II. Technical Proposal

Contents

Background

The Washington State Employment Security Department (ESD) is the State Workforce Agency for Washington. ESD administers the State's Unemployment Insurance program as well as other workforce programs including Workforce Investment Act (WIA) Title I, Wagner-Peyser Act, and Trade Adjustment Assistance, and also collects, analyzes, and disseminates numerous reports of job-related data about Washington and its regions.

ESD also is part of the State's P-20W enterprise as a statutory partner of the Washington Education Research & Data Center (ERDC), which is based in the State Office of

Financial Management (OFM). ERDC's mission is to develop longitudinal information spanning the preschool-to-career ("P-20/Workforce" or "P-20W") experiences of Washington residents in order to facilitate analyses, provide meaningful reporting, and collaborate on research.[1]

Data-sharing agreements are in place for ESD to support ERDC's mission by supplying data associated with employment and wage outcomes for participants of education programs. The data-sharing agreements will be amended to cover ERDC receipt of data for other programs administered by ESD as planned additions are implemented. ERDC received a U.S. Department of Education 2009 ARRA SLDS grant, which is administered through the State Education Agency (SEA) – Office of Superintendent of Public Instruction (OSPI) – for continued work on the design and implementation of the State's P-20W longitudinal data system. This U.S. Department of Education funding covers work in the areas of data governance, research and reporting, P-20W data warehouse development, and source system enhancements.

[1] Revised Code of Washington (RCW) 43.41.400 authorizes the creation of ERDC within OFM and states that the ERDC "shall be considered an authorized representative of the State educational agencies … under applicable Federal and State statutes for purposes of accessing and compiling student record data for research purposes."

ESD is submitting this proposal in partnership with ERDC. Work proposed here complements the work being accomplished under the current U.S. Department of Education grant funding.

In Washington, the level of commitment and cooperation in support of using linked education and workforce data for longitudinal analysis is solid and long-standing. Linking training program completers with their workforce outcomes dates back to work conducted in the Labor Market and Economic Analysis (LMEA) branch of the Employment Security Department (ESD) in the mid-1980s. In the ensuing decades, a group of State agencies – led by the Workforce Training and Education Coordinating Board (WTECB) and the State Board for Community and Technical Colleges (SBCTC) – have developed standard longitudinal analysis of workforce training program participant outcomes across multiple programs and agencies. With the development of the State P-20W longitudinal data system, additional opportunities exist to develop and standardize the analysis of workforce outcomes for a more diverse set of cohorts – both students and educators – from the education domain. In addition, the inclusion of longitudinal education data offers the opportunity for the analysis of prior educational experiences of participants in workforce training programs.

While the State has made great strides in developing a culture of data use among State agencies, there is an on-going need to provide information to a large set of consumers, many of them at the local level. To date, the use of workforce data in the State's P-20W

data system has focused on workforce measures as an outcome of education and training. Receipt of WDQI grant funding will allow the development of the workforce component to serve the needs of workforce development interests. The uniting of education and workforce data in a single longitudinal system will allow ongoing studies to continue and provide additional opportunities for research and analysis of longitudinal data by workforce stakeholders. Simply put, this would allow ESD and authorized researchers to select cohorts based on workforce-related parameters contained in the P-20W database, and analyze them across the other sectors, such as K-12, community/technical colleges, or 4-year institutions over time.

1. Statement of Current Capacity

Washington's proposal falls into the category of "states with partial systems" since the State has begun the development of a P-20W data warehouse and associated data governance structure that includes both education and workforce components. The discussion that follows relates to current status of the P-20W data system and work planned for completion by June 30, 2013, funded by the U.S. Department of Education SLDS grant.

i. Capacity for maintaining secure data storage

Security of confidential information is of prime importance to State agencies in Washington. ERDC data is housed on secure servers protected by multiple

firewalls over separate subnets/VLANs[2] using firewall policies that limit access to authorized users only. Role-based access is implemented. All transmission of data is done through the use of secure file transfer processes, in which the data is encrypted both during transmission and at rest. Both ESD and ERDC allow access to confidential information by a limited number of staff.

ii. Established partnerships

ESD's most significant partnership related to this grant is that achieved through its partnership with ERDC. ERDC is home to the Washington's P-20W Statewide Longitudinal Data System (P-20W SLDS). In addition to ESD, statutory partners of ERDC are the following State education agencies: Department of Early Learning, Office of Superintendent of Public Instruction (State Educational Agency), the six public baccalaureate higher education institutions, State Board for Community and Technical Colleges (SBCTC), Workforce Training and Education Coordinating Board (WTECB), State Board of Education, Higher Education Coordinating Board, and Professional Educator Standards Board.

A Memorandum of Understanding (MOU) outlining agreed-upon responsibilities and principles for sharing and using P-20W education and workforce data has been signed by all ERDC partners currently contributing data to the P-20W system. Data-sharing agreements (DSAs) are in place between ESD

[2] VLAN = Virtual Local Area Network

and ERDC allowing ERDC to receive ESD data. Multi-party data-sharing agreements are required when individual-level (de-identified) workforce data is provided to a requestor. The P-20W MOU and an example of a multi-party data-sharing agreement (with MESA) are included in the Appendix.

iii. Existing or planned data linkages

ERDC currently maintains linked education data spanning State-funded early learning programs, public K-12, and public higher education. All UI wage data related to participants in education is brought into the P-20W system. UI claimant data is brought into the system on a project-based request basis. In each case a set of SSNs is submitted to ESD and related UI program information is returned. Funding from the 2009 ARRA SLDS grant covers the incorporation of UI wage and claimant data in the P-20W data warehouse as well as program participant data from the ESD's Services Knowledge Information and Exchange System (SKIES), including individual-level WIA Title I, Wagner-Peyser Act, and Trade Adjustment Assistance program data.

iv. Use of system for analysis and reporting

The existing data linkages in the current P-20W system have yielded a variety of reports and proof-of-concept studies based on cohorts from the education sectors. ERDC routinely performs the analysis required for annual reporting for Career and Technical Education – the '5S1' placement measure as well as

TechPrep reporting. ERDC is currently working with the public baccalaureate institutions to identify and provide the useful employment information for degree recipients.[3] At the request of the SEA, ERDC explored employment characteristics of high school students during their last two years of high school and first postsecondary year.[4]

Leveraging the SGA resources to include more comprehensive UI wage data, UI claimant data, and data related to participants in workforce programs administered by ESD will complete the development of a comprehensive P-20W data system, and the workforce sector will be fully integrated with the education sectors, allowing for longitudinal analysis and cohort definitions based on workforce programs and participants.

v. Partnerships with agencies in neighboring States

Washington, Oregon, Idaho, and Hawaii are participating in a project – Facilitating Development of a Multistate Longitudinal Data Exchange – sponsored by Western Interstate Commission for Higher Education (WICHE). The project

[3] "Workforce Connections in Higher Education," October 2011. [www.erdc.wa.gov/presentations/pdf/20111006_pnairp.pdf]

[4] "K-12 and P-20 Workforce Connections," presented at the NCES National Forum on Education Statistics Winter Forum Meeting, February 2011

objective is to pilot a data exchange among several states allowing for more comprehensive analyses of the production, stock, and flows of human capital through a regional, multi-state approach. WICHE is coordinating efforts to develop the necessary architecture for the exchange of data, effectively govern the exchange, produce standard reports, and ensure the protection of privacy.

In addition, Washington routinely shares and receives employment data from adjoining states for use in workforce training and career and technical education follow-up activities. For several reporting requirements, employment and earnings from the Federal Employment Data Exchange System (FEDES) is incorporated subject to a data-sharing agreement with the Jacob France Institute managed by the WTECB. To ensure adherence the confidentiality provisions of each State providing workforce data to the P-20W system, indicators representing the source of workforce information are incorporated into the P-20W data warehouse design.

2. Plan Outline

i. Objectives and plan to achieve objectives

The work proposed in this application will be focused around three over-arching objectives. They are:

- *Creating and expanding workforce longitudinal databases*, which will improve access to record-level workforce data for researchers. A more complete set of UI wage and claimant data will be included in the P-20W than exists today.
- *Improving the quality of workforce data* by enhancing UI wage data through the development and implementation of standard methodologies for handling missing or atypical data (hours or wages) and by associating appropriate geographic codes for employees of firms with multiple locations.
- *Using data* for performing education and workforce research and analysis through formal research projects and by the development of standardized cohort-based aggregate reporting modules.

The details of these proposed activities are provided in section 4 of this document.

ii. Status of statewide longitudinal education data system

Washington has a comprehensive P-20W statewide longitudinal education data system that incorporates a limited amount of individual-level workforce data related to cohorts based in education sectors (e.g., high school graduates, college degree recipients, K-12 teachers). Funding received from the 2009 ARRA SLDS grant is supporting the development of a P-20W data warehouse that will, by the conclusion of grant-funded work, include ESD program participant data in addition to the UI wage and claimant data related to education-based cohorts. The goals of the current ARRA grant funding include:

- A fully-functioning data warehouse that will support identity-matching; standard P-20W reports and products for high schools and higher education institutions; and data marts to support the needs of partner agencies and external researchers; and data to support ERDC research;
- Established processes for data-sharing and use protocols, data request procedures, and review processes to assure data owners that data are being used appropriately and that individuals' privacy is maintained; and
- A well-developed culture of P-20W data use among all constituents.

Generally, ERDC staff provide two types of data to requestors, public-use data and restricted-use data:

- **Public-Use Data** is data that is aggregated and contains no individual-level data (unit records). The data is in a table format acceptable for publication purposes and does not require a data-sharing agreement.
- **Restricted-Use Data** is data at the individual (unit-record) level. Even when de-identified, individual-level data may contain sufficient information, when matched with other information, to allow a reasonable person to identify an individual. A data-sharing agreement with the ERDC is required before receiving a restricted-use data set.

iii. Sustainability

The work proposed in this application largely consists of one-time development work that will increase productivity in the long run, as linkages across education and workforce sectors are maintained. Maintaining this capacity, once established through the grant, will be part of how ESD and ERDC do business going forward. ERDC funding comes from the State general fund and is appropriated by the State legislature on a biennial basis. Each biennium since ERDC was created in 2007, ERDC has received increased funding as new uses and efficiencies of the centralized P-20W data system have been identified. New uses for the information have increased demand for P-20W information, and efficiencies of a centralized data system have reduced agencies' needs for contracting out for similar work.

ESD has had a long-standing data-sharing agreement with ERDC, and an even longer relationship with OFM for other projects involving workforce data. As a result of this grant opportunity, ESD will expand its current data-sharing agreement to encompass the broader purposes proposed here.

3. Description of Partnership Strategies

i. Partnerships within State Workforce Systems

ESD administers all workforce programs specified for inclusion in a workforce longitudinal data system.

ii. Partnerships with State Education Agencies

State education agencies along with ESD are P-20W partners via statutory relationship with ERDC, and ESD has contributed UI wage and UI claimant data to the P-20W data system.

Historically, ESD has shared data with the State Board for Community and Technical Colleges for the analysis of workforce training programs offered by their colleges.

Determination of placement in the workforce for Career and Technical Education program completers has been accomplished through linking of education agency information with UI wage data from ESD.

iii. Partnerships with research universities or other research entities

Since ESD administers all relevant workforce programs, partnerships with research universities or other research entities are not necessary for development of a workforce longitudinal data system.

ERDC has established data-sharing agreements for providing linked, de-identified individual-level data to several organizations, including the Mathematics Engineering and Science Achievement (MESA) Program at the University of Washington. Since data requested by MESA includes employment data, parties to the data-sharing agreement include representatives of MESA,

Office of Financial Management (as the parent organization of ERDC), and the Employment Security Department. A copy of this DSA is included in the Appendix.

University-sponsored and university-hosted research projects involving individual-level data are generally subject to review and approval by the university's Institutional Review Board.

iv. Partnerships with additional State agencies

By being an ERDC partner, ESD is a partner with the education agencies in the state and all other state agencies using workforce information contained in the State's P-20W data system. The P-20W data warehouse under development will contain information from several State agencies not classified as P-20W agencies in statute. These include Department of Labor & Industries (State Apprenticeship Agency) and Department of Corrections (adult inmates).

4. Description of Database Design, Data Quality Assurance and Proposed Uses

i. Personal identifier

The SSN is used as the unique personal identifier for individuals in all ESD workforce data systems. For the P-20W data system as a whole, SSN is one of many possible identifiers for an individual. There is no single identifier used throughout education, however. To link records for one individual across many education sources plus employment, each of the identifiers associated with an individual (SSN, college student ID, K-12 student ID) is linked to a "P-20 ID"

created by ERDC for internal use within the P-20W data system. Generally, users of the P-20W data system do not have (or need) access to personally-identifiable information (PII). There are processes in place to "re-attach" PII to records, when required. For many workforce-oriented requests, reattachment of SSN will be necessary. ERDC has been maintaining linked cross-sector data using this approach since the initial development of the P-20W data system. At this point in time over six million records pertaining to students are linked for analysis using this approach.

Upon receipt, an individual-level data record being incorporated into the P-20W data system is run through an identity-matching process which either assigns an existing P-20 ID or creates a new P-20 ID for the person represented. This automated[5] process, which incorporates both deterministic and probabilistic matching algorithms, utilizes as much information as is available, but relies heavily on SSN, name, and date of birth. This process is done in a limited access area, before loading data into the longitudinal data system. Once the matching takes place, the data files are loaded into the database, using the P-20 ID as the identifier and not the SSN or other PII. For research purposes, the SSN is not

[5] A high percentage of the linkages are accomplished automatically, but there is case management involved when ambiguities exist among identifying elements.

accessible. Crosswalks between the P-20 ID and PII are stored in locations that are physically separate from the data warehouse in an area with highly restricted access.

ii. Data quality measures

Data quality assurances include performing a data profiling check of the data upon receipt, and also working with the data owners to establish field-level, record-level, and data set-level data validations upon initial loading of the data. Any exceptions will be reviewed by the database administrator and, where necessary, the data owner. Data validation also occurs when populating research data marts. For workforce data, emphasis is placed on quarter-to-quarter comparisons, record counts, and data totals to confirm that the complete set was loaded, and is consistent with previous data. Data validation is also done against the data owners' original system where it makes sense. This is a collaborative process, where the warehouse serves as the access point, but the quality of data within it is validated by the data owner. An internal data quality and monitoring report will be established to track the data throughout the process, and monitor key elements, such as record counts, data values, and availability of data.

The data readiness process for the data includes business and technical stewards meeting to agree on the best method of transporting data and also to establish the set of business rules to apply. The rules are documented, and

implemented into automated data loading processes with exception reports generated. The data stewards (business knowledge lead) and data custodian (IT systems lead) have been established for all source systems contributing data to the P-20W data system, and the groups are beginning to meet as part of the data governance work funded by the current U.S. Department of Education grant.

iii. Scope of longitudinal data, including types of analyses

Longitudinal data available at the individual level include UI Wage data, UI benefits data, and participant information for those in WIA Title I, Wagner-Peyser Act, and Trade Adjustment Assistance programs.

UI Wage records and related elements accessible in the warehouse will be the hours and wages reported for that person by an employer for each calendar quarter. Using the employer identification code, linkages will also be made to the industry of the employer (North American Industrial Classification System - NAICS) and also the size of the employer (based on employment level).

UI benefits data will include age, gender, occupation, industry, education level, total weeks claimed, and total amount paid by month/year. SSN, name, and date of birth will be used in the identity-matching process to assign or create a unique P-20 Research ID.

For **program participant information**, the data files will include the intake date, SSN, name, data of birth, gender, job match flag, legal-to-work flag, military

service flag, disabled flag, ethnicity, race, employment status, education attained, school flag, and homeless flag. Data associated with services will include level of service, service date, service type, office ID, start and completion date, and outcome. For programs, data elements are program, status, program type, enrollment date, completion date, and exit outcome.

Summary-level workforce data will include Quarterly Census of Employment and Wages (QCEW) data, Local Area Unemployment Statistics (LAUS), and workforce-related Census data.

On the **education** side, the P-20W SLDS includes individual-level data from early learning, public K-12, and public higher education. Early learning providers and K-12 teachers provide important overlaps with workforce. Early learning data elements include child demographics, and types and intensities of services received. K-12 elements include student demographic data, assessments, graduation status, career/technical education participants, and transcript information. Adult basic education in Washington is offered by community and technical colleges and is also included in the P-20W data system. Postsecondary elements include student demographic information, course-taking (including pre-college/remedial), and degree and certificate information. The P-20W system contains complete public postsecondary information, not just information about postsecondary students with prior association with the public K-12 system.

Additional information regarding postsecondary enrollment is obtained from National Student Clearinghouse on a request basis.

Types of Analyses

Two categories of analyses will be possible with funding from this grant:

1. Research and analytic studies will address the following topics:
   - *Net-Impact Analysis of Washington's Training Benefits Program*
   - *Longitudinal Study of Unemployment-Insurance Claimant Outcomes*
   - *Net-Impact Analysis of Individual Training Accounts*
   - *Net-Impact Analysis of Postsecondary Education*
2. Non-confidential aggregate employment reports for user cohorts will be developed so that a variety of organizations can obtain labor force outcomes for the population they serve in a user-friendly manner.

Complete information about these research and reporting activities is provided in Section 4 of this proposal.

iv. Security measures

Both ESD and ERDC share the core value of adhering strictly to both the letter and spirit of State and Federal privacy laws affecting individuals and employers. ERDC protects the privacy of personal and employer identification in several ways:

- The recognition that de-identified individual-level data serve the needs of most stakeholders.

- The use of a surrogate ID – the "P-20 ID" – rather than personally-identifiable information (PII) for education and workforce data stored in the data warehouse.
- The use of an employer surrogate ID to replace an employer's identification code in workforce data involving employers.
- Use of data-sharing agreements that specify purpose and uses of data along with reporting practices that protect PII.
- Highly secure data storage and transmission processes.
- Limited, role-based access to PII.

Both ERDC and ESD routinely consult with State Assistant Attorneys General and in-house counsel for advice in preparing data-sharing agreements and other aspects of work that involve State and Federal laws related to education and/or workforce data.

De-identified data sets and data-sharing agreements protect privacy

Washington's P-20W data system is a research-oriented data system, serving the needs of researchers and program evaluators. It is not a transactional system used to make decisions or determinations about individuals. For this reason, de-identified individual-level data sets serve the needs of most ESD/ERDC stakeholders who need data for analysis. Associated with each individual-level de-identified data set provided to customers is a data-sharing agreement specifying the use of the data by the recipient, the manner in which the data are stored, an

agreement not to "reverse engineer" to determine the identity of the associated individual or employer, and reporting requirements that protect personally-identifiable information when developing summary reports.[6] The P-20 ID is not released with these de-identified data sets. Instead, a "Research ID" specific to each project is assigned. Assigning Research IDs unique to a project reduces the chances of data users being able to link two different data sets to identify individuals. The ERDC P-20W data warehouse will have the functionality to manage all project-related Research IDs.

Identity of employer information will be similar. An Employer Research ID will also be established, separate from any existing administrative identification codes. This process has not been established, but will be performed before loading the data into the P-20W data warehouse. Researchers will not have access to the employer name or identification code, but will have access to attributes of the company, such as location indicator, size of employment indicator, and industry code.

[6] "*Statistical Methods for Protecting Personally Identifiable Information in Aggregate Reporting,"* National Center for Education Statistics SLDS Technical Brief 3, December 2010 [nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011603]

Once loaded, the data will be stored in the P-20W data system. Access to the database will be through several methods, including but not limited to role-based security, separate data marts, and access rights consistent with data-sharing rights established through the data providers. Only a very limited number of ERDC staff will have access to the information necessary to "re-attach" PII elements to the data sets, should the need arise.

Secure transmission of data

The data files will be transmitted from the ESD systems to the ERDC data staging area via secure file transfer methods that encrypt data in transit and at rest. As the amount of data increases, the development of ETL routines (export, transform, load) directly from system to system will be established. This will improve the efficiency and also reduce the risk of exposing confidential and identifiable data.

v. Planned reports/deliverables

There are five deliverables proposed in this application.

Leveraged Deliverable: Enhanced UI wage data contained in P-20W data warehouse (ERDC and ESD project). The extent of UI wage and claimant data contained in the P-20W data warehouse will be expanded to include all individuals rather than those with connections to education-based cohorts. The existing P-20W data warehouse will be leveraged to accomplish this task, including the expansion of required data-sharing agreements with ESD and ERDC.

Deliverable 1: Enhanced UI wage data – imputations and inflation-adjustment, and geographic association

As is true with all administrative data, imputation techniques must be applied before the data can be directly applied to research and outcome measures. To supplement the raw administrative data, standardized methods for estimating missing data and excluding certain records from analysis will be made available to promote a consistent use of the data throughout various studies.

Factors associated with cost-of-living and inflation will also be included so that researchers could choose standardized data-cleansing routines associated with hours and wages, and not have to perform their own.

Deliverable 2: Enhanced UI wage data – geographic association

Another area where Washington's wage data will be enhanced is the geography code assigned to each record, since companies with multiple locations do not report the quarterly wage data at the location level. Typically, wage rates are driven by external forces, such as the local labor market conditions, and hence it is important to consider geography in evaluations using wages as an outcome indicator.

Work will be performed to explore the process ESD has used in past research studies to accomplish this and also to review additional data sources to aid in enhancing the geographic identifiers on the wage records. Tools will include some

of the datasets currently in the ERDC identity-matching process, as well data from other Bureau of Labor Statistics programs and Census data. Results will be stored in the wage record with indicators on how the geography was coded so researchers have a broader understanding of outcomes related to geography.

Deliverable 3: Self-service interface for obtaining aggregate reports for submitted cohorts

To help promote and generate employment outcomes information, a "self-service" interface to access standardized non-confidential aggregate reports based on a user's cohort group would be developed. A process would be established to allow users to:

- Upload a set of Social Security numbers through a secure FTP site;
- Go online to select parameters for analysis, including a set of methodologies for calculating missing data, inflation factors, time periods, and data elements (industry, median earnings, hours worked, etc.);
- Select report module(s) from pre-defined reporting formats;
- Select output file format; and
- Be notified when job is ready.

The results produced and provided to the requestor would be aggregated based on the cohort group. Reporting algorithms compliant with State and Federal confidentiality requirements would be established. Processes associated

with the access to the uploaded SSN will be documented, clearly showing the access permissions (or lack thereof) and the file deletion upon completion of the process. The user submitting the SSN request file for analysis would not be interacting with the data warehouse through this process.

Great interest in this process is shown by organizations such as Community Center for Education Results and Seattle Jobs Initiative. Each has provided a letter, included in the Attachments, indicating how their organization intends to use the information from the self-service interface.

Deliverable 4: Research Studies

The research studies will be performed using the existing P20W model. The research team will gather research questions about the subject from P-20W data providers, perform a literature review, generate a descriptive analysis, and will go back to P-20W partners for feedback and additional areas to expand and follow up on. The intent of the studies is to leverage the longitudinal linkages to dive deeper into previous studies or to explore new workforce research.

- **Research Study 1:** ***Net-Impact Analysis of Washington State's Training Benefits Program***: The Training Benefits (TB) Program pays extended unemployment benefits to eligible participants while they attend approved training to learn new job skills.

In 2012, the Employment Security Department issued a net-impact study of Washington State's Training Benefits Program. This study compared the earnings of unemployment-insurance claimants who participated in the TB Program to the earnings of claimants who were eligible for the program but chose not to participate. Due to the unavailability of postsecondary educational data to ESD, that study did not include any analysis of the detailed postsecondary curriculum taken by participants or the comparison group nor did it include any detailed analysis of the earnings and employment effects of the specific educational/training curriculum pursued by each participant. This is a crucial omission that needs to be addressed since credible research indicates that the educational/training curriculum one pursues has a significant impact on employment and earnings, particularly those of women.

As part of extensive unemployment-insurance legislation passed in 2011, the Washington State Legislature directed the Joint Legislative Audit and Review Committee (JLARC) to conduct a thorough evaluation of the efficiency and effectiveness of the State's Training Benefits Program. JLARC is looking to use the Employment Security's 2012 Training Benefits Net-Impact Study, updated to include detailed postsecondary information, including the different curricula pursued, as one of three elements to complete that statutory requirement.

- **Research Study 2:** ***Longitudinal Study of Unemployment-Insurance Claimant Outcomes***: The study would analyze at least two cohorts of UI claimants, one before and one during the Great Recession. The study would take into account each individual's education background, demographic information, and employment history, including wages and industry of employment. The study would distinguish among different types of post-secondary education, the differential effects of different education/training curricula pursued, and whether a degree or certificate was obtained. .
- **Research Study 3:** ***Net-Impact Analysis of Individual Training Accounts*****: An** Individual Training Account (ITA) is an expenditure account established on behalf of a participant in the Federal workforce system.

  This study will compare the earnings of individuals with ITAs to the earnings of a statistically comparable comparison group who did not have an ITA. The study will take into account each individual's educational background, demographic information, employment history, pre-lay-off earnings, pre-layoff industry of employment and pre-layoff occupation. The study will also distinguish among the programs providing the ITA (e.g., WIA, TAA), and the specific types of postsecondary training provided, including the differential effects of different educational/training curricula pursued.
- **Research Study 4:** ***Net-Impact Analysis of Postsecondary Education*****:**

This study would compare the earnings of individuals who participated in postsecondary education to the earnings of a statistically comparable comparison group who did not, including cohorts from before and during the Great Recession. The study would take into account each individual's educational background, demographic information, and employment history. The study would distinguish among different types of postsecondary education, the differential effects of different educational/training curricula pursued, and whether a degree or certificate was obtained.

5. Staffing Capacity

The project will be staffed by a project manager, a business analyst, data analysts, and researchers. The expertise of current ESD and ERDC staff will be utilized in advisory roles. *Project descriptions for all staff to be hired with grant funds are included in the Attachments to this Technical Proposal.*

i. Database or Project manager

A project manager will oversee the activities proposed in this application. The project manager is responsible for managing the project's scope, schedule, budget and quality; communicating regularly with stakeholders; identifying and mitigating risks and bringing resolution to issues; and facilitating the success of the project. The project manager is expected to have prior successful experience managing a project of similar scope to that proposed here. The current ERDC P-20

Database Manager, who has over 20 years of experience working with large, complex administrative data systems, will contribute to the success of this project in an in-kind capacity.

ii. Data analysts

An experienced Business Analyst will develop the requirements for the implementation of the enhancements to the UI Wage data and the development of the self-service employment reporting module application.

An experienced IT specialist will be responsible for implementing UI wage data enhancements and for developing the self-service employment reporting module.

Economic and education data analysts will serve as subject-matter experts in the development of the UI Wage data enhancements and the development of the self-service employment reporting module application. They will also be responsible for conducting the research and analytical studies.

iii. Identification and qualifications of proposed staff positions

The qualifications for the positions responsible for planning, implementing and conducting longitudinal research analysis (Economic Analyst or Education Data Analyst) include a graduate degree and significant experience in analyzing large, complex data sets. Detailed position descriptions are provided as Attachments.

iv. Contributions of staff members; applicability of confidentiality laws

All state employees are covered by Executive Order 00-03 (Governor Gary Locke, April 2000) addressing public records privacy protections. All staff will be

informed of procedures that ensure secure storage and transfer of data. It is a requirement for anyone with access to ESD data to sign an Notice of Non-Disclosure. An copy of this form is included in the Attachments section (page 16). ERDC staff are required to sign a set of similar forms provided by each agency contributing identifiable data to the P-20W data system. Both ESD and ERDC limit access to identifiable data to a small number of staff and use de-identified data whenever possible. Researchers and analysts involved in the research studies will be working with de-identified data sets.

v. Employing entities for staff members

All staff members will be employed by either ESD or ERDC. Economic analysts and an IT specialist will be employees of ESD (the SWA). The project manager, the business manager, and an IT specialist will be state employees funded by OFM. Education data analysts will be state employees funded by OFM through ERDC. Funding for research positions will be provided through ERDC. ERDC may contract with other state agencies for some of the research activities.

6. Other Data Linkages

The State's P-20W data system currently contains **adult basic education** data (contributed by SBCTC), **Registered Apprenticeship** data from the State Apprenticeship Agency, and secondary **Career and Technical Information** is included in the P-20W data system as part of the SEA data contribution.