



Seeking consensus for cyberinfrastructure governance in the USA

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Governance of geosciences cyberinfrastructure is a complex and essential undertaking, critical in enabling distributed knowledge communities to collaborate and communicate across disciplines, distances, and cultures. Advancing science with respect to "grand challenges," such as global change, Earth system observation, modeling, and prediction, and core fundamental science, depends not just on technical cyber systems, but also on social systems for strategic planning, decision-making, project management, learning, teaching, and building a community of practice. Simply put, a robust, agile technical system depends on an equally robust and adaptable social system. Cyberinfrastructure development is wrapped in social, organizational and governance challenges which may significantly impede technical progress and result in inefficiencies, duplication of effort, incompatibilities, wasted resources or user frustration. These issues are also the most time consuming to resolve due to significant institutional and social inertia: hence the urgency for developing a governance blueprint.

An agile development process is underway for governance of transformative investments in geosciences cyberinfrastructure through the US National Science Foundation's EarthCube Program. Agile development is iterative and incremental, and promotes adaptive planning and rapid and flexible response. Such iterative deployment across a variety of EarthCube stakeholders encourages transparency, consensus, accountability, and inclusiveness.

A broad coalition of stakeholder groups comprises an Assembly to serve as a preliminary venue for identifying, evaluating, and testing potential governance models. To offer opportunity for ensure broader end-user input and buy-in, a crowd-source approach engages stakeholders not involved otherwise in the Assembly. Developmental evaluators from the social sciences embedded in the project will provide real-time review and adjustments.

In order to ensure an open and inclusive process, community-selected leaders play key roles through an Assembly Advisory Council. If consensus is reached on a governing framework, a community-selected demonstration governance demonstration pilot will help facilitate community convergence on system design.