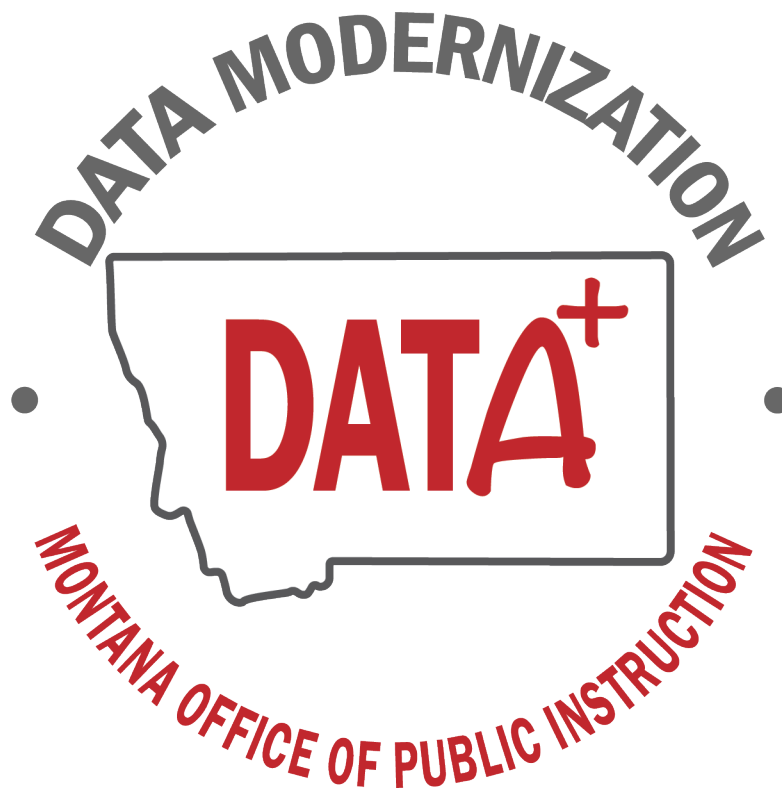




Montana
Office of Public Instruction
Elsie Arntzen, Superintendent



Educational Data Integration

February 26, 2024

Office of Public Instruction

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



Superintendent Elsie Arntzen
February 26, 2024

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

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

I am pleased to present this updated and comprehensive introduction for the Office of Public Instruction (OPI) Data Modernization Legislative Report, detailing the remarkable progress we have made in the last reporting period. Our commitment to transforming Montana's educational landscape through data modernization remains steadfast.

We are diligently working to successfully meet milestones and stay on track for timely delivery. We have worked with Infinite Campus (IC) and our vendor, PowerSchool, to build a connection from IC State Edition to Connected Intelligence (Data Lake) and it has recently been deployed. We are also working with our vendor to design the connector to seamlessly collect data from districts that use PowerSchool as their Student Information System (SIS).

In our pursuit of organizational change management, we have developed a communication plan and a vision deck to assist with the strategy for implementing new business processes and messaging to internal and external stakeholders. We will continue monthly data integration and needs discovery sessions with the Department of Labor and Industry (DLI) and the Office of the Commissioner of Higher Education (OCHE) to ensure alignment with project scope and legislative requirements.

OPI's IT team and the vendor are actively conducting collaborative discovery sessions with districts and schools to ensure that the product will fulfill our goals and make it easy for schools to use. These discussions engage key stakeholders to understand unique SIS needs and inform the architectural design necessary for configuring vendor applications, ensuring efficient data integration while upholding integrity, legal requirements, and security.

OPI has started a School Implementation Steering Committee, with monthly meetings that started in February. The committee will provide guidance and feedback on project activities and requirements that impact users. Additionally, OPI initiated monthly executive meetings, led by my office, with PowerSchool which began in January 2024 to review project activities and ensure OPI goals are met through the implementation.

In this report, you will find information on the OPI's goals for this project, details of the progress in the last reporting period, and the identification of next steps.

Please feel free to visit our [website](#) on our progress throughout the implementation of this project. Thank you for your unwavering commitment to our shared goals.



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Introduction Educational Data Integration

In the current reporting period, the vendor and OPI are actively working through Milestone 4a: Deployment of Connected Intelligence platform, tools, and data lake from initial sources. During this milestone, we have successfully built a connection from the State Edition of Infinite Campus to connected Intelligence. PowerSchool is working diligently to create a custom connector to transport data from the districts who use PowerSchool as their Student Information System (SIS) to the data lake. Once all the connections are built and tested, data will start replicating from these sources into Connected Intelligence. The Organization Change Management (OCM) deliverables have all been met. Additionally, the first steering committee with representatives from schools across the state occurred on February 21st. This group will provide valuable feedback throughout the project to make sure that the solution supports the needs of our schools, teachers, students, and parents.

Data Modernization Vendor Partner Role

The vendor partnering with Montana's Office of Public Instruction (OPI) for Data Modernization plays a key role in designing secure connections between school districts and OPI. They specialize in integrating systems like PowerSchool and Infinite Campus to ensure data moves securely and efficiently. They also have led efforts to manage organizational changes. Their involvement shows they're dedicated to making the project a success and are crucial in helping Montana's education system transition to modernized data management, in line with House Bills [367](#) & [949](#).

Partnership Foundations

Montana's OPI Data Modernization vendor has forged a strategic partnership with Snowflake to establish a robust data lake through their Connected Intelligence product. We have recently deployed connected intelligence and is replicating all the data from the State Edition of Infinite Campus. PowerSchool is well-positioned to create a resilient and agile infrastructure that enables efficient data utilization, sharing, and analysis, ultimately driving the success of Montana's data modernization project.

Contractual Framework

OPI and its vendors established a Contract and Statement of Work to clarify responsibilities, expectations, and deliverables. This framework is broken into seven milestones, with milestones 4 and 5 having two sub-milestones. The milestone and delivery schedule are provided on page 7 of this report.

Unified Direction

OPI and PowerSchool worked together to set clear goals for program management. They aim to improve services, streamline IT and data interactions, make better use of data for everyone involved, cut costs, boost security, and improve overall governance.



Preparation and Solutioning

The vendor is actively developing a connector to streamline the replication of the data from districts who use PowerSchool as their Student Information System (SIS). The same connector will be used for Districts who have their data on-premises and cloud-based with PowerSchool. PowerSchool has identified that 6 Districts will require a Virtual Private Network (VPN) for that connection to be successful. We have engaged with a smaller district, Forsyth, to observe the data uploading process from PowerSchool SIS to Infinite Campus for state reporting. We established a secure Open Database Connectivity (ODBC) channel from Infinite Campus State Edition to Connected Intelligence. Working closely with both vendors, we identified the pertinent databases to replicate and OPI has access to the data lake.

Financial Outlook: Project Expenditures & Future Projections

3-Year PowerSchool Contract Cost by Milestones: Including Implementation, Hosting, Licensing, Professional Services, Maintenance & Operation

Note: Recurring cost encompasses the ongoing costs associated with software and technology solutions utilized in the Montana OPI data modernization project. These costs include software licensing, release management, infrastructure hosting, and data integration. It also incorporates annual price increases, which may be influenced by factors like inflation and expanded usage.

Contract Term 1 - By Milestone	One Time	Recurring	Total	Delivery Date	Completed
Milestone 1				9/8/2023	
PS Consulting Services	\$73,728.00		\$73,728.00		✓
AWS Consulting Services	\$300,000.00		\$300,000.00		✓
Subtotal			\$373,728.00		
Milestone 2				9/15/2023	
PS Consulting Services	\$2,304.00		\$2,304.00		✓
AWS Consulting Services	\$20,000.00		\$20,000.00		
Subtotal			\$22,304.00		
Milestone 3				9/22/2023	
PS Consulting Services	\$3,456.00		\$3,456.00		✓
AWS Consulting Services	\$17,500.00		\$17,500.00		
Subtotal			\$20,956.00		
Milestone 4				June 2024	
PS Provisioning Services	\$18,000.00		\$18,000.00		
Subtotal			\$18,000.00		
Milestone 5				June 2024	
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	July 1, 2023
Post-Deployment	One Time	Recurring	Total	
Annual Term 2		\$2,633,114.41	\$2,633,114.41	July 2024
Annual Term 3		\$2,733,172.76	\$2,733,172.76	July 2025
Contract Total (All 3 Terms)	\$1,489,944.00	\$6,865,082.42	\$8,295,843.48	

Educational Data Integration Payment Schedule

The 3-year term fixed cost project entails creating a payment schedule table that incorporates several key columns to manage the Educational Data Integration project expenses effectively. The table includes:

- Subscription & Deployment Service Cost:** This column captures the initial fixed cost for the project, covering subscription fees and deployment services for each year of the project.
- Annual Increase %:** This column represents the annual percentage increase in costs, reflecting any anticipated inflation or adjustments over the three-year period.
- Annual Increase \$:** This column calculates the dollar amount increase for each year based on the percentage specified in the previous column.
- Subtotal:** This column provides the total cost for each year, accounting for both the initial cost and any annual increases.
- Managed Services:** This column includes any additional costs associated with managed services or ongoing support throughout the project's duration.
- Subtotal:** Similar to the previous subtotal, this column sums up the costs for each year, including managed services.
- Invoice Total:** The final column computes the overall project cost by summing up all expenses over the three-year term, providing a comprehensive view of the project's fixed expenses.

3-Year Annual Payment Schedule

Payment Settlement Date	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

Core Features of the Vendor Products

PowerSchool Products

1. **Unified Insights** will assist Schools and OPI with data analytic tools:
 - Facilitate schools in making data informed 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 bring 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. We have recently deployed connected intelligence with the data from the State Student Information System (SIS).

Table of Milestone Delivery Schedule

Milestone #	Deliverable	Delivery Date	Completed
1	Draft Assessment Document	September 8th, 2023	✓
2	Montana Review & Feedback of Assessment Output	September 15th, 2023	✓
3	Delivery of Assessment & Future Solution Document	September 22th, 2023	✓
4	Organizational Change Management	November -December 2023	✓
4a	Infinite Campus Connector to Data Lake	February 20th 2024	✓
4a	PowerSchool Connector to Data Lake	March 2024	
4	Connected Intelligence Application Deployed	March 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	Completed
August 24, 2023	Organizational Change Management Assessment Report	Completed
September 01, 2023	Maturity Assessment Report	Completed
September 22, 2023	Commercial off the Shelf Solution, Architecture & Deployment Strategy	Completed
October 31, 2023	OCM Stakeholder Engagement Plan	Completed
February 20, 2024	Connection from Infinite Campus to Connected Intelligence	Completed
September 2023 – June 2024	Connection from PowerSchool Cloud Districts to Connected Intelligence	In Progress
January-March 2024	Connection from on-premise PowerSchool Districts to Connected Intelligence (6 VPN connections)	In Progress
September 2023 – June 2024	System Design, Configuration & Testing	In Progress
June 2024	Connected Intelligence & Unified Insights Deployed	In Progress
November 2024	Post Deployment Assessment	Not Started
February 2025	Solution Acceptance & Sign-Off	Not Started



Current Activities as of February 26, 2024

Workstream	Activity Overview	Outcomes
Organizational Change Management (OCM)	<p>Completed the OCM Stakeholder engagement and Communication Plan. Vision Deck was completed</p> <p>Ongoing discussion of governance, security, and access to data</p> <p>OPI personnel are working on implementing and deploying the internal and external communication plans</p>	<p>Communication and Engagement Plan Finalized. Vision Deck delivered. These were the last deliverables for OCM besides ongoing support through the project.</p> <p>OPI stakeholders have been given Unified Insight and Connected Intelligence demonstrations.</p>
System Implementation	<p>PowerSchool is replicating Infinite Campus State Edition data to Connected Intelligence</p> <p>PowerSchool is mapping data elements from Infinite Campus to PowerSchool SIS to build the custom connector.</p> <p>PowerSchool determined 6 VPNs needed to replicate data from PS SIS on-premise databases</p> <p>PowerSchool will be provisioning customer admin account access and standard data governance for PII and sensitive data</p>	<p>PowerSchool established connectivity between the State Edition of Infinite Campus and the data lake using Open Database Connectivity (ODBC)</p> <p>Delivery of technical architecture and deployment of Connected Intelligence.</p>
Stakeholder Partnerships	<p>OPI will continue to meet with DLI and OCHE to provide updates on the data modernization project and to facilitate the exchange of information concerning data requirements and accessibility. The next meeting with DLI and OCHE will be in early March 2024.</p> <p>OPI is an active participant on the Education and Workforce Data Governance Board. The next meeting will be March 7, 2024.</p> <p>OPI has established a Data Modernization Steering Committee with schools across the state. This group will help provide oversight and guidance for the successful execution of the project. The first meeting was February 21st and the next meeting will be March 20th.</p>	<p>Regular meetings continue to provide valuable partnership and feedback on the data modernization project.</p> <p>These meetings have been strategically designed to serve as a platform for effective communication and collaboration.</p> <p>The Steering Committee will help to guide the project and will be able to provide valuable feedback on how the data modernization project will impact schools.</p>



Education Data Integration through Data Modernization

Goals and Vision for Montana OPI

- Goal 1: Improve Services
- Goal 2: Improve IT/Data Workforce Interactions
- Goal 3: Increase the Value of IT/Data for Operations and Business Impacted Audiences
- Goal 4: Reduce IT/Data and other Operating Costs
- Goal 5: Security Risk Management and Continuity of Operations
- Goal 6: Increase Governance Maturity

Addressing Statutory Compliance for Educational Data Integration

The information in the following section has been previously detailed in the prior report, and there have been no changes or updates for this section.

Montana OPI's Approach in the Data Modernization Project

- Montana's OPI is committed to legislative compliance via its Data Modernization Project, aligning with House Bill 367 and 949.
- The project aims to seamlessly integrate systems, enhance insights, provide academic support, ensure security, and facilitate secure data sharing across education.

Integration: Connected Intelligence

- The Data Modernization Project prioritizes Comprehensive Data Integration, in line with House Bills 367 and 949, to consolidate educational data from diverse sources.
- This approach improves data consolidation efficiency and accuracy, meeting legislative requirements effectively.

Holistic Student Insights: Unified Insights

- Unified Insights, in compliance with House Bill 367, offers educators a comprehensive view of student data, enabling a deep understanding of individual student performance and needs.
- This alignment with legislative intent empowers educators to meet compliance mandates and support students more effectively.

Individualized Academic Enhancement: Unified Insights/Risk Analysis

- Unified Insights and Risk Analysis tools, in line with House Bill 949 objectives, empower educators to utilize student data for personalized academic interventions.
- This approach, focused on identifying at-risk students and customizing interventions, directly supports the bill's intent to enhance student outcomes.

Robust Data Security: Connected Intelligence/Unified Insights

- Montana OPI prioritizes data security in alignment with House Bills 367 and 949, leveraging Connected Intelligence and Unified Insights.
- Robust security measures, including encryption, role-based access controls, audits, and data protection standards, are rigorously enforced to safeguard sensitive student information and fulfill compliance obligations.

Secure Data Sharing: Connected Intelligence

- The Secure Data Sharing component of the Data Modernization Project aligns with the security provisions of House Bills 367 and 949, facilitating controlled and encrypted data sharing for confidentiality and authorized access.



- Montana OPI's Data Modernization Project not only ensures compliance with legislative mandates but also empowers educators with tools to improve student outcomes, all while maintaining high data security and privacy standards.

Enhancing School Customer Experience for Educational Data Integration

Bridging Legacy & Modernization

- Ensuring a smooth link between existing software and new data modernization infrastructure is vital.
- Maintaining uninterrupted compatibility and coordination between older systems and the new framework is essential. This means addressing differences in data formats, communication methods, and operational procedures to ensure seamless connectivity. This collaboration supports ongoing operations and improves functionality, making the transition to modernized data systems seamless.

Elevating Performance

- Leveraging data modernization to streamline processes, optimize data management, and achieve a new level of operational effectiveness, resulting in improved productivity and resource allocation.

Data Integrity

- The data modernization project strengthens data accuracy and reliability, fostering trust in decision-making processes within educational institutions by ensuring data integrity and consistency, enabling confident, data-informed decisions that enhance educational outcomes and organizational effectiveness.

Reduced Downtime

- The data modernization project streamlines operational processes, minimizing system downtime and disruptions, enhancing efficiency, and promoting a resilient educational environment that supports seamless learning experiences and administrative excellence.

Data Modernization Steering Committee

OPI has put together a Steering Committee of school representatives to help provide oversight, guidance, and strategic direction for the Data Modernization project. The committee is responsible for reviewing project objectives, plans, and progress, offers valuable insights, and makes informed recommendations to ensure alignment with organizational goals. Their advisory role extends to risk assessment, resource allocation, and resolving issues that may arise during the project life cycle. The committee meets monthly to review project progress and provide guidance. The committee includes subject matter experts in educational data systems, data management, and data analysis along with other high-level stakeholders. Members of the committee have been gathered from across the state. For more information and updates on this meeting visit our [website](#).

Data Modernization Steering Committee Members List:

- Sandra Rivas, District Clerk, Browning Public Schools
- Kevin Patrick, Business Director, Butte School District
- Jill Swanson, Technology Director, Conrad Public Schools
- Julie Asbeck, Business Manager, Fairview School
- Stacy Montgomery, District Clerk/Business Manager, Forsyth Public Schools
- Janelle Mickelson, Business Manager/District Clerk, Helena Schools
- Eric Miletich, IT Coordinator, Kalispell Public School District
- Paul Kozlowitz, PC/Network Technician, Missoula County Public Schools
- Colleen Drury, Business Manager, Scobey Schools



Charting the Course Forward

Navigating the Next Steps in Educational Data Integration

OPI's journey toward data modernization is marked by prioritizing an educational system that is more efficient, transparent, and responsive to the needs of its stakeholders. The project has made significant progress, which has been led by the Organizational Change Management (OCM) team. They've strategized outreach and stakeholder engagement, ensuring we are ready to meet evolving needs.

As the project progresses, we will further develop documentation and outreach programs to align with stakeholders. Simultaneously, technical connections are being finalized for seamless data replication into Connected Intelligence. The connection from Infinite Campus state edition has already been deployed and PowerSchool is working on the custom connector and plans to build the 6 VPNs to the on-premises districts with PowerSchool.

This initiative aims to enhance Montana's educational landscape, fostering collaboration and transparency. OPI's advancements firmly establish it as an educational innovation leader, committed to a brighter future through data modernization.

Empowering Education Through Transformation

OPI's education data integration project represents more than just technological advancement; it symbolizes a revolution in education. The vendor is actively working to build a connection and replicate data from different Student Information Systems (SIS) into the data lake, Connected Intelligence. Achieving this connection and validating its functionality is a significant milestone. Once all the data is replicated into Connected Intelligence, their other application, Unified Insights, will equip leaders with tools to enrich educational experiences, promising a better future for both learners and educators.

Upcoming Activities and Efforts

- Monthly Executive Vendor Meetings with the Superintendent and OPI IT program team
- Weekly Project Status Update Meetings with Vendor
- Monthly Data Modernization Steering Committee meetings
- Custom connector built
- PowerSchool Connected Intelligence team will meet with OPI to discuss governance, security, and access
- Ongoing work on replication of data from Infinite Campus into Connected Intelligence
- Working to set a process for adding to the data dictionary post-deployment in case there are any changes/additions in the future

Next Report Period:

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