



**Dave Yost**  
Auditor of State



**The Role of the IT Auditor**

Presented by:  
Cooper Martin, CISA  
IT Auditor

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### Overview

- Introduction and Background
- Financial Audit Relationship
- IT Audit Functions
- Changes in IT
- Types of IT Controls
- Service Organization Audit SOC1



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### Auditor of State's Office

- Responsible for auditing more than 5,600 state and local government agencies.
- Approximately 600 auditors



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**Auditor of State's Office**  
5 Major Divisions

- Administration Division
- Audit Division (ISA)
- Policy & Public Affairs Division
- Legal Division
- Local Government Services & Performance Audit Sections

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**Background**

**IT Audit Group**

- Section of the Financial Audit Section
- 3 Groups (North, South, State)
- 25 Auditors

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**Background**

**IT Audit group/Local**

- North/South
  - Local Governments
    - Counties
    - Cities
    - Schools
    - Some State (Lottery)
  - SOC1

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**Background**

**IT Audit Group/State**

- State Region
  - State Departments
  - OAKS (Ohio Administrative Knowledge System)



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**Financial Audit Relationship**

*Provide reasonable assurance that  
Financial Statements are free from material  
misstatement.*

- GAO (Government Accountability Office)
- GAGAS (Government Auditing Standards)



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**Financial Audit**

**AICPA/SAS 94**

**"The Effect of Information  
Technology on the Auditor's  
Consideration of Internal Control  
in a Financial Statement Audit."  
(2001)**



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**Financial Audit - Risk**  
SAS 104-111 Risk Assessment Standards

- Requires auditors to obtain an in depth understanding of the entity and its environment to identify material misstatement in the financial statements and what the entity is doing to mitigate them.



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**Financial Audit – Risk  
(SAS 104-111 cont.)**

- More rigorous assessment of the Risk of Material Misstatement (RMM) in the financial statements based on that understanding.
- Improved linkage between the assessed risks and the nature, timing, and extent of audit procedures performed in response to those risks.



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**Financial Audit- Risk**

- Use of IT to initiate, authorize, record, process and report transactions.
- Role of IT management

AICPA "Assessing and Responding to Audit Risk in a Financial Statement Audit"  
(Revised edition as of October 1, 2009)



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## Financial Audit- Risk

## IT Management

AICPA "Assessing and Responding to Audit Risk in a Financial Statement Audit"  
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## Why do they bring the IT auditors?



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## Why IT Auditors

- Provide reasonable assurance that Financial Statements are free from material misstatements.
- Controls are in place to reduce the risk of tampering through the IT infrastructure.



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### IT Audit Focus

- General IT Controls
- Application Controls
- Audit Software (CAATTs)
- SOC1 – Audits of Service Organizations

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### Changes in IT

- Increased Spending On and Use of IT
- Increases in Computing Power
- Shorter Life of Systems and Applications
- Virtualized IT environments

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### Changes in Audit

- Rare to find an entity whose use of IT does not impact its financial audit.
- Technology used by Auditors

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## What is Internal Control?

- Defines internal control as a **process** – **effected by** an entity's board of directors, **management**, and other personnel – designed to provide **reasonable assurance** regarding the achievement of objectives in the following categories: (a) **reliability** of financial reporting, (b) **effectiveness and efficiency** of operations, and (c) **compliance** with applicable laws and regulations.

AU Section 319 Consideration of Internal Control in a Financial Statement Audit. (SAS No. 55, SAS No. 78, SAS No. 94)



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## Is the Computer Environment Basic or Complex?

- Do organization personnel have access to the source code to modify applications (This includes third party software packages)?
- Do organization personnel have access to modify stored computerized data outside the normal application process?
- Does the organization employ individuals with the knowledge to modify applications or modify data outside of the normal application processing?



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## Other Consideration

- Size of entity
- Size of IT Staff
- Complexity of environment
- Number of transactions



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## IT Audit

- IT General Controls
- Application Controls
- Data Analysis



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## What are General Controls?

- **Effective general controls** will ensure the applications and systems they reside on are properly maintained, secured and backed up for recovery purposes.



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## General Controls

- Overall Operation of the IT Function
- Acquisition and Implementation of New Applications and Systems
- Change Control
- IT Security
- IT Operations



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### Overall Operation of the IT Function

- Policies and Procedure  
What expectations has management communicated to the organization in regards to use of information technology and safeguarding resource used for financial reporting?

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### Overall Operation of the IT Function

- Strategic Planning
- Hiring and Training IT Staff
- Computer and Internet usage
- Ownership of IT infrastructure
- Monitoring and Expectations of privacy

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### Acquisition and Implementation of New Applications and Systems

- Project Management
  - Plan and/ or schedule?
  - Monitoring of plan and project?

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### Acquisition and Implementation of New Applications and Systems

- Design/Selection of Applications and Hardware Systems
  - Who was involved in the design?
  - Compatibility of the application/hardware with existing applications?
  - How are changes reviewed and approved?



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### Acquisition and Implementation of New Applications and Systems

- Testing of Applications/Systems
  - Who reviews the changes for appropriateness to achieve business objectives?
  - How are changes to the application controlled before transfer to the live environment?



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### Acquisition and Implementation of New Applications and Systems

- Transfer into Live Environment
  - What ensures that only properly tested/reviewed and approved applications and hardware are put into the live environment?



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### Acquisition and Implementation of New Applications and Systems

- Conversion of Data
  - How are the balances (financial/payroll, etc..) data reconciled prior to transfer?
  - How is the conversion process controlled?
  - How do you ensure appropriate testing of data is performed by both users and IT?



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### Acquisition and Implementation of New Applications and Systems

- Training and Documentation
  - Is updated or new documentation provided to end users?
  - How do you ensure users and IT staff have appropriate training?



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### Changes to Existing Applications or Hardware Systems

- Change Requests
- Testing
- Transfer into live environment
- Documentation and Training



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### IT Security

- Security Management
  - Is there a security policy for all users and is it acknowledgment?
  - Are periodic checks performed to confirm the users are current and access is commensurate with their current job responsibilities?

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### IT Security

- System Software and Utilities Access Controls
  - What ensures that access to system software and utility programs is properly restricted and monitored?

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### IT Security

- Application Level Access Controls
  - How is access restricted to appropriate functions within applications?

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### IT Operations

- System Administration and Maintenance
  - How is the system monitored and measured for availability/downtime?
  - Are there appropriate escalation procedures to resolve operational failures?
  - Who ensures the effective administration of the database (DBA)?



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### IT Operations

- Backup
  - When performed?
  - What is stored?
  - How is backup success monitored?
  - Is data on backups tested?



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### IT Operations

- Disaster Recovery
  - Management Impact Analysis
  - Documented Plan
  - Testing of Plan
  - Communicate plan to responders and users
  - Distribution and security of plan
  - Insurance plan covering equipment and software



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**IT Operations**

- Disaster Recovery
  - <http://www.auditor.state.oh.us/publications/default.htm>
  - **Winter 2007** (pdf) Disaster Recovery Planning Objectives  
Sample Disaster Recovery Plans  
Additional Resources  
The Tips Page



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**IT Operations**

- Business Continuity
  - Plan
  - Identification of critical applications
  - Paper stock?



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**General Controls Summary**

**Questions**



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### What are Application Controls?

- Application controls differ from general controls because they refer to **specific** applications.
- **Effective application controls** will ensure the completeness and accuracy of data input, processing, and output.



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### What are Application Controls?

- Testing performed is determined during the risk analysis completed in audit planning phase
- IT audit may be asked to perform testing of the computer related controls



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### What are Application Controls?

- Methods of ensuring that only complete, accurate, and valid data is **entered and updated** in a computer system; that **processing** accomplishes the correct task; that processing **results** meet expectations; and that data is maintained.
- Controls over **input, processing, output**.



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**11 Application Control Objectives:**

**Transaction level controls:**

- 1. Authorization
- 2. Completeness of Input
- 3. Accuracy of Input
- 4. Cutoff of Transactions
- 5. Transaction Classification
- 6. Transaction Occurrence



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**11 Application Control Objectives:**

**Cycle Level Controls:**

- 7. Existence
- 8. Integrity of Standing Data
- 9. Completeness/Accuracy of Update
- 10. Completeness/Accuracy of Accumulated Data
- 11. Restricted Access to Assets & Records



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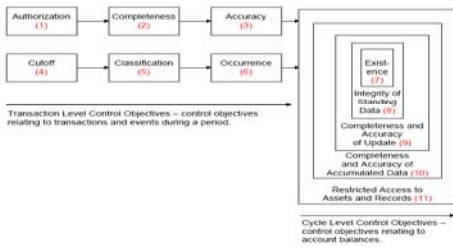
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**11 Application Control Objectives:**

**INFORMATION FLOW**



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### Audit Software

- Filter/Display Criteria Aging
- Expressions/EquationsJoin/Relate
- Gaps Trend Analysis
- Statistical Analysis Regression Analysis
- Summarization Matching
- Stratification



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### SOC 1(SSAE 116)

- Service Organization Audit
  - Entity uses a service organization to process transactions.



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### SOC 1(SSAE 116)

Replaces in part, the SAS No. 70 and is one of two new standards:

- ✓One is an attestation standard SSAE 116 (ISA)
- ✓The other is an auditing standard SAS) (F/As).



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**SOC 1(SSAE 116)**

**CUEC - Complimentary User  
Entity Controls**



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**Conclusion – Role of IT Audit**

- Complexity of IT systems
- Changes to Existing Systems
- Implementation of New Systems
- Data Sharing



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**Conclusion – Role of IT Audit**

- Use of Emerging Technologies
- Availability of Audit Evidence
- Use of CAAT for audit efficiency
- SOC -1



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### Available Guidance

- COBIT
- COSO Integrated Framework
- ISO 17799 Code of Practice for Information Security Management
- IT Infrastructure Library (ITIL)
- NIST



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- "Impact of SAS No. 94 on Computer Audit Techniques" By *M. Virginia Cerullo, CPA, CIA, CFE, and Michael J. Cerullo, CPA, CITP, CFE* <http://www.isaca.org/Journal/Past-Issues/2003/Volume-1/Documents/pdf031-ImpactofSAS94onComputer.pdf>
- *Internal Control—Integrated Framework.* Committee of Sponsoring Organizations of the Treadway Commission (COSO), 1992. <http://www.coso.org>.



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- *ISO/IEC 17799: 2000 - Information Technology—Code of Practice for Information Security Management.* International Organization for Standardization, 2000. <http://www.iso.org/>



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- National Institute of Standards and Technology (NIST) – “Cloud Computing Standards Roadmap Special Publication 500-291” <http://www.nist.gov/>



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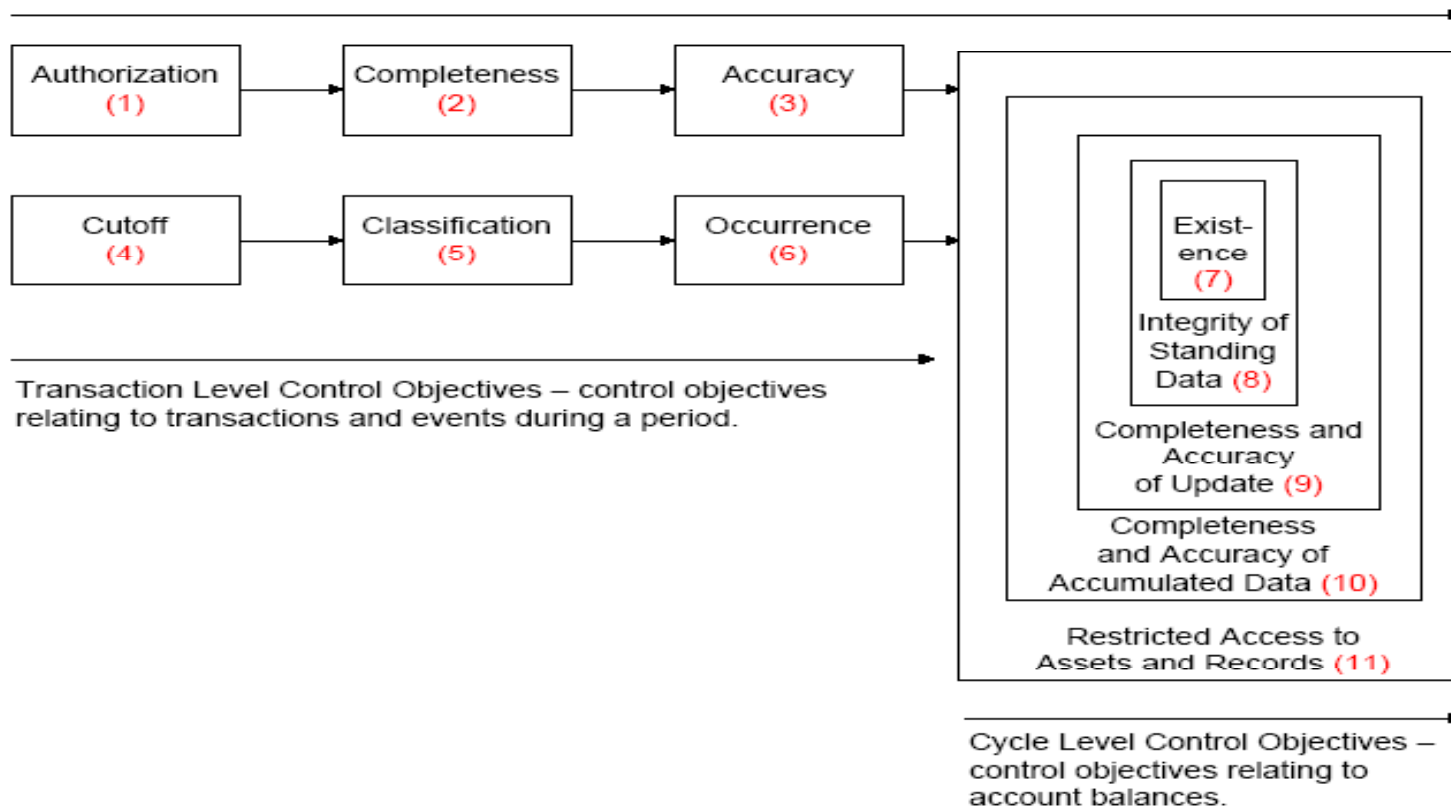
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# 11 Application Control Objectives:

## INFORMATION FLOW



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# 11 Application Control Objectives:

**Control Objectives and Control Techniques**

Control Objectives →	Transaction Level Controls						Cycle Level Controls				
	Authori- zation of Input	Comple- ness of Input	Accura- cy of Input	Cutoff of Trans.	Trans. Classifi- cation	Trans. Occur- ence	Exis- tence	Integrity of Standing Data	Comple- ness and Accuracy of Update	Comple- ness and Accuracy of Accumulated Data	Restricted Access to Assets and Records
<i>Control Techniques ↓</i>											
<i>Authorization Routines</i>	X							X			X
<i>Segregation of Duties</i>	X										X
<i>Computer Matching</i>	X	X	X	X	X						
<i>Computer Sequence Check</i>		X									
<i>Agreement of Batch Totals</i>		X	X								
<i>One-for-One Checking</i>	X	X	X	X	X			X			
<i>Edit Checks</i>			X					X			
<i>Reconciliation of File Totals</i>			X	X					X	X	
<i>Exception Reporting</i>	X	X							X		
<i>Detailed file Data Checks</i>			X					X	X		
<i>Data Access Security Controls</i>	X							X		X	X
<i>Physical Access Controls</i>	X										X



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