REVIEW OF

FINANCIAL SYSTEMS IMPLEMENTATIONS

RICHMOND, VIRGINIA

SPECIAL REPORT

NOVEMBER 28, 2001

APA
Auditor of
Public Accounts
COMMONWEALTH OF VIRGINIA
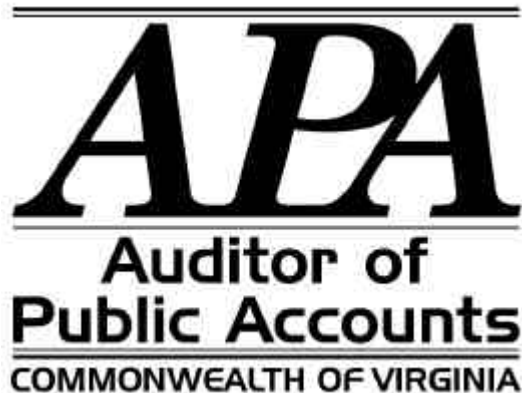
EXECUTIVE SUMMARY

We evaluated the reasons state agencies and institutions of higher education purchase independent financial systems apart from the Commonwealth Accounting and Reporting System (CARS), the success of the systems implementation, and the efficiency of the implementation approach used throughout the Commonwealth. In addition, we examined the Secretary of Technology's and the State Comptroller's responsibilities in establishing system implementation standards and guidelines.

Recommendation:

We recommend that the Secretary of Technology establish a baseline set of information systems development standards and best practices for state agencies and institutions of higher education.

This recommendation is based on the following findings:

- No standards and best practices exist for systems development projects.

- The Department of Technology Planning appoints oversight committees for projects costing more than one million dollars. However, these committees evaluate development projects based on their best judgment, not formal standards.

- A consistent method of accumulating costs for systems implementation projects does not exist.

- Lack of standards and best practices result in modifications to software that increase implementation complexity, often resulting in the termination of the systems development project.

Our review of independent financial systems found the following:

- Agencies and institutions develop independent systems because they require encumbrance accounting, detailed revenue/receivable management, and analysis of real-time and historical data, which is not available in CARS.

- Agencies and institutions have spent or have budgeted to spend in excess of $556 million dollars to replace or implement new financial systems within the past five years.

- Software expenses are one of the smallest of all implementation cost components, with consulting, networking, and hardware representing the majority of the expenses.

- PeopleSoft and Oracle have been the predominant software vendors used by agencies; however, institutions use many different software vendors.

- T A B L E O F C O N T E N T S -

November 28, 2001

The Honorable James S. Gilmore III
Governor of Virginia
State Capitol
Richmond, Virginia

Members of the Virginia General Assembly
General Assembly Building
Richmond, Virginia

We have completed a review of independent financial systems and are pleased to submit our report entitled "Review of Financial Systems Implementations."

To conduct this review, we identified all state agencies and institutions of higher education that use financial systems other than the Commonwealth Accounting and Reporting System (CARS) as their primary financial system. We identified the brand of software purchased, the efficiency of the development approach used, the success of the project, and the associated costs. Our scope was limited to agencies and institutions implementing systems within the past five years.

We determined that the Secretary of Technology has not established centralized guidance concerning the implementation of financial systems. We recommend that the Secretary establish a baseline set of information systems development standards and best practices for agencies and institutions to follow. Following a standard framework to manage software development should allow agencies and institutions to complete information technology projects on time, within budget, and with agreed-to functionality.

This report is a public record and provides information to the Governor and General Assembly, and the citizens of the Commonwealth of Virginia.

                                        AUDITOR OF PUBLIC ACCOUNTS

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REPORT ON INDEPENDENT FINANCIAL SYSTEMS

Within the last five years, state agencies and institutions of higher education have spent or have budgeted to spend in excess of $556 million dollars to replace or implement new independent financial systems. Of the total amount, software costs were approximately $20 million and consulting expenses exceeded $103 million. Below is a breakdown of the approximate total of project costs between institutions and agencies.

Institutions of higher education	$ 226,000,000
State agencies	330,000,000
Total	$ 556,000,000

Below we will identify the types of software purchased, the associated costs, and the justifications for the independent systems.

Standards and Guidelines

Both the State Comptroller and the Secretary of Technology have responsibilities in establishing guidelines for the implementation of independent systems. The State Comptroller communicates his guidelines through the Commonwealth Accounting Policies and Procedures Manual (CAPP), which the Department of Accounts (DOA) publishes. The Secretary of Technology acts as the Commonwealth's Chief Information Officer and one of his responsibilities is to direct the creation and delivery of policies, standards, specifications, and guidelines for information technology.

The CAPP manual establishes CARS as the official accounting record of the Commonwealth and requires that all state entities having independent financial systems have the capability to reconcile to and exchange data electronically with CARS. Agencies and institutions are encouraged to advise DOA of plans regarding independent financial systems and must provide copies of post-implementation reviews and evaluation reports. If an agency or institution does not adopt a system that meets the statewide requirements, the Comptroller has the power, supported by the Attorney General, to compel the adoption of a system that will meet the stated requirements.

The Secretary of Technology promulgates standards, policies, and guidelines for information technology through agencies such as the Department of Technology Planning (DTP). For systems projects exceeding one million dollars, DTP has adopted procedures to form oversight committees that periodically meet for development updates. However, the oversight committees perform their responsibilities based on their best judgment, not on any formal standards.

Both before and after the creation of the Secretary of Technology in 1998, the Commonwealth has not issued any standards, policies, or guidelines for the development, costing, or implementation processes that should be followed when undertaking a system project. Consequently, agencies and institutions have continued to develop independent systems without any statewide standards and best practices to guide development processes and decisions. Failure to provide guidance has often resulted in overspending, project delays, and lack of required functionality. As we discuss later, having no standards also results in inconsistencies in tracking project costs.

The Secretary of Technology should make available a baseline set of standards and best practices for the management of information systems development. These standards and best practices should, if followed by agencies and institutions, provide a manageable framework in which software development projects would achieve completion on time, within budget, and with agreed-upon functionality.

The baseline set of standards and best practices should also address the need to evaluate and change business processes rather than modifying the software to fit the existing process. Modifications make future software upgrades difficult if not impractical. Agencies and institutions could use this baseline standard and best practices as a starting point and then alter their business processes, eliminating the need to completely re-create process documents.

State Agency Data

State agencies have various justifications for needing independent systems such as the need for more account detail, encumbrance accounting, and analysis of real-time and historical data, which are functions not available in CARS in the manner agencies desire. Additionally, CARS cannot perform billing, tracking, or accounts receivables management. Further, some agencies such as the Department of Medical Assistance Services, the Department of Social Services, and the Department of Education have never used CARS as their primary financial system due to their volume of transactions.

Agencies have primarily implemented PeopleSoft or Oracle-based systems within the past five years. Agencies not using these two vendors have either developed their independent system in-house, which requires a significant commitment of resources to design and program or purchased software from other vendors. The following analysis shows the total cost of various independent systems and their success:

Cost Analysis

	Oracle Financials	PeopleSoft	Other Systems
Total Cost	$260,000 – $2 million	$400,000 – $13.8 million	$1.9 – $200 million
Project Success	7 successful: The Department's of: • Environmental Quality • Juvenile Justice • Motor Vehicles • Education • Social Services • Medical Assistance Services • State Corporation Commission	4 successful: The Department's of: • Transportation • General Services • Information Technology • Supreme Court	1 successful: The Department of: • Alcohol Beverage Control 3 incomplete: The Department's of: • Corrections • Taxation • Mental Health 1 terminated: • IHRIS - Integrated Human Resources Information Systems

Software costs are not the only costs associated with developing a new system. Typically, software is the smallest of all expenses, with consulting, hardware, and networking representing the majority of the cost. Often, agencies modify vendor software so that it will comply with statewide laws, regulations, and agency needs rather than using best practices inherent in the vendor's software. These modifications are costly and make future upgrades challenging. The chart below shows only the range of the software and consulting cost components for the projects implemented over the past five years.

	Oracle Financials	PeopleSoft	Other Systems
Software	$100,000 – $400,000	$300,000 – $1.7 million	In-house - $4 million
Consulting	$80,000 – $1.9 million	$84,000 – $1 million	$1.3 – $38 million

Our review found that agencies track and account for systems development costs differently, making it difficult to compare the cost of identical systems. Some agencies require significant infrastructure improvements such as hardware and telecommunication upgrades and include these expenses as part of the total cost. Other agencies have employees, rather than consultants, customize programs and do not include these expenses as part of the total cost. In addition, costs associated with the independent systems differ due to the various modules purchased and implemented by agencies such as: general ledger, accounts payable, accounts receivable, purchasing, fixed assets, budgeting, human resources, or inventory modules.

Each project involves unique circumstances, which can skew the above dollar figures. For example, the Department of Taxation is currently replacing their twenty-year-old Virginia tax system at a total cost of approximately $200 million dollars. Taxation and the consultants are working as a public/private partnership and are using the enhanced revenue to pay for the consultants' services. Taxation will continue to pay the consultants over the next ten years. In another example, the Department of Corrections is planning an enterprise system that will replace existing systems and modernize their infrastructure for a total cost of $90 million dollars. In addition, Corrections is planning to function as the test site for a vendor's development of an offender management system, therefore, reducing the agency development expenses.

Institution of Higher Education Data

Independent systems are most prominent at institutions of higher education. Various factors have required institutions to find alternatives to CARS. Most require a general ledger system that will integrate with a student information system and CARS is unable to integrate in this manner. The account structure required by institutions is different from the CARS account structure and does not meet their individualized needs. For example, CARS does not track grants, accounts receivables, or financial aid in the needed detail. In addition, institutions operate similar to business-type activities, therefore, they report on the accrual basis of accounting, whereas CARS reports on the cash basis of accounting.

Cost Analysis

Total Implementation Cost	Success of Project
< $1 million	2 successful: Mary Washington, VMI
$1 million < $4 million	1 successful: ODU; 2 terminated: CNU, GMU
$4 million < $10 million	1 successful: JMU; 1 terminated: W&M
	1 incomplete: UVA Medical Center
$10 million < $121 million	1 successful: VPI; 2 incomplete: UVA, VCCS

There is no predominant software vendor used by institutions and the software costs range between $450,000 and $4.3 million. Historically, institutions have a higher total implementation cost than agencies because they include student information and payroll modules, which agencies have no need to implement. The cost components for institution are similar in nature to those associated with agencies and vary due to the modules implemented such as: student information system, human resources, financials, account receivable, accounts payable, admissions, or financial aid module.