Leveraging Data Analytics and Continuous Auditing to Transform Internal Audit

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Presenter Introductions

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Agenda

- Current trends in technology, data analytics and continuous auditing
- The value of data analytics-enabled internal audit
- KPMG’s Approach to Internal Audit Transformation
- Data Discovery for Risk-Based Sampling
Current trends in technology, data analytics and continuous auditing
## Definitions and characteristics of continuous auditing/monitoring

<table>
<thead>
<tr>
<th>Activity</th>
<th>Definition</th>
<th>Unique Characteristics</th>
<th>Common Characteristics</th>
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<tr>
<td>Continuous Auditing (CA)</td>
<td>Collection of audit evidence and indicators by an auditor on information technology (IT) systems, processes, transactions, and controls on a frequent or continuous basis, throughout a given period</td>
<td>- Third Line of Defense</td>
<td>- Wide variety of organizational Data</td>
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<td>- Not intended to become part of the internal control environment</td>
<td>- Technology-enabled process</td>
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<td>- Process can also be used for Continuous Risk Assessment for dynamic audit planning purposes</td>
<td>- Analytic capabilities include:</td>
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<td>- Efficient ETL processes</td>
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<td>- Flexible types of analytics</td>
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<td>- Scalable and extendable</td>
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<td>- Frequency can be modified</td>
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<td>Continuous Monitoring (CM)</td>
<td>Feedback mechanism (monitoring method) used by management to ensure that controls operate as designed and transactions process as prescribed</td>
<td>- First and second lines of defense</td>
<td>- Dynamic reporting with actionable output</td>
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<td>- Responsibility of management</td>
<td>- Workflow management capability</td>
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<td>- Important component of the internal control structure</td>
<td>- Integration with a process</td>
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<td>- Can provide automated controls and processes</td>
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Definitions taken from KPMG LLP’s *Continuous Auditing and Continuous Monitoring: Transforming Internal Audit and Management Monitoring to Create Value*, 2008
KPMG observations
Current trends in technology, data analytics and continuous auditing

- Convergence of Business Intelligence; IT-Governance, Risk & Compliance; and CA/CM tools and techniques.
- Increased interest in CM by financial services, healthcare/life sciences, and public sector due to expanding regulations.
- CA/CM strategic development link to enterprise initiatives:
  - Partnering with the business and joint business case;
  - Drill down into KRI and KPI for management use;
- Enhancing risk assessment activities with quantitative information
- Internal audit focus on building “repeatable and sustainable” ETL (Extract, Transform, Load process) and analysis for meaningful reporting; not long lists of anomalies.
- Trend toward leveraging BI (Business Intelligence) tools:
  - As part of monitoring of KPI (Key Performance Indicators) / KRI (Key Risk Indicators);
  - For continuous risk assessment for audit planning purposes;
  - For profiling of populations to focus transaction analysis and testing.
Discussion Question: What is the group’s experience with:

- Use of technology for internal audit activities, including data analytics and data analysis
- Implementing Continuous Auditing at your company
- Implementing Continuous Monitoring at your company
The value of data analytics-enabled internal auditing
An Overview of Maturity Levels

The maturity model below represents the stages of maturity from the least mature state of traditional auditing through to the most mature state of continuous assurance of enterprise risk management.

Least mature

Maturity Level I
Traditional Auditing

Least mature

Maturity Level II
Ad Hoc Integrated Analytics

Least mature

Maturity Level III
Continuous Risk Assessment & Continuous Auditing

Least mature

Maturity Level IV
Integrated Continuous Auditing & Continuous Monitoring

Least mature

Maturity Level V
Continuous Assurance\(^1\) of Enterprise Risk Management

Most mature

A key first step within the maturity model is the successful integration of data analytics.

\(^1\)Continuous Assurance is a progressive shift in audit practices towards the maximum possible degree of audit automation as a way of taking advantage of the technological basis of the modern entity in order to reduce audit costs and increase audit automation. Given the emphasis on the transformation of the entire system of auditing, the development of Continuous Assurance requires a fundamental rethink of all aspects of auditing, from the way in which data is made available to the auditor, to the kinds of tests the auditor conducts, how abnormalities are dealt with, what kinds of reports are issued, how often and to whom they are issued, and many other factors, the importance of some of which will only become apparent as Continuous Assurance is implemented. “Continuous Assurance for the Now Economy”, Rutgers Business School, February 2010.
KPMG observations
How internal audit is leveraging data analytics

1. As part of audit execution (traditional, most common use)
2. In connection with specific, tactical efforts like FCPA compliance, proactive fraud detection, etc.
3. As part of the pre-fieldwork scoping (data discovery using operational BI tools, etc.)
4. As part of the audit planning process (quantitative component to complement traditional qualitative process) to help enable dynamic audit planning (e.g., technology-enabled, quantitative enhanced, Continuous Risk Assessment process)
KPMG observations
Common scenarios for initial implementation of CA/CM

**Scenario 1**
Internal Audit department focuses on making historically performed data analytics more “repeatable and sustainable” OR on expanding scope.

**Scenario 2**
Internal Audit department focuses on leveraging existing management systems and tools for better risk assessments.

**Scenario 3**
Internal Audit department serves as the pilot for continuous monitoring systems on behalf of management.

**Scenario 4**
Tactical or “burning platform” issue drives the implementation of continuous monitoring.
Value of data analytics-enabled internal auditing

1. Identify the “right” audits to perform (coverage focus)
   - If only 30 audits can be performed a year, how do we know which 30 audits to perform (i.e., which are the “riskiest” audit areas)?

2. Increase the number of audits performed per year (coverage breadth)
   - How do we increase the number of audits performed per year from 30 to 40 without adding hours or FTE?

3. Decrease the time required to cycle through the audit universe (coverage efficiency)
   - Currently it takes three years to audit every auditable entity, how do we decrease that cycle time to every two years?

4. Increase the frequency of audits of key risk areas (coverage frequency)
   - Currently we can only audit key risk areas every other year, how can we audit them every year?

5. Increase the scope of specific audits (coverage depth)
   - Currently we can only focus audits on two or three key areas of risk and test a sample of transactions, how can we audit five to 10 areas of risk (e.g., including fraud, inefficiencies, and regulatory non-compliance) and cover 100% of the transactions?
Data analytics/continuous auditing
Implementation (and sustainability) challenges

**General**
- Determining and establishing consensus on objectives and success criteria.
- Measuring and demonstrating success.
- Limited resources (technology and human know how).

**Data Availability and Quality**
- Lack of access to data.
- Disparate information systems with different data formats.
- Incomplete data sets, inconsistent data quality.
- Data privacy/security issues to navigate.

**Data Analytics**
- Inability to effectively leverage data analytics to achieve audit objectives.
- Definition of “exception,” addressing “false positives” and “false negatives.”
- Workflow around exception resolution; managing volumes of exceptions.

**Change Management**
- Managing impact of CA/DA processes on auditors and other business processes.
KPMG’s Approach to Data Analytics-Enabled Internal Auditing

ERM/ERA – Risk Libraries

Advisory Base Processes - Toolkit

Accounts Payable
Controls: Risk & Control Matrix (1 of 10)

Standard APGs

Accounts Payable (Purchase to Pay Cycle)

Vendors and Third Party Content

Data Analysis examples, KPMG libraries, repositories, etc.

Data Analysis Enhanced APGs

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KPMG’s Approach to Internal Audit Transformation
Data analytics-enabled internal auditing – Roadmap

Develop a Strategic Plan
- Define the objectives you are trying to achieve
- Identify key stakeholders and define the success criteria and related measurements
- Build an effective business case
- Consider use of a pilot to validate strategy and support business case

Develop Tactical Plans
- Design governance and reporting structure for continuous auditing activities
- Evaluate data analytic skills and competencies
- Integrate data analysis into IA methodology and processes
- Evaluate and select technology tools
- Consider use of a pilot to validate tactical plans

Design and Execute Implementation Plans
- Manage organizational change (internal to Internal Audit and business facing change)
- Design and deliver trainings
- Identify focus areas for implementation to satisfy strategic objectives
- Design and establish data connection/extract; analysis; and reporting mechanisms including risk- and performance-based analytics, dashboards, scorecards, reports and alerts, etc.

Continuous program evaluation
- Regularly evaluate program for effectiveness and refine as necessary
- Consider additional areas for expansion and maturity
- Evaluate opportunities to extend into the business

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Data Discovery for Risk-Based Sampling
Traditional Audit Methodology

- Focus on testing controls to achieve audit coverage of a dollar amount
- Belief that complex business processes are linear in nature with a beginning, middle, and end
- Select random samples based on statistical confidence of an exception without consideration of trends, patterns, or risks identified in underlying data sets
Breaking Tradition

- Agree that business processes are entropic in nature which drives risk to evolve
- Use a risk-based analytical mindset to audit more efficiently and effectively
- Think critically and use data discovery techniques when selecting samples for testing
Business Processes are Entropic

• Risks will change with time – don’t assume that last year was good enough
• Systems and processes will get more complex
• Users will find ways to circumvent controls (process risk not fraud risk)
Risk-based Analytical Mindset

- Identify the risks based on the audit scope
- Develop a hypothesis for how those risks could occur
- Determine what data is available to test your hypothesis
Think Critically

- Use data discovery techniques to identify risk indicators
- Combine indicators to select a better sample
- Identify Key Risk Indicators, patterns, or trends based on the results of testing – avoid isolating the exceptions as individual transactions
Data Discovery Demo

• Data discovery tool: QlikView – similar to Tableau and Spotfire
• Analytics engine: IDEA, ACL, Alteryx, or data discovery
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