Cracking the Code: Bringing Accuracy to e-Communications Surveillance
Today’s Panelists

Steve LoGalbo
Actimize

Jonathan Frieder
Accenture

Maureen Lowe
Financial Technologies Forum
• Evolution of e-communications, Jonathan Frieder
  - Surveillance Trends
  - Technological Advances
  - Approaches to Enhancing Surveillance
  - The Analytics Continuum

• Bringing Best Practices to Life, Steve LoGalbo
  - Surveillance Challenges
  - Analytics: The Key to Increasing Accuracy & Reducing False Positives
  - Automating Investigations

• Q&A
THE EVOLUTION OF E-COMMUNICATIONS

Jonathan Frieder, Accenture Compliance Technology Lead
Industry Findings on Surveillance

**Accenture’s 2018 Annual Compliance Survey** showed the following key statistics for respondents related to surveillance:

- 53% view surveillance as a top strategic initiative within the next 12 months and 45% ranked surveillance on top within the next 3 years.

- Nearly 50% plan to use Surveillance Tools as part of the Compliance operating model in the next 12 months with Artificial Intelligence becoming the focus in the next 3 years.

- 84% agreed that “Surveillance Agent” would become a main role for Compliance within the next 3 years.

- 43% currently use a 3rd party Managed Service fully or partially for surveillance, a majority intend to use 3rd parties for surveillance within the next 3 years.

*Accenture’s annual survey included respondents from more than 200 financial services firms across 13 countries.*
Forward-thinking firms are moving toward a surveillance model driven by company culture and that is easily adaptable to regulation. In this model, multiple sources of data are available as needed, not kept in silos, enabling real-time surveillance that is proactive.

**A** Real-time and proactive surveillance of employee, firm and client activities

**B** Analytics identify patterns of individual tendencies and collective behaviors

**C** The Operating Model supports right people and processes globally

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**Real-time and proactive surveillance of employee, firm and client activities**

- Transactions Performance
  - Has PnL/Exposure changed dramatically?
  - How many cancelled and connected trades?
  - How does trader performance compare to the market?

- Market Benchmarking
  - Sensitive information leaving the bank?
  - Are they sharing confidential info?
  - Who do they talk to?

- Financial Performance
  - Are they sharing financial info?
  - What are they sharing?
  - What are they exchanging?

- Email
  - What do they say on Social Media?
  - What are they sharing?
  - Who are they exchanging?

- Documents
  - Which systems have they accessed?
  - Log-on times?
  - How many hours of professional training?

- Social Media
  - What do they say on Social Media?
  - How many hours of professional training?
  - Who are they connected to?

- Voice
  - What do they say on Social Media?
  - How many hours of professional training?
  - Who are they connected to?

- Chat
  - What do they say on Social Media?
  - How many hours of professional training?
  - Who are they connected to?

- SMS
  - What do they say on Social Media?
  - How many hours of professional training?
  - Who are they connected to?

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**Analytics identify patterns of individual tendencies and collective behaviors**

- Behavioral Analysis
  - Integrated Surveillance
  - The Operating Model supports right people and processes globally

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**The Operating Model supports right people and processes globally**

- Agile Operating Model
  - Social Network
    - Who are they connected to?
  - HR Data
    - How many hours of professional training?
  - Trade Behavioral Data
    - Which systems have they accessed?
    - Log-on times?
“Connecting The Dots”

The key to efficiently and proactively identifying emerging risks and gaining a complete picture of surveillance.
Technological Advances

Analytical methods like Machine Learning to handle the increasing variety of data, information channels and sophisticated employee misbehaviors

**Challenges**
- Numerous and increasing number of data sources (transactions, eCommunications, etc.)
- Increased costs & time spent on surveillance
- Unhandled False Positives: inefficient processes for accurate detection
- Increased complexity: employees’ awareness of surveillance capability

**Services Needed**
- Problem solving through machine learning
- Fast effective deployments
- Enhanced processes to reduce false positives
- Visualization - traceability from results to controls and rules applied
- Integrated risk score to evaluate employees based on behaviors and communication

**Surveillance Process**

**Data Sources**
- Trade / Transaction Data
- Voice / Transcriptions
- Bloomberg Chat
- Lync / Skype (IM)
- Reuters
- Email
- HR
- ...

**Investigation & Detection**
- Engine
- Drilldown capabilities
- Machine Learning

**Dashboard**
- Integration of sources across ID
- Logs, ID, Reference Data

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**Services Needed**

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- Visualization - traceability from results to controls and rules applied
- Integrated risk score to evaluate employees based on behaviors and communication
Most banks are meeting minimum standards despite significant spending. Achieving targeted state requires vision and operating model designed to meet the needs of each organization.

**Market Context: Maturity Scale**

- **Vision**
  - Understanding of the current state
  - Definition of the target state
  - Roadmap to a leading function
- **Functional Consolidation**
  - Consolidation of surveillance functions (e.g., Trade, Control Room, Communications and Employee)
  - Progress achieved on key maturity index dimensions
  - Scale surveillance function across the appropriate entities
- **Functional Optimization**
  - Movement beyond just surveillance into other areas of Compliance, Risk and Cyber
  - Identify other control frameworks where similar technologies and skills

**Illustrative Surveillance Maturity Benchmarking**

<table>
<thead>
<tr>
<th>Maturity Index Dimensions</th>
<th>Minimum</th>
<th>Foundational</th>
<th>Industry Standard</th>
<th>Leading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Management</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Integration</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Automation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Scalability</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Flexibility</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Predictive</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Intelligence</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</table>

Majority of Firms are here
Market Context: Approaches to Enhancing Surveillance

Different approaches to enhancing surveillance capabilities depending upon level of maturity and readiness for sophisticated technology solutions

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Less Advanced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People</td>
<td>Surveillance Investigators only need to learn how to use the specific tool being implemented</td>
<td>Ability to connect the dots between systems and technologies to identify new behaviors &amp; trends</td>
<td>Machine Learning / AI supplements Surveillance Investigators to significantly reduce false positives</td>
</tr>
<tr>
<td>Process</td>
<td>The solutions being implemented are stand-alone and can be functionally engaged in silo</td>
<td>Clearly implemented systems provide insight across the operating model</td>
<td>Robotics Process Automation across Operating Model frees up Investigators to focus on higher risk cases</td>
</tr>
<tr>
<td>Technology</td>
<td>Surveillance systems can only provide insight within a limited domain</td>
<td>Case management tools can provide new insight to Surveillance Investigators</td>
<td>Holistic Platform and services deployed alongside automated alert queuing, prioritization and compliance execution</td>
</tr>
</tbody>
</table>

### Capability Enhancement
- Typically lowest set-up cost
- Low skill requirements to use

### Capabilities Integration
- Medium cost to set up
- May require significant resourcing due to high # of false positives
- Greater dependency on clean data
- Info provided only as good as inputs
- Systems need to be able to integrate (consistency)

### Automation
- Most expensive option to setup
- Long-term savings on headcount
- Requires high-quality, clean data
- Need to identify candidates for RPA and/or AI enhancement

### Level of Sophistication

- **Less Advanced**
  - Must be able to plug in individual solution
  - Low system requirements
  - This fragmented view of Surveillance has drawn higher scrutiny from regulators in recent years. Furthermore, it hinders investigators’ ability to “connect the dots”

- **More Advanced**
  - Firms have increasingly moved to this model in recent years as regulators are likely to require this holistic view (see SEC/FINRA priorities on innovation)

- **Holistic Platform and services deployed alongside automated alert queuing, prioritization and compliance execution**

### Regulatory and Other Factors
- Frees investigators to focus on higher value work
In order to maximize return on investment, firms should choose a Surveillance vendor with the right mix of technology capabilities and industry focus on Financial Services.

- Advanced technologies
- Basic Capabilities
- Industry focus
- Financial Services
- Advanced Analytics

**Ideal solution space:** Vendors offer a solid mix of technology advancement and industry experience.

**Key Considerations / Lessons in Selecting a Solution / Vendor**

- Cost
- Industry Focus
- Use Cases Covered
- Cultural Fit
- Underlying Tech Stack
- Available Skills
- Ease of Implementation
- Engagement Approach
- Strategic Fit

- Technologies range from basic lexicon-based solutions (foundational) to high-tech solutions with deep analytics, including AI, Machine Learning, and Natural Language Processing capabilities.

- Regardless of technology implemented, data quality is a core component to a successful solution as any solution is only as good as the source of the data quality provided.

- Solutions already focused on the financial services industry (i.e., use cases covered) may yield better results "out-of-the-box" as opposed to bending a highly advanced solution that is not traditionally used for eComm surveillance.

- Transparency is critical to achieving success - scope, timeframe, success criteria and exit strategy for any engagement or Proof of Concept should be agreed up front.
## eComms Solution Categories

### While a broad range of solutions exist, they vary in capabilities and technologies employed

<table>
<thead>
<tr>
<th>Solution Technology</th>
<th>Foundational</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexicon Based</td>
<td></td>
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<tr>
<td>Description</td>
<td>Communications content is searched for meaningful lexicon (terminology) that potentially indicates market abuse, prohibited or illicit activity or other inappropriate conduct</td>
<td></td>
</tr>
</tbody>
</table>
| Pros                | • Can provide basic, foundational capability where no solution or capability exists  
• Can be customized with nominal effort to focus lexicon on specific, targeted populations |
| Cons                | • Difficult to employ across large volumes of communications data/sources  
• May achieve inconsistent results in identifying suspicious communication  
• Generates high number of false positives  
• Only as good as the lexicon it uses  
• Requires regular updates to remain current and viable |
| Natural Language Processing (NLP) | Communications content is processed and analyzed by algorithms that deconstruct and break it down into natural language components that enable understanding of sentiment, tone and intent |
| Pros                | • Can help significantly reduce false positive alerts by eliminating “noise” (unnecessary or irrelevant content)  
• Facilitates understanding of “sentiment” and identification of behaviors that traditional technology fails to catch |
| Cons                | • Technology is still somewhat new and in “proving” stage  
• Increased data privacy concerns  
• Requires significant computing power, potentially limiting broad usage  
• Conclusions are not always accurate – for example a statement like “you’re killing it!” can refer to “doing great” or “killing a plant” |
| A. I. / Machine Learning | Communications content is analyzed using statistical techniques and proprietary algorithms that give computer systems the ability to “learn” without being explicitly programmed - such systems execute processes that factor in past experiences and human teachings (tuning) to improve execution and accuracy over time |
| Pros                | • Can significantly reduce costs over time through efficiency gains and reduced manpower needs  
• Can significantly reduce manual effort and human error, freeing up resources to focus on “value added” activities and investigation of meaningful alerts |
| Cons                | • Learning of non-compliant behavior requires processing examples of non-compliant behaviors, which most firms do not have enough examples of to facilitate robust learning  
• The current state of technology still requires human intervention to review and make decisions |
BRINGING BEST PRACTICES TO LIFE

Steve LoGalbo, Director of Product Management
Today’s Challenges with eComms Surveillance

More Communication Channels

• Supervision of ALL relevant conversations across any line of communication
• Silos of Data and Surveillance Solutions

Unreliable Analytics and Processes

• Unreliable lexicon-based searches generate too many false positives
• Random sampling increases a firm’s regulatory and business risk

Inefficient Investigations

• Getting the complete picture and reconstructing events across all channels takes too much time and requires multiple solutions

- Chats
- Emails
- Text messages
- Social Media
- Office phones
- Mobile phones
Cracking the Code: Aggregate, Analyze, Act!

**Aggregate**
Centralized access to all your communications data

**Analyze**
Monitor 100% of all your communications using Intelligent Analytics

- Linguistics
- Analytics
- Relevancy Scoring
- Universal Index
- Correlation
- Search
- Enrichment

**Act**
Employ auditable and efficient investigation & escalation tools

- Review
- Reconstruct
- Investigate
- Dashboard
- Workflows
- Reports
Aggregates and Monitors **All** Communications

**Solution**
- A single platform that **aggregates** and reviews 100% of the data related to employee conversations including emails, texts, chats and even voice

**Impact**
- Eliminate the exposure posed by random sampling by **analyzing 100% of all conversations**
- Execute complete investigations by analyzing voice and e-communications data together
More Accurate Analytics Greatly Reduces False Positives

**Solution**

- **Natural Language Processing** driven analytics and models tuned for financial markets correctly understand the context of conversations.
- **Machine Learning** to identify relevant information and to learn and improve on results.

**Impact**

- Accurately identify relevant communications and **reduction in false positives** by more than 50%.
Intelligent Content Analytics to Gain Insights

Financial Services Domain Focus

Extract References to Known Companies, Products and People

Identify Bid, Ask, B/S Quantity, Volume and Price Details

Machine-Learning: Entity Based Sentiment and Asset Classification

Statistical Entity Extraction

Language Model-Based Key phrase Analysis

Policy Driven
Contextual

Discover
Content Driven
Visual Model Tuning – Ensures Relevant Review Selection

Contextual Search for Existing Model Results

Users provide feedback on the results within the tuning application

Machine Learning runs scoring logic based on the user feedback

New classified model is created from the ML output

Deploy new model into production

Contextual Searching

Label with desired Classification

Deploy new model into production
Comprehensive Case Management Expedites Investigations

Solution

• NICE Actimize ActOne Investigation and Case Manager automates workflows, information gathering and story creation. Robotic Process Automation (RPA) assists with repetitive manual tasks.

Impact

• Comprehensive case management automates every step of the process, improves collaboration and increases productivity.
Reduce Cost and Protect Against Reputational Damage

Ensure Regulatory Compliance and Increase Audit Responsiveness

Increase Compliance Analyst Productivity

Reduce the Cost of False Positives and False Negatives

Use Flexible Deployment Models
Thank You

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