

NGAC Emerging Technologies Subcommittee Report



NGAC Webinar
December 14, 2016

Objectives

- Review of 2016 Guidance
- Briefing on Subcommittee Activities
- Highlights of the Emerging Technologies Report
- Next Steps

Emerging Technologies Subcommittee

- **Guidance:** Provide perspectives and advice on how new technologies will impact the geospatial community or change the way we do business. Describe how these new technologies and changes might be reflected in the NSDI strategic plan framework.
- **Membership:** Doug Richardson (chair), Sarah Battersby (vice-chair), Pat Cummins, Matt Gentile, Jack Hild, Jeff Lovin, Rebecca Moore, Carl Reed, Gary Thompson, Jason Warzinik, May Yuan
- **Federal Contact:** Rich Frazier (FGDC)
- **Approach:**
 - Review resources/documents
 - Gather input from NGAC members, other contacts, Spotlight Sessions
 - Compile report summarizing findings/recommendations
- **Timeframe:**
 - June NGAC Meeting: Status report
 - September NGAC Meeting: Present draft paper
 - December NGAC Webinar: Discuss and approve paper

Subcommittee Activities

1. Emerging Technologies Spotlight Sessions

- June NGAC meeting: Presentations from Federal Technology leaders on key emerging technologies & impacts on geospatial community
- September NGAC meeting: Presentations from Technology leaders outside of the federal government on emerging technologies, trends, and their potential impacts

2. Subcommittee Meetings & Break-out Sessions

- June and September NGAC meetings: Subcommittee & Federal contacts met to discuss 2016 assignments, discuss deliverables, develop work plans/schedules
- Multiple subcommittee conference call meetings

Highlights of the Paper

Emerging Technologies and the Geospatial Landscape

- ❖ Five overarching trends:
 - ❖ Real-time spatiotemporal data creation and user interaction
 - ❖ Miniaturization of technologies
 - ❖ Proliferation of new mobile geospatial sensor platforms
 - ❖ Expanding wireless and web networks
 - ❖ Advances in computing speed and capacity for geospatial research and applications

Emerging Technologies and the Geospatial Landscape

- ❖ We examine impacts of the above overarching technology trends in five broad areas of the federal agency geospatial landscape. These categories are not mutually exclusive; they are cross-cutting and interactive with one another.
 - ❖ Data collection and generation
 - ❖ Data analytics
 - ❖ Infrastructure
 - ❖ Access (technology and data)
 - ❖ Workforce

Data Collection and Generation

- ❖ *Real-time spatiotemporal data* – transforming the ways in which geographic data are collected, mapped, and used
- ❖ *Broadening of participation* – in mapping and geographic knowledge production, to include subject matter experts, as well as citizens and their communities
- ❖ *Small satellites (smallsat)* – proliferating with new sensors and spatial coverage
- ❖ *Unmanned aircraft systems (UAS)* – rapidly expanding user community leading to new monitoring and management opportunities

Data Analytics

- ❖ Big Data ecosystem of technologies and analytics
- ❖ Requires context for useful information, understanding, and actionable intelligence
- ❖ Challenges include policy questions related to privacy, data standards, confidentiality, and security
- ❖ Geospatial analytics and GIS modeling will become more predictive and potentially more prescriptive

Infrastructure

- ❖ Core development of GIS&T is shifting from “top-down authoritative” to also include “bottom-up contributive” approaches
- ❖ Continued evolution of cyberinfrastructure, including CyberGIS, are enabling expansion and innovation in geospatial data, tools, and services
- ❖ Threats to CyberGIS infrastructure must be addressed through technology, policies, and standards

Access

- ❖ Real-time spatial data interaction provides a platform for immediate and global access to information, and is creating new ways for people to engage with the world around them and to collaborate with one another
- ❖ Data-driven government and citizenship fosters collaborative decision making and planning
- ❖ The NSDI and the Geospatial Platform play key roles in enabling these trends

Workforce

- ❖ Growing demand for workers in traditional geospatial industry
- ❖ Exploding demand for workers with geospatial technology skills throughout society and government
- ❖ Critical need for geography and geospatial technologies education in US K-12 and higher education
- ❖ Need to create a broadly talented and diverse geospatial workforce for the future

Next Steps

- ❖ The NGAC Emerging Technologies Report has been distributed to NGAC members prior to this meeting
- ❖ This report is not intended to be a comprehensive and exhausting discussion of all areas of geospatial technology; however, it covers selected topics and trends that we feel are of particular importance to federal agencies.
- ❖ Discussion and, hopefully, approval

Comments and Questions

