Section 22m – Michigan Data Hub

House Subcommittee Testimony, March 7, 2017

How can the Michigan Legislature save local school districts $56 million every year by eliminating redundancy in data collection and reporting efforts?

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Answer: The Michigan Data Hub.

- **A report commissioned in 2016 identified $56 million in annual savings that would result from continued investment in the Michigan Data Hub. http://bit.ly/MIDataHubROI**
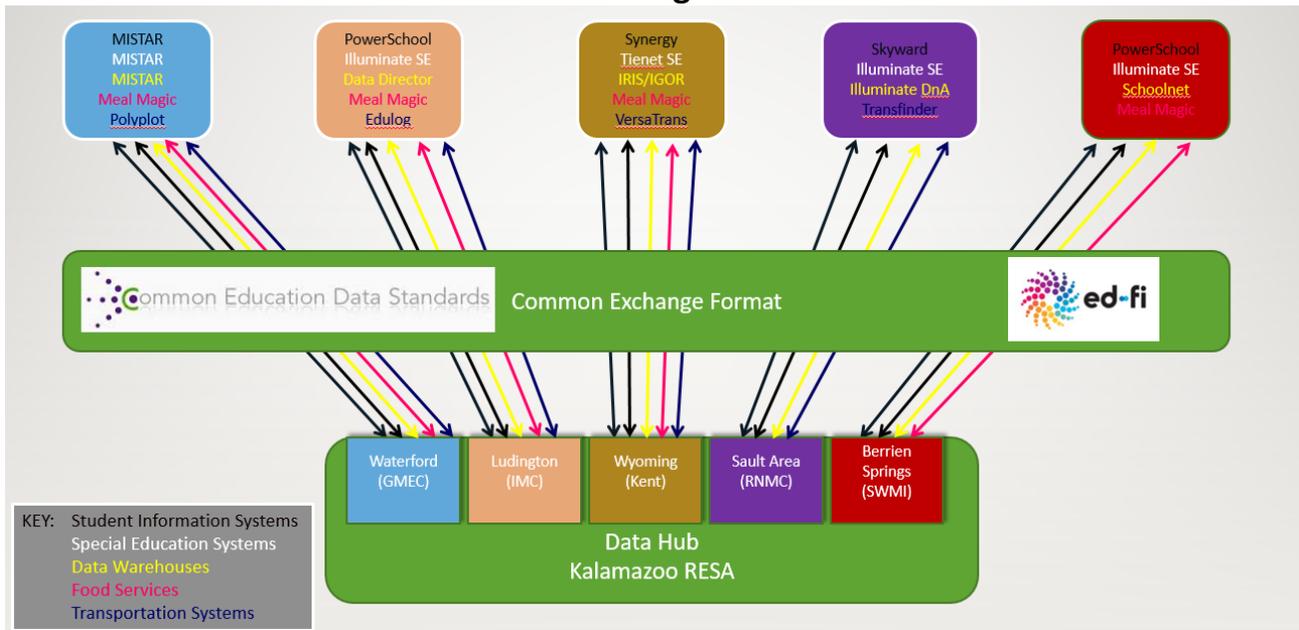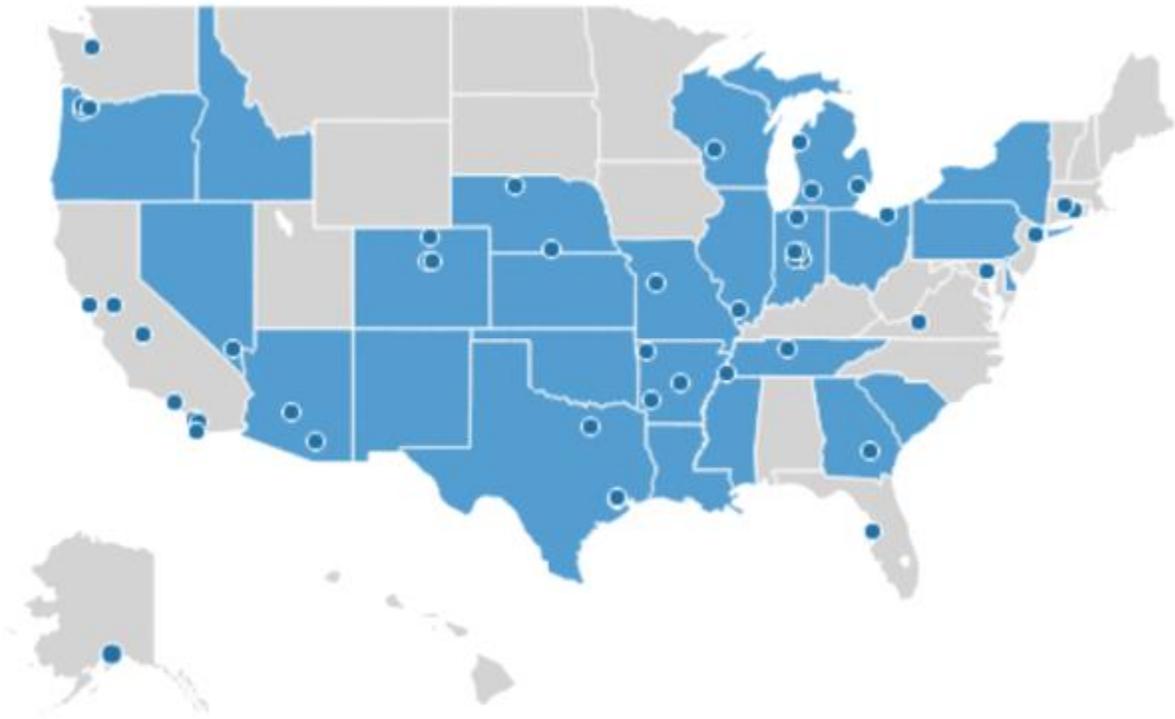
What is The Michigan Data Hub?

- ✓ The Michigan Data Hub is very technical in nature. This document tries to explain the Michigan Data Hub without getting into the technical "weeds."

1. **Standards-Based Exchange of Data:** The Michigan Data Hub allows local school district data systems to talk to each other WITHOUT replacing the data systems currently in use. At one time, there was an estimated 39 different student information systems in use in the state.
   - In 2010, a formal estimate of converting to a single student information system projected the cost at $140 million.
   - In addition to student information systems, Districts have an average of 7-8 data systems per district.
   - Through this project, we have identified more than 400 separate data system products in use in Michigan schools.
   - This proliferation of systems puts student Personal Identifiable Information (PII) at risk and makes data exchange very inefficient, costly, negatively impacts data quality, and leads to massive duplication of effort in managing data.

2. **Local Control and Stewardship of Data:** The Michigan Data Hub operates a "cockpit" for local district administrators to manage data sharing and create a secure digital ECOSYSTEM where information is exchanged between all of the data systems used by schools, including State of Michigan data systems, in a standards-based manner. This is the system that is recognized by MDE as meeting the requirements of section 19(7) of the School Aid Budget.

3. **Collaborative Effort:** The Michigan Data Hubs is a Local Education Agencies (LEAs), Intermediate School Districts (ISDs), Center for Educational Performance and Information (CEPI), Department of Technology, Management and Budget (DTMB), and Michigan Department of Education (MDE).

   - The Michigan Data Hub is the result of nearly 4 years of work by the Data Integration Activity, which was part of the Technology Readiness Infrastructure Grant (TRIG).

4. **A Network of Data Hosting Locations:** The data hubs are currently hosted by 5 well respected ISDs, one in each TRIG Region. This consolidating hosting allows for enforcement of best practices and allows for district data to be hosted by ISDs, which have traditionally been reliable and trusted partners in that work.

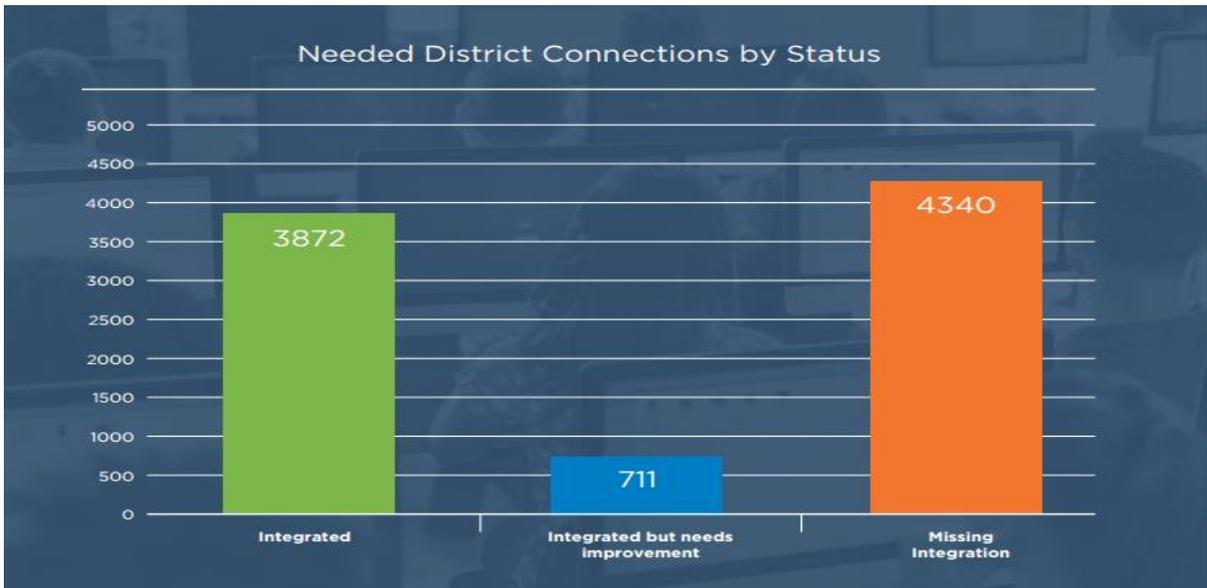## A Picture of how The Michigan Data Hub works:

National Usage of the Ed-Fi Data Standard:

States and Districts Licensed
as of 7/18/2016

What problems does the project address?

1. Reduce the cost of data management on Michigan taxpayers.
   - Duplicate Work in Data Integration, estimated savings of $23.31M.
   - Need for integration of additional systems, estimated savings of $16.76M.
   - Streamline and partially automate state and federal reporting, estimated savings of $16.27M.

Needed District Connections by Status

2. Increase data quality so that data is readily available and useful for district, regional, state and federal purposes.

3. Provide actionable data in an equitable manner where all educators have access to the information needed to improve education in their district regardless of size, location or poverty level.

Search

Jennie Bishop
R. Tucker's Homeroom
HAL P
State ID: 604896   District ID: 604896

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| Student Information | Academic Dashboard | Early Warning System | Intervention Catalog | Course History |

Early Warning System
Jump to subcategory: Dropout Early Warning System

DROPOUT EARLY WARNING SYSTEM	METRIC VALUE	TREND	STUDENT GOAL	DIFFERENCE FROM GOAL	DETAILS
Summary (Through May 27, 2011) Metrics failing and approaching failing					
▪ Metrics Failing	2		0	-2	
▪ Metrics Caution	0		0	0	
Attendance (Through May 27, 2011) Percent of days student is in attendance					More ▾
▪ Daily Attendance Rate	100.0 %		95.0 %	5.0 %	
Behavior (Through May 13, 2011) Number of discipline incidents					More ▾
▪ School Code of Conduct	0		3	3	More ▾
▪ State Reportable Offenses	2		0	-2	More ▾
Current Course Grades (Through Sixth Six Weeks 2010-2011) Grade as of last grading period					More ▾
▪ Current Math Grade	46	◀▶	70	-24	More ▾
▪ Current Language Arts Grade	75	◀▶	70	5	More ▾

How does this differ from the work of CEPI?

CEPI	Michigan Data Hub
Collects a narrow amount of information mandated for state and federal purposes	Collects a broader amount of information primarily for district usage. Includes a level of data that the State does not have the need or legal mandate to access and control
Collects data at strategic periods throughout the school year	Collects data on a daily and near real-time basis
Data collection may be aggregate in many cases	Data collection is almost always detailed record level information
Widely used and sometimes publicly available data sets	Local control of data and much larger volume of sensitive PII data
Data specifications tailored to state data needs	Data specifications allow districts to have system variety, cross-system integration, actionable data and more efficient state reporting

A Few Success Stories:

"Plug and Play Integration" – Burr Oak Community Schools was able to implement a new alert system through the data hubs in 5 minutes. Typically, integrations take days, weeks or months.

MDE MiLEARN Initiative – MDE was able to pilot the MiLEARN system with two different SIS Systems in under 6 months through the use of data from the data hubs as well as the data hub SSO. The data hubs make all systems look the same, dramatically simplifying the process and saving time and money on integration. Support for a third SIS is in process and 12 districts are live on MiLEARN. These numbers will grow dramatically in upcoming months.

Free Early Warning System (EWS) and Intervention Catalog – Delta-Schoolcraft ISD and its districts had spent $60,000 in the 15-16 school year to implement a data warehouse with a primary goal of implementing an EWS. Due to integration challenges, that work was never implemented. In 2 hours, the data hub integration was configured for Manistique Area Schools, a metrics build was completed in under 2 hours, and the district had a fully functional EWS with Intervention Catalog. The districts in the ISD service area were very excited and are also pursuing data hub integration.

What is left to be completed?

Capability	What has been completed?	What still needs to be accomplished?	Challenges
Michigan Data Hub Infrastructure	• Created cockpit application to manage data hubs and integrations. • Established 5 regional data hubs and governance structure to manage them.	• Consider migration toward a single "Cloud" data hub for increased cost-effectiveness	• Need to ensure that we continue integration efforts in order to turn TRIG investment into real savings

			• Need to address district concerns about data privacy in cloud environment
Integration of Common Data Systems Used in Michigan with the Michigan Data Hub	• 5 of 6 SIS Systems • 3 of 32 High Priority Systems (Alert, Assessment, Behavior, Data Warehouse, Learning Management, Library, Special Education, Transportation)	• Complete Infinite Campus SIS Integration • Encourage SIS vendors to be more inclusive and consistent in data provided • Complete remaining high priority integrations • Address integration of remaining 390 systems	• Vendor development priorities. • Lack of Mandate.
100% District Adoption	• 88 districts live (~10%) • 302 districts signed-up (over 33%) • Expected 200 live by June 30, 2017	• Encourage remaining districts to sign up • Complete onboarding of all signed-up districts	• Adoption is voluntary • Need to address districts that use non-integrated systems
Establish the Data Hubs as an Option for State Reporting and	• Generation of MSDS collections from data hubs	• Work with vendors to quality check their data processes to	• CEPI, DTMB and MDE timelines • Annual changes in

Transfer of State Level Data	• Rules engine provides error checking of district data to improve data quality and reduce cleanup efforts • Created over 25 CEPI MSDS reports so that errors are addressed earlier	ensure state reporting is fully accurate • Complete work to allow for EEM, REP and FID data to flow to data hubs • Complete work to allow M-STEP and other state assessment data to flow to data hubs	requirements and data formats
Facilitate the use of Data for MDE Initiatives	• MiLEARN system uses data hub data and SSO to allow parents, students and educators to access M-STEP data online • MiExcel system uses data hub data to add attendance and suspension data next to more static state data in dashboards • ESSA plan names data hubs as a method to gather data that is not currently	• Configuration and testing of competency-based transcripts • Automate process of computing student growth for teacher evaluation • Address areas where data hub integration can support Top 10 in 10 initiative • An EWS implementation process and research-based intervention practices will be added as an option to assist	• New uses of the data hubs come up every day • Many existing MDE data processes left to incorporate

	state reported in order to address mandated reporting	with data hub dashboard usage	
Expand the use of the Statewide Single Sign-On Solution (SSSO)	• SSSO implemented • Data hub cockpit and dashboards currently integrated • EUP and REMC1 regions integrated • MiLEARN and MiExcel leverage data hub SSSO	• Allow other statewide projects to leverage SSSO (MiSEN, MTRAx, Edupaths, etc.) • Allow State of Michigan systems to leverage data hub SSSO as SoM logins to access data hubs • Create Launchpad as a single point of access for all systems that are accessible through SSSO	• There are a large number of systems that can leverage the SSSO. It will take time to address them all • Will need to ensure that future systems start with SSSO rather than recreating.
Provide Actionable Data to Educators through Dashboards and Reports	• Created numerous data quality reports. • Implemented dashboards, including a completely free and fully functional EWS with Intervention Catalog	• Create reports for Green Pupil Accounting initiative • Created dashboards to support the Reading Now Network • Create dashboards and reports to	• Need for continuous improvement of dashboards and inclusion of new data sets

		support early literacy initiatives • Implement work to aggregate data across initiatives	
Identify and Secure Reliable, Annual Funding Sources	• $425K available through MDE to bridge through part of 17-18 school fiscal year • 22m state budget allocation of $2.2M for FY2018	• Evaluate areas where stakeholders can pay for the functionality that they use from the data hubs, especially where savings is greater than cost. • Ideally state funding needs would decrease as stakeholders are able to support operational funding needs. • Grants will be explored for funding specific initiatives. • Stakeholder funding will be sought for funding specific initiatives. • Implementation of an app market where vendors	• Direct funding is needed until the features and functionality are sufficient that all stakeholders would pay their way rather than see data hubs cease operations

		pay to host applications and for convenient integrations.	
Promote the Continued Development and Use of the Ed-Fi Solution	• Michigan is seen as a national leader in the initiative to improve systems integration • Numerous presentations at national conferences • Occasional discussions with other states and larger districts on implementation • Participation in Ed-Fi Technical Advisory Group (TAG) to promote development of features needed in Michigan	• Continued outreach to states and districts through national conferences and conference calls • Continued participation in Ed-Fi TAG • Continued work with vendors to prioritize connectivity for a statewide audience • Continued leveraging of solutions created by other states (i.e. Nebraska CRDC reporting)	• Care is taken to ensure that this work does not detract from efforts to address needs of Michigan stakeholders

Bottom Line: For less than 4% of the total TRIG investment the legislature made, we see extremely high ROI possibilities. For about $1.50 per student, the returns of funds to the classroom will be huge IF districts are encouraged to participate. With 33% of districts signed on already, a minimal continued investment instills districts with confidence that the effort will move forward.

Partners working with us on The Michigan Data Hub

CEPI - As the data hubs and CEPI have a great deal in common, this will be a very close relationship. Much of the data hub work has been inspired and encouraged by CEPI. The Director and Assistant Director are members of the advisory committee so that we can facilitate a close relationship and close coordination of efforts. We will work with CEPI on state reporting, exchange of data between the state and the data hubs, authentication mechanisms for systems, and grant opportunities that may arise. Using CEPI provided business rules, we are able to ensure cleaner data for district decision making as well as for smoother state reporting processes.

MDE - The Michigan Department of Education will be a primary partner in working to use actionable information from the hubs to improve student learning and educator effectiveness. MDE currently has its Director of 21st Century Learning as a member of the advisory and is welcome to have others as needs merit. Specifically, the data hubs will work with MDE to facilitate data needs for any MDE initiatives that require district data or where state and district data need to be provided to districts in a side-by-side manner.

ISDs - The intermediate school districts in Michigan have been the primary provider and support mechanism for school information systems. ISDs will be key partners in advising, hosting, managing and supporting the data hubs.

LEAs and PSAs - Local Education Agencies and Public School Academies will primarily be the customers of the data hubs. As such, they will be an important group to partner with for feedback and direction towards solutions that best meet their needs.

Ed-Fi Alliance - The Ed-Fi Alliance developed and maintains the open source solution that the data hubs are based on. Their continued efforts to develop and advance the Ed-Fi solution provide great sustainability to our work. Data Integration staff work very closely with the Ed-Fi Alliance and are part of their Technical Advisory Committee to help guide the initiative. In addition, the alliance has provided sound guidance and support as we've worked to get our work off the ground.

Michael & Susan Dell Foundation (MSDF) - The MSDF is a non-profit organization that provides ongoing financial support for the Ed-Fi Alliance. Their commitment currently extends out at least 5 years. MSDF has also worked closely with our project and has funded development of a key piece that the data hubs need for security. That funding has saved our project more than half a million dollars.

Double Line Partners (DLP) - Double Line Partners has been the primary programming arm of the activity. They have taken our requirements and desires and architected a solution to address them. The result is a cockpit application and data hub layout that has many other states interested. We hope to continue working with them well into the future, pending the results of an RFP that has been issued.

Microsoft - While not having a huge part in the project to date, Microsoft will figure into our plans much more significantly going forward. Currently, all project servers run Microsoft technology including Windows, SQL Server, Orchestrator and Systems Center. It is anticipated that Microsoft will work to integrate their Power BI tool to provide dashboarding options and that project servers may move to a cloud environment at some point.

Other States - As other states adopt the Ed-Fi solution, they expand and extend the Ed-Fi solution in ways that we may not have thought of. Typically, these states have been good about offering those items to other states at no cost. In other cases, those features are so beneficial that they become a part of the Ed-Fi core. We serve to benefit significantly from working with them and sharing our work with other states in return is only fair.

System Vendors - A key component of the data hubs is the ability to have connectors to a variety of systems. We have been working heavily with SIS vendors and are beginning to make some progress in achieving connectivity with them. Progress with other vendors is slower, but critical to the success of the activity.

Other TRIG Activities - Several of the TRIG activities have played a key role in our work and others may begin to rely on the data hubs. The SEN project has worked to facilitate 100Gb high-speed connectivity between the data hub hosting locations. That will allow for all districts to have good connectivity to the hubs,

and for each hub to talk with each other efficiently. The Classroom Readiness project has created logins to allow for data hub training to be delivered in Edupaths. In return, the data hubs will begin to provide actionable data that may result in PD delivered through Edupaths.

MIEM - The Michigan Institute for Educational Management has provided staff through the TRIG office to facilitate meeting logistics. Their support has made it easier for project management staff to focus more on project work than on making meeting arrangements.

MASA/MAISA - The Michigan Association of School Administrators and Michigan Association of Intermediate School Administrators have become a great sounding board and collaborator. They also provide a communication channel to superintendents. As a part of their Systemic School Reform Committee, they are working with the data hubs to advance the use of data in Michigan.

GELN - A project of MAISA, the General Education Leadership Network is poised to pursue improvements in teaching and learning. Going forward, the data hubs and GELN will need to work together closely to use hub-level data to inform teaching and learning.

MACUL - The Michigan Association for Computer Users in Learning has facilitated communication with educational stakeholders through their annual conference. Each year the data hub project has participated in the conference and this past year was featured during a luncheon session.

MAEDS - The Michigan Association of Educational Data Systems has facilitated communication with technology coordinators and directors through their annual conference. Each year the data hub project has presented at the conference, allowing for us to reach many technology directors and for us to receive a great deal of feedback.

REMC - The bid list negotiated by the Regional Educational Media Centers has allowed the project to buy Microsoft products at a greatly reduced price. As the data hubs expand, the amount of licensing will increase over time, increasing the overall savings.

MPAAA - The Michigan Pupil Accounting and Auditors Association has provided for communication with school staff who work on auditing, pupil accounting and state reporting. Each year the data hubs have presented at the annual MPAAA conference. As functionality is developed to address the information needs of MPAAA members, we expect the group to be a great sounding board.

MSBO - While not a major player currently, the Michigan School Business Officials will become a bigger partner as the data hubs work to incorporate data from financial, human resources, and payroll applications. MSBO will be a partner in guiding that work and communication the results out to the appropriate stakeholders.

Higher Education - A portion of the data identified in the Ed-Fi data specification is reserved for post-secondary information. In being a part of the P-20 council, the data integration activity will establish a dialogue with higher education institutions around the use and sharing of data between the public schools and higher education.

CTE/Workforce Development - As another portion of the P-20 council, the workforce development and career and technology education groups will also become important partners. These organizations will be able to provide feedback into what types of data would be valuable to track and report on as students move from school into the workplace.

Anticipated Budget Breakdown for Year 1:

Budget Category	FY2018 Budget Amount
Michigan Data Hub Infrastructure • Hosting and Licensing • Operations Staff • Continued development • Cloud migration	$1,200,000
Integration of Common Data Systems Used in Michigan with the Michigan Data Hub • Complete and improve all 6 SIS Systems • Complete all 32 high priority systems • Progress on additional 390+ systems	$300,000
100% District Adoption • Expand from 20% to a min of 50% of districts live	$300,000
Establish the Data Hubs as an Option for State Reporting and Transfer of State Level Data • Complete work on EEM, FID, REP and M-STEP integrations • Continued work with SIS vendors on completeness for reporting	$200,000
Facilitate the use of Data for MDE Initiatives • Cost largely covered by MDE for each initiative • Some staff time to work with MDE	$ 25,000
Expand the use of the Statewide Single Sign-On Solution (SSSO)	$25,000
Provide Actionable Data to Educators through Dashboards and Reports	$125,000
Identify and Secure Reliable, Annual Funding Sources	$15,000
Promote the Continued Development and Use of the Ed-Fi Solution • Staff time and conference travel	$10,000
Total	$2,200,000.00