ADOA-ASET
Arizona Strategic Enterprise Technology

Project Investment Justification
(PIJ)

A Statewide Standard
Document for Information Technology Projects

Project Title: ***SLDS – Arizona Education Data-driven Decision System (AzED^{3}S)***

Agency Name: ***Arizona Department of Education***
Date: ***August 16, 2013***
Prepared By: ***AJ Serajeddini***

Revised PIJ Version – January 2013

TABLE OF CONTENTS

I. GENERAL INFORMATION 5

I.A General Information 5
I.B Special Funding Considerations 5

II. PROJECT OVERVIEW 5

II.A Management Summary 5
II.B Existing Situation and Problem, "As Is" 8
II.C Proposed Changes and Objectives, "To Be" 10

III. PROJECT APPROACH 12

III.A Proposed Technology 12
III.B Other Alternatives Considered 16
III.C Major Deliverables and Outcomes 16

IV. POLICIES, STANDARDS & PROCEDURES 18

IV.A Enterprise Architecture 18
IV.B Service Oriented Architecture Planning and Implementation 18
IV.C Disaster Recovery Plan and Business Continuity Plan 18
IV.D Project Operations 19
IV.E Web Development Initiative 19
IV.F IT State Goals 19

V. ROLES AND RESPONSIBILITIES 19

V.A Project Roles & Responsibilities: 19

VI. PROJECT BENEFITS 21

VI.A Benefits to the State 21
VI.B Value to the Public 22

VII. PROJECT TIMELINE 23

VII.A Project Schedule 23

VIII. PROJECT FINANCIALS 23

VIII.A Pre-Assessment Project Financials 23
VIII.B Detailed Project Financials 23
VIII.C Funding Source 24
VIII.D Special Terms and Conditions (if required) 25
VIII.E Full Time Employee Project (FTE) Hours 25

IX. PROJECT CLASSIFICATION AND RISK ASSESSMENT 25

IX.A Project Classification and Risk Assessment Matrix 25

X. PROJECT APPROVALS 27

X.A CIO Review 27
X.B Project Values 27
X.C Project Approvals 27

XIII. APPENDIX 28

A. Itemized List with Costs 28
B. Connectivity Diagram 28
C. Project Schedule - Gantt Chart or Project Management Timeline 28
D. NOI (Web Projects Only) 29

XIV. GLOSSARY 29

PROJECT INVESTMENT JUSTIFICATION (PIJ) TEMPLATE DECISION MATRIX

After determining the category of project, complete the sections of the PIJ or PIJ Lite document as indicated below. All projects with $25,000 or more in development expense require that a PIJ or PIJ Lite be approved by ASET. All projects with $1,000,000 or more in development expense require a PIJ to be approved by the Information Technology Authorization Committee (ITAC) as well.

ASET may request additional information or require completion of additional sections, if the project is deemed critical in nature.

Category	PIJ Lite	Pre PIJ *	PIJ	ITAC Review
Low Risk projects: Including Operational Infrastructure Upgrades *(i.e. PC Replacement/Refresh, Network Upgrades)*	●			
Medium Risk projects		Optional	●	
High Risk projects		Optional	●	
Very High Risk projects		Optional	●	
$1.0M and Above projects		Optional	●	●

Section	Category	PIJ Lite	Pre PIJ *	PIJ	Add for ITAC $1.0M+
I.	**General Information**				
I.A	**General Information**	●	●	●	
I.B	**Special Funding Considerations**		●	●	
II.	**Project Overview**				
II.A	**Management Summary**	●	●	●	
II.B	**Existing Situation & Problem, "As Is"**	●	●	●	
II.C	**Proposed Changes & Objectives, "To Be"**	●	●	●	
II.D	**Proposed Technology Approach**		●		
III.	**Project Approach**				
III.A	**Proposed Technology**	●		●	
III.B	**Other Alternatives Considered**			●	
III.C	**Major Deliverables & Outcomes**	●		●	
IV.	**Policies, Standards & Procedures**				
IV.A	**Enterprise Architecture**	●		●	
IV.B	**Service Oriented Architecture Planning & Implementation**			●	
IV.C	**Disaster Recovery Plan & Business Continuity Plan**			●	
IV.D	**Project Operations**			●	
IV.E	**Web Development Initiative**			●	
IV.F	**IT State Goals**			●	
V.	**Roles and Responsibilities**				
V.A	**Roles and Responsibilities**	●		●	
VI.	**Project Benefits**				
VI.A	**Benefits to the State**			●	
VI.B	**Value to the Public**			●	
VII.	**Project Timeline**				
VII.A	**Project Schedule**	●	●	●	
VIII.	**Project Financials**				
VIII.A	**Pre-Assessment Project Financials**		●		
VIII.B	**Detailed Project Financials**	●		●	
VIII.C	**Funding Source**	●	●	●	

VIII.D	**Special Terms and Conditions (if required)**	●	●	●	
VIII.E	**Full Time Employee (FTE) Hours**	●		●	
IX.	**Project Classification & Risk Assessment**				
IX.A	**Project Classification & Risk Assessment Matrix**	●		●	
X.	**Project Approvals**				
X.A	**CIO Review**	●	●	●	
X.B	**Project Values**	●	●	●	
X.C	**Project Approvals**	●	●	●	
Appendix					
A	**Itemized List with Costs**	●		●	
B	**Connectivity Diagram**				●
C	**Gantt Chart, Project Management Summary**				●
D	**NOI (Web Projects Only)**	●		●	

* ***Pre PIJ*** is optional for agencies seeking approval from external entities to contract for outside labor or resources to assess scope, technology and approach. After the assessment is completed, full project details will be added to the PIJ for final PIJ Approval.

NOTE: Pre PIJ Assessments are not required for all projects but up to the discretion of the Agency.

I. General Information

I.A General Information

Agency CIO:	Mark Masterson	**Contact Phone:**	
Agency Contact Name:	AJ Serajeddini	**Contact Phone:**	
Agency Contact Email:		**Prepared Date:**	July 24, 2013

I.B Special Funding Considerations

☐ **Yes** ☒**No - Does this project require funding approved for a Pre PIJ Assessment phase?**

If **YES**, provide details for the **Pre PIJ Assessment** funding needs by filling out the areas marked with **{A}** or **{Required for Pre-PIJ Assessment only}**. Further information and details will be required after the assessment for the Final PIJ approval.

If **NO**, provide details for the Final PIJ by filling out **all** areas **excluding** those sections marked with **{Required for Pre-PIJ Assessment only}**.

II. Project Overview

II.A Management Summary

I. Problem Description

The Information Technology Department within the Arizona Department of Education (ADE) received a three-year grant from the Federal Statewide Longitudinal Data Systems (SLDS) grant program to build a sustainable longitudinal system for 11 local education agencies (LEAs) to address the external need of our teachers, principals, and superintendents for easily accessible student data to support instructional and administrative decisions aimed at improving student learning and achievement.

At present, no integrated data system exists that addresses the challenges ADE, LEAs, and Arizona education stakeholders face: the lack of data interoperability between multiple databases and software systems within the education ecosystem and an easily accessible, secure website to view learning and accountability information. The lack of this data system compounds bureaucratic inefficiencies with educators spending time manually downloading, uploading, re-entering student data into multiple applications to get meaningful information when their time should be spent providing instructional services.

The current manual data collection process conducted by Arizona educators results in spreadsheets of numbers that only a minority of educators have the data literacy skills to manipulate and interpret results. In addition, the majority of Arizona school districts and charter holders do not have the available funds to either purchase visualization tools or to hire the staff to create data marts and a reporting service system.

In order to address these issues, a longitudinal data system is required to (a) ensure the right information is identified and collected, (b) meet Arizona education stakeholders' needs, (c) meet industry standards; and (d) comply with learning and accountability legislation. Identified components for this longitudinal data system include a web-based reporting system, dashboards and reports, data management, and data governance. In addition, this longitudinal data system has two dependencies: identity management and security (IMS) and Student Teacher

Course Connection (STCC). IMS and STCC are needed to ensure compliance with Family Educational Rights and Privacy Act (FERPA) requirements by limiting access to data based on role. Teachers only view students assigned to them, principals only view data from their school, and superintendents only view data from their district.

II. Solution

By engaging Arizona education stakeholders and other state education agencies, this longitudinal data initiative will (a) develop and deploy AzED^{3}S for teachers, principals, and superintendents; (b) deliver statewide training and professional development support and services; (c) develop and deploy the ADEConnect IMS system; (d) develop and deploy operational data stores for all education domains; (e) establish a formal data governance structure within ADE; and (f) help LEAs increase their awareness of local data governance. The State is providing 2.75 million in FY 2014 to (a) roll out AzED^{3}S dashboards to 200 LEAs, (b) implement IMS to 620+ LEAS, and (c) for data governance practices to ensure clean, consistent data. The Federal government is providing 3.968 million for FY14 and FY15 to develop and implement additional dashboards in 11 pilot school districts. The existing dashboards, and dashboards being developed based on input from the pilot school districts, will also be provided to 200 LEAs as available.

AzED^{3}S Web-based Reporting System

Develop and deploy the AzED^{3}S to provide a secure, web-based reporting system. Engaging stakeholders ensures the dashboards will meet educators' data needs. In addition, the data storage and reporting services will be compliant with FERPA, Security Assertion Markup Language (SAML), Common Education Data Standards (CEDS), and Education Fidelity (Ed-Fi) standard. Public facing dashboards will display state and school report cards in compliance with state and federal accountability requirements. Deliver statewide training and professional development support and services to increase stakeholders' data literacy using train-the-trainer model, online support services, face-to-face professional development workshops, and online courses. Federal funding is being used to develop and deliver dashboards and reports to meet Arizona education stakeholders' needs. State funding will be used to deploy and rollout the web-based reporting system statewide.

Identify Management and Security (IMS)/ADEConnect

Deploy the ADEConnect IMS system (henceforth referred to as ADEConnect) based on industry standards to allow interoperability between third-party vendor applications and ADE data systems. Within these standards is federated access, which enables ADE to allow LEAs to use their existing user accounts in student information and human resource systems to access the ADEConnect system. ADEConnect provides identity management and authentication services for external partners that do not have the technical capabilities for federated access and allows LEAs to manage and control tiered access to ADE applications and data systems. State funding will be used to implement ADEConnect statewide to support the secured access to the web-based reporting system.

Ed-Fi ODS Architecture

Develop and deploy operational data stores (ODS) for all education domains using CEDS and the Ed-Fi data model. The Ed-Fi standard interchange schemas form the basis for moving data from source systems, or to format it for extract, transform, and load (ETL) when new data is available e.g., ACT and AIMS results. A related project, the AELAS Standardized Student Data Store will create the student-related data specifications for ODS and the student data collected will be loaded into the ODS this project will create. The Ed-Fi data standard is extensible to support additional data requirements, particularly for unique state accountability requirements. In addition, engaging vendors to build XML extractors will enable data exchange and provide real-time reporting and accountability. Federal funding will be used to develop and deploy 17 Ed-Fi operational data stores.

Data Governance

A formal data governance structure within ADE will provide a structured and formal mechanism for identifying and resolving issues and conflicts with data collection, quality and use, ultimately resulting in a more efficient agency with widespread awareness of the value of data. Federal funding will be used to resolve data issues related to the development and deployment of the Ed-Fi ODS architecture. State funding will be used to implement data governance across ADE to reduce data redundancy, implement standards surrounding data retention, establish a data request policy/procedure, and implement master data management.

This solution is one component in a long-term strategy to address Arizona's learning and accountability challenges, which include data governance, security, sustainable data management, systems interoperability, new technologies for sharing data and mapping resources, visualizations to support learning analytics, building new capabilities to create actionable information that leads to timely and more informed decisions, and enabling user communities to increase data use capacity.

II. Quantified Justification

AzED^{3}S Web-based Reporting System

The 2011 Data Quality Campaign (DQC) state survey results identified key areas for ADE to address. This initiative addresses the following areas of need:

- Implement systems to provide timely access to information
- Create progress reports using individual student data to improve student performance
- Create reports using longitudinal statistics to guide system-wide improvement efforts
- Promote educator professional development and credentialing
- Promote strategies to raise awareness of available data
- Student-level course completion (transcript) data

AzED^{3}S supports stakeholders' efforts to actualize part of Arizona's education reform plan, *Arizona Ready,* by providing access to longitudinal data to monitor progress toward achieving the following reform plan goals:

- Increase the percentage of third graders meeting state reading standards to 94% in 2020 from 73% in 2010
- Raise the graduation rate to 93% in 2020 from 75% in 2010
- Increase the percentage of eighth graders achieving at or above basic on the National Assessment of Educational Progress (NAEP) to 85% in 2020 from 67% in math and 68% in reading in 2010
- Double the number of students receiving baccalaureate degrees to 36,000 per year

AzED^{3}S efforts support ongoing federal (e.g., public facing State Report Card) and state accountability (e.g., public facing School Report Cards) and monitoring efforts by enabling stakeholders to analyze data to drive instructional, programmatic, and policy decisions and to provide parents, as well as the public, access to state and school performance. State and School Report Cards also contain the accountability information required in A.R.S. Â§15-241; AZ LEARNS. In accordance with A.R.S. Â§15-746, all public schools must submit a school report card.

The development of a Security Assertion Markup Language (SAML) compliant, web-based reporting system (i.e., AzED^{3}S) not only provides easy access to historical and operational data that is timely and actionable, but more importantly the annual time savings of 80-plus hours per teacher increases the time available to Arizona educators to make informed decisions that impact daily, every K-12 student in Arizona.

ADEConnect

ADEConnect will provide a robust and scalable single-user account management interface to manage access to all ADE-provided systems. It will also federate identity management and authentication services with trusted partners such as LEAs. The result will be faster access to distributed resources by reducing the user's need to remember and deal with multiple usernames and passwords, lower sign-on failure rate, upgraded system security, including the ability of administrators to change a user's access to all system resources in a coordinated, consistent way, and improved administrator response when adding/removing users and modifying access rights. ADEConnect will provide self-servicing features for password reset and new access requests for reduced cost and better user experience. ADEConnect will be used to provide full identity management and authentication services for trusted external partners that do not have the technical capabilities for full federation (such as small school districts).

Ed-Fi ODS Architecture
A central component of this new statewide system is a standards-based data management system. In addition, the proposed ODS architecture supports multiple ADE initiatives; for instance, MCESA REIL DSRS, Postsecondary Connection, School Report Cards, SAIS rebuild, and AELAS. ODS architecture will be used as single source of truth for all Ed-Fi domains and will be used as single source of truth for all future ADE initiatives. A separate PIJ will be submitted for those future initiatives.

Data Governance
In 2010, the state of Arizona passed legislation to create a new statewide data system known as the Arizona Education and Learning Accountability System (AELAS). The state education reform plan is rooted in the idea that before systematic reform can occur it is essential to have an integrated, high-quality data system to inform instruction, drive innovation and improve accountability. The data system must provide timely and relevant information to teachers, administrators, and policy makers. The use of data to drive instruction must become a cultural given within our schools and inform all stakeholders of state reform efforts. To that end, the number one recommendation in the reform plan is to create a data governance structure.

II.B Existing Situation and Problem, "As Is"

AzED^{3}S Web-based Reporting System
Arizona teachers, school administrators, and district administrators spend on average more than 80 hours per teacher at the beginning of the school year compiling data in spreadsheets from disparate sources to inform classroom, school, and district decisions. Moreover, as the academic year unfolds, Arizona educators continue on a weekly basis manually constructing spreadsheets to inform instructional decisions for approximately 1.2 school-aged children.

ADE has used previous federal grant funding (2006-2009) through the SLDS program to construct the Arizona Education Data Warehouse (AEDW) where many of the required student-level data elements currently exist. However, AEDW neither efficiently nor effectively supports Arizona educators' increasing demand for timely, transparent, easily accessible, actionable data across the K-12 continuum. While the warehouse contains a significant amount of useful education data, it has not resulted in a user-friendly system providing reporting and dashboards to users. Those willing to attempt access, which can be sporadic at times, must be able to construct and understand complex Excel pivot tables. As such, the number of actual users is quite low. The operational system supports ongoing progress monitoring and annual reporting, but the data is not organized in a manner that enables longitudinal analysis. ADE staff has created ad hoc static reports for operational data and for longitudinal (historical) views. The original intent of the AEDW has not been realized, as students, parents, teachers, administrators, policy makers, and the general public is not able to easily access meaningful data to make informed decisions.

In 2012, ADE received a second SLDS grant in the amount of $4,966,760 for three years, from the US Department of Education's SLDS program to expand the AEDW, design dashboards, and provide visibility to data to support decision-making. During the grant's first year, ADE spent $1,031,644 to design a web-based reporting system using .NET web form framework, create dashboards used with focus groups to obtain feedback on data needs and better understand the additional data needs of our educators, implement the system and dashboards to 11 pilot LEAs, and design the architecture to support AzED^{3}S. In partial fulfillment of the SLDS Federal Grant Program requirements, the pilot's primary purpose was to obtain data and reporting requirements by implementing dashboards for pilot users and conducting focus groups. The fall 2013 release of dashboards has been vetted by these pilot users and received very positively. The value of stakeholder engagement activities depends in part on data accessibility and ease of use. These data dissemination activities provide value far beyond the original data collection effort.

The following types of dashboards have been implemented in the 11 pilot LEAs:

- District Administrator Dashboards
    - District-level AIMS percent passing 2005-2013

    - District Attendance
    - District Enrollment
    - District Withdrawal
- School Administrator Dashboards
    - School-level AIMS percent passing 2005-2013
    - School Attendance
    - School Enrollment
    - School Withdrawal
- Teacher Dashboards
    - Class Roster with longitudinal AIMS
    - Student Profile
    - Student AIMS Details

Currently, no statewide training program exists to increase Arizona educators' ability to use data to inform instruction and support administrative decisions.

ADEConnect

ADE has multiple identity management systems (see figure 1 below) with each one requiring its own access management. Current users have a unique ID to access functions; however, they may have several IDs depending on how many roles and applications they have or how many entities for which they work. These multiple IDs are problematic in that ADE is unable to authenticate who is accessing the data, and if he/she is accessing the appropriate information. In its current state, ADE does not have the ability to review, evaluate, and update external users and data access on a regular basis. ADEConnect is a prerequisite for managing access to the AzED^{3}S. ADEConnect is in production and is now available for AzED^{3}S authorization to four pilot sites.

Additionally, a simple task like initiating a name change or new role within an entity is a highly-manual process. These hindrances are complicated by a redundant, cumbersome logon process. Because ADE currently lacks an Enterprise-wide identity solution, user identities are scattered across Common Logon, EduAccess, and other systems. The agency also cannot report or review current user access by user or by application. The security risks are amplified by the fact that the agency currently stores user credentials within the database. Moreover, the current user termination process is an onerous one. Data access is not completely revoked after a termination due to the inability to easily determine user access. There is not an automated process to ensure that all system and data access is deactivated during user termination.

Figure 1. IMS As Is

Ed-Fi ODS Architecture
Currently, no integrated data management system is in place at ADE to collect and store the data from multiple systems that provides user visibility to education data as required.

Data Governance
ADE lacks a defined data governance program to identify issues with data collection as well as the quality and use of information maintained by the Agency. Current ADE data retention practices are haphazard, unverifiable, costly and possibly illegal. There are currently ~280 data collection points where LEAs are required to submit information to the ADE. Many of these collections include redundant data requiring LEAs to waste valuable time responding to the data collection requests. Furthermore, no centralized data management policy/plan is in place and data is maintained in multiple locations with no consistency in naming conventions for data elements. In addition, the existing process used to respond to 'Requests for Data' is very unstructured and prone to having information requests not being addressed. The current process includes an email inbox where requestors can submit their data requests. Internal ADE requestors also submit data requests via the ChangeGear Incident Management system as well as submitting via email directly to various program areas. However, there is no assigned resource to monitor and respond to these requests in a timely manner, and once requests are received there is no formal tracking process in place to ensure requests are handled in the appropriate manner.

I.C Proposed Changes and Objectives, "To Be"

AzED^{3}S Web-based Reporting System
ADE is providing a web-based reporting system with additional dashboards aimed to enhance the ability of Local Education and State Agencies to securely and efficiently manage, analyze, and use education data, including individual student records in compliance with FERPA for teachers, principals, and superintendents. The purpose of the dashboards is to provide a comprehensive data collection to enable Arizona educators to actualize strategic reform objectives and to support ongoing analysis for school improvement and instructional decisions. In addition to better serving the Arizona citizenry and potential residents, the creation of an interactive public facing dashboard will provide visibility to performance data and easy access to the School, LEA, and State Report Cards. A minimum number of dashboards were developed for the pilot LEAs to support requirement gathering for new dashboards and feedback on existing dashboards. Based on the pilot LEAs requirements and feedback, additional dashboards for district administrators, school administrators, teachers, parents, students, research community, and the general public will be developed.

The primary objectives of AzED^{3}S are as follows:

- Design and develop a user-friendly, secure (via ADEConnect) web-based reporting system
- Provide summative and formative student assessment related dashboards
- Provide student, teacher, school, and district/charter holder data
- Provide real-time data to inform instructional and administrative decisions
- Create visualizations that meet the needs of dashboard stakeholders and support data interpretation
- Provide district, school, teacher, student, and parent dashboards
- Design and develop a user-friendly, interactive public dashboard with easy access to school, LEA, and State report cards

ADE aims to provide on-demand training and support. Federal funding will be used to provide training and support for the 11 pilots and state funding will be used to develop and deploy training and professional development to support the statewide web-based reporting system rollout. Training and support resources will consist of training modules, video library, in-house help-desk, implementation/use coaches, and collaboration with ADE program staff to infuse training within existing outreach and support. A Professional Learning Community (PLC) will be used to promote workshops and introduce topics and new uses for the dashboards to build stakeholder data capacity. Training will be provided to support procedural use and the review, examination and interpretation of available data through AzED^{3}S. This training program supports stakeholders' efforts to enhance student learning and growth and address evaluation questions regarding program effectiveness.

Pilot site training objectives are as follows:

- Develop an online user guide
- Develop online help videos
- Develop train-the-trainer materials

Statewide professional development on (state funded) data use and capacity building objectives are as follows:

- Develop a video library
- Develop online professional development courses
- Conduct face-to-face data dialog workshops

ADEConnect

ADE will actualize the full potential of information sharing initiatives by establishing an IMS system that will support both authentication and authorization using SAML in a consistent and manageable way and provide single sign-on. This will streamline the user experience by linking application security accounts for the user to their primary security account, e.g., their Active Directory account. The single sign-on approach will pass the user's identity to other applications without the user having to logon separately to each application.

The primary objectives of implementing ADEConnect are as follows:

- Provide users self-service capabilities
- Provide centralized policy-based management
- Pass user authentication credentials in a safe and protected manner
- Implement a single sign-on and Federated Identity

Ed-Fi ODS Architecture

Implementing data management compliant with CEDS and Ed-Fi will facilitate data integration from multiple sources and reduce the amount of disparate sources inside the agency. The AELAS Standardized Student Data Store project (see Figure 2 below) aimed at streamlining the student-related data by using a standard data model contributes the following data management objectives related to student-related data:

- Create the specifications for student-related data in ODS
- Map student-related elements to Ed-Fi standards
- Set up a staging area/database to land the data which is received via the vendor developed ED-FI extractors (XML web service)
- Apply the verification and business rules to the staging area/database
- Develop data mapping and ETL scripts for loading transactional data to ODS

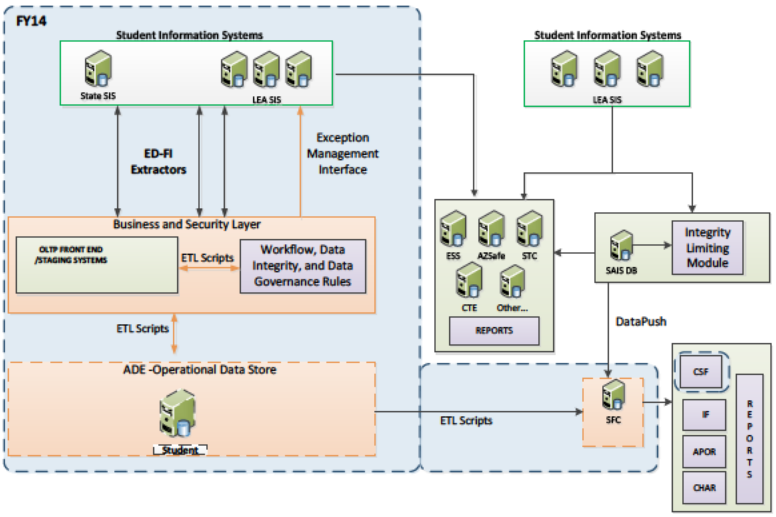


Figure 2. AELAS Standardized Student Data Store Collection

While the AELAS Standardized Student Data Store project (see Figure 2) defines the student specifications, creates the Extract, Transform, and Land (ETL) framework, and creates the transactional layer for landing student data in ODS, the AzED^{3}S project develops and deploys operational data stores (ODS) for all 17 domains.

The primary objectives of the new data management system are as follows:

- Implement ODS architecture compliant to CEDS and Ed-Fi
- Complete CEDS mapping
- Seamlessly integrate data from various sources into operational data stores
- Maintain consistent standards across multiple entities
- Facilitate migration of existing applications to ODS
- Extend existing Data Warehouse
- Apply data governance, data quality, data cleansing and business rules throughout the process

Data Governance
A formal data governance structure within ADE will provide the agency a structured and formal mechanism for identifying and resolving issues and conflicts with data collection, quality and use, ultimately resulting in a more efficient agency with widespread awareness of the value of data.

Data governance objectives are as follows:

- Develop and maintain a formal data request process to increase throughput of requests and to properly monitor request in order to provide meaningful metrics for agency review
- Develop data retention policies and procedures
- Develop data retention training programs
- Develop policies and procedures for disaster recovery and business continuity
- Continual improvement of quality of data represented in Calendar
- Migration of Data Calendar from spreadsheet to method that allows for easier usage by LEAs and for additional data mining and reporting needs
- Develop the ADE Master Data Management Repository
- Implement master data management processes, tools, and applications to reduce duplicity of disparate data sources and support data standards

II.D Proposed Technology Approach

N/A

III. Project Approach

III.A Proposed Technology

AzED^{3}S Web-based Reporting System
AzED^{3}S is a web-based reporting application that provides a framework for district, school, and student- level data visualizations extracted from data stores, transformed and loaded into target stores. To coincide with the tiered level of visualizations is the role based security module that includes the following roles:

1. District Administrator
2. School Principal
3. Teacher

Based on the initial design, ADE plans to build a one-page .NET application in which ADE will setup and configure ID's and passwords with the respective roles from above. The districts will be providing the users to onboard and

what role he or she should be granted. The long-term goal is to instantiate ADEConnect within the district's SIS systems utilizing the same roles to launch our web application passing the claims and role-based security our application requires.

The solution architecture for the dashboards uses open source code and is (a) built into a single-page web application (SPA) framework (similar to Gmail) called *Durandal* and (b) supported by the ASP .NET web application framework using the MVVM pattern. MVVM pattern helps to separate the business and presentation logic (see Figure 3 below) from the user interface (UI). This separation helps to improve code re-use and to facilitate testing, maintenance, and continuous improvement. The front-end uses the Bootstrap framework along with jQuery, jQuery HighCharts, Moment.js and Toastr. The services layer uses Entity Framework to interact with Microsoft SQL server stored procedures, Web API to convert the stored procedures to JSON and Knockout.js to populate the UI.

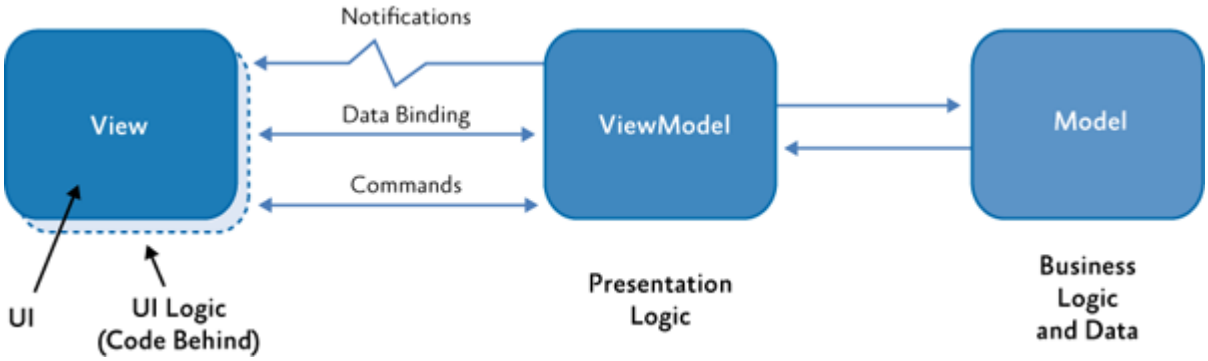


Figure 3. .NET App using MVVM Pattern

The .NET application provides district-specific branding and utilizes four drop-down menus for specifying the following parameters:

1. District Select
2. School Select
3. Teacher Select
4. Report Select

To expedite the speed and delivery to market of the data visualizations, the approach is to leverage the current data warehouse for the longitudinal data of AIMS scores, attendance, enrollment and withdrawal. To associate longitudinal data with a current roster, the team will extract and load data from the Student Teacher Course Connection (STCC) data collection into the dashboard data mart. The Dashboard Phase 1 Architecture is operational (see figure 4 below).

Ed-Fi ODS Architecture

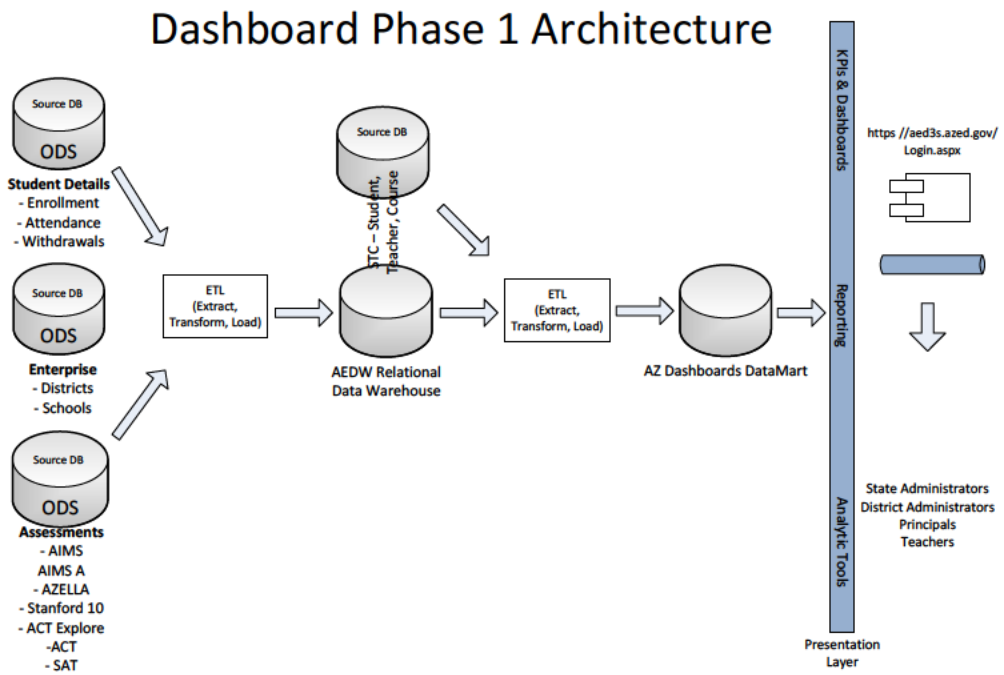


Figure 4. AzED^{3}S Phase I Architecture

Figure 5 illustrates the Phase II Architecture.

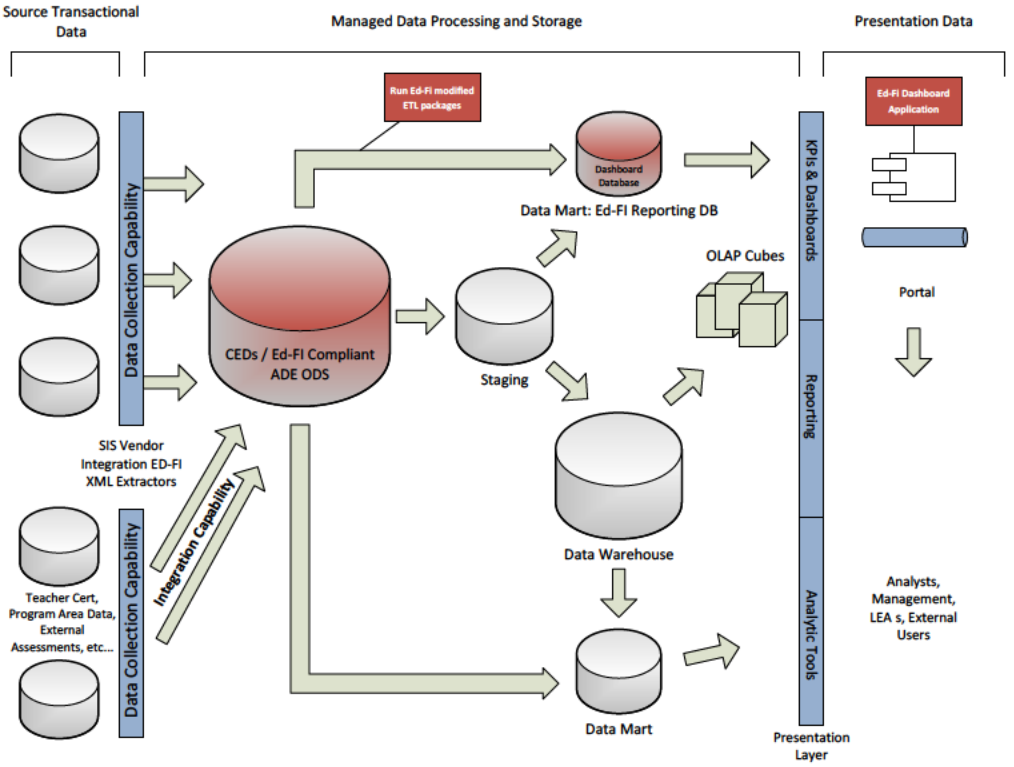


Figure 5. AzED^{3}S Phase II Architecture

Web Application Server Specifications
Windows Server 2008R2
Intel Xeon X5670 2.93 dual processors
4 GB of ram
64 bit OS
Application Server
.NET Framework 3.5.1, Windows Process Activation Service Support, HTTP Activation, TCP Activation, Named Pipes Activation
Web Server (IIS)
Common HTTP Features, Static Content, Default Document, Directory Browsing, HTTP Errors, Application Development, ASP .NET, .NET Extensibility, ISAPI Extensions, ISAPI Filters, Health and Diagnostics, HTTP Logging, Logging Tools, Request Monitor, Tracing, Security, Basic Authentication, Windows Authentication, URL Authorization, Request Filtering, Performance, Static Content Compression, Management Tools, IIS Management Console, IIS Management Scripts and Tools, Management Service, IIS 6 Management Compatibility, IIS 6 WMI Compatibility, IIS 6 Scripting Tools, IIS 6 Management Console.

The current strategy for ADE is to deploy AzED^{3}S in the SQL Server 2008 environment. Most developers have Visual Studio 2008 on their client PCs and Visual Studio 2010 does not yet support Reporting Services projects.

ADEConnect
This solution will use three distinct components to create the ADEConnect system (see figure 6 below) and the security framework for the agency:

- ForeFront Identity Manager 2010, Release 2
- Active Directory Federated Services
- ADEConnect system

ForeFront Identity Manager 2010 (FIM) is a Microsoft product used to manage identities. FIM has a synchronization process to keep files up-to-date based on precedence priorities and processing rules. A workflow process used in the provisioning, de-provisioning, and change processing; and, a user interface is used for the maintenance of identities and their assignments.

Active Directory Federated Services (ADFS) – is a Microsoft product that can operate on SAML standard for the interoperability of identity information that allows the authentication and authorization for systems based on the rules that ADE provides.

ADEConnect system is a custom developed Microsoft .NET web application used to provide access to applications based on a user's role profile. These three components combine to provide the following key system features:

- Allow for the federated access from the districts through their SIS system
- Allow to establish additional approval needs for specified state systems before access is granted
- Allows the ADE HR department to do the provisioning and de-provisioning of agency employees, contractors or volunteers
- Allow for the reporting of the change activity, access activity and accesses available
- Allow the delegation of access rights maintenance by the LEA
- Allow for the authentication servers to operate independent from the application and allow extensibility across platforms and operating systems

The application integration is performed through the SAML framework. Based on the users' profiles, their roles are passed to the authorized application, in this case the AzED3S web-based reporting system.

Figure 6. ADEConnect Federated Architecture

Data Governance

The data request process will leverage the existing ChangeGear software (currently licensed by the ADE) and associated hardware by building a web-based application which will integrate with Change Gear and will reside on an existing web server currently used by the ChangeGear product. Implementation of a Master Data Management (MDM) repository will be based on ESP Solutions Group, Inc. (ESP) DataSpecs software which is currently licensed by the ADE. DataSpecs is a hosted service by ESP and is covered under an annual maintenance and support contract; therefore, data governance will not require any additional hardware components only a professional services contract. DataSpecs is currently in use to create STCC data dictionaries to reduce data redundancy.

III.B Other Alternatives Considered

1. Do Nothing

Use the existing data warehouse which (a) does not provide a user-friendly interface, (b) does not meet the data needs of Arizona educators, (c) requires a user with specialized data analytic skills to create reports, and (d) will increase data requests and strain already limited resources. This is not a viable solution because this will result in ADE being out-of-compliance with federal grant requirements as well as federal and state accountability requirements. ADE does not consider "do nothing" a viable decision, since not addressing SLDS issues will result in ADE being out-of-compliance with federal grant requirements , and federal and state accountability legislation.

2. Replace Existing

Replacing the existing environment for the pilot group and the data warehouse (AEDW) would exceed what has already been spent and exceed previously approved budget. This is not a financially viable solution and would significantly impact additional projects with ODS and dashboard dependencies.

3. Buy Vendor Solution

If we buy the solution from one or more vendors, the cost will be very high for the following reasons (a) dependency on vendor to implement the solution, (b) training ADE staff on vendor product or hiring new staff with vendor product experience, (c) cost of licenses, (d) cost of service agreements, (e) Additional resources or a vendor to integrate the purchased components which include but not limited to ODS hardware and software, web-based reporting system, including dashboards and the custom UI. We would also be throwing away what we have already built. This is not a financially viable alternative solution.

III.c Major Deliverables and Outcomes

Milestones

AzED3S Web-based Reporting System

Federal funds for further development

a. Refresh existing dashboards to meet stakeholder data needs
b. Deploy teacher, school, and district dashboards to pilot sites
c. Establish District Administrator, School Administrator, and Teacher Advisory Panels
d. Develop new dashboards based on stakeholders' priorities
e. Obtain stakeholder approvals via advisory panels
f. Develop ADE Program Area reports
g. Design and develop public-facing dashboards
h. Deploy public-facing dashboards
i. Develop student and parent dashboards
j. Deploy student and parent dashboards

Federal funds for training pilot sites

a. Create online training resources
b. Deliver training workshops and webinars
c. Deploy and maintain online user guides
d. Increase pilot site use of dashboards
e. Provide help desk support

State funds for statewide professional development

a. Launch a Professional Learning Community (PLC)
b. Deploy online professional development courses
c. Deploy video library
d. Increase educators' data literacy skills

State funds for statewide deployment

a. Launch field support to roll out statewide
b. Deploy dashboards statewide

In FY2014, ADE completed all the milestones listed above except item "a" & "b" under category: State funds for statewide deployment, which are still in progress. ADE has completed activities to launch field support and deploy dashboards developed by AzED3s federal funds, for 150 LEAs out of the 200 target LEAS for F20Y14. The remaining 50 will be worked upon with remaining Funds from FY2014 carryover and ADE may need to use additional funds requested for FY2015 to complete the remaining 50 LEAS if ADE cannot complete with FY 2014 funds.

FY 15 (07/01/2014 to 06/30/2015)

In FY 2015, ADE is proposing to add and complete the following milestones:

a. Review and improve based on FY14 accomplishments. (Process and rollout), for example identify and address any gaps in the rollout process, improve the quality of training materials, conduct more training sessions for Administrators at Local Education Agencies for AZDASH.
b. Building upon the success of Milestone b of FY14, in FY15 Deliver Training workshops at an additional 400 LEAS to use AZDASH dashboards.

ADEConnect

a. Create defined policies and governance plan
b. Create user roles and provisioning process plan

c. Deploy a single authorization and authentication solution for access to ADE resources statewide
d. Use FIM to replace Common Logon
e. Implement Active Directory Federated Identity so that valid user credentials are shared among trusted services and systems

In FY2014, ADE completed all the milestones listed above except item c and d, which are still in progress. ADE has completed the single authorization and authentication solution for 300 LEAs out of the 350 target LEAS for F20Y14. The remaining 50 will be worked upon with remaining Funds from FY2014 carryover and ADE may need to use additional funds requested for FY2015 to complete the remaining 50 LEAS if ADE cannot complete with FY 2014 funds.

FY 15 (07/01/2014 to 06/30/2015):

In FY 2015, ADE is proposing to add and complete the following milestones:

a. Review and improve based on FY14 accomplishments. (Process and rollout), for example conduct more training sessions for Administrators at Local Education Agencies on ADEConnect.
b. Building upon the success of Milestone c of FY14, in FY15 we will add an additional 250 LEAS sign-on or authenticate once to be allowed to multiple ADE resources using ADEConnect.

Ed-Fi ODS Architecture

a. Analyze Ed-Fi vs. ADE Data Sources and attributes
b. Map Ed-Fi ODS domains excluding student domain
c. Implement operational data stores
d. Implement Ed-Fi reporting data store (RDS)

Data Governance

a. Launch a formal data governance structure within ADE
b. Develop and implement a formal data request process
c. Development of data retention policies and procedures
d. Implement changes to data collections calendar to reduce collection burden and redundancy
e. Implement master data management and evolve applications to support new data standards

IV. Policies, Standards & Procedures

IV.A Enterprise Architecture

☒ **Yes** ☐**No -** Does this project meet all standards and policies for Network, Security, Platform, Software/Application, and/or Data/Information as defined in http://aset.azdoa.gov/security/policies-standards-and-procedures as applicable for this project?

If **NO** please describe ***NEW*** or ***EXCEPTIONS*** to Standards {Network, Security, Platform, Software/Application and/or Data/Information}:

IV.B Service Oriented Architecture Planning and Implementation

☒ **Yes** ☐**No -** Does this project qualify as an SOA application by improving application delivery for Technology reuse and /or application reuse and / or services reuse?

IV.C Disaster Recovery Plan and Business Continuity Plan

☐ **Yes** ☒**No -** Does this project require a Disaster Recovery Plan and Business Continuity Plan?

IV.D Project Operations

☒ **Yes** ☐**No -** Is there a written assessment of short-term and long-term effects the project will have On operations?

IV.E Web Development Initiative

☒ **Yes** ☐**No -** Is this a Web Development initiative? If **YES**, a Notice of Intent (**NOI**) must be provided. Link: http://aset.azdoa.gov/node/15

IV.F IT State Goals

Please check which goal the project is in support of; if more than one, indicate only the primary goal.

- ☐ Accelerate Statewide Enterprise Architecture Adoption
- ☐ Champion Governance, Transparency and Communication
- ☐ Invest in Core Enterprise Capabilities
- ☐ Proactively Manage Enterprise Risk
- ☐ Implement a Continuous Improvement Culture
- ☐ Adopt Innovative Sustainability Models
- ☐ Reduce Total Cost of Ownership
- ☒ Improve Quality, Capacity and Velocity of Business Services
- ☐ Strengthen Statewide Program and Project Management
- ☐ Build Innovative and Engaged Teams
- ☐ Other_____

V. Roles and Responsibilities

V.A Project Roles & Responsibilities:

Please identify Project Roles & Responsibilities:

Role	Responsibilities	Person
Project Sponsor	High level decision maker	Elliott Hibbs
ADE IT CIO	High level decision maker	Mark Masterson
Business Director	High level decision maker	Peter Laing
ADE Architecture CTO	High level decision maker	Ed Jung
Service Delivery Manager	Medium level decision maker	Amit Soman
Program Manager	Manage project	AJ Serajeddini
Project Coordinator	Coordinate project	Karina Sullivan
Solution Architect	Technical approach and design	Brian Williamson
Developers	Technical approach and design	Jodie Muramoto, Ricky, Ombina
Quality Assurance	Testing	Gary Kerekes
Business Analyst	Documentation	Brandon McQueen
SSRS Developer	Technical approach and design	TBD
Education Intelligence Strategist	Product vision and advisory groups	Debbie Stirling
Outreach Marketing Lead	Recruiting LEAs	Lori Ventura
Project Manager	ADEConnect	Anish Verma
Developer ADEConnect	Technical approach and design	David Nunez
Technical Lead ADEConnect	Managing development	Glen McMath
Technical Lead ADEConnect	Managing development	Satya Indukuri
Business Analyst ADEConnect	Documentation	Karen Bowers
Project Manager	Data Governance (DG)	Bryan Zonsius
Developer (DG)	Technical approach and design	TBD
Developer (DG)	Technical approach and design	TBD

Project Coordinator	Coordinate project	TBD
System Analyst (AzED^{3}S)	Technical approach and design	TBD
Trainer	Deliver professional development	TBD
Trainer	Deliver professional development	TBD
Trainer	Deliver professional development	TBD

Please indicate Project Manager Certification:

The **project manager** assigned to the project is:

☐ Project Management Professional (PMP) Certified
☐ State of Arizona Certified
☒ PM Certification not required

NOTE: PM qualifications based on experience and credentials:

MBA in Management Information System (MIS)
Masters in International Management
15 Years of Project Management experience in Business Intelligence

VI. Project Benefits

VI.A Benefits to the State

***Score:* 0=None, 1=Minor, 2=Moderate, 3=Considerable, 4=Substantial, 5=Extensive.**

Description	*Score*
Agency Performance: The extent to which duties and processes will improve or positively affect business functions. Consider reduced redundancy and improved consistency for the agency.	4
Productivity Increase: The improvements in quantity or timeliness of services or deliverables. Consider improved turnaround time or expanded capacity of key processes.	5
Operational Efficiency: Efficiencies based on improved use of resources, greater flexibility in agency responses to stakeholder requests, reduction or elimination of paperwork, legacy systems, or manual tasks.	5
Accomplishment Probability: The extent to which this project is expected to have a high level of success in completing all requirements for the division or agency.	4
Functional Integration: The impact the project will have in eliminating redundancy or improve consistency. Consider the impact of information sharing between departments, divisions, or agencies in the State.	5
Technology Sensitive: The implementation of the right types of technology to meet clear and defined goals and to support key functions. Consider technologies and systems already proven within the agency, division, or other similar organizations.	4
Total	27

Additional Information *(provide details on Benefits that score > 3)*

Agency Performance: The project will improve consistency for the agency by leveraging data governance and agency operational data stores for school, teacher, and student-level data. ADE program areas will know where the data is located and how to access it.

Productivity Increase: The availability of a web-based reporting system will reduce the time educators spend locating and compiling data and increase the time educators spend interpreting data, understanding the needs of their students, and making data-driven decisions. Currently, educators rely on spreadsheets that require manual data entry and compilation. The productivity increase would be realized by educator's ability to easily access a one-stop-data-shop to view actionable data and visualizations to inform their administrative and instructional decisions. The reporting system saves time and human labor expenses and all but eliminates the current burden on Arizona educators to locate data on their schools and students.

Operational Efficiency: Stakeholders will be able to securely access AzED^{3}S from one location rather than having to reach out to multiple applications and data sources. Implementation of the project will greatly reduce manual tasks such as locating student-level assessment data.

Accomplishment Probability: The project is expected to have a high-level of success because the pilot sites provide a test bed of 11 school districts and charter holders to minimize risks and learn best practices, thereby increasing the probability of success. Additionally, the project has been designed to ensure feedback and acceptance of the process and solution from the stakeholder advisory panels, whose membership has been elected from our 11 pilot sites to ensure the developed solution effectively meets their needs and is capable of being scaled to a statewide implementation.

Functional Integration: The adoption of a statewide reporting system will provide consistency to stakeholders by the implementation of one statewide reporting standard.

Technology Sensitive: Project requirements include the use of national standards including CEDS, Ed-Fi, and SAML.

VI.B Value to the Public

***Score:* 0=None, 1=Minor, 2=Moderate, 3=Considerable, 4=Substantial, 5=Extensive.**

Description	*Score*
Client Satisfaction: Rate how stakeholders may respond to anticipated improvements. This could apply to health and welfare services, quality of life or life safety functions.	5
Customer Service: Rate anticipated improvements to internal and external customer service delivery. Give consideration to faster response, greater access to information, elimination or reduction in client complaints.	5
Life Safety Functions: Applies to public protection, health, environment, and safety. Consider how this project will reduce risk in these functions.	0
Public Service Functions: Applies to licensing, maintenance, payments, and tax. Consider how this project will enhance services in these functions.	0
Legal Requirements: Consideration should be given to projects mandated by federal or state law. Other consideration could be given if there are interfaces with other federal, state, or local entities.	4
Total	14

Additional Information *(provide details on Value to the Public scores > 3)*

Client Satisfaction: Stakeholders in the pilot sites have expressed a high level of excitement and approval, and the dashboards are exceeding their expectations.

Customer Service: Implementation of a web-based reporting system will enable Arizona educators to reduce the amount of time, manual labor, and expense of locating and compiling data. Arizona educators will see a substantial reduction in time and effort previously expended on the manual processes of data collection and an increase in time made available for interpreting data, creating actions plans, and making data-driven decisions.

Legal Requirements: This project is being undertaken to ensure Arizona is in compliance with learning and accountability requirements for state data systems and federal grant requirements.

VII. Project Timeline

VII.A Project Schedule

Provide estimated schedule for the development of this project. These dates are estimates only; more detailed dates will be required at project start up once the project schedule is established.

Project Start Date: In Process **Project End Date:** 6/30/2015

VIII. Project Financials

Project Funding Details **Select One**

☐ **Pre PIJ Assessment Funding Details Only**
☒ **Full PIJ Project Funding Details**

VIII.A Pre-Assessment Project Financials

Project Funding Details for Pre-Assessment Project Investment Justification Only

VIII.B Detailed Project Financials

Development and Operational Project Funding Details

Funding Categories:

Professional and Outside Services: *The dollars to be expended for all third-party consultants and contractors.*
Hardware: *All costs related to computer hardware and peripheral purchases for the project.*
Software: *All costs related to applications and systems related software purchases for the project.*
Communications: *All costs related to telecommunications equipment, i.e. switches, routers, leased lines, etc.*
Facilities: *All costs related to improvements or expansions of existing facilities required to support this project.*
License & Maintenance Fees: *All licensing and maintenance fees that might apply to hardware, software and any other products as up-front costs to the project (ongoing costs would be included under Operational expense).*
Other: *Other IT costs not included above, such as travel, training, documentation, etc.*

VIII.C Funding Source

Federal ARRA Fund						$ -
Federal Fund	**SLDS GRANT 11026332**	$ 3,935,062				$ 3,935,062
Other Appropriated Funds	**Automation Projects Fund (AELAS)**	$ 2,750,000		$ 1,900,000		$ 4,650,000
Other Non-Appropriated Funds						$ -
TOTAL PROJECT COSTS (Should = development and operational totals above)		$ 6,685,062	$ -	**$ 1,900,000**	$ -	**$ 8,585,062**

VIII.D Special Terms and Conditions (if required)

Special Terms and Conditions (if required)

VIII.E Full Time Employee Project (FTE) Hours

Provide estimated FTE Development hours that will be utilized for the duration of the project. Include IT as well as Business Unit FTE hours, if available. Enter into Project Values table on Approvals page. **Enter FTE costs (if known) as well.**

Total Full Time Employee Hours: 0

Total Full Time Employee Cost:

IX. Project Classification and Risk Assessment

IX.A Project Classification and Risk Assessment Matrix

Rate each question to determine risk level at Low (0), Medium (1), High (2), Very High (3).

RISK EVALUATION RANGES

LOW RISK PROJECT	0 - 8
MEDIUM RISK PROJECT	9 - 25
HIGH RISK PROJECT	26 - 42
VERY HIGH RISK PROJECT	43 +

Add Project Risk Details (if required)

PIJ Project Classification & Risk Evaluation					
Risk Factor	**Low (0)**	**Medium (1)**	**High (2)**	**Very High (3)**	**Score**
Project Management Complexity					
Project Team Size (# of people)	1-5	6-10	11-15	> 15	2
Project Manager (PM) Experience	Deep experience in this type of project	Some experience in this type of project and able to leverage subject matter experts	Some experience in this type of project and has limited support from subject matter experts	New to this type of project	0
Team Member Availability	Dedicated staff for project activities only as assigned	Staff is in place, few interrupts for non project tasks are expected and have been accounted for	Available, some turnover expected, some interrupts for non project issues likely	Dedicated team not available; staff will be assigned based on capacity	1
# of Agencies involved in Development activity	1	2	3	> 3	0
Vendor (if used)	No Vendor required	Vendor has been used previously with success	Vendor has been used previously with some management support required	New Vendor and/or multiple vendors	1
Project Schedule	Schedule is flexible	Schedule can handle minor variations, but deadlines are somewhat firm	Scope or budget can handle minor variations, but deadlines are firm	Scope, Budget and Deadlines are fixed and cannot be changed	2
Project Scope	Scope is defined and approved	Scope is defined and pending approval	Scope being defined	High level definition only at this point	0
Budget Constraints	Funds allocated	Funds pending approval	Allocation of funds in doubt or subject to change without notice	No funding allocated	1
Project Methodology	Defined methodology	Defined methodology, no templates	High level methodology framework only	No formal methodology	1
IT Solution Complexity					
Product Maturity (if purchased)	Product implemented & working in > 1 state agency or business of similar size	Product implemented & working in 1 agency or business of similar size	Product implemented & working only in an agency or business of smaller size	Product not implemented in any agency or business	3
Solution Dependencies	No dependencies or interrelated projects	Some minor dependencies or interrelated projects but considered low risk	Some major dependencies or interrelated projects but considered medium risk	Major high-risk dependencies or interrelated projects	1
System Interface Profile	No other system interfaces	1-2 required interfaces	3-4 required interfaces	> 4 required interfaces	2
IT Architectural Impact	Follows State IT approved design; principles, practice & standards	New to the State but follows established industry standards	Evolving "industry standard"	No standards, leading edge technology	0
Deployment Impact					
Process Impact	No business process changes	Agency wide process changes	Multi-State Agency process changes	State-wide process changes	0
Scope of End User Impact	Department or Division level only	Multiple Division or Agency wide impacts	Multi-Agency impacts	State-wide impacts	3
Training Impact	No training is required	Minimal training is required	Considerable training is required	Extensive training is required	1
				Total Risk Score	**18**

X. Project Approvals

X.A CIO Review

Key Management Information	Yes	No
1. Is this project for a mission critical application system?	X	
2. Is this project referenced in your agency's Strategic IT plan?	X	
3. Is this project consistent with agency and State policies, standards and procedures?	X	
4. Is this project in compliance with the Arizona Revised Statutes and GRRC rules?	X	
5. Is this project in compliance with the statewide policy regarding the Accessibility to Equipment and Information Technology for Citizens with Disabilities?	X	
6. Is this project mandated by law, court case or rule? If yes, cite the federal requirement, ARS Reference or Court Case.? This initiative seeks to address critical elements of our Statewide Longitudinal Data System (SLDS) as part of the Federal Grant (GRANT11026332). The project will be able to complete within the performance period for use of the SLDS Grant Fund.	X	

X.B Project Values

The following table contains summary information taken from the other sections of the PIJ document.

Description	Section	Significance
Assessment Cost	VIII. Project Financials	
Economic Benefits	VI. Benefits to the State	27
Value Rating	VI. Value to the Public	14
Total Development Cost	VIII. Project Financials	**$ 8,585,062**
Total Project Cost	VIII. Project Financials	**$ 8,585,062**
FTE Hours	VIII. Project Financials	
Project Risk Factors	IX. Risk Summary	18

X.C Project Approvals

Select One ☐ **Pre PIJ Assessment Approval Only** ☒ **PIJ Project Approval**

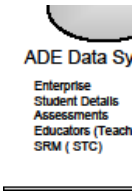
Project Title: SLDS – Arizona Education Data-driven Decision System (AzED^{3}S)

Responsibility	*Printed Name*	*Approval Signature*	*Date*
Project Manager:	Anish Verma		
Domain Manager	Amit Soman		
Agency CTO	Ed Jung		
Agency Information Security Officer	Shyam Sunder		
Agency CIO:	Mark Masterson		
Project Sponsor:	Elliott Hibbs		

Appendix

A. Itemized List with Costs

B. Connectivity Diagram



C. Project Schedule - Gantt chart or Project Management Timeline

D. NOI (Web Projects Only)

Glossary

Acronym	Definition	Additional Detail
ADE	Arizona Department of Education	Arizona's state agency that oversees public education
ADFS	Active Directory Federated Services	A Microsoft product operating on SAML standard for the interoperability of identity information that slows the authentication and authorization for systems based on the rules that ADE provides
CEDS	Common Education Data Standards	CEDS is a specified set of the most commonly used education data elements to support the effective exchange of data within and across states, as student transition between educational sectors and levels, and for federal reporting.
DG	Data Governance	Data Governance refers to the oversight of people, policies, and procedures that affect the availability, usability, integrity, and security of the data assets of an organization.
Ed-Fi	The Ed-Fi solution is a data specification combined with a free tool suite.	The data specification is vendor-neutral, open, and XML-based and designed to integrate information from a broad range of existing sources. The Ed-Fi solution extracts student information from a variety of educational data systems, and then standardizes, integrates and communicates it to educators and other parties through web-based dashboards, reports and other applications.
FERPA	Family Education Rights and Privacy Act (20 U.S.C. § 1232g; 34 CFR Part 99)	Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education.
FIM	ForeFront Identity Manager	A Microsoft product used to manage identities.
LEA	Local Education Agency	A charter holder or district. Officially defined as a public board of education or other public authority legally constituted within a state for either administrative control or direction of, or to perform a service function for, public elementary or secondary schools in a city, county, township, school district, or other political subdivision of a state, or for a combination of school districts or counties as are recognized in a state as an administrative agency for its public elementary or secondary schools. (34 CFR 300.18).
Microsoft SSIS	Microsoft SQL Server Integration Services	A set of tools from Microsoft for Extract, Transform and Load (ETL) processes. It will be used to facilitate updating databases from system, data, or application sources.

Acronym	Definition	Additional Detail
ODS	Operational Data Store	An Operational Data Store is a database. The general purpose of an ODS is to integrate data from disparate source systems into a single structure.
SAML	Security Assertion Markup Language	SAML is an XML standard that allows secure web domains to exchange user authentication.
SLDS	Student Longitudinal Data System	A Federal grant program and a data system to support the design, development, implementation, and expansion of K12 and P-20W longitudinal data systems.
SPA	Single Page Application	A web application or website that fits on a single web page and provides a fluid user experience similar to a desktop application.

Document Information

Title: Project Investment Justification – PIJ Version January 2013
Originator: Arizona Department of Administration – AZ Strategic Enterprise Technology Office
Date: January 2013
Download: http://aset.azdoa.gov/
Contacts: **ASET Oversight Managers:**
http://aset.azdoa.gov/content/project-investment-justification

Web Design (NOI Contact):
http://aset.azdoa.gov/webtools