How can you disrupt risk in an era of digital transformation?

Global Forensic Data Analytics Survey 2018

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Contents

Foreword

In my new role as the global leader of EY Forensic & Integrity Services, I am delighted to share our third biennial survey report on the use of forensic data analytics (FDA) by companies around the world. It reveals thought-provoking insights into the legal, compliance and fraud risks companies face, and how they are using FDA to help manage those risks.

In this report, we look at the findings from our latest *Global Forensic Data Analytics Survey*. We have analyzed the responses of some 745 executives globally who generously shared their perspectives. Through this analysis, we can see specific ways in which companies can measurably improve their legal, compliance and fraud risk programs, as well as the maturity level of their FDA capabilities.

It is an exciting time for companies as digital transformation creates new opportunities. Artificial intelligence, robotic process automation and advanced data analytics are just some of the new possibilities being explored. However, a growing digital footprint comes with additional risks.

Two risks come into sharp focus in this survey: 1) regulatory compliance, 2) data protection and data privacy. We heard from companies around the world that expressed growing concern in these areas and identified real challenges to overcome. This year's *Global Forensic Data Analytics Survey* findings show that this is where FDA has a vital role to play.

Five key themes emerging from this year's survey are:

1. **We are in an era of rapid FDA advancements, particularly in artificial intelligence, machine learning and automation.**
2. **Technology advancements require specialized skill sets for deeper insights.**
3. **Aggregating data from disparate sources is complex yet essential and requires energetic leadership support.**
4. **Data privacy has become one of the most vexing risk areas and further complicates cross-jurisdictional compliance.**
5. **Businesses are using the power of FDA to transform their risk functions in a way that was never previously possible.**

We hope this report helps businesses understand the value of FDA and how it can mitigate risks while increasing business transparency. In addition, by learning from the responses, businesses can benchmark their FDA maturity and deploy FDA in a manner that is fully integrated and provides the best return on investment.

We would like to thank all of the respondents for taking the time to participate in this survey and for their valuable contributions, observations and insights.

Andrew Gordon
EY Global Forensic & Integrity Services Leader

Executive summary

1 2

What do we mean by FDA?

FDA is the collection and analysis of all types of data with the objective to manage legal, compliance and fraud risks. When enhanced through human intelligence, companies can use FDA technologies and techniques to better monitor, prevent, detect, investigate and predict anomalies in business activities and transactions.

Digital transformation drives FDA advancements and offers opportunities for enhanced risk mitigation

Digital transformation drives advancements in FDA but also introduces new risks. This year's survey shows that companies' overall risk profiles are continuing to expand, with data protection and data privacy compliance risk registering the highest level of concern by survey respondents. However, FDA advancements are enabling companies to gain business and risk insights faster and more accurately than ever before. This is demonstrated in the strong recognition of FDA's effectiveness in managing various risks by the survey respondents.

Respondents reported that FDA is most effective in addressing financial statement fraud, bribery and corruption, money laundering, and cyber breach and insider threat risks. Even in emerging risk areas, such as data protection and data privacy compliance, almost a quarter of respondents have seen significant results from using FDA.

Respondents continue to feel strongly about the wide-ranging benefits of FDA. This has helped reverse the trend of prior years, during which companies had held back on FDA investment. The average annual spend on FDA is 51% higher than what was reported in 2016.

Technologies are advancing; resources and skills continue to be in demand

FDA technologies are becoming more advanced and are being adopted more broadly. This year's results show an increase in the use of advanced FDA technologies by companies from the prior two surveys. Respondents also indicated that additional investments in emerging technologies are on the horizon. Thirty-nine percent of respondents reported that they are likely to adopt robotic process automation within the next year. Further, 38% plan to adopt artificial intelligence.

With adoption of advanced FDA technologies, many companies have shown improvements in the inclusion of a wide range of data sources, both structured and unstructured. However, analyzing large volumes of data collected from disparate sources continues to be a challenge and requires better integration.

FDA technologies and techniques need to be implemented by people who have the right business domain knowledge, data analytics or data science expertise, and technical skills. Yet, only 12%–13% of respondents feel that they have the right mix of FDA expertise.

3 4 5

FDA integration and governance are necessary for success

The survey respondents feel strongly about the value of FDA for risk mitigation and for delivering business value across the enterprise. The cross-functional collaboration needed to implement effective FDA processes continues to be a challenge for more than 50% of respondents. Implementations tend to be decentralized in these companies; they are also often understaffed. Improving implementation and gaining leadership support and appropriate funding will drive even more value from FDA.

FDA governance is an area for improvement. Despite more than 57% of respondents reporting that their board of directors is involved in strategic decisions related to FDA, nearly half of respondents also indicated the need to improve management's awareness of the benefits of FDA. Better governance will directly improve management support and awareness, and will also facilitate collaboration, that leads to better integration of data sources and improved information sharing.

The application of FDA within data protection and data privacy compliance is paramount

Around the world, countries are enacting data protection and privacy regulations that present real compliance challenges for companies. The EU's General Data Protection Regulation (GDPR), which becomes effective in May 2018, is complex, applicable to companies globally, and has significant potential financial penalties. Yet at the time of our survey, only 33% of respondents had a plan to address GDPR compliance. Another 39% of respondents indicated that they are not at all familiar with the GDPR.

Forty-two percent of respondents believe that data protection and data privacy regulations have a significant impact on the design and use of FDA. FDA can be a valuable part of achieving compliance with data protection and data privacy regulations, as one tool in an organization's information governance program. On the other hand, companies that incorporate data protection and data privacy compliance in their FDA strategies can gain a competitive edge over those that choose to avoid FDA, due to the cost of compliance and regulatory concerns.

Realizing the full potential of FDA and transforming the risk functions

An effective FDA strategy will lead to better risk management and increased business transparency. To achieve the full potential of FDA, companies should aim for better integration; leverage the right technologies, data and people; and secure strong leadership support.

Some companies are getting it right. In one case, a large consumer products company designed a metrics-driven, enterprise-wide platform for continuous monitoring of business transactions and compliance risks. Sponsored at the C-suite level, the program generated cost savings through reduced investigation expenses, improvements in financial accounting controls and enhanced compliance monitoring.

With the right effort, investment and leadership support, the confluence of data and technology will better address businesses' needs to manage legal, compliance and fraud risks. Companies can extend FDA's benefits beyond basic risk functions while increasing business transparency and improving operational efficiency. In doing so, the risk function can continue to protect the business, while also offering insights that can inform business opportunities and strategy.

1

Digital transformation drives FDA advancements and offers opportunities for enhanced risk mitigation

In today's business environment, digital transformation is an important part of running a successful company. However, it also creates new risks. Incorporating FDA into a company's digital strategy is an opportunity to enhance risk mitigation and improve business transparency.

Increasing concern about digital risk

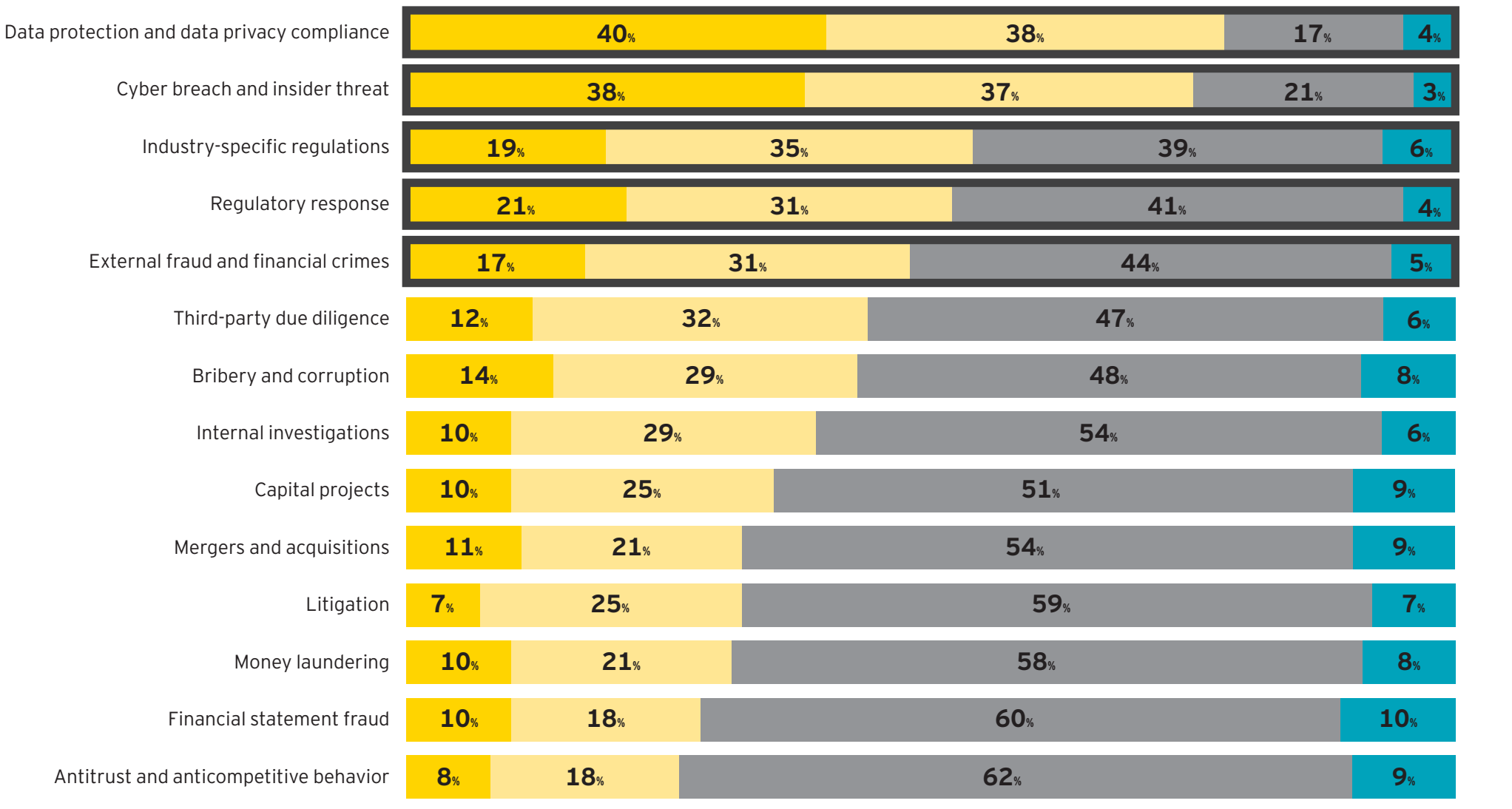
We are in an era of rapid FDA advancements, particularly in artificial intelligence, machine learning and automation. These technologies enable companies to gain business and risk insights faster and more accurately than ever before. However, digital transformation has also created new risks.

We asked respondents to gauge 14 risks and how their level of concern has changed since the last survey. Among the risks posed in the survey, the most prevalent increases in concern are in the following four areas (Figure 1):

1. Data protection and data privacy compliance
2. Cyber breach and insider threat
3. Industry-specific regulations
4. Regulatory response

Overall, the results show that regulatory pressure continues to be top of mind for businesses worldwide. Data protection and data privacy regulations are being enacted around the world, and this fact is reflected in the survey results. Seventy-eight percent of respondents reported a growing concern about data protection and data privacy compliance risk. Comparatively, only 48% indicated that external fraud and financial crime risks have increased. Few risks are decreasing, many risks remain constant, and new risks are emerging - thus demonstrating that the overall risk profile is continuing to expand.

Figure 1. Rising risk levels across the board



Q: Over the past two years, how has the level of concern about these risk areas changed in your organization?
Base: all respondents (745)
The "Don't know" percentages have been omitted to allow better comparisons among the responses given.

> "An effective digital strategy that supports the organization's risk and integrity agenda has the potential to drive measurable benefits to the organization. It helps legal, compliance and risk functions reduce their information burden, gain business and risk insights, improve collaboration, and mitigate risks."
>
> **Todd Marlin, Principal, Forensic & Integrity Services, Ernst & Young LLP, US**

FDA has wide-ranging benefits to the business, particularly in risk management

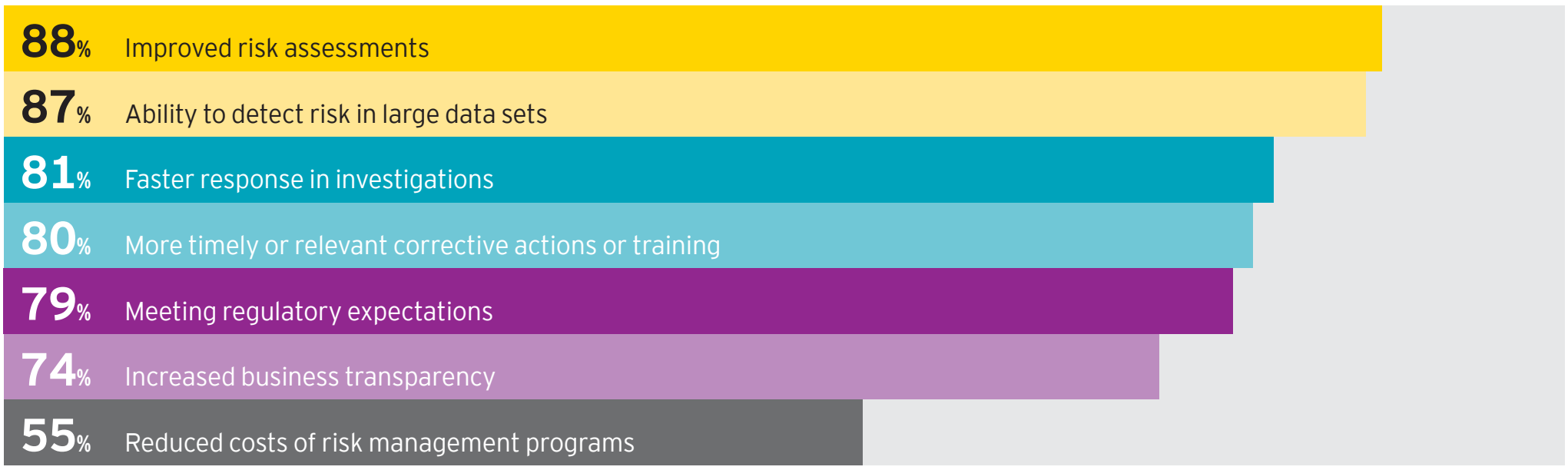
Businesses have been using FDA for some time to manage financial statement fraud and money-laundering risks and to conduct internal investigations. For example, it's a common practice in anti-money laundering compliance programs that data aggregation and statistical analysis are used to detect suspicious access to customer accounts. We believe that the effective use of FDA in these risk areas is reflected in the survey result — only 10% of respondents reported that these risk concerns have significantly increased (Figure 1). In fact, the majority of respondents feel that FDA contributes to effective risk management in all of the 14 risk areas surveyed (Figure 2). Even in the emerging risk area of data protection and data privacy compliance, almost a quarter of respondents consider FDA to be very effective.

Respondents have expressed a strong belief in the value of FDA and its wide-ranging benefits (Figure 3). Improved risk assessments rank the highest at 88%, closely followed by the ability to detect risk in large data sets at 87%. The results are not surprising given the use of FDA among internal audit professionals in making audit selections and assisting legal and compliance professionals with regulatory-related activities. Cost reduction was cited by 55% of respondents as the main benefit of FDA. This is clearly important to this year's respondents, up from 42% in the 2016 survey. FDA has a cost, as with any risk management process, but if the benefits outweigh the costs then it is a worthwhile exercise.

Figure 2: The effectiveness of FDA in managing risk

Q: In which of these following risk areas do you utilize FDA and how effective is the effort?
Base: respondents who reported increased level of risk

Figure 3: Main benefits of FDA – broadly recognized



Q: What do you consider to be the main benefits of using FDA?
Base: all respondents (745)

Rising FDA spending

Despite challenging budget conditions facing many companies, spending on FDA is rising rapidly. The increased commitment of financial resources to FDA likely reflects an increased sense of value from the use of FDA. The findings from our two previous surveys in 2014 and 2016 suggested that companies were holding back on FDA investment because of reservations about cost and lack of confidence in the underlying technologies. Our latest survey reveals that this sentiment has changed.

Respondents reported that spending on FDA has increased substantially. The average annual spend per respondent is 51% higher than what was reported in 2016. Companies with annual revenue of more than US$5b reported the highest spending, with 26% of respondents spending US$1m or more.

The average annual spend on FDA is

51%

more than 2016.

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2

Technologies are advancing; resources and skills continue to be in demand

There has been greater adoption of advanced FDA technologies. However, FDA needs to be implemented by people who have the requisite technical skills.

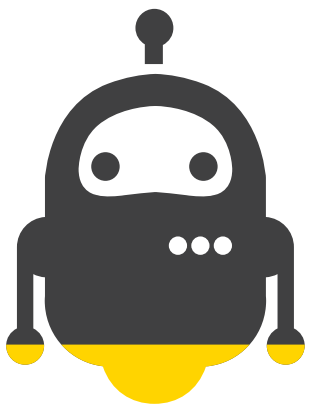
More use of advanced technologies, with a focus on continuous monitoring tools

Companies have come a long way from relying on the basic FDA tools of the last decade. This year's results show an increase in using advanced FDA technologies from the prior two surveys. Three technologies stand out: data visualization, social media analytics and statistical analysis (Figure 4).

Respondents indicated that additional investments in emerging FDA technologies are on the horizon. In this year's survey, we asked respondents questions about robotic process automation tools for the first time and we learned that 14% are currently using them to manage legal, compliance and fraud risks (Figure 4). Further, 39% of respondents reported that they are likely to adopt robotic process automation within the next year (Figure 5). In addition, 38% plan to adopt artificial intelligence.

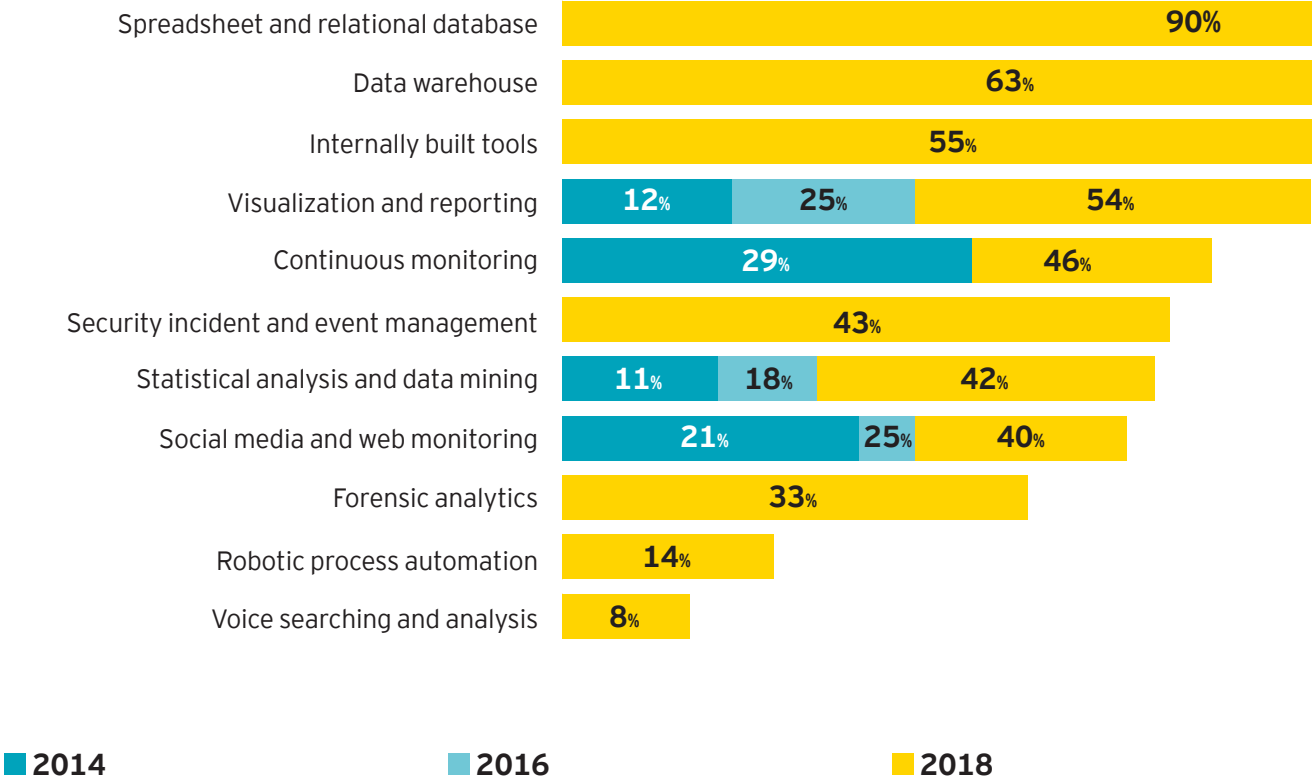
We are also seeing a trend in building in-house tools, by 55% of respondents. Internally built tools often employ open-source technologies that can allow companies to save on software licensing costs. The tools can also provide companies with greater flexibility to design risk programs that are tailored to a company's unique risk profile and organizational culture.

39%
of respondents



plan to adopt robotic process automation within the next year.

Figure 4: Broader adoption of advanced technologies

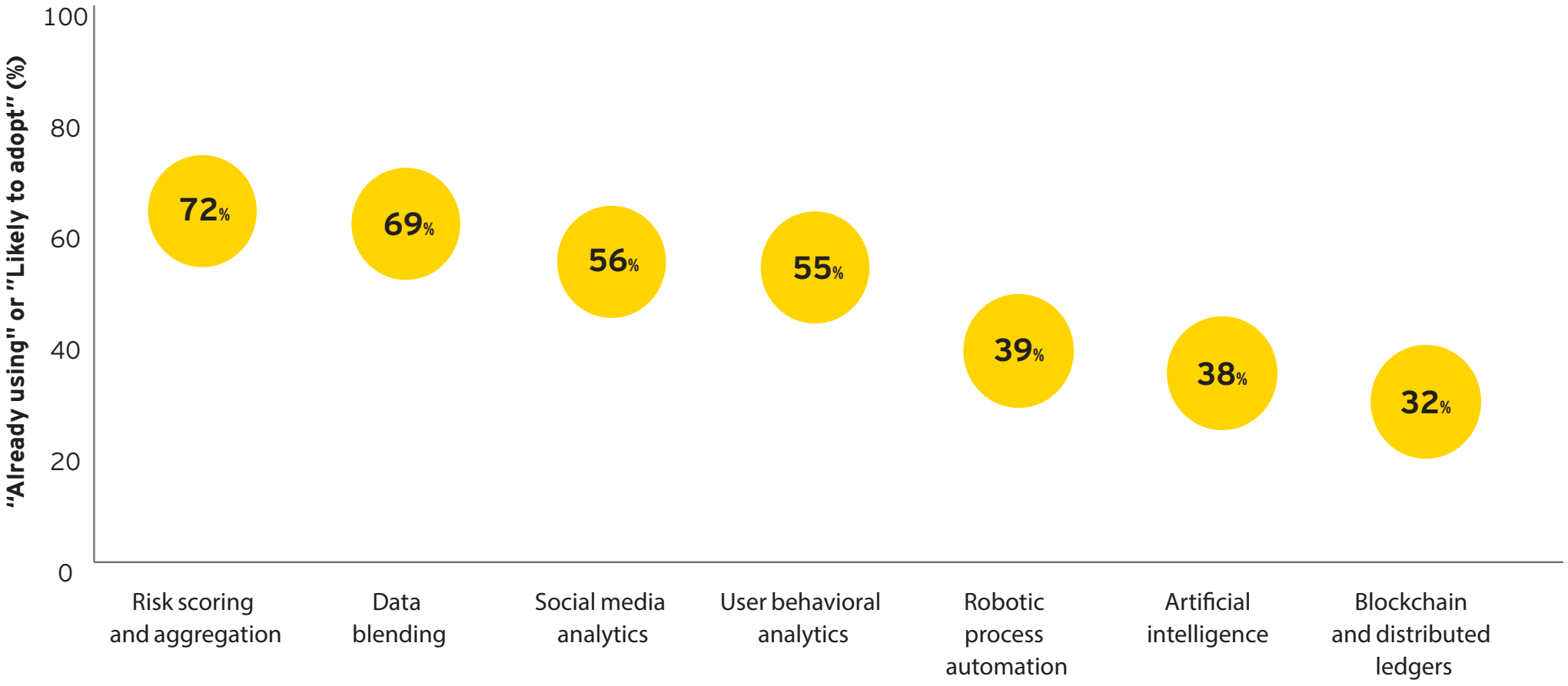


Q: In the context of managing your legal, compliance and fraud risks, what FDA technologies do you utilize?
Base: all respondents (745)

> "With continued technological innovation and disruption, the future of compliance functions will evolve. Data analytics will drive compliance functions toward the most significant risk areas, unearthing important issues sooner and moving the focus onto ethics and integrity management."
>
> **Richard Sibery, Partner, Forensic & Integrity Services, Ernst & Young LLP, US**

Over 70% of respondents indicated that they are likely to adopt risk scoring and aggregation techniques (Figure 5). Many companies are turning to these and other FDA techniques, such as data blending, user behavioral analytics and social media analytics, for continuous monitoring. As we pointed out in the 2014 report, leveraging FDA in compliance monitoring can improve adherence to company policies and bolster internal controls. Risk scoring and aggregation techniques have been increasingly utilized to help companies make informed risk decisions and improve business transparency. User behavioral analytics and social media analytics have proven to be effective techniques in identifying abnormal activities and suspicious relationships.

Figure 5: Future adoption of emerging FDA technologies and techniques



Q: How likely is your organization to adopt these technologies and techniques within the next year?
Base: all respondents (745)

Case study: centralized life sciences compliance monitoring for better risk prevention and detection

The objective

A pharmaceutical manufacturer needed to develop an enterprise-wide compliance monitoring program to track bribery and corruption risks.

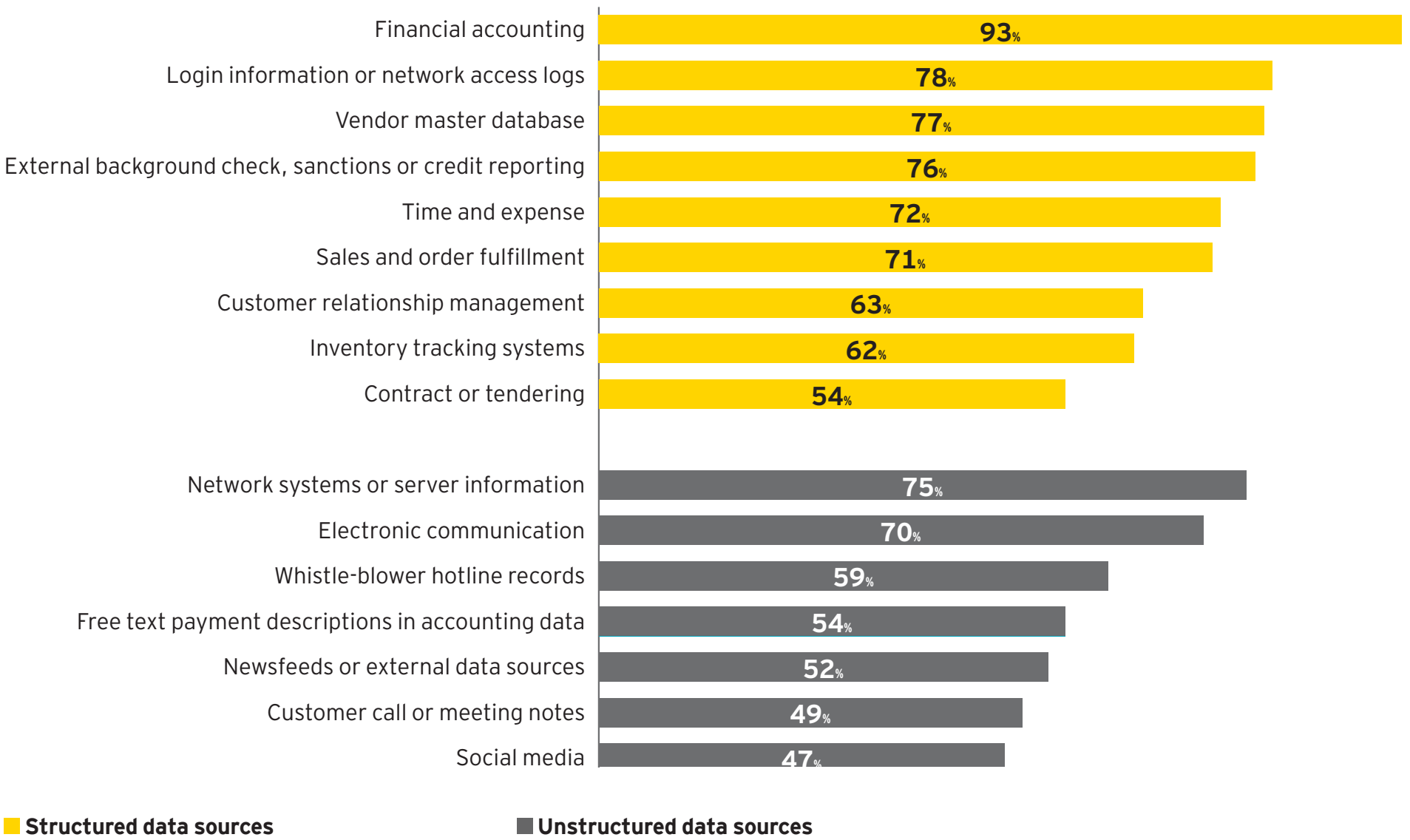
To achieve this objective, the manufacturer:

- Consolidated more than 30 data feeds into a centralized compliance monitoring platform with entity-level views to track various business activities at both employee and health care professional levels
- Developed custom algorithms to generate risk-profiling scores for the key business activities being monitored
- Built interactive visual dashboards to provide front-office personnel with analytics results and the ability to drill into details in real time
- Integrated the reporting functions with case-management workflows to provide a platform where stakeholders work together to monitor, triage and mitigate risks
- Identified and mitigated enterprise-wide compliance risks, including risks related to off-label marketing, third-party representatives and sales force interactions with health care professionals

Broad inclusion of data sources

In order to ask the right business risk questions, an FDA program needs to combine the right data sources in an intelligent manner to derive useful business and risk insights. For example, while a transaction may pass all internal controls, it is only when you overlay other contextual data that you are able to identify unusual activities that may warrant investigation. With the better adoption of advanced FDA technologies, many companies have shown improvements in the inclusion of a wide range of data sources, both structured and unstructured (Figure 6).

Figure 6: Broad use of data sources



Q: Which data sources does your organization use to analyze the areas of risk that impact your organization?
Base: all respondents (745)

Structured data is the most common data type being used for FDA purposes. More than 50% of respondents are using most of the nine structured data sources included in the survey. However, unstructured data surpasses structured data in volume and this gap is widening as part of ongoing digital transformation trends. Research from the International Data Corporation shows that unstructured content accounts for 90% of all digital information[1]. While unstructured data is not as widely used by companies as structured data, its use still has increased significantly since our 2014 survey when almost half of the unstructured data sources had an inclusion rate below 40%. In this year's survey, the inclusion rate for unstructured data sources is above 40% across the board. This indicates that companies are investing in the technical capabilities for collecting and processing unstructured data, which often provides context and meaning to structured data.

[1] "IDC Community," *Unlocking the Hidden Value of Information*, https://idc-community.com/groups/it_agenda/bigdataanalytics?author=7e536575-b4ab-48fb-8510-3436d386052e, 15 July 2014

> "By combining multiple data sources, both structured and unstructured, companies are able to ask more targeted and accurate business questions that focus on mitigating risks and increasing business transparency."
>
> **Jack Jia, Partner, Forensic & Integrity Services, Ernst & Young Advisory Services Limited**

Better integration is needed to gain insights from data

While an increase in the collection of data from multiple sources has occurred, companies have not been as effective in integrating the data sources. Analyzing large volumes of data from disparate sources is increasingly challenging. From 2014 to 2018, respondents who felt challenged by combining or accessing data sources more than doubled, from 15% to 33% (Figure 7). Certainly, the explosion of data over the past several years as part of the digitization trend has increased the challenges of analyzing data for FDA, and we do not anticipate this trend slowing down in the near future.

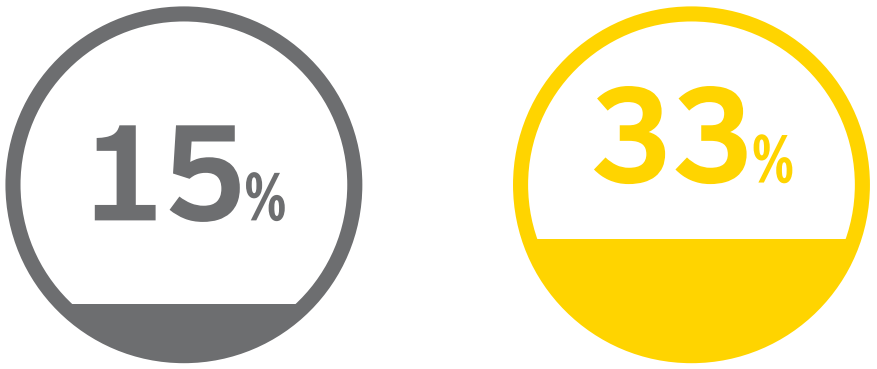
Companies are struggling to get a consistent, global view from differing data sets, with 46% of respondents agreeing that this remains a real challenge in using FDA. However, being able to effectively combine multiple data sources is key to successful risk management. For example, many employee conduct risk monitoring programs rely on electronic communications data and structured financial data. The combination of these data sources can provide investigators with a complete view of the actors involved, the hidden relationships among them, as well as the detailed timelines of the suspicious activities.

46%

of respondents

consider "getting a consistent global view from multiple data sets remains a real challenge in using FDA."

Figure 7: Integrating data sources has become a bigger challenge



Challenges in combining or accessing data sources

Q: **Which do you consider to be the main challenges that you face with respect to FDA?**
Base: all respondents (745)

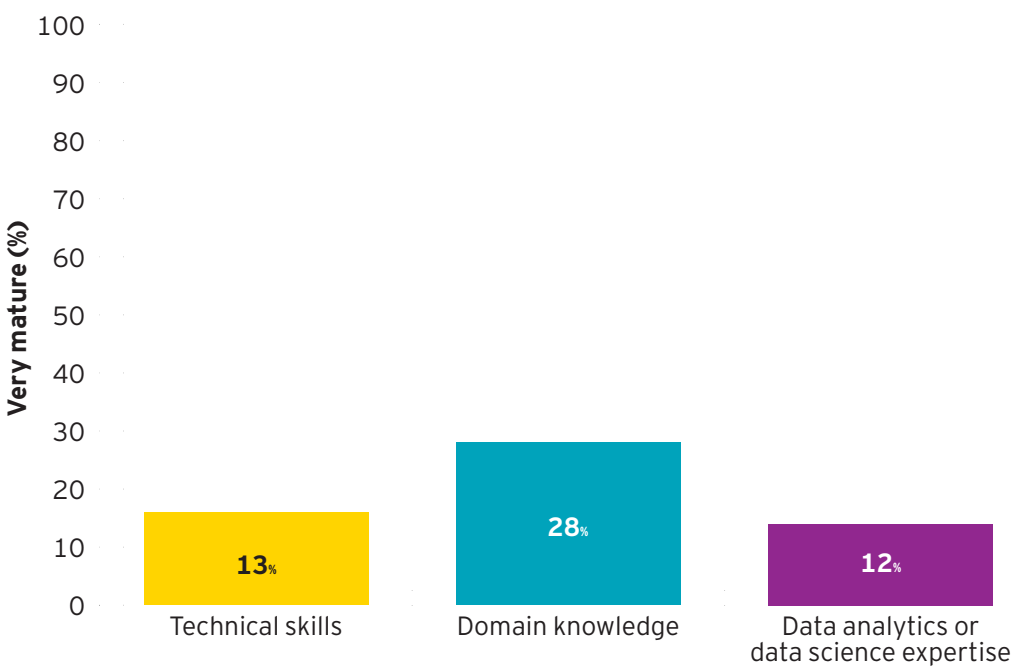
Successful FDA deployment requires three core skills:

1 Technical skills
Understanding of the company's relevant systems and applicable technologies

2 Domain knowledge
Familiarity with the business risks and the ability to interpret analytic results in the context of the company's and its industry's risk environments

3 Data analytics or data science expertise
Mathematical, computer science and business intelligence skills in technologies such as pattern recognition, statistical analysis, query design and data visualization

Figure 8: Low confidence in FDA abilities



Q: **How would you rate your organization's FDA abilities?**
Base: all respondents (745)

Human resources and skills also need to catch up

Technology on its own is not enough. Data analytics and artificial intelligence require human input. While more and more machines perform routine collection, management and analysis of data, employees must possess the domain knowledge to develop the algorithms and interpret the outputs.

Our 2018 survey results demonstrate that few companies are confident that they currently have the requisite skill sets needed. Only 13% of respondents feel that their companies' FDA technical skills are very mature, while 12% believe that their organizations have the right data analytics or data science expertise (Figure 8). These results echo the findings of our 2016 survey.

The lack of skill sets is also reflected in how respondents rated the maturity level in some aspects of FDA. More than half of the respondents consider their abilities to integrate multiple data sources for better risk detection and mitigation immature (Figure 9). The same sentiment is reflected in their assessments of their abilities in continuous monitoring.

Figure 9: Maturity assessment in aspects of FDA
Percentages of respondents who rated the following areas immature

Integrating multiple data sources for better risk detection and mitigation

Moving from ad hoc or periodic testing to continuous monitoring

Q: **How would you rate your organization's current level of maturity in these aspects of FDA?**
Base: all respondents (745)

Harnessing the power of data analytics and continuous monitoring

Using an appropriate analytics approach is key to getting the most value out of data. In many cases, the same data analytic techniques employed in reactive investigations are used for proactive monitoring programs. These include artificial intelligence techniques, such as topic modeling, linguistic analysis, statistical analysis and rule-based descriptive tests. Behavioral analytics and social network analysis are used more extensively in continuous monitoring than in reactive investigations. They help to identify patterns of unusual activities and hidden relationships, and to predict future misconduct.

Artificial intelligence and machine learning, when integrated into a continuous monitoring system, can lower false positives by enhancing the quality of outputs and by allowing for a more holistic review. These techniques work by providing a feedback loop through which compliance professionals incorporate their analysis into the monitoring system, thereby training the system to reduce false positives over time. As new risks emerge, compliance professionals periodically assess the quality of the results, adjusting risk scores and detecting anomalies more efficiently. In addition, companies can use data segmentation and statistical analysis to identify characteristics specific to each risk area and to create custom risk indicators or risk scores.

Data visualization tools bring case management to life through intuitive, audience-appropriate reporting views and interactive capabilities to aggregate or isolate risk hotspots. Case management is another integral component of a continuous monitoring system. Integrated case management allows companies to customize workflows, to efficiently perform compliance reviews and to improve machine-learning results by training the model based on human feedback. Effective case management also enables users to quickly react to compliance alerts – either drilling down into specific details or escalating the alert to appropriate personnel with supporting detail.

3

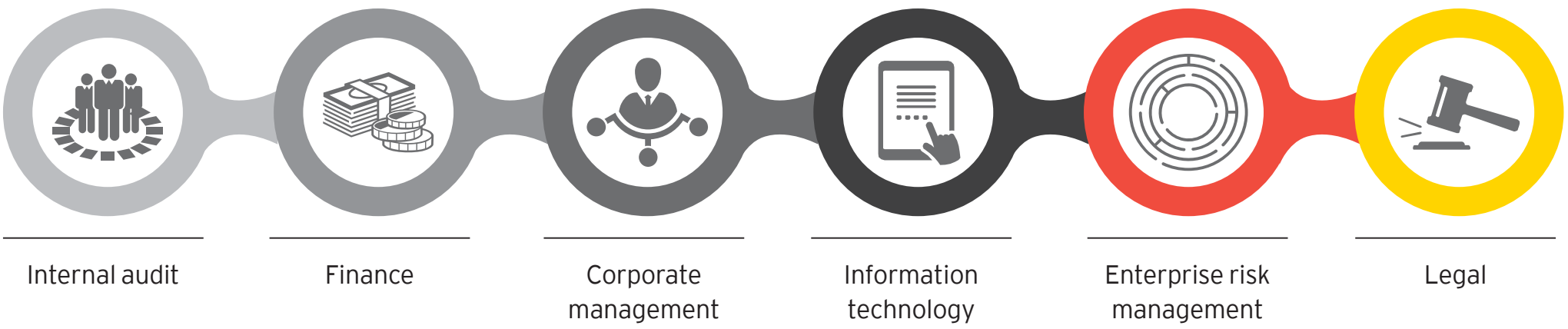
FDA integration and governance are necessary for success

FDA is most effective when all stakeholders work together in an integrated and collaborative manner. Integration requires strong governance and support from leadership.

Many stakeholders, yet few dedicated FDA resources

As discussed in section 1, there is a strong recognition of FDA's wide-ranging benefits by our respondents that goes beyond risk management. By delivering better insights, FDA programs can help improve operational efficiency, enhance revenue growth and facilitate a culture of ethics and integrity. It is therefore not surprising that our survey shows that in most companies, multiple departments are responsible for the strategy and policy decisions relating to FDA. The same is true for the execution of FDA.

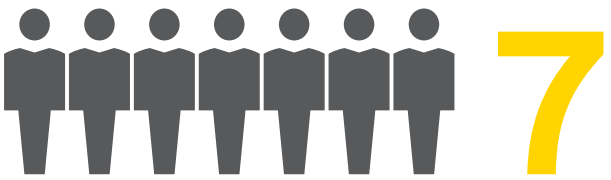
Functions identified by over 40% of respondents as being responsible for defining and executing the FDA strategy



"In today's fast-changing digital world, companies have ever-evolving risk profiles. Forensic data analytics gives them the opportunity to move from a reactive strategy, where the past dictates how companies define their compliance and risk programs, to a forward-looking strategy, through which they can plan for enhanced prevention and mitigation activities."

Carl Judge, Partner, Forensic & Integrity Services, Ernst & Young LLP, UK

The survey also shows that a broad range of beneficiaries exist beyond risk management (Figure 10). Corporate executives, finance and even the board of directors were noted as the top three beneficiaries of FDA activities. With a diverse group of stakeholders, competing priorities can be difficult to reconcile without strong governance and leadership.



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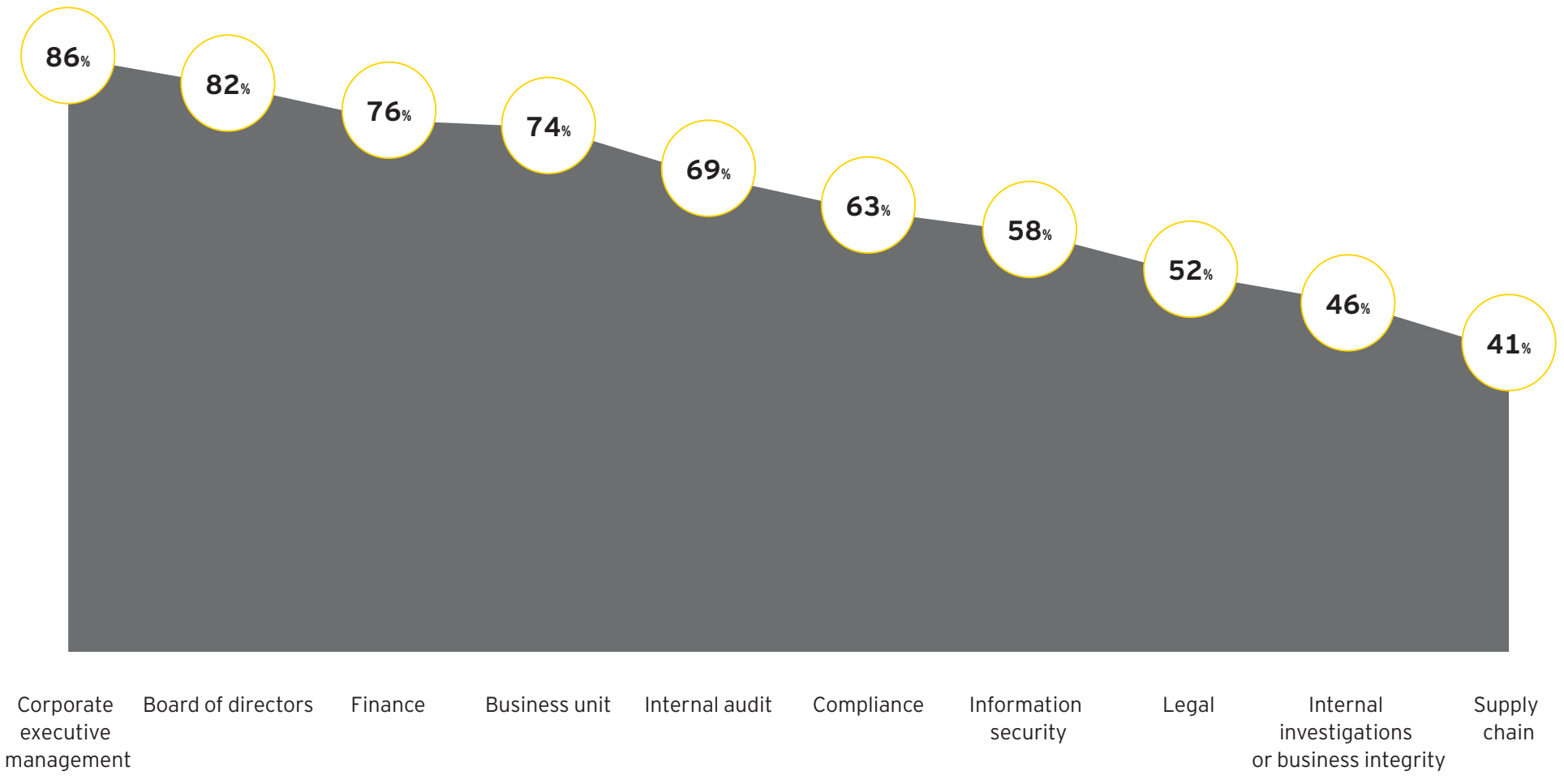
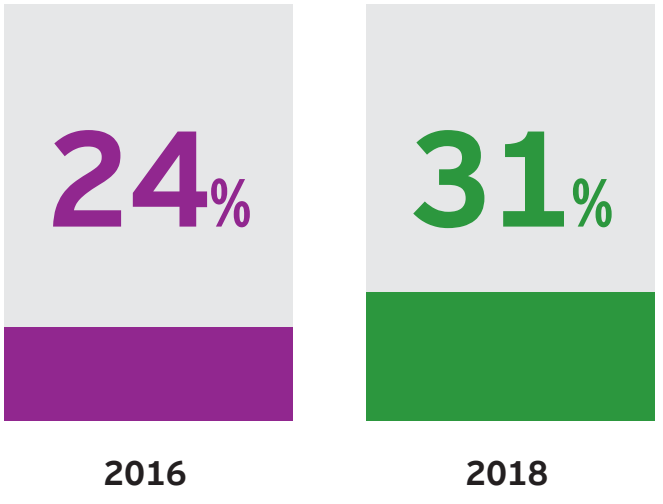
Average number of beneficiaries

Figure 10: Many beneficiaries



Q: Which of these functions are the primary beneficiaries of your FDA activities?
Base: all respondents (745)

Despite such a broad audience, the number of dedicated FDA personnel remains low. Only 13% of respondents have 10 or more dedicated personnel involved in executing FDA and 39% have no dedicated personnel (Figure 11). The low number of dedicated FDA personnel might be explained by the fact that 31% of respondents said that they outsource some or all of their FDA efforts. The percentage of respondents reported to have outsourced some or all of their FDA efforts has increased from 24% in 2016.



Percentages of surveyed companies that outsource FDA

Figure 11: Low level of dedicated resources

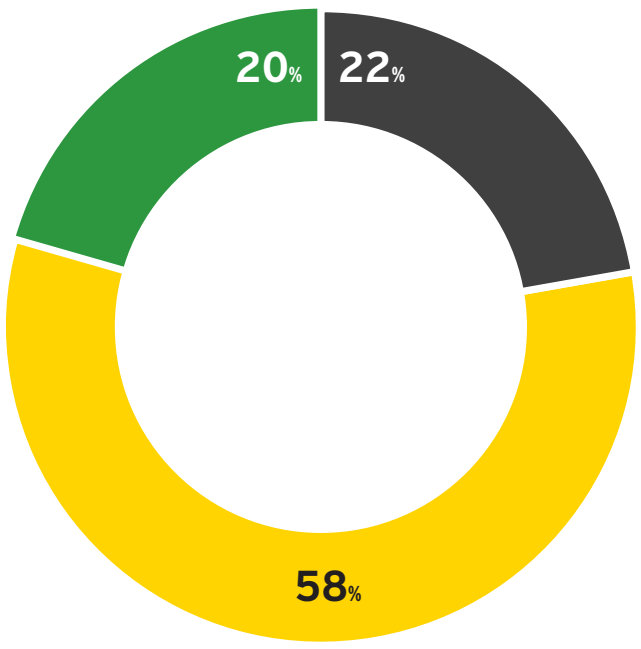
Q: How many dedicated personnel are involved in executing your FDA strategy, including development of tests, technology support or analysis of the output?
Base: all respondents (745)
The "Don't know" percentages have been omitted to allow better comparisons among the responses given.

Cross-functional collaboration is a challenge

Our survey has revealed that many risk functions are siloed and not working together effectively (Figure 12). Only 20% of respondents feel that their companies' risk management functions fully collaborate with each other. Almost a quarter of respondents think that their risk management functions are siloed.

The lack of collaboration in FDA efforts could be a result of the few FDA-dedicated resources in a position to facilitate communications across departments. The issue can also be compounded by the competing priorities of the many stakeholders involved.

Figure 12: Siloed operations in risk management



- **We have siloed risk management functions that do not share consistent FDA efforts.**
- **Some of our risk management functions collaborate with each other in their FDA efforts.**
- **We have well-coordinated FDA efforts across risk management functions.**

Q: **Which statement best describes the use of FDA in managing risks by your organization?**
Base: all respondents (745)

Case study: strong integration increased effectiveness and efficiency for a full-scale compliance remediation program

The objective

A major bank identified consumer credit compliance violations with its customer loan contracts. As a result, it had to initiate a project to refund to its customers all interest, fees and other charges levied during the noncompliant period. The project needed to be done in a precise manner and within a challenging timeframe to avoid further financial and reputational risks.

To achieve this objective, the bank:

- Adopted a "one team" approach to gain alignment with stakeholders from a wide variety of disciplines (e.g., business unit head, sales, legal, customer relations, IT) in order to make quick decisions as new issues arose
- Performed a forensic data discovery exercise across the bank to identify the systems holding customer and loan transactional data over the noncompliant period
- Built a single data platform to house all affected loans, supported by custom workflows
- Performed automated redress calculations for more than 90% of loans on the basis of regulatory requirements

FDA is most effective when the governance structure enables:

1

The right risk areas to be identified and prioritized

2

The right technologies and the right data sources to be applied to these risks

3

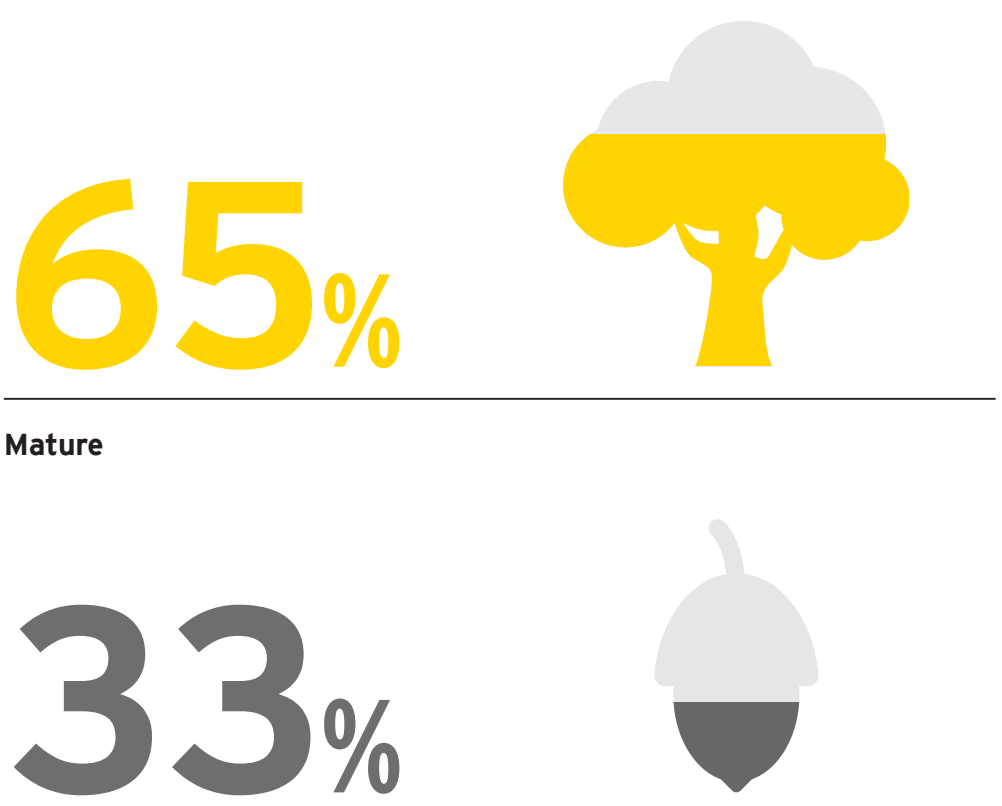
The right people to harness the power of the technology and interpret the results

Effective collaboration needs strong governance and leadership support

As the survey shows, the diverse group of stakeholders and the lack of dedicated resources to facilitate communications among stakeholders can pose a serious challenge to successful collaboration. Strong governance is key to overcoming the challenges of collaborating across departments. However, about one-third of respondents consider their companies' FDA governance models as immature (Figure 13).

> "As more companies seek growth in emerging markets, cross-functional collaboration and a strong governance model are essential to effective risk management."
>
> **Arpinder Singh, Partner, Forensic & Integrity Services, Ernst & Young LLP, India**

Figure 13: Maturity level as relates to "a clear FDA governance model"



Q. How would you rate your organization's current level of maturity in the aspect of "having a clear governance model for responsibility and accountability"?
Base: all respondents (745)

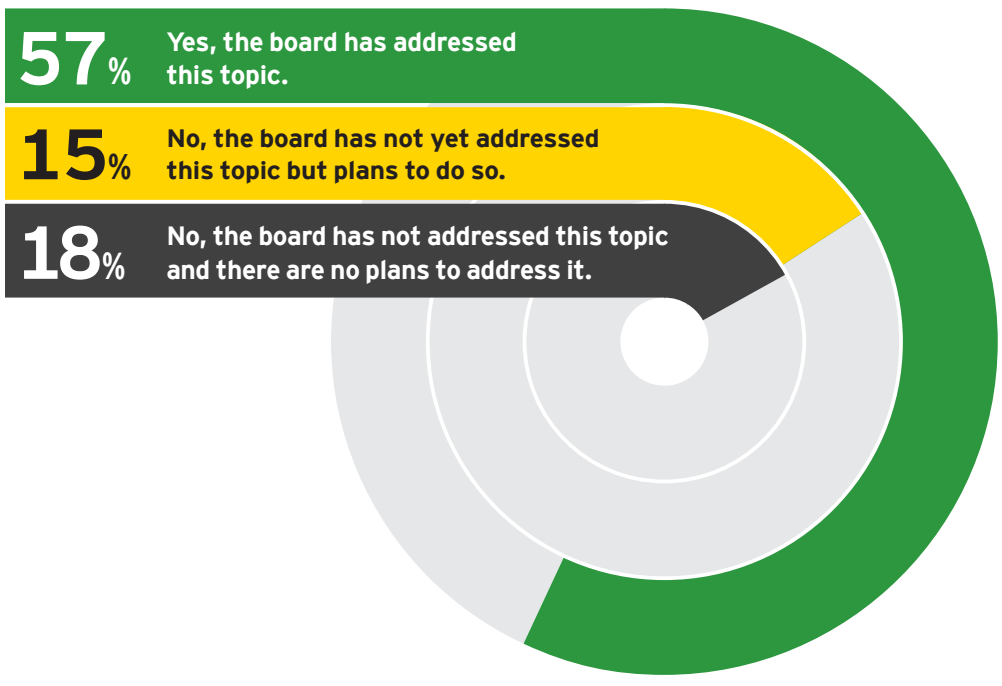
The "Unsure" percentages have been omitted to allow better comparisons among the responses given.

"It is difficult to manage what you cannot measure. Starting with the right business risk questions, companies should design compliance and anti-fraud programs that incorporate key performance indicators."

Vincent Walden, Partner, Forensic & Integrity Services, Ernst & Young LLP, US

Leadership support is critical for FDA to be successfully integrated into risk management functions. The board of directors play a key role in setting the direction of the company's risk agenda. We asked respondents whether their boards have recently addressed the topic of data analytics and its use in managing legal, compliance and fraud risks. The results reveal that the majority of boards have addressed the topic (Figure 14). Additionally, 15% said that while they have not yet done so, there are plans to do so in the future. Only 18% of respondents indicated that their boards are not addressing the topic.

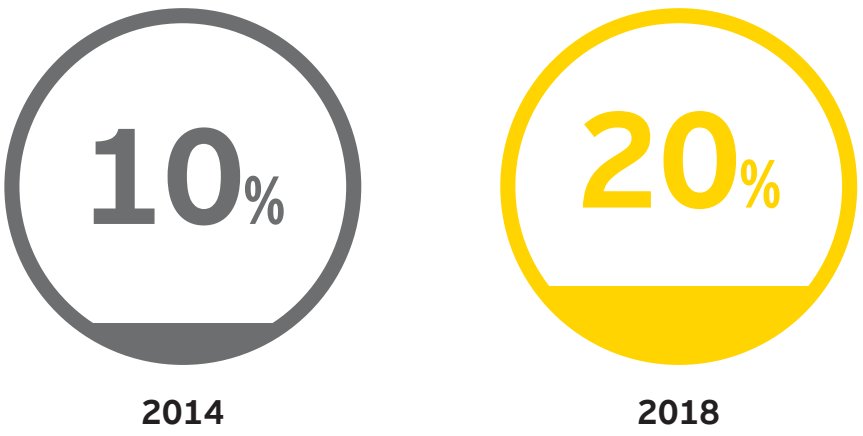
Figure 14: Has the board addressed FDA?



Q: In the last 12 months, to your knowledge, has the board of directors addressed the topic of data analytics and how can it be used in managing legal, compliance and fraud risks?
Base: all respondents (745)

The "Don't know" responses have been omitted to allow better comparisons among the responses given.

Even so, there is more work to be done. In our 2014 survey, only 10% of respondents identified lack of management attention or leadership as a main challenge with respect to FDA. In this year's survey, that number has doubled. It is a reminder that despite the steps companies have taken, opportunities for continued progress in securing leadership involvement and buy-in remain. In fact, 45% of respondents acknowledged that more is needed to improve management's awareness of the benefits of FDA.



of respondents

regard lack of management attention or leadership support as a main challenge with respect to FDA.

45%

of respondents

agree that they need to improve management's awareness of the benefits of FDA in managing risks.

4

The application of FDA within data protection and data privacy compliance is paramount

Data protection and data privacy laws are major compliance challenges. Many companies appear to be ill prepared; FDA can be a useful compliance aid.

What respondents said about their readiness

There has been unprecedented development of data protection and data privacy regulations around the world, which can create serious challenges for companies. Examples include the EU's GDPR, China's Cybersecurity Law, Australia's Privacy Amendment and South Africa's Electronic Communications and Transactions Act. Businesses must respond with new compliance programs to reduce regulatory risks.

The GDPR, which comes into effect on 25 May 2018, is a compelling example of the way data protection and data privacy challenges affect companies. Our survey reveals that too many companies are still not prepared for the GDPR. When asked to describe their company's current status with respect to complying with the GDPR, only 33% of respondents said that they have a plan, while 39% said that they are not familiar with the GDPR at all and 17% said that they have heard of the GDPR but have not yet taken any action (Figure 15).

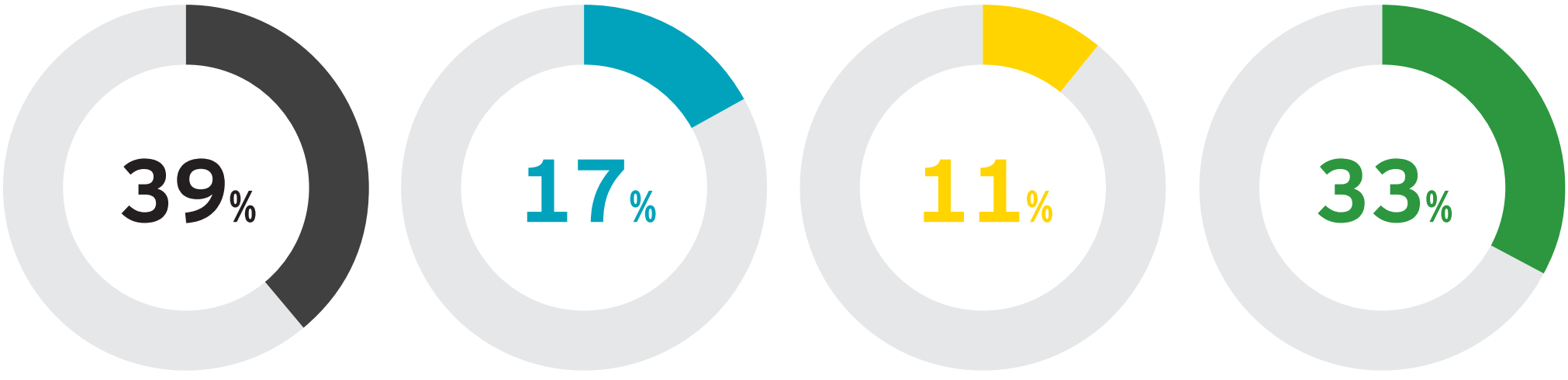
Only 13% of respondent companies across the Americas and only 12% in Asia-Pacific have a compliance plan that addresses the GDPR. Considering the extraterritoriality of the GDPR — meaning it impacts foreign companies that process the data of EU residents — these percentages are very low. European respondents represented a far greater percentage, with 60% of companies indicating they have a compliance plan in place. Specifically, 80% in Germany, 68% in the UK and 73% in Ireland indicated that they have a compliance plan. Given the high penalties for GDPR noncompliance, it is not surprising that 67% of respondents who are familiar with the GDPR said that they are concerned about regulatory enforcement. However, there appears to be a disconnect between the concern with being penalized for violating the GDPR and proactive measures to ensure compliance with the law.

What is the General Data Protection Regulation (GDPR)?

The GDPR attempts to unify data protection laws across the EU. It applies to all companies, regardless of location, that process the personal data of people living in the EU. It, therefore, has immense extraterritorial reach. The GDPR includes "privacy by default"[2] and "privacy by design,"[2] and requires notification within 72 hours in the event of a data breach. Violators can be fined up to 4% of annual global turnover or €20m, whichever is greater.

[2] "EUR-Lex," http://eur-lex.europa.eu/eli/reg/2016/679/oj, 19 January 2018.

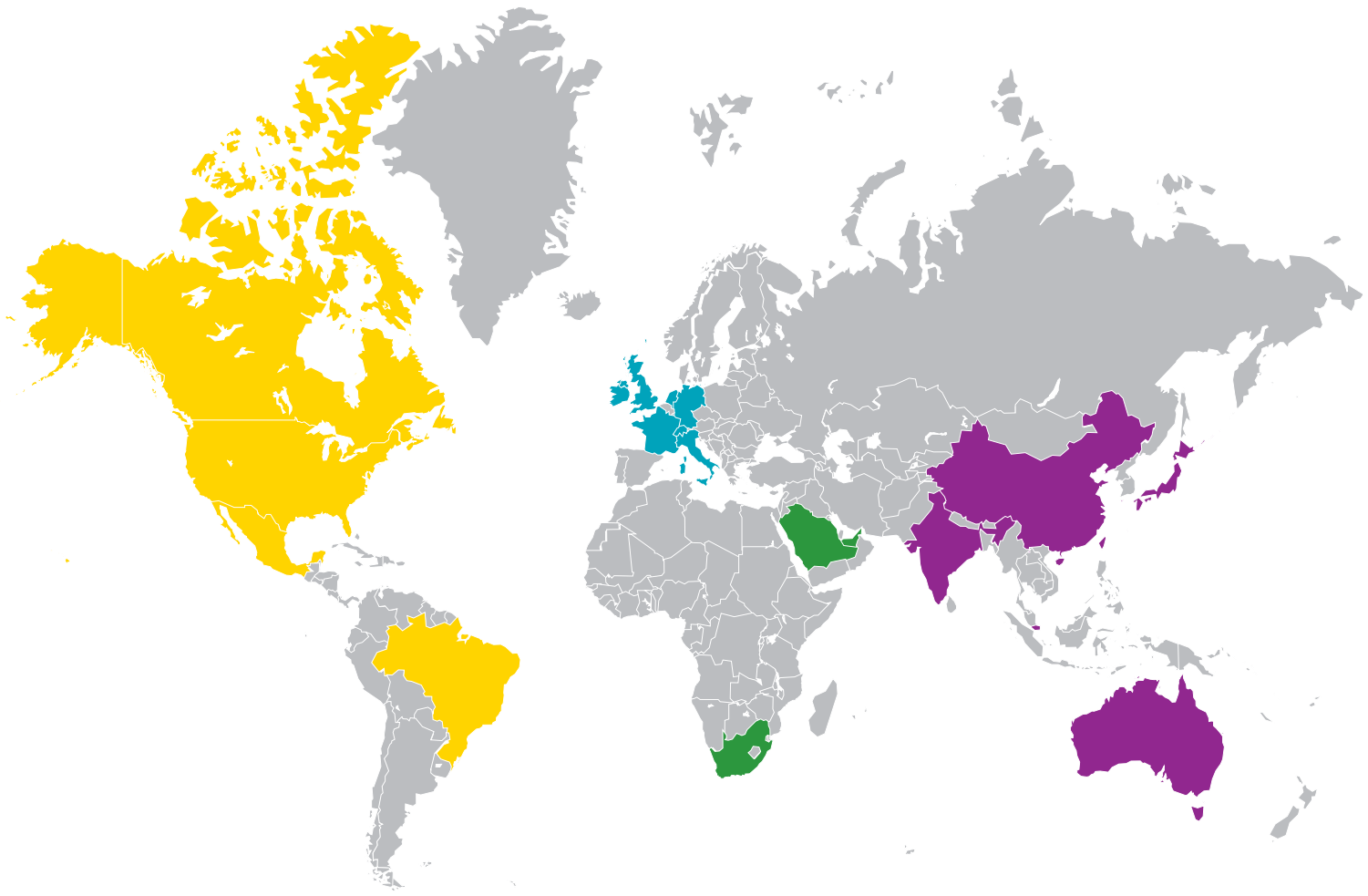
Figure 15: GDPR compliance readiness – overall



Base: all respondents (745)

GDPR compliance readiness – by country and region

	We have a plan
Brazil	0%
Canada	10%
Mexico	10%
US	32%
Americas average	13%
France	50%
Germany	80%
Ireland	73%
Italy	48%
Netherlands	63%
Switzerland	40%
UK	68%
Europe average	60%
South Africa	35%
UAE and Saudi Arabia	18%
South Africa, UAE and Saudi Arabia average	27%
Australia	18%
China (including Hong Kong SAR)	10%
India	13%
Japan	8%
Singapore	10%
Asia-Pacific average	12%



Q: Which statement best describes your company's status, with respect to complying with the GDPR in 2018?
Base: US (65), the rest of the locations (40 each)

42%

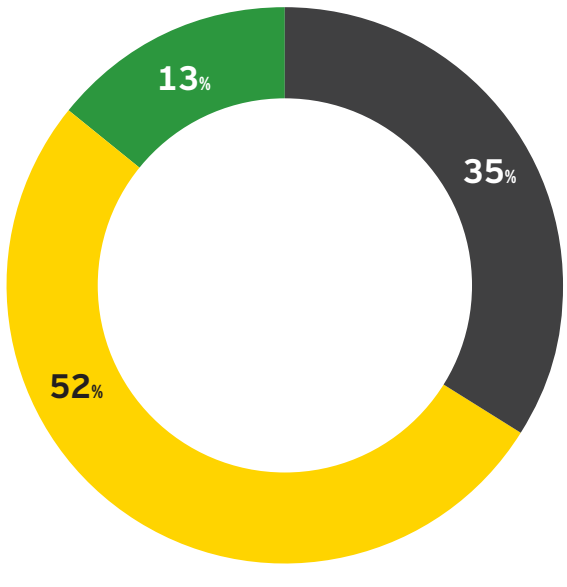
agree that data protection and data privacy regulations have a significant impact on the design and use of FDA.

FDA as a GDPR compliance aid

Our survey reveals that 42% of respondents believe that data protection and data privacy regulations have a significant impact on the design and use of FDA. However, when asked if they are using FDA to assist in their GDPR compliance efforts, only 13% of respondents said yes (Figure 16).

FDA can be a key tool in GDPR compliance efforts that companies should continue to assess opportunities to integrate them. For example, information governance programs are critical elements of GDPR compliance. They enable companies to understand where their data is located, who has access to it, how it is used, how it is protected and how to respond in the event of a breach. While information governance is the overarching business function, FDA is one of the specific tools used to understand the content of the data held in disparate and unconnected systems.

Figure 16: Using FDA in GDPR compliance



- **We are not currently using any FDA tools to support GDPR compliance.**
- **We are in the process of analyzing what FDA tools can assist us with achieving compliance.**
- **We have data monitoring and reporting tools in place that will allow us to be in compliance with the GDPR.**

Q: How (if at all) are you using FDA tools to assist in your GDPR compliance efforts?
Base: all respondents except those who have not heard of the GDPR (453)

FDA and GDPR compliance

FDA technologies can be a powerful tool in GDPR compliance efforts. It is common practice for many companies to use analytics to understand the content of their data and perform privacy impact assessments. While many are focused on the mechanics of data protection to address the GDPR, an equally important exercise is to address the question of ethics and governance of data use. One example of this would be analyzing and profiling personal data.

It is also important to note that while FDA can help companies comply with the GDPR, inappropriate or disproportionate use of FDA — usually the result of poor governance — can itself lead to violation of these laws in certain jurisdictions. The very technology designed to help manage legal and regulatory risks can pose its own risks and must be carefully managed. For example, if a company fails to obtain the consent of the people whose personal data is being analyzed, or the data is compromised and the incident is not reported within the necessary time frame, the company could be at risk of being noncompliant.

Companies that incorporate data protection and data privacy compliance in their FDA strategies can gain a competitive edge over those that choose to avoid FDA due to the cost of compliance and regulatory concerns. Our survey finds that the vast majority of respondents believe that FDA is effective, with significant benefits ranging from improved risk assessments, ability to detect risk in large data sets, to more efficient investigations. Companies that continue to use FDA will be better positioned to compete in the marketplace.

5

Realizing the full potential of FDA and transforming the risk functions

Digital transformation continues to impact corporate risk functions. Having an effective FDA strategy will lead to better risk management and increased business transparency.

Overcoming the challenges of using FDA

In summarizing the survey findings, as FDA expands in line with other corporate digital transformation initiatives, companies face the following challenges:

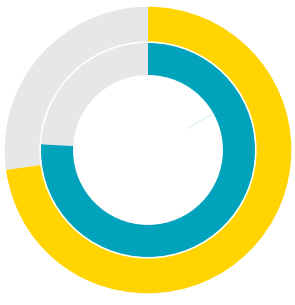
- Companies are aggregating more data from more sources than ever before — enabling them to ask more targeted risk questions. However, 46% of respondents still consider "getting a consistent global view from multiple data sets remains a real challenge in using FDA."
- Technology is an important enabler, but it is not a replacement for people. While advanced FDA technologies are being implemented by companies, skilled resources are in short supply. Survey respondents indicated that only 13% of companies have the requisite technical skills covered, but these resources remain a critical element.
- The diverse group of FDA stakeholders can pose a serious challenge to cross-functional collaboration. It is reflected in the survey results that many risk functions are siloed and not collaborating with each other. Strong governance is the key to overcoming these challenges.
- Nearly half of the companies surveyed (45%) agreed that they need to improve management's awareness of the benefits of FDA. This is consistent with the fact that the percentage of companies reporting the lack of management support as their main FDA challenge has doubled in recent years.

> "Today's fast-increasing computation power may make handling large amounts of data less of a problem, but integrating a wide variety of data sources cannot be resolved simply by adding fast processors. It needs the power of data analytics, combined with human intelligence, to identify the hidden relationships and to tell the whole story."
>
> **Glenn Perachio, Partner, Forensic & Integrity Services, Ernst & Young LLP, UK**

To overcome these challenges, companies should consider the following (Figure 17):

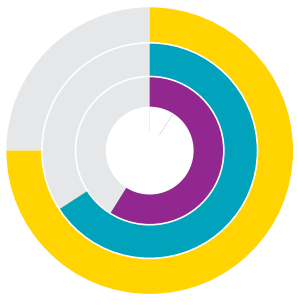
Figure 17: Key steps to realize the full potential of FDA

Aim for better integration
Data sources and people should be fully integrated across all areas of the company.



- 73% **Better access to centralized data repositories within the organization**
- 76% **Cross-functional collaboration and information sharing**

Leverage the right technologies, data and people
Companies should use the right technologies and data sources, implemented by subject-matter experts who have the right skills.



- 74% **Investment in the right technologies, and data analytics and data mining platforms**
- 65% **Investment in compliance and risk experts who are responsible for designing and reviewing the results of the analytics**
- 59% **Investment in data science and information technology professionals**

Secure strong leadership
Companies should build an FDA program with strong governance and support from the board of directors and executive management.

- 69% **Sponsorship from executive management**

Q: Which do you consider are important factors that have helped your organization realize the benefits of FDA?
Base: all respondents (745)

Aim for better integration

Most companies (73%) have access to centralized data repositories that are helping FDA efforts to process large amounts of data from a wide variety of sources (Figure 17). However, more efforts are needed to effectively integrate and analyze data to gain better business and risk insights. Cross-functional collaboration and information sharing are important to develop the right data analytics for the right risks, and to interpret the analytics results to gain business and risk insights.

Leverage the right technologies, data and people

Companies need to invest in both technologies and people to advance their FDA capabilities. Seventy-four percent of companies surveyed responded that their investment in the right technologies and data analytic platforms is a key factor in recognizing the benefits of FDA. Nearly two-thirds of companies also acknowledged that investing in subject-matter experts is needed to design the data analytics and interpret the results.

Secure strong leadership

Improved risk detection and mitigation, among other factors, are important metrics to demonstrate the return on investment of FDA. Nearly 70% of companies attribute obtaining sponsorship from executive management as the key factor in helping them develop a successful FDA program. We believe that defining the key performance indicators up front and increasing management's awareness of the benefits of FDA is important to secure continued leadership buy-in.

FDA innovation examples

While the survey suggests that most companies struggle with one or more key areas to realize the full potential of FDA, there are cases of compliance, internal audit and legal departments pushing the boundaries and taking a leading role in the data analytics strategy of their companies.

The compliance department of a large consumer products company worked with a team of consultants and lawyers to design a metrics-driven, enterprise-wide methodology and platform for continuous monitoring of transactions and compliance risks. The platform integrates data from multiple data sources, such as accounting systems, travel expense reports and third-party due diligence information, from across the business. It then applies analytics to calculate risk scores. The compliance monitoring platform already spans more than 50 countries and is planned to be rolled out to additional countries. To accommodate multiple data sources into a single data lake, the company's compliance department coordinated with its information technology group to leverage its existing strategic investments in cloud technology. The company also recruited a team of data analytics experts to support the ongoing analysis and review. The project team worked closely with the company's legal counsel to ensure compliance with relevant data protection and data privacy regulations.

The project is sponsored at the C-suite level and recognized as one of the company's top 10 strategic priorities. The initiative has helped the company generate cost savings from reduced investigation expense, as well as significant improvements in financial accounting controls, business transparency and compliance monitoring.

A global industrial manufacturing company developed an analytics model to better understand employee business courtesy and corruption risk areas. The goal was to make compliance awareness more top of mind, rather than just a once-per-quarter training exercise. Led by the company's compliance department, and with support from the general counsel, the program recognizes each employee as a unique entity with distinctive traits that are discernible from their job profile and employee data. While maintaining compliance with applicable country data protection and privacy restrictions, the analytics results are used to send relevant, just-in-time communications to employees before they encounter a specific compliance risk. The program's objective is to enable better employee decision-making in the field and reduce compliance risk across the organization.

With the right efforts, investment and leadership support, the confluence of data and technology will better address businesses' needs to manage legal, compliance and fraud risks. Companies can extend FDA's benefits beyond basic risk functions while increasing business transparency and improving operational efficiency. In doing so, the risk function can continue to protect the business while also offering insights that can inform business opportunities and strategy.

Survey methodology

Between October and November 2017, researchers from Longitude Research, a business-to-business research and content agency, conducted 745 interviews in 19 countries with companies using FDA. Respondents had to be the decision-makers who have risk management responsibilities, particularly in legal, compliance and fraud functions. A breakdown of the survey respondents is as follows:

Job title	Interviews
CEO, COO or CIO	27
Head of internal audit or CRO	232
Other audit or risk	94
Head of compliance	57
Head of legal	25
Head of investigations	8
Head of business unit or division	15
Head of security	4
CFO or finance director	78
Financial controller	63
Other finance	80
Company secretary	7
Other management staff	55

Industry	Interviews
Consumer products, retail and wholesale	144
Financial services	151
Life sciences and health care	67
Manufacturing	127
Mining	31
Oil and gas	39
Power and utilities	56
Technology, communications and entertainment	69
Transportation	26
Other	35

Revenue	Interviews
More than US$5b	168
US$1b-US$5b	208
US$500m-US$1b	118
US$100m-US$500m	251

Geographic location	Interviews
Australia	40
Brazil	40
China (including Hong Kong SAR)	40
Canada	40
France	40
Germany	40
India	40
Ireland	40
Italy	40
Japan	40
Mexico	40
Netherlands	40
Singapore	40
UAE and Saudi Arabia	40
South Africa	40
Switzerland	40
UK	40
US	65

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