

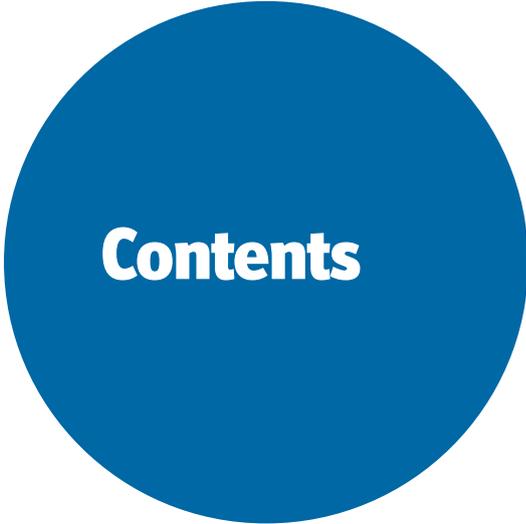
Fostering a data-driven culture

A report from the Economist Intelligence Unit



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About this report

Fostering a data-driven culture is an Economist Intelligence Unit report, sponsored by Tableau Software. It explores the challenges in nurturing a data-driven culture, and what companies can do to meet them.

The Economist Intelligence Unit bears sole responsibility for the content of this report. The findings do not necessarily reflect the views of the sponsor.

The paper draws on two main sources for its research and findings:

- A survey, conducted in October 2012, of 530 senior executives from around the world. More than 40% of respondents are C-Level executives, including 23% from the CEO, president or managing director ranks and 9%, CIOs. Responses come from a wide range of regions: 50% North America, 15% Asia-Pacific, 26% Western Europe and 9% Latin America. The

range of company sizes is also diverse, from those with revenue of less than US\$500m (53%) through to those with revenue of US\$10bn or more (20%). The survey covers nearly all industries, including IT and technology (18%), financial services (17%), professional services (11%) and manufacturing (7%).

- A series of in-depth interviews with the following senior executives:
Sidney Minassian, CEO, Contexti
Jerry O'Dwyer, principal, Deloitte Consulting
William Schmarzo, CTO, EMC
Colin Hill, CEO, GNS Healthcare

We would like to thank all interviewees and survey respondents for their time and insight.

The report was written by Jim Giles and edited by Gilda Stahl.



Introduction

The importance of data-driven thinking is not new. Many executives are familiar with the concept. The rise of data-driven companies, from Facebook to Walmart, shows how powerful the approach can be. But what does it mean in practice? And what are the benefits of adopting a data-driven culture within an organisation?

Let us start with what a data-driven culture is not. It is not a belief that data are an issue for someone else in the company, a job for a data specialist or perhaps the IT department. There is still a perception that a data specialist, perhaps a recent statistics graduate, should be parachuted in to an organisation to advise on how to work magic with data, much as a computer security expert would be called on to help shore up a company's IT networks.

This is flawed thinking. IT security is indeed a job for experts, but data are everyone's business. Forward-looking companies are integrating data into their day-to-day operations. They are placing data at the heart of almost all important decisions. And they are tolerant of questioning—even dissent—about business decisions being made, as long as the questioning is based on data and their

analysis. This is what it means to adopt a data-driven culture.

An Economist Intelligence Unit survey of 530 senior executives, sponsored by Tableau Software, together with interviews with four leading industry experts, delves into this trend and highlights best practices. Evidence from these exercises shows that data are gaining a foothold within all parts of organisations, even in areas where they have previously had little impact. The survey and interviews also highlight the tensions involved in democratising data, and some of the methods that can be used to defuse them.

Perhaps most importantly, this report echoes a critical point that data advocates make repeatedly: working with data is good for a company's bottom line. There is abundant anecdotal evidence in favour of this claim—retailers like Tesco have used data to gain market share and casinos have reaped rewards by turning marketing into a science. Our survey backs this up with evidence that links financial performance and the successful exploitation of data. It is a reminder that a focus on data can transform businesses. ■

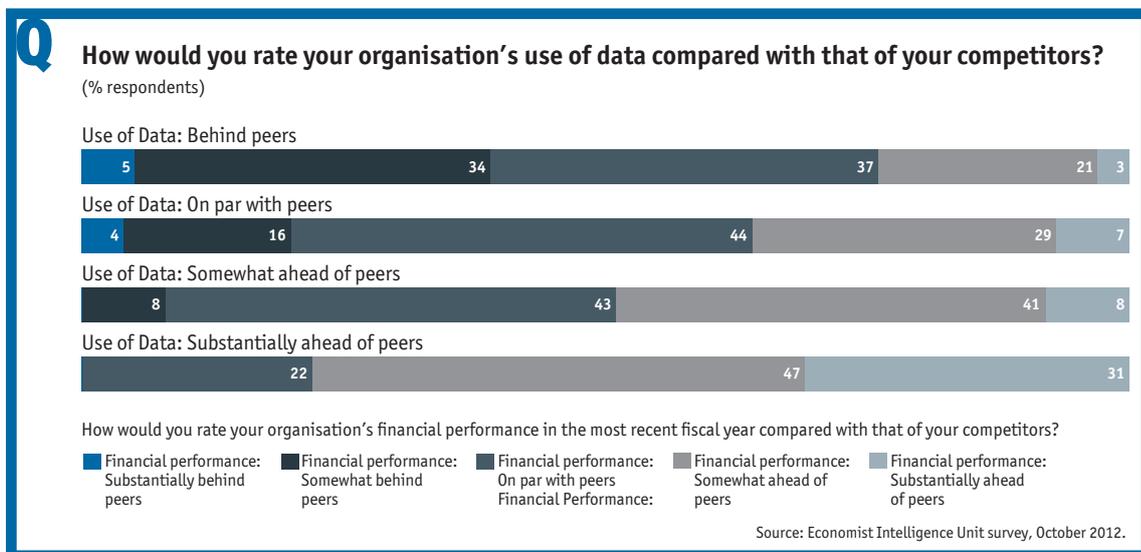
1 Appreciating the financial power of data

The survey reveals a clear link between financial performance and use of data. Eleven percent of respondents state that, in comparison to peers, their organisation makes “substantially” better use of data. But top-performing companies comprise more than a third of this group, demonstrating the connection between data-driven decision-making and organisational performance. And the reverse is true for under-performing companies. Seventeen percent of executives identified their companies as lagging behind peers in financial performance. Among this group, not a single one claimed that his or her organisation held a substantial advantage over rivals when it comes to use of data.

The benefits of data are being seen in almost all parts of companies. When asked to rate the

importance of data to different organisational units, 43% of respondents say that data are “extremely important” to strategic decision-making. This figure is higher than that for any other unit, but there are many other areas where respondents say data are yielding benefits. Just under 40% say data are extremely important to marketing and communications, as well as finance and accounting.

Some areas remain relatively untouched by data, but probably not for long. Just 11% of respondents rate data as extremely important to the human resources (HR) function, for example. A new crop of start-ups is trying to change that. At one, TalentBin, engineers have built software that scours LinkedIn and social media, from Twitter to Quora, to build a profile designed for recruiters. It



is based on the idea that the best candidates for a position are not necessarily looking for a new job, but might be open to being approached about one. TalentBin uses online data to identify those people, and it seems to be working: since launching in May, the company has signed up clients like eBay and Dolby.

The survey also reveals that data-driven companies have an expansive attitude to data use by employees. Almost a third of respondents at companies that lead peers in data use say that employees across the organisation should be applying data analysis techniques compared with 17% at companies that trail peers in data use. ■

“Many of my clients are clearly aware of the importance of data, but they don’t know where to start in terms of where they should focus to get the most value, as well as how to translate the data into actionable insight.”

Jerry O’Dwyer, Principal,
Deloitte Consulting

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Share data and prosper

Appreciating the power of data is, of course, only the first step on the road to a data-driven culture. For older companies, especially those that have achieved success with minimal use of data, the transition to a data-driven culture does not necessarily come naturally. “Many of my clients are clearly aware of the importance of data,” says Jerry O’Dwyer, a principal at Deloitte Consulting. “But they don’t know where to start in terms of where they should focus to get the most value, as well as how to translate the data into actionable insight.” “Becoming data-driven is very difficult for many executives,” agrees William Schmarzo, chief technology officer at EMC, an information technology company. “They are reluctant to turn over decision-making to people who make decisions on the basis of data rather than expertise.”

Our survey provides guidance for executives who want to make the change. Data often exist in silos, for example, sometimes overseen by protective

divisional heads. But more than half of respondents from top-performing companies say that promotion of data-sharing has helped generate a data-driven culture in their organisation.

Moving data collection to the centre of a company is another example. Data collection is cited as “very important/essential” to data culture by 76% of executives from top-performing companies compared with 42% from companies that lag their peers.

Increased availability of training is a further factor to consider. Around one in three respondents say it is “very important” to have programmes or partnerships in place to make employees more data-literate. Awareness of this need is even higher among executives at companies that out-perform their peers financially; 50% of respondents from this group rate training as highly important.

The survey also provides some suggestions for what not to do. Issues around sharing data appear to be the biggest challenge. About one-third of respondents say that their company struggles to achieve a data-driven culture in part because of concerns about the privacy and security issues that arise when data are shared. Just over 30% of respondents attribute a reluctance by department heads to share data as a cause for failing to realise a data-driven culture. ■

Q How important is it to have training programmes or partnerships in place to make people in your organisation more data-literate?

(% respondents)



Source: Economist Intelligence Unit survey, October 2012.

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Start at the top

Much attention is paid to the need to recruit skilled data specialists, an issue we address in the next section of this report. Yet a data-driven culture cannot be built on a few experts. It requires buy-in across an organisation, which in turn requires educating employees about the power of data, and empowering them through training. “Companies should challenge all employees to share data, to collaborate, to share best practice,” says Mr Schmarzo.

But change often has to start at the top and, without support from the C-suite, it may be impossible to create a data-driven culture. Sidney Minassian, CEO of Contexti, a big data analytics company with operations in Australia, the US and

Asia, says, “Someone needs to see the appeal and step up,” he says. “It could be anyone from the C-suite.”

These points are backed up by our survey. Asked about the strategies that have proved successful in promoting a data-driven culture, half of respondents mention top-down mandates and guidance. Recognition of the importance of this issue was even higher among executives from top-performing companies, over two-thirds of whom noted the importance of C-level leadership on data issues.

Whatever the methods used, installing a data-driven culture will not be easy. But, by revealing a strong link between data culture and financial performance, our survey shows that it is worth it. ■



Which strategies have proved successful in promoting a data-driven culture in your organisation?

(% respondents)



Source: Economist Intelligence Unit survey, October 2012.

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The skills shortage

“There is more and more resistance to having everything funnelled through IT.”

”

Jerry O’Dwyer, Deloitte Consulting

Companies can power change by democratising data use. Even less mathematically inclined employees can be empowered to help discover trends and visualise results. But data specialists will remain an essential part of many workforces. Some analytical tasks, particularly predictive modelling, require a sophisticated knowledge of statistics. The issue here, however, is not recognising that specialists are required; companies are generally aware of that. In a competitive job market, the problem is recruiting and retaining those specialists.

It is a challenge that survey respondents identify with in large numbers. Nearly 70% say that it is “somewhat” or “very” difficult to recruit and retain people who are effective at analysing data. Under-

performing companies rate the problem as more severe, as do companies in the Asia-Pacific region. The causes of this problem are diverse, but respondents single out a lack of professional expertise among applicants, a shortage of analysts in their sector and the high salary costs demanded by data specialists as some of the principal reasons.

“Many companies are struggling to define a career path for this sort of person,” says Mr O’Dwyer. He notes that a talented graduate with strong mathematical skills can command a large salary on Wall Street, or at a consultancy. Many companies can do little to compete financially, but they can offer new recruits a role that is more interesting, and potentially less stressful, than that on offer at investment banks. Mr O’Dwyer

Who to train?

There is no doubt that data democratisation is a transformative idea. But how far should the process go? Should every employee be encouraged to start crunching numbers? Or should companies aim for just a modest expansion of the priesthood of data specialists?

“It is a really provocative question,” says Jerry O’Dwyer, a principal at Deloitte Consulting who has pondered the issue. It is clear that the demand for democratisation is there, he adds: “There is more and more resistance to having everything funnelled through IT.” He argues against a concentration of data talent in a single unit, which would simply shift the problem from IT to the new unit.

It would be foolish to attempt to empower every employee,

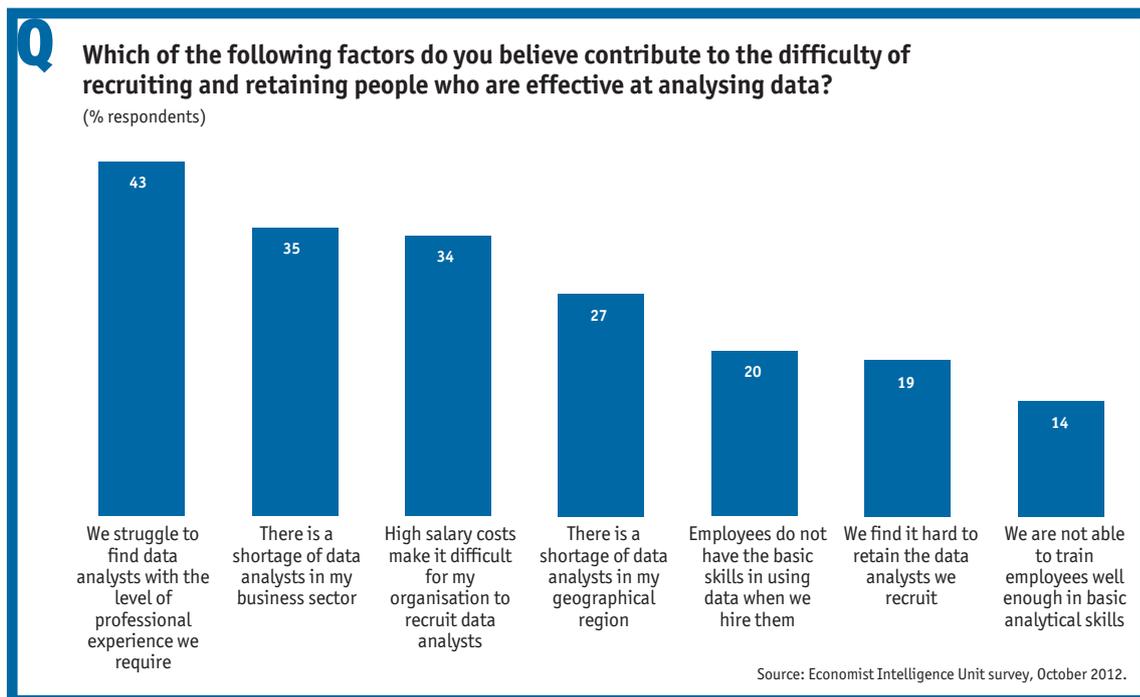
he adds, but everyone should at least be given the opportunity to work with data. “We are seeing a bifurcation between what is appropriate for the masses and the most specialist tools that require advanced capability,” he says.

Colin Hill, CEO at GNS Healthcare, is taking a similar approach with the products his company develops, including tools that assess the comparative effectiveness of different drugs. The algorithms behind the tools have been developed by the company’s in-house team of experts, but the software itself is designed to be used by employees across the healthcare industry. “Part of this is about making the complex simple,” says Mr Hill. “Computers are very good at the complex, but ultimately we have to break it down to the human level.” ■

“Almost every university, and many companies, are gearing up. The supply [of data specialists] will improve dramatically over the next 18 months.”

”

William Schmarzo, CTO, EMC



recommends that companies rotate data specialists within the organisation so as to provide them with a stream of new challenges.

The problem will also be lessened by the increasing number of data specialists being trained in US universities, adds EMC's Mr Schmarzo. "Almost every university, and many companies, are gearing up," he says. "The supply will improve dramatically over the next 18 months."

Companies will avoid problems that plague others if they do manage to recruit and retain data talent, our survey suggests. Just over 100 executives out of our sample of 530 identify their companies' use of data as "somewhat" or "substantially" behind peers. Within this group, half cite a lack of in-house technical expertise as a reason. Just under 14% say that the analysts that they do have are overwhelmed by requests. ■

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Data, or big data?

Some of the data doubters may be confused by the attention paid to “big data”, one of the biggest buzzwords in business in recent years. It has led some companies that work with smaller and fewer datasets to think that the data revolution is not relevant to them. But the focus on big data is often a distraction. “Big” means different things to different companies. It is far more important to focus on the data that your organisation can or should be collecting, and work out how best to exploit them.

Our survey illustrates this by revealing a surprising diversity in the datasets that companies use. When asked to define a dataset that qualified as “big data”, respondents fill the range of possible replies. Fifteen percent of respondents define a gigabyte as “big”. (A movie file can easily take up more memory.) The biggest single group—36% of respondents—put the threshold at a terabyte. And 3% of respondents say that in their industry only an exabyte or more qualifies as big. In other words, the definition of “big” differs by at least nine orders of magnitude across respondents.

Companies also show diversity in terms of the range of data they work with. Customer, sales and

relationship management data are most widely used, but every data type mentioned in the survey is being employed by at least one in ten companies, from supply chain to social media data. Over half of companies use four or fewer datasets that meet their industry’s definition of “big data”, but 20% work with between 5 and 19 datasets, and 8% work with 20 or more.

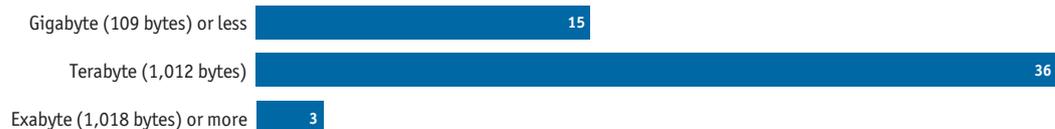
It is notable that there is limited correlation between financial performance and the size and type of data that companies use. Top-performing companies make slightly more use of newer data sources, including social media, web tracking and sensors such as RFID tags. But there is little correlation between financial performance and a company’s definition of “big data”, the number of datasets that a company uses or the number of employees whose job responsibilities include analysing data.

This is a message worth remembering: the size and type of data that matter vary across industries and even within companies, but the transformative power of data itself does not. “Data have the ability to foster change,” says Mr Schmarzo. “I say: don’t think only about size, think about how to use it.” ■



What size of data set qualifies as big data in your industry?

(% respondents)



Source: Economist Intelligence Unit survey, October 2012.

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Conclusion

It isn't easy to create a data-driven culture. The approach would be far more common if it were. This is especially true for companies that were not built with data in mind. Take marketing, for example. For decades, this domain has been dominated by creative types. Now it is as much a quantitative science as it is an exercise in art and design. It is not easy for an executive who has built a career on smart, instinctive decisions to transition to a world in which the smart decisions are data-driven. Yet that transition is vital, as the evidence gathered in this report makes clear.

Each organisation will need to find its path to a data-driven culture. Our survey and interviews reveal a few common features, though, which we believe are the crucial messages of this report:

- Data-driven companies place a high value on sharing. Companies own data, not employees. Data are a resource that can power growth, not something to be hoarded.
- Shared data should be utilised by as many employees as possible, which in practice means rolling out training wherever it is needed.

- Data collection needs to be a primary activity across departments
- Perhaps most importantly, implementing a data-driven culture requires buy-in from the top; without that, little will change.

Executives also need to do something that doesn't come naturally to many of them: admit that they do not always have the answers. "Leaders still think they know best," says Mr Schmarzo. "Organisations are still in a command-and-control environment." In data-driven companies, leaders have to be open to counter-intuitive theories and unorthodox strategies—as long as these are backed up by data. It is one consequence of empowering employees.

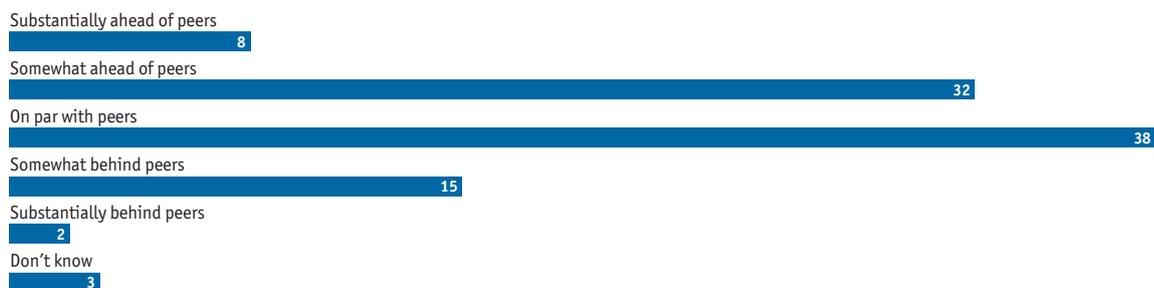
Even with these practices in place, companies will inevitably take missteps along their path. But that is part of the process of getting there. "Start quickly, be agile," recommends Mr Minassian. "Share experiences with others. It is a journey. Companies don't become data-driven overnight." ■

Appendix: survey results

Percentages may not add to 100% owing to rounding or the ability of respondents to choose multiple responses.

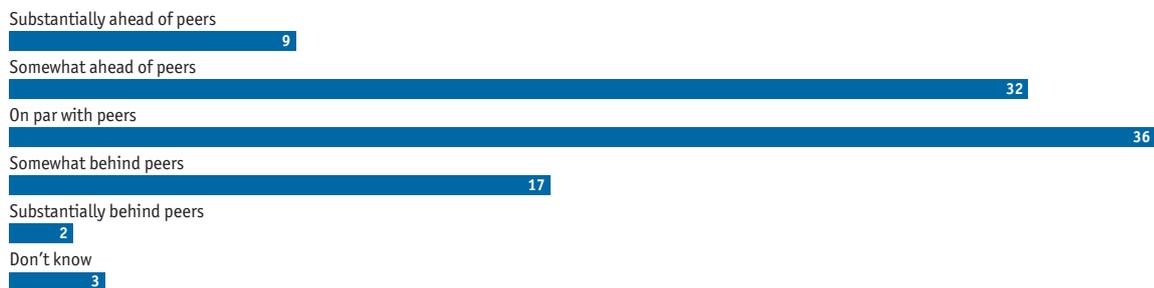
How would you rate your organisation's financial performance in its most recent fiscal year compared with that of your competitors?

(% respondents)



How would you rate your organisation's use of data compared with that of your competitors?

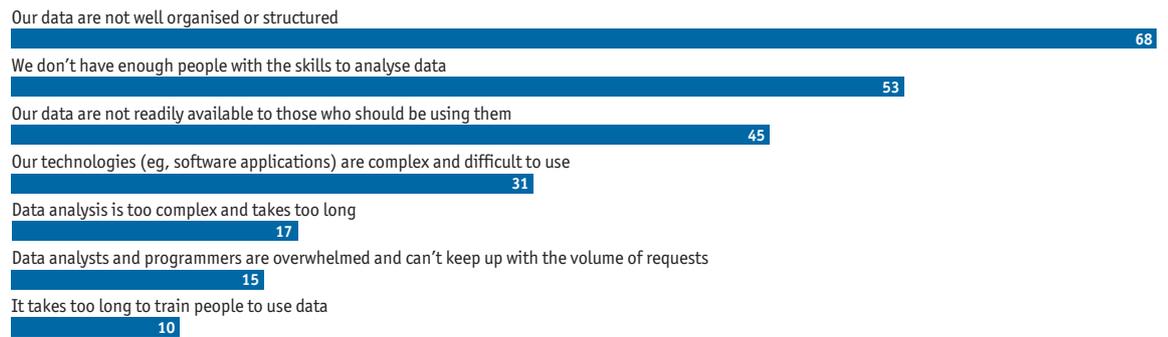
(% respondents)



What are the key reasons you believe your organisation is behind your peers in its use of data?

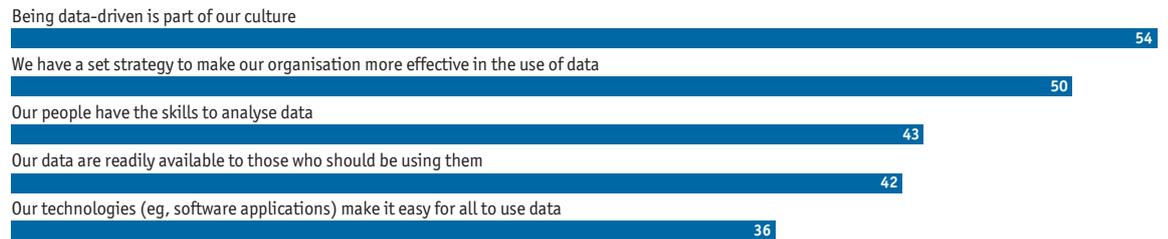
Select all that apply.

(% respondents)

**What are the key reasons you believe your organisation is ahead of your peers in its use of data?**

Select all that apply.

(% respondents)

**How important is data collection to your organisation's data culture?**

(% respondents)

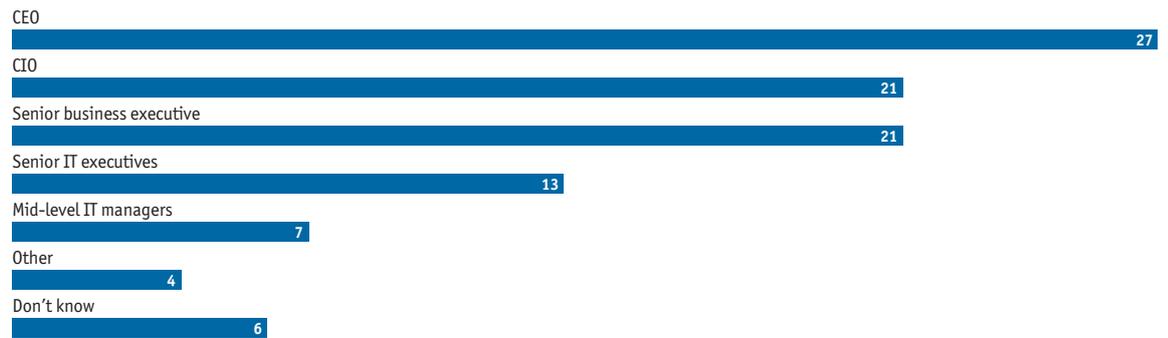
**To what extent does your organisation utilise data to develop strategy?**

(% respondents)

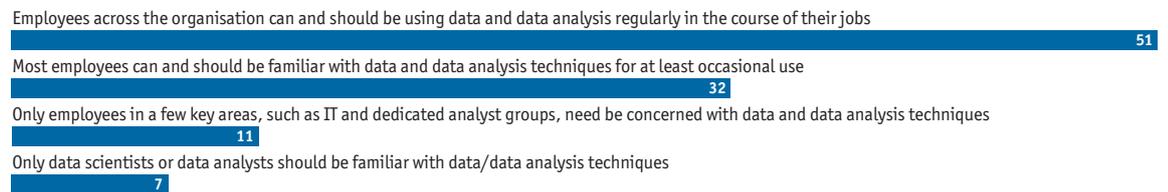


Who is primarily responsible for your organisation's data management strategy?

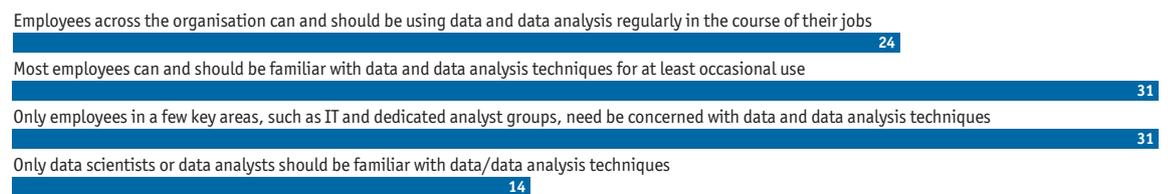
(% respondents)

**In your opinion, how much should employees within an organisation ideally understand data?**

(% respondents)

**In your opinion, how much should employees within an organisation ideally apply data analysis techniques?**

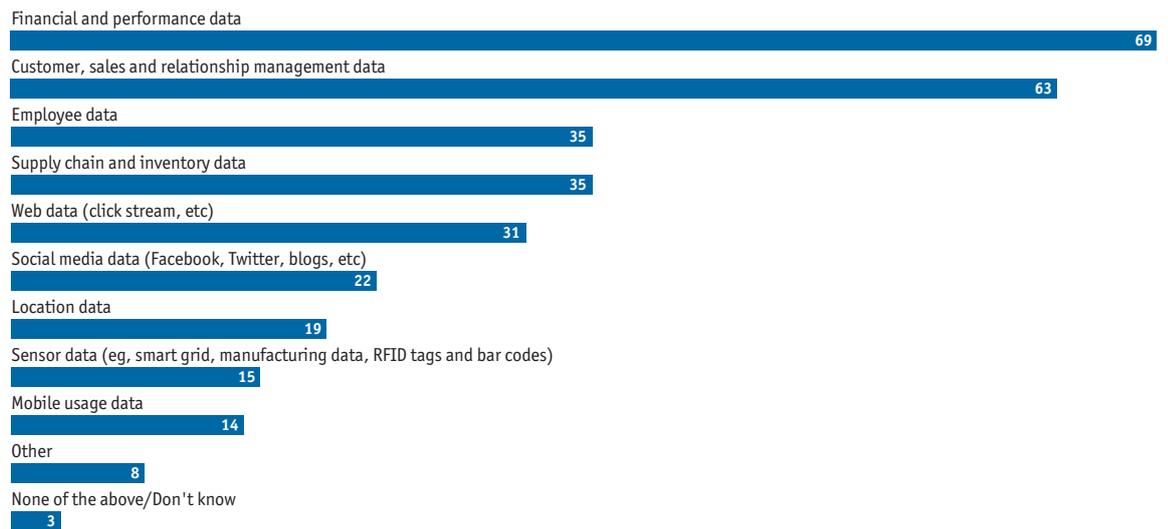
(% respondents)



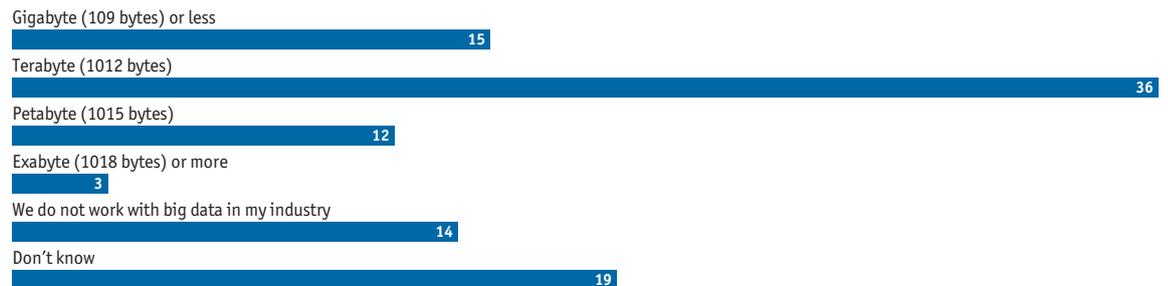
Which of the following sources of data account for the bulk of the data that you use?

Select all that apply.

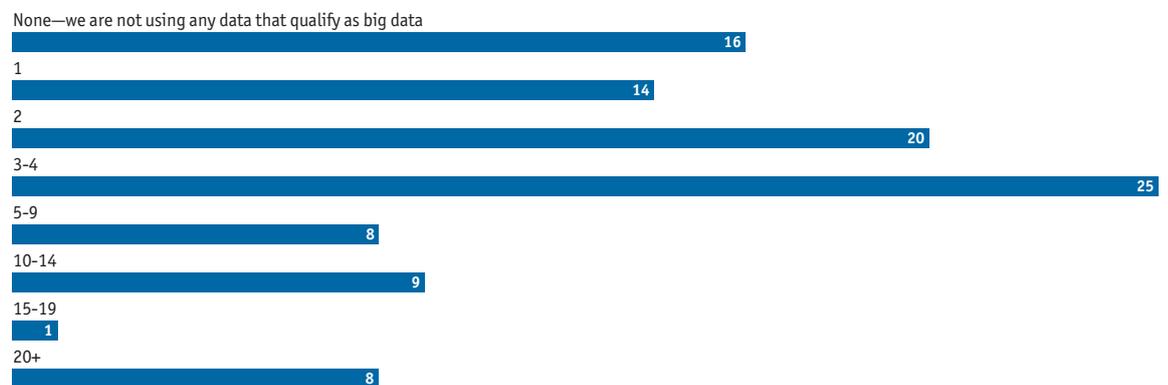
(% respondents)

**Different companies define "big data" in different ways. What size of data set qualifies as big data in your industry?**

(% respondents)

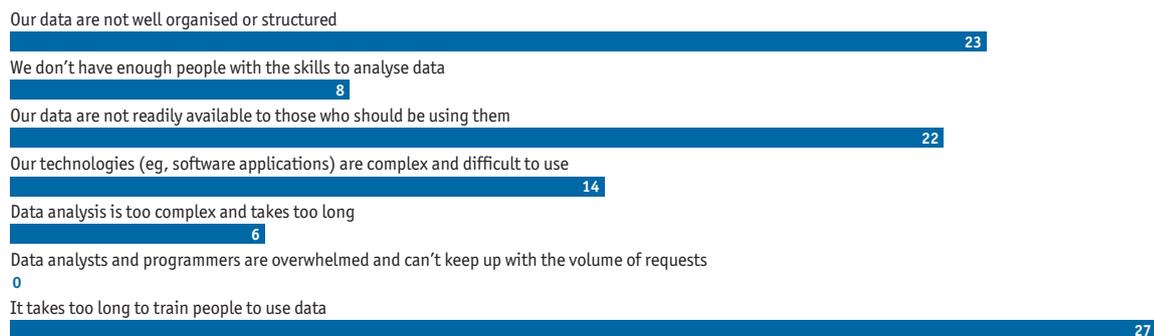
**Of all the databases or datasets your organisation uses, how many would you estimate qualify as "big data" as you defined above?**

(% respondents)

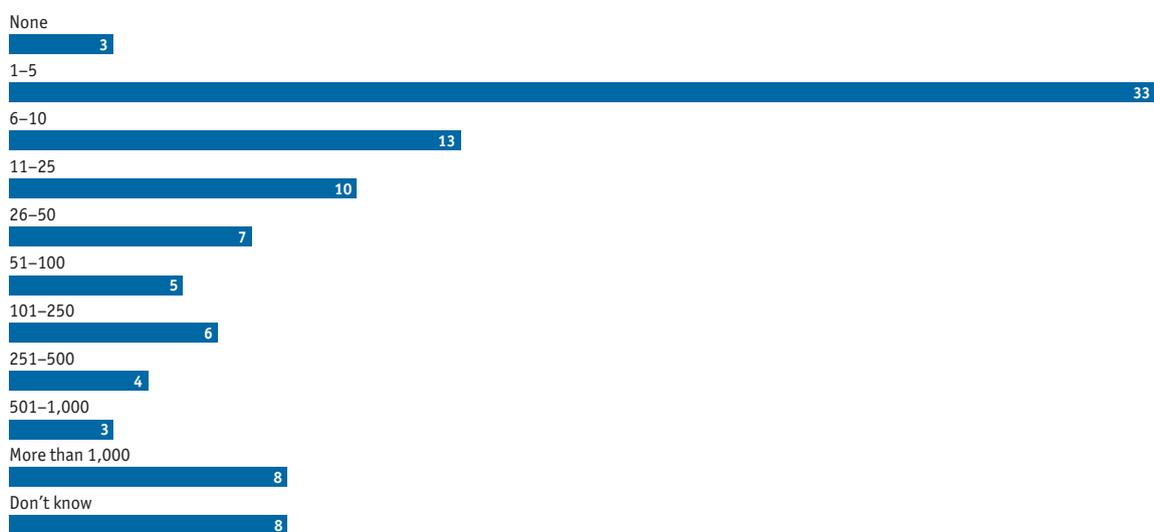


How many total databases or datasets of any size would you estimate your organisation uses?

(% respondents)

**Approximately how many people does your organisation employ that have job responsibilities to analyse data?**

(% respondents)

**Which statements best describe the impact that data are having on your job?**

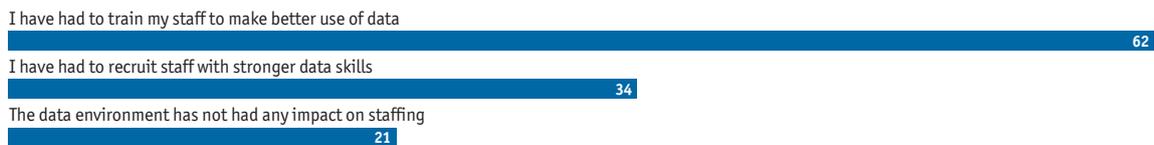
Select all that apply.

(% respondents)

**Which statements best describe the impact that data are having on your staff?**

Select all that apply.

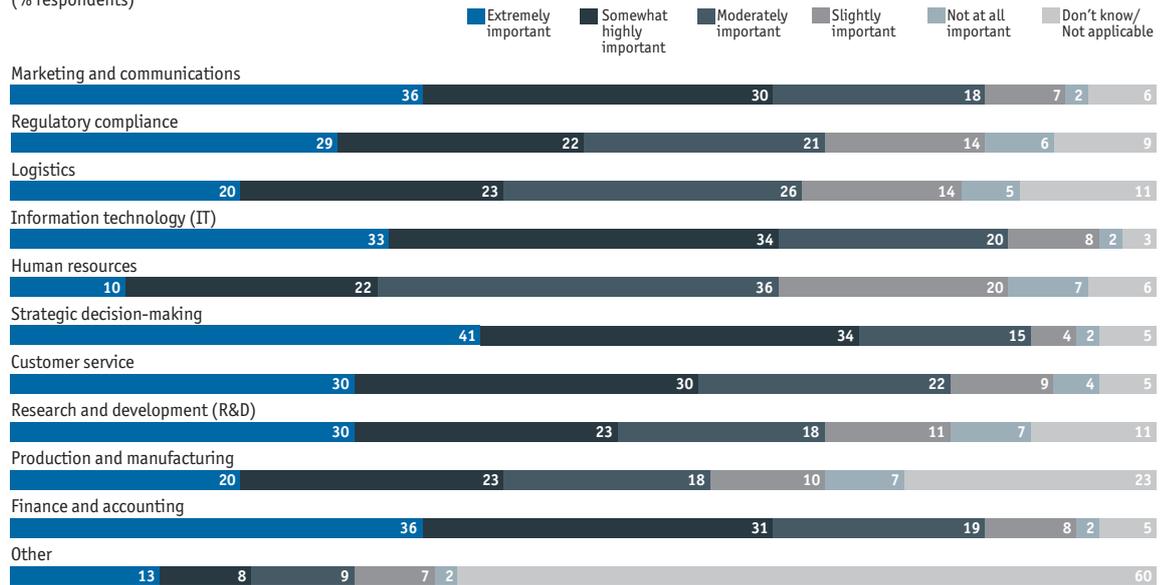
(% respondents)



Please indicate the importance of data analysis to the following parts of your organisation.

Rate on a scale from 'Extremely important' to 'Not important'.

(% respondents)



In your organisation, is it difficult to recruit and retain people who are effective at analysing data?

(% respondents)



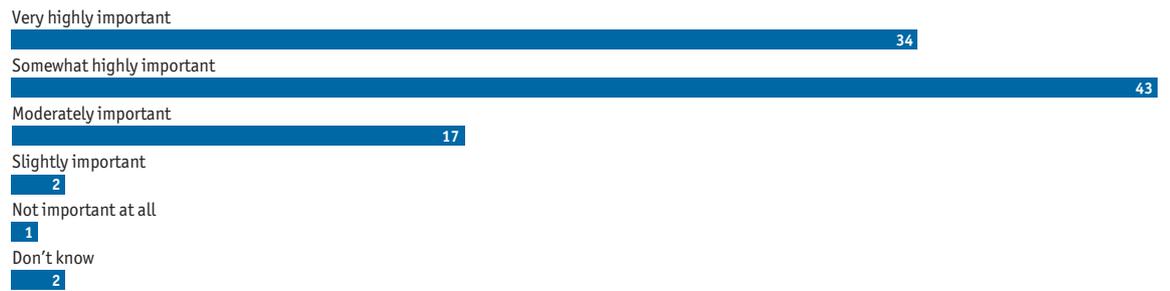
Which of the following factors do you believe contribute to the difficulty of recruiting and retaining people who are effective at analysing data?

Select all that apply.

(% respondents)

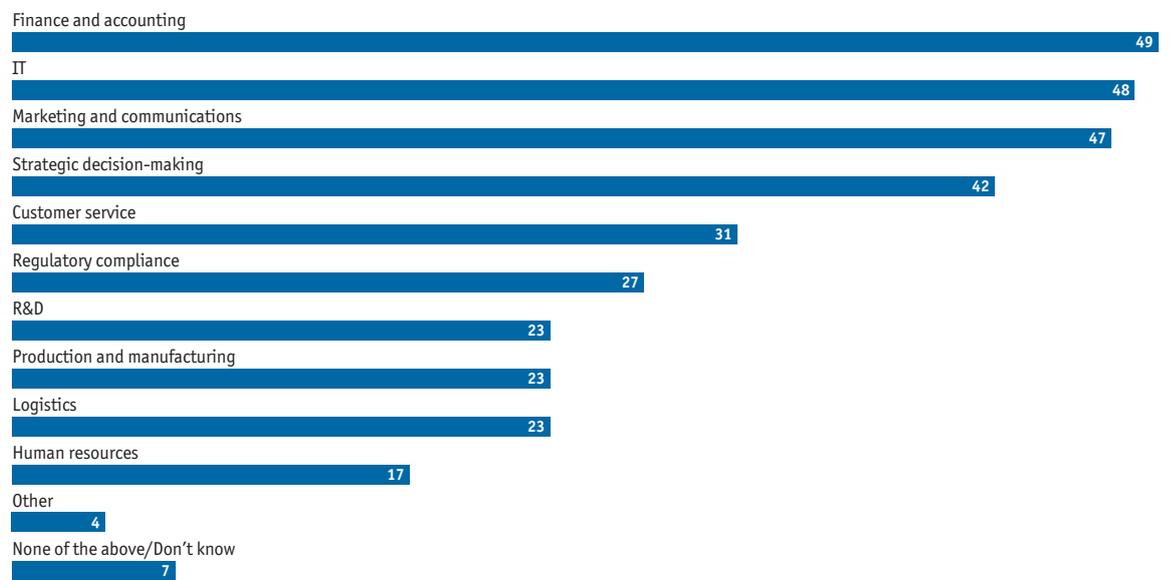


How important is it to have training programmes or partnerships in place to make people in your organisation more data-literate?
(% respondents)



Which parts of your organisations have adopted a data-driven culture?

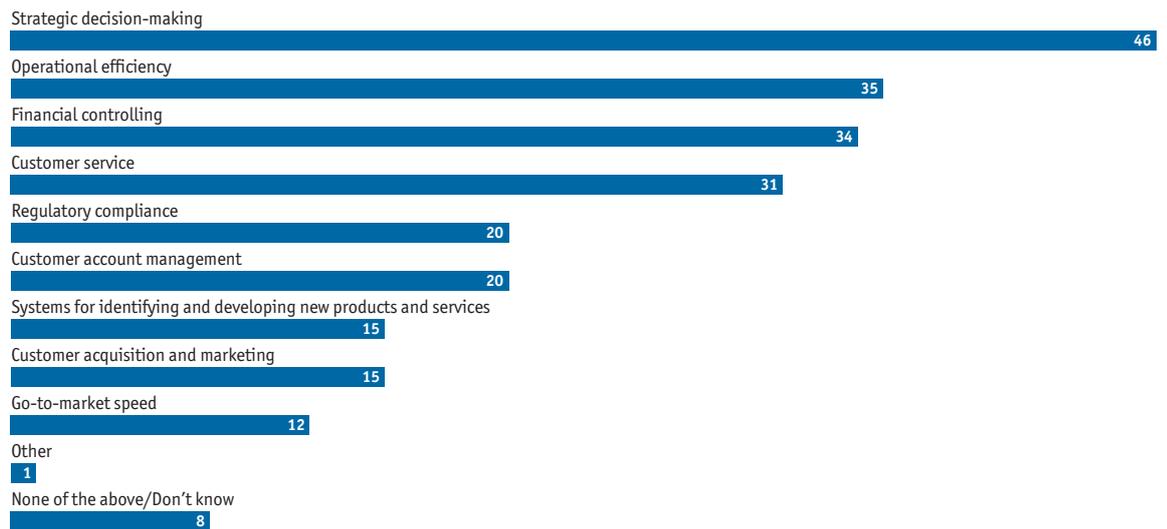
Select all that apply.
(% respondents)



Which organisational functions are benefiting most from a data-driven culture?

Select up to three.

(% respondents)

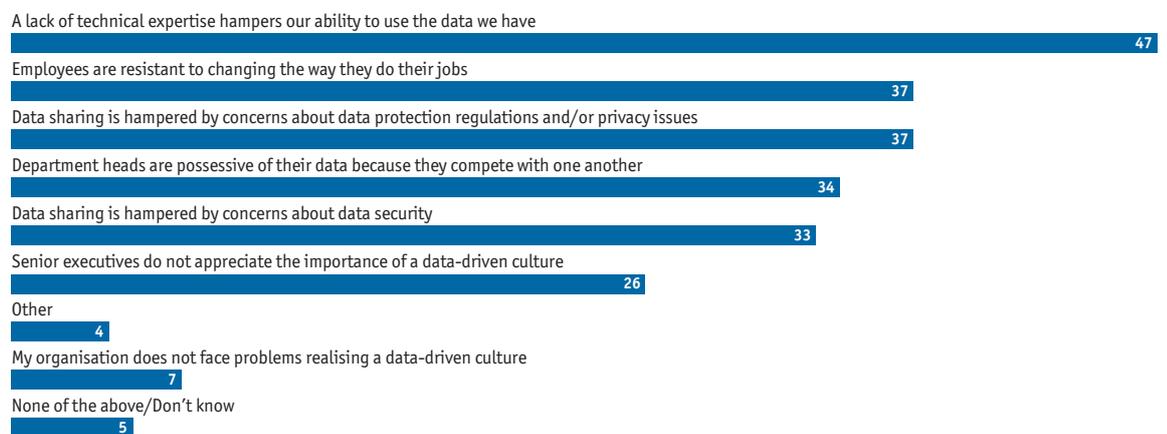
**Which of the following statements best describes the situation within your organisation regarding access to data?**

(% respondents)

**If your organisation faces problems realising a data-driven culture, which of the following statements describe the origins of these problems?**

Select all that apply.

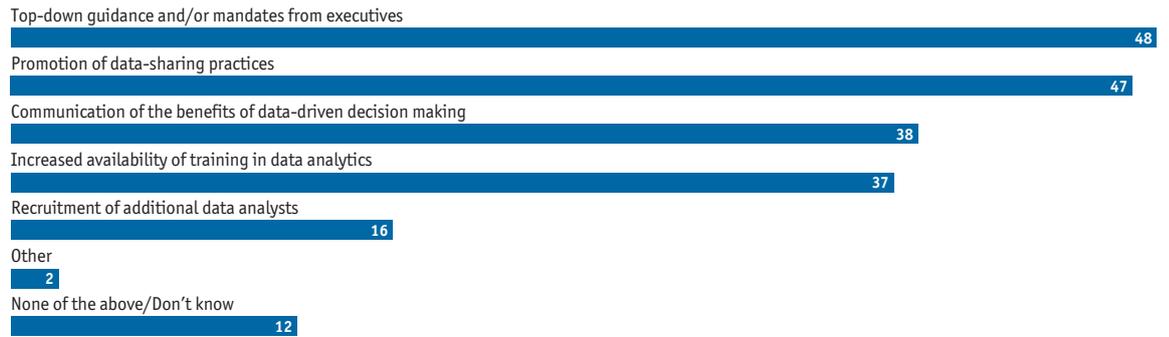
(% respondents)



Which strategies have proved successful in promoting a data-driven culture in your organisation?

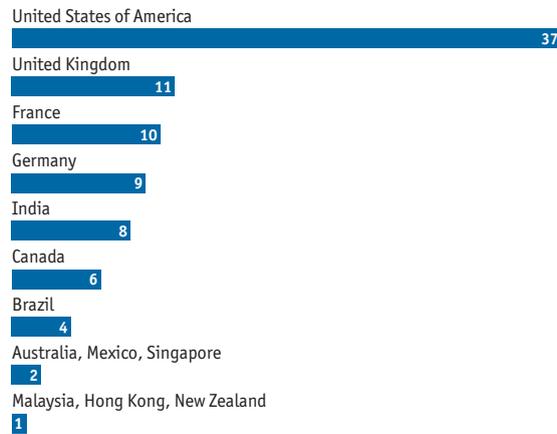
Select all that apply.

(% respondents)



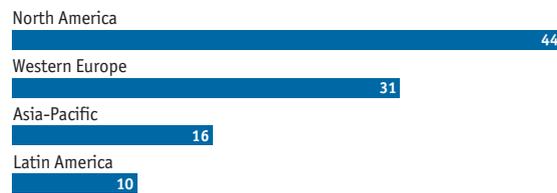
In which country are you personally located?

(% respondents)



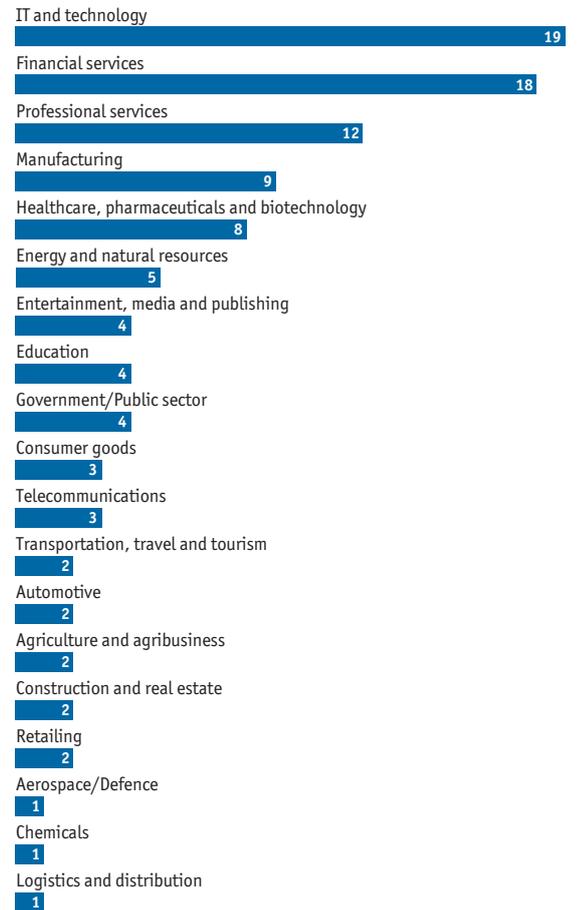
In which region are you personally located?

(% respondents)



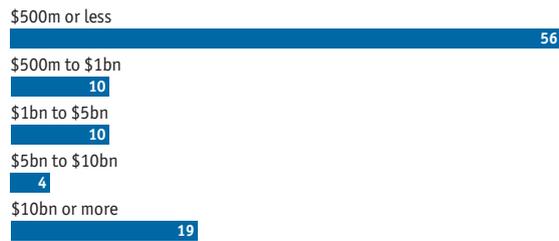
What is your primary industry?

(% respondents)



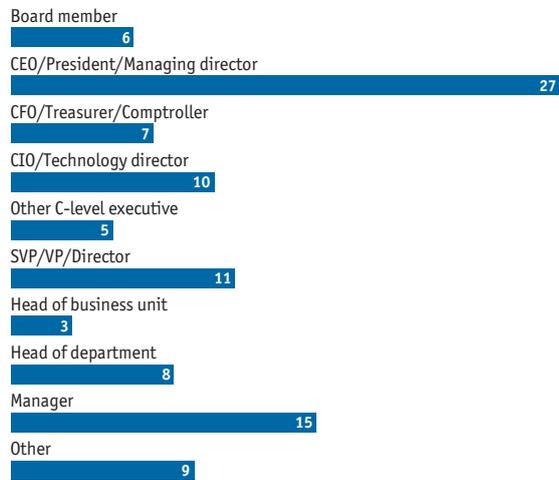
What are your organisation’s global annual revenues in US dollars?

(% respondents)



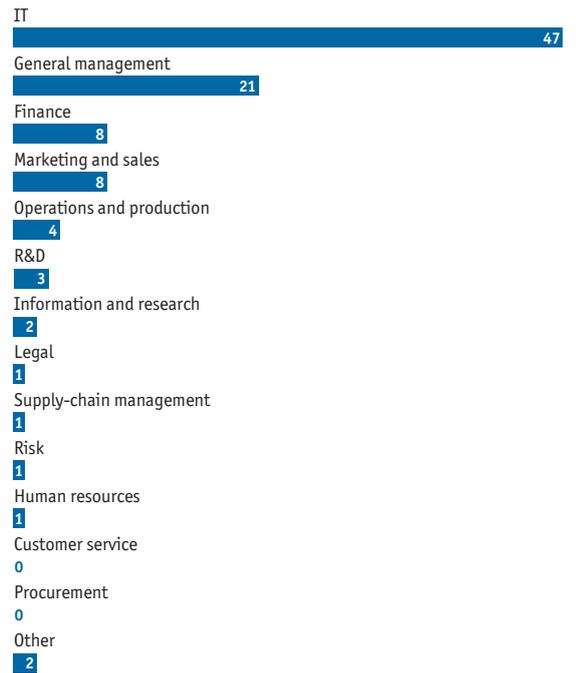
Which of the following best describes your title?

(% respondents)



What is your main functional role?

(% respondents)



Whilst every effort has been taken to verify the accuracy of this information, neither The Economist Intelligence Unit Ltd. nor the sponsor of this report can accept any responsibility or liability for reliance by any person on this white paper or any of the information, opinions or conclusions set out in the white paper.

London

20 Cabot Square
London
E14 4QW
United Kingdom
Tel: (44.20) 7576 8000
Fax: (44.20) 7576 8476
E-mail: london@eiu.com

New York

750 Third Avenue
5th Floor
New York, NY 10017
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 0248
E-mail: newyork@eiu.com

Hong Kong

6001, Central Plaza
18 Harbour Road
Wanchai
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
E-mail: hongkong@eiu.com

Geneva

Boulevard des
Tranchées 16
1206 Geneva
Switzerland
Tel: (41) 22 566 2470
Fax: (41) 22 346 93 47
E-mail: geneva@eiu.com