MY JOURNEY IN ENERGY COMMODITIES & COMPLIANCE TECHNOLOGY

- Saeed Patel - Director of Product Strategy at Irisium Limited
  - Irisium is a UK based technology firm specialising in delivering trade surveillance solutions to Energy Trading Houses, Financial Investment Firms, Regulators and Exchanges
  - Owned by KRM22 plc and Cinnober Financial Technology
- 25 years energy commodities experience at EDF Trading Markets Limited and National Grid Group plc holding compliance and technology leadership roles
  - Global Trade Surveillance Solution covering REMIT, MAR and Dodd Frank Act
  - Holistic communication surveillance (electronic and voice communications)
  - Regulatory transaction reporting covering REMIT, EMIR and MiFIDII
  - Regulatory record keeping and data retention
  - EFET representative on ACER REMIT Working Group for TRUM and Surveillance Monitoring
  - Co Chair of EFET Transaction Reporting Working Group
  - EFETnet Steering Committee for standardisation of data exchanges
CATALYSTS FOR TRADE SURVEILLANCE

European Regulation
REMIT, MAR, MiFID II, EMIR, SMCR, …

Scrutiny
Market Manipulation
and Insider Trading

Public fines
Criminal sanctions
Regulatory attention
Government focus
Media scrutiny

Pressures
Avoid scandals

Curtailment
Revocation of licence

Internal Security
Less margins
Less return on capital
Competitive landscape

Public Image
Reputation
REGULATORY CONTEXT

• Since the global financial crises in 2008 the regulatory landscape has increased with a plethora of new regulations with specific provisions related to the prevention of market manipulation and the use of inside information covering financial derivatives and physical wholesale markets.

• Regulators expect automated trade surveillance systems integrated into regulated firms compliance programmes demonstrating a robust culture of compliance.

• Regulators have significant enforcement powers with civil and criminal powers for market manipulation and inside information.

• The complexity of compliance information requirements including monitoring and reporting of Suspicious Transaction Reports is increasing with regulators taking a firm stance for failure to comply.

• Physical wholesale regulators and financial regulators have data sharing agreements in place and increasingly take joint enforcement action due to the interdependency of wholesale power and gas markets with financial derivatives.
REGULATORY FINES FOR MARKET MISCONDUCT

- Global regulators have levied over $26 billion in market conduct fines since 2012, with a sharp increase in 2017.
- The US is the global financial enforcer. The majority of fines were imposed by US regulators, on both US-based and international institutions.
- Globally, 139 senior executives faced market bans and 28 people were sentenced to prison for financial crimes during the last five years.
- More than 70% of the total fines were for market abuse cases.
- Almost 80% of fines ($20.6 billion) were issued by US regulators, the majority of which (85%) related to market abuse and disclosure.
- The UK’s Financial Conduct Authority (FCA) accounted for $3.7 billion of the conduct fines handed out over the same period.
- European banks are not safe from US regulators: nearly half (47%, or $9.7 billion) of all fines levied by US regulators were imposed on banks based in the UK, France, Germany, and Switzerland, indicating that US regulators are treating foreign and domestic banks in similar ways.
- A substantial portion of the fines related to the LIBOR rigging scandal in 2012, in which traders at a number of banks artificially manipulated the interest rate at which banks lend to each other to increase profits.
  - British trader Tom Hayes in 2015 became the first person to be sentenced to jail for rigging LIBOR. He was sentenced to 11 years in prison.

Note 1: Source: Corlytics Research Analysis published January 2018 covering the 5 year period 2012 to 2017.
### REGULATORY FINES FOR MARKET MISCONDUCT

Overview of regulatory fines for market misconduct by category
2012 to Q3 2017

<table>
<thead>
<tr>
<th>Regulatory category</th>
<th>Amount $USD</th>
<th>% fines from US regulators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market abuse</td>
<td>$18,824,251,664</td>
<td>82.72%</td>
</tr>
<tr>
<td>Disclosure to market</td>
<td>$3,608,463,506</td>
<td>97.10%</td>
</tr>
<tr>
<td>Anti-competitive behaviour</td>
<td>$2,950,483,562</td>
<td>25.07%</td>
</tr>
<tr>
<td>Other trading violations</td>
<td>$423,426,880</td>
<td>100%</td>
</tr>
<tr>
<td>Insider trading</td>
<td>$258,790,230</td>
<td>69.48%</td>
</tr>
<tr>
<td>Trading errors</td>
<td>$176,842,272</td>
<td>86.33%</td>
</tr>
<tr>
<td>Misuse of non-public information</td>
<td>$112,761,354</td>
<td>100%</td>
</tr>
<tr>
<td>Short selling</td>
<td>$42,093,871</td>
<td>89.84%</td>
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<tr>
<td>Takeover rules</td>
<td>$14,979,960</td>
<td>100%</td>
</tr>
<tr>
<td>Regulatory category</td>
<td>Amount $USD</td>
<td>% fines from US regulators</td>
</tr>
</tbody>
</table>

Source: Corlytics Research Analysis published January 2018
REGULATORY FINES FOR MARKET MISCONDUCT

Overview of regulatory fines for market misconduct by number of firms & individuals by jurisdictions 2012 to Q3 2017

Source: Corlytics Research Analysis published January 2018
REMIT CASES CONTINUE TO RISE
ACER REMIT Quarterly Report Q2 2018

Source: ACER.
GLOBAL REGULATION ON MARKET CONDUCT RULES INCREASING

2008

Wholesale Market Integrity and Transparency (EU REMIT)
- Wholesale energy markets
- Prohibits market manipulation and misuse of insider information
- Obligation to publish inside information
- Suspicious transaction reporting

European Markets Infrastructure Regulation (EU EMIR)
- Financial derivatives market
- Increased transparency and liquidity
- Reporting of derivative contracts to a central trade repository
- OTC risk mitigation and clearing
- Protect against market abuse

Dodd Frank Wall Street Reform & Consumer Protection Act (US Dodd-Frank)
- Financial derivatives market
- Prohibits market manipulation and insider trading
- Reporting of derivative contracts to a central repository
- OTC risk mitigation
- Central clearing obligations

Security and Futures Act (Singapore)
- Regulating OTC derivatives
- Promoting more effective disclosure requirements
- Reporting OTC derivatives
- Central clearing
- Enhancing and refining enforcement and market conduct provisions

Security and Futures Act (Hong Kong)
- Regulating OTC derivatives
- Reporting of derivative contracts
- Clearing obligations
- Record keeping obligations
- Minimize crime and misconduct

Wholesale Market Integrity and Transparency (EU REMIT)
- Reporting of energy commodities traders and orders to ACER (European Wholesale Regulator)
- ACER surveillance and monitoring of market manipulation

Senior Manager & Certification Regime (UK SMCR)
- New code of conduct rules
- Individual accountability regime
- Introduces new Senior Management Functions
- Statement of Responsibilities and Mgt Responsibilities Map
- Annual certification for fitness and propriety
- Phase I applies to banks only

Market Abuse Regulation (EU MAR)
- Financial derivative markets
- Improves market integrity and efficiency
- Prohibits market abuse on regulated markets including improper disclosure of inside information and the manipulation of market prices through improper practices
- Prohibits benchmark manipulation
- Investor protection
- Applies to any transaction, order or behaviour concerning MiFID financial instruments
- Surveillance systems and monitoring requirements
- Suspicous Transactions and Order Reporting obligations

Security and Futures Act (Hong Kong)
- Regulating OTC derivatives
- Reporting of derivative contracts
- Clearing obligations
- Record keeping obligations
- Minimize crime and misconduct

Senior Manager & Certification Regime (UK SMCR)
- New code of conduct rules
- Phase II implementation extends to all investment firms (non banks - from asset managers to commodities trading houses)

Global financial crisis

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## Energy Commodities Proprietary Trading Firms

### Product Coverage
- **Power and Gas Physical Commodities**

### Legislation
- Regulation on Energy Market Integrity & Transparency (REMIT EU No. 1227/2011)

### Quasi Front Line Regulators
- Exchange Rules and Regulations
  - ICE Futures Europe, CME Group, Euronext, EEX, ECC, EPEX Spot, Eurex Exchange, Nasdaq Futures Exchange, NordPool Spot, LME, Baltic Exchange, OMX, BlueNext

### Prohibitions
- Prohibition of Insider Trading REMIT Article 3
- Prohibition of Market Manipulation REMIT Article 5
- Data sharing agreements REMIT Articles 10, 11 & 12
- Prohibition of Insider Trading MAR Article 14
- Prohibition of Market Manipulation MAR Article 15
- Prohibition of Insider Trading REMIT Article 3
- Prohibition of Market Manipulation REMIT Article 5

### Regulatory Supervisory & Enforcement Bodies
- Office of Gas & Electricity Markets (UK Ofgem)
- Agency for the Co-operation of Energy Regulators (EU ACER)

### Sanctions
- UK Criminal Justice Act 1993 Part V
- UK Civil Offence Financial Services Markets Act 2000

### Financial Instruments Including Commodity Derivatives
- Market Abuse Regulation (MAR EU No. 596/2014)
- Markets on Financial Instruments Directive (MiFID II EU No. 014/65/EU)
- European Market Infrastructure Regulation (EMIR EU No. 648/2012)
- EU Benchmark Regulation (EU No. 596/2014)
- UK Senior Manager Certification Regime

### Cooperations
- Financial Conduct Authority (UK FCA)
- European Securities & Markets Authority (EU ESMA)
- Agency for the Co-operation of Energy Regulators (EU ACER)

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**ABUSE**

UK & EUROPEAN REGULATORY ENFORCEMENT REGIMES FOR MARKET ABUSE

Energy Commodities Proprietary Trading Firms

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- EU Benchmark Regulation (EU No. 596/2014)
- UK Senior Manager Certification Regime

**Cooperation with Third Countries**
- Articles MAR Article 26
REMIT MANIPULATIVE BEHAVIOUR INDICATORS

- False or Misleading Transactions
  - Wash Trades
  - Improper Matched Orders
  - Placing Orders with No Intention to Execute

- Price Positioning
  - Marking the Close
  - Cross Market Manipulation
  - Physical Withholding
  - Marking Cornering

- Transactions involving Fictitious Devices or Deception
  - Scalping
  - Circular Trading
  - Pump and Dump
  - Pre-arranged Trading

- Dissemination of False / Misleading Information
  - Recognised Media Channels
  - Movement of Physical Commodity Stocks

Source
ACER REMIT Guidance
FCA Thematic Review Commodities Trading and Conduct Risk  (Source: FCA Thematic Review Sep 2015)

“Many firms had not embedded the lessons learned from recent market abuse cases (such as LIBOR, FX and Gold). On this point, our benchmark thematic work also urges firms to take note of the outcome of recent enforcement cases. In some firms we found complacency towards the risk of market abuse. Many firms believed that commodity markets were ‘too deep, too liquid, and there are too many participants’ to be manipulated.

Most firms had not carried out a Code of Market Conduct (MAR1) risk assessment and therefore could not demonstrate they had adequate monitoring and surveillance across the full range of market abuse risks to which they were exposed. In addition, many firms could not demonstrate effective procedures to identify suspicious transactions and escalate them to the FCA in the form of Suspicious Transaction Reports (STRs). Only a small number of firms in the sample had submitted STRs relating to commodities trading, although many characterised events and market behaviour that may have required submissions.

Although some firms had embedded risk, such as risk analysts and risk systems on the trading desk, few firms demonstrated intraday management information (MI) or risk monitoring. We also observed lower levels of monitoring and management of prudential risks such as credit, liquidity and market risk at commodity trading firms than at some firms outside of this sector".
ESMA TRADE SURVEILLANCE REQUIREMENTS

The European Financial Regulator, ESMA, which provides regulatory oversight of the Market Abuse Regulation requires that effective arrangements, systems and procedures are established to detect and report suspicious orders and transactions. (Source: ESMA RTS – Sept 2015).

- “In order to detect market abuse entities will need to have in place a surveillance system. The surveillance system must cover the full range of trading activities undertaken by the entity including analysing every transaction and order, individually and comparatively, and which produces alerts for further analysis.”

- “whether an automated system is necessary and if so its level of automation, entities should take into account the number of transactions and orders that need to be monitored; the type of financial instruments traded; the frequency and volume of orders and transactions; and the size, complexity and/or nature of their business”

- “an entity with little or no contact with the front office it will be difficult to detect suspicious orders and transactions without an automated system”

- “for a business with a limited dimension, it could be appropriate to establish an automated system relatively simple, whereas, for more complex and sophisticated entities, a more elaborate and bespoke system would be necessary to monitor effectively”

- “the entity must be able to explain to their competent authority upon request how they manage the alerts generated by the adopted system and why such a level of automation is appropriate for their business”

- “trading venues should include software capable of deferred automated reading, replaying and analysis of order book data on an ex post basis. This would be of particular relevance in an automated trading environment to analyse the activity and dynamics of a trading session, for instance by using a slow motion replaying tool”

- “entities should adopt systems and procedures to document, recall and review the analysis performed on STORs which have been submitted, as well as those suspicious orders and transactions which were analysed”
BEST PRACTISE GUIDE FOR TRADE SURVEILLANCE

The FICC Market Standards Board was established in 2015 in response to the Fair and Effective Markets Review in the UK with a mandate to improve conduct and raise standards in the FICC markets.

**Principle 1**
Perform risk assessment of understanding inherent risk of insider dealing and market manipulation

**Principle 2**
Surveillance is a key mechanism of mitigating risk of insider dealing and market manipulation

**Principle 3**
Firms need to establish governance and oversight over their surveillance

**Principle 4**
Automated post transaction surveillance should be performed by a function independent of Front Office

**Principle 5**
Firms should determine how and when to employ surveillance so that it acts as a meaningful and effective control

**Principle 6**
First line of defence to identify and escalate potential suspicious activity

**Principle 7**
Firms should regularly review and evaluate the effectiveness of their surveillance systems

**Principle 8**
Trade, electronic and voice communications records and alert data must be retained

**Principle 9**
Firms should conduct horizon scanning that monitors for market incidents and enhance their surveillance capabilities

**Principle 10**
Firms should review the combined outputs of their different surveillance activities to identify trends and abnormal behaviour

The FICC Market Standards Board was established in 2015 in response to the Fair and Effective Markets Review in the UK with a mandate to improve conduct and raise standards in the FICC markets.
TRADE SURVEILLANCE PROGRAMME

People and Capability
- Right team people mix with appropriate skills sets (compliance risk experts, data analysts, former traders, forensic experts)
- Independence from Front Office
- Surveillance team to trader ratio

Governance and Organisation
- Accountability needs to permeate throughout the organisation
- Educational awareness on culture and conduct
- Identification, escalation and reporting
- Policy framework
- Governance committee
- Internal sanctions required to enforce behaviours if needed

Monitoring Systems and Data Implementation
- Data governance
- Harmonised trading data
- Data granularity
- Capture of structured vs unstructured data
- Trade surveillance systems requirements for the monitoring of transactional data, electronic communication and voice communications data
- System for recording investigations and near misses

Scenario and Model Calibration
- Scenario construction, testing and validation
- Threshold / model calibration calculation
- Analytics to identify the right scenario to investigate

Process and Control
- Scenario / overall model updates
- Controls around trade investigation and reporting
- Generation of suspicious transaction order reports
EDF TRADING EXPERIENCE
Compliance & Trade Surveillance Evolution

• REMIT (EU No. 1227/2011) facilitated creation of a dedicated Compliance Function including a Market Surveillance Team

• Specialist resources hired including compliance advisory specialists, technologists and risks experts

• Global Compliance function created to ensure compliance to European, US and Asian market conduct rules

• Trade monitoring systems historically based on Energy Trade Risk Management systems and other Internal Control systems

• Requirement for transactional surveillance including monitoring of orders with automated alerts detecting market manipulative and insider trading behaviours

• Established a market surveillance team including monitoring of electronic and voice communications

• In 2013 undertook an evaluation of Trade Surveillance systems evaluating “Build vs Buy” solutions. 10 vendors evaluated against an internal development “Proof of Concept”

• Significant gaps in vendor surveillance systems on REMIT insider trading capabilities identified. Vendor systems had typically evolved from financial derivatives markets and lacked automated alerts for detection of REMIT insider trading breaches behaviour

• Internally developed a solution and went live in February 2014 with a phased implementation approach

• Embraced new technologies include cloud storage and business intelligence
EDF TRADING EXPERIENCE
Compliance & Trade Surveillance Evolution

- Encountered many challenges in building a trade surveillance solution internally
  - internal expertise, “know how” and staff retention
  - transactional data quality and accuracy
  - market data availability
  - building custom data feeds
  - interpreting market manipulation indicators and insider trading behaviour to design custom built alerts
  - to build complete suite of market abuse indicators adhering to all markets such as cross market and cross asset alerts
  - recalibration of alerts based on internal risk assessment, lack of knowledge sharing from peers
  - sandbox availability
  - increased cost of ownership with ongoing development, maintenance and support
HOW CAN IRISIUM HELP YOUR BUSINESS

Regulatory Subject Matter Expertise

- Irisium has in place a team of subject matter experts with extensive industry experience gained at buy & sell side firms in market abuse regulation covering all key asset classes
  - Experience in understanding and interpreting the complexities of the regulations / rule book and translating these into compliance programmes including providing comprehensive trade surveillance solution offering to capital markets
  - Experience in managing surveillance monitoring teams covering transactional data and electronic, voice communications data
  - Experience in dealing with Regulators on investigations, suspicious transaction order reports and subject data access requests
  - Experience dealing with Trading Venues on investigations and new exchange rules
  - Experience working with industry associations including the FIA and EFET
  - Experience running compliance training programmes for 1st and 2nd lines of defence
IRISIUM TRADE SURVEILLANCE MARKET COVERAGE

- Sell Side Firms
  - Investment Banks
  - Boutique Banks
  - Stockbrokers
  - Market Makers
  - Energy Trading Houses

- Buy Side Firms
  - Hedge Funds
  - Asset Management
  - Private Equity Firms
  - Pension Funds
  - Mutual Funds
  - Proprietary Trading Firms

- Trading Venue/Exchanges
  - Regulated Markets / Exchanges
  - Multilateral Trading Facilities
  - Organised Trading Facilities

- Regulators
  - National Financial Conduct Authority
  - National Wholesale Energy Market Regulator
  - Regional Financial Conduct Regulators
  - Regional Wholesale Energy Market Regulators
Going beyond risk management and regulatory mandates, Irisium provides business analytics supporting better informed commercial decisions:

- Best execution
- Trading cost and quality
- Financial what ifs
- Trading cost analytics
- Trader / portfolio performance assessment
- Cross selling opportunity identification

If you are a financial institution it is very likely you have a market surveillance obligation under one of the many regulations such as MAR, MiFID II, REMIT, Dodd Frank Act, MAS etc.

At Irisium we have experience of the global regulations and we work in partnership with our clients to configure our market abuse alerts and analytics to uniquely meet each individual client needs.

Analytics designed to help manage and reduce risk, such as:

- Abnormal order volume / frequency
- Unusual execution behaviour
- Order to trade ratios
- Market maker
- MiFID II flag thresholds
- Trade error statistics
- Trade reconstruction
IRISIUM TRADE SURVEILLANCE
Conceptual Architecture

Multi Asset
- Fixed Income
- Equities
- FX
- Derivatives
- Commodities
- Metals
- Crypto

Structured Data
- Execution Management
- Order Management
- Pricing / Quotes
- Market Data Providers
- News Data Feed

Surveillance Engine
- Data Aggregation
- Alert Logic / Algorithm
- Alert Calibration
- Scenario Analysis
- Sandbox

User Interface
- Alert Generation
- Visualizations
- Data Analytics
- Holistic Dashboards
- Event Visualization
- Replay
- Data Explorer

Workflow Management
- Alert Management
- Case Management
- Investigations
- Suspicious Transaction
- Order Reports
- Escalation
- Resolution

REGULATOR Y COMPLIANCE AND RETURN ON INVESTMENT

A KRM22 and Cinnober company
IRISIUM TRADE SURVEILLANCE

Spend more time managing risk and less time managing the service
Irisium surveillance system is easy to configure, fast to respond and built to meet current and future needs

**Un-Paralleled User Experience**
High performance web interface based on HTML5 application delivered using OpenFin technology allowing high volume updates and low latency.

Provides multi-window workspace, widgets and tag features including a powerful search engine.

Intuitive dashboards and visualisations including charts provides a powerful user interface.

**Enhanced Alert Suite**
An enhanced suite of alerts covering regulation and operational indicators.

Operational alerts include RFQ to Trade ratio, Abnormal Trade and Abnormal Order indicators.

**Dynamic Alert Scenario Analysis**
Powerful alert configuration and calibration capabilities for performing scenario analysis / back testing executed on a segregated "sandbox". This provides flexibility for fine tuning of live alerts in order to reduce false positives.

Configuration changes are fully audited and are promoted to production by end users.

**Integrated Case Management**
A user friendly case management system with workflow provides a central data repository for all compliance related investigations with the ability to upload and file external reports.

New product features include linking multiple cases together.

The case management system provides tamper proof auditing of records.

**Spend more time managing risk and less time managing the service**
Irisium surveillance system is easy to configure, fast to respond and built to meet current and future needs
Modern technology stack based on state of the art proven technologies delivering an architecture fit for today and for the foreseeable future. Based on technologies that provide a distributed streaming platform supporting real-time streaming data pipelines that reliably transport data between systems.

A distributed architecture allows true horizontal scaling with the capability to process in excess of 100,000 messages per second equating to 6 Million messages per minute.

Delivering real-time data processing and analytics using best in breed data streaming technology.

Message feeds for transactional data are high throughput, low latency for handling real-time data feeds.

Alert logic and analytics is based on real-time processing with the option for batch processing.

Standard data gateway using FIX message protocol and API allows ease of integration with client data. FIX is a global standard used in capital markets for the transmission of financial data, such as, orders and trade.

Market data feeds is in place with Reuters for prices, indices and news.

Fast and cost effective deployments in aggressive timescales whether a hosted cloud based solution or on on-premise client installation.

The datastore for “current” transactional data and calculated time series is optimised for high write rates and high availability. The file management system provides archive data storage with high scalability and proven fault tolerance.

New data model supports multi asset model including FX, Commodities, Fixed Income, Equities, Metals and Crypto.

New data model allows ease of capture of structured (transaction) and unstructured data (IM, E Mail, Voice).
The “alert inbox” shows users the generated alerts, updating in real time. The inbox is the entry point for day to day operations and allows users to associate alerts with a new or existing case or close with commentary.

Alert Inbox & Management

Alert Configuration & Scenario Analysis

Alert Details

Case Management Workflow

Business Intelligence Dashboard

Data Explorer

The “alert inbox” shows users the generated alerts, updating in real time. The inbox is the entry point for day to day operations and allows users to associate alerts with a new or existing case or close with commentary.

Provides context on market / participant behaviour appropriate to the type of alert allowing the user to understand why the alert fired and aid them in identifying the appropriate next steps. The Alert Detail provides a chart visualisation of the transactional data providing valuable market insights.

Case Management allows the user to develop a comprehensive case file management system with one centralised repository to upload and store all supporting information. Every case has a status with new, investigation, escalation, parked and closed. Users have the ability to manage case workflow.

Provides summary information on the ‘health’ of the system such as alert counts, ages, data flow rates as well as ‘top 10’ pivots of alerts by client / product.

Provides the user with grid and graphical access to the transactional data as well as the ‘summarised’ time series data used by the alert calculations.
IRISIUM REGULATORY ALERTS

- Irisium has a comprehensive suite of automated alerts based on market abuse regulatory requirements
- These are generated in real-time, 15 minute delayed and T+1 batch mode

Irisium's alerts include:

- Insider Dealing
- Profit Taking
- Extrusive Cancels
- Pump and Dump
- Trash and Cash
- Quote Stuffing
- Layering and Spoofing
- Wash Trades
- Marking the Reference Price
- Pre Arranged Trading
- Abusive Squeeze
- Excessive Bid Offer Spreads
- Excessive Bid Offer Spreads
- Creation of Price Floor or Ceiling
- Momentum Ignition
- Ping Orders
- Ramping
- Ramping the Composite
- Upholding Your Axe
- Parking
- Churning
- Insiders Dealing
- Cross Asset
- Price Signal
- Front Running
- Insiders Dealing
- Price Signal
- Painting the Tape
- Last Look
IRISIUM OPERATIONAL ALERTS

- Irisium has a comprehensive suite of operational alerts. These have been carefully designed taking input from exchanges, trading venues and buy & sell side firms.
## IRISIUM SURVEILLANCE – LAUNCHER & ALERT MANAGER

**Demonstration Version with Test Data**

### Alert Manager

<table>
<thead>
<tr>
<th>Alert ID</th>
<th>Alert</th>
<th>Status</th>
<th>Tags</th>
<th>Date</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>169</td>
<td>Marking the Close</td>
<td>Linked To Case</td>
<td>Date/2018 X</td>
<td>Important</td>
<td>Equity Configuration B PO1809 (Palm Olein Futures)</td>
</tr>
<tr>
<td>184</td>
<td>Spoofing</td>
<td>Linked To Case</td>
<td>Equity</td>
<td>Date/2018</td>
<td>Equity Configuration A PO1910 (Palm Olein Futures)</td>
</tr>
<tr>
<td>140</td>
<td>Another Alert</td>
<td>Linked To Case</td>
<td>Equity</td>
<td>Date/2018</td>
<td>Equity Configuration A PO1809 (Palm Olein Futures)</td>
</tr>
<tr>
<td>165</td>
<td>Abusive Squeeze</td>
<td>Linked To Case</td>
<td></td>
<td></td>
<td>Equity Configuration B PO1809 (Palm Olein Futures)</td>
</tr>
</tbody>
</table>

### Manage Tags

- **Equity**
- **Sub-tag 1**
- **New Tag**
- **Individual Trader**
- **Important**
- **Crypto**
- **Date**

### Alert 169

**Marking the Close**

- **Equity Configuration B**

**Summary**

- **Member:** Elaks, Commodity
- **Client:** Gutierrez
- **Test:** PO1809 (Palm Olein Futures, Sep 2018)
- **Dates:** 16/07/2019, 08:04:41
- **Summary:** 8/07/2019, 08:05:55
- **Price:** $51.2 per minute

**Details**

- **Exceeds Market Threshold by:** 30%

**Linked Cases:**

- **99:** Member A, Insider Trading
- **Positions:**
  - Date: 2018 X

### Graphs

- Open Interest vs. Price USD
- Candlestick Chart

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IRISIUM SURVEILLANCE – CASE MANAGER & TRADE REPLAY

Demonstration Version with Test Data

CASE-91 Member B: Abusive Squeeze
Last modified: 17/07/2018 18:54:29

Description
We are looking into potential instances of Abusive Squeeze abuses...

Related Cases
• 30 - Member A Insider Trading
  31 - Abusive Squeeze

Attached Files
• evidence_2.jpg
• evidence_1.jpg

Linked Alerts
Alert ID: 165
Alert: Abusive Squeeze
Status: Linked To Case
Tags: Important, Indirectal Trade

Trade Replay
Participants

DE000CE71PS4
213495f
SE516a
865e97f

Date Explorer

28
THE FUTURE OF TRADE SURVEILLANCE

Holistic Trade Surveillance
a unified view of communication and transactional data

Risk based approach to surveillance
- unusual P&L movements “follow the money”
- VaR position limit breaches
- unauthorised trading positions
- large deviation between notional and market risk on the book
- trader mandate breaches
- increase in proportion of internal trades
- extended settlement periods
- abnormal client concentrations
- internal control breaches (out trades, failure to sign off trades)
- other conduct risk issues (IT security breaches, HR violations etc)

Trade reconstruction & order book replay

Behavioural analytics and biometric data analysis

Artificial intelligence and machine learning
- anomaly detection
- intelligent pattern recognition
- alert optimisation
- predictive analytics

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