

# RISE NEW MEXICO

*New Mexico's Statewide Longitudinal Data System*

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# New Mexico's Statewide Longitudinal Data System

Research Informing Success in Education (RISE NM) or the New Mexico Longitudinal Data System (NMLDS) is a resource for reliable statewide cross-agency data and reports.

RISE NM's mission is to expand accessibility and usability of cross-agency statewide educational and workforce data.

This tool will help drive informed decision- and policy-making that produces positive impacts to education and workforce outcomes while protecting individual privacy and confidentiality.



# How It All Started

Although one of the last states to build a statewide longitudinal data system (SLDS), New Mexico had an ambitious vision for its entrance into the SLDS space



First cloud-native SLDS in the country



Data available from pre-k through workforce



Join 19 other states who had full early education-to-career systems as of December 2021



5 contributing government agencies



4 implementation technical vendors



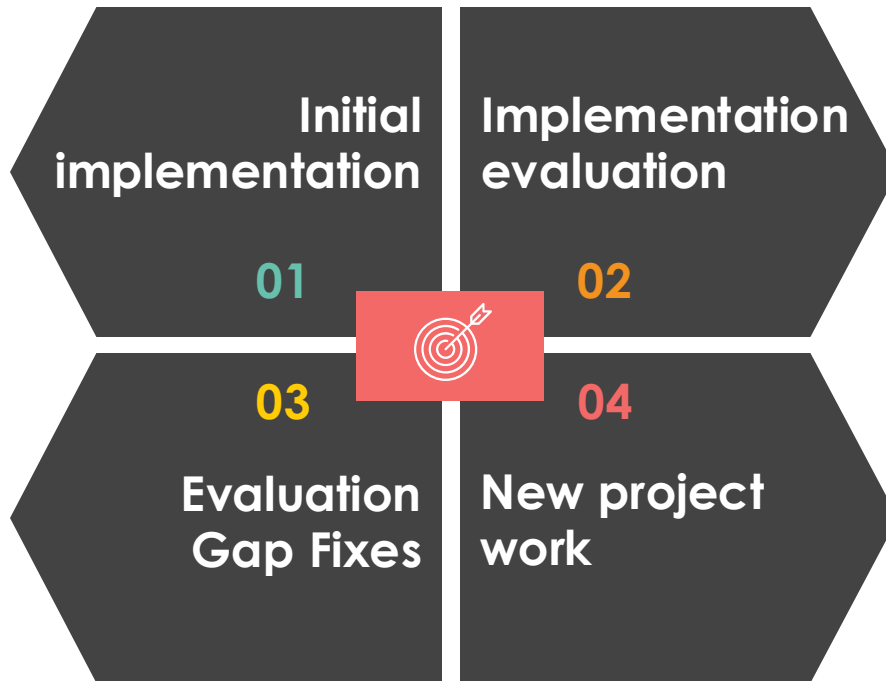
11 source data systems



250+ visualization requirements



1-year implementation timeline





**NEW MEXICO  
HIGHER EDUCATION  
DEPARTMENT**

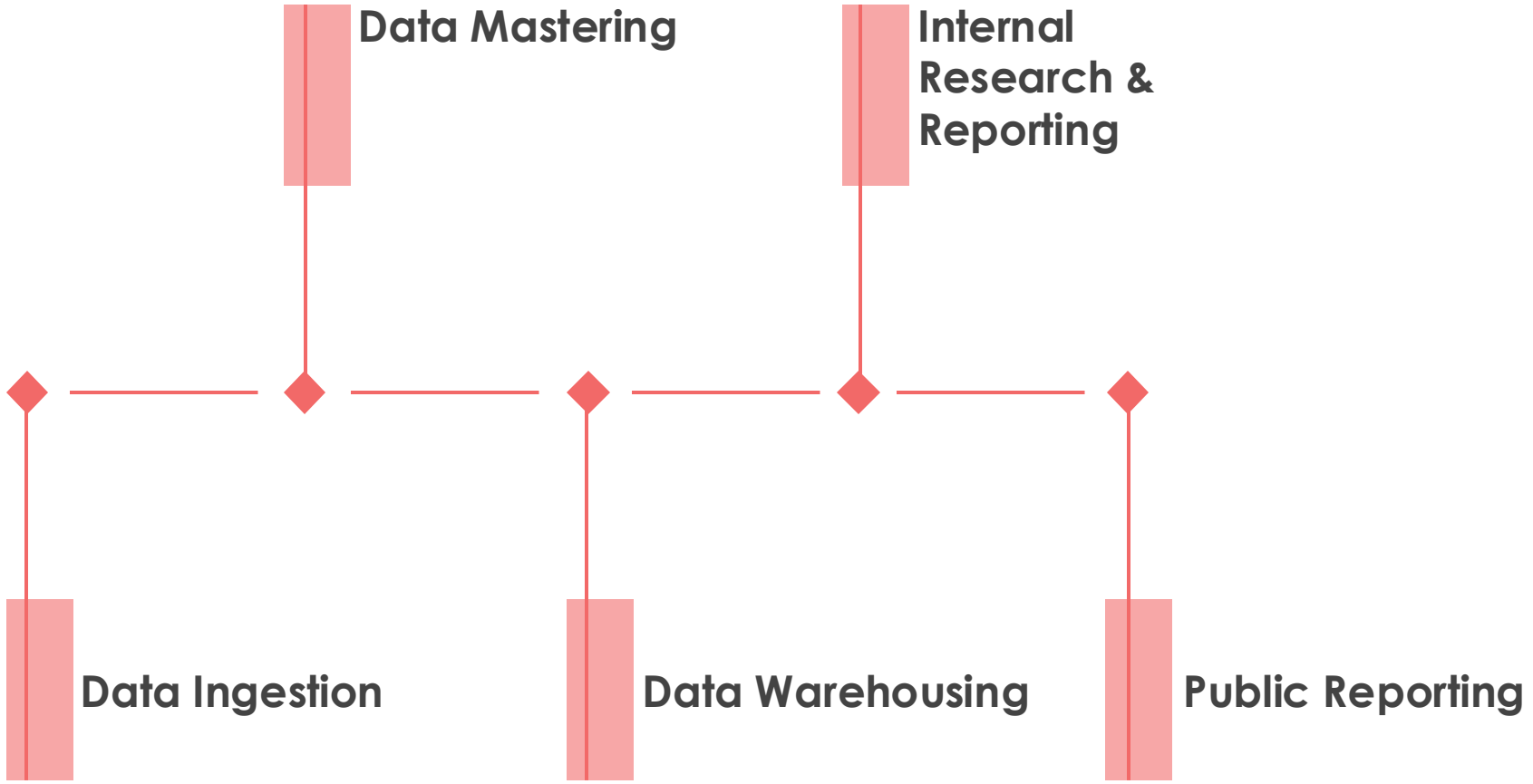


*Fostering Student Success from Cradle to Career*



# Data Sources

Agency	Data System
Early Childhood Education and Care Department (ECECD)	Early Childhood Observation Tool (ECOT)
ECECD	Enterprise Provider Information and Constituent Services (EPICS)
Public Education Department (PED)	Professional Licensure System
PED	PED K-12 State Longitudinal Data System
Higher Education Department (HED)	Electronic Data Editing and Reporting (eDEAR) System
HED	Literacy, Adult and Community Education System (LACES)
HED	National Student Clearinghouse
Division of Vocational Rehabilitation (DVR)	Case Management System (CMS)
Department of Workforce Solutions (DWS)	New Mexico Workforce Connection
DWS	Unemployment Insurance Tax and Claims System (UI Tax and Claims)



**Entity Resolution**

**Data Matching**

**Record Linkage**

Identifying the same individual  
across datasets containing  
different identifiers and  
personally identifiable  
information

## SSN Match

*workforce.ssn == highered.ssn*

## SSN and Date of Birth

*workforce.ssn == highered.ssn  
and workforce.dob == highered.dob*

## Name

*workforce.last\_name == highered.last\_name  
and workforce.first\_name == highered.first\_name  
and workforce.middle == highered.middle*

## SSN Match

`'000-46-7923' == '000-64-7923'`

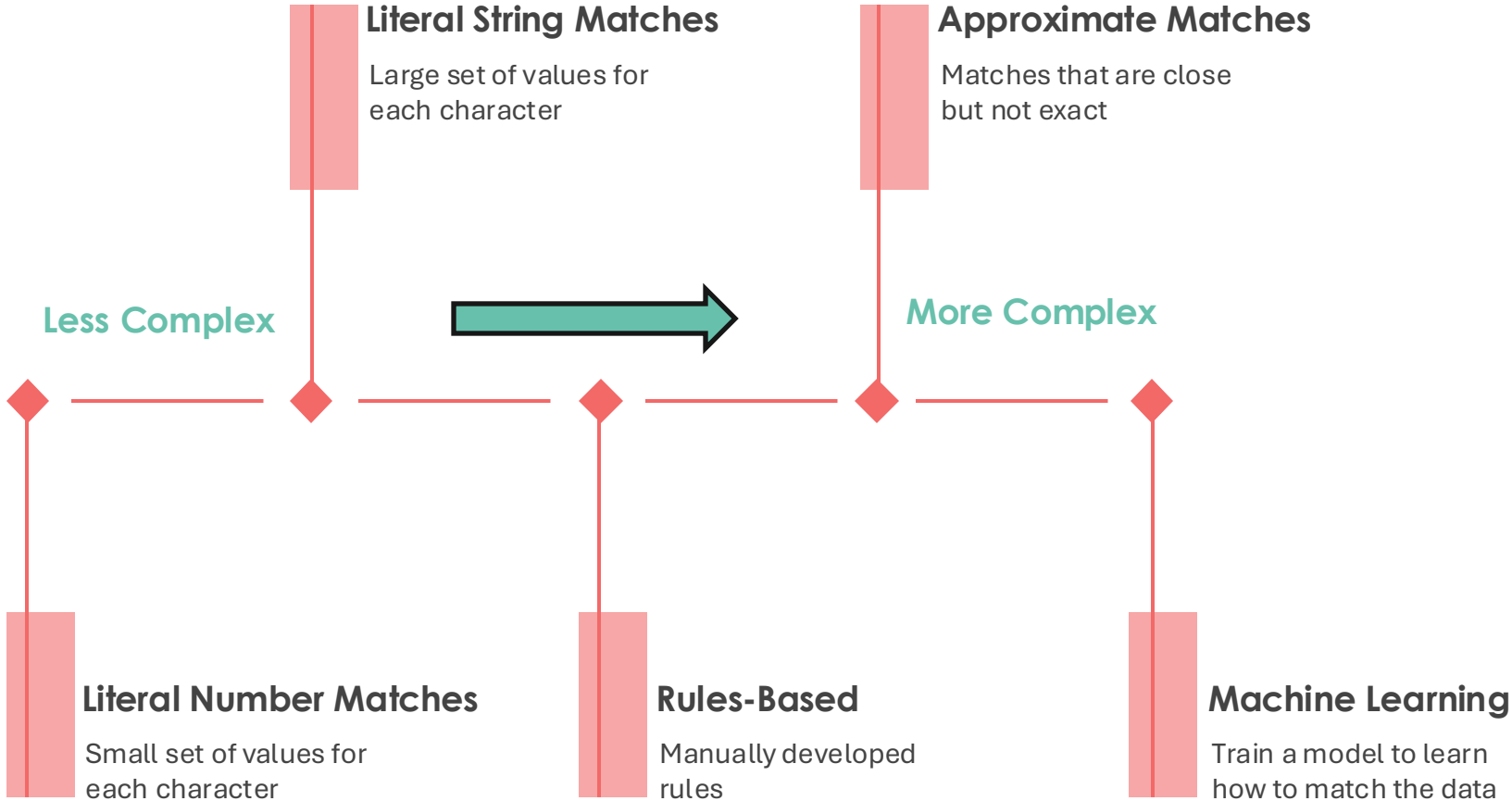
## SSN and Date of Birth

`'000-46-7923' == '000-64-7923'`  
and `'1975-06-12' == '06/12/1975'`

## Name

`'Doe' == 'doe'`  
and `'Jane' == 'Jan'`  
and `'M' == ''`

SSN	First Name	Middle Name	Last Name	Date of Birth	Phone Number	Email
000-14-5847	Jan		Doe	1995-01-02	(123) 456-7890	<a href="mailto:janed@mail.com">janed@mail.com</a>
000145847	Jane		Do	1995-01-20	1234567890	janed@mail.com
000-14-5847				1995-01-02		
000-41-5847			Doe	1995-01-02		
	Jane	Ellen	Doe	1995-01-02	456-7890	janey@umail.com
000-67-2903	Jen	E	Doe	01/02/1995	123-456-7890	janed@mail.com



### Literal String Matches

Large set of values for each character

### Approximate Matches

Matches that are close but not exact

Less Complex

More Complex

### Literal Number Matches

Small set of values for each character

### Rules-Based

Manually developed rules

### Machine Learning

Train a model to learn how to match the data

# Approximate Matches



**Pattern Matching**



**Soundex**



**Edit Distance**



**Similarity Measures**



**N-Grams**

# Machine Learning



**Learning from  
Training Data**



**Evaluation**



**Explainability**



**Specialized  
Skillsets**



**Monitoring and  
Maintenance**



**Hyperparameter  
Tuning**



**Unsupervised vs  
Supervised Learning**

# Other Applications

## Golden Record

Create a single source of truth for an individual and for certain attributes and across datasets

## Feature Standardization

Use the same matching process we used for individuals earlier but now for other entities across datasets

## Cross-Matching

Use the power of the matching system to aid agencies with more specific cross-agency data needs

# Prioritized Research Questions



01

How do measures of school readiness vary by early childhood programming factors and demographics?



02

How do measures of college and career readiness vary by demographics, district, and locale?



03

How do employment metrics vary by demographic characteristics, workforce area, educational attainment level, and study program?

# Kindergarten Readiness

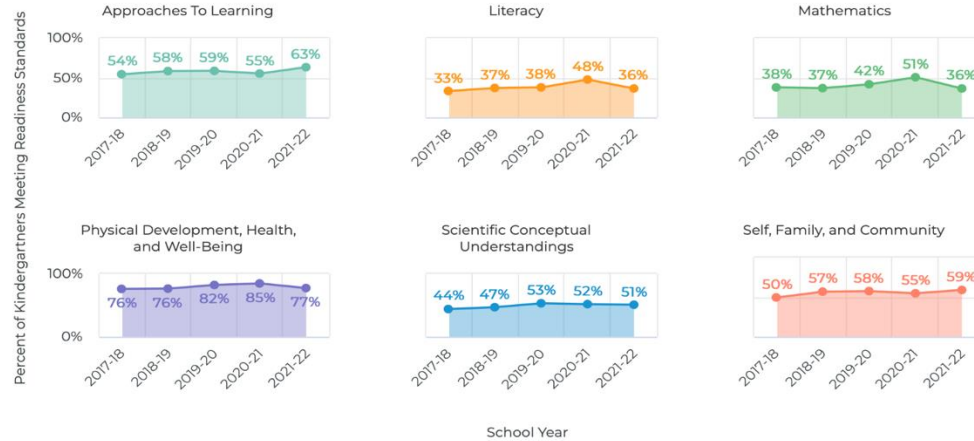


Primary Language

is Diné

C

## New Mexico Kindergarten Readiness by Primary Language





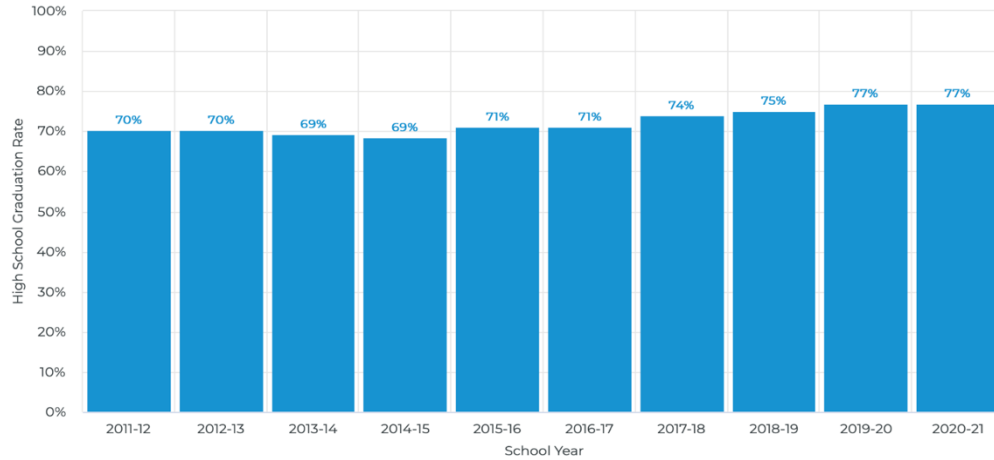
Years students took to graduate high school \* School \*

4 Years 5 Years 6 Years

Statewide X ▾



New Mexico High School Graduation Rates

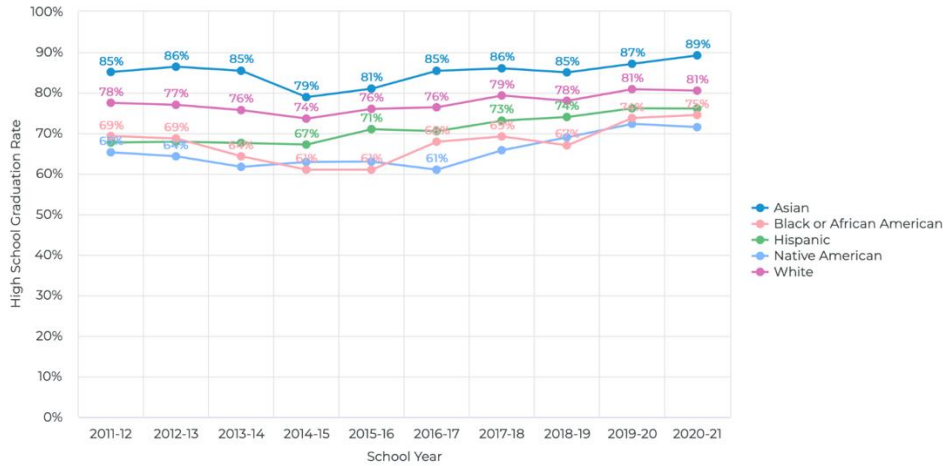


# High School Graduation Rates

Years students took to graduate \* School \*

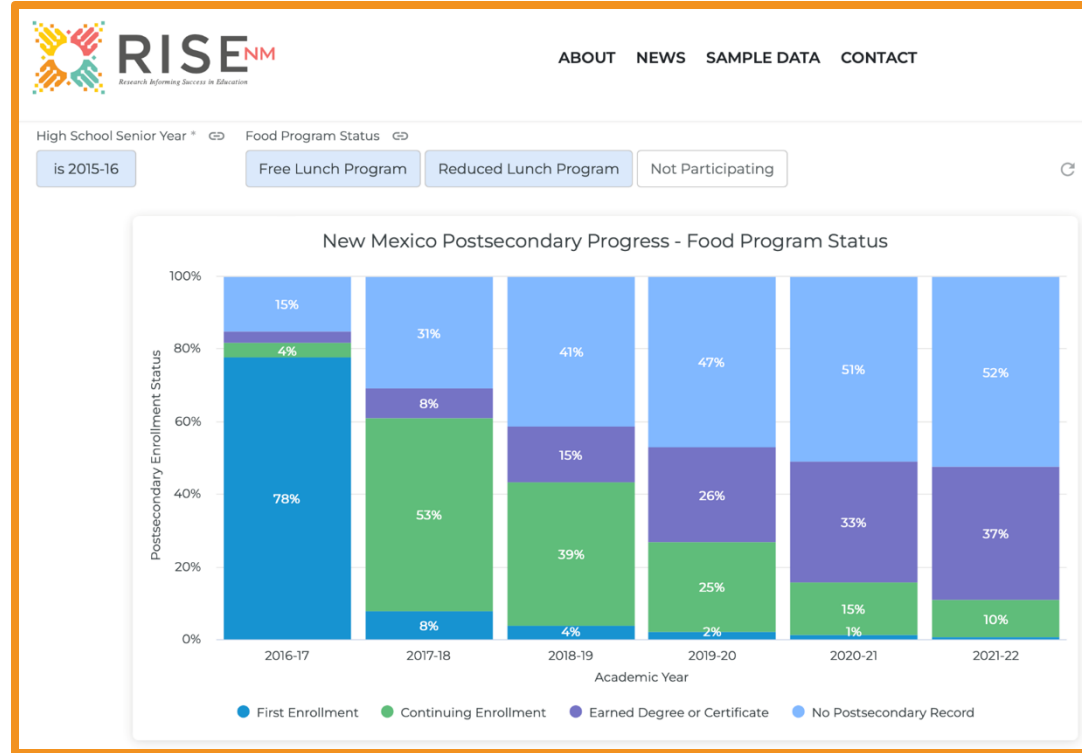
4 Years 5 Years 6 Years Statewide

New Mexico High School Graduation Rates by Race/Ethnicity



# High School Graduation Rates

# Postsecondary Progress



Postsecondary Graduate Wages

Adult Education Participant Wages

Academic Year Graduated \* Degree Attained Study Program

2015-16 is any value is Computer And Information Sciences ...

Wage Aggregation Type

Average Yearly Wage  Median Yearly Wage

New Mexico Postsecondary Graduate Wages by Study Program

Years After Higher Education Graduation	1 year	2 years	3 years	4 years	5 years
Study Program	Average Yearly Wage	Average Yearly Wage	Average Yearly Wage	Average Yearly Wage	Average Yearly Wage
Computer And Information Sciences And Support Servi...	\$45,867	\$52,193	\$58,642	\$62,272	\$66,630
Engineering	\$63,324	\$72,858	\$79,376	\$88,639	\$95,277
Engineering/Engineering-Related Technologies/Techni...	\$49,121	\$54,775	\$60,568	\$63,253	\$69,082
Mathematics And Statistics	\$42,906	\$47,619	\$58,939	\$62,390	\$65,675

Postsecondary Graduate Wages

Academic Year Graduated \*

2015-16

Workforce Industry

NAICS Super-Sector

Wage Aggregation Type

Average Yearly Wage

Median Yearly Wage

Domain

is Services-Providing Wages



# Adult Education Participant Wages

# Data Confidentiality and Privacy



Master unique identifier through Tamr to protect personally identifiable information



Data warehouse and visualizations without PII



Trend-based visualizations and reporting



Range of cloud services to support security, governance, and oversight



Virtual private network (VPN) and encryption for data transfers and data storage



Information technology best practices for secure and automated processes with minimal human involvement



Privacy impact assessments and security testing

# Governance



**Project  
Steering  
Committee**



**Technical  
Control Board**



**Data  
Governance  
Advisory  
Council**



**Disclosure  
Review Board**



**Data Working  
Group(s)**



**Policies and  
Procedures**

# Data Work is People Work



## Ownership and Decision Making

- Balance technical, people, and leadership roles
- Develop decision-making norms and responsibilities



## Communication

- Set expectations and assess progress
- Create communication and escalation channels



## Planning and Strategy

- Communication and relationship dynamics and opportunities
- Involve executive leadership early and often
- Craft mitigation plans for delays and project obstacles

# What's Next



**Research Agenda  
Expansion**



**External  
Engagement**



**Data Request  
Portal**



**Public Datasets**



**New Datasets  
and Partners**



**Increased  
Analytical  
Complexity**

# THANK YOU!

*Does anyone have any questions?*

**Follow us or visit us online!**

Social Media: @nmhighered

Website: [rise.nm.gov](http://rise.nm.gov)

**Contact us:** [risenm@hed.nm.gov](mailto:risenm@hed.nm.gov)

