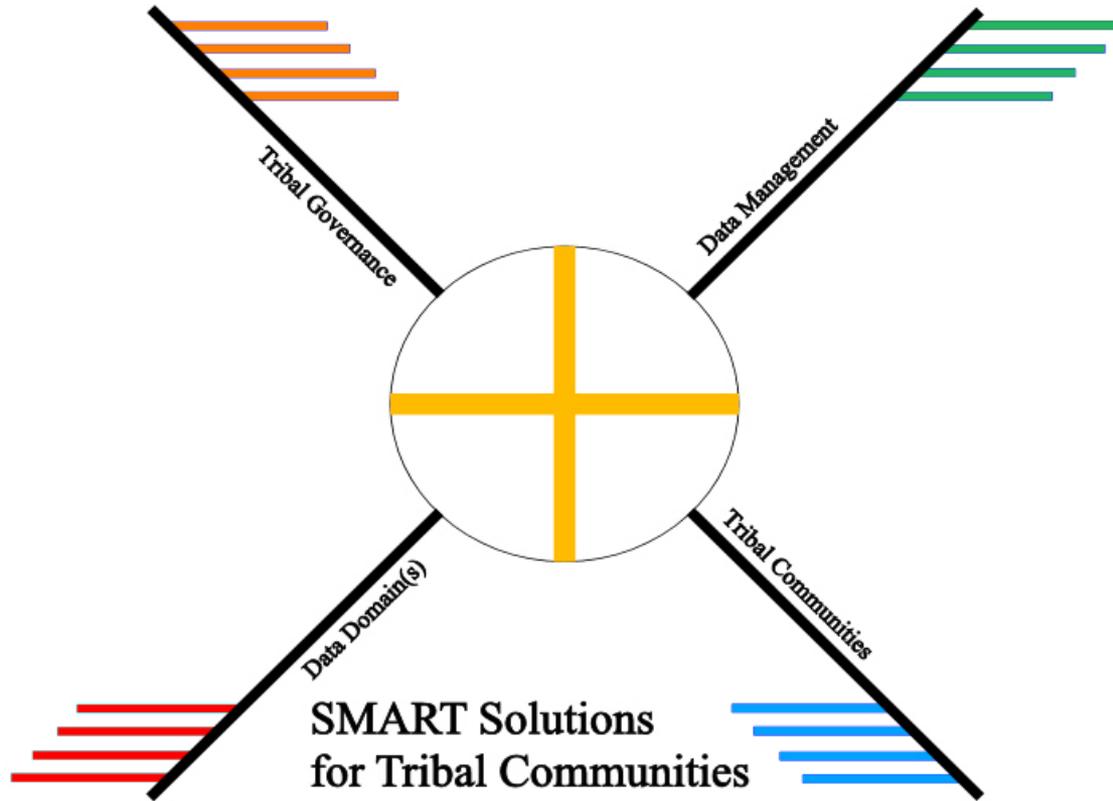


The Data Sovereignty Initiative





The Effect of Data Sovereignty on American Indian Self-Determination: A Proof of Concept through the Data Sovereignty Initiative

Joseph C. Robertson

Mato Ohitika Analytics LLC

PhD Candidate, Computational Science and Statistics

South Dakota State University

Advisor, Dr. Gary Hatfield

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Outline of Today's Talk

- Introduction
- My background
- Previous and Current Work
- What is Data Sovereignty?
- Key Indicator Design
- Key Descriptor Design
- Tribal Traffic Safety, a Proof of Concept
- Conclusions

Joseph at a Glance

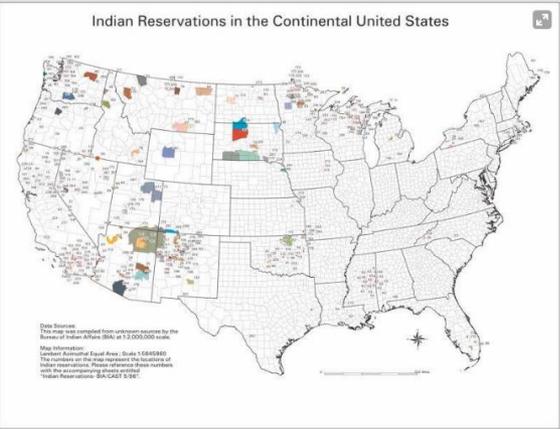
- Enrolled member of the Sisseton Wahpeton Oyate on the Lake Traverse Reservation
- B.S. Mathematics, Colorado State University (2006)
- Highly Qualified Mathematics Certification K-12
- M.S. Statistics, South Dakota State Univ. (2014)
- PhD Candidate Computational Science and Statistics, South Dakota State University (current)
- Consultant and CEO of Mato Ohitika Analytics

Previous and Current Work

2016 ESRI UC Tribal Story Map Third Place Winner

A story map    

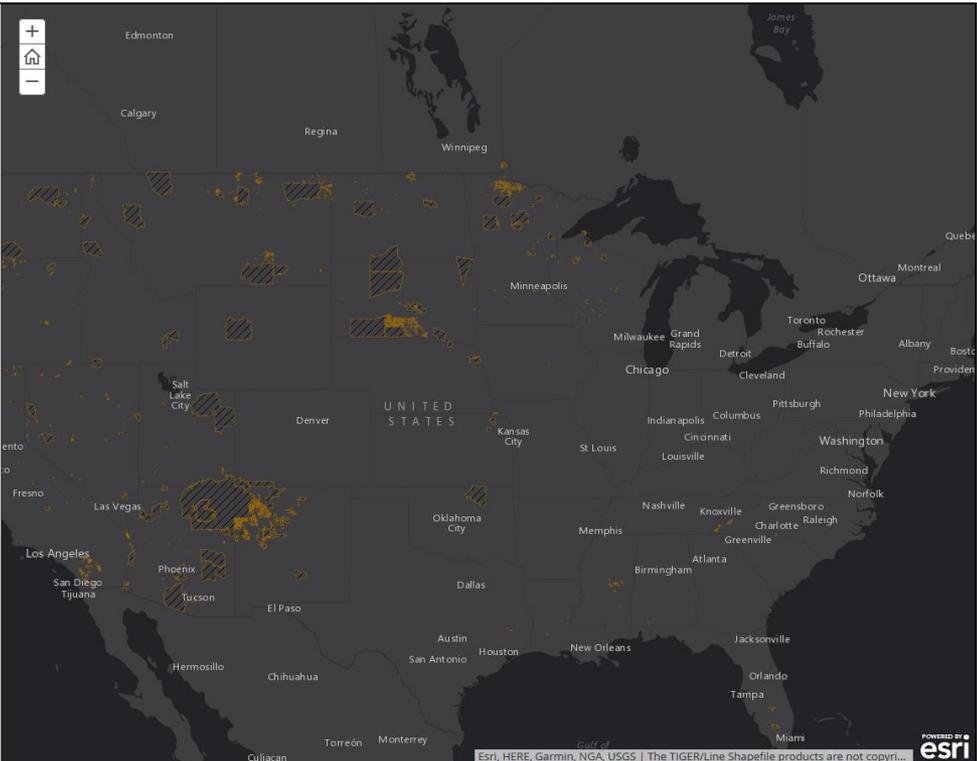
The Impact of Data Sovereignty on American Indian Self-Determination

Indian Reservations in the Continental United States 

Data Source:
The map was compiled from information received by the Bureau of Indian Affairs (BIA) at 1:250,000 scale.
Map Information:
The numbers on this map represent the locations of Indian Reservations. Please understand that the numbers on this map do not represent the actual boundaries of the reservations. For more information, visit the website: www.bia.gov or call 1-800-755-8611.

Felix Cohen (2012) in *Federal Indian Law* wrote:

"Every week two maps appear on the front page of Indian country today, the most widely circulated Native American newspaper. The two maps remind readers of the impact that 500 years of



Esri, HERE, Garmin, NGA, USGS | The TIGER/Line Shapefile products are not copyr... 

go.esri.com/Data2016

Today's Talk

This concept has been in development for over three years and today's talk is to discuss the progress since the 2016 UC Story Map Challenge by introducing the:

Data Sovereignty Initiative Framework
(proof of concept)

What is Data Sovereignty Initiative?

The scope of this work is to develop a tribal governance framework using data sovereignty as a mechanism for promoting appropriate data collection and practice.

The framework design is a multidimensional approach which the author has developed through personal experiences in consulting with American Indian tribes and Non-Indian stakeholders.



Project Overview

To develop an Indigenous horizontal governance framework using a set of well-defined key indicators and descriptors to achieve parity with not only cultural aspects; but pair them with data-driven metrics to produce an act of sovereignty that benefits a Tribe's economic development efforts through data science.

The Difficulties of Asserting Tribal Sovereignty in the Era of Forced Federalism

Corntassel and Witmer,

Forced Federalism: Contemporary Challenges to Indigenous Nationhood

Claims by tribes in the United States for the rights to exercise self-determination and self-governance are most often made through an appeal to the concept of tribal sovereignty.

Tribal sovereignty is supposed to serve as both a justification for these rights (i.e. 'as tribes, we are sovereign entities and, therefore, ought to be able to exercise these rights'), as well as a guiding principle that enables tribes to delineate boundaries and authorities between themselves and other polities.

The Difficulties of Asserting Tribal Sovereignty in the Era of Forced Federalism

Corntassel and Witmer(continued)

To claim that tribal sovereignty embodies a right to self-determination or a right to self-governance is to put forward a concept that does much more in theory than it does in practice.

The concept of tribal sovereignty is one that promotes intergovernmental relations with non-tribal governments and which takes the principles of equitable interaction and political coordination as central to its operation.

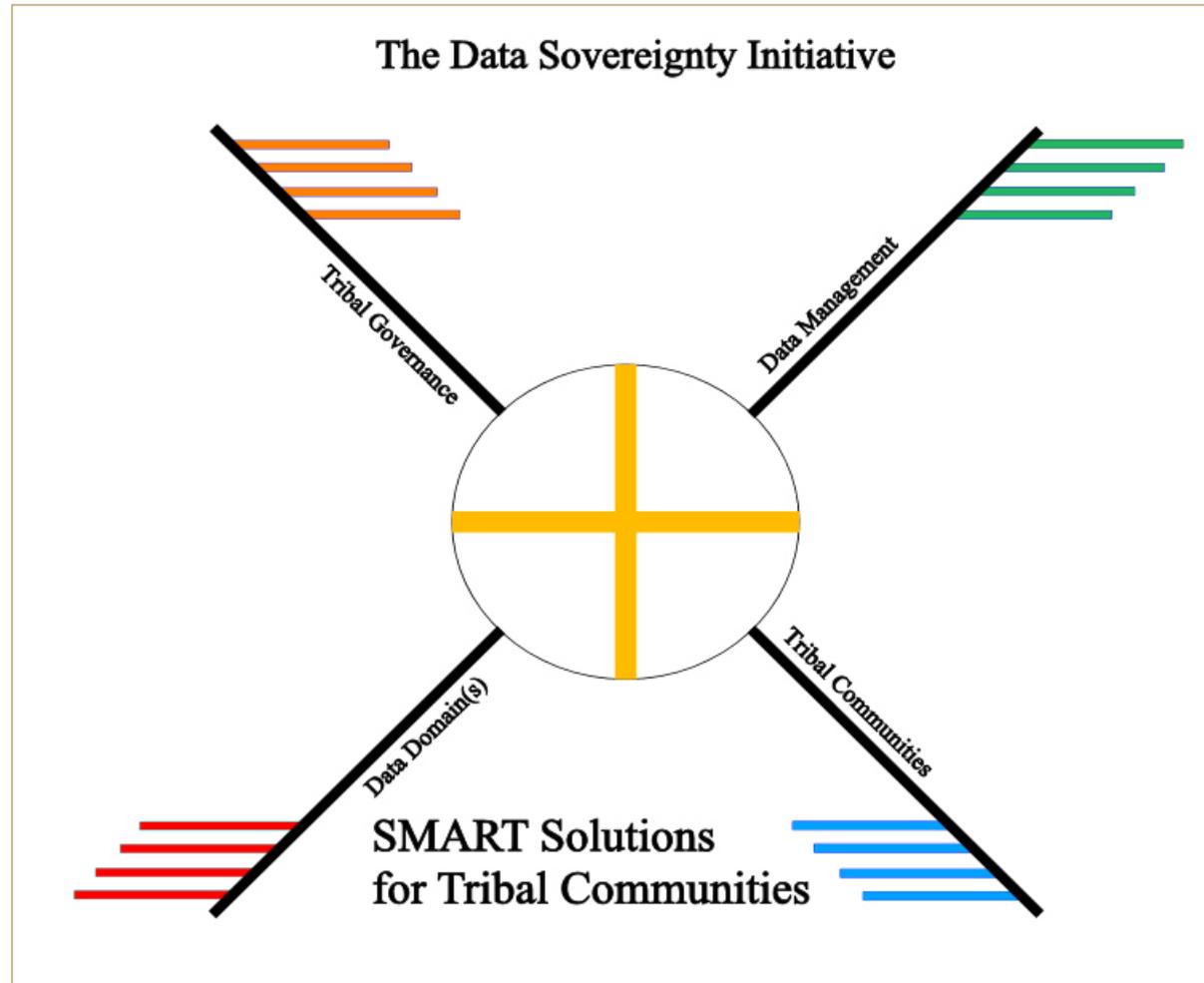


The Focus of a Native-centric Governance Framework

“The challenge is for indigenous nations to move beyond the rhetoric of nation-building models and find new solutions and tools.”

Corntassel, 2008).

The Data Sovereignty Framework Design





Structure of Designing an Indigenous Horizontal Governance Model

Data Sovereignty Key Indicators

The key indicators represent two distinct groups of cultural and data driven metrics

In order of importance:

1. Tribal Communities
2. Tribal Governance
3. Data Management
4. Data Domain(s)

Data Sovereignty Key Descriptors

Each dimension drives a decision-making process to allow for specific framework diagnostic questions to be developed using the paired key descriptors below:

Data Sovereignty Key Descriptors with Each Respective Key Indicator

| Tribal Communities | Tribal Governance | Data Management | Data Domain: Tribal Traffic Safety |
|--------------------|--------------------------------|---------------------------|---|
| History | Federal Indian Law & Policy | Data Collection Practices | Implications of Tribal Traffic Report |
| Culture | Nation to Nation Communication | Data Analysis | Integrating Existing Traffic Research Methods |
| Cultural Values | Sovereignty | Data Ownership | Rural vs. Urban |
| Citizenry | Self-Determination | Security and Privacy | GIS Prototype Development |

Key Concepts Regarding the Descriptors

The design templates developed for the diagnostic tools in the next section rely on the key descriptors to remain fixed with the exception of data domain; which can be regarded as the indicator that can encompass any task a tribe needs to analyze. This maintains the integrity of the framework design.

In addition, it is important to prioritize the cultural design metrics first. Allowing tribal citizens to contribute in an overall governance strategy is an important aspect in indigenous nation building: To be stable and effective in self-governing, governmental systems have to fit with the way a particular culture answers questions of who, what, where, and how.



Key Indicator Definitions: The Higher Education Component

Key indicators are aligned to adhere to the research objectives and provide theoretical background information that is the basis of the diagnostic tool constructs for analysis.

These definitions are a set of guidelines establishing past or current work in each respective field, whether it is Federal Indian Law, governance strategies, or understanding research design principles.



Key Indicator Definitions: The Higher Education Component

The four definitions are:

Tribal Communities - Culture Matters

Tribal Governance - Sovereignty Matters

Data Management - Unifying Data in Indian
Country is Paramount

Data Domains - An Open Way to Examine
Data-driven Decision-
Making



Step 1: Inductive Reasoning in Assigning Key Indicator Priorities

The framework is intended to inductively generalize a rank or order of key indicators simply as a starting point in the analysis.

Step 2: Diagnostic Evaluation of Key Descriptors

Once a rank of key indicators has been established, an examination of the key descriptors can begin. It was established previously, every key indicator's descriptors remain constant to provide a way to uniformly assess the interaction of governance, community and data practices. The next step is to evaluate the level of fulfillment each descriptor plays in contributing to the selected data domain.

For instance, if the tribal government has an existing agreement with a stakeholder in analyzing traffic data, then not only is nation to nation communique fulfilled, but data ownership, security and privacy may also have been established as well. Thus, examining other key descriptors such as to conducting further data analysis would be of higher priority in goal setting.

Step 3: Exploratory Analysis of the Targeted Data Domain

Once the key descriptors have been examined, then a formal exploratory analysis can begin. In design theory, an exploratory analysis will provide an assessment of information already collected or need to be collected, design options, looking at operational capacity, or how to unify existing structures with the purpose of creating a unified set of practices to produce more measurable outcomes.

After examining the specific metrics of interest, a comprehensive plan can be produced to begin creating infrastructure for more advanced techniques. Some analyses may simply remain on the exploratory level because tribes are only interested in reporting descriptive measures; however the exploratory process also provides flexibility to undertake any number of more advanced techniques to advance a data domain beyond this level of evaluation.

Step 4: Development of Tiered Set of Advanced Analyses (if necessary)

The final step in this process is once an exploratory analysis has identified areas of interest that tribes choose to explore beyond the scope of descriptive measures; a statistical design framework can be established to advance techniques of higher order such as regression, geospatial, or logistic modeling, machine learning, point process, pattern recognition or predictive analytics.

The body of techniques to advance data beyond just qualitative are well established and these techniques are extremely powerful in asserting data sovereignty's maximum potential to assist tribes in asserting sovereignty as a matter of self-determination in any number of policy outcomes that will benefit tribes in any data domain of their choosing.

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Example of Proof of Concept with Dr. Tom Horan and Claremont Graduate University

Permissions and on going work prevents these slides from being released until closer to UC.



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Preliminary Conclusions and Future Thoughts

We want to achieve a state in which these actions are part of a bigger strategy on data collection and management as the central driving force for change in Indian Country.

Because of the complexity of each tribal nations unique histories, simply ignoring what communities have fought for and represent is one of the reasons a data-driven approach is necessary.

References

- Bardach, E. (2012). *A Practical Guide to Policy Analysis*. Los Angeles, CA:CQPress.
- Brayboy, B.M.J., Fann, A.J., Castagno, A.E., Solyom, J.A. (2012). *Postsecondary Education for American Indian and Alaska Natives*. Hoboken, NJ:Wiley Periodicals Inc.
- Freire, P., (1985). *Politics of Education: Culture, Power, and Liberation*. Westport, Connecticut: Bergin & Garvey.
- Hilbe, J.M., (2009). *Logistic Regression Models*. Boca Raton, FL: Taylor and Francis Group, LLC.
- Peters, A., MacDonald, H. (2004). *Unlocking the Census*. Redlands, CA:ESRI.



This concludes the talk.

Thank You!

joseph-robertson@hotmail.com