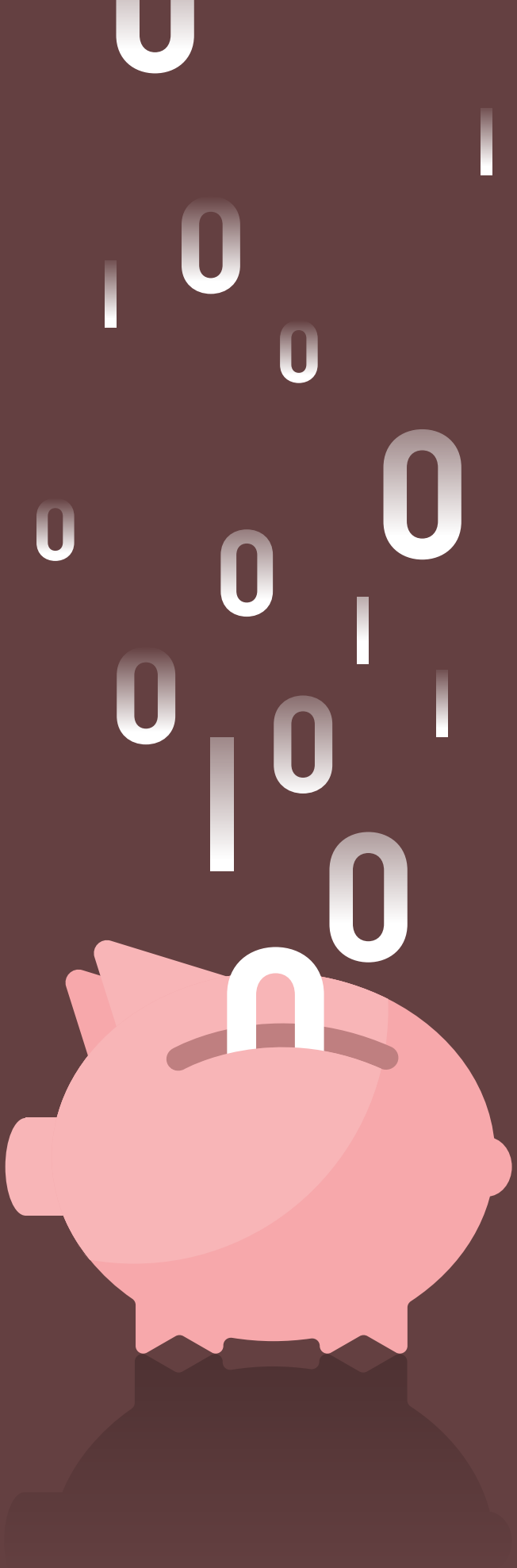
The Economist Intelligence Unit

The Business of Data



NTT Communications

Contents

About this report

The Business of Data is an Economist Intelligence Unit (EIU) report, sponsored by NTT Communications. The EIU bears sole responsibility for the content of this report. The findings do not necessarily reflect the views of the sponsor. The report draws on two main sources for its research and findings: A survey of 476 senior executives worldwide (approximately 50% C-level executives). Respondents are located in North America (31%), Europe (30%), Asia-Pacific (29%), Latin America (5%) and the Middle East(4%). More than 60% of survey respondents are employed by companies with more than US$1bn in annual revenue; 37% have revenue between US$500mn and US$1bn.

We are grateful to the following interviewees for their time and insights:

- **Albert Bogaard**, entrepreneur and member of the board, Big Data Alliance (BDA)
- **Matthew Hogan**, CEO, Datacoup
- **Rosaline Chow Koo**, founder and CEO, ConneXionsAsia (CXA)
- **Office of the Privacy Commissioner for Personal Data**, Hong Kong
- **Keng Thai Leong**, Chairman, Singapore Personal Data Protection Commission
- **Dominic Powers**, Executive Vice President & Managing Director International, Epsilon
- **Ri De Ridder**, MD and Director-General, National Institute for Health and Disability Insurance (NIHDI), Belgium
- **Craig Spiezle**, President and Executive Director, Online Trust Alliance (OTA)

Executive summary

More and more organisations are collecting and storing vast amounts of data. Yet for all the excitement generated by the potential of this data to transform business models—turning it directly into cold, hard cash can prove difficult. Despite the obvious benefits of using superior data to drive value-added marketing strategies, companies are facing many barriers, including regulatory uncertainty, consumer privacy issues, security concerns and budget constraints. So while the possibilities of digital disruption and big data are endless, companies need to think very carefully about how to execute their plans to avoid some common pitfalls.

The following EIU report examines how companies are positioning themselves to benefit directly from the wave of opportunities offered by fast-evolving data technologies. It is based on a cross-industry survey of 476 executives based largely in North America, Europe and Asia on their companies' data plans and practices, as well as insights from the leaders of organisations at the forefront of the emerging data industry. Among the key findings are:

- **More companies want to profit from their data.** While many companies have been gathering data for a long time, a greater proportion of them are now preparing to monetize it. Regardless of geography, sector or annual revenues, our survey makes it clear that most companies now perceive data as a strategic resource. Almost 60% of survey respondents say their organisations are already generating revenue from the data they own and will continue to do so, with the rate slightly higher in Asia (63%) than in North America and Europe (58% and 56%, respectively).

- **Investment in new technologies will grow.** The survey shows that big data has had a major impact on the operational structure of businesses, with 43% of survey respondents saying it has prompted them to use new technologies. This finding is consistent with other research, which shows companies significantly boosting investment in big data solutions and services such as cloud storage, data centers, and security. IDC, a technology research firm, estimates that this market will grow at a compound annual rate of 23% through 2019 to reach almost US$50bn.

- **Data is becoming vital to decision-making.** A large majority (83%) of those polled say that their firms have used data to make existing products or services more profitable, and over two-thirds (69%) feel that there is a case for starting a new business unit dedicated to developing data-related products or services. Data is increasingly being seen as the raw

material that supports and informs a company's efforts to meet key performance indicators and the expectations of its customers.

- **Consumer privacy and data security remain concerns.** Safeguarding customer privacy remains a key concern as companies seek to profit more from their data. On the positive side, 86% of survey respondents say that their customers trust them with their personal data, and 82% insist their firms are selective in gathering, storing and analyzing customer data. However, only 34% of executives say that their firms are "very effective" at being transparent with customers about how they use their data and 9% admit to being "somewhat" or "totally ineffective", indicating regulators will remain vigilant in this area.

Introduction

From information to income

'Cash is king,' the old saying goes. But some would argue that in today's digital economy, data is threatening to usurp the throne. Common sense dictates that if senior executives knew they were sitting on an untapped gold mine, most would not hesitate to act. In this era of 'big data',after all, businesses can now profit from the information they possess in ways unimaginable just a decade ago. Many business leaders, however, are hesitant or unprepared to seize upon these new opportunities.

Today, companies big and small generate tidal waves of data in the course of ever-more automated interactions with customers and suppliers, through internal processes and compliance, and from e-mail, online transactions and feedback forms. All of this data is increasingly pooled and analysed for insights on customer behaviour and business trends, driving the kind of targeted initiatives and marketing programmes that increase sales, trim costs and hone corporate performance.

'Big data' analysis, or the mining of extremely large data sets to identify trends and patterns, is fast becoming standard business practice . Global technology infrastructure, too, has matured to an extent that reliability, speed and security are all typically robust enough to support the seamless flow of massive volumes of data, and consequently encourage adoption. Some firms have taken this journey even further, moving beyond the use of data as a source of business intelligence to make it their main driver of profit. Some companies are becoming data brokers in their own right. Many of today's largest and fastest-growing corporate fortunes, from Google to Facebook, are essentially data-based—these behemoths collect data from their users and analyse behavioural patterns in order to drive sales of advertising and services. Even companies outside the technology sector, such as Allstate, a US-based insurer, are catching the data bug and exploring the idea of selling customer data. The Direct Marketing Association, a US trade organisation, estimates that data-driven marketing added some US$156-bn to the US economy in 2012 alone.

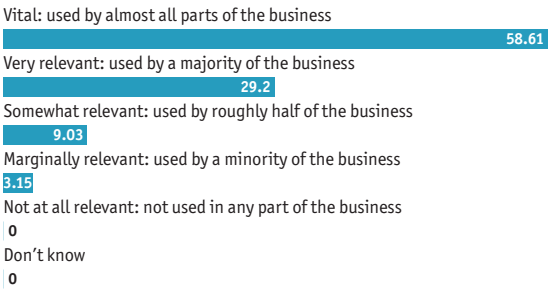
Yet for all the excitement around the possibilities of data, turning it directly into dollars ,Euros, yuan, yen or pounds -- requires successfully overcoming multiple barriers, including fast-changing and at times opaque regulation, consumer privacy and security concerns, and internal budgetary and resource constraints. Based on a cross-industrysurvey of executives

in North America, Europe and Asia on their companies' data plans and practices, as well as insights from the leaders of organisations at the forefront of the emerging data industry, this report will examine how companies are positioning themselves to capitalise on the direct commercial opportunities offered by fast-evolving data technologies.

1 A data-driven landscape

Regardless of geography, sector or annual revenues, our survey makes it clear that most companies now perceive data as a strategic resource. When asked how relevant the use of data (and data analysis) is to their organisation, a majority (59%) of those polled say that it is 'vital' and that almost all parts of the company harness data for business purposes- another 29% deem data was very relevant and say that it is used by most parts of the business. However, geographical distinctions are evident : 69% of North American firms see data as vital compared with just over half of European and Asia-Pacific respondents, pointing to a higher rate of big data adoption by North American firms. Among sectors, banking and media firms are most likely to see data as 'vital' (79% and 77%, respectively, versus just 27% of chemical firms).

How relevant currently is the use of data and data analysis to your overall organisation?
(% respondents)



Many companies are treating data as a bona fide commercial commodity. Almost 60% of survey respondents say their organisations are already generating revenue from the data they own and will continue to do so, with the rate slightly higher in Asia (63%) than in North America and Europe (58% and 56%, respectively). This variance may be connected to the relatively nascent state of regulations around data in some Asian markets, compared to the more established, and stringent North American and European regimes. Unsurprisingly, IT/technology companies, many of which live and breathe data, are the most likely to be extracting revenue from data today: almost eight in 10 respondents (78%) from the sector report that they do so.

The poll also shows that big data has had a major impact on business activities, with 43% of survey respondents saying it had prompted them to use new technologies. This finding is consistent with other research which shows companies significantly boosting investment in big data solutions and services such as cloud storage, data centres and security. IDC, a technology research firm, estimates that this e-global market will grow at a compound annual rate of 23% through 2019 to reach almost US$50-bnbillion . Some analysts predict that this will be partly fuelled by a company's ability to pull and manipulate information from an ever-wider range of sources, as objects embedded with sensors—and networked in the Internet of Things—proliferate and turn everything from cars to household appliances into data generators.

To be sure, some companies started using big data techniques decades ago, although "they didn't call it big data at the time," explains Albert Bogaard, an entrepreneur and member of the board of the Netherlands-based Big Data Alliance (BDA). "What is really new is the availability of

other data sources that were not there 10 or 20 years ago—video, text, speech—that we are now able to process and analyse."

The rise of cloud computing and open-source distributed storage frameworks such as Apache Hadoop have also had a major impact on big data adoption, allowing companies to store and manage vast amounts of information on a flexible and cost-effective basis. These and more flexible 'pay as you go' solutions have put sophisticated data capabilities in the hands of even small and mid-sized firms with limited technology budgets.

"Hadoop has had a major impact on all industries that need to cost effectively manipulate large volumes of data in a distributed framework, and underpins much of what we do today," says Dominic Powers, managing director, International at Epsilon, a marketing firm that sells consumer data to inform promotional and loyalty campaigns.

Evidence-based decision-making

Many companies are also learning from the data they generate: 29% of those polled say that big data has prompted them to operate in new industries or markets, and 29% to generate new revenue from existing products or services. Only 8% of respondents say that it has not meaningfully changed the way they do business. Big data is also leading companies to new technology; this is especially the case in banking (stated by 74% of the sector's respondents), where regulation and compliance requirements for institutions to generate, monitor and report on customer information are a major factor in day-to-day operations.

Companies are also fairly confident overall in their use of data in the commercial context . For example, 80%say they are very or somewhat effective in analysing data for insights; 72% say the same about pursuing commercial opportunities from data. It should come as no surprise that IT and financial services firms seem most confident in these respects; healthcare and logistics firms are less so.

Regardless of their ability to harness data for new revenue opportunities, many executives understand that data has been nothing short of transformational for their organisations, creating efficiencies and service improvements beyond reach just a few years ago. For example, Belgium's National Institute for Health and Disability Insurance (NIHDI)—an organisation tasked with managing the country's national health insurance system—is now cataloguing each intervention with patients, adding to a central registry that also incorporates consolidated information from hospitals, municipalities and clinics nationwide. The registry provides a single view of patient and institution activity, and allows integrated access to comprehensive data sets on the NIHDI's various stakeholders. At the same time, data mining is sometimes used to flag improprieties in areas such as invoicing. According to director-general Ri De Ridder, the overall objective is for "quality information to feed back to the actors, not only tracking the flow but also the performance of services, and keeping practices in line with standards with evidence-based reports." In other words, data is now the raw material that supports and informs an organisation's efforts to meet internal KPIs(key performance indicators) and the expectations of its customer base, leading to reputational as well as financial advantages.

2 Data meets the bottom line

Although many companies are moving to take advantage of the opportunities presented by data, relatively few have moved into the realm of selling and profiting on the data that they collect—or of purchasing data from external providers. Almost half (47%) of those polled say that their firms only use the data they collect themselves, and do not buy, sell or otherwise share data with other organisations. Another 27% of respondents say that their firms buy data from other organisations but do not sell or share their own. Less than one quarter (22%) engage in buying, selling and sharing data.

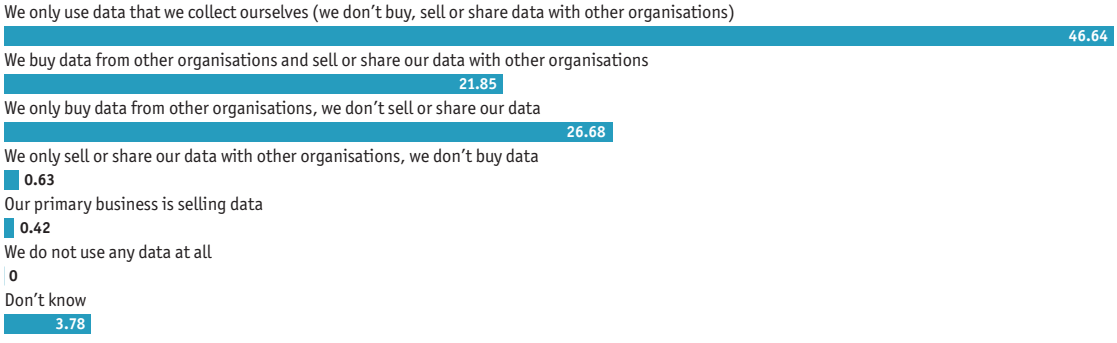
Here, too, there are variances by geography and sector. European companies seem the most inclined to buy and sell or share data, with 29% of European respondents reporting they do so compared with 22% of those from Asia. By industry, consumer goods firms and banks are most likely to buy and sell orshare data with other organisations.

Hesitation to engage in the data trade derives from the fact that the practice is still terra incognita for many organisations. "I started this company in 2012, and we were viewed as complete oddballs," recalls Matthew Hogan, CEO of New York-based Datacoup, which offers a portal for consumers to sell their personal data to interested companies. "We'd have meetings with capital and potential partners and people would look at us cross-eyed. But in a post Edward Snowden world, you are now seeing a lot of talent and capital pour into the personal data space."

The new information marketplace

An increasing number of firms such as Datacoup, are taking the plunge into marketing and profiting from data— or helping consumers or other organisations do the same. Mr. Hogan believes Datacoup will soon be a provider of choice in a world where more consumers are conscious of the value of their data and move to capitalise on it. "It's our contention that in 5-10 years individuals will have all of their data in one place, and will be leveraging that data,

Which of the following statements best describes the flow of data between your organisation and other organisations?
(% respondents)



like the asset it is, in as many market contexts as they see fit," he says.

Another entrant into this field is ConneXions Asia (CXA), a Singapore-based company providing a platform that pools corporate health insurance data. By appointing CXA as their insurance broker, companies get the platform for free. The latter consolidates all information and transactions around insurance claims and benefits, and also allows employees to submit claims online and tweak their coverage to their individual needs—by, for example, converting benefits they may not need into wellness programmes ranging from yoga classes to spa visits. The data captured by the system gives companies a window into where their insurance spending is actually going, and into potential problem areas when it comes to workforce health and welfare.

"It's the data you need to understand— at the aggregate, anonymised level—: what the lifestyle habits of your employees are, what the health screening results are, what the claims are, what's leading to high costs. You can then set up a structure to reward people for getting healthier so you actually have a return on investment," says CXA founder and CEO Rosaline Chow Koo. "We figured out a way to capture the data without costing employers more."

Of course, startups are not the only firms bold enough to explore new business lines and benefits around data. Asked what actions their companies are taking to generate more value from data, the top response of survey respondents (cited by 36%)is investing more in technology, followed by collecting more data (cited by 21%). However, 18% of respondents say that their firms are creating new business units internally, and 17% are launching new products or services. Just 11% of respondents report taking no steps at all. (The rate is around double among respondents from logistics and manufacturing firms.)

A large majority (83%) of those polled say that their firms have used data to make existing products or services more profitable, and 69% feel that there is a clear case for starting a new business dedicated to developing data-related products or services. At the same time, no more than half (50%) feel that there is a clear business case for selling their data, and 48% say that their firms have missed past opportunities to use their data for commercial gain. Financial and logistics industry executives are among those most convinced of the business case for selling data—not surprising given the vast amounts of business intelligence both industries amass in the course of their operations.

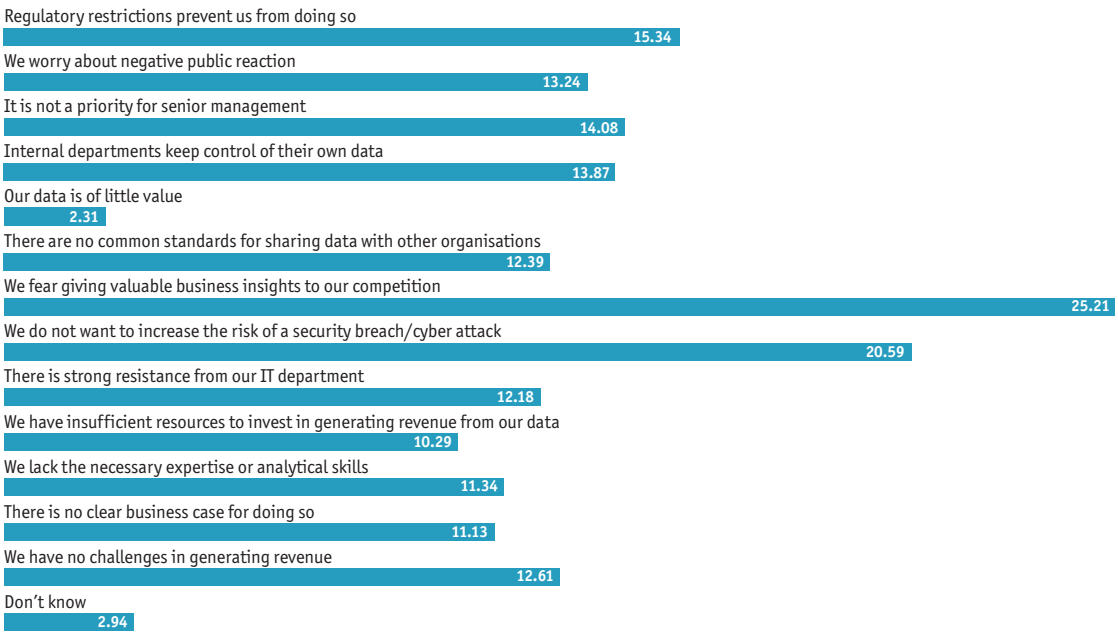
3 Guarding against the big breach

Of course, risks abound in the world of data—just as in any other asset class. A major factor to make a company think twice about engaging in the data trade, or stop short of fully developing its data capabilities, is security. An encouraging 82% of the survey group feel that their companies are very or somewhat effective at ensuring data is secure, but a constant drumbeat of high-profile data breaches recently targeting the likes of online retail giant Amazon and UK telecommunications company TalkTalk has made many firms nervous.

Over one third (34%) of respondents say that their firm has suffered a significant data breach in the last 12 months, with rates generally higher in Asia-Pacific and Europe and also among the sectors that account for the biggest users of data— banking and IT. In addition, when asked to pick the biggest challenges of generating revenue from data, 21% of those polled cite the increased possibility of a security breach or cyber attack, making this the biggest perceived risk factor after the fear of giving away business insights to the competition (25%).

This means that security should be foremost in mind for any company planning to turn data into a revenue stream. While shoring up the organisation's technological defences can require significant investments, those who have successfully tackled data initiatives believe that security has as much to do with mindset

What are the biggest challenges your organisation currently faces in generating revenue from the data it owns?
(% respondents)



as with spending. At NIHDI, for example, "the idea is having the data be as decentralised as possible," says Mr De Ridder. "It's also about clearly defining responsibilities and providing internal guidance. For instance, a hospital will have a strict policy it must adhere to on security issues, so for us it's a circle of trust; everyone within the hospital acts according to privacy standards that the hospital itself guarantees are the highest that can be audited." When it comes to data exchanges, Mr De Ridder adds that "where data is available, we make interconnections safely, and platforms will be connected only if for reasons of availability and efficiency they have to be brought together."

CXA, meanwhile, takes steps to ensure it is difficult to tie data to any one individual. "We actually comply with HIPAA (the Health Insurance Portability and Accountability Act) in the US and all of the data privacy and information security needs in every country we operate in Asia, which is why we've made sure the technology infrastructure is so robust," says Ms Koo. "We have personal consent from employees for data usage and collection. We keep the information in separate databases and also encrypt anything that's personally identifiable. For (clients) we only provide aggregated anonymised data, so they can't see any personal data from individual employees."

Connected and conscious consumers

Added to the security concerns are the growing worries of consumers about possible breaches of their right to privacy, and the use and sale of their personal data. "I think people are still very wary [about data use and collection], and that is because unfortunately big data is almost a synonym of 'big brother'," says Mr Bogaard of the Big Data Alliance. "That's definitely an issue we have to address, and we have to address it head on."

Encouragingly, 86% of respondents say that their customers trust them with their personal data, and 82% insist theirfirms are selective in gathering, storing and analysing customer information. Those from automotive, banking and healthcare firms claim that they enjoy particularly high levels of customer trust in this regard. The picture is slightly mixed, however. Only 34% of executives say that their firms are 'very effective' at being transparent with customers about how they use customer data. In addition, 9% admit to being 'somewhat' or 'totally ineffective'. While this ratio is not high, it is still alarming at a time when so many regulators and consumer organisations are advocating a more transparent approach to the commercial use of data.

For organisations active in the data business, the realities are fairly clear. Companies should strive to balance the commercial use of data with the rights of consumers, even when the data is actively harnessed to serve the consumers' overall benefit. The goal should be to ensure "that consumers are always provided with notice, transparency and choice, while brands are also given the opportunity to build relationships with consumers based on trust," says Epsilon's Mr Powers.

In many businesses and markets this is boiled down to the 'opt in' approach; that is, consumers are asked to consent, by for example ticking a box on an online form, before their data is collected or used. This model prevails in Europe, where consumer privacy often takes precedence over the needs of commerce or security. "One of the important elements that Belgium has chosen is the 'opting in' approach from the side of the patient," says Mr De Ridder. "Citizens are fully aware that their data is being used and exchanged, that agencies have access to their data. The policies that we developed are always in line with this, and based on agreement among the different parties. It's very important to do it that way."

In the US, by contrast, there is more of an 'opt out' mentality, meaning consumers often must explicitly state that they do not want their data used or collected to avoid its aggregation for business purposes, according to Craig Spiezle, president and executive director of the Online Trust Alliance (OTA), a Bellevue, Washington-based organisation that aims to enhance trust in e-commerce and online transactions.

But for organisations such as the OTA, all the negative news around data security and surveillance means that simply asking consumers to 'opt in' may not be enough in terms of addressing the overall concerns about how data is generated, shared and supervised. As Mr Spiezle points out, the notices and forms around data collection are often too lengthy and confusing for consumers to navigate, meaning it is difficult to make informed decisions.

"Best practices in terms of privacy policies should be short, concise notices," believes Mr Spiezle. "They should be comprehendible and written for ease of use for a typical user, explaining what data is collected, how it is used and most importantly how it might be shared. All too often what happens is these policies are written for by attorneys, for attorneys." An extension of this simplification process is the increased use of icons or symbols, much like those used in environmental and energy ratings, to denote different data practices, making them easy to understand at a glance. The OTA conducts "online trust audits" of the largest banks and e-commerce sites and ranks them based on their adoption of these practices, and is also advocates recognition of the best performers.

Beyond issues of consent, businesses must also acknowledge that consumers are increasingly savvy and suspicious—and are therefore well aware when companies are serving themselves at the expense of the customer's interests or privacy concerns. The companies that succeed at the business of data, then, are likely to compensate consumers in some way for the use of their data— as, for example, CXA does by rewarding users with access to wellness programmes.

The issues around data "can be solved pretty easily, if you let people be the decision makers themselves," says Mr Bogaard of the BDA. "It goes wrong when companies just take off with your data. If I can decide what they use it for, and it's to my benefit, if they can pay me for it or offer me free services in exchange for my data, then we're talking. And I think that will be the development—for the people that own the data to be in charge of it. It's not something you can just run off with."

If consumers are to be "incentivised to start transacting with their data, then you basically need two things to occur," says Datacoup's Mr Hogan. "You need the tech solution to be easy, seamless and elegant. If anything is difficult for the consumer to do, then they probably won't take the time to do it. The other thing needed is the core value proposition,"he adds. "If merchants are willing to provide value in exchange for more or better consumer-consented data, then you'll see a vibrant and massive marketplace spawned for the direct exchange of data, and in effect a more direct relationship between consumers and merchants."

Building good data governance

Linked to the issue of consumer privacy is the equally challenging area of regulation. With the data business being such a new and rapidly developing field, regulators often struggle to keep up. That means the laws around data collection and processing are often outdated, and constantly shifting to address new developments in business and technology—whether in mobile banking, social media-driven advertising or other areas.

Regulatory uncertainty is compounded by inconsistent rules across various jurisdictions, which is at odds with the inherently borderless nature of data throughout many international businesses. Perhaps the biggest recent example (November 2015) of this is the dismantling by the European Court of Justice of the Safe Harbour agreement, which provided an overarching legal framework for the transfer of data between the US and the European Union(EU). The court's ruling that the agreement was invalid leaves an estimated 4,500 companies scrambling to find an alternative means to share data that will not open them to possible violations of the EU's rigorous privacy laws.

Among the executives surveyed, 63% agree that regulations governing the use of customer data prevent them from using it to achieve their business goals. Rates of agreement are higher in Asia-Pacific and Europe (both close to 70%) than in North America (52%), tallying with the general perception that the US has a lighter regulatory touch overall. In Asia regulation "is still too restrictive," says Ms Koo of CXA. "The industry is ahead of the regulators, but most of us are still working with regulators to actually help the regulations evolve. We do expect it to evolve, because governments are getting better, but they are highly restrictive especially with regards to financial services. Banks and insurers still cannot use the cloud for now."

Regulators are steadily tackling the thorny issues around data privacy, and there are ample signs they are involving industry in the process. In Hong Kong, which has one of Asia's longest-standing data regulatory regimes, the Personal Data (Privacy) Ordinance bans the use of an individual's data for new purposes without the individual's explicit consent. While enforcing the ordinance, the Office of the Privacy Commissioner for Personal Data (PCPD) "will also listen to the views of different stakeholders, such as business entities ... so as to strike a balance," the PCPD says. "In the Internet era, businesses operate globally, and many associated privacy issues are therefore global in nature. The PCPD is aware of the need to have global efforts in dealing with a global issue, and has been actively engaging with regulators overseas."

Singapore also generally operates a consent-based approach to the use of personal data, according to the Personal Data Protection Commission. However, "to keep compliance costs manageable for businesses, the [the Commission] provides organisations that conduct telemarketing activities with free credits to check the Do Not Call Registry, imposes fewer applicable obligations for data intermediaries—as opposed to data controllers—and allows the provision for consent to be deemed when certain conditions are met," says the Commission's chairman Leong Keng Thai. "We also engage industry leaders and trade associations to help organisations—in particular small and medium enterprises—in complying" with relevant legislation.

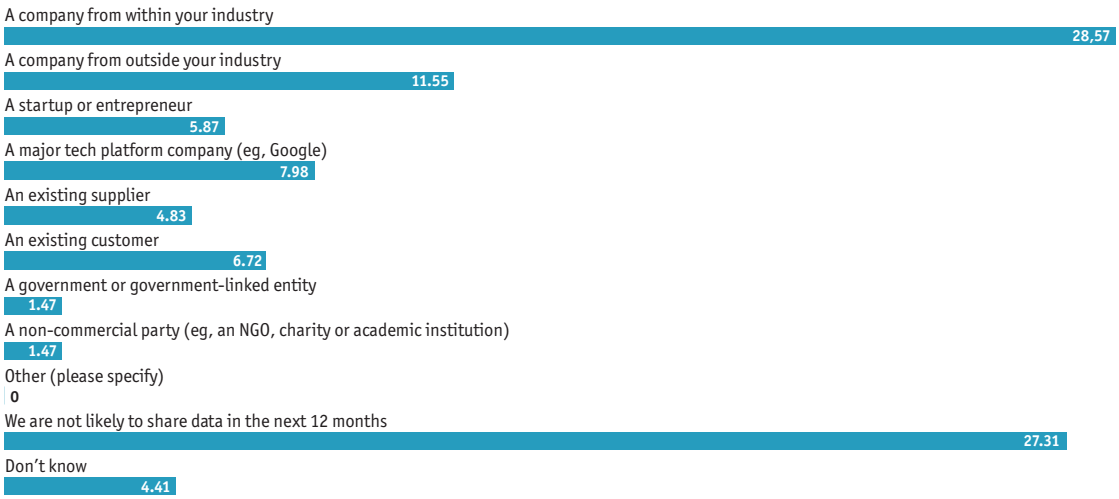
Conclusion: A question of trust

The brave new world of big data is here to stay. Many companies are poised to gather, analyse, use and trade in a larger and more diverse array of data in the years ahead regardless of regulatory or security complexities. Nearly half (47%) of executives surveyed say that their companies will share more data with other organisations in the future, while another 26% are ambivalent or unsure. Only 27% say that they will not. The intention to share more data is strongest among respondents from retail (65%), banking (73%) and chemicals (59%) firms.

Over the next year companies will look to share data for commercial gain primarily with peers in their own industry(cited by 29% of respondents), as well as with companies in other industries (12%) and major technology platform firms such as Google (8%). This suggests that some of the anxiety around sharing data with the competition may be fading in the face of commercial promise. Companies such as CXA are set to extend their offerings even further; Ms Khoo says the firm is using data to compile indices of best practices that compare health and wellness information across industries and even countries. "You can imagine the power of that data to show what works and what doesn't work in terms of wellness programmes that actually move the needle, to lower claims costs, reduce absenteeism and increase productivity."

The data trade is likely to receive a further boost with the rise of the Internet of Things, as connected devices provide a rich new source of information and greater volumes of data on customer movements and behaviours for companies to mine . But it will also pose more privacy challenges for customers and consumers.

With which of the following types of organisation is your organisation likely to share data for commercial gain in the next 12 months?
(% respondents)



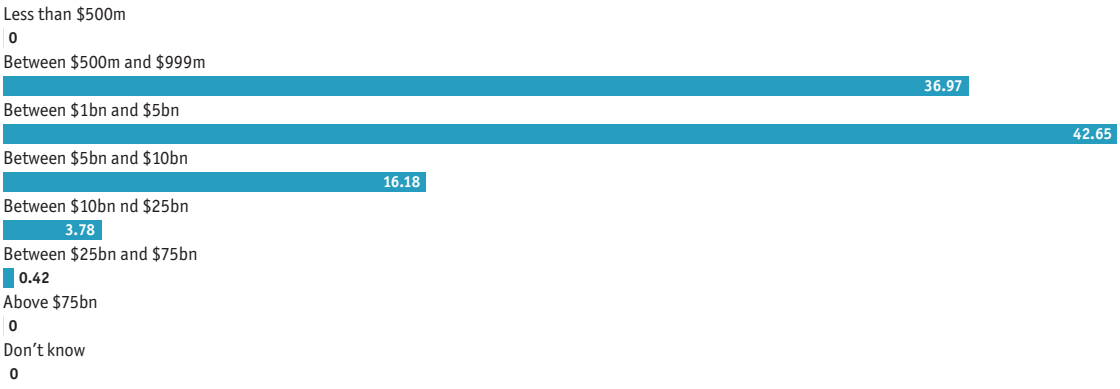
"It's not just a world where someone knows what you buy or what websites you go to," says the OTA's Mr Spiezle. "With the world of connected things in your home and wearable technologies, the data that's being collected and the value of that telemetry is rising exponentially. They know where you are and what type of activities you're engaging in. Marketers see a lot of value in that, but the question is, What is the impact on consumers?"

There is no shortage of ways in which connected devices and wider pools of data could benefit consumers—from tracking one's spending to a child's whereabouts, to communicating important health information to their doctors. Regulators and consumers should brace for this development by raising awareness and clarifying the rules and requirements around data. Some, such as Singapore's Personal Data Protection Commission, have already taken steps in this direction. "Individuals especially should understand that they have a part to play in protecting their personal data amidst the flourishing trade of data activities," Mr Leong says. "To raise consumer awareness, we have reached out to the general public through mass media, road shows and events. We have also engaged schools on the premise that education on personal data protection should start young."

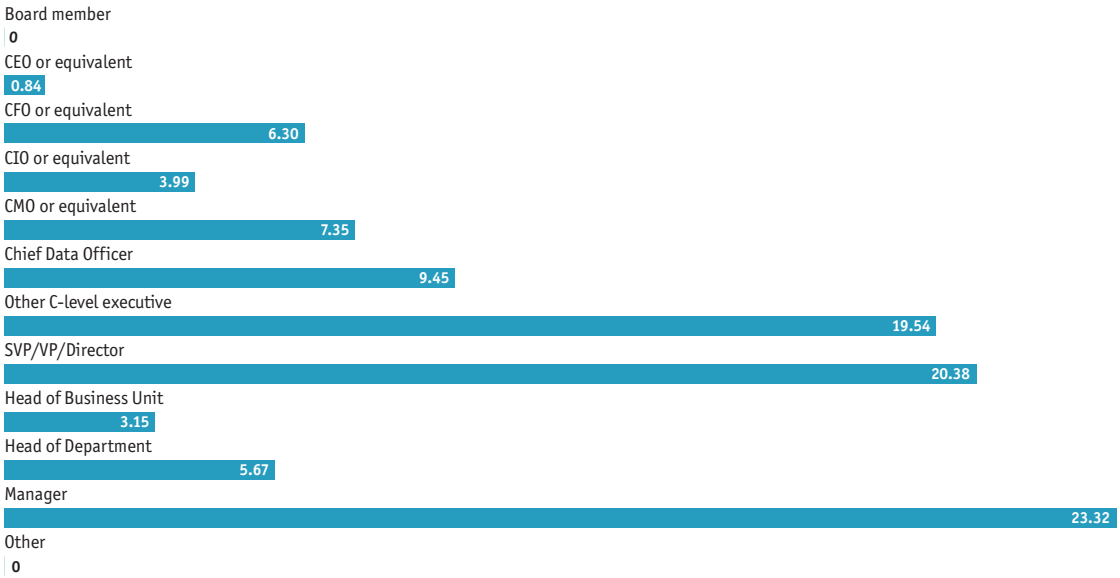
For companies, meanwhile, the surging tidal wave of data points to a clear need to integrate data considerations into strategic planning, and to be prepared to invest in the infrastructure and human resources necessary to capture emerging data opportunities. Used and shared in the right ways, even traded as a commodity, data has the potential to benefit firms and their customers alike. Businesses, consumers and regulators will likely be engaged in a delicate dance to find the right balance for a long time to come.

Appendix: survey results

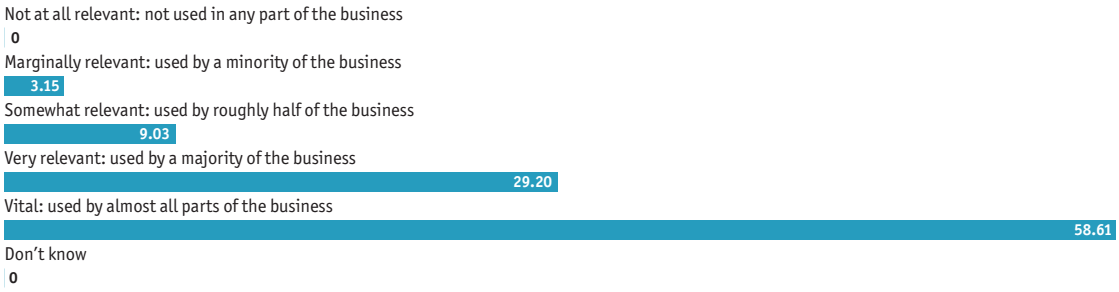
What is your organisation's annual revenue?
(% respondents)



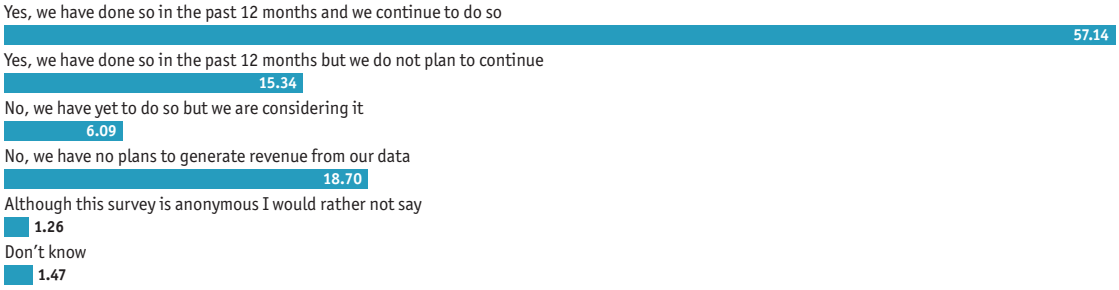
Which of the following best describes your title?
(% respondents)



1. In your view, how relevant currently is the use of data and data analysis to your overall organisation?
(% respondents)

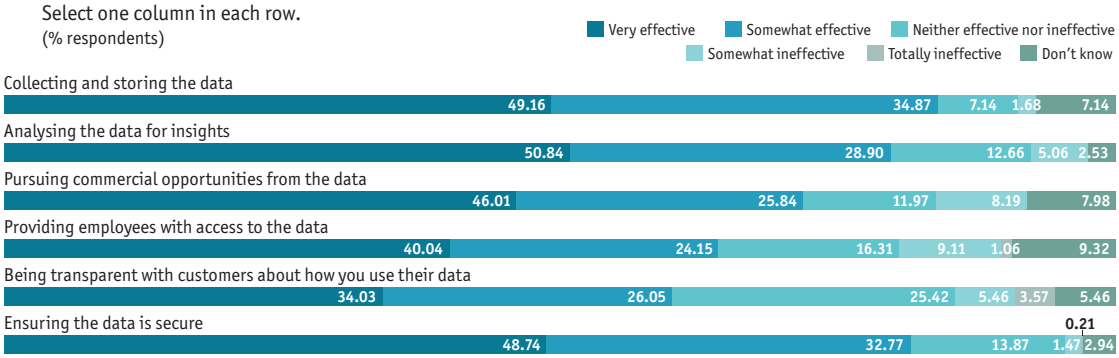


2. Does your organisation generate revenue from the data it owns?
(% respondents)

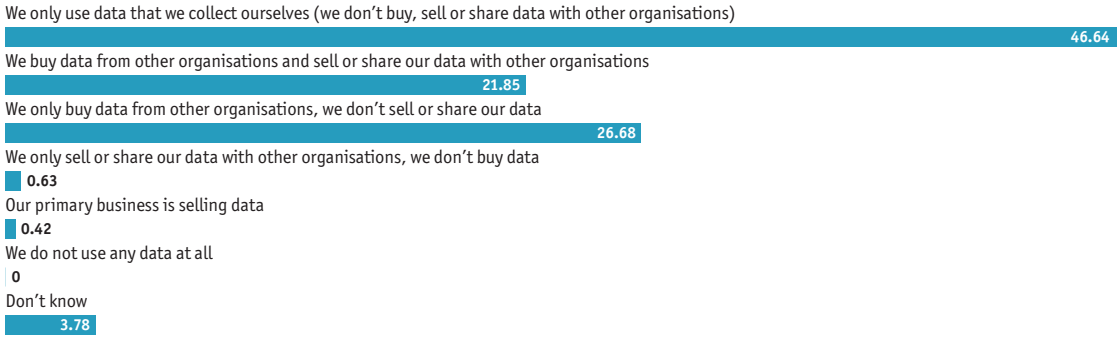


3. How has so-called "big data" (the much greater volumes of data produced by growing number of sources) changed the way your organisation conducts its business over the last three years?
(% respondents)

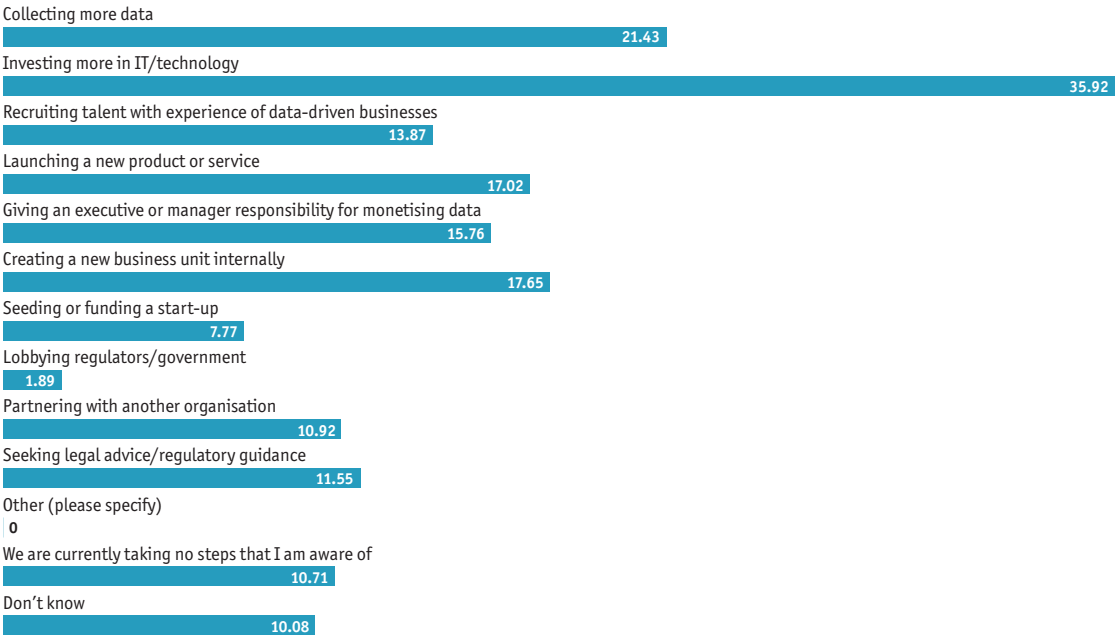
4. Please rate your organisation on how effective it has been in managing its data assets in the following areas over the past 12 months.
Select one column in each row.
(% respondents)



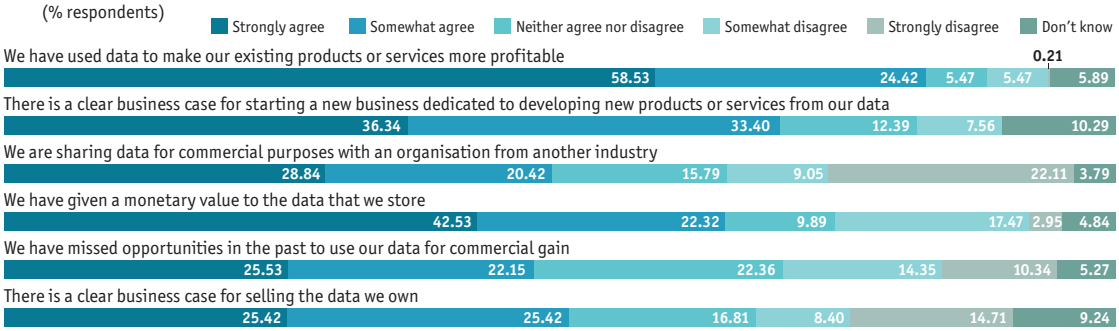
5. To the best of your knowledge, which of the following statements best describes the flow of data between your organisation and other organisations?
(% respondents)



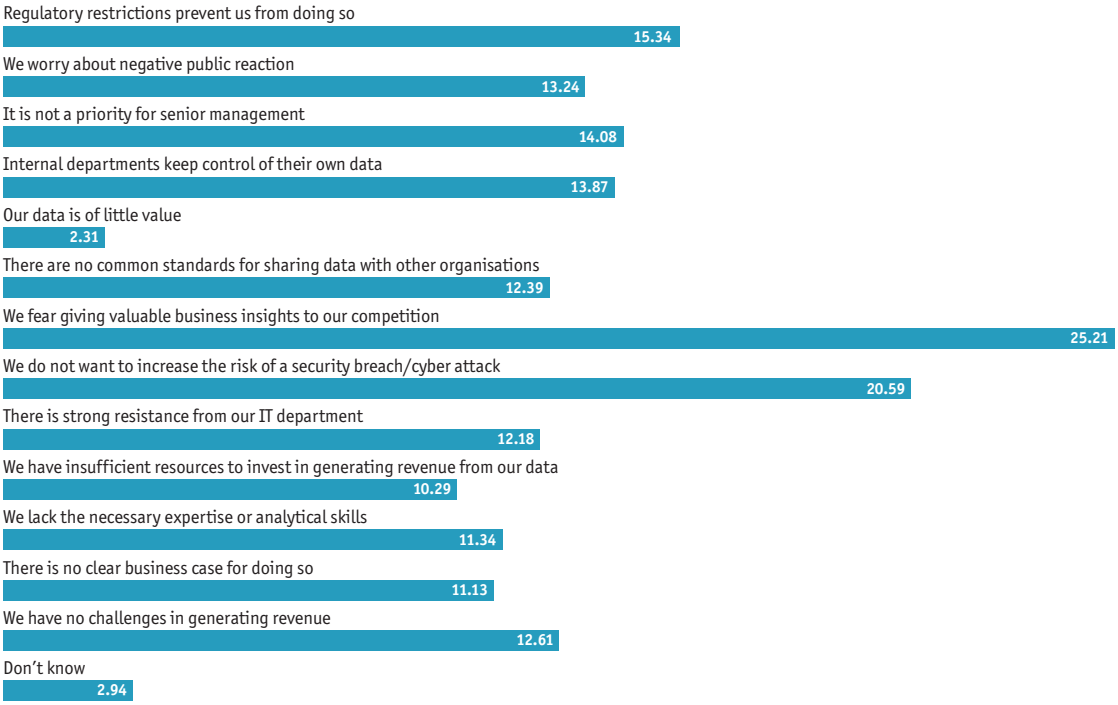
6. Which of the following steps is your organisation currently taking, or planning to take, to generate more value from the data it owns? Please select the steps that you expect to have the most significant commercial impact for your organisation.
Select up to two.
(% respondents)



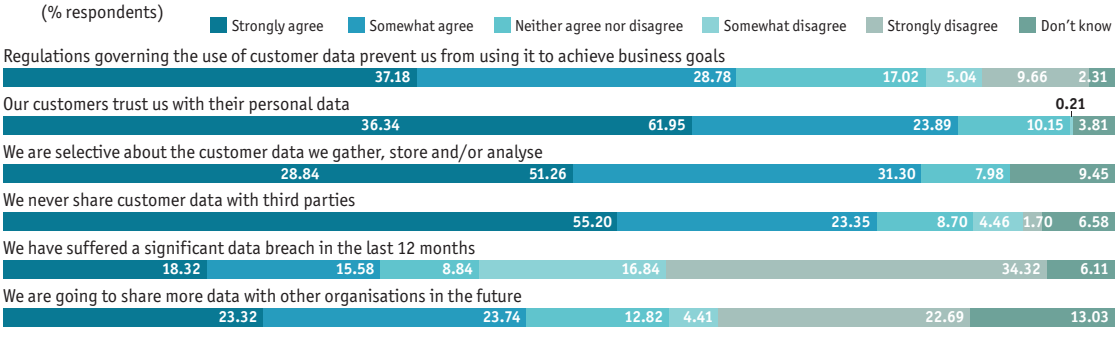
7. To what extent do you agree or disagree with the following statements about your organisation?
Select one column in each row.
(% respondents)



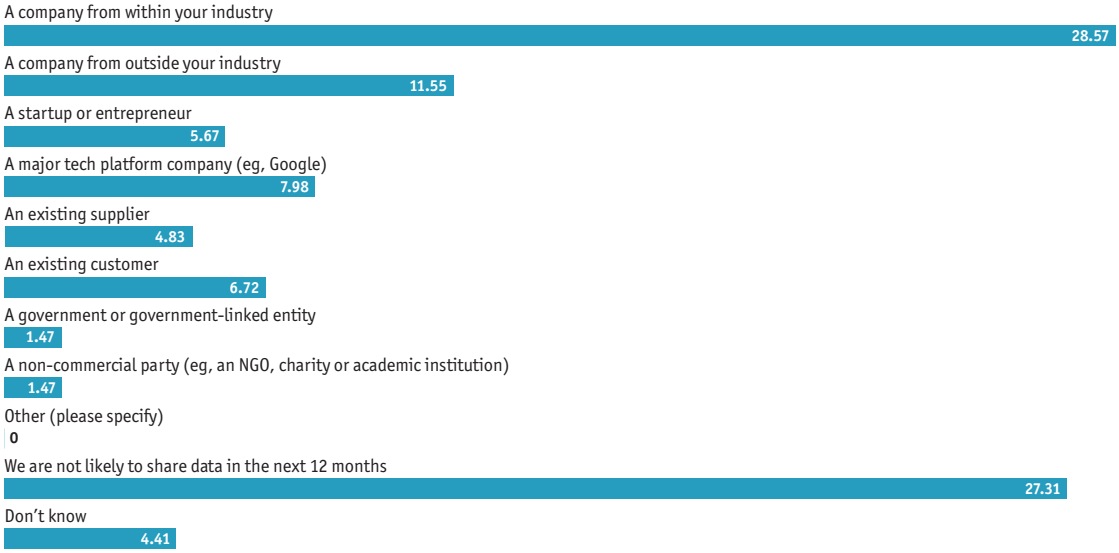
8. What are the biggest challenges your organisation currently faces in generating revenue from the data it owns?
Select the two most relevant.
(% respondents)



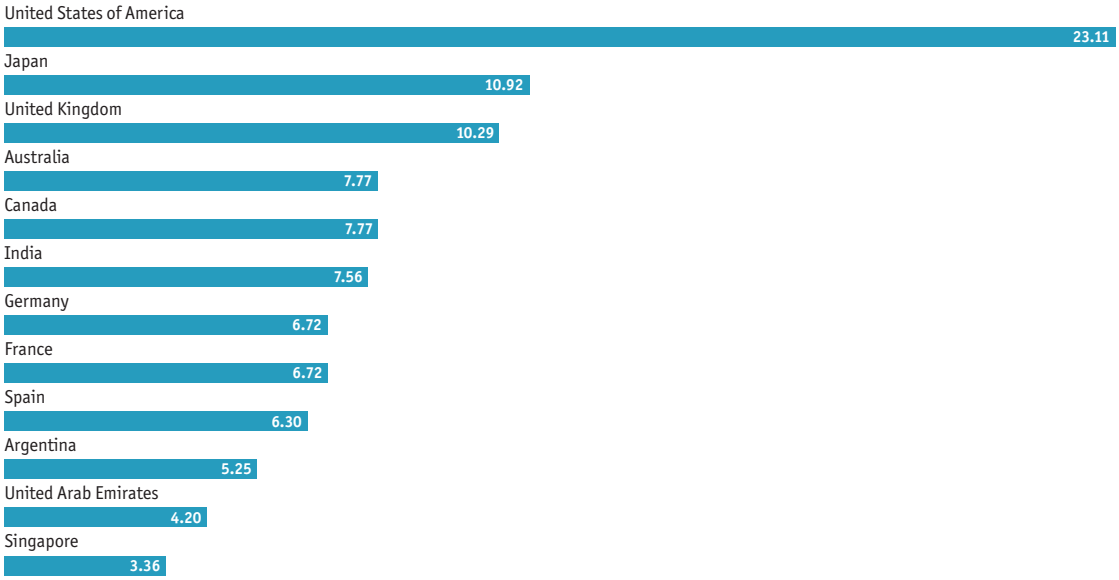
9. To what extent do you agree or disagree with the following statements about your organisation?
Select one column in each row.
(% respondents)



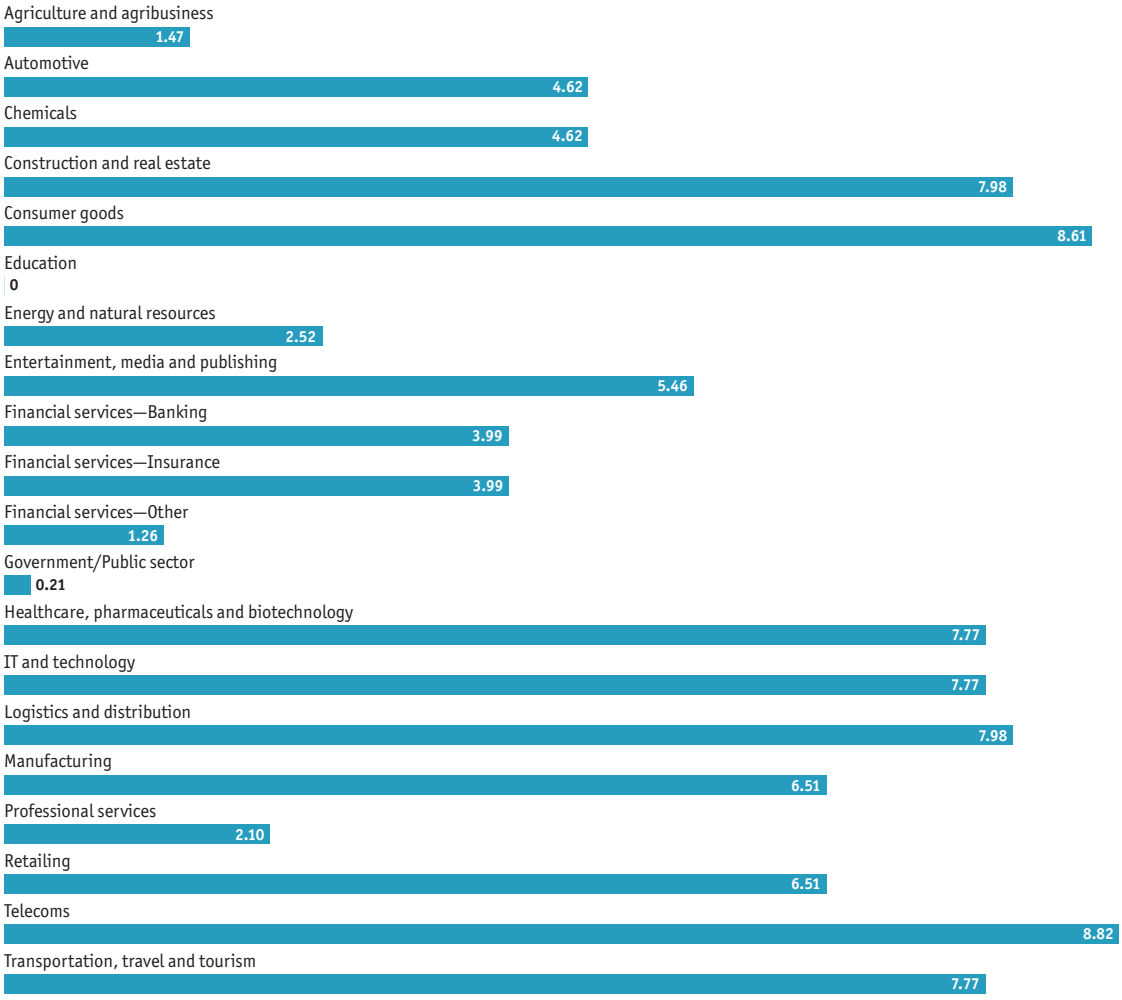
10. With which of the following types of organisation is your organisation likely to share data for commercial gain in the next 12 months?
Select one.



Where are you personally based?
(% respondents by region)



What is your organisation's primary sector of activity?
Select one.
(% respondents)



Embedded data field: Region
(% respondents)

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