

U.S. Department of Education

Washington, D.C. 20202-5335



**APPLICATION FOR GRANTS
UNDER THE**

Statewide, Longitudinal Data Systems

CFDA # 84.372A

PR/Award # R372A120021

Grants.gov Tracking#: GRANT11026269

OMB No. , Expiration Date:

Closing Date: Dec 15, 2011

****Table of Contents****

Form	Page
1. Application for Federal Assistance SF-424	e3
2. Assurances Non-Construction Programs (SF 424B)	e6
3. Grants.gov Lobbying Form	e8
4. Dept of Education Supplemental Information for SF-424	e9
5. ED Abstract Narrative Form	e10
<i>Attachment - 1 (1234-Project Abstract)</i>	e11
6. Project Narrative Form	e12
<i>Attachment - 1 (1242-Project Narrative - final)</i>	e13
7. Other Narrative Form	e50
<i>Attachment - 1 (1237-Appendix A - Data Sharing Agreement)</i>	e51
<i>Attachment - 2 (1238-Appendix A - P20 Warehouse Structure)</i>	e64
<i>Attachment - 3 (1239-Appendix B - Evidence of Coordination and Support)</i>	e65
<i>Attachment - 4 (1240-Appendix C - Resumes of Key Personnel)</i>	e72
<i>Attachment - 5 (1241-Appendix D - Acronym List)</i>	e82
8. Budget Narrative Form	e83
<i>Attachment - 1 (1235-Budget Narrative)</i>	e84
<i>Attachment - 2 (1236-Budget Information - Non-Construction Programs (ED 524) - Section C)</i>	e88
9. Form ED_524_Budget_1_2-V1.2.pdf	e90

This application was generated using the PDF functionality. The PDF functionality automatically numbers the pages in this application. Some pages/sections of this application may contain 2 sets of page numbers, one set created by the applicant and the other set created by e-Application's PDF functionality. Page numbers created by the e-Application PDF functionality will be preceded by the letter e (for example, e1, e2, e3, etc.).

Application for Federal Assistance SF-424		
* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	* 2. Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision	* If Revision, select appropriate letter(s): <input type="text"/> * Other (Specify): <input type="text"/>
* 3. Date Received: <input type="text" value="12/15/2011"/>	4. Applicant Identifier: <input type="text"/>	
5a. Federal Entity Identifier: <input type="text"/>	5b. Federal Award Identifier: <input type="text"/>	
State Use Only:		
6. Date Received by State: <input type="text"/>	7. State Application Identifier: <input type="text"/>	
8. APPLICANT INFORMATION:		
* a. Legal Name: <input type="text" value="North Dakota Department of Public Instruction"/>		
* b. Employer/Taxpayer Identification Number (EIN/TIN): <input type="text" value="45-6002426"/>	* c. Organizational DUNS: <input type="text" value="8037550570000"/>	
d. Address:		
* Street1: <input type="text" value="600 E. Boulevard Ave, Dept 201"/>	Street2: <input type="text"/>	
* City: <input type="text" value="Bismarck"/>	County/Parish: <input type="text"/>	
* State: <input type="text" value="ND: North Dakota"/>	Province: <input type="text"/>	
* Country: <input type="text" value="USA: UNITED STATES"/>	* Zip / Postal Code: <input type="text" value="58505 0602"/>	
e. Organizational Unit:		
Department Name: <input type="text" value="ND Dept of Public Instruction"/>	Division Name: <input type="text" value="Management Information Systems"/>	
f. Name and contact information of person to be contacted on matters involving this application:		
Prefix: <input type="text" value="Mr."/>	* First Name: <input type="text" value="Steve"/>	
Middle Name: <input type="text"/>	* Last Name: <input type="text" value="Snow"/>	
Suffix: <input type="text"/>	Title: <input type="text" value="Director, MIS"/>	
Organizational Affiliation: <input type="text" value="North Dakota Department of Public Instruction"/>		
* Telephone Number: <input type="text" value="(701) 328-2189"/>	Fax Number: <input type="text" value="(701) 328-2255"/>	
* Email: <input type="text" value="fsnow@nd.gov"/>		

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

A: State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

U.S. Department of Education

11. Catalog of Federal Domestic Assistance Number:

84.372

CFDA Title:

Statewide Data Systems

*** 12. Funding Opportunity Number:**

ED-GRANTS-092011-001

* Title:

Institute of Education Sciences (IES): Statewide, Longitudinal Data Systems Program CFDA Number 84.372A

13. Competition Identification Number:

84-372A2012

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

*** 15. Descriptive Title of Applicant's Project:**

North Dakota is seeking federal funding to expand their current SLDS project to better track students into post secondary and workforce

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant

b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project:

* a. Start Date:

* b. End Date:

18. Estimated Funding (\$):

* a. Federal

* b. Applicant

* c. State

* d. Local

* e. Other

* f. Program Income

* g. TOTAL

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

a. This application was made available to the State under the Executive Order 12372 Process for review on

b. Program is subject to E.O. 12372 but has not been selected by the State for review.

c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

Yes No

If "Yes", provide explanation and attach

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

Middle Name:

* Last Name:

Suffix:

* Title:

* Telephone Number: Fax Number:

* Email:

* Signature of Authorized Representative: * Date Signed:

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee- 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

* SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL Frank Snow	* TITLE Director, MIS
* APPLICANT ORGANIZATION North Dakota Department of Public Instruction	* DATE SUBMITTED 12/15/2011

Standard Form 424B (Rev. 7-97) Back

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

* APPLICANT'S ORGANIZATION	
<input type="text" value="North Dakota Department of Public Instruction"/>	
* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE	
Prefix: <input type="text"/>	* First Name: <input type="text" value="Steve"/> Middle Name: <input type="text"/>
* Last Name: <input type="text" value="SNOW"/>	Suffix: <input type="text"/>
* Title: <input type="text" value="Director, MIS"/>	
* SIGNATURE: <input type="text" value="Frank Snow"/>	* DATE: <input type="text" value="12/15/2011"/>

SUPPLEMENTAL INFORMATION
REQUIRED FOR
DEPARTMENT OF EDUCATION GRANTS

1. Project Director:

Prefix: * First Name: Middle Name: * Last Name: Suffix:

Mr. Steve [] Snow []

Address:

* Street1: 600 E Boulevard Ave, Dept 201

Street2: []

* City: Bismarck

County: []

* State: ND: North Dakota

* Zip Code: 58505-0602

* Country: USA: UNITED STATES

* Phone Number (give area code) Fax Number (give area code)

701-328-2189 701-328-2189

Email Address:

fsnow@nd.gov

2. Applicant Experience:

Novice Applicant Yes No Not applicable to this program

3. Human Subjects Research

Are any research activities involving human subjects planned at any time during the proposed project Period?

Yes No

Are ALL the research activities proposed designated to be exempt from the regulations?

Yes Provide Exemption(s) #: []

No Provide Assurance #, if available: []

Please attach an explanation Narrative:

[] [] [] []

Abstract

The abstract narrative must not exceed one page and should use language that will be understood by a range of audiences. For all projects, include the project title (if applicable), goals, expected outcomes and contributions for research, policy, practice, etc. Include population to be served, as appropriate. For research applications, also include the following:

- Theoretical and conceptual background of the study (i.e., prior research that this investigation builds upon and that provides a compelling rationale for this study)
- Research issues, hypotheses and questions being addressed
- Study design including a brief description of the sample including sample size, methods, principals dependent, independent, and control variables, and the approach to data analysis.

[Note: For a non-electronic submission, include the name and address of your organization and the name, phone number and e-mail address of the contact person for this project.]

You may now Close the Form

You have attached 1 file to this page, no more files may be added. To add a different file, you must first delete the existing file.

* Attachment:

Abstract

Postsecondary Education P-20W State Longitudinal Data System (PEP-20W SLDS) project was initiated to address gaps which have been hindering North Dakota to have a comprehensive P-20W State Longitudinal Data System. This project will address Priority 3, to develop and link postsecondary and/or workforce data with the State's K-12 data system. State agencies responsible for the direction and implementation of grant activities include; executive sponsoring agency- North Dakota University System (NDUS), State Education Agency- Department of Public Instruction (DPI), and Information Technology Department (ITD).

North Dakota SLDS has made measureable strides since its inception in 2007, and has expanded to include postsecondary education data for high school feedback information as required by State Fiscal Stabilization Fund Phase II (SFSF II). North Dakota University System (NDUS) has been an instrumental member of the SLDS and has proactively worked with DPI to prepare postsecondary student linkages to K-12 by matching students' IDs between systems. However information contributed to the SLDS is only capable of answering limited questions posed by SFSF II. Postsecondary data has been laboriously created and loaded in the SLDS to answer specific questions and the data is not capable of generating answers that vary the parameters of those questions. In order to achieve a data rich system capable of answering policy and research questions, an ambitious goal has been put in place to expand the SLDS with NDUS postsecondary data that will: **strengthen data-informed decisions for education policy and practice in North Dakota by developing and implementing an innovative feedback system linking postsecondary and K-12 education, as well as postsecondary and workforce data.**

This ambitious goal will be met with the following outcomes:

1. Define and operationalize the collection of data for the postsecondary subject area aligned with Common Education Data Standards
2. Establish workforce linkages in the SLDS to postsecondary students.
3. Creation of a robust data dictionary through an enhanced metadata management system
4. Development of a comprehensive and coordinated feedback reporting system, through the SLDS framework, enabling ND postsecondary education to communicate with high schools regarding college readiness and college-level performance of their graduates.
5. Expansion of the SLDS portal to include secured access of feedback reports to postsecondary institutions and include postsecondary reports for the public, legislature, and other state officials

Since North Dakota has already implemented a functioning SLDS, it is the intent of this project to provide outcomes, deliverables and tasks in order to supplement- not supplant- the current function of the North Dakota SLDS. Deliverables include: identifying data to evaluate effectiveness of standard high school for postsecondary education; expand the current delivery of postsecondary data to secondary schools through the SLDS framework; establish postsecondary linkages to employment data in the SLDS and provide feedback on employment patterns on established policy questions; align data element definitions using Common Education Data Standards; development of a comprehensive feedback reporting system enabling North Dakota postsecondary education to communicate with high schools regarding college readiness and college- level performance of graduates; and the expansion of the SLDS portal to accommodate public and policymaker views of reports.

Project Narrative File(s)

* Mandatory Project Narrative File Filename:

To add more Project Narrative File attachments, please use the attachment buttons below.

Add Optional Project Narrative File

Narrative: Postsecondary Education P-20W SLDS Project

Table of Contents

	Page
6. Project Narrative	1
6. (a) Need for Project	1
Governance and Policy Requirements	4
Need and Uses	4
Governance	4
Institutional Support	6
Sustainability	7
Technical Requirements	7
Privacy Protection and Data Accessibility	7
Data Quality	7
Interoperability	8
Enterprise-Wide Architecture	9
Data Use Requirements	10
Data Use Deliverables	11
K-12 Feedback	11
Consumer Information	11
Postsecondary Feedback	11
Training on Use of Data Tools and Products	13
Professional Development on Data Use	13
Evaluation of Data Products, Training, and Professional Development	14
Partnerships with Research Community	14
Sustainability Plan	15
6. (b) Project Deliverables Related to System Requirements and Implementation	16
6. (c) Timeline for Project Deliverables	24
6. (d) Project Management and Governance	27
6. (e) Staffing	32
References	36

a. Need for Project

The North Dakota State Longitudinal Data System (SLDS) has been in place since 2007, with a multi-agency approach that supports, governs, and monitors uses and provides quality control of its data. Since its inception, milestones have been achieved with participating State agencies and projects. In 2009, the Department of Public Instruction (DPI) (K-12 system) received a SLDS grant from the Institute of Education Sciences to develop the North Dakota Statewide Educational Longitudinal Data System (ndSLEDS). The ndSLEDS project has been focusing on building a state K-12 data warehouse and reporting system. Job Service North Dakota (JSND) was a recipient of the Department of Labor Workforce Data Quality Initiative (WDQI) grant that uses a Master Index, where identifiers from other education and training programs track students entering and leaving the longitudinal data system.

North Dakota SLDS has made measureable strides and has expanded to include postsecondary education data for high school feedback information as required by State Fiscal Stabilization Fund Phase II (SFSF II). North Dakota University System (NDUS- North Dakota's postsecondary system) has been an instrumental member of the SLDS and has proactively worked with Department of Public Instruction (DPI) to prepare postsecondary student linkages to K-12 by matching students IDs between systems. However information contributed to the SLDS is only capable of answering limited questions posed by SFSF II. Postsecondary data has been laboriously created and loaded in the SLDS to answer specific questions and the data is not capable of generating answers that vary the parameters of those questions. Gaps have been become apparent hindering North Dakota to have a comprehensive P-20W State Longitudinal Data System. In order to achieve a data rich system capable of answering policy and research questions such as those posed by SFSF II, an ambitious goal has been put in place to expand the SLDS with NDUS postsecondary data that will: **strengthen data-informed decisions for education policy and practice in North Dakota by developing and implementing an innovative feedback system linking postsecondary and K-12 education, as well as postsecondary and workforce data.**

This ambitious goal will be met with outcomes, deliverables and tasks provided by the Postsecondary Education P-20W State Longitudinal Data System (PEP-20W SLDS) project. Outcomes include:

1. Define and operationalize the collection of data for the postsecondary subject area aligned with Common Education Data Standards.
2. Establish workforce linkages in the SLDS to postsecondary students.
3. Create a robust data dictionary through an enhanced metadata management system.
4. Development of a comprehensive and coordinated feedback reporting system, through the SLDS framework, enabling ND postsecondary education to communicate with high schools regarding college readiness and college-level performance of their graduates.
5. Expansion of the SLDS portal to include secured access of feedback reports to postsecondary institutions and include postsecondary reports for the public, legislature, other state officials.
6. Promote two Senior Project staff to attend two-day meetings in DC- each year of the grant.

Currently, researchers and policymakers request information from the SLDS and participating members in an ad hoc method. This process does not provide a systematic way to track data in the SLDS, causing inconsistent information for decision making. It is the intent of this project to provide researchers and policymakers with an innovative feedback system linking postsecondary and K-12 education, as well as postsecondary and workforce data. In order to provide complete data regarding North Dakota's education and workforce, team leaders researched and constructed the following policy questions:

1. Postsecondary feedback:
 - a. Students graduating from a secondary school and attending a postsecondary institution (this information is currently being tracked however, based on specific cohorts of graduates for the SFSF and basic high school feedback reports):
 - i. What percentage of ninth graders enters college four years later?
 - ii. What percentage of high school graduates take remediation in postsecondary education?
 - b. Students taking developmental education:
 - i. In what content areas do students require remediation?
 - ii. What are the retention and degree completion rates of students who are placed in remedial coursework?
 - c. Students who are successful in postsecondary education:
 - i. What high school achievement level indicate a student is college ready
 1. Given that North Dakota will align high school course codes to state course code, what course taking patterns indicate college readiness.
 - a. What high schools have successful course taking patterns
 - ii. What students were academically prepared to enter college and complete their program or degree in a "timely" manner, i.e. "timely" 4 year degree attainment= 6 years, 2 year degree attainment= 3 years?
 1. Were these in degrees that are in demand in North Dakota?
 - iii. What is the relationship of a student's performance on the North Dakota State Assessment (NDSA) and postsecondary performance and graduation?
 - d. Students taking college preparation courses in high school:
 - i. How do dual-enrollment and advanced placement programs in high school affect college student's success?
2. Usage of workforce data:
 - a. Completers and Non-Completers:
 - i. How much do North Dakota high school and college graduates earn in the workforce over time?
 - ii. How much do North Dakota high school and college dropouts earn in the workforce over time?
 - b. Retention:
 - i. What percentage of North Dakota college graduates continue to work and live in North Dakota?
 - ii. Which industries employ the majority of North Dakota high school and college graduates?

- c. With the SLDS containing K-12 and Workforce data the inclusion of postsecondary student enrollments will allow for the evaluation of North Dakota student employment during and after degree attainment, as well as valuations of exiters and their employment engagements:
 - i. How many of North Dakota high school and college students are employed while they are in school and what kind of an impact does it have on their academic success?
- d. Follow-up of postsecondary completers: NDUS has aligned degrees to occupational codes which can provide valuable information to workforce development programs. Knowledge of workforce readiness, under and over employment will be used for high school feedback reports and economic development of resources available in a community.
 - i. Provide employment patterns of postsecondary students during certificate or degree obtainment.
 - ii. Provide postsecondary graduate follow-up on industry employment and retention of graduates in state.
 - iii. Provide average wages of postsecondary graduates by occupational degree.

Policy questions collected and tracked by the PEP-20W SLDS project during and beyond the course of the grant are ambitious and vital. According to a recent study provided by the Higher Education Research Institute (HERI), *Competing College: Assessing Graduation Rates at Four-Year Institutions* (2011), it is imperative to monitor and analyze postsecondary student characteristics to understand achievement gaps and academic persistence. In fact, the report stated, “Public colleges and universities are now called upon to address low graduation rates by their state legislatures, and both public and private institutions feel pressure by regional accrediting associations to improve retention” (DeAngelo, Franke, Hurtando, Pryor, & Tran, 2011).

Additionally, North Dakota is tracking current and future economic status regarding workforce and what prospective students need in the way of skills in coordination of degrees and credentials offered. According to *North Dakota’s K-12 STEM Ed Report Card 2011*, the following information was provided:

- Between 2008 and 2018, new jobs in North Dakota requiring postsecondary education and training will grow by 14,000 while jobs for high school graduates and dropouts will grow by 6,000.
- Between 2008 and 2018, North Dakota will create 120,000 job vacancies both from new jobs and from job openings due to retirement.
- 80,000 of these job vacancies will be for those with postsecondary credentials, 33,000 for high school graduates and 7,000 for high school dropouts.
- 70% of all jobs in North Dakota (277,000 jobs) will require some postsecondary training beyond high school in 2018.

Further, President Obama has proclaimed that by the year 2020, America will once again have the highest proportion of college graduates in the world (Chitty, 2009). In order to achieve state and national goals, students and families, policymakers, and researchers need more and better

information regarding student academic progression and completion. Therefore executive sponsoring agency North Dakota University System (NDUS), in conjunction with State Education Agency (SEA) applicant Department of Public Instruction (DPI), Information Technology Department (ITD) and other partnering State agencies, are proposing the PEP-20W SLDS project, providing North Dakota with data needed for invested stakeholders.

Governance and Policy Requirements

Need and Uses: North Dakota is currently meeting the needs and uses for a Statewide Longitudinal Data System with partnering statewide agencies. In fact, according to reports from the Data Quality Campaign, North Dakota has met two of the five “5 Game Changing Priorities:”

- Fulfill the 50-state commitment to implement the 10 Essential Elements by September 2011.
- Link K-12 with early childhood, postsecondary, and workforce data to answer critical policy questions (Data Quality Campaign, 2011).

While partnering State agencies work together, two agencies continue to meet the needs of education and workforce development policy questions; Workforce Development Council and the North Dakota University System.

The Workforce Development Council (WDC) services both the State and Local Workforce Investment Board as outlined in the Workforce Investment Act and is administered through Job Service North Dakota (JSND). JSND participates in a number of committees, including the SLDS Committee, to build partnerships to achieve its mission. WDC was established to meet the workforce intelligence needs of numerous stakeholders, including secondary and postsecondary education.

North Dakota University System (NDUS) is a unified system of higher education governed by the State Board of Higher Education. Organized in 1990, the system includes two research universities, four regional universities and five community colleges. Similar to WDC, NDUS participates in a number of committees, including the SLDS Committee and subcommittees. NDUS provides leadership and data, assist decision makers regarding postsecondary education questions at the state, system and institutional level.

While NDUS has been instrumental in the development and feedback of the SLDS, gaps have been identified regarding data availability. For example, data is generally not available at the student or consumer level, but this gap will be remedied through the PEP-20W SLDS project. The project will expand the SLDS portal, allowing postsecondary reports for the public, legislature, and other State officials while meeting Family Education Rights and Privacy Act (FERPA) requirements.

Governance: The State of North Dakota has established a multi-agency Statewide Longitudinal Data System (SLDS) Committee, first established and implemented under North Dakota state law. The SLDS Committee is responsible for overseeing the planning and operation of educational and workforce longitudinal systems. This legislatively mandated committee is comprised of representatives of key stakeholder organizations including Director of the North Dakota Workforce Development, Department of Public Instruction (DPI), Information

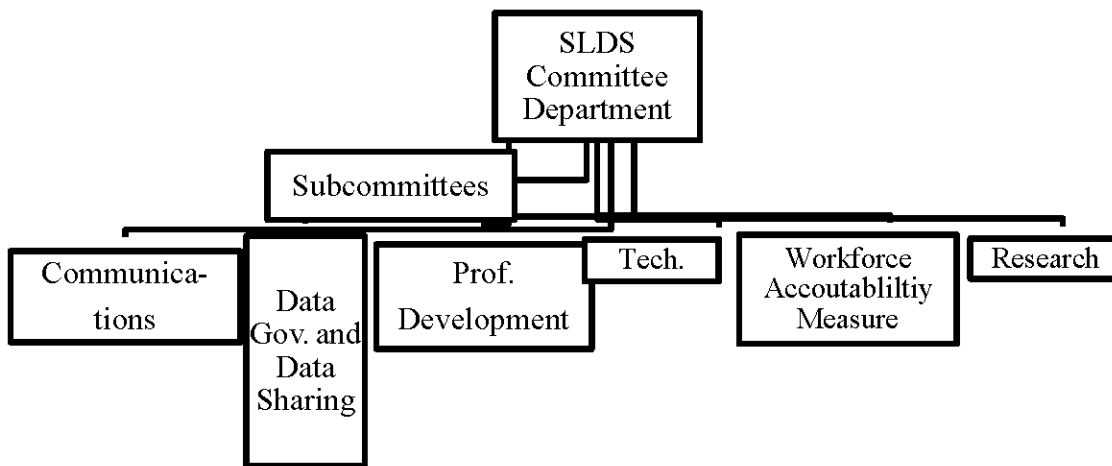
Technology Department (ITD), Job Service North Dakota (JSND) (**grantee recipients of the WDQI grant**), North Dakota University System (NDUS), the Commerce Department, Education Technology Council (ETC), Career and Technical Education (CTE), Department of Human Services (DHS), North Dakota Council of Educational Leaders (NDCEL) and two State legislators.

The SLDS Committee plays a key role in establishing standards for data sharing, privacy and security as well as developing *inter and outer-agency (outside the state) agreements* for the terms of data sharing. This is an important role in gaining the requisite participation of State agencies, establishing priorities and setting direction.

The committee’s mission is to “propose, develop, and govern a system for sharing longitudinal data that will maximize the usefulness of management information to stakeholders and partners of North Dakota education, training, employment and service systems while protecting the privacy and security of personal information.”

Six subcommittees are under the SLDS Committee Department, which has representatives from the following State agencies: Department of Public Instruction (DPI), Education Technology Council (ETC), Information Technology Department (ITD), Job Service North Dakota (JSND), and North Dakota University System (NDUS). Each subcommittee has duties and responsibilities towards the function and implementation of the SLDS.

North Dakota Statewide Longitudinal Data System Governance Structure



- Communications
 - Responsibilities: Identify stakeholders, develop communications plan, and provide key communications documents
- Data Governance and Data Sharing

- Responsibilities: Research and draft data sharing principles and agreements as well as processes for identifying and managing shared data. Research and develop policies and best practices regarding privacy, (e.g. Health Insurance Portability and Accountability Act (HIPPA)). Additional responsibilities include:
 - Review revisions of the Family Education Rights and Privacy Act (FERPA),
 - Manage issues and conflicts from data sharing,
 - Establish standards on the demographic identifiers for people,
 - Collection and load frequencies,
 - Manage data request process and the list of required reports, and
 - Potential deliverable: data governance document including ownership and management policies.
- Professional Development
 - Responsibilities: Focused on teacher professional development and whether or not it affects student's abilities and education.
- Technology
 - Responsibilities: Research and provide technical requirements and technical solutions along with ongoing costs and budget. Additionally, informing and discussion on the SLDS architecture.
- Workforce Accountability Measure
 - Responsibilities: Determine needed reports to meet accountability measures (potential deliverable is to create a data dictionary).
- Research
 - Responsibilities: Focus on what questions people are asking and whether or not the correct data is being utilized and collected.

The SLDS Committee and 6 subcommittees have identified entities responsible for the operation of the statewide data system. This includes an understanding of data management, data confidentiality, and access. In order to resolve differences among partners and establish an understanding of data ownership, State agencies have signed an Inter-Agency Data Sharing Agreement (*Inter-Agency Data Sharing Agreement*, Appendix A) explaining the duties and responsibilities of each partnering State agency.

Institutional Support: The State of North Dakota has taken a coordinated, systematic-agency approach to establishing longitudinal workforce and education databases. Record matching between education, training and workforce data to report on program outcomes and accountability measures has been underway for over fifteen years. However, in order to provide a more comprehensive and coordinated effort, North Dakota developed the SLDS Committee. The committee is comprised of relevant stakeholders within and outside the State postsecondary education governing organization/agency, and State workforce agencies (see *Governance and Policy Requirements* on pages 4-6 for full description). The Committee provides strategic direction, policy development and issue resolution at the highest level. The legislation governing the SLDS Committee directs to manage a longitudinal data system which: a) provides for dissemination of management information to stakeholders and partners of State education, training, and employment systems; and b) uses data from educational and workforce systems as central sources of longitudinal data. Groups formed by the SLDS committee work to develop

privacy and security policies, model interagency agreements, enable legislation and funding strategies.

Sustainability: The ND Governor and Legislature is committed to the SLDS, providing funding and full-time positions to the Information Technology Department (ITD). The 2007 legislature created the program manager position which expanded to 2 full-time employees (FTE) in 2009. Recently, the 2011 session created 3 additional FTE for research, report development and a data analyst.

Since it was first introduced, North Dakota planned the SLDS to be sustainable. A single enterprise infrastructure has been designed and continues to expand. Cost effective approaches to portals, reporting tools and databases are being used and most importantly, the SLDS does not implement vendor owned licenses of data nor data models. The funding of the SLDS through the centralized Information Technology Department (ITD) allows for shared resources in FTE and infrastructure. The centralization of the SLDS resources utilizes less FTE and is less prone to loss of departmental funding. The inclusion of economic development, workforce intelligence, human services and educational entities in the SLDS Governance promotes continued interest and investment in an SLDS.

Technical Requirements

Privacy Protection and Data Accessibility: Privacy Protection and Data Accessibility is a requirement that has been met with North Dakota's state statutes, specifically 15.1-02-18.1 and 15.1-02-18.2. The Information Technology Department houses and manages the SLDS in regards to data, and the state has put in statutes to protect and manage data accessibility. Statute 15.1-02-18.1 Statewide Longitudinal Data System-Information Technology Department-Power and Duties states that *Information Technology Department and the statewide longitudinal data system committee may, subject to federal and state privacy laws, enter interagency agreements, including agreements designating authorized representatives of the educational agencies participating in the system pursuant to the Family Educational Rights and Privacy Act (20 U.S.C. 1232g; 34 CFR 99).* Additionally, statute 15.2-02-18.2, State Agencies, Mandatory Provision of Information-Confidentiality states that *information technology department may request from any state agency all information required by 20 U.S.C. 9871 (e) (2) (D); any other educational information that statewide longitudinal data system committee determines is required for a longitudinal data system to comply with state or federal law.*

To further ensure privacy protection and data accessibility, State agencies signed an Inter-Agency Data Sharing Agreement (*Inter-Agency Data Sharing Agreement, Appendix A*). Participating state agencies include: Career and Technical Education, Department of Public Instruction, Job Service North Dakota, North Dakota Department of Human Services, North Dakota University System, and North Dakota Workforce Development Council. However, regarding the North Dakota legislature, if a specific report is requested the following guidelines are implemented: *information is provided only in aggregate and de-identified.*

Data Quality: The Data Quality requirement has been met with some of the State agencies, however NDUS has not implemented training for those entering or using data. This will be provided through the PEP-20W SLDS project; Outcome 3, creation of a robust data dictionary

through an enhanced metadata management system, and (Task 3.1.4) training on the use of tools and processes. This will ensure data is being collected, analyzed and reported appropriately.

NDUS has met the requirement of ensuring the integrity, security, and quality of data by following State statutes and the adoption of the Inter-Agency Data Sharing Agreement (*Inter-Agency Data Sharing Agreement*, Appendix A). Additionally, NDUS has implemented a common student information system (Oracle's PeopleSoft Campus Solutions application) and data warehouse for its eleven institutions. These systems, managed by System Information Technology Services (SITS), serves as the primary postsecondary data source for linking with other education and workforce data sources. Having a common system has enabled NDUS to assign and manage unique IDs for students system-wide. Under the data sharing agreement with the Department of Public Instruction, North Dakota University System successfully completed a pilot to match K-12 data with student data from NDUS' student information system. Work will continue to improve upon the approximately 85% success rate. Since NDUS captures Social Security Numbers as part of the student profile data, it is able to provide the means of linking students at the secondary and postsecondary levels with workforce.

State agency DPI is meeting this requirement through their ndSLEDS project. In Phase 4 of the ndSLEDS project, DPI will Conduct Statewide Roll-Out and Training of ndSLEDS. This roll-out encompasses, 1) working with the North Dakota LEAD Center (training organization) to develop a 3 year training plan, 2) districts will have their administrators, teachers and other relevant stakeholders trained as "super-users" who will train through a train-the-trainer model. They are working on a security structure that will allow district representatives to grant access to those lead educational agency personnel under their district, and 3) have an operational data store for training schedule in place by February 2012.

Job Service North Dakota is also meeting this requirement through their WDQI grant by implementing and using sharing agreements among state agencies.

Interoperability: North Dakota works with the Public Consulting Group (PCG) on Common Education Data Standards (CEDS). Initial element mappings have been implemented with the Department of Public Instruction's state collection application-State Automated Reporting System- (STARS), and currently tracking mapping and performing gap analysis. North Dakota University System has applied PeopleSoft Campus Solutions throughout all 11 postsecondary institutions, providing for common data elements and standards. Campus Solutions is used for Integrated Postsecondary Education Data Systems (IPEDS) and other State and Federal agencies. Proposed objectives, deliverables, and policy questions collected during the course of the grant will be added to the SLDS and mapped to the CEDS elements. A benefit of this mapping and data collection will enable the North Dakota SLDS to provide community and private colleges with required data elements based on the CEDS standards and IPEDS. This in turn will align public institution collections.

However, more work needs to be done in the area regarding postsecondary education and the alignment with Common Education Data Standards. The PEP-20W SLDS Project will meet this gap with outcomes, deliverables and tasks in order to define and operationalize the collection of data for postsecondary, while aligning subject areas with Common Education Data Standards.

Enterprise-Wide Architecture: North Dakota has a history and desire to implement enterprise architecture at all levels. In fact State funds, and enacted statutes, require all public schools, secondary and postsecondary, to implement common systems. PowerSchool is mandated for all K-12 and PeopleSoft Campus Solutions has implemented the eleven public postsecondary institutions.

The North Dakota SLDS takes a consolidated approach to enterprise architecture in which data domains are stored longitudinally within a central system. The SLDS utilizes the Microsoft stack: SQL Server, Integration Services, SharePoint and Reporting services to provide an enterprise solution that is cost effective. This approach is robust enough to isolate agency data domains such as the North Dakota Job Service WDQI data warehouse being developed and the Department of Public Instruction (DPI) K-12 data warehouse in their secured databases. This process allows databases to contribute specific data elements to the SLDS through data marts or as federated sources (*P20 Databases, Appendix A*).

North Dakota implemented the OtisEd iMart framework and data models in the SLDS which is dimensional architecture. This means deploying slowly changing dimensions (SCD) in the warehouse to preserve data element history. Normally, SCD are type 6 (Ralph Kimball technique) which insert changes to the dimensions and update prior history to reflect the change date and current state of the elements. This approach of retaining history and designating the current dimensional elements define the longitudinal nature of the SLDS. Data sources are consumed either as flat files or directly against data sources through database connections and directly extract the data. The data is staged and validated prior to loading into an operational data store. Data validations can be configured at multi stages of data: 1) raw staging validation provides data type and definition integrity of the element; 2) conformed staging provides business rule validations such as valid code usage, lookups and 3) data transformations applied based on business rules configured.

North Dakota SLDS has sustained and continues to enhance its data linking or master data management strategy. An SLDS consumes data from many sources, varying in complexity from simple raw data sets to interfacing with other information systems. Partnering State agencies, which are the contributing source systems, work with SLDS members to implement identifiers and the business practices to manage identifiers at the source. For example, for many years DPI has had a state student ID assignment process, which was leveraged in the SLDS to automatically assign K-12 student identifiers within school districts student information systems. On a nightly scheduled routine, student identifiers are extracted from the Student Information System (SIS) and those that do not have state student IDs are matched through the SLDS using Department of Public Instruction (DPI) routines and parameters assigned in the SIS. This process continues to be refined through the current SLDS and works with multiple source systems: 1) The Department of Health to assign state student identifiers at birth, which will allow the master person strategy to be applied through early childhood programs and interventions; 2) Education Standards and Practices Board which licenses teachers and is the first contact with all ND licensed teachers; and 3), North Dakota Immunization Information System is interfacing with the SLDS where students are matched and immunization data is made available.

Department of Public Instruction (DPI) and North Dakota University System (NDUS) have gone through a process of historically matching K-12 and NDUS students to define a cross reference of their student identifiers and then implemented into the SLDS. North Dakota high school transcripts stored in the SIS have been modified to include the state student ID, providing NDUS with information during the application process. The ND eTranscript project, which is currently in development, utilizes the SLDS for source transcript data and will allow students to electronically direct their high school transcripts to postsecondary institutions. This student record exchange will contain both secondary and postsecondary identifiers, and expands on the business processes. This in turn will provide an aligned transition of students with their identifiers from secondary to postsecondary.

North Dakota has implemented and continues to expand on its master person index architecture (linking across data domains) in the SLDS. This approach is a multi-staged unique identifier assignment. Individual data sets such as K-12 students, Unemployment Insurance employee wages, and workforce development program participants are assigned a unique identifier within their own respective source data sets. Data sets are configurable algorithms that match and uniquely identify individuals. The data source is then configured to match against any other data domains in the SLDS, such as K-12 student to postsecondary student to Unemployment Insurance employees, resulting in a master person index across domains. This approach has many benefits, from a unique index within an agency or data domain available to the owners of the data, to a unique index of cross domain matched individuals available to the SLDS.

The SLDS is currently defining the best approach for public data dictionaries. Metadata (data about data) management is present in the iMart framework as well as the data modeling tools used by SLDS staff. This process tracks the source and destination of data elements and any transformations applied to the data. Managing this metadata and extracting public elements in a manageable process is challenging. It is an outcome of this grant to expand this into a robust metadata management system, providing data stewards within partnering State agencies a process and tools to interact with metadata and manage data dictionaries. This outcome will be met through the PEP-20W SLDS project, Outcome 3, creation of a robust data dictionary through an enhanced metadata management system.

Data Use Requirements: North Dakota SLDS is in the process of meeting this requirement. Currently, State agencies have the Inter-Agency Data Sharing Agreement (*Inter-Agency Data Sharing Agreement, Appendix A*), which states: *This longitudinal data system requires dissemination of management information to stakeholders and partners of state education, training, and employment system. In addition, it is required to use data from education and workforce systems as central sources of longitudinal data. Unless otherwise authorized by federal or state law, the data may be disclosed only in the aggregate, except that individually identifiable data may be disclosed when expressly authorized by federal or state law. The data may be disclosed only to a public official for use in the performance of the public official's duties and may be used only for research or analytical purposes, or other purposes expressly authorized or required by other federal or state law.*

Additionally, during the course of the grant, other data sharing agreements will be created with *inter and outer* State/federal agency policymakers. Access will be balanced with the need to

protect privacy and confidentially consistent with applicable privacy protection laws within data sharing agreements. Also, sharing agreements will emphasize that data remains the property of the original agency owner.

Data Use Deliverables: ND SLDS has made considerable strides regarding Data Use Deliverables, especially in the areas of K-12 and Consumer Information feedback. However gaps have been found with Postsecondary Feedback, which will be met with deliverables through the PEP-20W SLDS project.

K-12 Feedback: North Dakota has in place three key elements to link students and teachers which include, which aligns with the American Competes Act of 2007:

- unique statewide K-12 student identifier
- unique statewide K-12 teacher identifier (teacher licenses number)
- unique statewide postsecondary identifiers

Additionally, North Dakota has several recurring processes in place to extract, link and use student data, which also aligns with the America Competes Act (*the ability to link PK-12 data to higher education system data, for PK-12, disaggregate annual test results, data on students not tested, the ability to match teacher with students, transcripts, and college readiness test results, and for postsecondary education, disaggregate data related to PK-12 transition to postsecondary education, including remedial course data*)

- A nightly extract, transfer and load (ETL) process which pulls data (including student course information and teacher license number) from the state mandated student information systems into the State Longitudinal Data System (SLDS)
- K-12 sends student data files to North Dakota University Systems (NDUS) to match against their student data. Each agency retains the matched pair of unique identifiers. The process has matched back to 2005 with an 85% match rate.
- NDUS has sent preliminary files to identify remedial courses, indicators of timely enrollment in postsecondary (within 16 months of high school completion) and postsecondary credit completion.

Consumer Information: The Bank of North Dakota has funded the XAP Choices© career planner tool for use by all North Dakota K-12 students as a means to make informed college and career decisions. As part of the contract, XAP updates (on a yearly basis) the college cost (tuition, fees and financial aid) and federal and state job predictions and projected salaries. This information is provided free to North Dakota, and enables parents and students to make informed choices about enrolling in postsecondary institutions.

The PEP-20W SLDS project will also provide consumer information by the expansion of the SLDS portal to include postsecondary reports for the public, legislature, and other State officials.

Postsecondary Feedback: Postsecondary Feedback will be implemented through the PEP-20W SLDS, Outcome 4. The following policy questions will be tracked:

Table 1 Policy Questions Tracked

Outcome 4. Development of a comprehensive and coordinated feedback reporting system, through the SLDS framework, enabling ND postsecondary education to communicate with high schools regarding college readiness and college-level performance of their graduates.

Policy Questions Tracked

Postsecondary feedback:

- a. Students graduating from a secondary school and attending a postsecondary institution (this information is currently being tracked however, based on specific cohorts of graduates for the SFSF and basic high school feedback reports):
 - iv. What percentage of ninth graders enters college four years later?
 - v. What percentage of high school graduates take remediation in postsecondary education?
- b. Students taking developmental education:
 - vi. In what content areas do students require remediation?
 - vii. What are the retention and degree completion rates of students who are placed in remedial coursework?
- c. Students who are successful in postsecondary education.
 - viii. What high school achievement level indicates a student is college ready?
 - 1. Given that North Dakota will align high school course codes to state course code, what course taking patterns indicate college readiness
 - a. What high schools have successful course taking patterns
 - ix. What students were academically prepared to enter college and complete their program or degree in a timely manner?
 - 1. Were these in degrees that are in demand in North Dakota?
 - x. What is the relationship of a student's performance on the North Dakota State Assessment (NDSA), postsecondary performance, and graduation?
- d. Students taking college preparation courses in high school:
 - xi. How do dual-enrollment and advanced placement programs in high school affect college student's success?

3. Usage of workforce data:

- a. Completers and Non-Completers:
 - i. How much do North Dakota high school and college graduates earn in the workforce over time?
 - ii. How much do North Dakota high school and college dropouts earn in the workforce over time?
- b. Retention:
 - i. What percentage of North Dakota college graduates continue to work and live in North Dakota?
 - ii. Which industries employ the majority of North Dakota high school and college graduates?
- c. With the SLDS containing K-12 and Workforce data the inclusion of postsecondary student enrollments will allow for the evaluation of North Dakota student employment during and after degree attainment. Evaluations of exiters

and their employment engagements.

- i. How many of North Dakota high school and college students are employed while they are in school and what kind of an impact does it have on their academic success?
- d. Follow-up of postsecondary completers: NDUS has aligned degrees to occupational codes which can provide valuable information to workforce development programs. Knowledge of workforce readiness, under and over employment will be used for high school feedback reports and economic development of resources available in a community.
 - i. Provide employment patterns of postsecondary students during certificate or degree obtainment.
 - ii. Provide postsecondary graduate follow-up on industry employment and retention of graduates in state.
 - iii. Provide average wages of postsecondary graduates by occupational degree.

Training on Use of Data Tools and Products: The SLDS modeling design allows multi products to utilize the data in the SLDS. Through research, observations and collaboration with other states, as well as the Business Intelligence Competency Center present at ITD, there is not one single data analytics or reporting tool that will satisfy every type of user in the Longitudinal Data System or any data warehouse. Researchers require data mining and analytics and typically have their own preference of products for which data marts will be developed. Nd SLEDS' target audience of secondary administrators and teachers have little interest in ad hoc reporting or analytics, they primarily desire parameterized reports delivered. Therefore, for these report users of the SLDS, online training through the portal will be developed on the reporting tool as well as district level training available through a train-the-trainer model that will be implemented. ND also uses Cognos as a Business Intelligence reporting tool that will be available to agency level users. This is an extensive Business Intelligence tool that works well on the dimensional models present in the SLDS and enables State agency users to develop their own reports. Through grants and internal training funds, State agency staff will be trained on the use of the Business Intelligence tool and additionally work with the SLDS Business Intelligence staff and report writers to understand their data.

An enterprise Business Intelligence tool is expensive and requires training on the tool and data and therefore is not a candidate for public access. However, there exist smaller communities that have interest and need for ad hoc reporting and analytics for specific subjects in the SLDS, such as finance. The SLDS will begin to build out these de-identified data marts available through the portal and develop training and instructions on the use of an ad hoc data tool such as performance point, which is cost effective and compatible with the SLDS portal.

Professional Development on Data Use: The ndSLEDS project is establishing the structure, resources and content for professional development on data driven decision making (DDDM). ND has organizations that provide DDDM professional development through courses offered throughout the state, training materials, and individual district consulting. Much of this professional development is offered through the North Dakota Leadership and Educational Administration Development (LEAD) Center and the 8 regional education associations. NDSLEDS is working with these organizations to transition SLDS applicable training into the

SLDS portal where data use content will be made available and used by ND Lead and the North Dakota Regional Education Associations (REA) to conduct training. These organizations are eager to use the SLDS for training and have formed a partnership with the SLDS. Additionally, the ndSLDS has funded a training position which will be responsible for coordinating and developing these training programs. PEP-20W SLDS will leverage and expand on these efforts, as postsecondary data becomes present in the SLDS. The PEP-20W SLDS will develop additional training material on usage of data and work with these organizations to incorporate this material into their professional development activities.

Evaluation of Data Products, Training and Professional Development: The PEP-20W SLDS will be managed and directed by the Project Planning Team. This team consists of Marsha Krotseng-Executive Sponsor, Michael Pytlik- North Dakota University System Project Director, Tracy Korsmo- SLDS Program Manager, and Steve Snow-Department of Public Instruction Project Director. This team will have the ability to evaluate data projects, training and professional development through different levels. The Project Planning Team will track and monitor if reports are being implemented and applicable to answer policy questions. Additionally, the team will be able to report if data *is or is not* enabling decision makers to provide more concrete choices on North Dakota's education and workforce. Also, the team will be able to monitor: 1) the defining and operation with collection of data for the postsecondary domain aligned with Common Education Data Standards; 2) established workforce linkages in the SLDS to postsecondary students; 3) the creation of a robust data dictionary through an enhanced metadata management system; 4) development of a comprehensive and coordinated feedback reporting system, through the SLDS framework, enabling North Dakota postsecondary education to communicate with high schools regarding college readiness and college-level performance of their graduates; and 5) expansion of the SLDS portal to include postsecondary reports for the public, legislature, and other state officials while tracking secured access of feedback reports to postsecondary institutions. Also, team leaders will track if the training of tools and processes, and online training for reports and portal uses for the education communities are applicable.

Partnerships with Research Community: Partnerships with Research Community have already been met in two different methods. First, State agency partners adopted the Inter-Agency Data Sharing Agreement (*Inter-Agency Data Sharing Agreement, Appendix A*) which has established partners with internal research groups to assist in answering questions that can inform policy and practice. The State has implemented the SLDS Committee which establishes standards for data sharing, privacy and security, and the development of outer/inter-agency data sharing agreements.

In fact, research has already been identified in the community, and will be aligned with the PEP-20W SLDS project. The Bush Foundation is providing funding for research on improving teacher effectiveness and preparation in the North Dakota postsecondary education. In partnership with the Value Added Research Center (VARC), a value added growth model is being developed using 2 North Dakota colleges, tracking graduates into employment as K-12 instructors. This project is dependent on NDUS postsecondary data on teacher preparation and K-12 student assessments. Today, this research is conducted by 2 individual colleges sending VARC information on students that have received teacher certifications, and individual districts are sending data on their students and assessments. As the SLDS builds data capacity, this

information will be available in the SLDS for VARC and provide the capacity to expand this to all campuses, providing teacher preparation programs and all public students available in the SLDS.

Hess Corporation is providing funding to North Dakota Regional Education Associations (REA) with the goal to reduce developmental (remedial) in postsecondary and increase high school and postsecondary graduation rates. This project will utilize North Dakota SLDS data on both K-12 and postsecondary data. The REA will work with member districts on several forms of intervention, curriculum, parental and student planning, etc. This project will utilize the data in the SLDS to measure districts progress in meeting goals, identify success, and provide reports to the REA's districts and community on progress.

Additionally, North Dakota University System (NDUS) has expressed interest in developing research data marts for students enrolled in education graduate programs. With the SLDS containing all North Dakota public students with enrollment, course and grades as well as teacher linkages will be available to support this research.

Sustainability Plan: Since North Dakota has a legislature supported SLDS, sustaining the PEP-20W SLDS project will be manageable after the completion of the grant. Currently, involved Statewide agencies have committed their resources and expertise to ensure the success of the North Dakota SLDS and its future sustainability (*Letters of Support, Appendix B*).

Also, to assist with sustainability, DPI will supply staff to the project to coordinate K-12 data needs and use. The Information Technology Department will provide staff to the project and coordinate any work with the WDQI and ndSLEDS projects. Job Service North Dakota, through the structure of the SLDS Committee, will oversee the Workforce data needs and use on the project (*Letters of Support, Appendix B*).

In order to further ensure the sustainability of the PEP-20W SLDS project, training will be provided during the grant for current State agencies and SLDS staff on the following outcomes and deliverables:

Outcome 1. Define and operationalize the collection of data for the postsecondary domain aligned with Common Education Data Standards; Deliverable 1.2 Expand and operationalize current delivery of post-secondary data from the NDUS to DPI and secondary schools, and develop delivery of data from secondary schools and DPI to the NDUS, through the SLDS framework.

Outcome 3. Creation of a robust data dictionary through an enhanced metadata management system; Deliverable 3.1 Align data element definitions in the NDUS data dictionary with definitions in the SLDS data dictionary, using Common Education Data Standards (CEDS) as a framework ; identify and document gaps between two systems. Deliverable 3.2 Identify common data element definitions among postsecondary and workforce data. Identify and document gaps between two systems.

Outcome 4. Development of a comprehensive and coordinated feedback reporting system, through the SLDS framework, enabling ND postsecondary education to communicate with high schools regarding college readiness and college-level performance of their graduates.

Deliverable 4.5 Develop online training for reports and portal uses; provide training for the education communities on the usage of data contained in the education reports and SLDS.

Outcome 5. Expansion of the SLDS portal to include postsecondary reports for the public, legislature, other state officials and secured access of feedback reports to secondary institutions
 Deliverable 5.1 Expand SLDS portal to accommodate public and policymaker views of reports and analysis.

Outcome 6. Two Senior Project staff to attend two-day meetings in DC- each year of the grant.

b. Project Deliverables Related to System Requirements and Implementation

As previously stated, the North Dakota SLDS has been in place since 2007. Since the implementation of the SLDS, expansion and projects have been achieved with participating State agencies. However gaps have become apparent, hindering the North Dakota SLDS to have a more complete reporting system. In order to achieve a more seamless system the North Dakota University System, Department of Public Instruction, Information Technology Department, in conjunction with other State agencies, have developed the PEP-20W SLDS project. The primary goal of the project is to **strengthen data-informed decisions for education policy and practice in North Dakota by developing and implementing an innovative feedback system linking postsecondary and K-12 education, as well as postsecondary and workforce data.**

Considering North Dakota has already implemented a functioning SLDS, it is the intent of this proposal to provide outcomes, deliverables and tasks in order to supplement- not supplant- the current function of the North Dakota SLDS. Therefore, not every system requirement will be directly affected by the proposal’s outcomes, deliverables and tasks. For clarity, the following system requirements are not considered directly affected by the PEP-20W SLDS project and currently being met with the function of the North Dakota SLDS:

Governance and Policy Requirements

- Governance
- Institutional Support
- Sustainability

Technical Requirements

- Privacy Protection and Data Accessibility
- Data Use Deliverables- *K-12 Feedback*

All other system requirements will be implemented into the grant proposal. A table with descriptions has been provided in order to describe how each outcome, deliverable and task will supplement the current North Dakota SLDS.

Table 2 Goal, Outcomes, Deliverables and Tasks

Goal, Outcomes, Deliverables and Tasks	Project Deliverables Related to System Requirements and Implementation
Goal: Strengthen data-informed decisions for education policy and practice in North Dakota by developing and implementing an innovative feedback system linking postsecondary and	

