ANALYSIS

Department of Education
School Funding Transparency

Analyst: Julie Neburka

Request: Acknowledge receipt of a report on the Department of Education's research on ways to make its school and district level financial data publicly available in a searchable, user-friendly format.

Analysis: The Oregon Department of Education (ODE) collects a great deal of financial and demographic data from school districts and education service districts (ESDs) each year, and posts much of it in various places on the ODE website in varying formats and in a discontinuous way. Legislators and others seeking to understand district-level spending decisions and school outcomes have been interested in addressing the lack of reasonably intuitive access to ODE's school finance data since at least 1997, when the Legislature passed HB 3636. This measure directed the State Board of Education to adopt a common chart of accounts for school districts and ESDs to use in order to generate comparable spending information. Since that time, and despite the Department's Database Initiative Project which was decommissioned in 2019, advances in information technology and data science have consistently outpaced the Department's efforts to improve access to statewide school finance data.

A budget note in HB 5014 (2023) directed the agency to take a fresh look at the ways in which it might make its school and district-level financial data publicly available on a website in a searchable, user-friendly format. The text of the budget note reads:

> **"Budget Note: School Funding Transparency**
> The Oregon Department of Education (ODE) collects and maintains a wide variety of data from local school districts, including revenue and expenditure budgets and audited actual annual revenues and expenditures. The Department is directed to research ways in which to make its school and district-level financial data publicly available on a web site in a searchable, user-friendly format. Users should be able to query and display school and district-level aggregated expenditures and revenues at varying levels of detail and in varying visual formats. The Department shall report to the Education Subcommittee of the Joint Committee on Ways and Means during the 2024 legislative session on its research, including technologies reviewed and costs and timelines for implementation.
>
> Additionally, on an annual basis, the Department of Education shall publish a written report on school district-level revenues and spending by each school district in Oregon. The report should display actual revenues and expenditures in a fiscal year compared with the school district's budgeted revenues and expenditures for that year, aggregated by function and by object, and including budgeted and unbudgeted ending fund balances. This written report shall be presented to the Joint Ways and Means subcommittee on education no later than February 28th of each year."

The Department's report describes its review of two other states' school finance data displays, as well as the work done by the Edunomics Lab at Georgetown University. The report mentions reviewing various data visualization software packages but discusses only the one that ODE is currently using; and discusses the risks and opportunities associated with fiscal data dashboards generally. Key recommendations in the report include implementing fiscal transparency dashboards in a "phased approach" over a three-year time period, using a mixed development method of implementation relying

on both agency staff and contractors, adding agency staff and training resources, assessing data warehouse (and other technology) needs, and engaging with focus groups and partners to develop data displays. The estimated cost of implementing all recommendations, as described in the report, totals $2.4 million and adds eleven new positions in the 2023-25 biennium.

Notably, the report does not address the second paragraph of the budget note, directing the agency to produce a written report on school district revenues and expenditures each year. No written report is proposed, nor are alternatives - such as publishing school district Annual Comprehensive Financial Reports, which contain the requested information - discussed. The single reference to "downloadable data available in Excel" on page 21 of the Department's report further illustrates the need for clear, easily understood, publicly accessible school financial data.

The Legislative Fiscal Office notes that this budget note report coincides with the Governor's recent request for increased school funding transparency, and with an agency request for funding in the 2024 legislative session to build and staff the capacity for increased public financial reporting.

Legislative Fiscal Office Recommendation: The Legislative Fiscal Office recommends that the Joint Committee on Ways and Means acknowledge receipt of the report.

Request: Report on school and district-level funding transparency by the Oregon Department of Education (ODE) as required by House Bill 5014 (2023).

Recommendation: Acknowledge receipt of the report.

Discussion: House Bill 5014 (2023), ODE's main budget bill for the 2023-25 biennium, included a budget note with the following direction:

> **Budget Note: School Funding Transparency**
> The Oregon Department of Education (ODE) collects and maintains a wide variety of data from local school districts, including revenue and expenditure budgets and audited actual annual revenues and expenditures. The Department is directed to research ways in which to make its school and district-level financial data publicly available on a web site in a searchable, user-friendly format. Users should be able to query and display school and district-level aggregated expenditures and revenues at varying levels of detail and in varying visual formats. The Department shall report to the Education Subcommittee of the Joint Committee on Ways and Means during the 2024 legislative session on its research, including technologies reviewed and costs and timelines for implementation.
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> Additionally, on an annual basis, the Department of Education shall publish a written report on school district-level revenues and spending by each school district in Oregon. The report should display actual revenues and expenditures in a fiscal year compared with the school district's budgeted revenues and expenditures for that year, aggregated by function and by object, and including budgeted and unbudgeted ending fund balances. This written report shall be presented to the Joint Ways and Means subcommittee on education no later than February 28th of each year.

ODE started the Database Initiative Project (DBI) in 1997 to standardize the financial chart of accounts of schools to generate reliable data, which could inform policy decisions. The DBI reports were decommissioned several years ago due to inconsistency in data, software no longer being supported, and not meeting all accessibility standards.

In response, an increased need for district-level spending data that is easy for public navigation and utilization, as well as the direction in the budget note, ODE began to engage with stakeholders both internally and externally. The report documents the research and work that has been done to identify solutions for enhancing data transparency. The report estimates a need of $2.4 million in the current biennium to increase staffing capacity, conduct a data warehouse assessment, training, and licensing, and for outside IT consulting. The report's budget estimate aligns closely to a separate budget request for consideration during the 2024 Legislative Session.

Oregon
Tina Kotek, Governor

OREGON DEPARTMENT OF EDUCATION
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Dr. Charlene Williams
Director of the Department of Education

January 15, 2024

Senator Elizabeth Steiner, Co-Chair
Representative Tawna Sanchez, Co-Chair
Interim Joint Committee on Ways and Means
900 Court Street NE
H-178 State Capitol
Salem, OR 97301

Dear Co-Chairs:

Nature of the Request

The Oregon Department of Education (ODE) currently has limited capability to produce meaningful school district financial reports for public review since the Database Initiative Project (DBI) reports were fully decommissioned in 2021.

The DBI began in 1997 with the goal of standardizing the financial accounts of school to generate reliable, comparable data on which to make policy decisions. The DBI reports were removed from the ODE's website in 2021 due to instability of long-term data, legacy programming that was no longer supported by current software, and not meeting all accessibility standards. There was also concern the formatting of the reporting was not easily interpreted by the general public.

All the staff associated with the DBI reporting have either left the agency or retired, and there is the need to re-establish data-analytics and data-visualization expertise and dedicated staff.

The ODE is responding to the HB 5014 (2023) budget note and is prepared to present its report on School Funding Transparency as requested during the June 7, 2023, Joint Committee on Ways and Means.

Agency Action

In addition to preparing a report for the 2024 Interim Joint Committee on Ways and Means, the ODE has taken substantial steps to respond to the emergency declared for School Funding Transparency, where an

initial data dashboard for school district financial data has been created and is currently available on ODE's website for public viewing. This initial work, which we refer to as phase 1, revealed much of the anticipated needs moving forward and current status at ODE, where additional support is needed to provide systems, staffing and training to meet expectations and needs moving forward.

While this initial effort was very helpful in reporting some school financial data, the ODE recognizes the potential and opportunity to provide high-level data analytics and data visualizations that are appealing to a variety of audiences including news media, the general public, school officials, the Legislature, and federal government.

A separate request will be made to the 2024 Interim Joint Committee on Ways and Means identifying these additional supports.

Action Requested

Acceptance of the report on School Funding Transparency as requested during the June 7, 2023, Joint Committee on Ways and Means.

Legislation Affected

None

Sincerely,

Dr. Charlene Williams (she/her)
Agency Director
Oregon Department of Education
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Fiscal Transparency Budget Note

February 2024

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Executive Summary

The Governor signed into law HB 5014, chapter 449 (2023 Laws), "Relating to the financial administration of the Department of Education; and declaring an emergency" on July 27, 2023. By way of budget note the Oregon Department of Education was tasked with presenting to Joint Committee on Ways and Means:

> *The Oregon Department of Education (ODE) collects and maintains a wide variety of data from local school districts, including revenue and expenditure budgets and audited actual annual revenues and expenditures. The Department is directed to research ways in which to make its school and district-level financial data publicly available on a web site in a searchable, user-friendly format. Users should be able to query and display school and district-level aggregated expenditures and revenues at varying levels of detail and in varying visual formats. The Department shall report to the Education Subcommittee of the Joint Committee on Ways and Means during the 2024 legislative session on its research, including technologies reviewed and costs and timelines for implementation.*
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> *Additionally, on an annual basis, the Department of Education shall publish a written report on school district-level revenues and spending by each school district in Oregon. The report should display actual revenues and expenditures in a fiscal year compared with the school district's budgeted revenues and expenditures for that year, aggregated by function and by object, and including budgeted and unbudgeted ending fund balances. This written report shall be presented to the Joint Ways and Means subcommittee on education no later than February 28th of each year.*

Following this request the Office of Finance and Information Technology (OFIT) in partnership with the Office of Research, Assessment, Data, Accountability, & Reporting (RADAR) began to engage with internal and external stakeholders, leading education finance researchers, education finance vendors, and colleagues in other State Education Agencies (SEAs). Additionally, the agency reviewed learning from its own decommissioned Database Initiatives (DBI) report.

Through engagement, research and review, ODE gained an understanding of what is required to develop a robust data transparency platform. It became clear that aligning all data transparency initiatives would also benefit the public, serving to create access and information available to

those the ODE serves. Additionally, if the agency wants to create a usable and scalable platform for data visibility it needs to consider the needs of an elegant system including the IT structures and data inputs into the data visualization platform.

The Department of Education's Five Key Recommendations:

1. Implement Fiscal Transparency Dashboards and Align with Multiple Data Visualization Projects across ODE in a Phased Approach
2. Establish a Mixed Development Model for Transparency Portal
3. Address Staffing Needs and Training
4. Assess Data Warehouse Needs
5. Engage with Focus Groups and Partners on Data Displays

Background

Over time, several factors have prompted changes in ODE's financial reports. This section briefly describes some of the history, including updated accessibility guidelines, amended federal requirements, and the production of a School Finance accessible interactive report tool.

Civil Rights Accessibility Finding

In October 2018, Director Colt Gill announced a new policy regarding ODE's commitment to accessibility. This policy states, "ODE affirms its commitment to ensure people with disabilities have an opportunity equal to their peers without disabilities to participate in ODE's programs, benefits and services, including those delivered through electronic and information technology, except where doing so would impose an undue burden or create a fundamental alteration." This policy was in response to a 2016 civil rights finding that was filed against the Oregon Department of Education by the US Dept of Education Office for Civil Rights. The finding stated that information posted to the ODE's website was not accessible to individuals utilizing screen readers. In response to the finding, the agency identified accessibility guidelines and resources to facilitate the creation of accessible materials. The ODE then immediately began work to move the website to an accessible platform, hire an accessibility technician, and remediate all priority files. On January 2021, the US Department of Education finding was closed. Since then, the agency has increased accessible resources across the website and maintained its commitment to accessibility.

In response to concerns brought forward by the Oregon Secretary of State's January 2019 "ODE and PPS Must Do More to Monitor Spending and Address Systemic Obstacles to Student Performance, Particularly at Struggling Schools" audit, the "importance of ensuring effective education spending" was highlighted. Oregon subsequently passed HB 3427 (2019), more commonly known as the Student Success Act, solidifying accountability, and transparency priorities for the state. HB 3427 Section 25 (1) states, "The Department of Education shall use moneys in the Statewide Education Initiatives Account to provide funding for statewide education initiatives, including planning for increased transparency and accountability in the

public education system of this state." HB 3427 was followed by the "Gubernatorial Convening on School District Fiscal Management and Transparency" (February 2019) leading to the hiring of agency staff, including two full-time positions within the School Finance unit.

ESSA Federal Law

The Office of Finance and Information Technology currently publishes accessible interactive report tools, the "School Level Expenditure Report" and the "School Level Expenditure Report – Federal and State Special Revenue Breakout." These tools have been shared nationally with other states as a best practice in how to meet the requirements in the 2015 federal Every Student Succeeds Act (ESSA). As required by the "Dear Colleague" Per-Pupil Expenditure Reporting letter issued by the United States Department of Education on June 28, 2017, starting with the 2018-2019 school year, the School Finance unit, utilizing available staff and resources, created both accessible reports and made them available to the public on the Oregon Department of Education website.

The Every Student Succeeds Act (ESSA) amended the state education agencies (SEAs) Section 1111(h)(1)(C)(x) of the Elementary and Secondary Education Act of 1965 (ESEA) to require the reporting of:

> *The per-pupil expenditures of Federal, State, and local funds, including actual personnel expenditures and actual nonpersonnel expenditures of Federal, State, and local funds, disaggregated by source of funds, for each local educational agency and each school in the State for the preceding fiscal year.*

In June 2020, when the actual data for the 2018-2019 school year was made available, a report tool was created. OFIT had been researching solutions to the reporting requirement since 2018. However, when creating the 2020-21 School Level Expenditure Report and Federal and State Special Revenue Breakout, due to changes in the average daily membership (ADM) formula, the report tool broke. Due to staff changes and minimal process documentation, the Office of Information Technology spent six months identifying a patch to recreate the tool. Previous and current experience with reporting tools identified the need to develop an official process in

addition to the reporting tool for the proposed District and School Expenditure and District Revenue data visualizations.

Considerations for Data Reports

Edunomics Lab (Georgetown University)

As part of considering strategies for presenting school and district financial data to the public, ODE staff sought input from Marguerite Roza, Research Professor and Director of the Edunomics Lab (edunomicslab.org) at Georgetown University's McCourt School of Public Policy. Roza identified three significant challenges around modeling finance information: the length of time from when source data are available to when that data are available for use, how fast changes can be made, and how data are disseminated. All three challenges connect to the importance of funding transparency viewership.

First, for fiscal data to be utilized, the data must be as current as possible. The data and the display need to be updated on a regular basis, to respond to the needs of individuals using the data.

Table 1

Example Timeline for Oregon School District Audited Financial Data

Data Year	Date Audited Data Available	Data Display Available
July 1st, 2022-June 30th, 2023	After June 30th, 2024	Late Summer to Early Fall 2024

Even when data are displayed when first available, it is a full year after the school year ends (see example timeline in Table 1). While these data provide accountability on actual revenues and expenditures within school districts, there is a need for more current data and forecasts to inform conversations happening within the districts and the state. There is a risk in making data that are not accurate in a timely manner, as they may be used to make decisions that they are unlikely to support.

Second, the ability to respond to identified errors and omissions will play a role in how many people interact with the data. To increase viewership and sustained engagement over time, it is preferable to have interactive data display updates. If the data allow, viewers prefer it to be updated quickly, sometimes monthly or weekly. The data and programs used to display the data will inform staffing needs and how long those updates may take. The ability to make quick changes when needed will improve the quality of the data displayed.

The importance of involving staff in developing how fiscal information is displayed and disseminating the data is a third concern. Data displays are increasingly utilized and distributed by those who produce them. Edunomics decided to start creating data dashboards and reports themselves. This allows them to update their data displays rapidly when new data becomes available. Three things occurred when they used this method. First, Edunomics staff felt confident sharing the interactive data in meetings with partners and constituents. Second, it resulted in the regular identification of errors and in receiving feedback to provide opportunities for improving the data displays. Third, Edunomics discovered that their interactive data displays received more views than all their previously written reports combined. This rise in viewership puts education finance tools into more individuals' hands when making decisions involving school districts. The data were increasingly viewed because of the format change from a written report to a data display, the staff's knowledge of the data and the data display, and the currency of the information.

Data Availability

Oregon's actuals revenue and expenditure data are available a year after the school year ends. As seen in Table 2, data for the 2022-23 school year that closed on June 30, 2023, will not be available until June of 2024. Displays of 2022 - 2023 data can be produced after June 2024, while the Statewide Annual Report Card outcomes data is available in the fall of 2023.

Table 2

Example Timeline for Oregon School District Audited Financial Data and Outcomes

Data Year	Date Audited Data Available	Data Display Available	Report Card Available (Outcomes)
July 1st, 2022 - June 30th, 2023	After June 30th, 2024	Late Summer to Early Fall 2024	Fall 2023

Oregon's actuals data collection process collects audited data. Making audited data available to the public ensures that each school district's revenue and expenditure data has been officially reviewed by an independent financial auditor outside the Oregon Department of Education.

Oregon is known for the quality of its school year actuals financial data collections, both revenue and expenditure, from school districts. Oregon has its own Actuals Data Collection Resources to help districts create their data file in Oregon's file format template, as well as a quick follow-along video, and provides technical assistance to districts. In alignment with ORS 327.137, Oregon school districts are required to submit their actuals data within six months of the end of the fiscal year (fiscal year ends, June 30th), to Oregon's consolidated collections website.

In Oregon, after a submitter has uploaded records, they will receive an email showing the number of records successfully uploaded, successfully posted, and records with errors. These errors are system validation errors; for example, there may be invalid codes, too many digits in the amount, invalid combination of codes, records where certain functions need area of responsibility account codes, or duplicate records.

The errors will not be caught if an upload is mis-matched from the audit report. For example, if a district uses function 2552 Vehicle Operations, rather than the valid function of 2550 Student Transportation. The School Finance unit reviews submissions and, if needed, requests edits from districts to correct these types of errors.

Data Size

To provide accountability for collected fiscal data, it is possible to request that more data be displayed in software than is possible to display. The ability of software, such as Excel, Power BI, and Tableau, to display exceptionally large data sets is a concern. When the data set is too large for the software to process, it results in latency issues, display delays, error messages, a program/software freezing, or shutting down.

The 2021-2022 Actual Expenditure Data Excel worksheet is large at over 25 megabytes. Oregon Department of Education statewide expenditure reports contain an average of 250,000 rows of data each. Typically, more than one year of expenditure data is not generated at one time in Excel because the software begins to work slowly and crashes.

File size and RAM, a computer's working memory, are current limitations for generating increasingly complex data visualizations. Smaller data sets will not face the same challenges. For larger datasets, shaping data may need to occur in pieces over several files. For example, if shaping data in Excel and using formulas, and one wants to track which formulas were used, one may need to transform the data over several working files.

To create a Power BI data display of Oregon school district expenditure data utilizing Excel, one must complete the following steps:

1. Connect to SQL Server 2019 Management Studio.
2. Submit SQL Query(s) to generate query results.
3. Paste results in Excel worksheet.
4. Shape data and store formulas in Excel worksheet.
5. Remove formulas from Excel worksheet (repeat as needed to reduce file size).
6. Create Microsoft Power BI Desktop document.
7. Connect to Excel worksheet.
8. Clean data in Power Query Editor.
9. After applying, create visualization(s) in the Report view.
10. Publish to Power BI.

The Oregon Department of Education maintains the database engine SQL Server 2019 Management Studio. SQL is efficient at processing data requests, creating smaller files. The data file size can be reduced by writing the Excel portion of the above process, steps 3-5 and 7, into SQL. A SQL developer could work on writing a query that would pull the required financial data from different datasets directly into Power BI. Any tasks not completed in SQL, step 4, a Power BI user could research alternatives available in Power BI to produce the same or comparable results.

Rapid Improvements

Data visualization creation is tied to using software like Power BI, which is updated frequently to incorporate new features. This can lead to system errors if a content creator is not utilizing the most recent update to the software. Additionally, software can have issues producing desired features. When utilizing software undergoing frequent updates, users must be aware that a software issue may occur for a period of time, and that software providers may work to resolve the issue. Power BI, which ODE has determined to use for all public-facing, dynamic data visualizations, maintains an active issues webpage. This webpage lists identified issues and the status of the issue, for example, when a solution has been implemented. The newness and

frequent updates to data visualization software produce changes to processes that must be navigated.

Learning Curve

There is a learning curve to utilizing business intelligence platforms like Power BI, particularly if the learning effort comes within an aggressive timeline. This learning curve will continue to grow as artificial intelligence features continue to be expanded. Augmented analytics features allow users to dynamically interact with the data. Augmented business intelligence platforms will continue to expand feature opportunities for users. Due to the rapidly evolving state of business intelligence platforms, staff needing to utilize this technology would benefit from ongoing training and technical support.

Education Finance Data Displays Review

On November 28th, 2023, the Office of the Governor Tina Kotek published a news release, "Governor Kotek Outlines Next Steps Following Resolution of PPS Strike." In the section outlining what steps Oregon will take to, "address many of the underlying structural needs facing our schools," step three stated, **"**ODE will include data about future estimated revenues that districts may have, the share of district funding that comes from State sources compared to local sources, and the share of district expenditures spent on administration." The following sources were called out as opportunities to draw from when building Oregon's future display efforts: Arizona, Illinois, Michigan, and ODE's ESSER dashboard.

ODE ESSER Dashboard

Prior to developing Oregon's Power BI-driven Elementary and Secondary School Emergency Relief (ESSER) dashboard, ODE staff researched and considered the data displays from several other states, including Arkansas, Georgia, and South Carolina. ESSER funds "support the needs of all students, with a focus on historically excluded communities disproportionately impacted by the COVID-19 pandemic."

Oregon's ESSER dashboard utilizes as a front page three gauges of ESSER expense claims, allowing users to drill down into ESSER I, II, and III Claims. Each subsequent page shows a grid of claimed expenses by function and object code as submitted by Oregon school districts and recorded by the Oregon Department of Education. Each page of the ESSER dashboard aims to present data to non-technical audiences and explains how much districts spent on purchases.

The dashboard was built to address the questions received from constituents and reporters. At the time, reporters were asking the following two questions about the original database: How much money was spent by districts? And what did districts purchase? To address potential barriers to understanding the technical details of account coding, an attempt was made to produce a dashboard that could be more easily understood.

When users do not know the meaning of data points in a dashboard, this presents barriers to understanding and leads to a reduction in user engagement. In recognition of this challenge, an "Additional Resources" subheading was added where users can find two sections, "Navigating the Dashboard" and "Understanding Function and Object Codes." "Navigating the Dashboard" tells a viewer the features of the dashboard and "Understanding Function and Object Codes" explains the account codes in the dashboard.

The most significant win for the ESSER dashboard was the creation of the Program Budgeting and Accounting Manual (PBAM) - Abridged resource, under "Understanding Function and Object Codes." The full Program Budgeting and Accounting Manual (PBAM) is a technical manual, whereas the PBAM abridged version is for an audience who does not plan to become an expert in Oregon's school district account codes but wants to know what a specific function or object code means.

The ESSER dashboard tracks when expenses are submitted by districts for reimbursement and recorded by the ODE within the ESSER dashboard making reporting lag expense activities. Because of this, there have also been challenges with how viewers interpret district claims. For example, a viewer might assume districts are spending funds too slowly because the ODE ESSER dashboard displays district "claims" for spending ESSER funds and shows gauges of spending

completeness. The ESSER dashboard uses the word “claim” rather than spent, to explain that the dashboard is not a live representation of expenses as they occur.

The confusion around when districts spend funds has resulted in a perception of fault by some school districts because not all viewers are familiar with the timing of when expenses are submitted. This has led some viewers to wonder why a district has not spent all its ESSER funds or if it will spend all the funds allotted to them on time, when districts are still spending and submitting claims.

The cause of this confusion may be related to an interest in seeing more than current claims. Viewers are interested in what will be spent. There is a desire to see forecasted district budget plans for ESSER funds, which is on the ESSER III District Supplemental Plans webpage. Under the “ESSER III District Plan" section, one can find the ESSER III Final Year Submitted ESSER III IPTs Folder. The Integrated Planning Tools (IPTs) show how districts are planning to use ESSER III funds before they have submitted claims to the Oregon Department of Education. Districts are required to use the IPT and continuously update their plans.

An additional challenge has been that there have been minimal changes to the dashboard since it was created. While the ESSER dashboard is regularly updated with claim fiscal data from school districts, there is an opportunity to improve the original dashboard by requesting and reviewing feedback and suggestions.

Additionally, it was identified that the report lags due to how school districts tend to wait and batch expenses, typically later in the fiscal year due to cash flow. A solution has not been identified due to the need to be careful not to create more data entry and reporting requirements, pursuant to legacy expectations established in HB 4030 Section 13 NONESSENTIAL REPORTING REQUIREMENTS. No other feedback for corrections or improvements to the ESSER dashboard has been submitted. Thus, there has not been an identified need to update the dashboard, especially given that ESSER funds were only available for a limited time on ODE's website.

There are four main lessons learned across these experiences. First, supporting documents are important tools to provide context for the viewer. Otherwise, viewers may not understand what features the dashboard has or what the information means. Second, there are opportunities to increase useability. For example, a frequently asked questions (FAQ) section could preemptively answer viewer's concerns. Third, the agency can make ongoing timely improvements to the dashboard in response to viewer feedback. Last, when creating a dashboard, it is important to identify the questions you are trying to answer up front. Answering specific, elaborated questions, and providing as much context as feasible would support appropriate interpretations of the data in the dashboard and guard against misinterpretations.

Illinois Report Card

Illinois has been working toward improved fiscal data displays since 2017. As part of the Evidence-Based Funding for Student Success Act, Illinois revised its state funding formula in August 2017. Before the 2017 revision, Illinois' funding formula was ranked last in considering equity compared to other states. The evidence-based funding (EBF) formula is now identified as being in the top third. The act led to the creation of an Illinois State Board of Education (ISBE) Evidence-Based Funding (EBF) Spending Plan Redesign Advisory Group consisting of advocates, districts, and auditors. Since then, a new site-based expenditure reporting advisory group was formed to guide state employees as they develop outward-facing data displays.

The advisory group weighed in on how districts were going to submit fiscal data to the ISBE. The decision was made for Illinois to collect and post unaudited financial data rather than waiting for audited financial records. When the ISBE Illinois Report Card was launched in 2019, it met the ESEA per-pupil expenditure display requirement and tied unaudited expenses to actual outcomes, thus displaying the data sooner. Illinois collects and posts unaudited financial data, whereas Oregon collects audited financial data a year after the school year ends.

The Illinois Report Card uses only unaudited financial data. When comparing multiple years, unaudited numbers are still used. Illinois does not update the data after audits are completed.

The Illinois Report Card is managed by the Department of Data Strategies and Analytics (DSA) in collaboration with Software Solutions. DSA contracts this work out to a team that produces visualizations at Northern Illinois University (NIU). There is a weekly report card meeting between staff at ISBE and NIU. Changes to the displays are worked out in this forum.

The ISBE Illinois Report Card School Finance section provides two types of visualizations, a bar chart and a scatterplot. Both charts show spending per student by school within a selected district. The scatterplot, however, compares that spending with the following categories: enrollment, students federally eligible for English language development services as English learners (called Multilingual Learners here in Oregon), students with Individualized Education Programs (IEPs), and students experiencing poverty. This multi-visualization approach allows viewers to not only see how much is spent per student, but also if there are other factors that could be affecting that amount.

Since 2021, Illinois has focused on improving the quality of the data districts submit and the state displays in the report card. Illinois' focus on quality includes the development of tools to improve the data submission requirements. For example, error messages when submitting data that serve as a guardrail to inaccurate information in their submissions.

Additionally, as part of the Evidence-Based Funding for Student Success Act, on an annual basis, Illinois produces and posts online the Evidence-Based Funding Calculation. Historically, one would have to read statute and then try to figure out what funding the district received to understand how a district received its funding formula. While a viewer needs some context and financial data literacy to interpret it, the information is available for anyone to see and use.

The Illinois Report Card has four key lessons. First, alternate data types may be utilized to satisfy the needs of the data collection and create faster reports. Second, limiting the number of times the data needs updating decreases staff workload. Third, allowing viewers multiple displays can be beneficial in telling a well-rounded story. Fourth, providing financial information, even if context and data literacy is needed to interpret it, is valuable information to viewers.

Arizona School Finance Transparency Portal

In Arizona, there was concern about the variance between spending and funding in Arizona's school districts. This resulted in the signing of House Bill 2898 and A.R.S. § 15-747 School financial transparency; portal; required information; third-party contractor. As A.R.S. § 15-747 states, Arizona wanted to show:

> *Beginning in fiscal year 2021-2022, the department of administration shall develop a transparent and easily accessible school financial transparency portal that includes the following school level data for charter schools, individual schools operated by a school district and school districts:*
>
> *1. The detailed total revenues generated by weighted student count.*
>
> *2. The total allocated federal, state, and local revenues.*
>
> *3. The allocation of classroom site fund monies.*
>
> *4. The amounts allocated for teacher pay and benefits, classroom supplies, student support, and other expenditures.*
>
> *5. A comparison of the funding information for each school in relation to the funding information for other schools in the same local education agency.*
>
> *6. Any other information that is necessary for a transparent comparison between schools with respect to their revenues, expenditures, student demographics, or academic achievement.*

A.R.S. § 15-747 allows Arizona to exceed the requirements of ESSA by providing more education finance data points than required by federal law. Through a competitive bidding process authorized under A.R.S. § 15-747, Arizona selected a contractor to develop a School Financial Transparency Portal ("the Portal"). The Portal had a launch timeline estimated at 26-34 weeks from when the contract was finalized. The Portal was available in July 2022.

2022-2023 data are partially available in the Portal. While one cannot toggle between years of financial data, there are opportunities to see historical views. For example, Historical Per-Pupil Expenditures or Historical Total Enrollment shows data from 2019-2020 through 2022-2023. There are several strengths of the Portal. For example, the Portal includes read-only data, data sharing, extensive revenue fund calculation data, comprehensive fiscal categories, district and school data, and multiple uses of enrollment. The Portal has a tutorial video which explains how to navigate the Portal and highlights several of its key features.

One of the features covered in the tutorial video is read-only data and data sharing. A viewer can copy and paste a file path and share it with others. While the read-only data is not available as a download on the Portal or on the Department of Administration website, it allows viewers to engage others in a display they find of interest.

Upon review of the Portal, there are additional highlights. First, under the School Board Member, District, Revenue view, there is an extensive explanation of how revenues are determined. The display shows different revenue funds, the base enrollment support, and enrollment categories. A viewer can review values for regular, online, and part-time online enrollment categories. Second, the choice tabs for each user type provide relevant fiscal data. Third, the inclusion of enrollment data, which is used to calculate per pupil expenditures and used in revenue funding decisions. This allows a viewer to see enrollment and changes to enrollment. Including enrollment data can clarify how enrollment has a potential impact on school and district funding.

Unfortunately, there are several challenges with the Portal. Before viewing any data, users must select a type without understanding how that may change or limit their access to the data. The website remembers the user's selection, making it difficult to switch to a different type of view. There are opportunities for a viewer with great interest to determine how to use the Portal and its unique features to engage in separate ways. However, if one is not already familiar with where the different user experiences are going, it is more challenging to access specific data quickly.

If a user wants to find detailed account information grouped on Fund, Function, Program, Object, and Unit, they will need to search for it. It is located under the Legislator view in the Expenditure tab. After selecting an account group, one can drill down. It is important to note a viewer can only see one level of account detail at a time. It does not display the account information for context.

The Portal sometimes has different error messages stating, "data may be missing." The missing data sometimes produces pages with false data stories. In one noted example it looked as if expenditures had increased by 99% from the previous year. There is an error message that

stated, “Some of the Budgeted vs. Actual data may be missing. We are working with the district to resolve inconsistencies in their submitted financial files.” A school business professional may quickly surmise the error was the result of the Portal using a formula to calculate the rate of change using missing 2021 – 2022 with available 2022 – 2023 expenditure data. For most others, this data story would be confusing. It becomes difficult to trust the data presented when one must maintain a position of questioning the quality of the source data.

Education finance and outcomes data are not combined in the Portal. Navigating to “View Report Card,” located on each district and school pages, takes a viewer to a separate website for the AZ School Report Cards website. Enrollment data informs school funding formulas and contributes to the overall school spending picture. Utilizing enrollment data beyond calculations of per pupil expenditures, links a funding input – number of students inform school district revenue – with an outcome – where fluctuating school district student size impacts the education of students. Education finance is about the education of students. There is an ongoing opportunity to find ways of linking students to the funds set aside to educate them.

The Help section provides a brief overview of the website structure but not about the data presented. Information circles and text block descriptions inform viewers throughout the website. For more detailed descriptions about Arizona’s education finance terms and practices, there are links to pre-existing websites. There is a Report a Problem section but if a viewer has questions there is not a section with contact information.

The Portal can be hard to locate. The site is owned by the Arizona Department of Administration rather than the Arizona State Board of Education (SBE). While the Arizona SBE provides financial data required to produce the Portal, the Arizona Department of Administration has a webpage and link to connect viewers to the Portal. When using the search feature on the Arizona State Board of Education website, one cannot find a link or a reference to the School Financial Transparency Portal. Since housing the Portal off the State Board of Education website could influence the number of viewers, the contractor was asked to see if there was a way to track views. The contractor was not able to provide this information.

Five lessons from the Arizona Transparency Portal stand out. One, there is an opportunity to integrate outcomes data from the school report card with financial data in a single platform. Two, data display software should make accessing complex education finance data as user-friendly as feasible by: make it a read-only interface, avoid the perception of limiting access to viewers, and provide opportunities to share data. Three, review user activity to determine where viewers are engaging. Four, using percentage change can take substantial amounts of information and reduce it. Focusing displays on percentages, rather than the large numbers often used in education, to summarize the data is often easier understood when viewing large numbers in a data set. That said, allowing easy access to the raw data is still vital. Five, errors in data or missing data reduce data quality.

Business Intelligence Platforms

Data Visualization Software Criteria & Review

Staff from the Office of Research, Assessment, Data, Accountability, and Reporting (RADAR) worked with ODE leadership and staff to review multiple different data visualization software packages in the summer of 2023, conducting both a staff survey and individual interviews for staff who create public-facing data visualizations within the agency. Each software option was evaluated in terms of accessibility, technical features, ease of use, sustainability, and the ability to create dynamic and elegant data displays with large data sets. Power BI was recommended as the software best situated for the agency using these criteria in late August, as it was the only software to meet all of them, and ODE leadership adopted this recommendation in early September 2023.

In support of this decision, ODE staff from across the agency and the Research Core Team are working to develop a *Data Visualization Style Guide* that will provide general information about best practices in data visualization, as well as establishing clear principles and examples about data displays for the agency. The style guide is expected to be completed by mid-spring of 2024 and relevant staff will be trained in its use directly after publication. Static data displays will be

produced using any software familiar to the user but expected to adhere to the requirements within the Data Visualization Style Guide by July 1, 2024.

Members of the Research Core Team in ODE are currently working to develop a training series and communications process to support dynamic data visualizations in Power BI. In the area of training, the team is connecting with Power BI users internally as well as from other states to determine the most efficient resources to use Power BI functionally on a short timeline. The training will teach reporting requirements that will help ODE staff and researchers design each data display so that it is accessible for users and presented in a transparent and elegant manner. This training series will be expanded over time and will be incorporated into Workday as a learning option for staff over time.

Finally, there is also a need to take stock of what databases are available to staff and who has access to them, as well as how those data are being used. A resource guide that establishes best practices within the lens of data justice will be developed to help steer the agency toward data collection, storage, maintenance, analysis, and reporting practices that promote data justice and defend marginalized populations against weaponized uses of those data. The guide will also address personally identifiable information and federal and state privacy rules and expectations, including FERPA.

As shared above, the implementation timeline for Power BI is short. The Oregon Department of Education utilizes Microsoft 365, a combination of cloud-based services and software. As such, Microsoft's Power BI software is available from the ODE Help Desk on request to employees who work with public-facing, dynamic data visualizations and does not require an additional procurement request.

Leveraging Currently Licensed Software

Power BI, a business intelligence (BI) platform, is an Oregon Department of Education Information Technology Team supported software capable of dynamic visualization. A user can drill down from state, into a district, then into a school level to generate the desired data display and type. Different views can be produced by the user from a single report, meaning

that one can look at all expenses occurring throughout the state or district for a particular function, object, area of responsibility code. Power BI is currently previewing a sharable display; in the future one should be able to share data stories created by viewers. Power BI can be viewed and used by the public. Power BI data dashboard visualizations are also available in accessible formats.

As Microsoft developed the Power BI software, it is designed to integrate with other Microsoft products, notably Excel, SQL Server, and SharePoint, all of which are part of ODE's enterprise software systems. As the agency uses Microsoft 365, errors will be handled by the Information Technology Team and Microsoft. Power BI Desktop utilizes drag-and-drop features in the Report View to build reports and dashboards. Power BI is expanding visualization suggestion capabilities to be more user-friendly in the future.

Power BI can process data quickly. It can query copious amounts of data and produce a smaller file size allowing multiple large data files to be compressed into one Power BI report or dashboard; insights are thus generated quickly and can display complex answers based on large source data. For example, one report can show three years of expenditure data from Oregon's actuals financial data collections.

Additionally, the agency can continue to improve and expand visualizations (utilization of pages and buttons, display year over year, generate graphs and charts, etc.). ODE can also review data used for visualizations (naming conventions, formula errors, collaborating with Information Technology data analysts to update SQL tables, etc.) to improve quality and stability of the data presented.

The learning curve for Power BI may be steeper than similar platforms due to the options available to a user shaping data in Power Query, then refining and applying it, before utilizing drag and drop features in the Report View. The robust features can prove daunting to staff who are working without training or the opportunity to connect to others working on producing reports and dashboards. Power BI is currently previewing Copilot in Microsoft Fabric which will help inexperienced users in the web format start creating reports.

Intermediate Solution

As an intermediate solution, the Office of Finance and Information Technology has developed beta models of district revenue and district and school expenditure data. The two Oregon School District and ESD Financial Data Dashboards utilize Excel and Power BI Desktop supported by downloadable data available in Excel, meeting the requirements of the written report in HB 5014 Budget Note: School Funding Transparency. Both dashboards, Oregon District and School Expenditure and Oregon District Revenue, are currently available on the ODE's School Finance Accountability and Transparency webpage.

The Oregon School District and ESD Financial Data Dashboards make actual expenditures and revenue data available in an accessible interactive tool. Both data visualizations can be made readily available to individuals who have access to the Oregon Department of Education website, internet access, and use either a desktop or a mobile device. Both tools can expand or condense types of financial activity in an accordion-like fashion.

Both data visualizations are organized into an accounting program structure as defined by the Oregon Department of Education's Program Budgeting and Accounting Manual (PBAM). The PBAM states:

> *An accounting program structure represents a conceptual organization of the school system's activities. It provides the basis for collecting, organizing, analyzing, and displaying financial information about the activities of a school district and provides for grouping of activities for assigning costs.*

The accounting program structure of expenditure financial activity represented in the Expenditure data visualization are fund, function, object, and area of responsibility. All expenditure expenses have a fund, function, and object. They may have an area of responsibility. The fund identifies a grouping of district and school assets and liabilities. Function describes the activity, program, and/or department, for a service or material. The object represents the service or commodity bought. Finally, the area of responsibility can either, "designate the curriculum areas, provide further program information, or allow additional tracking for management information purposes."

The revenue financial activity represented in the District Revenue data visualization are fund and source. Fund, as explained previously, identifies a group of district assets and liabilities. Source refers to the source of the revenue.

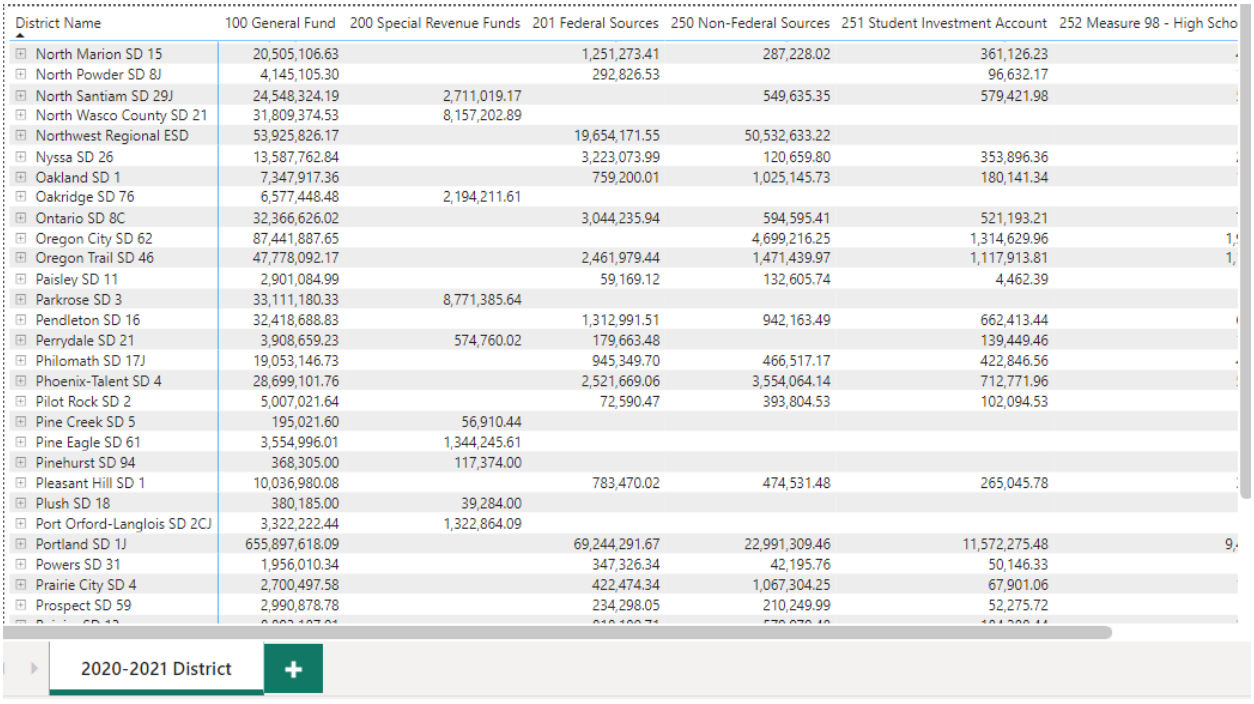
An orientation video to teach first-time how to utilize the report is currently in the process of being developed. Additionally, a Power BI beta model is currently in development but given the current capacity, a final timeline is hard to forecast.

Example of 2020-2021 District and School Expenditure Data Visualization

Figures 1 and 2 below show the 2020-2021 District and School Expenditure data visualization with expanded data and a formal analysis. As seen in Figure 1 below, District Name can be seen in the column on the left with Fund Sources along the top. In the District Name column, a user can select a desired school district or educational service district by selecting on the plus icon to the left of the district. This expands the section revealing each school within each district.

Figure 1

2020-21 District and School Expenditure Matrix Visualization in Power BI Desktop Initial View of Data



District Name	100 General Fund	200 Special Revenue Funds	201 Federal Sources	250 Non-Federal Sources	251 Student Investment Account	252 Measure 98 - High Scho
North Marion SD 15	20,505,106.63		1,251,273.41	287,228.02	361,126.23	
North Powder SD 8J	4,145,105.30		292,826.53		96,632.17	
North Santiam SD 29J	24,548,324.19	2,711,019.17		549,635.35	579,421.98	
North Wasco County SD 21	31,809,374.53	8,157,202.89				
Northwest Regional ESD	53,925,826.17		19,654,171.55	50,532,633.22		
Nyssa SD 26	13,587,762.84		3,223,073.99	120,659.80	353,896.36	
Oakland SD 1	7,347,917.36		759,200.01	1,025,145.73	180,141.34	
Oakridge SD 76	6,577,448.48	2,194,211.61				
Ontario SD 8C	32,366,626.02		3,044,235.94	594,595.41	521,193.21	
Oregon City SD 62	87,441,887.65			4,699,216.25	1,314,629.96	1,
Oregon Trail SD 46	47,778,092.17		2,461,979.44	1,471,439.97	1,117,913.81	1,
Paisley SD 11	2,901,084.99		59,169.12	132,605.74	4,462.39	
Parkrose SD 3	33,111,180.33	8,771,385.64				
Pendleton SD 16	32,418,688.83		1,312,991.51	942,163.49	662,413.44	
Perrydale SD 21	3,908,659.23	574,760.02	179,663.48		139,449.46	
Philomath SD 17J	19,053,146.73		945,349.70	466,517.17	422,846.56	
Phoenix-Talent SD 4	28,699,101.76		2,521,669.06	3,554,064.14	712,771.96	
Pilot Rock SD 2	5,007,021.64		72,590.47	393,804.53	102,094.53	
Pine Creek SD 5	195,021.60	56,910.44				
Pine Eagle SD 61	3,554,996.01	1,344,245.61				
Pinehurst SD 94	368,305.00	117,374.00				
Pleasant Hill SD 1	10,036,980.08		783,470.02	474,531.48	265,045.78	
Plush SD 18	380,185.00	39,284.00				
Port Orford-Langlois SD 2CJ	3,322,222.44	1,322,864.09				
Portland SD 1J	655,897,618.09		69,244,291.67	22,991,309.46	11,572,275.48	9,
Powers SD 31	1,956,010.34		347,326.34	42,195.76	50,146.33	
Prairie City SD 4	2,700,497.58		422,474.34	1,067,304.25	67,901.06	
Prospect SD 59	2,990,878.78		234,298.05	210,249.99	52,275.72	

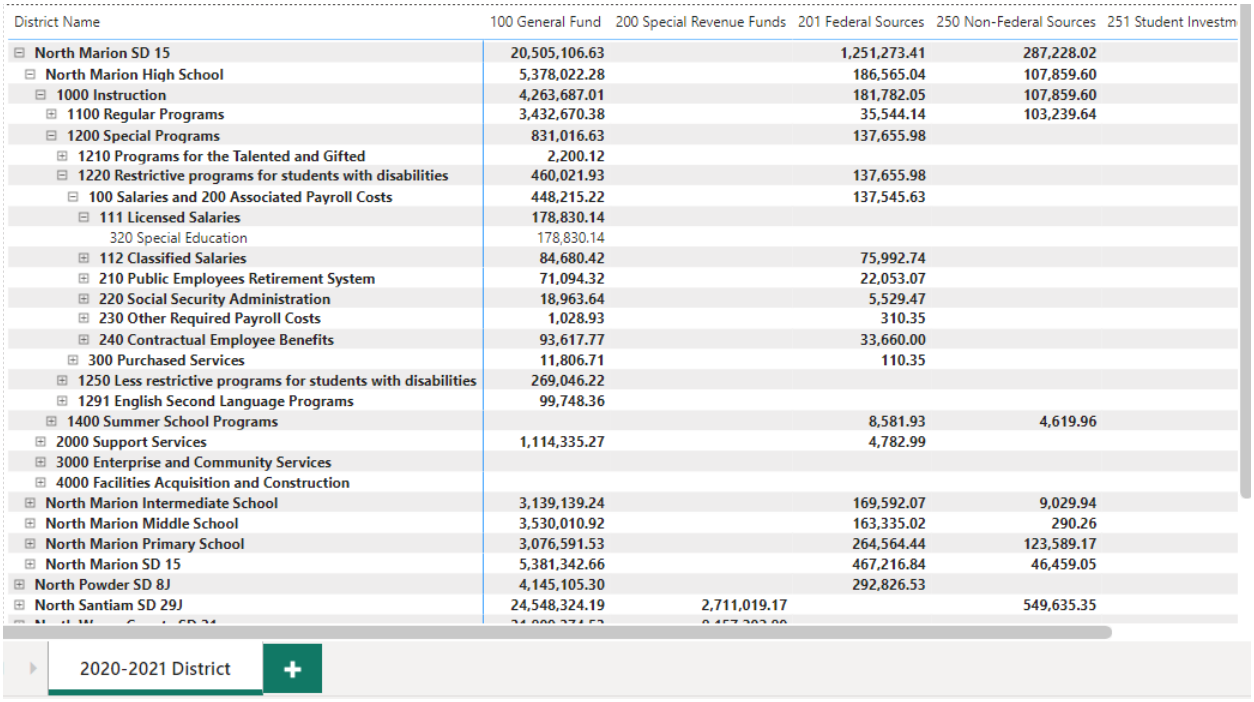
2020-2021 District +

Figure 2 below expands North Marion SD 15 to show North Marion High School expenditures. Several accounting types are expanded until the 320 Special Education area of responsibility code is visible.

Note: North Marion SD 15 expenditures refers to expenses spent by the school district and not recorded to a school. Therefore, these expenses may or may not have been spent on district-wide services, as a school expense may be recorded as a centralized school district expense.

Figure 2

2020-21 District and School Expenditure Matrix Visualization in Power BI Desktop Expanded View of Data



District Name	100 General Fund	200 Special Revenue Funds	201 Federal Sources	250 Non-Federal Sources	251 Student Investm
⊟ North Marion SD 15	20,505,106.63		1,251,273.41	287,228.02	
⊟ North Marion High School	5,378,022.28		186,565.04	107,859.60	
⊟ 1000 Instruction	4,263,687.01		181,782.05	107,859.60	
⊞ 1100 Regular Programs	3,432,670.38		35,544.14	103,239.64	
⊟ 1200 Special Programs	831,016.63		137,655.98		
⊞ 1210 Programs for the Talented and Gifted	2,200.12				
⊟ 1220 Restrictive programs for students with disabilities	460,021.93		137,655.98		
⊟ 100 Salaries and 200 Associated Payroll Costs	448,215.22		137,545.63		
⊟ 111 Licensed Salaries	178,830.14				
320 Special Education	178,830.14				
⊞ 112 Classified Salaries	84,680.42		75,992.74		
⊞ 210 Public Employees Retirement System	71,094.32		22,053.07		
⊞ 220 Social Security Administration	18,963.64		5,529.47		
⊞ 230 Other Required Payroll Costs	1,028.93		310.35		
⊞ 240 Contractual Employee Benefits	93,617.77		33,660.00		
⊞ 300 Purchased Services	11,806.71		110.35		
⊞ 1250 Less restrictive programs for students with disabilities	269,046.22				
⊞ 1291 English Second Language Programs	99,748.36				
⊞ 1400 Summer School Programs			8,581.93	4,619.96	
⊞ 2000 Support Services	1,114,335.27		4,782.99		
⊞ 3000 Enterprise and Community Services					
⊞ 4000 Facilities Acquisition and Construction					
⊞ North Marion Intermediate School	3,139,139.24		169,592.07	9,029.94	
⊞ North Marion Middle School	3,530,010.92		163,335.02	290.26	
⊞ North Marion Primary School	3,076,591.53		264,564.44	123,589.17	
⊞ North Marion SD 15	5,381,342.66		467,216.84	46,459.05	
⊞ North Powder SD 8J	4,145,105.30		292,826.53		
⊞ North Santiam SD 29J	24,548,324.19	2,711,019.17		549,635.35	

The 2020-21 District and School Expenditure visualization, as expanded, tells a story never told before. During the 2020-2021 school year, in the North Marion School District in North Marion High School, $178,830.14 of General Fund dollars were spent to pay for licensed teachers' salaries; these teachers were providing instruction in restrictive programs for students with disabilities that were recorded to meet Oregon's special education maintenance of effort (MOE). The Individuals with Disabilities Education Act (IDEA) grant program requires local school districts to track special education costs to confirm that they are meeting the MOE. A school district must not reduce the amount of 100 General Funds spent on children with disabilities from the preceding fiscal year where MOE was met (34 CFR 300.203). A user can go

and look and see 320 Special Education expenditures recorded across the entire state of Oregon. This is one story that can be told utilizing the District and School Expenditure data visualization to learn about how Oregon's school districts are utilizing resources for students.

Example of 2020-2021 District Revenue Data Visualization

Figures 3 and 4 below show the 2020-2021 District Revenue data visualization with expanded data with formal analysis. Much like the District and School Expenditure, Figure 3 below, the District Revenue visualization has District Name in the left column and Fund Source along the top. Drilling down into the source of the revenue can be accomplished by selecting the plus to the left of the district.

Figure 3

2020-21 District Revenue Matrix Visualization in Power BI Desktop Initial View of Data

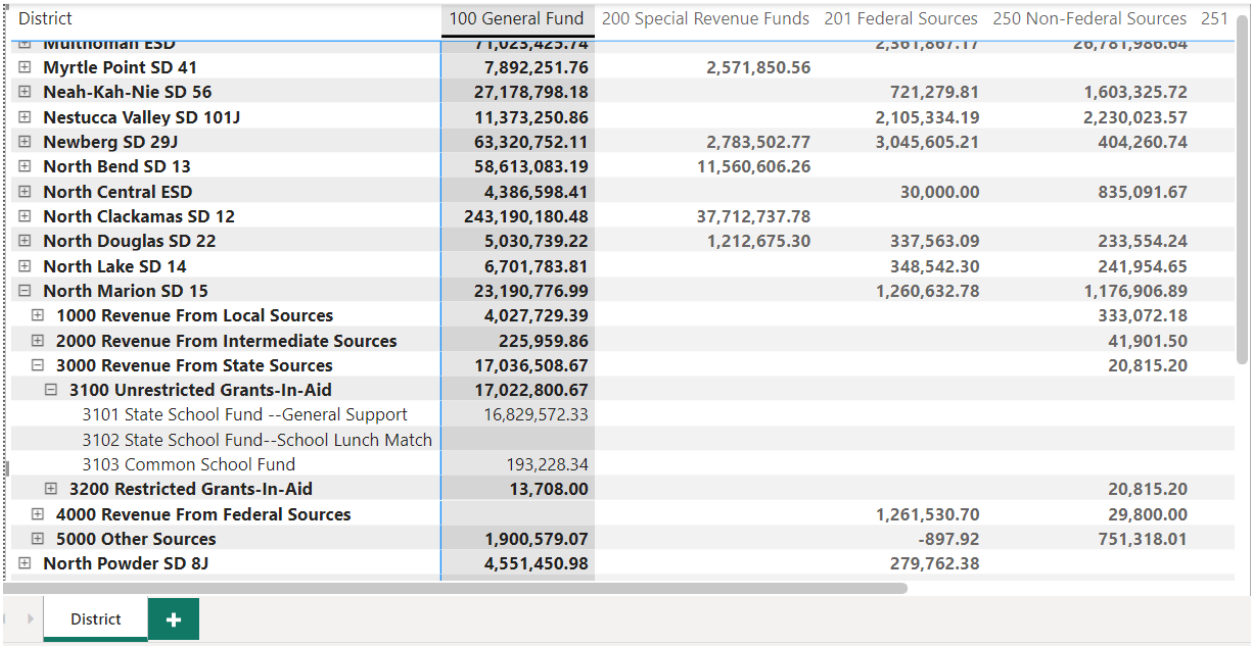
District	100 General Fund	200 Special Revenue Funds	201 Federal Sources	250 Non-Federal Sources	251 Student Investment Ac
Multnomah ESD	71,023,425.74		2,561,867.17	26,781,988.84	
Myrtle Point SD 41	7,892,251.76	2,571,850.56			
Neah-Kah-Nie SD 56	27,178,798.18		721,279.81	1,603,325.72	225,9
Nestucca Valley SD 101J	11,373,250.86		2,105,334.19	2,230,023.57	150,1
Newberg SD 29J	63,320,752.11	2,783,502.77	3,045,605.21	404,260.74	1,238,9
North Bend SD 13	58,613,083.19	11,560,606.26			
North Central ESD	4,386,598.41		30,000.00	835,091.67	51,3
North Clackamas SD 12	243,190,180.48	37,712,737.78			
North Douglas SD 22	5,030,739.22	1,212,675.30	337,563.09	233,554.24	97,8
North Lake SD 14	6,701,783.81		348,542.30	241,954.65	86,6
North Marion SD 15	23,190,776.99		1,260,632.78	1,176,906.89	361,1
North Powder SD 8J	4,551,450.98		279,762.38		96,6
North Santiam SD 29J	28,189,233.12	4,545,575.84		1,017,199.97	579,4
North Wasco County SD 21	32,257,289.76	10,446,357.39			
Northwest Regional ESD	59,462,852.86		20,922,995.52	59,188,234.51	
Nyssa SD 26	18,752,183.59		3,357,267.71	979,920.21	353,8
Oakland SD 1	9,397,552.66		747,739.02	2,401,721.84	180,1
Oakridge SD 76	8,714,372.33	3,075,130.92			
Ontario SD 8C	40,962,357.92		3,044,235.94	1,349,364.62	676,6
Oregon City SD 62	91,894,829.46			6,429,963.96	1,314,6
Oregon Trail SD 46	62,586,577.74		2,461,979.43	4,683,782.84	1,117,9
Paisley SD 11	5,318,964.73	154,076.00	59,169.12	52,180.87	4,2

District +

As seen in Figure 4 below, expands North Marion SD 15. As seen here, the user can continue to expand to program source code 3100 Unrestricted Grants-In-Aid and further down to source code: 3101 State School Fund -- General Support, 3102 State School Fund – School Lunch Match, and 3103 Common School Fund.

Figure 4

2020-21 District Revenue Matrix Visualization in Power Bi Desktop Expanded View of Data



District	100 General Fund	200 Special Revenue Funds	201 Federal Sources	250 Non-Federal Sources	251
⊞ Multnomah ESD	71,023,425.74		2,361,867.17	26,781,986.64	
⊞ Myrtle Point SD 41	7,892,251.76	2,571,850.56			
⊞ Neah-Kah-Nie SD 56	27,178,798.18		721,279.81	1,603,325.72	
⊞ Nestucca Valley SD 101J	11,373,250.86		2,105,334.19	2,230,023.57	
⊞ Newberg SD 29J	63,320,752.11	2,783,502.77	3,045,605.21	404,260.74	
⊞ North Bend SD 13	58,613,083.19	11,560,606.26			
⊞ North Central ESD	4,386,598.41		30,000.00	835,091.67	
⊞ North Clackamas SD 12	243,190,180.48	37,712,737.78			
⊞ North Douglas SD 22	5,030,739.22	1,212,675.30	337,563.09	233,554.24	
⊞ North Lake SD 14	6,701,783.81		348,542.30	241,954.65	
⊟ North Marion SD 15	23,190,776.99		1,260,632.78	1,176,906.89	
⊞ 1000 Revenue From Local Sources	4,027,729.39			333,072.18	
⊞ 2000 Revenue From Intermediate Sources	225,959.86			41,901.50	
⊟ 3000 Revenue From State Sources	17,036,508.67			20,815.20	
⊟ 3100 Unrestricted Grants-In-Aid	17,022,800.67				
3101 State School Fund --General Support	16,829,572.33				
3102 State School Fund--School Lunch Match					
3103 Common School Fund	193,228.34				
⊞ 3200 Restricted Grants-In-Aid	13,708.00			20,815.20	
⊞ 4000 Revenue From Federal Sources			1,261,530.70	29,800.00	
⊞ 5000 Other Sources	1,900,579.07		-897.92	751,318.01	
⊞ North Powder SD 8J	4,551,450.98		279,762.38		

District +

The 2020-21 District Revenue visualization, as expanded, tells the following story. During the 2020-2021 school year, the North Marion School District had $16,829,572.33 in state revenue from the State School Fund for general support.

Note: Actual revenue data from districts is only collected at the district level and not the school level. Expenses cannot currently be tracked or reported at the school level. Additionally, while revenue fund codes line up with expenditure fund codes, revenue source codes do not line up with function, object, or area of responsibility. The amount of revenues and expenditures by fund code may not line up as the total amount of actual revenue and total amount of actual expenditures in a year may not be the same.

Risks and Opportunities

While reviewing and analyzing the features and components of several state fiscal data dashboard systems, ODE has identified situations in displaying fiscal data that would put the ODE at risk. Additionally, this review presented several lessons learned and opportunities ODE should strive to emulate in any future data displays.

Risks

Contracting out the development of a data visualization platform carries several risks. While contracted data visualization platforms can initially be quick to produce, they do carry significant costs. If a platform sees minimal use, there is concern taxpayer dollars are not being used efficiently.

Maintenance of effort should be kept in mind. One should avoid developing data displays that take considerable time to update when new data becomes available or when an error or omission is identified. Producing cumbersome displays will result in displays failing to be maintained or significant costs to maintain them over time.

There is a risk of users identifying inaccurate information from the data displays. Pulling together outcomes and fiscal data must be done thoughtfully. A viewer may disengage with data when they see too much information, have too many filters to choose from, etc. Additionally, they are not always able to understand the data or how the display utilizes them. This may cause users to draw causal or inaccurate conclusions from relationships among the data presented.

To protect the privacy of Oregonians, data displays should only display aggregate, public information; they should also attempt to reduce security risks of non-public data. Data displays should meet the Oregon Department of Education's security requirements. Whoever creates and publishes online data displays should be aware and follow security protocols to protect data. If necessary, the Oregon Department of Education could provide guidance and training on

the best practices for accessing, utilizing, storing, securing, and displaying data used in data display software or created by contractors.

Opportunities

When discussing the various reviewed data displays earlier, multiple lessons learned were addressed that represent transparent and accessible data displays. ODE can now adopt these in future data displays. Presenting fiscal data next to outcome data, such as enrollment, is one such opportunity. Viewing data this way has been shown to create new stories. For example, showing how school funding amounts can affect outcomes. This has become a popular view in education finance that is being spearheaded and expounded upon by Edunomics Lab.

Increasing viewership can be achieved through various means. Intentionally disseminating data displays to partners and constituents to increase their use. This could include allowing different views of the data, making displays read-only, having shareable displays, and including helpful supporting documentation and FAQs.

Prioritize the development of data displays that allow for improved reporting speeds and timely updates. While a display might be less complex than other options, the amount of effort to update or refresh a data display should be a factor in selecting what displays to share and maintain. Additionally, confirm the ODE is using the most up-to-date data and consider examining alternate data collection types.

Move forward with researching and developing forecasts that support district needs. Data displays let districts dive into their financial data in ways they cannot otherwise do. This valuable information can be utilized to complete various tasks important to their success, for example, future budget planning.

Finally, leverage already known and available systems to create improved data displays. OFIT already utilizes Power BI to create the Oregon School District and ESD Financial Data Dashboards. Expanding this knowledge and increasing staffing could leverage this system to accomplish the goals of the budget note.

Key Recommendations

As a result of the efforts of the Office of Finance and Information Technology and the Office of Research, Assessment, Data, Accountability, and Reporting, and with the purpose of mitigating the identified risks while adopting the opportunities, the following recommendations are put forward to the Joint Ways and Means Subcommittee on Education.

Key Recommendation #1: Implement Fiscal Transparency Dashboards and Align with Data Visualization across ODE in a Phased Approach

The Office of Finance and Information Technology and the Office of Research, Assessment, Data, Accountability, and Reporting recommends a three-phased approach to creating fiscal transparency dashboards to match the goals of the HB5014 Budget Note: School Funding Transparency. This timeline represents a short-term, mid-term, and long-term phasing that will last up to 36 months (about 3 years) if the recommendations in full are adopted by the legislature.

The phased approach described below is designed to fulfill the spirit of the budget note while accounting for time to hire, procure additional consulting needs, develop platform capacity, and align the agency's data architecture to produce a seamless business intelligence and data visualization portal across the whole ODE enterprise.

Table 3

Phased Implementation of Fiscal Transparency Dashboard

Phase	Objective	Time to Execute	Responsible Party
Phase 1	Recruit, Hire and Onboard Staff including: • Agency Data Steward • Fiscal Transparency Team • Additional IT Staff	Spring 2024 through Fall 2024	OFIT/RADAR
	Continue migration and conversion of excel data to Power BI Dashboards	Late Spring 2024 through Fall 2024	OFIT
	Draft Solicitation for Data Warehouse Needs Assessment	Fall 2024	OFIT/RADAR
	Engage with Districts, ESD, Legislature, Community, Tribes, Parents/Families on data presentations based on roles	Late Fall 2024	OFIT/RADAR/UofO-BRT
	Deploy additional intermediate data servers to address data latency for current Power BI Dashboards	Late Fall 2024	OFIT
Phase 2	Distill findings of engagement for report to the legislature on role-based data presentation for fiscal transparency	Winter 2025	OFIT
	Award Data Warehouse Needs Assessment Contract	Winter 2025	OFIT
	Develop a plan for the technology stack to support data visualization and dashboarding efforts	Winter 2025	OFIT/IT/UofO-BRT
	Present finding from Data Warehouse Needs Assessment to Legislature	Summer 2025	OFIT/RADAR
	Work with EIS on Stage Gate 1 for Data Warehouse Migration Plan	Fall 2025	OFIT/RADAR
Phase 3	Seeking Funding for Data warehouse Migration project	Winter/Spring 2026	OFIT/RADAR
	Enter design, testing, and QC of transparency portal in current intermediate database	Spring 2026	Vendor, OFIT, RADAR
	Begin migration of intermediate data dashboard to transparency portal framework	Summer 2026	Vendor, OFIT, RADAR
	Draft Solicitation for Data warehouse	Summer 2026	OFIT/RADAR
	Award Solicitation for Data warehouse	Fall 2026	OFIT/RADAR
	Begin migration of ODE data to data warehouse in phases	Fall 2027	OFIT/RADAR
	Create data tunnel for connection to new data warehouse	Winter 2028	ALL ODE
	Deploy testing environment on new data warehouse connection to data transparency portal	Spring 2028	OFIT/RADAR
	Production push for Transparency Portal	Summer 2028	OFIT/RADAR
	Decommission Intermediate Data Servers	Fall 2028	OFIT/RADAR

Key Recommendation #2: Establish a Mixed Development Model for Transparency Portal

Currently within ODE the requests for transparency and data visualization are segmented and will produce a patchwork of business intelligence modeling. The Assistant Superintendents of both OFIT and RADAR are committed to aligning the varying data transparency efforts into a singular External Data Portal for consumption by the public. The beginning of this is working hand in hand with projects already being shepherded by RADAR and the Educator Advancement Council and their partnership with Behavioral Research & Training (BRT) and the University of Oregon on a Professional Learning Platform and a comprehensive Oregon Data Dashboard system.

The table below demonstrates the different approaches to implementing a full external data transparency portal.

Table 4

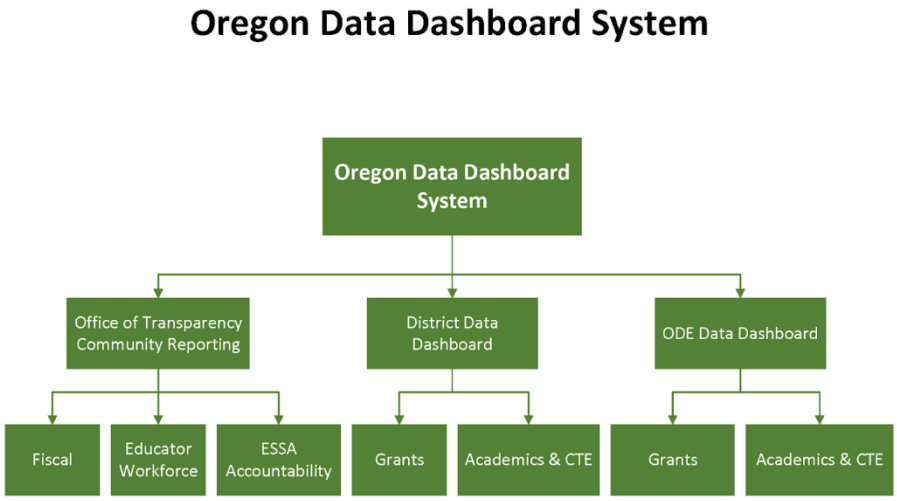
Comparison of Data Display Development Directions

Option	Training and Learning Groups	Consulting Contract	Fiscal Transparency Unit	U Of O/BRT	COTS Software Contract
Description	Agency staff creates, updates, and maintains data displays	Contracted firm develops dashboard; maintained and expanded by agency	Agency hires staff to develop and maintain dashboards; liaison governance, and warehouse	Agency contracts with research institute to develop a single system, includes developing external- and internal- facing dashboards	Agency contracts with a software contractor, gives data to contractor who produces, maintains, and updates data displays
Cost	Included	$ TBD	$ TBD	$2.5 m initial; $900 k per year thereafter. All products open source and assumable by ODE	Arizona example: $5 m/3 years; $2.5 m initial; $1.25 m annually for two years
Additional Costs	Training staff, staff time	Training staff, staff time	Training staff, staff time	Staff time	Staff time
Software as a Service (SaaS)	Power BI	Any business intelligence tool	Any business intelligence tool	Any business intelligence tool	Arizona example: Segment to store and prepare data and a Segment compatible customer selected visualization tool or any business intelligence tool

The recommended model is an amalgamation of training internal staff on utilizing Power BI as the distillation platform, developing a Fiscal Transparency unit, further expanding our Intergovernmental Agreement (IGA) with the University of Oregon and BRT as well as, internal staff augmentation of IT Staff to work alongside the University of Oregon to construct visualizations in parallel. With BRT taking the lead on initial construction of the transparency portal and professional learning platform and the internal IT staff augmentation working toward migration and development of systems to match the architecture additional data visualization construction. The figure below demonstrates what ODE sees as the data environment.

Figure 5

Oregon Data Dashboard System



The Fiscal Transparency Dashboard exists within the Office of Transparency Community Reporting. It represents district and school level expenditures and revenue reports, as well as the Educator Workforce Data system required by Senate Bill 283 (2023 session), and all federal ESSA-related accountability reporting.

Key Recommendation #3: Address Staffing Needs & Training

To fulfill the above timeline in Recommendation 2, ODE will need the appropriate staff to manage the work alongside the proposed partnership with the University of Oregon and BRT. The proposed staffing necessary is represented in the table below:

Table 5

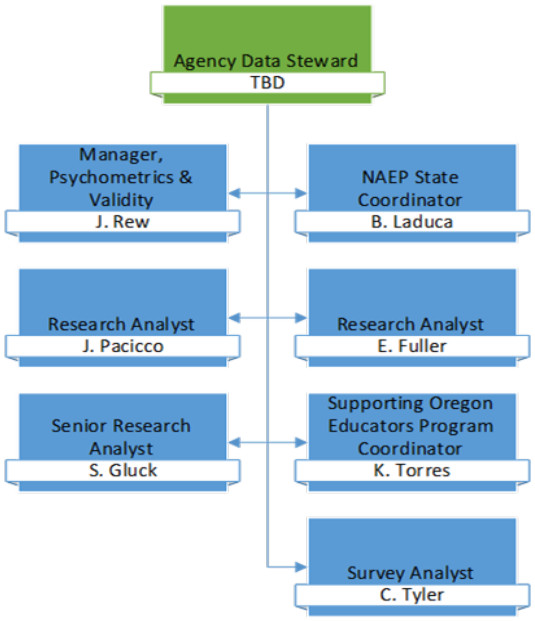
Staffing Needs and Timeline

Governor's Request		
Classification	**Working Title**	**Hiring Timeline**
Information Systems Specialist 8	Business Intelligence Architect	Summer 2024
Information Systems Specialist 7	Systems Analyst	Summer 2024
Operations and Policy Analyst 3	Lead Business Intelligence Strategist	Summer 2024
Research, Analysis, and Statistics Manager 3	Agency Data Steward	Unbudgeted LD in recruitment
Program Analyst 2	Business Intelligence Analyst	Fall 2024
Administrative Specialist 2	Fiscal Transparency Coordinator	Summer 2024
Response to Budget Note Report		
Classification	**Working Title**	**Hiring Timeline**
Information Systems Specialist 5	Jr. Business Analyst	Fall 2024
Information Systems Specialist 5	Jr. Systems Analyst	Fall 2024
Information Systems Specialist 5	Jr. Business Intelligence Architect	Fall 2024
Research, Analysis, and Statistics Manager 3	Dir, Fiscal Transparency	Summer 2024
Operations and Policy Analyst 2	Fiscal Transparency Analyst	Fall 2024
Cost for Staffing in 23-25 Biennium		**$1,303,035**

While OFIT and RADAR are asking for additional staffing to support this endeavor, ODE will be adapting organizational structures to match the different bodies of work. First, the Agency Data Steward will oversee the Research & Measurement team in RADAR and will be tasked with working with the Assistant Superintendents of OFIT and RADAR to create agency data strategic plan and modernize our data governance structures. Below is the organizational chart for the Research and Measurement Teams.

Figure 6

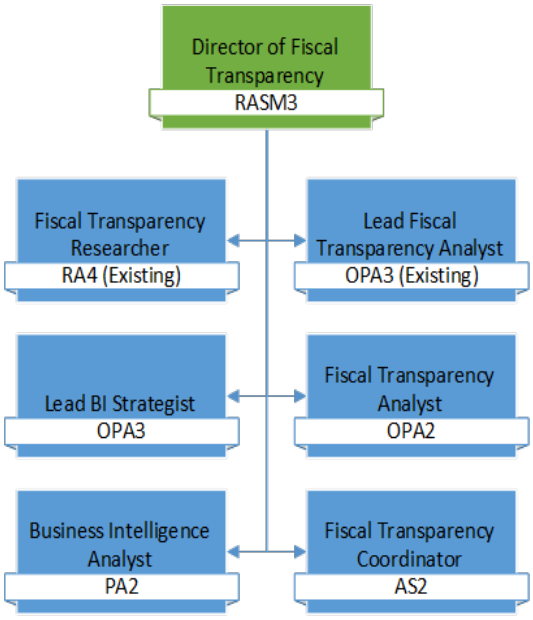
Proposed Organizational Chart for Research and Measurement



Moreover, to properly address the ongoing attention that data transparency and data visualization ODE will need to remain current and responsive to external data consumers is to establish a Fiscal Transparency unit within OFIT. This unit will shift current positions from the School Finance and School Facilities unit that are already doing some of the work of data visualizations. This will remove the aspects of ESSA compliance reporting and any additional data visualizations from School Finance and School Facilities. Centralizing those functions in a unit focused on this body of work. Allowing School Finance and School Facilities to focus on the mission-critical work of State School Fund distribution, software modernization, school facilities support, and bonding efforts. The organizational chart below shows the proposed organizational chart for the new Fiscal Transparency unit housed with OFIT.

Figure 7

Proposed Organizational Chart for Fiscal Transparency Unit



Lastly, adding additional staffing to the IT unit within OFIT will coincide with the plan to deliver a mixed model approach to the production of a unified external data transparency portal in partnership with the University of Oregon and BRT. The additional IT staff will join the IT Enterprise Services unit in the IT arm of OFIT.

Key Recommendation #4: Assess Data Warehouse Needs

As noted within this report, large complex data systems can consume substantial amounts of memory processing leading to latency problems for data visualization platforms. As a part of the phased approach, ODE will install additional intermediate data servers to handle the traffic. However, with additional requests for data or heavy traffic, over time dashboard response will eventually require a data warehouse.

To properly implement a more dynamic and elegant solution for all data transparency initiatives and not just fiscal transparency, a proper fiscal transparency concept will be expanding demand for reporting, data visualization, and business intelligence tools. Which requires a more strategic approach to data availability, reliability, and consistency. This points to the Data Warehouse as industry best practice. Several offices of ODE started using data visualization tools for business intelligence and reporting purposes, and the inquiries against the operational database started slowing down the transactional data processing. As a temporary measure, ODE IT implemented a data replication concept with a dedicated server for the data repository for reporting purposes. However, the increase in the usage of data visualization and business intelligence tools will demand a more permanent solution that would be consistent with the data strategy of the State agencies and industry best practices, such as a data warehouse.

The Office of Finance and Information Technology's networking staff do not have the capacity, knowledge, and expertise for in-house development of data warehousing strategy. The development and implementation of a proper data warehouse is a complicated task requiring resources and specialized knowledge, and the needs assessment and strategy development is best done by third party industry experts. A contract for this work should be awarded through a competitive bidding process to a consulting company that has expertise and experience in conducting such an assessment and strategy development; such an engagement is estimated to have a cost of $500,000. If this need is not addressed, the reporting, data visualization, and business intelligence capabilities of the agency will be insufficient for the demands of the Oregon Legislature, Federal reporting, and school district and ESD needs.

Key Recommendation #5: Engage with Focus Groups and Partners on Data Displays

The Intergovernmental Agency Agreement (IGA) that is being developed with the University of Oregon to support ODE's multiple data dashboard efforts requires focal groups of a variety of Oregon users, including parents, educators, and legislators, to look at various stages of the data dashboards that will be created. The effort is designed to provide Oregonians with a single website location where they can pursue answers to their specific research questions via an interactive experience. They will identify their area of interest (e.g., fiscal, Career Technical Education (CTE), accountability, educator workforce, other), which ESD/district/school/student focal group they are interested in, what period they would like to review, and how they would like the data displayed. The focal groups will respond to questions about their user experiences to ensure that the data displays are as accessible as possible and that they are elegantly presented.

The Oregon Data Dashboard System project is focused upon the user experience from top to bottom, including going to a single webpage to access all information about Oregon's K-12 public education system and presenting appealing data displays that efficiently answer the questions that they bring to the table.

Summary of Recommendations

This report has demonstrated the need for supplemental investment to reach the outcomes intended by the legislature for greater transparency. To ensure total alignment with other transparency efforts across ODE and in development of a more seamless data experience for education partners, legislators, and families it is imperative to fund this endeavor. The table below represents the total cost to implement the recommendations.

Table 6

Summary Cost for all Recommendations

Ask	Cost
Staffing Needs	$1,303,035
Data Warehouse Needs Assessment	$500,000
Additional IT Consulting	$500,000
Staff Training	$50,000
IT Infrastructure (Servers and Licenses)	$30,000
Total Cost for 23-25 Biennium	**$2,383,035**

The goal of this report is to illuminate the importance of not only fiscal transparency but all transparency efforts. In addition, this approach aligns with other legislative guidance of streamlining and creating efficiencies to reduce barriers to information gathering and dissemination. ODE intends to build on that guidance to improve systems and outcomes in support of Oregon students and their families.