

Quarterly Performance Review of the Arizona Education Learning and Accountability System: AELAS

Submitted to the Arizona Department of Education
by WestEd and CELT

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INTRODUCTION

This report documents a quarterly performance review of the Arizona Education Learning and Accountability System (AELAS) by an independent evaluator as required by *Arizona Revised Statutes* (A.R.S.) 15-249 that was conducted October 6-7, 2016. WestEd, the prime contractor, and the Center for Educational Leadership and Technology (CELTI), the subcontractor, were hired by the Arizona Department of Education (ADE) to serve as that independent evaluator. This quarterly monitoring report is a follow-up to the initial performance review conducted in 2013, with a report submitted on September 9, 2013. This report follows all previous quarterly monitoring reports, updating commendations and recommendations.

SUMMARY FINDINGS

The main findings from this monitoring visit include:

1. **Legislative Review for the Re-write of APOR and CHAR:** APOR and CHAR are to be re-written in the later part of FY17 and FY18. This work will require that the business rules and financial calculations for district funding from the state are documented. There are at least three approaches to determining the business rules and financial calculations for APOR/CHAR prior to these systems being re-written. These include:
 - a. Reverse engineer the rules from the legacy code;
 - b. Conduct a legislative review; or
 - c. Use a combined approach of legislative review and reverse engineering of the legacy code, followed by a gap analysis of the two results.

The reverse-engineering approach assumes that the current code accurately captures the legislation and all updates/revisions. It also does not necessarily offer the opportunity to review the legislative intent to determine if certain aspects of the financial calculations are still relevant. A thorough legislative review should identify the financial calculations and any updates/revisions that were required to be enacted. It also affords the opportunity to explore the intent of the legislation to determine if the original meaning is still relevant. This approach will not necessarily identify any differences with the legacy code and the accompanying financial impact to districts. This report recommends that at a minimum, the ADE conduct a thorough legislative review to determine the financial calculations for school district funding and then vet the results with a committee appointed to determine if these calculations are still relevant and practical. This report also recommends, if time and funding permit, that the ADE reverse engineer the legacy code to a degree that will allow a comparison with the legislative review to determine the financial impact to districts of the “to be” business rules and financial calculations.

2. **Help Desk Services:** While the help desk services offered by ADE are technically beyond the scope of this review, the quality and timeliness of these services does impact the ongoing sustainability and adoption of AELAS. This review found that the help desk (e.g., customer support or call center) services offered by ADE do not reflect the commonly accepted best practices and use of metrics as recommended by such frameworks as ITIL or COBIT. This results in a backlog of tickets and long average resolution times. The ADE has been very intentional with regard to the adoption of IT best practices in such areas as project management, enterprise architecture, configuration management and release management. This report

recommends that the same level of research and application of best practices be applied to the help desk services. As of this report, the IT division began a structural reorganization of the support center services. The monitoring team also provided suggested metric tools to review for possible implementation.

3. **IP Sell Bill:** In order to be successful at supporting systems that have been sold to other education agencies (i.e., sustain a level of service that meets customer expectations), the ADE must have mature processes in place for such things as configuration management, release management, quality assurance, system development lifecycle, and help desk. These processes at ADE, with the exception of the help desk, seem to be relatively well positioned to expand to support systems deployed beyond the department. This report recommends that the help desk process be improved prior to any sell of ADE's AELAS components.
4. **SIS Opt-in:** The original justification for providing SIS opt-in services to districts was based on: savings (lower per-student costs) from volume purchasing, better support from the ADE, and easier procurement for districts. As of this report, districts that are participating in the SIS opt-in approach have enjoyed lower per-student costs, however it is arguable as to whether they receive better support and easier procurement. The ADE is working to improve support and procurement, and may be able to make these a differentiator. For example, a dedicated support model has been adopted. This ensures that ADE builds a knowledgeable staff as well as an opportunity to effectively measure support analyst performance and productivity. Additionally, a review of the procurement processes and systems has yielded a streamlined, automated approach to the procurement process. These management changes are XXX (I'd say step in the right direction, but will defer to your opinion) and will be a subject of review during the next monitoring period. But, given that the ADE will no longer actively market the SIS opt-in approach to other districts, it is an open question as to which direction to take with regard to the SIS opt-in approach. The ESSA strategic plan is a potential resource to use to address the future direction for such ADE services to districts.
5. **Legacy Apps:** Converting the legacy applications off of SAIS is an important next step for the AELAS project. This conversion was reported to occur in two phases – first to point the legacy applications to the new ODS instead of SAIS and then to look at collapsing and combining these applications. This work will carry on for an as-yet undetermined amount of time. During this time, ADE will work to convert the older (2003) servers for these apps to newer servers to avoid the need to maintain unsupported system software. There is no specific recommendation in this report regarding this issue, only an acknowledgement of the importance of this work and the need for a strategy to convert these apps in a reasonable timeframe.
6. **Old SAIS Servers** – The SAIS 2000 servers are already unsupported (not patchable) and will be a challenge to maintain for the future. These servers will only be needed for 915 processing, and this need will expire in 2019. The 915 submittals have already begun for 2016 and experienced a 3-day outage due to a corrupted directory. This represents an ongoing issue to be managed, however ADE is taking steps to minimize the risk to these servers. These include:
 - a. Isolating the servers to an internal network;

- b. Implementing SPLUNK as a method to review the logs on these servers and report suspicious file changes; and
- c. Implementing file integrity monitoring through ADOA services to determine and alert ADE if critical files are changed.

Again, there is no specific recommendation in this report regarding this issue, only an acknowledgement of the importance of this work and an endorsement of the measures being used to keep the 2000 servers operational for 915 processing.

7. **Fiscal Year 2018 Sustainability Funding:** The FY2018 budget request is \$10.1 million for the support, maintenance and ongoing operation of AELAS and \$7.5 million for further development. This development includes:
 - a. \$1.25 million for AZDASH for 2018 to accommodate new reports, the menu of assessments, ESSA, and other new functionality for the districts;
 - b. \$3.5 million for school finance for the development work for APOR and CHAR. The design work for these systems will be done as much as possible in FY2017; and
 - c. \$2.75 million to consolidate additional data collections into AzEDS by expanding the APIs to accommodate such things as ELL, ESS, and food services.

This report acknowledges the importance of sustaining and continuing to build on the work of AELAS.

COMMENDATIONS

Commendations pertain to activities that ADE is doing especially well and are highlighted as examples of superlative performance. The WestEd/CELT team has noted the following commendations from observations during the October 2016 site visit:

1. **Conversion to AzEDS:** The new data reporting process is reported to be working very well. All districts (with a couple of small exceptions) are reporting data through AzEDS. The new reporting is saving districts time and providing accurate data. Districts seem to be satisfied with the process. This represents a major milestone and accomplishment by the ADE and puts the state in the top tier of data collection and reporting among all other state education agencies.
2. **Broadband** – The ADE is pursuing a strategy to provide broadband services to school districts across the state. This issue was raised in the original focus groups, and continued to be an issue for the most rural districts across the state. Broadband is a service that will greatly benefit the state and especially the smaller and more rural districts. Such services have been offered by other states and have been shown to be effective in terms of managing costs and in terms of providing needed bandwidth to meet the ever-increasing needs of technology enhanced instruction.
3. **Teacher Preparation Program** – Increasing the data literacy of educators across the state is technically not part of the WestEd/Celt monitoring. However, data literacy in the districts and at ADE is a foundational skill set that will enable broader and more effective use of AzEDS. ADE is at the cutting edge here among states. The ADE is requiring that teacher preparation programs show evidence that they provide training on data literacy for educators beyond just

assessment literacy and to have data literacy embedded in all aspects of teacher preparation program, not a separate strand. ADE is one of the first, if not the first state, to collaboratively work with its colleges of education to develop a rubric and set of standards against which curricula can be built. It would be helpful, however, for ADE to ensure that data literacy skills and knowledge are included in the required skill sets for educators and have those skills sets available for dissemination via the Department’s website.

4. **Strategic Plan for ESSA** – ADE is ahead of most states in the development of the strategic directions for ESSA. The planning process included broad participation from stakeholders and generated over 14,000 public comments on the plan. A second round of feedback will be forthcoming following the release of a revised document on November 1, 2016. This level of stakeholder input increases the potential buy-in from various segments of the population.
5. **Cost Estimating and Tracking** - The ADE IT department has developed good tools for tracking planned and actual costs for the projects that they manage. These include not only cost tracking but also change request management/tracking and modeling tools to help project future costs for things such as cloud services. The department very closely manages the funding they receive. They are to be commended for continuously improving the project estimating/tracking tools and processes.
6. **IT Governance** – The ADE IT department is putting in place a governance process that includes the review of program area IT requests and the development of a memorandum of agreement (MOA) to help guide and manage the work. This is an IT governance recommended practice.

FINDINGS BY RECOMMENDATIONS

The initial recommendations (11 total) from the first site visits have served as a baseline from which the WestEd/CELT team has been working for all subsequent site visits. Additional findings and recommendations have been added relative to the initial findings. Below is a synthesis of the team’s findings and recommendations from the June 2016 visit.

1. Stay the course as envisioned in the AELAS business case.

<i>Findings</i>	<i>Recommendations</i>
<p>APOR and CHAR: The planned rewrite of APOR and CHAR is to begin in 2017 and continue into 2018. This work will require that the business rules and financial calculations for district funding from the state are documented.</p>	<p>There are at least three approaches to determining the business rules and financial calculations for APOR/CHAR prior to these systems being re-written. These include:</p> <ol style="list-style-type: none"> a. Reverse engineer the rules from the legacy code; b. Conduct a legislative review; or c. Use a combined approach of legislative review and reverse engineering of the legacy code, followed by a gap analysis of

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
	<p>the two results.</p> <p>The reverse-engineering approach assumes that the current code accurately captures the legislation and all updates/revisions. It also does not necessarily offer the opportunity to review the legislative intent to determine if certain aspects of the financial calculations are still relevant. A thorough legislative review should identify the financial calculations and any updates/revisions that were required to be enacted. It also affords the opportunity to explore the intent of the legislation to determine if the original meaning is still relevant. This approach will not necessarily identify any differences with the legacy code and the accompanying financial impact to districts. This report recommends that at a minimum, the ADE conduct a thorough legislative review to determine the financial calculations for school district funding and then vet the results with a committee appointed to determine if these calculations are still relevant and practical. This report also recommends, if time and funding permit, that the ADE reverse engineer the legacy code to a degree that will allow a comparison with the legislative review to determine the financial impact to districts of the “to be” business rules and financial calculations.</p>
<p>SIS Opt-In Project: The original justification for providing SIS opt-in services to districts was based on:</p> <ul style="list-style-type: none"> • savings (lower per-student costs) from volume purchasing; • better support from the ADE; and • easier procurement for districts. <p>As of this report, districts that are participating in the SIS opt-in approach have enjoyed lower per-student costs, however it is arguable as to whether they receive better support and easier procurement. The ADE is working to improve support and procurement, and may be able to make these a differentiator. For example, a dedicated support model has been adopted.</p>	<p>Given that the ADE will no longer actively market the SIS opt-in approach to other districts, it is an open question as to which direction to take with regard to the SIS opt-in approach. The ESSA strategic plan is a potential resource to use to address the future direction for such ADE services to districts.</p>

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
<p>This ensures that ADE builds a knowledgeable staff as well as an opportunity to effectively measure support analyst performance and productivity. Additionally, a review of the procurement processes and systems has yielded a streamlined, automated approach to the procurement process. These management changes are a step in the right direction, and will be a subject of review during the next monitoring period.</p>	
<p>Help Desk Services: While the help desk services offered by ADE are technically beyond the scope of this review, the quality and timeliness of these services does impact the ongoing sustainability and adoption of AELAS. This review found that the help desk (e.g., customer support or call center) services offered by ADE do not reflect the commonly accepted best practices and use of metrics as recommended by such frameworks as ITIL or COBIT. This results in a backlog of tickets and long average resolution times. As of this report, the IT division began a structural reorganization of the support center services. The monitoring team also provided suggested metric tools to review for possible implementation.</p>	<p>The ADE has been very intentional with regard to the adoption of IT best practices in such areas as project management, enterprise architecture, configuration management and release management. This report recommends that the same level of research and application of best practices be applied to the help desk services.</p>
<p>Legacy Apps: Converting the legacy applications off of SAIS is an important next step for the AELAS project. This conversion was reported to occur in two phases – first to point the legacy applications to the new ODS instead of SAIS and then to look at collapsing and combining these applications. This work will carry on for an as-yet undetermined amount of time. During this time, ADE will work to convert the older (2003) servers for these apps to newer servers to avoid the need to maintain unsupported system software.</p>	<p>There is no specific recommendation in this report regarding this issue, only an acknowledgement of the importance of this work and the need for a strategy to convert these apps in a reasonable timeframe.</p>
<p>Old SAIS Servers – The SAIS 2000 servers are already unsupported (not patchable) and will be a challenge to maintain for the future. These</p>	<p>Again, there is no specific recommendation in this report regarding this issue, only an acknowledgement of the importance of this</p>

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
<p>servers will only be needed for 915 processing, and this need will expire in 2019. The 915 submittals have already begun for 2016 and experienced a 3-day outage due to a corrupted directory. This represents an ongoing issue to be managed, however ADE is taking steps to minimize the risk to these servers. These include:</p> <ul style="list-style-type: none"> • Isolating the servers to an internal network; • Implementing SPLUNK as a method to review the logs on these servers and report suspicious file changes; and <p>Implementing file integrity monitoring through ADOA services to determine and alert ADE if critical files are changed.</p>	<p>work and an endorsement of the measures being used to keep the 2000 servers operational for 915 processing.</p>

2. Utilize business architecture concepts, aligning department strategic plans to and across program area plans and associated execution activities and methodologies.

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
<p>Strategic Plan: See findings and recommendations regarding the ESSA strategic plan mentioned later in this report.</p>	

3. Directly address the budgetary issues that pertain to AELAS, SAIS, and the SLDS that include detailed work plans, deliverables, and timelines.

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
<p>Fiscal Year 2018 Sustainability Funding: The FY2018 budget request is \$10.1 million for the support, maintenance and ongoing operation of AELAS and \$7.5 million for further development. This development includes:</p> <ul style="list-style-type: none"> • \$1.25 million for AZDASH for 2018 to accommodate new reports, the menu of 	<p>No recommendation other than to state that this report acknowledges the importance of sustaining and continuing to build on the work of AELAS.</p>

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
<p>assessments, ESSA, and other new functionality for the districts;</p> <ul style="list-style-type: none"> • \$3.5 million for school finance for the development work for APOR and CHAR. The design work for these systems will be done as much as possible in FY2017; and • \$2.75 million to consolidate additional data collections into AzEDS by expanding the APIs to accommodate such things as ELL, ESS, and food services. 	

4. **Improve and continue to develop a communication plan to diverse stakeholders.**

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
No new findings.	No recommendations.

5. **Creation of a data governance process.**

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
There were no new specific findings about the data governance process during this monitoring visit.	

6. **Reduce the redundancy among data collections.**

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
<p>Streamlining Data Collections: Work is underway to pursue opportunities through AzEDS to consolidate and reduce the data collections required from districts. These potentially include CTE and military flag (these are in progress), Title 1, free and reduced lunch, and empowerment scholarship.</p>	<p>No recommendations other than to continue this work to make the most benefit of the AzEDS data collection tools.</p>

7. **Creation of a non-profit organizing structure.**

<u>Findings</u>	<u>Recommendations</u>
<p>IP Sell Bill: In order to be successful at supporting systems that have been sold to other education agencies (i.e., sustain a level of service that meets customer expectations), the ADE must have mature processes in place for such things as configuration management, release management, quality assurance, system development lifecycle, and help desk. These processes at ADE, with the exception of the help desk, seem to be relatively well positioned to expand to support systems deployed beyond the department.</p>	<p>This report recommends that the help desk process be improved prior to any sell of ADE AELAS components.</p>

8. **Improvement of human capacity around the use of data (e.g., data literacy).**

<u>Findings</u>	<u>Recommendations</u>
<p>Teacher Preparation Program – Increasing the data literacy of educators across the state is technically not part of the WestEd/Celt monitoring. However, data literacy in the districts and at ADE is a foundational skill set that will enable broader and more effective use of AzEDS. ADE is at the cutting edge here among states. The ADE is requiring that teacher preparation programs show evidence that they provide data literacy for educators beyond just assessment literacy and to have data literacy embedded in all aspects of teacher preparation program, not a separate strand. ADE is one of the first, if not the first state, to collaboratively work with its colleges of education to develop a rubric and set of standards against which curricula can be built. It would be helpful, however, for ADE to ensure that data literacy skills and knowledge are included in the required skill sets for educators and have those skills sets available for dissemination via the Department’s website.</p>	<p>Translate the data literacy rubric into skills and knowledge that can be disseminated on the Department website as part of teacher requirements to make potential candidates aware of the need to demonstrate these skills. This will enhance the message of importance and the expectations around appropriate preparation.</p>

9. **Attend closely to the needs of the most rural districts.**

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
<p>Broadband – The ADE is pursuing a strategy to provide broadband services to school districts across the state. This issue was raised in the original focus groups, and continued to be an issue for the most rural districts across the state. Broadband is a service that will greatly benefit the state and especially the smaller and more rural districts. Such services have been offered by other states and have been shown to be effective in terms of managing costs and in terms of providing needed bandwidth to meet the ever-increasing needs of technology enhanced instruction.</p>	<p>Continue this effort to close the gap in technology for the more rural districts in Arizona.</p>

10. **Development of a comprehensive long-term plan and continued outreach to stakeholders in the form of periodic needs analyses as a process by which to monitor changing needs of the stakeholder groups.**

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
<p>Strategic Plan for ESSA – ADE is ahead of most states in the development of the strategic directions for ESSA. The planning process included broad participation from stakeholders and generated over 14,000 public comments on plan. A second round of feedback will be forthcoming following the release of a revised document on November 1. This level of stakeholder input increases the potential buy-in from various segments of the population.</p>	<p>From previous report: The ESSA plan can use the capacities provided by AELAS as a foundation for a future vision of digital teaching and learning. Research the leading practices in such areas as personalized learning and digital curriculum management and create the path forward for the next phase of an AELAS build-out for Arizona schools.</p>

11. **Engage program areas and policymakers in supporting the work of AELAS.**

<u><i>Findings</i></u>	<u><i>Recommendations</i></u>
<p>IT Governance – The ADE IT department is putting in place a governance process that</p>	<p>No recommendation other than to continue to pursue such IT governance practices that</p>

<i>Findings</i>	<i>Recommendations</i>
includes the review of program area IT requests and the development of a memorandum of agreement (MOA) to help guide and manage the work. This is an IT governance recommended practice.	engage the program areas.

CHALLENGES

The most pressing challenges for the ADE from the October monitoring visit appear to be:

1. Completing the conversion of APOR and CHAR.
2. Converting the legacy applications while at the same time keeping the required underlying older infrastructure components operational.
3. Securing sustainability funding for AzEDS going forward.
4. The sustainability and continuity of commitment to the AELAS work across all levels of government in Arizona.
5. Addressing the issues surrounding the help desk.

CONCLUSION AND NEXT STEPS

The new data collection process is reported to be working very well. It offers tremendous future potential to reduce spending, save the districts time required to gather and correct data, and provide more accurate data to the districts and the state. This represents a major milestone and accomplishment by the ADE and puts the state in the top tier of data collection and reporting among all other state education agencies. AELAS now forms a good foundation for Arizona to begin the journey into the world of sound educational decision making, data-informed instruction, and ultimately digital learning. With the passage of ESSA, ADE has a unique opportunity to integrate how AELAS will form the foundation for the agency's strategic plan for its ESSA response. This response is considering the broad impact that the technologies and their data can provide to educators, stakeholders, and parents across the state of Arizona. AELAS perhaps positions Arizona in ways unlike other states, to provide real-time and relevant data to address the objectives of ESSA and those of ADE more broadly construed. However, without a clear vision for such a direction and funding to build upon this foundation, the momentum gained by the AELAS effort could be lost. The strategic planning process provides ADE with the opportunity to consider the development of that vision. Arizona remains in the top tier of state education departments with regard to data collection and potential for data-informed instruction supported by state systems. This progress will be quickly lost without proper vision and support. It is essential to secure long-term sustainability commitments from JLBC to maintain and enhance ADE's data capacity.