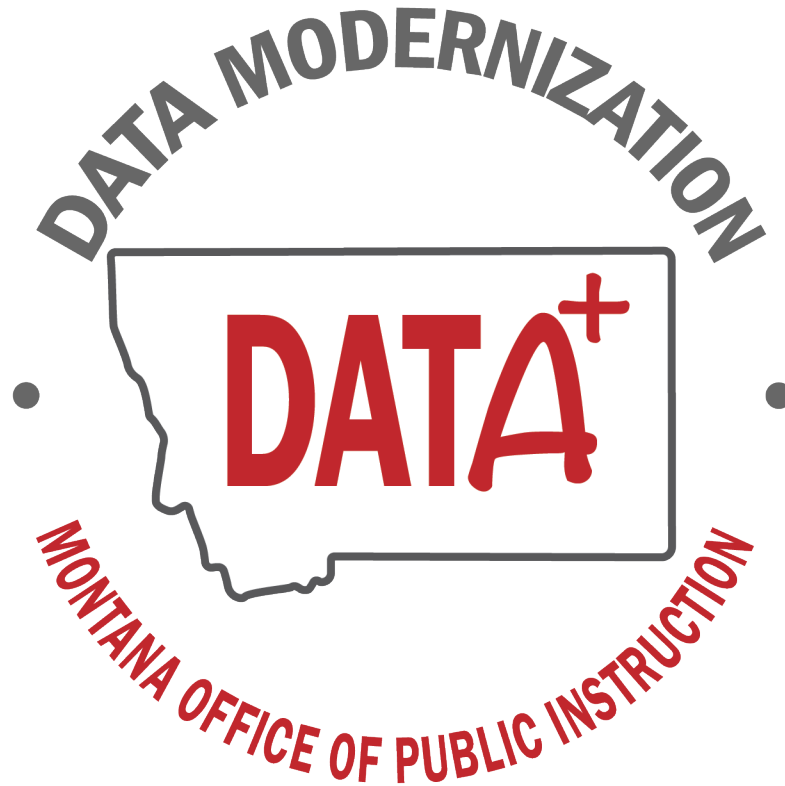




Montana
Office of Public Instruction
Elsie Arntzen, Superintendent



AUGUST 28, 2023

Office of Public Instruction

HB [367](#) OPI Data Modernization
Status and Overview Report



Superintendent Elsie Arntzen

August 28, 2023

To:
Legislative Finance Committee Education
Interim Committee
General Government Budget Committee Education
Budget Committee

Subject: Progress Update on Office of Public Instruction Data Modernization: Costs, Timeline, and Goals

I am writing to provide a comprehensive update on the Office of Public Instruction Data Modernization project, including insights into the incurred and anticipated project costs, the implementation timeline, milestones/core activities, and our goals for data modernization. As the Superintendent of the Office of Public Instruction, I am pleased to present this report, which highlights our commitment to enhancing educational processes across our state.

This report offers a detailed account of the ongoing progress within the Office of Public Instruction Data Modernization initiative, emphasizing key financial considerations. We recognize that a project of this magnitude has both immediate and long-term financial implications. The report outlines the incurred costs to date, encompassing various aspects such as assessment activities, technological evaluations, and stakeholder engagement. Equally important, the report provides a forward-looking perspective on the anticipated costs as we move through subsequent project phases.

In tandem with financial matters, the report also focuses on the implementation timeline. We understand the significance of ensuring as smooth a transition as possible while minimizing disruptions to educational activities.

At the heart of this endeavor lie our goals for data modernization. The report delves into the central objectives of this initiative, detailing how our efforts are centered around enhancing data management systems and processes within the Office of Public Instruction. By improving the accessibility, accuracy, and efficiency of our data-related operations, we aim to empower educators, students, and administrators alike to make more informed decisions and drive better educational outcomes.

Transparency and collaboration remain fundamental to our approach. The report emphasizes our commitment to ongoing dialogue and the dissemination of relevant updates as we continue this journey.

As we move ahead, subsequent reports will be generated by the Office of Public Instruction, in alignment with our project roadmap. If you have any inquiries or require additional information, please do not hesitate to reach out to me or my team. We provide the necessary insights to keep you informed about our progress.

Your continued support and interest in this initiative are greatly appreciated. Together, we are putting our Montana students first by working towards a more efficient and effective educational landscape through data modernization.

Thank you



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Introduction

Amidst the ever-changing landscape of education, efficient data management has become pivotal in driving improvements across instruction, administration, and student outcomes. The Montana Office of Public Instruction (OPI) acknowledges the significance of modernizing data systems to enhance education quality statewide. With this goal in mind, OPI initiated a transformative journey to modernize its data management, a milestone that propels education into the future.

Data Modernization Vendor Partner Role

After an exhaustive selection process, PowerSchool emerged as OPI's chosen partner for the Data Modernization Project. PowerSchool will lead the application and implementation efforts supported by the OPI's core project team & subject matter experts from various business units and user groups. This selection follows a rigorous Request for Proposal, underscoring OPI's commitment to a seamless alignment of objectives aligned with House Bill [367](#) & [949](#).

Partnership Foundations

Collaborating with Snowflake and Amazon Web Services, a cloud computing leader, PowerSchool will leverage cutting-edge technologies for scalability, security, and reliability meeting OPI's goal and objectives. This partnership with Amazon enhances the project's potential to redefine OPI's data management.

Contractual Framework

OPI and PowerSchool established a Contract and Statement of Work to clarify responsibilities, expectations, and deliverables. This framework ensures coordinated efforts and resource allocation for project success.

Unified Direction

OPI and PowerSchool collaboratively defined program management deliverables and expectations, ensuring synchronized progress tracking and milestone achievement.

Preparation and Assessment

PowerSchool and Amazon conduct OPI Readiness Assessment Workshops, evaluating existing data management and identifying improvement areas. This empowers OPI to make informed decisions tailored to its needs and goals.

Looking Forward

OPI's collaboration with PowerSchool and Amazon underscores the commitment to advance education through technology and innovation. With a strong foundation in vendor selection, partnership alignment, and ongoing readiness assessment, the project is poised to revolutionize data management within the Montana Office of Public Instruction. The potential for positive change is substantial as the project unfolds.



Core Features of the Vendor Products

1. **Unified Insights** will assist Schools and OPI with data analytic tools:
 - Facilitate schools in making data driven decisions to enhance student outcomes.
 - Provides technical and data analytic tools.
 - Early warning system using artificial intelligence/predictive analytics to identify at risk students.

2. **Community Engagement** will enhance OPI's ability to publicly display:
 - Demographic information
 - Enrollment / Attendance
 - Statewide assessment data
 - Graduation and dropout
 - School expenditures data

3. **Connected Intelligence** will facilitate and enhance data sharing with:
 - Data lake technology
 - Data collection and integration tools
 - Data governance tools for data sharing

These applications for data modernization brings forth a range of compelling advantages, including centralized data lake construction for consolidated data storage, improved analytics and data visualization capabilities, and fortified data security measures.



Financial Outlook: Project Expenditures & Future Projections

3-Year Contract Cost by Milestones

Including Implementation, Hosting, Licensing, Professional Services, Maintenance & Operation

| Contract Term 1 - By Milestone | One Time | Recurring | Total |
|-------------------------------------|-----------------------|-----------------------|-----------------------|
| Milestone 1 | | | |
| PS Consulting Services | \$73,728.00 | | \$73,728.00 |
| AWS Consulting Services | \$300,000.00 | | \$300,000.00 |
| Subtotal | | | \$373,728.00 |
| Milestone 2 | | | |
| PS Consulting Services | \$2,304.00 | | \$2,304.00 |
| AWS Consulting Services | \$20,000.00 | | \$20,000.00 |
| Subtotal | | | \$22,304.00 |
| Milestone 3 | | | |
| PS Consulting Services | \$3,456.00 | | \$3,456.00 |
| AWS Consulting Services | \$17,500.00 | | \$17,500.00 |
| Subtotal | | | \$20,956.00 |
| Milestone 4 | | | |
| PS Provisioning Services | \$18,000.00 | | \$18,000.00 |
| Subtotal | | | \$18,000.00 |
| Milestone 5 | | | |
| PS Customization Services | \$774,000.00 | | \$774,000.00 |
| PS Provisioning Services | \$230,956.00 | | \$230,956.00 |
| CI - Annual Subscription | | \$1,351,498.81 | \$1,351,498.81 |
| UI - Annual Subscription | | \$1,231,331.42 | \$1,231,331.42 |
| Subtotal | \$1,004,956.00 | \$2,498,795.25 | \$3,503,751.25 |
| Initial Term Discount | | \$(1,000,000.00) | \$(1,000,000.00) |
| Total (Contract Term 1) | \$1,489,944.00 | \$1,498,795.25 | \$2,988,739.25 |
| Post-Deployment | One Time | Recurring | Total |
| Annual Term 2 | | \$2,631,904.00 | \$2,631,904.00 |
| Annual Term 3 | | \$2,731,916.36 | \$2,731,916.36 |
| Contract Total (All 3 Terms) | \$1,489,944.00 | \$6,862,615.61 | \$8,352,559.61 |



Payment Schedule

| | Subscription & Deployment Service Cost | Annual Increase % | Annual Increase \$ | Subtotal | Managed Services | Annual Increase % | Annual Increase \$ | Subtotal | Invoice Total |
|--|--|-------------------|--------------------|----------------|------------------|-------------------|--------------------|--------------|-----------------------|
| Initial 3 Yr Term 7/1/23 – 6/30/26 | | | | | | | | | |
| 7/1/2023 | \$2,929,556.31 | | | | | | | | \$2,929,556.31 |
| 7/1/2024 | \$2,304,507.44 | 1.9% | \$43,786.97 | \$2,348,364.41 | \$284,750.00 | | | \$284,750.00 | \$2,633,114.41 |
| 7/1/2025 | \$2,348,364.41 | 3.8% | \$89,237.85 | \$2,437,602.26 | \$284,750.00 | 3.8% | \$10,820.50 | \$295,570.50 | \$2,733,172.76 |
| Total Contract Amount | | | | | | | | | \$8,295,843.48 |
| Optional Contract Term 7/1/26 – 6/30/28 | | | | | | | | | |
| 7/1/2026 | \$2,437,602.26 | 3.8% | \$92,628.89 | \$2,530,231.14 | \$295,570.50 | 3.8% | \$11,231.68 | \$306,802.18 | \$2,837,033.32 |
| 7/1/2027 | \$2,530,231.14 | 3.8% | \$96,148.78 | \$2,626,379.93 | \$306,802.18 | 3.8% | \$11,658.78 | \$318,460.66 | \$2,944,840.59 |

 Paid Invoice

Table of Milestone Delivery Schedule

| Milestone # | Deliverable | Delivery Date |
|-------------|---|-----------------------------------|
| 1 | Draft Assessment Document | September 8 th , 2023 |
| 2 | Montana Review & Feedback of Assessment Output | September 15 th , 2023 |
| 3 | Delivery of Assessment & Future Solution Document | September 22 nd , 2023 |
| 4 | Connected Intelligence Application Deployed | June 2024 |
| 5 | Unified Insights Application Deployed | June 2024 |
| 6 | Post Deployment Assessment | November 2024 |
| 7 | Solution Acceptance & Final Project Sign-Off | February 2025 |



Project Timeline

| DATE | ACTIVITY | STATUS |
|-----------------------------------|---|---------------|
| April 07, 2023 | Request for Proposal Release | Completed |
| June 20, 2023 | Vendor Tentative Award | Completed |
| June 30, 2023 | Contract & Statement of Work Executed | Completed |
| July 20, 2023 | Project Kick-off Meeting (PowerSchool & OPI) | Completed |
| July 24-27, 2023 | Organizational Change Management Executive Interviews | Completed |
| August 9-10, 2023 | Cloud Assessment Workshops | Completed |
| August 14-31, 2023 | Application Assessment Workshops | In Progress |
| August 24, 2023 | Organizational Change Management Assessment Report | In Progress |
| September 01, 2023 | Maturity Assessment Report | In Progress |
| September 22, 2023 | Commercial off the Shelf Solution, Architecture & Deployment Strategy | In Progress |
| September 2023 – June 2024 | System Design, Configuration & Testing | In Progress |
| June 2024 | Connected Intelligence & Unified Insights Deployed | Not Started |
| November 2024 | Post Deployment Assessment | Not Started |
| February 2025 | Solution Acceptance & Sign-Off | Not Started |



Current Activities

| Workstream | Activity Overview | Outcomes |
|---|--|---|
| Organizational Change Management (OCM) | <ul style="list-style-type: none"> • Interview led by the vendor’s OCM lead with multiple department leaders to gather their input. • Includes assessing current risk, defining goals, clarifying vision, and outlining requirements related to staff engagement. | <p>Data collected and analyzed to be use in the development of the OCM assessment document to be delivered to OPI August 31, 2023</p> |
| Cloud Migration Maturity Readiness Assessment (MRA) | <ul style="list-style-type: none"> • 3-day workshop lead by AWS • Included question survey and interactive activities. • Captured current process and identified risk, issues and bottlenecks in workflow • Objective: <ul style="list-style-type: none"> ○ Alignment of leadership teams ○ Consensus on decision-interdependency ○ Identification of gaps and readiness | <p>Delivery of Cloud Migration Assessment to OPI on September 01, 2023. The two core areas will be:</p> <ul style="list-style-type: none"> • Business Capability Focused <ul style="list-style-type: none"> ○ Business Value Realization ○ People Roles & Readiness ○ Governance Prioritization & Control • Technical Capability Focused <ul style="list-style-type: none"> ○ Platform Application & Infrastructure ○ Security Risk & Compliance ○ Operations Hybrid & Dynamic |



Current Activities Continued

| Workstream | Activity Overview | Outcomes |
|-------------------------------|--|--|
| System/Application Assessment | <ul style="list-style-type: none"> • Workshop conducted by AWS and PowerSchool based off 75 databases and applications identified in the RFP. • MRA objective is to gain insights into OPI’s cloud journey to data, understanding current strengths and weakness from the perspective of common methodology. • 8am-5pm MST on-site sessions during week of Aug 14-18th • OPI IT team required to complete application matrix (pre-session task) • Vendor developed assessment matrix included following sections for documentation: <ul style="list-style-type: none"> ○ Current infrastructure ○ Data catalog ○ Data ingestion/Data deep dive ○ Governance & security ○ Data consumption ○ As-is platform discovery ○ Existing OPI data sources | <p>Assessment report to be delivered to OPI on September 22nd, 2023. This report will consist of the following:</p> <ul style="list-style-type: none"> • Workload complexity assessment • Migration estimates in person days • Staffing plan • Roles & responsibilities matrix • Assumptions • Risk/Issues |

Education Information through Data Modernization:

Goals and Vision for Montana OPI

The Montana Office of Public Instruction (OPI) is dedicated to advancing its data management systems through the comprehensive Data Modernization Project, responding to the evolving educational landscape and technological advancements. This project is centered around six key goals that aim to enhance services, streamline operations, and ensure the security and effectiveness of data processes.

Firstly, the project focuses on improving services by modernizing data management, enabling more efficient processes and data-driven decision-making for educators, students, and administrators. This transformation aims to translate data into actionable insights, fostering better educational outcomes.

Secondly, the OPI recognizes the significance of collaboration between technical teams and end-users, seeking to



improve interactions and communication. This approach ensures that modernized data systems align with the diverse needs of the organization.

The project also aims to increase the value of IT and data operations for the OPI, boosting efficiency, optimizing resource allocation, and accommodating the changing demands of the education sector.

Cost reduction is another priority, with the OPI aiming to identify inefficiencies, optimize resource allocation, and implement cost-effective solutions while maintaining service quality.

Given the importance of cybersecurity and operational continuity, the Data Modernization Project places a strong emphasis on enhancing security measures and risk management strategies. This includes robust security protocols and disaster recovery plans.

Lastly, the project seeks to enhance governance practices by defining roles, transparent decision-making processes, and adhering to industry standards. Effective governance is crucial for strategic planning, risk management, and resource utilization.

In summary, the OPI's Data Modernization Project is driven by ambitious goals to transform data management. It strives to improve services, workforce interactions, and operational value, while also reducing costs and enhancing security measures. Effective governance and continuity planning are emphasized to ensure the project's long-term success. The OPI's dedication to these goals reflects its commitment to creating an efficient, secure, and impactful educational environment for all stakeholders. Continuous monitoring and evaluation are key to the project's successful execution and its potential to revolutionize data management within the organization.

Addressing Statue Compliance

Montana OPI's Approach in the Data Modernization Project

Montana's Office of Public Instruction (OPI) is unwavering in its commitment to compliance with legislative mandates outlined in House Bill [367](#) and [949](#) through its transformative Data Modernization Project. This comprehensive endeavor is designed to meet these requirements head-on, ensuring seamless integration, enhanced insights, individualized academic support, robust security, and secure data sharing across the education landscape.

Comprehensive Data Integration: Connected Intelligence

The Data Modernization Project places a significant emphasis on Comprehensive Data Integration, aligning seamlessly with the mandates of House Bills [367](#) and [949](#). By enabling the integration of diverse data sources, this approach consolidates educational information as prescribed by the legislation, enhancing the efficiency and accuracy of data consolidation.

Holistic Student Insights: Unified Insights

In accordance with House Bill [367](#), Unified Insights provides educators with a holistic view of student data. This empowers them to comprehend individual student performance and requirements comprehensively. This insight aligns directly with the legislative intent, facilitating educators' ability to adhere to the bill's compliance mandates.

Individualized Academic Enhancement: Unified Insights/Risk Analysis

Aligned with the goals of House Bill [949](#), Unified Insights and Risk Analysis tools enable educators to harness student data for personalized academic interventions. By identifying at-risk students and tailoring interventions, Montana OPI's approach directly contributes to the improvement of student outcomes, in alignment with the intent of the bill.



Robust Data Security: Connected Intelligence/Unified Insights

Montana OPI takes data security seriously, fulfilling House Bills [367](#) and [949](#) requirements through Connected Intelligence and Unified Insights. Encryption protocols, role-based access controls, security audits, and stringent data protection standards are rigorously implemented to ensure that sensitive student information remains safeguarded while meeting compliance obligations.

Secure Data Sharing: Connected Intelligence

The Data Modernization Project's Secure Data Sharing component aligns with the security provisions of House Bills [367](#) and [949](#). This functionality enables controlled and encrypted data sharing among institutions, ensuring student confidentiality and authorized access. This approach guarantees compliance while facilitating effective collaboration.

In summary, Montana OPI's Data Modernization Project effectively addresses statute compliance laid out in House Bills [367](#) and [949](#). The project's interconnected strategies not only meet the legislative mandates but also empower educators with insights and tools to enhance student outcomes while maintaining the utmost data security and privacy standards.

Enhancing School Customers Experience

Bridging Legacy & Modernization

Achieving a seamless connection between current software and emerging data modernization infrastructure is paramount. This entails ensuring uninterrupted compatibility, harmonizing legacy systems with the advanced framework. By navigating potential disparities in data formats, communication protocols, and operational processes, this integration guarantees fluid connectivity. This synergy not only sustains operational continuity but also optimizes functionality, empowering a cohesive transition towards the future of data modernization.

Elevating Performance

Harnessing the power of data modernization to streamline processes and elevate system efficiency. By embracing cutting-edge technologies and optimizing data management, this initiative empowers seamless workflows, reduces redundancies, and maximizes resource utilization. Through this transformation, the project aims to achieve a new level of operational effectiveness, driving tangible improvements in productivity and resource allocation across the system.

Data Integrity

The data modernization project fortifies the foundation of accuracy and reliability, instilling a sense of trust in decision-making processes within educational institutions. By ensuring data integrity and consistency, this initiative empowers schools to make confident, data-driven decisions. As a result, educators, administrators, and stakeholders can rely on a robust and dependable data ecosystem to drive strategic actions, ultimately enhancing educational outcomes and organizational effectiveness.

Reduced Downtime

The data modernization project is a catalyst for empowering schools with streamlined operational processes. By optimizing workflows and system functionalities, this initiative significantly minimizes system downtime and ensures continuous operations. This streamlined approach enhances efficiency, reduces potential disruptions, and enables educators and administrators to focus on their core responsibilities without interruption. As a result, the project contributes to a more resilient educational environment, fostering seamless learning experiences and administrative excellence.



Charting the Course Forward

Navigating the Next Steps in Data Modernization

In the dynamic realm of advancing technology and evolving education models, the Montana Office of Public Instruction (OPI) emerges as a vanguard of progress. As it embarks on its journey of data modernization, initial strides illuminate a path toward a more efficient, transparent, and responsive educational ecosystem. Collaborating with the vendor and Amazon Web Services (AWS), the OPI's environmental assessment forms a cornerstone, solidifying the foundation for transformation underpinned by a comprehensive Data Modernization Strategy and future state architecture.

Realizing the Vision: Reflective Glimpse

The ongoing environmental assessment, conducted in partnership with AWS, offers an introspective snapshot of the current state of OPI's data management systems. By intricately documenting the existing landscape, this assessment sets the stage for aligning modernization with OPI's unique educational needs. This proactive approach identifies areas for enhancement, ensuring subsequent steps are tailored to OPI's requirements.

Data Modernization Strategy: A Comprehensive Blueprint

Central to OPI's journey is the Data Modernization Strategy, a blueprint guiding system evolution through three pivotal components:

- 1. Assessment & Organization Change Management (OCM) Strategy:* Acknowledging the dual role of technology and human elements, OPI integrates an OCM strategy. This recognizes that technological change influences the workforce and culture. Through adaptability, open communication, and targeted training, the OCM strategy aims to engage stakeholders at all levels.
- 2. Deployment and Migration Plan:* Detailing the transition from the current state to the modernized ecosystem, this plan minimizes disruptions while ensuring continuity, efficiency, and data integrity. It paves the way for benefits without interrupting vital functions.
- 3. Maintenance and Operational Support:* A forward-looking provision for sustainability, this aspect ensures ongoing optimal function beyond the initial phase. Robust support mechanisms empower OPI to navigate data's ever-changing landscape.

Next Steps: Pathway to Transformation

OPI's journey thrives on diligence, collaboration, and commitment. Environmental assessment and strategy formulation set the stage for action plan execution. Stakeholders, from educators to students, will reap the rewards of streamlined operations and data-driven decision-making.



Empowering Education through Transformation

In essence, OPI's data modernization isn't just about technology; it's a holistic education transformation. Leveraging the assessment and Data Modernization Strategy, OPI nurtures adaptability, efficiency, and excellence. With a well-defined path and commitment to refinement, OPI's journey enriches educational experiences, promising a brighter future for learners and educators.

Upcoming Activities and Efforts

- Assessment documentation review and finalization
- Data Lake Setup
- Secure Student Information System Connections to the Data Lake
- Data integrity and security data lake work
- Connected Intelligence Setup
- Unified Insights Setup

Next Report Period:

October 30th, 2023
December 26th, 2023
February 26th, 2024
April 29th, 2024
June 24th, 2024
August 26th, 2024
October 21st, 2024
December 23rd, 2024