

Leveraging Data Science for Community
& Economic Development in Practice:
A Mato Ohitika Analytics LLC Company Brief



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Specializing in American Indian and
Tribal Government Data Science Solutions
Machine Learning and Artificial Intelligence
Research and Development

The Data Sovereignty Initiative
Services and Philosophy

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Mato Ohitika Analytics LLC Guiding Principles

Joseph Robertson, PhD is an enrolled member of the Sisseton Wahpeton Oyate of the Lake Traverse Reservation located in northeast South Dakota. As a Dakota citizen, he has always strived to adhere to principles that reflect our community, cultural values, history, and ethics that advocate for equitable interaction between our Tribal communities and non-tribal stakeholders to maximize a data driven approach to solving problems.

These principles are centered around:

- Native-Centric Design Strategies
- Horizontal Hybridized Governance Structures
- Integrity in Data Driven Decision Making
- Open Source Information Technology Through Nation Building

The Data Sovereignty Initiative and Philosophy

I have developed a concept called the Data Sovereignty Initiative, Creating SMART Solutions for Tribal Communities. It is a native-centric horizontal governance framework designed to create SMART solutions for tribal communities. The fundamental reason that I have pursued this area of study is to provide an ethical, cultural, and community based consultancy that is designed by an American Indian, for nation building to assist tribal communities with economic development, strategic planning, and data driven decision-making.

Strategic Planning Consults

Strategic planning is at the heart of using data science in meaningful ways. As data science has exploded in the last five years, many companies and organizations have been requesting the services of data scientists. How we define data science is subjective and in many instances organizations know they need something data-related but do not understand where to start.

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. First, we begin with:

- Strategic Assessment of an organization's data capacity
- Develop a strategic plan to begin organizing how to accomplish objectives
- Begin constructing a comprehensive plan to create *measurable* outcomes

Mato Ohitika Analytics LLC Services

Data science is subjective term used to describe the constant merging of statistical theory, machine learning, data management and visualizations. My expertise comes from theoretical mathematics and statistics. Thus, I look at data analysis from design theory first, and then use techniques of exploratory data analysis (EDA) concepts to assess the nature of the hypothesis a client is trying to solve.

The primary focus of Mato Ohitika Analytics LLC current business consults is the integration of Mato Ohitika Analytics LLC's Data Sovereignty Initiative Framework Design which entails:

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

Mato Ohitika Analytics LLC has expertise in data collection and management, survey design, inferential statistics, modeling such as regression, geospatial analysis, autoregressive technique in spatial and temporal GIS solutions, point patterns, point processes, as well as work in machine learning such as support vector machines, predictive analytics, and types of multivariate analyses including dimension reduction and pattern recognition.

Research and Development

'Research and development is a crucial task when designing data science outcomes.'

Statistical design theory was a generic way to emphasize the importance of data driven decision making. Too often, data is collected with no regard as to how the data should be analyzed, rather than could be analyzed. The data sovereignty framework key indicator Data Management encompasses the idea of design of experiments, data collection and practice, as well as establishing ways of continually refining and testing collected data to optimize explanatory power and minimizing error variance.

This was what is meant by statistical design theory: using current and established statistical principles to guide all types of data analysis. Data science is the act of incorporating these principles to exact an outcome. The benefits of this approach will undoubtedly provide more meaningful insights to data driven decision making.

Since there are many stages of data collection or practice that are always ongoing in many organizations; I think it is important to consider strategic management and planning when incorporating data science into workflows. The brief workflow below is an example how I would approach an initial consultation with any client needing the expertise of a data scientist.

To evaluate the strengths and weaknesses of any statistical process, it is imperative to develop a statistical methodology framework which usually follows a general hierarchy of:

- Examining any descriptive statistics pertinent to a particular study
- Develop and test a number of Exploratory Data Analysis (EDA) techniques that provide a basis for more complex methodology and inference
- Using the information from the EDA, to create a formal inferential hypothesis for examining more complex processes that may exist beyond the first stage of the current project.
- Repeat the process until a strategic assessment has been developed
- Design a strategic plan to implement a designed data domain

In conclusion, the goal is to move beyond simple descriptive measures and begin a more robust process that favors data driven decision making using citizen science.

Mato Ohitika Analytics can provide a number of researched methodologies in statistics from data queries and visualizations, the basics of hypothesis testing, and more advanced topics of modeling such as logistic regression, geospatial modeling, etc.

Mato Ohitika Analytics LLC Data Privacy and Security

Mato Ohitika Analytics LLC has a strict data privacy policy and information given for examination, analysis, visualization, or storage will be stored remotely in a no knowledge peer to peer encrypted cloud service. This information will never be shared, sold, or disseminated in any way. In the event a preliminary analysis has begun on behalf of a client; any data, pictures, notes, or concepts will always be protected under this policy regardless if a “Definitive Agreement” has been established at the time of initial data analysis. This retroactively protects clientele data until such time a formal data agreement is in place.

Mato Ohitika Analytics LLC Contact Information:

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Lead Consultant and Sole Proprietor:

Joseph C. Robertson, PhD - Data Scientist, Strategic Planner, and Data Architect

Mato Ohitika Analytics LLC Data Usage Policy (January 2020)

I. Introduction and General Terms:

Mato Ohitika Analytics LLC is committed to safeguarding any information obtained in working with organizations, tribal governments, or any entity contracting with Mato Ohitika Analytics LLC for data science solutions, consultations, and training.

For the purpose of the Act, the Data Controller is Mato Ohitika Analytics LLC, a Native American owned Startup Company located in the state of South Dakota, USA.

This Data Usage Policy sets out how Mato Ohitika Analytics LLC collects information for use in data collection, practice, and analysis. In addition, Mato Ohitika Analytics LLC protects any personal information you provide to the company, whether online, via phone, text, email, in letters or other correspondence.

II. Who is Mato Ohitika Analytics LLC?

Mato Ohitika Analytics LLC is a sole proprietorship owned and operated by Joseph Robertson, PhD. The company maintains a business website at www.bravebearanalytics.com. Mato Ohitika Analytics LLC is a limited liability company registered in the state of South Dakota, USA under the business ID DL133148 and is located in Sioux Falls, South Dakota, USA.

To contact Mato Ohitika Analytics LLC, inquiries can be directed either through the contact page of the company's website: <http://bravebearanalytics.com/contact.html> or by direct phone: (605) 691-2248.

Mato Ohitika Analytics LLC is a data analytics company that provides strategic planning consultations, statistical analysis, and data reporting. This means that Mato Ohitika Analytics LLC will manage and secure your data through business strategies designed to provide the maximum security through end to end data encryption at all levels of interaction with the "Client".

III. What information does Mato Ohitika Analytics LLC collect?

Mato Ohitika Analytics LLC only collects information pertinent to the "Client" and the agreed data science solutions needed for any consultations, data collection and analysis needed for the agreed terms of the contract.

Mato Ohitika Analytics LLC collects information only for the purposes of providing the services agreed to any is outlined in the proceeding section. Mato Ohitika Analytics LLC will use this information only for the services agreed to, and in no way will this information be shared, sold or disseminated in any way without the expressed and written consent of the "Client".

IV. How will Mato Ohitika Analytics LLC use the information collected about you?

Mato Ohitika Analytics LLC will use the information provided to the company for:

- A. Administratively, to obtain information about the “Client” for:
 - Obtaining contact information
 - To communicate information through the proper channels for reporting
 - For prevention of fraud, theft or loss;
- B. Consultation / Project based information based on agreed project metrics:
 - To assess and provide strategic assessments of the data needing to be analyzed
 - Provide guidance on the project status
 - Deliverables pertinent to the project objectives
 - Delivering all information to stakeholders for review
 - To contact you for any other purposes that Mato Ohitika Analytics LLC state and you have expressly agreed to.

V. Will Mato Ohitika Analytics LLC share my personal information with anyone else?

Mato Ohitika Analytics LLC will never share information without the expressed and written consent of the “Client”.

VI. How long will Mato Ohitika Analytics LLC keep my personal information?

Mato Ohitika Analytics LLC will hold your personal information on its systems for as long as is necessary to discharge contractual obligations to you and/or only for so long as Mato Ohitika Analytics LLC has a legitimate purpose for doing so.

VII. Security

Mato Ohitika Analytics LLC is committed to the security of your personal information and has security procedures in place to protect the loss, misuse or alteration of information under the control of Mato Ohitika Analytics LLC.

VIII. Changes to our Data Usage Policy:

This Data Usage Policy may be updated from time to time. Mato Ohitika Analytics LLC will notify the “Client” as to any changes that affect the standing under this Data Usage Policy.