

**Deloitte.**

West Virginia

Department of Education

Response to Request for Information for  
Commercial-Off-The-Shelf (COTS) Product  
Integration with WVEIS Student Information  
System



05/30/13 11:42:31 AM  
West Virginia Purchasing Division

**RFI Response**  
**Due: May 30, 2013; 4:00 PM**





State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**Solicitation**

NUMBER
EDD393080

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
CONNIE OSWALD 304-558-2157

VENDOR

Deloitte Consulting, LLP  
 1012 Kanawha Blvd. E. 2nd Floor  
 Charleston, WV 25301

SHIP TO

DEPARTMENT OF EDUCATION  
 BUILDING 6  
 1900 KANAWHA BOULEVARD, EAST  
 CHARLESTON, WV  
 25305-0330

DATE PRINTED
05/15/2013

BID OPENING DATE: 05/30/2013 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	JB		920-04		
<p>REQUEST FOR INFORMATION</p> <p>THE STATE OF WEST VIRGINIA AND ITS AGENCY THE WEST VIRGINIA DEPARTMENT OF EDUCATION IS SEEKING INFORMATION TO PROVIDE COMMERCIAL OFF THE SHELF (COTS) SOFTWARE PRODUCTS TO FACILITATE SEAMLESS INTEGRATION OF STUDENT INFORMATION PER THE ATTACHED SPECIFICATIONS.</p> <p>ALL INTERESTED VENDORS WISHING TO PROVIDE INFORMATION ABOUT THEIR PRODUCT IN RELATION TO THE STUDENT INFORMATION SYSTEM SHOULD PROVIDE A RESPONSE TO THE BUYER, CONNIE OSWALD AT THE LOCATION MENTIONED IN THE ATTACHED INSTRUCTIONS TO BIDDERS.</p> <p>THIS IS A REQUEST FOR INFORMATION ONLY AND IS SOLELY USED FOR INFORMATION AND PLANNING PURPOSES. THIS REQUEST FOR INFORMATION DOES NOT CONSTITUTE EITHER A REQUEST FOR PROPOSAL OR QUOTATION (RFP/RFQ) OR A PROMISE TO ISSUE A RFP OR RFQ IN THE FUTURE.</p> <p>RESPONSES WILL BE RECEIVED UNTIL 4:00 PM ON MAY 30, 2013.</p> <p>ANY QUESTIONS MAY BE FORWARDED TO THE BUYER BY NO LATER THAN MAY 24, 2013.</p> <p>COMMERCIAL OFF THE SHELF (COTS) SOFTWARE PRODUCTS</p>						

SIGNATURE	See Signature Page	TELEPHONE	(973) 602 - 5311	DATE	5 / 30 / 13
TITLE	Director	FEIN	16-1454513	ADDRESS CHANGES TO BE NOTED ABOVE	

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

### Solicitation

NUMBER
EDD393080

PAGE
2

ADDRESS CORRESPONDENCE TO ATTENTION OF:
CONNIE OSWALD 304-558-2157

VENDOR

Deloitte Consulting, LLP  
 1012 Kanawha Blvd. E. 2nd Floor  
 Charleston, WV 25301

SHIP TO

DEPARTMENT OF EDUCATION  
 BUILDING 6  
 1900 KANAWHA BOULEVARD, EAST  
 CHARLESTON, WV  
 25305-0330

DATE PRINTED
05/15/2013

BID OPENING DATE: 05/30/2013

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>THAT CAN ADDRESS THE CONSIDERATIONS IDENTIFIED IN THE ATTACHED SPECIFICATIONS TO FACILITATE INTEGRATING STUDENT INFORMATION.</p> <p>***** THIS IS THE END OF RFQ EDD393080 ***** TOTAL: _____</p>						

SIGNATURE	See Signature Page	TELEPHONE	(973) 602 - 5311	DATE	5 / 30 / 13
TITLE	Director	FEIN	16-1454513	ADDRESS CHANGES TO BE NOTED ABOVE	

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

## CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Deloitte Consulting LLP

\_\_\_\_\_  
(Company)

*Philip S. Benowitz*

\_\_\_\_\_  
(Authorized Signature)

Philip S. Benowitz, Director

\_\_\_\_\_  
(Representative Name, Title)

+1 973 602 5311

908 673 6311

\_\_\_\_\_  
(Phone Number)

\_\_\_\_\_  
(Fax Number)

May 30, 2013

\_\_\_\_\_  
(Date)



Deloitte Consulting LLP

1012 Kanawha Blvd E  
Charleston, WV 25301  
USA

Tel: +1 304 348 0840  
[www.deloitte.com](http://www.deloitte.com)

May 30, 2013

Ms. Connie Oswald  
State of West Virginia  
Department of Administration, Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305

**RE: RFI for Enhanced Data Entry Solution**

Deloitte is pleased to submit this response to the Request for Information (RFI) issued by the West Virginia Department of Education (WVDE) regarding an Enhanced Data Entry Solution.

We understand and are excited about WVDE's vision for the Enhanced Data Entry Solution, and are confident that the information and suggestions provided in our response will help WVDE achieve this vision.

If you have any questions or comments, please feel free to contact Philip Benowitz at +1 973 602 5311 ([pbenowitz@deloitte.com](mailto:pbenowitz@deloitte.com)). We welcome the opportunity to discuss our points of view with you.

Sincerely,

---

By: Philip S. Benowitz  
Director, Deloitte Consulting LLP<sup>1</sup>

---

<sup>1</sup> As used in this document 'Deloitte' means Deloitte Consulting LLP, a subsidiary of Deloitte LLP. Please see [www.deloitte.com/us/about](http://www.deloitte.com/us/about) for a detailed description of the legal structure of Deloitte LLP and its subsidiaries.

# Table of Contents

1 Introduction ..... 1

2 Data Entry Solution Considerations ..... 3

3 Functional Consideration Descriptions..... 6

4 Typical Implementation Timelines ..... 12

5 Typical Implementation Staffing Requirements ..... 13

6 Typical High-Level Project Plan ..... 15

7 Summary..... 17

# 1 Introduction

Deloitte has an unmatched track record of helping states to achieve their desired results in the education data and technology fields. Deloitte has delivered seven successful statewide longitudinal data systems (SLDSs) as the prime contractor during the last seven years and is currently working with the Texas Education Agency to implement the Texas Student Data System. One of our clients, the Pennsylvania Department of Education, was recognized by the Data Quality Campaign and Council of Chief State School Officers with their Longitudinal Data System Leadership Award for the creation of their SLDS.

Deloitte's experience working with state education agencies includes COTS statewide longitudinal data system products, custom web-based data collection systems and data warehouses, unique student identification systems, educator dashboards, and a wide variety of reporting for end users. Deloitte understands the challenges faced at every stage of the process to integrate education data and transform it into actionable information. We have successfully helped states integrate early childhood, K-12, and postsecondary data and are currently working with several states to integrate education data with workforce data.

Our recent experience with state education agencies includes:

Client	Project
North Carolina Department of Public Instruction	Statewide Unique Student and Staff Identification System (NCUID) Statewide Common Education Data and Reporting System (CEDARS)
Pennsylvania Department of Education	Statewide PK-16 Longitudinal Data System (PIMS) Statewide Unique Student Identification System for Early Childhood to Postsecondary (PAsecureID) Virtual Reporting Solution for PK-16 and Early Childhood
New Mexico Public Education Department	Statewide Longitudinal Data System and Unique Student Identification System (STARS)
Nebraska Department of Education	Statewide Longitudinal Data System and Unique Student Identification System (NSSRS)
Maryland State Department of Education	Statewide K-12 Longitudinal Data System Statewide Unique Student Identification System
Texas Education Agency	Portal Implementation State Data Reporting System Educator Dashboards Education Data Reporting
Colorado Department of Education	Web-based Data Collection and Validation Application
Georgia Governor's Office of Student Achievement	Master Data Management Solution PK-20 Data Warehouse and Reporting System

Figure 1-1. Deloitte's relevant experience with state education agencies.

In addition to our experience with state education agencies listed above, a second component of our K-12 education practice is our track record of successful service to school districts. This strong commitment means that our public education clients are served by individuals who have significant experience in public

education issues and trends. Our practitioners possess an in-depth understanding of specific programmatic elements and support services found in the public education environment. Our K-12 Education practice represents a focus area within our overall consulting function. We retain this prominence by providing services of high technical quality. Our dedicated practitioners have deep experience and specialize in each aspect of education including management, operations, and information technology.

Our services to state and local education agencies include:

- Data warehouse design and implementation
- Unique student and staff identifier system implementations
- ERP system selection and implementation
- Business process redesign
- Organization redesign
- Change management, communication, user adoption, and training
- Security and control assurance

Deloitte is also committed to furthering education in the US through our partnerships with not-for-profit organizations, including United Way, College Summit and City Year. Deloitte supports education and America's future workforce through deep partnerships, financial contributions and joint initiatives with these organizations. Two examples of our partnerships are described below.

College Summit is a national nonprofit founded in 1995. It partners with school districts to increase their college admission rates by fostering a high school culture where college admission is the expectation, not the exception. College Summit is the largest provider of college admission culture support in the United States, currently reaching 25,000 students at 180 schools in 12 states and the District of Columbia. Deloitte and College Summit were recently recognized by the United States Chamber of Commerce for their collaboration to create a "college admission culture" in U.S. high schools and make college admission the norm in America. Currently, College Summit is working with high schools in 12 West Virginia school districts.

City Year's mission is to build democracy through citizen service, civic engagement and social entrepreneurship. The organization works to realize this mission by recruiting, training and deploying young people 18-25 years of age into inner city schools to mentor, teach, and coach in the classrooms. In 2009, after years of aligning with City Year on a local level, Deloitte increased its support by becoming a National Leadership Sponsor, City Year's highest level of corporate partnership. Our multi-year commitment of financial resources and pro bono support is focused on City Year's In School & On Track program, which aims to build the nation's graduation pipeline by keeping students on track to graduate.

Deloitte's broad experience in the education environment, from creating statewide data systems to assisting local school districts, from working individually with students in the City Year program to helping these organizations define a new culture of American education, has enabled Deloitte to establish relationships with a variety of vendors who offer many tools and software packages. We are committed to providing clients with solutions that are the best for them, be that a COTS package, custom developed software, or some combination thereof. Our professionals have deep experience in a broad range of tools and technologies. Ultimately we believe that technology is not the solution, but rather it is the means to a solution.



## 2 Data Entry Solution Considerations

Deloitte's National K-12 Education Practice has successfully designed and implemented SLDS and Education Business Intelligence systems for seven state education agencies. Our SLDS implementations include both custom developed and COTS solutions. As shown in the table below, Deloitte's evaluation of WVDE's considerations revealed that the majority can be met with currently available COTS products. Certain considerations identified in the RFI are not supported by COTS products out-of-the-box and would require modification to the existing product or custom development to achieve.

Consideration	Leading COTS Solution	COTS-based with Customization	Fully Customized Feature
Provide a data entry platform online and mobile ready	✓		
Support, pull, and transform data from/across multiple sources to be presented in a unified interface	✓		
Have a platform that can integrate existing and new tools (e.g., attendance, grades, messaging, user-level customized reports, assessment results, etc.)	✓		
Can integrate with existing single-sign-on structures	✓		
Have interfaces/dashboards that are intuitive, well designed, easy to use across multiple role-based access levels		✓	
Allow for customized reports that provide instructional recommendations (e.g., strategies, tools, resources, or supports) based on data-driven and standards-based results		✓	
Have the capability of creating student profiles that provide information about the students' full educational careers		✓	
Can be seamlessly integrated with existing data sets/systems	✓		
Provide custom and on-the-fly reporting capabilities and analytics		✓	
Comply with industry standards for data exchange	✓		
Support standard structured query language (SQL)	✓		
Provide adequate data privacy and security	✓		
Are supported with training and end-user support		✓	

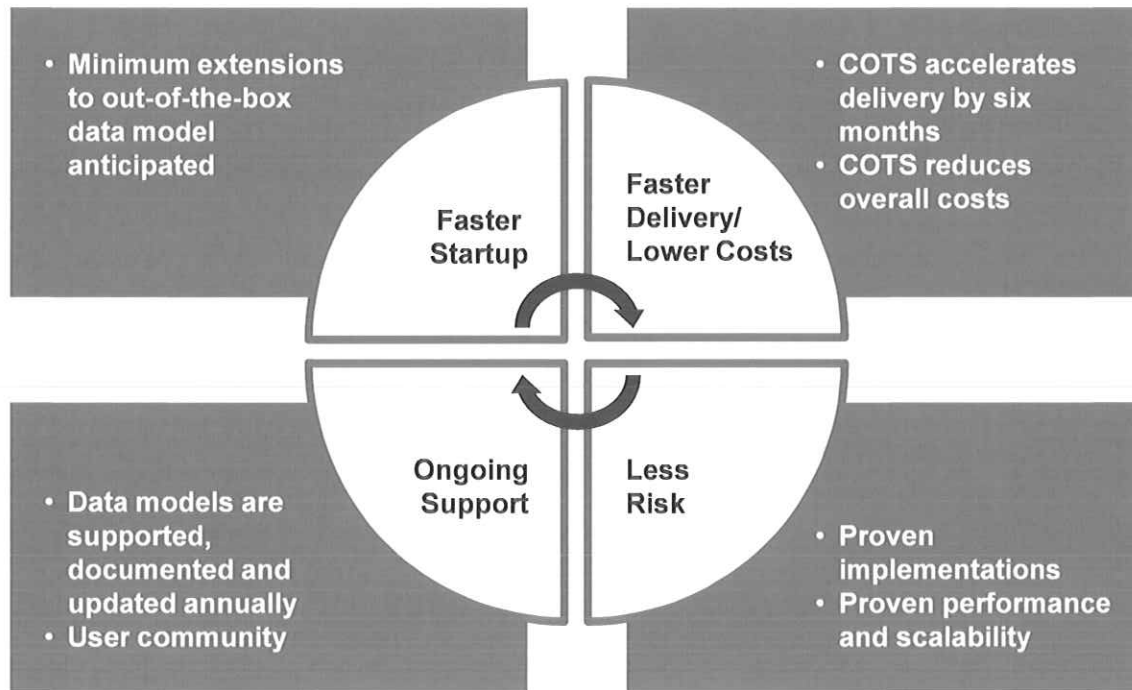
Consideration	Leading COTS Solution	COTS-based with Customization	Fully Customized Feature
Align and report on all content including integrated third party content as a cross-sectional analysis of daily instruction and student performance by standard		✓	
Have the ability to support batch and event-based data integrations	✓		
Integrate existing Early Warning System or provide a student-focused early warning system and corresponding reporting			✓
Provide lesson planning capabilities for teachers that could include third-party content			✓
Allow for system components to be tagged with flags/identifiers that are state-defined (e.g., Common Core State Standards, WV State Standards, etc.)	✓		

Figure 2-1. WVDE Considerations for selecting a Data Entry Solution.

While there are always tradeoffs between COTS and custom development, our SLDS experience has shown that the implementation of a COTS Data Warehouse Solution provides a number of benefits over a custom solution, including but not limited to:

- **Faster Project Start-Up.** Commonly used COTS products have mature education data models covering nearly 40 education data domains and over 2,800 data elements. On a typical engagement, we find that 90 percent of the data elements requirements to meet SLDS reporting requirements are supported out-of-the-box. For data elements not supported by the COTS data model, Deloitte has worked with the COTS Data Warehouse vendor to add the required data elements for the WVDE Data Entry Solution data model.
- **Faster Project Delivery.** Our SLDS data warehouse implementation projects using a leading COTS education data warehouse in North Carolina and Pennsylvania resulted in implementation of both the SLDS data collection and data warehouse components in 9 and 12 months, respectively.
- **Reduced Risk.** Mature COTS data models will have multistate implementations and extensive data model documentation. By leveraging established implementation methodologies from completed successful SLDS projects as well as a stable, documented data models, Deloitte will mitigate the substantial risk of engineering and implementing a new data model while simultaneously gathering ETL and reporting requirements.
- **Ongoing Support.** Leading COTS data warehouse products are supported by vendors committed to serving state education agencies across the nation. Data model documentation is updated continuously and vendor help desk support is available for maintenance and enhancement support. Leading COTS data warehouse vendors frequently contribute data elements to National Center for Education Statistics (NCES) and National Education Data Model (NEDM) domains.

Figure 2.2 illustrates the advantages of a COTS approach to meeting the Data Entry Solution requirements by leveraging and extending a leading SLDS COTS data model.



WV\_DE\_COTS\_RFI-001

Figure 2-2. WVDE Data Entry Solution benefits of a leading COTS implementation.

# 3 Functional Consideration Descriptions

In this section we describe the degree to which a leading COTS solution can meet each of WVDE's considerations in more detail and where customization would be required to achieve certain goals.

**RFI Reference: RFI Page 19, Consideration 1**

- Provide a data entry platform online and mobile ready

A typical SLDS solution collects data from multiple source systems. These systems are typically transactional processing systems such as Student Information Systems, Human Resource Systems, Special Education Systems, and Financial Information Systems. The data is entered into these systems is extracted and loaded into the SLDS (data warehouse). The SLDS provides a very robust data collection system but actual data entry is performed at the transactional processing system level.

The leading COTS products that can meet WVDE's considerations include web-based graphical user interfaces (GUI) for data submission and validation that are compliant with all modern web browsers, including mobile devices. These interfaces include built-in role-based permissions to allow administration of data collections, data submission, and update capabilities. The platform is tightly integrated with the robust data warehouse model the product includes.

The leading COTS platforms provide significant capabilities for system administrators to configure and manage data collections for specified periods by defining start and end dates during which data can be submitted. Collections can be configured to only allow specific data as well as the data quality and validation rules for required fields, fields not allowed (example: SSN), valid values logic, numeric and date ranges, and unique student ID validation.

Customized web web-based data collection applications can be developed to offer similar functionality, but require a higher degree of customization and configuration to integrate with a customized or pre-existing underlying data warehouse model.

**RFI Reference: RFI Page 19, Consideration 2**

- Support, pull, and transform data from/across multiple sources to be presented in a uniformed interface

Leading COTS products typically employ a source neutral approach to data integration allowing data collection from a variety of education data sources and minimizing the effects of source system changes on the data warehouse. This is achieved by providing specifications for creating data files to load in the COTS warehouse. The specifications can be used to source data from hundreds of source systems including most of the student information systems sold in the United States and other leading sources of education data. The products can be populated from numerous district student information systems or centralized state source systems.

RFI Reference: RFI Page 19, Consideration 3

- Have a platform that can integrate existing and new tools (e.g., attendance, grades, messaging, user-level customized reports, assessment results, etc.)

The leading COTS products support the complex relationships between important entities such as students and staff, as well as programs and locations. The data models include designs for storing a wide variety of formative, college readiness and high stakes achievement assessments in a single data structure that enables multiple assessments from different vendors to be analyzed within a single query. The models are fully documented and supported with extensive documentation on best practices for loading descriptive data and flexible to be loaded with data subjects and frequencies as needed (e.g., attendance data weekly and course grade data quarterly).

RFI Reference: RFI Page 19, Consideration 4

- Can integrate with existing single-sign-on structures

The leading COTS solutions can be integrated into a variety of single-sign-on and portal environments.

RFI Reference: RFI Page 19, Consideration 5

- Have interfaces/dashboards that are intuitive, well designed, easy to use across multiple role-based access levels

The COTS product model includes out-of-the-box web-based interfaces used to administer, load, and validate data in the leading COTS products include out-of-the-box role-based permissions upon which administration, data submission and update capabilities are based.

More customized dashboard interfaces can be created based on the model to present informative education data from the data warehouse to teachers, administrators or other education data consumers. These roles can be mapped to the roles identified in authentication and authorization systems in a single-sign-on environment and access to student data can be controlled based on the data associations in the warehouse, for example a teacher could only see student level data about the students they teach.

RFI Reference: RFI Page 19, Consideration 6

- Allow for customized reports that provide instructional recommendations (e.g., strategies, tools, resources, or supports) based on data-driven and standards-based results

The robust data warehouse models in COTS solutions are capable of storing a wide variety of educational information including data on tools and resources. Information defining instructional resources can be integrated into the warehouse alongside student, staff and other education data. The data driven recommendation reports providing instructional advice would require additional development effort in an application or reporting environment capable of accessing the data model.

RFI Reference: RFI Page 19, Consideration 7

- Have the capability of creating student profiles that provide information about the students' full educational careers

Leading COTS products are capable of maintaining complete educational history for individual students and linking them across districts and into higher education. The data collected and stored can support custom reports developed to analyze student trajectories over the course of their education

RFI Reference: RFI Page 19, Consideration 8

- Can be seamlessly integrated with existing data sets/systems

The source neutral data integration template approach to data integration in the leading COTS solutions allow data collection from a variety of education data sources and can be populated from numerous district student information systems, centralized state source systems and third party data sources (e.g., National Student Clearinghouse data).

RFI Reference: RFI Page 19, Consideration 9

- Provide custom and on-the-fly reporting capabilities and analytics

The educational data on students, staff, programs, and locations is stored in an integrated model optimized to support expansive reporting capabilities and complex analytics. The model is Business Intelligence neutral and can be used with any reporting tools. The vendor of at least one leading product also offers a number of accelerators to integrate their underlying models with common reporting and business intelligence platforms such as IBM Cognos Business Intelligence Suite and Oracle Business Intelligence tools to jump start the development process for custom and advanced reporting and analytical activities.

RFI Reference: RFI Page 19, Consideration 10

- Comply with industry standards for data exchange

The vendors behind the leading COTS solutions work closely with education industry data standards organizations. Their models are designed to include data from the NCES Data Handbooks and expanded to include data elements required by their user communities that are not included in the handbooks. The vendors also work closely with NEDM and the Common Data Standards. Their products are School Interoperability (SIF) certified, with staff regularly participating in many SIF initiatives.

The national standard data elements can be loaded into the leading products in a variety of file formats including text based CSV and delimited files as well as XML files.

RFI Reference: RFI Page 20, Consideration 11

- Support standard structured query language (SQL)

The leading COTS models are designed to operate on commonly available database management software. The underlying models are dimensionally modeled schemas that integrate a broad range of data and enable fast and easy reporting. The conformed dimension structure is an essential design element, as it supports the ability to manage the complex relationships between important entities such as students and staff, as well as programs and locations that can be analyzed within a single SQL query.

RFI Reference: RFI Page 20, Consideration 12

- Provide adequate data privacy and security

The interfaces to administer data collections and to load data to the COTS data warehouses place a high emphasis on user and role-based security to determine the user view and available functions. Products commonly include numerous roles for various types of users that are typically involved in the data loading

process in one way or another. While they may not all be relevant to WVDE, a sample of the common roles are described below.

- **District.** Local school-district level users with the ability to upload data files and create batches to process and load data for only their district
- **Multi-District.** Users with the District role functions but able to access and load data for multiple districts
- **Superintendent.** User with authority to 'approve' data submitted for their district in addition to the functionality of the District user role
- **State.** State level administrator role for those who will administer data collections, implement validations, upload reference data or broadcast messages
- **Super User.** Administrative role with access to all functionality, system properties and districts within the data manager
- **Helpdesk.** Read only access to all districts in the system

RFI Reference: RFI Page 20, Consideration 13

- Are supported with training and end-user support

Training and end-user support are key components to any successful technology implementation. Deloitte has worked closely with leading COTS product vendors to combine our experience in technical training and offer a robust learning program for all staff involved with the implemented solutions. Training is typically provided by subject area or role to maximize their learning and provide hands-on practice to increase their adoption of the new tools. Training in a blended format, using both in-person and web-based instruction offers a cost-effective approach to reach the most users and customize learning opportunities to each user's needs.

Listed below are some of the common types of training requested when implementing similar solutions.

### **Data Submission Process Training**

Data Submission Process Training provides a detailed overview of each data submission process. It is imperative for participants to understand how the overall data submission process works in general and how the source systems will interact to most effectively use the application in the future and minimize potential errors. Participants typically receive user guides to complete simulations and practice the upload process.

### **Data File Preparation Training**

Before local educational agencies can submit data, these groups need to understand how to prepare their files and information to submit to the data warehouse. For each new implementation including new data file specification Deloitte typically offers one or more webinars to provide staff with a detailed review of each data submission file specification. Additionally, these webinars include information on the processes and requirements for submitting data, including a full demonstration of the process, and provide technical information and answers to questions to facilitate the creation of extracts in the required format.

## Reporting and Portal Training

This training develops staff to perform standard and ad hoc reporting functions. Participants will be able to determine when to access each report and explain how the generated data is interpreted, how it can be used to inform decisions, and make connections to instruction and school improvement. This training illustrates the steps necessary to generate the standard reports available, including details regarding each search criteria available. It demonstrate the reporting outputs available, understand which reporting outputs will generate the most effective data displays to analyze trends in student, class, teacher, and school performance, and detail the steps necessary to reproduce data in each format. Participants will be able to identify the most appropriate data formats (PDF, Excel, Graph, etc.), based on the benefits and limitations of presenting data in each manner

### RFI Reference: RFI Page 20, Consideration 14

- Align and report on all content including integrated third party content as a cross-sectional analysis of daily instruction and student performance by standard

Leading COTS products are capable of maintaining complete educational records for students at all levels of their education, from their enrolled district down to the classroom, curriculum and program involvement. Products are able to track student assessment data down to individual questions and relate their assessment information to existing standards. Data reports can be developed to analyze student performance at any level to which it is tracked. Unique identifiers and data relationships enable reporting tools to link students across districts and into higher education.

### RFI Reference: RFI Page 20, Consideration 15

- Have the ability to support batch and event-based data integrations

COTS products provide the capability to automate the data file loading process by monitoring specified file system locations for new data files. When the product detects new files it will process them, in the prescribed order, and can be configured to notify a designated contact person a status report and the results of the file load.

### RFI Reference: RFI Page 20, Consideration 16

- Integrate existing Early Warning System or provide a student-focused early warning system and corresponding reporting

The leading COTS solutions are capable of storing the student level data required to enable a customized early warning reporting system. Deloitte is currently teaming with the Commonwealth of Pennsylvania to implement an early warning system as a component of broader educator dashboards. This early warning system will use data collected by a leading COTS SLDS product. The early warning system will integrate with additional state resources to provide suggested interventions for students identified as at-risk.



RFI Reference: RFI Page 20, Consideration 17

- Provide lesson planning capabilities for teachers that could include third-party content

In our experience the typical COTS SLDS does not include lesson planning. The COTS model provides the flexibility to store classroom level information about instructors and curriculums in which students are enrolled, including third party information about curriculums. But tools that support the automation of lesson plan development, review, and sharing are distinct from an SLDS and must be integrated with an SLDS. Lessons planning tools as well as associated content are available from a number of other vendors. States like Pennsylvania not only use a portal to provide a single location for end users to access both data and content like lesson plans, but actually integrate data with content. For example, Pennsylvania early warning system provides users with suggested interventions for students identified as at-risk of dropping out of school.

RFI Reference: RFI Page 20, Consideration 18

- Allow for system components to be tagged with flags/identifiers that are state-defined (e.g., Common Core State Standards, WV State Standards, etc.)

In addition to the extensive support of national standard education data elements the COTS model provides the flexibility for agencies to define additional descriptive information for collected data elements. The model allows for custom data element definitions and business rules based on agency needs.

# 4 Typical Implementation Timelines

In Deloitte's experience implementing education data management solutions for state agencies, the following key success factors have been consistently apparent:

- An incremental go-live approach emphasizing end user value delivery through "Quick Wins" throughout the project
- A prime vendor with a proven approach to delivering COTS and custom statewide longitudinal data systems
- An integrated approach to process, change, technology, security and project management for high impact system integration projects

The following table provides a summary of representative SLDS implementations Deloitte has completed and the timelines for achieving the agencies desired results. You can see that COTS implementations have been implemented in 7-10 months while the custom data warehouse requires a much longer period of requirements gathering and development before data collections can begin and a longer period of gradual expansion to realize comprehensive data collection goals.

SEA	LEAs/Students	Data Collection Solution	Timeline & Results
PA	800 plus LEAs, 1.8M students	eScholar CDW and Data Manager	Project began in March 2007. The system was fully implemented for all of Pennsylvania's more than 800 LEAs in time for the first collection of the 2007-2008 school year, which took place on October 1, 2007. The implementation included the SLDS, the data collection mechanism, and a robust collection of reports.
NM	89 LEAs, 325K students	eScholar CDW and Data Manager	Implemented eScholar data model in 10 months. Solution has provided New Mexico with one of the first successful educational data systems of its kind. The state now has detailed data on all 325,000 students and 50,000 staff members in the state as well as processes in place to collect such data on a regular basis. The data is more detailed, comprehensive, timely and accurate than ever before.
MD	24 LEAs, 850K K-12 Students	Custom LDS Foundation Applications including: Maryland Education Data Warehouse, Web Data Collection System, and Unique Student Identifier/Unique Teacher Identifier Systems.	Data Warehouse built over several years. Implemented highly optimized collections using a custom Web Data Collection System and three collections for Attendance, two for Class Level Membership. Federal program collections were optimized and data redundancy was removed to reduce down to 3 from 12 for Title III and similar scale of reduction for Title I.

Figure 4-1. Representative SLDS Solution implementations.

# 5 Typical Implementation Staffing Requirements

Critical to the success of an SLDS implementation is a proven team capable of hitting the ground running and delivering insightful value based on years of education data management experience. Collaboration is central to building a strong, unified team between WVDE staff and the Data Entry Solution vendor. Close project collaboration also aids in successful knowledge transfer from consultant to client upon project completion.

The vendor should work closely with the WVDE Project Manager at the beginning of the project to finalize the project and detailed resource plans for both vendor and WVDE staff. This will define the staff organization and identify all team participants and their roles and responsibilities.

Typically an SLDS implementation, whether a COTS product or custom development, requires a core vendor team of management and technical professionals to oversee collaboration between all aspects of the solution. Vendor personnel may include some or all of the following roles based on the defined scope of the project:

- The **Project Director** has overall responsibility for the delivery of the scope of services described in the contract, and is ultimately responsible for project quality and success. The Project Director participates in steering committee meetings and works with state management to address project issues and risks. The Project Director has the authority to assign staff and resources as necessary to support the project.
- The **Project Manager** manages the daily activities of the project team and participates in key deliverable activities. The Project Manager is responsible for establishing the change control process, meeting deliverable time frames, participating in team deliverable creation, managing communications, and overseeing change management activities of internal and external team members.
- The **Technical Lead** manages the overall design, development, testing and implementation of the SLDS solution. This includes technical activities such as working with the state to configure the solution appropriately and managing the integration of the selected product into the state's infrastructure and existing technical environment. It also includes functional activities such as working with the Project Manager and Functional Analyst to gather requirements, defining the Data Migration Plan, mapping source and target systems, and defining business rules.
- The **Functional Analyst** assists the Project Manager and Technical Lead with aspects of the implementation including gathering requirements, defining the Data Migration Plan, mapping source systems to target systems, defining business rules and creating the data dictionary.
- The **Reporting Analyst** assists with the configuration and integration of the solution with the reporting environment, gathers reporting requirements, and documents report specifications.
- **COTS Product Account Manager** works closely with Deloitte to manage the implementation of the eScholar products. This person coordinates between the Deloitte team and eScholar technical team to promote the best available tools, resolve issues and...

The vendor team will work closely with WVDE project management and technical staff to create a seamless project team, working 'as one' to project implementation.

- **Project Manager** works in conjunction with the vendor's team to set project objectives, review key deliverables, participate in project meetings and lead the project to completion. The manager can assign state staff and resources as necessary to support the project.
- **Database Administrator.** A part-time database administrator is often required throughout the project to perform typical duties such as performing data backups and monitoring and optimizing the database performance.

# 6 Typical High-Level Project Plan

Deloitte's experience with data management projects of the size and complexity of the WVDE's Data Entry Solution have shown the best results to be achieved when the solution is delivered as **ONE** integrated project utilizing proven methodologies for implementation, training and change management and delivered over progressive phases designed to guide, organize, and help facilitate effective execution throughout the project life cycle. The following high level project plan demonstrates the typical project activity timeline for a phased COTS SLDS implementation. The data domains would be prioritized with the most critical data elements necessary for reporting delivered in phase 1. Note that the design, build, and development terms in this plan relate to the work needed to extract data from a centralized statewide SIS into the format to load into the COTS SLDS and to design reports based on that data.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Initiation</b>													
Finalize Project Plan													
<b>Ongoing Activities</b>													
Project Management													
Knowledge Transfer													
<b>Design (Overall)</b>													
Requirements Definition													
Software Installation/Portal Integration													
<b>Design (Phase I)</b>													
Design and Extract Specifications													
<b>Build (Phase I)</b>													
LDW Extract Development													
Reporting Metadata Development													
Validation/Verification Reports Development													
LDW Loading & Testing													
Reporting Metadata Testing													
Validation/Verification Reports Testing													
<b>Transition (Phase I)</b>													
Deployment													
Post Implementation Support													
<b>Design(Phase II)</b>													
Design and Extract Specifications													
<b>Build (Phase II)</b>													
LDW Extract Development													
Dashboard Data Store ETL Development													
Reporting Metadata Development													
Validation/Verification Reports Development													
LDW Loading & Testing													
Reporting Metadata Testing													
Validation/Verification Reports Testing													
Dashboard Data Store ETL Testing													
<b>Transition (Phase II)</b>													
Deployment													
Post Implementation Support													
<b>Project Close</b>													

WV\_DE\_COTS\_RFI-002

Figure 6-1. Sample COTS SLDS Implementation Plan.

## Delivering Quick Wins

Our experiences have shown the highest success rates when using a phased implementation and rolling delivery methodology. Our recommended approach includes dividing the Data Entry Solution data domains and associated collection into groups. Each successive group implementation will add additional data domains to the WVDE Data Entry Solution. This phased approach is based on a stable COTS data model as the WVDE Data Entry solution.

Implementation cycles may vary in duration based on the degree of custom collection and validation requirements for each collection. Deployment of the first cycle is dependent on the establishment of the WVDE Solution project hardware, software and security infrastructure.

The following table identifies key activities, milestone and definitions of the recommended Data Entry Solution deployment plan project threads that occur within each phase.

Thread	Definition
<b>Value</b>	Conduct knowledge transfer to the Deloitte Data Entry Solution delivery team. Confirm project objectives, stakeholders and priorities assumptions.
<b>People, Change and Learning</b>	Develop and deliver customized training materials across user roles for all components of the Data Entry Solution. Conduct in-person and web-based trainings, as well as one-on-one knowledge transfer with the WVDE solution support and maintenance team.
<b>Process and Package</b>	Identify, design, and implement process improvements and configuring, testing, and delivering a solution in support of these processes.
<b>Business Intelligence</b>	Confirm the reporting and analytical requirements, design cubes and semantic layer, integrate business intelligence tools COTS data model, design and build reports, and perform unit, integration, security and performance testing.
<b>Information Technology</b>	Determine IT hardware infrastructure strategy and select vendor tools, as well as support vendor with the hardware and operating system implementation. Install and configure the software infrastructure on the WVDE environments (e.g., development, test, production).
<b>Security and Controls</b>	Confirm Data Entry Solution identity and access management requirements. Cyber security planning is fully integrated into our EVD methodology and will result in processes and technology incorporated into the Data Entry Solution that provide integrity, reliability, and availability of information with minimal lost, compromised, or corrupted data.
<b>Project Management</b>	Plan, execute, and control the project, confirming that the client's expectations are met within the approved scope, budget, and timeline.

Figure 6-2. WVDE Solution Threads Highlights.

# 7 Summary

## Leveraging COTS makes sense for WVDE

Since 1999, Deloitte has developed, maintained and enhanced a custom Education Data Warehouse, data collection and data validation system, and reporting systems for the Maryland State Department of Education (“MSDE”). These custom applications have been tailored to meet the needs of Maryland stakeholders, and have proven highly efficient and flexible for Maryland’s stakeholders. From our custom education data warehouse experience in Maryland, as well as our cross industry data warehousing experience, a stable data model is required before data collection, validation and business intelligence components can be designed and developed. This activity will add significant development time to the Data Entry Solution project, delaying the design and development of other data model dependent components.

Our recommended approach is to begin with a leading COTS data model. We believe this approach will address WVDE’s considerations, while reducing risk and accelerating delivery of the Data Entry Solution to WVDE stakeholders.

The following table offers a detailed analysis of the benefits and risks of delivering the WVDE Data Entry Solution leveraging a proven COTS data model versus creating a custom solution.

Issue	Extending a COTS Solution to meet the WVDE Consideration Requirements	Custom WVDE Data Warehouse
<b>Data Model</b>	Highly structured dimensional star schema data model that integrates a broad range of data and enables fast and easy reporting are proven in the market place and compatible with the considerations for the WVDE Data Entry Solution	A custom developed data model will align to the specific vision and requirements of the WVDE Data Entry Solution
<b>WVDE Schedule Impact</b>	A proven COTS data model coupled with an experienced system integrator would accelerate WVDE project activities and maximize value of school district facing components delivered over the course of the project schedule	Effective practice requires design and development of a complete and stable data model before custom and advanced reporting efforts begin. We anticipate the overall Data Entry Solution project duration will increase by at least six months.
<b>WVDE Cost Impact</b>	Our recommended approach to the Data Entry Solution will deliver more stakeholder value at less cost.	WVDE will incur the cost of design, development and testing of the data model.
<b>WVDE Maintenance and Support</b>	Supported COTS data models offer advantages of updates and enhancements aligned to new NCES and NEDM standards as well as updates to federal reporting requirements.  Leading COTS vendors offers a menu of maintenance and support services. Clients can determine what they want from vendor vs. what they can do in-house.	A team will be required to maintain and enhance the Data Entry Solution data model based on evolving data collection requirements and data standardization efforts.
<b>Data Model Metadata, Linking &amp; Documentation</b>	Mature COTS data models in use in multiple states are available with extensive documentation, mature linkages, and established metadata standards.	Significant effort will be required to develop and maintain data model documentation, ETLs and metadata standards over the life cycle of the Data Entry Solution

Table 7-1. Advantages of leveraging a COTS solution for WVDE.