The Data Sovereignty Initiative Concepts

A Community Booklet Created

for Understanding Data Science Concepts

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Greetings!

My name is Joseph Robertson. I am an enrolled member of the Sisseton Wahpeton Oyate of the Lake Traverse Reservation.

I am the chief data scientist of a Native startup analytics company, Mato Ohitika Analytics LLC.

A data scientist is a person who works with data using statistics, computer science, and databases.

The Data Sovereignty Initiative is collection ideas that form the data sovereignty framework. This framework contains concepts that honor culture and utilizes scientific methods to solve real community problems.

This booklet has been designed to explain the concepts of the data sovereignty framework and how it works in solving community problems using data science.

Let's begin by looking some key concepts that form the data sovereignty framework, then how we form a smart solution.

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The Data Sovereignty Initiative Key Concepts

First, What is Tribal Sovereignty?

The concept of tribal sovereignty "recognizes and promotes interaction between tribes and non-tribal governments as a central element of self-governance.

Next, What is Data Sovereignty?

Data sovereignty is the use of data science to leverage a data-driven outcome as a strategic act of sovereignty.

What is Nation Building?

Nation building refers to efforts Native nations make to increase their capacities for self-rule and for self-determined, sustainable community and economic development.

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The Data Sovereignty Initiative Concepts

What is Data Science?

Data science, also known as data-driven science, is an interdisciplinary field of scientific methods, processes, algorithms and systems to extract knowledge or insights from data in various forms, either structured or unstructured, similar to data mining.

Data science is a 'concept to unify statistics, data analysis, machine learning and their related methods' in order to 'understand and analyze actual phenomena' with data.

What is Citizen Science?

Citizen Science refers to the general public engagement in scientific research activities when citizens actively contribute to science either with their intellectual effort or surrounding knowledge or with their tools and resources.

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The Data Sovereignty Framework

With these concepts in hand, let's move look at how Cultural, Scientific, and Inter-disciplines come together in the Data Sovereignty Framework:

The Data Sovereignty Initiative Inter-Discipline Blueprints

Cultural

- Tribal Governance
- Tribal Communities and Culture — **Key Indicator**

Scientific

- Data Management
- Data Domains — **Key Indicator**

*Each Discipline is Independent and Mutually Exclusive.

- Data Science
- Citizen Science — **Inter-Disciplinary**

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The Data Sovereignty Framework Concepts

Let's look at some additional properties of Key Indicators contained in the Data Sovereignty Framework:

Data Domains are defined as any data collection process that occurs in Tribal communities that can be understood to have specific meaning in the context of governance, economic development, or operational capacity.

Domains such as health care, transportation, education, enrollment, historic preservation, and census are all considered data domains.

The **Cultural Key Indicators**: Tribal Community and Culture and Tribal Governance are designed as consultation tools to work with tribal communities on data related projects by understanding the community and its cultural values before undertaking scientific projects on their behalf.
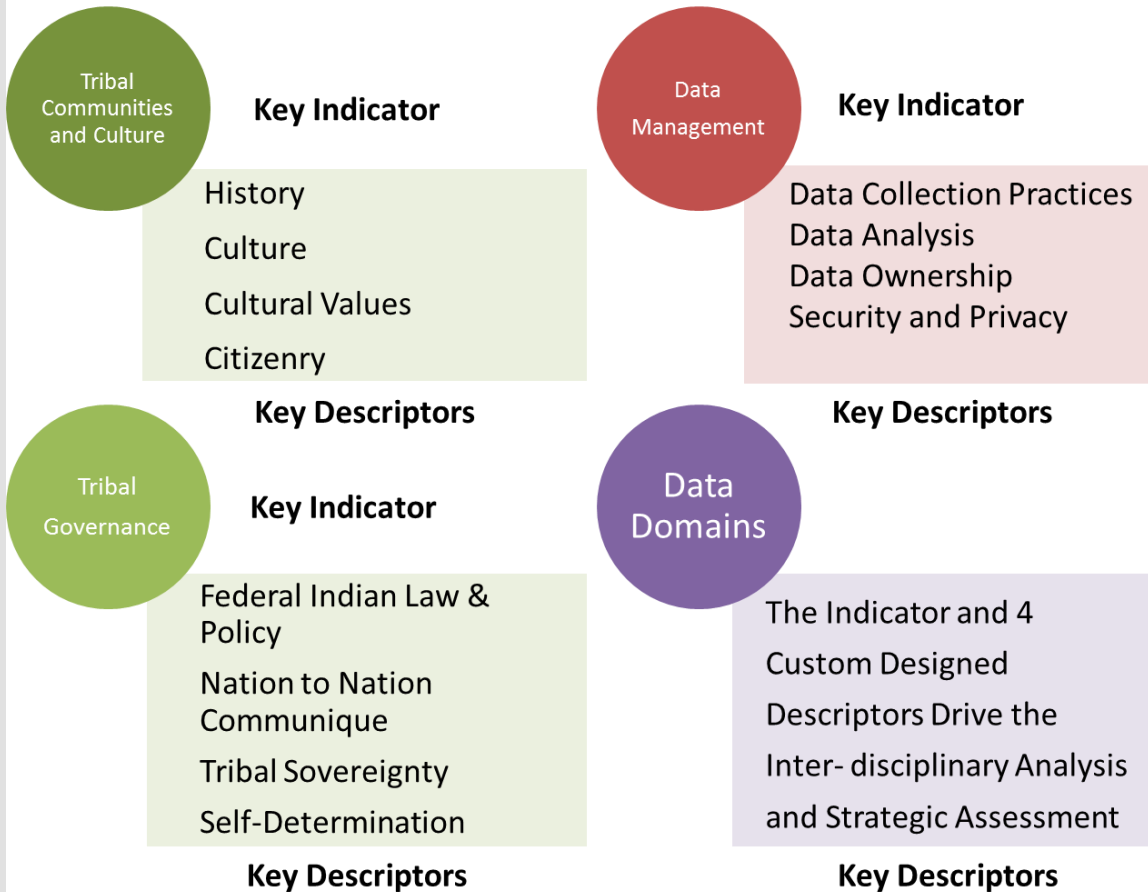
Data Management is the actual process that we design to solve a specific community challenge. This process could involve collecting, analyzing, or visualizing data so tribal officials can make informed decisions using a data driven approach. This also includes protection of tribal data.

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The Data Sovereignty Framework Key Indicators

The Data Sovereignty framework also contains key descriptors that allow for additional consultation on how to develop projects for specific community needs.

The Data Sovereignty Initiative
SMART Solution Key Indicator Blueprints

Tribal Communities and Culture

Key Indicator

History

Culture

Cultural Values

Citizenry

Key Descriptors

Data Management

Key Indicator

Data Collection Practices
Data Analysis
Data Ownership
Security and Privacy

Key Descriptors

Tribal Governance

Key Indicator

Federal Indian Law & Policy

Nation to Nation Communique

Tribal Sovereignty

Self-Determination

Key Descriptors

Data Domains

The Indicator and 4 Custom Designed Descriptors Drive the Inter- disciplinary Analysis and Strategic Assessment

Key Descriptors

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How to Form a SMART Solution

Gathering intelligence for key indicators help to organize cultural and scientific ideas that govern strategic assessments. Induction is the process by which we make generalizations about a particular problem needed to solve.

The key indicators allow for an inductive approach to begin discussion on how to properly bridge the cultural and scientific metrics and to rank these indicators in order of priorities.

This flexible way of creating context when working with communities and their culture is crucial in using scientific methods to solve specific data related problems.

Data sovereignty is the act of creating systems of data ownership for tribes to take control of their data for their own use.

Cultural key indicators represent one way to address data originating from an individual tribe; however it is up to the tribal group to decide what information is shared or kept private.
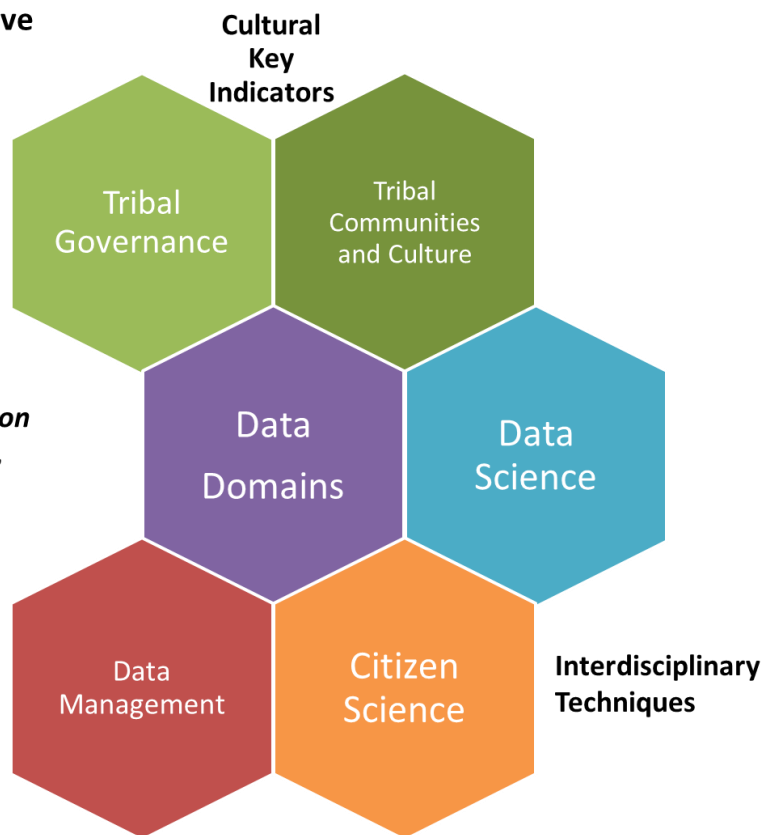
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The Data Sovereignty Initiative SMART Solutions Blueprint

Once we have gathered cultural and scientific indicator information and utilized the interdisciplinary techniques of citizen science and data science, this information forms a SMART solution.

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MATO OHITIKA **SMART Solutions**
Blueprint

Cultural Key Indicators

The Careful Interlocking of Disciplines forms a _SMART Solution_ by integrating Cultural, Scientific, and Interdisciplinary methods of Design and Consultation.

Tribal Governance

Tribal Communities and Culture

Data Domains

Data Science

Scientific Key Indicators

Data Management

Citizen Science

Interdisciplinary Techniques

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The Data Sovereignty Initiative in Practice

The Data Sovereignty Initiative's data sovereignty framework was designed to work in any situation to critically assess the operational capacity of an organization's data driven wants and needs.

Let's Look at Some of the Possible Data Driven Topics a Tribal Community Can undertake using the Data Sovereignty Framework:

- Tourism Analysis
- Census 2020
- Tribal Traffic Safety
- Transportation
- Tribal Historic Preservation
- Higher Education
- Health Care
- Casino Revenue Analysis
- GIS Mapping of Infrastructure
- Climate Change

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The Data Sovereignty Initiative in Practice

Mato Ohitika Analytics LLC has expertise in data collection and management, survey design, inferential statistics, modeling such as regression and spatial and temporal GIS solutions. The primary focus of Mato Ohitika Analytics LLC is the integration of the Data Sovereignty Initiative Framework design which entails:

- Strategic Planning
- Research Analysis
- Database Management
- Statistical Modeling
- Geospatial Analysis
- Simulation and Machine Learning
- Artificial Intelligence Research

Please contact Mato Ohitika Analytics LLC for more information on how the Data Sovereignty Initiative Framework can work for your organization.

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For More Information about

the Data Sovereignty Initiative Concepts

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