STATEWIDE, LONGITUDINAL DATA SYSTEMS
CFDA Number: 84.372

South Dakota Student Teacher Accountability Reporting System (SD STARS)

Project Narrative

A. Need for the Project

The South Dakota Department of Education (SD DOE) presents this application to design, develop and implement a K-12, statewide, longitudinal data system which will provide a foundation for the storage and retrieval of comprehensive information on education in South Dakota that will ground policy making and lead to improvements in teaching and learning. The system will be initially developed as a warehouse for K-12 data but will be designed with the capability to be expanded to include post-secondary and workforce data.

Following the passage of the *No Child Left Behind Act* in 2001, South Dakota was one of the early states to implement a data system that provided a unique student identifier, enrollment and demographic information and linkages to state test records (DakotaSTEP). While continuing to make improvements in the essential elements of the state's Student Information Management System (SIMS), South Dakota has fallen behind in the development and implementation of a more robust, accessible, longitudinal system with the ability to provide a foundation for data driven decision making necessary to inform improvements in education and student achievement for all of South Dakota's students.

The Data Quality Campaign has recently released their report, *Data for Action 2011*[1]. The report measures state's progress on Essential Elements and State Actions. DQC has deemed these to be critical in order to make effective use of data systems and the ability to build the capacity for stakeholders to understand and use data to drive decision making. The report finds that South Dakota's existing data system incorporates nine of ten essential elements of state data collection:

DQC 10 Essential Elements	South Dakota
1. A unique student identifier	Yes
2. Student-level enrollment, demographic and program participation information	Yes
3. The ability to match individual students' test records from year to year to measure academic growth	Yes
4. Information on untested students and the reasons why they were not tested	Yes
5. A teacher identifier system with the ability to match teachers to students	No
6. Student-level transcript data, including information on courses completed and grades earned	Yes

[1] Online Resource: Data Quality Campaign, *Data for Action 2011*, http://dataquality campaign.org/stateanalysis/states/SD/actions/, December 1, 2011

7. Student-level college readiness test scores	Yes
8. Student-level graduation and dropout data	Yes
9. The ability to match student records between the P-12 and postsecondary systems	Yes
10. A state data audit system assessing data quality, validity and reliability	Yes

The accomplishment of nine of the essential elements is largely a result of the initial development of South Dakota's SIMS and the development of the DakotaSTEP Assessment and Accountability System in response to *NCLB.* Since these early efforts, SD DOE, policymakers and education stakeholders have come to understand and value data and information in a much deeper way then simple response to federal compliance and reporting requirements. The ability for the SD DOE and stakeholders to access valid and reliable data across multiple repositories and across the P-Workforce system is critical to inform decisions that impact policy, performance and outcomes at the state, local and individual levels.

The effective access and utilization of information that resides across disparate data systems and surveys, along with the policies and capacity building necessary to support effective data use has not yet been accomplished in South Dakota. Previous unsuccessful attempts to be awarded funds through the State Longitudinal Data System Initiative combined with limited fiscal capacity at the state level, have created significant challenges to improve data system capacity. The human and fiscal resources needed to develop a comprehensive LDS and to build the capacity of education stakeholder have not been available. As such, not only is South Dakota one of only a handful of states not yet implementing a SLDS, but also demonstrates only one of the DQC identified *10 State Actions to Ensure Effective Data Use:*

DQE 10 State Actions	**South Dakota**
Expand the ability of state longitudinal data systems to link across the P-20 pipeline and across state agencies…	
1. Link state K-12 data systems with early learning, postsecondary education, workforce, social services and other critical agencies.	No
2. Create stable, sustained support for robust state longitudinal data systems.	No
3. Develop governance structures to guide data collection, sharing and use.	Yes
4. Build state data repositories (e.g., data warehouses) that integrate student, staff, financial and facility data	No
Ensure that data can be accessed, analyzed and used…	
5. Implement systems to provide all stakeholders with timely access to the information they need while protecting student privacy.	No
6. Create progress reports with individual student data that provide information educators, parents and students can use to improve student performance.	No
7. Create reports that include longitudinal statistics on school systems and groups of students of guide school-, district- and state level improvement efforts	No
Build the capacity of all stakeholders to use longitudinal data…	

8. Develop a purposeful research agenda and collaborate with universities, researchers and intermediary groups to explore the data for useful information.	No
9. Implement policies and practices, including professional development and credentialing, to ensure that educators know how to access, analyze and use data appropriately.	No
10. Promote strategies to raise awareness of available data and ensure that all key stakeholders, including state policy makers, know how to access, analyze and use the information.	No

The current status and needs of South Dakota to accomplish these essential elements and state actions are explored in the following text.

Linking K-12 Data Systems

South Dakota SIMS was designed and is managed by Infinite Campus. The system provides a unique student identifier and demographic information for South Dakota P-12 students. The system is utilized by 99% of South Dakota's public, private and BIE schools. Rapid City and Brandon Valley currently use Skyward and Yankton uses PowerSchool.

Through the unique student identifier (adapted for Power School and Skyward), the SIMS also houses DakotaSTEP test score data for individual students, as well as, aggregate the data at state, district and school level. The system also allows for the disaggregation of special population test score data at the state, district and school level. The lens for these automated reports has been relational to student proficiencies in reading and mathematics, as well as, test participation, attendance and graduation.

While the SIMS is the primary data system for the state with student and DakotaSTEP data, it does not interface nor link information with other data systems and surveys maintained across the SD DOE, LEAs or other state agencies. Information related to the SIMS and these other disparate data sources is presented in the table below.

Data Source	Data Stored	Audience/End Users
SIMS-SD DOE	Primary Data System o Unique student identifier o Individual student demographics	SEA LEA Educators State Board/Legislators USDOE-EDN Reporting
Personnel Record Form-SD DOE, Teacher Quality and Certification	Staff and Personnel Data o Certifications o HQT data o Education o Employment o Continuing Education	SEA LEA Educators State Board/Legislators Universities USDOE-EDN Reporting

	○ Vacancies and shortages	
Career and Technical Education Data—SD DOE, CTE/Perkins	○ SD My Life-interest surveys, course selection ○ Student Data for CTE participants ○ LEA course offerings ○ Course and staff certifications	SEA LEA Federal Reporting
MIS2000-SD DOE, Title I, Migrant Education	○ Migrant student eligibility data ○ LEA program certifications ○ Languages spoken	SEA LEA Federal Reporting
Homeless Data—USDOE, Title I	○ Student numbers and demographics	SEA LEA Federal Reporting
Safe, Drug and Gun Free Schools—SD DOE, Coordinated School Health	○ Youth Risk Behavior Survey ○ Discipline Data ○ Persistently dangerous data	SEA LEAS Drug/Alcohol communities of interest Federal Reporting
Educational Digest-School Directory-SD DOE	Public School Data ○ Finances ○ Students ○ Characteristics	SEA LEA Legislators Public
Special Education Surveys-SD DOE, Office of Special Education	○ Transition data (Indicator 14) ○ Response to Intervention-student and progress data	SEA LEAs State Board and Legislature Universities Public Stakeholders Federal Reporting
Public School Choice Survey—SD DOE, Title I	○ Student tracking /movement related to public school choice	SEA LEAs State Board and Legislature Federal Reporting
Supplemental Education Services Survey-SD DOE, Title I	○ SES Provider information ○ Student Participation ○ Student demographics ○ Student progress	SEA LEAs State Board and Legislature Federal Reporting
LEA Editions of Infinite Campus, Power School and Skyward	○ Added modules and data based on local district requirements	LEA
Datatel's Colleague SIS—Board of Regents	○ IHE student information ○ Course participation and completion ○ Faculty and personnel ○ Financing	Board of Regents Universities Legislature

Each of these data systems and surveys provides information that could support decisions regarding education policy and improvements in teaching and learning. While it is theoretically possible to compile and correlate data from this myriad of sources, the complexity and difficulty of compilation and analysis of data across disparate sources makes it unlikely. Ease of access to more comprehensive information would ground decisions and significantly impact educational improvements that lead to student success in school and careers.

Data Access and Analysis

Currently, many challenges exist in South Dakota in aspects of data access, analysis and utilization. Beyond the previously discussed need for linking existing data sources, there remain gaps in data availability. Current user access to data systems and survey information is typically limited to small communities of interest that may not span beyond a particular office within SD DOE. With isolated data and users, essential information that could impact decisions and improvements may never be discovered.

Decision makers may not realize that migrant students eligible for special education have significantly different graduation rates than their peers. It may not come to light that students that fail to complete secondary education also had no significant career interests or goals across the 8 to 12 grade span. Missing the essential element and capacity to link teachers to individual students, could cause school leaders to miss a teacher's extraordinary success in improving literacy skills among students for whom English is a second language.

South Dakota's current data system provides broad stakeholder access to student test results only through state "report cards". While the state Accountability System provides for a number of data points within the state, district, school and grade level report cards, the only lens used for data and analysis is the DakotaSTEP test scores and results in relation to proficiency levels. School leaders and educators have access to test-item information that provides a bit deeper understanding of areas of weakness in curriculum, instruction and student learning, however still lacks the depth to drive instructional changes and decisions. All but a relatively few analysts within SD DOE and its data consultants are able to access data that require a more complex lens to view and analyze student growth as they move toward proficiency.

In designing and implementing SLDS, it will be necessary to work with all stakeholders to understand needs and potential opportunities for effective use of statewide and local data system, access and reporting.

Stakeholder Capacity

The quality of data input always underlies the reliability and functionality of any data system. End user training for data input, particularly at the LEA level, has not occurred on a systematic basis for many years.

Training for DakotaSTEP data analysis and data driven school improvement planning occurred on a regional basis for a number of years following the implementation of the Accountability System. SD DOE personnel continue to conduct an abbreviated version of the training for schools identified in need of improvement.

Even the limited training that has occurred has been focused on input and uses of the current data system. A more robust, longitudinal data system will demand increased opportunities to build capacity among all stakeholders. Data input and validation will be an essential topic for professional development. However, the real value of the comprehensive SLDS will be in end users ability to use automated or self generated reports to answer key questions about teaching and learning in South Dakota.

Vision for South Dakota Statewide Longitudinal Data System

The critical importance of the design, development and implementation of a comprehensive, longitudinal data system for K-12 education in South Dakota was highlighted in recent conversations with Dr. Melody Schopp, SD Secretary of Education. Dr. Schopp is firm in the belief that the role of K-12 education is to prepare youth for college and careers. In order to fulfill this purpose it is necessary to use assessment information and reliable data sources as a means to improve practice in a way that will ensure that students complete their secondary education and enter the next chapter of their lives fully prepared to meet the challenges and expectations that await them. Dr. Schopp noted that 30% of South Dakota students require academic remediation when they enter post-secondary programs. If this is the case, *"we were not successful."*

A new longitudinal data system would provide the means for South Dakota policy makers to better understand if students are progressing; where the education system is struggling; the impact of new programs and funding streams and other key issues that will drive decisions regarding policies and financing for public education in South Dakota.

It is imperative that a data system be able to provide stakeholders with information that can help solve problems and not just flag slippages. The ability to form a deeper understanding regarding the educational progress of children from a variety of perspectives is imperative. Stakeholders must be able to identify all students who are struggling to reach proficiency regardless of any special population designation. To better understand the challenges for these students it is necessary to link to other information sources; to detect increments of progress and growth; to design new approaches to instruction; and, through information, engage families as partners in their child's success.

Linking data sources between school leaders, teachers and students is essential in designing improvements in teaching and learning and establishing the accountability and foundation for improvements in teacher compensation in South Dakota. Dr. Schopp notes that teacher certification and performance based incentives must be about outcomes rather than inputs. Information compiled through the increased capacity of the new SLDS must provide a foundation for better understanding of what works and what doesn't; identification of effective practices

among teachers and school leaders; and the foundation by which excellent performance can be recognized and rewarded.

South Dakota has recently embarked on the *Next Generation Accountability Model*. The new Accountability Model reflects SD DOE's vision for student success in college and careers and the belief that stakeholders must have multiple means to measure progress and outcomes toward that vision. The US Department of Education has afforded states the opportunity to find new opportunities and solutions for improving educational outcomes through the *NCLB* waiver process. South Dakota's *Next Generation Accountability Model* is being developed by the SD DOE with broad input from stakeholders across South Dakota. The new model is based on the following key indicators or progress and success:

1) Student Achievement
2) Academic Growth
3) College & Career Readiness (High School) OR Attendance (Elementary and Middle School)
4) Effective Teachers and Principals
5) School Climate

SD DOE believes that improvement in educational outcomes for South Dakota students is fully dependent on reliable data, information and evidence that would be generated by a new statewide, longitudinal data system. The *Next Generation Accountability Model* will require even more robust and reliable data, reporting and analysis.

To meet the needs and opportunities identified the proposed **South Dakota Student Teacher Accountability Reporting System** (SD STARS) will accomplish the following objectives through its design, development and implementation. The highlighted areas correlate to specific deliverables of the project.

1. To design and implement a **comprehensive and customizable K-12 commercial-off-the-shelf (COTS) longitudinal data system** capable of connecting existing data repositories, data editing and validation and expansion to all LEA's.

2. To develop and implement a robust and scalable **reporting and analysis module** that will inform and improve required reporting, policy making, educational improvement, access and transparency.

3. To design system expansions that respond to **LEA needs; link teachers and students; and reflect growth in student achievement** through various lenses.

4. To design, develop and implement system specifications that capture and analyze data to reflect **teacher and school leader effectiveness**.

5. To ensure effective, responsive and representative structure for data **governance and management**.

6. To provide **training for SD DOE and LEA end users** that will improve accurate data collection, data upload and relevant data reporting and analysis.

B. Project Deliverables Related to System Requirements and Implementation

The South Dakota Department of Education presents this application for the design, development and implementation of the Student Teacher Accountability Reporting System (SD STARS), a comprehensive, statewide longitudinal data system. SD DOE has been focused on the need for improvements in the state's data system for several years. The limited availability of resources has challenged SD DOE's efforts to develop a data system to serve the needs and purposes of policy makers, the SEA, LEAs and other stakeholders in the improvement of the education system, teaching and learning across South Dakota. Although not content with the pace at which it has moved toward a comprehensive SLDS, there have been some advantages to the delayed design and implementation of the system.

In the past year, the South Dakota Department of Education implemented a common course numbers system which provides consistency in student transcripts across the state. The department used the National Center for Educational Statistics' SCED codes, or School Codes for the Exchange of Data. This is an integral step for the Department in terms of achieving consistent data submission by all entities (e.g., LEAs).

In addition to Common Course Numbering, the South Dakota Board of Education has also adopted the Common Core Standards. With the Smarter Balance Coalition, South Dakota is developing new state assessment tools to align to the Common Core Standards. SD DOE initiated statewide professional development for implementation of the Common Core standards during the past summer. This training will continue through 2012. The adoption and new assessment measures associated with the Common Core would have caused some revisions to any existing data system.

The recent publication of Version 2 of the *Common Education Data Standards* (CEDS) will be released in January, 2012. The availability of additional CEDS elements related to assessment aligned with Common Core Curriculum at the district level; new formats for federal reporting; and district and state metrics will inform the development of South Dakota's new STARS**.** South Dakota also has the advantage of lessons learned from other states which are already in development of longitudinal data systems, as well as commercial vendors that support that work.

SD DOE was awarded a Teacher Incentive Grant in 2007(South Dakota Incentive Fund (SDIF)). This initiative serves schools in ten high need LEAs in South Dakota. The implementation of performance based compensation among educators in these LEAs has underscored the need for a more robust data system that can link teacher and students and effectively analyze the correlations between teacher and leader effectiveness and incremental growth in student achievement. Working closely with the US Department of Education (grantor) and project stakeholders, SD DOE has received approval and support to develop a pilot longitudinal data system for these participating school districts. It is the long range vision of SD DOE that these efforts will not only effectively meet the needs of the participating districts and stakeholders in the work of the

TIF program, but also serve as model demonstration for system architecture that could be brought to scale to serve a statewide need once additional resources become available.

The opportunity for the SDIF data system to serve as a model for a statewide audience helped to frame the development of the Request for Proposals for the longitudinal data system for the SDIF schools. This RFP was developed and disseminated in August, 2011. Vendor proposals were received and screened in October. Three vendors, all with experience in designing longitudinal data systems for SEAs, were invited to present their data systems and solutions to a panel of personnel from SD DOE, SD Bureau of Information Technology (BIT), and other partner organizations. At this juncture Otis Educational Systems has been selected by SD DOE to design, develop and implement the LDS model for the SDIF schools.

While the process for bidding the expansion of the demonstration model will be addressed upon grant award, it is likely that the OtisEd would be in a position to present the most cost effective approach to expand the model to statewide implementation. Much of the following text related to the SD STARS system requirements and implementation has been drawn from the RFP for the SDIF model and Otis Ed responses for system design for the SDIF schools. This discussion will also be framed by the objectives/deliverables for the STARS project.

SD DOE has sought proposals for a Commercial-Off-The-Shelf (COTS) longitudinal data system which has been successfully proven in other states with similar requirements. Vendors seeking to design and develop the LDS model for SDIF schools responded to seven areas of technical specifications and functional requirements presented by SD DOE.

- Technical: This group of requirements represents the activities and functionalities needed to support the proposed system.

- Security: This group of requirements represents the activities and functionalities needed to enforce the required security and confidentiality requirements. Security is an infrastructure functionality that is a part of each of the functional groups.

- Data Extraction, Transformation, and Loading: This group of requirements represents the activities and functionalities needed to integrate currently available information with the SD – STARS. The purpose of this functional group is to minimize manual data entry for required information.

- Data Warehouse/Data Aggregator: This group of requirements represents the activities and functionalities related to the education data warehouse.

- Data Analysis, Access, Queries, and Reports: This group of functionalities represents the activities and functionalities related to reporting and analysis of the information collected in the education data warehouse.

- Data Exporting and Interface Requirements: This group of requirements represents the activities and functionalities related to integration of the SD STARS with external and third-party database systems.

- Training and Documentation Requirements: This group of requirements represents the functionalities related to training and documentation for State and stakeholder end users.

When brought to scale for a statewide audience the SD STARS will have the same requirements and capacity of the demonstration model in the SDIF schools. The following tables present these requirements and vendor solutions and specifications.

Objective 1: To design and implement a **comprehensive K-12 commercial-off-the-shelf (COTS) longitudinal data system** capable of connecting existing data repositories, data editing and validation and expansion to all LEA's.

Technical Requirements

The SD DOE is seeking an existing Commercial off the Shelf (COTS) product for the SD STARS system. The hardware platform will be purchased by the SD DOE based upon the recommendations by the vendor for the system's initial size, performance, and growth parameters. The SD DOE will work with the selected vendor and BIT to develop detailed hardware specifications beyond just the number of servers, server classes, and purpose of each server. It is the intention that the SD DOE and BIT to host the entire system on a hardware platform that meets or exceeds vendor specifications. The hardware will be supplied "installation-ready," i.e., with pre-loaded operating system, latest security patches, pre-loaded MS SQL Server, and the other BIT specific software.

In addition to the production environment, other environments needed to support upgrades, application development, testing, and training will be recommended by the vendor. SD DOE will require the SD STARS to integrate and complement existing data and infrastructures and to allow for integration of future development tools. The SD STARS will leverage existing components including Microsoft SQL Server. The SD STARS will be hosted by the Bureau of Information Telecommunications (BIT).

Technical Hardware and Software Requirements

1. Provide a web-based solution that may be accessed without the need to install client software.

2. Integrate with the MS SQL Server database. Any additional Relational Database Management System (RDBMS) licenses and server peripheral components required to support the selected solution will be obtained through existing State Agreements by SD DOE. These components must be identified in detail in the proposal, but SD DOE will price them independently.

3. Client Workstations. Accommodate users accessing the system using either laptop or desktop hardware running current supported versions of Microsoft operating system,

Microsoft Office and Internet Explorer, and current supported versions of Mozilla Firefox.

4. Demonstrate an application architecture and design consistent with current industry best practices and integrate with the current SD DOE infrastructure. The solution will be scalable, hardware independent and support cross platform application operations.

5. Provide an established process for migrating to new software releases.

Data Extraction, Transformation, and Load (ETL) and Integration Requirements

The SD STARS will have the ability to integrate with existing SD DOE sources and to integrate with new data sources. Essential elements will be:

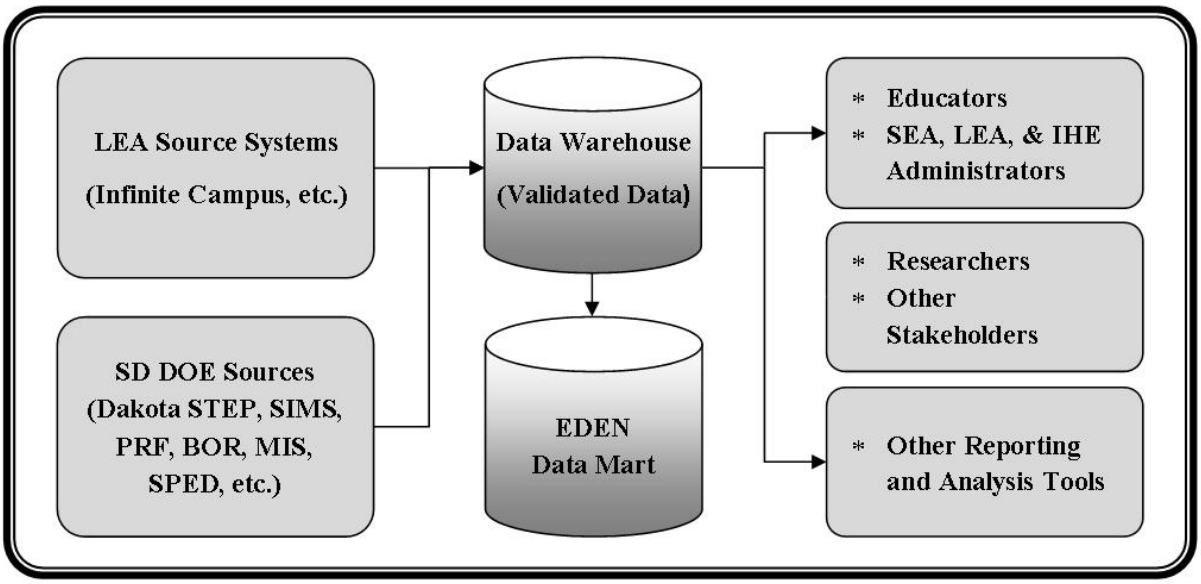
1. Provide the ability for the SD STARS to receive data from disparate internal and external data sources.

2. Provide the ability for the ETL process to validate data quality at the front end based on SD DOE business rules.

3. Provide the ability to perform data cleansing to maintain the quality, accuracy and integrity of the data warehouse.

4. Provide error check and validation routines.

5. Provide ETL completion and error logs and e-mail notifications.



The SD STARS data warehouse will include district, school, staff and student data in a longitudinal format as well as elements required for all State and Federal reporting. Student data will utilize the existing SD DOE unique State student identifier that will link demographic, enrollment and program data with assessment data uploaded from third party vendors. The SD STARS data system and solution will:

1. Include a comprehensive K-12 data model which is capable of being expanded to support higher education and labor data. At a minimum, the data model will include the following data domains:

    - Student demographics
    - Staff demographics
    - Student enrollments
    - Course enrollments
    - Program participation (Special Education, CTE, ELL, etc.)
    - Financial
    - Staff Assignments
    - Staff Certifications
    - Assessments
    - Attendance
    - District and School
    - School Safety

2. Utilize Microsoft SQL Server Enterprise Edition as its primary data store.
3. Be capable of supporting flexible definitions (e.g., Reference Information and Lookup Values) of types of schools and districts, such as: high schools and vocational regions/centers; middle schools including many different ranges of grades; multiple types of configurations of schools within districts.

4. Support data submission at the LEA and SEA level.

5. The SD DOE's primary student information systems (SIMS) - Infinite Campus - will be a significant source of data.

6. Create an EDEN/EDFacts data mart to manage all SD DOE Federal data submissions.

7. Provide a data management plan that includes storage and archiving strategies.

8. Provide the capacity to store 15 years of data.

9. Data Integrity and Validity. Provide the ability to check data integrity and validity via various cross-referencing field verification checks.

10. Data Compatibility. Provide the ability to import and export data from various

State and third party systems.

11. Provide the ability to calculate and store Highly Qualified Teacher results at the class section level.

12. Provide the ability to calculate and store Adequate Yearly Progress results at the school level and by the various subcategories.

13. Provide the ability to generate EDEN/EDFacts data submissions

Vendor Approach

Otis Educational Systems, Inc. (Otis Ed) has proposed the utilization of their iMart LDS solution to meet the requirements for the demonstration model as noted above. The iMart solution also has the capacity and scalability to respond to the statewide needs and audience. iMart provides a dimensional data model for K-12 with extensions into P-20 with further extensions as needed. This data model was designed by Otis staff who have been trained in advanced dimensional modeling techniques. OtisEd has taken this methodology and focused it strictly on the educational market. The methodology is a disciplined, procedural, repeatable process that was developed to ensure that the same "best practices" methods are utilized across all phases and implementations. This methodology has been utilized successfully with projects across virtually every industry, business function, and technology platform, and considered the industry best practice. It comes out of the box with the following data domains modeled, and can be customized as required for SD STARS:

- District and School (Directory Info)
- Student demographics
- Staff demographics
- Student enrollments
- Attendance (Period and Daily)
- Discipline (School Safety)
- Course enrollments (Schedules)
- Staff Assignments
- Grades
- Program participation (Special Education, CTE, ELL, etc.)
- Assessments
- Financials (customized for SD DOE needs)
- Staff Certifications (customized for SD DOE needs).

The OtisEd solution includes the Vertical Data Submission (VDS) tool for extracting and transmitting all LEA data to the SEA in a secure and efficient manner. OtisEd has demonstrated the capacity for extracting data from most SIS', including Pearson's PowerSchool, SASIxp, SchoolMax, and others. Otis and South Dakota are currently working with the SIMS vendor, Infinite Campus, for an amicable method in regards to data extraction.

Objective 2. To develop and implement a robust and scalable **reporting and analysis module** that will inform and improve required reporting, policy making, educational improvement, access and transparency.

Objective 3. To design system expansions that respond to **LEA needs; link teachers and students; and reflect growth in student achievement** through various lenses.

Objective 4. To design, develop and implement system specifications that capture and analysis data to reflect **teacher and school leader effectiveness**.

The SD STARS' Objectives 2, 3, and 4 each address aspects of reporting and analysis. The STARS system will have the capacity for automated reports as well as the opportunity for more sophisticated end users to develop unique and complex reports for analysis. The system will also have the capacity for expansion based on local district needs and uses. Specific requirements for reporting and analysis include the following.

1. Provide the ability to produce a wide range of graph types including, but not limited to: bar charts, pie charts, line charts, histograms, scatter charts, bubble charts and three dimensional charts.

2. Provide the ability to drill-down by clicking on a section of a chart or graph.

3. Provide the ability to perform multi-dimensional analysis and drill down and roll-up to view data at different levels of detail.

4. Provide the ability to perform longitudinal trend analysis at the individual and aggregate levels.

5. Provide the ability to analyze student, school, and district performance across multiple years and dimensions.

6. Provide analytical tools for users at multiple levels including both casual and power users.

7. Provide the ability to suppress or mask field the *n* (sample size) size falls below State defined levels.

8. Provide the ability for users to perform ad hoc data analysis and reporting and save, modify and share queries.

9. Provide the ability to perform statistical analysis.

10. Provide the ability to develop growth models based on student, school and district performance.

11. Provide the ability to create balanced scorecards to monitor and track student, school and district performance

12. Provide the ability to conduct “what if” type analysis.

13. Provide the ability to filter data by subgroups and demographics.

14. Provide the ability for system administrators to create pre-defined read-only reports.

15. Provide the ability to produce standardized reports viewable by Mac or PC users.

16. Provide the ability for the SD DOE to roll up all data into statewide reports.

17. Provide the ability for non-technical users to create reports utilizing step-by-step data selection tools (e.g., wizards).

18. Provide the ability to create and save report templates with predefined formats, font and graphics.

19. Provide the ability to schedule reports to run and post to an external website for access by the general public or authorized users.

20. Support the use of dashboards and reports by classroom teachers and school administrators

21. Data exporting and interface specifications will provide the ability for SD DOE users to export data in a variety of standard formats (e.g., xls, csv, xml, txt, rtf, pdf) that can be integrated with other information available at the SD DOE level.

Vendor Approach

OtisEd has proposed a Microsoft BI stack solution, which allows analysis tools to connect to the STARS for reporting and analysis. They have proposed a purely Microsoft solution which they suggest based upon:

- Ease of use,
- Plentiful, experienced resources
- Cost to own
- Ease of maintenance , and
- Equally efficient in performance
- Simpler tools to report, analyze and access data.

The OtisEd solution will come with fifty report templates built for education, which can be customized by SD DOE staff to fit their needs.

OtisEd, along with their partner SRG Technology has proposed the use of SRG's Blender Base Portal and Reporting Framework to provide the SD DOE and STARS with an extensible web portal to provide secure and scalable delivery of Reporting Services reports developed off the OtisEd iMart data warehouse.

Blender provides a variety of tools to enable all branches of the educational system to make smarter, more informed decisions. The proposed configuration leverages two modules of Blender to provide a web-based delivery platform that meets the immediate needs of the STARS project, while providing a pathway for potential expansion. The proposed SD STARS Blender platform will leverage the following Blender modules:

- Blender Base Portal
- Blender Reporting Framework

The Blender Base Portal provides a framework upon which the SD DOE can build out the front-end delivery of information derived from its Enterprise Data Warehouse (EDW) project. Built on Microsoft ASP .Net technology, Blender provides a secure, unified access point within a customizable, web-based user interface. The portal unifies content delivery, web-based reporting, and decision support utilities.

The Blender Base Portal facilitates a smart and easy-to-use pathway for users to navigate assets, including making data convenient and familiar. The portal offers the flexibility of styling to resemble the existing SD DOE's web pages for a seamless user experience or branding to present a new identity for the STARS project. The technology behind Blender streamlines presentation for what could otherwise be a disjointed user experience. Blender provides best-in-class features for enterprise portals including:

- *Integration* — The Blender Base Portal consolidates data, reports, and content from disparate systems into an integrated framework that facilitates navigation between these components.
- *Customization* —Administrators can use predefined container pages to customize the presentation of content from other systems. Users can customize the look and feel of their environment by dragging and dropping content portlets on the user's individual dashboard. The system stores customized layouts for the next time the user logs in. The Blender Base Portal also provides the ability to recommend content based on attributes of the user and metadata of the available content.
- *Personalization* — Personalization is used to match content to the user. Blender uses a combination of data sources to develop a user profile – employing personalization rules to match data and/or content to the specific privileges of a user.
- *Single Sign-On* — Blender can accommodate single sign-on, enabling the Blender Base Portal to be accessed from an existing enterprise portal or by providing single sign-on for users to access other systems. This feature requires user authentication only once – either within Blender Portal or within the legacy enterprise portal – but allows for seamless movement between.
- *Access Control* —The Blender Base Portal uses a metadata layer to authenticate the user to control access to specific types of content and appropriate data. Access control uses a

combination of features including: user profile attributes, portal roles, data mart access control tables, and report parameters.

The Blender portal web pages organize content by arranging it into "portlets". Charts, graphs, and data tables are arranged into "reportlets". These are similar to web parts within Microsoft SharePoint and report parts within Microsoft Reporting Services. Portlets and reportlets break a larger web page into a third, a half, or two-thirds the size of the overall page in much the same way as the pages of a magazine or newspaper are divided into columns and sections. Pages can display reporting dashboards and scorecards as an aggregate of different smaller reports, report menus, charts, and graphics.

Objective 5. To ensure effective, responsive and representative structure for data **governance and management**.

A complete discussion on the process SD DOE will utilize for effective and representative governance and management of the SD STARS will be discussed at greater length in section D of the proposal: Project Management and Governance Plan. As effective governance of the data system must also address technical requirements to be incorporated in the design and architecture of the STARS they are included with the requirements and implementation discussion.

All security requirements will be governed by the South Dakota Bureau of Information Telecommunications Policy. Security must provide uniform roles throughout the system that ensure data integrity. Security will be provided using the concept of application areas, each of which will have application pages. The system will also identify the page controls within each application page. Different privileges will be defined on application areas, application pages, and page controls to ensure comprehensive security for the application.

Security Requirements

1. Provide the ability to timeout a user's screen with automatic timer for security.

2. Provide the capability of mass security updates.

3. Provide the use of Secure Sockets Layer (SSL) encryption initially and Transport Layer Security (TLS) or other forms of comparable Advanced Encryption Standard (AES) encryption, for all transfer of student data between client and server.

4. Provide the ability to do mass updates to groups of users as needed.
5. Use a consistent security model throughout.

Logging and Access Rights

1. Provide the capability to log into the system.

2. Require the use's user name and password to log into the system.

3. Mask the password with asterisks, or other comparable mask, as the user types in the password.

4. Provide the capability to limit the number of failed log on attempts to three, and direct the user to a page indicating that log on failed.

5. Require the user to enter a new password if/when the old password has expired.

6. Provide the capability to notify the user if the user name or password is not valid.

7. Allow for security to be defined at login, but-system, application, file, field, and user level.

8. Provide fully integrated security and access control capabilities, including single logon and customizable views for administrators.

9. Provide a security coding system to support multiple users with each user having a different password and different read and write access capabilities.

10. Allow LDAP integration for user name and password administration.

11. Have the ability to build individual security profiles that users would be associated with, rather than each individual having his/her own set of permissions.

Managing Security and Access

1. Provide the capability to add, change, or delete roles.

2. Provide the following roles: State Administrator and System Administrator. The State Administrator manages roles, users and organizational settings. The System Administrator manages the overall system configuration and settings including organizations and overall security

3. Provide the capability to associate roles with a user.

4. Provide the ability to allow SD DOE staff members to have appropriate access to school unit data.

5. Provide the capability to define the Simple Message Transport Protocol (SMTP) server user account and password that will be used for e-mail notifications

6. Provide the ability to limit access to individual reports to authorized users based on

their roles and security rights.

7. Provide the ability for users to share report read only and edit rights with other users based on their roles and security rights.

Vendor Approach

The Blender Security Object Model is built on a role-based security model used to provide explicit permissions to view, edit, administer, and perform actions within the portal. SD DOE and BIT's security requirements will be used to configure the Security Object Model and define the roles that provide user access to portal content, report categories, menu items, organizational pages, and administrative configuration pages. Access control is configurable by the administrator in an easy-to-use user interface.

The Blender Base Portal and Reporting Framework also include a data security model encompassing functionality for administering users, roles, and access control. Users login to the portal using forms-based authentication which validates against an internal security data store. Blender may also be customized to achieve single sign-on (SSO) authentication and validation using other popular LDAP solutions, e.g., Microsoft Active Directory.

For user provisioning, Blender employs a robust security model for authentication. Blender organizes user permissions in a hierarchical organizational model from district to school levels. Organizations can also be rolled up to provide access to customized service providers for select functionality. Authorization is done by permissions assigned by role that can be established per organization level. Blender can configure users with a primary identifier, such as an employee identification number, access user or an alternate identifier such as email address. Blender can integrate with Active Directory or any custom security system. Once roles have been established at each organizational level, user provisioning can be accomplished in one of four ways:

1. Web application using the Blender User Management module where administrative users can create individual users, reset passwords and view users who are currently locked out of the system.
2. Web Service via API to an existing LDAP
3. Bulk load via file (XML, CSV, etc.)
4. Database connection via OLE/DB to a security database

Objective 6. To provide **training for SD DOE and LEA end users** that will improve accurate data collection, data upload and relevant data reporting and analysis.

The SD DOE will require training and support to SD DOE staff and district users to ensure successful implementation and utilization of the SD STARS. This training will include data loading, generating and understanding reports, implementing security administration, troubleshooting system problems, and system configuration capabilities.

Training and Documentation Requirements

1. Provide system administration and training to SD DOE personnel. The training should include at a minimum:

    - Managing security and user access;
    - SD STARS maintenance and support;
    - Adding data sources;
    - Data validation configuration
    - Creating and updating OLAP cubes;
    - Creating queries, ad hoc and standard reports;
    - Creating complex queries;
    - Exporting tables and data to external databases; and
    - Maintaining and updating training and online help documentation.

2. Provide end-user/stakeholder training utilizing: instructor-led classes, live web classes, and recorded web classes. Training should include at a minimum:

    - Using/navigating the decision support system;
    - Viewing and downloading reports;
    - Creating and saving ad hoc queries;
    - Submitting data
    - Accessing State, district and school level reports;
    - Drill down techniques; and
    - Using online help features.

3. Provide context- sensitive online help for the system administration users and end-users.

4. Provide electronic copies of all system administration and end-user training materials in Word and PDF formats.

5. Provide the ability to meet the State of South Dakota standards for technical and program documentation

SD DOE will utilize two approaches to deliver the in-depth and continuous training that will be required to build the capacity of stakeholders and end users throughout the state. First, training considerations will be required of the commercial vendor who will design and develop the statewide LDS (once again, it is likely and desirable for the same vendor to expand the demonstration model developed through SDIF to statewide implementation). The vendor will utilize a train the trainer model. Training will initiate with SD DOE personnel and one STARS EdTech Technology Specialist from each of South Dakota's six regional Education Service Agencies (ESA).

Secondly, training for local end users will draw upon the capacity that has been built within the ESAs. Building the capacity for training, technical assistance and support within the ESAs serves multiple purposes. It is the most cost effective and efficient means to provide on-going training and support to LEA personnel across this large geographic state. Capacity building

within the state also ensures sustainability and integrity of STARS once the commercial vendor has finished their initial work in South Dakota.

Vendor Approach

The vendor team understands the importance of training and the internal sustainability for the new SD STARS. Ensuring the continued, optimal use of the Blender portal by SD DOE is significant to OtisEd. They will work closely with SD DOE to ensure that, through training, there is successful transfer knowledge of the systems to SD DOE and ESA staff. Not only is OtisEd interested in empowering SD DOE staff to support the Blender Portal, but also to how to enhance and grow the solution. To achieve this training goal, the vendor will use a combination of web- and classroom-based training formats.

Administrator Training

Administrators will receive a comprehensive classroom-based orientation covering all aspects of using and managing the delivered portal. An outline of the proposed 1- day training is provided below.

Blender Base Portal

- User Administration
    - Loading User Accounts
    - Editing User Accounts
    - Resetting Passwords/ Unlocking Accounts
    - Assigning Organizational Membership
    - Assigning User Roles
- User Dashboard Management
    - User Profile and Account Information
    - Managing Dashboard and Portlet Content
- Organizational Homepage Management
    - Managing Homepage and Portlet Content
    - Managing Discussion Forums
    - Managing Document Repositories

Reporting Framework

- Report Navigation
    - Managing Report Menus
    - Managing Report Container Pages
- Managing Report Access
    - Role Based Security for Report Access
    - Row Level Security Considerations

End User Training on Portal

End users of the South Dakota LDS Portal will be provided with self-paced, web-based training tutorials. The vendor will tailor the tutorials to specific audiences by covering functionality available to each specific role. These training units will describe features provided by the portal and will be limited in scope to three to five minutes. Training module activity will be tracked and recorded to assist SD DOE administrators with monitoring the extent of end-user training.

Help Desk Support
In addition to classroom training, the vendor will produce an administrator guide for the Portal. The guide will be a complete documentation for managing and supporting the South Dakota LDS portal. OtisEd will provide second tier help desk support to portal administrators throughout the life of its contract. SD DOE system administrators will be trained to perform first tier support for the end user community, including resolution of issues such as managing locked out user accounts, managing frequently asked questions and troubleshooting reported end-user issues.

C. Timeline for Project Deliverables

The South Dakota Department of Education is committed to the accomplishment of the SD STARS project within the three year project period. The accomplishment of the projects objectives/outcomes and deliverables will provide the foundation for sustainability beyond the scope of the project.

Fortunately, the efforts toward the development of a longitudinal data system to meet the needs of SDIF schools and to serve as a model for the statewide STARS data system will significantly expedite the timeline for deliverables. The timeline presented below for deliverables associated with each objective/outcome includes as noted the stages of development currently underway on behalf of the SDIF project.

Objective/Outcome 1. To customize and implement a **comprehensive K-12 commercial-off-the-shelf (COTS) longitudinal data system** capable of connecting existing data repositories, data editing and validation and expansion to all LEA's.		
Intermediate Deliverable	**Date**	**Partners Responsible**
Model data system for SDIF Schools	9/30/2012	SDDOE, SD BIT SDIF Project Participants OtisEd-Vendor TIE-Consultant
Customized architecture of the model for statewide scale up	10/30/2012	SD DOE SD BIT LEAS OtisEd TIE
Development and implementation of system components for statewide scale up	12/30/2012	OtisEd
Integration of SEA and LEA data	2/27/2013	SD DOE Otis ED
Linkage of teacher and student unique identifiers	2/27/2013	

Testing and validation of STARS	3/1/2013 to 6/30/2013 (to incorporate testing window and results)	SD DOE SD BIT LEAS OtisEd TIE

Objective/Outcome 2. To develop and implement a robust and scalable **reporting and analysis module** that will inform and improve required reporting, policy making, educational improvement, access and transparency.		
Intermediate Deliverable	**Date**	**Partners Responsible**
Automated reports developed for the SDIF model data system	9/30/2012	SDDOE, SD BIT SDIF Project Participants OtisEd-Vendor TIE-Consultant
Automated reports applied and validated with statewide system	4/30/2012	SD DOE LEAS OtisEd
Develop and test reports and analysis that align with the new Accountability Model.	6/30/2013	SD DOE OtisEd Accountability Workgroup
Design of data elements, reports and analysis for student progress at the classroom level	6/30/2013	SD DOE LEAS OtisEd TIE

Objective/Outcome 3. To design system expansions that respond to **LEA needs; link teachers and students; and reflect growth in student achievement** through various lenses.		
Intermediate Deliverable	**DATE**	**Partners Responsible**
Development of growth model protocol and validation of data/report	8/30/2013	SD DOE SD BIT Growth Model Consultant OtisEd TIE
Process consultation and design elements in response to LEA needs	9/30/2014	SD DOE ESAs LEAS OtisEd TIE

Objective/Outcome

4. To design, develop and implement system specifications that capture and analysis data to reflect **teacher and school leader effectiveness**.		
Intermediate Deliverable	**DATE**	**Partners Responsible**
Development of indicators and rubric for to reflect teacher and school leader effectiveness	11/30/2014	SD DOE ESAs LEAS TIE South Dakota Education Association School Administrators of South Dakota University Teacher Preparation Programs
Develop and integrate data for reporting teacher and school leader effectiveness	3/30/2015	SD DOE LEAS OtisEd TIE

Objective/Outcome 5. To ensure effective, responsive and representative structure for data **governance and management**.		
Intermediate Deliverable	**DATE**	**Partners Responsible**
Convene SD Education Data Governance Board	Upon grant award	SD DOE SD State Board of Education SD BIT External Stakeholders
External Contracts Executed	8/30/2012	SD DOE SD BIT
Data Governance and Management Policies for STARS	9/30/2012	SD DOE SD State Board of Education SD Education Data Governance Board SD BIT External Stakeholders
Monitor process for security, data access and validation, and FERPA compliance	9/30/2012	SD DOE SD State Board of Education SD Education Data Governance Board SD BIT External Stakeholders
Convene LEA Task Force	1/1/2013	SD DOE LEAs ESAs
Review and recommendations for	Throughout the	SD DOE

STARS expansion, access, reporting and training capabilities	project	LEAs ESAs

Objective/Outcome 6. To provide **training for SD DOE and LEA end users** that will improve accurate data collection, data upload and relevant data reporting and analysis.		
Intermediate Deliverable	**DATE**	**Partners Responsible**
Administrative and user training for SDIF model data system implemented and evaluated	11/30/2012	SDDOE, SDIF Project Participants OtisEd TIE ESAs
Revision of training plan in response to evaluation and statewide scale up	1/1/2013	SDDOE, OtisEd TIE ESAs
Training of SD DOE and ESA personnel	3/30/2013	SDDOE OtisEd TIE ESAs
Training for local stakeholders and end users	6/1/2013 and continuing throughout the project	SDDOE TIE ESAs LEAs

D. Project Management and Governance Plan

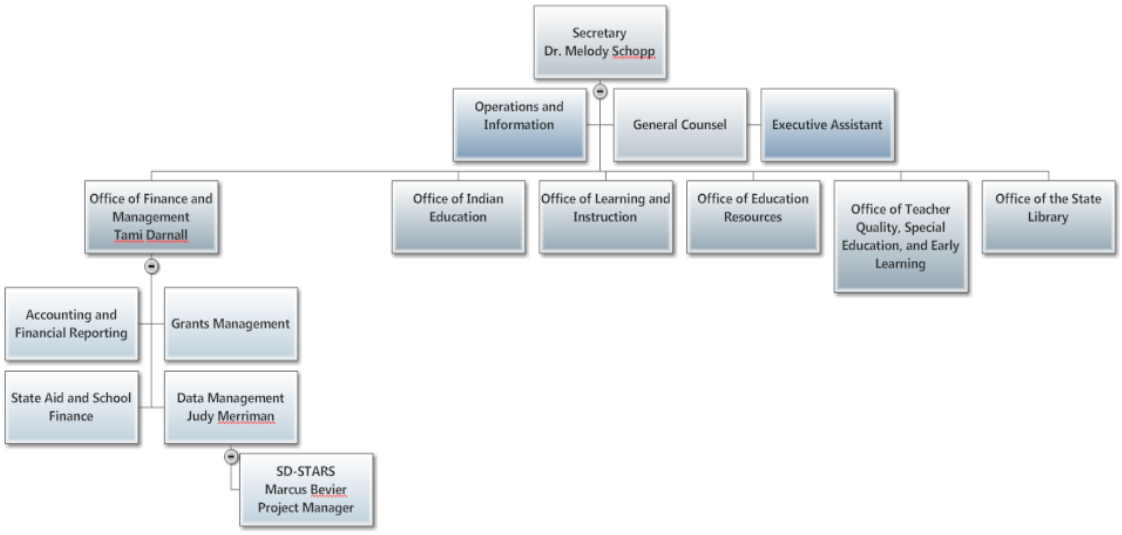
The South Dakota Department of Education (SD DOE) will administer the South Dakota Student Teacher Accountability Reporting System (SD STARS). With the full support and keen interest of the Governor's Office and State Board of Education, SD DOE will work closely with partners and stakeholders to design, develop and implement a comprehensive, statewide longitudinal data system that has the capacity to inform policy and improve teaching and learning in South Dakota.

Within the SD DOE, the Office of the Secretary will have oversight and final administrative responsibility for a successful implementation of the SD STARS. Dr. Melody Schopp, Secretary and Mary Stadick Smith, Deputy Secretary, will provide leadership and guidance for the development of the SLDS. Dr. Schopp will be instrumental in facilitating stakeholder groups. Dr. Schopp direct involvement and leadership will ensure a constancy of purpose across all Department initiatives for educational improvement in South Dakota. Dr. Schopp will be the primary liaison between the STARS project, the Governor's Office and the Legislature.

Internally, the SD STARS will be housed and supported within the Office of Finance and Management. Under the leadership of Tamara Darnall, Director, the Office of Finance and Management provides the administrative structure for all finance, grants and data management services for SD DOE.

The Division of Data Management is within the Office of Finance and Management. Under the direction of Judy Merriman, this Division manages all student, teacher and school data including:

- Enrollment and demographics
- Student Information and Management System (SIMS)
- FERPA Policy
- Longitudinal Data
- Personnel Record Forms
- Safe and Drug Free Schools Reporting System
- Statistical Digest



Tamara Darnall will serve as the Project Director for the SD STARS. She will provide leadership and administration of a team of personnel from within the Office of Finance and Management. Day to day leadership for the STARS Team will be provided by Marcus Bevier who will serve as Project Manager. Mr. Bevier will work closely with partners and stakeholders, as well as, vendors and consultants to ensure that project activities and deliverables are on schedule and responsive to the internal and external requirements and considerations. The SD DOE STARS Team will include:

- Tamara Darnall, Project Director (In Kind)
- Marcus Bevier, Project Manager (1.0 FTE)
- Judy Merriman, Data Management Administrator (.25 FTE)
- Tom Morth, Management Analyst (.15 FTE)
- Laura Ellenbecker, Management Analyst (.15 FTE)

- Teri Jung, Policy/Data Analyst (.1 FTE)
- Carla Leingang, Management Analyst (.1 FTE)
- Kim Carlson, Management Analyst (.1 FTE)

The SD Bureau of Information Technology will be a critical partner and collaborator with SD DOE in the implementation of the SD STARS data system. BIT provides all IT and communication services for state agencies. It hosts the Dakota Digital Network and servers for K-20 educators throughout South Dakota. As a critical partner, BIT will assign a point of contact for the STARS project. This individual will serve as a member of the STARS Team, ensure the integration of the SLDS with the current structures, hardware, software, governance and security policies.

The Secretary will reconvene the South Dakota Education Data Governance Board and assign them the responsibility and authority to address data governance and security issues. SD EDGB is a general board comprised of key personnel from the SD DOE. This board will be charged with promulgating policy as it relates to data entry, use, and security. In addition, this board will act as an appellate organization in terms of LEA and Department data issues/policy resolution. The SD EDGB:

- Meets quarterly, or as needed, to discuss policies, recommendations, and issues escalation
- Discusses basic issues in terms of data entry and use
- Resolves issues dealing with security of Personally Identifiable Information (PII)
- Decides high-level policy recommendations from field professionals and program staff
- Monitors progress in relation to project charter
    - Makes note of major milestones
    - Plans for future development as SLDS expands
- Defines business rules for data use, entry, and security (FERPA compliance)
- Ensures FERPA compliance in regards to individual student data
- Defines State specific data elements and aligns with a reputable model for national standards (e.g., NEDM, CEDS, etc.)
- Handles LEA escalations in relation to non-compliance with standards or general data entry issues

Inter-agency data governance and management is a current project of the Department. Representatives from SD DOE, Board of Regents, Department of Labor and Regulation, and BIT meet on a quarterly basis and will continue to do so throughout the grant period. The inter-agency group:

- Meets quarterly to provide agency updates as they relate to governance and data management
- Addresses key policy and procedural changes in order to inform other stakeholders (e.g., participating agencies)
- Discusses long-range vision of each agency in terms of data use
- Informs stakeholders of policy and changes to data definitions to promote alignment and consistency
- Collaborates on data projects to fulfill various stakeholder needs

- Works together to change culture from data for compliance to data for consumption and effective use

The Secretary or Deputy Secretary shall act as the "court of last resort." She will make final decisions on items in which SD EDGB cannot come to an amicable resolution.

- Executive leader of SD EDGB
    - Provides upper level institutional support
- Resolves policy and procedural issues that cannot be agreed upon by the Data Governance Board
- Oversees general operation of the board
- Serves as a liaison and general enforcer of policy recommendations by the Data Governance Board
- Makes decisions as-needed

The Secretary's *Next Generation Accountability Workgroup* will also provide advice, guidance and feedback regarding the development of the SD STARS. They will serve as a response group for potential data integration and make recommendations for useful reports and data analysis. Most importantly, they will advise as to alignment with the new Accountability Model being developed for South Dakota. The Accountability Workgroup has 23 members representing stakeholders from across the government and education communities:

- Legislators
- Superintendents
- Principals
- Curriculum and Instruction
- Teachers
- Tribal Education
- Board of Education
- South Dakota Education Association
- School Administrators of South Dakota
- Associated School Boards of South Dakota
- Business

South Dakota's six regional Education Service Agencies(ESAs) will provide a dual role in the implementation and management of the SD STARS. These public, intermediate education agencies will be external contractors providing both field based training and process consultation with LEAs and educators across South Dakota. Developing the capacity for training and technical assistance within regional ESAs provides direct and on-going support for those that will both input and utilize the data system and reports. The process consultation process will facilitate needs assessment, opportunities and recommendations for data management and utilization at the local level. This input will be fed back to the STARS Team and the commercial vendor.

ESA will host a LEA task force in their region. The LEA Task Force is the grass-roots organization in terms of data governance. They are regional in nature and correspond with their respective ESA. This group shall document issues regarding data and make high-level

policy/procedural recommendations to SD EDGB. Also, these groups will work closely with ESAs to hone their skills at understanding, interpreting, and entering key data elements for Department collections. They will:

- Meet quarterly to formulate issues for consideration or escalation to the Education Data Governance Board
- Task force will make high-level policy recommendations to the Data Governance Board
- Identify issues at the "grass roots" level
  - Additional data elements required
  - Collections needed
  - General data issues (e.g., data entry, anomaly resolution, system problems)
- Recommend topics for professional development sessions

E. Staffing

The South Dakota Department of Education will draw upon internal personnel resources, as well as, external consultants/contractors to provide the necessary expertise and capacity to administer, manage and implement the SD STARS project.

Dr. Melody Schopp, Secretary of Education, will provide overall leadership and administration for the STARS project. Dr. Melody Schopp was appointed as the Secretary of Education by Governor Dennis Daugaard upon his election in 2012. Dr. Schopp has served SD DOE since 2000 as the Technology Coordinator, Director of the Office of Accreditation and Teacher Quality, and Deputy Secretary. Dr. Schopp joined SD DOE following 21years as a teacher and Technology Coordinator in the Lemmon School District. Ms. Schopp has a Doctorate in Education from the University of Nebraska.

The SD DOE STARS Team, as noted above will work as a collaborative team toward the accomplishment of the objectives of the SD STARS project. Each of the team members brings unique qualifications, experience and perspective to the project.

- Tamara Darnall, Project Director—has served as the Director of the Office of Finance and Management since 2008. She serves as chief fiscal officer for SD DOE, managing a staff of 27 and a $600 million annual budget. She has extensive experience in management of complex federal programs, collaboration with other state agencies, and legislative affairs.

- Marcus Bevier, Project Manager—has been with SD DOE since 2010. He currently chairs the Data Governance committee and serves in some capacity as a management analyst (management consultant). Marcus possesses impeccable communication and organizational skills. Prior to joining the Department, Marcus served as a Research Analyst with the Government Research Bureau. He has private sector management experience as well as extensive experience with academic research. Mr. Bevier holds a Masters in Political Science.

- Judy Merriman, Administrator, Division of Data Management—has held her current position with SD DOE since 2007. Ms. Merriman is responsible for managing the SIMS database; data collection and analysis for determining AYP, compilation and submission of the EDEN/ED Facts; and personnel data collection. Prior to joining the staff of SD DOE, Ms. Merriman held similar position in data management and finance within the Department of Social Services.

- Tom Morth, Management Analyst--is currently assigned as the liaison with Infinite Campus and has management responsibility for the SIMS. He responds to district inquiries, monitors quality control, and monitors the student database for accuracy and data integrity. Mr. Morth also assists with NCLB reporting, data inquiries, fall enrollment, and coordination with outside entities.

- Laura Ellenbecker, Management Analyst— currently assists with Adequate Yearly Progress (AYP), carries out December 1 Child Count reports, and works with Infinite Campus on issues related to student data. In addition, Ms. Ellenbecker fulfills various data requests, assists with EdFacts reporting, and provides pre-id labels for testing vendors.

- Teri Jung, Policy/Data Analyst—A life- long South Dakotan, Teri joined the SD Department of Education in 2007 to work with school districts across the state with their student enrollments, State Aid Fall enrollment, state and county apportionment, NCLB-AYP calculations, and publishing the Student Information Newsletter. Prior to joining the DOE, Teri work for the McIntosh School District for 18 years as an Administrative Assistance and Campus Administrator for the McIntosh School District.

- Carla Leingang, Management Analyst—currently manages the SD DOE Personnel Record Form Database. She coordinates and validates data input and updates. She has developed the PRF Training Manual and training protocol for LEA use. Ms. Leingang has worked in a variety of management positions in state government since 1991.

- Kim Carlson, Management Analyst—currently coordinates the EDEN and EdFacts reporting for SD DOE. She is responsible for managing data input, responding to field inquiries and assists with data analysis for AYP determination. Ms. Carlson is a member of the General Statistics Permanent Standing Task Force under the Education Information Management Advisory Consortium.

This team of individuals brings a wealth of experience and skill to the SD STARS. While their experience and skill is vast, their time is limited. SD DOE, as are all SD state agencies, is currently limited in its ability to add FTE's to state staff. SD DOE has used external contracts with other public, in-state entities to assist and support activities and initiatives of SD DOE.

For the STARS project, SD DOE may expand current contractual arrangements with Technology and Innovations in Education (TIE). TIE is a statewide organization with an exceptional capacity for research, development, data management, technical assistance and professional development around issues of data-driven school improvement, organizational development, improvements in

curriculum and instruction, technology integration and other aspects across the spectrum of P-20W education.

In partnership with SD DOE, TIE currently provides the day-to-day project management for South Dakota's Teacher Incentive Fund Project and has assisted in the design and securing resources for the LDS model for SDIF schools. SDDOE and TIE have a long and effective history of collaborative management of innovative programs that serve South Dakota schools, educators and students. In this role, TIE has also developed and provided analysis for South Dakota's initial efforts toward a value added Growth Model. Most recently, SD DOE has partnered and contracted with TIE to develop and implement a new data management system to capture and analyze DakotaSTEP test results and produce state, LEA and school report cards.

Through subcontract with SDDOE, TIE may assist with management of project tasks such as: conduct process consultation with LEAs and other stakeholders; consult and assist in the development of the Growth Model; conduct validation and testing of data systems and reports; and provide support for ESA field based training. Key TIE personnel that may be available to contribute to this work include:

- Joe Hauge, Deputy Director, TIE—Dr. Hauge completed his Doctoral Degree in Educational Administration at the University of South Dakota in 2009. Dr. Hauge joined the staff at TIE in 1990, where he has served as the Assistant Director for the TQE State Grant, Every Teacher, Project Manager for the LOFTI, Technology Challenge Grant, and Project Director for the PIRLL, School Leadership Grant. Currently, Dr. Hauge provides the leadership for the South Dakota Incentive Grant serving as Project Director through contract with SD DOE.

- Lennie Symes**,** Data Management Specialist, TIE—Mr. Symes will provide all data management systems including data retrieval and analysis for student achievement and project effectiveness. Mr. Symes is completing a Doctorate in Education through the University of South Dakota. Mr. Symes was one of the primary developers of South Dakota's growth model. He has developed data retrieval and analysis systems in direct response to state and district level needs.

At this juncture, a formal RFP and selection process has resulted in the offering of a contract to Otis Educational Systems, Inc. to design, develop and implement an LDS for 10 high need schools participating in the South Dakota Incentive Fund Project. It is anticipated that OtisEd will also submit a credible and cost effective bid to expand the SDIF model to a statewide audience in response to requirements of the SD STARS project. OtisEd's role in the project would be to provide an industry leading, state-of-the-art educational industry designed data warehousing solution, knowledge transfer, implementation leadership, and overall project management for the SLDS development.

The OtisEd Team is comprised of Otis Educational Systems, ESP Solutions Group, SRG Technologies and TECedge (company prospectus are appended). OtisED will bring their best, most experienced team to the State of South Dakota to support and develop the STARS project. Educational challenges in South Dakota are very much in line with the challenges faced across the

country. OtisEd and its team have worked with four SEAs (Delaware, North Dakota, Lousiana and Nevada) in the development of statewide longitudinal data systems.

The OtisEd Team is dedicated to improving and supporting (K-12 and P-20) education in the US, and has focused on designing and developing the most dynamic and flexible data model in education. OtisEd has also built the toolset of products to support the educational data model. The OtisEd data model supports the ever changing and evolving national data standards.

OtisEd has a single focus in education and that is data management solutions. Their toolset has been designed and developed by engineers with the sole purpose of helping educators help students. Incorporated in Georgia in 1993 as a subchapter S Corporation, OtisEd is privately owned and has been actively and exclusively engaged in the educational market since 2000, bringing a wealth of expertise in the business intelligence and data management fields from the private sector.

Prior to entering the education market, OtisEd employees and contractors worked in areas of data warehouse and data mart design, decision support systems, software development, data analytics and visualization, dimensional data modeling, and/or ETL related projects with or for the following companies: Metaphor Computer Systems, Computer Associates, BellSouth, Coca Cola Research, AT&T, Georgia Tech Research Institute, Georgia Institute of Technology, Sagent Technologies, IBM, U.S. Air Force, Hewlett-Packard, Red Brick Systems, Information Intelligence, Princeton Management Group, U. S. Department of Defense, Burke Market Research, AnswerThink, and EDS.