

# **DATA ANALYTICS FOR AN EFFICIENT, EFFECTIVE COMPLIANCE PROGRAMME**

Stefan Schaffer, Partner - EY

Paul Wang, Partner - EY

# Compliance and Fraud Prevention in a Changing World

Stefan Schaffer

Collaborative Consumption

Mass Customization

Globalization

Gig Economy

Generation Now

Industry  
4.0

# The world of business is changing.

Lot  
Size  
One

Internet of Things

Segment of One

Share Economy

On Demand Models

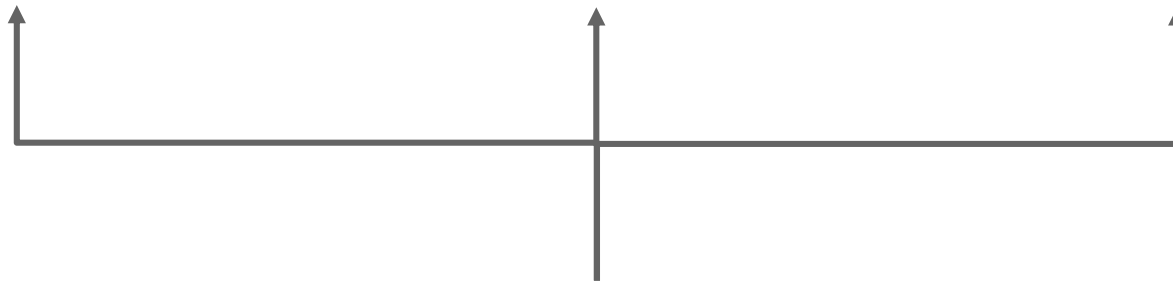
Electronic Business Networks

Dynamic Pricing

**Exploding  
Data  
Volumes**

**Accelerating  
Speed of  
Business**

**Increasing  
Compliance  
Requirements**



**The world is changing**  
And it won't stop for your business

**Exploding  
Data  
Volumes**

**Accelerating  
Speed of  
Business**

**Increasing  
Compliance  
Requirements**

This complexity will eventually **beat** all conventional compliance efforts!

Thus, a new approach to compliance is needed.

One that protects the **values & value** of an organization

**Increase** the value added & profitability

**Promote** innovation & profitability

**Affect** the reputation in the financial community

**Attract** high potentials

**Generate** greater employee satisfaction

# The two **Pillars** of Compliance

## Integrity

Integrated and  
Effective Processes

Corporate Culture &  
Leadership

Compensation  
Systems

## Transparency & Intelligence

Intelligent Algorithms

On Big Data

Structured and  
Unstructured

Seamlessly Integrated

Exception-based

# A new partnership between compliance and business.

## What does this mean?

Compliance must not be an afterthought

Move the controls to where the data is

Make the controls (much) more intelligent

Compliance needs to invest more in IT

Make use of new In-Memory Technologies

# Data Analytics for an Efficient, Effective Compliance Programme

Paul Wang



# New Regulatory Landscape

---

- ▶ **Regulatory landscape creates further impetus for new approaches in data analytics**
- ▶ **Anti-corruption compliance now requires big data analytics**
  - ▶ Many companies are now incorporating new data analytics techniques to elevate their anti-bribery and corruption compliance programs.

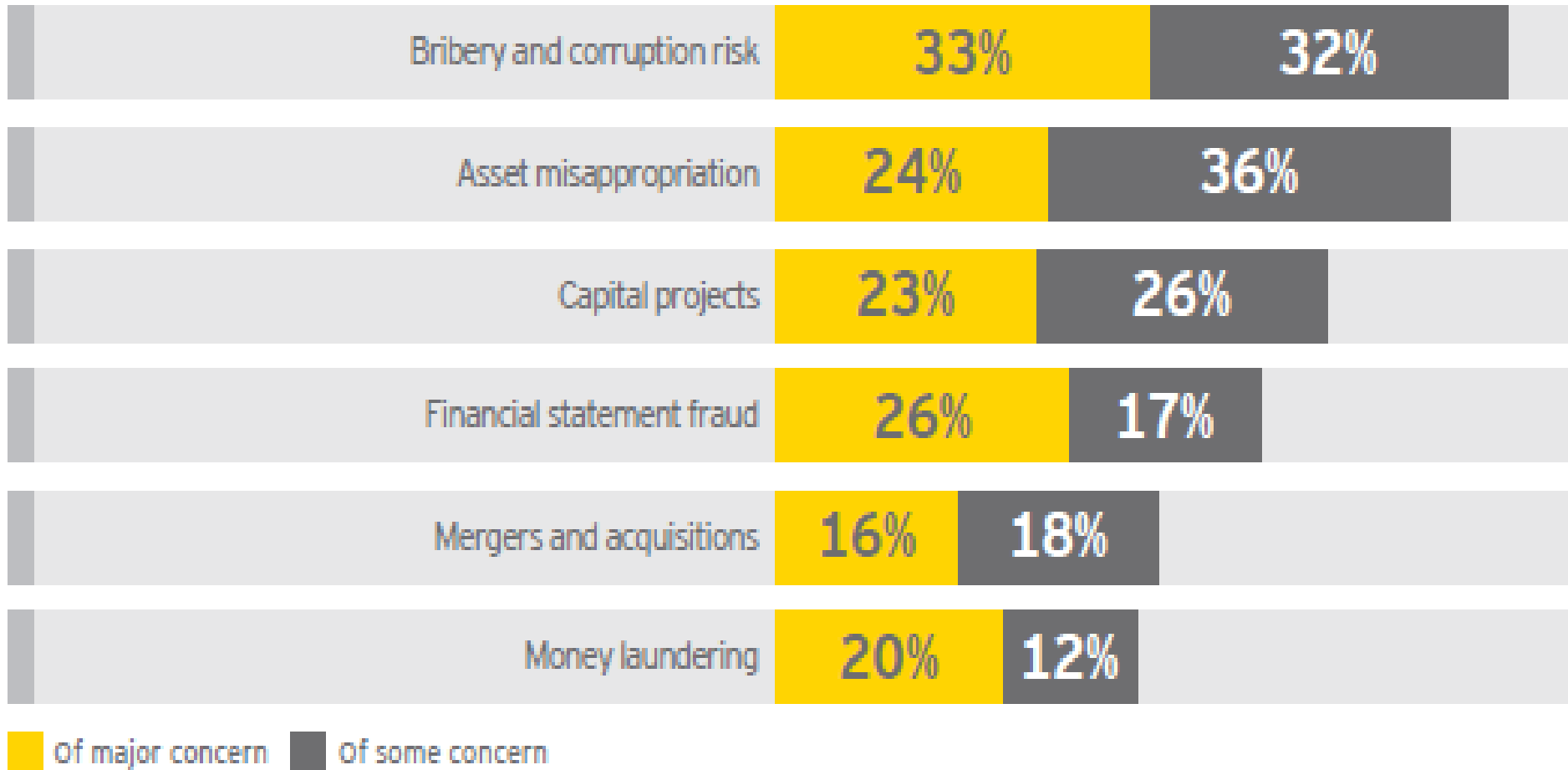
# Questions from Compliance and Internal Audit

---

- ▶ Is the company currently conducting business in emerging markets or high-growth economies, particularly China, India, Africa, South America and Eastern European countries? If so, what tactics are being used to oversee anti-corruption compliance in these markets?
- ▶ Beyond compliance policies, training and education, what is the internal audit or compliance department doing to test the effectiveness of the controls in place? Does the board receive periodic updates from internal audit or the compliance department on the results of these tests?
- ▶ Has management communicated to the board if the monitoring activities conducted are relying on simple rules-based tests derived from traditional internal audit procedures, or do they incorporate multiple data sources, data visualization, text mining and targeted anti-corruption / FCPA-specific tests?

# Top Fraud Risk Concerns

---



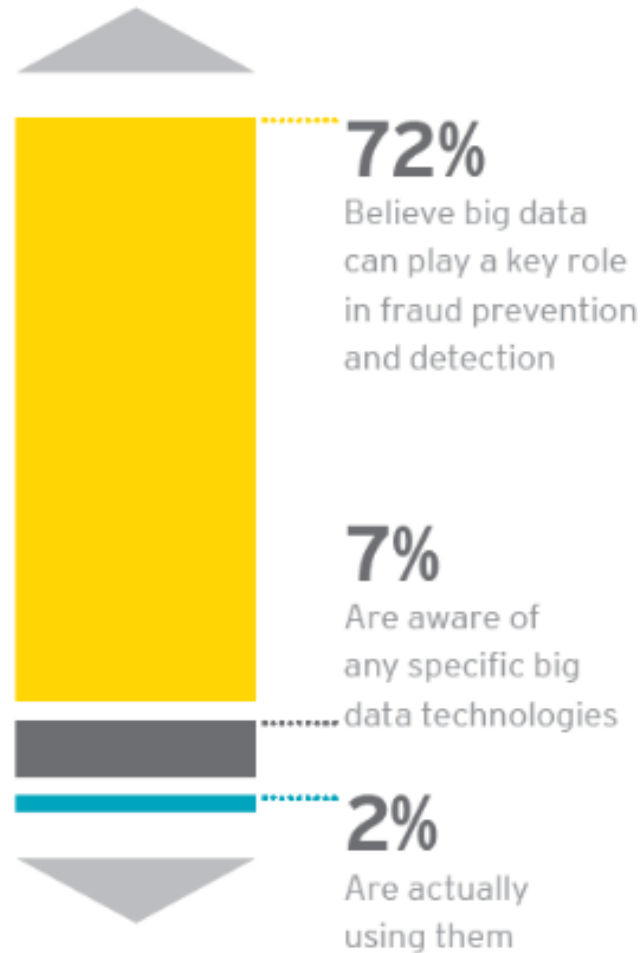
# Top Fraud Risks Using FDA

---



# Why Data Analytics?

---



\*Source: Global Forensic Data Analytics Survey  
([www.ey.com/fdasurvey](http://www.ey.com/fdasurvey))

# Main Benefits of Data Analytics



■ C-suite ■ Total

# Biggest Data Analytics Challenges

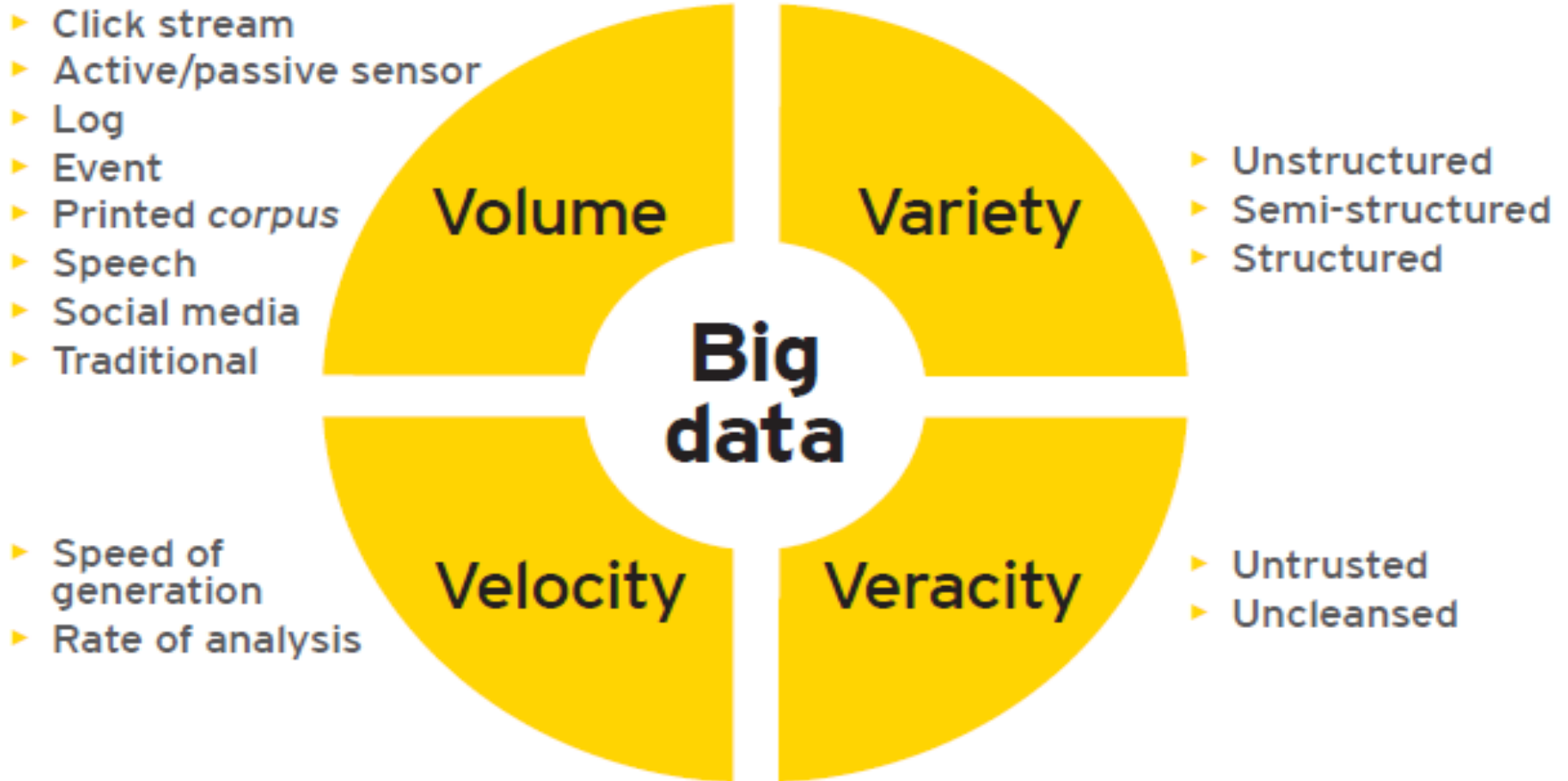
---



# What Is Big Data?

---

## The four V's





# Risks and Considerations

---

## ▶ Traditional risks

- ▶ There is continued regulatory pressure on companies to meet a variety of policies and laws (e.g., Basel II, MiFID, SOX). Compliance governance is an expensive and complex problem to deal with, but failing to meet regulations can mean safety risks, hefty penalties, loss of reputation or even bankruptcy.
- ▶ In a global and continuously and rapidly changing legal and IT landscape it is not always clear exactly what legal and regulatory compliance entails (Who is responsible? Who is liable?), or how best to translate abstract rules from laws into organizational and technical measures within a company.
- ▶ Companies need to balance contradictory rules and regulations e.g., obligations based upon the US Patriot Act and the EU Data Protection Directive (and its many local implementations).

# Risks and Considerations

---

## ▶ New risks

- ▶ Managers will need to learn to embrace the evidence-based decision-making process. Organizations have to redefine their understanding of “judgements” of the outcome of big data analytics.
- ▶ Data can be of great value, but companies have to consider ownership and privacy issues before using big data results. In the case of medical data, it is sometimes not clear who is the owner of the data, but using the data without the right legal foundation or consent of the patient may cause big problems.
- ▶ Big data may bring about intellectual property issues, e.g. copyright and database rights infringements. It will be a challenge to make sure that employees are not sharing inappropriate information, or too much data outside of the organization.

# Example: Management

---

- ▶ In response to the recent Dodd-Frank regulations, requiring financial organizations to report all pre-trade communications data across the organization related to a trade under query within short notice, EY has developed a solution that allows organizations to harvest, index and link unstructured information related to internal communications data to related trades.
- ▶ The solution is able to process large variety of unstructured pre-trade communications data sources (emails, IMs, phone calls, etc.) and applies a number of matching rules and fuzzy logic to match this data to transactions the communications relate. Instant access to the full history of communication events related to a specific transaction.
- ▶ While addressing the regulatory requirement, the solution also provides essential capabilities for rogue trader analytics as it supplements traditional analytics models that leverage trade economics data with unstructured pre-trade communications data feed that broadens the context and precision of analysis.

# Common FDA Investigations and Compliance Monitoring

---

- ▶ Payment stream, accounts payable analysis
  - ▶ Altered invoices, duplicate or fake invoices, inflated prices, suspicious payments, requestor/approver conflicts
- ▶ Vendor master/employee master analysis and comparisons
  - ▶ Fictitious vendors, risk ranking, background due diligence, conflicts of interest
- ▶ Employee expenses, travel and entertainment
  - ▶ Over limits, unusual or inappropriate expenses, miscellaneous/sundry expenses, split or duplicate expenses

# Common FDA Investigations and Compliance Monitoring – cont.

---

- ▶ Payroll
  - ▶ Ghost employees, falsified wages, commission schemes
- ▶ Financial misstatement
  - ▶ Fictitious revenues, bill-and-hold schemes, concealed liabilities, improper disclosures, overstated assets
- ▶ Bribery and corruption
  - ▶ Bid rigging, conflicts of interest, contract compliance, kickbacks, illegal gratuities
- ▶ Capital projects
  - ▶ Contract non-compliance, project abuses and overcharges

# Challenges

---

*“Hiring and retaining the best people possible to use data analytics is our biggest challenge. We need people who understand it and are able to draw the proper conclusions from the analysis.”*

**Chief Compliance Officer, US**

*“Our biggest challenge is getting a consistent global view from differing local data sources. We don’t have one global source from our enterprise data system, which can frustrate our analytical efforts.”*

**Chief Compliance Officer, UK**

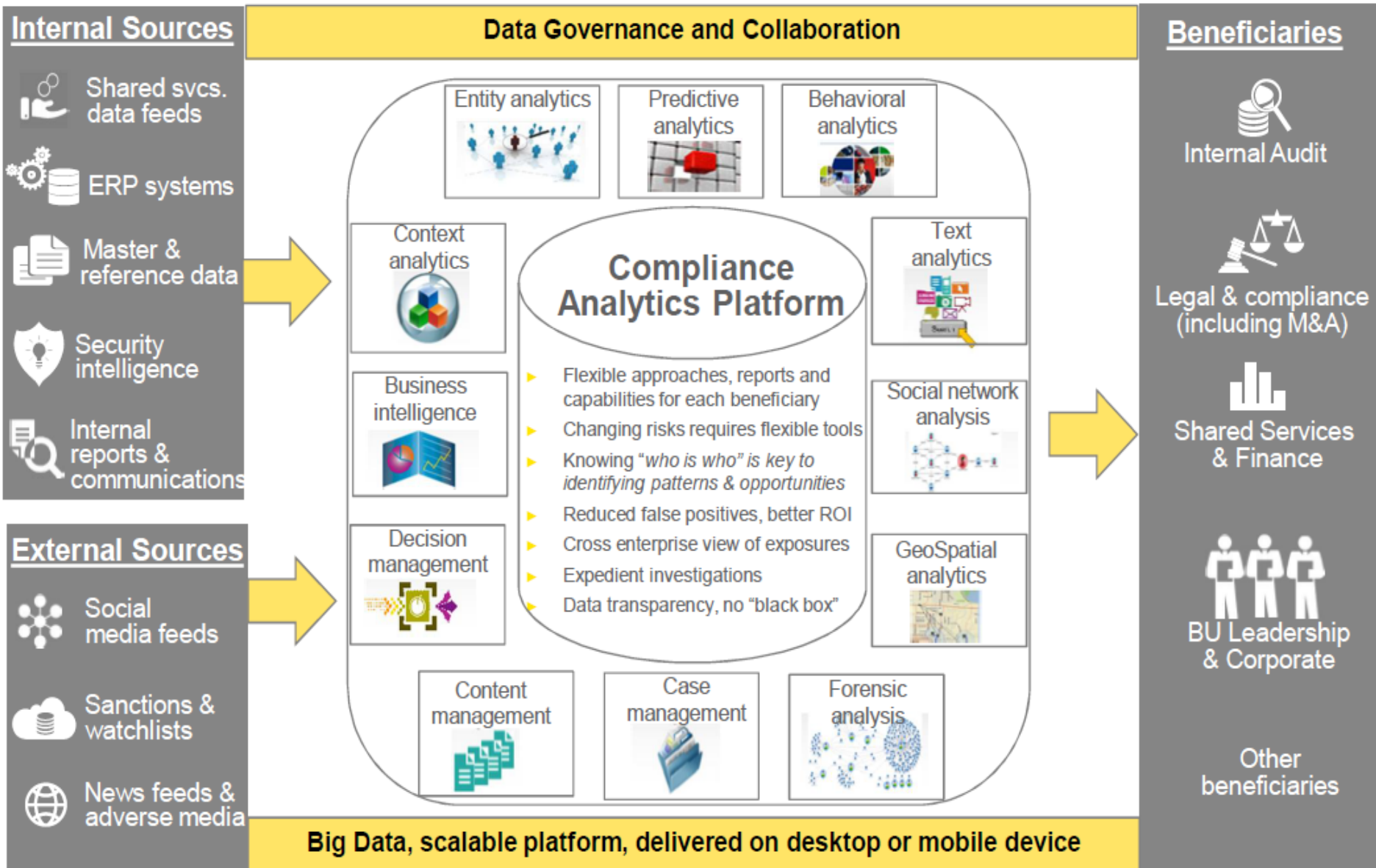
*“Our top priorities are working with large data volumes and improving the efficiency of our testing. By using larger data sets we hope to do smarter internal audits, including more effective fraud detection.”*

**Head of Internal Audit,  
Australia**

# Using Data Analytics to Enhance Compliance

<b>Policy violation</b>	<b>Relevant analytics</b>
Personal use on company time or equipment	Timestamp and geolocation analysis on social
Antitrust violations	Social graph extraction to identify and quantify contact with competitors
Violation of trademark, copyright, or fair use	Repeated text block detection
Inappropriate political commentary	Topic modeling to isolate relevant topics
Promotion of competing products or services	Topic modeling to isolate relevant topics
Discussion of sensitive topics, such as future business performance, strategy, legal or regulatory matters	Topic modeling to isolate relevant topics
Failure to disclose professional affiliation when posting on subjects relevant to company	Topic modeling to isolate relevant topics
Failure to provide disclaimer stating that your views do not necessarily reflect the company's views	Disclaimer detection
Insider trading violations	Insider trading classifiers
Inappropriate, unprofessional or derogatory language	Derogatory and cursing language classifiers
Harassment	Harassment classifiers (cover sexual orientation, gender, race, national origin, age, general harassment)
Violation of information protection policies/disclosure of Personally Identifiable Information (PII)	Entity extraction to automatically identify PII

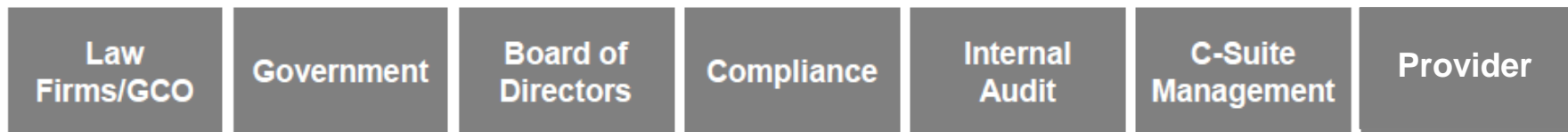
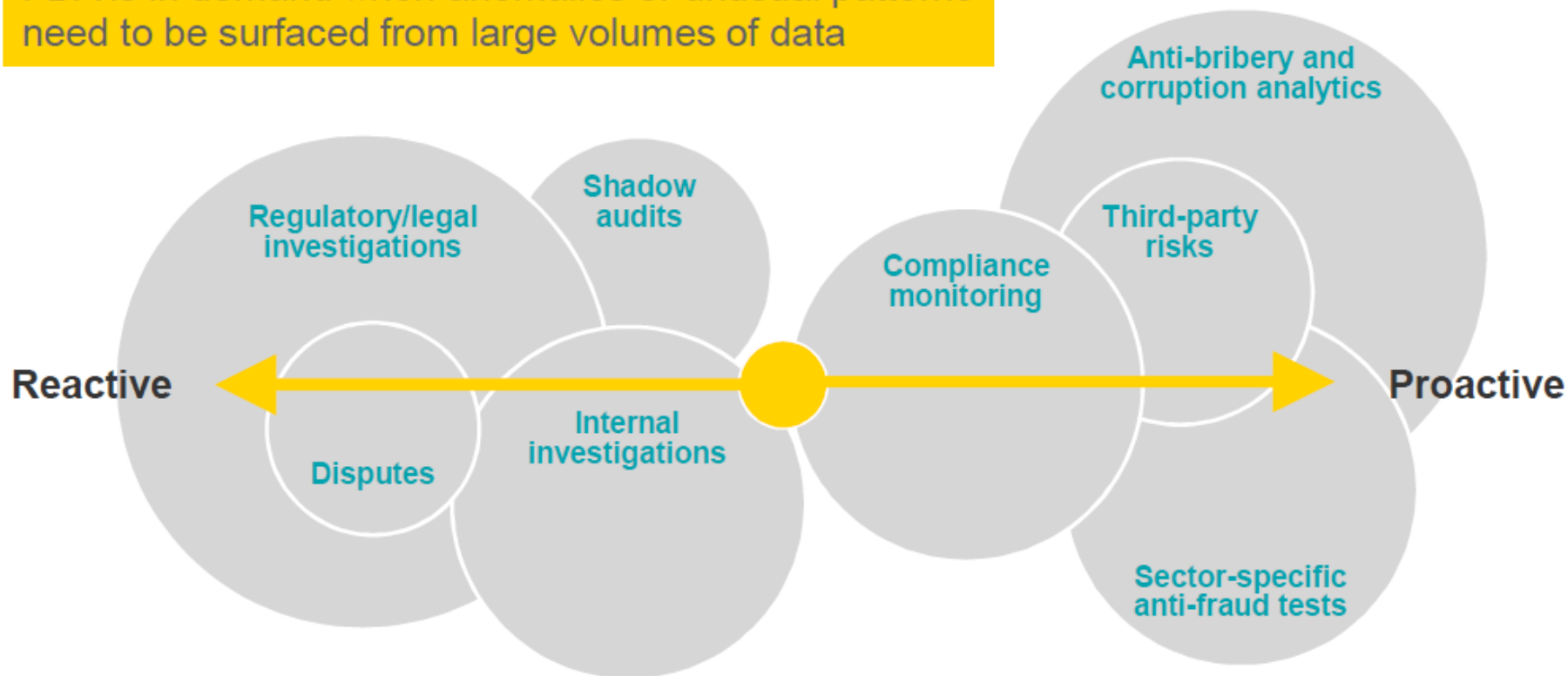
# Optimal Compliance Analytics Platform





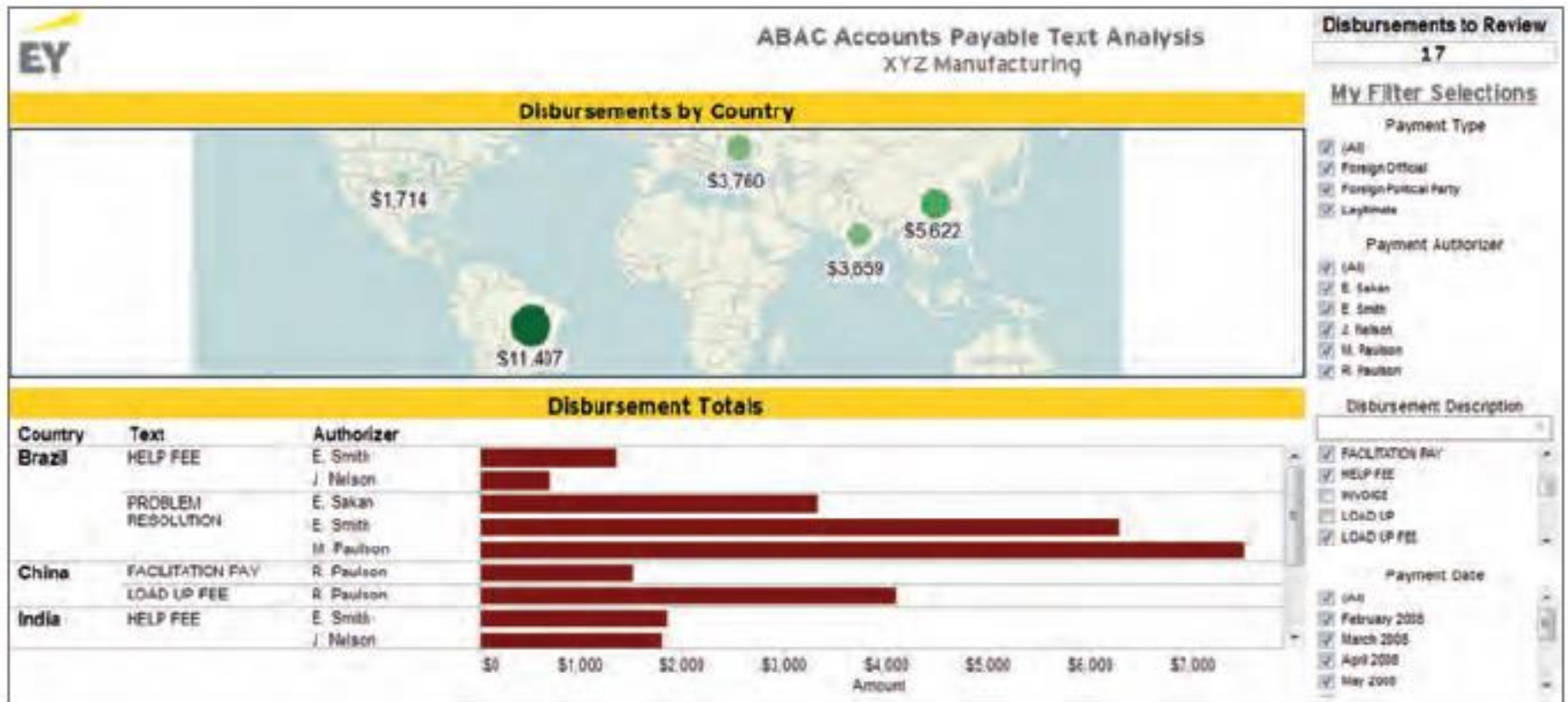
# Using Data Analytics to Enhance Compliance

FDA is in demand when anomalies or unusual patterns need to be surfaced from large volumes of data



# Data Analytics Dashboard

Accounts payable visualization of free-text descriptions — identify potentially corrupt payments



# Appendix A

## Sources of Data

For purposes of performing our analytics, we would like to obtain data exports, with header information included, from the following data sources:

### Financial Data

- Vendor Master (active and inactive)
- Agent/Subcontractor Master (active and inactive, if different from Vendor Master)
- Employee Master (active and inactive)
- Chart of accounts, along with company codes and/or business unit numbers
- Purchase Order Sub Ledger
- Accounts Payable Sub Ledger
- Trial Balances for relevant period and ledgers
- Travel and Expense line header and line item details (we understand this may be part of the Accounts Payable Sub Ledger)
- Cash Disbursements Journal

For each file, please include a data dictionary, describing the nature of each field, if available.

### Format of Data

- If possible, please provide all data requested in a pipe delimited ("|") or fixed-width flatfile format and include header information for each of the tables set forth below.  
*Carriage return line feeds should follow each row; other delimited characters that do not occur in the data may also be used*
- If available, please provide a data dictionary that describes the field name details for each table
- Please apply the following date restrictions: September 1, 2014 – August 31, 2015 inclusive

### Financial Reports

- Please provide existing financial or operational reports for relevant time periods which may be used in comparing with the data to assess the completeness and accuracy of the data. This step will prevent any rework if the data export needs to be amended.

### Electronic Delivery

- Encrypted hard drive, media or email
- Secure File Transfer (SFTP) facility, either managed and hosted by ClientName or Ernst & Young.

### Supporting Information Requested (each file)

1. File format or layout for each file provided. This document would outline the type of file. It should also list the data fields and the sequence of the data fields in the data file and provide a description for each of the data fields.
2. File size (bytes) for each file provided.
3. File record totals and numeric field control totals for each file provided.
4. Return address and contact name and phone number for returning data and the media storage units.
5. Appropriate date range or cut-off date for each file provided.
6. Numeric field control totals for each file provided.
7. Description and/or explanation of the various codes, flags, and other business rules associated with each file provided if not included in the file layout documentation.

Note: Based on the financial accounting systems (e.g., Oracle, SAP, etc.), we can provide specific table names; however, the preferred medium is a native export to a delimited file as described above.

# Appendix B

Typical Data Elements  
may include, but is not limited to

Payment and/or AP File*	Vendor Master File	Employee Master File	Purchase Orders File**	T&E Expense	Shipping Details
Check Amount	Vendor City	Employee Address	P.O. Amount	Employee Name	Order Number
Check Date	Vendor Creation Date	Employee City	P.O. Date	Employee Number	Revenue Date
Check Number	Vendor Name	Employee Name	P.O. Number	Department or Group ID	Post Date
Payment Description (free text description)	Vendor Number	Employee Number	P.O. Description	Expense Purpose/Description	Line Item Description (free text description)
Invoice Net Amount	Vendor Postal/Zip Code	Employee Postal/Zip Code	P.O. Reference	Expense Sent for Payment Date	Client Number
Invoice Creator ID	Vendor Province/State	Employee Province/State	P.O. Quantity	Expense Type	Debtor/ Creditor
Invoice Date	Vendor Street Address	Employee Status (Active/Inactive)	Vendor Name	Transaction Date	City/Location
Invoice Due Date	Vendor Address	Employee Termination Date	Vendor Number	Personal (Y/N)	State/Province/Region
Invoice Number	Inter-Company Flag or Group Key	Employee Department or Group ID	Volume	Vendor Name	Country
Invoice P.O. Number	Location/Division	Employee Employee Hire Date	Volume Unit	City/Location	Shipment Quantity
Vendor Name	Vendor Country	Employee Employee Phone Number	Functional Area/Division	State/Province/Region	Shipment Weight
Vendor Number	Vendor Creation Time	Employee Employee SIN/SSN (optional)	Buyer Number	Country	Cost Element Code/Description
Batch Number	Vendor Creation User ID	Employee Location Name/Code	Carrier Code	Payment Type	Service Type Code/Description
Check Cleared Date	Vendor Description	Employee Status of Purchasing Document Item	Freight Terms	Entry Key	Document Type Code/Description
Check Creator ID	Vendor Discount Terms	Employee Employee Title	Location Name/Code	Expense Amount	Document Number
Check Payee	Vendor Freight Terms	Employee Employee compensation or pay structure (optional)	Status of Purchasing Document Item	Reimbursement Currency	Shipment Amount in Local Currency
Payee Location (City/Country)	Vendor Mailing Address	Employee Employee Direct Deposit Info (optional)		Number of Attendees	Shipment Amount in Foreign Currency
Check Status-Pd/Void	Vendor Address			Attendee Name	
Check/Invoice X Ref.	Vendor Phone Number			Attendee Company	
Currency Type	Vendor Ship From Address			Attendee Type (employee or business)	
Expense Category	Vendor Update Date			Deleted (Y/N)	
Freight Amount	Vendor Update User ID			Approved Amount	
Freight Terms	Vendor Bank Routing Info			Reimbursement Currency	
Invoice Discount					
Invoice Gross Amt.					
Invoice P.O. Date					
Invoice Status					
Invoice Type (Dir/Cr)					
Location/Division					
Manual Check Flag					
Sales Tax Amount					
Voucher Amount					
Voucher Date					
Voucher Number					

\* Level of Detail: One record per invoice.

\*\* Level of Detail: One record per P.O.

# Better Tools Result in Better Data Analytics Results

---

## Technology counts:

Respondents who are using FDA technologies beyond spreadsheets and databases have generally observed:

- Improved results and recoveries: 11% more
- Earlier detection of misconduct: 15% more
- More cost-effective results: 14% more
- Higher visibility to the board: 12% more

# THANK YOU

**We want your feedback! Use the conference app or visit the Registration desk.**

**Be sure to join the Twitter conversation: @CWEurope**