



Montana's Data Journey

Adam Carpenter, Chief Data Officer – CDO Team

Our Journey to Outcomes...

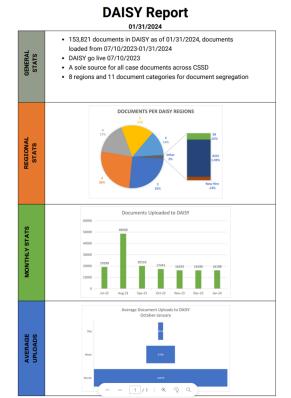


Paper-Based Processes

Manual Reporting

Physical Storage

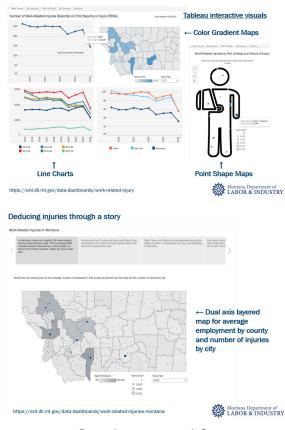
KPIs & Trends Not Possible





Multiple Sources Ad hoc Reports Digital Storage Starting Trends & KPIs





Work Comp Claims Characteristics Dashboard

One Integrated Source **Automated Reporting** Inter-Agency Sharing **Insights and Outcomes**



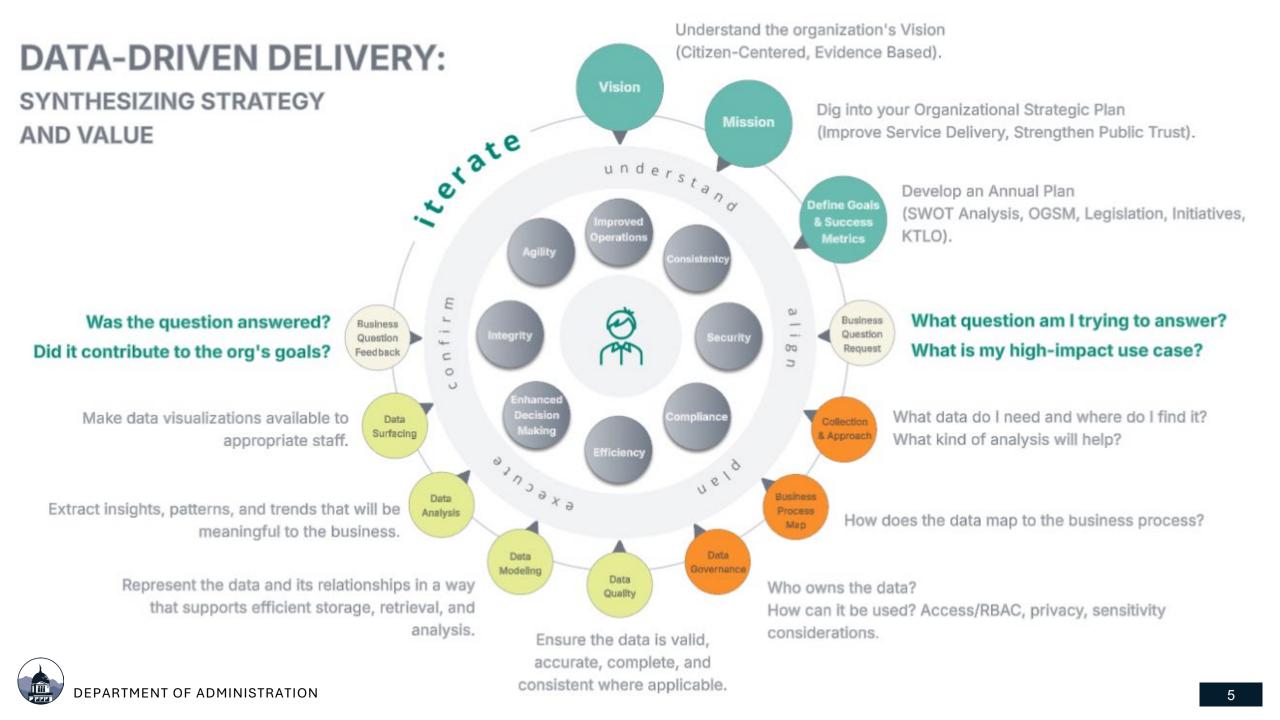
Montana's Data Journey





Montana's Data Journey





Montana Data Center of Excellence

Education & Outreach



Summer 2025 Workshop

August 27, 2025 August 28, 2025 August 29, 2025

8:30am - 4:30pm MT

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REGISTER BY AUGUST 22, 2025

INTRODUCING...

WHO SHOULD ATTEND?

All levels of technical skills! Students can choose to participate in one to all sessions. Feel free to forward the invitation

WHERE IS THE EVENT?

to members of your organization.

Montana WILD 2668 Broadwater Ave. Helena, MT 59602

In-person participation is strongly encouraged. Contact us for alternate options.

Dress comfortably - summer attire welcome!

Montana Data University...a collection of opportunities to explore, learn, share, and collaborate on our data journey!

Join us for a free workshop to explore topics like Strategic Planning, Data Quality and Governance, Behavioral Driven Design, Agile Analytics, Data

Modeling and Learning Labs with Snowflake, Alation, and ThoughtSpot. Each session has been carefully crafted to offer the best practices we all need to know next in an engaging, hands-on experience.

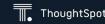
Get ready to roll up your sleeves, play with some data, discover something cool, and geek out with fellow data enthusiasts as we sprinkle in some summer fun while we learn!

Many thanks to our sponsors!

✓ Alation







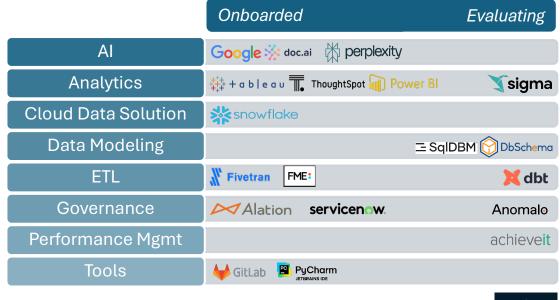
Montana Data Center of Excellence

- Centralized compendium of best practice, tools, processes, and training materials
- Highlight our mission, success stories, and ongoing initiatives

Educate & Collaborate

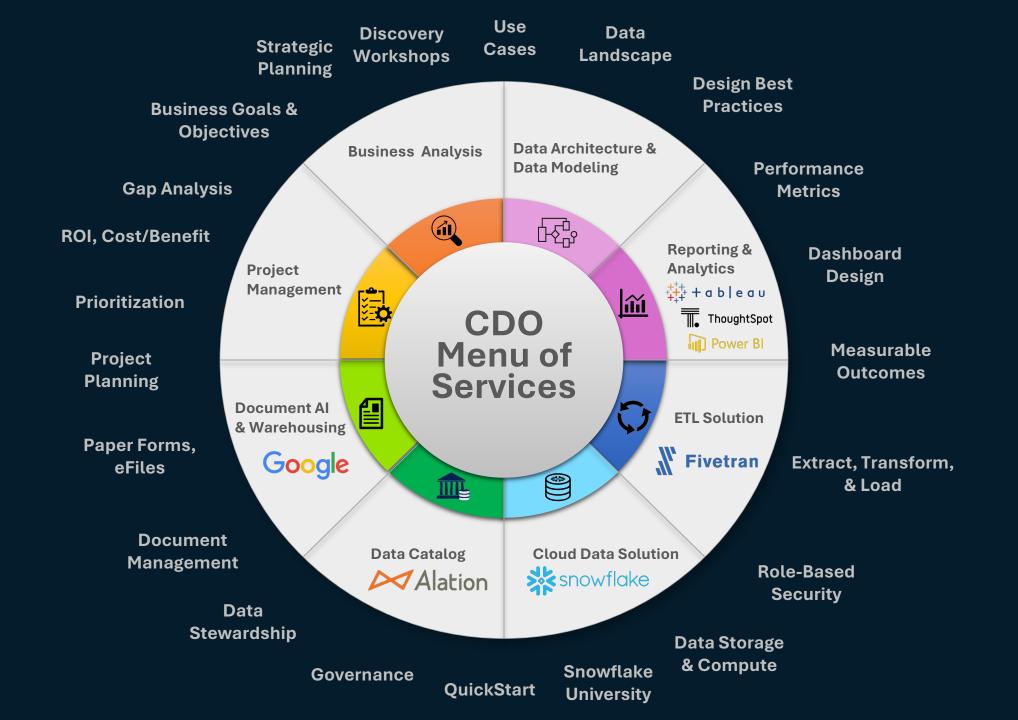
- Deliver 200+ learning opportunities annually through:
 - Semi-annual Data Summits
 - Hands-on Workshops
 - Interactive Webinars

Software Solutions

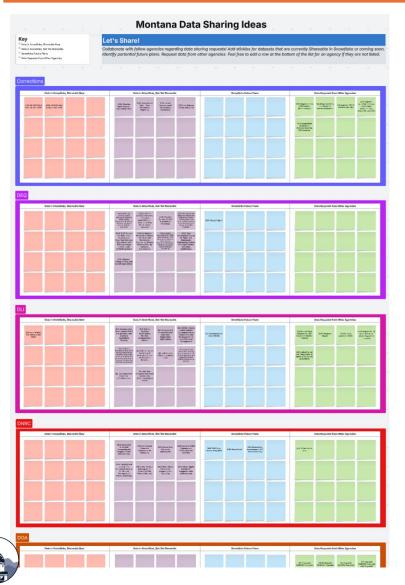


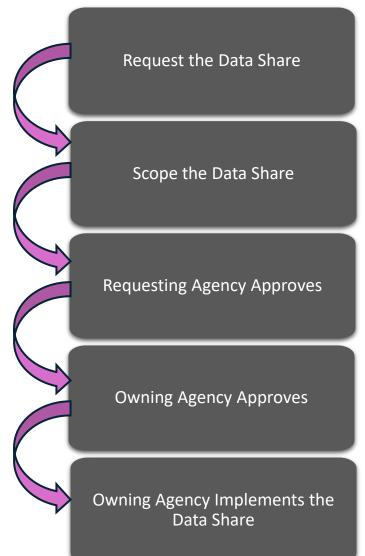


DEPARTMENT OF ADMINISTRATION



Snowflake Data Sharing Enabled by ServiceNow





Cultivate a Data Sharing Culture:

Expanding sharing opportunities and improving agency accessibility to public data.

Active Data Shares: 18

Fulfilled: 8

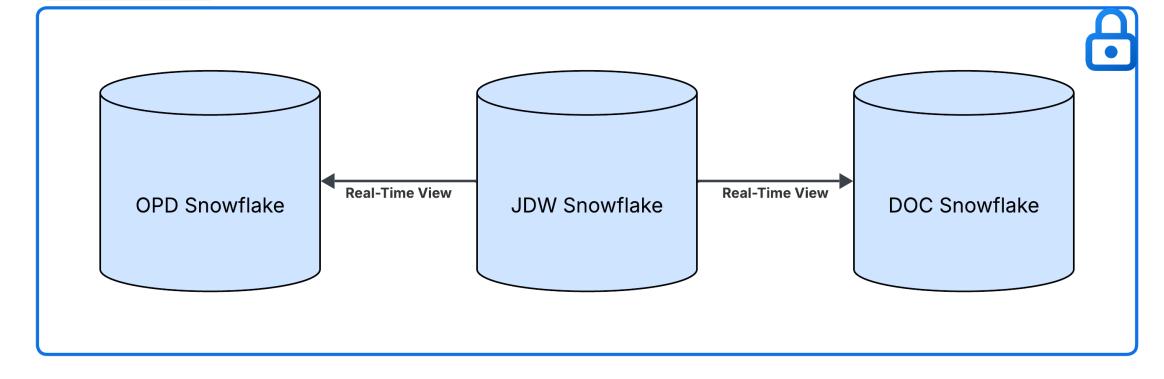
In Process: 10

Coming Soon! 48

This 267% growth in data sharing requests tells the real story - Cultural change enabled by collaboration & technical architecture.

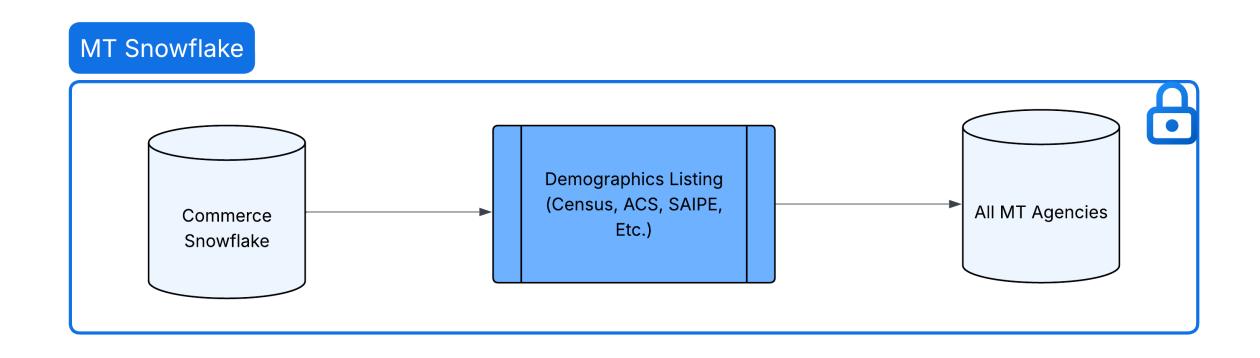
Snowflake Direct Sharing

MT Snowflake



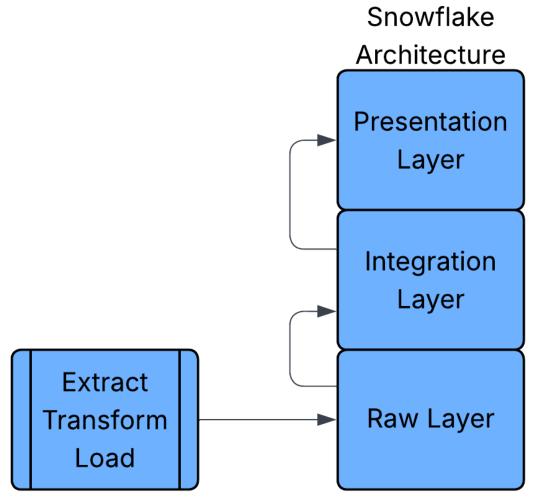


Snowflake 'Listings' Concept





'Medallion' Architecture in MT Snowflake



Aggregated/Deidentified Cleaned & Defined Access: Wide/Public

Redacted/Encrypted
Developing/Matching
Access: Devs/Analysts

Raw data
Landing Zone
Access: Core Devs (~1-3)

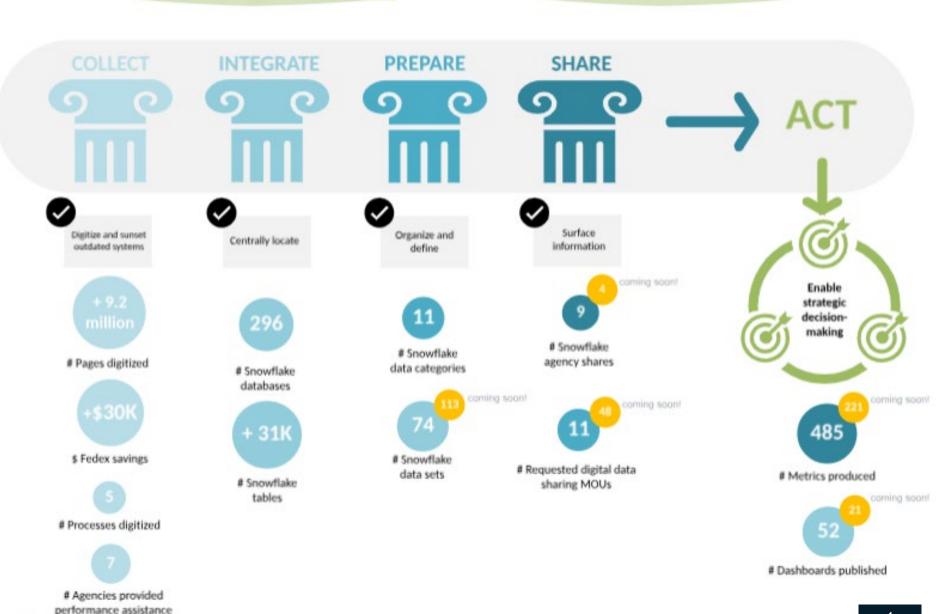
Success at a Glance

of agencies actively using Snowflake

178 # of Snowflake users

- 9.2 million pages
- 31 thousand Tables loaded
- 296 databases
- 485 metrics
- 52 dashboards

But none of that is truly the point...



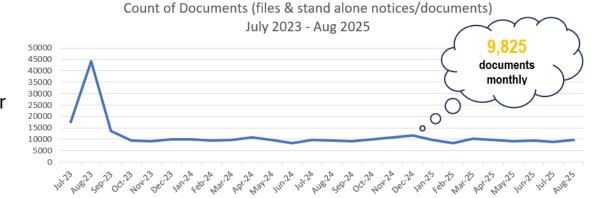


Digitizing Child Support Services Documents



Benefits

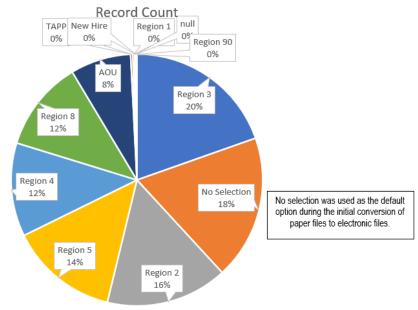
- Seamless customer experience
- Centralized digital records save each staff member 1 hour per day
- Enables new dashboards and metrics across 75,000+ active cases
- 9.2+ million pages digitized CSSD digital transformation successful





Impact Statements

- Staff: Eliminated wait times for archived files through instant digital access
- Training Manager: Enabled virtual document review and remote training capabilities
- Auditor: Reduced travel requirements. Majority of audits now completed remotely

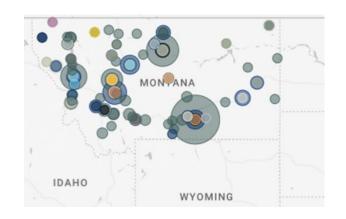




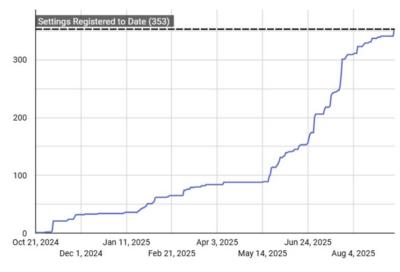
Digitizing Settings Rule Compliance



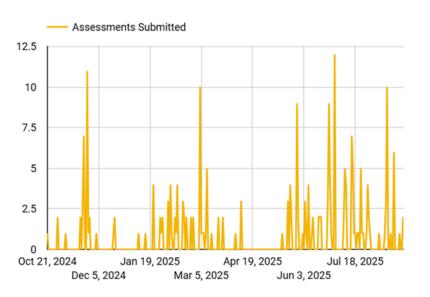
- Problem: Three decentralized Medicaid Waiver programs needed a unified approach to manage and consistently assess Provider Settings for compliance.
- **Solution:** Digitized the process with internal app-based Validation Tools and Provider Corrective Action Plans, plus external Provider Self Assessments.
- **Expected Benefits:** Efficient engagement with every Provider for ongoing Settings compliance faster and more consistent results.
- Next steps: Launch Citizen Portal to track feedback and grievances.



353 Settings across Montana (belonging to 149 Providers) currently report to HCBS via the SETS system.



PROVIDER SELF-ASSESSMENTS OVER TIME



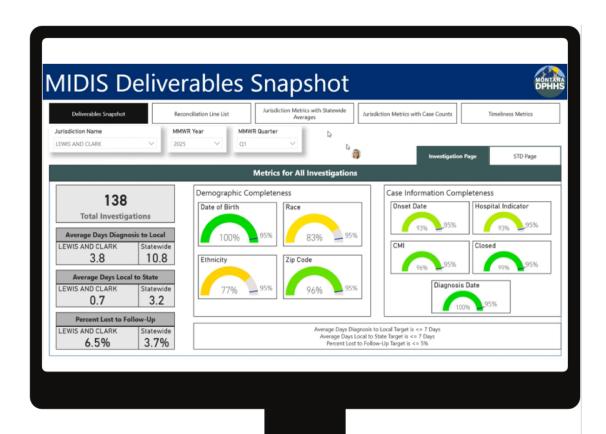


Enhanced Infectious Disease Reporting for Local and Tribal Public Health



The MIDIS Dashboard provides MIDIS case investigation quality and completeness insights to Local Health Jurisdictions (County and Tribal)

- Automates quarterly data sharing and eliminates manual, secure emailing of Excel files
- Reduces time for LHJs to review, identify issues, and improve data quality
- Streamlines annual case reconciliation and distributes workload
- Delivers on MT Public Health Emergency
 Preparedness grant requirements for county and tribal health



Commerce Community Planning Platform (CPP)

1. Unique Statewide Solution

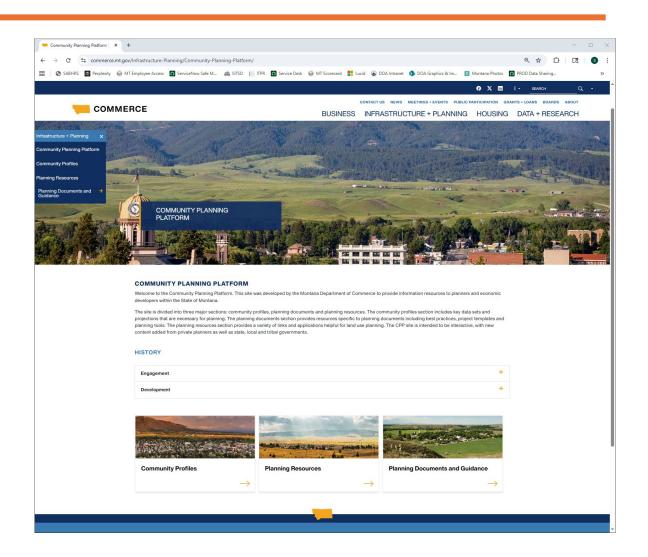
- Only state in US to use \$580k EDA grant for centralized platform vs. traditional studies
- Montana-first innovation now serving as national model for rural capacity building

2. Rural Equity Achievement

- Rural towns = Urban capabilities: Same professional planning tools for all 369 census designated places and 7 reservations
- Solves "mayor drives school bus" problem: Small communities gain expert-level planning capacity

3. Quantified Economic Impact

- \$238.5M+ annual statewide impact from \$580k federal grant investment
- 80%-time savings: 40 hours → 8 hours per planning project
- \$1.25M additional federal funding capacity through improved grant competitiveness



Commerce Community Planning Platform (CPP)

Planning Document Inventory

4. Legal Compliance Solution

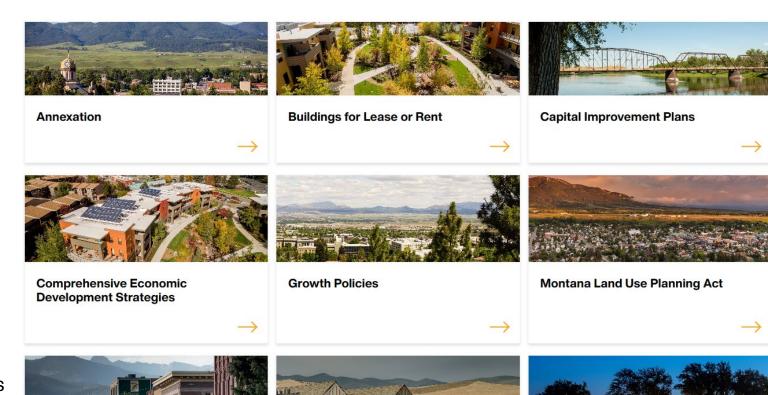
- Mandatory planning requirements met: Enables Title 76 compliance for 15+ cities
- Risk mitigation: Prevents legal/regulatory violations for under-resourced communities

5. Scalable Infrastructure

- **Living platform**: Designed for continuous expansion across all state agencies
- Community-driven growth: Framework for local data sharing and collaboration

6. Immediate Results

- 6-month delivery: From research to launch with 156 stakeholder engagements
- Cross-agency success: 5+ departments collaborating on single platform



Subdivision Regulations

Technical Document Guidelines

Commerce Community Planning Platform

Includes In-Depth Analysis and Interactive Mapping

Administrative

- MSDI parcels and public lands
- Schools District, Legislative District
- Tax Increment Financing District

Demographic and Economic

- Income & Housing CEIC, U.S. Census
- Employment & Industry DLI
- Population Projection REMI & Carroll College

Natural Resources

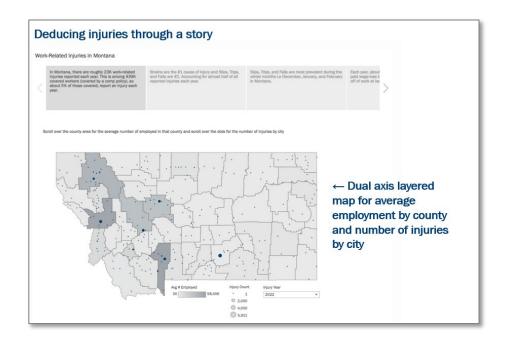
- Land Use and Public Lands MSL
- Wildlife Natural Heritage Program
- Disaster FEMA Floodplain DNRC DES
- Imagery MSL LIDAR and NAIP
- Surface & Ground Water MBMG, MSL

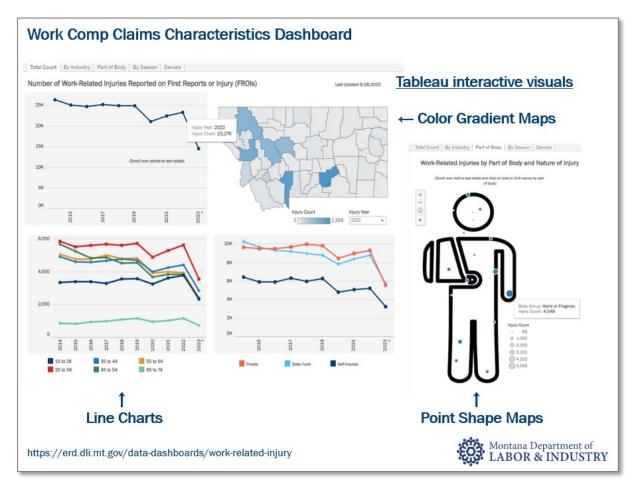




Key Achievements:

- Integrated data from 6 DLI divisions with streamlined, automated updates
- Reduced load on production systems by offloading reporting to Snowflake
- Enabled divisions to independently analyze data and create insights
- Eliminated manual spreadsheet processes for dashboards





Staff Impact:

- "Snowflake simplified data connections and eliminated spreadsheets - a real time saver!"
- "Automated dashboard updates and shared DOC Census data improved our analysis capabilities."



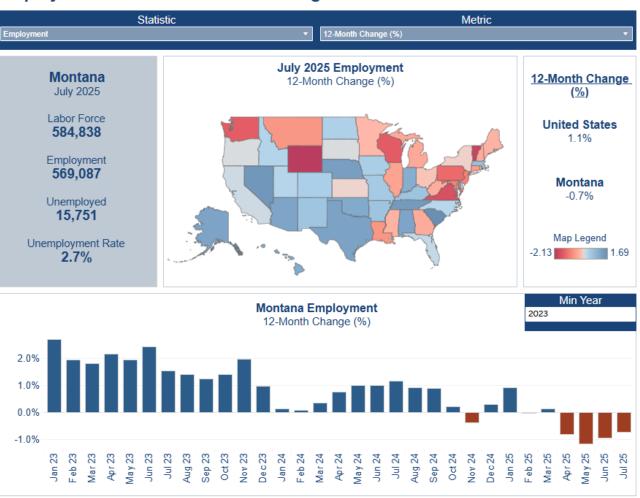
Integrated Labor Market Data

- Consolidates DLI's labor market data from multiple sources into one system
- Simplifies combining data across programs previously stored separately
- Enables easy publication of up-to-date labor market information on DLI's website
- Reduces effort needed for ongoing

Centralizing Job Service Data

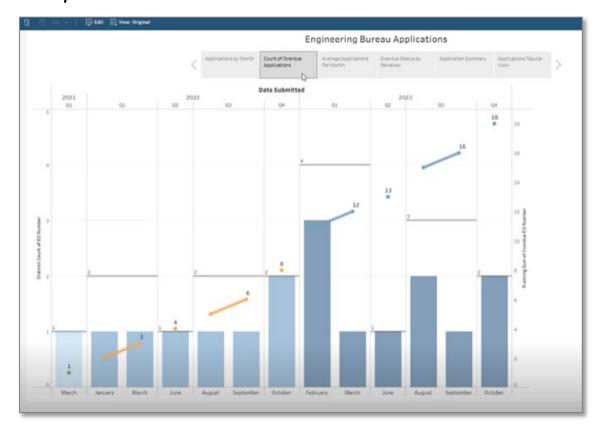
- Transition in 2024 created data split across two systems
- Snowflake provides unified access to both data sources on one platform
- Allows analysis of metrics across multiple years
- Supports internal Tableau dashboards to monitor Job Service performance over time

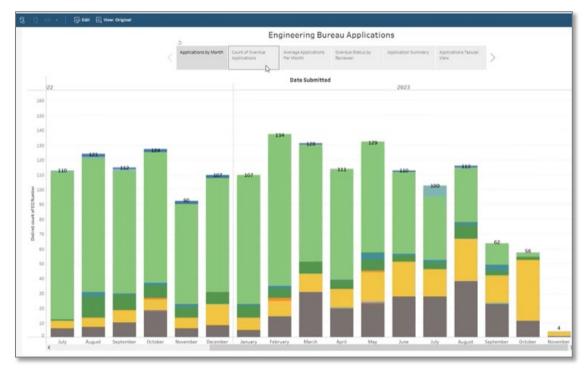
Employment and Labor Force Tracking - State



DEQ MONTANA

Insight-driven decisions improve Customer Service and protect the environment...





DEQ's Snowflake Vision

Centralized Environmental Data Platform:

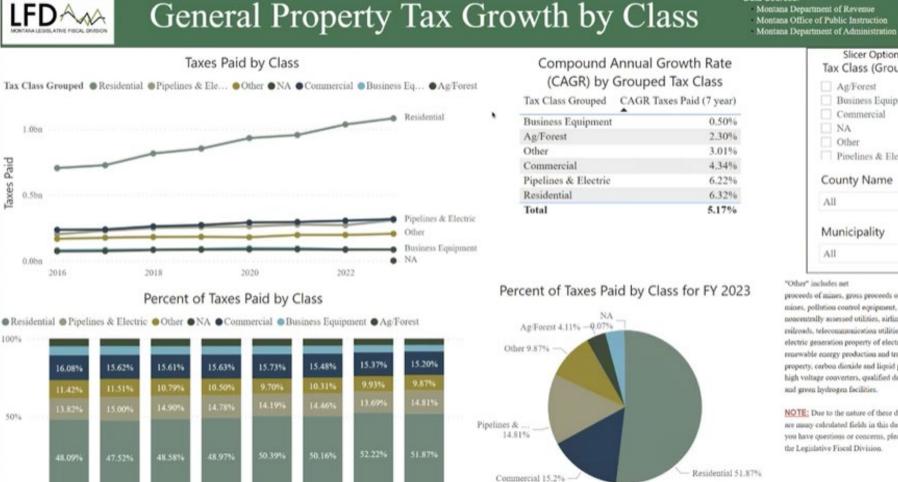
- Water Data: Lake, stream, river, drinking water, discharge, and groundwater monitoring
- **Permits:** Surface/groundwater discharge, mining, air quality, hazardous/solid waste permits
- Remediation: State Superfund sites and underground storage tank case management
- Environmental Programs: Wetlands, nonpoint source, TMDL, and petroleum cleanup data

Impact: Historical data integration with ArcGIS enables on-demand mapping and spatial analysis across DEQ's engineering and permitting systems.



Four Active Models:

- Property Tax Model
- Schools Model
- Medicaid Model
- Corrections Model



Snowflake Advantages:

- Consolidated disparate data sources into single platform
- Improved model efficiency by moving transformations to warehouse

FY16

FY17

FY18

FY19

FY20

FY21

FY22

FY23

- Direct integration with Power BI, R, Python, and ArcGIS
- Reduced data sourcing workload focus on value-added analysis

Tax Class (Grouped) Ag/Forest **Business Equipment** Commercial NA Other Pipelines & Electric County Name All Municipality All

Slicer Options

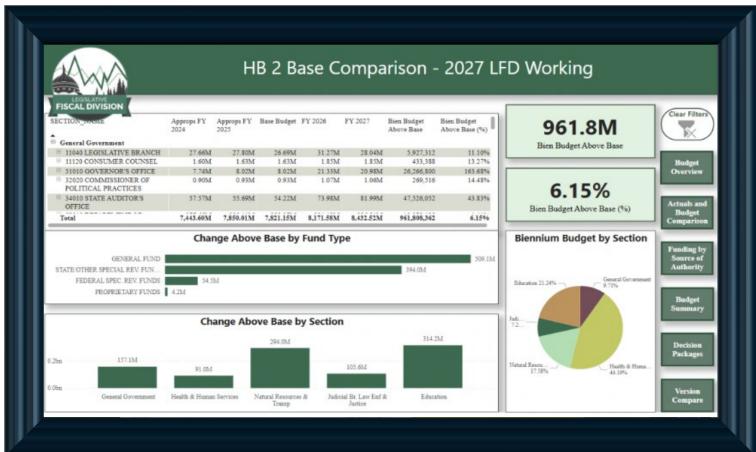
Montana Department of Revenue

"Other" includes net proceeds of mines, gross proceeds of metal mines, pollution control equipment, noncentrally assessed utilities, airlines and railroads, telecommunication utilities and the electric generation property of electric utilities, renewable energy production and transmission property, carbon dioxide and liquid pipelines, high voltage converters, qualified data centers, and green hydrogen facilities.

NOTE: Due to the nature of these data, there are many calculated fields in this dashboard. If you have questions or concerns, please contact the Legislative Fiscal Division.



Modernizing Local Government Financial Data



Challenge:

 Decade - long struggle with inconsistent, hard - to-use local financial data

Solution:

- Built stakeholder coalition (counties, cities, Local Government Bureau, MACo, League)
- Adopted standardized "Trial Balance" reports from local accounting systems
- Created Snowflake-based pipeline and collaborative web dashboard

Results:

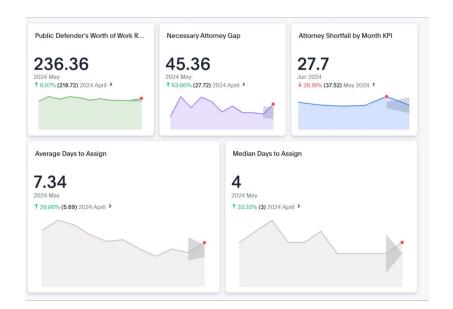
- Data from 100% of counties and 80%+ of cities collected within one year
- Legislature frequently used dashboard during 2025 Session for bill impact analysis
- Strengthened state local collaboration and data ownership

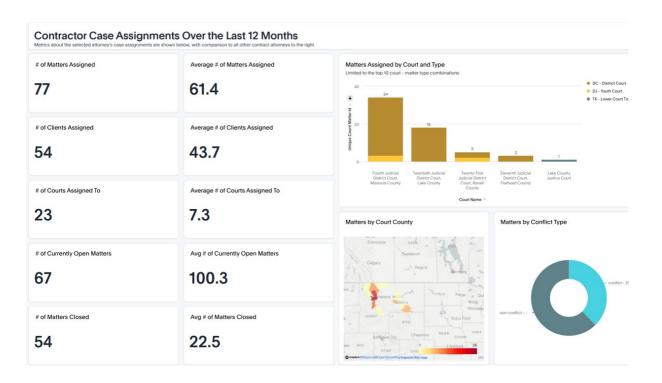


5 Dashboards Available:

- Contractor Case Assignments
- Contractor Claim
- Client Complaints
- Survey Results
- Agency KPIs

Agency-wide KPI Dashboard gives executives up-to-date KPI insights with flexible drill-downs and filters

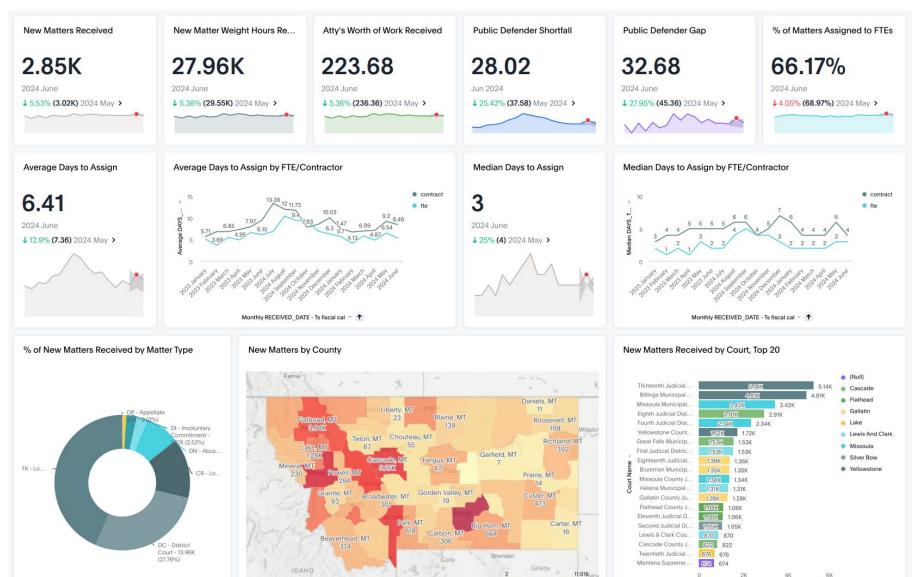




Contractor Dashboards deliver OPD real-time attorneylevel metrics on workload, time, evaluations, and complaints, supporting evidence-based decisions on workloads and renewals



OGSM 2.0 LiveBoard

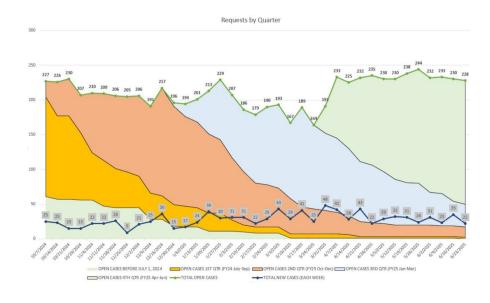


Unique Count Matter Record Id - 4



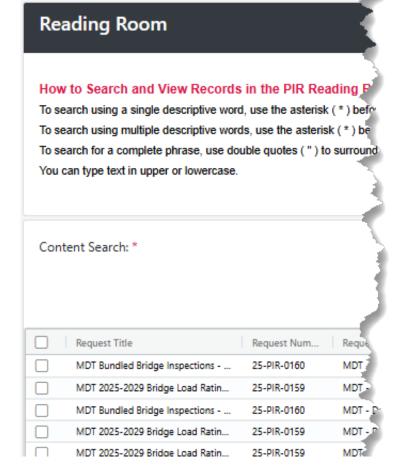
OFFICE OF PUBLIC INFORMATION REQUESTS





- Enhanced public access through a digital Reading Room
- Faster response times for public records requests
- Streamlined management of correspondence and notifications
- Integrated redaction and time tracking tools
- Efficient billing and payment processes
- Improved auditing capabilities

ArkCase streamlines the request process for both the public and Montana agency staff fielding PIRs.



Non-complex request before OPIR: ~23 Days

Non-complex requests After OPIR: ~12 days



COR Public Data

- 40+ live, interactive dashboards tracking more than 150 metrics places MT COR 2nd in the nation.
- Public uses our dashboards daily for prison population, status, and other data reducing information requests
- Continuously expanding offerings, with the new **Education Services** Dashboard on program enrollment and outcomes



Daily Population Report Dashboard



Pending Transport to Prison Jail Hold Dashboard



Offense and Sentencing Data Dashboard



Region Dashboard Series



Adult Population Demographics



Six Month Adult Population Summary



Recidivism Dashboard Series





Workforce Dashboards



Mortality in Corrections

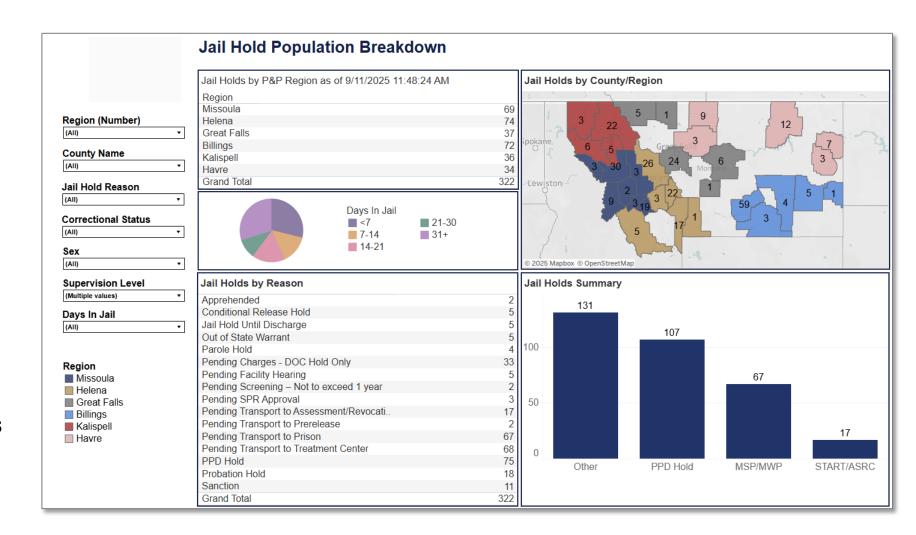


Education Services Dashboard



COR Modern Data Architecture

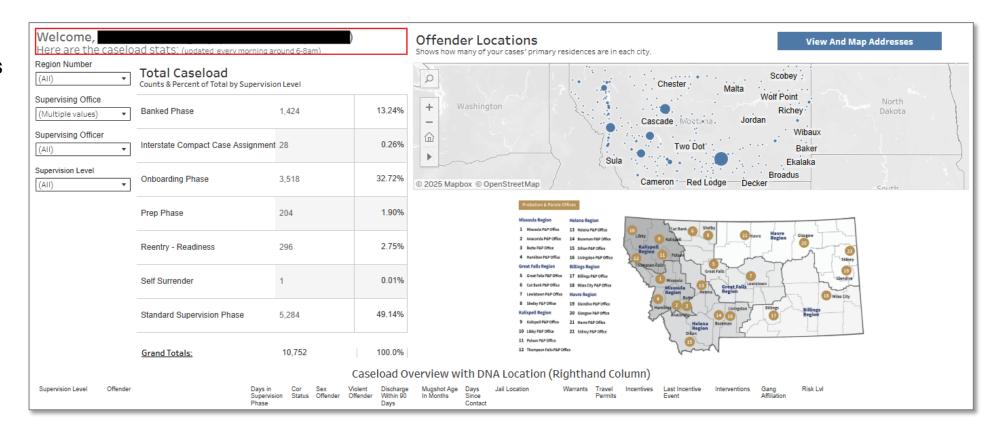
- Adopted best practice architecture for flexible data integration and reporting
- Jail Hold Dashboards drive informed collaboration and have reduced county jail holds and costs
- Ongoing dashboard migrations ensure seamless data access during system upgrades





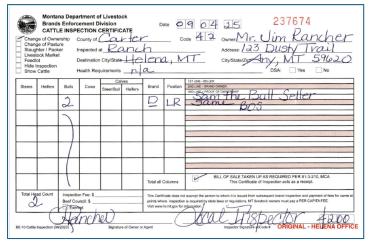
COR Supervision Dashboard

- Dashboards support Corrections business processes and offender supervision
- Enable visibility into contacts, testing, assessments, reviews, and data quality
- Critical to implementing and evaluating the new phased supervision process





LIV Google DocAl Brands Inspection Application



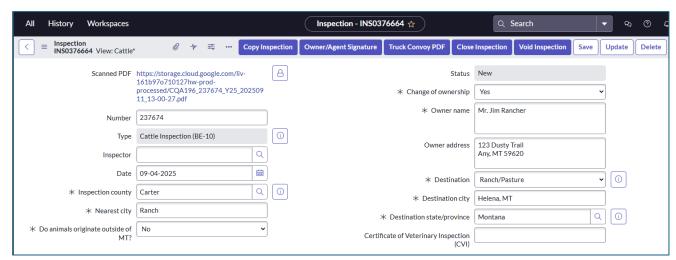
Original BE-10 Cattle Inspection

Livestock is using Google AI to digitize the backlog of BE-10 Cattle Inspection Forms.

After scanning each form, data is confirmed by the Brand Team added to the ServiceNow Brands database for easy access by field staff.

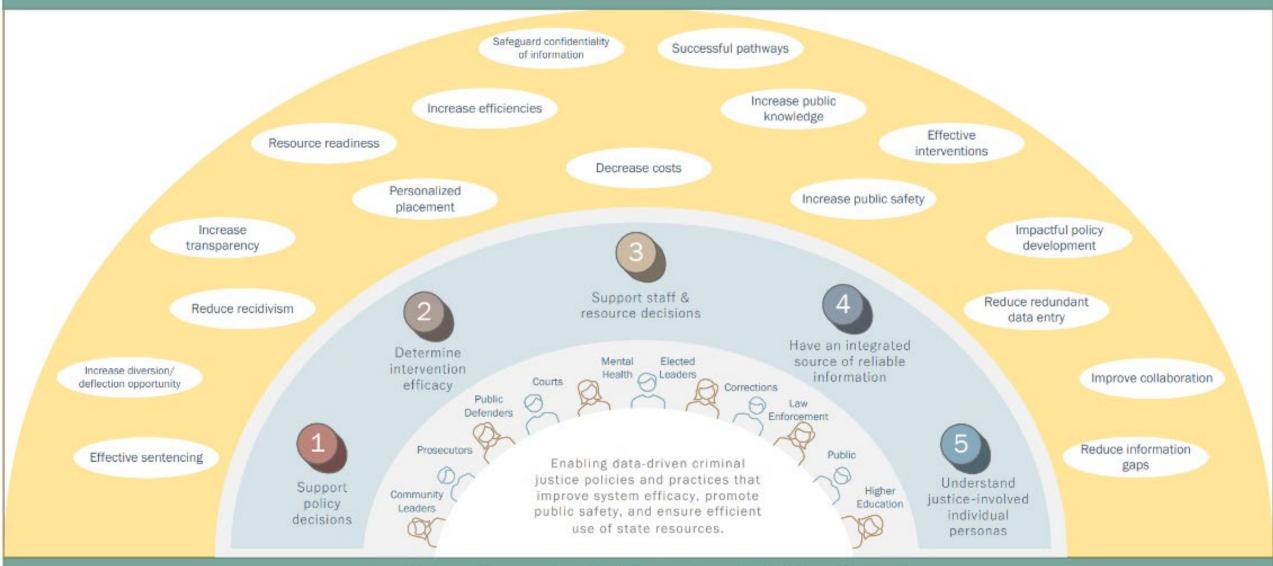
Successes:

- BE-10 Cattle Inspection forms 100% digitized with Google AI since Feb 2025!
- 5 staff processed 41,544 inspections using the new system
- Achieved 85% data capture accuracy on handwritten forms
- Original forms now linked as PDFs in ServiceNow



Finished product - Data migrated to ServiceNow, BE-10 Inspection level, auto-populating inspection fields

MONTANA INTEGRATED JUSTICE DATA WAREHOUSE BETTER INFORMATION for SUCCESSFUL OUTCOMES





EDUCATION & WORKFORCE DATA ECOSYSTEM



32



EDUCATION DATA EMPLOYER DATA WAGE DATA DEMOGRAPHIC DATA FINANCIAL AID DATA

The Real Impact of Data Governance

- Estimated Value of CDO team contribution Projects: \$18-32.2 Million
 Annually
- Projected economic impact: \$238.5 Million Annually (CPP Only)
- Projected revenue impact: \$9+ Million Annually (CPP Only)
- Staff time saved: ~35,000 Hours/Yr
- Citizen & private industry: ~188,840 Hours/Yr

All metrics are **estimates**. Estimates are based off our own data, comparable projects in other states and private industry, and adjusted for Montana's size and relative impact



The Chief Data Office

Sarah Bartow
Therese Simpson
Brandy Murray
Jeremy Henry
Adam Carpenter







QUESTIONS?