Global EY FIDS Forensic Data Analytics Survey 2014

Big risks require big data thinking

The Eighth International Pharmaceutical Compliance Congress

Dubai, United Arab Emirates

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Building a better working world

Survey approach

Telephone interviews conducted globally with leading companies

Markets	Count
Americas	**105**
US	65
Brazil	40
EMEIA	**200**
France	40
Germany	41
India	40
Italy	40
UK	40
Asia Pacific	**160**
Australia	40
China / HK	40
Japan	40
Singapore	40
TOTAL	**466**

Target audience/ recruitment criteria:

•Senior individuals in global companies: Finance (excluding audit), Internal audit & risk, Procurement, Legal, Compliance, Investigations, Business/management

•Companies with over US $100 million annual revenue, over 50% greater than US $1 billion

•Criteria: Must have decision-making responsibility around the company's anti-fraud and anti-bribery efforts, compliance monitoring and investigations: involved in decisions around policy and procedures, implementation of tools, evaluating results

•Respondents are users of forensic data analytics only

•Research period: November 2013 and January 2014

This work has been conducted in accordance with ISO 20252, the international standard for market and social research

Introduction:
Global Forensic Data Analytics Survey 2014

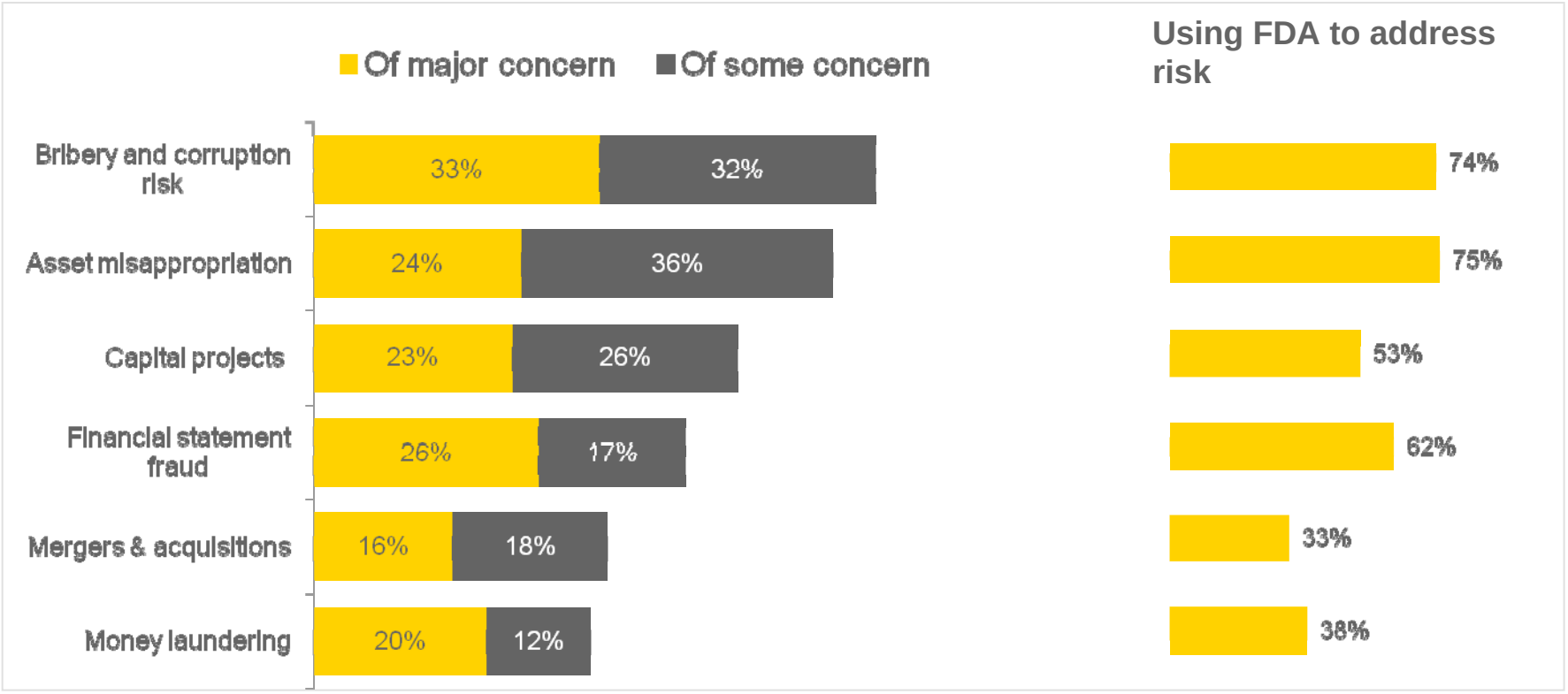
63% of LS companies agree they need to do more to improve their anti-fraud/anti-bribery procedures, including the use of forensic data analytics (FDA)

80% of LS companies responded that the Board of Directors is a top beneficiary of FDA (higher than any other industry)

63% of LS companies say that big data technologies can play a key role in fraud prevention and detection

Single biggest FDA challenge for LS companies: ***Getting the right tools or expertise for FDA***

Top fraud risk concerns are aligned with FDA



Q: Please tell me to what degree this is of concern to your company. Base (466)

Q: In which of these risk areas or types of fraud does your company use FDAs when investigating fraud and bribery? Base: (466)

FDA uses - Sector discussion

	Transportation	Financial services	Life sciences	Oil and gas	Manufacturing	Consumer products/ retail/ wholesale	Technology, communications and entertainment	Mining	Power and utilities
Bribery and corruption risk	82%	66%	80%	76%	74%	74%	61%	90%	77%
Money laundering	30%	80%	24%	29%	23%	31%	17%	24%	17%
Asset misappropriation	82%	56%	78%	86%	71%	85%	70%	90%	74%
Financial statement fraud	79%	54%	67%	63%	71%	68%	52%	62%	51%
Mergers & acquisitions	42%	25%	43%	29%	48%	30%	26%	41%	32%
Capital projects	45%	34%	50%	65%	58%	53%	48%	72%	83%
Other	6%	16%	11%	8%	10%	4%	13%	0%	13%

Q: In which of these risk areas or types of fraud does your company use FDAs when investigating fraud and bribery? Base: (466)

Low adoption of more sophisticated FDA tools

		Total
Base Level	Spreadsheet tools such as Microsoft Excel	65%
	Database tools such as Microsoft Access or Microsoft SQL Server	43%
More Sophisticated	Continuous monitoring tools, which may include governance risk and compliance (GRC) tools (SAP, SAI Global, Oracle)	29%
	Text analytics tools or keyword searching	26%
	Forensic analytics software (ACL, iDEA)	26%
	Social media/web monitoring tools	21%
	Visualization and reporting tools (Tableau, Spotfire, QlikView)	12%
	Statistical analysis and data mining packages (SPSS, SAS, R, Stata)	11%
	Big Data technologies (Hadoop, Map Reduce)	2%
	Voice searching and analysis (NEXIDIA, NICE)	2%

Q: From the tools mentioned, which, if any, are you currently using in your organization? Base (422)

Tools currently used in organization – sector breakdown

	Total	Mining	Oil & Gas	Power & Utilities	Financial Services	Life Sciences	Other Sectors
Spread Sheet Tools Such As Microsoft Excel	65%	57%	53%	73%	55%	55%	76%
Database Tools Such As Microsoft Access Or Microsoft SQL Server	43%	13%	38%	46%	44%	43%	48%
Continuous Monitoring Tools, Which May Include Governance Risk And Compliance Tools	29%	35%	30%	41%	26%	36%	25%
Text Analytics Tools Or Keyword Searching	26%	22%	17%	34%	21%	28%	29%
Forensic Analytics Software (ACL, Idea)	26%	26%	23%	32%	24%	36%	23%
Social Media/Web Monitoring Tools	21%	4%	15%	20%	23%	21%	23%
Visualisation And Reporting Tools	12%	4%	11%	10%	11%	13%	14%
Statistical Analysis And Data Mining Packages	11%	4%	6%	20%	14%	15%	9%
'Big Data' Technologies	2%	0%	2%	2%	3%	4%	1%
Voice Searching And Analysis	2%	0%	2%	0%	3%	4%	2%
I Am Not Aware Of Any Such Tools.	0%	0%	0%	0%	0%	0%	0%

Q: From the tools mentioned, which, if any, are you currently using in your organization? Base (422)

Key benefits of FDA

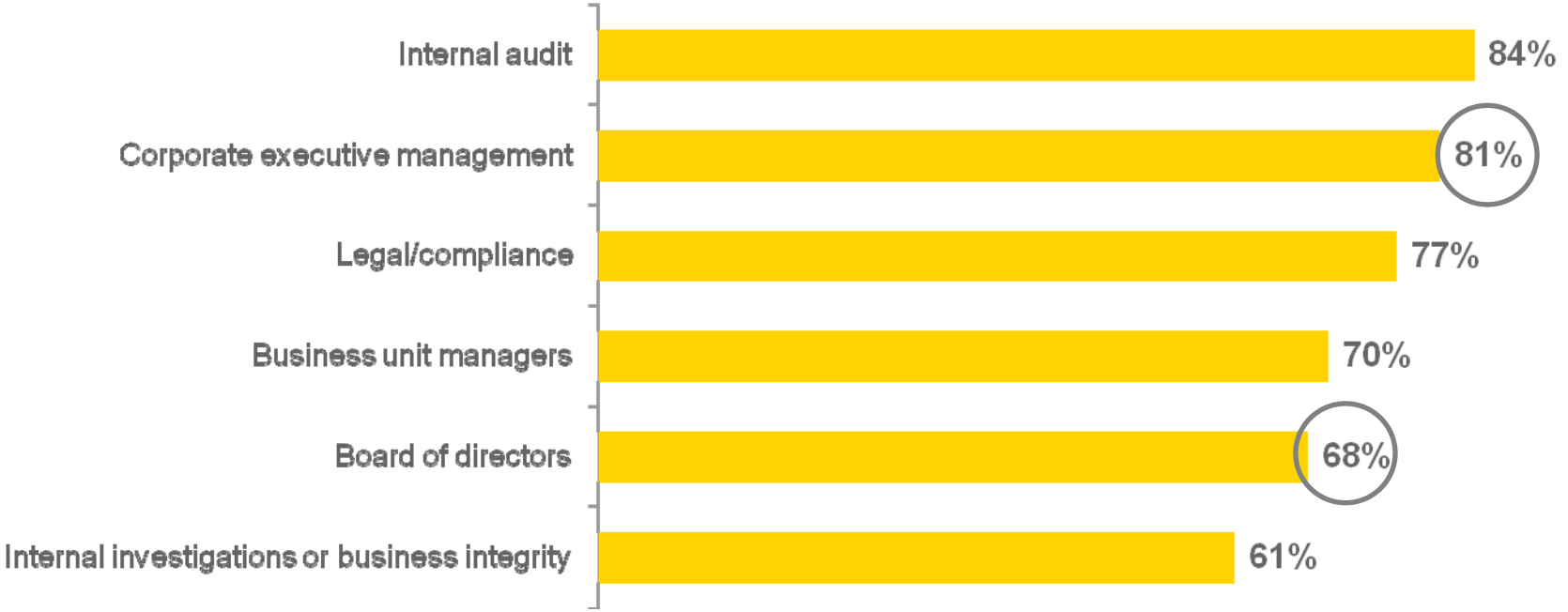
Q: What do you think are the main benefits of using Forensic Data Analytics in your anti-fraud and anti-bribery program? Base: (466) C-Suite (56)

Key benefits of using FDA – sector breakdown

	Total	Mining	Oil & Gas	Power & Utilities	Financial Services	Life Sciences	Other Sectors
Enhances our risk assessment process	90%	97%	90%	91%	87%	94%	90%
Able to detect potential misconduct that we couldn't detect before	89%	93%	86%	85%	91%	91%	88%
Offers better comparison of data for improved fraud risk decision-making	82%	86%	78%	81%	86%	83%	81%
Assists in planning our audits or investigative field work	82%	83%	82%	87%	81%	83%	81%
Earlier detection of misconduct	82%	79%	67%	89%	92%	80%	78%
We can review large amount of data in a shorter period of time	79%	79%	84%	77%	83%	72%	77%
Cost effective	63%	72%	57%	60%	64%	59%	63%
Able to analyze non-structured data formats, alongside structured data formats to identify potential misconduct	62%	69%	57%	70%	58%	67%	62%
Other	4%	0%	4%	6%	4%	2%	5%

Q: What do you think are the main benefits of using Forensic Data Analytics in your anti-fraud and anti-bribery programme? Base: (466)

FDA benefits extend high into the organization



Q: Who are the primary users or beneficiaries of your forensic data analytics? Base: (466)

Primary users of FDA – Sector discussion

	Total	Mining	Oil & Gas	Power & Utilities	Financial Services	Life Sciences	Other Sectors
Internal audit	84%	79%	92%	87%	81%	78%	85%
Corporate executive management	81%	79%	82%	83%	79%	83%	81%
Legal or compliance	77%	76%	69%	74%	90%	91%	67%
Board of directors	68%	72%	73%	62%	61%	80%	69%
Business unit managers	70%	69%	61%	77%	74%	76%	67%
Internal investigations or business integrity	61%	62%	53%	60%	67%	63%	60%
Other	14%	7%	8%	15%	17%	22%	13%
Don't Know	0%	3%	2%	0%	0%	0%	0%

Q: Who are the primary users or beneficiaries of your forensic data analytics? Base: (466)

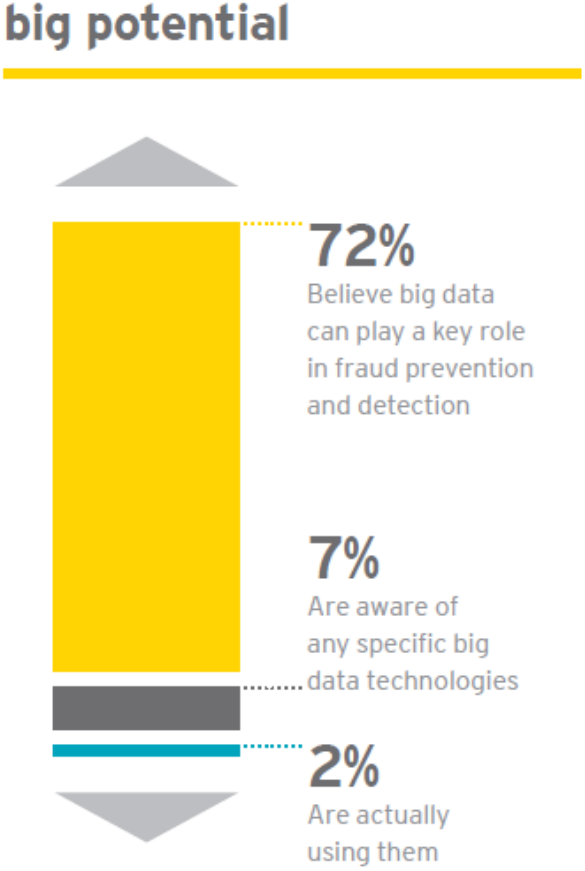
Opportunity to improve

63% of LS companies agree

We need to do more to improve our current anti-fraud and anti-bribery procedures, including the use of forensic data analytics.

Big data has big potential

- 72% of respondents believe that emerging big data technologies can play a key role in fraud prevention and detection.
- Yet only 7% of respondents are aware of any specific big data technologies, and only 2% of respondents are actually using them.
- For those survey respondents integrating more advanced FDA technologies, including big data processing capabilities, data visualization, statistical analysis or text mining, we see notable differences in FDA results and recoveries, among other observations.



Data volumes are relatively low compared to company revenues

	All responses	Revenue breakdown US$ 100m-1b	Over US$1b
0 to 10,000 records	33%	42%	27%
10,000 to 100,000 records	19%	15%	22%
100,000 to 1 million records	20%	18%	22%
1 million to 10 million records	7%	5%	8%
10 million to 100 million records	3%	2%	5%
100 million to a billion records	0%	0%	0%
Over a billion records	2%	0%	3%
Survey counts	466	207	259

Q: What data volume do you typically work with in your forensic data analytics tasks?

Base: All respondents (466). All respondents indicating US$100m-1b (207); all respondents indicating over US$1b (259). The "Don't know" percentages have been omitted to allow better comparison among the responses given.

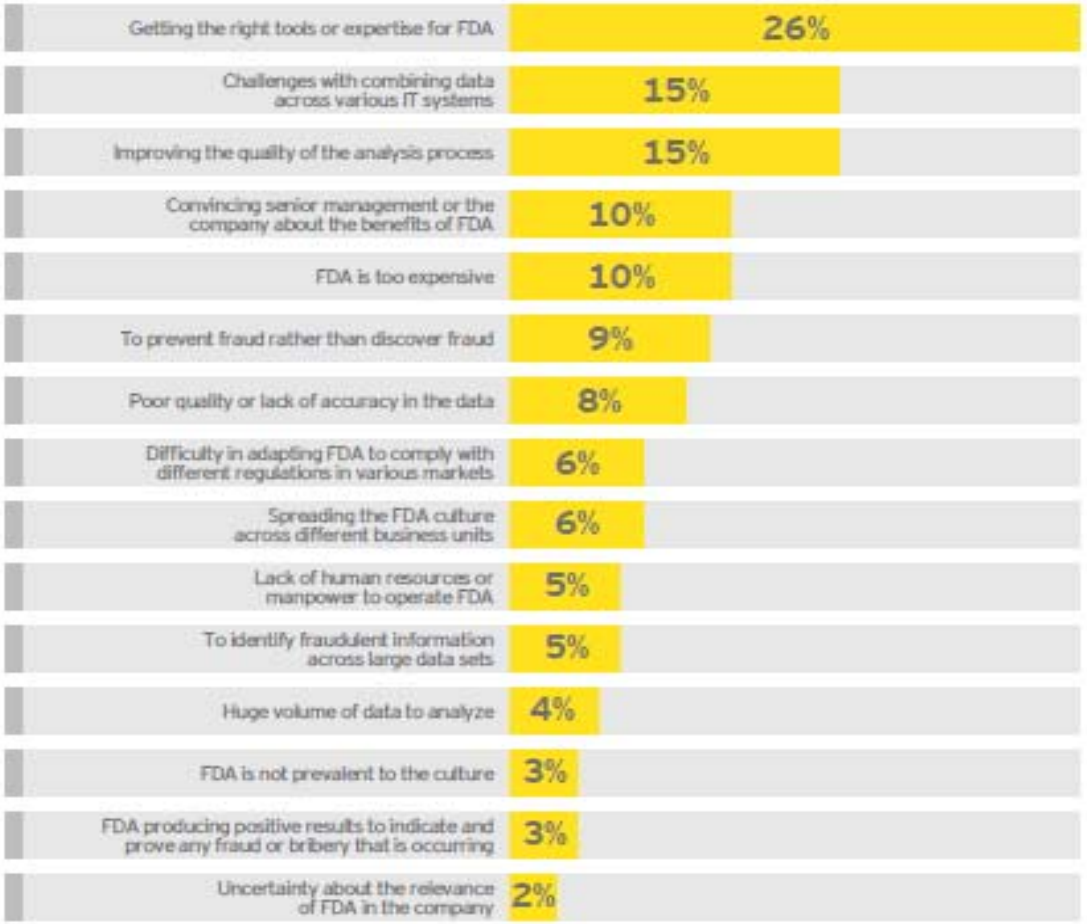
Data Volume – sector breakdown

	Total	Mining	Oil & Gas	Power & Utilities	Financial Services	Life Sciences	Other Sectors
0 to 10,000 records	33%	41%	41%	40%	21%	26%	38%
10,000 to 100,000 records	19%	31%	20%	21%	17%	22%	16%
100,000 to 1 million records	20%	14%	16%	17%	31%	15%	19%
1 million to 10 million records	7%	7%	6%	11%	11%	4%	4%
10 million to 100 million records	3%	0%	2%	0%	6%	4%	4%
100 million to a billion records	0%	0%	0%	0%	0%	0%	1%
Over a billion records	2%	0%	2%	0%	4%	0%	2%
Don't know	15%	7%	12%	11%	10%	30%	16%

Q: What data volume do you typically work with in your forensic data analytics tasks? Base (466)

The biggest FDA challenges

What is your single biggest challenge or requirement in your organization?



Q: With respect to forensic data analytics, what would you say is your single biggest challenge or requirement in your organization?

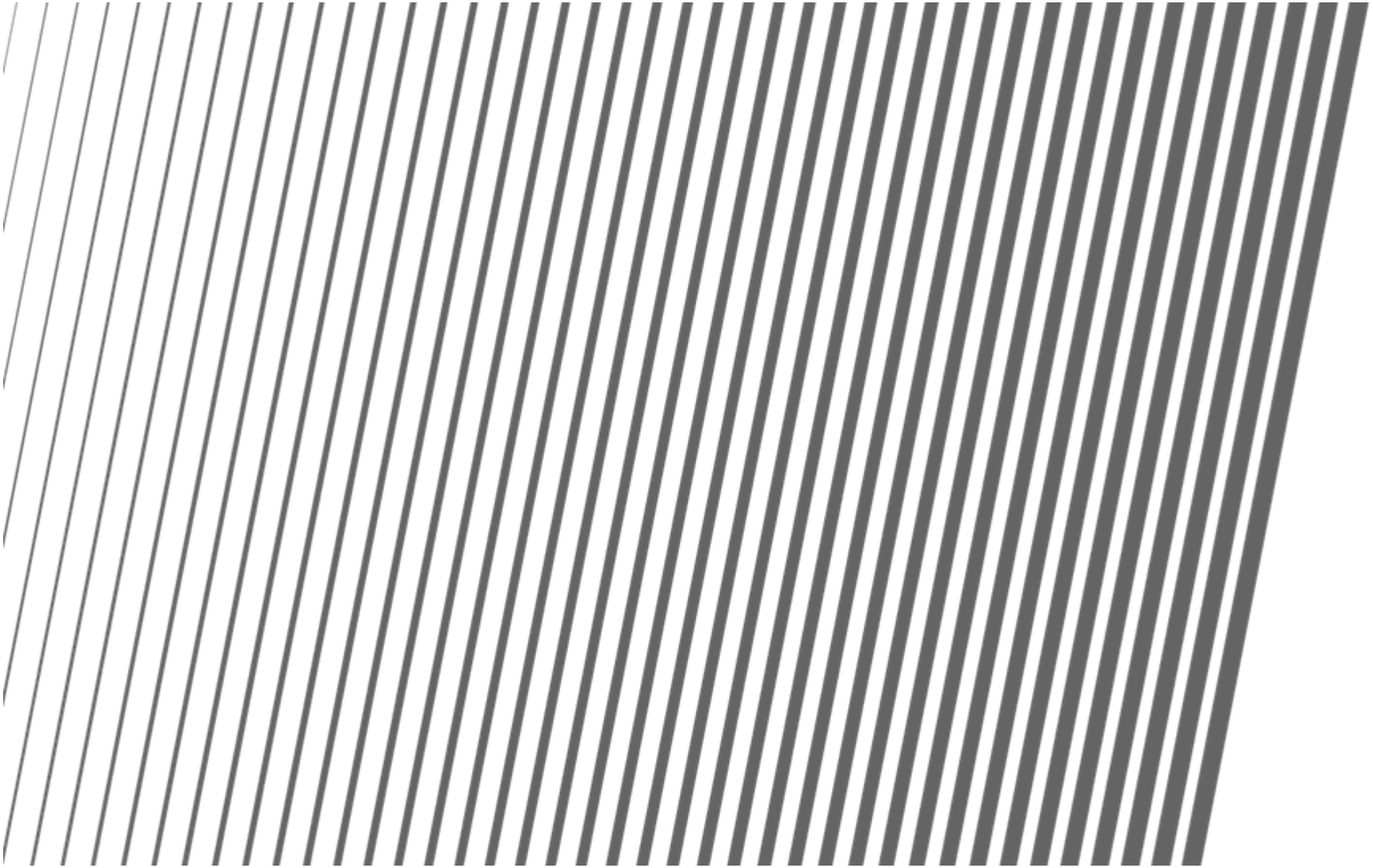
Base: All respondents (466). The "Other," "Don't know," "None" and "Refused" percentages have been omitted to allow better comparison among the responses given. Multiple answers allowed, may exceed 100%.

Single Biggest Challenge – sector breakdown

	Total	Mining	Oil & Gas	Power & Utilities	Financial Services	Life Sciences	Other Sectors
Getting the right tools or expertise for FDA	26%	31%	22%	30%	23%	31%	24%
Challenges with combining data across various IT systems	15%	21%	14%	11%	15%	17%	16%
Improving the quality of the analysis process	15%	10%	16%	17%	21%	9%	14%
Convincing senior management or the company about the benefits of FDA	10%	14%	10%	11%	7%	13%	10%
FDA is too expensive	10%	7%	6%	17%	8%	9%	10%
To prevent fraud rather than discover fraud	9%	10%	12%	9%	11%	6%	7%
Poor quality or lack of accuracy in the data	8%	7%	6%	11%	12%	6%	7%
Difficulty in adapting FDA to comply with different regulations in various markets	6%	10%	4%	2%	9%	13%	4%
Challenging to spreading the FDA culture across different Business Units	6%	14%	6%	2%	6%	2%	7%
A lack of human resources or manpower to operate FDA	5%	7%	4%	4%	7%	6%	4%

Q: Last question, with respect to forensic data analytics, what would you say is your single biggest challenge or requirement in your organization? (466)

FDA technology examples



Need for an integrated approach to addressing the "big data" challenges in compliance monitoring

Meals & Entertainment	Speaker Programs	Call Planning & Incentive Comp
Samples Distribution	Medical Information Requests	Education Grants, Sponsorships
Vendor Payments	Fee-for-Service	Investigator-Initiated Studies
3rd Party Watch List Monitoring	Distributor & Sales	Charity & Donations

Emerging monitoring activities may include…

Social Media Monitoring	Advanced Email Monitoring	Publications Monitoring
Promotional Materials on Mobile Devices	Medical Science Liaisons Monitoring	

EY Life Sciences Counter Fraud, Powered By IBM

Meal Interactions

Speaker Programs

PIR Requests

Sample Distributions

Call Interactions

Educational Materials

Consulting Agreements

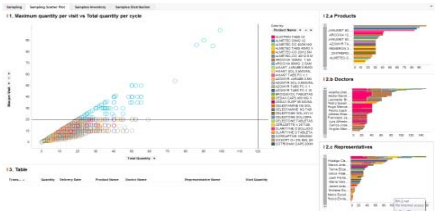
Advisory Boards

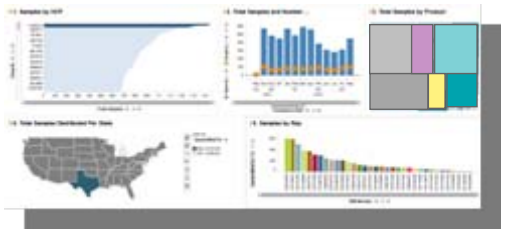
Expert Input Forums

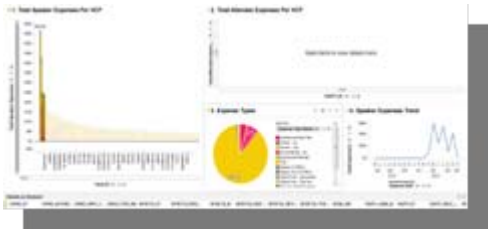
Application of testing metrics co-developed by Compliance & EY into a risk scoring model focused on identification of high risk interactions between Reps & HCPs

Rep Ranking Model

HCP Ranking Model







Results deployed using data visualization and dynamic querying to provide comprehensive compliance review across disparate data sources

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Predictive Modeling:

Model “recommends” high-risk transactions similar to tagged transactions, by category

Review Page | Predicted ResultSet

Conflict of Interest

SUPPLIER_ID	SUPPLIER_NAME	INVOICE_DATE	PAYMENT_DATE	COST_CENTER	COST_CENTER...	EY_USD_AMOU...	GL_ACCOUNT	GL_ACCOUNT_...	RANK	PREDICTED_CA...	USER_CATEGO...
5250002032	Mooreland Outfitt...	3/16/2012 12:00:...	3/16/2012 12:00:...	E8441	Drug Surveillanc...	1129.57	63530044	HCC/HCBI - Clinic...	2353		Conflict of Interest
5250002079	Kohls Outfitters	3/16/2012 12:00:...	3/16/2012 12:00:...	E8265	Trial Managemen...	376.52	63530026	Research (Actua...	40		Conflict of Interest
5250002079	Kohls Outfitters	3/16/2012 12:00:...	3/16/2012 12:00:...	E8265	Trial Managemen...	376.52	63530026	Research (Actua...	40		Conflict of Interest
5250004584	Slomka Supplies	3/16/2012 12:00:...	3/16/2012 12:00:...	E8265	Trial Managemen...	307.79	63530053	Travel Exp. For R...	2353		Conflict of Interest
5250004584	Slomka Supplies	3/16/2012 12:00:...	3/16/2012 12:00:...	E8265	Trial Managemen...	535.67	63530054	Specific Medical ...	7863		Conflict of Interest
5250005365	Cook Technologies	3/16/2012 12:00:...	3/16/2012 12:00:...	E9084	CNS Sales Div. / ...	1328.13	65545018	HCC/HCBI - Prom...	2353		Conflict of Interest

Marking: Marking
Show/hide: Show Equal to Conflict of Int

Potential Improper Payment

SUPPLIER_ID	SUPPLIER_NAME	INVOICE_DATE	PAYMENT_DATE	COST_CENTER	COST_CENTER...	EY_USD_AMOU...	GL_ACCOUNT	GL_ACCOUNT_...	RANK	PREDICTED_CA...	USER_CATEGO...
599999	Rompf International	12/11/2011 12:0...	12/20/2011 12:0...	E9477	PI / Chubu/Hokuri...	539.15	62003001	Business Meals	40		Potential Improper...
599999	Rompf International	12/17/2011 12:0...	12/22/2011 12:0...	E9318	OVI BU / Immunol...	1753.15	62012003	Books	40		Potential Improper...
599999	Rompf International	12/17/2011 12:0...	12/22/2011 12:0...	E9484	PI BU / Kansai/Sh...	1753.15	62012003	Books	40		Potential Improper...
599999	Rompf International	11/29/2011 12:0...	1/20/2012 12:00:...	E8713	General Affairs /...	204.89	61527917	Employee Welfar...	14608		Potential Improper...
599999	Rompf International	12/1/2011 12:00:...	1/20/2012 12:00:...	E8713	General Affairs /...	204.89	61527917	Employee Welfar...	14608		Potential Improper...
599999	Rompf International	12/1/2011 12:00:...	1/20/2012 12:00:...	E8713	General Affairs /...	204.89	61527917	Employee Welfar...	14608		Potential Improper...

Marking: Marking
Show/hide: Show Equal to Potential Imp

Financial Statement Fraud

SUPPLIER_ID	SUPPLIER_NAME	INVOICE_DATE	PAYMENT_DATE	COST_CENTER	COST_CENTER...	EY_USD_AMOU...	GL_ACCOUNT	GL_ACCOUNT_...	RANK	PREDICTED_CA...	USER_CATEGO...
500051	Massenburg Ban...	2/20/2012 12:00:...	2/24/2012 12:00:...	E9040	CNS Sales Div. / ...	392.92	65549001	CP) Misc. Exp.	3976		Financial Statem...
500225	Simich Banking	11/17/2011 12:0...	11/25/2011 12:0...	E8216	Clinical Operation...	10721.65	63530029	OS - Other	23272		Financial Statem...
500321	Mcquilliams Co.	2/13/2012 12:00:...	2/17/2012 12:00:...	E8204	Clinical Science ...	3179.04	62501018	Miscellaneous Ex...	301		Financial Statem...
520017	Amistadi Freight	12/18/2011 12:0...	12/22/2011 12:0...	E9108	CNS Sales Div. / ...	128.44	65549001	CP) Misc. Exp.	40		Financial Statem...
5250009049	Bakowski Hospital	4/19/2012 12:00:...	5/16/2012 12:00:...		#N/A	4126.55		#N/A	20		Financial Statem...
5250012890	Cardena Pharma...	4/7/2012 12:00:0...	5/16/2012 12:00:...	E8524	Marketing Manag...	1250.47	65554401	Pharmaceutical ...	40		Financial Statem...

Marking: Marking
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Control Override

SUPPLIER_ID	SUPPLIER_NAME	INVOICE_DATE	PAYMENT_DATE	COST_CENTER	COST_CENTER...	EY_USD_AMOU...	GL_ACCOUNT	GL_ACCOUNT_...	RANK	PREDICTED_CA...	USER_CATEGO...
500047	Cobos Banking	12/17/2011 12:0...	1/13/2012 12:00:...	E8601	President	586.93	62004001	Entertainment - N...	9110		Control Override
526949	Fu Enterprises	11/27/2011 12:0...	12/20/2011 12:0...	E9049	CNS Sales Div. / ...	256.74	65545013	CP) Travel Exp. -...	40		Control Override

Marking: Marking
Show/hide: Show Equal to Control Over

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EY Life Sciences Counter Fraud, Powered by IBM

Recognized Big Data leader

Pre-configured appliance

Advanced text mining (e.g., Watson)

Streaming analytics

User friendly

Massively scalable

- Rogue employees
- Rogue HCPs
- Speaker programs
- Anti-corruption / FCPA
- Cyber security
- Financial fraud
- Vendor management
- Transaction monitoring
- 3rd party due diligence

Compliance & Anti-Fraud management

Big Data management

Proprietary library of analytics, for LS

Effective reporting & visualizations

Global perspective

IBM System X Hardware, InfoSphere BigInsights, InfoSphere Streams, Data Explorer and SPSS

Social Media Analytics – high risk vendors, customers or employees (live feeds from Twitter and other sources)

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HCP Risk Scoring – integrating multiple data sources

Weights | HCP Ranking | Meal Interactions | Speaker Programs | Samples | Fee For Service | MIR

EY Building a better working world

Specialty

Type to search in list

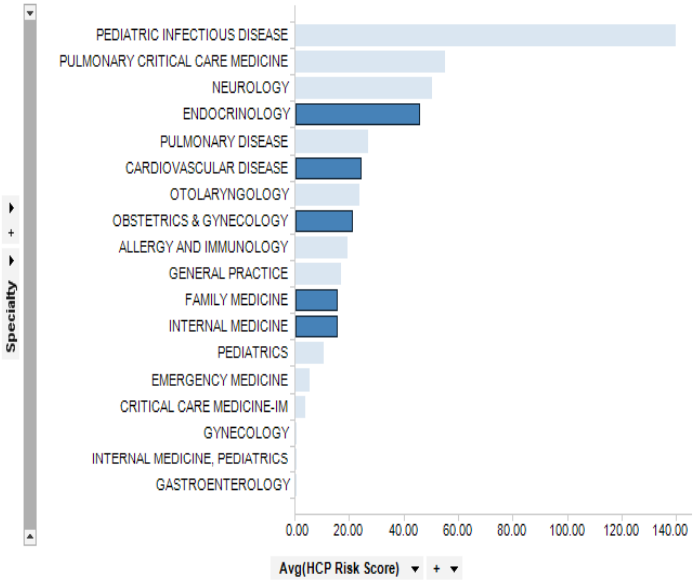
(All) 18 values
ALLERGY AND IMMUNOLOGY
CARDIOVASCULAR DISEASE
CRITICAL CARE MEDICINE-IM
EMERGENCY MEDICINE
ENDOCRINOLOGY
FAMILY MEDICINE

Reset All Graphs

HCP Ranking

HCP Name	Specialty	HCP Risk Score	HCP Rank
TILLIE DIEDERICH	ENDOCRINOLOGY	161.18	1
FRANCESCA VANDENBERG	FAMILY MEDICINE	157.58	2
CARLY SANTACRUCE	PEDIATRIC INFECTIOUS DISEASE	139.43	3
CATHI PUGLIARES	ENDOCRINOLOGY	136.81	4
LINN TEAGARDEN	FAMILY MEDICINE	127.07	5
ISAAC BOXER	CARDIOVASCULAR DISEASE	123.96	6
LAURI RIGGLES	FAMILY MEDICINE	109.25	7
ASUNCION LINWOOD	INTERNAL MEDICINE	104.32	8
ALAN MONTERROZA	OBSTETRICS & GYNECOLOGY	94.41	9
DIONNA DECELLE	INTERNAL MEDICINE	86.40	10
ELOISA CAUTHON	FAMILY MEDICINE	72.42	11
BESS BLASKO	PULMONARY DISEASE	71.24	12
MARTA LAIB	INTERNAL MEDICINE	70.93	13
TREVOR GANGEMI	PULMONARY DISEASE	70.42	14
SONA POKORNEY	INTERNAL MEDICINE	66.99	15
RINA GERO	CARDIOVASCULAR DISEASE	63.48	16
ALIZA HOEHNE	FAMILY MEDICINE	55.09	17
ALLEN VANNATTA	PULMONARY CRITICAL CARE ...	54.89	18
LUCIANO SLINKER	INTERNAL MEDICINE	54.17	19
TEQUILA JAGOW	INTERNAL MEDICINE	52.64	20
LAURENA KLINGER	NEUROLOGY	50.08	21
REUBEN KILLAY	FAMILY MEDICINE	50.00	22

Risk Score Trend



HCP Name	Specialty	HCP Risk Score	FFS_1	Calculated FFS.1	FFS_2	Calculated FFS.2	FFS_3	Calculated FFS.
CATHI PUGLIARES	ENDOCRINOLOGY	136.81	0.00	0.00	0.00	0.00	0.00	0.00
LINN TEAGARDEN	FAMILY MEDICINE	127.07	0.00	0.00	0.00	0.00	0.00	0.00
ISAAC BOXER	CARDIOVASCUL...	123.96	0.00	0.00	0.00	0.00	0.00	0.00
LAURI RIGGLES	FAMILY MEDICINE	109.25	0.00	0.00	0.00	0.00	0.00	0.00
ASUNCION LINW...	INTERNAL MEDIC...	104.32	0.00	0.00	0.00	0.00	0.00	0.00
ALAN MONTERR...	OBSTETRICS & ...	94.41	0.00	0.00	0.00	0.00	0.00	0.00
DIONNA DECELLE	INTERNAL MEDIC...	86.40	0.00	0.00	0.00	0.00	0.00	0.00
ELOISA CAUTHON	FAMILY MEDICINE	72.42	0.00	0.00	0.00	0.00	0.00	0.00

Metrics:	LINN TEAGARDEN	CATHI PUGLIA...	LAURI RIGGLES	ISAAC BOXER	ASUNCI
FFS 1: Annual spend just below cap	0.00	0.00	0.00	0.00	
FFS 2:Payment in excess of annual cap (Amount)	0.00	0.00	0.00	0.00	
FFS 3: Payment in excess of annual cap (Number)	0.00	0.00	0.00	0.00	
ME 1: High number of interactions	1.23	0.86	0.00	2.10	
ME 2: High dollar amount for interactions	9.87	9.82	9.14	9.00	
ME 3: Above average interaction amounts	9.80	9.10	0.00	3.85	
ME 4: High number of meals over per person limit	2.50	1.88	0.00	1.25	
ME 5: High dollar amount of meals over per person limit	8.87	8.01	0.00	1.84	
ME 6:Interaction with a high number of reps	0.36	0.60	0.00	2.41	
ME 7: High dollar amount expense attributable to single...	9.85	9.77	9.16	9.57	
PIR 2: High percentage of off-label as portion of total PIR...	0.00	0.00	0.00	0.00	
PIR 3: High volume of orders of educational materials	0.00	0.00	0.00	0.00	
SD 1: High volume of samples (Product Level)	0.00	3.13	1.45	9.65	
SD 2: High volume of samples (Specialty Level	0.00	0.00	0.00	6.91	

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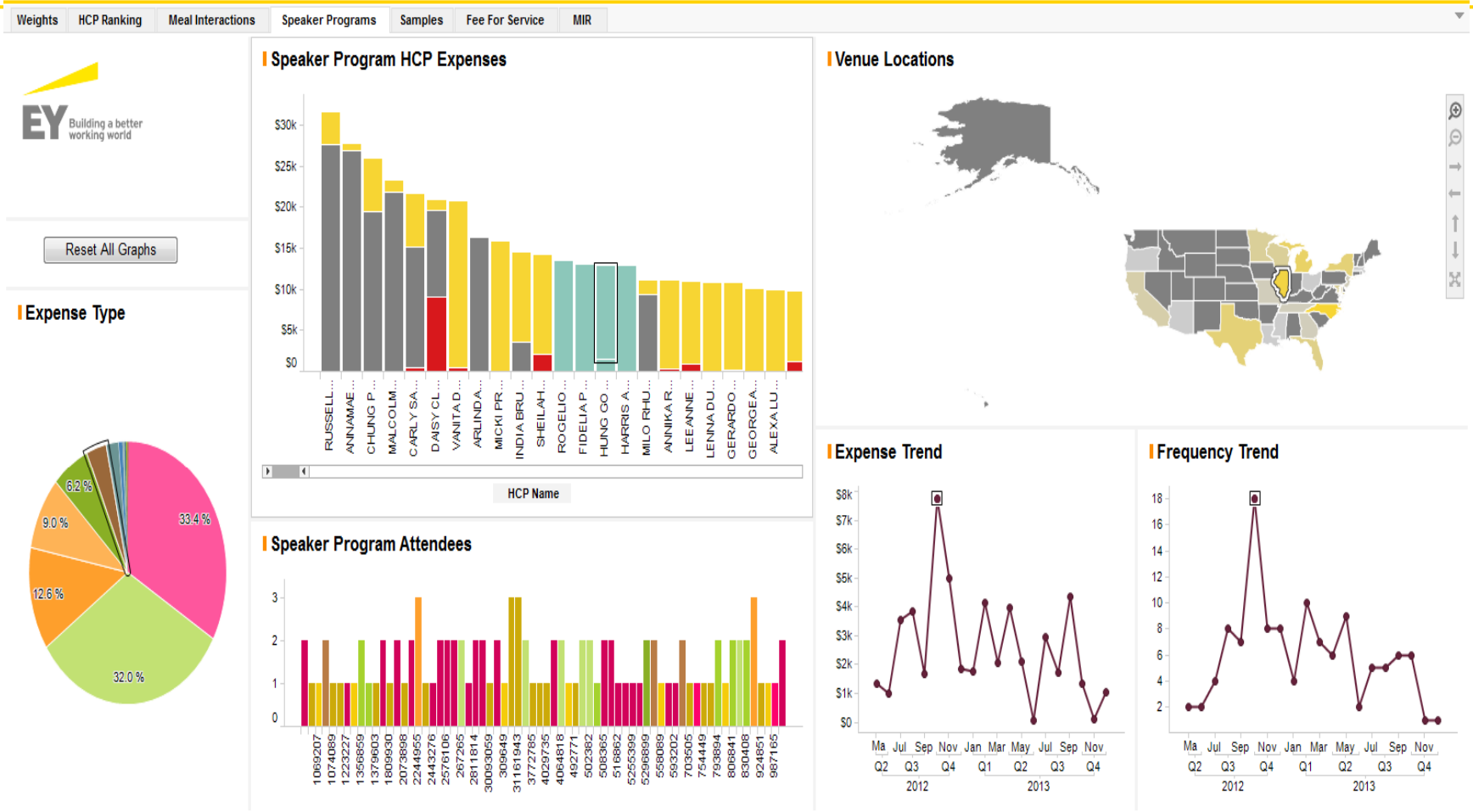
EY

Speaker program monitoring – based on recent EY investigative support models



Details-on-Demand

Interaction Date	Expense Date	HCP Name	Expense Type...	Expense Purpose ...	Per Attendee Expense	Representative Full Na...	Interaction Type	Original Cust...	Source Syste...	Participant Co...	Venue Minimu...	Venue Name
10/23/2012 11:00 AM	10/24/2012 12:00 AM	FIDELIA PETRONIS	Direct- Hotel	Education - Speaker	112.99	CORRINNE SNIPES	In-office Lecture	Doctor	Final	20	0	Scott & White Health Plan
10/23/2012 7:30 PM	10/23/2012 7:30 PM	FIDELIA PETRONIS	Room Rental	Education	16.88	CORRINNE SNIPES	In-office Lecture		Final	20	20	Cheeves Bros Steakhouse
10/10/2012 1:00 PM	10/10/2012 1:00 PM	HUNG GOSSELIN	Mgmt Fee - Flat ...	Education	18.53	LAURINDA NEVILLE	Peer Discussion Group		Final	18	15	St Joseph Hospital

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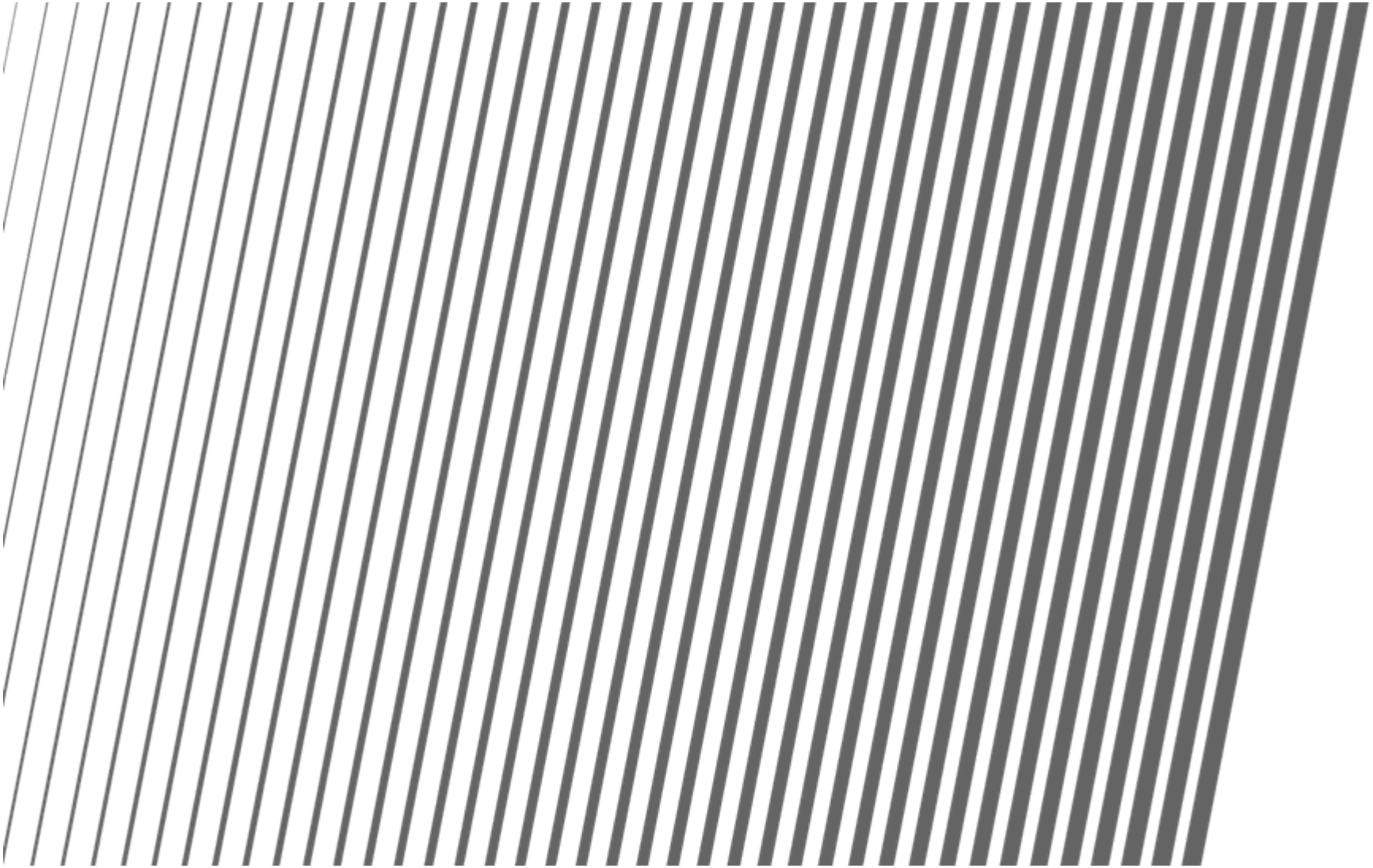
Q&A