

Annual Report of
The Data Governance Commission



December 1, 2011

Submitted to the Governor, President of the Senate, and Speaker of the
House of Representatives

John Huppenthal,
Superintendent of Public Instruction

J. Elliott Hibbs,
Chairman

2011 Annual Report

The Data Governance Commission

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Arizona Department of Education

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Founder
Team Dream World

Aaron Hale

Co-Founder
Legacy Traditional Academy

Vacant

The Data Governance Commission (DGC) is a statutorily created commission established to: identify, examine and evaluate the needs of public educational institutions, provide recommendations on proposals for technology spending in the education arena; analyze and recommend policies for various aspects of data management; and, establish guidelines for future technology implementation. In accordance with statutory guidelines, the Commission is a 13 member body who represent various aspects of expertise in the areas of administration, information technology and business. Initially appointed members serve by lot two, three or four years; subsequent appointees serve terms of four years.

The DGC was created by Laws 2010, Ch. 334, § 1 to act as a guide in approving technology spending and to act as a resource on a number of other issues ranging from privacy and security to resolution of data conflicts. The DGC is established within the Arizona Department of Education (ADE) which works on behalf of the DGC to support its statutory mandate and to further its goal of responsible technological innovation in the educational community.

John Huppenthal

Superintendent of Public Instruction

Chris Kotterman

Deputy Director

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Table of Contents

Contents

Introduction	3
Membership, Authority & Charges	3
Situational Analysis	5
Current Efforts	7
Statutory Requirement Mapping	7
SAIS Stabilization	7
Application Life Cycle Management (ALM) Phase I Analysis	7
Great Plains (Enterprise Resource Planning Module)	7
Identity Management	7
AELAS Business Case	8
Arizona Statewide Longitudinal Data System (AZ-SLDS)	8
Help Desk Ticketing System	8
Summary of 2011DGC Budget Recommendations	9
Future Efforts	9
Conclusion	10

Introduction

In 1999 former State Superintendent, Lisa Graham Keegan established the Student Accountability Information System (SAIS) which was created to fundamentally advance the school finance system and create a student database to improve required state and federal reporting and accountability. Since SAIS's development 12 years ago, the need for improved and updated technology has become more apparent. According to Mark Masterson, ADE Chief Information Officer, the SAIS system was down for repairs 26 weeks in 2010, costing the department and Arizona schools substantial losses in time and money.

Pursuant to A.R.S. § 15-249, ADE, in cooperation with the DGC, is required to develop the Arizona Education Learning and Accountability System (AELAS) to compile, collect and maintain data for students attending Arizona public schools and public postsecondary institutions.

To support ADE's efforts, The Educational Learning and Accountability Fund was established to provide funding for a statewide educational technology system. The Arizona State Legislature supported the fund with \$5.0M from basic state aid and imposed a \$6 fee for full-time students attending public post-secondary institutions in Arizona (bringing total funds to \$6.2M).

The DGC held its first meeting on August 19, 2011, to provide recommendations and guidance on new state and federal data system requirements to the ADE. In developing the DGC's annual report, special consideration has been given to current data fixes underway, longitudinal goals and future challenges. The following is a summation of findings, recommendations, approvals and actions taken by the Commission through November, 2011.

Membership, Authority & Charges

The Data Governance Commission was created by Laws 2010, Ch. 334, § 1, which added Arizona Revised Statutes §15-249.01, establishing the Commission, outlining its membership and charging it with certain responsibilities. According to statute, the commission consists of 13 members. Of the members, seven are appointed by virtue of the position that they hold within Arizona's educational institutions, and the remainder are appointed by the Governor, President of the Senate, and Speaker of the House of Representatives. The membership is as follows:

- The chief technology managers, or the managers' designees, of each of the universities under the jurisdiction of the Arizona Board of Regents.
- The chief technology manager, or the manager's designee, of a community college district located in a county with a population of 800,000 persons or more who has expertise in technology and who is appointed by the Governor.

- The chief technology manager, or the manager's designee, of a community college district located in a county with a population of less than 800,000 persons who has expertise in technology and who is appointed by the governor.
- The chief executive officer of the Arizona Early Childhood Development and Health Board or the chief executive officer's designee.
- An officer or employee of a school district located in a county with a population of 800,000 persons or more who has expertise in technology and who is appointed by the Governor.
- An officer or employee of a school district located in a county with a population of less than 800,000 persons who has expertise in technology and who is appointed by the governor.
- An officer or employee of a charter school located in a county with a population of 800,000 persons or more who has expertise in technology and who is appointed by the President of the Senate.
- An officer or employee of a charter school located in a county with a population of less than 800,000 persons who has expertise in technology and who is appointed by the Speaker of the House of Representatives.
- Two representatives of the business community, one of whom is appointed by the President of the Senate and one of whom is appointed by the speaker of the House of Representatives.
- The Superintendent of Public Instruction or the Superintendent's designee.

Statute charges the commission to “identify, examine and evaluate the needs of public institutions who provide instruction to pupils in preschool, kindergarten, grades one through twelve and postsecondary programs in Arizona,” and directs it to:

1. Establish guidelines related to the following:
 - (a) Managed data access
 - (b) Technology
 - (c) Privacy and security
 - (d) Adequacy of training
 - (e) Adequacy of data model implementation
 - (f) Prioritization of funding opportunities
 - (g) Resolution of data conflicts
2. Provide recommendations on technology spending.
3. Provide analyses and recommendations of the following:
 - (a) The control of data confidentiality and data security for stored data and data in transmission
 - (b) Access privileges and access management
 - (c) Data audit management, including data quality metrics, sanctions and incentives for data quality improvement
 - (d) Data standards for stored data and data in transmission, including rules for definition, format, source, provenance, element level and contextual integrity
 - (e) Documentation standards for data elements and systems components
 - (f) Data archival and retrieval management systems, including change control and change tracking
 - (g) Publication of standard and ad hoc reports for state and local level use on student achievement

- (h) Publication of implementation timelines and progress
- 4. Submit an annual report on or before December 1 regarding the Commission's activities to the Governor, the Speaker of the House of Representatives and the President of the Senate. The Data Governance Commission shall provide copies of this report to the Secretary of State.

Situational Analysis

The issues that Arizona faces with capturing and maintaining accurate student data are numerous and well-documented, both in various state reports and the media. In creating the Data Governance Commission, along with its appropriation to ADE to begin work on updating the state's educational data system, the Legislature demonstrated an intent that Arizona's various educational institutions collaborate in order to produce a product that will serve the public at all levels of the state's educational system. This is a monumental task which is still in its very early stages. The first task of the Commission is to wrap its arms around the scope of the issues at hand.

When Superintendent John Huppenthal took office in January 2011, he placed a renewed emphasis on customer service. A large part of ADE's services to school districts and charter schools lies in school finance and data processing, currently the Student Accountability Information System (SAIS). In prior years, SAIS had become more of a burden to both the department and its educational partners than a service. Therefore, ADE set out on a two-pronged strategy. First, it would stabilize SAIS so that it became a useable tool for school districts, and second, it would simultaneously build the Arizona Education Learning Accountability System (AELAS), the larger data system envisioned by the Legislature.

The Data Governance Commission is tasked with overseeing the development of AELAS, ensuring that it will meet the needs of Arizona's educational stakeholders and provide a stable, useful, and reliable platform to improve Arizona's education system from preschool through college.

SWOT ANALYSIS on delivering a successful State-Wide integrated total student management tool. Giving Teachers, Parents, Districts a complete 360 view of a student

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Strengths

- Executive leadership (Governor, Legislative) supports the effort to replace SAIS
- Executive IT leadership has experience in delivering multi-phased multi-million dollar projects
- Aligns with Superintendent's view on how education should be transformed
- Alliances with MCESA , NAU, and ASU
- Current Data System (SAIS) is being stabilized to bridge the gap for a short-term (3 years)
- Current SLDS provides 50 measures and thousands of demensions....The front-end will be modernized to ensure ease of use

O

Opportunities

- Will help state, districts, schools, teachers make data-driven decisions to improve student learning/facilitate achievement/close achievement gaps to better prepare for competitive global marketplace
- Rebuild, strengthen education community and all stakeholder relationships (Business, Higher Ed)
- Successful implementation can translate into strategic public relations event
- Innovation/technology development will make ADE/State of Arizona leader in educational tech community-at-large
- Reduce overall IT spending in the future through consolidation efforts

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Weaknesses

- Stakeholders/consituents alliances/partnerships due to poor past performance is a potential hurdle to get needed support/trust/cooperation
- Available grant /budget dollars undefined and not yet approved.
- Lack of standard Data Governance - difficult to transform disparate data sets (Data Gov. Commission to address)
- Data collections requirements/definitions are dynamic
- Necessary resources to deliver effort will be sourced from vendors/resource to create infrastructure /platform design required to support future data system

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Threats

- Multiple project approval stages thus causing potential bottlenecks or roadblocks
- Cost of system more than currently allocated/budgeted
- Loss of alliances and partners if project not delivered in 3 years.
- Certain stakeholder groups may become hostile: District/School IT staff and/or SMS/SIS vendors
- Competitors' new products and innovation
- Loss of future funding / grants if system not updated

Current Efforts

The Data Governance Commission and the Department of Education have undertaken several efforts to immediately address critical weaknesses in the current data system as well as lay the foundation for future success. Following is a brief summary of each.

Statutory Requirement Mapping

In conjunction with the SAIS stabilization and school finance projects, ADE's Information Technology division is also deconstructing and documenting SAIS. This project endeavors to map each of SAIS' business rules ultimately to a specific state or federal requirement in cooperation with the department's government relations division. This will help the department to estimate the cost of making legislatively-mandated changes in the future and also to identify duplicative or outdated processes. To date, ADE has identified nearly 300 rules that apply to determining Average Daily Membership alone.

SAIS Stabilization

The SAIS stabilization effort involves configuring the current SAIS system so that it is available for districts to use. Since January, the department has reversed the time that SAIS is up versus the time that it is down. For the first time in nearly a decade, the SAIS system is available more than it is unavailable, and it can run student integrity in a reasonable amount of time (reduced from weeks to hours). The department has kept the Commission apprised of this effort as it moves forward. Currently, SAIS is being upgraded to modern software that is supported by the marketplace. **Total Authorization: \$997,726**

Application Life Cycle Management (ALM) Phase I Analysis

As part of the education data systems modernization, ADE's Information Technology division will develop the set of processes that will be used in the delivery of the new IT services. An initial analysis of the environment has been completed, and the ADE SAIS Integration Team is going through pilot test phase of new process to formalize build and deployment of development projects as well as source management. **Total Authorization: \$109,725**

Great Plains (Enterprise Resource Planning Module)

One of the primary functions of ADE's data system is to provide information to the department's school finance division, which calculates and distributes funding for schools. However, many current processes are not automated, prone to error and are not as transparent as they need to be. Replacing ADE's finance system with a centralized, more automated product will help to improve efficiency, increase reliability and make the school finance system more transparent. This module, Microsoft Great Plains, will also make it easier for the department to adapt to changing statutory requirements. **Total Authorization: \$745,020**

Identity Management

The Arizona Office the Auditor General (OAG) has previously identified some significant faults with information security at the Department of Education. The current administration takes this very seriously, and has asked for approval from the Data Governance Commission to begin implementation of an identity management solution. This solution, Microsoft Forefront Identity Management (FIM),

once implemented, will create greater security for student-level information and provide the opportunity in the future to provide access to specific data for many stakeholders, such as teachers, parents, and perhaps even students themselves. **Total Authorization: \$800,000**

AELAS Business Case

Prior to embarking on a massive project at great taxpayer expense, ADE IT proposed that it construct a business case to prove the AELAS concept. The business case will examine the proposed system architecture, and analyze whether or not the AELAS model that is being proposed will ultimately save schools, the department, the state, and taxpayers time and money. A third-party vendor will be contracted to build the business case. **Total Authorization: \$826,720**

Arizona Statewide Longitudinal Data System (AZ-SLDS)

In addition to ongoing state and federal requirements, Arizona also made several assurances to the federal government in exchange for accepting federal State Fiscal Stabilization Fund (SFSF) monies, also known as “stimulus” dollars. One of these assurances was that the state would pursue the development of a longitudinal data system that could track student and teacher performance over time. In order to accomplish this, the state must have the ability to “map” which students are in which courses, and what teacher is teaching them. The state used federal monies to establish a successful pilot program in the Osborn School District; however, rolling out such a system more broadly requires additional dollars. As AELAS is intended to be a system that is all inclusive including SLD services, the Data Governance Commission was asked to lend support to this project, though not to fund the full rollout of the student/course/teacher connection to each school across the state. **Total Authorization: \$199,500**

Per the Governor’s Office request, interim statistic data reports were created and posted onto ADE website (October 22, 2011) while a new dashboard to visualize five specific use cases (user computer screens designed to access aggregate district/school reporting) is developed and implemented by January 2012. These dashboards will visualize specific data currently in the data warehouse in a user-friendly format. **Total Authorization: \$72,600**

Help Desk Ticketing System

As part of laying the foundation for a next-generation IT system, ADE IT needs to upgrade its incident management software package. The preferred product, Sunview Software ChangeGear, will allow ADE to support the current system, as well as future additions made to bring AELAS fully online. **Total Authorization: \$98,830**

Summary of 2011DGC Budget Recommendations

Item	Amount
SAIS Stabilization	\$997,726
ALM Phase I	\$109,725
ADE School Finance Module	\$472,920
Identity Management	\$800,000
AELAS Business Case	\$826,720
AZ-SLDS (Course Mapping)	\$199,500
AZ-SLDS (Dashboards & Use Cases)	\$72,600
Help Desk Ticketing System	\$98,830
Total Recommendations	\$3,578,021
Total Spend to date	

*Note, funding recommended is provided via the education learning and accountability fund. The total amount in the fund is subject to Legislative appropriation.

Future Efforts

In 2012 the Commission, along with the Department of Education, plans to move into the technical work of outlining the scope of Arizona's future education system (AELAS). The Commission recognizes that coordination among the various stakeholders is a challenge that faces all would-be builders of comprehensive systems. The Commission's goal will be to bridge the gaps between the various constituencies to bring Arizona a data system that will ably serve its current and future needs.

In January 2012, the Data Governance Commission will be provided recommended guidelines to be established for further evaluation of potential solutions, as required by the enabling legislation. The areas that will be covered are:

- (a) Managed data access
- (b) Technology
- (c) Privacy and security
- (d) Adequacy of training
- (e) Adequacy of data model implementation
- (f) Prioritization of funding opportunities
- (g) Resolution of data conflicts

Within the next several months, the Commission plans to take up the issue of AELAS system architecture in order to adopt a broad plan for what AELAS will look like when completed. Further, the Commission will examine the issue of common education data standards, or CEDS, to determine whether that is an appropriate standard for Arizona to adopt for its education data.

As SAIS deconstruction and rule extraction continues to other areas, the department will convene a business rule validation working group, which will examine the documented rules and make

recommendations on whether or not they are necessary, proper, etc. and will eventually begin developing new rules. These recommendations will be brought before the Commission for discussion and adoption.

The members of the Data Governance Commission are committed to providing expert guidance to the Department of Education, Board of Regents, Community Colleges, First Things First and other entities dealing with education data in order to establish Arizona as a model for data governance.

Conclusion

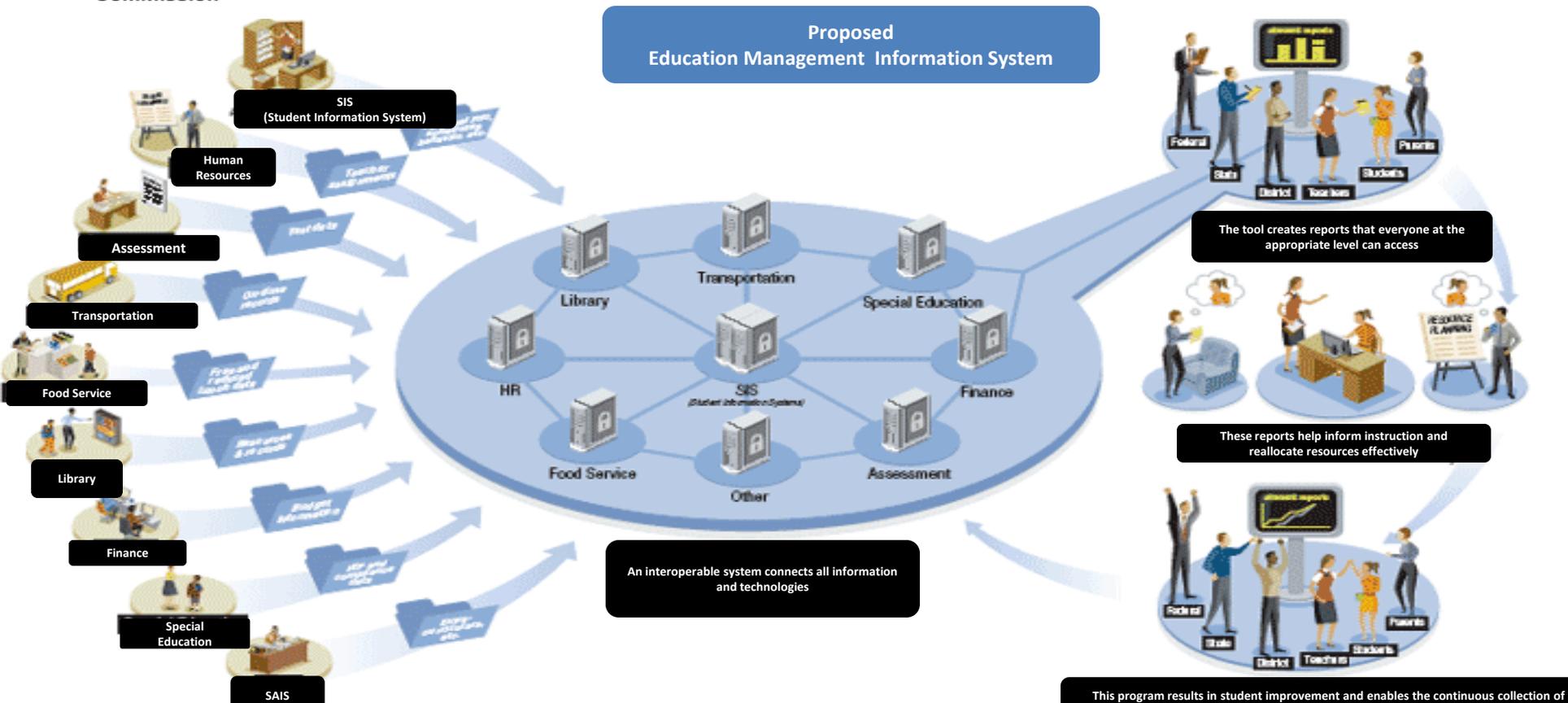
In the four short months since the Commission's enabling legislation took effect, the Data Governance Commission has covered a large amount of ground. It is commonly stated that the future of education is in technology. This can mean many things to many people, but the goal of the Commission is to provide quality, professional oversight and advice to the keeper's of Arizona's education data. The Commission will also encourage cross-institutional collaboration in order to achieve the goal of delivering a system that is high-performing and nimble enough to fulfill Arizona's education policy goals both today and in the future.

ADE IT Modernization Effort

AELAS – Education MIS Roadmap

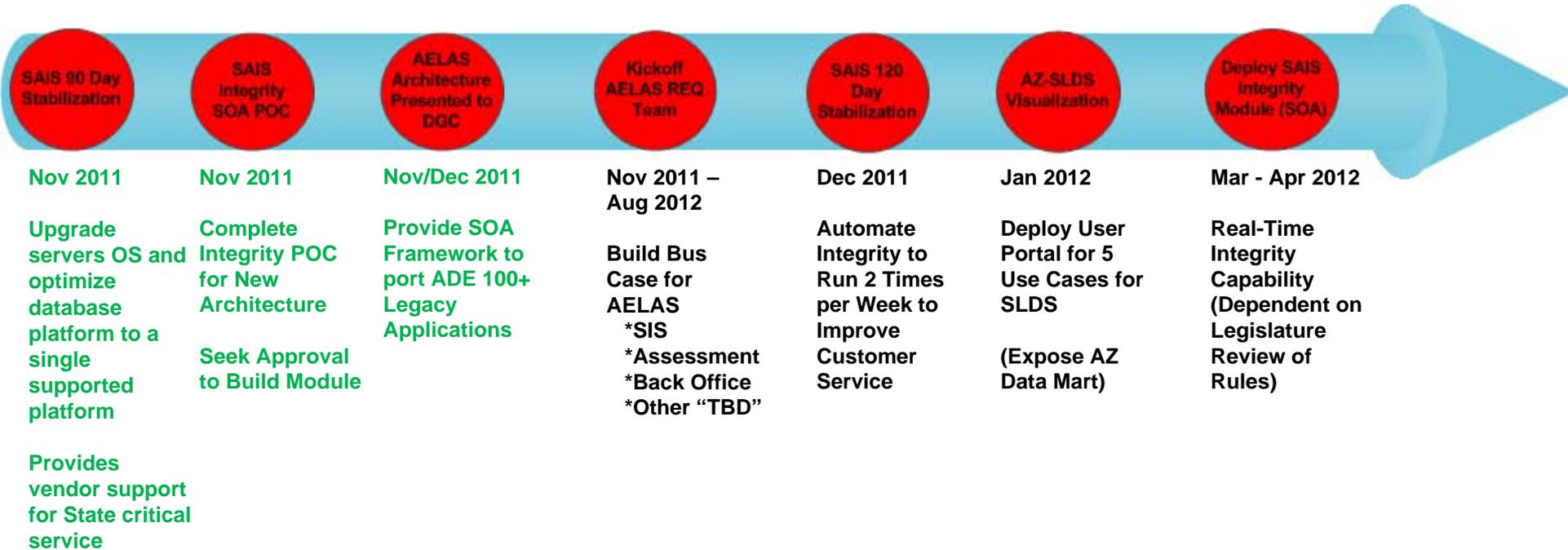


- Year 1**
- “Map the Mess”
 - Define Services
 - Develop Requirements
 - Business Case
 - Prepare RFP
 - Statewide Student/Teacher Identifier recommendation
 - Establish Data Governance Commission
- Year 2**
- Prepare Service RFP
 - Select Vendors to Build Platform
 - Support Services
 - Pilot Test District Selected
- Year 3**
- Design
 - Implementation
 - Begin State Implementation
 - Training Centers
- Year 4**
- Continue Rollout



ADE IT Modernization Effort

SAIS Roadmap - Updates



ADE Modernization Effort

AELAS: SAIS Stabilization

Estimated Costs



SAIS Project Phases	SAIS Project Estimated Costs
SAIS Phase 0 – Assessment	\$ 49,500.00
SAIS Phase 1 – Integrity	\$ 237,000.00
SAIS Phase 2 – School Finance	\$ 154,117.00
SAIS Phase 3 – Transaction	\$ 79,703.00
SAIS Phase 4 – Aggregation	\$ 79,703.00
SAIS Phase 5 – Data Push	\$ 142,800.00
SAIS Phase 6 – High Priority Assessment (10 Systems)	\$ 129,000.00
SAIS Assessment Completed and Report	\$ 45,600.00
TOTAL	\$ 997,726.00

ADE Modernization Effort

AELAS: SAIS Stabilization Detail



SAIS Phase	Estimated Costs	Status
SAIS Phase 0 – “Assessment” •Define Scope Phases 1 through 5	\$ 49,500.00	Approved by Arizona State Board of Education Completed
SAIS Phase 1 – “Integrity” •Decompose all business rules and map all to state laws – 267 rules to date identified •Document process and business rules •Determine if business rules versus legislation properly interpreted •Build Proof of Concept (POC) for new integrity process	\$ 237,000.00	Approved by Arizona State Board of Education In Process
SAIS Phase 2 – “School Finance” •Decompose ADE School Finance system •Document business rules •Perform Six Sigma •Engineer business process •Determine road map for Great Plains interface	\$ 154,117.00	Approved by Arizona State Board of Education Launch Pending Recommendation by Data Governance Commission
SAIS Phase 3 – “Transaction” •Decomposed transaction processing •Document business rules •Define interface between ADE Charter Districts •Define “As Is”	\$ 79,703.00	Approved by Arizona State Board of Education Launch Pending Recommendation by Data Governance Commission
SAIS Phase 4 – Aggregation •Decompose all business rules and map all to state laws •Build Proof of Concept (POC) for future aggregation process	\$ 79,703.00	Approved by Arizona State Board of Education Launch Pending Recommendation by Data Governance Commission

ADE Modernization Effort

AELAS: Great Plains Estimated Costs



Great Plains Project Phases	Project Estimated Costs
Great Plains Phase 0 – “Assessment”	\$ TBD (Will populate 9/29/11)
Great Plains Phase 1 - “Analysis”	\$ TBD
Great Plains Phase 2 - “Design”	\$ TBD
Great Plains Phase 3 - “Development”	\$ TBD
Great Plains Phase 4 - “Deployment”	\$ TBD
Great Plains Phase 5 – “Operations”	\$ TBD
TOTAL	TBD (Will populate 9/29/11)

ADE Modernization Effort

AELAS: Great Plains Detail



Great Plains Phase	Estimated Costs	Status
Great Plains Phase 0 – “Assessment” <ul style="list-style-type: none"> •Define Scope Phases 1 through 5 	TBD	25% Project Approved by Arizona State Board of Education Completed
Great Plains Phase 1 – “Analysis” <ul style="list-style-type: none"> •Project Charter •Project Plan •Functional Requirements Document (FRD) •Fit Gap Analysis Spreadsheet •Business Process Maps/Workflows •Data Migration Requirements •Infrastructure Design Document •Integration and Interface Requirements 	TBD	No Status
Great Plains Phase 2 – “Design” <ul style="list-style-type: none"> •Functional Design Document (FDD) for: <ul style="list-style-type: none"> •Fits (Configurations) •Gaps (Customizations) •Integration and Interface Requirements •Data Migration Requirements •Technical Design Document (TDD) •Solution Design Document (SDD) 	TBD	No Status
Great Plains Phase 3 – “Development” <ul style="list-style-type: none"> •Functional Design Document (FDD) for: <ul style="list-style-type: none"> •Fits (Configurations) •Gaps (Customizations) •Integration and Interface Requirements •Data Migration Requirements •Technical Design Document (TDD) •Solution Design Document (SDD) 	TBD	No Status

ADE Modernization Effort

AELAS: Great Plains Detail (continued)



Great Plains Phase	Estimated Costs	Status
Great Plains Phase 4 – “Deployment” <ul style="list-style-type: none"> •End User Training •User Acceptance Test Results •Final Data Migration •Final System Readiness & Go-Live Checklist •Production Environment •Cutover to Production •Deployment Plan •Train-the-Trainer (TTT) Training •Production Operations Guide 	TBD	No Status
Great Plains Phase 5 – “Operations” <ul style="list-style-type: none"> •Project Closure Report •Final Delivery of all Project Deliverables to the customer •Documented Lessons Learned 	TBD	No Status

ADE IT Modernization Effort

AELAS: Identity Management System (IMS)



Estimated Costs (Review): Microsoft FIM

IMS Project Phases	Project Estimated Costs
IMS Phase 0 - "Analysis"	\$50,000
IMS Phase 1- "Design"	\$500,000
IMS Phase 2 - "Development"	\$200,000
IMS Phase 3 - "Deployment"	\$50,000
TOTAL	\$800,000

ADE IT Modernization Effort



AELAS: Identity Management System (IMS)

Estimated Costs: Microsoft FIM

IMS Phase	Estimated Costs	Status
IMS Phase 0 – “Assessment” <ul style="list-style-type: none"> •Define full project scope and phases •Define high-level tasks, WBS, and project plan •Conduct project kick-off meeting & assign Work Groups •Identify ALL applications within ADE enterprise, Active, Inactive, and currently in development •Obtain PIJ approval 	\$50,000	Approved by Arizona State Board of Education Completed
IMS Phase 1 – “Pilot to Replace Common Logon” <ul style="list-style-type: none"> •Purchase hardware and software •Identify Pilot systems and users •Identity and implement FIM minimum set features & capabilities •Implement basic self servicing portal •Migrate internal common logon users to Active Directory •Re-purpose EduAccess users to FIM 	\$500,000	Approved by Arizona State Board of Education In Process
IMS Phase 2 – “Expanded Systems” <ul style="list-style-type: none"> •Expand self servicing •Expand user roles •SAML, Claims based authorization, and Federated trust •COTS, Home Grown, and other applications implementation to FIM 	\$200,000	Approved by Arizona State Board of Education Phase Pending Recommendation by Data Governance Commission
IMS Phase 3 – “Self Sustainability and Ongoing Support”	\$50,000	Approved by Arizona State Board of Education Phase Pending Recommendation by Data Governance Commission

ADE IT Modernization Effort

AELAS Business Case



- Launch of Business Case (LearningMate)
 - Reduce the total cost of ownership for various education technology product
 - Provide the flexibility to school districts
 - Plug-and-play various education technology systems/products
 - Reduce dependency on single vendor and wants to increase the ownership of data for districts and DOE
 - Improve the quality of data and develop standardization
 - To reduce the infrastructure cost
 - Provide software as a service and Infrastructure as a service

ADE IT Modernization Effort

AZ-SLDS



- State Dashboard and 5 Use Cases (Capstone BI)
- Course Mapping: “Course Walk” (ESP)

ADE IT Modernization Effort Summary Budget Approval Recommendations



Business Case: LearningMate	Develop comprehensive business case for middle tier projects.	\$ 826,720
IMS: Microsoft FIM (Forefront Identity Management) Phase III & Phase IV	Provide a single sign on as well as increased system security, and greater compliance with FERPA	\$ 250,000
ITIL Tool: ChangeGear	Help Desk Ticketing Tool	\$ 98,830
AZ-SLDS : 5 Use Cases & Dashboards:Capstone BI	Federal / State Mandates	\$ 72,600
AZ-SLDS :Course Mapping: ESP	Federal / State Mandates	\$ 199,500

ADE IT Modernization Effort

Executive Budget Summary



Budget Approvals:	\$2,020,646.00
Additional Budget Authority Asking:	\$1,719,750.00
Total Proposed Budget Approval	\$3,740,396.00
Spend to Date:	\$ 703,321.78