

## Indigenous Data Stewardship Guide: Digital Commons Framework

**Estimated Reading Time:** 13 minutes

**Purpose:** This guide empowers Indigenous communities to steward their data, knowledge, and cultural resources within the *Digital Commons Framework*, ensuring sovereignty, cultural respect, and equitable participation. Grounded in Indigenous governance principles (e.g., Iroquois Confederacy's consensus model) and global frameworks like the CARE Principles for Indigenous Data Governance, it provides practical steps to join or start Local Citizen Nodes, govern digital resources, and protect heritage. Aligned with UN Sustainable Development Goals (SDGs 10, 16, 17), it supports low-resource settings with accessible tools (e.g., oral protocols, paper ballots) and aims to integrate Indigenous protocols into 100% of framework activities by 2035.

### Overview

The *Digital Commons Framework* reimagines digital resources—data, software, knowledge, and infrastructure—as shared global commons, governed by decentralized, community-led systems. Indigenous communities are central to this vision, stewarding their data and cultural knowledge with sovereignty and respect. This guide outlines how to engage with the framework, ensuring Indigenous voices shape digital governance while protecting heritage. It emphasizes:

- **Data Sovereignty:** 100% community control over Indigenous data by 2035.
- **Cultural Respect:** Indigenous protocols in 100% of framework activities by 2035.
- **Inclusivity:** 90% global access to digital resources, prioritizing Indigenous communities.
- **Participation:** 20% Indigenous representation in global governance by 2035.

#### Community Benefits:

- Protect and share cultural knowledge on Indigenous terms.
- Access health, education, and environmental data for community priorities.
- Influence global digital policies through nodes and councils.
- Build resilience with decentralized tools like mesh networks.

#### Policy Relevance:

- Aligns with SDG 10 (Reduced Inequalities), SDG 16 (Strong Institutions), SDG 17 (Partnerships).
- Supports UN Declaration on the Rights of Indigenous Peoples (UNDRIP) and CARE Principles.

### BRIDGE CONNECTIONS

- **Youth and Elders:** Balance traditional authority with youth innovation - see Youth Guide Section 3 for intergenerational leadership
- **Community Coordination:** Indigenous nodes work within broader communities - see Community Guide Section 7 for cultural integration
- **Policy Advocacy:** Indigenous rights need policy protection - see Policymaker Guide Section 8 for Indigenous sovereignty support
- **Ethical Foundation:** Traditional knowledge systems provide deep ethical guidance - see Ethics Guide Section 9 for Indigenous wisdom integration

## Why Indigenous Stewardship Matters

Indigenous communities bring unique perspectives and traditional knowledge to digital governance, addressing critical challenges:

- **Cultural Preservation:** 50% of 7,000 Indigenous languages risk extinction by 2100; digital archives can protect them.
- **Data Exploitation:** 80% of Indigenous data is controlled by non-Indigenous entities, risking misuse.
- **Digital Divide:** 2.7 billion lack digital access, disproportionately affecting Indigenous communities.
- **Environmental Stewardship:** Indigenous lands protect 80% of global biodiversity; data can enhance conservation.

### Benefits:

- **Sovereignty:** Control data usage, ensuring alignment with cultural values.
- **Equity:** Prioritize access for remote and marginalized Indigenous groups.
- **Global Influence:** Shape ethical AI, data, and infrastructure standards.
- **Resilience:** Use decentralized tools to maintain access during crises.

### Challenges Addressed:

- Corporate dominance (5 firms control 72% of cloud infrastructure).
- Environmental harm (digital systems emit 5% of global emissions).
- Exclusion from digital governance (less than 5% Indigenous representation in tech policy).

## Core Principles

Four principles, rooted in Indigenous governance and CARE (Collective Benefit, Authority to Control, Responsibility, Ethics), guide stewardship:

### 1. Data Sovereignty:

- Communities control access, use, and storage of their data.
- Protocols reflect local customs (e.g., oral consent, elder approval).
- Example: Māori node set data access rules via hapū consensus.

### 2. Cultural Respect:

- Protect sacred knowledge; restrict access as needed.
- Use culturally appropriate formats (e.g., oral archives, visual storytelling).
- Example: Canada's node archived stories with elder-guided protocols.

### 3. Collective Benefit:

- Data and resources prioritize community well-being (e.g., health, education).
- Share benefits equitably, with 80% reinvested locally by 2035.
- Example: Senegal's Indigenous node used climate data for sustainable farming.

### 4. Ethical Responsibility:

- Ensure transparency, fairness, and accountability in governance.
- Audit systems for bias and cultural misalignment (95% compliance by 2035).
- Example: Australia's node audited AI for cultural bias, ensuring fairness.

### Alignment:

- Builds on CARE Principles, OCAP (Ownership, Control, Access, Possession), and UNDRIP.
- Adaptable to diverse Indigenous governance models.

### BRIDGE CONNECTIONS FOR PRINCIPLES

- **Youth Innovation:** Young Indigenous people balance tradition with technology - see Youth Guide Section 4 for cultural innovation
- **Community Integration:** Principles must work with broader community values - see Community Guide Section 2 for inclusive governance
- **Policy Protection:** Legal frameworks must protect these principles - see Policymaker Guide Section 7 for Indigenous rights legislation

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## Joining or Starting a Node

Indigenous communities can join existing nodes or start their own, with minimal resources.

### 1. Join a Local Citizen Node (1-2 weeks):

- Find nodes via [globalgovernanceframework.org/nodes](https://globalgovernanceframework.org/nodes) or text INDIGENOUS to 12345.
- Attend meetings, share priorities, or vote on policies (66% majority, 50% quorum).
- Example: Navajo Nation joined a node to steward environmental data.

### 2. Start an Indigenous Node (2-4 weeks):

- Gather 5+ community members (elders, youth, leaders).
- Discuss digital needs (e.g., cultural archives, health data).
- Register via SMS (text JOIN to 12345), email ([globalgovernanceframeworks@gmail.com](mailto:globalgovernanceframeworks@gmail.com)), or Regional Hub.
- Receive Indigenous Starter Kit (protocols, templates).
- Example: Canada's Cree node started with 10 members, focusing on language preservation.

### 3. Set Up Governance (1-2 weeks):

- Use Indigenous Quickstart Guide (Appendix I) to define protocols.
- Assign roles (e.g., elder advisor, youth liaison).
- Example: Māori node used oral consensus for governance setup.

**Ultra-Lightweight Option:** Communities with basic internet access can implement an extremely accessible digital commons using GitHub and AI tools, requiring only minimal resources (~\$15/year). See Appendix F: Ultra-Lightweight Digital Implementation for a step-by-step guide to creating a permanent, accessible digital presence for your Indigenous knowledge with full sovereignty.

### 4. Launch a Pilot (1-3 months):

- Choose a project (e.g., archive stories, access health data).
- Vote on protocols (e.g., data access rules) using oral, paper, or SMS methods.
- Example: Australia's node piloted a cultural archive with elder approval.

**Timeline:** Node setup takes 2-4 weeks; pilots start within 1-3 months.

### Requirements:

- No tech skills needed; oral or written literacy sufficient.
  - Minimal costs (\$0-\$100, e.g., notebooks, phone credit).
  - Support from Regional Hubs for training, tools.
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## Stewarding Digital Resources

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Nodes steward five digital assets, prioritizing Indigenous needs and protocols.

### 1. Open Data Commons:

- Access health, climate, or education data with community consent.
- Use federated storage to ensure sovereignty.
- Example: Navajo node used climate data for water management, with elder approval.

### 2. Open-Source Software Ecosystem:

- Develop or access apps (e.g., language learning) with cultural alignment.
- Example: Māori node built a te reo Māori app, shared with 5 nodes.

### 3. Shared Digital Infrastructure:

- Use mesh networks or cloud systems, prioritizing renewable energy (80% by 2035).
- Example: Canada's node connected schools via solar-powered networks.

### 4. Ethical AI Models:

- Access AI tools (e.g., translation, health prediction) audited for cultural bias.
- Example: Australia's node deployed AI for land management, ensuring fairness.

### 5. Knowledge Commons:

- Archive stories, songs, or practices with restricted access as needed.
- Example: Canada's node archived 450 Cree narratives, accessible only with consent.

### Stewardship Methods:

- Low-tech: Oral protocols, paper records.
- High-tech: Tablets, digital archives with encryption.
- Support: Hubs provide training, hardware grants.

**Metrics:** 100% data sovereignty, 80% resource access by 2035.

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## Governance and Participation

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Indigenous nodes govern resources through culturally appropriate processes.

### • Propose Protocols:

- Elders, youth, or members suggest data or AI policies.
- Submit via oral consensus, SMS, or paper.
- Example: Navajo node proposed sacred site data restrictions, adopted by 80% vote.

### • Vote on Decisions:

- Use oral consensus, paper ballots, or SMS Voting Template (66% majority, 50% quorum).
- Example: Māori node voted via hui (gathering) to protect cultural data.

### • Engage Globally:

- Share protocols with Regional Hubs or Global Council (20% Indigenous representation).
- Join Indigenous Call-Ins (first Tuesday, 10:00 UTC).
- Example: Canada's delegate shaped global Indigenous data standards.

### • Monitor and Audit:

- Review decisions via Field-Test Logbook or blockchain ledger.

- Conduct quarterly audits for cultural compliance (95% by 2035).
- Example: Australia's node audited AI for cultural sensitivity.

#### **Inclusivity:**

- Oral and visual tools for non-literate members.
- Multilingual platforms (50 Indigenous languages by 2030).
- Elder and youth councils for intergenerational input.

**Metrics:** 50% community participation, 20% global Indigenous representation by 2035.

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## Support and Funding

Nodes access funding to ensure sovereignty and sustainability.

#### • **Community Funding:**

- Crowdfunding campaigns (e.g., \$20,000 for Māori language app).
- Data dividends from anonymized data (\$200M globally by 2035).

#### • **External Support:**

- Grants from UNESCO/Indigenous NGOs (\$50M by 2030).
- Automation taxes (2% on AI profits, \$500M by 2032).
- Public-private partnerships (\$100M for Indigenous projects by 2032).

#### • **Allocation:**

- Nodes propose budgets (66% approval); Hubs coordinate.
- 40% for cultural archives, 30% infrastructure, 20% governance, 10% training.
- Example: Canada's node allocated \$15,000 for story archives.

#### • **Support:**

- Regional Hubs provide mentors, starter kits.
- Digital Commons Foundation prioritizes Indigenous funding (20% of budgets).
- Contingency funds for crises (e.g., flood-damaged archives).

**Metrics:** 80% nodes funded, 50% non-corporate funding by 2035.

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## Case Studies

- **Canada (Cree):** Node archived 450 narratives with elder consent, boosting youth engagement 50%.
- **Australia (Yolngu):** Node deployed AI for land management, audited for cultural bias, improving conservation 20%.
- **New Zealand (Māori):** Node built te reo Māori app, shared with 5 nodes, increasing language use 30%.
- **Navajo Nation (USA):** Node used climate data for water management, with 100% community control.

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## Navigating Challenges

### **Common Implementation Challenges:**

### **Elder-Youth Technology Tensions:**

- **Challenge:** Elders worry technology threatens traditional ways; youth want digital innovation
- **Solutions:** Start with elder-approved pilot projects, demonstrate technology serving traditional values, create elder-youth mentorship pairs
- **Example:** Australian Aboriginal community began with elders teaching traditional stories to youth who then created respectful digital archives
- **When it doesn't work:** Some elders remain opposed → Respect their decision while continuing small-scale pilots with willing participants

#### **Cultural Protocol Conflicts with Digital Systems:**

- **Challenge:** Traditional knowledge sharing rules don't fit digital platform designs
- **Solutions:** Adapt technology to cultural protocols rather than changing protocols, create custom access controls, develop Indigenous-led technology design
- **Example:** Pacific Island communities created seasonal access restrictions for traditional navigation knowledge, matching traditional sharing cycles
- **When it doesn't work:** Technology can't accommodate protocols → Use simpler technology or traditional methods until better solutions emerge

#### **External Pressure for Data Access:**

- **Challenge:** Researchers, governments, or corporations pressure for Indigenous data access
- **Solutions:** Establish clear legal frameworks, train community members in data rights, build alliances with supportive legal organizations
- **Example:** Canadian First Nation successfully resisted government health data demands by invoking treaty rights and community sovereignty
- **When it doesn't work:** Legal pressure continues → Seek international Indigenous rights support and higher-level advocacy

#### **Limited Technical Capacity:**

- **Challenge:** Community lacks technical skills for implementation and maintenance
- **Solutions:** Partner with Indigenous technology organizations, train community members gradually, focus on simple solutions first
- **Example:** New Zealand Māori community partnered with Māori technologists to build culturally appropriate language learning software
- **When it doesn't work:** Technical barriers remain too high → Collaborate with other Indigenous communities or supportive non-Indigenous allies

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## **Regional Indigenous Contexts**

### **North American Indigenous Communities:**

- **Governance Integration:** Tribal sovereignty, treaty rights, federal trust responsibilities, traditional council systems
- **Key Issues:** Data sovereignty under colonial law, resource extraction monitoring, language revitalization, health sovereignty
- **Technology Approaches:** Community broadband on reservations, traditional knowledge apps, environmental monitoring systems
- **Example:** Ojibwe communities use digital governance for wild rice protection while maintaining traditional harvesting protocols

### **Pacific Indigenous Communities:**



- **Governance Integration:** Traditional navigation systems, island council governance, climate adaptation urgency
- **Key Issues:** Sea level rise data, traditional ecological knowledge, inter-island communication, cultural preservation under climate threat
- **Technology Approaches:** Climate monitoring networks, traditional navigation apps, inter-island mesh networks
- **Example:** Polynesian navigators create digital star maps while maintaining traditional wayfinding knowledge transmission

#### **Arctic Indigenous Communities:**

- **Governance Integration:** Circumpolar cooperation, traditional hunting governance, climate change adaptation
- **Key Issues:** Climate data sovereignty, traditional ecological knowledge, food security monitoring, cultural preservation in changing environment
- **Technology Approaches:** Climate monitoring, traditional knowledge archives, food security tracking systems
- **Example:** Inuit communities balance traditional weather knowledge with scientific climate monitoring for hunting safety

#### **African Indigenous Communities:**

- **Governance Integration:** Traditional chief systems, Ubuntu philosophy, post-colonial sovereignty, linguistic diversity
- **Key Issues:** Land rights documentation, traditional medicine knowledge, linguistic preservation, sustainable development
- **Technology Approaches:** Land tenure mapping, traditional medicine databases, multi-lingual platforms
- **Example:** San communities in southern Africa use GPS mapping to document traditional territories while maintaining oral knowledge traditions

#### **Australian and New Zealand Indigenous Communities:**

- **Governance Integration:** Native title systems, traditional owner recognition, cultural heritage protection
- **Key Issues:** Land management data, cultural site protection, language revitalization, traditional ecological knowledge
- **Technology Approaches:** Country management systems, cultural mapping, language learning apps
- **Example:** Aboriginal communities use satellite monitoring for traditional fire management while training youth in both traditional and digital knowledge

#### **Latin American Indigenous Communities:**

- **Governance Integration:** Indigenous autonomy movements, traditional territory governance, environmental protection leadership
- **Key Issues:** Territory monitoring, biodiversity data, traditional medicine knowledge, resistance to extractive industries
- **Technology Approaches:** Territory surveillance systems, biodiversity monitoring, traditional knowledge protection platforms
- **Example:** Amazon Indigenous communities use drones for territory monitoring while maintaining traditional forest management practices

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## Traditional Knowledge and New Technologies

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### Preparing for Technological Evolution:

#### Artificial Intelligence and Traditional Knowledge:

- **Current Applications:** Language preservation apps, traditional medicine databases, environmental pattern recognition
- **Emerging Possibilities:** AI-assisted traditional knowledge teaching, pattern recognition in traditional practices
- **Cultural Considerations:** AI must respect traditional knowledge transmission methods, elder authority over knowledge sharing
- **Community Preparation:** Train elders and youth in AI ethics, establish cultural protocols for AI use, maintain human authority over AI decisions

#### Blockchain and Indigenous Sovereignty:

- **Current Applications:** Land title verification, traditional knowledge intellectual property protection, community governance voting
- **Emerging Possibilities:** Decentralized Indigenous governance systems, traditional knowledge licensing, community currencies
- **Cultural Considerations:** Blockchain permanence vs. traditional knowledge privacy, energy consumption vs. environmental values
- **Community Preparation:** Blockchain literacy education, cultural protocol development for permanent records

#### Climate Technology and Traditional Ecological Knowledge:

- **Current Applications:** Traditional weather knowledge integrated with scientific monitoring, traditional agriculture enhanced by climate data
- **Emerging Possibilities:** Traditional ecological knowledge guiding climate adaptation technology, Indigenous-led climate solutions
- **Cultural Considerations:** Traditional knowledge must guide rather than be subordinated to technological solutions
- **Community Preparation:** Climate technology assessment training, traditional ecological knowledge documentation, youth-elder climate partnerships

#### Virtual Reality and Cultural Preservation:

- **Current Applications:** Immersive cultural education, virtual visits to sacred sites, language learning environments
- **Emerging Possibilities:** Virtual traditional knowledge transmission, digital ceremony spaces, cultural education for diaspora communities
- **Cultural Considerations:** Sacred knowledge must remain protected in virtual environments, traditional teaching relationships must be preserved
- **Community Preparation:** Cultural protocol development for virtual spaces, elder guidance on appropriate virtual knowledge sharing

#### Technology Assessment from Indigenous Perspectives:

1. **Cultural Compatibility:** Does this technology support or threaten traditional knowledge systems?



2. **Community Control:** Can we maintain sovereignty over how this technology affects our community?
3. **Intergenerational Wisdom:** How do elders and youth together evaluate this technology?
4. **Environmental Impact:** Does this technology align with our responsibilities to the land?
5. **Sacred Knowledge Protection:** Can we protect sacred knowledge while using this technology?
6. **Community Benefit:** Does this technology serve our community's self-determined priorities?

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## Action Steps

1. **Convene Community:** Gather 5+ members to discuss data needs (1 week).
2. **Join or Start Node:** Register via SMS/email/Hub (2 weeks).
3. **Set Protocols:** Define governance using Quickstart Guide (1-2 weeks).
4. **Launch Pilot:** Start a project (e.g., cultural archive) within 1-3 months.
5. **Engage Globally:** Share protocols, join Indigenous Call-Ins.

### BRIDGE CONNECTIONS FOR ACTION

- **Include Youth Voice:** Engage young Indigenous people from the start - see Youth Guide Section 2 for Indigenous youth leadership
- **Community Coordination:** Work with broader local communities when appropriate - see Community Guide Section 7 for cultural bridge-building
- **Policy Advocacy:** Connect with Indigenous rights policy advocates - see Policymaker Guide Section 8 for sovereignty legislation
- **Ethical Foundation:** Ground all actions in traditional knowledge and values - see Ethics Guide Section 9 for Indigenous ethical frameworks

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## Resources

- **Indigenous Starter Kit:** Quickstart, Data Sovereignty Protocol, Voting Templates ([globalgovernanceframeworks.org/tools](https://globalgovernanceframeworks.org/tools)).
- **Guides:** Community, Youth, Ethics Toolkits ([globalgovernanceframeworks.org/tools](https://globalgovernanceframeworks.org/tools)).
- **Tools:** Oral Consensus Guide, SMS Voting, Field-Test Logbook.
- **Visuals:** Stewardship Cycle Poster, Data Sovereignty Map ([globalgovernanceframeworks.org/visuals](https://globalgovernanceframeworks.org/visuals)).
- **Support:** Email [globalgovernanceframeworks@gmail.com](mailto:globalgovernanceframeworks@gmail.com), text INDIGENOUS to 12345, or join Indigenous Call-Ins (first Tuesday, 10:00 UTC).
- **Crisis Support:** Text HELP to 12345 for urgent technical or cultural protocol assistance
- **Legal Resources:** Indigenous data rights templates and advocacy connections
- **Technology Assessment Tools:** Culturally appropriate frameworks for evaluating new technologies
- **Regional Networks:** Connections to Indigenous technology organizations in your region
- **Access:** Multilingual, oral, visual formats at [globalgovernanceframeworks.org](https://globalgovernanceframeworks.org).

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**Call to Action:** Indigenous communities can lead in stewarding digital resources with sovereignty and respect. Our traditional knowledge of governing commons provides essential wisdom for digital governance. Even when facing challenges, every Indigenous community's participation

strengthens both our sovereignty and the global movement for digital justice. Join a node, set protocols, or launch a project to protect your heritage while contributing to global digital justice. Download the Indigenous Starter Kit at [globalgovernanceframework.org/indigenous](https://globalgovernanceframework.org/indigenous) and begin today.