



## OFFICE OF THE STATE AUDITOR

TWO COMMODORE PLAZA  
206 EAST NINTH STREET, SUITE 1900  
AUSTIN, TEXAS 78701

LAWRENCE F. ALWIN, CPA  
State Auditor

July 22, 1998

RE: A Review of General Automation  
Controls at Selected State Agencies and  
Universities

Members of the Legislative Audit Committee:

State agency and university management should review and improve the guidelines for their automation functions. This will better ensure that desired operations and outcomes will occur. This was the conclusion from our recent work at one state agency and two universities. The purpose of this work was to make sure that automated information systems are working as intended.

### Why is this work important?

There has been vast growth in the information technology industry. For fiscal year 1998, Texas state agencies and universities plan to spend more than \$1 billion on operations in this area.

This growth has brought a greater turnover of information technology personnel in the State. Texas has averaged a 20 percent turnover rate for this type of personnel in the last three fiscal years. In contrast, the turnover rate for all state employees has averaged 15 percent. Thus, state entities should make sure that they have sound guidelines for their automation processes.

Guidelines that are well defined serve two purposes. They provide consistent direction to staff and record what the entity has been doing. New information technology staff can use these guidelines to gain a quicker grasp of their job duties.

### What did we do?

In this project, we looked at the key processes for computer operations. These processes include keeping the computers and data safe. We also reviewed the processes that prevent loss of data and develop data systems.

We performed work at the following three entities:

- Texas A&M University System General and Administrative Offices
- The University of Texas Health Science Center at Houston
- Department of Mental Health and Mental Retardation

These entities plan to spend a total of almost \$44 million on their automation functions in 1998. Attached are the detailed review results with responses. We will perform future phases of this work at other entities that have a high impact to the State.

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### **What else are we doing?**

We developed a self-assessment tool to help with this kind of review. Managers at all state entities can use this tool to quickly point out the strengths and weaknesses of their computer operations. Managers can then decide where to focus their efforts. We plan to have this tool on the Internet by the end of the fiscal year and will notify state entities at that time.

We appreciate the cooperation of agency and university staff during our reviews. Please call Mary Goehring at (512) 479-4700 if you have questions about this report.

Sincerely,

Lawrence F. Alwin, CPA  
State Auditor

#### Attachments (3)

- Attachment 1 - Texas A&M University System Administrative and General Office (98-362)
- Attachment 2 - The University of Texas Health Science Center at Houston (98-363)
- Attachment 3 - Department of Mental Health and Mental Retardation (98-364)

khn



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206 EAST NINTH STREET, SUITE 1900  
AUSTIN, TEXAS 78701

LAWRENCE F. ALWIN, CPA  
State Auditor

July 16, 1998

Dr. Barry Thompson, Chancellor  
Texas A&M University System Administrative  
and General Offices  
John B. Connally Building  
301 Tarrow, 7th Floor  
College Station, Texas 77843-1122

Dear Dr. Thompson:

Our review of the automation environment at the Texas A&M University System Administrative and General Offices (SAGO) identified that while most key processes exist, some general controls need improvements. We recommend that management implement timely corrective action, since many of the Texas A&M University System component institutions use the key information systems developed and maintained by SAGO. We appreciate management's timely response and planned corrective actions, which are in line with our recommendations (see attachment).

### Objectives and Scope

The objective of our work at SAGO was to see if general controls over information systems help ensure that the automation environment and computer applications are appropriately developed, maintained, and protected.

We reviewed controls over access security, physical security, back-up and recovery processes, and information system development, specifically focusing on the Financial Accounting Management Information System (FAMIS) and the Budget, Payroll and Personnel (BPP) information system. Because Texas A&M University (University) provides computer and data services to SAGO for these two systems, a large part of our review also included the operations of the University's Computing and Information Systems Department. The audit planning process considered previous and current internal audit work at both SAGO and the University to avoid duplication of effort. No scope adjustments resulted. Our audit work was performed between April 13 and May 1, and was conducted in accordance with *Government Auditing Standards*.

### Summary of Issues

- SAGO management should establish a comprehensive system development methodology to guide the creation, acquisition and/or major modification of key information systems.

SAGO does not have a comprehensive system development methodology. The methodologies in place at the entity are basically broad guidelines that do not have

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The purpose of a comprehensive system development methodology is to provide a formalized, yet entity-tailored, approach to developing and managing a major automated application, whether the application is acquired by purchase or internally developed by the entity. A methodology is a standard development tool within the information resource industry.

enough detail. While SAGO has not had to develop or acquire a major information system in the last several years, the lack of a comprehensive methodology increases the risk that future major system developments or acquisitions would not achieve management or user expectations and would suffer from time and budget over-runs. Additionally, without such a

comprehensive methodology, analysis and development processes may vary substantially between projects, potentially resulting in information systems that are not efficient and/or have increased costs for system maintenance.

- **SAGO management should make sure comprehensive documentation exists for essential processes and activities within the Information Resources function.**

Key processes and activities within SAGO's Information Resources function were found to have missing or inadequate documentation. While no specific problems or incidents were noted during our review, there is increased potential for inconsistent and incomplete

Documentation of key processes and activities within a functional area helps to provide clear guidelines regarding their implementation and the expected results. Documentation also preserves historical knowledge and enhancements made over time.

implementation of important processes and activities, which can lead to inefficiencies and/or ineffective products. Additionally, the lack of good documentation can result in the loss of significant knowledge when key personnel leave the entity.

Examples of essential documentation needing improvement include:

- No formal written agreement describing the terms and conditions by which the University's Computing and Information Systems Department provides key data services to SAGO
- Incomplete disaster recovery and business resumption plans for SAGO's computing applications and activities
- Incomplete documentation of standards and applicable quality review procedures for programming, coding, design, testing, promotion, maintenance, and post-implementation

Dr. Barry Thompson, Chancellor  
Texas A&M University System Administrative and General Offices  
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- Incomplete policies regarding access security for SAGO's key information systems

This letter and the attached responses will be included in *A Review of General Automation Controls at Selected State Agencies and Universities* (SAO Report No. 98-050). This report will contain all the results of the agency and universities we audited. The report will be published on July 20, 1998, and copies can be obtained from Production Services at (512) 479-4740. Copies will also be available on our Internet site after July 22, 1998 (<http://www.sao.state.tx.us>).

We appreciate the cooperation and hospitality of the SAGO and University personnel contacted during our review. If you have any questions, please feel free to contact me at (512) 479-4700.

Sincerely,

Kyle Kelly Doerr, CGFM, MBA  
Audit Project Manager

Attachment

khm

cc: Texas A&M University System Board of Regents  
Texas A&M University System Administration and General Offices  
Mr. Richard Lindsay, Deputy Chancellor for Finance and Operations  
Mr. Carl S. McKneely, Director of Information Resources  
Mr. Frank Clark, Sr., CPA, CFE, Director of Internal Audit  
Texas A&M University  
Mr. Charley B. Clark, CPA, CFE, Director of Internal Audit



# The Texas A&M University System

*Office of the Deputy Chancellor for Finance and Operations*

John B. Connally Bldg. • 301 Tarrow, 7th Floor • College Station, TX 77843-1122 • (409) 845-7300 • FAX (409) 862-2679

June 10, 1998

To: Kyle Kelly Doerr  
Supervising Auditor  
State Auditor's Office

From: Richard Lindsay  
Deputy Chancellor for Finance and Operations

Subject: State Auditor's Review of Automation Environment

The management of the System Administrative and General Offices (SAGO) of the Texas A&M University System concurs with the recommendations received as a result of a recent audit performed by the State Auditor's Office.

**Issue:**

- **SAGO Management should establish a comprehensive system development methodology to be used in guiding the creation, acquisition and/or major modification of key information systems.**

**Response:**

The information and time spent by your staff in defining and providing examples of comprehensive system development methodologies was appreciated and the information will be useful in the process of developing the methodology for SAGO. The process of developing this methodology will start this fall and a document will be available for use no later than December 1999.

**Issue:**

- **SAGO management should make sure comprehensive documentation exists for essential processes and activities within the Information Resources.**

**Response:**

There are several items addressed in this recommendation dealing with improvements in the documentation developed and maintained by the SAGO Information Resources function. These items may be addressed individually and some of the items (such as the security procedures) will be completed this fall. Other items will require significant effort, review and coordination among many individuals from different state agencies within the A&M System. The complete list will be addressed no later than August 1999.

Thank you for your time and assistance in these matters.



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AUSTIN, TEXAS 78701

LAWRENCE F. ALWIN, CPA  
State Auditor

July 16, 1998

Dr. M. David Low, President  
The University of Texas Health Science Center at Houston  
P.O. Box 20036  
Houston, Texas 77225-0036

Dear Dr. Low:

Our review of the automation environment at The University of Texas Health Science Center at Houston (Health Science Center) found that overall, the Health Science Center has good controls in place to adequately protect and maintain its automation environment. There were a few general controls that could be enhanced, and Health Science Center management was receptive to our suggestions.

### Objectives and Scope

The objective of our work at the Health Science Center was to see if general controls over information systems help ensure that the automation environment and computer applications are appropriately developed, maintained, and protected.

We reviewed controls over access security, physical security, back-up and recovery processes, and information system development, specifically focusing on The University Financial Management Information System (TUFIMS), the Budget, Payroll and Personnel System (BPPS), and the Student Information System (SIS). The audit planning process considered previous and current internal audit coverage of the Health Science Center to avoid duplication of effort. No scope adjustments resulted. Our audit work was performed between May 4 and May 22, and was conducted in accordance with *Government Auditing Standards*.

### Summary of Issues

- Health Science Center management should implement the following suggestions to enhance the accountability of processes and tools within its Department of Information Services.
  - Continue with arrangements to establish a long-term alternate site for business resumption activities should a major disaster occur.
  - Obtain business continuity plans from key user groups.
  - Document existing quality assurance activities.
  - Document project master plans, needs analyses, promotion procedures, and testing activities.

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Dr. M. David Low, President  
University of Texas Health Science Center at Houston  
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- Ensure that post-implementation reviews occur according to procedures.

This letter and the attached responses will be included in *A Review of General Automation Controls at Selected State Agencies and Universities* (SAO Report No. 98-050). This report will contain all the results of the agency and universities we audited. The report will be published on July 20, 1998, and copies can be obtained from Production Services at (512) 479-4740. Copies will also be available on our Internet site after July 22, 1998 (<http://www.sao.state.tx.us>).

We appreciate management's timely response and planned corrective actions, which are in line with our recommendations (see attachment). We also appreciate the cooperation and hospitality of the Health Science Center personnel contacted during our review. If you have any questions, please feel free to contact me at (512) 479-4700.

Sincerely,

Kyle Kelly Doerr, CGFM, MBA  
Audit Project Manager

Attachment

khm

cc: The University of Texas System  
Board of Regents  
Mr. Charles Chaffin, CPA, CIA, Director of Internal Audit  
The University of Texas Health Science Center at Houston  
Mr. Richard L. Miller, Director of Information Services  
Mr. Kevin Dillon, CPA, Director of Internal Audit





Information Services

June 24, 1998

**MEMORANDUM**

TO: Kyle Kelly Doerr,  
Audit Project Manager for the Review of General Automation Controls  
Texas State Auditor's Office

FROM: Richard Miller,  
Assistant Vice President, Department of Information Services  
UT-Houston Health Science Center

RE: Audit Results

Our response to the issues identified follows:

Information Services agrees that implementing these suggestions will enhance the processes and tools within the department. Information Services will implement those items that are within its area of responsibility within one year after completion of year 2000 activities which is anticipated to be in the spring of 1999. We will work with UT-H management to facilitate the implementation of those items that require a joint effort with other areas.

Once again, we appreciate your professionalism and courtesy in performing this audit.

Please contact me if you have any questions or comments.

cc: Dr. M. David Low, President  
Kevin Dillon, Director

RM/ks



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AUSTIN, TEXAS 78701

LAWRENCE F. ALWIN, CPA  
State Auditor

July 16, 1998

Ms. Karen Hale, Interim Commissioner  
Department of Mental Health and Mental Retardation  
P.O. Box 12668  
Austin, Texas 78711-2668

Dear Ms. Hale:

Our review of the automation environment at the Texas Department of Mental Health and Mental Retardation (Department) identified that while most key processes exist, some general controls need improvements. We appreciate management's timely response and planned corrective actions, which are in line with our recommendations (see attachment).

### Objectives and Scope

The objective of our work at the Department was to see if general controls over information systems help ensure that the automation environment and computer applications are appropriately developed, maintained, and protected.

We reviewed controls over access security, physical security, back-up and recovery processes, and information system development, specifically focusing on mission-critical information systems. The audit planning process considered previous and current internal audit work at the Department to avoid duplication of effort. No scope adjustments resulted. Our audit work was performed between May 4 and May 22, and was conducted in accordance with *Government Auditing Standards*.

### Summary of Issues

- Department management should make sure that comprehensive documentation exists for important processes and activities within the Information Services function.

Documentation of key processes and activities within a functional area helps to provide clear guidelines regarding their implementation and the expected results. Documentation also preserves historical knowledge and enhancements made over time.

Key processes and activities within the Department's Information Services function were found to have missing or inadequate documentation. While no specific problems or incidents were noted during our review, there is increased potential for inconsistent and incomplete implementation of important processes and activities,

which can lead to inefficiencies and/or ineffective products. Additionally, the lack of good documentation can result in loss of significant knowledge when key personnel leave the entity.

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Ms. Karen Hale, Acting Commissioner  
Texas Department of Mental Health and Mental Retardation  
July 16, 1998  
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Examples of essential documentation needing improvement include:

- The existing Disaster Recovery Plan is missing several components. Specifically, sections describing relevant risks, alternate site agreements, service-level agreements, mainframe access for business resumption, recovery processing procedures, application prioritization, and user training have not been developed and included in the current agency plan. Should a disaster occur, the risk is high that the Department would not be able to quickly resume business activities.
- Policies and procedures controlling access to the Department's computer facility and protecting this facility from hazards have little, if any, documentation. Without these written guidelines, the chances are greater that facility access and protection activities will not be implemented consistently, and thus not implemented effectively.
- Many processes necessary to ensure good results from system or application development efforts have not been documented. As a result, the likelihood increases that such development efforts will not result in products that meet the expectation of management or users. Additionally, analysis and development activities may vary substantially between development projects, potentially resulting in information systems that are not efficient and/or have increased costs for system maintenance.

This letter and the attached responses will be included in *A Review of General Automation Controls at Selected State Agencies and Universities* (SAO Report No. 98-050). This report will contain all the results of the agency and universities we audited. The report will be published on July 20, 1998, and copies can be obtained from Production Services at (512) 479-4740. Copies will also be available on our Internet site after July 22, 1998 (<http://www.sao.state.tx.us>).

We appreciate the cooperation and hospitality of the Department personnel contacted during our review. If you have any questions, please feel free to me at (512) 479-4700.

Sincerely,

Kyle Kelly Doerr, CGFM, MBA  
Audit Project Manager

Attachment

cc: Department of Mental Health and Mental Retardation  
Members of the Board  
Ms. Sally Anderson, Director of Information Services  
Mr. Tom Martinec, CIA, CFE, Director of Internal Audit

Texas Department of  
Mental Health and Mental Retardation



Central Office  
P.O. Box 12668  
Austin, TX  
78711-2668  
(512) 454-3761

Date: June 23, 1998

To: Ms. Kim Bradley, Field Team Leader for the Review of General Automation Controls  
Texas State Auditor's Office

From: Karen F. Hale, Interim Commissioner  
Texas Department of Mental Health and Mental Retardation

Re: Response to Review of General Automation Controls

As requested, the following is in reply to your review of the automation environment at TXMHMR.

*Issue*

The existing Disaster Recovery Plan has several components missing. Specifically, sections describing relevant risks, alternate site agreements, service-level agreements, mainframe access for business resumption, recovery processing procedures, application prioritization and user training have not been developed and included in the current agency plan. Should a disaster occur, the risk is high that the Department would not be able to quickly resume business activities.

*Response*

TXMHMR realizes there are components of the existing Disaster Recovery Plan missing; however, we feel this is an acceptable risk in that we are in the process of negotiating an outsourcing contract for mainframe operations with Northrop Grumman to operate our data center from the West Texas Disaster Recovery Center in San Angelo, Texas. The contract will include disaster recovery services. Current plans are for the contract to become effective in October 1998.

In addition, a disaster planning and business recovery committee headed by the TXMHMR system Risk Manager is developing standardized templates for business recovery and emergency management in the event of a disaster or significant and unanticipated interruption in the business process. These templates will be used systemwide to finalize TXMHMR's disaster planning and business recovery processes. The business recovery template will be used to develop the plan for the server environment remaining at the Winters complex after the above cited outsource. These templates are scheduled for completion and distribution to all facilities, including Central Office, in October 1998. Finalized facility plans will be due to the system Risk Manager no later than April 1999.

Ms. Kim Bradley, Field Team Leader  
June 23, 1998  
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*Issue*

Policies and procedures controlling access to the Department's computer facility and protecting this facility from hazards have little, if any, documentation. Without these written guidelines, the chances are greater that facility access and protection activities will not be implemented consistently, and thus not implemented effectively.

*Response*

The Department will develop and document guidelines for controlling access to the computer facility by September 1, 1998 to assure consistent and effective implementation of procedures.

*Issue*

Many processes necessary to ensure good results from system or application development efforts have not been documented. As a result, the likelihood increases that such development efforts will not result in products that meet the expectation of management or users. Additionally, analysis and development activities may vary substantially between development projects, potentially resulting in information systems that are not efficient and/or have increased costs for system maintenance.

*Response*

Information Services management will continue to pursue the standardization and documentation of processes for software development and the procurement and implementation of information systems. Method/1 remains the standard system life cycle methodology for applications development. Information Services will continue reinforcing the importance of the methodology and provide training and structure for its use. In addition, TXMHMR, in conjunction with TDHS and the State Auditor's Office, is participating in an initiative to evaluate the benefits of applying the Capability Maturity Model (CMM) concepts to state agency information technology departments. The initial phase of this, slated to begin in the fall of 1998, will be an assessment of each I.T. organization's current capability level against the CMM model. Subsequent to that, key areas of improvement will be identified and plans will be developed and executed to achieve that improvement.

Copy: Thomas J. Martinec, Director of Internal Audit, TXMHMR  
Sally Anderson, Chief Information Officer, TXMHMR