



IT Audit Process

Michael Romeu-Lugo MBA, CISA

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Agenda

- Project
- Sampling

Project

- **Purpose:** To conduct an assessment of CoreTech's IT Change Management procedure
- **Your task:**
 - Design an audit control program to audit CTI's Change Management
 - Select a sample from the data that will be provided
 - Test the sample
 - Prepare an audit report based on your test results, backed by evidence

Project

- **You will be provided with:**

- 3 months of data, consisting or production library listings (Population)
- CTI's Change Management Policy/Procedure
- Organization Chart
- Engagement Letter
- Templates
 - Audit Program
 - Audit Report

- **Your Deliverables to me:**

- Audit Plan
- Audit Report
- Work Papers – supporting evidence

Audit Program Example

CoreTech, Inc. Internal Audit Assurance Program

Data Backup and Restore Procedure

Objectives	
Control Objective(s):	<ul style="list-style-type: none">• IT Personnel perform daily backups on CTI data. After backups are completed, IT personnel review backup status to confirm successful completion.• Restores from backup media will work when required.
Assurance Objective(s):	<ul style="list-style-type: none">• Verify CTI's compliance with existing data backup and restoration procedures.• Ensure data backups are performed per an established schedule• Verify that backups are tested on a regular basis as defined by standard operating procedures• Verify that problems (issues) are addressed in a timely manner avoiding any impact on production
Scope	<p>The review will focus on the regular execution of backup and restore procedures during the period of July 1, 2014 through September 30, 2014 (third quarter, 2014). This includes the review of established procedures and relevant documentation.</p> <p>Review of backup media storage and overall management are not within the scope of this review.</p>

Audit Assurance Example

Pre-audit Planning:	
Technical Skills(s):	N/A
Resource(s):	<ul style="list-style-type: none">• SAP System Administrator• IT Operations Manager
Documentation:	<ul style="list-style-type: none">• Current version of backup and restore procedures• Backup and restore log(s) for the period in review• Job descriptions – SAP System Administrator, IT Operations Manager
Location(s):	Philadelphia Data Center

Audit Assurance Example

Procedure:			Index/Reference	Annotations/Comments
Opening Meeting:	a. Review and agree on objectives and scope			
	b. Discuss resource requirements			
	c. Discuss timeline			
	d. Request	• Current version of backup and restore procedure(s)		
		• Backup and restore log for the third quarter of 2014		
Review Business Process	a. Review SOPs	• Roles and responsibilities are clearly defined		
		• Backup and restore tests are required by an established schedule		
		• Backup logs are kept current		
		• Backup activities are reviewed in a timely basis by supervisor		
	b. Review job descriptions	• Job descriptions are kept current		
		• Skills match employee qualifications		
	c. Request walkthrough	• SAP System Administrator		

Audit Assurance Example

Testing	Index/Reference	Annotations/Comments
Sampling	N/A	N/A
<ul style="list-style-type: none"> • Control Frequency: <ul style="list-style-type: none"> a. Daily (Backups), b. Quarterly (Restoration Tests) • Sample Size: 25 		
Review backup and restore log	<ul style="list-style-type: none"> • Backup and restore activities recorded in the log reflect the schedule in the procedure 	
	<ul style="list-style-type: none"> • All log entries have been verified by the appropriate supervisor 	
	<ul style="list-style-type: none"> • Restore tests have been performed per schedule 	
	<ul style="list-style-type: none"> • Backup and restoration test incidents have been clearly documented including steps taken to resolve the issue. 	
Communications:	<ul style="list-style-type: none"> • Preliminary Findings – Report during engagement and Concluding Meeting • Final Report and Recommendations – No later than 2 weeks after Concluding Meeting 	

Audit Sampling

First, What is Sampling?

A method to select a sample (a portion) of a whole in order to make general observations of the whole based on what we observe in the portion.

Audit Sampling is:

- the application of an audit procedure to less than 100% of the target population for the purpose of drawing a general conclusion about the entire population based on the characteristics detected in the sample.

Why Sample?

- It is not cost- or time efficient to examine 100% of the population
- We need corroborating evidence for control compliance and effectiveness

Statistical and Non-Statistical Sampling

Statistical Sampling

- When you need to include measures of sampling risk, confidence levels, and precision.

Non-Statistical Sampling

- When you need flexibility
- Rely on Internal Auditor's judgement
- Reasonable reliability at reasonable cost

Sampling Approaches

Statistical		Non-Statistical	
Advantages	Disadvantages	Advantages	Disadvantages
<ul style="list-style-type: none"> • May yield desired results from minimum number of items • Yields quantified data • Includes measures of sampling risk, confidence level, and precision • Is adaptable to computer testing • Lends credibility to audit conclusions and recommendations 	<ul style="list-style-type: none"> • Can be costly and time-consuming • May require training and software costs • May preclude experienced auditors' insights 	<ul style="list-style-type: none"> • Flexibility • Use of internal auditor's judgment • Allows reasonable reliability at reasonable cost 	<ul style="list-style-type: none"> • Results not statistically valid • No objective measure of sampling risk provided • Chance of wrong sample size • Effectiveness depends upon auditor's skill

Statistical Sampling

Attribute Sampling

- To estimate the rate of occurrence of certain characteristics of the Population.
- Good for Control Testing

Variable Sampling

- Used to provide auditors with an estimate of a numerical quantity, such as the balance of an account.
- Good for Substantive Testing

Attribute Sampling – An Example User Account Management Policy

Testing of User Account Management Policy

Objective: To evaluate the effectiveness of the control to ensure that access to CTI's computing environments is appropriately approved by authorized approvers.

Population: 650 new and updated accounts for 6 months

Confidence Interval: 95% (5% of the sample selected does not represent the population)

Expected Deviation Rate: 1.5% of missing or invalid approvals

Tolerable Deviation Rate: 6%

Sample Size: 103 Account Request Forms

Deviations: 4

Is the controls working as expected?

Attribute Sampling

Confidence Interval: Reliability auditor places on the sample

Expected Deviation Rate: Auditor's best estimate of failure in the population

- **Population:** 650 new and updated accounts for 6 months
- **Confidence Interval:** 95% (5% of the sample selected does not represent the population)
- **Expected Deviation Rate:** 1.5% of missing or invalid approvals
- **Tolerable Deviation Rate:** 6%
- **Sample Size:** 103 Account Request Forms
- **Deviations:** 4
- Is the controls working as expected?

Statistical Sample Sizes for Test of Controls											
Five Percent Risk of Assessing Control Risk Too Low (number of expected errors in parentheses)											
Expected Population Deviation Rate (%)	Tolerable Deviation Rate										
	2%	3%	4%	5%	6%	7%	8%	9%	10%	15%	20%
0.00	149(0)	99(0)	74(0)	59(0)	49(0)	42(0)	36(0)	32(0)	29(0)	19(0)	14(0)
0.25	236(1)	157(1)	117(1)	93(1)	78(1)	66(1)	58(1)	51(1)	46(1)	30(1)	22(1)
0.50	*	157(1)	117(1)	93(1)	78(1)	66(1)	58(1)	51(1)	46(1)	30(1)	22(1)
0.75	*	208(2)	117(1)	93(1)	78(1)	66(1)	58(1)	51(1)	46(1)	30(1)	22(1)
1.00	*	*	156(2)	93(1)	78(1)	66(1)	58(1)	51(1)	46(1)	30(1)	22(1)
1.25	*	*	156(2)	124(2)	78(1)	66(1)	58(1)	51(1)	46(1)	30(1)	22(1)
1.50	*	*	192(3)	124(2)	103(2)	66(1)	58(1)	51(1)	46(1)	30(1)	22(1)
1.75	*	*	227(4)	153(3)	103(2)	88(2)	77(2)	51(1)	46(1)	30(1)	22(1)
2.00	*	*	*	181(4)	127(3)	88(2)	77(2)	68(2)	46(1)	30(1)	22(1)
2.25	*	*	*	208(5)	127(3)	88(2)	77(2)	68(2)	61(2)	30(1)	22(1)
2.50	*	*	*	*	150(4)	109(3)	77(2)	68(2)	61(2)	30(1)	22(1)
2.75	*	*	*	*	173(5)	109(3)	95(3)	68(2)	61(2)	30(1)	22(1)
3.00	*	*	*	*	195(6)	129(4)	95(3)	84(3)	61(2)	30(1)	22(1)
3.25	*	*	*	*	*	148(5)	112(4)	84(3)	61(2)	30(1)	22(1)
3.50	*	*	*	*	*	167(6)	112(4)	84(3)	76(3)	40(2)	22(1)
3.75	*	*	*	*	*	185(7)	129(5)	100(4)	76(3)	40(2)	22(1)
4.00	*	*	*	*	*	*	146(6)	100(4)	89(4)	40(2)	22(1)
5.00	*	*	*	*	*	*	*	158(8)	116(6)	40(2)	30(2)
6.00	*	*	*	*	*	*	*	*	179(11)	50(3)	30(2)
7.00	*	*	*	*	*	*	*	*	*	68(5)	37(3)

*Sample size is too large to be cost-effective for most audit applications.
 Note: This table assumes a large population.
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Tolerable Rate of Deviation: Rate of non-compliance the auditor will tolerate and still rely on the control.

Attribute Sampling

- **Population:** 650 new and updated accounts for 6 months
- **Confidence Interval:** 95% (5% of the sample selected does not represent the population)
- **Expected Deviation Rate:** 1.5% of missing or invalid approvals
- **Tolerable Deviation Rate:** 6%
- **Sample Size:** 103 Account Request Forms
- **Deviations:** 4
- Is the controls working as expected?

Statistical Sampling Results Evaluation Table for Tests of Controls

Upper limits at five percent risk of assessing control risk too low.

Sample Size	Actual Number of Deviations Found										
	0	1	2	3	4	5	6	7	8	9	10
25	11.3	17.6	*	*	*	*	*	*	*	*	*
30	9.5	14.9	19.6	*	*	*	*	*	*	*	*
35	8.3	12.9	17.0	*	*	*	*	*	*	*	*
40	7.3	11.4	15.0	18.3	*	*	*	*	*	*	*
45	6.5	10.2	13.4	16.4	19.2	*	*	*	*	*	*
50	5.9	9.2	12.1	14.8	17.4	19.9	*	*	*	*	*
55	5.4	8.4	11.1	13.5	15.9	18.2	*	*	*	*	*
60	4.9	7.7	10.2	12.5	14.7	16.8	18.8	*	*	*	*
65	4.6	7.1	9.4	11.5	13.6	15.5	17.4	19.3	*	*	*
70	4.2	6.6	8.8	10.8	12.6	14.5	16.3	18.0	19.7	*	*
75	4.0	6.2	8.2	10.1	11.8	13.6	15.2	16.9	18.5	20.0	*
80	3.7	5.8	7.7	9.5	11.1	12.7	14.3	15.9	17.4	18.9	*
90	3.3	5.2	6.9	8.4	9.9	11.4	12.8	14.2	15.5	16.8	18.2
100	3.0	4.7	6.2	7.6	9.0	10.3	11.5	12.8	14.0	15.2	16.4
125	2.4	3.8	5.0	6.1	7.2	8.3	9.3	10.3	11.3	12.3	13.2
150	2.0	3.2	4.2	5.1	6.0	6.9	7.8	8.6	9.5	10.3	11.1
200	1.5	2.4	3.2	3.9	4.6	5.2	5.9	6.5	7.2	7.8	8.4

*Over 20 percent.

Note: This table presents upper limits as percentages and assumes a large population.

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