Session Objectives

- Higher Education Headlines
- New IA Guidance
- Visual Risk IQ's QuickStart™ Methodology
- Group Exercise - let's develop a test plan
- Continuous Controls Monitoring – the evolution of Data Analytics
- Q&A
- Additional resources

Higher Education Headlines

Longtime Lafayette employee fired in alleged fraud

What do we want to be famous for?
Current Fraud Statistics from the ACFE (source: ACFE Report to the Nations)

- Median loss $140,000 - these losses are grossly understated as they do not include investigative costs, fines, and penalties.
- 20% of reported cases involved a loss of $1 million or more
- Median time before discovery: 18 months
- Organizations with anti-fraud controls correlated with significant decreases in cost and duration of fraud
- Internal Audit detects 14% of frauds. More than external audit (3%), but lagging tips and management review

Source: Association of Certified Fraud Examiners (ACFE) 2012 “Report to the Nations on Occupational Fraud and Abuse”

How does the economic environment affect fraud risk?

- Think about the Fraud Triangle
- Financial Pressure, even Rationalization are increasing
- What is the Audit Profession doing about Opportunity

IIA GTAG #13 - Fraud Prevention and Detection in an Automated World

- Reiterates IIA Professional Standards
  - 2130.A3 - The internal audit activity must evaluate the potential for the occurrence of fraud and the manner in which the organization manages fraud risk
  - The internal auditors must consider the probability of significant errors, fraud, non-compliance, and other exposures when developing the engagement objectives.
- Advocates use of technology
  - Provides examples of fraud schemes and data analysis tests that are designed to identify each schemes.
  - No endorsement of a specific software product
  - Analysis tools for structured and unstructured data
IIA GTAG #16
Data Analysis Technologies

- Emphasizes importance of data analysis
  - Business case for increased assurance
  - Improvements in control and also risk assessment
  - Improved auditor efficiency and effectiveness

- Provides implementation guidance
  - Consider Key Performance Indicators and Metrics
  - Also consider mean, variance, and outliers
  - Patterns, including digital analysis / Benford’s Law
  - Introduces Data Analysis Maturity Model

- Methodology is plan, prepare, test, review

"Internal auditors who don’t use data mining and analytics should get on their horse & buggy and go home" @IIACEO

QuickStart Methodology
Begin with Brainstorming

- Brainstorm
- Review Audit Objectives
- Explore Internal Data Sources
- Compare with External Data Sources
- Consider together with other Audit Tests
- Use Metrics, Statistics, Exception Queries

Write Queries
Analyze and Report

Brainstorm

Data Analytics is the Connect between thoughtful Questions, and (Digital) Data

- What business or control questions would you like to answer? Why?
- How would you identify the answer today?
- Would knowing the answer in greater depth be useful?
- What about knowing the answer more often (i.e. greater frequency)
QuickStart Methodology

Acquire and Map Data

- Brainstorm
  - Acquire and Map Data
  - Identify specific sources
  - Explore direct vs. flat file access
  - Submit written data request, including control totals
  - Tie out record counts and control totals
  - Trace control totals back to ledger or other source systems

- Analyze and Report
  - Brainstorm
  - Acquire and Map Data

Write Queries

- Brainstorm
  - Write Queries
  - Virtual Fields
  - Join
  - Summary
  - Stratify
  - Extract
  - Filtering Criteria
  - Trending
  - many other command and techniques

Data Acquisition

Overcoming Barriers

- Find the Business Analyst – how do they obtain data for their job?
- Understanding Tables and Relationships
- Data dictionary / local customizations
- Requesting data from Information Technology Staff / Vendors
  - Fixed vs. Variable Length
  - Delimited Files
  - Quoted Text
  - Column Headers
- Balancing / Control Totals
- Where and how best to filter and limit rows and columns?
QuickStart℠ Methodology
Analyze and Report

- Brainstorm
- Analyze and Report
  - Consider Trends and Exception Queries
  - Graphs and Tables
  - Correlation analysis
  - Pivot Tables
  - Other Techniques
  - Charts / color / directionality
- Write Queries
- Acquire and Map Data
- Refine and Sustain

Understanding and Planning for False Positives

Real Condition is True
- Type I Error (Incorrect Rejection)
- The Test Reports that the Condition is False
- The Test Reports that the Condition is True

Real Condition is False
- Type II Error (False Positives)
- The Test Reports that the Condition is False
- The Test Reports that the Condition is True

QuickStart℠ Methodology
Refine and Sustain

- Brainstorm
- Analyze and Report
- Refine and Sustain
  - After-Action Review
  - Re-use Queries for Follow-up Tests
  - Re-use Queries for Risk Assessment
  - Transition Queries to Management
- Acquire and Map Data
- Write Queries
Refine and Sustain
Continuous Learning culture

- After Action Review
- Consider timing of key audit tasks
  - What should we do earlier?
  - What could we do later?
  - Who else should we involve?
  - Why?

<table>
<thead>
<tr>
<th>Start</th>
<th>Stop</th>
<th>Continue</th>
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Exercise:
Plan Audit Tests, by Business Process

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<thead>
<tr>
<th>Business Process Area</th>
<th>Suggested Tests</th>
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<tr>
<td>P-Card / Travel &amp; Entertainment</td>
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Checkpoint
Continuous Controls Monitoring Audits in the Future?

Key Capabilities of CCM

- Non-invasive extraction from systems of record
- Ability to define and easily map into common data models
- Identify and track revisions to master data
- Modern, easily configured data analytics engine
- Identify and store individual exceptions that meet analytics criteria (filters, thresholds, confidence, statistical significance, etc.)
- Interactive review, filtering, assignment and status modification of exceptions
- Integrated visual reporting

Results of CCM Testing - What's possible with in-depth data analytics
Wrap-up Thoughts

- Consider how QuickStart discussion may help ensure effective communication between business- and data-focused team members.

- Use IIA Guidance on Fraud Risk and Data Analysis. They are very good resources and free to all IIA members.

- Begin with defining the questions that you want to answer? Then identify data sources that can answer them – both internal and external data sources.

- Establish data analysis routines that can be repeated (i.e. scheduled) on a recurring basis. Ad hoc / one-time tests become the foundation for Continuous Auditing and Continuous Monitoring.

- Challenge your audit team to be the R&D lab for innovation in data analysis. Include as a success measure the tests that are adopted by the business.

For Additional Information

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Or follow us on Twitter at: www.twitter.com/VisualRiskIQ

Use of a Maturity Model to define your company-specific path

- History of Maturity Model
  - Developed on multiple client assignments to help define the path to CA for our clients
  - Shared at an IA meeting – came together with Arrowpoint Capital - “that sounds like our journey” which began nearly 10 years ago
  - Developed IA article together with Arrowpoint
    - Assisted by Wake Forest’s Dr. George Aldhizer in preparing article and field-testing ideas and thesis

- Key Learnings:
  - Technology is not the first or second or even third priority
  - Business knowledge is critical to sustaining and improving the CA program. Periodic meetings to understand business pulse is essential
VRIQ’s Continuous Auditing Maturity Model, as published in 2009 in WG&L's Internal Auditing

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<td>Audit staff and leaders are IT- and data-literate. Little distinction between IT audit and financial / operational audit people.</td>
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Moving up the Maturity Curve is best accomplished in simple, deliberate steps

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