

# **U.S. Department of Education**

Washington, D.C. 20202-5335



## **APPLICATION FOR GRANTS UNDER THE**

**STATEWIDE LONGITUDINAL DATA SYSTEM RECOVERY ACT GRANTS  
CFDA # 84.384A  
PR/Award # R384A100056**

Closing Date: DEC 04, 2009

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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.).

<b>Application for Federal Assistance SF-424</b>		Version 02
* 1. Type of Submission                      * 2. Type of Application: * If Revision, select appropriate letter(s): <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> New <input checked="" type="checkbox"/> Application <input type="checkbox"/> Continuation                      * Other (Specify) <input type="checkbox"/> Changed/Corrected Application <input type="checkbox"/> Revision		
* 3. Date Received: 12/4/2009		4. Applicant Identifier:
5a. Federal Entity Identifier:		* 5b. Federal Award Identifier: NA
<b>State Use Only:</b>		
6. Date Received by State:    11/17/2009		7. State Application Identifier:    UTG091117-030RA
<b>8. APPLICANT INFORMATION:</b>		
* a. Legal Name:    Utah State Office of Education		
* b. Employer/Taxpayer Identification Number (EIN/TIN): 876000545		* c. Organizational DUNS: 029999372
<b>d. Address:</b>		
* Street1:	P.O. Box 144200	
Street2:	240 E 500 S	
* City:	Salt Lake City	
County:		
State:	UT	
Province:		
* Country:	USA	
* Zip / Postal Code:	84114	
<b>e. Organizational Unit:</b>		
Department Name: Utah State Office of Education		Division Name: Data, Assessment and Accountability
<b>f. Name and contact information of person to be contacted on matters involving this application:</b>		
Prefix:	Dr.	* First Name:                      John
Middle Name:	H	

\* Last Name: Brandt

Suffix:

Title: Information Technology Director

Organizational Affiliation:

Utah State Office of Education

\* Telephone Number: (801)538-7953 Fax Number: (801)538-7938

\* Email: JOHN.BRANDT@SCHOOLS.UTAH.GOV

**Application for Federal Assistance SF-424** Version 02

**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:**

84.384A

CFDA Title:

Statewide Longitudinal Data System Recovery Act Grants

**\* 12. Funding Opportunity Number:**

ED-GRANTS-072909-000

Title:

Institute of Education Sciences, ARRA-2009 Grant Program for Statewide Longitudinal Data Systems CFDA 84.384A

**13. Competition Identification Number:**

Title:

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

State

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

Utah Data Alliance

Attach supporting documents as specified in agency instructions.

**Attachment:**

Title :

File :

**Attachment:**

Title :

File :

**Attachment:**

Title :

File :

**Application for Federal Assistance SF-424**

Version 02

**16. Congressional Districts Of:**

\* a. Applicant: UT-02

\* b. Program/Project: UT-all

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

**Attachment:**

Title :

File :

**17. Proposed Project:**

\* a. Start Date: 7/1/2010

\* b. End Date: 6/30/2013

**18. Estimated Funding (\$):**

a. Federal	\$ 9617736
b. Applicant	\$
c. State	\$
d. Local	\$
e. Other	\$
f. Program	\$
Income	
g. TOTAL	\$ 9617736

**\* 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 11/19/2009.

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.)**

Yes  No

**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: Mr. \* First Name: Randy

Middle Name:

\* Last Name: Raphael

Suffix:

Title: Statistician

\* Telephone Number: (801)538-7802 Fax Number: (801)538-7938

\* Email: RANDY.RAPHAEL@SCHOOLS.UTAH.GOV

\* Signature of Authorized Representative:

\* Date Signed:

**Application for Federal Assistance SF-424**

Version 02

**\* Applicant Federal Debt Delinquency Explanation**

The following field should contain an explanation if the Applicant organization is delinquent on any Federal Debt. Maximum number of characters that can be entered is 4,000. Try and avoid extra spaces and carriage returns to maximize the availability of space.



**U.S. DEPARTMENT OF EDUCATION**

**BUDGET INFORMATION**

**NON-CONSTRUCTION PROGRAMS**

OMB Control Number: 1894-0008

Expiration Date: 02/28/2011

Name of Institution/Organization:  
Utah State Office of Education

Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.

**SECTION A - BUDGET SUMMARY**  
**U.S. DEPARTMENT OF EDUCATION FUNDS**

Budget Categories	Project Year 1(a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Total (f)
1. Personnel	\$ 1,133,400	\$ 1,550,440	\$ 1,439,160	\$ 0	\$ 0	\$ 4,123,000
2. Fringe Benefits	\$ 386,184	\$ 518,784	\$ 481,406	\$ 0	\$ 0	\$ 1,386,374
3. Travel	\$ 138,000	\$ 124,500	\$ 84,500	\$ 0	\$ 0	\$ 347,000
4. Equipment	\$ 1,394,600	\$ 334,500	\$ 328,500	\$ 0	\$ 0	\$ 2,057,600
5. Supplies	\$ 5,000	\$ 5,000	\$ 5,000	\$ 0	\$ 0	\$ 15,000
6. Contractual	\$ 768,750	\$ 300,000	\$ 25,000	\$ 0	\$ 0	\$ 1,093,750
7. Construction	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
8. Other	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
9. Total Direct Costs (lines 1-8)	\$ 3,825,934	\$ 2,833,224	\$ 2,363,566	\$ 0	\$ 0	\$ 9,022,724
10. Indirect Costs*	\$ 164,115	\$ 223,476	\$ 207,421	\$ 0	\$ 0	\$ 595,012
11. Training Stipends	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
12. Total Costs (lines 9-11)	\$ 3,990,049	\$ 3,056,700	\$ 2,570,987	\$ 0	\$ 0	\$ 9,617,736

**\*Indirect Cost Information (To Be Completed by Your Business Office):**

If you are requesting reimbursement for indirect costs on line 10, please answer the following questions:

(1) Do you have an Indirect Cost Rate Agreement approved by the Federal government?  Yes  No

(2) If yes, please provide the following information:

Period Covered by the Indirect Cost Rate Agreement: From: 7/1/2009 To: 6/30/2010 (mm/dd/yyyy)

Approving Federal agency:  ED  Other (please specify): \_\_\_\_\_ The Indirect Cost Rate is 10.8%

(3) For Restricted Rate Programs (check one) -- Are you using a restricted indirect cost rate that:

Is included in your approved Indirect Cost Rate Agreement? or,  Complies with 34 CFR 76.564(c)(2)? The Restricted Indirect Cost Rate is 10.8%



**U.S. DEPARTMENT OF EDUCATION**  
**BUDGET INFORMATION**  
**NON-CONSTRUCTION PROGRAMS**

OMB Control Number: 1894-0008

Expiration Date: 02/28/2011

Name of Institution/Organization:  
 Utah State Office of Education

Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.

**SECTION B - BUDGET SUMMARY**  
**NON-FEDERAL FUNDS**

Budget Categories	Project Year 1(a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Total (f)
1. Personnel	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
2. Fringe Benefits	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
3. Travel	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
4. Equipment	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
5. Supplies	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
6. Contractual	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
7. Construction	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
8. Other	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
9. Total Direct Costs (lines 1-8)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
10. Indirect Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
11. Training Stipends	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
12. Total Costs (lines 9-11)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0

## ASSURANCES - NON-CONSTRUCTION PROGRAMS

Standard Form 424B (Rev.7-97)

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
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 sub-agreements.
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 (Clear Air) Implementation Plans under Section 176(c) of the Clear 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. "1721 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

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 the 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.

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 Representative:**

**Name of Authorized Certifying Representative:** Randy Raphael

**Title:** Statistician

**Date Submitted:** 12/04/2009

### Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

<b>1. Type of Federal Action:</b> <input type="checkbox"/> Contract <input checked="" type="checkbox"/> Grant <input type="checkbox"/> Cooperative Agreement <input type="checkbox"/> Loan <input type="checkbox"/> Loan Guarantee <input type="checkbox"/> Loan Insurance	<b>2. Status of Federal Action:</b> <input checked="" type="checkbox"/> Bid/Offer/Application <input type="checkbox"/> Initial Award <input type="checkbox"/> Post-Award	<b>3. Report Type:</b> <input checked="" type="checkbox"/> Initial Filing <input type="checkbox"/> Material Change <b>For Material Change only:</b> Year: 0 Quarter: 0 Date of Last Report:
<b>4. Name and Address of Reporting Entity:</b> <input checked="" type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier, if known: 0 Name: Utah State Office of Education Address: 250 E 500 S City: Salt Lake City State: UT Zip Code + 4: 84114-4200  Congressional District, if known: 01	<b>5. If Reporting Entity in No. 4 is a Subawardee, Enter Name and Address of Prime:</b>  Name: Address: City: State: Zip Code + 4: -  Congressional District, if known:	
<b>6. Federal Department/Agency:</b>	<b>7. Federal Program Name/Description:</b>  CFDA Number, if applicable: 84.384A	
<b>8. Federal Action Number, if known:</b>	<b>9. Award Amount, if known: \$0</b>	
<b>10. a. Name of Lobbying Registrant</b> (if individual, last name, first name, MI): Address: City: State: Zip Code + 4: -	<b>b. Individuals Performing Services</b> (including address if different from No. 10a) (last name, first name, MI): Address: City: State: Zip Code + 4: -	
<b>11.</b> Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Name: John Brandt Title: Information Technology Director Applicant: Utah State Office of Education Date: 12/04/2009	
<b>Federal Use Only:</b>		Authorized for Local Reproduction Standard Form LLL (Rev. 7-97)

## 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 any 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 or 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

Utah State Office of Education

### PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

Prefix: Mr.      First Name: Randy      Middle Name:

Last Name: Raphael      Suffix:

Title: Statistician

Signature: \_\_\_\_\_

Date:

12/04/2009

ED 80-0013

03/04

**SUPPLEMENTAL INFORMATION  
REQUIRED FOR  
DEPARTMENT OF EDUCATION GRANTS**

**1. Project Director:**

Prefix:	* First Name:	Middle Name:	* Last Name:	Suffix:
Dr.	John	H	Brandt	

Address:

\* Street1: P.O. Box 144200  
 Street2: 250 E 500 S  
 \* City: Salt Lake City  
 County:  
 \* State: UT\* Zip / Postal Code: 84114 \* Country: USA

* Phone Number (give area code)	Fax Number (give area code)
(801)538-7953	(801)538-7938

Email Address:

JOHN.BRANDT@SCHOOLS.UTAH.GOV

**2. Applicant Experience**

Novice Applicant                       Yes                       No                       Not applicable

**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:**

**Attachment:**

Title :  
File :

# **Project Narrative**

## **Project Narrative - Project Abstract**

Attachment 1:

Title: **Project Abstract** Pages: **1** Uploaded File: **Project\_Abstract.pdf**

## Utah Application for 2009 USED-IES-NCES-SLDS Grant Program Utah Data Alliance (UDA)

Utah has a well-established history of strong student longitudinal data systems in the K-12 range of public education. Utah public education systems fulfill, in part or completely, most of the seven capabilities and twelve elements that the statewide longitudinal data system (SLDS) request for application prescribes. The objectives and outcomes of this Utah Data Alliance (UDA) project can be summarized as the fulfillment of the entire set of SLDS requirements. Some of these requirements must be completed while others need improvements-- most notably in the availability of data for decision-making.

The fulfillment of these requirements brings several state agencies together, first to share their de-identified data, and then to coordinate analyses and research using those data. This work allows the partner agencies to answer questions about their policies, programs and practices. The questions include, but are not limited to, those asked by the American Recovery and Reinvestment Act (ARRA), Institute of Educational Sciences (IES), SLDS grants program; the ARRA, Race to the Top (RttT); and the State Fiscal Stabilization Fund (SFSF) assurances.

The Utah Education Network (UEN) will build and manage the Utah Data Alliance Data Share (UDADS) to maintain these data, while the other agencies provide and consume needed data from UDADS. The Utah Education Policy Center (UEPC) also plays a key role in the project. The UEPC provides overall data and research coordination functions while pursuing its own and contracted research projects using the UDADS.

This application describes the development and delivery of numerous tangible outcomes (e.g. human resources, tools, databases, organizational and management structures, and processes) that complete all seven capabilities and twelve elements prescribed by the grant request for applications. These tangible or enabling outcomes provide the capacity to achieve answers to multiple categories of education and workforce policy, practice and program questions. The application describes those questions the UDA partners will address with the resources provided by the UDA. The enabling outcomes include:

- 1) **Human resources are the major component of the project** - Numerous positions and roles are needed. Business and systems analysts will define the needed systems, processes and procedures. IT specialists working with the analysts will build the data warehouse. Trainers will ready the data analysts and researchers so they can effectively use the data. Moreover, those data analysts, statisticians and researchers will answer the policy, practice and program questions.
- 2) **UDADS** - UDADS is the project's primary technical and enabling outcome. It will be constructed and updated through scheduled import of data from partner agencies. UDADS will transform, clean and load the data and integrate them into an accessible and timely data store for the analysts, statisticians and researchers.
- 3) **Project management and data governance** - Management of UDA's data, processes and procedures is vital not only in the initial development phases of the project, but in the following years as the teams in the partner agencies work on individual research questions and collaborate on shared outcomes. During the initial period, this work will take the form of project management. As the UDADS becomes operational, management roles will shift towards data governance and the coordination of data access and research. The UDA will emphasize sound data management and governance practice throughout the project.
- 4) **Training and staff development** - Those using the data need to understand the semantics and the structure of the data as well as the business intelligence tools used to work with those data. Training and staff development must be ongoing throughout the project.

# Project Narrative

## Project Narrative - Project Narrative

Attachment 1:

Title: **Project Narrative** Pages: **30** Uploaded File: **Project Narrative.pdf**

# Utah Application for FY09/ARRA SLDS Grant Program

## Utah Data Alliance (UDA)

### Section 1 - Need for the Project

#### 1.1. INTRODUCTION

Utah has a well-established history of strong student longitudinal data systems in K-12 public education. Section 1.2 and **Appendix C** describe Utah's progress in completing the capabilities and elements required by the FY09/ARRA-SLDS grant completion.

Utah still needs to complete two significant capabilities. The first of these capabilities is linking an individual's K-12 data to pre-kindergarten, postsecondary, workforce and Armed Forces records. Such linking enables the analysis of student progress, and outcomes over a longer period. The second capability is exchange of those data using widely recognized data standards. Through the work proposed in this application, the fulfillment of these two capabilities extends the usefulness, quality and availability of all twelve required elements.

This application describes the development and delivery of numerous technology outcomes including data exchange procedures, technology resources, and organizational structures that enable the fulfillment of all seven capabilities and twelve elements. More importantly, these outcomes include the capacity to analyze data from all levels of education and into the workforce in order to answer questions about education and workforce policy, practice and programs.

When the grant application committee first met in August of 2009, the number of agencies to include was a major topic. The committee decided to limit the initial scope to six partners. They are listed here with examples of the data they provide and their roles in the project.

- **Utah State Office of Education (USOE)** - pre-kindergarten and K-12 enrollments and achievement
- **Utah System of Higher Education (USHE)** - higher education enrollments
- **Utah College of Applied Technology (UCAT)** - Postsecondary
- **Utah Department of Workforce Services (DWS)** - employment/unemployment, Armed Services, Federal employees
- **Utah Education Network (UEN)** - custodian of the data
- **Utah Education Policy Center (UEPC)** - University of Utah College of Education, the primary independent data analysis and research entity

The committee named the organization that will pursue these outcomes the **Utah Data Alliance (UDA)**. The UDA includes the **Utah Data Alliance Data Share (UDADS)**; analysis, research and business intelligence tools; analysts and researchers; trainers and managers; and inter-agency governance processes and structures. **Appendix A, Attachment 1** contains a flow diagram that provides an overview of the exchange of data and the governance between the partners.

The grant application committee fully recognizes the need to involve additional partners over time as the UDA and the UDADS evolve. These additional partners may include the following.

- Utah Department of Corrections - incarcerations, recidivism
- Utah Department of Health - pre-kindergarten programs, Immunizations
- Utah Department of Human Services - Head Start, foster students, youth in custody
- Utah Department of Public Safety - Driving records

## 1.2. UTAH’S EXISTING AND FUTURE SLDS - SUMMARY TABLE

This section and **Appendix C** provide a comprehensive description of the present and future status of Utah’s P-20 SLDS. It begins with a summary table, and then in a more detailed narrative it lists the capabilities and elements the UDA adds.

The **bolded text** in the cells under the heading **Required Capabilities** and later **Required Elements** indicates the SLDS requirements fulfilled through the work and funds proposed in this application. The acronyms in the **Funding Sources** column indicate where the funds used to fulfill a capability or element to the left originate. The acronyms are defined here.

- *2007 SLDS*: funds from the 2007 SLDS grant
- **2009/ARRA SLDS**: funds to complete the work proposed in this application
- *USED*: from other recovery act funds, federal formulas or discretionary funds
- *UTAH*: from state funds

Required Capabilities	Funding Sources
<p><b>1</b> - The system must enable States to examine student progress and outcomes over time, including <b>students’ preparation to meet the demands of postsecondary education, the 21st century workforce, and the Armed Forces</b>. Such a system must include data at the individual student level from <b>preschool through postsecondary education and into the workforce</b> (e.g., employment, wage, and earnings information).</p>	<p><i>UTAH</i> <i>USED</i> <i>2007 SLDS</i> <b>2009/ARRA SLDS</b></p>
<p><b>2*</b> - The system must facilitate and enable the exchange of data <b>among agencies</b> and institutions within the State and between States so that data may be used to inform policy and practice. Such a system would support interoperability by using <b>standard data structures, data formats, and data definitions to ensure linkage and connectivity among the various levels and types of data</b>.</p>	<p><i>UTAH</i> <i>2007 SLDS</i> <b>2009/ARRA SLDS</b></p>
<p><b>3</b> - The system must link student data with teachers, i.e., it must enable the matching of teachers and students so that a given student may be matched with the particular teachers primarily responsible for providing instruction in various subjects.</p>	<p><i>UTAH (applies to K-12 only)</i></p>
<p><b>4</b> - The system must enable the matching of teachers with information about their certification and teacher preparation programs, including the institutions at which teachers received their</p>	<p><i>UTAH (applies to K-12 only)</i></p>

training.	
<b>5</b> - The system must enable data to be easily generated for <b>continuous improvement and decision-making</b> , including timely reporting to parents, teachers, and school leaders on the achievement of their students.	<i>UTAH</i> <i>2007 SLDS</i> <b>2009/ARRA SLDS</b>
<b>6</b> - <b>The system must ensure the quality and integrity of data contained in the system.</b>	<i>UTAH</i> <i>2007 SLDS (already addressed at K-12)</i> <b>2009/ARRA SLDS</b>
<b>7</b> - The system must provide the State with the ability to meet reporting requirements of the Department, especially reporting progress on the metrics established for the <b>State Fiscal Stabilization Fund</b> and the reporting requirements included in the ED Facts data collection and reporting system.	<i>UTAH</i> <i>USED</i> <i>2007 SLDS</i> <b>2009/ARRA SLDS</b>
<b>Required Elements</b>	<b>Funding sources</b>
<b>With respect to preschool through grade 12 education and postsecondary education:</b>	
<b>1</b> - A unique statewide student identifier that does not permit a student to be individually identified by users of the system (except as allowed by Federal and State law)	<i>UTAH (P-16)</i> <i>2007 SLDS (K-16)</i> <b>2009/ARRA SLDS</b>
<b>2</b> - Student-level enrollment, demographic, and program participation information	<i>UTAH (K-12 &amp; postsecondary)</i> <b>2009/ARRA SLDS</b>
<b>3</b> - <b>Student-level information about the points at which students exit, transfer in, transfer out, drop out, or complete P-16 education programs</b>	<i>UTAH (K-12 and postsecondary)</i> <b>2009/ARRA SLDS</b>
<b>4</b> - <b>The capacity to communicate with higher education data systems</b>	<i>UTAH (K-12)</i> <i>2007 SLDS (K-16)</i> <b>2009/ARRA SLDS</b>
<b>5</b> - <b>A State data audit system assessing data quality, validity, and reliability</b>	<i>UTAH (K-12)</i> <i>2007 SLDS (K-12)</i> <b>2009/ARRA SLDS</b>
<b>With respect to preschool through grade 12 education:</b>	
<b>6</b> - Yearly test records of individual students with respect to assessments under section 1111(b) of the Elementary and Secondary Education Act of 1965	<i>UTAH (K-12)</i> <b>2009/ARRA SLDS</b>
<b>7</b> - Information on students not tested, by grade and subject	<i>UTAH (K-12)</i> <b>2009/ARRA SLDS</b>
<b>8</b> - A teacher identifier system with the ability to match teachers to students	<i>UTAH (K-12)</i> <b>2009/ARRA SLDS</b>

9 - Student-level transcript information, including information on courses completed and grades earned	<i>UTAH (K-12) 2007 SLDS (K-16) 2009/ARRA SLDS</i>
<b>10 - Student-level college readiness test scores</b>	<i>UTAH 2009/ARRA SLDS</i>
<b>With respect to postsecondary education:</b>	
<b>11- Data that provide information regarding the extent to which students transition successfully from secondary school to postsecondary education, including whether students enroll in remedial coursework</b>	<i>2009/ARRA SLDS</i>
<b>12 - Data that provide other information determined necessary to address alignment and adequate preparation for success in postsecondary education</b>	<i>2009/ARRA SLDS</i>

**\*Note:** The UDA will not actually develop the sub-part of capability 2 that addresses the exchange of data between states. However, it will consider and cooperate with WICHE's multistate data projects. The UDA will adhere to standards such as the School Interoperability Framework (SIF), the Postsecondary Electronic Standards Council (PESC) and other XML schemas. These standards lay the groundwork for future interstate data exchanges and cooperative data projects.

### **1.3. ADDITIONAL SLDS CAPABILITIES AND ELEMENTS (ABSENT FROM THE EXISTING SLDS)**

Utah has completed many SLDS requirements, some are under development and a third group have not begun. The following paragraphs describe that third group and the outcomes of the UDA work that will fulfill those requirements. They do not address the improved access to complete SLDS elements or elements under development when that improved access is just a byproduct of those elements' incorporation into the UDADS. **Appendix C** lists these byproduct outcomes.

**SLDS Capabilities** The highlighted text indicates the parts of an SLDS RFA requirement the UDA project will fulfill.

**Capability #1** - The system must enable States to examine student progress and outcomes over time, including **students' preparation to meet the demands of postsecondary education, the 21st century workforce, and the Armed Forces.** Such a system must include data at the individual student level from **preschool through postsecondary education and into the workforce (e.g., employment, wage, and earnings information).**

A primary product/outcome of this application is a shared pre-kindergarten, K-12, postsecondary, and workforce services longitudinal data warehouse, the Utah Data Alliance Share (UDADS). It will collect, store and make available the data necessary to analyze data and answer these and many other questions about the success of policies, practices and programs for students at all levels of their education and employment preparation. This data share protects

individual privacy. It provides only de-identified unit record data. Any personally identifiable information is maintained in separate data structures that are never shared or otherwise exposed to any user of the data. Access to even the de-identified data is restricted to authorized researchers who are bound to strict use policies.

**Capability #2** - The system must facilitate and enable the exchange of data **among agencies** and institutions within the State and between States so that data may be used to inform policy and practice. Such a system would support interoperability by using **standard data structures, data formats, and data definitions to ensure linkage and connectivity among the various levels and types of data.**

The UDADS will collect and import data from the partner agencies in the formats most appropriate for that data. Pre-kindergarten and K-12 data can be collected via SIF objects and postsecondary data via PESC. Workforce services and Armed Forces data can be collected in various formats and via data specific XML schemas wherever possible. Once in the UDADS, partners will share the data as described in data dictionaries and data views. Data will be exported through various formats and protocols including XML, Microsoft Excel and any number of other formats (e.g. SIF, PESC).

**Capability #5** - The system must enable data to be easily generated for **continuous improvement and decision-making**, including timely reporting to parents, teachers, and school leaders on the achievement of their students.

Although Utah's K-12 system includes a wide range of student level data and can deliver it to the SEA, LEA, school, classroom and parent levels in a timely manner such delivery is not done uniformly. The current UTREx project funded by the 2007 SLDS grant will make that possible for every classroom, school, LEA and the SEA. This outcome/improvement complements Utah's Race to the Top (RttT) application that seeks to expand the use of data at the school and classroom levels. Most notably, part of Utah's RttT proposal includes the integration of Utah SIS2000+ system's grade book with its Utah Test Item Pool (UTIPS) formative assessment delivery system. This integration would automate the updating of each state standard and objective achieved by the student based on his or her performance on UTIPS items. Utah's RttT also includes plans for more comprehensive professional development at the school and classroom levels so those data can be used for making data driven decisions to improve student achievement. See related components of Utah's RttT draft application in **Appendix A, Attachment 2.**

Although Utah's K-12 longitudinal data system collects student-level classroom data from LEAs and provides data, especially student performance data, to the LEA, school and classroom levels, the K-12 SLDS needs to collect and manage more data about the settings, types and methods of instruction, as well as the teacher's practice and behavior in the classroom. This will help to fulfill one of Utah's major RttT K-12 goals, continuous improvement of instruction. Better data about instruction will require significant modification to local K-12 systems, the statewide K-12 data warehouse and eventually the UDADS. The USOE data warehouse currently only collects and maintains data about the instructional setting (e.g. face-to-face, online, independent) of

individual classes within a school. However, the collection of more comprehensive data about classroom instruction is beyond the scope of UDA. Such work will be proposed in Utah RttT application.

**Capability #6 - The system must ensure the quality and integrity of data contained in the system.**

This applies to all components and databases that make up the P-20 SLDS. Utah is already addressing data quality and integrity in the K-12 environment but must continue to do so as the SLDS reaches below and above the K-12 range. The application will address how databases and the processes surrounding those databases in the pre-kindergarten and postsecondary ranges will be designed to ensure data quality and data integrity. Most of this effort will be focused on the proposed data warehouse (UDADS) to be shared by the UDA partners.

**Capability #7 - The system must provide the State with the ability to meet reporting requirements of the Department, especially reporting progress on the metrics established for the State Fiscal Stabilization Fund and the reporting requirements included in the ED Facts data collection and reporting system.**

Many SFSF reporting needs include the capabilities and elements to track students from K-12 into postsecondary. With the UDA data, one will be able to determine the outcomes of postsecondary experiences and how well students were prepared for the postsecondary environment. Two key areas of improvement related to SFSF requirements are 1) the ability to determine which K-12 student entered postsecondary institutions 2) whether or not they finished a program 3) how long they were enrolled, and 4) if their K-12 preparation work prepared them for postsecondary work. Utah also needs to report on the performance evaluations of K-12 principals and teachers. In addition, Utah will use 2009/ARRA SLDS funds to continue to automate and improve the accuracy and timeliness of its ED Facts reporting.

**SLDS Elements**

**Element #1 - A unique statewide student identifier that does not permit a student to be individually identified by users of the system (except as allowed by Federal and State law)**

UDADS will collect, store and make available, individual data necessary to research and answer these and many other questions about the success of programs for students at all levels of their education and employment preparation. Primary matching across the data will be done by SSID (for pre-kindergarten and K-12 to postsecondary) and SSN (for workforce to postsecondary). Since public postsecondary databases generally have the K-12 SSID and the SSN, this will allow for indirect matching for K-12 to workforce data. In other instances, such as an individual going directly to the workforce after K-12, some type of attribute-probabilistic matching will be employed. The SSID is being treated as a personally identifiable piece of information like name and address. It is not provided on public documents and will not be distributed in data files going to analysts/researchers. In 2007 the Utah State Legislature passed a statute requiring the use of

the K-12 SSID to follow students through their public postsecondary education careers (See **Appendix A, Attachment 3**). The legislature mandated the use of the K-12 SSID in a prior session.

**Element #3 - Student-level information about the points at which students exit, transfer in, transfer out, drop out, or complete P-16 education programs**

Most of these data points already exist for students in K-12 and then again in the postsecondary for Utah's public education institutions, but the data are not integrated in one common data warehouse. The USOE has a warehouse that contains the K-12 data points while the Utah State Board of Regents (USOR) and the Utah College of Applied Technology (UCAT) maintains a data warehouse that contains such data for postsecondary institutions. The UDADS will bring all those data together into one longitudinal database.

**Element #4 - The capacity to communicate with higher education data systems**

Although Utah public K-12 data are passed to public postsecondary institutions via transcripts aided by the Utah SSID, work must be done to integrate workforce data, postsecondary data and K-12 data. Work also needs to be completed in order to include private postsecondary and possibly private K-12. Within the UTREx system SIF standards are employed extensively at the K-12 level. For the transfer of electronic records to the postsecondary schools EDI/Speede as well as PESC standards and protocols can be employed. Likewise, these standards will be used whenever possible to move data within the UDA.

**Element #5 - A state data audit system assessing data quality, validity, and reliability**

Data quality audits are being done at the K-12 level, but as those data become integrated with both postsecondary and workforce data, additional auditing will need to be implemented to ensure the quality of those combined datasets. The UDA provides for staff to be hired in each partner agency and for a dedicated auditor over all UDA work. Agency UDA staff will work with the dedicated auditor on an as needed basis.

**Element #10 - Student-level college readiness test scores**

Although the USOE data warehouse contains student level readiness test scores, more scores, specifically SAT scores need to be added. In addition, such scores will be matched with postsecondary performance data and workforce data to make effective use of them to answer curriculum alignment and other transitional and retention questions.

**Element #11 - Data that provide information regarding the extent to which students transition successfully from secondary school to postsecondary education, including whether students enroll in remedial coursework**

Most of these data (e.g. grades, scores, exit, transfer, dropout, completion) are included in the existing USOE and USHE datasets, but have not been integrated into one common data warehouse. Other data such as behavior indicators, and teacher information could also be added. Of

particular interest, are such questions as did the student enroll in a remedial English course and did the student enroll in a remedial math course? Merging these data using the SSID in a common database will create more reliable and complete information. Currently, much of the K-12 data about a student are self-reported by the students when they enroll in higher education. Such data are not as reliable as a true longitudinal system in which K-12 and postsecondary systems are directly sharing data. In addition, the postsecondary warehouses of USHE and UCAT have much more limited data about a former high school student than the USOE warehouse.

**Element #12 - Data that provide other information determined necessary to address alignment and adequate preparation for success in postsecondary education (ARRA 1.b(12)).**

Exact determination of data needs will require input from curriculum and assessment practitioners. They will need to articulate what policy, program, and best practice questions will need to be answered. Such data should include: college readiness scores, course records and grades, instructional and teacher histories, and non-cognitive indicators. Some of these types of data may need to be added to operational data collections and finally integrated into UDADS.

## **Section 2 - Project Outcomes Related to Requirements by Partner**

Section 1 outlined the outcomes the UDA will fulfill to meet the required SLDS capabilities and elements. Sub-section 2.1 identifies what data each UDA partner will provide and what outcomes they expect. Sub-section 2.2 identifies possible future UDA partners, the data they may provide and the outcomes they may expect. Sub-section 2.3 will describe the design, development and deployment of the major technical outcome of this project, the integrated UDA data share or UDADS.

### **2.1 DATA PROVIDED, OUTCOMES AND DATA NEEDS**

This section will describe each partner agency's participation in UDA in two parts; first, the data provided to the UDADS and second, the data need and the outcomes expected. The UDADS will match data from two or more partners. The UDADS will use the SSID to match data across the pre-kindergarten and K-12 to postsecondary levels and the SSN from postsecondary into the workforce. Since postsecondary individual records generally have both the K-12 SSID and the SSN, the UDADS will be able to match K-12 to workforce data indirectly. Attribute and probabilistic matching will be used in cases where there is no postsecondary data with both SSN and SSID. At no time will data such as SSNs, SSIDs or names be made available to any using the UDADS. **Appendix A, Attachment 4** provides a summary of all data provided and needed by partner. It also indicates any new data collections that will be initiated by the UDA.

#### **USOE (K-12) Data Provided**

The USOE has a robust data warehouse that contains, among other data, student and teacher records, LEA tables and the Utah core curriculum. For each student, there is a record for every enrollment by school and course, standardized test results and other program data such as the student's participation in special education and alternative language services. Individual teacher

data includes all licenses, endorsements, subject assignments, trainings/preparations and work history. **Appendix A, Attachment 5** contains the USOE warehouse's data dictionary.

Utah's Comprehensive Counseling and Guidance programs have substantial Student Education Occupation Plan, SEOP, data but they are not well integrated with other student data. With the introduction of UtahFutures and the Student Strengths Inventory (SSI) and its focus on non-cognitive data, combining such data with other longitudinal student level data to the USOE Data Warehouse the UDA. Both the USOE (K-12) and the Postsecondary Outcomes and Data Needs sub-sections will address these needs.

## **USOE (K-12) Outcomes and Data Needs**

**Primary Data Requirements/Needs** – The need to report ARRA Assurance Indicators is driving the need for other data capabilities. Utah K-12 and postsecondary institutions need to combine and analyze student level data to do the following.

**1. Confirm whether a student who “graduated” from a Utah public high school enrolled in a Utah institution of higher education.** Currently, USHE only receives private college and university data from IPEDS and NSC. The USOE or USHE can give private schools a list of k-12 students and they report information about those students. Since Utah does not have statues requiring private schools to report data, no private school data will be included but future work may focus on doing so.

The UDA project will periodically request a comprehensive data file from the National Student Clearinghouse (NSC) Student Tracker system. This request will ask for all information NCS can legally provide on all students who indicated that they graduated from or last attended a Utah high school. UDADS will match these students' records with existing UDADS student records. In addition, UDA will use the NCS to identify Utah students who have or are attending out of state institutions of higher education, both public and private.

**2. Confirm whether a student who enrolled in a Utah institution of higher education completed at least one year of college credit (applicable to a degree) within two years.** The UDADS will enable Utah to do this more accurately and regularly.

**3. The UDA project will construct an operational definition around the amount of education a student has completed to date.** The NSC's StudentTracker is currently the best solution, to determining the amount of education completed in an out of state institution. In the future other multistate services such as the WICHE project may be used.

**4. Identify high school dropouts that gain access to postsecondary and employment.** Since the UDADS will contain the records of high school dropouts, postsecondary and employment records this identification will be much better than in the past. In addition, the UDA will provide access to absences, attendance, grade retention, achievement scores, credits earned and disciplinary records to help create better early interventions systems. Policy makers will be able to access graduation rates and other indicators of various schools to determine which programs are most

successful. Data from GED programs will also be available to match to other student and employment records. Utah is in a fortuitous position with adult education records since the USOE's **adult education program** uses the same SIS as many K-12 LEAs. This greatly facilitates the merging of high school, GED and adult education records including diplomas.

**SSID (statewide student ID) improvements** - In the current Utah Transcript and Record Exchange system (under development), before a school requests the electronic transfer of a student's records, the requesting school must determine the statewide student ID (SSID) of the student. The current method of acquiring the SSID is a batch or manual online process. This extension will provide a more real-time, integrated process for the retrieval of the SSID. This will allow UTREx to fulfill the request for a student's record in much less time.

**Addition of Disciplinary and Instruction Data to UTREx** - Since the initial UTREx contract, EdFacts requirements have created the need for the USOE to collection more comprehensive student level disciplinary data. Work to satisfy this need affects the UTREx School Interoperability Framework (SIP) infrastructure, the LEAs' SISs and the USOE data warehouse.

**How non-cognitive factors affect a student's educational future** - There is growing awareness among educators, researchers, and policy makers, that psychosocial or non-cognitive factors are strong predictors of high school, college, and workplace success. These factors include, but are not limited to educational commitment, academic engagement and conscientiousness, social comfort and social integration, academic self-efficacy, and resiliency (Robbins et al. 2004). Researchers at the University of Utah developed a measure of non-cognitive factors for use in secondary and post-secondary environments (Student Strengths Inventory) and propose to develop a data-driven model to assess, and then promote, college and workforce readiness among high school juniors and seniors using this instrument. The use of the Student Strengths Inventory would be made possible by the UDA.

Specifically, the Student Strengths Inventory (SSI) would be administered to all current 11<sup>th</sup> and 12<sup>th</sup> grade students and then to all 11<sup>th</sup> grade students in subsequent years. When results from the SSI are combined with other student data in the UDADS, such as absences, standardized achievement test scores, etc, UDA personnel will have access to valuable data about the individual and combined role that non-cognitive factors play in academic and workplace readiness and outcomes. Grant funded personnel will help coordinate statewide training related to administration of SSI, use of scores at the school level, interpretation of results, and developing local use-case models. See **Appendix A, Attachment 6** for more information about non-cognitive factors.

**Pre-kindergarten students** - Federal reporting requires the USOE to report outcomes for all preschool special education students. Currently this is a manual spreadsheet-based process that collects only aggregate data.

Each year almost all LEAs collectively report about 7,000 special education pre-kindergarten students and about 5,000 non-special education pre-kindergarten students. Extensions to UTREx will allow public schools to provide more individual data to the USOE warehouse and ultimately

to the UDADS where those data can be combined with other individual level data about the student. Such data will provide answers to a number of questions about special and non-special education students. These include linking progress to disability level of progress.

**Instruction and educator performance data** - Utah's RttT application, with its emphasis on instructional improvement, requires the introduction of more instructional and educator performance data. The USOE needs to introduce new data elements to allow connections between instructional methods, models, strategies, teacher performance and student achievement.

After the identification of statewide instructional improvement goals, the USOE must define measures to determine how well schools meet those goals. The existing K-12 SLDS will combine these data with other existing school, classroom and student data.

Designing, funding and implementing of such a system and its data are beyond the current scope of the UDA and this grant application. However, if Utah receives an RttT award to pursue these objectives, their system components and data will become an integral part of Utah's K-12 SLDS and the UDA.

### **Postsecondary (USHE/UCAT) Data Provided**

A postsecondary student-level data warehouse is currently in service. It contains over seven years of postsecondary data about individual student enrollments, courses, and degrees. The UDA will provide for its expansion to include more data elements. **Appendix A, Attachment 7** contains the USHE/UCAT's warehouse data dictionary.

In 2005, the USHE entered into a contract with the National Student Clearinghouse (NSC) that allows any postsecondary institution and K-12 LEA to retrieve data about their prior or current students from the NSC. The NCS will provide a valuable source of data for the UDADS for use by all the partners.

### **Postsecondary USHE/UCAT Outcomes and Data Needs**

In August 2009, USHE submitted a set of questions to all USHE institutions and UCAT campuses. The following responses define what shared data elements, information, and answers USHE institutions need from the UDA. See: **Appendix A, Attachment 8** for a more detailed summary of this survey.

**Access - What are the barriers to postsecondary education?** Postsecondary institutions need to be able to unravel the separate but probably interacting, effects of culture (family background), location (geographic), school, income, and schooling.

What is the cost for an individual to forgo wages during the time it took them to complete instruction and gain another job? This opportunity costs still exists for part-time students who reduce working hours to attend school.

**Recruitment - How are potential students identified for the institution and degree programs?**

There is no convenient way to access in-state students. The list of needed data elements include name, address, email, phone, GPA, AP scores, ACT/SAT score, rank graduation year, courses, grades, top college choices, and non-cognitive variables. Planners need to see if high school CTE courses translate into postsecondary training in the same or similar field. The USOE's data warehouse will make many of these data available to the UDADS.

**Preparation - What are the levels of high school preparation?** Postsecondary institutions need better access to electronic records of high school records to measure the effects of high school preparation college success. All of these data will be in the UDADS by course, student, school, and LEA for Utah K-12 students.

**Retention - What factors affect student retention?** Using the UDADS, statewide research on at-risk variables could eventually help identify which ones affect postsecondary students. This type of work will help develop prevention and intervention programs. Researchers also need some measure of student intent. The Non-cognitive Data subsection in the USOE (K-12) section above addresses these data needs.

A post-withdrawal study would help identify factors leading to dropout. Then risk factors could be determined and a predictive model constructed. The UDADS will not be initially included these data but could be added in the future.

**Completion - What constitutes completion and how is time-to degree computed?**

Postsecondary institutions cannot account for transfer students. They can get lost as they transfer from one school to another with neither school getting credit for the graduation. An integrated UDADS that follows them wherever they go will alleviate this problem.

The Counsel on Occupational Education (COE) defines completion as finishing a certificate or completing enough instruction to gain related employment. Time to completion should be measured by the number of enrolled hours to a positive outcome. The UDADS will have these data both at the K-12 and postsecondary levels.

**Post-graduation success, (e.g., transfer, job, graduate school, employment, wages) -** UDA can determine most out of state degree completions through NSC. The NSC data dictionary is contained in **Appendix A, Attachment 9**. The UDADS will incorporate much of Utah's NSC data.

**Note:** Although the UCAT and USHE data provided, data needed and outcomes are combined in this section for economies of space, each agency will be allotted their own budgets and will pursue at least some data analyses and research independently.

**DWS Data Provided**

The DWS is able to provide rich data sets of workforce and employment data the UDADS can match with K-12 and postsecondary data. For example, information on wage changes that result

from education is important to determining the return on investment of educational dollars. The DWS's partnership in UDADS can help with this problem. With the help of DWS data, researchers could evaluate the effectiveness of workforce recruitment.

The Wage Record Interchange System (WRIS) facilitates the exchange of wage data among participating states for the purpose of assessing and reporting on state and local employment and training program performance. The DWS's current WRIS agreement does not allow for data sharing beyond the purposes of labor program outcome measurement reporting. A new agreement is being proposed that, if approved, would allow data sharing outside these programs, but in the aggregate only – not by individual.

DWS has access to The Federal Employment Data Exchange System, or FEDES, a pilot initiative that provides information on federal employment to participating states to help them meet their reporting requirements. Quarterly data exchanges are conducted with three federal agencies: the Office of Personnel Management (OPM), the Department of Defense, Defense Manpower Data Center (DMDC), and the U.S. Postal Service (USPS). These data include where the person is employed as well as pay grade or step.

DWS has Temporary Assistance for Needy Families (TANF) and Food Stamp data. However, at the current time such data access is restricted to only aggregate statistics.

DWS collects all of the individual information needed and required for unemployment insurance (UI) purposes. However, full time/part time status, hours worked and occupation specific information by worker are not needed for UI purposes.

One important new source of education data for DWS that is already available and will be included in the UDADS is UtahFutures. **Appendix A, Attachment 10** contains the DWS's warehouse data dictionary.

UtahFutures (see **Appendix A, Attachment 11**) is a multi-agency (USOE, DWS, USHE), comprehensive career information system developed by intoCareers at the University of Oregon. It allows users, primarily students and counselors, to have integrated access to labor market information and highlights Utah specific career planning activities and opportunities. Utah has recently undertaken what is perhaps the most aggressive plan of all the twenty-plus states that use the system.

The UDADS will integrate UtahFutures with other partners' data. This will be relatively easy to accomplish because the K-12 SSID is a main attribute of every student registering with UtahFutures. It will enable the linkage of individual student career data, including objectives, motivations and behaviors with both K-12 and postsecondary data.

### **DWS Outcomes and Data Needed**

The DWS needs to answer six basic categories of policy and decision-making questions. These include the following.

- Are people receiving the correct services?
- Is there adequate alignment between employment needs and education/training?
- Are people being educated/trained in Utah staying employed in Utah?
- Is the DWS employing the correct planning strategies?
- Is the DWS employing effective evaluation tools?
- What education experiences eventually lead to more success in the workforce? This is also an RttT question and a USHE need.

In addition to the data the DWS already has, data needed to answer these questions include student demographics, K-12 and postsecondary institutional, K-12 and postsecondary academic, K-12 entrance/placement assessments, financial aid and socioeconomic.

### **Utah Education Policy Center (UEPC) and Outcomes Shared by Partners**

**UEPC's Background** - The Utah Education Policy Center (UEPC) is a research-based, non-profit education policy center developed to improve the quality of educational policies, practices, and leadership in Utah public schools and higher education. The UEPC was founded in the University of Utah's College of Education, Department of Educational Leadership and Policy in 1990. Since 2007, the UEPC has been administered through the College of Education at the University of Utah. The UEPC seeks to inform and influence educational policy in Utah and the region to increase educational equity, excellence, access, and opportunities for all children and adults in Utah.

A primary goal of the UEPC is to bridge research, policy and practice so that educational leaders, educators, policymakers, and other stakeholders have the most advanced and balanced information to make sound decisions about educational policy and practice. The UEPC conducts both original research and provides research and evaluation services on educational issues for the Utah legislature, Utah State Office of Education, school districts, and community-based organizations. In addition, the UEPC provides policy and research colloquia, forums, and publications on current and timely educational issues. Collectively, the UEPC's research and evaluation efforts provide valuable information for local educational entities, other agencies, and non-profit organizations regarding implementation and outcomes associated with educational programs and policies, including consideration of alternatives and recommendations for ongoing improvement and sustainability.

**UEPC's Role in the UDA** - The UEPC will serve an important role in contributing to an infrastructure that ensures enhanced use of the UDA data for program and policy improvements by generating accurate and timely analysis of data for informed decision-making. Specifically, the UEPC will expand its current research in the state and will serve as a critical resource for the UDA partners by establishing a permanent coordination office for conducting original research and longitudinal analysis. As a key UDA participant, UEPC will greatly enhance the kinds of questions the UDA can answer through more rigorous studies, including those supported by NCES and IES, and leading to long-term sustainability and impact. For instance, The UEPC will provide a statewide analysis with policy recommendations on the following topics:

- The pipeline from kindergarten (prekindergarten where available) through post secondary education, including readiness
- Achievement gaps
- Student graduation and dropout
- School effectiveness
- Teacher supply and demand, quality and effectiveness
- Program and service effectiveness

Again, the UEPC will serve in two primary functions in the UDA. The UEPC will conduct original research and evaluation on key identified educational areas. Second, the UEPC will coordinate the research of the current and future partner entities (i.e., USOE, USHE, UCAT, DWS, UDHS, and UDH).

### **Utah Education Network (UEN) and the UDA**

The Utah Education Network is a consortium of public education partners, including the Utah System of Higher Education and its ten universities and colleges and Utah eLearning Connection; the Utah State Office of Education, local school districts and the Utah Electronic High School and; the state's Library system. UEN provides a robust, reliable network connecting every public school, college, university and library in the state as well as a large technically advanced and diverse data center. The UEN will be the location and custodian of the UDADS that will be described in more detail below.

## **2.2 FUTURE PARTNERS AND OUTCOMES**

Within the scope of UEPC's work the UDA proposes to conduct more formal needs assessments of potential new partners, the data they can provide and their data needs and questions. Those potential partners follow.

### **Pre-Kindergarten Programs**

In addition to public special education programs and non-special special education pre-schools, many early-childhood and pre-kindergarten program representatives (Head Start, CNP etc.) have begun to discuss how to share data between themselves and with public education. The USOE already has a system in cooperation with the Utah Department of Health that assigns SSIDs to Title I Part C participants. In addition, the system tracks Part C and Part B students as their eligibility is determined and they transition between the two programs and finally into K-12.

The USOE sponsors a preschool Web-based program called UPSTART that a child can use at home. If the USOE assigns SSIDs to the preschoolers participating in UPSTART, another new set of pre-kindergarten data could be available to the UDA. The UDA may also evaluate the collection of pre-kindergarten data from private providers.

### **Utah Department of Human Services**

Human Services needs data to analyze the outcomes of, early childhood programs, foster care and youth corrections. The UDA could provide data about the participation of these students in K-12, postsecondary, higher education, corrections, and the workforce.

### **Youth Corrections (part of the Utah Department of Human Services)**

The USOE data warehouse has some youth corrections data but K-12 systems need to do more development to make those data comprehensive. With such development, the UDA may make it possible to match these data with data from other partners.

### **Utah Department of Corrections**

Corrections needs a wide range of data to determine how to decrease recidivism. Corrections could obtain many of these data from UDADS in the future.

### **Utah Department of Health (UDH)**

Aside from the limited work already being done by the UDH and the USOE to track Part C participants, the UDH needs data to analyze the outcomes of early childhood intervention and immunization programs. The UDA could provide many of these data.

### **WICHE (Western Interstate Coalition of Higher Education)**

WICHE has begun a pilot project to develop a collaborative multi-state data exchange with four states (Washington, Oregon, Idaho, and Hawaii). Such a multi-state system will allow for the identification of individuals as they attend colleges and universities, take jobs in adjoining states. It would enable the addressing of policy questions with a significantly larger population.

Since the USHE staff has shared its postsecondary data dictionary with WICHE, the UDA work should align well with WICHE's project. As a member of WICHE, USHE will have access to the lessons learned from their project and will look for opportunities to work with WICHE as their project progresses.

## **2.3. UTAH DATA ALLIANCE DATA SHARE (UDADS) shared longitudinal data warehouse.**

### **UDADS - Warehouse Design**

The Utah Data Alliance Data Share (UDADS) will house multi-year, multi-job, multi-enrollment data about Utah students who later become employees. This is the major technology outcome the UDA. The initial phase of the UDADS project will prescribe these steps in sufficient detail to complete the work. Subsequent sub-sections in this document just outline the UDADS components. These components, including business intelligence (BI) tools, provide robust support for the analysts and researchers in the partner agencies.

## Architecture

Preliminary research and consultation between USOE, USHE, UCAT DWS and UEN technical staffs have yielded the following proposed technical architecture. One of the first phases of the project will be a complete and final review of all data and technical needs (**see Section C – Timeline for Project Outcomes**) and a final technical architectural design. This will serve as the basis for any subsequent work plans and contracts.

- **Data Schema** – The data schema will be developed in accordance with the data that is currently being provided by the contributing partners, and will be made to be adaptable to accommodate extensions where required data are not yet collected but will be collected to meet future needs. The schema will incorporate standards for SLDS definitions and types developed under open standard initiatives such as the National Education Data Model (NEDM), SIF and PESC.
- **Business rules** – The business rules development will be a collaborative process between all UDA partner organizations to ensure data integrity throughout the data integration process.
- **Security** – Security of the data will be of highest priority. UEN staff will follow all rules and regulations for release of information. All project personnel, working for any partner, will receive training addressing FERPA and any other applicable privacy rules pertaining to student and employment information maintained by UDADS. Existing partner staff, the data quality auditor and the information analysts will coordinate and conduct this training.
- **Individual/staging** – All data will be stored so no data can be traced to a specific individual. This will allow for data mining while ensuring that no personal information is exposed.
- **Data analysis/business intelligence tools** – Following NCES and SID data standards as strictly as possible the data architects will construct Meta-data Content & Access Layers for use by BI and other data extract tools. The UDA will be using existing Cognos server licenses managed under a statewide contract the USOE currently has with Cognos (**see Appendix A, Attachment 12**). Client access by the UDA partners to Cognos tools will also come from the USOE's pool of licenses.

## UDADS warehouse implementation

The UDA grant team, in conjunction with UEN, has already done initial work on the actual implementation of the UDADS. Based on prior projects and in consultation with technology staffs from other colleges at the University of Utah (e.g. the College of Medicine) the UEN has defined the hardware and staffing needs outlined below and in their budget narrative.

- **Capacity** – The capacity of the UDADS will initially match the sum of the sizes of the systems feeding data in to the system. Initial estimates suggest that between 500GB to 1TB of storage space will be required. Additional space will be required for warehouse objects of

approximately the same sizes. Considering the types of data to be maintained in UDADS the UEN estimates growth rate of approximately 15% annually. Approximately 10TB of storage space will be required to accommodate growth, testing, development, standby DBs and quality assurance copies. UEN will use existing storage area network equipment to serve as the additional storage to host UDADS.

- **Hosting** – The coordination committee has obtained commitments from the Utah Education Network to house the servers and support the overall infrastructure of the UDA project.
- **Data Loading** – Export, Transport, and loading of data from feeder systems will be done in a secure manner approximately quarterly throughout the year or more frequently as requirements change.
- **Support** – UEN currently supports and delivers a number of shared resources and services to all of the UDA partners. Similar methods of support, maintenance, and communication will be used and modified as needed to insure quality data and service.
- **Sustainability** – UEN will be adding additional staff and computing resources noted in the suggested budget to support the proposed UDADS. Following the grant period, staff and equipment resources will need to be continued if the data are continue to grow.
- **Data Quality** – The UEN will use a commercial metadata repository and the data dictionary management software to ensure all data coming into the system are accurately cataloged and documented. These metadata will comply with national standards to the maximum extent possible and will set the standard for all of Utah’s public education data systems.

## 2.4 TRAINING AND STAFF DEVELOPMENT

Numerous groups need and will receive training or professional development. The generic term, “training” will be used for both training and professional development from now on. Some are full time USOE, USHE, UCAT, UEPC (often faculty) and DWS staff such as business analysts. Others are researchers and analysis employed on a part time basis. These include graduate students on stipends or fellowships. The following paragraphs will outline the type of training applicable for each group.

### Fulltime Analysts and Researchers

Training for analysts and researchers falls into four categories: data definitions, structures, and business rules applied to collect or derive/compute data and the business analysis/intelligence tools used to access and analyze the data. In addition, such individuals need to be familiar with statistical tools such as SPSS, R and SAS.

The systems analysts, subject matter experts, database administrators and designers who are responsible for the original construction of the data warehouse, may best understand its data definitions, structures and business rules. However, they will not have time to provide ongoing

training. Existing partner staff, the data quality auditor and the information analysts will coordinate and conduct training to address the understanding and the use of the UDADS, both in meaning and structure. Section 5.3 (Roles, Responsibilities and Time Commitments) in the Staffing section discusses the usage of these positions for training.

### **Part Time staffs (e.g. graduate assistants and interns)**

Part time student staff will augment much of the analysis and research work. These students may be working with researchers in the colleges of education, public policy, social services, business, information technologies, or computer science.

NCES/AIR IPEDS training modules will serve as models for the ongoing training on the use of the UDADS. These will be full day workshops sponsored by the partner agencies. The purpose of these workshops will be to educate users of the data available in the UDADS and ensure compliance with data regulations (FERPA, HIPPA etc.). These workshops will present opportunities for sharing best practices and methods of reporting results.

### **Business Intelligence Tool Training**

All analysts and researchers will need to develop some degree of expertise in using Cognos, the BI tool to be used by the UDA. Professional Cognos trainers will conduct intensive multiday training classes.

### **LEA Training**

The scope of UDA training will not extend into K-12. Utah's Race to the Top (RttT) grant application addresses K-12 data training. USOE's data mentoring program already provides some training through Cognos and DigitalSAMS users groups at the local level. The RttT training and professional development outcomes are found in **Appendix A, Attachment 13**.

## **2.5 CAPACITY TO SUSTAIN THE UDA AND THE UDADS**

### **Yearly costs after the grant expires**

The table below provides estimates of the yearly costs for sustaining the UDA and the UDADS by budget category and partner/sub-project. The total yearly cost is estimated to be **\$1,799,245**. Salary and benefit estimates are based on the amounts budgeted by each partner during the third year of the project. Salary costs generally reflect the costs for ongoing data analysis and research. UEN, with its role in supporting and maintaining the UDADS infrastructure was handled differently. Since most, if not all, of the building and refining of the UDADS will be completed by the end of the third years, only half the data architecture, IT analyst and network management staffs salaries in the third year were budgeted. The total budgets for the UDA technical coordinator and data quality auditor were maintained. Likewise, each partner retained its third year travel and training budgets. Each partner's budget was allotted \$2000 per year for laptop/desktop computer replacement assuming at least a three-year lifespan and approximately

three FTEs. The UEN's yearly equipment costs, including software, were calculated at one-third of those costs during the third year of the project.

		Yearly Expenses					TOTALS
		Salaries	Benefits	Travel & Training	Equipment	Contracts	
Partners/sub-project	USOE	172,640	62,150	17,500	0	0	252,290
	UCAT	159,120	47,736	0	0	0	206,856
	USHE	159,120	47,736	23,000	0	0	229,856
	DWS	85,280	25,584	9,000	0	0	119,864
	UEN	326,500	117,900	10,000	68,619	0	523,019
	UEPC	344,000	111,360	11,000	1,000	0	467,360
	<b>TOTALS</b>	<b>1,246,660</b>	<b>412,466</b>	<b>70,500</b>	<b>69,619</b>	<b>0</b>	<b>1,799,245</b>

**Possible sources of funding include:**

- One time legislative appropriations
- Line items in postsecondary and USOE budgets
- Collection of fees from participating agencies, including participating colleges within universities
- Future grants for education policy, program and practice research.
- Future grants for education tech sustainability - The research executive assistant will facilitate project management of UEPC research efforts and UDA research endeavors, including correspondence, coordination of meetings, maintaining records for accountability purposes, report production and dissemination. Generally, dissemination of findings is an area often overlooked in the research endeavor. Under-dissemination of findings pre-empts utilization of research for decision-making. Recognizing the importance of creating a sustainable infrastructure post award, the research executive assistant will work on grant writing and long-term funding streams to support the research efforts of the UEPC as they are related to the work of the UDA.
- Graduate student labor, with possibility of stipends or fellowships coming from funding sources within their colleges. One major benefit of relying on such individuals for sustaining the project is that they will later go into the field with a background in the data and the UDA in particular. Such background knowledge will enable them to be practitioners that are more effective and give them the knowledge to mentor others about the availability and use of such data.
- Industry/workforce help
- As Utah increases the number of UDA partners the potential for sustaining the system beyond the grant funding period increases. As more partners participate in UDA costs can be distributed over more entities thus potentially reducing the cost to any one organization.
- Charge private institutions when they want join in.

- Overtime, fewer resources will be needed as the technology components of the project move into more of a maintenance mode.

### Section 3 – Timeline for Project Outcomes

#### Timeline by Outcomes

The table below is a general timeline the UDA. It orders and describes the major milestones and accomplishments within approximate months spanning three years. As the UDA management team with fulltime staff begins work, they will produce more detailed and comprehensive plans and timelines.

Estimated Project Start: 5/2010  
 Estimated Project Finish: 4/2013  
 Total Months: 36

ID	Outcomes	Event(s) or Task(s)	Responsible Parties	Start Month	Finish Month
	Hiring of grant & project managers	- Recruitment - Interviews - Selection/role	- Steering Com. - Grant Mgr. Team	1	2
1	RFP Awards (if necessary)	- Construction - Solicitation - Review	- Grant Mgr. Team	1	4
2	Contracts (SSID, discipline data, non-cognitive, pre-kindergarten)	- Clarifications - Negotiations - Scope of work	- Steering Com. - Grant Mgr. Team	5	6
<b>UEN Outcomes</b>					
3	<i>Warehouse Design</i>	- review of data needs - schema development - management plan	-System Admin - Data Architect	1	3
4	<i>Procurement (software/hardware)</i>	- complete RFP if needed (see above) - complete contract	-Project Mgr. -Service Coordinator - Data Architect	2	4
5	<i>Implementation (software/hardware)</i>	- Installation - Configuration - Tuning	-System Admin/DBA	4	10
6	<i>Data ETL</i>	- Partner specifications - Data mapping - Verification	- Partners - UEN DB staff	11	18
7	<i>Maintenance, Support, Enhancements</i>	- manage capacity - develop schedules - identify needs	- Partners - UEN DB staff		

<b>USOE Outcomes</b>					
8	<i>SSID/SIS integration</i>	- SDLC(software development life cycle - training	- contractors	6	12
9	<i>Add discipline data to UTREx/SIF</i>	- SDLC(software development life cycle - training - warehouse integration	- contractors	6	24
10	<i>Additional Pre-k integration</i>	- SDLC(software development life cycle - training - warehouse integration	- contract programmers - warehouse staff	6	18
11	<i>Non-cognitive data with SSI</i>	- test deployment - test administration - warehouse integration	- IT analysts - System Admin/DBA - Contractor	12	24
12	<i>Provisioning of data for UDA</i>	- Export development - quality control	- IT analysts	12	20
13	<i>SEA Professional Development</i>	- content/sequence - schedule development	- Trainers	9	30
14	<i>Analysis/Research of UDADS Data</i>	- problem identification - develop hypotheses - data acquisition - analysis & reporting	- researchers & analysts	12	36
<b>UCAT Outcomes</b>					
15	<i>Provisioning of data for UDADS</i>	- Export development - quality control	- IT analysts	12	20
16	<i>SEA Professional Development</i>	- content/sequence -schedule development	- Trainers	9	30
17	<i>Analysis/Research of UDADS Data</i>				
<b>USHE Outcomes</b>					
18	<i>Provisioning of data for UDADS</i>	- Export development - quality control	- IT analysts	12	20
19	<i>SEA Professional Development</i>	- content/sequence -schedule development	- Trainers	9	30
20	<i>Analysis/Research of UDADS Data</i>	- problem identification - develop hypotheses - data acquisition - analysis & reporting	- researchers & analysts	12	36
<b>UEPC Outcomes</b>					
21	<i>SEA Professional Development</i>	- content/sequence -schedule development	- Trainers	9	30
22	<i>Analysis/Research and Coordination</i>	- problem identification - develop hypotheses - data acquisition - analysis & reporting	- researchers & analysts	12	36

