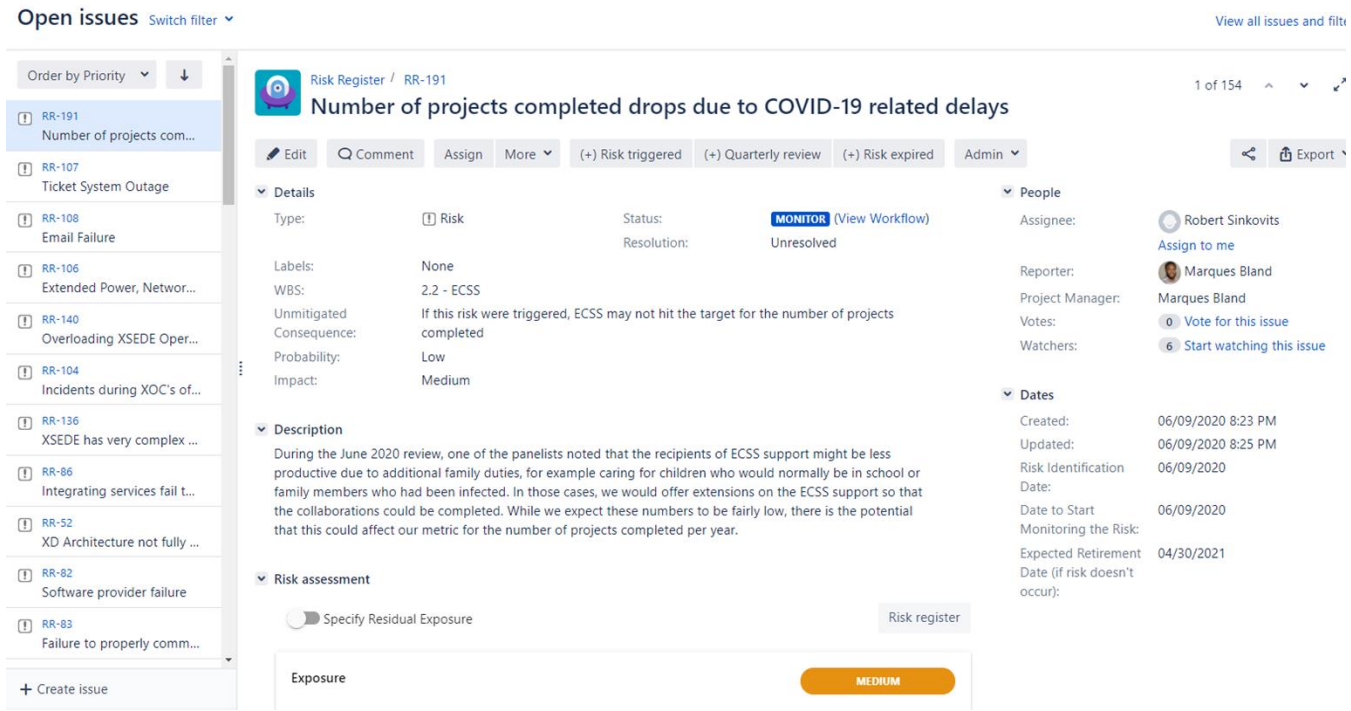
slack

IDEALS Illinois Digital Environment for Access to Learning and Scholarship

NSF XSEDE

Risk Management

- Formal risk management application developed in Jira
- Risk registry
- Quarterly risk reviews by risk owners

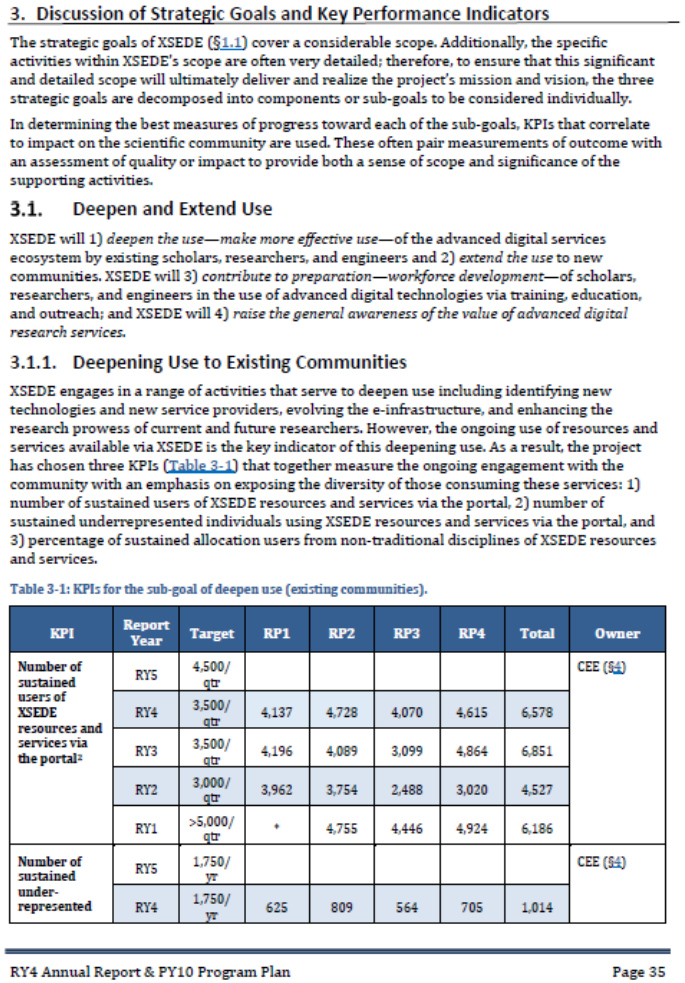


Project reporting & planning

NSF deliverables include four quarterly reports (includes one Annual Report each year) and a single program plan annually

- Highly distributed data collection and centralized aggregation
  - 42 Key Performance Indicators (KPIs) plus numerous other metrics
  - Distributed across 22 L3 WBS groups
  - Narrative project updates and highlights

- Adoption of Google docs for collaboration
  - Consistent template
  - Reduce points of failure
  - Reduce errors
  - Reduce administrative overhead and maintain stability



3. Discussion of Strategic Goals and Key Performance Indicators

The strategic goals of XSEDE (§1.1) cover a considerable scope. Additionally, the specific activities within XSEDE's scope are often very detailed; therefore, to ensure that this significant and detailed scope will ultimately deliver and realize the project's mission and vision, the three strategic goals are decomposed into components or sub-goals to be considered individually.

In determining the best measures of progress toward each of the sub-goals, KPIs that correlate to impact on the scientific community are used. These often pair measurements of outcome with an assessment of quality or impact to provide both a sense of scope and significance of the supporting activities.

3.1. Deepen and Extend Use

XSEDE will 1) *deepen the use—make more effective use*—of the advanced digital services ecosystem by existing scholars, researchers, and engineers and 2) *extend the use* to new communities. XSEDE will 3) *contribute to preparation—workforce development*—of scholars, researchers, and engineers in the use of advanced digital technologies via training, education, and outreach; and XSEDE will 4) *raise the general awareness of the value of advanced digital research services.*

3.1.1. Deepening Use to Existing Communities

XSEDE engages in a range of activities that serve to deepen use including identifying new technologies and new service providers, evolving the e-infrastructure, and enhancing the research prowess of current and future researchers. However, the ongoing use of resources and services available via XSEDE is the key indicator of this deepening use. As a result, the project has chosen three KPIs (Table 3-1) that together measure the ongoing engagement with the community with an emphasis on exposing the diversity of those consuming these services: 1) number of sustained users of XSEDE resources and services via the portal, 2) number of sustained underrepresented individuals using XSEDE resources and services via the portal, and 3) percentage of sustained allocation users from non-traditional disciplines of XSEDE resources and services.

Table 3-1: KPIs for the sub-goal of deepen use (existing communities).

KPI	Report Year	Target	RP1	RP2	RP3	RP4	Total	Owner
Number of sustained users of XSEDE resources and services via the portal[2]	RY5	4,500/ qtr						CEE (54)
	RY4	3,500/ qtr	4,137	4,728	4,070	4,615	6,578	
	RY3	3,500/ qtr	4,196	4,089	3,099	4,864	6,851	
	RY2	3,000/ qtr	3,962	3,754	2,488	3,020	4,527	
	RY1	>5,000/ qtr	*	4,755	4,446	4,924	6,186	
Number of sustained under-represented	RY5	1,750/ yr						CEE (54)
	RY4	1,750/ yr	625	809	564	705	1,014	

RY4 Annual Report & PY10 Program Plan Page 35

Project Change Management

Managing baseline changes to budgets, schedule, scope, etc. in highly distributed work environments is non-trivial

- Starts with a project change request (PCR)
  - PCR information input must be accessible, usable, shareable, available to all staff
- Created a fully online process to accommodate all staff submissions, communication, and approvals to eliminate document dependency
  - Adopted Jira and appropriate plug-ins
  - Integrated Confiforms for an easy submission process
- Assigned a project manager to oversee the process in Jira and ensure all required information was submitted

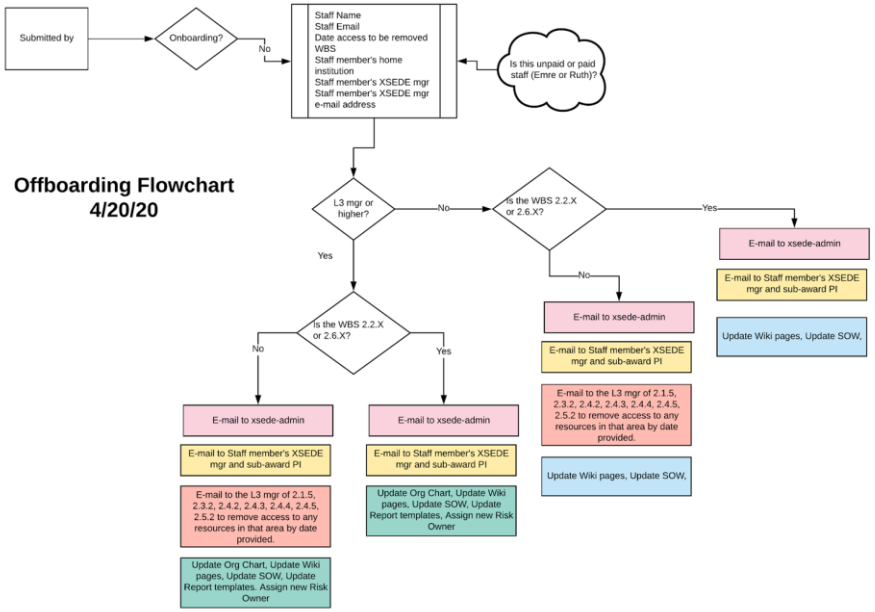
Onboarding & Offboarding Staff

Mostly about resource access

- Keeps track of project staff ingress and egress among 17 institutions
- No centralized or formal HR department
- Data capture and notification
- Addresses communication failures from distributed nature of WBS staffing and supervision

Workflow development and optimization

- Process development and refinement, new process tools (Jira, Confluence)
- New and improved workflows
- Process workflow and Jira workflow correlations
  - start with flowcharts
  - identify barriers and communication breakdowns
- Flexible workflow creation
  - workflow modifications on the fly

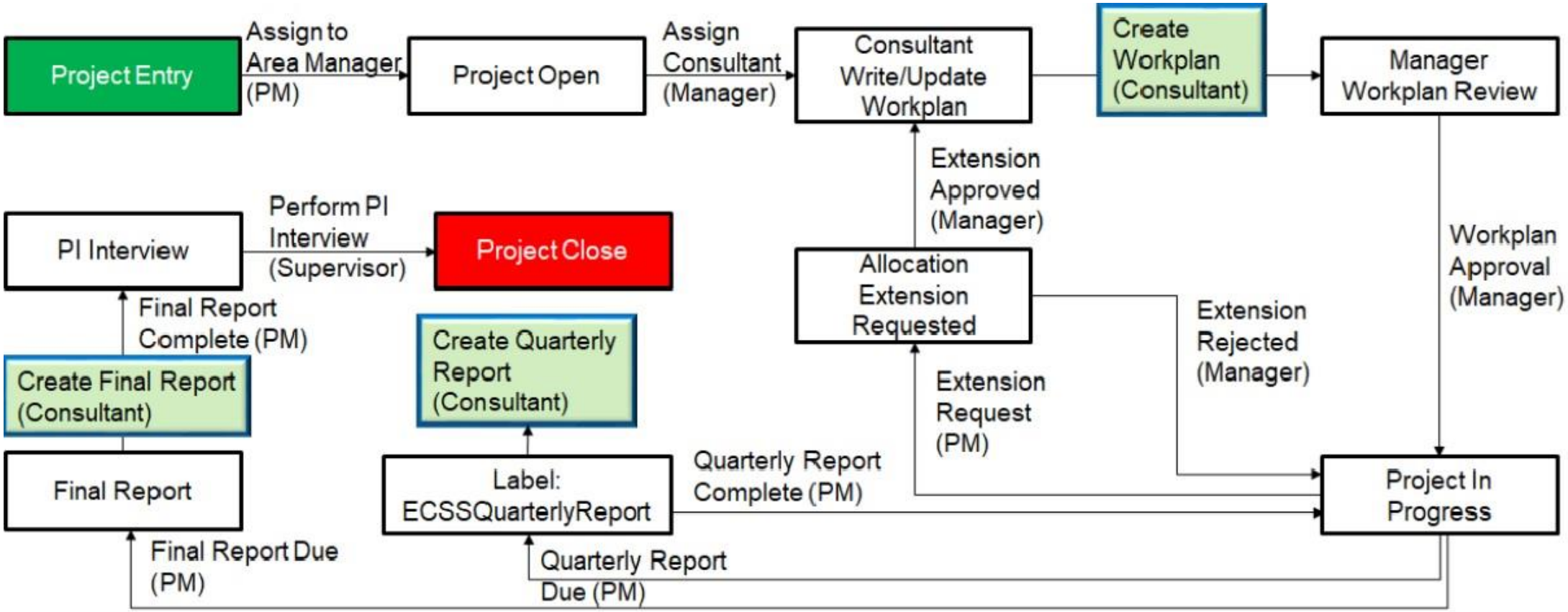


Support for Six Primary Functional Areas (WBS Level 2 (L2) areas)

Project Management:

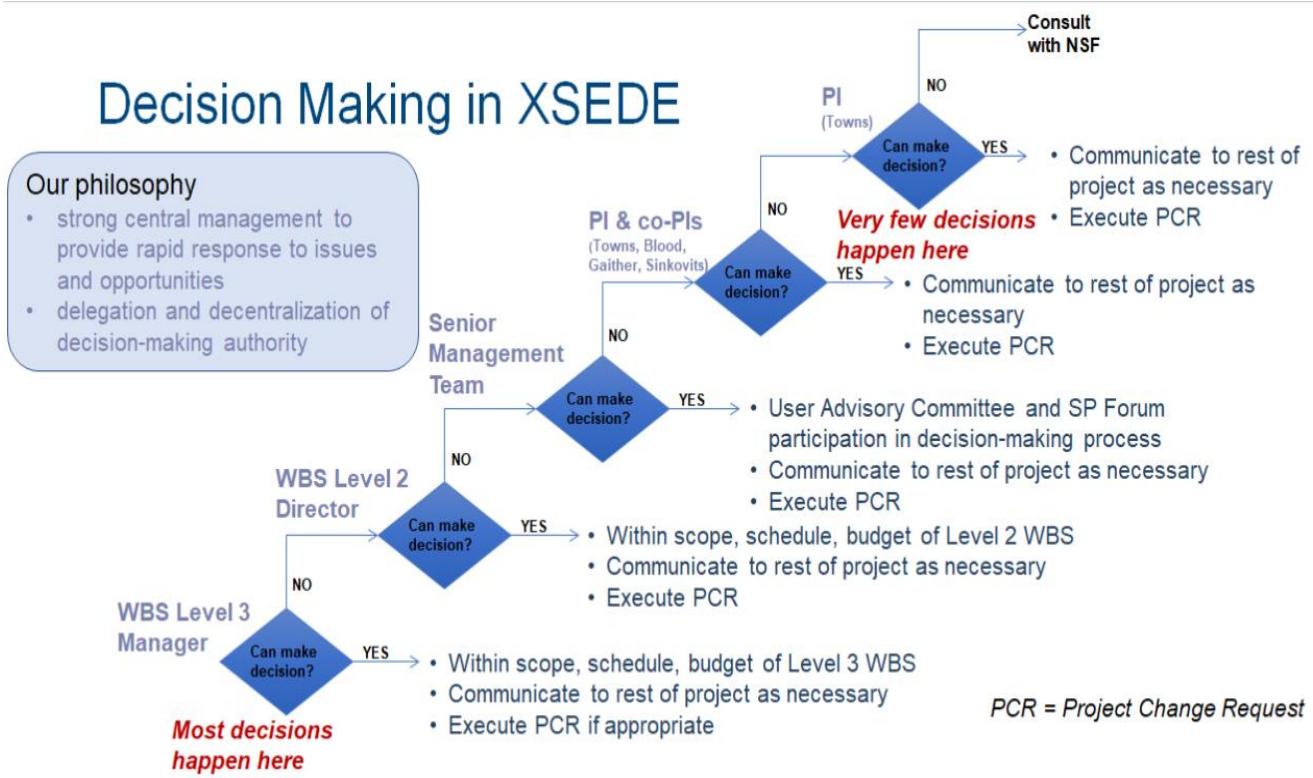
- Each Level 2 area is assigned a minimum of one Project Manager
- Project Manager Responsibilities for L2 areas include
  - Develop, coordinate, and manage all components of the project's reporting and planning processes.
  - Develop and optimize project management workflows.
  - Document standard operating procedures (SOPs) for all project management procedures of XSEDE.
  - Ensure risks are reviewed at least once per quarter
- Goal for project manager representation: streamlining communications and management
- But there's more…

ECSS Staff Project Management



So What Made a Difference?

- Decentralized decision making
- Project managers recognized as leaders & partners
- Annual staff climate study
- Large, distributed virtual organizations require out-of-the-box thinking
- With large-scale silos, cohesion is essential.
- Project managers serve as the “glue” working to bring cohesion to the XSEDE organization



Thank you!

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