

Data and Analytics: A New Driver of Performance and Valuation

A report prepared by Institutional Investor Research and KPMG | July 2015



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Foreword by KPMG



KPMG is pleased to sponsor this landmark research on data and analytics (D&A), conducted by Institutional Investor Research.

Developments in D&A—including those in technology, communications, and real-time analytics—have continued to transform consumer behavior and to disrupt company business models worldwide over the last decade. We are confident that this impact will translate into shifts in valuation in the near term and that we are, in fact, already seeing evidence of this.

The findings of this research corroborate what we are hearing from corporate management and technology developers:

- D&A is viewed as a formal strategy, not just as a disparate set of technology projects;
- Many companies are starting to see disruption to their traditional business models as a result of D&A, and even more know that this trend is gathering momentum for the future;
- This business model disruption is triggering a formal re-evaluation of enterprise value; and
- Corporate management and financial analysts are searching for more consistency and rigor in the methods they use to assess D&A strategy.

KPMG believes we are seeing the emergence of a new virtuous circle within D&A. Companies that invest wisely in data and analytics technologies and human expertise are likely to develop effective D&A strategies. As these strategies improve companies' fundamental businesses and operating models, they achieve stronger competitive positions and higher market valuations. These results, in turn, encourage companies to continue developing the right data and analytics strategies.

We hope you find the results of this research valuable, and we look forward to discussing their implications with you.

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Executive summary

Investors and equity analysts believe data and analytics will have a substantive and often dramatic impact in the next several years on the companies and sectors they cover. D&A will alter the competitive landscape—rewarding some companies and punishing others—especially in the longer term. “Across all industries, there’s no escaping it,” says a buyer focused on the technology industry. In response, investors and analysts anticipate that companies’ strategic use of data and analytics will play a greater role in both investment decision making and valuation.

The topline findings of this study, based on input from more than 250 investors and sell-side analysts, include the following:

Data and analytics will reshape industries.

- The use of data and analytics by issuers (publicly traded companies) has already begun to alter the competitive dynamics of nearly all industries, and this impact is expected to increase dramatically in the coming years. The vast majority (82%) of investors and equity analysts participating in this study expects some level of disruption from D&A during the next three years in the sectors they cover.
- As part of this disruption, investors and analysts believe that D&A strategies will improve company performance and bring higher valuations. According to a majority (52%) of all respondents, D&A strategies have already begun to deliver better business performance *or* will do so in the next two years. And one-third believe that D&A strategies have begun to reward companies with higher valuations *or* will do so during this period.

D&A’s greatest potential lies in improving operations.

- Investors and analysts expect D&A to enable companies across sectors to achieve various broad business objectives over the next two years.
- Their highest expectation is, however, for D&A as a source of companies’ improved operating performance (i.e., increased profitability) over the next two years, followed by companies’ expansion of current lines of business, risk management, and finally expansion into new products and business models.

Suite of D&A research reports

“Data and analytics: A new driver of performance and valuation” is the first in our suite of D&A reports based on the views of institutional investors and sell-side analysts. We invite you to download it at www.kpmg.com/us/dna.

Future reports in the suite will focus on specific D&A themes and the effects of D&A on specific sectors. In the months ahead, these additional reports will be available for download on this same Web page.

Issuers are moving aggressively on IT, but strategy lags.

- Investors and analysts have broad confidence that issuers have the technical building blocks needed to execute ambitious data and analytics strategies. However, respondents are much more likely to find fault with issuers' integration of data and analytics into their business strategies. While 78% of respondents say companies have excellent or adequate access to transaction-level data on day-to-day business processes, 40% fault companies for devoting inadequate attention to their D&A strategies.

Investors and analysts are at an inflection point in their use of D&A information.

- Investors and analysts routinely seek D&A information and receive it proactively from issuers. However, sell-side analysts see only tepid interest in D&A among their buy-side clients. Investors often have a low opinion of sell-side coverage of companies' D&A strategies. And both investors and analysts are often disappointed with the D&A information they receive from companies.
- Faced with such uneven information, most investors and analysts report using an unstructured, ad hoc approach when analyzing issuers' data and analytics strategies.
- While 24% of respondents say they changed one or more of their investment opinions in the last year due to companies' D&A strategies, 45% — a striking increase from 24% — expect to do so in the next two years. Such action could have a significant impact on valuations in the U.S. and global markets.

Companies in every sector can realize the promise of data and analytics.

- Of all respondents, 62% say that they would view investing in a company in their sector more favorably if it were to use D&A specifically to improve operating performance by controlling costs, shrinking inventory, and allocating resources optimally. Respondents also would view investing in a company more favorably if it were to use D&A to deploy dynamic pricing, to segment customers in order to tailor offerings based on their purchasing behavior, or to develop products and services faster, among other specific objectives.
- In many ways, however, each sector has its own D&A story. Respondents' views regarding which specific D&A opportunities are most attractive for companies vary considerably from sector to sector (for a discussion of D&A opportunities by sector, see section VI, starting on page 27, of this report).

I. Data and analytics will reshape industries

“Data is the battlefield of the future,” so says a portfolio manager at a large asset management firm in Australia when discussing the role of data and analytics at global enterprises. “Over the last 20 or 30 years, companies have done a lot of work in the back of the house using ERP applications. Doing so has created huge efficiencies and ended up being a massive competitive advantage, especially for global, multinational companies—those with a huge footprint.”

Now, as technology has come to pervade nearly all aspects of commercial and consumer life, companies have the opportunity to take advantage of vast amounts of data on commercial and individual activity and to derive new sources of competitive advantage. In many cases, such mining and analysis of data is not altogether optional—that is, even if a company doesn’t use data and analytics as a source of strategic advantage, it can be confident that its peers and competitors are doing so.

Companies can also be confident that many investors are paying close attention to the use of data and analytics. The Australian portfolio manager continues, “We want to hear about data and how companies are using it. We want to know that they’re factoring it in and they’ve built the business case internally for using data to build competitive advantage.” And if company management has little to say about its use of data and analytics, he says, “We question it and weigh it. We ask ourselves, ‘Is it going to be a huge competitive disadvantage if they’ve got no strategy?’”

Companies can be confident that many investors are paying close attention to their use of data and analytics.

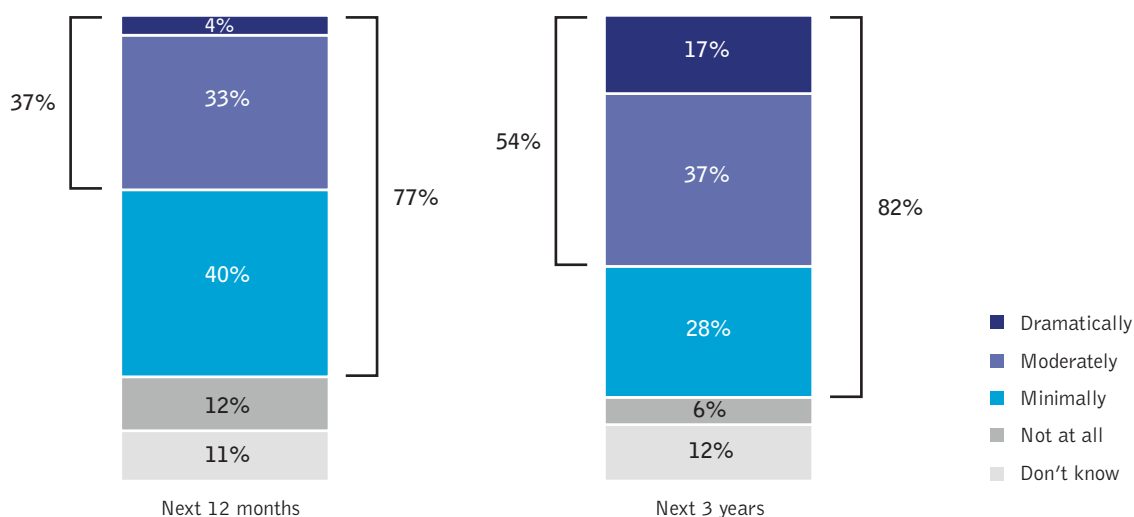
In order to explore the effect of data and analytics on investor decision making, this study examines the views of more than 250 investors and sell-side analysts on their use of information about the D&A strategies of issuers (publicly traded companies). We find that they expect D&A to reshape nearly all industries in the next several years, as a source of both opportunity and disruption. Consequently, in an effort to find good investments and avoid bad ones, investors and analysts plan to increase their scrutiny of company’s D&A strategies.

Indeed, the impact from D&A has already begun. As we will see, almost a quarter of all survey respondents changed one or more of their investment opinions as a result of companies’ data and analytics strategies during the last year.

According to the survey data, companies' use of data and analytics will significantly alter the competitive dynamics across industries in the years ahead. Of all investors and equity analysts participating in this study, 37% expect companies' D&A strategies to cause a dramatic or moderate disruption in sector competitive dynamics over the next year, while a large majority (77%) expects at least a minimal disruption during this time (see Figure 1). Furthermore, 54% expect a dramatic or moderate disruption over the next three years, while a vast majority (82%) expects at least a minimal disruption over the same period.

Figure 1. D&A will continue to change competitive dynamics across sectors, especially in the next three years.

How much will companies' use of D&A affect the competitive dynamics in the sector you cover?



Data and analytics will likely cause far-reaching disruption in the years ahead that will reward some issuers and punish others, say investors and analysts interviewed as part of this study. Well-established companies, which have much to lose in a competitive realignment, can strengthen their positions through the sophisticated application of data and analytics, but D&A also allows new market entrants to build their strategies around a data-driven platform from the start, explain these sources.

According to a buy-side analyst focused on health care, data and analytics "is going to favor the incumbents initially." Since health care products and services increasingly depend on technology and large sets of clinical data, "the more robust your data set, the more powerful your therapy and the stronger your franchise." In his view, "first movers that can collect more data are going to create a high hurdle" for new market entrants, and, in the near term, large companies that have the infrastructure to support ambitious D&A initiatives are likely to prevail. In the longer term, he says, "It's going to evolve. Initially we'll see some first-mover advantages, but, over time, that will erode very quickly, much like you see in technology sectors."

Well-established companies can strengthen their positions through sophisticated data and analytics, but D&A also allows new market entrants to build their strategies around a data-driven platform from the start.

This evolution seems likely in the shipping and logistics industry, as well. A portfolio manager in Australia explains how the expansion strategy of a global shipping and logistics firm is threatened by new data-centric competitors. This shipping company is “one of those incumbents with a massive footprint, and, in a lot of ways, the company is hugely efficient.” For example, it has rolled out a new system that recalculates and optimizes individual truck routes for the “last mile” of pickup and delivery throughout the day. “It’s a big step to have dynamically generated routes that change depending on what deliveries or pickups the driver has to make.”

However, the portfolio manager points out, there are new data-driven companies that are “100% more appealing” than capital-intensive incumbents with big investments in fixed assets. “This global shipping company has huge warehouses, networks, and fleets of airplanes and trucks. It’s a very asset-heavy company, whereas the newer companies have a greater focus on software. They’re much more ‘asset-light.’” As a result, says the portfolio manager, these new companies are able to respond to market opportunities faster and to achieve higher returns by drawing on, rather than duplicating, the asset networks that are currently in place. “I think their speed to market is quicker. Their returns on capital are far higher. Their scale is much better. It’s not about rolling out this huge network of assets. They don’t need to reinvent this network. They just need a more efficient software platform. That’s hugely appealing to investors, I think, because the companies can grow a lot faster. They’ve got a huge competitive advantage, and investors get superior returns. Their return on capital is just massive. And we really want these newer companies to spend the extra dollars to improve their platform or to roll out into a new region or a new vertical because of these massive returns.”

Of course, data and analytics will affect companies and sectors in different ways. In an effort to expose how D&A will introduce both opportunities and threats to individual sectors, we segment the survey data according to the respondents’ sectors of primary focus (both here and throughout this report).

In the short term, the sectors most likely to see a dramatic or moderate disruption due to D&A are technology, media, and telecommunications; business and professional services; and health care. Fifty-two percent of respondents focused on technology, 45% focused on services, and 45% focused on health care say that their sector will undergo a dramatic or moderate disruption within the next year. On the other end of the spectrum, only 7% of investors and analysts focused on the basic materials sector expect dramatic or moderate disruption in the near term.

In the long term, D&A will have an even greater impact, especially in information-intensive sectors such as technology and services. Seventy-one percent of respondents focused on technology and 70% focused on services say that their sector will undergo a dramatic or moderate disruption within three years. However, only 21% of those covering the basic materials sector anticipate such a disruption in the long term.

A portfolio manager points out that there are new data-driven, shipping companies that are “100% more appealing” than capital-intensive incumbents with big investments in fixed assets.

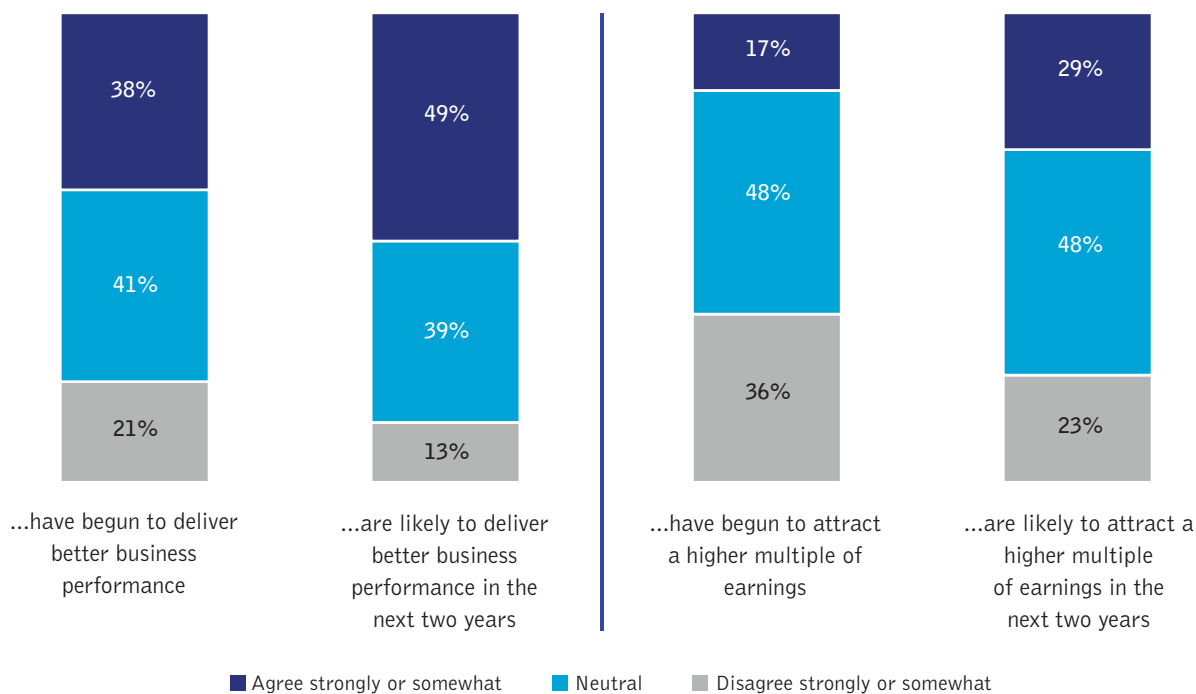
When asked about two of the most-watched results of any disruption to a sector's competitive dynamics—changes in business performance and in valuations—investors and analysts confirm that, while the effects of the sophisticated use of D&A have already appeared, the impact will likely increase substantially in the long term. Of all respondents, 38% strongly or somewhat agree that the opportunity for better business performance from D&A has begun to be realized, while only 21% disagree (see Figure 2). However, when the time horizon is extended to two years, 49% agree that D&A will deliver better business performance for companies, while only 13% disagree. Correcting for overlap, a majority (52%) believes that D&A strategies have begun to deliver better performance *or* will do so in the long term.

Respondents are more conservative regarding valuations; 17% strongly or somewhat agree that companies have already begun to attract higher multiples of earnings due to D&A, while 36% disagree. However, 29% agree that, in the next two years, companies will attract higher multiples of earnings due to D&A, while only 23% disagree. Correcting for overlap, 33% believe that D&A strategies have begun to reward companies with higher valuations *or* will do so in the long term.

The D&A effects on business performance and valuations have already appeared, but the impact will likely increase substantially.

Figure 2. Companies have begun to deliver operating improvement from D&A, but more is likely to come.

As a result of their D&A strategies, companies in my sector of focus...



Percentages may not add to 100% due to rounding.

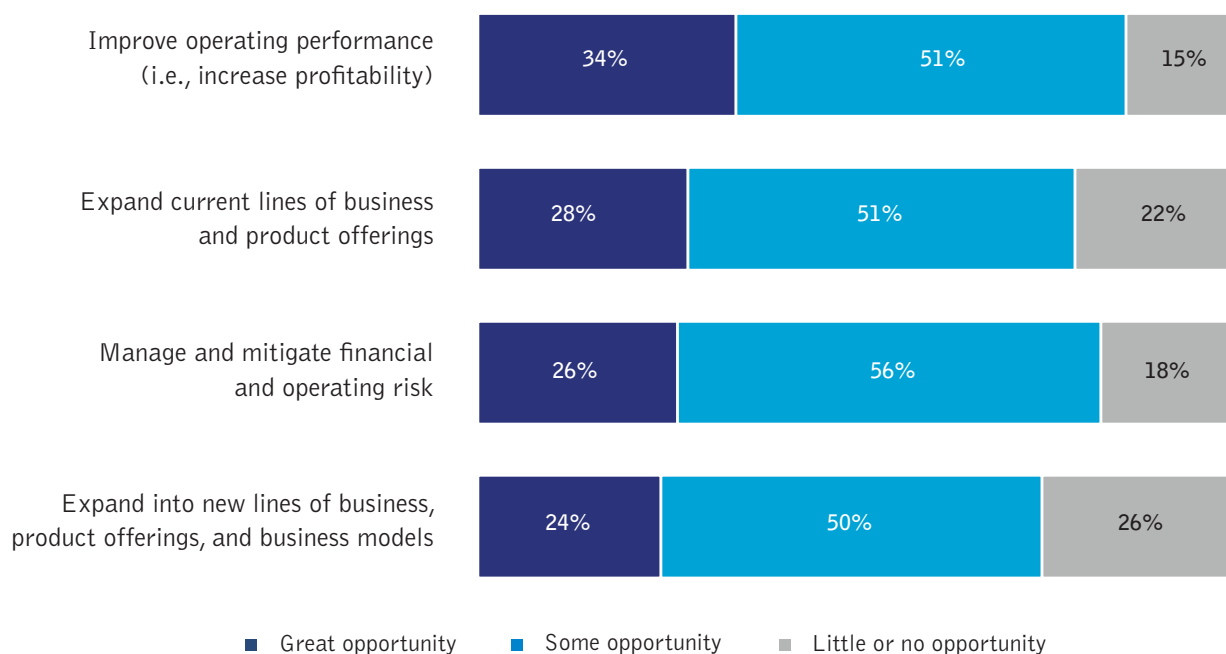
The sector most likely to see a D&A-driven impact on business performance is the services sector, followed by the technology and financial sectors. Of respondents focused on the services sector, 55% believe that D&A has already begun to deliver better performance to the sector, while a striking 73% believe that better performance will be visible within two years.

II. D&A's greatest potential lies in improving operations

When asked to choose from four broad objectives to be achieved through sophisticated D&A by companies in their sectors during the next two years, investors and analysts express the highest expectations for D&A as a source of companies' improved operating performance (i.e., increased profitability). This is followed by companies' expansion of current lines of business, risk management, and finally expansion into new products and business models. Across all respondents, 34% believe that D&A offers a great opportunity for improving operating performance over this time period, while 28% believe it offers a great opportunity for expanding current lines of business and product offerings (see Figure 3).

Figure 3: Companies' greatest D&A opportunity is in improving operating performance.

To what extent do companies in your sector have an opportunity to use sophisticated D&A to achieve each of the following broad objectives during the next two years?



Percentages may not add to 100% due to rounding.

Respondents focused on the capital goods and industrials sector are especially optimistic about the broad opportunities for data and analytics. Of respondents who cover this sector, 45% see D&A as offering a great opportunity for companies to improve operating performance. In addition, 50% see great opportunity for companies in the sector to expand current lines of business via D&A, and 40% see great opportunity for D&A to contribute to companies' expansion into new lines of business, products, and business models.

Across all sectors, when queried about specific companies with strong or weak D&A strategies, many investors and analysts express enthusiasm, in particular, for issuers that have applied well-articulated D&A strategies to improving their operating performance and profitability.

In this regard, investors and analysts certainly cite a broad array of household names. For example, respondents focused on financial services praise three of the top credit card issuers for their use of D&A to expand their knowledge of customer behavior, to detect fraud, and to mine transaction data. A sell-side analyst who covers capital equipment endorses the D&A strategy of a well-known equipment-leasing company, stating that “it has a scale advantage and is able to rapidly deploy data solutions that differentiate its offerings from its competitors’. It also is able to leverage data to optimize its own operations.”

Two leading vendors of industrial automation gear earn high praise from analysts. One firm’s “huge installed base of industrial automation controls generates critical manufacturing data, which can be used to build insights and improve customers’ operations,” says one sell sider, while the other cites a close competitor of the company, saying, “It has moved quickly to be a prominent force in the industrial Internet. It aligns resources with market opportunity and has developed a platform for industrial data and analytics.”

Elsewhere in heavy industry, two oil companies are cited—one positively, for its “analysis of shale oil well performance,” and one witheringly for its use of D&A in its “poor exploration strategy and performance.” In the latter, the company’s D&A seems to be lacking the right guiding strategy.

Respondents single out, as well, a number of lesser-known, midsize companies, some in low technology, labor-intensive lines of business. One sell sider praises a provider of workplace uniforms and similar services for its software system that tracks productivity, while another cites an off-site storage company for its “superior systems, which have powered massive growth in an otherwise unsophisticated industry.”

Other respondents’ nominations of companies with particularly strong or weak D&A strategies are driven by companies’ application of D&A to marketing and topline growth. Three well-known coffee chains are cited for their loyalty, rewards, and electronic payment plans, while retailers and consumer businesses—both brick and mortar and online—are praised for their use of data mining, “exceptional key-word buying strategies,” and the use of D&A to capture local customer behavior.

Finally, investors and analysts also reveal through their nominations that they expect D&A strategies to be a part of an issuer’s broader strategic plan. Various respondents focused on the financial services sector, for example, criticize a top credit card issuer for devoting resources to unrelated businesses while overlooking valuable sources of customer information. As one investor explains it, “Despite a huge trove of customer data, [this company] prefers to spend on nonadjacent lending businesses.”

Investors and analysts expect D&A strategies to be a part of an issuer’s broader strategic plan.

All in all, investors and analysts not only consider D&A information about a company seriously, but they seem most immediately interested in D&A strategies that deliver either improvements to a company's operating performance or topline growth. Furthermore, the D&A explanations that respondents find most immediately persuasive are those that are clearly articulated by a company and supported by transparent data.

Indeed, in this climate of close scrutiny and sharp questioning, data and analytics strategies are likely to continue to grow in importance in the years ahead, making it increasingly imperative for companies to focus not just on getting the strategies right but also on how they present them to the investment community.

Once a company has the right D&A strategy, investors and analysts find it most persuasive when it is clearly articulated by the company and supported by transparent data.

III. Issuers move aggressively on IT, while strategy lags

Investors and analysts believe data and analytics will have a substantive impact on the companies and sectors they cover. D&A will alter the competitive landscape—rewarding some and punishing others—as a source of improved business performance and valuations, especially in the longer term. “Across all industries, there’s no escaping it,” says a buy sider focused on the technology industry.

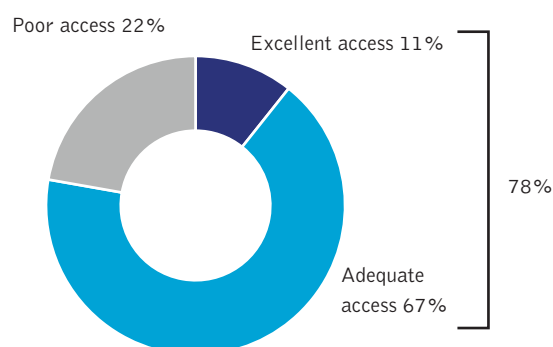
The question facing issuers, of course, is how to ensure that they are among those rewarded by their data and analytics efforts. Certainly, D&A is closely linked to information technology, but much more is needed to guarantee a company’s D&A success. Indeed, investors and analysts are more wary of issuers’ strategic thinking about D&A than of their access to data or analytic capabilities. Respondents are anxious about what companies will strategically do with D&A and why they’ll do it. On the other hand, they are confident that issuers have many of the technical building blocks needed to execute ambitious data and analytics projects. In other words, investors and analysts are saying that D&A—both at its heart and at this point in time—is largely a strategic problem, not a technical one.

Investors and analysts consider D&A—both at its heart and at this point in time—largely to be a strategic problem, not a technical one.

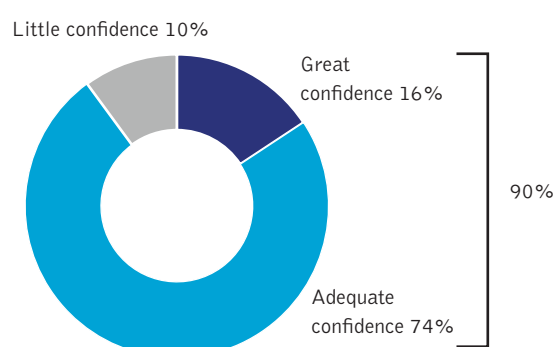
According to a strong majority of respondents, companies have timely data relevant to their operations, one of the basic building blocks of effective D&A strategies. Nearly 80% of all respondents say that companies in their sectors of interest have access to timely, transaction-level data on day-to-day business processes (see Figure 4). Furthermore, 90% of respondents say companies in their sectors of interest have excellent or adequate confidence in their operating data.

Figure 4. Issuers have access to high-quality operating data.

Respondents’ rating of issuers’ access to timely, transaction-level data on day-to-day business processes



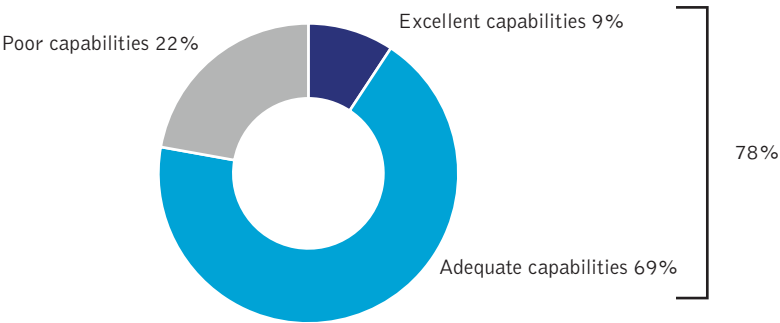
Respondents’ rating of issuers’ confidence in their operating data



Once a company has the right, accurate data, it needs to have sufficient analytic capabilities in order to know what the data says and ultimately to build sophisticated D&A strategies. In fact, it appears that companies do have the necessary analytic capabilities. Of all respondents, 78% say that companies have excellent or adequate data mining and analysis capabilities (see Figure 5).

Figure 5. Investors and analysts rate issuers’ analytic capabilities positively.

Respondents’ rating of issuers’ data mining and analysis capabilities

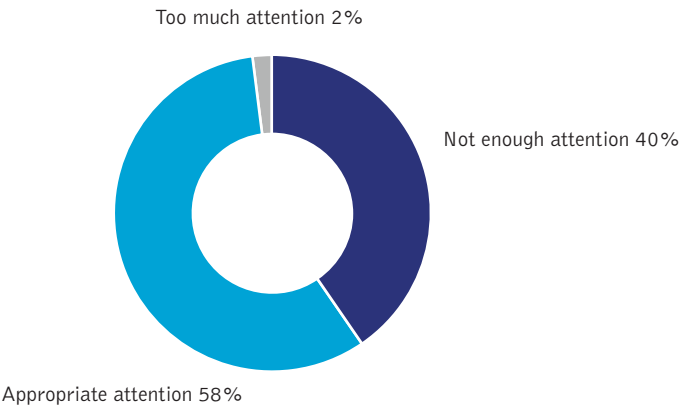


While investors broadly see issuers’ D&A infrastructure—their access to useful data and ability to analyze it—as good and at times very good, they are far more likely to find fault with the amount of attention issuers devote to the business strategies guiding their use of data and analytics. Forty percent of respondents say companies do not spend enough time and attention on their D&A strategies, while a trivial 2% see companies as overly focused on these strategies (see Figure 6).

Investors have confidence in issuers’ D&A infrastructure but find fault with the attention they devote to the business strategies guiding their use of D&A.

Figure 6. Issuers often neglect data and analytics strategies.

Respondents’ rating of issuers’ time and attention devoted to D&A strategies



Accurate and timely data is necessary but hardly sufficient to realize the value of D&A, say investors interviewed for this study. According to a portfolio manager in Asia, “You’ve got to acknowledge that data is a huge advantage for a company, but it’s not just all about the collection of data. It’s about how you use the data in planning a strategy.” Deriving strategic value from data is a formidable challenge for issuers, he explains. “You’ve got to become much more customer-focused on what type of data you’re collecting and how you use it. Even how you display it matters. You’ve got to be able to make sense of it. There’s just so much stuff that can be gathered today.” The pressing question to answer, he says, is: “How do I actually put this data into something that’s sensible—that someone’s going to be able to use—and get that competitive advantage from it?”

Investors and analysts, therefore, believe that IT has done its job. Companies largely have the technical resources and analytic capabilities needed to build sophisticated D&A solutions. However, companies’ business managers have not yet caught up to IT. They are not spending enough time and effort on developing the right business strategies to guide and leverage companies’ D&A capabilities successfully.

Deriving strategic value from data is a formidable challenge for issuers.

IV. An inflection point in investment decisions and valuations

While issuers, investors, and analysts have high hopes for data and analytics in the years ahead, they seem to struggle to express and to understand how D&A will shape their world.

On one hand, investors and analysts routinely seek data and analytics information proactively, indicating that D&A is one driver of their decision making. Investors and analysts also routinely receive this information proactively from issuers as part of companies' outreach to the investment community.

On the other hand, sell-side analysts see only tepid interest in D&A among their buy-side clients, and buy-side investors often consider the sell side's coverage of companies' D&A to be poor. Furthermore, both investors and analysts are often disappointed with the D&A information they receive from issuers. (See sidebar, "How can issuers tell the D&A story more effectively?")

All in all, what's still missing, it seems, is the sophisticated discussion of data and analytics that will inevitably emerge as issuers, investors, and analysts develop shared metrics, benchmarks, and standards for evaluating data and analytics.

Investors and analysts routinely seek issuers' D&A information, indicating that it is one driver of their decision making.

How can issuers tell the D&A story more effectively?

As the interest in D&A strategy and expectations of its disruptive influence across sectors rise, it would serve issuers well to recognize that the information they offer about their use of data and analytics often falls short of investors' expectations. In this regard, survey respondents' comments offer much advice to issuers about how to improve the quality and exposition of the D&A information they offer investors and analysts.

A chorus of respondents calls for issuers to make their D&A information clearer and more concrete. Use "fewer trendy buzzwords" and offer "simple and straightforward explanations," advises a sell-side analyst covering technology. Similarly, respondents advise companies to "be transparent in releases about data and analytics" and to "demonstrate by example."

Other investors and analysts—perhaps with a more sophisticated understanding of D&A—would like detailed, but still clear, information. An investor who follows consumer businesses wants companies to offer "analyses of strategic plans with clear measures of achieving financial and operational goals, as well as standards and tolerances in risk management." And a sell sider focused on the financial sector wants to know the answers to these specific questions: "How much do you spend on data and analytics? Where is the spending going?"

Also seeking more detailed D&A information, a buy-side investor focused on technology says investors seek "the 'why' of the market position and better explanations of what the data shows. We want companies actually to talk about D&A strategy, rather than being vague." To this end, a buy sider focused on financial services suggests companies "let IT-competent people present" their D&A strategies.

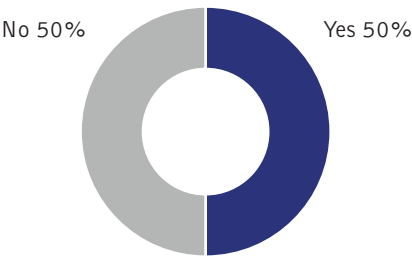
Finally, many respondents express a desire for issuers to focus on results—the ultimate contributions made by their D&A efforts—rather than on processes and intermediate steps. A technology-focused investor suggests companies describe "how the use of data has differentiated the firm from others." Similarly, an analyst focused on financial issuers recommends that companies explain "how D&A spending has improved your performance."

However, issuers beware: If some aspects of this advice seem mutually exclusive (i.e., impossible to apply to the same D&A presentation), it shouldn't be surprising. The reason, of course, is that the investors and analysts offering this advice are themselves at different levels of sophistication regarding D&A strategies. This realization itself provides issuers with an excellent tip about where to start when presenting their D&A stories: Know the level of D&A sophistication of your audience.

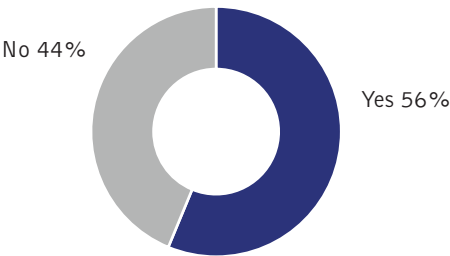
In the last 12 months, 50% of the survey’s buy- and sell-side respondents have proactively sought information about at least one company’s use of D&A. During the same period, 56% have had one or more companies proactively present them with information about their D&A strategies (see Figure 7).

Figure 7. Investors and analysts routinely get D&A information by requesting it or from issuers’ proactively offering it.

In the last 12 months, when analyzing investments in your sector, have you proactively sought information about any company’s use of data and analytics?



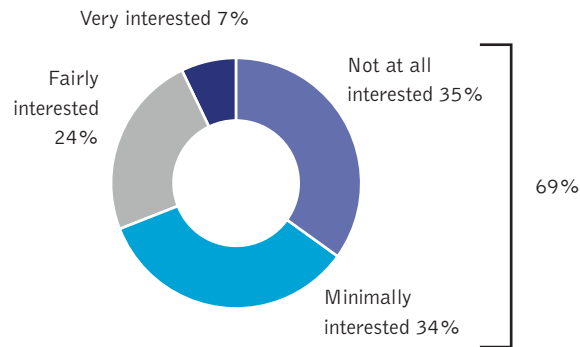
In the last 12 months, have any companies in your sector proactively presented information to you about their use of data and analytics?



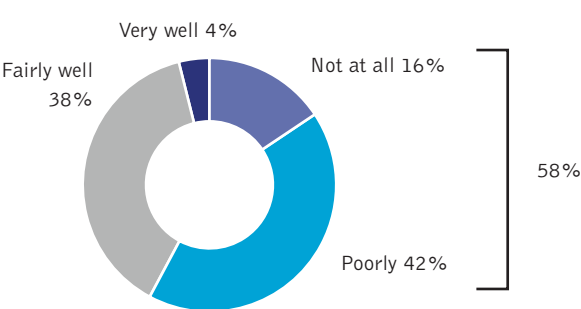
Nonetheless, sell-side analysts indicate that few of their clients—i.e., investors—are especially interested in issuers’ D&A strategies. Of the analysts responding to this survey, 69% say that their clients express minimal or no interest in D&A. Similarly, most buy-side respondents (58%) report that their sector’s sell-side analysts cover D&A poorly or not at all, while only 4% offer high praise for the sell side’s D&A coverage (see Figure 8).

Figure 8. Sell side sees buy-side interest in D&A as lacking; buy side sees sell-side coverage of D&A as lacking.

How interested have your clients been in the use of data and analytics by companies in your sector (for sell-side respondents only)?



How well do sell-side analysts cover companies’ data and analytics strategies in your sector (for buy-side respondents only)?



It may be, however, that sell-side analysts do not see investors’ interest in data and analytics directly. Instead, what they likely see directly is investors’ “show me the money” enthusiasm for a company’s business performance; this performance is, of course, the result of its strategies, including its D&A strategy. In the words of the vice president of equity research at a U.S. asset management firm, “We’ll never say, ‘We’re not going to invest in a company because it’s bad in D&A,’ but we certainly wouldn’t invest because a [pharmaceutical] company hadn’t brought any new drugs to the pipeline in the last couple years, and poor data might be one of ten reasons” for this poor performance. As investors progress in their D&A maturity, they are likely to express their interest in D&A more directly to analysts.

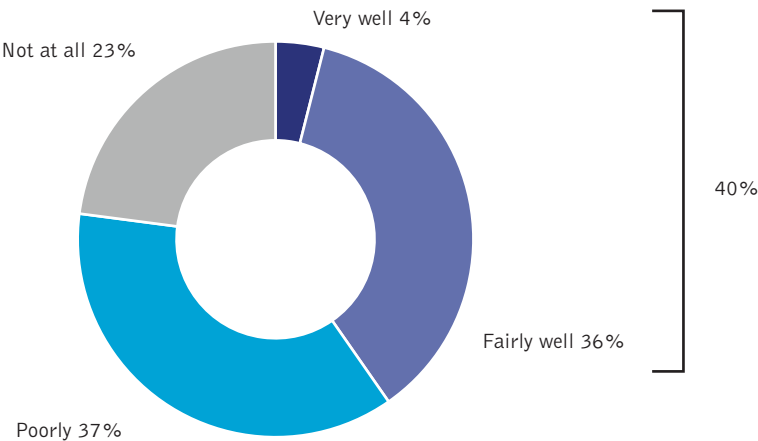
Conversely, equity analysts should be aware that investors often see the sell side’s coverage of companies’ D&A strategies as falling short of their expectations—especially important with buy-side interest in D&A on the rise. It would seem that investors and sell-side analysts need to progress in their D&A understanding and communication more or less together (regardless of which leads and which follows).

And, indeed, issuers also have much motivation not to be left behind by this progress. Today, investors and analysts believe issuers seldom do a good job of explaining how D&A contributes to their overall business strategies. Only 40% of all respondents consider companies in their sector to explain D&A strategies very or even fairly well (see Figure 9).

Issuers have much motivation not to be left behind by investors’ and analysts’ progress in D&A understanding and communication.

Figure 9. Issuers seldom explain their D&A strategies well.

How well do issuers in your sector explain their D&A strategy compared to other dimensions of their corporate strategy?



At the two extremes, nearly 60% of respondents focused on the consumer sector say issuers explain their D&A strategies very or fairly well, while less than 20% of respondents focused on business and professional services hold this view.

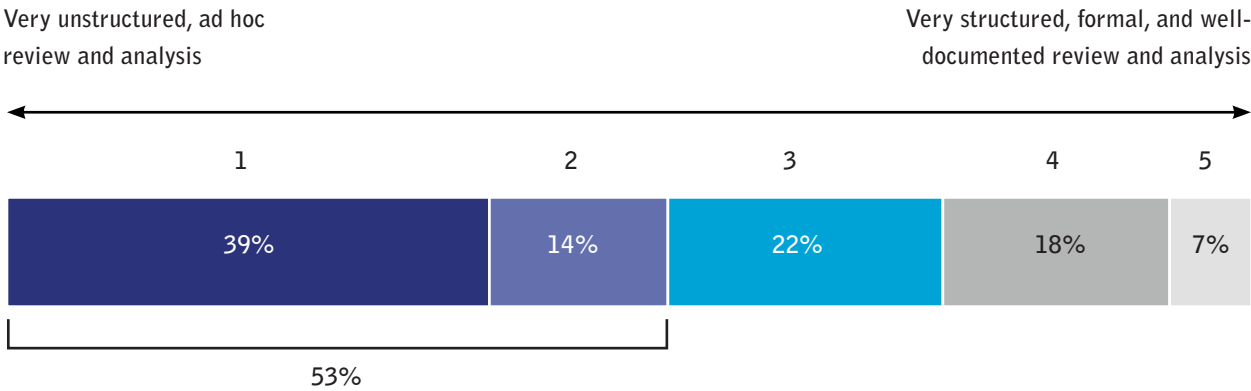
Given the generally poor state of issuers’ D&A explanations, those that do a better job get noticed by investors and analysts. Queried about companies with especially strong or weak data and analytics strategies, respondents’ comments reveal the value to issuers of being able to offer transparent, lucid exposition of their use of D&A. One buy sider lauds a well-known hotel chain, saying “it tracks the numbers well, talks about what the numbers mean, and its reports are well developed.” Similarly, one sell-side analyst nominates a market leader in software “because the company understands D&A strategies and explains them well.” Respondents routinely praise issuers that share detailed information with analysts and investors, while disparaging those that fail to provide information or that issue “releases that are confusing.”

Faced with uneven information on companies’ data and analytics, a majority of investors and analysts do not use a standardized, cross-company process to incorporate information about D&A strategy into their investment decisions and valuations—as they typically do with financial information and, to a lesser extent, with ESG or sustainability information. More than half of respondents (53%) use an unstructured, ad hoc process for reviewing and analyzing the D&A strategy of a company (see Figure 10).

Given the generally poor state of issuers’ D&A explanations, those that do a better job get noticed by investors and analysts.

Figure 10. Investors use unstructured analyses of information on D&A strategies.

When evaluating companies in your sector, how formal and structured is your process for reviewing and analyzing information on their data and analytics strategies (on a scale of 1, very unstructured, through 5, very structured)?



The fact that, company to company, D&A information is uneven and that investors typically review it using an unstructured process—rather than a standardized, rigorous process—makes sense, considering the early stage of D&A strategy development within most industries. D&A opportunities and companies' responses to them are unique. Rational expectations and standard metrics for D&A success are not well established. Indeed, in some respects, the jury is still out on exactly how D&A will benefit issuers in the years ahead. Given companies' range of D&A activity and the nascent understanding of its effects, it is not surprising that investors and analysts use a largely unstructured, ad hoc approach to evaluate and compare companies' D&A strategies.

This unstructured approach comes in a great many forms, according to buy-side and sell-side respondents. "We look into the company's data culture, look at who owns the data, think about the opportunity to improve operations with the use of data and analytics, but also consider the opportunity to monetize the data and generate new revenue," says a sell-side analyst who covers capital goods and industrials. An investor focused on energy companies says that, when making an investment decision, investors should compare the data holdings of different companies: "How does their data compare? What are the assumptions and benchmarks they're using?"

Respondents also advise caution when reviewing the technical dimensions of companies' D&A strategies. One investor focused on the financial sector says, "You need to be skilled at IT to understand D&A strategies." An investor focused on the technology industry advises peers evaluating companies' D&A to "read out of the data, not into it." And a sell-side analyst focused on financial services says, "Look for robust, scalable data and analytics systems, especially for newly public companies and companies that are growing to large-cap size."

About a quarter (24%) of all respondents—including both those using more unstructured methods to analyze D&A information and those using more structured methods—reports having changed at least one investment opinion or valuation of a company in the last year as a result of its D&A strategy (see Figure 11). This group of investors and sell-side analysts can be thought of as early adopters of D&A information.

During the last year, buy-side investors are more likely to have changed an investment opinion as a result of a company's D&A strategy than are sell-side analysts. One-third of buy sides report changing one or more investment opinions during this period, while only 14% of sell-side respondents report doing so. The buy side—which may be more likely to have a long-term, buy-and-hold orientation than does the sell side—may be more convinced of the value of D&A as a source of eventual, rather than immediate, returns.

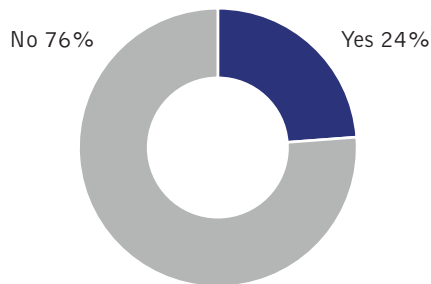
About a quarter of all respondents changed at least one investment opinion or valuation in the last year as a result of D&A strategy,...

Interestingly, we appear to be at an inflection point in the use of D&A information in investment decision making. According to survey data, investors and sell-side analysts expect a company's D&A strategy to become a major factor in their evaluation of the company as an investment in the next two years. Of all respondents, nearly half (45%) says that they are, over that period, either very or somewhat likely to change investment opinions as a result of companies' D&A strategies. This is a striking increase from the 24% who actually did so in one or more cases during the previous year—and could have a significant impact on valuations in the U.S. and global markets.

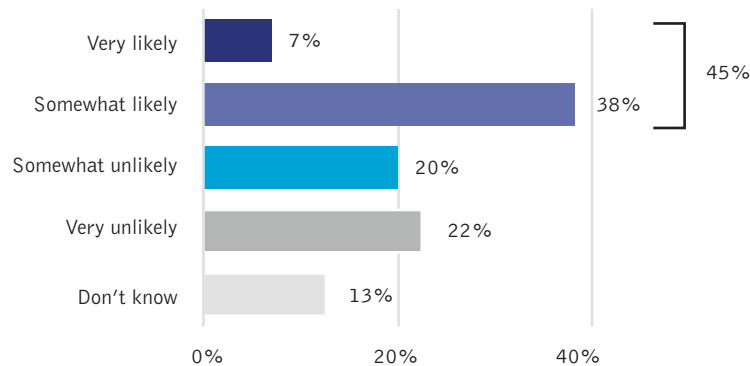
...while 45% expect to do so in the next two years.

Figure 11. D&A strategies are poised to become a major factor in investment decisions and valuations.

In the last 12 months, have you changed your valuation or investment opinion of any company as a result of its D&A strategy?



Over the next two years, how likely are you to change your valuations or investment opinions of companies as a result of their D&A strategy?



This increase in investors and analysts who expect to rely heavily on D&A information in their investment decisions going forward—evidence of the growing realization that D&A strategies are important to companies' performance—is all the more powerful because it is pervasive throughout various major segments of survey respondents.

First, the increase can be seen in both the buy and sell sides individually. On the buy side, 51% of respondents say it is very or somewhat likely that they will change investment decisions based on D&A in the next two years, up from 33% who actually did so in the last year. On the sell side, 39% expect to do so, up from 14% who did so.

Second, the increase can be seen, often dramatically so, in respondents focused on every sector, with only the exception of basic materials. The sectors that actually have the largest portions of respondents expecting to change investment decisions as a result of companies' D&A in the next two years are the industrials sector (62%) and financial sector (60%). The largest increase in the expected influence of D&A is seen in the health care sector, in which 35% of respondents expect to change decisions based on D&A in the next two years, up from 5% who did so in the last year—an increase of 30 percentage points.

Perhaps it is most telling, however, to look at the segment of 24% of all respondents who changed at least one investment decision or valuation in the last year as a result of a company's D&A strategy—that is, the segment of investors and analysts who are early adopters of D&A information. These respondents would appear to have had good experiences with those decisions, since a noteworthy 95% of them say they are very or somewhat likely to change investment opinions or valuations as a result of D&A strategies again in the next two years. Their peers who did not change a single investment opinion based on D&A information in the last year are only one-third as likely (30%) to say they will do so in the future. This finding is reasonably compelling evidence of the satisfaction with which the early adopters view their past investment decisions and valuations influenced by companies' D&A strategies.

What we see is that investors and analysts who consider companies' D&A strategies in their investment decisions are going to continue to do so. In addition, other investors and analysts expect to do so over the next two years, as well. Indeed, we seem to be turning the corner at an inflection point, after which companies' D&A strategies will be a major criterion incorporated into investment decisions—in line with the growing opportunities offered by D&A across sectors.

Respondents who have based investment decisions or valuations on companies' D&A are happy with those decisions; almost all expect to do so again in the next two years.

V. Realizing the promise of data and analytics

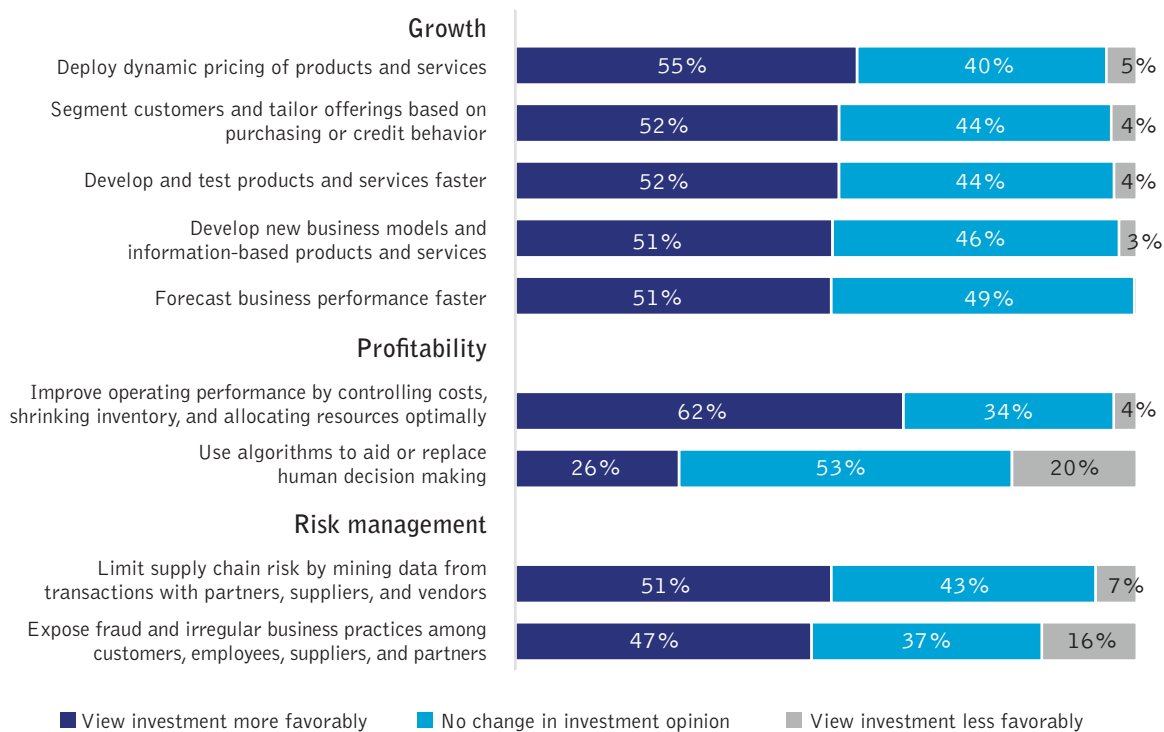
Investors and sell-side analysts see data and analytics as offering numerous and varied opportunities to companies across sectors. However, they consistently show the greatest faith in D&A strategies as a source of improved operating performance.

This becomes clear when we ask respondents to consider the extent to which companies in their sector have the opportunity to use D&A to achieve four broad objectives—improving operations, expanding current product lines, expanding into new product lines, and managing risk (see Figure 3 on page 11). And it remains clear when, drilling down further, we ask them to consider nine, more specific objectives—such as deploying dynamic pricing and testing new products faster—and how a company’s use of D&A to achieve each would affect their investment opinions about the company.

Of all respondents, 62% would view investing in a company more favorably if it were to use D&A to achieve the specific goal of improving operating performance by controlling costs, shrinking inventory, and allocating resources optimally (see Figure 12). This is the largest proportion of respondents to endorse any of the nine specific D&A goals under consideration. Many of the other nine, however, also receive support from a majority of respondents.

Figure 12. Investors see D&A as serving many specific objectives that would make companies better investments.

If a company in your sector were to use a sophisticated data and analytics strategy to achieve each of the following specific objectives, how would it contribute to your investment decision or recommendation?



Percentages may not add to 100% due to rounding.

Recall that, when asked about the four broad business objectives, a notable 85% of respondents say that companies have great or some opportunity to use D&A to improve operating performance (i.e., increase profitability) in the next two years. Now we see that, when asked about nine specific business objectives aimed at making a company a better investment, 62% of respondents endorse using D&A to improve operating performance by controlling costs, shrinking inventory, and allocating resources optimally. A reasonable conclusion is that improving operating performance appears to be a particularly realistic goal with significant upside for companies to achieve over the next two years through the right D&A strategies—perhaps making improved operating performance the “low-hanging fruit” of D&A.

Improving operating performance is a particularly realistic goal with significant upside for companies to achieve over the next two years through the right D&A strategies.

Respondents also say they would view investing in a company in their sector more favorably if it were to use D&A strategies to deploy dynamic pricing, to segment customers in order to tailor offerings based on their purchasing behavior, or to develop products and services faster, among a number of other specific objectives. At the same time, only a trivial percentage of respondents say that a company’s use of D&A to achieve these goals would cause them to view the investment less favorably.

One buy sider lauds a well-known retailer for its use of D&A to cultivate customer loyalty and price dynamically. “Here’s a huge department store in an industry that is very tough, very competitive, using its data to offer customers discounts specific to their tastes,” says this portfolio manager focused on consumer and retail industries. “When you’re walking around in the store, they are able to track where you’re going and then use that data in the future.” With the aggregated data, the company can ask, “What do you like? Which areas of the store did you visit? Which products were you looking at?” says the portfolio manager. “That’s a huge advantage in industries like department store retail that are very competitive. Companies that use data smartly can create a huge competitive advantage, gain market share, and improve customer loyalty.”

Other investors express enthusiasm for D&A as a source of topline growth, offering examples of innovative ways that companies, whether incumbents or new entrants, have captured information on market opportunities and brought viable offerings to market faster than their competitors could. Many of these examples show that investors and analysts endorse D&A as a powerful means of understanding customer requirements quickly, whether in business-to-business or consumer markets.

Says a U.S. hedge fund partner, “The ability to spot trends among teens and Generation X quickly has benefitted certain companies.” He cites a European manufacturer of women’s and girls’ clothing that scans photographs published by users on social networks to identify popular colors. By using such information to test new designs and colors, the company is able to bring new products to market “in less than two months, whereas the normal department store will take a year” to do so. “The company,” he continues, “is gathering information from users really quickly, pretty much like guerilla marketing, and then incorporating it into its construction and production really fast.” As a result, the company “can catch trends and ride them a lot faster. It becomes a trend maker as opposed to a trend follower. And usually, you’ll find, the trend followers will have problems.”

Interestingly, the specific objective at which D&A could be aimed that receives respondents' weakest endorsement is the use of algorithms to aid or replace human decision making. Only 26% of respondents say they would view investing in a company more favorably if it were using D&A toward this end; furthermore, 20% say they would, in fact, view the investment less favorably. Whether because of their faith in human instinct, anxiety about replacing human judgment with technology, or concern over unforeseen risk, investors and analysts do not seem ready to reward a company's replacing human decision making with algorithms.

In short, respondents judge companies more favorably as investments if they use D&A strategies to achieve nearly all of the specific business objectives listed in Figure 12, though to differing degrees. This is because these objectives serve what matters most to investors—topline growth, profitability (often through improved operating performance), and risk management.

But, on a sector-specific basis, which of Figure 12's specific objectives would best serve companies as the target of their D&A efforts? This question has a number of components. Two of the primary ones: In each sector, achieving which business goals gives companies the largest competitive advantage? And how able is D&A to contribute to achieving those goals?

In fact, the survey data reveals which business objectives investors and analysts believe companies should attempt to accomplish through D&A strategies in order to gain the most competitive advantage on a sector-by-sector basis. All companies stand to gain, often significantly, but where the most advantage seems to lie certainly is specific to each sector (as discussed in the next section).

Overall, D&A can help companies achieve what matters most to investors—topline growth, profitability, and risk management.

VI. A sector-by-sector view of data and analytics

In many ways, D&A is a sector-specific story. Industry sectors and the companies within them are at different stages in their adoption of data and analytics. One reason for this is that the degree of upside offered by the use of D&A strategies differs greatly between different sectors. Similarly, where this D&A upside can be found—in which specific types of business opportunities or objectives—varies from industry to industry. Indeed, the opportunities to use D&A successfully in, say, consumer and retail businesses are likely to be very different from those in the basic material businesses such as metals, mining, timber, and agriculture.

Consequently, the investors and sell-side analysts focused on each sector are at varying stages of incorporating issuers' D&A strategies into their investment decisions and valuations. Some investors and analysts are early adopters of D&A information; others lag far behind.

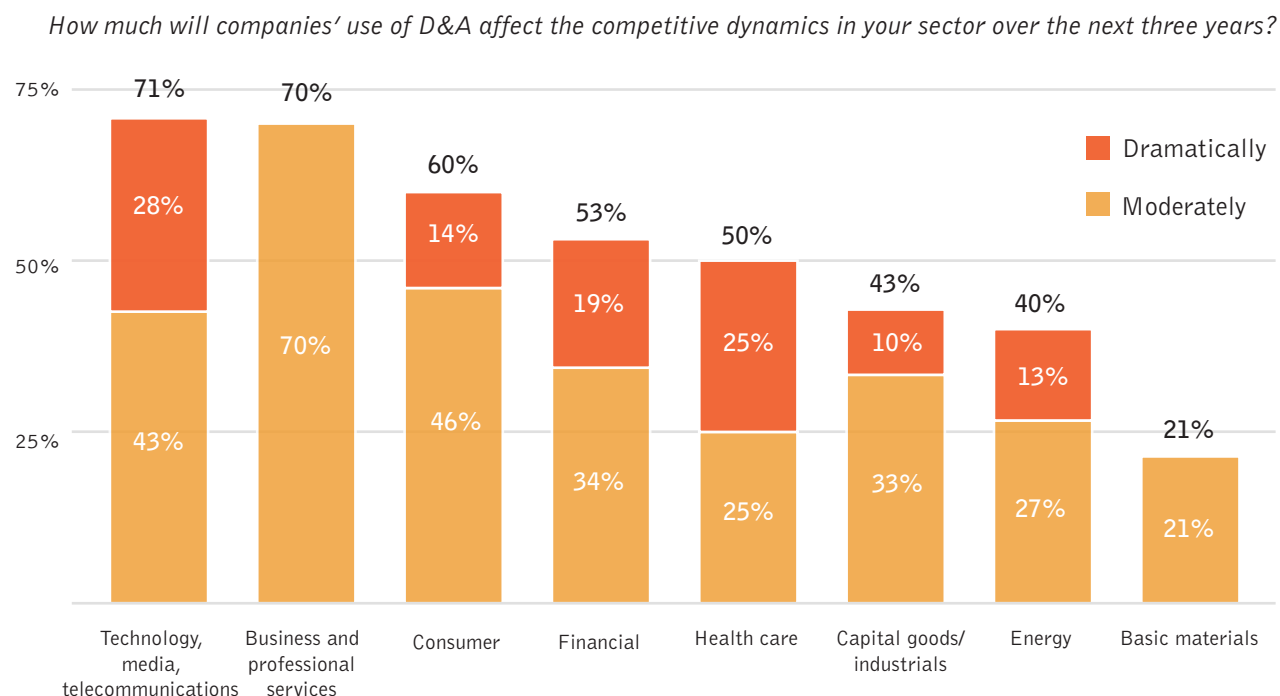
What is clear from the survey data, however, is that investors and analysts believe that companies in every sector have at least something—and often much—to gain from the use of D&A strategies. The opportunities range from improving cost performance and marketing effectiveness to developing new business models and information-based products. However, since the opportunities that are likely to result in the most upside vary from sector to sector, the key to a company's achieving this upside requires more than high-quality data and analytics; it requires having a sound D&A business strategy.

With this in mind, it is useful to examine the survey data segmented by respondents' sectors of primary interest and expertise. The results reveal numerous and notable sector-specific distinctions, including which sectors are considered to face the most opportunity—and risk—from D&A, as well as the particular applications of D&A, sector-by-sector, that would cause investors and analysts to view companies as better investments.

Toward this end, let's first return to the question of how much companies' use of D&A will affect the competitive dynamics in each sector. Of all respondents, 54% expect D&A strategies to cause a dramatic or moderate disruption of competitive dynamics over the next three years across all sectors (see Figure 1 on page 8). Looking at this data segmented by sector, however, we see that the most likely disruptions from D&A—along with the accompanying opportunity and risk—are expected in the technology and services sectors. Of respondents focused on each, 71% and 70% expect D&A strategies to cause a dramatic or moderate disruption in the technology sector and in the services sector, respectively, during this period (see Figure 13). These sectors are followed by (from most to least expected disruption) the consumer, financial, health care, capital goods/industrials, energy, and basic materials sectors.

Where the most D&A upside can be found—in which specific types of business opportunities—varies from industry to industry.

Figure 13. D&A's effect on sectors will vary widely in the coming years.



In the pages ahead, we examine the effects of data and analytics on each industrial sector separately, including the interest level of the investors and equity analysts focused on the sector and the D&A capabilities of the issuers operating within each.

In particular, we explore the specific D&A opportunities that exist for issuers in each sector. To this end, let's next return to another survey question (see Figure 12 on page 24): If a company in your sector were to use a D&A strategy to achieve each of nine, listed, specific objectives, how would it contribute to your investment decision or recommendation? Segmenting the question's responses by sector results in an individual ranking of the specific business objectives in which D&A offers companies the most opportunity in each industry, according to the investors and analysts covering that industry.

Indeed, for companies seeking to identify the business goals to which they should apply their D&A efforts, these sector-by-sector rankings could be a useful starting point. In the services industry, for example, we see that investors and analysts would most favorably view investing in companies that use D&A to develop new business models and information products, to improve operating performance by controlling costs, and to expose fraud. In the capital goods and industrials sector, on the other hand, investors and analysts most endorse companies' using D&A to forecast business performance faster.

These sector-specific rankings of D&A opportunities, along with other sector analyses, can be found in the pages that follow.

Technology, media, and telecommunications

Investors and analysts see enormous D&A opportunity for issuers

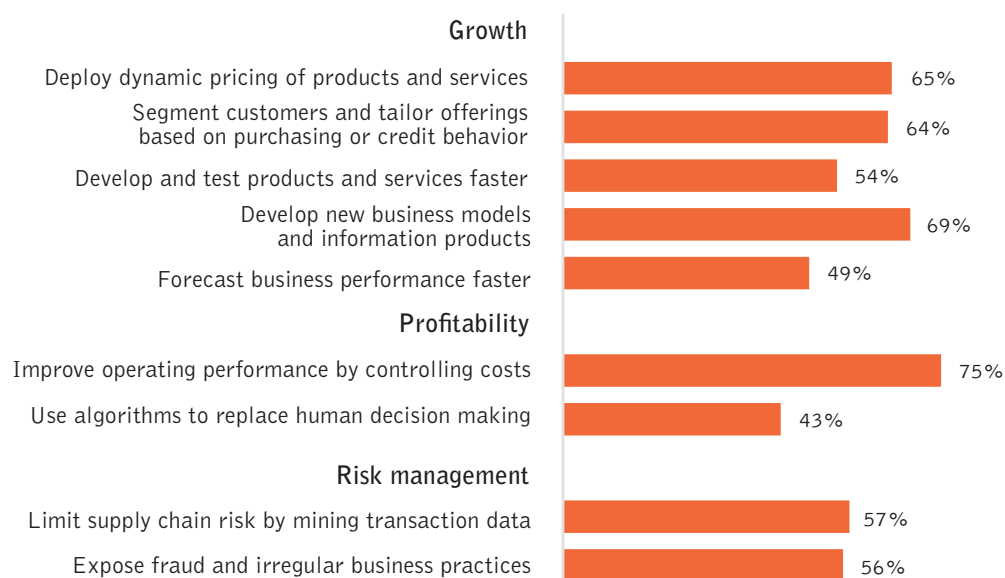
Data and analytics is so deeply embedded in the technology, media, and telecommunications sector that it seems difficult to see where the sector ends and the discipline of D&A begins. Accordingly, it's not surprising that investors and sell-side analysts focused on technology, versus those covering other sectors, expect greater D&A disruption in the near and long term, seek and receive more information on D&A strategies, and are more likely to let that information affect their investment views.

A majority of respondents focused on this sector say they would view investing in a technology

company more favorably if it were to use D&A strategies to achieve any number of specific business objectives. Their strongest support, however, goes to improving operating performance by controlling costs, shrinking inventory, and allocating resources optimally (75%); developing new business models and information-based products (69%); deploying dynamic pricing (65%); and segmenting customers to tailor offerings (64%). No other sector wins buy- and sell-side endorsements as strong for as many specific business opportunities to which D&A can be applied.

Technology, media, and telecommunications: D&A opportunities

Respondents who would view investing in a company in this sector more favorably if it were to use a sophisticated D&A strategy to achieve each of these specific objectives



There is no sector that D&A strategy is expected to disrupt more than technology, media, and telecommunications in either the short or long term. Of respondents focused on technology, 52% expect the sector's competitive dynamics to be affected dramatically or moderately by companies' use of D&A over the next year; a striking 71% expect the same to happen over the next three years.

In fact, many respondents see the results of D&A already affecting the sector. Of the respondents focused on technology, 40% strongly or somewhat agree that the sector's companies have already begun achieving better business performance due to their D&A strategies, and 21% believe they have already begun attracting higher multiples of earnings due to D&A. Looking forward two years, 60% and 38%, respectively, expect these effects to be visible within the sector.

With such a significant disruption—and opportunity—on the horizon, it is not surprising that technology companies have invested in presenting their D&A stories to investors and equity analysts. Of respondents focused on the sector, 70% report having been proactively presented with D&A information by one or more technology issuers in the last year. Also not surprising, 58% of these respondents report having proactively sought D&A information from one or more technology issuer during the same period.

This flow of D&A information appears to be having an effect on investment decision making. In the last year, 30% of respondents focused on technology changed one or more of their investment decisions or valuations based on the D&A strategies of companies in the sector—making these investors and analysts early adopters of D&A information. Furthermore, 50% of these same respondents say that, in the next two years, they are very or somewhat likely to change their investment decisions or valuations about companies as a result of their D&A strategies.

Investors and analysts believe that the results of D&A are already visible in the improved business performance and higher valuations of certain technology companies.

Business and professional services

Investors and analysts seriously weigh companies' D&A, with an unstructured approach

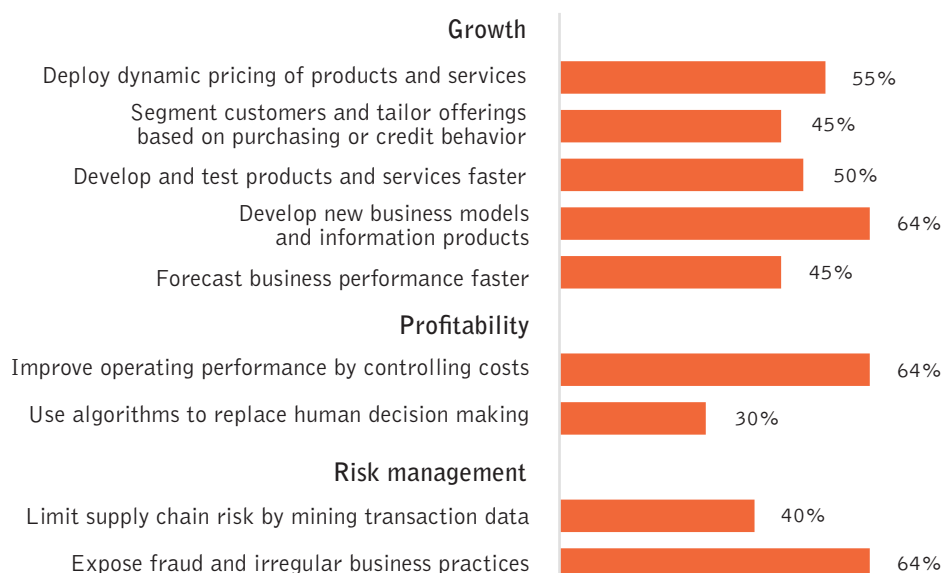
Data and analytics has already improved the performance and valuations of companies in the business and professional services sector—and this improvement is likely to continue.

Investors and sell-side analysts who cover this sector see the greatest promise for D&A in three specific

areas. They would view investing in a company more favorably if it were to use D&A strategies to develop new business models and information-based products and services; to improve operating performance by controlling costs, shrinking inventory, and allocating resources optimally; or to expose fraud and irregular business practices.

Business and professional services: D&A opportunities

Respondents who would view investing in a company in this sector more favorably if it were to use a sophisticated D&A strategy to achieve each of these specific objectives



The business and professional services sector is especially likely to be disrupted by D&A in both the short and long terms. Of respondents focused on the sector, 45% say that D&A strategy will disrupt the sector's competitive dynamics dramatically or moderately within the next year, while 70% expect such disruption within the next three years.

Indeed, D&A-supported change is already affecting business and professional services companies. Of respondents focused on the sector, a majority (55%) says that D&A has already begun to deliver better business performance to its companies, while a striking 73% say this performance improvement will come in the next two years.

Investors and sell-side analysts who cover the services sector are those most likely to engage with issuers to acquire D&A information when formulating their investment decisions and valuations. Of these respondents, 73% proactively sought information from companies about their D&A strategies in the last year, and 70% report that companies proactively presented them with such information during the same period.

Investors rate the sell side's coverage of D&A strategies at the sector's companies as quite effective, with 50% of services-focused investors saying that analysts cover D&A strategies very or fairly well. (Only 42% of investors across all sectors have a similarly positive view of the sell side's D&A coverage.)

Investors and analysts covering the services industry are especially likely (64%) to use an unstructured, ad hoc approach to analyzing the D&A information they receive, compared to those covering most other sectors. Indeed, at present, with the evolution of D&A strategy still at an early stage, an unstructured, less formal approach may be a practical tack to take, given the large differences in D&A objectives, methodology, and investment across companies and sectors.

As a result of their often unstructured analyses of companies' D&A strategies, 27% of respondents covering the services industry changed one or more of their investment decisions or recommendations during the last year—making them early adopters of D&A information. And 44% expect to do so in the next two years. This is further indication that their unstructured approach to reviewing companies' data and analytics strategies should not be construed as a lack of attention to D&A as an investment criterion.

Respondents tell us that the companies in the services sector already enjoy both improved business performance and valuations due to D&A—and that this improvement is likely to continue. In fact, according to the survey data, D&A-driven improvement to performance and company valuations is more likely in the services sector, both at present and going forward, than in any other sector. Of respondents focused on services, 55% believe that the sector's companies are already experiencing better business performance as a result of D&A, and a notable 73% expect to see this improved performance in the next two years. Similarly, 27% of respondents believe that these business and professional services companies are already attracting higher multiples of earnings due to their D&A strategies, and 45% expect them to do so in the next two years.

D&A-driven improvement to company performance and valuation is more likely in the services sector than in any other sector.

Consumer sector

Abundant D&A opportunity and investor interest but little progress by companies

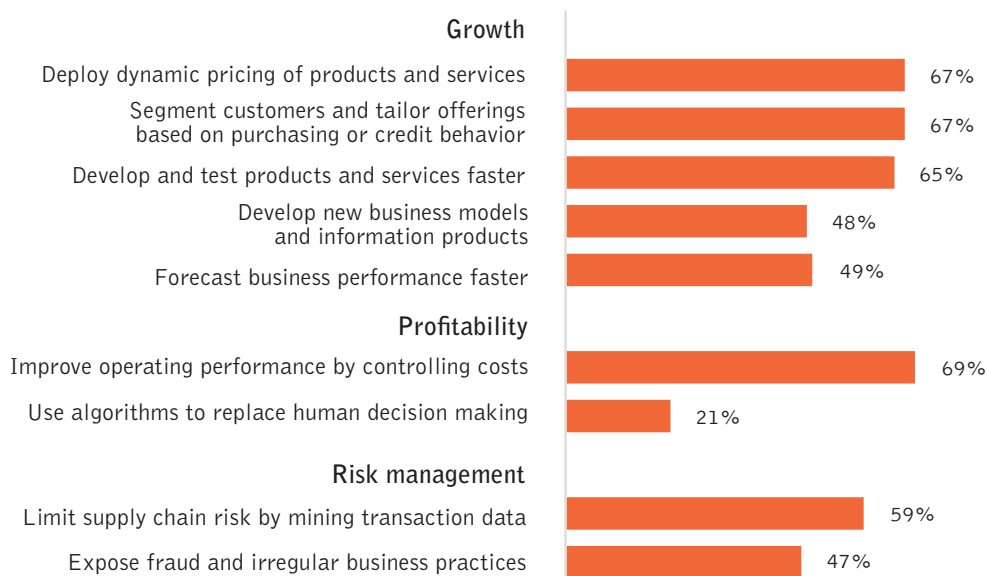
Investors and sell-side analysts are especially likely to find fault both with consumer businesses' access to transaction-level data and with their D&A strategies.

Nonetheless, respondents focused on this sector see significant D&A opportunity for the sector's companies. More than two-thirds of these investors

and sell-side analysts would view a consumer company more favorably if it were using a D&A strategy to improve its operating performance by controlling costs, shrinking inventory, and allocating resources optimally; to deploy dynamic pricing of products and services; or to segment customers and tailor offerings based on purchasing or credit behavior.

Consumer sector: D&A opportunities

Respondents who would view investing in a company in this sector more favorably if it were to use a sophisticated D&A strategy to achieve each of these specific objectives



Investors and analysts focused on consumer businesses see a large impact on the sector from data and analytics in the years ahead. Sixty percent of these respondents see dramatic or moderate disruption to the sector from D&A within three years' time.

Of sell-side analysts covering the sector, 50% say investors are very or somewhat interested in D&A strategies. This is the highest level of investor interest among all sectors.

Furthermore, issuers in the consumer sector appear to do a relatively good job of presenting their D&A strategies to investors and analysts. Of consumer-focused respondents, 66% report having had one or more companies proactively present them with information about their D&A strategies in the last year, and 58% say that issuers in this sector explain their D&A strategies fairly well or very well. Among all sectors, this is the strongest endorsement of issuers' efforts to present their D&A strategies to the investment community.

However, consumer companies appear to lag behind those in other sectors in their development of D&A infrastructure and strategies. Of respondents focused on consumer companies, 36% say these companies have poor access to relevant data on day-to-day business processes (the only sector that scores worse in this regard is the basic materials sector). Similarly, 46% say consumer companies do not devote enough attention to D&A strategies.

Consumer companies appear to lag behind those in other sectors in their development of D&A infrastructure and strategies.

Financial services

Investors and analysts see large opportunities, but companies must do more to prepare

Investors and sell-side analysts focused on the financial services sector have moved early on data and analytics information, with 33% reporting that they changed at least one investment decision as a result of a company's D&A strategy in the last year. Buy- and sell-side respondents rate issuers' explanations of their D&A strategies favorably, and investors believe the sell side covers the D&A at financial firms well.

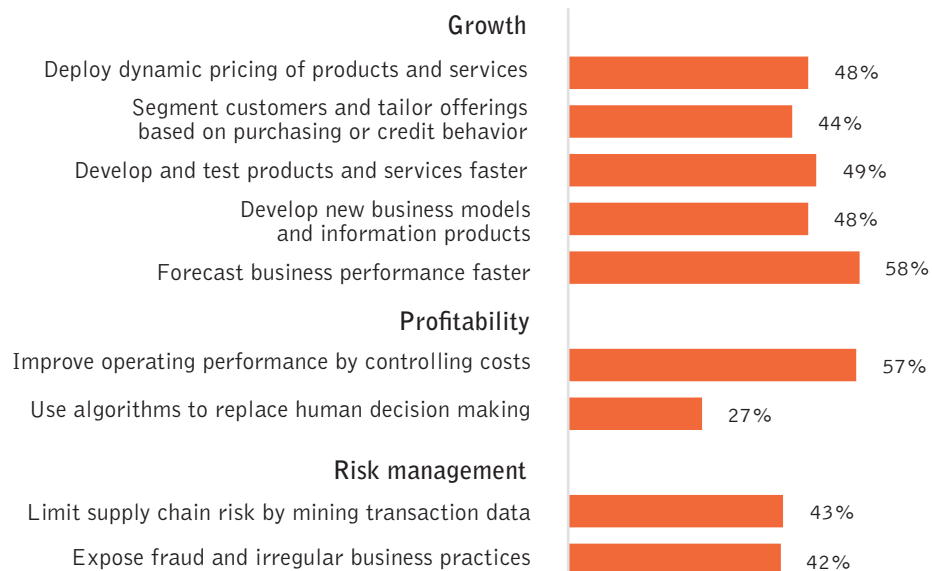
Nonetheless, respondents focused on the sector say financial firms have only average access to and

confidence in useful operating data, and 45% of them believe these firms do not devote enough attention to developing data and analytics strategies.

Respondents who cover financial services are most likely to react favorably to data and analytics initiatives used to accomplish two objectives that seem sorely needed in the wake of the recent financial crisis—forecasting business performance faster and improving operating performance through cost control and optimized resource allocation.

Financial services : D&A opportunities

Respondents who would view investing in a company in this sector more favorably if it were to use a sophisticated D&A strategy to achieve each of these specific objectives



Investors and sell-side analysts covering the financial sector are more than early adopters of incorporating D&A information into their decision making; they are leaders in this regard. Of these respondents, 33% changed one or more of their investment decisions or valuations in the last year as the result of companies' D&A strategies; no other sector has a larger proportion of such decision makers (although respondents covering industrials did tie those covering financial services at 33%). Looking ahead, a notable 60% of respondents focused on financial firms say they are very or somewhat likely to change their investment opinions in the next two years as a result of companies' D&A strategies.

Not surprisingly, therefore, sell-side analysts focused on the financial sector appear to do a good job of covering companies' D&A strategies—indeed, a better job than those focused on any other sector. According to 56% of survey respondents who invest in financials, the sell side covers financial firms' D&A strategies very well or fairly well.

The early adoption of D&A as a dimension of investment decision making in the financial sector is likely the result of two sector-specific factors. First, financial services businesses are under extraordinary regulatory pressure, which entails both costly compliance requirements and restrictions on the uses of capital. Second, they are also under great profit pressure, as revenue streams become shallow but their cost structures remain high.

As a result, knowledgeable investors and analysts who cover the information-intensive financial services sector are especially likely to recognize the large potential value that D&A offers financial issuers. Of respondents focused on the sector, 41% already see improved performance at financial institutions due to D&A, and a majority (53%) expects it within two years. More conservatively, 14% believe D&A has already delivered higher valuations to these institutions, while 30% expect this to occur in the next two years.

When asked about a list of broad business objectives—improving performance, expanding current businesses, expanding into new businesses, and managing risk—respondents focused on financials retain their optimism in D&A. Forty percent say that financials have great opportunity to improve operating performance (i.e., increase profitability) through the right D&A strategies, and 31% say these firms have great opportunity to manage and mitigate financial and operating risk through D&A. This latter objective is especially important in the financial sector, which is particularly vulnerable to data breaches, hacking, fraud, and theft—crimes against which D&A can be quite effective.

However, it appears that the financial sector is not particularly well prepared to implement sophisticated D&A strategies. The assessment of respondents focused on the sector is that financial issuers' access to and confidence in operating data are no better than average. Furthermore, 45% believe financial institutions do not devote enough attention to developing D&A strategies.

As a result, although these respondents are optimistic about what D&A could deliver to financial issuers, they lack confidence in these issuers' ability to realize the benefits. The upshot is that investors and analysts focused on financial services, versus those focused on other industries are not particularly more—or less—optimistic about D&A's delivering better business performance or attracting higher valuations to their sector, in either the short or long term.

Financial issuers seeking a path out of the post-crisis malaise may well benefit from understanding what investors and analysts seem to know already: Innovations in data and analytics have the potential to offer much value to financial services firms, but many of these firms are currently ill-equipped to take advantage of D&A opportunities.

D&A offers financial institutions the means to improve operating performance and to lessen financial and operating risk—especially important in a sector so vulnerable to hacking and fraud.

Health care

Opportunity for innovation, as D&A disruption approaches fast

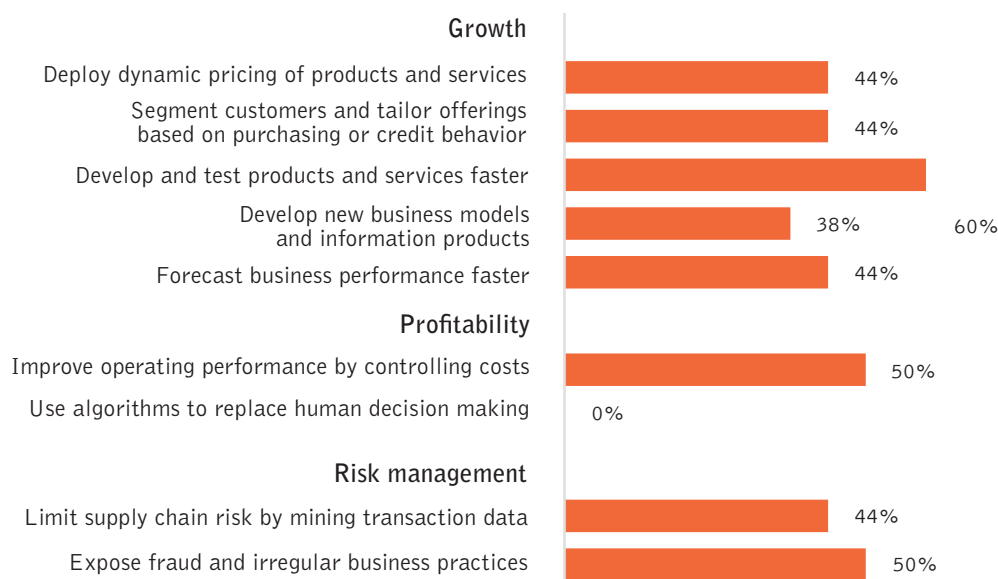
Investors and sell-side analysts covering the health care sector are especially likely to foresee disruption—with its opportunity and risk—in the near term, due to the strong data and analytics strategies of the companies in this sector.

These respondents are most enthusiastic about the prospect of health care companies' using D&A to accelerate product and service development, thus shortening the time to market and lengthening the

most profitable period of a medical innovation's life cycle; 60% of respondents covering the sector would view investing in a health care company more favorably if it were to use D&A to develop and test new products and services faster. In addition, 50% endorse health care companies' using D&A to improve operating performance by controlling costs, shrinking inventory, and allocating resources optimally, while another 50% endorse their using D&A to expose fraud and irregular business practices.

Health care: D&A opportunities

Respondents who would view investing in a company in this sector more favorably if it were to use a sophisticated D&A strategy to achieve each of these specific objectives



Investors and analysts focused on the health care sector are more likely to expect data and analytics to disrupt their sector's competitive dynamics in the near term than are their peers in most other sectors. Of those who cover health care, 45% say this disruption will dramatically or moderately affect the sector during the next year.

The sector's investors and analysts have confidence in issuers' capabilities to take advantage of D&A opportunities. Only 20% of respondents say health care issuers do not devote enough attention to D&A strategies, and the proportions of respondents expressing negative views about issuer's access to timely transaction-level data, confidence in that data, and data mining capabilities lie, in each case, in the single digits.

It is interesting to note that one particular D&A opportunity—the prospect of applying D&A to the development of algorithms to aid or replace human decision making—receives no support whatsoever from investors and analysts focused on the health care sector. Granted, the development of such algorithms receives the least support of any specific business objective to which D&A could be applied; nonetheless, 26% of all respondents still would view investing in a company more favorably if it were pursuing this goal with D&A. But the pursuit of such algorithms would cause no buy-side or sell-side respondent to view a health care investment more favorably.

Investors and analysts have confidence in health care issuers' capabilities to take advantage of D&A opportunities. .

Capital goods/industrials

Investors and analysts often consider companies' D&A, but sell-side coverage disappoints

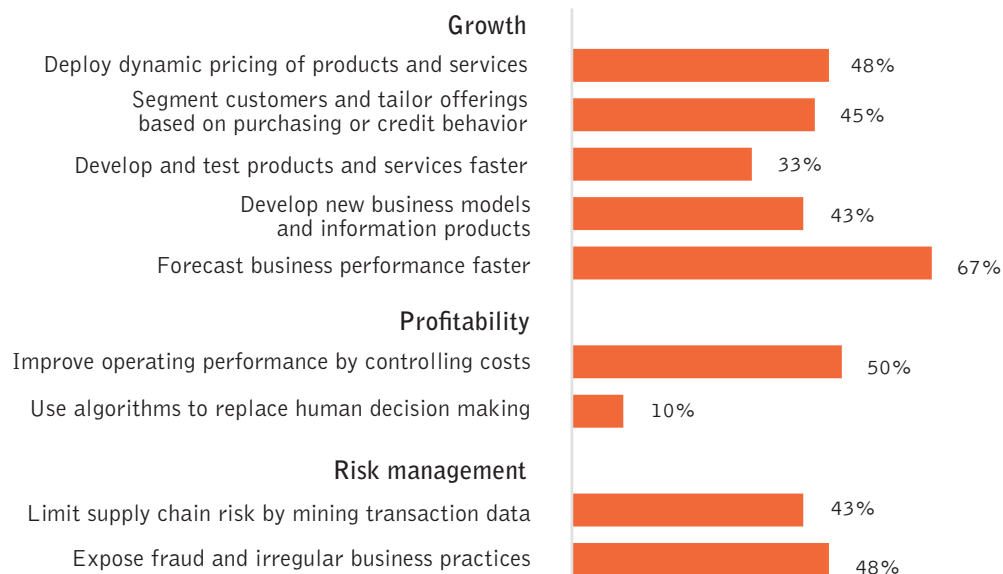
Investors and sell-side analysts who cover the capital goods and industrials sector look carefully at companies' D&A strategies as part of their decision making—and will continue to do so. Nonetheless, buy sides seldom endorse the sell side's coverage of companies' D&A in the sector.

Respondents focused on the sector see great opportunity for operating improvement and business

expansion through D&A. Most notably, a solid majority (67%) would view an investment more favorably if the issuer were using a D&A strategy to forecast performance faster, and 50% would do so if the company were using D&A to improve operating performance by controlling costs, shrinking inventory, and allocating resources optimally. Nonetheless, buy sides seldom endorse the sell side's coverage of companies' D&A in the sector.

Capital goods/industrials: D&A opportunities

Respondents who would view investing in a company in this sector more favorably if it were to use a sophisticated D&A strategy to achieve each of these specific objectives



It is not surprising that investors and analysts covering the industrials sector strongly endorse these companies' application of D&A to many specific business goals. This is simply an extension of the enthusiasm they show for industrials' use of D&A to achieve broader objectives: 50% say capital goods and industrial companies have great opportunity to use D&A to expand current product lines; 45% say the same about their improving operating performance (i.e., increasing profitability); and 40% say the same about their expanding into new lines of business.

Investors and sell-side analysts focused on industrials are especially likely to change their investment views in response to companies' D&A efforts, making them early adopters of D&A information. One-third of these respondents changed at least one of their investment decisions or valuations in the last year due to a company's D&A strategy; no other sector has a larger proportion of such decision makers (although respondents covering financial services did tie those covering industrials at 33%).

Furthermore, respondents focused on industrials plan to increase the use of D&A significantly as a central component of their investment decisions. Indeed, the proportion basing decisions on D&A is expected to nearly double in the years ahead. A notable 62% of survey respondents covering the sector say they are very or somewhat likely to change their investment decisions or advice as a result of companies' D&A strategies over the next two years.

However, sell-side analysts take note: Buy sideers are disappointed with the sell side's coverage of D&A information in the capital goods and industrials sector. Nearly three out of four (73%) of these investors report that the sell side covers companies' D&A strategies poorly or not at all.

Investors and analysts focused on industrials plan to increase the use of D&A significantly as a central component of their investment decisions.

Energy

Strong data in need of a D&A strategy

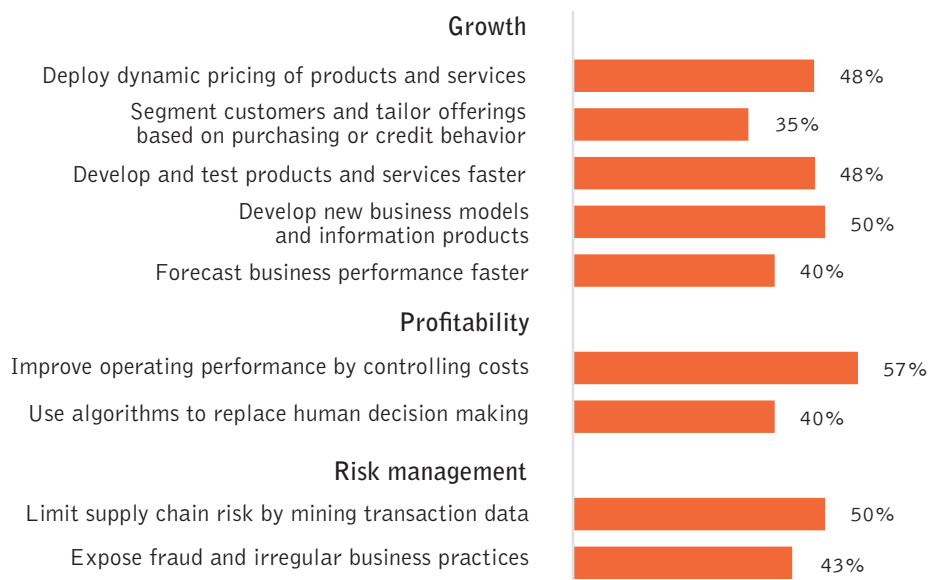
Investors and sell-side analysts who cover the energy sector say that its companies have timely access to operating data and that the companies have confidence in this data. However, buy and sell sides see room for improvement in energy issuers' data mining and analytic capabilities and in their development of D&A strategies.

With the right analytic tools and business strategies, these respondents believe energy companies can look forward to a number of

specific benefits from D&A. In particular, one-half or more of respondents focused on the sector would view investing in an energy company more favorably if it were to use D&A to achieve any of three specific objectives—improving operating performance by controlling costs, shrinking inventory, and allocating resources optimally; developing new business models and information-based products and services; or limiting supply chain risk based on mining data from transactions with partners, suppliers, and vendors.

Energy: D&A opportunities

Respondents who would view investing in a company in this sector more favorably if it were to use a sophisticated D&A strategy to achieve each of these specific objectives



Information about data and analytics doesn't travel well in the energy sector. Only 24% of investors and sell-side analysts who cover energy companies say issuers explain their D&A strategies very well or even fairly well, and only 37% were proactively presented with D&A information by energy companies in the last year.

But issuers are not the only ones to blame for the lack of D&A communication in the energy sector. Only 24% of investors and analysts focused on the sector proactively sought D&A information in the last year from any company—the lowest percentage requesting this information in any sector. Furthermore, only 31% of the sector’s buy side says sell-side analysts cover energy companies’ D&A very or fairly well, and a mere 6% of the sector’s sell-side analysts say investors in energy companies are very or fairly interested in D&A.

Clearly issuers, investors, and sell-side analysts in the energy sector do not currently see data and analytics as an important differentiating factor or organizing principle to be used in investment decision making. In fact, only 10% of investors and analysts changed an investment decision or recommendation in the last year based on a company’s D&A strategy, and only 26% expect to do so in the next two years.

Nonetheless, energy companies appear to be quite far along in putting together some of the technical building blocks required for sophisticated D&A strategies. A relatively high proportion (19%) of respondents focused on the sector say these companies have excellent access to timely, transaction-level data on day-to-day business processes. And 28% say the sector’s companies have great confidence in this operating data—a larger proportion than in any other sector. On the other hand, energy-focused respondents rate these companies’ data mining and analysis capabilities and attention to D&A strategies as merely on par with the overall average across all sectors.

Thus, energy companies have many of the building blocks in place to capitalize on D&A. However, they often lack the higher-order functions, such as data mining capabilities and data-focused strategies, required to realize the promise that investors and analysts believe D&A holds for the energy sector.

Energy companies have many of the building blocks in place to capitalize on D&A strategies but often lack the needed data mining and business strategies.

Basic materials

Some, but little, disruption from D&A

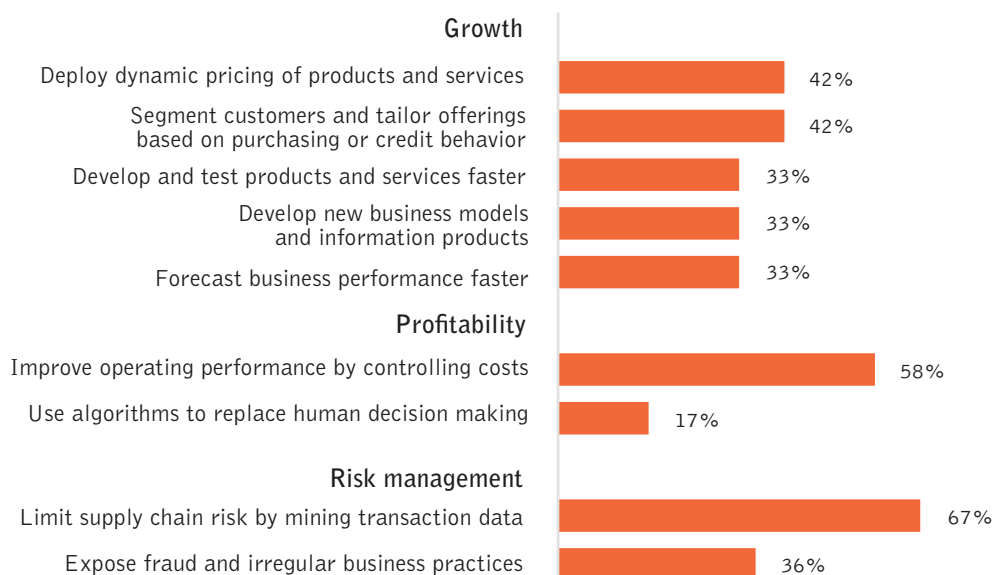
Investors and sell-side analysts focused on the basic materials sector foresee a smaller D&A disruption to their sector than is expected in any other industry. Consequently, they also see the least potential upside for D&A-driven improvement to the business performance or valuations of the sector's companies.

Nonetheless, the sector's analysts and investors do see some upside in D&A for basic materials companies.

In particular, more than two-thirds (67%) of analysts and investors would view a company more favorably as an investment if it were to use D&A to limit supply chain risk by mining data from transactions with customers, employees, suppliers, and partners. And more than half (58%) would view a company more favorably if it were to use D&A to improve operating performance by controlling costs, shrinking inventory, and allocating resources optimally.

Basic materials: D&A opportunities

Respondents who would view investing in a company in this sector more favorably if it were to use a sophisticated D&A strategy to achieve each of these specific objectives



While investors and sell-side analysts in aggregate clearly expect D&A to be a source of disruption and opportunity, the basic materials sector appears least likely to experience this impact. Only 7% of respondents covering the sector expect D&A strategy to affect its competitive dynamics substantively in the next year, while only 21% expect it to do so over even the next three years.

It is not surprising, then, that few respondents focused on basic materials (a mere 18%) report having changed one or more of their investment decisions or valuations in the past year due to companies' D&A strategies. Furthermore, their enthusiasm for doing so in the future remains low.

D&A information is not communicated well within the basic materials sector. Perhaps this adds to the lack of emphasis D&A has been given by investors; perhaps it is a result of it. A notable 80% of investors say sell-side analysts do a poor job of covering the D&A strategies of companies in the sector or do not cover D&A at all (this is the poorest assessment of sell-side coverage in any sector). Similarly, 89% of sell-side analysts covering basic materials say that investors are only minimally or not at all interested in D&A (again, the poorest assessment—this time of investor interest—in any sector). And 75% of investors and sell-side analysts say basic materials companies explain their own D&A strategies poorly or not at all.

Investors and analysts give poor marks to the D&A infrastructure and strategies of companies in the basic materials sector. Of respondents focused on basic materials, 38% say that the sector's companies have poor access to relevant data on day-to-day business processes (the largest proportion of respondents reporting this about the companies in their sector). More than one-third (36%) of respondents focused on basic materials also judge the data mining and analytic capabilities of the companies in the sector to be poor, and almost half (46%) say companies in the sector do not devote enough attention to their D&A strategies.

While companies in the basic materials sector likely have less to gain from D&A strategies than do companies in other sectors, certain D&A opportunities do, in fact, exist in the basic materials sector. In particular, investors and analysts say they would view investing in a basic materials company more favorably if it were to apply the right D&A strategy either to limiting supply chain risk or to improving operating performance by controlling costs, shrinking inventory, and allocating resources optimally. However, companies in the sector would first need to develop the necessary building blocks of effective D&A strategies.

Investors and analysts give poor marks to the D&A infrastructure and strategies of companies in the basic materials sector.

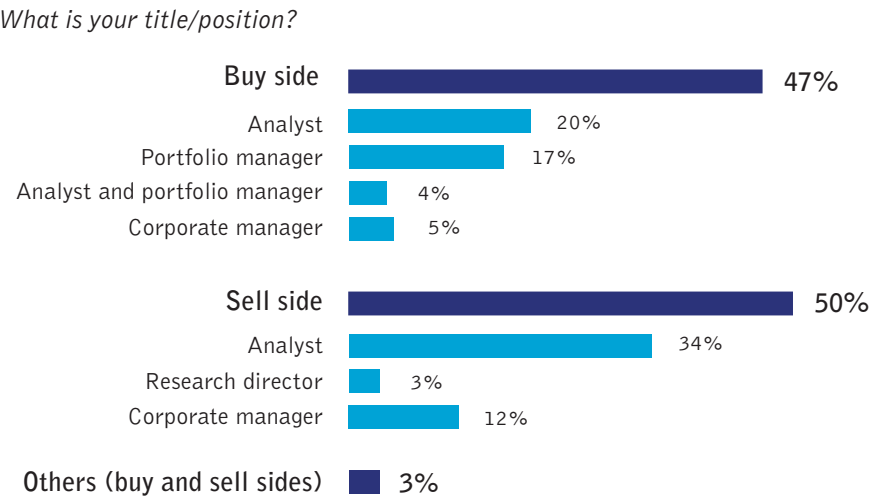
About this research

In 2015, KPMG commissioned the Custom Research Group at Institutional Investor Research (IIR) to examine investors’ and sell-side analysts’ views in a study on the use of data and analytics in business. The study focuses on the use of D&A strategies by issuers and the use of information about companies’ D&A strategies by investors and equity analysts making investment decisions and formulating valuations. The study looks at current practices and expectations both across all sectors and within the primary business sectors individually.

IIR, in collaboration with KPMG, composed a questionnaire on the study topic. In January and February 2015, IIR collected a total of 260 responses, consisting of 130 from senior institutional investors and 130 from senior decision makers at sell-side firms. In addition, IIR conducted in-depth interviews with six investors and four equity analysts in order to obtain context and further details regarding the data collected.

Survey respondents are high-level investment decision makers, including buy-side portfolio managers and sell-side research directors and corporate managers (see Figure 14).

Figure 14. Respondents represent high-level decision makers on the buy and sell sides.

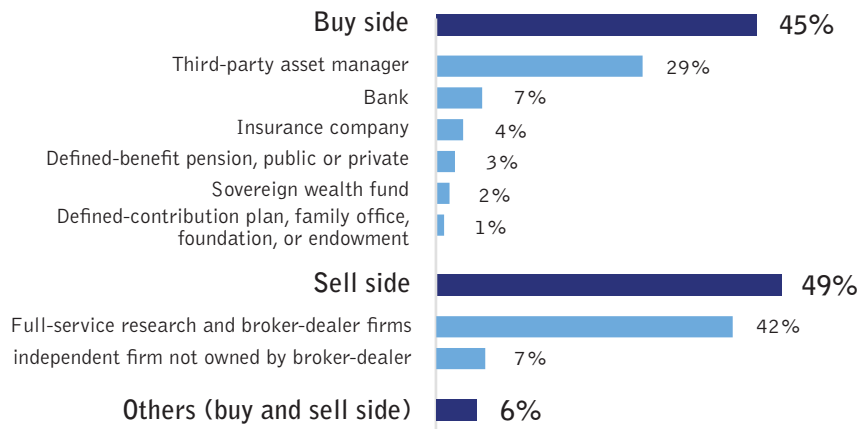


Title percentages may not add to buy- and sell-side totals due to rounding.

A majority of buy-side respondents work for third-party asset managers; a majority of sell-side respondents work for full-service research and broker-dealer firms (see Figure 15).

Figure 15. Respondents represent all types of buy- and sell-side firms.

What type of financial institution do you work for?

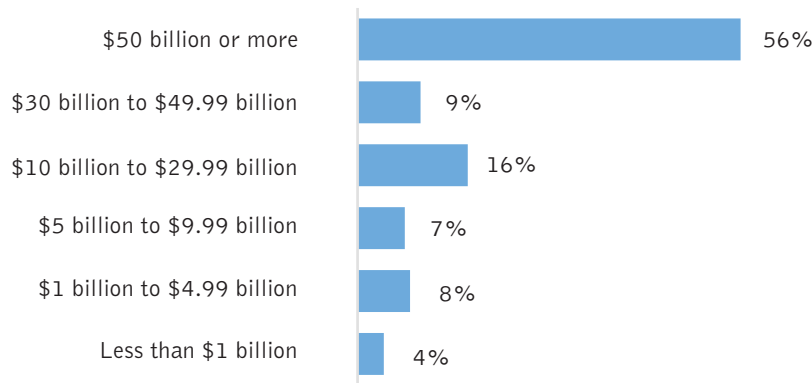


Institution percentages may not add to buy- and sell-side totals due to rounding.

Notably, over half of buy-side respondents work for institutions with \$50 billion or more in assets under management (AUM) (see Figure 16).

Figure 16. More than half of buy-side respondents work at the largest funds.

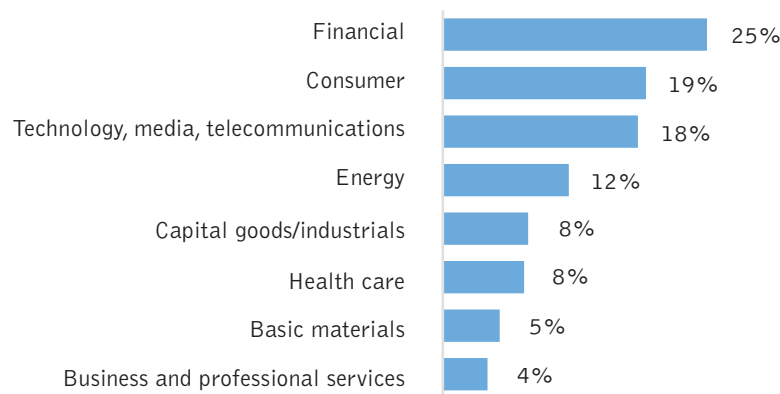
Estimate your firm's total assets under management in U.S. dollars.



Survey respondents focus on a broad array of sectors, with the financial services; consumer; technology, media, and telecommunications; and energy sectors especially well represented (see Figure 17).

Figure 17. Each respondent focuses on one of eight primary sectors.

Which one of the sectors below do you follow most closely?

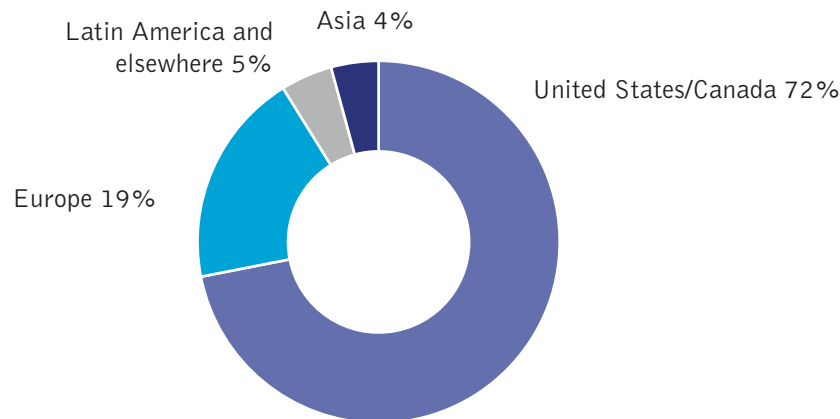


Percentages may not add to 100% due to rounding.

Respondents are from around the world, with the strongest representation from the U.S./Canada, followed by Europe and Asia (see Figure 18).

Figure 18. Most respondents are from the United States and Canada, followed by Europe and Asia.

Where is your position located?



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