Data Analytics and Continuous Monitoring...
A Practical Approach

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Doug Rebal - Engagement Principal
George Corsack - Engagement Principal
Comcast Assurance and Advisory Team
Agenda

- Comcast at a Glance
- Comcast Assurance and Advisory Team (CAAT) Operating Model
- Drivers of Data Analytics
- Maturity Spectrum
- Practical Ingredients for Success
- Demonstration of Examples
- Questions
Uniquely positioned at the intersection of media and technology

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Other
- Comcast Spectacor
- Comcast Ventures
- Xfinity
- plaxo
- The Weather Channel

Digital and Other
- NBCNEWS.com
- NBCNEWS Latino.com
- TELEVISION MONITOR TRUST
- theGrio
- hulu+
- Fandango

Revenue: $69B
Operating Income: $15B
Revenue Increase: 4.7% (excl. Olympics)
Employees: 139,000

Figures as of year end 2014

*Minority interest and/or non-controlling interest.
Comcast Assurance and Advisory Team (CAAT)

- Cable
- NBCUniversal
- Corporate & SOX
- Technology

Business Integrity

Data Analytics

Audit Talent Pool

- Talent pool feeds Center of Excellence engagements
- Resources are multi-functional, flexible and include specialized resources for Technology and GAAP Accounting
- Pipeline for the talent pool includes Internal / External candidates and Leadership Development Program resources
Drivers of Focus on Data Analytics

- Enhanced expectations from Executives & Boards
- Migrate away from ‘anecdotal driven’ action
- Adhere to regulator expectations
- Improve Efficiency & Coverage
- Technology Evolution

Increased use of Data Analytics is shaping audit departments structure, and driving Chief Audit Executive priorities.

Percentage of Chief Audit Executives Rating Important, Very Important, or Extremely Important

Importance of Activities to Achieving Internal Audit’s Mandate

- Leverage Data Analytics Capabilities: 100%
- Improve Risk Identification and Assessment: 93%
- Improve Continuous Monitoring Practices: 80%

Source: CEB Analysis and Round Table Discussion
Phase 1: Sampling
- Fieldwork sampling determines exceptions
  - Sales Commissions

Phase 2: Basic
- Historical data analyzed on ad hoc basis
  - Subscriber Trending

Phase 3: Integrated
- Incorporated into audit methodology
  - Marketing Incentives
  - Customer Churn
  - Unreturned Equipment
  - Video Purchases

Phase 4: Progressive
- Utilized on data rich, operational processes
  - Work Order Management
  - Credit Adjustments
  - Credit & Collections

Phase 5: Continuous
- Automation of analytics models enables continuous auditing
  - T&E and PCARD
  - Timing of PO’s vs. Invoices
  - Vendors set up

Audit Team Utilization

Maturity Spectrum
Ingredients for Successful Program

- Structured Methodology
- Defined Ownership of Results
- Management Support
- Dedicated Internal Resources
- Access to Business Rptg Systems
- Data Tools
- Results Monitoring
**Data Analytics – Tools Transition**

**FOCUS: Quarterly Engagements**
- Individual Engagement Support
- Audit Specific Software
- Data Manipulation Tracking
- Easy Out-of-the-box commands
- Comprehensive Command Logs
- Easy to perform data integrity and validity checks

**FOCUS: Quarterly Engagements & Continuous Monitoring**
- Robust Ad-Hoc Reporting
- Interactive Dashboarding
- Large Dataset Management and Storage
- Integrated Security Protection
- Easily Share Data & Reporting
- Single Source for End Users
- User Activity Tracking

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# Data Resources

Successful program requires proper quantity of dedicated resources with the right skill set

<table>
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<tr>
<th>Team Structure</th>
<th>Required Skill Set</th>
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<tr>
<td>• 1 Director</td>
<td>• Skilled in code writing</td>
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<tr>
<td>• 2 Manager (dedicated Data)</td>
<td>• Equipped with business/industry knowledge</td>
</tr>
<tr>
<td>• 1 Manager (dedicated Audit)</td>
<td>• Experienced in analyzing large quantities of data</td>
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<tr>
<td>• 3 Sr. Consultants / Consultants</td>
<td>• Abled to translate data to common terms</td>
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<td>• Equipped with interpersonal skills</td>
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<td>• Ability to apply an audit focus to data analytics</td>
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Data Team Job Responsibilities

- **Ad-Hoc / Engagement Support**
  - Integrated Data Support for Engagement Teams
  - Ad – Hoc Data Requests
  - Manages Team Members Assigned to Engagement Support
  - Identifies Monitoring Opportunities from Engagement Reports
  - New Business Integration

- **ECA Reporting / BI Support**
  - Maintains ECA Reports & Dashboards
  - Analysis and Data Interpretation
  - Integrates New Data to Expand ECA Scope and Coverage
  - Supports BI Team

- **ECA Engagements**
  - Drives Audit Approach
  - Trains Rotating Staff for Seamless Quarterly Transition
  - Maintains all ECA Documentation
  - Handles all Communications with CAAT Executives and Business Owners

Ad-hoc into ECA
Enhance and broaden ECA scope

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Enhanced Coverage Framework

Step 1: Engagement Team
- Decision Trees
- Metrics
- Thresholds
- AU Mapping
- Systems used
- Testing Procedures
- Knowledge Library

Step 2: Data Team
- Dashboard Development
- CAAT infrastructure to start
- May be longer-term National Data Warehouse candidate

Step 3: Enhanced Coverage Engagement
- Scope areas added to Continuous Audit Plan
- Review/analyze data per decision tree to determine scope
- Perform testing
- Determine follow-up items

Reporting Dashboards

Root Cause Analysis
Root Cause Analysis

Root Cause Analysis Cycle

- Break down multiple problems into components
- Identify and specify the problem correctly
- Analyze the root cause using a systematic approach
- Verify cause
- Take corrective action and prevent future occurrences
- Update audit analytics, as necessary
Consistent, repeatable testing allows for increased depth of knowledge for key risk areas.
Practical Examples

"ARE YOU SURE WE'RE ON THE RIGHT TRACK?"
Travel & Expenses (T&E)

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# T&E Online Spending

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T&E - Hotel and Airfare Over Threshold

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Purchase Order / Invoice Analysis

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Vendor Monitoring – Example

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Payroll Dashboard – Auto Approved

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Payroll Dashboard – Approved Prior Work

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Specific Industry Examples

I hate running in the outside lane.
Credit Adjustment Dashboard

Regional Benchmark

Credit Adjustments as % of Revenue - Residential

Exception Reporting

Potential Fraud / Misuse indicator counts

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Credit Adjustments by dollar

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Credit Adjustments: Category by region

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Heat Map: Risk Rating Multiple Attributes

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Daily Disconnect Activity

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Goals of Data Analytics

WHAT IT IS

✓ Benchmark scope areas across company
✓ Quickly identify outliers / trends
✓ Increase efficiency of audits
✓ Focus on specific areas to identify root cause of issues (i.e., spend more time asking WHY and not WHAT)
✓ Provides a "look back" to full engagements...were issues remediated??

WHAT IT IS NOT

✗ 100% assurance over all risk
✗ Detailed testing of all areas
✗ Removal of physical site visits (however...metrics can help you prioritize the sites)
Increased Coverage

**Scope Area 1**

- **Prior year:** 220
- **Q1:** 85
- **Q2:** 132
- **Q3:** 150

**Scope Area 2**

- **Prior year:** 150
- **Q1:** 77
- **Q2:** 100
- **Q3:** 100
Quarterly Communication Plan

Continuous Monitoring Notification
- Divisional Controllers
- Adjust distribution as necessary as dashboards grow
- Checkpoints with Division Controllers throughout the quarter on progress & developments
- Transfer report monitoring responsibility to business process owners, as applicable

Enhanced Coverage Report
- Includes: metrics analyzed, any follow up procedures performed, and issues noted
- Executive Summary of results for Cable Executive Leadership

Management Action Plans (MAPs)
- Issued at the discretion of Internal Audit Leadership
- MAPs may be issued based on issue frequency, pervasiveness, repeats, materiality, etc.
Create proactive measures Internal Audit and management can utilize to identify key indicators of risk, fraud, and poor data quality.
Success Factors

Value Adds
- Increased coverage in ‘rinse & repeat’ issues
- Identification of new and different issues
- Expanded sampling & ability to quantify results
- Ability to benchmark

Productivity & Coverage
- Audit universe coverage increased
- Time savings vs. universe coverage
- Potential travel budget savings

Relationship Building
- Partnership with other compliance teams
- Partnership with Controllership teams

Performance Improvement
- Teams are more adept at determining root cause & developing appropriate management action plans
- Ability to see improved performance within the data

Staff Feedback
- Staff feedback
- Executive Leadership Feedback
- Business area manager feedback

Staff Growth
- Improved knowledge & understanding of core operations
- Ability to think critically with data analytics
- Ramp up Knowledge Library/audit programs

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Questions?
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CAAT is Actively Recruiting for:
FinOps  IT  SOX