
Status Report - Gaining Electronic Access to the Department of Education's Computerized Information Systems

A Report to the
Governor
and the
Legislature of
the State of
Hawaii

Report No. 96-10
April 1996



THE AUDITOR
STATE OF HAWAII

The Office of the Auditor

The missions of the Office of the Auditor are assigned by the Hawaii State Constitution (Article VII, Section 10). The primary mission is to conduct post audits of the transactions, accounts, programs, and performance of public agencies. A supplemental mission is to conduct such other investigations and prepare such additional reports as may be directed by the Legislature.

Under its assigned missions, the office conducts the following types of examinations:

1. *Financial audits* attest to the fairness of the financial statements of agencies. They examine the adequacy of the financial records and accounting and internal controls, and they determine the legality and propriety of expenditures.
2. *Management audits*, which are also referred to as *performance audits*, examine the effectiveness of programs or the efficiency of agencies or both. These audits are also called *program audits*, when they focus on whether programs are attaining the objectives and results expected of them, and *operations audits*, when they examine how well agencies are organized and managed and how efficiently they acquire and utilize resources.
3. *Sunset evaluations* evaluate new professional and occupational licensing programs to determine whether the programs should be terminated, continued, or modified. These evaluations are conducted in accordance with criteria established by statute.
4. *Sunrise analyses* are similar to sunset evaluations, but they apply to proposed rather than existing regulatory programs. Before a new professional and occupational licensing program can be enacted, the statutes require that the measure be analyzed by the Office of the Auditor as to its probable effects.
5. *Health insurance analyses* examine bills that propose to mandate certain health insurance benefits. Such bills cannot be enacted unless they are referred to the Office of the Auditor for an assessment of the social and financial impact of the proposed measure.
6. *Analyses of proposed special funds* and existing *trust and revolving funds* determine if proposals to establish these funds and existing funds meet legislative criteria.
7. *Procurement compliance audits* and other *procurement-related monitoring* assist the Legislature in overseeing government procurement practices.
8. *Fiscal accountability reports* analyze expenditures by the state Department of Education in various areas.
9. *Special studies* respond to requests from both houses of the Legislature. The studies usually address specific problems for which the Legislature is seeking solutions.

Hawaii's laws provide the Auditor with broad powers to examine all books, records, files, papers, and documents and all financial affairs of every agency. The Auditor also has the authority to summon persons to produce records and to question persons under oath. However, the Office of the Auditor exercises no control function, and its authority is limited to reviewing, evaluating, and reporting on its findings and recommendations to the Legislature and the Governor.



THE AUDITOR STATE OF HAWAII

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OVERVIEW

THE AUDITOR
STATE OF HAWAII

Status Report - Gaining Electronic Access to the Department of Education's Computerized Information Systems

Summary

Act 272 of 1994 directed the State Auditor to prepare annual fiscal accountability reports of the expenditures of the Department of Education. To assist the Auditor, Section 296-92, Hawaii Revised Statutes, directed the Department of Education to provide the Legislature and the State Auditor with electronic access to the department's computer-based information systems. This reports summarizes our progress in obtaining electronic access.

The Department of Education operates three separate information systems: The School Information System (SIS), the Personnel Information Processing System (PIPS), and the Financial Management System (FMS). In addition, data from each of these systems are periodically deposited in the department's Data Warehouse for subsequent historical review by authorized users.

In a previous report we concluded that access to the Data Warehouse should provide the necessary historical information to conduct our fiscal accountability audits. However, to obtain required *current* expenditure information, direct access to the Financial Management System was also required. We initiated steps to find the most cost efficient means to access both the Data Warehouse and the Financial Management System.

Establishing direct electronic connection to the Financial Management System required coordination with: the Department of Education, which controls software access; the Department of Budget and Finance's Information and Communication Services Division which houses the computer that runs the Financial Management System; the Hawaii Criminal Justice Data Center, which houses a required controller box in the Kekuanao'a Building where our office is located; and the Legislative Reference Bureau, which provided technical assistance.

At present, requisite cabling and hardware connections have been completed. However, software compatibility persist. We anticipate these problems to be resolved in the near future.

We determined that establishing access to the Data Warehouse could be achieved best through the Internet. We established an Internet account through a local provider and have successfully connected to the Data Warehouse. However, access

through the Internet has limitations. To most effectively produce our financial accountability reports requires downloading of data and report generation capabilities not presently possible via the Internet. Upgrading of the system's software may be necessary.

Our status report concludes with a brief analysis of the type of information that can be obtained through the Data Warehouse. Based on preliminary review, some discrepancies were noted. When access is finalized, we will be able to review the accuracy of the information more completely.

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Submitted by

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STATE OF HAWAII

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Foreword

This project to obtain electronic access to the Department of Education's information systems was initiated in response to the Legislature's desire to better understand the department's budget process, programs, and expenditures. In this report, we summarize our progress in obtaining access to those systems. We also outline additional steps needed to fully accomplish that task. Finally, we briefly present data that we have analyzed in our initial access to the department's Data Warehouse.

We wish to acknowledge the cooperation and assistance extended to us during this project by the Department of Education, the Department of Budget and Finance, the Criminal Justice Data Center, and the Legislative Reference Bureau.

Marion M. Higa
State Auditor

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Chapter 1

Introduction

The Legislature recently enacted a series of measures to better understand the Department of Education's budget process, programs, and expenditures. Among these measures is Section 296-92, Hawaii Revised Statutes (HRS), which directed the Department of Education to provide the Legislature and the State Auditor with electronic access to the department's computer-based financial management, student information, and other information systems. This section also charged the State Auditor with the task of preparing annual fiscal accountability reports on the department's expenditures and delivery of resources to school classrooms. In 1994, the Legislature enacted Act 272, which instructed the State Auditor to evaluate public school programs and conduct financial audits of the public school system.

In this report, we summarize our progress in obtaining electronic access to the department's information systems. We also outline additional steps needed to fully access those systems. Finally, we briefly present data we analyzed in our initial access to the department's Data Warehouse and we identify possible discrepancies found in the data.

Background

In response to the Legislature's desire to more fully comprehend the structure and nature of the Department of Education's budget process, programs, and expenditures, we issued a series of reports identifying fundamental budgeting and cost reporting issues that must be addressed. Our 1993 study, *The Feasibility of Applying the Micro-Financial Analysis Model to Expenditures for Public Education in Hawaii: What Reaches the Classroom?*, Report No. 94-6, demonstrated that it is possible to track expenditures on a state, district, and school-by-school basis and to categorize expenditures into administrative, instructional, and other costs. We engaged Dr. Bruce S. Cooper of Fordham University for that study. Our 1995 study, *Status Report on Monitoring Fiscal Accountability of the Department of Education*, Report No. 95-5, found that the department's current method of cost reporting did not reliably identify how educational dollars were being spent. In addition, we noted the department lacked management controls to account for costs attributed to school sites by the state and district offices. Therefore, we could not verify the accuracy of these costs at the schools and at the state and district offices.

In our second status report on monitoring the department's fiscal accountability, we used a case study approach in which we examined all costs attributed to one elementary school. Our report, *Status Report on*

Monitoring Fiscal Accountability of the Department of Education: Case Study - Royal Elementary School, Report 95-23, noted that the department did not have adequate state, district, and other support agency expenditure information to determine the operational costs of specific schools and programs. We also found that the financial analysis capabilities of the department's Financial Management System (FMS) were not fully used.

Most recently, we conducted an audit of two of the department's programs: *Audit of the Comprehensive School Alienation Program and the Pregnant and Parenting Teen Program of the Department of Education*, Report No. 96-2. We found that the department expended \$10 million on these programs without appropriate program planning and evaluation to justify the substantial expenditure. In addition, we noted that the department's School Information System (SIS) could not provide program planners with reliable information that could be used to identify eligible students and to evaluate the programs.

Objective

The objective of this project is to obtain electronic access to the Department of Education's information systems and to review and assess data that have been electronically retrieved from those systems.

Project Scope

To accomplish this objective, we contacted appropriate Department of Education personnel to determine the software and hardware required to obtain electronic access to the department's information systems. We also worked with the Department of Budget and Finance, the Hawaii Criminal Justice Data Center, and the Legislative Reference Bureau to ensure that the proper electronic connection between the department's Financial Management System and our office computers was established.

We also obtained an Internet account to access the department's Data Warehouse after determining that this was the most cost efficient way to access this system.

Chapter 2

Progress Made on Electronic Access to DOE's Information Systems

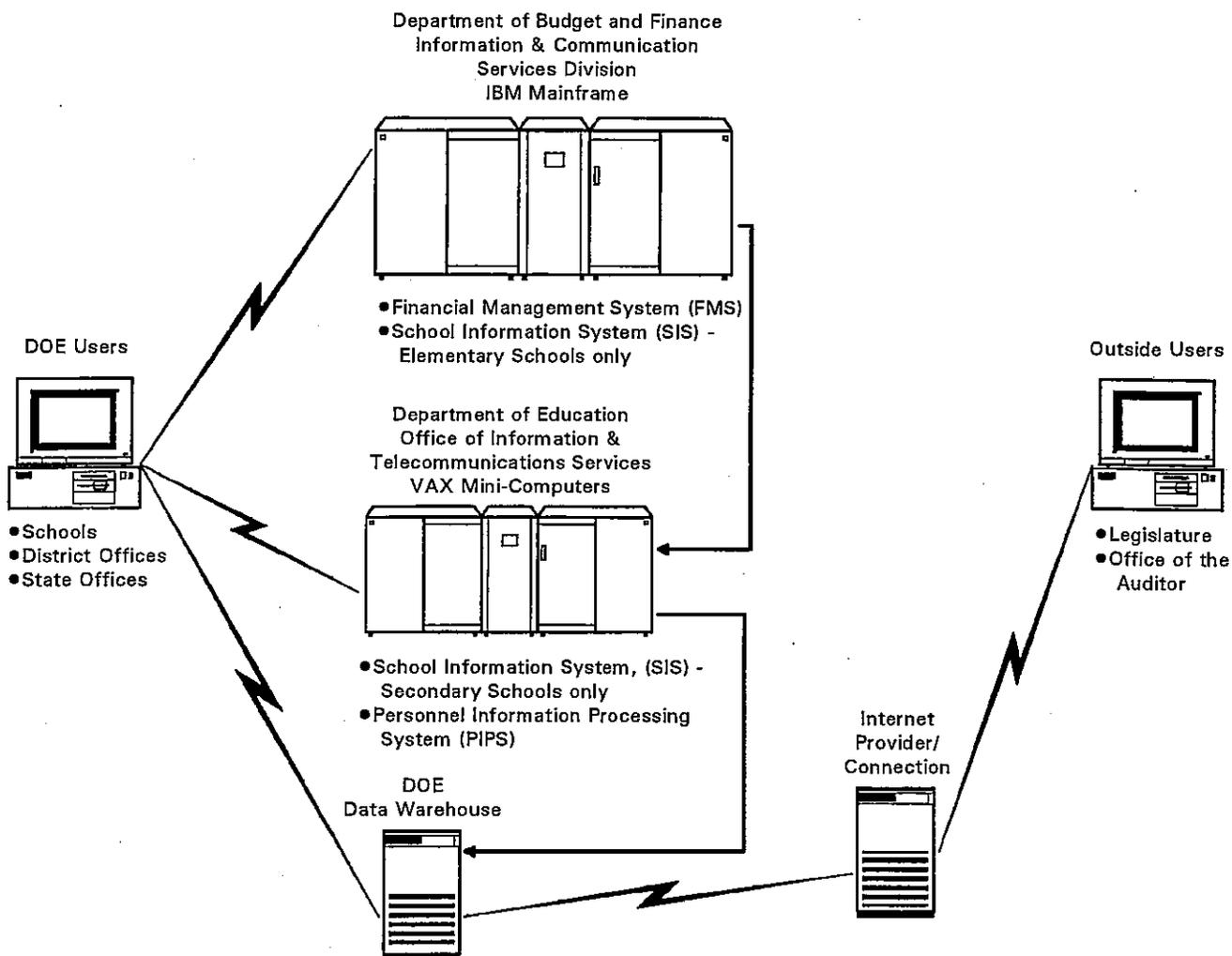
Our first status report on monitoring the fiscal accountability of the Department of Education, Report No. 95-5, contended that the most efficient means of accessing the department's three information systems was to access the department's Data Warehouse and Financial Management System. We recommended this approach because of the difficulty and cost of accessing each of the three systems separately. In addition, since the Data Warehouse by design is intended to be the depository of data from the other information systems, direct access to each individual system is generally unnecessary. However, the Data Warehouse contains only historical information; current expenditure data must be accessed directly from the Financial Management System. Access to current expenditure data is necessary for complete fiscal accountability reports. At that time, we estimated the cost to acquire necessary equipment and software to establish connectivity to these systems to be approximately \$60,000.

In this chapter we briefly describe the department's information systems, our progress in connecting to the Financial Management System and the Data Warehouse, and the remaining steps necessary to obtain full electronic access to both systems.

The Department of Education's Information Systems

The Department of Education operates three separate information systems: the School Information System (SIS), the Personnel Information Processing System (PIPS), and the Financial Management System (FMS). Data from each of these systems are periodically deposited in the Data Warehouse for subsequent historical review by schools, by the department's state and district offices, and by interested parties such as the Legislature and the Office of the Auditor. In this report we refer to the Data Warehouse as a system rather than as a depository. Exhibit 2.1 illustrates the department's computerized information systems. It also shows the department's intent to provide outside users with electronic access to information through the Data Warehouse. The following discussion describes the features of these three information systems.

Exhibit 2.1
Department of Education
Computerized Information Systems



Source: Office of the Auditor, March 1996.

The School Information System

The School Information System consists of several 10 to 20-year-old programs individually developed over the years to meet specific reporting and monitoring needs of the department. The system includes information on students' grades, attendance records, test scores, courses taken, and number of credits earned. Currently, elementary school student information is maintained on an IBM mainframe computer in the Information and Communication Services Division at the Department of Budget and Finance. Secondary school student information is maintained by the Department of Education on VAX mini-computers operated by the department's Office of Information and Telecommunications Services.

Schools enter and update student data on Macintosh or IBM compatible computers at school sites. This information is ultimately transmitted to the IBM mainframe computer or VAX mini-computers. The SIS allows schools to: (1) track student enrollment, (2) match student course requests with specific program offerings at the school and teachers qualified to teach the course, and (3) track progress toward graduation. The system also allows the department to monitor the number of students in special education and vocational education programs, identify the number and demographic characteristics of students in each school, and maintain graduation and dropout statistics.

The Personnel Information Processing System

The Personnel Information Processing System was developed primarily to capture information about certificated employees for the department's Office of Personnel Services. Certificated employees are teachers, school administrators, and school counselors. In addition to information on current staff, this system also maintains information concerning potential employees and is used to assist in matching vacancies with suitably qualified candidates.

This system allows the department to track teacher certification and classification, maintain information about teacher applicants, and match recruits to school vacancies. The system is maintained on the department's VAX mini-computers.

The Financial Management System

The Financial Management System was originally created to provide accurate, timely, and comprehensive financial information for school, district, and state level decision-makers. The system is primarily used to control and record expenditures. It is a software program housed on a mainframe computer at the Department of Budget and Finance's Information and Communication Services Division. Data are entered into the system through microcomputers at schools and at district and state offices. The data are then posted to a central set of ledgers on the mainframe computer.

Schools have on-line access to current information on allotments, encumbrances, expenditures, cash receipts, and fixed assets. With this system, schools can create purchase orders and automatically check availability of funds. They can also make adjustments to their expenditure plans and authorize vendor payments.

The Data Warehouse

The Data Warehouse was created to be an easily-accessed, user-friendly source of information about the department's personnel, fiscal records, and student performance. The Data Warehouse contains summary information downloaded from the other three information systems on the department's expenditures, student information, and personnel information.

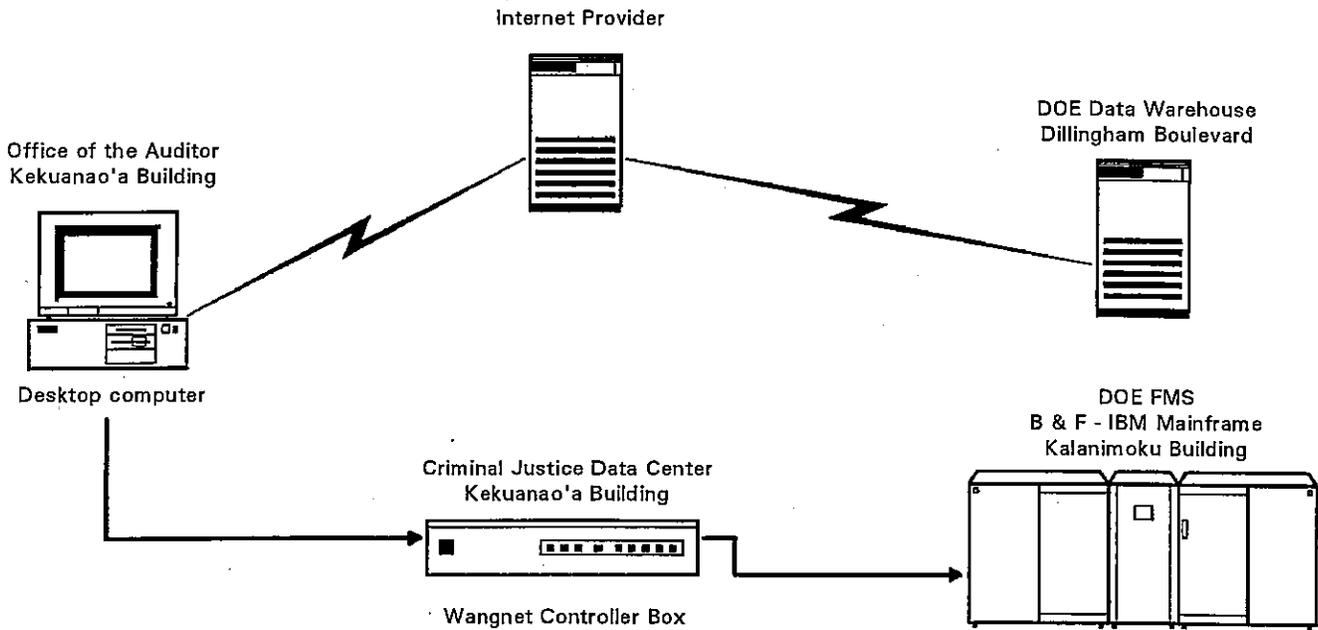
Currently, access can be achieved with IBM compatible microcomputers using either a Windows or OS/2 environment or with Apple Macintosh microcomputers. The department intends that all schools, districts, central offices, and other interested parties authorized to access Department of Education information be able to obtain information about schools and student records. The information that Data Warehouse typically provides to users is in a standardized format. However, warehouse staff can create customized reports with specific data as requested by specific users.

Progress On Accessing Data From Departmental Information Systems

Our objective in this project is to obtain electronic access to the department's Financial Management System and the Data Warehouse in an effective and efficient manner. To the extent possible, existing resources were used to minimize access costs. By accessing the Data Warehouse, we should obtain most of the historical information from the department's three information systems. Direct access to the Financial Management System should provide our office with the department's current expenditure data in a timely manner.

Information in the Data Warehouse and FMS are housed at two different sites and have different access requirements. During the course of the project, we found that separate hookups to each system were needed. We are close to fully establishing this hookup, and only a few additional steps are required before we can obtain full access to both systems. Exhibit 2.2 illustrates the separate methods needed for our office to establish connections with the Financial Management System and the Data Warehouse.

Exhibit 2.2
Office of the Auditor
Connectivity to DOE's Data Warehouse and FMS



Accessing Financial Management System through direct connection

Accessing the department's Financial Management System essentially involved (1) determining the most cost effective means of connecting to the Department of Budget and Finance's mainframe computer in the Information and Communication Services Division where the system is housed, (2) identifying and working in cooperation with agencies whose hardware linkages between the mainframe computer and our office are needed, and (3) establishing software and hardware linkages between our office microcomputers and the Information and Communication Services Division's mainframe to permit direct online access to the Financial Management System.

Establishing a direct electronic connection with the Financial Management System required the coordination and cooperation of a number of agencies. The Department of Education controls software access to the

system. The Department of Budget and Finance's Information and Communication Services Division has primary responsibility for reconfiguring the mainframe to permit our office to access the mainframe system. The complexity of the task was compounded by the fact that hardware for accessing the system was located at two different sites. The computer is physically located in the Kalanimoku Building. However, the "controller" box governing access to the computer is located within the Hawaii Criminal Justice Data Center in the Kekuanao'a Building, where our office is also located. The cooperation and efforts of these agencies were needed to establish connectivity with the Financial Management System. In addition, the Legislative Reference Bureau provided technical assistance to ensure that proper physical connections could be established.

At present, requisite cabling and hardware connections have been installed between our office and the controller contained in the Hawaii Criminal Justice Data Center. The mainframe at the Information and Communication Services Division has been reconfigured and the Department of Education has provided the necessary information and software programs to access the Financial Management System.

Compatibility problems in configuring our microcomputers to operate the software that properly connect us with the Financial Management System need to be identified. However, we believe that these problems will be resolved and that connectivity to the Financial Management system will be established shortly.

Accessing Data Warehouse through the Internet

Access to the department's Data Warehouse through the Internet is complete. This method contrasts with that used by the department's schools and district and state offices, which use direct cable access. However, the contrast does not pose a problem to us.

Originally, we understood that connectivity to the Data Warehouse would require a cable connecting our office in the Kekuanao'a Building to the nearest Data Warehouse access source. The nearest source is the Department of Education's offices in the Queen Liliu'okalani Building. However, establishing a cable linkage between the two buildings would have been very costly. Suitable alternatives were explored. Staff from the Department of Budget and Finance's Information and Communication Services Division and the Legislative Reference Bureau assisted our office in reviewing alternative technical options to access the Data Warehouse. Staff from the Data Warehouse recommended that we pursue connectivity through the Internet.

We obtained an Internet account with a local provider. Data Warehouse staff made appropriate modifications in security to permit our office to successfully connect with their system via the Internet. The department

provided several applications to ensure that information queries can be properly made using Data Warehouse software aids. With these applications, our office can access and summarize data in a format that we desire.

However, there are several issues to resolve. First, we currently can review only preformatted reports, which any other user accessing the warehouse can review. We cannot download data from the warehouse to create our own reports. Second, utilizing information from the Data Warehouse still requires considerable manual work. Third, other applications purchased by the department to allow users to access data, form queries, and create tables do not work with the Internet connection. These applications may require upgrading to allow data transfer through the Internet without violating the Data Warehouse's security preventing unauthorized access. Once these problems are resolved and compatible software are identified, we will need to purchase these programs. Our office is not covered under the Department of Education's site license agreement that permits sharing of software.

Additional Steps Are Needed For Complete Access to FMS and Data Warehouse

To ensure complete access to the Financial Management System, additional IBM OS/2 software and multi-protocol adapter cards that are fully compatible with our microcomputers may be required. The extent to which this additional software and equipment are needed is still under review, but we expect clarification in the near future.

In order to access and analyze data obtained from the Data Warehouse through the Internet, additional software programs must be purchased. One example is Data Prism. This software program allows us to extract data from the Data Warehouse, download that data onto our computers, and then use a spreadsheet program or a statistical package to analyze the data according to our own specifications.

Conclusion

Gaining electronic access to the Financial Management System and the Data Warehouse was achieved through the most cost effective solutions available to us. Through existing electronic capabilities, less than \$10,000 has been expended to accomplish the connectivity tasks. This represents a substantial reduction from the originally estimated \$60,000 cost. However, we note that these methods of connecting are temporary. It is anticipated that with the completion of the fiber optic cable project for state office buildings, direct connectivity to the Department of Education's information systems will be feasible. Access to the Financial Management System through the Hawaii Criminal Justice Center's controller box will not be needed, nor will the Internet account be needed to access the Data Warehouse.

In the interim, our basic connection needs to be firmly established, and a determination of additional computer software and hardware to ensure complete electronic access is needed. Upon completion of these steps, direct electronic access to the Department of Education's information systems should be accomplished.

Chapter 3

Utilizing the Information

Standardized Reports Are Currently Available

In this chapter we discuss the results of our initial use of information from the Data Warehouse based upon the access our office currently possesses through the Internet. As noted in Chapter 2, Data Warehouse has information about the department's expenditures, schools, personnel, and students. Currently, we are able to access standardized or "pre-determined" reports which summarize this data.

Expenditure reports do not meet our specific needs

Our office is able to access four summary reports developed by Data Warehouse. These are: (1) the Enterprise Information System, (2) Graduates 94, (3) Expenditures 92-93, and (4) Expenditures 93-94. Although these summary reports may be useful to the department's schools and to district and state offices, the expenditure summaries do not contain the level of information our office needs to review the department's expenditures.

The first summary report, called Enterprise Information System, has six screens of information. The following describes each screen:

- (1) a one-paragraph statement about the school and its neighborhood along with the school's address, telephone number and school type;
- (2) data on student *behavior* for three school years (1989-90 to 1991-92): the number of class A and class B offenses and the average daily attendance;
- (3) *personnel* information: the number of full time equivalent (FTE) certificated staff and classified staff, as well as a list of staff at the school;
- (4) *demographic* data for three school years (1989-90 to 1991-92): fall and year-round enrollment, the number of students on reduced or free lunch, the number of students in special education including speech, and the number of students with limited English proficiency;
- (5) *testing* information for school years 1987 to 1992: the Stanford Achievement Test results for the highest grade level in the school (percent of students scoring in the above average, average, and below average stanines); and
- (6) *curriculum* information: (for intermediate schools and high schools for approximately 15 subjects) a course description, the number of semester-long sections, the number of year-long sections, and the total number of students enrolled in the course.

Exhibit 3.1 duplicates a typical demographic screen from the Data Warehouse for viewers who want to obtain information about a particular school. Aiea High School is the example shown below.

Exhibit 3.1
Student Demographics Screen from the Enterprise Information System

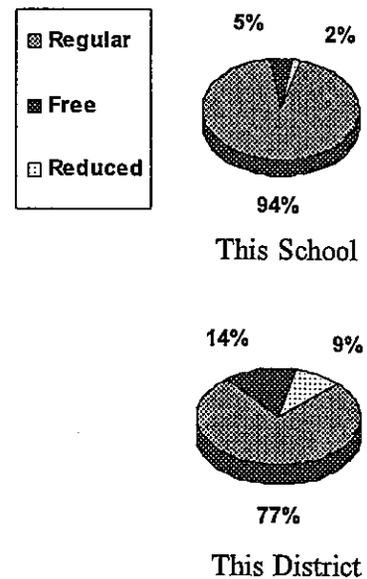
Demographics

Aiea High

Table 1. Demographics			
School year ending	1990	1991	1992
Fall enrollment	1,446	1,482	1,480
Year-round enrollment	1,085	1,332	1,081
Number of students on free/reduced cost lunch	103	52	64
Number of students in special education programs (including speech)	90	82	80
Number of students with limited English proficiency	54	64	80

Table 3. Stability of student enrollment			
School year ending	1990	1991	1992
Percent of students enrolled for entire year (estimated)	75%	74%	90%

Figure 1. Percent of students receiving free or reduced cost lunch, school year 91-92



Source: Data Warehouse, Department of Education, March 1996.

The second summary report, entitled "Graduates 94," presents "School Graduate Rate 1993-1994." For each of the 38 schools with students in grades 9 through 12, the report presents enrollments, promotions, completions, transfers, and dropouts.

The third and fourth summary reports present expenditure information for the 1992-93 and 1993-94 school years respectively. These reports provide summary expenditure data for each school in the system. Aina Haina Elementary School, which is the first school to appear on these reports, is shown as an example. Exhibits 3.2 and 3.3 illustrate selected information from the Expenditures 93-94 summary report. A reviewer can access summary expenditure data for all school programs combined and any specific program. In our example, we have selected the screen showing the expenditures for "All Programs" in Aina Haina and a screen showing the expenditures for "Class Size Relief."

Exhibit 3.2
Summary Report Screen Provided by Data Warehouse
Total Expenditures for Aina Haina Elementary School (1993-94)

Aina Haina					Expenditures 93-94
0 - All Programs					
Character of Expenditure	Means of Finance				Total
	General	Special	Federal	Trusts	
A	\$1,658,181	\$166	\$31,740	0	\$1,690,087
B	\$64,723	\$91,645	\$6,849	0	\$163,216
C	\$35,189	\$552	0	0	\$35,741
Total	\$1,758,093	\$92,363	\$38,589	0	\$1,889,045

Note: The summary report screen does not define Expenditure Categories "A," "B," and "C." However, these categories are: A = Personnel, B = Supplies, and C = Equipment.

Exhibit 3.3
Summary Report Screen Provided by Data Warehouse
Class Size Relief Program Expenditures for Aina Haina Elementary School
(1993-94)

Aina Haina					Expenditures 93-94
15103-Class Size Relief					
Character of Expenditure	Means of Finance				Total
	General	Special	Federal	Trusts	
A	\$14,886	0	0	0	\$14,886
B	0	0	0	0	0
C	0	0	0	0	0
Total	\$14,886	0	0	0	\$14,886

These summaries, however, are not useful for our review of the department's expenditures. We require data that has not yet been summarized. For example, we wish to know how much of the "A" expenditure category (Personnel) is for teaching staff versus varied support staff. The summaries do not yield that information. As noted earlier, we cannot currently download data for review or create our own report formats. This should be resolved when the applications giving us this capacity have been upgraded.

Dropout and graduation data raised questions

Under the Graduates 94 summary report, we reviewed dropout and graduation data. Accessing the data via the Graduates 94 summary allowed us to review the data by school, but the format did not provide a total count or a summary by category. To obtain this information, we transferred the data provided by Data Warehouse into a format more useful for analysis of the entire system.

Dropout data are questionable

According to the data we reviewed from the Data Warehouse, a total of 3,128 high school students dropped out of Hawaii's public high schools in school year 1993-94. Dropouts were fairly evenly spread across grade levels, with a plurality of 31 percent of students leaving during their junior year of high school. Another 21 percent dropped out within one year or less of graduation.

According to this data, Hawaii's public schools had a seven percent dropout rate for the 1993-94 school year. Some schools experienced a relatively low dropout rate for the year—less than three percent of their high school students. Other schools, however, were less successful in keeping their students in school—annual dropout rates were 10 percent or more.

The department categorizes dropouts into 11 “types.” These are:

1. 15 years old
2. 18 years old
3. alternative education program
4. family court
5. no show
6. inflight
7. marriage
8. mainland unverified
9. foreign unverified
10. unknown, and
11. retained

The most common types of dropouts were those who had reached their 18th birthday (39 percent of all dropouts) followed by students who had moved to the mainland but whose new school had not been determined (18 percent), and “no shows”—students who failed to report to school the following school year (16 percent).

Some of these categories can be considered to constitute “true” dropouts such as students who have reached their 18th birthday and are no longer required to stay in school, or students who fail to report to school. In other cases, the term “dropout” may be a misnomer since these students' whereabouts are simply not known to the school of enrollment. These students may be enrolled in another school, either in Hawaii or elsewhere. For example, students in the “mainland unverified” and “foreign unverified” are likely to be in another jurisdiction's school system, but the department has not yet received any verifying correspondence from those school systems. Students placed in the “retained” category had simply failed to meet the requirements for the next grade level. Finally, students in alternative education programs are still in an education setting but are

counted as dropouts. These four categories accounted for 1,051 out of 3,128 dropouts, inflating the annual dropout rate by 51 percent. When these students are removed from the dropout totals, Hawaii's dropout rate is actually 4.5 percent rather than 7 percent for its high school students.

Graduation data may contain discrepancies

We also tested a sample of some selected graduation information from the Data Warehouse. Graduates of Hawaii's public schools receive seven types of diplomas, five of which are not considered to be among the "traditional" types of diploma. According to the data that we accessed, most students in the 1993-94 school year (73 percent) graduated with a regular diploma, while another 21 percent finished with a Board of Education diploma, designating superior academic accomplishment. The rest of the students (6 percent in all) received other types of certificates, which included a Certificate of Course Completion, a Certificate of Completion, and a General Education Development (GED) certificate.

We reviewed graduation data and found discrepancies between the numbers reported via the Graduates 94 summary report and the number of graduates that Data Warehouse reported to us in a summary entitled "table of completer rates." For example, according to a Data Warehouse summary table of completer rates from 1991-92 to 1994-95, a total of 2,119 students graduated with a Board of Education diploma. However, the data accessed via the Graduates 94 summary report totaled only 1,976 students with a board diploma, or a difference of 143 students. In addition, that same summary table indicated that 7,292 students had a regular diploma, whereas the summary report totaled 6,854 with a regular education diploma, a difference of 438 students. These discrepancies are shown in Exhibit 3.4.

**Exhibit 3.4
Discrepancies in Diploma Data Reported by Data Warehouse**

<i>Diploma Type</i>	<i>Graduates 94 Summary Report</i>	<i>Completer Rates Summary (1993-1994)</i>
BOE Diploma	1,976	2,119
Regular Diploma	6,854	7,292
Certificates	519	459
Total	9,349	9,870

For access to the department's information systems to be useful for review and verification, data must be accurate. The discrepancies in the graduate data identified in our test sample leads us to question the accuracy of the information stored the Data Warehouse. Verification of the accuracy of the information will require considerable testing to establish a confidence level that can be used for legislative reporting.

Conclusion

Our initial review of data stored in the Data Warehouse found discrepancies between the data that we reviewed and a summary table given to us by Data Warehouse. Once our access is finalized, we will be able to review the accuracy of the information more completely. Connectivity will allow our office to conduct in-depth analyses of the Department of Education's expenditures, school performance and personnel to verify information in these areas. Electronic access to the department's information systems will be an additional auditing tool to facilitate a more comprehensive review of the department's information. It will supplement our current auditing methods of reviewing data collected and stored at school, office, and state levels.

