LEVERAGING DATA AND ANALYTICS TO ENHANCE COMPLIANCE

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APPLYING ANALYTICS TO COMPLIANCE
COMPLIANCE AND RISK ASSESSMENT

Data analytics can be applied to every element of a compliance program. Whether applying a top down or bottom up approach, analytics can handle vast volumes of data that is necessary to effectively assess risks, test transactions or investigate. It can also be applied to measure the effectiveness of a compliance program.

Applying Analytics to Compliance

- Investigations
- Risk Assessments
- Monitoring Anomalies
- Measuring Effectiveness of Compliance Program
- Reporting

**Top Down**
*Provide impetus, framework and direction for company personnel*
- Governance and tone from the top
- Overall control culture
- Country and industry-specific risks
- Group policies
- Past regulatory settlements
- Interviews of key management
- Whistleblowing reports
- Deal specifics: industry, use of funds and terms, jurisdiction, counter parties

**Bottom Up**
*Identify what is really happening within the company or transaction*
- Use of funds
- Provenance of assets/rights
- Substantive testing
- General ledger interrogation & analysis
- Assessment of existing controls
- Assessment of existing IT/financial system
- Staff quality, control culture and enforcement
- Procure to pay
- Sales distribution methods
The Rising Value of Data Driven Compliance

There are business benefits to applying compliance analytics, beyond those directly linked to the compliance program. Increased transparency into financial transactions enable the business to make strategic decisions on resource allocation and utilization, cost optimization and governing policies.

Compliance Lens
Deliver robust, efficient compliance; manage risk
- Transparency
- Prevention/Detection
- Monitoring

Better understand business operations

- Analyse full population and do smarter testing & monitoring
- Analyse the design and full operation of key controls
- Detailed risk assessment of transaction flows
- Use non-traditional data sources, e.g., unstructured and external
- Recognise and benchmark posting patterns
- Automate routine, repeated activities
- Continuously assess and embed emerging technology

Business Lens
Use my time well, ask better questions, provide useful insight
- Costs
- Optimization
- Strategic decision-making
### DIFFERENT ANALYTICS METHODS PROVIDE DIFFERENT INSIGHTS

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
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<tbody>
<tr>
<td>Diagnostic Analytics</td>
<td>• Identify trends and detect outliers based on historical data</td>
</tr>
<tr>
<td>Rule Based Analytics</td>
<td>• Testing data against known behaviours or patterns</td>
</tr>
<tr>
<td>Risk Scoring</td>
<td>• Use weighted scoring models to summarize and compare identified risks</td>
</tr>
<tr>
<td>Clustering &amp; Profiling</td>
<td>• Group individuals or entities by similar features and behaviour</td>
</tr>
<tr>
<td>Text Mining</td>
<td>• Process natural language in documents (e.g., keyword matching, concept analysis, sentiment analysis)</td>
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</table>

![Diagnostic Analytics Graph](image1)

![Clustering & Profiling Diagram](image2)
The type of risk being monitored will drive the data input. Supplementing essential datasets with additional relevant data enables a holistic view that often yields hidden insights. Data scoping should consider data format, quality and quantity, and the level of effort in obtaining the data.

Back office systems
e.g., ERP, Core banking

Customer relationship systems

Social media

Machine generated data

Mobile applications

Communications
DATA ANALYTICS LIFECYCLE

Data Collection
- Identify and collect structured and unstructured data sources

Data Ingestion
- Load vast amounts of data into a single data store

Data Cleansing & Transformation
- Understand structure and content; clean up and standardization

Data Analysis
- Design Algorithms; statistics; predictive & text analytics; ML & AI

Visualization
- Prepare visualizations; reports, queries; real-time monitoring

Collaborative team: Data Analytics, Forensic Accounting, Business, Compliance, Legal, Audit, IT
CONTINUOUS COMPLIANCE MONITORING – KEY COMPONENTS

Continuous collaboration of stakeholders typically Business, Compliance, Internal audit, Analytics, IT, Legal

### Scoping and discovery
- Define risk areas / scenario modelling
- Determine data sources
- Data extraction / collection

### Analysis and alerting
- Data load, process
- Algorithm design
- Data analysis
- Risk scoring
- Alerting
- Reporting

### Review and feedback
- Triage alerts
- Manage false +/- Investigate
- Remediate
- Root causes
- Feedback
- Consolidated reporting
CASE STUDY : VENDOR PAYMENTS
## Case Study: Vendor Payments

The Problem: Identifying vendors who may be overcharging the client in China

<table>
<thead>
<tr>
<th>Who?</th>
<th>A US-based publicly traded electronics manufacturer with factories and subsidiaries overseas</th>
</tr>
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<tbody>
<tr>
<td>Why?</td>
<td>Allegations of kickbacks, corruption, conflict of interest</td>
</tr>
<tr>
<td>What?</td>
<td>Potentially overcharging vendors</td>
</tr>
<tr>
<td>Where?</td>
<td>China</td>
</tr>
</tbody>
</table>
| How?       | 60 GB financial accounting data:  
- Purchase order data  
- Accounts Payable data  
- General Ledger data  
Email data from 100+ custodians collected |

The Solution (FA, DA, eD): Identified consistently overcharging vendors, quantified potential savings if the vendors were replaced. Client terminated use of the vendors and established additional procurement controls, based on our recommendations for remediation.
DATA INVESTIGATION CYCLE

PLAN

Results of Fraud Risk Assessment

Data Sources
• Transactional Data Sources
• Master & Reference Data Sources
• External & Third-Party Data Sources

PROCESSING

Completeness Assessment

Quality Assessment

Transformation

ANALYTICS

• Stratification/Segmentation
• Rule based testing
• Risk based scoring
• Vendor Master File Analytics
• Time Series
• Geospatial
• Link Analysis
• Text Mining
• Visualization

REPORT

• Visualization
• Risk scoring
• Observations
DEMO: MATERIAL PRICE DATA ANALYSIS

Data Summary

<table>
<thead>
<tr>
<th>Total Order Value</th>
<th>Distinct count of Material</th>
<th>Distinct count of Vendor</th>
<th>Distinct count of PO Doc.</th>
<th>Total Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.94B</td>
<td>12,260</td>
<td>36</td>
<td>65,184</td>
<td>6.72B</td>
</tr>
</tbody>
</table>

Total Purchase Amount over time by Purchase Organization

Total Spend by Material

Note: larger size indicates more vendors supplying this material

Total Spend by Vendor

Note: larger size indicates more distinct materials supplied

Total Purchase Amount over time by Material

Total Purchase Amount over time by Vendor

Month of Posting Date

Month of Posting Date
QUESTIONS
Gabriel Colwell is a trial lawyer who focuses his practice on white-collar criminal defense, internal investigations and complex business litigation. Gabriel has represented and advised clients in response to inquiries by the DOJ, SEC, CFPB, FTC, OFAC, and various other state and federal regulators. He previously served on the monitorship team for the FCPA compliance monitor appointed by the DOJ and SEC for Weatherford International. He regularly conducts compliance reviews and investigations for multinational companies in various industries. Prior to joining Squire Patton Boggs, Gabriel served as a prosecutor in the US Army JAG Corps and as a Special Assistant US Attorney for the Department of Justice where he directed investigations by the FBI, Defense Criminal Investigative Service and the Major Procurement Fraud Unit of the Army Criminal Investigation Division to successfully prosecute fraud, money laundering and various other criminal offenses.
Doel is a Director at FRA’s New York office. She has been a practicing attorney for over 20 years with significant experience as a compliance officer. She has developed compliance programs to fit varied business units including risk assessments, compliance-focused communications and trainings, and remediation actions for risk mitigation and enhancement of controls.

She has conducted and managed investigations into potential fraud, corruption, conflicts of interest and other types of corporate misconduct. Doel helps clients understand the often complex correlation between culture, business ethics, organizational justice and building trustworthy organizations.

Prior to joining FRA, Doel spent 15 years with IBM as In-house Counsel and Compliance Officer. Doel was appointed the first Trust & Compliance Officer for IBM in the India/South Asia region. She advised regional general managers and other senior management in India/South Asia and South Africa on challenging, time-sensitive transactions, implementing and executing controls and other compliance initiatives in those higher risk territories. While assigned to IBM’s offices in New York, Doel was responsible for overseeing IBM’s global anti-corruption compliance program relating to its third-party resellers, distributors and worldwide channels organization. In this role, she worked with data analytics specialists to develop, execute and maintain analytics based tools and other automated solutions as preventive controls.

Doel graduated from the National Law School of India University with her B.A., LL.B. in 2000. She recently graduated magna cum laude from Fordham University School of Law with her LL.M., where she was also awarded the Carlos Hawker Award for the highest cumulative grades in the Corporate Compliance program.

Doel is a member of the New York City Bar Compliance Committee and Co-Chair of the Fordham Law Compliance Affinity Group.

Doel has lived and worked in Mumbai and Bangalore in India, and Johannesburg in South Africa. She is a native Hindi and Bengali speaker, and fluent in English.