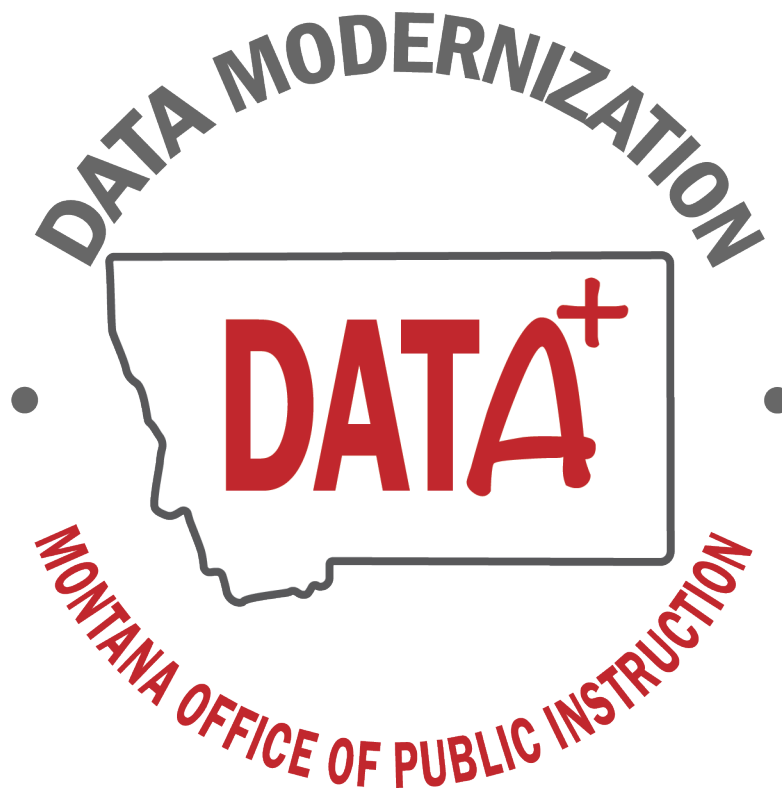




Montana
Office of Public Instruction
Elsie Arntzen, Superintendent



Educational Data Integration

December 7, 2023

Office of Public Instruction

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



Superintendent Elsie Arntzen
December 07, 2023

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 thus far. Our commitment to transforming Montana's educational landscape through data modernization remains steadfast.

We are diligently adhering to our project schedule, successfully meeting milestones, and staying on track for timely delivery. A pivotal aspect of our progress is the engagement of our vendor, collaborating with Infinite Campus to develop technical solutions for data capture. We are also strategizing and designing architecture to seamlessly collect data from PowerSchool SIS on-premises database schools.

In our pursuit of organizational change, we have been conducting meetings with OPI OCM leads for developing communication campaigns and soliciting input for the vision deck and communication plan. 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) ensure alignment with project scope and House Bill requirements.

OPI IT and the vendor is actively conducting collaborative discovery sessions with districts and schools, formulating solutions for connecting with Student Information Systems (SIS) and centralizing data. 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.

The Kalispell School District has been selected as the pilot for establishing and testing the PowerSchool connection, a pivotal step in our data modernization project. This choice focuses resources on real-world testing and, once the technical design is finalized, will lead to testing of data load and integration into the vendor application.

Newly, a parent reflection committee will be created to review and understand the application for a comprehensive user experience before its roll-out. A School Implementation Steering Committee, with monthly meetings starting in January, will provide guidance and feedback on project activities and requirements impacting users. Additionally, monthly executive (Superintendent led) meetings with the vendor, commencing in January 2024, will review project activities and ensure OPI goals are met through the implementation approach.

In this report, you will find a breakdown of financial aspects, underscoring our commitment to transparency and accountability. We provide comprehensive information on costs for assessments, technological evaluations, and stakeholder engagement.

Our commitment to transparency and collaboration remains unwavering. We will continue to provide regular updates and generate subsequent reports in alignment with our project roadmap.

For any inquiries or additional information, please reach out to me or my team. Your support and interest in this initiative are greatly appreciated. Together, we are working toward a more efficient and effective educational landscape through data integration.

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 is actively engaged in designing technical solutions to connect with district data from both PowerSchool and Infinite Campus schools, ensuring a comprehensive approach to data integration. Simultaneously, the OCM workstream is diligently working on developing the vision and communication plan, with a successful meeting already completed from the previous reporting period. Additionally, the first collaborative meeting with OPI, DLI, and OCHE has taken place to further discuss data integration and agency needs for alignment with the project scope. These collective efforts underscore OPI's steadfast dedication to advancing education through modernized data systems and effective change management.

Data Modernization Vendor Partner Role

The vendor for Montana's OPI data modernization project is actively involved in shaping the technical design of the crucial connections needed between districts and schools utilizing the PowerSchool and Infinite Campus student information systems. Their expertise and guidance in this area are invaluable in ensuring seamless integration and data flow. Moreover, the vendor has taken a leadership role in spearheading the development of the Organizational Change Management workstream. Within this capacity, they are responsible for crafting and delivering essential documentation as outlined in the Request for Proposal (RFP) and Statement of Work (SOW). This multifaceted engagement underscores their commitment to the success of the project and their pivotal role in facilitating a smooth transition towards modernized data management within Montana's education system. These objectives aligned with House Bill [367](#) & [949](#).

Partnership Foundations

Montana's OPI Data Modernization vendor has forged a strategic partnership with Snowflake to deliver cutting-edge technical solutions for the establishment of a robust data lake. This collaboration empowers the project by enhancing its data capture and accessibility capabilities, seamlessly integrating analytical tools and connection applications to align with the program's specific requirements. Leveraging Snowflake's expertise in data management and cloud-based solutions, the vendor is well-positioned to create a resilient and agile infrastructure that enables efficient data utilization and analysis, ultimately driving the success of Montana's data modernization initiative.

Contractual Framework

OPI and its vendors 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 Solutioning

The vendor is actively engaged in designing a comprehensive technical solution aimed at efficiently gathering data from a multitude of district technologies while ensuring a seamless processing mechanism. As a significant milestone in this endeavor, they have collaborated with the Kalispell School District to initiate a pilot program. This pilot serves as a practical demonstration of the application, data processing procedures, and integration protocols, serving as a blueprint for future deployments across other districts. The primary objective of this pilot initiative is to proactively identify and address any potential risks or impediments that may arise during implementation. By doing so, the vendor aims to develop robust mitigation strategies, thus ensuring a smoother and more successful rollout of the data modernization solution to other districts, ultimately contributing to the project's overall success.



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



OPI's collaboration with PowerSchool 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

PowerSchool 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.



Table of Milestone Delivery Schedule

Educational Data Integration

Milestone #	Deliverable	Delivery Date	Completed
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	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 since October 27, 2023
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 as of December 07, 2023

Workstream	Activity Overview	Outcomes
Organizational Change Management (OCM)	<ul style="list-style-type: none"> Four OCM (Organizational Change Management) sessions have been conducted in collaboration with the OPI OCM team, led by the vendor's OPI lead. The 4th meeting was conducted on Friday November 17, 2023, to discuss current roadblocks and vision deck requirements (OCM deliverable for end of Dec 2023). A review of the current Vision deck and broad objective of the project were discussed. OPI OCM leads provided content to address specific stakeholders needs for vendor OCM lead (facilitator) Meeting included assessing staffing roles and responsibilities relating to future state as well as confirming next meeting scheduled for Tuesday December 05, 2023 Strategy identified to broaden OCM scope in January 2024, encompassing additional affected user groups including parents and other system and process users and developing a plan for outreach and engagement 	<p>OCM stakeholder engagement plan.</p> <p>Program overview flyers for OPI internal users provided to OPI OCM team for outreach programs.</p> <p>Vision deck and communication plan review with OPI OCM leads for input and feedback to ensure messaging and requirements meet specific departmental group needs and requirements.</p>



<p>Cloud Migration System Design</p>	<ul style="list-style-type: none"> • Development team commenced replicating the Infinite Campus State Edition data to Connected Intelligence (vendor purchased application) • Next steps include meetings to document governance protocols, security requirements and access to the data elements • Architectural design in order to collect data from Infinite campus adhering to house bill 367 & 949 • Vendor application demonstration (technical and process flow) scheduled for December 14th, 2023 • Pilot school identified (Kalispell) for test prior to OPI wide implementation of connected intelligence and unified insights data collection and analysis. • Objective: <ul style="list-style-type: none"> ○ Finalize path for PowerSchool Student Information System (SIS) replication to Connected Intelligence ○ Review VPN's needed to replicate data from vendor Student Information System on-premise database ○ Alignment with Infinite campus on connections and data access ○ Training sessions. 	<p>Delivery of technical architecture and deployment of Connected Intelligence, Unified Insights and Community Engagement into all districts, schools and OPI:</p> <ul style="list-style-type: none"> • Business Capability Focused • Business Value Realization • People Roles & Readiness <ul style="list-style-type: none"> ○ Governance Prioritization & Control • Technical Capability Focused <ul style="list-style-type: none"> ○ Platform Application & Infrastructure ○ Security Risk & Compliance ○ Operations Hybrid & Dynamic
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Current Activities Continued

Workstream	Activity Overview	Outcomes
<p>Data Integration Needs Workgroup with OCHE and DLI</p>	<ul style="list-style-type: none"> • DLI and OCHE provided needs related to data and connection (technical and business operations) in order for OPI to document requirements for vendor application design. • First meeting with both DLI and OCHE participating. • Meeting this reporting period: December 05, 2023 • Identify current gaps, risk, and action items/task required to meet house bill 349 & 949 requirements. • OCHE to connect with DOA to confirm Snowflake licensing requirements relating to OPI and agency data access • Identified high-level CTE class effectiveness and tracking of high school students post-graduation wages • Agreement for forming working groups to address data sharing agreements and governance (notion to be brought to next state HB 949 committee meeting) • OPI has reached out to DOA to schedule the next Education and Workforce Data Governance Board meeting, aiming to establish the working groups discussed in the previous meeting held on September 22, 2023. <ul style="list-style-type: none"> • Requirement to have meeting on quarterly basis • Next meeting still pending upon response from DOA • Next DLI & OCHE Meeting: Early January 2024 	<p>Regular monthly meetings have been established to inform the agency about the ongoing status of the OPI Data Modernization project and to facilitate the exchange of information concerning data requirements and accessibility.</p> <p>These meetings have been strategically designed to serve as a platform for effective communication, fostering collaboration, and ensuring transparency regarding the current project status and advancements.</p> <p>DLI & OCHE provided one data request need in meeting (CTE Class Enrollment Data) – further discussions on how to capture data based on House Bill requirements</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 Cost

Goal 5: Security Risk Management and Continuity of Operations

Goal 6: Increase Governance Maturity

Addressing Statute 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

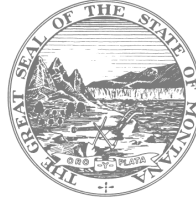
- Unified Insights, in compliance with House Bill 367, offers educators a comprehensive view of student data, enabling a deep understanding of individual student performance and needs.
- This alignment with legislative intent empowers educators to meet compliance mandates and support students more effectively.

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 Customers Experience for Educational Data Integration

Bridging Legacy & Modernization

- Seamless connection between current software and emerging data modernization infrastructure is crucial.
- This requires uninterrupted compatibility and harmonization of legacy systems with the advanced framework, addressing disparities in data formats, communication protocols, and operational processes to ensure fluid connectivity. This synergy sustains operational continuity and optimizes functionality, facilitating a cohesive transition to the future of data modernization.

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-driven decisions that enhance educational outcomes and organizational effectiveness.

Reduced Downtime

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

Charting the Course Forward

Navigating the Next Steps in Educational Data Integration

As OPI embarks on its transformative journey towards data modernization, it has already taken significant steps that illuminate a promising path towards an educational ecosystem that is more efficient, transparent, and responsive to the needs of its stakeholders.

As part of this strategic foundation, OPI's Organizational Change Management (OCM) team has played a pivotal role. They have engaged OPI OCM leads to strategize about outreach approaches and have been instrumental in identifying key stakeholder needs and engagement strategies. This proactive effort ensures that as we move forward, we are well-prepared to address the evolving requirements and expectations of our educational community.

Furthermore, OCM will continue to develop essential documentation and initiate outreach programs to internal stakeholders and users in the upcoming period. This proactive approach will help us align our efforts with the needs and expectations of our educational community.



Simultaneously, the vendor is diligently working to finalize the technical connections that will enable data to flow seamlessly into its application from both PowerSchool and Infinite Campus student information systems (SIS). This critical step ensures that we have a robust foundation for data integration and analysis.

Additionally, the vendor is actively developing the integrations required to demonstrate the system's capabilities with our pilot school, Kalispell, scheduled for Q1 2024. This pilot initiative is crucial as it allows us to identify any potential risks or impediments and provides an opportunity to fine-tune our processes before rolling out the solution to other districts.

As we progress, the data modernization initiative is poised to usher in a new era of educational excellence in Montana, empowering educators, students, and administrators with enhanced capabilities and resources. This journey is not only about embracing advanced technologies but also about fostering collaboration, promoting transparency, and enriching the educational experience for all stakeholders.

The progress made up to this point, encompassing continuous architectural development, OCM initiatives and deliverables, as well as technical integrations, firmly establishes OPI as a leader in educational innovation. This underscores our unwavering dedication to enhancing Montana's educational landscape through the modernization of data, thereby ensuring a brighter future for all.

Empowering Education through Transformation

In essence, OPI's educational data integration project represents more than just technological advancement; it encapsulates a comprehensive transformation of education. Building upon the assessment and Data Modernization Strategy, OPI fosters adaptability, efficiency, and excellence throughout the educational landscape. Furthermore, the vendor is actively moving forward with setting up connections to replicate data from various Student Information Systems (SIS) into its own application, Connected Intelligence. The successful establishment of this connection and confirmed functionality serves as a critical milestone. It is essential to note that the integration of the other vendor application, Unified Insights, is contingent upon the completion of this initial connection. With a well-defined path and an unwavering commitment to refinement, OPI's journey continues to enrich educational experiences, promising a brighter future for both learners and educators.

Upcoming Activities and Efforts

- Setting up the connection to replicate data from Infinite Campus (SIS) to PowerSchool's Connected Intelligence
- Establish requirements needs with pilot school (Kalispell) to develop connection and integration with vendor application
- Finalize data collection, validation and access technical architecture documentation
- 1st School Implementation Steering Committee meeting
- 1st Monthly (reoccurring for 2024) Executive Vendor Meeting with Superintendent and OPI IT program team
- Development of Parent Reflection User Group Committee and scheduling regular monthly meetings
- 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
- Organizational Change Management (OCM) meeting (December 05th) to finalize requirements for the delivery of the



vision deck (December 28th) and input into Communication Plan deliverable

- Vendor conducted demo (December 14th) to walk-through application technical and workflow for OPI IT team
- Vendor Connected Intelligence team to schedule meeting with OPI project team leads to document application governance, security and data access

Next Report Period:

February 26th, 2024

April 29th, 2024

June 24th, 2024

August 26th, 2024

October 21st, 2024

December 23rd, 2024