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Application Profile

Application Number: R372A05147

Competition: 84.372A05 **Date Entered:** 6/30/2005

Organization Information

Organization Name: Florida Department of Education

Organization Unit: Accountability, Research & Measurement

Organization Address: 325 West Gaines Street

Tallahassee, FL 32399-040 **Country:** United States of America

Project Director Name and Information

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Application Title

A Proposal to Implement an Enhanced & Fully Integrated Longitudinal Data System in Florida to Serve as a National Model

State Identifier

Period of Performance

Project Begin Date: 10/01/2005 **Project End Date:** 09/30/2008

Abstract

1. The title of the project: A Proposal to Implement an Enhanced and Fully Integrated Longitudinal Data System in Florida to Serve as a National Model.

2. The RFA goal under which the applicant is applying: The Federal long term goal of this program is to increase the number of States that maintain statewide longitudinal data systems, in order to assist States in generating and using accurate and timely data to meet reporting requirements, support decision-making at State, district, school, and classroom levels; and facilitate research needed to eliminate achievement gaps and improve learning of students. In keeping with this goal, Florida proposes to engage in a systematic process of integrating information from the Florida school district cost and facilities reporting systems into the K-20 Education Data Warehouse (EDW) environment by way of an Operational Data Store. This will provide an unprecedented, new capacity to tie indicators of student progress and outcomes directly to detailed administrative, instructional, and program-level costs at the classroom level. Similarly, indicators of student success will be linked to details about the facilities in which they are educated. The proposed project will provide dramatic, new analytic dimensions currently unavailable in any state. Not only will there be results reported on periodic, current schedules, but on a longitudinal basis as well. The project will result in processes and techniques that may be replicated in other states. It will serve as a national model that can be adapted and improved upon by others.

3. The potential contribution the proposed project will make to the solution of an education problem: In collaboration with School Districts, States across the country are developing statewide student information systems to respond the requirements of the No Child Left Behind Act and related state requirements. Florida has a well established student information system and has just completed developing a longitudinal K20 Education Data Warehouse. What is not included in that warehouse, and will not be included in new state developments, is a seamless way to integrate student performance information with cost and facilities information. This is an important next step to create robust accountability information systems. This proposal addresses this need and will do so in a way that will provide guidance to states as they develop similar systems.

4. The population(s) from which the participants of the study (ies) will be sampled (age groups, race/ethnicity, SES): This is not a sampling proposal. It deals with the universe of students, related costs, and facilities. It deals with all appropriate age groups, ethnic and socio-economic characteristics.

5. The proposed research method(s): This proposal is designed around a standard, iterative Information Systems Development Methodology, which involves concrete steps, deliverables and evaluations.

6. The proposed intervention if one has been proposed: This proposal will rely on existing data systems and expertise from state and local practitioners to define requirements, design solutions, develop approaches, and test products.

Human Subjects: No **Exempt from Regulations:** No **Exemption #:** **Assurance #:**

Exempt Narrative:

Non-Exempt Narrative:

Estimated Funding

Federal:	$650,538.00	Local:	$0.00		
Applicant:	(b)(4)	Other:	$0.00	Total:	(b)(4)
State:	$0.00	Program Income:	$0.00		

Federal Budget

Budget Categories	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Personnel	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
2. Fringe Benefits	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
3. Travel	$1,048.00	$1,169.00	$1,304.00	$0.00	$0.00	$3,521.00
4. Equipment	$106,000.00	$0.00	$0.00	$0.00	$0.00	$106,000.00
5. Supplies	$5,090.00	$125,090.00	$5,110.00	$0.00	$0.00	$135,290.00
6. Contractual	$439,112.00	$388,757.00	$212,166.00	$0.00	$0.00	$1,040,035.00
7. Construction	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
8. Other	$20,973.00	$17,273.00	$19,565.00	$0.00	$0.00	$57,811.00
9. Total Direct Costs	$572,223.00	$532,289.00	$238,145.00	$0.00	$0.00	$1,342,657.00
10. Indirect Costs	$78,315.00	$78,315.00	$78,315.00	$0.00	$0.00	$234,945.00
11. Training Stipends	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
12. Total Costs	$650,538.00	$610,604.00	$316,460.00	$0.00	$0.00	$1,577,602.00

Non-Federal Budget

Budget Categories	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Personnel	(b)(4)					
2. Fringe Benefits						
3. Travel						
4. Equipment						
5. Supplies						
6. Contractual						
7. Construction						
8. Other						
9. Total Direct Costs						
10. Indirect Costs						
11. Training Stipends						
12. Total Costs						

Application Details

D-U-N-S Number:	(b)(2)	T-I-N:	59-3474751	Duration (years):	3
Any Federal Debt:	No	Specify:			
Type of Applicant:	State	If Other, Specify:			

Authorized Representative Information

AR Name	AR Address	AR Phone	AR Fax	AR E-mail	Primary:
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A Proposal to Implement an Enhanced and Fully Integrated Longitudinal Data System in Florida To Serve as a National Model

Submitted to
The U.S. Department of Education
Institute for Education Sciences

By
The Florida Department of Education

June 30, 2005

CFDA Number 84.372

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PROJECT NARRATIVE

Project Background

Florida's automated management information systems exemplify the strengths and weaknesses often associated with mature, large-scale data repositories. Originally mandated by the Florida legislature in 1976 to facilitate more efficient and rapid exchange of information between the Department of Education (DOE) and the state's 67 school districts, full operational status was not achieved for another 15 years. Initial funding for the backbone of the system, the Florida Information Resource Network (FIRN), was appropriated in 1981. By the end of 1985, all school districts had access to FIRN, and the design of the system and a plan for its implementation had been completed. During 1986, the DOE installed state-level student, staff, and financial information databases, and those districts with sufficient technical capabilities began the automated reporting of financial data. Individual reporting of student and staff data began the following year. The capability of transferring permanent student records and transcripts between schools and postsecondary institutions was added in 1988. Implementation continued in phases through the end of 1990; more districts joined the system, additional reporting formats were developed and tested, and parallel reporting was used to validate the accuracy and completeness of the automated systems. By January 1991, all districts had become automated and the first distribution of state funding was calculated solely from data contained in the student database.

Data in the DOE's automated systems provide snapshots of education information at specific points in time. The DOE conducts surveys of school district student and staff information during scheduled periods during the reporting year. Surveys 1-4 are concurrent with the FTE survey weeks specified by the Commissioner of Education. Survey 5 collects previous school year and end-of-year information. Survey 9 collects Exceptional Student Education (ESE) information. Surveys F, W and S are conducted to collect adult general education and postsecondary vocational data through the Workforce Development Information Systems (WDIS). It should be noted that not every reporting format is submitted in every survey.

Considerable efforts are made to ensure that district submissions are complete and accurate. Built-in edits are used to reject records that do not adhere to technical requirements or established business rules. Districts have on-demand access to exception reports and can download programs to replicate state calculations at the local level. Districts are permitted to correct data for a limited time following the close of each survey period.

Florida's legacy systems are robust and stable; however, over time, modifications have been made to accommodate the changing and expanding requirements of users at the federal, state, and local levels. The systems are performing functions that exceed original design parameters. The student, staff and Workforce Development Information System (WDIS) databases use IBM's DB2 relational data base management system. Although relational, the database tables lack referential integrity. For the most part, each reporting format submitted by the school districts is loaded into a single DB2 table. The DB2 security features include facilities for restricting the types of data access granted to a user (select access, update access, add access, and delete access). Access can also be limited to specified data elements within a file or denied entirely. Individual, personally identifiable student records collected and maintained by the DOE may be

accessed only by authorized state education officials. Access to the databases themselves is restricted to properly authorized individuals or school districts by user ID and password. School districts are limited to access to their own data. That is, the districts are not allowed to transmit or access the data for any other district. DB2 does not allow access to any table unless the creator of the table grants permission to that user's ID. The Education Information Services (EIS) Program Director controls and grants all access to the student and staff information data bases according to the DOE's security procedures through the Education Data Center.

A significant strength of the data repositories is that they are student centric. That is, they rely on a constant, unique student identifier to provide linkages between student, staff, teacher certification, and assessment databases. The unique student identifier is also essential for longitudinal studies, discussed in greater detail below. Florida's current system allows students to be tracked from initial enrollment, through the K-12 system, into postsecondary education and into employment. Mobility, dropout, and graduation rates can be computed with a high degree of accuracy. Student course records can be correlated with the certification status of teachers and the performance of each student on the Florida Comprehensive Assessment Test to analyze annual learning gains as well as to measure achievement level. Coupled with student demographic information, the relative improvement of subgroups of students can be determined, and federally funded program requirements can be met. Complex algorithms based on these types of data have been developed to address significant issues arising from implementation of the state Constitutional Amendment limiting average class sizes in core academic subjects by grade level. Similarly, these data are essential in responding to the mandates of the No Child Left Behind Act as well as Florida's A+ Plan for education.

What is needed to take full advantage of the data rich environment in Florida is the final step in bringing additional disparate components together. Each of the existing systems answers a wealth of questions on its own, but the true benefit will be realized in the gestalt of integrating the data across the systems. This will facilitate answering research and policy questions which are either infeasible or impractical today. No state has this capability at present.

Florida proposes to engage in a systematic process of integrating information from the Florida school district cost and facilities reporting systems into the K-20 Education Data Warehouse (EDW) environment by way of an Operational Data Store. This will provide an unprecedented, new capacity to tie indicators of student progress and outcomes directly to detailed administrative, instructional, and program-level costs at the classroom level. Similarly, indicators of student success will be linked to details about the facilities in which they are educated.

The proposed project will provide dramatic, new analytic dimensions currently unavailable in any state. Not only will there be results reported on periodic, current schedules, but on a longitudinal basis as well. The warehouse environment will improve web-based reporting, facilitated analysis, and data access that link student outcomes to the costs and facility characteristics associated with those outcomes. The project will require expansion of the existing technical infrastructure and will be virtually transparent to current users. Data reporting cycles, definitions, formats, and transmission protocols will be unaffected. Similarly, current

standards governing the security, confidentiality, and integrity of the data will be applied to the enhanced reporting capabilities.

The principal benefits of the project will be derived from the increased access that parents, teachers, policymakers, researchers, managers and other consumer constituencies will be given to both transactional and archived (historical) data. A powerful business intelligence tool will be selected to facilitate sophisticated analyses of the integrated data. A web application and dedicated web site will be produced and regularly updated with a menu of standard reports.

The project will result in processes and techniques that may be replicated in other states. It will serve as a national model that can be adapted and improved upon by others.

1) PROJECT NEED

One of the strengths of Florida's finance, facilities, and student data bases is that they are consistent with requirements and handbooks published by the U.S. Department of Education for such systems. While there is significant strength in these information systems, they are separate and distinct. The major weakness is that they are effectively "silos of information." They were designed to support differing information needs and requirements that hinder using them in combination. This type of weakness is typical of all these same data systems in other states. They will be typical of design and development processes that focus on each separately. When the need arises to combine them to analyze the relationships between costs and educational results or between dimensions such as class size and student performance, the process is difficult, is subject to changing business rules and data elements making the results irregular and, in some cases, contradictory.

There is an increasing demand to relate costs and facilities to student performance and staff preparation on a continuous, consistent basis. Issues such as class size are the subject of continuous discussions in every state. These discussions can be better informed when data about the size and conditions of classrooms are combined with staff data and student data to facilitate relating student and instructional performance. Similarly, data that relate to the costs associated with instruction and changes in performance that result from redistributions of fiscal resources can be analyzed.

The approach to data warehousing taken in Florida helps to overcome the difficulty of combining disparate information systems. What we propose doing is integrating these data information silos into our K20 Education Data Warehouse Environment to facilitate meeting these information needs. This will be done in a fashion that brings data into this environment that go back at least ten years and establishes data loading and cleansing protocols that will result in continuous updating and processing.

The data will be initially brought into an Operational Data Store that will be external to the data warehouse environment. As newly collected data are stabilized by system operators working with local entities to correct reporting anomalies, they will be moved permanently into the data warehouse environment. Access to the data will be facilitated by using Web-based business intelligence tools to produce regularly scheduled reports as well as new analytical products.

At this time, Florida is the only state that is poised to meet these information needs. The state regards this project as a "next generation longitudinal system" that will be designed to assist states that are developing new longitudinal student information systems, design and ultimately develop them to include facilities and financial information. One of the major products of this effort will be a guidebook-type-of-document envisioned as a non-technical set of principles that should be employed as states new to these types of efforts bring student, cost, and facilities information into alignment.

2) PROJECT DESIGN

Florida's proposal is different than those received from other states seeking assistance through this grant program. Florida already has a well-established student information system, with defined data elements, submission processes, data quality controls, and reporting mechanisms. It has well-defined protocols that protect individual student records from inappropriate release in accord with the requirements of FERPA and related state law. The state has created a repository, called the "K20 Education Data Warehouse" that serves as a longitudinal repository for student information in secondary, postsecondary, and post school employment settings. These existing capabilities are described in detail in this document.

Florida is proposing that this longitudinal student repository be combined with a redesigned K12 Education Facilities Information System and an operating Finance Reporting system. This will create a new, robust repository that will allow elements of the three systems to be combined on a routine basis.

Exhibit 1 in Appendix B maps required core elements of the Florida proposal to specific requirements outlined in the original Competitive Grant Announcement.

In the description that follows, four project core elements are discussed.

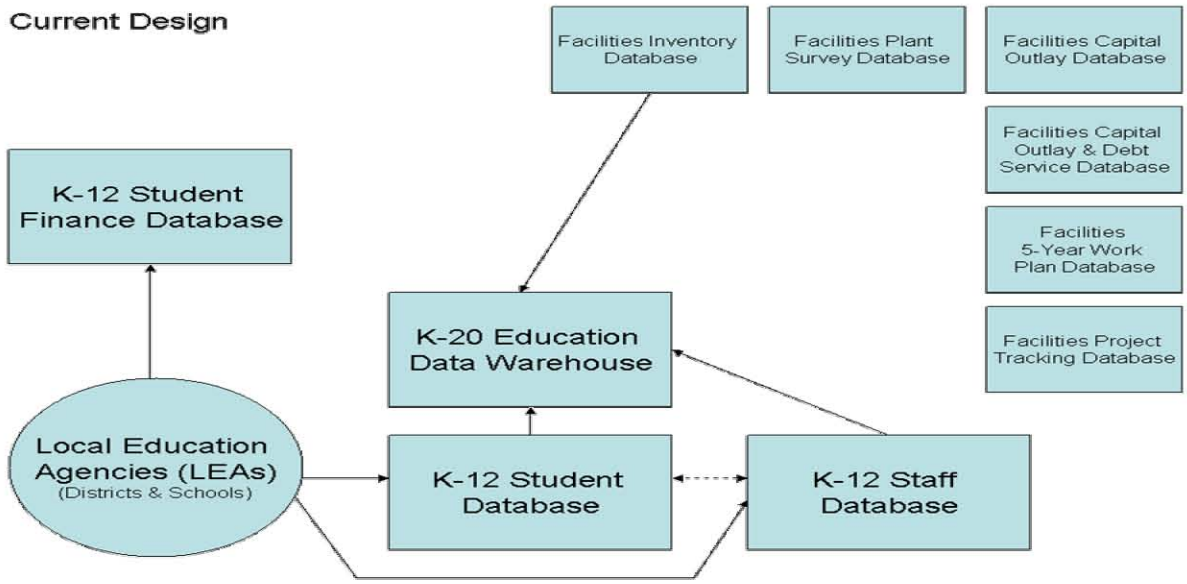
1. The Education Facilities Information System (EFIS) redesign effort, currently being undertaken by the Florida Department of Education (DOE), will be expedited through this project. This will entail adding additional resources from the project grant to current investments by the DOE to complete revisions to the system within the first year of the effort. The revisions will also bring the state's system into compliance with existing U.S. Department of Education (USED) guidelines.
2. The Operational Data Store (ODS) facility to house facilities and finance information will have to be designed around current and contemplated data collection processes for finance and facilities. Linkages between the ODS and the student information that resides in the warehouse will have to be developed, tested, and confirmed through parallel processing.
3. Web-based Business Intelligence (BI) tools will be used to expose data from the three systems (student data in the data warehouse and finance and facilities data in the ODS). This "exposure" will provide the means to generate a system of regularly designed web-based reports, systems of alerts, and graphical interfaces. New analytic products will be used to facilitate research into critical connections of the three data systems.

4. In addition to reports that demonstrate the connections between the three data systems, the Florida Department of Education will produce a layman's Guidebook designed to outline key design conventions that must be considered by states as they move toward establishing seamless finance, facilities, and student information systems.

This project will consist of four main tasks: 1. Replacement of the Facilities systems, 2. integration of facility and cost information into the Education Data Warehouse (EDW) for both historical (stable) data and current (volatile) data through use of an Operational Data Store, 3. deployment to analysts and policy makers through a web-based business intelligence (BI) environment, and 4. publication and distribution of a guidebook outlining design conventions to be considered when establishing integrated finance, facilities, and student information systems. Each task is dependent on its predecessor for success. Each task also requires a unique approach to its design and construction due to the nature of its deliverables.

Figure 1 depicts the relationships, and lack thereof, between the existing databases that will be used to populate the Operational Data Store and, ultimately, the K-20 Education Data Warehouse. Data collected at the school and/or district levels are transmitted by the Local Education Agencies to the K-12 Student Database, the K-12 Staff Database, and the K-12 Finance Database. Data in the Student and Staff databases are linked via unique student identifiers that are assigned at the district level in accordance with state format requirements.

Figure 1
Relationships Among Current Databases



The Student Information System is comprised of 14 tables of approximately 61 million records. Most of the reporting formats are collected up to six times per year; districts may submit corrected data for up to nine months following initial submission.

The Staff Information System is comprised of 11 tables of approximately 8.5 million records. Data are collected four times per year and may be corrected for up to nine months following initial submission.

The Finance Information System is comprised of 5 tables of approximately 6.5 million records. Data are collected during the second week of September following the close of the prior fiscal year, ending June 30. Districts are allowed two months to amend these data tables.

The Program Cost Reporting System contains data on the following elements, broken down by program:

Direct Expenditures--Salaries, employee benefits, purchased services, materials and supplies, other expenses, and capital outlay.

Indirect Expenditures—Total school indirect costs and total district indirect costs.

Expenditure Summations—Total direct costs, total school cost (direct and indirect), and total program costs (direct and indirect, school and district levels).

Other Items—Program cost factor, unweighted FTE, weighted FTE, Florida Education Finance Program adjusted revenue, and staff units.

The following data elements are available on the Program Cost Reporting System by function (not program):

School Indirect Costs—Pupil personnel, instructional media, instruction and curriculum, instructional staff training, school administration, facilities acquisition and construction, food service, central services, transportation, operation of plant, and maintenance of plant.

District Indirect Costs—Pupil personnel, instructional media, instruction and curriculum, instructional staff training, board of education, general administration, facilities acquisition and construction, food service, central services, transportation, operation of plant, and maintenance of plant.

All of the above data elements are available for each school district and each school in the state. They are available for the general fund, the special revenue funds, and the general and special revenue funds combined. Historical data are available dating back to the 1990-91 fiscal year.

The above system resides on an IBM-MVS mainframe housed in the Northwest Regional Data Center located in Tallahassee. Data are stored in DB2 databases. Programming languages are CoBOL for batch processing and CICS for on-line processing. Primary keys are District, School, and Student Identifier. This enterprise-wide data architecture will continue to be used in the proposed project.

The six components of the Education Facilities Information System (EFIS) are standalone databases running on different platforms. Data entry is manual and, in many instances, redundant, decreasing efficiency and increasing error rates. Only the Florida Inventory of School Houses (FISH) database has been linked to the K-20 Education Data Warehouse (see Figure 1). The FISH database has been operational since 1972 and is used by all public school districts. Data may be accessed daily and updated as necessary. Data elements collected include the following:

Acreage of site
Ownership of parcel
Parking at the site
Playground information
Athletic facilities
Sewer treatment
Parcel drainage
Water source
Landscaping
Police protection
Type of building plan
Type of each school facility (Elem, Mid/Jr, High, ESE, District Support, etc)
Grades housed in each facility
Age of each building
Type construction of each building
Building is permanent or relocatable
Type HVAC each building
The size (sq ft) of each space (room)
The type of lighting in each room
The type flooring in each room
Capacity of the room (student stations)
Access to public telephone
Access to educational television
The design of each room (intended use for art, PE, music, classroom, lab, etc.)

FISH data are stored on an Oracle database, but there are no appropriate or accurate ways to identify and crosswalk between the data reported for school operations and facilities functions (i.e., a common numbering system for facilities and programs.) There needs to be a system of checks and balances between FTE (student enrollment) reports, financial reports, and facilities reports (see below) that associates school programs with existing and projected facilities. This latter functionality is critical to full implementation of the requirements of Florida's Class Size Amendment when averages will be computed at the classroom level, as opposed to the district and school level.

The Educational Plant Survey Database is an on-line system that also runs on Oracle. It, too, is a stove pipe system that was created in 2003 and is currently used by about 30 percent of public school districts. Plant surveys are conducted at each facility every five years and, ultimately, will be used to determine the future needs at all K-20 levels of education. The survey is not directly concerned with the instructional program, but the relationship of educational plants to program is such that judgments regarding the instructional program are necessarily a part of an educational plant survey. The purpose of an educational plant survey is to aid in formulating plans for housing the educational activities of students and staff of the school district for the next several years. The development of this plan is based on a careful study of all available data regarding the current status of educational and ancillary facilities in relation to Capital Outlay Full-Time Equivalency (COFTE) student membership and the projected changes in COFTE student membership. The intent of a regular, formal educational plant survey is to encourage the thoughtful, orderly development of a program for providing educational and ancillary plants to adequately house the educational activities of the district.

The Public Education Capital Outlay (PECO) database runs on DB2 and is used to track allocations and disbursements for 107 agencies--Public Schools (including Charters), Community Colleges, State Universities, Division of Blind Services, Public Broadcasting, and The School for the Deaf and the Blind. The system is used by the Office of Educational Facilities Budgeting to track allocation amounts of PECO funds, encumbered PECO funds, the amount of PECO funds disbursed, and the fund balance at any point in time. The system does calculations and produces multiple reports. It is used extensively on a daily basis.

The Facilities Capital Outlay and Debt Service (CO&DS) database is another standalone system used by the Office of Educational Facilities Budgeting. Only public schools and community colleges are eligible for this type of funding which is supported by automobile license fees. This system performs functions similar to the PECO system in that it tracks entitlement amounts of CO&DS funds, encumbered CO&DS funds, the amount disbursed, the fund balance at any point in time. Additionally, the system tracks bonds sold by the state on behalf of the agency, the debt service, and interest earned for the 67 school districts and 28 community colleges. The system is used a couple of days a week by the OEF to enter data on behalf of the agencies listed above.

The Facilities Five-Year Work Plan database captures information submitted by school districts each year detailing their budgeting and planning for capital outlay needs for the next five years. Data are transmitted to the state on Excel spreadsheets and then reentered into an Oracle database. For large districts the plan can exceed 100 pages and covers such items as maintenance and repair needs for the next five years, new construction needs for the next five years, utilization rates of existing facilities, the number, condition, and utilization of relocatable classrooms, the sources of current and projected revenues, and planned expenditures of current and projected revenues.

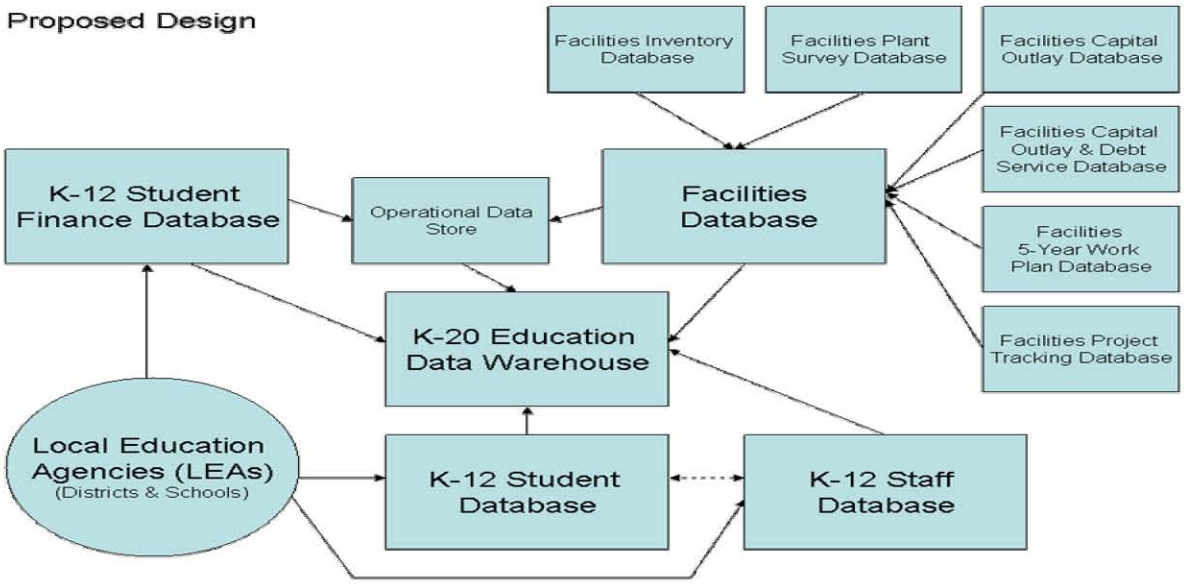
The Facilities Project Tracking database has been migrated from several different platforms since it was first introduced in the late 1980s. It currently resides in Oracle but has limited functionality and requires special programming to produce reports. The system is used by the Plan Review Section and involves information from public schools and community colleges only. The purpose of the system is to track architectural plans and construction documents. The types of data collected and tracked include facility type, project type (renovation, remodeling, or new construction), construction document details (architect, bid dates, project description, etc.), estimated costs, types of funds used to finance the project, cost per student station, cost per square foot, and a chart of the layout of the facility.

The department has long recognized the need to reengineer its EFIS databases and to integrate them into a single relational database that will allow each component to interact with the others as well as with the student, staff, and financial databases. The objective is to create user friendly, Internet applications that will enable user agencies to input and query data as needed. The second stage in the reengineering process will be to store selected data in the K-20 Education Data Warehouse for historical and longitudinal analyses.

Figure 2 depicts how all of the existing systems would be integrated and data ultimately transferred to the Operational Data Store within the K-20 Education Data Warehouse. As currently configured, the K-20 Education Data Warehouse (EDW) collects data from existing source systems dating back to the 1995-96 academic year. The data are at the student level and are anonymized prior to loading. Adult, career, and technical education information is derived from community college and public school systems. Academic information is provided by community college and university systems. The methodologies that are in place for data matching and integration will be continued when the Operational Data Store component has been added. The data warehouse is designed for historical and longitudinal reporting. Data types include student demographics, student awards, student courses/transcripts, student test scores, financial aid, teacher/staff demographics, teacher/staff salaries, and teacher certification. Figure

A in Appendix B depicts the design of the data warehouse and the relationships among the data elements.

Figure 2
Proposed Relationships Among Current Databases



The EDW contains four key data subject areas or facets, with multiple subareas and cross-subject bridges. The Student Demographic facet collects information about a specific student, such as race gender, and age; as well as linkages with other subject areas based on participation, such as awards received or course enrollment, or indicators applicable to the student such as test scores, attendance or financial aid. The Educational Institution subject covers the organizations and facilities that provide educational opportunities. Although designed with facilities in mind, the EDW has not implemented this beyond basic identification of physical plant elements. The Employee facet looks at teachers serving students and contains information about certifications, experience, and teaching assignments. The Educational Curriculum facet deals with courses and programs at all levels and types of educational offerings. This facet is a key linkage between all the facets by bringing together the student, teacher, course and institution information. Central to the design of this project is the incorporation of the redesigned facility information and the addition of financial data that adds the capability to analyze costs to a room or student level.

Figure B in Appendix B illustrates the three main hardware sites: DOE, where the main users are located, NWRDC, where the mainframe is located, and the State Technology Office (STO), where the EDW server is located. Also shown are the outside users. The mainframe is connected to a citywide link and is available on the Internet. The protocol is TCP/IP.

The users and servers located on DOE premises are hidden behind a firewall. The firewall device is a Cisco Pix 520 running v1.2.05. A Novell Internet Caching System (ICS) is also being used as a filtering device. The connection between DOE and the citywide link is an OC-3 and is capable of over 100 Mbits per second. All users located at DOE use this link to access NWRDC, STO and the Internet. STO operates many servers, among which is the EDW. STO is also

connected to the citywide link and the Internet using one 66 Mbits per second link. STO has a demilitarized zone (DMZ) where servers located in this zone and the internal network are also protected by firewalls.

A diagrammatic representation of the K-20 Education Data Warehouse Architecture, with the EDW Central Database, Operational Data Store (ODS), business intelligence analytical tool, and Web-based reporting capability is presented in Figure C, in Appendix B.

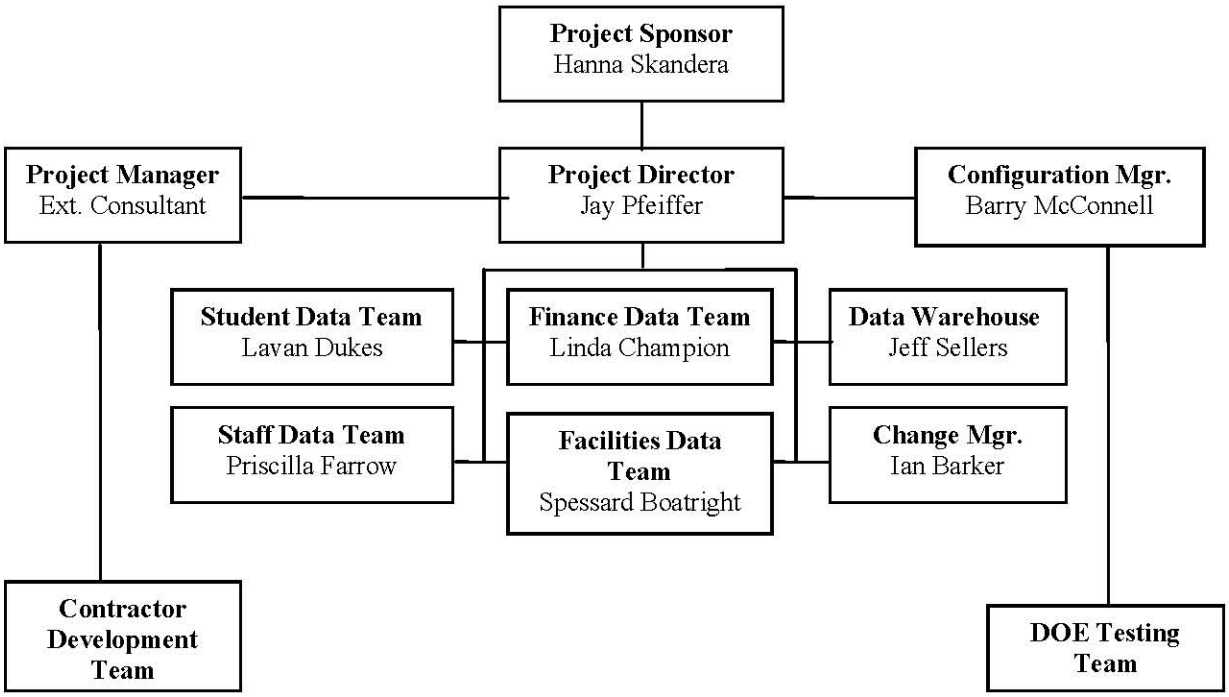
This diagram represents both the structures involved in the architecture and the movement of information from its originating source to final delivery to the analyst and/or policy maker. Data are transferred from LEAs to systems at DOE, such as the proposed new Facility system. EDW staff extract the necessary information to a staging area to provide a common environment for the Extraction/Transformation/Load (ETL) jobs to work from. The ETL jobs prepare the source information for loading into the EDW by performing such tasks as reformatting codes to a common standard, converting names to standard formats, etc. This ETL process undergoes quality control inspection to ensure that the data are loaded accurately and to ensure proper traceability from source to warehouse. The data are then loaded to either the central database (for stable data) or the ODS (for volatile data). In order to ensure acceptable performance and proper access controls, data are then extracted from the EDW central database and/or the ODS to provide subsets of information for either data exploration or analysis/reporting through data marts. Since ease of use is a primary consideration, reporting and analysis services are provided through web-based business intelligence tools.

3) PROJECT PERSONNEL

The Organizational Chart, Figure 3 below, depicts the reporting relationships among the members of the internal Executive Steering Committee who are highly experienced in the components of the proposed system, the external contractors, and the internal users that constitute the testing team. Resumes of key project personnel are contained in a separate section of this proposal.

Ms. Hanna Skandera, Deputy Commissioner of the Department of Education's Division of Accountability, Research, and Measurement will serve as Project Sponsor. Ms. Skandera served as the Undersecretary for Education in California and a research fellow for the Hoover Institute before being appointed to her current position. The Division of Accountability, Research, and Measurement has 150 employees and is comprised of the following units: Assessment and School Performance, Florida Education and Training Placement Information Program, K-20 Education Information and Accountability, K-20 Education Data Warehouse, Education Information and Accountability Services, Office of Articulation, Community College Technical Center Management Information Services, Office of Equity and Access, Management Information Services Division of Colleges and Universities. As Project Sponsor, Ms. Skandera will ensure that adequate resources are devoted to this project. She will approve major deliverables and authorize advancement from one project phase to the next. She is ultimately responsible for ensuring that the project is completed on time and within budget and produces the expected outcomes. She will chair the monthly meetings of the Executive Steering Committee and will devote an average of 5 percent of her time to this project.

Figure 3
Project Organizational Chart



Jay Pfeiffer, Assistant Deputy Commissioner of the Division of Accountability Research and Measurement, will serve as Project Director. Mr. Pfeiffer has held various research and management positions during his 21 years with the Department of Education. He currently supervises the Office of K-20 Education Information and Accountability, which coordinates the development of education performance accountability measures, standards, and performance improvement targets throughout Florida's seamless K-20 education delivery system. Mr. Pfeiffer will be responsible for selecting the external consultants and determining the skill sets required. The Project Director provides management oversight, monitors the performance of all project teams, and is the liaison to the external project manager and contract staff. He will review bi-weekly project status reports and is expected to devote an average of 15 percent of his time to this project.

Serving on the Executive Steering Committee and reporting to the Project Director will be five subject matter experts who will manage content area teams comprised of system users and stakeholders. The team managers will be responsible for selecting team members and coordinating team meetings. The purpose of these meetings will be to ensure that the project is designed and executed in accordance with the users' and stakeholders' requirements and expectations. Team members will participate in Joint Application Development (JAD) workshops and will receive quarterly progress reports. Team managers will devote an estimated 15 percent of their time to this project.

The Student Data Team will be managed by Mr. Lavan Dukes, Chief of the Bureau of Education Information and Accountability, whose mission is to improve education by increasing the quality

of decisions through the use of data. Bureau functions and services include: assisting school districts in the reporting of accurate information, providing information to customers in order to meet their needs, fulfilling DOE Information Database reporting requirements, and reviewing and developing data collection procedures. Mr. Dukes has been with the department for 33 years and has been involved with K-12 data collection since its inception.

Ms. Priscilla Farrow will serve as manager of the Staff Data Team. Ms. Farrow is the Computer Applications Support Manager supervising several teams of project and technical mangers, computer analysts and programmers. Her staff are primarily responsible for working on projects that require some form of system development, analysis, automation or redesign for the mission critical DOE program areas. These include all K-12 Student, Staff, Financial and Work Force Development information systems, Application Development, Data base Administration and Application Maintenance for the comprehensive K-12 information systems, most of which are mandated by Florida statutes or Florida State Board Rule.

Ms. Linda Champion will serve as manager of the Finance Data Team. Ms. Champion is the Assistant Deputy Commissioner for Finance and Operations, in which capacity she coordinates the activities of the Offices of K-20 Budget, Comptroller, Administrative Services, Education Facilities, School Business Services, Student Financial Aid, and Technology. She has been with the Department of Education since 1993. Ms. Champion has held the position of Chair of the National Center for Education Statistics Finance Task Force since 1997 and directed the first update since 1980 of the national accounting manual, *Financial Accounting for Local and State School Systems, 2003*. She is currently developing the first national standard for finance data collection for public school systems. Ms. Champion coordinated Department of Education teams in developing Florida's Return on Investment web site which provides the first school-level measure to link student learning gains with resources.

Mr. Spessard Boatright will serve as manager of the Facilities Data Team. He is the Director, Office of Educational Facilities. He has worked in this area managing one or more of the functions listed below for over 18 years. He is responsible for the 27 professional and support staff who perform technical reviews of educational plant surveys, to include maintaining the Florida Inventory of School Houses (FISH); the technical reviews of construction documents for code compliance, and provide other facilities related technical assistance to school districts and community colleges; and perform the financial management functions of the state capital outlay funds for educational facilities throughout the State of Florida.

Mr. Jeff Sellers is the director of the K-20 Education Data Warehouse and will manage the Data Warehouse Team. The mission of the K-20 Education Data Warehouse (EDW) is to provide stakeholders in public education--including, but not limited to, administrators, educators, parents, students, state leadership, and professional organizations--with the capability of receiving timely, efficient, consistent responses to inquiries into Florida's Kindergarten through University education. Mr. Sellers has been employed by the State of Florida for the past 24 years in a variety of information system capacities including information security, data base administration, and data processing management.

As Configuration Manager, Mr. Barry McConnell will provide technical advice to the Project Director, provide design expertise to the EDW and BI components and will coordinate the Department's testing team. Mr. McConnell is the architect and data modeler for the K-20 Education Data Warehouse team. Mr. McConnell has extensive experience in data design, application development and systems projects. Mr. McConnell will devote 25 percent of his time to this project.

Ian Barker will serve as Change and Communications Manager. His primary responsibilities will be to ensure that any changes in the scope of the project are properly documented and approved by the Project Manager, the Project Director, and the Project Sponsor. He will also prepare quarterly project status reports and distribute them to all members of the Executive Steering Committee. Mr. Barker has worked as a budget and policy analyst for the DOE before being appointed the state's liaison for the USED's Education Data Exchange Network (EDEN) project. Mr. Barker is expected to devote 25 percent of his time to this project.

A team of external consultants will be employed to produce project deliverables, including the detailed project management plan, the requirements document, the configuration management plan, the logical and physical data models, the fully functional system, and the system documentation and training manuals. The consultants will be led by an experienced project manager who will serve as chief facilitator for the Joint Application Development workshops. The Project Manager will coordinate meetings and activities of the development team, maintain a project file which contains copies of deliverables, correspondence and meeting minutes, update the project timeline and associated tasks and assignments, including progress tracking and reporting. Additionally, the Project Manager will ensure compliance with contract requirements and established standards. The Project Manager will attend the monthly meetings of the Executive Steering Committee when called upon to do so. The external consulting team will include systems analysts, programmers, web developers, and other experts as may be required (see Budget Justification).

4) RESOURCES

To support this project, the DOE will provide an appropriately furnished and equipped office for occasional use by contracted personnel. Contractors will use their own equipment and supplies to produce project deliverables. The DOE will provide conference rooms and equipment necessary to conduct JAD sessions and project meetings. The DOE will also provide facilities and equipment necessary for system testing and user training.

Salaries and fringe benefits for the DOE personnel assigned to this project (see previous section for roles and percentage of time commitment) will total $157,063 in Year 1, $160,204 in Year 2, and $163,408 in Year 3. This amounts to $480,675 for the duration of the project. The department will also pay expenses for one member of the Executive Steering Committee to attend the required two-day meetings in Washington, D.C. The total three-year cost is estimated at $3,521. [Travel for the Project Director is included in the requested project budget.]

The DOE's contribution to the total costs of this project amounts to $484,196 (see Section B of the Budget Summary form).

5) PROJECT MANAGEMENT PLAN

Florida has already accomplished many of the core elements for establishing a statewide longitudinal system. Procedures for collaborating with education data providers and consumers have been codified and institutionalized. Manuals have been published to explain and define data elements and to orient new users to the existing systems. An annual database workshop is held to review legislative changes and resulting system changes to district level management information systems and program personnel. Staff of the Bureau of Education Information and Accountability Services conduct on-site data quality review visits to assist districts in their on-going efforts to submit accurate data in a timely fashion. The proposed project will have nothing but a positive impact on these current collection processes. The fact that the various data will be better integrated and more readily available for different types of analyses suggests that more careful attention will be given to its overall quality. Data that are used invariably improve.

While in-house subject matter experts will represent the viewpoints of the various data providers, the data teams will be augmented by external data consumers. These will include legislative policy and budget analysts, university researchers, and education specialists from the Office of Program Policy Analysis and Government Accountability (OPPAGA). OPPAGA is an independent agency assigned by the Legislature to conduct various kinds of studies of government agencies and programs. Examples of recent studies that could have benefited from the proposed longitudinal database follow:

University of South Florida; Understanding Factors that Sustain Science, Technology, Engineering and Mathematics Career Pathways

Students were tracked longitudinally to identify the points in time at which students leave STEM educational or career paths and the factors that affect persistence in or attrition from STEM careers. Factors examined included high school and postsecondary course patterns, course grades, work experience and demographic variables.

Florida State University; Assessing teacher effectiveness: How can we predict who will be a high-quality teacher?

This project focused on the criteria currently employed to certify teachers, including college coursework, college degrees and certification tests. The intent was to measure how much each of these criteria contribute to explaining variations in teachers' impact on student learning. According to the principal investigators, "Previous research in this area has produced highly inconsistent findings, due in part to significant limitations in data and statistical modeling."

Harvard University; The Efficacy of Choice Threats within School Accountability Systems

Findings: Stigma and school voucher threats under a revised 2002 Florida accountability law have positive impacts on student performance. Stigma and public school choice threats under the U.S. federal accountability law, No Child Left Behind, do not have similar effects in Florida. Significant impacts of stigma, when combined with the

voucher threat, are observed on the test score performance of African Americans, those eligible for free lunch, and those with the lowest initial test scores. No significant impacts of the voucher threat on the performances of whites and Hispanics are detected. Estimations rely upon individual-level data and are based upon regression analyses that exploit artificial distinctions created by cliffs within the accountability regimes.

The Project Management Plan presented below indicates how the perspectives of external data consumers, including the U.S. Department of Education, have been and will be incorporated into appropriate phases of the process and **milestones** throughout the project.

Initiation Phase

As reflected in this proposal, this phase has been completed. Ms. Skandera assumed the role of Project Sponsor and designated Mr. Pfeiffer as Project Director. Mr. Pfeiffer assembled the Executive Steering Committee who developed the business case and determined the feasibility of the proposed solution using existing technical resources augmented by contractor staffing. The benefits of the proposed system both to the department and to external stakeholders were assessed as being "High." The risk of failure was assessed as being "Low." The Project Sponsor concurred in these assessments and authorized the project to move forward.

Needs Assessment/Feasibility Phase

Primary responsibility for this phase was assigned to Dr. Barker. Dr. Barker met individually with the team managers and documented the strengths and weaknesses of the component systems. He reviewed lists of research projects ordered by the Florida Legislature and ascertained that a significant number could be more efficiently completed with integrated data residing in a longitudinal database. The findings from this research formed the basis for determining the scope and budget for the proposed project. The Executive Steering Committee was convened to validate the proposed project approach and budget. Their recommendation to proceed was approved by the Project Sponsor. The proposal was prepared for submission according to Request for Applications Number NCES-05-02.

Planning Phase (July-October, 2005)

This phase will be completed prior to award notification. Key activities will include documenting the relationship of the proposed project to ongoing efforts to enhance the DOE's facilities information systems and validating the assumptions on which this proposal has been based. Considerable attention will be given to assessing alternative methodologies for conducting formative and summative evaluations of the project and disseminating information about processes and outcomes. Representative tasks and deliverables are identified below.

Task	**Person(s) Responsible**	**Deliverable(s)**
Convene Executive Steering Committee to validate business case, scope of the project, and commitment of resources	Project Sponsor	Revised Project Plan documenting job tasks, schedule, allocated resources, milestones, and review requirements

Acquire contractor support and any other additional resources	Project Director	Acquisition plan and public solicitation for IT consulting services
Establish project account and recordkeeping systems	Project Director	Project support systems in place
Identify processes to identify, manage, control, and audit system configuration and security	Configuration Manager	Configuration Management Plan
Complete forms for grant award	Project Sponsor	Agreement between USED and Florida DOE
Select IT consultants	Executive Steering Committee	Contract for services
Update senior management on project status	Change and Communications Manager	Memorandum to Project Sponsor
Authorization to proceed	Project Sponsor	Memorandum to Project Director

Requirements Analysis Phase (November, 2005-February, 2006)

During this phase, the requirements of all system users will be documented and a detailed project plan will be developed. It is anticipated that the project plan will be based on completing system components sequentially, although some overlapping of activities may well be recommended. Key tasks and deliverables in this phase are presented below.

Task	**Person(s) Responsible**	**Deliverable(s)**
Select members to serve on data teams, including external system users, and internal testing team	Project Director and Data Team Managers	Rosters of data team and testing team members
Schedule project kick-off meeting	Project Director and Project Manager	Meeting agenda
Conduct kick-off meeting	Project Manager	Detailed project plan and draft testing and quality assurance plans. Schedule of Joint Application Design (JAD) workshops
Approval of detailed project plan	Project Sponsor, Project Director, and Project Manager	Signed Project Plan with schedule of deliverables
JAD workshop with Executive Steering Committee and USED representatives	Project Manager	Functional requirements document
JAD workshops with Student, Staff, Finance, Facilities, and Data Warehouse Data Teams	Project Manager	Detailed requirements documents
Review, revision, approval of requirements documents	Data teams and Executive Steering Committee	Revisions to, or approval of, requirements documents provided to Project Manager

Prepare system design documents	Project Manager	High-level technical architecture and logical design supported by data diagrams, entity relationship diagrams and/or process models, as appropriate
Review/approval of design documents	Executive Steering Committee	Recommendation to proceed or revise design documents
Approval to proceed to design phase	Project Sponsor	Memorandum to Project Director
Project status report	Change and Communications Manager	Report distributed to Project Sponsor, Executive Steering Committee, Data team members, and USED representatives

Design Phase

The design phase will be iterative. The technical requirements for each of the system components will be defined in detail and aligned with the business requirements for each component and the system as a whole. Representative tasks and deliverables are presented below.

Task	**Person(s) Responsible**	**Deliverable(s)**
Revise draft testing and quality assurance plans based on design documents	Project Director, Configuration Manager, and Testing Team	Revisions to, or approval of, testing and quality assurance plans provided to Project Manager
Design application	Project Manager	Document technical architecture, general system characteristics, data storage requirements, user interfaces, business rules, and application logic. Select business intelligence and web reporting tools.
Design conversion/migration/ transition strategies	Project Manager	Conversion plan for each database into the Operational Data Store and, subsequently, into the data warehouse
Compile System Design Documents	Project Manager	Documents to include files and database designs, input formats, output layouts, user interfaces, detailed design, and processing logic

Comparison of Functional Design document with System Design document	Project Manager and Executive Steering Committee	Agreement to modify or proceed.
Approval to proceed	Project Sponsor	Memorandum to Project Director
Project status report	Change and Communications Manager	Report distributed to Project Sponsor, Executive Steering Committee, Data team members, and USED representatives

Development Phase

Development of each system component will occur sequentially and may involve prototyping. System documentation will be compiled to aid subsequent on-going system maintenance, administration, and user training. Representative tasks and deliverables are presented below.

Task	Person(s) Responsible	Deliverable(s)
Prepare Software Development document	Project Manager	Document to address plans to develop and test each module and to describe its functionality
Develop application	Project Manager	Completed coding
Complete system documentation	Project Manager	System Design document, Implementation Plan, System Administration Manual, Training Plan, and User Manual
Review/approval of system documentation	Executive Steering Committee	Recommendation to proceed or revise
Approval to proceed	Project Sponsor	Memorandum to Project Director
Project status report	Change and Communications Manager	Report distributed to Project Sponsor, Executive Steering Committee, Data team members, and USED representatives

Integration, Testing, and Acceptance Phase

During this phase, system components will be sequentially transitioned from the development to the testing environment. The testing plan for each component will be implemented and the results analyzed. Representative tasks and deliverables are presented below.

Task	Person(s) Responsible	Deliverable(s)
Orient testing team to testing environment and activities	Project Manager and Configuration Manager	Test data loaded; testing schedule and assignments established

Conduct testing	Testing team members and Configuration Manager	Test Analysis Reports and Test Problem Reports
Rework failed components	Project Manager	Corrected modules
Accept system	Executive Steering Committee	Recommendation to implement system
Approval to proceed	Project Sponsor	Memorandum to Project Director
Project status report	Change and Communications Manager	Report distributed to Project Sponsor, Executive Steering Committee, Data team members, and USED representatives

Implementation Phase

During this phase, data will be extracted, transformed, and loaded. System components will be installed. The results from user testing and training will be incorporated into subsequent plans to modify or enhance the completed system. Representative tasks and deliverables are presented below.

Task	**Person(s) Responsible**	**Deliverable(s)**
Convert data	Project Manager	Data converted and loaded into production environment
Install application	Project Manager	Application installed in secure production environment
User training	Project Director and Project Manager	Data team members, including external users, scheduled for training
Document desired modifications	Change and Communications Manager	Documentation of modifications suggested by users following training
Review of system modifications	Executive Steering Committee	Recommendation to incorporate modifications
Approval of modifications	Project Sponsor	Memorandum to Project Director and contract amendment to Project Manager
Modify system	Project Director, Project Manager, and testing team	System modifications installed and tested
System demonstration	Project Director	Senior management and stakeholders (including USED representatives) attend demonstration
Final approval	Project Sponsor	Closed contract with IT consultants

Final project status report	Change and Communications Manager	Report distributed to Project Sponsor, Executive Steering Committee, Data team members, and USED representatives

Project Evaluation

Requirements Analysis: This initial step in the evaluation process is to define specific expectations and results of this project. Based on the defined expectations, a detailed analysis of the existing Finance and Facilities applications will take place to determine the specific data elements needed to be extracted. As a result of this analysis, a plan of work will be written. The requirements analysis process will include systematic feedback from finance officers, facilities representatives, and student information system personnel from both the state and local school district levels.

Design: This step will define and document the process which will be followed in acquiring the data from the source database applications, based on the results of the requirements analysis. Additional feedback will be petitioned from university researchers and other outside interests to ensure the useful outcome of this project. Based on the results of this step, modifications will be made to the plan of work.

Development: This step will be mostly guided by FL DOE, based on the results of the prior two steps. This step includes writing the actual specifications and programs for the extraction, transformation and loading (ETL) of the required data.

Testing: This step will incorporate two degrees of testing. 1) Technical testing, which will be performed on the specific program code and results of the program executions to determine the efficient and accurate results. 2) User testing, which will focus on the functionality and integration of the data. The primary participants in this step will be FL DOE technical and program staff.

Acceptance Testing: At this point in the process, those parties involved in the requirements analysis, including finance officers, facilities representatives, and student information system personnel from both the state and local school district levels will participate in the evaluation of the results from development and testing and determine how closely expectations were met and in a systematic process give feedback to the developers of appropriate enhancements/modifications which may be needed.

Production Implementation: Once the development and testing is completed, the application will then be migrated into the production environment and will be made available to the end-user community.

Each of the preceding steps will require a serial evaluation process and each step is a prerequisite for the next. These steps will be applied to the first three core project elements: 1) the Facilities application redesign, 2) the ODS design, and 3) the web-based BI implementation. The

methodology for establishing the fourth core project element, the production of a guidebook outlining key components and processes, will be produced and evaluated through a collaborative effort with the USDOE, other selected states, and national education entities, such as the National Center for Education Statistics (NCES) and the Council of Chief State School Officers (CCSSO). The intent of this guidebook will be to document the process Florida followed in establishing this new application, and to provide direction and a strategy to other states, when designing similar applications, to plan for these applications to follow a convergent path of ultimate integration.

RESUMES OF KEY PERSONNEL

Project Sponsor, Hanna Skandera

Hanna Skandera joined the Department of Education on April 1, 2005, as the new Deputy Commissioner for the Division of Accountability, Research & Measurement. She formerly served as the Undersecretary for Education in California—a position she was appointed to by Governor Schwarzenegger.

Prior to her work in the California Governor's Office, she was a research fellow at the Hoover Institution, where she focused on K-12 education policy. The Hoover Institute is an internationally respected political think tank at Stanford University in Southern California. While at the Hoover Institute, Ms. Skandera coauthored *School Figures: the Data Behind the Debate* (2003). This volume showcased her ability to provide a concise and understandable analysis of the state of K-12 education in the United States. In addition, she has also coauthored several articles on K-12 education reform including "School Choice: The Evidence Comes In," "Who Speaks for the Teachers?" and "Catholic Schools Achieve High Marks at Low Costs." Along with her education policy research and writings, Ms. Skandera is co-editor of the book *Population Puzzle: Boom or Bust?* (2004) and is a contributing author to Never *a Matter of Indifference: Sustaining Virtue in a Free Republic* (2004). While a research fellow at the Hoover Institution, Hanna was also an adjunct professor at Pepperdine University's Graduate School of Public Policy where she received her graduate degree.

Project Director, Jay Pfeiffer

PROFESSIONAL EXPERIENCE:

February 2005 to Present
Assistant Deputy Commissioner
Accountability Research and Measurement
Florida Department of Education

- Worked with the Deputy Commissioner to administer a large division of 115 employees charged with collecting student level data from public schools, workforce institutions, community colleges, and universities; administering assessment tests in secondary and postsecondary environments; and conducting educational research.
- Co-directed a major business intelligence initiative with a major software company to provide data and analytic tools through the worldwide web to school districts, workforce institutions, and universities.
- Coordinated data development for strategic planning exercises in public schools, workforce institutions, community colleges, and universities.

September 2002 to February 2005
Director
Office of K-20 Education Information and Accountability
Florida Department of Education

- Supervised Five sections including 85 staff comprised of the Information Resource Management Units of the State University System, the State Community College System, the State Public K-12 System, the Workforce Education System, the Florida Education and Training Placement Information System, and the Education Data Warehouse.
- Was lead staff person in coordinating the development and implementation of a K-20 Accountability System representing all of Florida's education sectors.
- Participated in Staffing the Higher Education Funding Advisory Committee, accountability task forces, and other advisory bodies at the direction of the Commissioner of Education.
- Represented the Department in national meetings including those sponsored by the National Governor's Association, State Higher Education Executive Officers; the National Commission on Higher Education Management Systems, the National Postsecondary Education Cooperative, The EdTrust and others.
- Represented the Department on several national data collection projects using record linkage methodologies including the Longitudinal Employer Dynamics project of the U.S. Census; the Federal Employment Data Exchange Project with the Department of Defense, U.S. Postal Services, and the Office of Personnel Management; and the Administrative Data Analysis and Research project through the U.S. Department of Labor.
- Represented the Department on the National Governor's Association Best Practices project dealing with integrated performance information systems.
- Chaired the Workforce Estimating Conference on behalf of the Education Commissioner.
- Made numerous presentations to local, state, and national boards and committees.

June 1996 to September 2002
Director
Workforce Education and Outcome Information Services Bureau
Florida Department of Education

- Supervised the development and maintenance, and of Information systems to support Workforce Education programs in Florida including management information, follow-up services. Designed and developed statistical and analytic reports.
- Developed funding formulae using performance output and outcome measures for Florida's public postsecondary vocational and adult general education programs.
- Supervised major development project including hardware acquisition and software development related to performance funding postsecondary vocational and adult general education programs.
- Made numerous presentations at state legislative hearings, statewide conferences and seminars, and national conferences.
- Directed response to reporting and performance measurement requirements to federal legislation including the Carl D. Perkins Act and the Workforce Investment Act. Participated in National Workgroups pertaining to these acts.
- Supervised a staff of from twenty-five to twenty-nine people.
- Represented the Commissioner of Education in Chairing the State Level Occupational Forecasting Conference which involved gathering and analyzing occupational opportunities for all levels of education and training.
- Represented the State of Florida by chairing a national committee on the development of unit record data systems for higher education entities as a part of the National Center for Education Statistics.

1980- 2004
Consultant-Freelance

- Montana Department of Education/National Governor's Association – integrated performance information management systems, presentation, seminar, and consultation. August and November 2004.
- Independent Reviewer – Academy for Educational Development, Washington DC-Spring 2004
- Independent reviewer - National Center for Vocational Education Research, Ohio State University (Fall 2002).
- With MGT of America, Tallahassee, Florida - Feasibility Study of the implementation of a follow-up information system for the State of Ohio. (2001-2002).
- With Management, Planning, and Research, Inc. Berkeley, California on national performance measures for vocational education programs funded through federal law (spring, summer, 2000).
- With the State of Massachusetts - a seminar of performance measurement for workforce programs (summer 2000).
- With the State of California Workforce Development Board as a member of a " Peer

Review committee on developing a performance measurement approach for workforce development programs (1998, 1999, 2000).

- With the State of Texas on developing guidelines for establishing comprehensive follow-up systems in states to support education and workforce development program evaluations. Coauthored A Field Guide to Automated Follow-up: Cost Effective Collection of Performance Information and The Basics of Follow-up by the State of Texas. July 1, 1995-1998 to present.
- With Florida State University/U.S. Agency for International Development on sustaining job placement and career centers at fourteen Indonesian Universities, developed guidelines for conducting tracer and follow-up studies on graduates including reporting results. May through June 1996.
- With the National Postsecondary Education Cooperative on integrating postsecondary education data into management and policy development decisions. October 1, 1995 through January 1,1999.

January 1970 - June 1972
University of Florida Post Graduation Program

- Interdisciplinary studies through Departments of Anthropology and Geography with emphasis on methods of inquiry, quantitative analysis, Asian culture and history.

September 1961 - December 1965
University of Florida Undergraduate Program

- Major course work in Biology and Chemistry.

Student Data Team Manager, Lavan Dukes

9/96 - Present Florida Department of Education (DOE) Tallahassee, FL
Bureau Chief/Educational Policy Director
Establish policy direction for DOE Information Data Base; develop the DOE's data quality initiative for public school districts; develop and manage Bureau budget and personnel issues; provide policy guidance to staff regarding the Department's major statistical publications and presentations; serve as representative of Commissioner on issues dealing with state and federal reporting requirements; serve as Florida representative to the National Cooperative Education Statistics System; represent the Commissioner as legislative liaison for the Division of Technology; represent the Commissioner as liaison to the Education Information Advisory Committee of the Council of Chief State School Officers.

10/83 - 9/96 Florida Department of Education Tallahassee, FL
Program Director I (10/83 - 6/92) , Program Director II (6/92 - 9/96)
Develop and manage the Florida DOE Information Data Base, including the development of data elements for both student and staff information systems; direct the design of a national reporting system for school safety and discipline reporting for the Safe and Drug Free Schools Program; design and manage a comprehensive public reporting system for student, staff, and program information, including developing an Internet-based publication system which began to move hardcopy publications to the Internet; represent the Commissioner as liaison to the Education Information Advisory Committee of the Council of Chief State School Officers.

11/72 - 10/83 Florida Department of Education Tallahassee, FL
Program Specialist II (11/72 – 9/77), Research Associate (9/77 – 8/81),
Program Specialist III (8/81- 10/83)
Supervise the collection and processing of federal and state data reporting, including IDEA reporting, EEOC reporting, and other specialized reporting for state and federal agencies; established the first nationally acceptable automated system of reporting to compliance agencies in the federal system of reporting; serve as data liaison for various state task forces/committees, including the Commissioner's Task Force on Truancy and Discipline and the Council on Teacher Education.

9/67 – 6/71 Union and Suwannee School Districts Florida
Classroom Teacher
Taught English at the Jr. High/Middle School

1972	Florida State University M. Ed. , Educational Administration.	Tallahassee, FL
1969	Valdosta State University BS, Education	Valdosta, GA

Recommendations on Reporting Crime, Violence, and Discipline Data in Public School Districts, National Center for Education Statistics, US Department of Education (Editor and Chair of Taskforce)

Invited Commentary: Meeting Greater Expectations and Greater Needs for Education Data, Lavan Dukes and Edward Croft, *Educational Statistics Quarterly*, Volume 2, Issue 3, Fall 2000, National Center for Education Statistics

Chapter 2, "Uses of Information", Handbook 2, Financial Reporting for Public School Districts, National Center for Education Statistics, US Department of Education (Draft stage; Summer 2003 (currently under adjudication)

Many public reporting documents currently in use in the DOE

Former Chair, National Forum on Education Statistics, National Cooperative Education Statistics System, National Center for Education Statistics

Former Chair, National Education Statistics Agenda Committee, National Cooperative Education Statistics System, National Center for Education Statistics

Former Chair, Special Education Subcommittee, Education Information Advisory Committee, Council of Chief State School Officers

Member of many national task forces and committees dealing with data reporting, systems design, and student, staff, and financial information systems

"Educator of the Year," Florida Department of Education, December 1999

Many other state and federal awards and commendations for teamwork, achievement, and excellence

"*Closing the Gap Through Data Analysis,*" November 1997, Closing the Gap: The Commissioner's Challenge Conference, Miami, FL

"*District Visits to Improve Data Quality: DOE and District Collaboration,*" November 2000, Florida School Finance Officers Association, Ocala, FL

"Florida's Cohort Graduation Rate" NCES Summer Data Conference, July 1999, Washington, DC

Finance Data Team Manager, Linda Champion

EMPLOYMENT HISTORY

State Government

1993 – Present Department of Education

- Employed as a Program Specialist within the Office of Funding and Financial Reporting and, in 2001, became the Director. The primary responsibilities of this office are the calculation and distribution of state funds to Florida school districts through the Florida Education Finance Program, the forecasting of K-12 student enrollment and the establishment of accounting and financial reporting requirements for school districts.
- In 2004, promoted to Director of School Business Services. The position supervises the activities of the Offices of Funding and Financial Reporting, School Transportation Management, and Food and Nutritional Management.
- In 2005, became the Assistant Deputy Commissioner for Finance and Operations which coordinates the activities of the Offices of K-20 Budget, Comptroller, Administrative Services, Education Facilities, School Business Services, Student Financial Aid, and Technology.

1981 - 1983 Accounting Supervisor, Florida Department of Agriculture and Consumer Services.

Responsible for the implementation of statewide redesigned accounting system (SAMAS II) including design and maintenance of system files and related procedures, preparation of indirect cost data for industry and legislative assessment, and coordination of staff for preparation of annual financial statements.

EDUCATION/PROFESSIONAL

Master of Business Administration, Florida State University, April, 1985.

Bachelor of Science, Accounting, Florida State University, June, 1978. Member of Beta Alpha Psi honorary accounting fraternity.

Completion of C.P.A. examination, November, 1978. Issued Certificate FL #7953, September, 1979.

Professional Affiliations: American Institute of Certified Public Accountants, Florida Institute of Certified Public Accounts.

MAJOR ACCOMPLISHMENTS

Chair, National Center for Education Statistics (NCES) Finance Task Force since 1997.

- Directed the first update since 1980 of the national accounting manual, Financial Accounting for Local and State School Systems, 2003. Served as technical adviser to NCES in the federal adjudication process.

- Currently developing the first national standard for finance data collection for public school systems, Core Finance Data Element Handbook for Local and State School Systems.

- Coordinated Department of Education teams in the development of Florida's Return on Investment website, which provides the first school-level measure to link student learning gains with resources (Davis Productivity Award).

- Directed the transition of Florida's 67 school districts to the new financial reporting model prescribed by the Governmental Accounting Standards Board (GASB) Statement 34 in the first phase-in year (2001-02), (Davis Productivity Award) including:
  - Creation of a GASB 34 implementation manual for school districts which became the basis for the Auditor General's implementation manual for municipalities and counties.
  - Development of the first Internet submission system for school district financial statements (Davis Productivity Award).

- Serves as resource for the Florida School Finance Council created to advise the Commissioner of Education regarding education fiscal policy.

Academics

1985 – 1989 Adjunct Professor, Accounting, College of Business, Florida State University, taught beginning and intermediate financial and managerial accounting..

2001 – 2002/
1985 - 1989 Adjunct Professor, Accounting, Tallahassee Community College, taught beginning financial and managerial accounting.

1984 - 1985 Graduate Research Assistant, Florida State University.

Public Accounting

1990 - 1991 Accountant, Jeffrey R. Smith and Associates, Certified Public Accountants, Vero Beach, Florida.

1978 - 1981 Senior Staff Accountant, May, Zima & Company, Certified Public Accountants. Public accounting experience includes audits of governmental and not-for-profit organizations; conducted reviews and compilations of financial statements of agricultural, retail, and service organizations; income tax return preparation for corporations and individuals.

Facilities Data Team Manager, Spessard Boatright

Department of Education

Director, Office of Educational Facilities - November, 2004 to Present.

Reported to the Assistant Deputy Commissioner, Finance and Operations, Ms. Linda Champion. Manage 27 professionals and support staff who perform technical reviews of educational plant surveys and technical reviews of construction documents for code compliance, provide other facilities-related technical assistance to school districts and community colleges, and perform the financial management functions of the state capital outlay funds for educational facilities throughout the State of Florida.

Department of Education

Bureau Chief, Educational Facilities /Director of SMART Schools Clearinghouse - July, 2001 to June, 2002.

Reported to the Director of Support Services, Ms. Jeanine Blomberg. Managed 27 professionals and support staff who performed technical reviews of educational plant surveys and technical reviews of construction documents for code compliance, provide other facilities related technical assistance to school districts and community colleges, and performed the financial management functions of the state capital outlay funds for educational facilities throughout the State of Florida.

SMART Schools Clearinghouse

Executive Director - January, 1998 to June, 2001

Provided professional administration and directed the day-to-day activities of the SMART Schools Clearinghouse. Worked with the appointed clearinghouse board and the State of

Florida's school districts to develop plans and assist districts in building school facilities which maximize design and technological innovations and construction savings. Directed the reviewing and evaluating the school districts' 5-Year Work Plans, Effort Index Grant applications, and School Infrastructure Thrift Award applications.

Florida Department of Education

Bureau Chief - July 1995 to December 1997

Reported to the Deputy Commissioner for Planning, Budgeting and Management, Mr. Wayne V. Pierson. As Administrator of Educational Facilities Budgeting within the Department of Education, managed 7 professionals and support staff who performed the financial management of the state capital outlay funds for educational facilities throughout the State of Florida. The Office of Educational Facilities was responsible for developing the capital outlay budget for public school districts, community colleges, and universities for submission to the Commissioner of Education, Governor and the Legislature. The Office was managing approximately 2.5 billion dollars at any given time.

Florida Department of Education

Bureau Chief - October, 1987 to June, 1995

Reported to the Deputy Commissioner for Educational Facilities, Dr. H. James Schroeer. As Bureau Chief for Educational Facilities Planning, Budgeting, and Financial Management in the Office of Educational Facilities (OEF) within the Department of Education, managed 33 professionals and support staff who performed educational plant surveys and performed the financial management functions of the state capital outlay funds for educational facilities throughout the State of Florida. OEF was responsible for developing the capital outlay budget for public school districts, community colleges, and universities for submission to the Commissioner of Education, Governor and the Legislature.

Florida Department of Education
Program Specialist /Office of Educational Facilities - August 1985 to September 1987

Conducted and participated in educational plant surveys, validating, correcting and updating educational plant inventories, providing technical assistance to educational agencies and reviewing architectural plans and specifications for educational adequacy.

Dial Communications (An Underground Utility Contractor)
Manager - February 1984 to August 1985:

Managed a family-owned construction company in the organization with offices in Tallahassee, Panama City, and Brooksville. This was a $5 million annual operation with 175 employees.

Blue Cross and Blue Shield of Florida
Director, Facilities and Office Services - January 1979 to February 1984

Provided the corporation with an attractive well-maintained physical environment including planning, organizing and directing the management of all major office support systems and services.

Areas of responsibility included nine operating departments having approximately 200 employees and a $10 million operating budget.

Suwannee County School Board - Live Oak, Florida :
Assistant Principal/Curriculum Coordinator - January 1977 to December 1978

Served as Assistant principal, dean of students, and curriculum coordinator for Suwannee Elementary and Suwannee Middle Schools.

Suwannee County School Board - Live Oak, Florida
Superintendent of Schools (Elected Public Official) - January 1969 to January 1977

Served two terms (eight years) as the Chief Administrator for day-to-day operations of a medium-sized school district; worked with the public and elected school board in developing policy; responsible for employee relations, etc., for 575 full-time employees; administered the total educational programs and support services (food, transportation, etc) for two elementary, one middle, one senior high, one K-12, and one area vocational-technical and adult center.

Palm Beach County School Board - West Palm Beach, Florida
Teacher - June 1967 to March 1968

Served as a math resource teacher for all Palm Beach County Public Schools under a Title III Grant.

Suwannee County School Board - Live Oak, Florida
Teacher - January 1965 to June 1967:
Taught primarily math and science at the junior high level.

Education

Florida State University Bachelor of Science in Education, 1964
Florida Atlantic University Master of Education - Administration and Supervision, 1968

Received a Budget Entity Award for Sustained Superior Achievement - Managerial in 1993.

Data Warehouse Team Manager, Jeff Sellers

Director, K-20 Education Data Warehouse (February 2004 – Present)
Florida Department of Education
Tallahassee, Florida
Education Data Warehouse Technical Manager (September 2001 – February 2004)
Data Base Coordinator (September 2000 - September 2001)
Florida Department of Education
Technical Support Manager (August 1999 - September 2000)
Florida Department of Education
Systems Project Administrator (March 1996 - August 1999)
Florida Department of Education
Programmer/Analyst Manager (March 1995 - February 1996)
Florida State University
Tallahassee, Florida
Programmer/Analyst Supervisor (April 1994 - March 1995)
Florida Department of Education
Systems Project Analyst (April 1993 - April 1994)
Florida Department of Education
Computer Programmer/Analyst I, II (March 1990 - April 1993)
Florida Department of Education
Computer Operations Supervisor (October 1987 - March 1990)
Florida State University
Computer Operator I, II, III (August 1981 - October 1987)
Florida State University

CURRENT DUTIES

Direct the activities of the K-20 Education Data Warehouse (EDW) team in the planning, scheduling, implementation and enhancements of the EDW. Establish priorities and allocation of available resources for EDW team. Serve as the point of contact for issues, e.g., networking, software, hardware, and system access; consulting and advising on specific application of data warehouse methodology to the K-20 environment, liaison between the department and hosting agencies (STO & NWRDC), evaluate and approve EDW hardware and software purchases.

Prior duties include: Conducting the original EDW needs assessment; participating in the vendor selection, involved in defining the EDW scope of work through the negotiations. Manager of the Education Data Center's Data Base Administration section, DOE's Oracle software and services coordinator, coordinate the DOE's initiative to establish a common database architecture, assist with the acquisition of products and services related to this common architecture, provide technical guidance and assistance to department staff in the use and maintenance of database products and services.
Plan and coordinate the organization, definition, security, implementation and maintenance of data base structures. Coordinate standards for a data dictionary to ensure uniformity of definitions. Review proposals for data base information systems for conformity to standards, proper content and efficient data base structure. Recommend implementation if merited or design modifications if warranted. Coordinate research and technical evaluations of new

development in hardware and software to provide Data Center management with recommendations for improved staff productivity and system efficiency in the data base environment. Database administrator for the PK12 student database.

EDUCATION

Florida State University, Tallahassee Florida
December 1989
Bachelor of Science

Tallahassee Community College, Tallahassee Florida
May 1985
Associate of Arts

COMPUTER SKILLS

OPERATING SYSTEMS	MVS	IBM mainframes
	Window NT	servers
	Solaris	Sun computers
	MS-DOS	personal computers
PROGRAMMING LANGUAGES	COBOL, SQL, PL/SQL, Culprit, ACF2, JCL, REXX, Easytrieve, Easytrieve Plus, DataStage	
DATABASES	Oracle, DB2, SQL Server, IDMS, Microsoft Access	

Configuration Manager, Barry McConnell

2001-Present Florida Dept. of Education Tallahassee, FL

Data Warehouse Architect

Responsible for conceptual, logical and physical modeling of near-5NF data warehouse, star schema data marts and OLAP cubes to support the initiative to track complete student information from kindergarten through graduate school in a single integrated system. Designed comprehensive architecture of the data warehouse environment using Corporate/Government Information Factory and Zachman Framework concepts.

2000-2001 North Florida Community CollegeMadison, FL

Interim Director

Establish the infrastructure of a new IT operation for a community college. Infrastructure consists of DS-3 Internet connection, 100 Mb Fast Ethernet with redundant fiber-optic backbone, multiple firewalls with DMZ, Cisco routers and switches, Windows 2000 and Linux servers, Compaq and Dell PowerEdge platforms, Exchange 2000, MS SQL Server 2000, Oracle 8, WebCT, IIS and Apache web servers with ASP, SMS and SNA services.

1995-2000 Florida State University - CPDTallahassee, FL

MIS Manager

Hands-on team leader of MIS and professional training center. Design, implementation, security, maintenance and troubleshooting of a LAN/WAN environment. Data analyst and DBA of a client-server system (Powerbuilder/Oracle) for all operations of the Center. Install and administer Internet servers and program online courses. Teach advanced database/data modeling (Oracle/SQL Server), MCSE and Security courses.

1994-1995 Computerpeople, Inc. St. Petersburg, FL

Data Modeler

Responsible for development of an enterprise-wide conceptual model for a national media research organization in preparation for migration from mainframes to a client-server environment and expanding into new business lines. Trained in-house staff on data-oriented methodology and transforming models to distributed database designs.

Responsible for development and socialization of an enterprise-wide data model (conceptual and fully attributed) for a multi-national telecommunications company in an Oracle/Informix/DB2 based client-server environment. Reviewed existing and newly developed models. Trained in-house DBA staff in advanced concepts of logical modeling and relational database design.

Developed the initial conceptual data models for the redesign of the federal Medicare systems (under subcontract to prime) and trained the permanent staff on transformation to logical and physical schemas.

1989-1994 Dept. of Management Services Tallahassee, FL

Quality Assurance Manager

Trained staff in data modeling techniques (Chen, Bachman & Martin) and served as data administrator for database systems using Oracle, SQL-Server, DB2, Adabase, and FoxPro.

Responsible for defining and enforcing data models (enterprise and subject), data definitions, naming conventions, and standards for data handling and interpretation. Responsible for independent software testing group. Established a measurement program for defect recording, statistical analyses, and elimination, and guided development of an information systems development methodology.

1988-1989 Information Resource Commission Tallahassee, FL

Software Engineering/Systems Development Consultant

Responsible for development and implementation of statewide policies, standards, and strategies concerning all phases of software engineering and quality assurance (TQM). Acted as technical consultant to agency management and technical personnel on methodologies, tools and techniques. Provided expertise and experience in advanced technology issues such as data/object modeling, CASE, client-server, testing and quality assurance.

1982-1988 Florida A&M University Tallahassee, FL

Assistant Professor

Prepared and taught classes in database management, software engineering and quality assurance, programming languages (BASIC, Fortran, Pascal, C, Cobol, Assembler, Prolog, Lisp), structured and object-oriented programming techniques, systems analysis, robotics, artificial intelligence and expert systems.

1979-1982 Florida State University Tallahassee, FL

Senior Programmer/Analyst

Led and developed projects for a team of programmers; developing hardware and software applications for handicapped student's needs. Projects included voice control and response of computers, Braille printing from the university mainframe, computer assisted speech training of deaf students, and intelligent tutoring systems.

1977-1979 Edinboro State College Edinboro, PA

Programmer

Conducted systems analysis and developed code to support academic and administrative functions of the university. Developed systems for student admission/advising, accounting, statistical analysis, and OS tools. (Part-time while attending college under G.I. Bill.)

1984 Columbia Pacific University San Rafael, CA

Ph.D. Computer Science (Artificial Intelligence)

1982 Florida State University Tallahassee, FL

M.S. Higher Education

1979 Edinboro University Edinboro, PA

B.A. Psychology (Minor in Computer Science)

1976 El Paso Community College El Paso, TX

A.A. General Education

Software/Database Engineering

Conceptual, Logical and Physical Modeling for OLTP and warehouse databases implemented in Oracle (7, 8 & 9), MS SQL Server (6.5, 7, 2000), Adabase, DMS II, and DB2. Star Schema/OLAP Modeling for data marts implemented in Oracle 8/9 and MS SQL Server 7

Structured Development Lifecycle Methodologies for large scale development and maintenance projects and CASE tools (e.g. Designer, ER Studio, Silverrun, ERWin)

Database administration in Oracle 7.3, 8 & 9, MS SQL Server 6.5, 7 and 2000

Programming in SQL (including PL/SQL and T-SQL, stored procedures and triggers), Ascential DataStage ETL tool, Business Objects and Cognos BI tools, Visual Basic 6 with ADO, VBScript for ASP, HTML, Pascal, PERL (basic level)

Network Engineering

Design, installation and maintenance of LAN/WAN environments with MS, Novell and Unix servers, Cisco switches, routers and firewall

Configuration and troubleshooting of domain controllers; application, database, email and web servers

NDS and AD management of users, computers, groups, and policies

Develop security procedures, monitor compliance and intrusion detection

Training

Certified trainer in networking, database administration, programming and web development

College/professional level course development and delivery

Certified Government Information Factory [GIF] Architect (Inmon)
Oracle Master DBA
Microsoft Certified Database Administrator (MCDBA)
Certified Internet Security Specialist
Certified Technical Trainer (CTT)
CompTIA A+ Certified Support Technician
Certified Webmaster
Certified Master TCP/IP Administrator
Windows NT Certified Independent Professional (NT-CIP)
Certified Windows NT/2000 Administrator
Compaq Accredited Systems Engineer (ASE) – Windows NT Specialist †
Certified Network Professional (CNP)
Certified Novell Instructor (CNI)
Certified Intranetware Engineer (CNE) †
ICCP Certificate in Data Processing (CDP)
Microsoft Certified Trainer (MCT)
Microsoft Certified Systems Engineer + Internet (MCSE+I)

Change and Communications Manager, Ian Barker

Professional Experience

FLORIDA DEPARTMENT OF EDUCATION *March, 2000 – Present*
Tallahassee, Florida

EDUCATIONAL CONSULTANT. Currently Assigned to the Bureau of Education Information and Accountability Services. Formerly worked in the Office of Planning and Budgeting and the Office of Policy Research and Improvement.

MGT OF AMERICA, INC. *NOVEMBER, 1999 - March, 2000*
Tallahassee, Florida

SENIOR ANALYST. Provided marketing support and consulting services to the Human Resources Practice Area.

INFORMATION SYSTEMS OF FLORIDA, INC. *April, 1995 - August, 1999*
Jacksonville and Tallahassee, Florida

STATE GOVERNMENT COORDINATOR. Responsible for devising and implementing marketing strategies and managing state government accounts in Florida and Georgia for information technology consulting company.

GULF COAST COMMUNITY COLLEGE *July, 1973 - March, 1995*
Panama City, Florida

DEAN OF PLANNING AND DEVELOPMENT (1991-1995). Administered federally funded instructional programs, external resource development activities, and institutional strategic planning.

DIRECTOR OF DEVELOPMENT (1990-1991). Coordinated $1 million "Wall of Honor" scholarship endowment campaign.

ASSISTANT TO THE PRESIDENT (1983-1990). Implemented and supervised a comprehensive institutional advancement program, including special events.

ASSOCIATE PROFESSOR OF ENGLISH (1981-1983). Taught basic English, reading, composition, and creative writing.

DIRECTOR OF COLLEGE RELATIONS (1976-1981). Prepared speeches, articles, and publications for informational and promotional purposes.

COORDINATOR OF PUBLIC INFORMATION/INSTRUCTOR OF JOURNALISM (1973-1976). Taught survey of and writing for mass communications, advised student publications (newspaper and magazine), and prepared media releases

Education

THE FLORIDA STATE UNIVERSITY
Tallahassee, Florida

PH.D., ENGLISH EDUCATION (1987). Dissertation examined the effects of a computer-based composition course on the writing styles of "strong," "average," and "weak" writers in both the teaching and testing environments.

THE UNIVERSITY OF WEST FLORIDA
Pensacola, Florida
M.A., ENGLISH (1979). Thesis: "The Enduring Present--The Novels of John Cheever."

VANDERBILT UNIVERSITY
Nashville, Tennessee
B.A., ENGLISH/SOCIOLOGY (1973). Contributor to Versus newspaper.

GULF COAST COMMUNITY COLLEGE
Panama City, Florida
A.A., GENERAL EDUCATION (1970). Phi Theta Kappa; "Distinguished Citizen" Award (1971); Who's Who Among Students in American Junior Colleges (1970 and 1971).

PROFESSIONAL AFFILIATIONS

Barry University
ADJUNCT INSTRUCTOR (2000-02) teaching upper-division course in composition and syntax.

National Council for Resource Development
Completed two-week, residential Resource Development Specialist Training Program (1992); presented "Creative Ideas for Fund Fundraising" at Annual Conference (1991).

Florida Council for Resource Development
Presented "The Wall of Honor Endowment Campaign" at Annual Conference (1991).

Florida Association of Community Colleges
Emcee of "Fabulous Fifties" fundraiser (1991); recipient of "James Mulcahy Award" (1986); Secretary-Treasurer of Institutional Advancement Commission (1985); Co-chairman, "Florida Community College Week" (1984).

Council for the Advancement and Support of Education
Published "Computerizing Without a Computer," Caseletter (March, 1976).

University of Cambridge International Summer School
SHAKESPEARE TUTOR (1985). Directed the individual studies of six Florida community college and university students during a four-week seminar.

Florida Department of Education
Consultant on development and implementation of the Teacher Certification Examination and the College-Level Academic Skills Test (1982-94).

Florida Community College Activities Association
"Brain Bowl" moderator (1980-94).

SELECTED GRANT PROPOSALS

"Enhancing the Teaching and Learning of Mathematics and Science in Florida's Panhandle" (1991). Joint proposal with Florida State University, funded under Title II.

National Small Business Development Tree Planting Program (1991). Grant of $20,000 to landscape the perimeter of Gulf Coast Community College.

"Improving Academic Services to Students in Remote Areas" (1992). Five-year project to establish interactive video instructional delivery system in five Northwest Florida counties.

Title III Strengthening Institutions Grant (1992). Continuation application for $415,000.

"Academic Enhancement for Disadvantaged Adults" (1992). Grant of $33,600 to provide GED preparation for educationally disadvantaged adults.

"A Technology-Based Approach to Mathematics Education Through Scientific Applications" (1992). Grant of $250,000 funded under Title II, National Higher Education Act.

Title II Student Support Services Grant (1993). Five-year grant totaling $1.25 million.

BUDGET JUSTIFICATION

The DOE staff assigned to this project will meet at regularly scheduled intervals approximately four months prior to the official grant award. The purpose of these meetings will be to validate the business case and resource requirements, complete a revised preliminary project plan, and release an Invitation to Negotiate (ITN) to procure external contractor support. The external Project Manager, in consultation with the internal Project Director and Executive Steering Committee, will identify the time and resources necessary to complete deliverables identified in the requirements analysis phase. The range of hourly rates cited in the following budget projections are derived from approved consulting contracts negotiated between vendors and the state Department of Management Services. The mid-point in these ranges has generally been used for projections, recognizing that certain services may be more costly, others less, and the duration of each project phase will be adjusted based on the scope of the project as defined in the final project plan.

Position Description	**Hourly Rate**	**Position Description**	**Hourly Rate**
Project Manager	$175-$240	Data Warehouse Architect	$150-$200
Manager IT Business Planning	$140-$200	Data Warehouse Analyst	$90-$115
Application Dev. Manager	$115-$200	Database Administrator	$65-$120
Application Architect	$95-$115	Web Architect	$85-$120
Quality Assurance Manager	$90-$165	Web Programmer	$60-$125
Systems Analyst/Developer	$60-$115	Security Manager	$55-$150
Programmer	$60-$115	Trainer	$55-$150
Document Specialist	$50-$70	Business Analyst	$50-$90

There will be three component parts to the completely integrated system: Reengineering of the facilities systems, design and development of new data warehouse components, and design of data marts and roll-out of the Web-enabled business intelligence tool. An appropriate system development methodology will be applied to each development effort, as outlined in the Management Plan section of the proposal narrative. The overall project budget is based on preliminary estimates of the resources that will be required to complete the following functions. These allocations will be distributed according to the timeline presented in the following section.

On-going Project Management (100 Weeks)

Task	**Resources**	**Hours**	**Hourly Rate**	**Cost**	**Task Total**
Monthly Client Meetings and Bi-weekly Status Reports	Project Manager	500	$210	$105,000	
	Document Specialist	2,000	$60	$120,000	**$225,000**

Requirements Analysis (16 Weeks)

Task	Resources	Hours	Hourly Rate	Cost	Task Total
Plan Kick-off Meeting	Project Manager	20	$210	$4,200	
	Mgr., IT Bus. Plan.	40	$170	$6,800	
	App. Dev. Manager	40	$160	$6,400	
	Data Warehouse Dir.	10	$175	$1,750	
	Quality Assur. Mgr	10	$130	$1,300	
	Systems Analyst	40	$90	$3,600	
	Business Analyst	40	$70	$2,800	$26,850
Conduct Kick-off	Project Manager	4	$210	$840	
	Mgr., IT Bus. Plan.	4	$170	$680	
	App. Dev. Manager	4	$160	$640	
	Data Warehouse Dir.	4	$175	$520	
	Quality Assur. Mgr.	4	$130	$700	
	Systems Analyst	4	$90	$360	
	Business Analyst	4	$70	$280	$4,020
Prepare Detailed Project, Testing, and QA Plans	Project Manager	5	$210	$1,050	
	Mgr., IT Bus. Plan.	5	$170	$850	
	App. Dev. Manager	5	$160	$800	
	Data Warehouse Dir.	5	$175	$650	
	Quality Assur. Mgr.	5	$130	$875	
	Systems Analyst	20	$90	$1,800	
	Business Analyst	20	$70	$1,400	$7,425
Conduct Exec. Committee JAD Workshop	Project Manager	4	$210	$840	
	Mgr., IT Bus. Plan.	4	$170	$680	
	App. Dev. Manager	4	$160	$640	
	Data Warehouse Dir.	4	$175	$520	
	Quality Assur. Mgr.	4	$130	$700	
	Systems Analyst	4	$90	$360	
	Business Analyst	4	$70	$280	$4,020
Conduct Data Team JAD Workshops	Project Manager	80	$210	$16,800	
(10 @ 8 hours each)	Mgr., IT Bus. Plan.	80	$170	$13,600	
	App. Dev. Manager	80	$160	$12,800	
	Data Warehouse Dir.	80	$175	$10,400	
	Quality Assur. Mgr.	80	$130	$14,000	
	Systems Analyst	80	$90	$7,200	
	Business Analyst	80	$70	$5,600	$80,400
Complete Design Documents	Project Manager	12	$210	$2,520	

Task	Resources	Hours	Hourly Rate	Cost	Task Total
	Application Architect	80	$105	$8,400	
	Data Warehouse Anal.	80	$105	$8,400	
	Security Manager	40	$100	$4,000	
	Quality Assur. Mgr.	40	$130	$5,200	$28,520
Phase Total					**$151,235**

Design (16 Weeks)

Task	Resources	Hours	Hourly Rate	Cost	Task Total
Design Application	App. Dev. Manager	80	$160	$12,800	
	Systems Analyst	80	$90	$7,200	
	Programmer	160	$90	$14,400	$34,400
Design Data Conversion, Migration and Transition Strategies	Data Warehouse Analyst	160	$105	$16,800	
	Web Architect	160	$105	$16,800	
	Security Manager	160	$100	$16,000	$49,600
Phase Total					**$84,000**

Development (28 Weeks)

Task	Resources	Hours	Hourly Rate	Cost	Task Total
Prepare Software Development Document	App. Dev. Manager	200	$160	$32,000	
Develop Application	Application Architect	300	$105	$31,500	
Complete System Documentation	Qual. Assur. Manager	300	$130	$39,000	
Establish Testing Environment	Systems Analyst/ Developer	400	$90	$36,000	
	Programmer	500	$90	$45,000	
	Web Programmer	500	$95	$47,500	
	Security Manager	300	$100	$30,000	
	Trainer	100	$70	$7,000	
Phase Total					**$268,000**

Integration, Testing, and Acceptance (24 Weeks)

Task	Resources	Hours	Hourly Rate	Cost	Task Total
Load Test Data	App. Dev. Manager	100	$160	$16,000	
Orient Testing Team	Application Architect	200	$105	$21,000	
Conduct Testing	Qual. Assur. Manager	200	$130	$26,000	
Analyze Test Results	Sys. Analyst/Developer	250	$90	$22,500	
Rework Failed Components	Programmer	300	$90	$27,000	
	Web Programmer	200	$95	$19,000	
	Security Manager	200	$100	$20,000	
	Trainer	200	$70	$14,000	
	Database Administrator	300	$95	$28,500	
Phase Total					**$194,000**

System Implementation (24 Weeks)

Task	Resources	Hours	Hourly Rate	Cost	Task Total
Convert and Load Data	App. Dev. Manager	80	$160	$12,800	
Install Application	Application Architect	80	$105	$21,000	
Conduct User Training	Qual. Assur. Manager	120	$130	$15,600	
Document Desired Modifications	Sys. Analyst/Developer	140	$90	$12,600	
Modify System	Programmer	240	$90	$21,600	
Demonstrate System	Web Programmer	140	$95	$13,300	
	Security Manager	80	$100	$8,000	
	Trainer	160	$70	$11,200	
	Data Warehouse Anal.	80	$105	$8,400	
Phase Total					**$111,900**
System Total					**$1,040,035**

Hardware requirements for this project consist of two web servers, 2 business intelligence servers and 2 routers. The business intelligence tool suite uses a 2-tier approach to delivering optimal performance for users. The Web interface handles secure sign-on and encryption through a portal-based Web site. Two servers are needed to provide load balancing and fail-over fault tolerance. The second tier handles the delivery of reports and real-time analyses. Two servers are required here also to provide load balancing and fail-over fault tolerance. The routers provide secure communications and access control. An additional 100 licenses for the business intelligence too suite will provide sufficient user access for system implementation. These and other costs to be funded with this grant are summarized below.

Contracted Services	Cost	
Project Management Costs	$	(b)(4)
New Facilities systems		
Analysis	$	
Design	$	
Coding	$	
Testing	$	
Training & Deployment	$	
	$	364,112
Design of new EDW components		
Data modeling	$	(b)(4)
ETL design	$	
Coding	$	
Testing	$	
	$	313,757
Design of data marts and BI roll-out		
Dimensional modeling	$	(b)(4)
ETL design	$	
Prototyping	$	
Production coding	$	
Testing	$	
Training & Deployment	$	
	$	137,166
Subtotal Contracted Services	$	1,040,035

Travel		
Project Director to Attend Required Meetings	$	3,521
Hardware Costs		
Web Servers (2)	$	30,000
BI Application Servers (2)	$	60,000
Routers (2)	$	16,000
	$	106,000
Additional Storage at State Technology Office		
30 gigabytes @ $1,560 per year	$	4,680
Software Licenses		
BI Suite (100 users)	$	120,000
Server Installation and Maintenance	$	53,131
Supplies	$	15,290
Indirect Costs @ 17.7%	$	234,945
Total Requested Budget	**$**	**1,577,602**

These expenses are displayed by category and year in Section A of the Budget Summary form.

APPENDIX A—TIMELINE

Planning Phase (July-October, 2005)

		PROJECT WEEK															
TASK	MILESTONE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Executive Steering Committee Meeting		◆				◆				◆				◆			
Validate business case, project scope, and resources; revise project plan			▬	▬	▬												
	Revised Project Plan					●											
Establish project office and recordkeeping systems			▬	▬													
Establish configuration management standards			▬	▬	▬												
Acquire Contractor Support						▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	
	RFP Released									●							
	Contractor Interviews													●			
	Contract Negotiated/ Executed																●
Project status report prepared and distributed																▬	

Requirements Analysis Phase (November 2005 - February 2006)

		PROJECT WEEK															
TASK	MILESTONE	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Executive Steering Committee Meeting		◆				◆				◆				◆			
Progress Report Submitted by Project Manager										■		■		■		■	
Assemble project teams and schedule project kick-off			■	■	■												
Draft Project Management, Testing, and Quality Assurance plans			■	■	■												
	Project Kick-off					●											
Revise detailed Project Plan and Testing and QA plans						■	■	■									
	Project Plan Approved									●							
Conduct JAD Workshops						■	■	■	■	■	■	■	■				
	Functional Requirements Document														●		
	Detailed Requirements Document															●	
	Technical Architecture and Logical Design																●
Project status report prepared and distributed																■	

Design and Develop New Facilities System (March - August, 2006)

		PROJECT WEEK																							
TASK	MILESTONE	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Executive Steering Committee Meeting		◆				◆				◆				◆				◆				◆			
Progress Report Submitted by Project Manager		■		■		■		■		■		■		■		■		■		■		■		■	
	Revised Testing and QA plans approved	●																							
Design Application			■	■	■	■	■																		
Code Application								■	■	■	■	■	■	■	■	■	■	■							
Test Application																			■	■					
	Application Accepted																					●			
Training and Deployment																						■	■	■	■
Project status report prepared and distributed																								■	■

Design of New EDW Components (September 2006 - March 2007)

		PROJECT WEEK																											
TASK	MILESTONE	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
Executive Steering Committee Meeting		◆				◆				◆				◆				◆				◆				◆			
Progress Report Submitted by Project Manager		■		■		■		■		■		■		■		■		■		■		■		■		■		■	
Data Modeling		■	■	■	■	■	■																						
Extraction/Transformation/ Loading Design						■		■	■	■	■	■	■	■	■														
Coding														■	■	■	■	■	■	■	■	■	■						
Testing																								■	■	■			
Project status report prepared and distributed																												■	

Integration and Testing of New Facilities and EDW Components (April - September, 2007)

		PROJECT WEEK																							
TASK	MILESTONE	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108
Executive Steering Committee Meeting		◆				◆				◆				◆				◆				◆			
Progress Report Submitted by Project Manager		■		■		■		■		■		■		■		■		■		■		■		■	
Load test data		■	■	■	■																				
Orient testing team						■	■	■	■	■	■	■													
Conduct testing																									
Analyze test results													■	■	■	■									
Rework failed components																■	■	■	■	■	■	■			
	Testing cycles completed																						●		
Project status report prepared and distributed																								■	

Design Datamarts and Roll Out Business Intelligence Functionality (October - March 2008)

		PROJECT WEEK																							
TASK	MILESTONE	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132
Executive Steering Committee Meeting		◆				◆				◆				◆				◆				◆			
Progress Report Submitted by Project Manager		■		■		■		■		■		■		■		■		■		■		■		■	
Dimensional Modeling																									
Extraction/Transformation/ Load Design																									
Prototyping																									
Production Coding																									
Testing																									
Training and Deployment																									
	Final approval																								
Project status report prepared and distributed																									

APPENDIX B—OPTIONAL ATTACHMENTS

Exhibit 1

Map of Core Elements for Establishing a Statewide Longitudinal Data System

Florida's proposal is different than those received from other states seeking assistance through this grant program. The State already has a well-established student information system, with defined data elements, submission processes, data quality controls, and reporting mechanisms. It has well-defined protocols the protect individual student records from inappropriate release in accord with the requirements of FERPA and related state law. The state has created a repository, called the "K20 Education Data Warehouse" that serves as a longitudinal repository for student information in secondary, postsecondary, and post school employment settings. These existing capabilities are described in detail in this document.

Florida is proposing that this longitudinal student repository be combined with a redesigned K12 Education Facilities Information System and an operating Finance Reporting system. This will create a new, robust repository that will allow elements of the three systems to be combined on a routine basis.

The table below maps required core elements of the Florida proposal to specific requirements outlined in the original Competitive Grant Announcement.

Requirement	Florida's Posture
1. Analysis of the business needs (multiple reporting and decision support needs) of key stakeholders, including the State, districts, school boards, schools, teachers, parents, students, the public, and other constituents	The grant application outlines a proven Information Systems Development Methodology (ISDM) that is a continuous, iterative process which involves staff within the Department colleagues in school districts, school boards, and key stake holders in schools and the general public.
2. Cataloging current and planned local data collection methods and data structures	Florida has an existing catalog of local data collection protocols, well-defined data elements, data formats, edit criteria, and submission protocols for student information systems, finance reporting, and facilities reporting.
3. Designing statewide longitudinal data systems architecture	
a. Including in data model the business needs of key stakeholders, who participate as data providers and users, and whose needs should determine the	The business needs of stake holders were key to the original design of the three data systems addressed in this

data types and items to be maintained in the system, years of data maintained, and data quality achieved (all of which define the breadth and depth of subsequent possible analyses)	proposal. The lynch-pin part of the ISDM process is a requirements/needs definition stage that will refine the business needs of key stakeholders.
b. Developing effective data quality assurance system, that contains:	
i. Data dictionary, with well-defined content and common definitions for data elements, to assure the same definitions, codes, and periodicity across all schools in the State at data entry points	Florida's has data dictionaries for each of the three systems that include data element definitions, collection guidelines, periodicity, and other quality assurance requirements. When moved to the data warehouse environment, these separate data dictionaries and requirements are addressed through a "combining system" referred to as "Meta Data". Defining meta data will be an important part of the requirements/needs definition processes. Meta data are updated continuously as data elements in the individual systems are changed or added to meet new requirements.
ii. Business rules for data format, acceptable values, missing data options, and logical comparisons to prior data	Each of the three systems has well-defined formatting, acceptable values, and logical comparisons in accord with state and federal guidelines. These requirements will be carried forward into the data warehouse environment. In that environment, additional business rules regarding reporting thresholds and suppression of data will have to be adopted to preclude the release of sensitive or suspect information.
iii. Automated data edit processes to verify data quality and to ensure that rules are met before allowing data into the State's data system	There are over 120 electronic edits that are key parts of the submission processes for student and staff data, finance data, and facilities data. These edits are used by districts to clean-up data before submission. They are also used as a final check before data are accepted at the FLDOE. As data are bought into the Warehouse environment, the Extract, Transform, and Load (ETL) processes add additional layers of edit checks that

	deal with data consistency over time.
iv. Systems and procedures to assure correct utilization of data by the users and providers	The Department publishes data utilization guidebooks for standard reports provided to consumers. There are calculation guides as well. As data are brought into the data warehouse environment, additional use guidance will be provided in web and publication environments.
c. Developing an effective, statewide data model that defines and describes the logical and physical relationships between data items and systems, and system structure that allows efficient data maintenance and retrieval (containing relevant and linked current and historical data)	Data models that describe the proposed data warehouse settings are provided in the document.
d. Assuring secure access to data and formal reports to protect the confidentiality of individuals, in compliance with FERPA and the statistical reliability of results	The K20 Education Data Warehouse has an established security and access procedure that now governs all types of access to the FLDOE data resources. The procedure describes and administers four levels of access. The first involves routine reports, the second involves special reports with aggregate data. In both cases, the reports can be accessed by any interest without restriction. However, in both cases carefully designed rules are followed regarding cell sizes to preclude the inadvertent display of individual information. The third and fourth levels require formal agreements and approval at the highest levels in the FLDOE. These involve requests for access to individualized student data. At level three, individual data are anonymized. In very rare cases, non-anonymized data may be provided (level four).
e. Structured to enable efficient data extraction for time-based analyses	As described in the proposal, the current K20 Education Data Warehouse Environment stores data on a longitudinal basis and is designed to facilitate efficient and consistent data extraction for longitudinal analyses.

	This project will combine fiscal and facilities data resources in a similar fashion.
f. Allowing modifications and enhancements to the system's data and architecture, including system expansion over time	The K20 Education Data Warehouse is designed to evolve over time. Each year's activities are designed around refining existing data resources and business rules, bringing in new data resources and concomitant business rules, and creating more robust reporting capabilities.
4. Creating, assigning, and tracking a unique, permanent student identifier assigned at state level	
a. Allowing the matching of individual student records across databases and years for every student enrolled in preK-12 state education system (using an automatic system creation of IDs or an individual creation through direct online interaction with ID system)	Student identifiers are assigned in accord with defined rules by school districts, community colleges, and universities. In the K20 Education Data Warehouse, individual student information is matched on a combination of 17 unique data elements to assure accurate and consistent matches. All data residing in the data warehouse are assigned a unique identifier referred to as the "EDW identifier" that is used for subsequent matching in that environment.
b. Allowing for program evaluation (including potential capacity to track students past the 12th grade)	Florida's K20 Education Data Warehouse is capable of and routinely tracks students through the k-12 system, grade by grade, as well as into postsecondary education and employment. These data are used to evaluate the effectiveness of curricula, special programs or policies and other events in impacting successes at subsequent levels. The environment includes Assessment information for Florida's Comprehensive Assessment Test as well as SAT and ACT information.
c. Allowing for student record transfers among States when students move across state borders (requiring inter-state agreements and compliant with FERPA regulations)	This will be a part of the development that will have to occur in collaboration with other states involved in this project.
5. Planning and implementing data collection	

a. From districts and/or schools so that the SEA can incorporate data in the system for all students, classrooms, and schools under the SEA's jurisdiction, including:	As described in this proposal, Florida's existing Student Information Systems were designed around the capabilities of all school districts and were designed to assure that all districts can report on a timely basis. This involves coordinating the development of a statewide infrastructure, assuring continuously sufficient band width, and cooperating on technology budget issues that go before the legislature.
i. Development of collaboration among all parties within the SEA and between the SEA and school districts in data collection, reporting, and dissemination	
ii. Provisions for the needs of districts that have limited ability to participate in technology systems	
b. Conducting cost/benefit and sustainability analyses of dynamic vs. static data extraction systems (data entered directly by school personnel into the statewide system, with instantaneous error feedback vs. data files imported from districts on a periodic basis)	Florida will be evaluating reporting option in a parallel project in partnership with school districts and the Microsoft Corporation. This information will be provided as needed as these two projects are administered.
c. Shortening reporting time and increasing the accuracy of student assessment data (e.g. through technology-based assessments)	Florida has held an assessment technology summit and will shortly issue and Request for Proposals to use technology to improve and speed the scoring of the statewide assessment system. This will also be a parallel effort to this project. Assessment data are already incorporated into the K20 Education Data Warehouse environment.
6. Implementing statewide longitudinal data system (warehouse)	The ISDM process discussed in the proposal goes step-wise through a process of determining requirements, designing approaches, developing systems, testing, and acceptance testing. The proposed architecture is outlined.
a. Development of the system according to the designed architecture	
b. Testing of the system	
c. Going live	
7. Designing, using, and maintaining business	

intelligence tools (analytical & reporting)	
a. Streamlining reporting capabilities to local, state, and federal agencies, using pre-defined, automated reports (including for EDEN, NCLB, NCES, and the public)	Federal and state reporting requirements are currently accommodated in the state data collection and data warehouse environments.
b. Supporting:	
i. Multiple reporting and analyses needs of different stakeholders	The FLDOE is systematically testing business intelligence products in the K20 Education Data Warehouse Environment. These tools provide for scalable analytics, OLAP cube development, systems of alerts, dashboards, and balanced score card approaches to data and reporting. The tools include robust graphic capabilities that will facilitate transforming data into useable information by stakeholders. A critical design characteristic of the environment is its longitudinal nature. Bringing this longitudinal capability to fiscal and facilities analysis will be a foundation of the project.
ii. High-level longitudinal analyses, required for data-driven decision-making by policymakers, educators, and members of the public	
c. Providing timely, accurate, and user-friendly dissemination of the needed data, reports, and analyses results to:	
i. Parents/guardians and students	Florida's strategy for implementing the data warehouse environment includes creating web portals into education data at all levels. The state's partnership with Microsoft is a key component of this strategy and is being conducted parallel to the proposed effort outlined in this proposal. This Portal environment, referred to as "Sunshine Connections" will utilize state and local repositories of data to provide "just in time" information to teachers, administrators, parents and
ii. Teachers	

	students through a robust authentication process. The design allows for a system of "anonymous" access for unauthenticated users to access aggregate information and reports that are fully scalable across time, geography and delivery systems including k-12, workforce programs, community colleges, and universities.
iii. Schools	
iv. District administrators	
v. State officials and administrators	
vi. Universities/colleges and the business community	
vii. The public	
d. Engaging in longitudinal education research to inform policy and decision-making	The K20 Education Data Warehouse has already begun supporting longitudinal research, several examples are provided in the narrative. Some of this effort has been internally stimulated within FLDOE, some have involved the Florida Legislature through the Office of Program Policy and Government Accountability and the Council for Education Policy Research and Improvement. Some efforts have begun through Florida Universities as well as interests outside of Florida including the EdTrust, Jobs for America's Future, and the Lumina Foundation.
e. Leading the State, districts, and teachers in the development and use of innovative analytical tools and reports to inform policy and decision-making	This is seen as a collaboration between the state and local entities. It is a feature of this project and is a strong aspect of the "Sunshine Connections" effort referred to earlier.
8. Establishing logistical capacity to create and maintain a statewide longitudinal data system	Florida' student and staff information systems, the finance information system, the facilities information system, and the K20 Education Data Warehouse are recurring feature of the legislative budget process. This process provides funding for staff, systems, and infrastructure that assure the continued collection, processing, and dissemination of high quality data.

	These funding processes allow for the continuation and growth of these systems. Only occasionally are funds provided for additional development such as that proposed by this project. The recurring nature of the state's budget process will assure that staff and processes are adequate to assure continuation when the project ends.
a. Developing efficient administrative processes, infrastructure components, and policy commitments for effectively implementing the maintenance of the statewide longitudinal data system, regarding:	
i. Assuring continued data collection and quality	
ii. Assuring continued dissemination of data and analyses results	
iii. Assuring data security and confidentiality, including addressing potential concerns of stakeholders about student privacy in automated systems	
iv. Assuring continued funding	
v. Assuring continued adequate human resources	
vi. Assuring continued enabling legislation	
vii. Assuring the continued adequacy of hardware, software, and networking capabilities	
b. Assuring sustainability and effectiveness of the system by:	
i. Assuring administrative buy-in	

ii. Assuring qualified staff, training, technical, and other resources dedicated to the State's administrative technology over the long term to ensure the system's continued effectiveness (including the commitment and ability of staff to implement, use, and continually develop the data system)	Administrators of the student and staff, finance, and facilities information system comprise staff leads for this project. Because the K20 Education Data Warehouse has already gone through development and is now an ongoing feature of the FLDOE information infrastructure, administrative buy-in has already occurred. As the K20 Education Data Warehouse develops new tools and capabilities, an important feature is that data are produced and evaluated by data owners and users in parallel with approaches used before the warehouse existed. This builds a strong buy in among users for the integrity of the warehouse approach. This process is continuous.
iii. Developing a strong plan for the SEA and other stakeholders to continually evaluate and improve the effectiveness of the data system and of associated processes, both in their reporting and decision-support functions, and to periodically assess the degree to which they meet agency and other stakeholders' needs	
c. Involving and supporting stakeholders by establishing and/or facilitating the existence of:	
i. A policy advisory committee that includes representatives from each key stakeholder group	There are several groups that are integral to the FLDOE data systems. First, the systems are located in a single Division called Accountability, Research, and Measurement that coordinates data and information products throughout the FLDOE. This Division is lead by a defined Management Team. As a matter of course the FLDOE works through a series of joint FLDOE/LEA advisory groups. They include the School District Finance Officers Association, the School

	District Facilities Administrators Association, and The Florida Association of School District Management Information System Administrators.
ii. A data provider/collection group	
iii. A data user group	
iv. An internal agency coordination group to oversee data collection, management, and dissemination	
d. Planning and funding initial and ongoing, efficient and effective training of key state and local data collectors and users, according to their functional needs, on:	
i. Data Entry, Cleaning, and Transfer	This project is about integrating existing information systems which already have these features. The Business Intelligence process is referred to in the proposal.
ii. Data Extraction	
iii. Unique Student ID System	
iv. Business Intelligence Tools and use of data for decision-making	

Figure A

Relationships Among Data Elements in the Current Education Data Warehouse

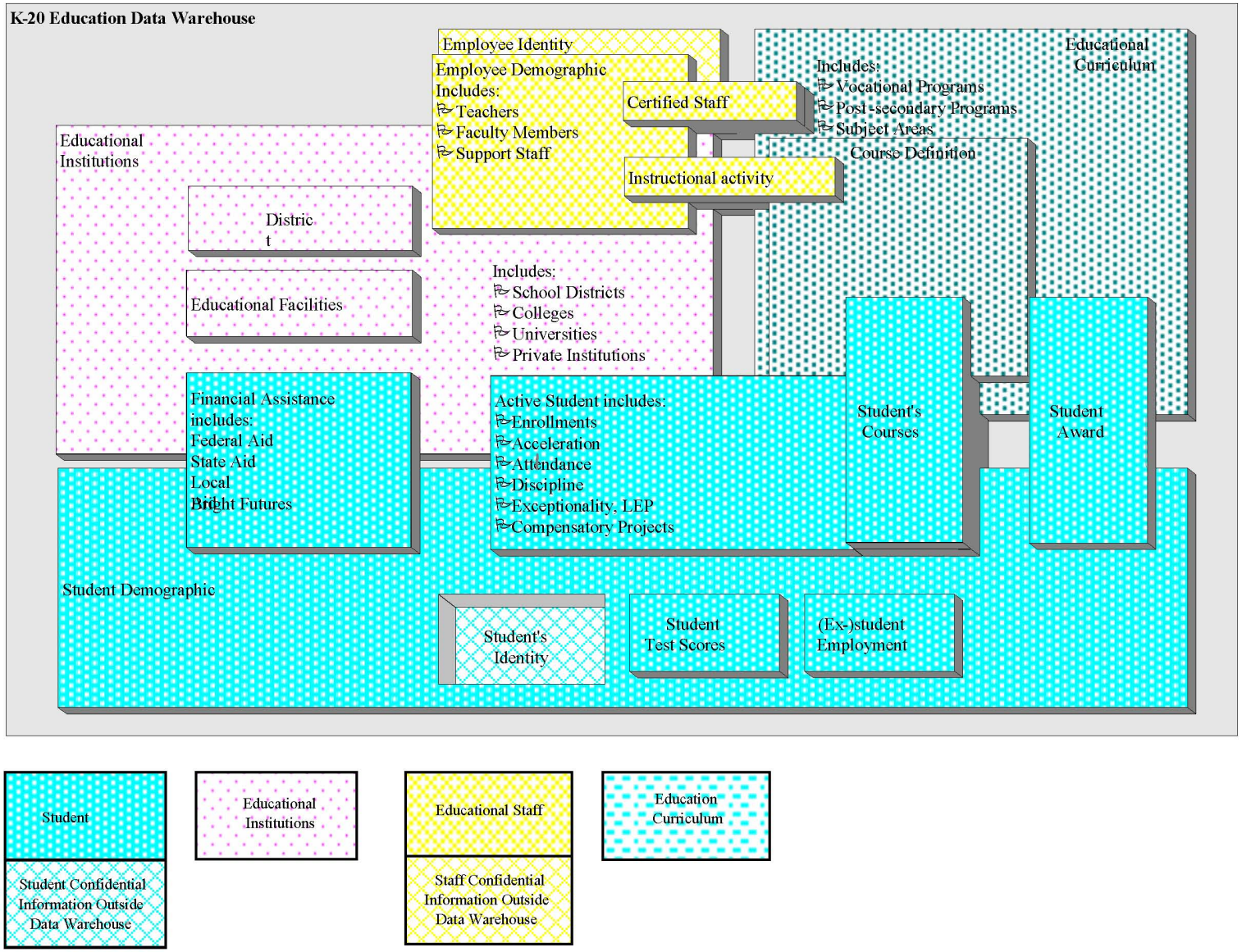


Figure B

Current Architecture of the Education Data Warehouse

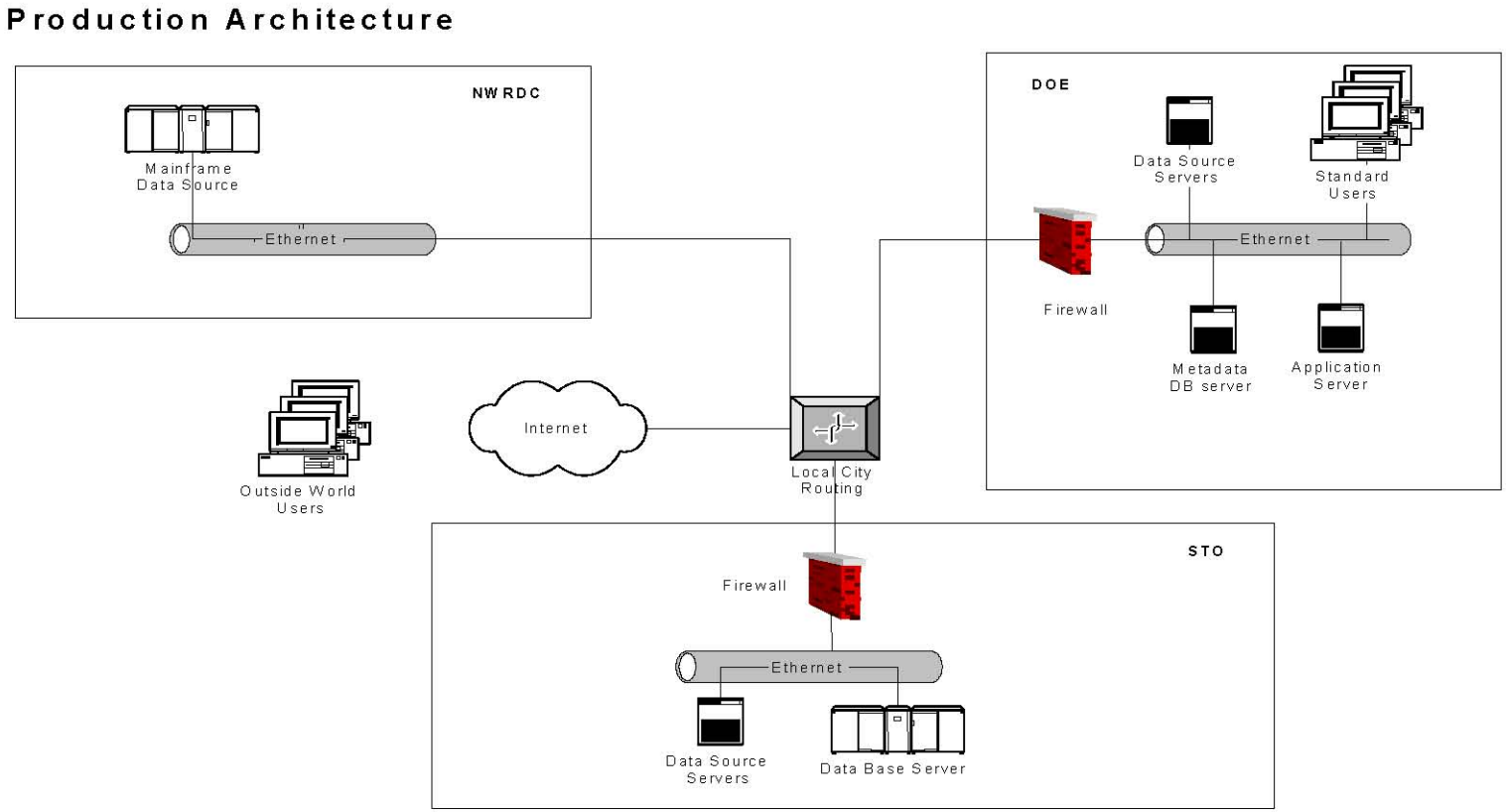
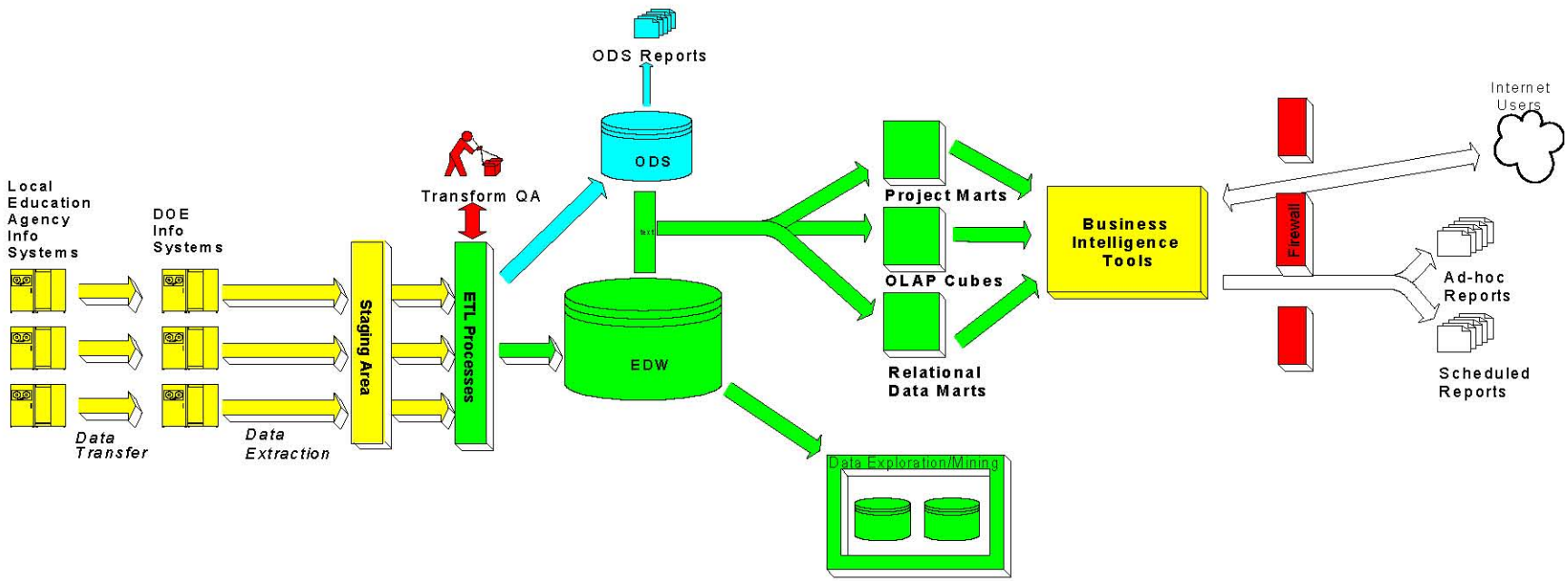


Figure C

Proposed Architecture of the Education Data Warehouse with Operational Data Store and Business Intelligence Tools