Building Capacity for a National Secure Data Service: Appendix

Needs, Gaps, and Considerations for State, Local, Territorial, and Tribal Governments

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Appendix A. Description of data sources

Structured conversations with federal staff and expert panel members

Expert panel members. The project team conducted 60-minute structured conversations with six members of the state, local, and territorial expert panel; nine members of the Tribal expert panel (TEP); and one project consultant (Exhibit A.1; see Appendix B for more information on the expert panels; see Appendix C for structured conversation protocols). Three members of the state, local, and territorial expert panel served on the Advisory Committee on Data for Evidence Building (ACDEB) federal work group. These structured conversations allowed panel members to expand on issues discussed during panel meetings and provide detailed recommendations based on their professional experience. Prior to conducting structured conversations, the project team conducted a pretest of the structured conversation protocol with five Tribal government data leaders at a Tribal data conference.

Federal staff. The project team also invited 33 federal Chief Data Officers and other federal staff involved in data governance and evidence-building activities to participate in a 60-minute structured conversation. Participants were selected based on their expertise in data management, governance, interoperability, Tribal data, and evidence-building initiatives. Staff with expertise on state, local, and territorial data also served on federal advisory boards or technical working groups such as the Federal Chief Data Officers Council, the ACDEB work group, and the Office of Management and Budget (OMB) Interagency Technical Working Group on Race and Ethnicity Standards. The project team conducted 10 structured conversations with federal staff (eight using the state, local, and territorial protocol and two using the Tribal protocol, Exhibit A.1; see Appendix C for structured conversation protocols).

Exhibit A.1. Structured conversation counts by protocol and participant type

Structured conversation protocol	Federal staff	Expert panelists	Consultants	Total
State, local, and territorial	8	6	1	15
Tribal	2	9	0	11
Total	**10**	**15**	**1**	**26**

Webinars and expert panel meetings with state, local, territorial, and Tribal government data leads

Webinars

The project team hosted three public webinars in May and June 2026 on state, local, and territorial government perspectives, with panelists discussing topics including data governance, evidence-building, workforce capacity, data sharing, and potential NSDS services (Exhibit A.2). The project team also hosted two Tribal-focused webinars in April and May 2026 featuring Tribal leaders, service providers, subject matter experts, and members of the TEP. These discussions explored many of the same topics while placing additional emphasis on Indigenous Data Sovereignty, Tribal governance, and federal–Tribal partnerships.

Exhibit A.2. Project-hosted, public webinar series details

Webinar title	Date and time	Focus	Webinar topics
"Building Capacity for Data Use: A Panel Discussion on the National Secure Data Service (NSDS)"	May 7, 2026; 1:00pm ET	State governments	• Current state data priorities and the challenges states face in sharing and using data across agencies and sectors. • Gaps in access to data held by other government agencies and how improved access could support state decision-making. • Centralized platforms, tools, and technical capabilities that could support cross-agency data sharing and use. • Governance, onboarding, technical assistance, and other supports needed for states to participate in the NSDS. • Fiscal, procurement, infrastructure, and adoption barriers that could affect implementation.
"U.S. Territories and Capacity for Data Use through the National Secure Data Service (NSDS)"	June 4, 2026; 2:00pm ET	Territorial governments	• The distinct data environments, infrastructure, standards, and levels of data maturity across U.S. territories. • Current and future opportunities and challenges in sharing data among territorial agencies and with the federal government. • Federal–territorial governance and data sovereignty considerations. • Capacity-building, technical assistance, infrastructure, and connectivity supports needed for territorial participation. • How the NSDS could accommodate variation in local data-system maturity and resource constraints across territories.
"Building Local Capacity for Data Use: Local Government Perspectives on the National Secure Data Service (NSDS)"	June 9, 2026; 1:00pm ET	Local governments	• Data priorities and data-sharing challenges facing cities, counties, and other local governments. • How local agencies currently share data with other local, state, and federal agencies and where access gaps remain. • Platforms, tools, and emerging capabilities, including artificial intelligence, that could support local data use. • Governance, onboarding, technical assistance, and usability supports needed by local governments. • Organizational, technical, fiscal, and capacity barriers to adopting the NSDS.
"Navigating Tribal/Federal Data Projects: Lessons Learned from Case Studies"	April 22, 2026; 3:00pm ET	Tribal governments	• Ways federal agencies have engaged with Tribes during complex data projects, with lessons learned from both successes and challenges. • Ways federal agencies can improve collaboration and engagement with Tribes to ensure data projects provide meaningful benefit to Tribes and avoid causing harm. • Wise practices for how federal data projects can pursue meaningful Tribal engagement and honor data sovereignty throughout the project life cycle. • Apply lessons learned from earlier data projects to how the federal government can more effectively collaborate with Tribes during the development of a National Secure Data Service.
"Building Tribal Data Capacity: Pillars, Priorities, and Implications for the NSDS"	May 28, 2026; 3:00pm ET	Tribal governments	• Successes and challenges from past and current Tribal data capacity-building efforts. • How Tribes and Tribal organizations currently access and use data. • What tools Tribal data users are looking for to support their access and use. • Recommendations for how the NSDS can best align with Tribal priorities to meet data needs and build capacity.

ET = Eastern time; NSDS = National Secure Data Service.

Consultations with expert panels and consultants

The project team engaged with the two expert panels and consultants in study design and sensemaking meetings throughout the project period (Exhibit A.3). The project team used study design meetings to inform the study approach and gather feedback on structured conversation instruments. Sensemaking meetings were used to gather feedback on findings and content in the needs and gaps report and recommendations report. The state, local, and territorial expert panel and consultant participated in one study design meeting, provided asynchronous feedback on structured conversation materials and webinar participants, and participated in one sensemaking meeting. The TEP and Tribal consultant participated in three study design meetings and two sensemaking meetings and reviewed drafts of the needs and gaps report and the recommendations report asynchronously.

Exhibit A.3. Number of people engaged in consultations by panel and member type

Member type	Expert panel members	Consultants	Total
State, local, and territorial	9	1	10
Tribal	16	1	17
Total	**25**	**2**	**27**

Landscape scan of publicly available content

Document review

State, local, territorial. The project team searched EBSCO Discovery Service and Google Scholar for relevant peer-reviewed literature focused on data use in government in the United States and published from 2010 through 2026. Topics included data sharing, interoperability, governance, infrastructure, privacy and security, artificial intelligence (AI), and capacity for evidence-building. The project team also reviewed selected gray literature recommended by project partners and structured conversation participants that included policy reports and implementation summaries. The project team screened 215 resources using Covidence and reviewed and coded 64 resources using NVivo with a standardized codebook (Appendix D) aligned with the project's domains of interest, allowing findings to be compared and integrated with other landscape review data sources.

Tribal. The project team used a targeted literature identification strategy to gather Tribal scholarship because it spans multiple disciplines and is not comprehensively indexed within any single database. Peer-reviewed literature published from 2010 through 2026 was identified primarily through the Indigenous Data Sovereignty Network's curated resource library, which compiles foundational and emerging scholarship on Indigenous Data Sovereignty, Indigenous Data Governance and evidence-building and data use in Tribal contexts. Additional publications were identified through review of reference lists from included articles (i.e., backward citation searching). This approach was intended to identify influential literature within the United States and internationally that may not be consistently retrievable through traditional database searches alone. The project team also reviewed selected gray literature, including policy reports, guidance documents, and implementation resources recommended by project partners and Tribal subject matter experts published from 2016 through 2026. Topics included Tribal sovereignty, Indigenous Data Sovereignty, Indigenous Data Governance, data sharing, governance, workforce capacity,

infrastructure, funding, evidence-building, and culturally grounded approaches. The project team screened 48 resources and coded 33 resources in Excel using a standardized codebook (Appendix D) aligned with the project's domains of interest, allowing findings to be compared and integrated with other Tribal evidence sources.

Publicly available conference and webinar materials

State, local, territorial. The project team reviewed and synthesized publicly available materials from 37 conferences and convenings that occurred in 2025 where presenters and attendees discussed data governance, interoperability, privacy, AI, cybersecurity, administrative data, and digital government modernization. The team identified relevant conferences through partner networks and targeted web searches, and included conferences that had sufficient public, session-level information to support review. Conference materials were screened and coded in Covidence using a standardized extraction form (Appendix D) aligned with the project's research domains. Coding captured data-sharing challenges, governance and coordination barriers, privacy and security considerations, workforce and implementation needs, desired technical capabilities, and implications for secure data-sharing infrastructure like the NSDS.

The project team reviewed 20 publicly posted webinars to capture state and local perspectives on data sharing, governance, AI readiness, and related implementation issues. Webinars were selected from a compiled webinar review list, with priority given to 2025 and 2026 webinars that could be reviewed by the end of April 2026. Relevant content from webinars was recorded in the conference note-taking template (Appendix D) and coded using a standardized extraction form (Appendix D) to capture key takeaways, relevance to NSDS, and recurring themes.

Tribal. The project team reviewed and synthesized publicly available materials from six conferences that occurred in 2025 where presenters and attendees discussed Tribal data work. Conference materials were screened and coded in Excel using the standardized coding template used in the document review (Appendix D), allowing findings to be compared and integrated with other landscape review data sources.

The project team reviewed 11 publicly posted Tribal consultations and listening-session materials from 2021 through 2026 related to Tribal data work. The team screened and coded the materials in Excel using the standardized codebook for the document review (Appendix D), allowing findings to be compared and integrated with other landscape review data sources.

In-person conferences

State, local, territorial. Between November 2025 and April 2026, the project team attended seven conferences in person to document discussions from sessions relevant to data governance, trust, AI, security, and implementation. Team members attended relevant sessions and used a structured note-taking template (Appendix D) to capture discussions relevant to data infrastructure, access, and use for evidence-building that could inform findings on data use needs and gaps as well as recommendations.

Tribal. Between September 2025 and June 2026, the project team attended seven conferences in person to document discussions from sessions relevant to Tribal data, Indigenous Data Sovereignty, Indigenous Data Governance, Indigenous research, trust, relationship-building and reciprocity, AI and machine learning, and data systems and infrastructure. Team members attended relevant sessions and used the

same structured note-taking template to capture discussions relevant to Tribal data access and capacity-building that could inform findings on Tribal data use needs and gaps as well as recommendations.

Appendix B. Expert Panel Members and Consultants

State, local, territorial. The project team established and engaged an expert panel of state, local, and territorial data leaders that provided guidance throughout the project (Exhibit B.1). The project team also engaged one consultant with expertise in territorial data use. Experts represented a range of sectors and levels of government, with substantial expertise in data governance, evidence-building, and government data systems. Not all experts participated in all activities or were able to engage during the entire project.

Exhibit B.1. State, local, and territorial expert panel members and consultant

Name	Affiliation	Representation
Expert panel members		
Milda Aksamitauskas	Fellow, State Chief Data Officers Network, Beeck Center for Social Impact and Innovation at Georgetown University	Non-governmental, State
Mary Craigle	Bureau Chief, Research and Information Services Bureau, Montana Department of Commerce	State
Anna Hui	Director, Missouri Department of Labor and Industrial Relations	State
Jeff Lambart	Director of Analytics, City of Boston	City
Rizalina Liwag	Senior Director, Office of Accountability, Research, and Evaluation, Commonwealth of Northern Mariana Islands Public School System	Territorial
Christin Lotz	Director of Evidence and Impact, Tennessee Department of Finance and Administration	State
David Park	Director of Data and Business Analytics, National League of Cities	Non-governmental, City
James Smith	Budget and Policy Manager, Vermont Division of Vocational Rehabilitation	State
Kate Tromble	Vice President, Data Quality Campaign	Non-governmental, State
Consultant		
Melly Wilson	Director of Research, Policy & Government Relations Pacific Resources for Education and Learning	Non-governmental, Territorial

Tribal. The project team established and engaged a TEP composed of Tribal leaders, practitioners, researchers, and technical experts (Exhibit B.2). The project team also engaged one consultant with expertise in Tribal health. Experts provided guidance throughout the project and contributed expertise related to Tribal governance, Indigenous Data Sovereignty, evidence-building, service delivery, and Tribal data systems. Not all experts participated in all activities or were able to engage during the entire project.

Exhibit B.2. Tribal expert panel members and consultant

Name	Tribal affiliation	Title/Org	Expertise
Expert panel members			
Tanner Amdul-Clark	Citizen Potawatomi	Partner, Sonosky, Chambers, Sachse, Miller & Monkman, LLP	Tribal law
Deana Around-Him	Cherokee	Research Scholar, Child Trends	Research and evaluation; research ethics
Lannesse Baker	Anishinaabe	Public Health Officer, Urban Indian Health Institute	Data user
Gary Burnette	Cheroenhaka (Nottoway)	Chair of the Board of Directors AISES; Chief Data Officer, Kyndryl; Tribal Council Member (term ended 12/31/2024)	State Tribal Leader (Tribal Council member – State Recognized Tribe)
Garet Couch	Shawnee	President, National Tribal Geographic Information Support Center	Geographic information systems
Leonard Forsman	Suquamish Tribe	Board President, Suquamish Foundation and Vice-President for the Northwest Region to NCAI	NCAI/Tribal Council member of West coast Tribe
Jessica Imotichey	Chickasaw	Health Policy & Legislative Analyst for the Chickasaw Nation Department of Health; Census Advisory Committee	Census data
Lydia Jennings	Pascua Yaqui Tribe (Yoeme) and Huichol (Wixáritari)	Assistant Professor of Environmental Science, Dartmouth	Environmental data; data sovereignty
Traci Morris	Chickasaw	Executive Director, American Indian Policy Institute, Arizona State University	Tribal law; data sovereignty
Vanessa Palmer	NA	Data Director, Center for Indian Country Development, Federal Reserve of Minneapolis	Data user; Economic/ Development data; Federal agency
Ahniwake Rose	Cherokee	President and CEO of AIHEC	National Tribal Organization; Education data; Higher Education
Stepanie Russo Carroll	AHTNA/Native Village of Kluti-Kahh	Director, Collaboratory for Indigenous Data Governance, Native Nations Institute, University of Arizona	Data sovereignty and data governance, Alaska Native
Bobby Saunkeah	Kiowa Tribe of Oklahoma	Director, Division of Research and Public Health; Chair, IRB; Chickasaw Nation Department of Health	Health data
Heather Sauyaq Jean Gordon	Iñupiaq	Sauyaq Solutions	Indigenous sustainability
Desi Small-Rodriguez	North Cheyenne and Chicana	Assistant Professor, Sociology and American Indian Studies, University of California, Los Angeles	Data sovereignty; data governance

Name	Tribal affiliation	Title/Org	Expertise
Victoria Warren-Mears	NA	Director, NPAIHB	Tribal organization - Tribal Epidemiology Center; Public Health Data
Consultant			
Yvette Roubideaux	Rosebud Sioux	Adjunct Professor, Colorado School of Public Health; Former Director, Policy Research Center, NCAI; Former Director, IHS	Public health, health data, and research and evaluation

AIHEC = American Indian Higher Education Consortium; AISES = American Indian Science and Engineering Society; CEO = Chief executive officer; IHS = Indian Health Service; IRB = Institutional Review Board; LLP = Limited Liability Partnership; NA = Not applicable; NCAI = National Congress of American Indians; NPAIHB = Northwest Portland Area Indian Health Board.

Appendix C. Structured conversation protocols

State, local, and territorial structured conversation protocol

Introduction (5 minutes)

Thank you for agreeing to participate in this conversation. We appreciate your time and perspective as we work to shape the National Secure Data Service (NSDS). As a reminder, the NSDS aims to build a secure, scalable service–using innovative tools and powerful privacy protections–to further connect people with trusted data and solutions to make smarter decisions and solve real-world problems. By connecting data across government agencies, the NSDS hopes to support data-driven decision-making, reduce duplicative efforts, and make data accessible and streamlined. Your expertise and experience are invaluable to this effort. Your responses will remain strictly confidential and will only be used for this research project.

This effort to help inform the NSDS is funded by the National Center for Science and Engineering Statistics (NCSES) at the National Science Foundation (NSF), and Mathematica has been contracted to support this work.

The goal of today's conversation is to delve deeper into your specific needs, challenges, and priorities around data sharing and integration. We want to hear about your agency/organization's unique perspective on what would make the NSDS valuable to you, including your security, compliance, and support requirements. Your feedback will be crucial in shaping a system that truly aligns with the needs of various sectors.

This conversation should take about 60 minutes, and your name and responses will remain confidential and be used solely for research purposes. We'd also like to record our conversation for accuracy—if that's okay with you. The only people who will have access to the recording will be Mathematica project staff. You can stop the recording or conversation at any time or skip any questions you prefer not to answer.

Do you have any questions before I begin recording? (begin recording)

Could you start by confirming your current role and the organization you work for?

Section 1: Organization and Sector Needs (10 minutes)

1. Can you describe any primary data-sharing or integration challenges your organization currently faces?
   - Optional Prompt - Examples of data-sharing or integration challenges might include issues like incompatible data formats between systems, access restrictions due to privacy, security policies, compliance, slow processing times, or limited tools for collaborative data work across teams.
2. How do these challenges impact your organization's goals or service delivery?
3. What does not get done due to these challenges?
4. What are the top benefits you hope the NSDS could provide to address these challenges?
   - Optional Prompt: Examples of benefits could include improved data accessibility, enhanced security, easier collaboration, or access to advanced analytics tools.

5. How would these benefits change your organization's ability to make data-driven decisions?
6. Are there specific features or functionalities you would find particularly valuable in an NSDS?
   - Essential features or capabilities in the short-term (next 1-2 years)?
   - Features or capabilities to incorporate in the long-term (5 years)?
7. We understand that you have participated as part of the [Federal Chief Data Officers Council OR Advisory Committee on Data for Evidence Building OR OMB Interagency Technical Working Group on Race and Ethnicity Standards]. What was your role on the [council/committee/work group]?
8. What types of policy issues emerged from your work with the workgroup or council?
9. How do you see the NSDS potentially addressing those issues? What opportunities does it offer, and what barriers will it have to overcome?

Section 2: Security, Privacy, and Compliance Concerns (15 minutes)

1. Does your organization currently use any external data-sharing platforms?
   - If yes: How concerned are you about data security when using external data-sharing platforms?
   - If no: What concerns or barriers would you have about using such platforms in the future?
     - Optional Prompt: Some common concerns include risks of unauthorized access, data breaches, or compliance with privacy regulations like HIPAA.
2. Are there specific security features or protections you feel are essential for the NSDS secure data access services?
3. What privacy concerns are most important for your organization?
4. Are there any sector-specific compliance standards that you think should guide NSDS development?
   - Optional Prompt: Are there any compliance standards that your sector(s) default to that someone outside the sector might not be aware of?

Section 3: Barriers and Support Needs (15 minutes)

1. What do you perceive as the biggest barriers to your organization utilizing an NSDS?
   - Optional Prompt: Common barriers might include challenges such as staff resistance to change, limited staff capacity to manage data, or difficulties working with new technology.
2. How could the NSDS address these barriers?
3. What would make utilizing the NSDS easier for your organization?
4. What types of support would your staff and organization need to effectively use an NSDS?
   - Optional Prompt: Support could come in the form of training, ongoing technical assistance, and resources. Examples might include:
     - Onboarding and training on how to use the NSDS services
     - Data management and governance training
     - Ongoing technical support
     - Technical support for analysis and reporting features

- Clear documentation and guidelines
- Resources for data security and compliance
- Resources for data science and artificial intelligence

5. How do you envision the NSDS providing ongoing support as your needs evolve?

Section 4: Future Outlook and Collaboration (10 minutes)

1. Which sectors would you most benefit from collaborating with through the NSDS, and why?
   – Optional Prompt: Examples of sectors include education, public health, social services, mental health and substance use services, disability services, and workforce development—essentially any area where data-sharing could enhance your work.
2. How do you envision data-sharing between these sectors enhancing your organization's capabilities? How would the integration of data from these sectors change decision-making or service delivery in your organization? What data-sharing challenges or barriers might you anticipate?
3. Are there specific collaboration features in an NSDS that could support or improve data-sharing between these sectors?
   – Optional Prompt: For example, features such as a centralized data repository, data sharing capabilities, analysis or report sharing, or integrated data visualization tools could enhance collaboration and data-sharing between sectors.
4. *[If respondent has used external data sharing platforms]* What, if any, specific challenges have you experienced when trying to share or access data across departments or with external partners?
   – Note: If the respondent states that no challenges have been experienced, please skip to the next question.
5. Ideally, how do you see the role of the NSDS evolving to meet the needs of organizations like yours?
   – Optional Prompt: The NSDS could evolve by offering new tools for data analytics, additional privacy-preserving technologies to support data linkage or analytics, expanding sector partnerships, or providing more tailored support services as needs grow.
6. What do you see as the role of the NSDS in the future and do you have recommendations for making sure it achieves its goals?

Closing (5 minutes)

Is there anything else you would like to share regarding NSDS development, your data needs, or experiences with participating in data-related working groups or advisory committees?

Thank you for your time and valuable perspectives today. Your feedback is crucial in shaping the National Secure Data Service to meet the diverse needs of organizations like yours.

If you have any follow-up questions or additional thoughts after this conversation, please don't hesitate to reach out to us. You can contact [facilitator name], [title], at [email] or [phone number].

We truly appreciate your participation and look forward to keeping you updated on the progress of this effort. The insights you provided will be integrated into our recommendations report to NCSES in summer 2026.

Tribal structured conversation protocol

Introduction (5 minutes)

Hi, I'm [name] with the National Indian Health Board, and I'm joined by [name] at Mathematica. Thank you for participating in the discussion today. As you read in the email, the purpose of this discussion today is to ask for your input on the National Secure Data Service or NSDS, which aims to (1) enhance access to federal data in ways that align with Tribal Nation and Tribal-serving organization priorities, (2) support data governance practices that protect sovereignty and confidentiality, and (3) empower Tribal Nations and Tribal-serving organizations with infrastructure, tools, and capacity to make data-driven decisions. NIHB is working with Mathematica to gather Tribal feedback to advise the NSDS project team. This conversation should take 60 minutes, your name and responses will be confidential, and each question is voluntary. We'd also like to record our conversation for accuracy, if that's okay with you. The only people who will have access to the recording will be NIHB project staff. You're free to stop the recording or conversation at any time or skip any questions you prefer not to answer. Recordings and notes will be destroyed at the end of the project and not turned over to the federal government. Responses will be combined to protect individual, Tribal Nation, and organizational identities.

Could you start by confirming your current role and the Tribal Nation or organization you work for or represent?

Questions for Tribal Program Representatives and Tribal-Serving Organizations

Thank you for clarifying that information. Now we have eight questions about your experiences with **federal data**. We anticipate this will take approximately 45 minutes.

1. How comfortable are you with using federal data and for what purpose do you use it?
    a. Optional Prompt: What types of federal data do you typically access? Examples of types of federal data may include economic, public health, housing, etc.
    b. Optional Prompt: Examples of purpose(s) may include grant applications and reporting, service delivery, strategic planning, research.
2. What challenges do you experience around using federal data, and can you give an example?
    a. Optional Prompt: For example, challenges around accessing federal data may include lengthy turnaround times, bureaucratic problems, cost of data, denial of Tribal authority to access data, and inaccessibility of the way the data is collected or presented.
    b. Optional Prompt: For example, challenges around analyzing federal data may include different definitions of the populations, exclusion of AI/ANs in data, racial misclassification, and lack of Tribal-level or jurisdictional data, inadequate sampling, or suppressed data due to small samples.
3. In what ways could the NSDS help address the challenges you have described and support Tribal needs and goals?
    a. Optional Prompt: One way to address the issue of usefulness of federal data is ensuring consistency or standardization in the way data is collected across all government agencies.

4. What specific concerns, if any, do you have around privacy, confidentiality, and data security when referring to federal data?
    a. Optional Prompt: Some concerns may include risk of unauthorized access, data breaches, or compliance with privacy regulations.
5. What infrastructure, support, or capacity-building resources, if any, would help your Tribal Nation or Tribal-Serving Organization better access, analyze, and manage data?
    a. Optional Prompt: Some resources may include technological infrastructure, staffing, funding, education, training, software, or tools.
6. In a perfect world, what other types of federal data are you interested in accessing?
    a. Optional Prompt: This may include data that may not currently exist.
    b. Optional Prompt: Are you aware of all the data that you can access?
    c. Optional Prompt: What would help you learn about other potential data sources you can access?
7. In a perfect world, how would you like to access and receive federal data?
    a. Optional Prompt: What might that process of requesting federal data look like?
    b. Optional Prompt: What is your ideal timeline for accessing and receiving Federal data?
    c. Optional Prompt: What might the federal data you receive look like? Examples may include a report, table, or Excel file.
8. Do you have any other thoughts around the NSDS that we haven't asked, or you would like to expand upon?

Questions for Tribal Nation Leaders

Thank you for clarifying that information. Now we have seven questions about your experiences with **Tribal Nation data that is shared with the federal government.** We anticipate this will take approximately 45 minutes.

1. What kind of Tribal Nation data, if any, would be appropriate to include in the NSDS? What kind of data, if any, would definitely *not* be appropriate to include?
    a. Optional Prompt: Examples of Tribal Nation data that you may not want included in the NSDS may include data that is related to cultural practices, and Tribally identifiable data.
2. What kinds of users, if any, would be appropriate to have access to Tribal Nation data? What kinds of users would definitely *not* be appropriate to have access?
    a. Optional Prompt: Examples of kinds of data users include researchers at universities or colleges, or users with or without Tribal connection.
3. What policies or infrastructure does your Tribal Nation have to protect data privacy?
    a. Optional Prompt: Where do you see opportunities for improvement?
    b. Optional Prompt: Examples may include employee confidentiality training, authorization by Tribal members, Tribal ordinances or codes, data security infrastructure, etc.

4. What kind of policies governing the access and use of Tribal Nation data, if any, must the NSDS implement to be able to share Tribal Nation data?
    a. Optional Prompt: Examples may include a data stewardship committee which sets policies for access, use, and ongoing management of the NSDS/
    b. Optional Prompt: Provide examples of what a successful stewardship committee of the federal government would look like. What would an ideal makeup of this committee look like?
5. What infrastructure, support, or capacity-building resources, if any, would make it easier for your Tribal Nation to use the NSDS?
    a. Optional Prompt: Some resources may include technological infrastructure, staffing, funding, education, training, software, or tools.
6. How should the federal government engage and consult with Tribal Nations to inform the development of the NSDS?
    a. Optional Prompt: What does this process look like and how often should this process take place?
7. Do you have any other thoughts around the NSDS that we haven't asked, or you would like to expand upon?

Questions for Data Sovereignty Experts

Thank you for clarifying that information. Now we have seven questions about your perspectives on **data sovereignty and governance.** We anticipate this will take approximately 45 minutes.

1. What does data sovereignty mean to you?
2. What challenges, if any, have you observed or experienced in past federal or state data-sharing initiatives? What successes, if any, have you seen that the NSDS could consider?
3. Are there existing models or partnerships (within the US or internationally) that you feel could guide the development of the NSDS in a way that respects data sovereignty?
4. How can the NSDS create a governance structure that reflects the diversity of Tribal Nations, including smaller Tribal Nations, non-federally recognized Tribal Nations, Urban Indigenous Communities?
5. What strategies should the NSDS adopt to build Tribal Nation capacity in data governance and technological infrastructure over time?
6. How might an NSDS impede data sovereignty and bypass data governance protections that Tribal Nations have in place?
7. Do you have any other thoughts around the NSDS that we haven't asked, or you would like to expand upon?

Closing (5 minutes)

Thank you so much for your time, we really appreciate your answers. We will use the combined responses from these discussions to make recommendations to the NSDS project team. A summary of recommendations will be shared with participants. If it's alright with you, I may reach out by email if I need clarification on your responses. Since we are compensating you for your time today, NIHB will send

you an invitation from bill.com to process your e-payment. If you would rather prefer a paper check be mailed to you, please confirm your full name and address. You should expect to receive the payment within 90 days.

Appendix D. Extraction and coding tools for landscape scan

Codebook for state, local, and territorial documents

Parent Code	Child Code	Description and guidance
1. Organizational Context and Current Data Environment	1.1 Mission and Goals	Descriptions of agency mission, objectives, service delivery goals, and what they are trying to achieve with data.
	1.2 Current Data Infrastructure	Existing systems, tools, platforms, and governance structures supporting data management and sharing. Discussions about an organization's data maturity.
	1.3 Data Sharing Practices with similar agencies (e.g., fed agency to fed agency; state agencies within their state)	How data is currently shared internally and externally; current workflows and partners.
	1.4 Data Sharing Practices with different agencies (e.g., fed to state; state to fed)	How data is currently shared internally and externally; current workflows and partners.
	1.5 Current data use cases and needs	What data is being used for and what data the organization needs for service delivery goals.
	1.0 Other-Context	Context/infrastructure content that fits the parent but not listed child codes.
2. Data Challenges	2.1 Interoperability/Standards	Incompatible formats, inconsistent definitions, lack of shared identifiers, metadata challenges, linkage difficulty.
	2.2 Access Restrictions	Permissions, approvals, access bottlenecks, unclear authorization/roles.
	2.3 Privacy Constraints	Operational limits from privacy/confidentiality constraints (e.g., de-identification difficulty, disclosure risk in practice).
	2.4 Legal/Compliance Barriers	Statutory/regulatory constraints and legal review burdens affecting sharing/integration. Including examples of bureaucracy being a barrier
	2.5 Capacity Constraints	Staffing, skills, funding/resources limiting data sharing/integration work.
	2.6 Cross-Agency Coordination Challenges	Collaboration friction, unclear ownership, misaligned priorities, coordination overhead.
	2.7 Impact on Service Delivery	How challenges affect program delivery, decision-making, timeliness, quality, equity outcomes.
	2.8 Unmet Work	Work not completed or analyses not performed due to challenges (explicitly stated).
	2.0 Other-Challenges	Challenge-related content that fits the parent but not listed child codes.
3. NSDS Benefits	3.1 Improved Access/Efficiency	Streamlined access, reduced duplication, faster workflows, improved productivity.
	3.2 Enhanced Analytics	Improved linkage, analytical capability, modeling/AI/ML enablement, better evidence-building.

Parent Code	Child Code	Description and guidance
	3.3 Improved Decision-Making	How NSDS benefits would change policy/program decisions, targeting, evaluation, timeliness.
	3.4 Agreements & Standardization	Benefits related to shared governance, data agreements, permissions, legitimacy, consistent standards and definitions
	3.5 Relationships/Trust	Benefits related to relationships, trust-building
	3.0 Other-Benefits	Benefit/value content not captured by listed child codes.
4. NSDS features	4.1 Short-Term Features	Near-term essential features (1–2 years). Code specifics where stated (e.g., intake, access workflows, basic linkage).
	4.2 Long-Term Features	Future-state capabilities (~5 years). Code advanced capabilities where stated (e.g., PPRL, federated analytics).
	4.3 Security Features	Required security controls/capabilities as features (encryption, RBAC/ABAC, MFA, audit logging, monitoring, IR).
	4.4 Collaboration Features	Features enabling collaboration and sharing outputs (shared spaces, reporting, visualization, knowledge sharing).
	4.0 Other-Features	Feature/requirement content not captured by listed child codes.
5. Security, privacy, compliance	5.1 External Platform Experience	Use of external data-sharing platforms; what platforms and how they are used; lessons learned.
	5.2 Security Concerns	Security risks/concerns (breach, unauthorized access, insider risk, identity management, auditability).
	5.3 Privacy Concerns	Privacy risks/concerns (disclosure risk, re-identification, minimization, consent expectations).
	5.4 Compliance Requirements	Named compliance regimes/standards NSDS must satisfy (e.g., HIPAA; also FISMA, FedRAMP, FERPA, etc., if mentioned).
	5.0 Other-Security/Privacy	Security/privacy/compliance content not captured by listed child codes.
6. Adoption barriers and support needs	6.1 Adoption Barriers	Anything that would prevent or slow NSDS adoption/utilization (general).
	6.2 Change Management	Culture, resistance, risk tolerance, trust, stakeholder buy-in, change fatigue.
	6.3 Support Needs-Training	Onboarding/training needs to use NSDS and related skills.
	6.4 Support Needs-Ongoing Technical Assistance	Help desk, troubleshooting, implementation support, office hours, technical TA.
	6.5 Support Needs-Documentation/Guidelines	Documentation, templates, toolkits, compliance guidance, SOPs.
	6.6 Mitigation Strategies	How NSDS could reduce barriers and enable adoption (respondent suggestions).
	6.0 Other-Adoption/Support	Adoption/support content not captured by listed child codes.
7. Cross-sector collaboration and use cases	7.1 Priority Sectors	Sectors identified for collaboration and rationale (e.g., education, health, workforce).

Parent Code	Child Code	Description and guidance
	7.2 Collaboration Use Cases	Concrete examples of cross-sector sharing/linkage/analysis and expected value.
	7.3 Barriers to Cross-Sector Sharing	Barriers specific to cross-sector contexts (legal, governance, standards, trust, incentives).
	7.4 Value of Collaboration	How collaboration would improve capabilities/outcomes; expected improvements.
	7.0 Other-Collaboration	Collaboration content not captured by listed child codes.
8. NSDS future and role	8.1 Future Evolution	How NSDS should evolve over time to meet needs; expansion ideas and sequencing.
	8.2 Recommended Role	Ideal scope/positioning of NSDS in the ecosystem; governance/authority expectations.
	8.3 Implementation Recommendations	Concrete advice for NSDS success (pilots, stakeholder engagement, governance, rollout).
	8.4 Additional Comments	Relevant content not captured elsewhere; wrap-up reflections.

Codebook for reviews of Tribal documents, conferences, consultations, and listening sessions

Coding Dimension	Code	Description and guidance
1. Topical Domain	1.1 Tribal sovereignty	References to Tribal Nations' inherent authority to govern their citizens, lands, resources, and internal affairs, including governance, jurisdiction, self-determination, consent, and participation in data-related decisions.
	1.2 Data sovereignty	References to Tribal authority over the collection, ownership, access, use, sharing, stewardship, interpretation, or governance of data concerning Tribal peoples, lands, resources, or communities.
	1.3 Workforce capacity	Discussion of staffing, expertise, recruitment, retention, workforce development, or organizational capacity to support Tribal data work.
	1.4 Data systems and technology capacity	Discussion of the capabilities, limitations, readiness, interoperability, or technical maturity of data systems, platforms, software, or other technologies used to collect, manage, share, or analyze data.
	1.5 Infrastructure and connectivity	References to broadband, internet reliability, hardware, cloud services, cybersecurity, or other foundational infrastructure needed to support Tribal data work.
	1.6 Cultural and community alignment	Discussion of whether data practices, governance approaches, technologies, or evidence-building activities reflect Tribal values, Indigenous knowledge systems, community priorities, local context, or culturally appropriate approaches.
	1.7 Cross-agency coordination	References to coordination among agencies or organizations, including communication, shared planning, defined roles, information sharing, and collaborative implementation.
	1.8 Data consistency and standardization	Discussion of common definitions, metadata, standards, documentation, or data quality practices that improve consistency, interoperability, and appropriate use across systems.
	1.9 Funding and resource structures	References to funding models, resource allocation, grant structures, financial sustainability, or investments needed to support Tribal data capacity and collaboration.
	1.10 Policy alignment	Discussion of whether laws, regulations, policies, guidance, or organizational priorities support or constrain Tribal data governance, data sharing, or evidence-building.
	1.11 Intergovernmental practices	References to how Tribal, federal, state, local, or other governments work together in practice, including consultation, agreements, coordination, and operational relationships.
	1.12 Tools, training, and capacity-building supports	Discussion of training, technical assistance, guidance, templates, toolkits, or other implementation supports that strengthen Tribal data capacity or readiness.
	1.13 Innovative practices	References to promising, emerging, or community-driven approaches to Tribal data governance, stewardship, data sharing, evidence-building, or technology adoption.
	1.14 Other (be specific in description)	Use for content that fits this parent code but not any listed child code. Add a brief note naming the specific topic.

Coding Dimension	Code	Description and guidance
2. Evidence Category	2.1 Needs	Use for content describing capabilities, conditions, or supports that Tribal governments or their partners need to effectively govern, share, access, manage, or use data.
	2.2 Gaps	Use for content describing barriers, limitations, unmet needs, or challenges that constrain Tribal data governance, access, capacity, or evidence-building.
	2.3 Implementation supports	Use for content describing strategies, practices, tools, resources, governance approaches, technical assistance, or other supports that could strengthen Tribal data work or facilitate implementation.
	2.4 Further engagement or exploration needed	Use for content identifying topics requiring additional Tribal engagement, consultation, evidence, or investigation because available information was limited, varied, or inconclusive.
3. Analytic Notes	3.1 Variation across Tribal contexts	Use to document findings that emphasize differences across Tribal Nations, regions, governance structures, capacities, priorities, legal contexts, or implementation approaches, indicating that findings should not be generalized across all Tribes.
	3.2 Actor	Use to identify the entity or entities to which the finding primarily applies or that are the focus of the statement. Actors included Tribal governments and organizations, federal agencies, state governments, local governments, and combinations of these entities when findings described intergovernmental relationships, shared responsibilities, or collaborative activities.

Data extraction form for state, local, and territorial conferences and webinars

Section A: Metadata

A1. Conference name: _____

A2. Conference sponsor: _____

A3. Month/Year (numeric): _____

A4. Session types: _____

Options (select all that apply): Panel, Presentation, Workshop, Poster, Tech talk, Other

A5. The problem, need, or opportunity this session/conference addresses: _____

A6. How this session/conference aims to improve data sharing, integration, or evidence-building:

_____

A7. Open notes for section A: _____

Section B: Organizational and sector context

B1. Presenters' organization type: _____

Options (select all that apply): Federal government, State government, Local government, Territorial government, Private, Nonprofit, Academic, Other

B2. Relevant sectors: _____

Options (select all that apply): Education, Workforce, Healthcare and public health, Social services, Justice/public safety, Housing, Transportation, Environment, Governance and budgeting, Multisector, Military, Other, Not mentioned

B3. Names of affiliated organizations: _____

B4. Data system contexts mentioned: _____

Options (select one): Centralized, Decentralized, Hybrid, Not mentioned

B5. Names of specific data systems mentioned: _____

B6. Open notes for section B: _____

Section C: Data challenges

C1. Types of data challenges mentioned: _____

Options (select all that apply): Interoperability, Standards, Data Linking, Access restrictions, Privacy constraints, Legal/compliance barriers, Capacity constraints (staff/resources), Cross-agency coordination, Data quality/accuracy, Technical limitations (systems/tools), Other, Not mentioned

C2. If capacity constraint is mentioned, describe the type of constraint: _____

C3. Impact of challenges: _____

Options (select all that apply): Service delivery, Decision-making, Timeliness, Equity outcomes, Other, Not mentioned

C4. Relevant session titles for session C: _____

C5. Open notes for section C: _____

Section D: NSDS-relevant capabilities (benefits and features)

D1. Implied desired capabilities: _____

Options (select all that apply): Data integration/linkage, Interoperability, Secure data access, Data analysis environments, AI/advanced analytics, Data sharing infrastructure, User support/concierge, Training/capacity-building, Other, Not mentioned

D2. Implied benefits: _____

Options (select all that apply): Improved access/efficiency, Enhanced analytics, Improved decision-making, Increased collaboration, Cost savings, Trust/standardization, Other, Not mentioned

D3. Solutions/Approaches Described: _____

Options (select all that apply and provide a brief description): Policy/governance approach, Technical solution/platform, Process/workflow innovation, Partnership model, Pilot/demonstration, Other, Not mentioned

D4. Named tools/platforms: _____

D5. Maturity of tools/platforms: _____

D6. Relevant session titles for session D: _____

D7. Open notes for section D: _____

Section E: Security, privacy, and compliance

E1. Security topics mentioned: _____

Options (select all that apply): Data security risks, Secure environments, Access control/authentication, Monitoring/auditing, Other, Not mentioned

E2. Privacy topics mentioned: _____

Options (select all that apply): Data confidentiality, De-identification, Data sharing risks, Other, Not mentioned

E3. Compliance frameworks referenced: _____

Options (select all that apply): HIPAA, FERPA, FISMA / FedRAMP, CJIS, CIPSEA, Evidence Act, State/local regulations, Other, Not mentioned

E4. Relevant session titles for session E: _____

E5. Open notes for section E: _____

Section F: Barriers and support

F1. Adoption barriers mentioned: _____

Options (select all that apply): Staff capacity/resources, Technical integration complexity, Privacy/security concerns, Legal/regulatory barriers, Organizational resistance, Lack of awareness, Other, Not mentioned

F2. Support needs mentioned: _____

Options (select all that apply): Training/onboarding, Technical assistance, Documentation/guidance, Ongoing support, Governance support, Other, Not mentioned

F3. Governance issues mentioned: _____

Options (select all that apply): Lack of standards, Data ownership ambiguity, Data-sharing agreements, Governance operationalization challenges, Other, Not mentioned

F4. Relevant session titles for session F: _____

F5. Open notes for section F: _____

Section G: Cross-sector collaboration

G1. Cross-sector collaboration described?

Options (select one): Yes, No (if no, skip G2 and G3)

G2. Sectors involved: _____

Options (select all that apply): Education, Workforce, Healthcare and public health, Social services, Justice/public safety, Housing, Transportation, Environment, Governance and budgeting, Multisector, Other, Not mentioned

G3. Use case type: _____

Options (select all that apply): Policy implementation, Program evaluation, Accountability reporting, Service delivery, Research, Other, Not mentioned

G4. Relevant session titles for session G: _____

G5. Open notes for section G: _____

Section H: Analytic flags

H1. Level of detail in abstract(s): _____

Options (select one): High; Medium; Low

H2. Confidence in coding: _____

Options (select one): High, Medium, Low

H3. Level of relevance to NSDS (overall): _____

Options (select one): High, Medium, Low

H4. Implied relevance to NSDS: _____

Options (select all that apply): Secure data access environments, Data linkage services, Data concierge/navigation, Data analysis, AI, Governance/agreements support, Training/capacity-building, Other, Not clear

H5. Open notes for section H: _____

Note-taking template for state, local, territorial and Tribal in-person conferences

*Notes to complete **before** session*

Session Information

- Conference Name:
- Session Title:
- Session Type (Panel, Workshop, Presentation, Roundtable, etc.):
- Date & Time:
- Presenter(s) name, affiliation, and role:

  Presenter(s) sector (mark all that apply):

  ☐ Federal government
  ☐ State government
  ☐ Local government
  ☐ Territorial government
  ☐ Private sector
  ☐ Nonprofit
  ☐ Education
  ☐ Workforce
  ☐ Healthcare and public health
  ☐ Social services
  ☐ Governance and budgeting
  ☐ Other (specify):

Context and Relevance

(Please provide a brief description between 2-3 sentences or bullet points)

- What problem, need, or opportunity is this session addressing?
- Which sectors or organizations does this session primarily relate to?
- How is this topic relevant to data sharing, integration, or evidence-building?

*Notes to complete **during** session*

Key Challenges and Gaps Identified

- What data-sharing or data-integration challenges were discussed? (e.g., interoperability, privacy, security, compliance, staffing, governance)
- What does not get done today because of these challenges?
- Were any unmet needs or service gaps highlighted?

Proposed Solutions, Tools, or Approaches

- What solutions or approaches were proposed to address the challenges?
- Were specific tools, platforms, or services mentioned?

- What short-term capabilities (1–2 years) seem most feasible?
- What longer-term capabilities or innovations (5+ years) were discussed?

Benefits and Potential Impact

- What benefits could these approaches provide? (e.g., improved access, efficiency, security, analytics, collaboration)
- How could these benefits improve decision-making or service delivery?
- Who would benefit most from these improvements?

Security, Privacy, and Compliance Considerations

- What security concerns were raised?
- What privacy issues were emphasized?
- Were any specific compliance requirements or regulations mentioned? (e.g., HIPAA, FERPA, CJIS, FISMA, state/local regulations)
- What protections or safeguards were suggested as essential?

Barriers to Adoption

- What barriers to implementing or adopting these solutions were noted? (e.g., staff capacity, cost, resistance to change, legal barriers)
- How might these barriers be addressed?

Support and Capacity Needs

- What types of support were identified as necessary?
  - ☐ Training or onboarding
  - ☐ Technical assistance
  - ☐ Documentation or guidance
  - ☐ Ongoing user support
  - ☐ Other (please specify)

Examples, Use Cases, or Evidence

- Were any concrete examples or case studies shared?
- What outcomes or lessons learned stood out?
- Are there transferable practices relevant to NSDS-like efforts?

Notes to complete **after** *session*

Implications for NSDS or Similar Initiatives

- How could the ideas from this session inform NSDS development?
- What opportunities does this session highlight for a national data service?
- What risks or limitations should be considered?

- Which NSDS service model does this talk most relate to:
  - ☐ Secure analysis environments
  - ☐ Data linkage
  - ☐ Data concierge/navigation
  - ☐ Governance and agreements
  - ☐ Training and capacity-building
  - ☐ Other (specify):

Key Takeaways

- Top 3–5 insights from the session:
- Follow-Up Actions for Mathematica research team
  - People or organizations to follow up with:
  - Resources or tools to explore:
  - Questions to investigate further:

Additional notes and reflections

Open notes, quotes, or reflections:

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