

GEOGOV SUMMIT

6-8 September 2023
Hyatt Regency Dulles, Virginia, USA

CONFERENCE REPORT

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Introduction

GeoGov Summit (www.geo-gov.com)

was held from 6-8 September 2023 in response to significant interest from across the public and private sectors to convene a forward-looking Government to Government (G2G) and Government to Business (G2B) forum of leaders and technical experts to help shape the future of the U.S. National Spatial Data Infrastructure (NSDI) in support of National Development.

The purpose of this report is to document and preserve the ideas and recommendations articulated during the GeoGov Summit for consideration as work proceeds to revise the U.S. NSDI Strategic Plan (referred to as the Strategy in this report).

The GeoGov Summit brought together over 170 participants from all levels of government,

industry, non-profit organizations, and the academic/research community to engage in dialog on the progress of our nation's geospatial infrastructure to date, and to discuss recommendations for further advancement of the NSDI to address an increasing array of critical local to national challenges. A range of critical issues such as climate change and climate resilience, the increasing number and severity of disaster events, addressing social equity, achieving smart and safe communities, and improving health outcomes, provided focus for discussion and formulation of recommendations for enriching the NSDI going forward.

The dialog from GeoGov Summit sessions produced a range of strategic recommendations and potential implementation actions to improve the ability of the U.S. NSDI to provide actionable insights for decision makers and policymakers. Some of the key strategic recommendations include:

- Shifting the NSDI Vision and Strategy to one of highly responsive and dependable public and private data and knowledge, with emphasis on applications that provide actionable insights to address national challenges.
- Expanding public-private sector stakeholder engagement to assure that the NSDI more broadly meets U.S. national needs.
- Assuring a national, whole of community approach to governance focused on key problem sets.
- Emphasizing the use of new technological capabilities such as Artificial Intelligence (AI) and Machine Learning (ML), including improved search and discovery to better support user decision-making through access to the exponential growth of public, private sector, and citizen generated geospatial data and decision support applications.
- Supporting well-defined pilot projects to rapidly address priority data and technical challenge areas, and to improve collaborative governance approaches through broad public – private sector partnerships and collaboration.
- Strengthening policy on Findable, Accessible, Interoperable, and Reusable (F.A.I.R) Principles and machine-readable infrastructure to rapidly accommodate new technologies and data sources.
- Acknowledging and supporting policies and programs that directly underpin geospatial operations, including Positioning, Navigation and Timing (PNT), the U.S. Space Policy, the National Spatial Reference System (NSRS), and Cybersecurity.
- Addressing growing shortfalls in talent, a focus on policies, programs, and a community wide-forum to attract and enable a capable, diverse, and technology adaptive public and private sector geospatial workforce of the future
- Inclusion of use cases that illustrate the breadth of the geospatial community, the value of the NSDI in addressing national challenges, and the importance of implementing the Strategy.
- Increasing outreach and marketing to promote stakeholder engagement, resource investment, and use of the NSDI.



These are just a few of the many findings and recommendations generated by participants of the GeoGov Summit for consideration as part of the Strategy.

This report provides a summary of the broad range of strategic and implementation level recommendations flowing from GeoGov plenary, deep dive, and pre-conference sessions. A more detailed report and Annex documenting discussion from each of the GeoGov Summit sessions has been provided to the NSDI Strategic Plan drafting team for their reference and consideration as they work toward revision of this GDA required document in early 2024.



Summary Findings and Recommendations from GeoGov Sessions



Distinguished leaders and experts from all levels of government, industry, academia/research, and non-profit organizations collectively offered insights on the present state of the U.S. NSDI as well as recommendations for the future. Their discussion was augmented by frequent interventions from Summit attendees.

Regarding the current state of the NSDI, panelists described the success of the federal government in partnership with local, State and Tribal governments and industry / academic stakeholders to advance key components of the NSDI. These include a national geodetic network, critical National Geospatial Data Assets (NGDA) – or nationwide coverages of geospatial data (imagery, elevation, roads, boundaries, flood hazards, weather) for open access and application to local to national challenges – and a growing body of applications for decision support. The U.S. NSDI today supports a range of national needs including hazard risk mitigation, emergency

response, urban planning, climate resilience, health security, gender equity, and digital equity to name a few.

Representatives from industry cited the importance of contributions from this sector, including earth observation assets essential to the collection of geospatial information and monitoring change. Recent advancements in AI and ML, cloud processing, as well as Graphics Processing Unit (GPU) processing power are at a point where these technologies can significantly automate geospatial collection and maintenance, and create actionable insights for decision makers. Representatives emphasized that the industry pace of innovation is exceeding the government’s ability to assess, incorporate, and benefit from these technologies in a timely way. Supportive policies, strategies, and standardization are needed to drive progress effectively.

Climate Change was a topic of major discussion throughout the Summit plenary and deep dive sessions, with the effects of our changing climate – the increased frequency and severity of extreme weather events, increasing temperatures, sea level rise, drought - impacting communities in different and profound ways. Speakers and panelists shared great urgency for action to address climate change and to build resiliency.

In addition to acknowledging NSDI progress to date, Summit participants provided a number of recommendations that merit consideration as part of the Strategic planning process to enable the future NSDI to address the growing diversity of local to national challenges and opportunities. Key recommendations are summarized below.



Regarding the importance of the geospatial community to holistically address the grave implications of climate change and biodiversity loss:

There isn’t a future unless we muster all of our best science, and also all of our best technology, and also all of our best creative design thinking to be able to address those challenges.

Jack Dangermond, President, Esri

NSDI Vision / Strategy

Revise/position the NSDI Vision and Strategy to specifically emphasize providing knowledge and actionable insights to address national needs/challenges.

Engagement, Coordination, Governance

- While the Federal coordination process has been successful in engaging some of the stakeholder community, there is a need for a **“whole of community”** approach to national collaborative governance and coordination to address national needs. With a goal of getting the right people to the table, the approach would facilitate expanded stakeholder access, participation, and resource contributions.
- The Strategy should consider who the best convenor is for various NSDI activities, it may not be the Federal Government in many cases.
- Consider crowdsourcing / open-source models as part of the governance structure going forward to organically engage different communities / industries that have a stake in addressing identified challenges
- Emphasize Public-Private-Partnerships (P3) and Public-Private-Philanthropic Partnerships (P4) to leverage what each of these sectors can contribute to advance the NSDI.
- Focus on working broadly across government, academic institutions, and industry to develop a strong skilled and diverse workforce pipeline necessary to support continued advancement of the NSDI. Examples include growing skills in AI/ML and geospatial data science/analysis.
- To strengthen the NSDI and support international cooperation, trade, and commerce, the Strategy should align with the United Nations Integrated Geospatial Information Framework (UN-IGIF) that focuses on governance, technology, and people.
- A robust marketing and communications approach is needed to broaden stakeholder engagement and resource contributions by illustrating the value of the NSDI in the context of community needs / challenges.
- Consider rebranding the NSDI to emphasize actionable insights and applications rather than focus on data.



“The NSDI vision has to be one of highly responsive and dependable public and private data and associated services providing the best that each sector has to offer, to address national challenges. Going forward, we must focus on leveraging the rapidly expanding technology capabilities with a growing body of data sets to produce analysis ready data, evolving a robust, responsive, and mature NSDI. We must invest in open data sets and open Science, maintaining the NSDI as real infrastructure”

David Applegate, Director, U.S. Geological Survey



Maggie Cawley, Executive Director, OpenStreetMap US proposed that the crowdsourcing model be considered as part of the next phase of National Geospatial governance. She noted that this approach embeds more flexibility and agility to keep up with the pace of change especially in a rapidly evolving technology environment, to fill National data gaps, and to encourage broad cross-sector collaboration to identify solutions to the problems we’re trying to solve.

Geospatial Data, Technology, Workflows



- Increase emphasis on industry and academic/ research partnerships as the sector is rapidly evolving new technologies and solutions of high value to the NSDI.
- There is opportunity and need to connect the geospatial community with the Federal AI community. The Strategy should consider actions for member agencies to engage in broader AI working groups / community of practice.
- The Strategy should recommend formation of a national GeoAI working group or forum to connect the geospatial community - private and public sectors – where AI advancements and challenges can be discussed and addressed, such as:
 - ▶ Identifying gaps in data, information, and knowledge that AI applications can address.
 - ▶ Increasing access to training and partnerships to improve AI infrastructure.
 - ▶ Pilot projects for generative AI.
 - ▶ Data provenance, bias, uncertainty, ethics related to AI training sets and models.
- Emphasize conduct of geographically localized pilot projects that unite all levels of government, the private sector, NGOs, and academia/research to advance new and improved solutions to address identified community challenges, and to test collaborative governance approaches.
- Prioritize the evaluation of the NGDA themes to assure that each theme is meeting the needs of U.S. local, State, and Tribal governments.
- Assure archival sustainability of national data assets to allow analysis of change over time in support of open science and decision making.
- Emphasize F.A.I.R (Findable, Accessible, Interoperable, and Reusable) principles and machine-readable infrastructure to accommodate new technologies.
- Emphasis on approaches needed to discover and efficiently access new data sources critical to national challenges, e.g., mobility data and sensor feeds - many of which are non-government data.



“ This is a pivotal time for geospatial in the AI space. Until recently, AI has not been focused on the incredible value of leveraging geospatial. ”

Nima Negahban, Co-founder and CEO Kinetica



“ We are getting to the point now with technology and compute power to be able to produce actionable answers for decision makers. The foundational work that the community has been advancing over the past few decades is finally reaching the point of reality for GeoAI. ”

Ed Kearns, Chief Information Officer First Street Foundation

NSDI Policy

- Include underpinning policies and capabilities as part of the Strategy and NSDI including Positioning, Navigation and Timing (PNT), U.S. Space Policy, the U.S. National Spatial Reference System, and Cybersecurity.
- Seek procurement reforms to more rapidly promote adoption of F.A.I.R. principles, and to accommodate incorporation of new, transformational technologies and workflows into use.
- Encourage change in policy and culture to enable data exploration.
- Explore the inclusion of geospatial data collection, standards, and sharing requirements in major public infrastructure and other taxpayer funded program agreements and contracts to drive geospatial data availability, relevance, and quality.



“The United States government and other state governments spend an awful lot of money subsidizing things, building things... every time money comes from taxpayers... is there a chance, is there opportunity to be collecting geospatial data is it likely to be of quality and use? If so, that needs to be built into that funding agreement. We spend so much money and there’s so many lost opportunities...”

Professor Debra Laefer, Director, Citizen Science,
NYU Center for Urban Science+ Progress

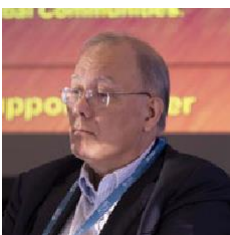
In Conclusion

The final plenary of the GeoGov Summit brought together speakers and attendees to collectively summarize the key findings and outcomes of this groundbreaking forum event. The above-mentioned findings and recommendations regarding the Strategy were confirmed by the group, along with a range of implementation recommendations for consideration as part of Strategy implementation.

Leadership of the Federal Geographic Data Committee (FGDC) / U.S Census Bureau NSDI Strategic Planning Team provided a recap of the draft NSDI Strategic Objectives developed by the team through months of community workshops and listening sessions, noting the strong alignment of the dialog of the Summit with those objectives.

The team also acknowledged the value of the Summit in identifying additional insights for consideration as part of the NSDI strategic planning process.

As mentioned earlier, a more comprehensive report of findings and recommendations from GeoGov Summit sessions has been compiled for reference by the NSDI Strategic Plan drafting team and interested Summit attendees. The collective stakeholder insights documented in this detailed report will aid in the advancement of US NSDI Strategic Plan and infrastructure that better supports provision of information, knowledge, and actionable insights to address a growing diversity of national development objectives and challenges.



Regarding the U.S. Census Bureau as a strategic partner of the GeoGov Summit: “I know how hard it is to get government partnerships together... it is not an easy lift... I commend them for taking the lead in this kind of engagement. It is so important.”

Scott Pace, Professor of Practice, International Affairs,
George Washington University

The organizers of the **GeoGov Summit** wish to thank the sponsors, partners, speakers, and attendees for their contributions and support in creating this important public-private forum. We look forward to future opportunities to continue broadening the dialog regarding the future of the U.S. NSDI as part of future Geospatial World, LLC events. For more information on the GeoGov Summit, visit www.geo-gov.com.

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