

**Nebraska Information Technology Commission**

**Project Proposal Form**

**Funding Requests  
for Information Technology Projects**

**2015-2017 Biennial Budget**

**IMPORTANT NOTE:** Project proposals should only be submitted by entering the information into the Nebraska Budget Request and Reporting System (NBRRS). The information requested in this Microsoft Word version of the form should be entered in the NBRRS in the “IT Project Proposal” section. The tabs in the “IT Project Proposal” section coincide with sections contained in this Microsoft Word version of the form. Information may be cut-and-pasted from this form or directly entered into the NBRRS. **ALSO NOTE** that for each IT Project Proposal created in the NBRRS, the submitting agency must prepare an “IT Issue” in the NBRRS to request funding for the project.

<b>Project Title</b>	<b>Education Data Systems Capacity Building</b>
<b>Agency/Entity</b>	<b>Nebraska Dept. of Education</b>

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**Notes about this form:**

1. **USE.** The Nebraska Information Technology Commission (“NITC”) is required by statute to “make recommendations on technology investments to the Governor and the Legislature, including a prioritized list of projects, reviewed by the technical panel...” Neb. Rev. Stat. § 86-516(8).  
“Governmental entities, state agencies, and noneducation political subdivisions shall submit all projects which use any combination of general funds, federal funds, or cash funds for information technology purposes to the process established by sections 86-512 to 86-524. The commission may adopt policies that establish the format and minimum requirements for project submissions.” Neb. Rev. Stat. § 86-516(5). In order to perform this review, the NITC and DAS Budget Division require agencies/entities to complete this form when requesting funding for technology projects.
2. **WHICH TECHNOLOGY BUDGET REQUESTS REQUIRE A PROJECT PROPOSAL FORM?** See NITC 1-202 available at <http://nitc.ne.gov/standards/>. Attachment A to that document establishes the minimum requirements for project submission.
3. **COMPLETING THE FORM IN THE NEBRASKA BUDGET REQUEST AND REPORTING SYSTEM (NBRRS).** Project proposals should only be submitted by entering the information into the NBRRS. The information requested in this Microsoft Word version of the form should be entered in the NBRRS in the “IT Project Proposal” section. The tabs in the “IT Project Proposal” section coincide with sections contained in this Microsoft Word version of the form. Information may be cut-and-pasted from this form or directly entered into the NBRRS. **ALSO NOTE** that for each “IT Project Proposal” created in the NBRRS, the submitting agency must prepare an “IT Issue” in the NBRRS to request funding for the project.
4. **QUESTIONS.** Contact the Office of the CIO/NITC at (402) 471-7984 or [ocio.nitc@nebraska.gov](mailto:ocio.nitc@nebraska.gov)

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**General Information**

Project Title	Education Data Systems Capacity Building
Agency (or entity)	Nebraska Dept. of Education

Contact Information for this Project:

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**Executive Summary**

The recent [Nebraska Education Data Systems study](#), in response to Legislative Resolution 264, found that Nebraska spends an estimated \$100 million annually for technology systems, software systems, and accountability data submissions by the public school districts and the Nebraska Department of Education (NDE). The systems and applications are largely focused on satisfying Federal and State accountability reporting requirements and do not directly contribute to supporting teaching and learning. The districts submit annual collections of data to support accountability to the state using a combination of automated and manual methods. An estimated 655,200 hours are spent by districts preparing the required collections for each year's accountability data submission.

Each district has selected its own set of administrative, teaching and learning, and back office applications and there is a large disparity in the number of applications available in small districts versus larger districts due to budget, staff, and capacity. Outside of Nebraska's largest districts, the digital tools are poorly integrated, there is little support for data-driven decision-making, and modern tools are not available to support instructional improvement necessary for the state's education initiatives of blended learning, teacher and principal evaluation, career readiness, and continuous school improvement.

Nebraska's network of Educational Service Units (ESUs), the ESU Coordinating Council (ESUCC), and Network Nebraska are all contributing to improving the capabilities and the efficiencies of the data systems for the districts. However, the coordination, support, and access for systems can be dramatically improved and serves as the basis for this multi-faceted approach to develop a statewide data system that builds long-term capacity, efficacy, and efficiency for the system of education. The study established 10 recommendations that included five work streams; leverage work conducted using the federal \$4.3 million SLDS grant scheduled to end June 2015.

The proposed implementation roadmap for the Nebraska Education Data System estimates a three-year investment of \$41,960,110, roughly evenly split across the three years. The rollout plan targets a phase in process over three years that could include 50 districts the first year, 150 the second year, and 245 during the third year resulting in cost savings and efficiencies that will also provide a financial return from substantially-reduced accountability costs and from reduced technology costs to districts. The projected cumulative net return for the investment over five years is \$44.8 million. However, the primary benefits from the recommended investments will come from a greatly improved instructional system that improves student performance leading to greater student success.

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**Goals, Objectives, and Projected Outcomes (15 Points)**

1. Describe the project, including:
  - Specific goals and objectives;

The following goals are established based on the recommendations from the Education Data System study and provide the basis for the creation of the five work streams.

**Goal 1: Make security, privacy, transparency, and the proper use of data the core of the Nebraska Education Data System implementation.**

Districts should continue to “own” their data within the statewide system. The ESU hosting must support enterprise-grade security with yearly independent security audits. The following tenets are recommended to protect privacy while ensuring proper use of student data:

1. Ensure that all agencies, organizations, contractors, and vendors that have access to student education records provide the same strength of protection, control, and transparency as codified in appropriate policies, contracts, and data sharing agreements.
2. Ensure that all persons that have access to student education records have training and certification (micro credentials) on the proper use and protection of education records.
3. Limit access to individual student education records to the minimal set of personnel essential for legitimate education purposes, for the shortest period of time required for that purpose, and to the smallest set of data required for that purpose.
4. To the maximum extent possible, use aggregate data and de-identified data in place of individual student education records.
5. Provide parents transparency into the sources and uses of student data.
6. Provide parents control of the child’s education record to the maximum extent that is possible while preserving legitimate educational use of that data.

**Goal 2: Unify the data collection requirements into the Nebraska Education Data Standards (NEDS) to minimize the reporting burden on districts.**

Replace the current system of accountability data submissions by instead deriving accountability data from an extended set of data sent securely by district systems into the Nebraska Education Data System (NEDS). The system would move the computations and business rule checks to the state level for better efficiency and consistency while also providing a transparent facility for district review and approval.

**Goal 3: Require application vendors and other sources to provide data in a standard form specified by NDE directly into the NEDS. Adopt a Nebraska Education Data Standard in collaboration with the NITC.**

Native vendor interfaces are required for sustainability. Ed-Fi defined CEDS-compliant data standard adopted in 24 states that can be extended for Nebraska-specific requirements. Ed-Fi adoption preserves district choice while maintaining data standardization at the state level. A governance process will be required to maintain the Nebraska-extended version of Ed-Fi year-to-year.

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Note that to ensure continued vendor participation, the data interface requirement needs to be in policy or legislation to ensure vendor compliance.

**Goal 4: Leverage and strengthen Nebraska's ESU network, the ESUCC, and Network Nebraska to host, maintain, and sustain the Nebraska Education Data System, to support a statewide virtual help desk, and to train the educators in its use.**

Provide an enterprise-grade, efficient and economical technology platform through which applications and services are delivered to improve school performance and learner outcomes. The statewide system of support would leverage the resources at NDE, ESUCC, ESUs and districts to provide help desk support to districts and professional development coordination.

**Goal 5: Leverage the state-level market to influence vendors, negotiate lower prices through competition, provide consistent functions and pricing across large and small districts, and expand the number and quality of instructional applications.**

Facilitate "economies of scale" and cooperative purchasing at the state and/or ESU level and centralized services that lower costs without sacrificing the quality of products and services. Use this leverage to greatly expand the number and quality of instructional improvement applications.

The strategy is to create essentially an "application store" for school districts to choose from that leverages the collective bargaining advantage of 245 schools districts, 300,000 students, ESU resources and the Nebraska Department of Education.

**Goal 6: Invest in providing education intelligence - access to actionable insight - through a warehouse, business intelligence tools, and increased internal capacity for districts, policy makers, and researchers.**

Leverage the Ed-Fi K-12 statewide longitudinal data warehouse for use by districts, administrators, and researchers to support analysis of student performance, college and career readiness and success, instructional improvement initiatives, teacher evaluations, student intervention and professional development effectiveness. Integrate finance data, early childhood, postsecondary and workforce data.

**Goal 7: Invest in an integrated data system that spans the districts, the ESUs, and NDE to support continuous education improvement.**

The resulting Nebraska Education Data System (NEDS) should build upon the ongoing SLDS project to leverage the Ed-Fi data standards and technologies for the data system and dashboards. The system should adopt and build upon the ESUCC project for Single Sign-On (SSO). While the system will initially focus on serving the districts, it should ultimately be expanded to reach students and parents, community service organizations, and researchers.

**Goal 8: Integrate staff data from district and state data sources, link teachers to student performance and success, and add additional data to better support teacher evaluation and professional development.**

This will require integration of both the HR and SIS at the district level with the Teacher Certification and NPERs at the state level. Teachers will be linked to students to assess their contribution to student performance and growth. Additional data will be integrated for teacher evaluations and observations, survey data, and professional development.

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**Goal 9: Invest in the licensing, integration and training of an Instructional Improvement System that is cost-effective for districts of all sizes.**

The system will include the critical digital assets and tools to support areas like learning management systems, content management systems, blended and online learning, teacher/principal evaluation system, school improvement and climate tools, career readiness and discovery, local assessment systems, and other tools to enhance the educational opportunities and experiences.

**Goal 10: Develop the staff and processes necessary to sustain the Nebraska Education Data System.**

Additional leadership positions are recommended and include a K-12 Chief Information Officer and Chief Privacy Officer at NDE. The recommended initiative will expand an emerging project management office. Additional data governance processes will be required. Additional technical staff will be required at NDE and in the ESUs to meet the statewide help desk and support requirements.

Overall, the goals have been organized into five work streams:

1. Nebraska Education Infrastructure / Leveraged Capacity –

Leverage an open-source education data standard along with accompanying technical assets – student-level dashboards for teachers and secure data warehouses for reporting. Developing the Nebraska Education Data Standard – will mean a set of data standards for interoperability of systems. This work will also include the infrastructure to support a major data system, including a single sign on offering from the ESUCC. leverage the Ed-Fi infrastructure to connect source systems and drive down costs.

2. Automated Collections –

Reduce reporting burden by providing efficiency and automation for data submissions through the leveraged secure data infrastructure and support. The implementation of the transactional API among the applications significantly reduces the reporting burden.

3. NDE Education Intelligence System / Actionable Insight --

Targeted resources, once expended on data submission, can be directed to effectively using Nebraska's data system and ensuring privacy and security of the data. The educational insight will include the ADVISER Dashboard, data warehouse, and other longitudinal analysis that would inform both policy and practice. to provide access to actionable insight – through a warehouse, business intelligence tools, and increased internal capacity.

4. Help Desk & Support –

Collaborate to include Training and Help Desk support around the systems—statewide. The cooperative support would provide opportunities for NDE, ESUCC and others to coordinate assistance using a tiered ticketing system, knowledge transfer, and professional development for data use.

5. Nebraska Instructional Improvement System –

Leverage the interoperability of the data standard and the state “buying power” to support an Instructional Improvement System. The creation of an “app store” would provide low cost or free options for school districts to choose applications that support digital system access and data integration—for all districts in Nebraska.

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- **Expected beneficiaries of the project; and**

School Districts and local communities, Educational Service Units, Multiple Government Agencies, postsecondary education, and ultimately students are the primary beneficiaries of the projects. Reducing the reporting burden of districts, provided secure and near real time access to insightful metrics and information assist school districts required to submit and use data daily. The support systems and coordination of the ESUCC and NDE provide wrap around efforts to efficiently provide resources to schools in Nebraska. Increasing the data quality and timeliness of the data collection provides opportunities for research and evaluation into policy and supports innovative understanding of practice. Alignment to postsecondary education, P-20, workforce, and other critical systems in Nebraska provide unique opportunities to effectively provide insight that support opportunities for secure management of the information ensuring the protection of student privacy while empowering access for all Nebraska students to thrive.

- **Expected outcomes.**

An integrated, sustainable, and comprehensive systems approach to support local control while leveraging the capacity of continuity, efficiency, and equitable access to technological tools of efficiency is primary overarching expected outcomes.

In addition, the reduction of reporting burden using the current methods of collection, while increasing the quality and timeliness of the data increases the opportunities to effectively use information for all schools in Nebraska.

Lower costs, leveraging the capacity of the state for systems is an outcome realized for all districts.

Integrated data systems that support a Nebraska Education Data Standard provide a clear expectation for districts and third party vendors what the expectations are in Nebraska support a base of continuity and allow for innovation and cost savings.

Increased focus on student data privacy, security and transparency.

2. Describe the measurement and assessment methods that will verify that the project outcomes have been achieved.

The multiple aspects of the systems include a number of measurements to ensure completion and ongoing continuous improvement and evaluation. The primary measures will be a reduced burden of reporting data for the use at the lowest level and an increase in the use of the data to inform policy and practice.

In addition, the following measurements are examples of metrics established to measure and assess the project outcomes.

1. Security audit, policies, practices, and supports for school districts conducted annually to ensure system and mechanisms adhere to established expectations, rules, and policies.
2. A Nebraska Education Data Standard is established and adopted. Supporting mechanisms for oversight and governance
3. Decrease the number of human-hours on process of submitting data by 50% over three years through automated API secure technologies.

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4. By year 3 of the implementation, all 245 school districts are connected to the system and have secure access to the resources created.

Additional multiple measures and metrics that included the comprehensive integration and of the entire project will a mission critical focus of the project work and connected to the performance management system of staff associated with the projects.

3. Describe the project's relationship to your agency comprehensive information technology plan.

The project is at the core of the information agencies technology plan and represents a critical path moving forward to support effective schools, changes in Nebraska accountability, and efficiencies to ensure effective use of financial and human resources while at the same time ensuring equitable opportunities for all school districts in Nebraska.

**Project Justification / Business Case (25 Points)**

4. Provide the project justification in terms of tangible benefits (i.e. economic return on investment) and/or intangible benefits (e.g. additional services for customers).

**ESTIMATED FINANCIAL RETURNS**

The primary benefits from the recommended investments will come from a greatly improved instructional system that improves student performance leading to greater student success. However the proposed approach also results in cost savings and efficiencies that will provide a financial return from substantially-reduced accountability costs and from reduced technology costs to districts.

**REDUCED ACCOUNTABILITY COSTS**

Accountability costs will be reduced by unifying and moving accountability computations to state from a single fine-grained data collection. An estimated 455 FTEs are involved in the current data collection process at districts, representing an annual cost of \$22.75 million. NDE spends an additional \$2.5M per year on licensing, IT personnel and help desk supporting the accountability submissions. The recommended NEDS, when fully implemented, can re-direct at an estimated 50% of the district FTE time related to accountability submissions to focus on other initiatives that impact can more directly improve student performance and success. This value is estimated at 12.6 million annually once fully implemented.

It should be noted that the remaining 50% will be involved in a larger mission of improving data quality across the all types of data (not just accountability) that are more directly contributing to the mission of continuous education improvement.

**REDUCED TECHNOLOGY COSTS FOR DISTRICTS**

Technology costs will be reduced for districts as a result of several factors, including:• Reduced investment in data system costs by having a centralized capability that uses valuable Ed-Fi components obtained without license costs• Negotiated statewide costs for licensing to allow pricing as with largest districts – “cooperative purchasing”

- Reduced integration costs because vendors are supporting native Ed-Fi interfaces to the statewide system
- Reduced number of different systems reduces integration and maintenance costs
- Increased stability of systems over time, reducing transition costs
- Reduced costs to increased competitiveness because of reduced vendor lock-in
- Reduced district costs maintaining their own data warehouse
- Savings on procurement and contract costs

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	<b>Year 1 FY 2016 SY 2015-2016</b>	<b>Year 2 FY 2017 SY 2016-2017</b>	<b>Year 3 FY 2018 SY 2017-2018</b>	<b>Year 4 FY 2019 SY 2018-2019</b>	<b>Year 5 FY 2020 SY 2019-2020</b>
<b>Investment</b>	\$(14,149,128)	\$(13,905,490)	\$(13,905,492)		
<b>Returns</b>					
Reduced accountability costs		\$1,524,169	\$7,590,361	\$12,600,000	\$12,600,000
Reduced technology costs		\$3,755,020	\$11,265,060	\$18,700,000	\$18,700,000
<b>Yearly net investment/return</b>	\$(14,149,128)	\$(8,626,301)	\$4,949,930	\$31,300,000	\$31,300,000
<b>Cumulative investment/return</b>	\$(14,149,128)	\$(22,775,429)	\$(17,825,499)	\$13,474,501	\$44,774,501

- Describe other solutions that were evaluated, including their strengths and weaknesses, and why they were rejected. Explain the implications of doing nothing and why this option is not acceptable.

A number of strategies were considered as possibilities to address the challenges facing Nebraska schools, but the opportunity to leverage the federal investment through SLDS, take advantage of an emerging royalty free open source technology that is supported through a network of a number of states, and meet the needs of school districts as reporting through surveys, focus groups, phone interviews and data the proposed approach provides the most systemic approach to the future.

Some states have chosen to purchase a single vendor solution, but the short and long term weaknesses of this approach include challenges with integration, risks associated with sustainability, and the long term financial commitment to a vendor to support the systems. This approach has not provided advantages to states and limits the options to embrace new and emerging technologies. Some states have completely relied on internal customization and development. The investment and management of staff to have the capacity for this approach limits the opportunities to embrace private company innovation and is extremely challenging with the currently available personnel services limitation. Ultimately, the approach to embrace the support of contractors, enhance the personnel to support the systems, and leveraging the capacity and market forces allows all of the options to benefit Nebraskans.

Doing nothing continues to undermine the opportunities available for Nebraska schools, reduces the effectiveness of the technology and systems investments made in Nebraska, and continues to impact the number of resources to target student achievement. The requirements of data collection along with the increasing uses of data require leadership from the state to support school districts, protect student privacy, and provide access to resources and tools to take advantage of the technologies available. Finally, doing nothing has the highest level of risk moving forward for Nebraska. This option is not acceptable for Nebraska and can be addressed through the efforts of this comprehensive and visionary series of work streams.

- If the project is the result of a state or federal mandate, please specify the mandate being addressed.

There are multiple mandates at the state and federal level for school accountability, data reporting, and the use of what should be quality data. The Elementary and Secondary Education Act (ESEA) often referred to as No Child Left Behind, 30+ federal programs, state accountability, state aid calculations, and

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a significant number of other data requirements are mandated. Most recently, LB438, requires using data to identify the lowest performing schools and provide support for those schools. Quality data and systems are a critical resource to achieve this requirement as well. The proposed approach creates an opportunity to effectively achieve these mandates and at the same time provide systems of support to benefit Nebraska schools.

**Technical Impact (20 Points)**

- 7. Describe how the project enhances, changes or replaces present technology systems, or implements a new technology system. Describe the technical elements of the project, including hardware, software, and communications requirements. Describe the strengths and weaknesses of the proposed solution.

Primarily the multiple projects create a systems approach to the planning and infrastructure for Nebraska schools and capitalize on the collaboration among NDE, ESUCC, and ESU systems to support Nebraska schools. The approach creates a unique opportunity to leverage federal, state, and local investment to achieve efficiencies. The process primarily creates an opportunity to change the way data is collected, used, stored, and ultimately accessed. In addition, the opportunity to focus on privacy, security, and transparency are critical elements considered through the work streams presented in the project

The technical aspects of the multiple stream project include a variety of technologies, but primarily are Microsoft based technologies including .Net, SQL, SSIS, SSRS, and the following expectations for staff and contractors to achieve:

<b>USER INTERFACE DEVELOPER</b>
This user interface will maintain the C# codebase for the dashboard. Troubleshoot display issues and errors in the dashboards; Helps analyze incorrect data displays to help identify the source of the defect (i.e. data load issue or UI display bug); create extensions to the dashboard: adjusting metric rendering, add elements to other pages through extensions, add new pages as they may be needed, add drilldown extensions. Maintain and troubleshoot REST API issues, add extensions to the REST API, and work with Business Analyst and districts to understand requirements for new features or enhancements.
<b>Tools, Skills, Knowledge Areas</b>
C#
ASP.NET MVC 3 with razor views
Visual Studio 2012 or Higher
Dependency Injection/Inversion of Control (Castle is used in the dashboards for IoC)
Git
jQuery
HTML
javascript
CSS
nunit
TDD/BDD
moq and/or rhino mocks
WebApi (for 2.0)

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REST (for vNext)

**DATABASE/ETL DEVELOPER**

The person that will maintain the SSIS packages that transform data between data sources. Trouble shoot data calculation (transform) issues in the SSIS packages. Maintain any custom data mapping/exports. Troubleshoot SSIS package failures. Create new extension packages as needed for new data to be displayed in the dashboards. Analyze source data that will be loaded into ODS. Work with district Data Stewards during statewide rollout. Trouble shoot bulk load XML issues. maintain Accountability Data mart loads. Work with Data owner to maintain and develop extension ETL for ODS DW and Accountability Data mart.

**Tools, Skills, Knowledge Areas**

Microsoft SQL Server

MSSQL SSIS

Sql Data Tools/Visual Studio/ SSRS

XML

XML Editor like XML Spy

Mapping Tool like MapForce

**Infrastructure**

The person that will maintain the Continuous Integration and deployment environment. Maintain TeamCity builds. Troubleshoot TeamCity failures or errors. Maintain and troubleshoot API and dashboard deployments. Maintain different environments (e.g. Development, Test, Production). Work with SIS vendors; Integration of SIS vendors and data feeds for pilot testing, Integration of SIS vendor data feeds to the production environment during statewide rollout, Identify and resolve production issues with data feeds via the batch and/or API interfaces. Work with districts during statewide rollout; Integration of any batch data feeds at the district level (e.g. HR system loads). Address issues with pilot testing as it relates to data loads, builds and integration of new districts.

**Tools, Skills, Knowledge Areas**

Powershell

TeamCity

IIS

Continuous Integration

**Data Steward/Data Owner/DBA or Data Architect**

The Data Steward/ODS owner will be responsible for the long term maintenance of the Ed-Fi Operational Data Store (ODS). They will have responsibility for the ODS schema and accuracy of the data loaded and stored in the database. Additionally, they will have responsibility for understanding and supporting Nebraska specific ODS, Ed-FI LDW, and Accountability Data Mart extensions and extending the ODS, Ed-FI LDW, and Accountability Data Mart as required to support future enhancements. Maintain ODS, Ed-FI LDW, and Accountability Data Mart schema. Change ODS, Ed-FI LDW, and Accountability Data Mart schema as needed for extensions. Identify and resolve issues with data feeds from the ODS to the Data Warehouse and Accountability Data Mart. Work with SIS Vendors; Assist with understanding the Ed-Fi xml standard, Assist with understanding the REST API interface to the ODS, Production issues with data feeds via the API interface. Work with Districts that utilize batch data load to the ODS; Statewide rollout integration and support, Coordinate with vendors and districts that are adding new batch data feeds to the ODS, Identify and resolve data quality/load issues. Work with district Data Stewards during statewide rollout; To identify and resolve data issues, Step up user claims mappings to district roles.

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**Tools, Skills, Knowledge Areas**

Ed-Fi standard
DBA Skills
Nebraska Specific data requirements

Through the resources provided by the initial federal SLDS grant, training and capacity building of staff has started to increase the capabilities, skills, and knowledge in the areas required to support the efforts of long-term engagement and statewide rollout of the work associated with the strategies.

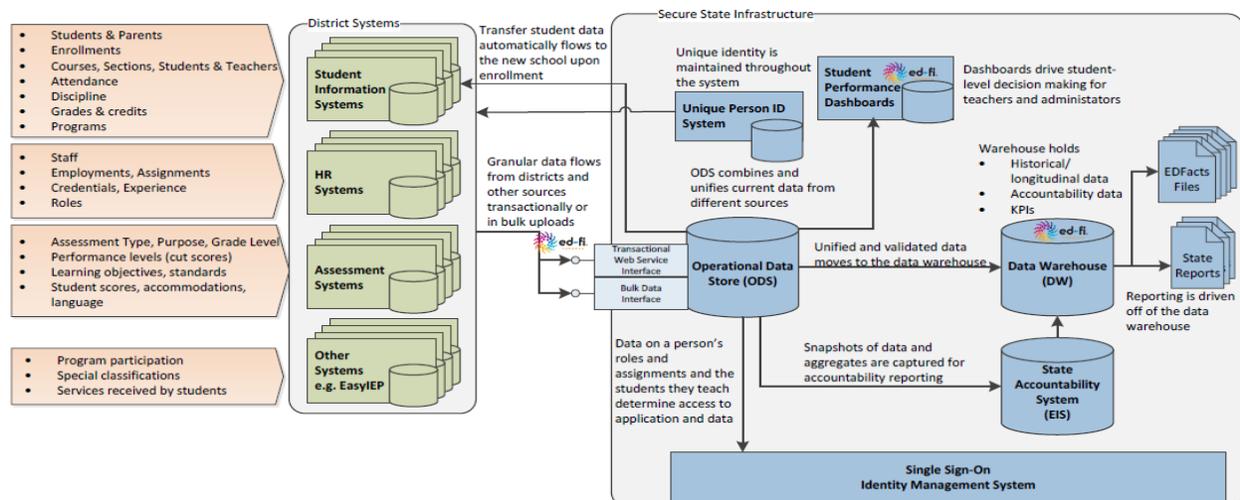
The implementation and coordination with the capacity provided through the ESUCC and the technical collaboration between NDE and ESUCC create an unprecedented opportunity to support the systemic integration and work of the broader vision for Nebraska. A pilot project utilizing JitBit support management is serving as a basis for testing statewide integration and support for new technology implementation.

The strengths of the proposal include engagement of an open source educational data standard framework and schema adopted by 24 states that creates a unique opportunity to leverage the investments and approaches of other states to enhance the resource in Nebraska. An significant example already realized during the pilot is the implementation of the early warning system, developed in Pennsylvania that identifies students likely on a path to dropping out of school. The “extension” was added to the core open source engagement and will be available for Nebraska schools that choose to implement as a resource.

The perceived weakness of the implementation is the increased human capacity required to sustain the efforts, but given the overarching advantages gained the small legitimate investment in staff capacity creates a unique opportunity for Nebraska heretofore has never existed.

The following is the high-level technical systems architecture approach to achieve a core of the systems:

## Nebraska Building Capacity Approach



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8. Address the following issues with respect to the proposed technology:

- Describe the reliability, security and scalability (future needs for growth or adaptation) of the technology.

All efforts focus on reliability of the system to ensure security of the systems. The use of the federated single sign on solution, industry standard API technology, encryption strategies, role based authentication for access and integration into the applications provide to school districts all provide an opportunity to increase the level of security and ensure ultimately the scalability of the systems for the state.

- Address conformity with applicable NITC technical standards and guidelines (available at <http://nitc.ne.gov/standards/>) and generally accepted industry standards.

All NITC technical standards and guidelines would continue to be critical resources for the planning and support of the system and integration. In addition, the ITIL standards, the Ed FI data standards, built from the Common Education Data Standards (CEDS) create a unique opportunity for synergy to ensure best practice is deployed through the process. In addition, the Project Management Book of Knowledge along with use of both the waterfall and agile techniques are supported through a current daily SCRUM approach to assist in the development work to achieve the baseline in preparation for the work ahead.

- Address the compatibility with existing institutional and/or statewide infrastructure.

The primary goal of the project is to create a baseline for compatibility and reframe the statewide infrastructure for the future. The initial process for collecting student data established in 2006 has served a function to achieve the minimums required by districts, but overtime with added data requirements, increased expectations to use data to inform instruction, and technological advances it is now time for Nebraska to leap frog into a more efficient and effective system of supports for Nebraska education. The opportunity to learn from and build on the reputation of the national envy of Network Nebraska and create tools and infrastructure that support sound industry standard technology to create efficiency and effectiveness for Nebraska schools creates a significant window to save significant resources and provide a sound foundation for years to come in Nebraska education.

**Preliminary Plan for Implementation (10 Points)**

9. Describe the preliminary plans for implementing the project. Identify project sponsor(s) and examine stakeholder acceptance. Describe the project team, including their roles, responsibilities, and experience.

Leveraging the current federal SLDS grant to begin the process the project sponsors moving forward include the Nebraska Dept. of Education and the ESUCC. As part of the initial study and plan development the Nebraska Council of School Administrators, the Nebraska State Education Association, the Educational Service Unit Coordinating Council, the Nebraska Educational Technology Association, and most recently the Nebraska School Boards Association all have demonstrated commitment to communicate, support and align the priorities around building the capacity for quality secure data and ensure the unique opportunity of access to resources for teachers and students.

The project team and roles are outlined in the budget and integrate new positions for sustainability and development with existing staff and personnel to ensure continuity through the transition.

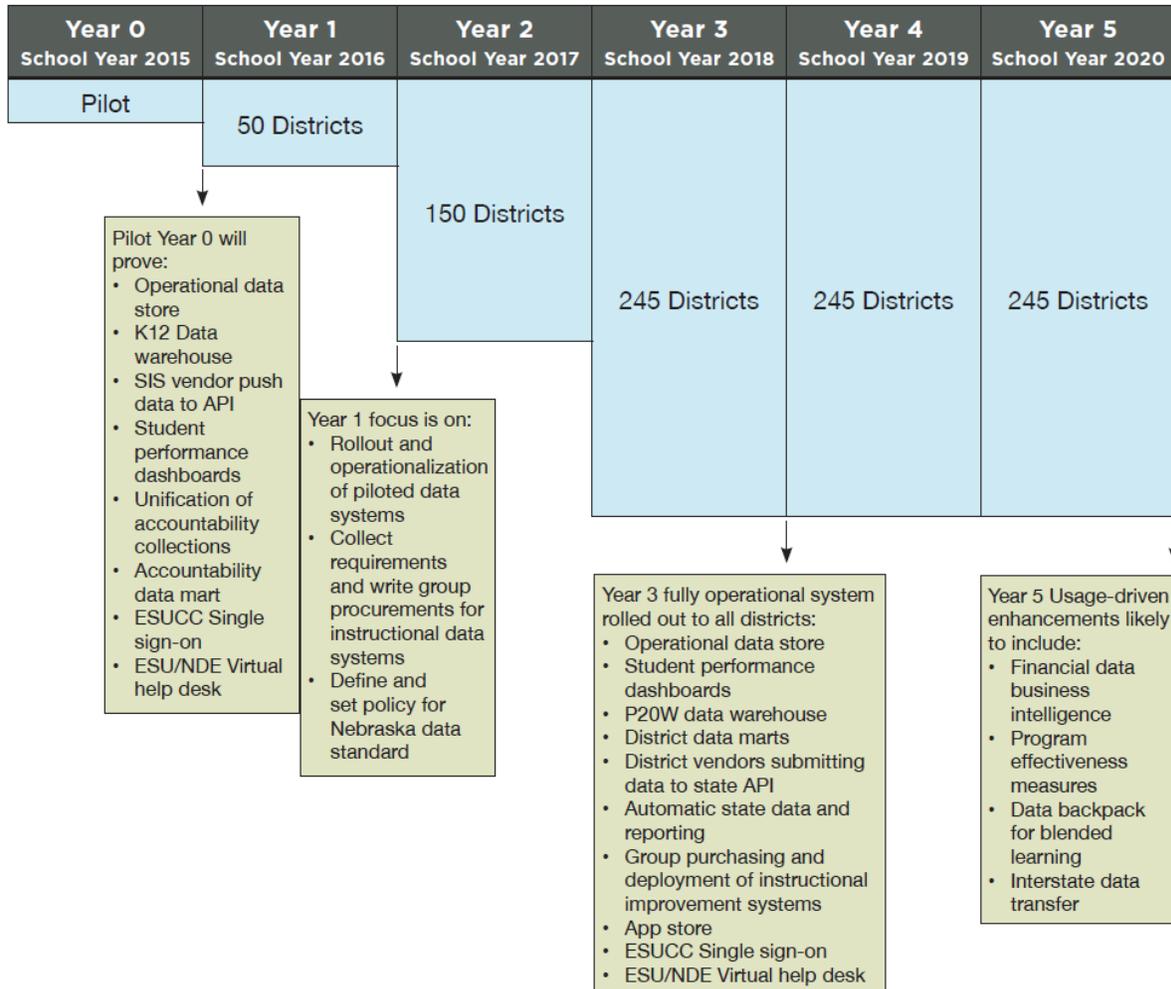
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10. List the major milestones and/or deliverables and provide a timeline for completing each.

**1, 3, AND 5 YEAR ROADMAP**

The roadmap builds upon key pilot activities that underway this fiscal year (identified as Year 0, SY 15):

- Install, customize, integrate, pilot, and prove the Ed-Fi data system (www.ed-fi.org ) consisting of an operational data store with transactional and batch data interfaces.
  - Develop, pilot and prove the single-sign-on system under development by the ESUCC.
  - Develop, pilot, and prove an accountability data mart, deriving accountability data from transactional data streams from the district student information systems. Accountability data will be submitted on dual paths from pilot districts, allowing the automatically derived data to be compared with their actual submissions.
  - Install, customize, integrate, pilot, and prove the Ed-Fi longitudinal data warehouse and student performance dashboard.
  - Use the dashboard pilots to also pilot the NDE-ESU virtual help desk to support the pilots.
- These pilot activities will provide the base infrastructure to simultaneously expand and rollout the new Nebraska Education Data System over the next three years. The rollout plan targets the total districts being operational of approximately 50, 150, and ultimately 245 across years 1 through 3. The major 1, 3, and 5-year milestones are summarized below.



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In addition, the major activities associated with the work include the following by work stream and year:

Year 0 School Year 2015 Pilot	Year 1 School Year 2016 50 Districts	Year 2 School Year 2017 150 Districts	Year 3 School Year 2018 249 Districts	Year 4 School Year 2019 249 Districts	Year 5 School Year 2020 249 Districts
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**Nebraska**

Pilot data infrastructure	Integrate HR systems	Integrate Career Readiness	Intra-state data mobility	Interstate data mobility	
Pilot Ed-Fi dashboards	Expand and extend dashboards				
Pilot ESUCC Single sign-on	Integrate identity mgmt	Mature & scale data <i>infrastructure</i>		Integrate financial systems	
	Procure state-sponsored SIS'	Transition & support state-sponsored SIS'			

**NDE Accountability Data System**

Unify NSSRS data collection	Unify CDC collection				
SIS vendors pilot data to API	Define NE Data Standard				
Pilot data mart	Build business rules	Develop state and Federal reporting		Add/modify state & Federal collections as required	
	Review & approval system	Dual submissions		Deprecate old systems	

**NDE Education Intelligence System**

Install K12 data warehouse	Expand warehouse to P20W				
	Build district security	Pilot district data marts		Develop program effectiveness analytics	
		Mature & scale data warehouse		Integrate financial data	Integrate financial analytics

**Help Desk & Support**

Pilot virtual help desk	Expand capacity for ESUs + NDE Virtual Help Desk				
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**Nebraska Instructional Improvement System**

Define IIS requirements		Procure, deploy & train IIS tools		Student data backpack	
	Write group procurements	Develop, pilot & mature PD			
			App store		

**11. Describe the training and staff development requirements.**

Training and development is a critical need throughout the entire process and the collaborative relationship with the ESUCC, ESU's, Districts and the Department of Education provide a unique opportunity for coordination, support and efficiency around common standards and resources while at the same time provide opportunities for private companies to ensure innovation and advancement continues.

Continuing to build the capacity of internal staff along with contracting for specialized skills in the interim makes up the balanced approach to the work and serves as an opportunity to focus on sustainability and support for the systems in the future.

**12. Describe the ongoing support requirements.**

Upon the initial strategic investment and work, a core group of staff to support the continuous improvement and access to resources will be important. Through leveraging the resources saved, the potential for generating targeted service fees for software as a service (SaaS) resources through the app store and coordination within the educational system the sustainability requirements would be significantly

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less than the costs associated with maintaining a status quo. In addition, through the leveraged approach, third party assets continue to ensure that innovation is available, yet coordinated to support districts.

**Risk Assessment (10 Points)**

13. Describe possible barriers and risks related to the project and the relative importance of each.

A detailed risk analysis was conducted with the current implementation of the ADVISER dashboard and related Ed Fi technologies. Many of these risks are germane to the proposed work.

**Risks**

The following risk areas are identified to focus the management team on proactively taking steps to mitigate those risks. For a detailed description of project risks with associated risk mitigation strategies and contingency plans, please reference the project risk log.

- The coordination between multiple groups involved in making the project a success: DLP, SIS Vendors, Network Nebraska, NDE staff, ESUs, ESUCC and districts.
- Dependencies upon external projects, specifically, SIS Vendor interfaces, ESUCC Identity Management project. Any delays in these projects or unexpected issues may impact the schedule.
- Statewide support for technical assistance on the dashboard and Identity Management System (SSO) is being developed and staffed.
- The Nebraska Dashboard project will be developed in parallel with the DLP Tennessee Infrastructure Beta (TIB) project. There is a possibility that some rework will be required as a result.
- Student Information System (SIS) Vendor development, integration and support
- The project is dependent upon vendor commitment to develop and support interfaces within a desired time period. If vendors are unable to meet the proposed schedule, NDE may choose to extend the integration and pilot periods to accommodate the vendor's schedule.
- A staged pilot may impact the planned training and knowledge transfer activities. Training will be most effective if it is completed just prior to the start of pilot activities. The current plan assumes all training is completed prior to the start of the first pilot. If additional training sessions to be added to the current plan, additional funding may be required.
- If SIS vendors have any delays in activities, the project schedule will be impacted. The mitigation strategy is to stage the pilot rollout based upon a revised vendor date.
- SIS vendors may have conflicting priorities which impacts their responsiveness to defects and defect corrections. This could result in delays in planned activities and possible delay to the start of pilot for those districts that use the associated SIS.
- If pilot districts have developed extensions for the Student Information Systems (SIS), there is a risk that these SIS extensions will not be correctly identified and will be omitted from the initial vendor interfaces and Dashboard implementation.
- The project is dependent upon vendor commitment to develop and support interfaces within a desired time period. If vendors are unwilling or unable to meet the desired schedule, then adjustments to schedule, pilot start or pilot district participation may be required.
- If there are delays in SIS vendor development or integration, there could be an increase project costs due to extended resource involvement.

Nebraska ESUCC Identity Management Project

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- The ESUCC Identity Management Project is being developed in parallel with the Nebraska Dashboard project. Any delays in the project may impact planned integration and pilot activities.
- The level of effort required for integration of the Identity Management and single sign on (SSO) is an estimate due to the number of pending design decisions and strategy for home realm.

Potential Rewards

- Access for Nebraska schools to an online resource that provides educators with real time data visualization to support continuous school improvement and support the instructional improvement process for Nebraska's students.
- Integration and implementation of a systemic database infrastructure supporting future expansion and efficiencies.
- The potential for an efficient methodology of collecting student and staff information freeing up resources to focus on improving the quality of data and the effective use of data for continuous school improvement.
- An identity management process that can be utilized in multiple ways in emerging and supporting digital resources for Nebraska's educators.
- Staff capacity created to support elements of sustainability.

14. Identify strategies that have been developed to minimize risks.

Multiple approaches to mitigate risk include some of the following:

- Establishing the Nebraska Education Data Standard and requirements for adoption and use in Nebraska is a critical path
- Maintaining strong governance and oversight for entire project.
- Transparency on progress and issues
- Effective use of Project Management Office
- Communication plan and Change Management implementation
- Effective hiring and procurement processes.

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**Financial Analysis and Budget (20 Points)**

15. Financial Information

The “Financial” information tab in the Nebraska Budget Request and Reporting System (NBRRS) is used to enter the financial information for this project (NOTE: For each IT Project Proposal created in the NBRRS, the submitting agency must prepare an “IT Issue” in the NBRRS to request funding for the project.)

Attached is the budget request summary submitted in the Nebraska Budget Request and Reporting System. The budget requests include both resources for contractors as well as key personnel and positions to support the creation, coordination, collaboration and continuation of the systems approach among Nebraska school districts.



NDE Expansion  
Budget Activities v2 E

Nebraska Information Technology Commission

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Nebraska Department of Education Infrastructure Activities				Biennium Budget Request		
	Year 0 FY 2015 SY 2014-2015 9 Districts			Year 1 FY 2016 SY 2015-2016 50 Districts	Year 2 FY 2017 SY 2016-2017 150 Districts	Year 3 FY 2018 SY 2017-2018 245 Districts
<b>1 Nebraska Education Infrastructure</b>		<i>Activities and Objectives</i>				
	Pilot initial SIS vendor Ed-Fi interfaces	Identify and collectively procure state-sponsored SIS(s)				
	Pilot assessment vendor interfaces	Support SIS Vendor Ed-Fi Interfaces	\$ 166,667	\$ 166,667	\$ 166,667	
		Support assessment vendor Ed-Fi interfaces	166,667	166,667	166,667	
		Other source system interfaces to Ed-Fi (HR,SRS, applications)	250,000	250,000	250,000	
		Support transfer to state supported systems in years 2 and 3	166,667	166,667	166,667	
		Develop identity management solution for statewide single sign-on	100,000	100,000	100,000	
		ESUCC Infrastructure	500,000	500,000	500,000	
		Infrastructure scaling and security audit activities	250,000	250,000	250,000	
		Total Contractual Expenditures	1,600,000	1,600,000	1,600,000	
		New Positions				
		Chief of Staff	60,523	60,523	60,523	
		Chief Technology Officer	68,502	68,502	68,502	
		Lead	60,523	60,523	60,523	
		Senior	55,047	55,047	55,047	
		Analyst	50,099	50,099	50,099	
		Analyst	50,099	50,099	50,099	
		Total Salary Expenditures	344,793	344,793	344,793	
		Benefits Expenditures	165,264	165,264	165,264	
		Operating Expenditures	23,805	23,805	23,805	
		Travel Expenditures	10,395	10,395	10,395	
		Equipment Expenditures	60,360	-	-	
		<b>Nebraska Education Infrastructure Total</b>	<b>\$ 2,204,617</b>	<b>\$ 2,144,257</b>	<b>\$ 2,144,257</b>	
<b>2 NDE Data Collection System</b>		<i>Objectives</i>				
	Accountability Pilot - integrate CDC, Staff, NSSRS	Statewide rollout with dual submissions (rollout plan based on SIS vendor)	\$ 500,000	\$ 500,000	\$ 500,000	
		Develop and validate state accountability reports	500,000	500,000	500,000	
		Develop business rules and validation for automatic accountability submissions	250,000	250,000	250,000	
		Develop and validate federal accountability report submissions	500,000	500,000	500,000	
		Develop district review and approval infrastructure	250,000	250,000	250,000	
		Total Contractual Expenditures	2,000,000	2,000,000	2,000,000	
		New Positions				
		Director, Accountability Data Systems	68,502	68,502	68,502	
		Program Specialist III	55,047	55,047	55,047	
		Database Analyst Lead	60,523	60,523	60,523	
		Database Analyst Senior	55,047	55,047	55,047	
		Database Analyst	50,099	50,099	50,099	
		Database Analyst	50,099	50,099	50,099	
		Total Salary Expenditures	339,317	339,317	339,317	
		Benefits Expenditures	164,380	164,380	164,380	
		Operating Expenditures	23,805	23,805	23,805	
		Travel Expenditures	14,070	14,070	14,070	
		Equipment Expenditures	37,680	-	-	
		<b>NDE Accountability Data System Total</b>	<b>\$ 2,579,252</b>	<b>\$ 2,541,572</b>	<b>\$ 2,541,572</b>	
<b>3 NDE Education Intelligence System</b>		<i>Objectives</i>				
	Pilot SLDs Student-Level Dashboard	Dashboard statewide rollout	\$ 200,000	\$ 200,000	\$ 200,000	
		Dashboard updates and extensions	500,000	500,000	500,000	
		District data warehouses and reporting layer	333,333	333,333	333,333	
		District data warehouse security layer (with and without de-identification)	250,000	250,000	250,000	
		NDE data warehouse cubes and BI layer	166,667	166,667	166,667	
		Total Contractual Expenditures	1,450,000	1,450,000	1,450,000	
		New Positions				
		Chief Privacy Officer	79,873	79,873	79,873	
		Director, Data Research and Evaluation	68,502	68,502	68,502	
		Database Analyst Lead	60,523	60,523	60,523	
		Database Analyst Senior	55,047	55,047	55,047	
		Database Analyst	50,099	50,099	50,099	
		Database Analyst	50,099	50,099	50,099	
		Total Salary Expenditures	364,143	364,143	364,143	
		Benefits Expenditures	168,387	168,387	168,387	
		Operating Expenditures	24,510	35,510	35,510	
		Travel Expenditures	17,680	17,680	17,680	
		Equipment Expenditures	60,360	-	-	
		<b>NDE Education Intelligence System Total</b>	<b>\$ 2,085,080</b>	<b>\$ 2,035,720</b>	<b>\$ 2,035,720</b>	
<b>4 Help Desk &amp; Support</b>		<i>Objectives</i>				
	Virtual Help Desk Pilot - Dashboards	Expand help-desk support to include Year 1,2 & 3 systems	\$ 50,000	\$ 50,000	\$ 50,000	
	PD Curriculum	Develop professional development curriculum on Year 1,2 & 3 systems	50,000	50,000	50,000	
		Integrate statewide ticketing system for "virtual help desk"	166,667	166,667	166,667	
		Level 4 Support and Contracts	500,000	500,000	500,000	
		Total Contractual Expenditures	766,667	766,667	766,667	
		New Positions				
		Director, Project Management Office	68,502	68,502	68,502	
		IT Help Desk Specialist Senior	50,099	50,099	50,099	
		IT Help Desk Specialist	41,706	41,706	41,706	
		IT Help Desk Specialist	41,706	41,706	41,706	
		Project Manager	50,099	50,099	50,099	
		Project Manager	50,099	50,099	50,099	
		Total Salary Expenditures	302,211	302,211	302,211	
		Benefits Expenditures	158,393	158,394	158,395	
		Operating Expenditures	23,805	26,555	26,555	
		Travel Expenditures	10,395	10,396	10,397	
		Equipment Expenditures	43,350	-	-	
		<b>Help Desk &amp; Support Total</b>	<b>\$ 1,304,821</b>	<b>\$ 1,264,223</b>	<b>\$ 1,264,225</b>	
		<b>Total NDE DRE Capacity Building</b>	<b>\$ 8,173,770</b>	<b>\$ 7,985,772</b>	<b>\$ 7,985,774</b>	
<b>IIS NE Instructional Improvement System</b>		<i>Objectives</i>				
	Identify key systems:	Identify and collectively procure state-sponsored systems				
	- learning management	Support vendors in integrating with SSO and state data system	\$ 166,667	\$ 166,667	\$ 166,667	
	- blended learning	Provide PD for districts	83,333	83,333	83,333	
	- teacher/principal evaluation	System licenses paid by state	5,000,000	5,000,000	5,000,000	
	- school climate	App Store				
	- career readiness	Survey Resources and Tools				
		Total Contractual Expenditures	5,250,000	5,250,000	5,250,000	
		New Positions				
		Director, Instructional Improvement System	68,502	68,502	68,502	
		Education Specialist IV	68,502	68,502	68,502	
		Program Specialist III	60,523	60,523	60,523	
		Applications Developer Lead	60,523	60,523	60,523	
		Applications Developer Senior	55,047	55,047	55,047	
		Applications Developer	50,099	50,099	50,099	
		Applications Developer	50,099	50,099	50,099	
		Total Salary Expenditures	413,295	413,295	413,295	
		Benefits Expenditures	194,588	194,588	194,588	
		Operating Expenditures	28,360	39,360	39,360	
		Travel Expenditures	22,475	22,475	22,475	
		Equipment Expenditures	66,640	-	-	
		<b>NE Instructional Improvement System Total</b>	<b>\$ 5,975,358</b>	<b>\$ 5,919,718</b>	<b>\$ 5,919,718</b>	
		<b>Total NDE DRE Budget Issue Requests</b>	<b>\$ 14,149,128</b>	<b>\$ 13,905,490</b>	<b>\$ 13,905,492</b>	