

# Build Your Trust Advantage

Leadership in the era of  
data and AI everywhere



This report is IBM's fourth Global C-suite Study and the 20th Edition in the ongoing IBM CxO Study series developed by the IBM Institute for Business Value (IBV). We have now collected data and insights from more than 50,000 interviews dating back to 2003. This report was authored in collaboration with leading academics, futurists, and technology visionaries. In this report, we present our key findings of CxO insights, experiences, and sentiments based on analysis as described in the research methodology on page 44.

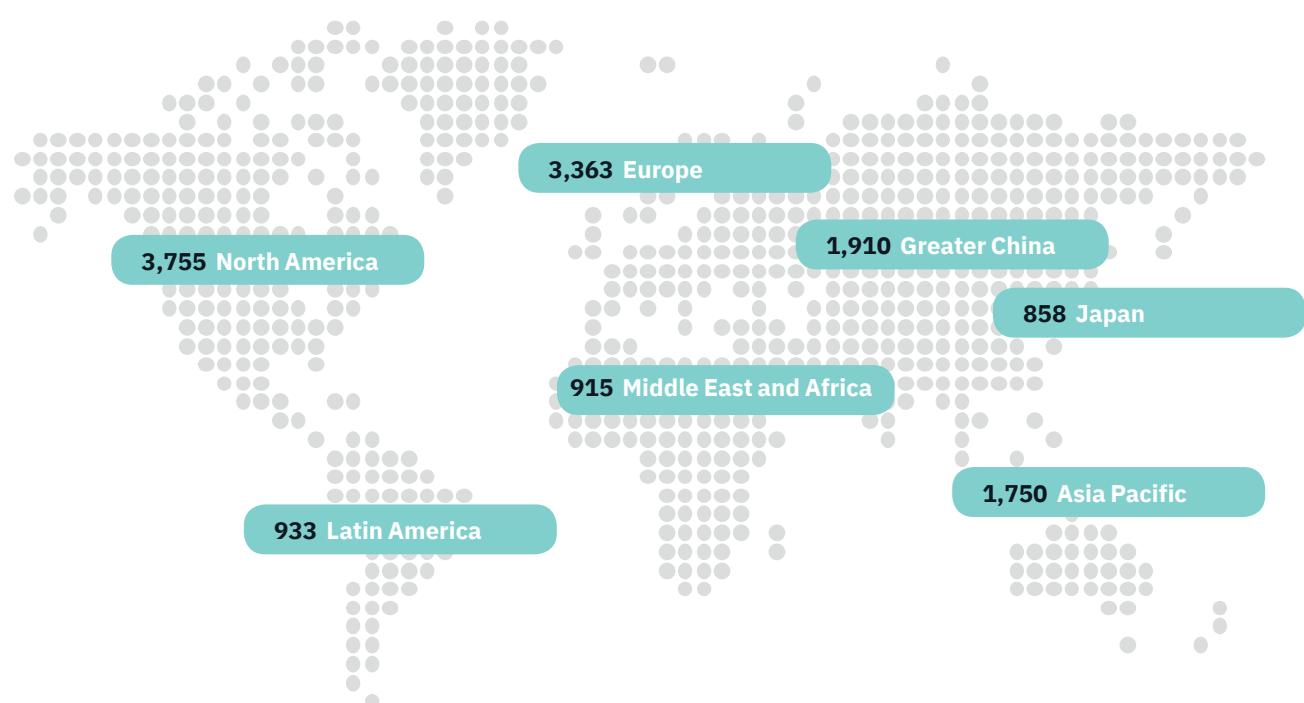
# Build Your Trust Advantage

Leadership in the era of data and AI everywhere

Global C-suite Study  
20th Edition

Our latest study draws on input from  
13,484 respondents across 6 C-suite  
roles, 20 industries, and 98 countries.

2,131	2,105	2,118	2,924	2,107	2,099
Chief Executive Officers	Chief Financial Officers	Chief Human Resources Officers	Chief Information Officers	Chief Marketing Officers	Chief Operations Officers



# Table of contents

Executive summary	3
Introduction	4
Chapter 1 Customers: How to win in the trust economy	8
Action guide	19
Chapter 2 Enterprises: How to build the human-tech partnership	20
Action guide	31
Chapter 3 Ecosystems: How to share data in the platform era	32
Action guide	41
Conclusion: Return on trust	42
Acknowledgments	43
Related IBV studies	43
Research methodology	44
Notes and sources	45

# Executive summary

More than 13,000 C-suite executives worldwide participated in this, the 20th edition of our C-suite Study. We asked executives about their plans to extract value from data and turn it into differentiating advantage and their progress in these pursuits. To identify the leaders, we classified every organization into one of four distinct stages on the data journey. The most advanced, the Torchbearers, are an elite group, comprising 9 percent of the total respondents. The Torchbearers outperform their peers in revenue growth and profitability. They also outshine others in innovation and managing change.

We learned that data-driven leadership is determined by the levels of trust an organization can create—among its customers, the people inside the enterprise, and the partners across its ecosystem.

## **Customers: The trust economy**

Customer trust has become the defining issue for leading organizations, reshaping their offerings and even their business models. Eight in ten Torchbearers tell us they have turned to data to strengthen the trust they earn from customers. What's more, the Torchbearers consider their capacity to respect their customers' data privacy a core competitive advantage. The race is on to discover precisely where an organization's customers draw the line on privacy and what they consider a fair tradeoff for their data. The prize for those who get there first is high-trust business models that differentiate them from their competitors.

All organizations face a future in which changing customer sentiment and new regulations could severely constrain their access to, and use of, prized personal data. This is as true for consumer data as it is for business partner data. Leading organizations recognize what's required—new approaches to data collection and protection, data sharing, and customer relationships. Three principles—transparency, reciprocity, and authenticity—guide their handling of data and how they engage their customers and business partners.

## **Enterprises: The human-tech partnership**

The Torchbearers have achieved what others have not. They've inculcated a culture of data believers. Eight in ten Torchbearers say the executives in their C-suite rely heavily on data to improve the quality and speed of the decisions they make. At the same time, they're fully focused on empowering all of their employees, not just

their data scientists, to uncover insights from data. Leading organizations are liberating their data, allowing it to circulate widely, without sacrificing their responsibility to secure permissions and safeguard it.

Supported by their data-hungry culture, the Torchbearers have raised artificial intelligence (AI) to the top of their agenda. Seven in ten expect to make significant investments in AI, which can include machine learning, in the next few years. They're deploying AI to inform better decisions, infuse workflows with intelligence, and humanize the customer experience. They're moving AI from online to the front lines, into the hands of employees who interact with customers and business buyers. Torchbearers understand that as AI permeates their enterprise, the need for trust in data—and in algorithms—soars to new heights. In turn, robust enterprise-wide governance becomes a board-level issue.

## **Ecosystems: The platform era**

For most organizations, data sharing across partner networks—a function of mutual trust—continues to be a core challenge. However, the implications for an organization's future are new. For platform business model participants, learning quickly and continuously is a do-or-die proposition and a function of data sharing. New platform business models could rise or founder on the shoals of trust.

Data shared among organizations in an ecosystem is already creating new and exponential value. But deciding what data to share for win-win propositions—and what data to maintain as a proprietary advantage—is one of the most difficult decisions organizations have to make. Torchbearers are ahead of the others: six in ten are actively sharing data across their partner networks. Likewise, six in ten Torchbearers are pursuing a strategy to monetize their data. With a monetization roadmap in place, organizations can better determine what data they should share and what they should keep close.

The Torchbearers stand apart from others in their ability to unite trust and data to surge ahead in their digital transformation. In each chapter, we've included recommendations, based on analysis of comparative data and in-depth interviews with Torchbearers, for how others can advance their own journeys.

# Introduction

For this study, we spoke with more than 13,000 C-suite executives worldwide about data, the value they derive from it, and what it takes to lead in a world awash with data.

We learned that data has become inextricably entwined with trust. Specifically, the ongoing and widespread erosion of customer trust, including B2B buyers, has changed what organizations can—and should—do with data. It changes the value equation. Where data alone was once an organization's unparalleled asset, it must now factor in trust.

Data matters. But trust determines its value.

The trust customers once gave, almost blindly, to brands and institutions has been slipping away for some time now. Likewise, data sharing among organizations has become constrained by a mutual lack of trust. It may even jeopardize the extraordinary revenues that organizations expect to gain on new business platforms. Complicating matters, the promise of AI depends on even deeper levels of trust—in the AI models themselves and the revelations they produce.

Our observation? Trust has passed its tipping point. How organizations utilize, safeguard, and share data with their customers and partners can create an extraordinary advantage. But achieving it will first require rebuilding trust—trust from customers, trust from within the enterprise about its own data, and trust across the ecosystems in which organizations operate.

An organization's ability to earn a trust advantage depends on at least two factors: one, how good it is at creating trust in data and, two, how well it engenders trust *from* data. Once the trust advantage is established, new possibilities for innovation and revenues emerge.

In this study, we explore the interplay between trust and data in three areas:

### **Customers: How to win in the trust economy**

Customer trust once endowed in brands is now contingent on data, which becomes the new proxy for trust. How organizations transparently share data about their offerings, are accountable for the personal data they collect, and use that data to their customers' benefit determines their market position. Organizations that lack customer trust—cut off from prized personal data—could find themselves slipping further behind.

### **Enterprises: How to build the human-tech partnership**

Data, coupled with advanced analytics and AI, including machine learning, can inform superior enterprise decisions and optimize and automate processes—but only if organizations can deeply trust their data. To do so, organizations are learning to master the quality of data, mitigate algorithmic bias, and serve up answers with evidence.

But first, they must create a culture of data believers, built from the ground up. That requires both putting easy-to-use tools in employees' hands so anyone can make discoveries from data, and moving AI from online to the front line to humanize each customer experience.

### **Ecosystems: How to share data in the platform era**

Executives recognize that when data is shared among organizations, it can grow immensely in value. Business platforms, where data circulates freely among multiple parties, are earning outsized returns. But paradoxically, proprietary data can also be an organization's core advantage.

Organizations will need to learn when and how to share data widely and when to keep it close. This may well be the most complex and sophisticated strategic challenge that business leaders face as the data economy grows.

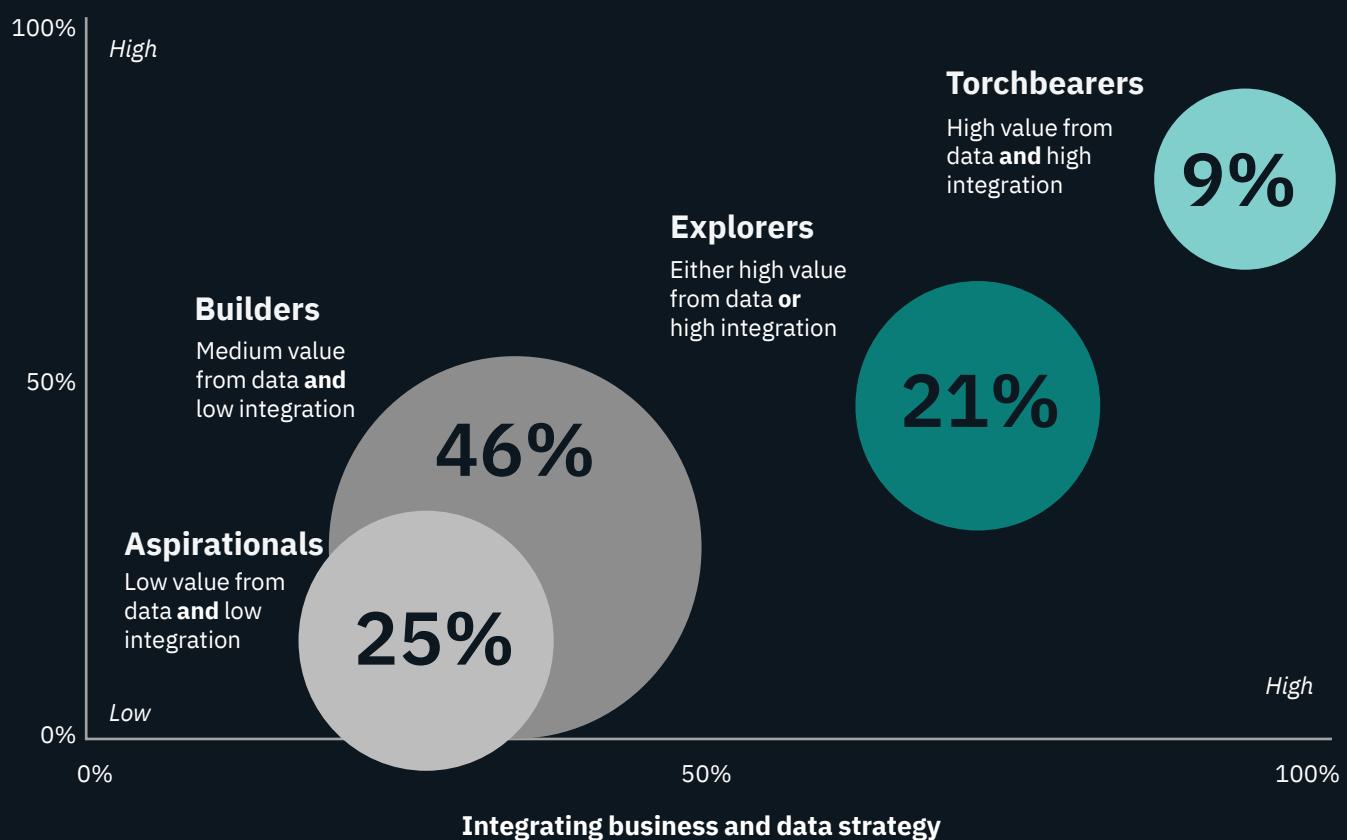
How did we reach this conclusion? We classified every company into one of four distinct stages on the journey to leading with data. We call them, starting with the most advanced: Torchbearers, Explorers, Builders, and Aspirationals (see Figure 1).

**Figure 1**

## The data advantage

Torchbearers have established a new path to value, by integrating data into their strategy, operations, and culture

### Creating value from data



## The four stages of data leadership

We classified every participant into one of four stages. The horizontal axis measures qualitative readiness: the extent to which data and business strategy are integrated, with a C-suite that recognizes data as a strategic asset and with an enterprise-wide data culture. The vertical axis measures quantitative aspects, including the abilities to: create value from data; access, extract, and link data together; and create insights from that data (see page 44 for research methodology details).

**Torchbearers** represent a unique group that consists of just 9 percent of surveyed organizations. They have fused data strategy to business strategy, with trust as the plumb line. Operating in a data-rich culture, they generate higher revenue growth and profitability than their peers.

**Explorers** are experimenting with ways to integrate their business and data strategies, as well as with new ways to extract value from data. They don't consistently realize its highest possible value but see the trust economy as a path to achieving outstanding mutual benefit.

**Builders** are making progress in aligning their business and data strategies and growing a data culture. They are applying data to objectives but are not yet achieving their expected returns. They recognize that trust needs to be high on the C-suite agenda and are working toward their goals.

**Aspirationals** are beginning to integrate enterprise-wide business and data strategies and do not have a data-driven culture in place. They have had only limited success in extracting value from data and cementing trust as a foundation.

Surging ahead of the others are the Torchbearers, organizations that have already proven they can create extraordinary value from data, leverage trust to their advantage, and consistently outperform others in many areas (see Figure 2). The Torchbearers have fused their data strategy to their business strategy. Moreover, they have put customer trust center stage.

However you measure it, the Torchbearers have achieved superior results: seven in ten Torchbearers outperform their peers financially. Even more—eight

in ten—Torchbearers lead their industries as innovators and have a track record of successfully managing the change that is occurring around them.

Our research analysis focuses on the distinct differences between the Torchbearers and the Aspirationals to identify what it takes to win in a world where a new digital divide is emerging—a world where trust may determine which side of the divide an organization lands on.

**Figure 2**

## The new digital divide

Torchbearers deliver exceptional results, vastly outpacing the data-nascent Aspirationals

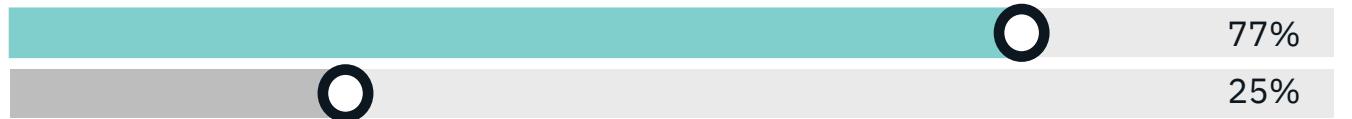
*Revenue growth outperformance compared to industry peers*



*Profitability outperformance compared to industry peers*



*Innovation leadership compared to industry peers*



*Success at managing change compared to industry peers*



\*Percentage of respondents that exceed the standard.

## Chapter 1

# Customers

## How to win in the trust economy

Organizations accustomed to scanning the horizon for the next great disruption have seen this one coming: the trust customers once placed in brand names and institutions is quickly eroding.

Today, customers are less willing to hand over private information to organizations, yet they expect every enterprise to divulge whatever data is captured about them. In other words, they're asking for more privacy while demanding more transparency from you. Those enterprises that deftly manage these shoals reap a trust dividend—which fuels business advantage.

For leading organizations in every industry, trust has become a central design point, whether that's how they access data, evolve their business models, innovate offerings, or engage customers.

Identified in our study as the Torchbearers, these leaders:

- Pursue ways to create deep and sustainable customer trust
- Surpass their peers in the collection and use of trustworthy data to change the customer experience
- Capitalize on the trust they've earned from customers and the trust they have in their data to transform their business models.

## Step one: The not-so-basics

We are entering a new world, one that creates a data dilemma. Organizations are prepared to exploit data to new purpose but are finding that doing so often raises the bar on the trust that will be required. Think of asking customers to hand over the electronic keys to their cars—or even their houses—so that a delivery person can leave a package there. Or consider a dairy producer that is asked to trust a “smart” container to

autonomously adjust temperatures based on environmental conditions and time at port. Innovations like these spring from data and algorithms at scale.

All at an astounding pace, our world is being remade by data and the algorithms that let organizations automate workflows, personalize interactions, discover new possibilities, learn, and apply knowledge. New value materializes—but only if customers can trust it. It's becoming almost commonplace for organizations to ask their customers to trust a bot or an algorithm to make high-value decisions, such as granting a loan or personalizing the price on a big-ticket item. For many organizations, trust in their algorithms has yet to be earned.

Suspicion about data privacy and algorithm abuse is actively eroding trust for some enterprises—but not for all. Trust, in all its forms, has become inextricably entwined with data and, by extension, AI. Eight in ten Torchbearers are making the mastery of that relationship their singular advantage. They have turned to data to strengthen, to a great extent, the level of trust their customers have in them. Just four in ten Aspirationals can say the same (see Figure 3).

**Figure 3**

### The trust paradox

The Torchbearers defy data fears, enhancing the trust of customers

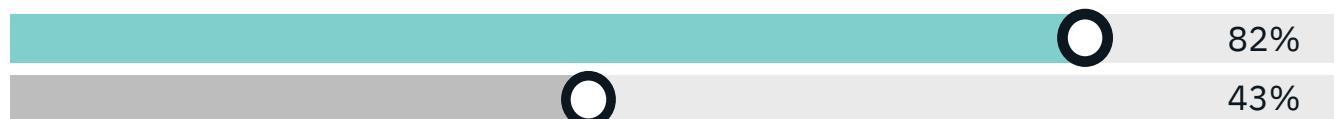
*Using data to strengthen customer trust, to a large extent*

**Torchbearers**  
**Aspirationals**

91% more

82%

43%



“Customers expect personalization, underpinned by data—putting things in front of them that demonstrate the bank knows them. However, there remains a question as to how much information customers will share, given the erosion of trust.”

CEO, Banking, Australia

To satisfy the modern requirement for trust, leading organizations are adopting three basic principles as their guide: transparency, reciprocity, and accountability. Each provides assurance to customers but is more than good marketing. These principles are the scaffolding that supports the modern enterprise, remade to propagate trust.

### **Transparency: Prove it**

Transparency, organizations concur, is the first requirement. Customers demand transparency of data associated with products and services and, in the case of personal data, assurances that it’s used in a fair manner and kept safe. Their purchase decisions depend on detailed product information: data about how products are manufactured and under what conditions, reviews from users and influencers, accreditations from third parties, and more.

Brands must prove their credentials. Some are turning to blockchain networks, where organizations can document the brand promise in detail, whether that promise is speed of delivery or eco-friendly sourcing and manufacturing. When making a purchase, consumers choose brand trust as one of the most important factors to guide their decision. According to the 2019 Edelman Trust Barometer, 81 percent of consumers say they “must be able to trust the brand to do what is right.” And in that same research, trust in brands has continued to fall while expectations of social responsibility are on the rise.<sup>1</sup>

The erosion of trust isn’t confined to consumers. B2B organizations are also growing less trustful and increasingly value transparency. In a recent study, 36 percent of B2B buyers didn’t believe they “got the full picture” from their vendor during the sales process.<sup>2</sup> The B2B demand for transparency extends to processes. Partners in a supply chain rely on shared data to eliminate blind spots and bottlenecks and advance capabilities such as just-in-time replenishment.

Transparency constitutes proof that an organization and its offerings are what the organization claims them to be. Often, that proof takes the form of customer reviews or buyer testimonials. “Going forward,” the CMO of a Canadian retailer notes, “customer opinions will be the driving factor of demand in our industry.” Endorsements, coupled with detailed and visible information about the safety and quality of goods, go a long way in establishing trust.

The C-suite executives we surveyed spoke about transparency of workflows, trust in automation, and trust among partners. “Data can help maintain integrity and trust in the supply chain,” notes the CHRO of a UK retailer. “Radical transparency can provide actionable insights.”

#### **Reciprocity: Earn it**

Second requirement, reciprocity. C-suite executives understand that to get access to data, they have to give something meaningful in return. “We are entering our consumers’ space,” acknowledges Jacek Olczak, COO of Philip Morris International in Switzerland. “If we don’t give them value back, they won’t share data. We need to offer them a delightful experience every time.”

“The question,” says Geoff Greenberg, CFO of George & Matilda Eyecare in Australia, “is how do you use your data to increase your personal interactions with customers—to become both less intrusive and more relevant?”

The challenge? Organizations often don’t know what their customers would consider a fair exchange. A recent survey conducted by the Advertising Research Foundation in the US found that “telling people that sharing their data will allow for a more personalized experience does not result in a greater willingness to share data.”<sup>3</sup> Another study found that 75 percent of consumers believe that sharing their data benefits enterprises more than consumers.<sup>4</sup>

Moreover, customers have mixed feelings about the benefits that are gained through technology by sacrificing privacy. An IBV study found that only three out of ten people feel strongly that the risks are worth the rewards.<sup>5</sup>

**“The question for everyone is, ‘How far will you need to go to ensure privacy and trust?’ Organizations need to create an ethical view of how they will use data and align it to their brand promise.”**

**Rima Qureshi,  
Chief Strategy Officer,  
Verizon, United States**

## Accountability: Demonstrate it

Third, accountability. Accountability is synonymous with brand integrity. This covers a broad range of issues from delivery on customer promises to a commitment to data security and respect for data privacy.

The average global cost of a data breach is USD 3.9 million, and the long-tail costs can be felt for years after the incident.<sup>6</sup> A clear reality is that the world is continuing to digitally evolve and is reliant on interchangeable data, accessible across multiple platforms and deployed across an ever-expanding ecosystem of devices.

To succeed in retaining trust while growing business or expanding into new markets, executives need to establish governance and policies to combat cyber risk and protect customer trust and brand. In short, they have to embed security in everything.

But security has become something of a tug of war—a battle between the need to create frictionless customer experiences and the need to help ensure strong authentication of transactions. Excessive caution constrains legitimate activity, impacting the bottom line and customer engagement. Too little caution is also costly and not just in a financial sense. Customers' trust that an organization will safeguard their data has become a compelling expectation. Organizations have to respond appropriately.

The Torchbearers prioritize data privacy as one of their top competitive advantages, edged out only by customer relationships. The two are, of course, intertwined. Fewer Aspirationals look to privacy as a competitive edge (see Figure 4).

**Figure 4**

### The “P” word

Data privacy joins customers and workforce as one of the top three competitive advantages

#### *Customer relationships*



#### *Data privacy*



#### *Workforce skills*



**Torchbearers**  
**Aspirationals**

**13% more**

52%

46%

**22% more**

45%

37%

**5% more**

45%

43%

Data breaches make headlines monthly, if not weekly. Corporations worry about the hit to their brand and their future access to data. Just as alarming is the attitude of consumers who suspect that by sharing their data, or simply going online, they're giving up something of value to them: their privacy. C-suite executives are concerned, as in the words of Ian Soffe, CEO of OSS Group in New Zealand, "A consumer rebellion is emerging against data privacy invasions."

The cost of data incursions is too high to ignore. Research on Fortune 500 companies has shown that just 20 percent of organizations had instituted policies about data transparency and opt-out control of their data to customers. When data breaches occurred, the organizations that didn't provide transparency or control had 1.5 X larger drops in their stock prices.<sup>7</sup>

Combined with the right talent and governance, AI can help accelerate a shift in cybersecurity, turning what was primarily a defensive proposition into a proactive one. In attempting to make such a shift, organizations should consider three important guidelines:

- Security of business platforms will be critical to trust and their longevity, but companies need to balance this with frictionless customer and employee experiences.
- Organizations must work to secure both the human and machine elements along key workflows and data sources.
- The ecosystem of business platforms requires an open network approach to security across all parties, driving collaboration and insights at speed.

**"One of the key challenges is maintaining customer trust in a world where new data-driven businesses constantly emerge. We need to ensure our customers know that we treat their data in a trustworthy way."**

**Marcus Claesson,  
CIO, Daimler Commercial  
Vehicles, Germany**

“Organizations don’t know how regulations will change. So the question becomes, should you invest in gathering data you may be cut off from in the future? But doing nothing is not a good strategy. So what we do is think about what the world would be like without cookies. And then we formulate Plan B.”

Anna Sakowicz, Chief Data and Analytics Officer, Publicis Groupe, Poland

## Step two: Control your fate

Organizations reliant on an abundance of data are now confronting an alarming possibility: its sudden scarcity. Some executives tell us that new regulations and changing consumer sentiment are already constraining their access to, and use of, business and customer data.

Digital trails are disappearing as customer consent for cookies is mandated. Personal data already in an organization’s custody is being purged on demand. Regulations are restricting the sharing of data among business partners. In some cases, conglomerates are finding that they can’t even share data among the companies they own.

The Torchbearers aren’t daunted. They’re going big on trust and big on data. Seven in ten Torchbearers tell us their coffers are already full. They have a treasure trove of accurate and actionable “360-degree customer data” on hand. By contrast, just two in ten Aspirationals have access to actionable customer data they have faith in, one of the largest gaps between the two groups across our survey questions (see Figure 5).

**Figure 5**

### Abundance amid scarcity

Torchbearers are building new data sources

*The C-suite has extensive access to accurate and actionable 360-degree customer data*

69%

**214% more**

22%

**Torchbearers**  
**Aspirationals**

Torchbearers aren't immune to data shortages in the future. But organizations that have earned customer trust are more likely to keep the data they have—their customers won't ask them to purge it—and collect more of it in the future.

In industries that have been dependent on third-party data, some organizations are growing wary of how trustworthy their sources might be. Perhaps new regulations might restrain the channel.

Swiss consumer goods giant Nestlé has responded by curtailing its use of third-party data and doubling down on collecting end-user data directly. "We have to drive a high-trust bargain with consumers to get first-party data in the age of GDPR," says Pete Blackshaw, former Global Head of Digital and Social Media at Nestlé.<sup>8</sup>

Nestlé, along with France-based retailer Carrefour, has piloted this new approach to data on a block-chain-based IBM Food Trust™ platform. Via QR codes, consumers can track items from factory to warehouse to store. Carrefour, which is using blockchain for a number of items it sells, attributes an increase in sales as a result.<sup>9</sup>

Where trust is difficult to establish, blockchains can establish end-to-end transparency. Blockchain provenance, for example, can help prevent counterfeit semiconductors from flooding the market or outbreaks of illness from contaminated foods. In virtually every industry in which complex logistics, supply chains, or financial transactions depend on immediate action—and in which fraud or safety is paramount—blockchains are creating unbreakable chains of trust.

## Discovery: A Torchbearer's tale

Trust and data form the twin strands in Discovery Holdings' corporate DNA. The South African financial services firm started life in 1992 with what was then a completely novel idea: providing health insurance that makes people healthier. Customers who sign up with its Vitality program agree to let Discovery track everything from their physical activity to their nutrition. In return, the company rewards those who make positive lifestyle changes. The more points they earn, the more perks they get and the lower the premiums they pay.

Discovery mines members' personal data for behavioral insights, which it uses to promote healthier choices. It also collaborates with other organizations to offer incentives. Under one such agreement with Apple and US insurer John Hancock (a division of Manulife), Vitality members can buy heavily discounted Apple Watches. They pay a modest upfront fee and, if they work out often enough each month, they pay nothing more. "So Apple sells more watches, and we obtain more data [from the health and fitness apps on the watches]," Derek Wilcocks, Discovery's CIO, explains.

That's the demand side of the company's business model. On the supply side, Discovery operates a joint venture with Australian fintech Quantum, using machine learning to extract clinical insights from blinded data and enable healthcare providers to make more informed decisions.

Discovery's approach rests on treating its customers with complete probity. "We collect highly sensitive data. In South Africa, for example, we have about 65,000 members on antiretroviral treatments for HIV. That's not something people would want to get out," Derek Wilcocks notes. "So we've established a strong ethical foundation for the way we collect and use data. We go to great lengths to protect our customers' confidentiality. Trust is at the heart of what we do."

New models for data sharing, like those on the food trust platform, require cooperation across the value chain. Customers become the center of gravity. The Torchbearers are prepared. Seven in ten Torchbearers have moved well beyond understanding customer needs to transforming their workflows to deliver value at every customer touchpoint (see Figure 6).

Torchbearer CMOs are acting on the advantage conferred by customer data mapped to intelligent workflows. Seven in ten Torchbearer CMOs, compared to just four in ten Aspirationals, tell us new customer data is invaluable in exploring alternative business models.

## Step three: Transform with confidence

With trust in their data as their North Star, seven in ten Torchbearers are confident in their ability to test new business models as well as to enter new markets. Only three in ten Aspirationals can say the same (see Figure 7).

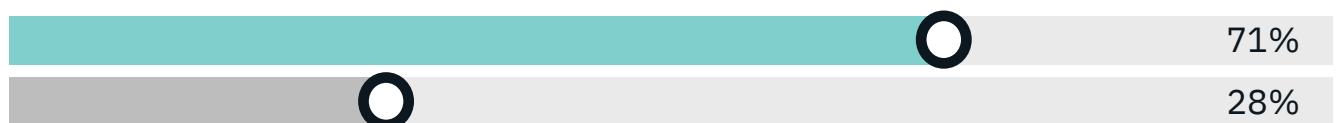
New business models have become contingent on access to ever-bigger, ever-broader data. Going forward, the innovations made possible by new technologies seem just as likely to raise the bar on customer trust as to satisfy it.

**Figure 6**

### Use it or lose it

How Torchbearers generate outsized impact

*Using data, to a large extent, to identify unmet customer needs*



*Building the processes to deliver value at every customer touchpoint*



**Figure 7**

## Creating the future

Torchbearers use trusted data to strategic advantage

**Torchbearers**  
**Aspirationals**

*Extensively using data to develop new business models*

**112% more**



*Extensively using data to enter new markets*

**113% more**



Personalized premiums based on telematics in a car, for example, set off new concerns about privacy. By contrast, a blockchain-based business model that traces the provenance of coffee—proving its sustainability credentials as it moves from farm to factory to corner store—has trust built into its fabric.

Business models that require more trust needn't be avoided. Quite the contrary, organizations that have already earned customer trust can stake out a differentiating position by taking on those models that raise the bar on trust. By building a trust advantage, organizations can seize opportunities too risky for low-trust brands.

Case in point: the global market opportunity for usage-based auto insurance is expected to grow to USD 107 billion by 2024.<sup>10</sup> And compared to just 37 percent of Aspirationals, 82 percent of the

insurance Torchbearers we surveyed say that despite the known data and privacy issues, they're highly likely to adopt data-linked insurance products. For individualized insurance products, such as auto insurance based on usage, insurers typically give back by sharing with customers what they learn from the data they collect to help them avoid risks.

Like insurance, every industry can innovate to help customers realize their goals, make better decisions, and live happier and healthier lives. Energy companies are helping their customers use less electricity. Phone manufacturers let users monitor and limit screen time. Banks propose lower-priced account options. Discovery Holdings, a financial services firm in South Africa, has partnered with insurers such as US-based John Hancock to help its customers adopt healthy habits and lifestyle changes. (See sidebar, "Discovery: A Torchbearer's tale.")

## Insight: Self-sovereign identity

Customers demand transparency about their personal information today; tomorrow, customer expectations could escalate. Many organizations posit that customers will expect full control and ownership of their personal data. Other organizations, determined to get ahead of what they consider inevitable, are already making that possible with self-sovereign identity models.

Self-sovereign identity allows users to provide proof of their identity and their claims. A claim could be something as straightforward as a customer's home address or a manufacturer's accreditation by a trusted third party. Self-sovereign identity puts control of private data in the hands of individual customers and trading partners.

Permission to use data can be pre-programmed by customers for different parties and different situations, including granting permission to use it for analytics. These same self-sovereign models can be utilized by partners in a supply chain or an industry alliance to encourage data sharing with accountability, or by airlines or others cross-sharing data through industry alliances.

If something doesn't change, "Personal data use will be challenged," says Mark Lollback, GroupM Australia & New Zealand CEO. "Consumers know their data is being used, but they don't always know how, where, and what for. There is an increasing caution among consumers about what they share and how it is tracked. If businesses can't demonstrate the value people get in return, people will say, 'I want my privacy back.'"

Tracking technologies take transparency offline and into the real world. They are also fast becoming a hot-button issue. Retailers, for example, are installing cameras to determine precisely where a customer is looking and for how long their gaze stays on a given item. To protect customers' privacy, many of these facial recognition technologies don't store images but instead compile the inferences made about customers, such as what interests them, as well as their age and gender.<sup>13</sup>

Organizations can also use these same technologies to detect and track mood. Will customers consider that a step too far? Maybe, but most aren't being asked.<sup>14</sup>

Trust can break down in an instant, but it's rarely created in one. History is on the side of incumbents that have majored on trust for a long time.

Companies are banding together to create a new model, "the circular economy," an initiative that has also been showcased by the World Economic Forum.<sup>11</sup> With the help of heterogeneous data and new technologies, circular economy adherents find new ways to regenerate resources to sustain the environment. AB InBev, the world's largest brewer, for example, expects 100 percent of its product packaging to be made from returnable or recycled content.<sup>12</sup> It is working closely with its suppliers and customers to make this happen, earning trust for its brand along the way.

The trust advantage is conveyed to incumbents in the banking industry. Of all the industries, customers trust banks most.<sup>15</sup> The trust banks have earned has been credited as one reason they were able to stave off the fintechs that once were expected to disintermediate them. Looking to the future, banks expect that the trust they have earned can be leveraged in a new role on business platforms in other industries.

"When you combine the trust that banks have earned with the relevance of the insights banks have," says a banking Managing Director in Ireland, "you get a very interesting combination. Banks can use that trust and insight to provide value-added services, which further enhance the relationship with customers and further build on that trust."

# Action guide

## *How to win in the trust economy*

### **1. Prove transparency**

Earn (back) trust by learning to use data in a way that customers view as fair.

- Make information about your offerings visible to customers.
- Create mechanisms to surface reviews, peer recommendations, and other trusted sources of information.
- Engineer your workflows to share valued and permissioned data freely with your business partners.

### **2. Earn reciprocity**

Give your customers something they value in return for their data.

- Ask users and customers throughout the value chain about what they would consider a fair exchange for data and what tradeoffs they are willing to make.
- Explore the use of self-sovereign identity models that put the control of data into the hands of customers and business partners.
- Develop personalized services and experiences that help your business partners and end users prosper.

### **3. Demonstrate accountability**

Strengthen your data privacy policies and programs.

- Identify where your customers draw the line on privacy. Be ready to meet and exceed those expectations.
- Provide explicit assurances to customers about how their personal data will be used and protected.
- Give proof: Back up those assurances through your ongoing actions.

### **4. Double-click on data**

Reposition data as an asset of strategic value to your organization rather than a resource viewed in tactical, operational terms.

- Identify how data can create a competitive advantage, open up new market opportunities, or reinvent the customer experience.
- Transform your business model to help assure trust. Use the trust you've earned to stake out a differentiating position.
- Map your data assets—your data, its sources, and platforms, as well as analytical skills and tools—to each of your business goals and strategic initiatives.

### **5. Future-proof your strategy**

Craft scenarios involving data in order to increase personalization and engagement at every touchpoint.

- Get your customers, partners, employees, and the C-suite in a collaborative “garage” environment to innovate supply chain and end-user experiences.
- Map the customer journey to identify critical moments of trust and trust breakdowns.
- Make trust a design point in all of your use cases.

---

*Recommendations are based on extensive analysis of comparative data, as well as on numerous deep-dive interviews with C-suite executives at leading Torchbearer organizations around the world. They identify key differences for how Torchbearers drive their businesses as compared to those in the other stages.*

## Chapter 2

# Enterprises

## How to build the human-tech partnership

The interplay between people and AI, also known as augmented intelligence, resets organizations' expectations for what data can do. Organizations that once focused on personalized experiences are learning to do something more: humanize them.

Bots, once relegated to online customer services, are now becoming trusted advisors to employees.

With insights increasingly derived from data-fueled algorithms, which conclusions are worth accepting? And what might provide false promise, or precipitate unintended consequences?

For many organizations, these central and critical questions serve as a roadblock, an obstacle in developing an effective human-technology partnership that augments decisions and workflows with actionable intelligence. As systems become more automated, and even autonomous, the need for deep trust in data—and in AI models—is reaching a new apex. Without trusted data and trusted AI, organizations can't scale to mission-critical use cases.

But for the Torchbearers, these new realities are less obstacle than opportunity. The Torchbearers:

- Trust in data to make decisions of consequence and give their employees the tools to do so as well
- Swiftly accelerate their deployment of AI and other exponential technologies and are confident in the return on investment
- Institute robust governance to deepen their trust—as well as that of their customers—in data and AI models.

The interplay between people and AI, also known as augmented intelligence, is resetting these organizations' expectations for what data can do. They are building a culture of data believers, while demonstrating both an enthusiasm for emerging technologies and a willingness to engage in the gnarliest areas of data reliability, governance, bias, and ethics.

## Step one: Build a culture of data believers

For decades, economists, sociologists, and management gurus have been debating the primacy of gut instinct versus data-based decisions. The medical profession was one of the first to be asked to adopt evidence-based decisions: to rely less on the art of diagnosis and more on the science of medical research, to trust in what data could tell them. To this day, not all doctors are fully on board.

For many, data still appears too open to interpretation to be relied on for decisions of consequence. The Torchbearers don't share those fears: eight in ten Torchbearers say that they and their C-suite colleagues have deep trust in data to enhance the quality and speed of decision making. They have a data mindset: they are predisposed to use data as the basis for significant decisions.

In contrast, only one-third of Aspirationals say the executives in their C-suite have a true data mindset. The result? Torchbearers have an advantage that will be hard for others to attain (see Figure 8).

**Figure 8**

### Bots are us

The Torchbearer C-suite has deep trust in data to make decisions

*Our enterprise is collecting the types of data needed to make decisions*



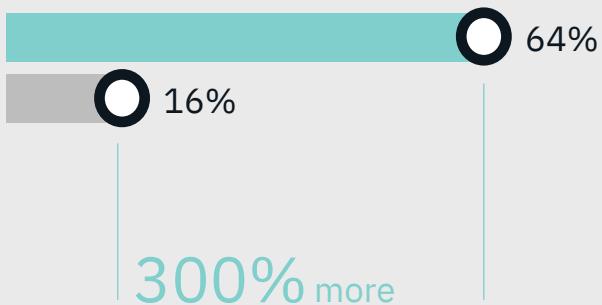
*Our C-suite team has the data mindset needed to improve the quality of decision making*



## Insight: The cost of data siloes

To our surprise, many organizations have yet to do what's fundamental: fully share data across the enterprise. Just 16 percent of Aspirationals have broken down their data siloes, compared to 64 percent of Torchbearers.

*Data is freely shared across other functional business areas*



### Torchbearers

### Aspirationals

Organizations will be hard-pressed to meet their customers' expectations for transparency and trust if they aren't even sharing data within the enterprise. What's holding them back?

The Aspirationals are stuck in a culture where the full value of data is not being realized. Aspirationals may be caught in the "knowledge is power" mindset—or, rather, "my knowledge is my power." They do admit that their C-suites aren't very collaborative and that they don't pull together to craft an enterprise strategy.

Alarmingly, Aspirational CMOs aren't yet making enterprise-wide access to customer data a priority. We asked respondents to select and rank data-related priorities, and *easy access to marketing and customer data by other functions* came in second-to-last place. Worse yet, *ensuring that policies about customer data were clearly communicated and followed across the enterprise* came in last.

What has prevented some organizations from adopting a data mindset? Many of the C-suite executives we surveyed chalk it up to hubris. Those in the C-suite, they tell us, value the wisdom derived from decades of experience above insights gleaned from big data. The problem is particularly acute, says Michelle Anderson, Chief Digital Officer of The Warehouse Group in New Zealand, "when the output from data models tells an unexpected story."

It's the culture, most C-suite executives agree. What's more, even our Millennial-aged survey respondents are no more likely than older generations to trust in data to make decisions. Trust in data to formulate decisions doesn't appear to be a consequence of age, or even C-suite role, although CIOs rely slightly more on data for decisions than other executives do.

The Torchbearers' mindset is founded at least partly in experience. Their confidence in the quality of the data they turn to has been tested and won over time. They are true data believers.

The Aspirationals, by contrast, are short on trusted customer data. More to the point, just 16 percent of the Aspirationals are fully sharing data among their business units. Data siloes predominate. It's no wonder they have little trust in data to make decisions. (See sidebar, "The cost of data siloes.")

How do you get reluctant executives on board? A CIO from a telecommunications organization in Turkey opines that the best way to draw in senior leaders is to inspire them. "Find high-value use cases where predictive data models help make futuristic business decisions," this CIO recommends.

In other words, help leaders see what they're missing. Throwing a spotlight on what has never been possible or tried before can help bring recalcitrant executives to the table.

### Embracing data-for-everyone

A culture of data believers isn't just about engaging an organization's leaders. Torchbearers make it a ground-up proposition. In fact, 73 percent of Torchbearers are empowering their workforces to fully participate in a data-rich environment, compared to just 29 percent of Aspirationals (see Figure 9).

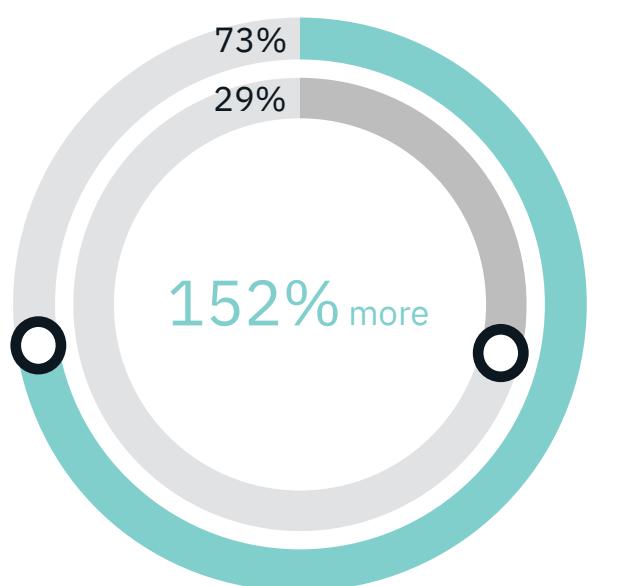
Woodside Energy, the pioneer of the liquefied natural gas industry in Australia, has made data-for-everyone its mission. The company has created a “citizen science platform” that anyone, even those who can’t code, can use for oil and gas exploration. Employees can use drag-and-drop algorithms and other visualization options to discover new patterns when looking at data.

“We want all our great minds tapping into data because each one will look at things differently,” says Woodside Chief Digital Officer, Shelley Kalms. “We’re aiming for a ‘learn-it’ mindset, rather than a ‘know-it-all’ mindset. We’re trying to unlock the collective intelligence of our organization by bringing the data, information, and insights together to improve our operations and the working lives of our people.”

**Figure 9**

### Information rich

Torchbearers empower employees to dive into data



*Our C-suite is actively working to provide employees with the analytical skills and tools they require*

**Torchbearers**  
Aspirationals

“We will need to drive more decisions from data. Leaders will need to let go and let lower levels step up to make decisions. This will be a culture shock.”

Massimo Andolina,  
SVP Operations,  
Philip Morris International,  
Switzerland

**“The most important challenge will be the ability of an organization to adapt to the disruption caused by data-based decision making.”**

**Suraj Chettri, Regional Director HR, Airbus India & South Asia**

Elsewhere among Torchbearers, real-time data and visualization tools are being used to show data in flight, to see what's happening inside a company's plants or on the retail floor. With growing frequency, real-time tools can even depict what's happening outside the enterprise's four walls. “We have installed sensors at our customers' sites, which helps us to understand how our products perform at their operations,” says a chemicals COO in the US. “Our employees can understand this data easily to improve the service we provide to customers.”

The Torchbearers recognize something that seems obvious but that most others are not yet doing. Employees don't just need new skills to be comfortable working with data; they need new tools. “To constrain data analytics to only the data scientist community will get you just so far,” a US electronics CMO tells us. “The only way to extract the most value out of the data we have is to unleash data for the masses by giving them the right tools.”

A telecommunications organization in Latin America is well on its way to inculcating a new culture. According to its CMO, “All of the decisions that can be data driven have already been migrated to analytics.” When the company decides where to place cell phone antennas, a costly investment, or a store, “humans don't decide alone. That decision has to be supported by big data. Senior leaders all have data experts on their teams, as they can't make any kind of decision without a data report supporting it,” he tells us.

Utilizing AI for sentiment analysis and predictive analytics for more intelligent interactions with its customers, the organization seeks to become a trusted advisor to its customers. As the company migrates more of its data to platforms, the CMO says, “We are no longer a telco company. We are an experience company.”

## Step two: Unlock exponential opportunity (and trust)

Today's organizations know more about their operations, their customers, their ecosystems than ever before. Wearables, internet-connected devices, and robots are generating new data streams from factories, oil rigs, construction sites, and shop floors. Like puzzle pieces, each piece of data fits with others to reveal a bigger picture. Their quest for context is getting both more compelling and more challenging with each technological breakthrough.

Showrooms, for example, can capture data from customers' gestures, facial expressions, and vocal intonations as they interact with products they wish to buy. Machinists can project digital manuals and virtual displays as they reconfigure a production line. Blockchains can track the sources and origins of data. AI can make sense of intricate patterns of contextual data and learn from them.

Exponential technologies like virtual and augmented reality reveal context at scale. Every person and every thing becomes "more knowable"—not just in the abstract, but in the moment. These technologies, like the microscope and telescope before them, can make citizen scientists of all of us. They allow individuals to see up close and far afield, sparking new ways of thinking as surely as they illuminate new ways of working and innovating.

Among the more compelling tools emerging from these new technologies—aided by truly big data streaming from connected sensors—are "digital twins": precise data replicas of intelligent workflows, innovative prototypes, and breakthrough processes. Digital twins offer engineers and plant managers alike a chance to simulate a multitude of scenarios involving their physical assets.

Digital twins reveal what is happening now, or what could happen far into the future. Data sent from sensors attached to the physical object could be used to troubleshoot a manufacturing bottleneck from afar, optimize a crew and its machinery on a construction site, or monitor the safety of workers on an oil rig.

Torchbearers, having proven that they can generate robust returns on established technologies—such as cloud, Internet of Things (IoT), and mobile—are confident in their powers to do the same with exponential technologies (see Figure 10).

**Figure 10**

### Ahead of the curve

Torchbearers expect to excel at next-generation exponential technologies

*High ROI expected in the future from exponential technologies*

54%

440% more

10%

**Torchbearers**  
**Aspirationals**

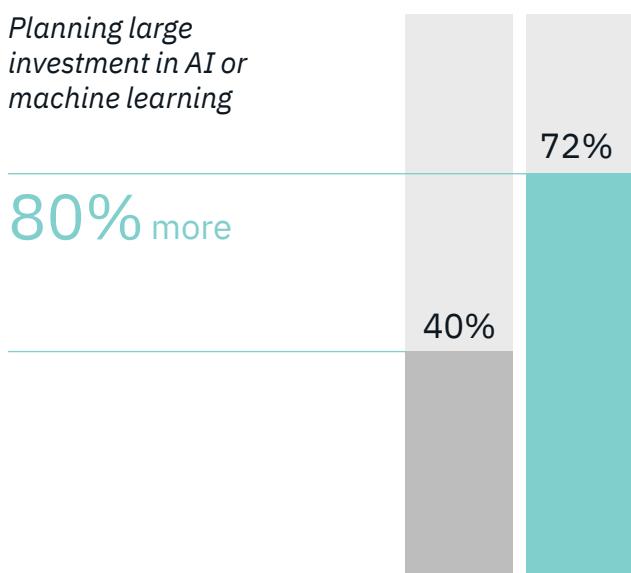
We conducted correlation analysis and discovered that Torchbearers most frequently use exponential technologies in concert. They aren't majoring on just one technology. Instead, they are creating value by combining them. AI is central to that effort. The Torchbearers stand apart from all others in their focus on AI to make sense of data in context and light up new paths forward (see Figure 11).

Which brings us back to trust. AI-supported organizations turn decisions into iterative innovation and intelligent workflows. They're at the forefront of delivering customer experiences that are not just personalized but humanized, building trust through never-before-possible services.

**Figure 11**

## Making intelligence choices

Torchbearers seek to extend their advantage



**Torchbearers**  
**Aspirationals**

Bots are ubiquitous online as self-service apps. But they aren't destined to stay there. They can help humans better interpret customer needs anywhere so more empathetic decisions can be available on the front lines and in the moment, whether for a salesperson on a shop floor, a customer service rep in a call center, or a procurement specialist.

The objective is not to replace humans but to augment human intelligence and interactions. At Club Med, AI-enabled systems can alert employees in call centers about the context of the call—what website pages customers were looking at, for example—as well as offer detailed histories of customer behavior. (See sidebar, "Club Med: A Torchbearer's tale.")

The Torchbearers are ready. In the next few years, 62 percent of Torchbearers expect to use AI to a large extent to facilitate interactions among customers or employees, compared to a paltry 8 percent of Aspirationals.

Data grows in value as context is applied. Likewise, the humanized experience must be attuned to context: a customer's specific preferences in the moment. AI can reveal what makes those moments human and, in the process, build more trust. Tone analyzers can read emails, tweets, and call-center scripts to determine if a person is frustrated or thrilled. Organizations can draw on social, psycholinguistic, and other unstructured data to create personas, extend empathy to stand in their customers' shoes, and map steps in the customer journey.

## Step three: Confront what's difficult

As AI advances, it is pushing our workflows and operations, as well as customer services, toward greater autonomy. Over time, cars aren't the only things that will be self-driving. Banks are already implementing self-driving investment portfolios. Autonomous shipping containers can act on their own to protect their contents from spoilage in the case of unforeseen delays. But first, organizations need to master the data behind dozens, if not hundreds or thousands, of algorithms.

Data that is “fit for training” requires careful quality assurance. It must be clean. The Torchbearers are assiduously perfecting the quality of their data (see Figure 12).

The Torchbearers are concerned as well about data drift: the tendency of data to become inaccurate over time. Six in ten Torchbearers are focused on incorporating current real-time data. Just three in ten Aspirationals are.

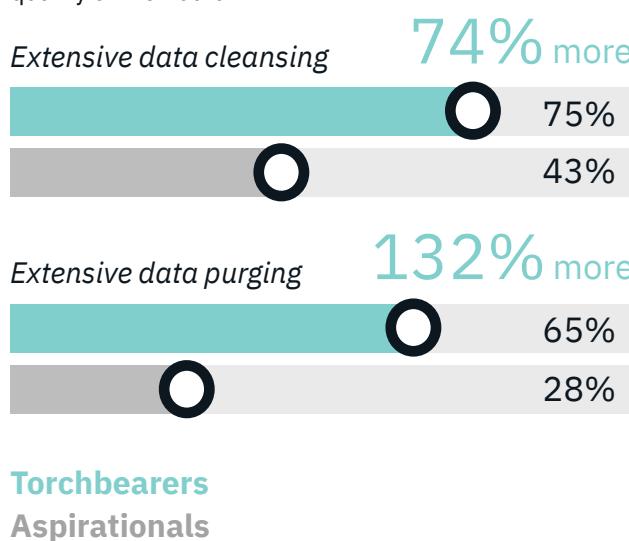
Organizations recognize that it's no longer sufficient to simply pour all their data into a data lake and expect everyone to go fishing. Instead, they must curate data to meet specific business needs and intelligent workflows. A marketer, for example, requires a very different view of data than someone in R&D.

In turn, curation requires metadata. Metadata, the information about information, reveals context. It depicts the relationships among data sets, their sources, and their history. Absent strong metadata, it's difficult to integrate data and retrieve it for specific purposes to deploy analytics and AI models. Governance is necessary to set the parameters, agree on labels, and decide what metadata is needed. Machine learning technologies can then be trained to profile and classify data, automating metadata generation.

**Figure 12**

### Clean it up

Torchbearers are working to improve the quality of their data



### Club Med: A Torchbearer's tale

“A holiday at one of Club Med's luxury resorts is a high-stake purchase,” says Anne Browaeys, Club Med's Chief Marketing, Digital, and Technology Officer. People take about three months to make the decision—longer than they take to buy anything other than a house or an automobile. “Most of the buying journey occurs online, but 80 percent of those who book a trip phone the call center at least once. So getting a 360-degree view of the customer is very important to us,” she explains.

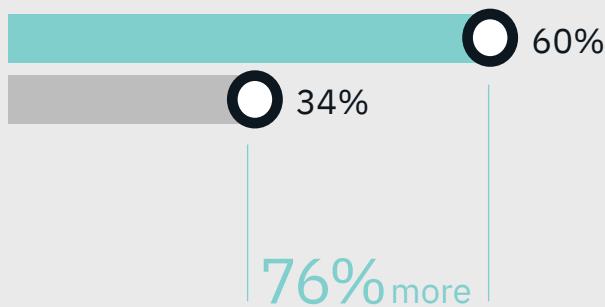
Club Med has gone to great lengths to ensure that it can indeed observe its customers in the round. When customers contact the call center, employees can immediately see all their pertinent details, including their booking history and behavioral history—and even which page of the website they were looking at, if they hit the click-to-call button. The company is now introducing a system that uses machine learning to analyze everything from customers' emails to the level of satisfaction they express in consumer surveys. Within the next year, it will be able to personalize its interactions with every customer on every incoming call.

Club Med has also developed an analytics tool to help its business and marketing managers make sense of the data it collects. Rather than having to rely on a team of specialists for the answers to all their queries, they can simply put the app on their phones and use it to delve into the data. “We believe it's best to bring the data closer to the people who are actually using it. We want to put data in every layer of the business for daily decision making,” Anne Browaeys concludes.

## Insight: Missing ingredient

Although the Torchbearers are far ahead of the Aspirationals, even many Torchbearers are struggling to access and use unstructured data. The intelligent workflows and humanized experiences that organizations strive to create will require a significant acceleration of capability: the skills and architecture to make use of data streaming from devices on the IoT and being exchanged via social media.

*We can use both structured and unstructured data*



**Torchbearers**  
Aspirationals

Data that is clean, current, curated, and contextualized creates something profound: confidence in data and the AI models it supports.

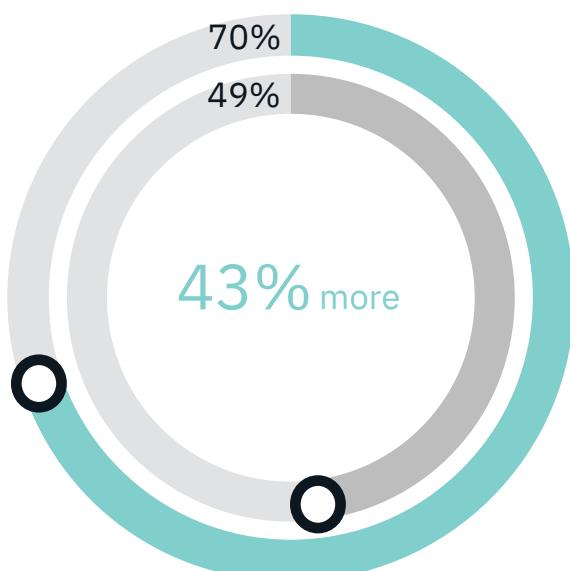
To achieve this state, of course, data must be accessible, and, too often, that is not the case. (See sidebar, “Missing ingredient.”) Hybrid cloud solutions permit public cloud, private cloud, and on-premises IT to interoperate seamlessly, enabling businesses to act with agility. That agility is enabled by hybrid cloud because enterprises can run applications and access data from across multiple disparate platforms, aligned under a common set of policy requirements for security, regulatory compliance, and governance. Torchbearers expect to edge out Aspirationals in their implementation of hybrid clouds (see Figure 13).

Hybrid clouds are where legacy systems begin the journey to modernization, achieve scale, and extend across an enterprise through application programming interfaces (APIs) and software-as-a-service. As they do, data becomes seamlessly available and workflows more intelligent.

**Figure 13**

Up, up, and away

Torchbearers expect lift from hybrid clouds



**Torchbearers**  
Aspirationals

*High level of investment in hybrid clouds planned over the next few years*

### Principles, bias, and ethics

AI and its capacity to generate advice free of self-interest could go a long way toward restoring trust in sectors that sorely need it. Additionally, the more customers trust the advice being offered, the more data they will share, thus creating a positive feedback loop. That trust feedback loop underscores the importance of governance. This includes assessing the quality of data, as proven through its lineage. Governance also uncovers cognitive bias, which—albeit unintentional—sometimes gets baked into AI models and data. The Torchbearers have the foundation to create trusted data for AI and machine learning: 69 percent have robust enterprise-wide governance in place. Just 22 percent of Aspirationals have adopted rules for the collection, usage, and sharing of data (see Figure 14).

Good governance of AI includes transparency and accountability, the same principles required to create customer trust. But above all others, it assures fairness, which includes ethics applied to how data will be used and the careful elimination of bias. Fairness becomes a board-level topic.

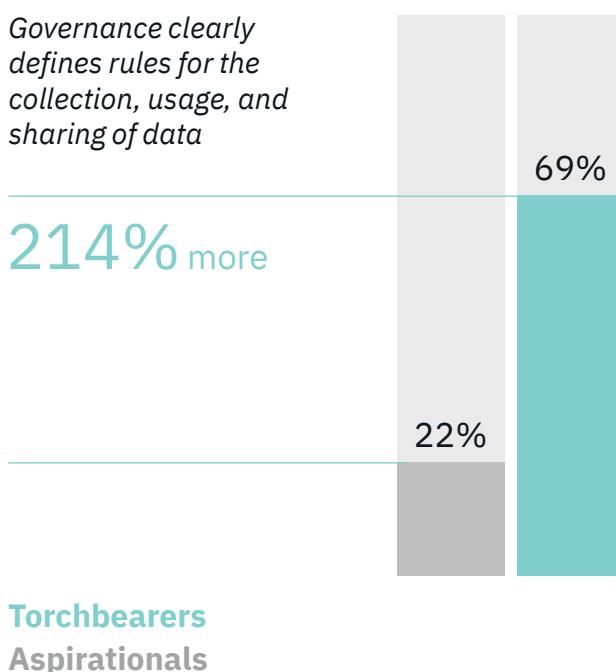
**“The governance of data and how we govern AI models—how they’re validated and used—are now board-level issues. So, too, is the ethical use of data.”**

COO, Banking, Netherlands

**Figure 14**

### In rules we trust

Torchbearers adhere to good governance



**“Utilization of AI at scale comes with the need for transparent, explainable outcomes, free from bias. Otherwise, AI has limitations. We are now trying to establish a code of ethics and core principles for using AI in our business.”**

Kazushi Ambe, Executive Vice President, Officer in Charge of Human Resources and General Affairs, Sony Corporation

Human bias shows up in AI models in two ways. First, it is often embedded in the data itself. For example, a customer may respond to a query about their purchase of a photocopier by saying they valued its price—without recognizing that the determinative factor was its warranty.

Second, the bias may be introduced by the humans who train the AI models. The people who create those models may expect, for example, that the best data to determine creditworthiness is past history when other factors actually may be even more determinative. AI models may also reflect historical biases, which have determined the data that is available. For example, some groups, like women in drug trials, are less likely to be represented by data.<sup>16</sup>

To date, more than 180 human biases have been identified and classified, any one of which can affect how humans make decisions or collect data.<sup>17</sup> The sheer complexity of identifying and eliminating each piece of potentially biased data makes the process an excellent candidate for automation. Organizations are learning to train the models themselves to recognize and automatically suppress bias.

No matter how “perfect” a data set and how “smart” a data model or learning system, errors will inevitably creep in. To mitigate this, data models must be fully transparent about the potential for error. The degree to which an error matters will depend on context. For example, face recognition systems generate false positives. If the system is used to look for a missing child, false positives may be considered an acceptable outcome. If the objective instead is to incriminate someone, that risk is unacceptable.

When AI remains inside a black box, it spits out results that may not be easily trusted by humans. For humans to trust the answers derived from AI and machine learning, they will require answers with evidence.

Data requires a code, and so do ethics. Leading organizations are establishing ethical guidelines for how data is purposed and to what end. Almost a year after the GDPR went into effect in 2018, the EU launched its Ethics Guidelines for Trustworthy AI. In broad strokes, they advise that organizations take into account respect for human autonomy, prevention of harm, fairness, and accountability as important principles. They also recommend that citizens have full control over their data.<sup>18</sup>

## Action guide

### *How to build the human-tech partnership*

#### **1. Lead trust in data from the top**

Put data-based decision making at the top of the C-suite's agenda.

- Embed a data mindset into management systems.
- Make data trustworthy to support C-suite-level decisions.
- Utilize data and predictive analytics to identify and model future scenarios, big bets, and next-best actions.

#### **2. Empower employees to become citizen scientists**

Liberate your data from the ground up.

- Give all of your employees access to the tools they need to dive into data—even if they aren't data scientists.
- Invest in analytics, data, and visualization tools, as well as skills development, to empower your entire workforce.
- Make sure your teams that are exploring the data span the business and include diverse thinkers representing a range of skills.

#### **3. Push the envelope on data and technology**

Expand your horizons on what data can do.

- Apply cutting-edge technologies, particularly AI, to make sense of data in context, automate workflows, and humanize the customer experience.
- Move AI from online to the front lines—into the hands of every employee who interacts with business partners and customers.
- Use digital twins to allow for real-time physical asset and workflow simulations, including remote troubleshooting and logistics optimization.

#### **4. Establish enterprise-wide data governance**

Be transparent about your analytics, AI models, and data processes, and establish enterprise-wide data governance.

- Allocate ownership, responsibility, and accountability for the enterprise-wide data strategy.
- Put strong rules in place for how you acquire, store, and use your data; keep it current, clean, and curated.
- Eliminate bias from your data and AI models, applying automation to help you do so.

#### **5. Leverage the power of hybrid cloud**

Provide the scale for data proliferation as you broaden the range and diversity of your data sources.

- Use technological capabilities such as hybrid cloud, IoT, 5G, and edge computing to enable the acquisition, storage, and sharing of data.
- Deploy enterprise platforms comprising data, AI, and immersive security to break down organizational siloes and foster collaboration.
- Craft intelligent workflows to extract real-time value from data and to create “as-a-service” capabilities.

---

*Recommendations are based on extensive analysis of comparative data, as well as on numerous deep-dive interviews with C-suite executives at leading Torchbearer organizations around the world. They identify key differences for how Torchbearers drive their businesses as compared to those in the other stages.*

## Chapter 3

# Ecosystems

## How to share data in the platform era

The advantages of “open” made the leap from software to business models long ago. As value chains morphed into ecosystems, and then again into platform business models, data pools rippled out in ever-widening circles outside the organization, eventually spilling across industries.

Data that stays inside the organization is more likely to drift out of date than to grow in value. In circulation, flowing freely among business functions, streaming across enterprises and ecosystems, data germinates.

But what if you lose control?

Most organizations agree that new value from data will be generated by ecosystems of partners, often operating on a shared business platform. As organizations swarm to these platform-based models, “big-bet decisions” will have to be made.

On the one hand, proprietary data has been a significant incumbent advantage. On the other hand, data shared across business platforms is one of the surest ways to create future advantage, network effects, and the outsized returns that can come with them.

The Torchbearers:

- Utilize data to create new business strategies and expand their partner networks
- Generate exponential value from data by trusting partners and evolving systems, and sharing data across ecosystems
- Guide their drive to value by adopting a data strategy that explicitly determines how they can best plan to monetize their data.

## Step one: Learn to share

As Winston Churchill is rumored to have quipped, “Never let a good crisis go to waste.” The fast fall of customer trust could be one such crisis-turned-opportunity. Instead of letting it drag them down, some organizations are making it the impetus to reframe the future.

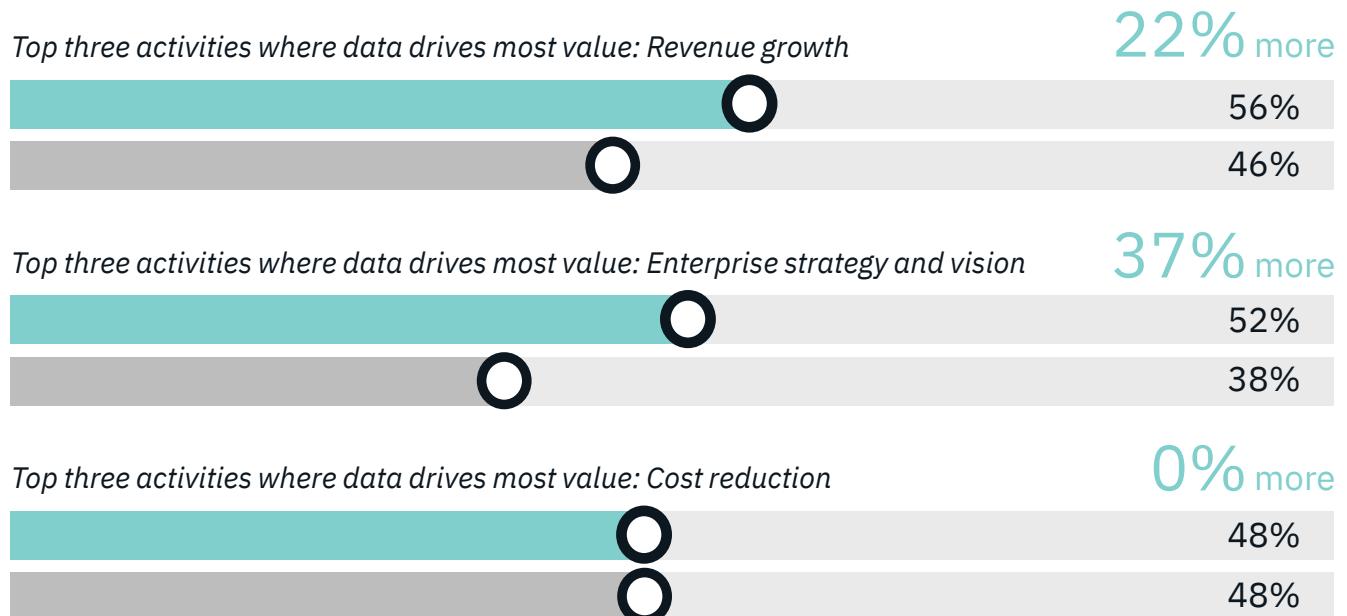
The Torchbearers, unlike the Aspirationals, identify their enterprise strategy and vision as one of the top three activities where they derive value from data (see Figure 15). For many, new business platforms are the next evolution of their strategy. As a financial markets CEO in China stresses, “The winners in the data game will be the ones that open themselves up to partners and collaboration.” A UK CMO in the electronics industry concurs, adding, “In the coming years, the rise of strategic partnerships will cross industries.”

**Figure 15**

### More versus less

Torchbearers are more apt to use data to grow revenues and define strategy, while the top focus for Aspirationals remains cost reduction

**Torchbearers**  
**Aspirationals**



In fact, the majority of organizations—including 85 percent of the Torchbearers—expect their partner networks to continue to expand in the next few years. Even 60 percent of Aspirationals envision wider networks in their future (see Figure 16).

Yet just 25 percent of Aspirationals are sharing data with their partners today. In part, that's because Aspirationals lack the strategic asset—trusted, rich data—that most organizations expect partners to bring to the table. But there are broader reasons, too. While twice as many Torchbearers are sharing data with partners, at 56 percent, the number is relatively low in light of their plans to adopt new business models (see Figure 17).

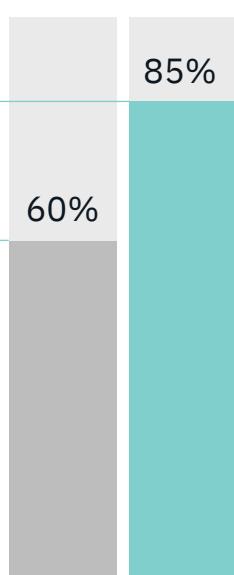
**Figure 16**

### Hoping...

Most respondents see larger partner networks in their future

*Expect partner networks to expand in next few years*

**42% more**



**Torchbearers**  
**Aspirationals**

What's holding so many back? In the words of a US telecommunications CIO, companies are just beginning to learn how to "thrive through transparency while maintaining a strategic advantage." The tension between data transparency and proprietary advantage is pulling organizations in two opposing directions.

Each organization will need to evaluate which of its datasets are composed of truly non-rivalrous data that should be shared to accrue new value and which should remain proprietary. Hardest of all, organizations will have to determine where the value of data creates a current, but transient, advantage and then assess whether sharing that same data could create a better future advantage.

Leading organizations operating platforms will have to have an appetite for rapid-cycle change, relentless learning, and iterative execution. They must always be on the lookout for what new value can be extracted from their data.

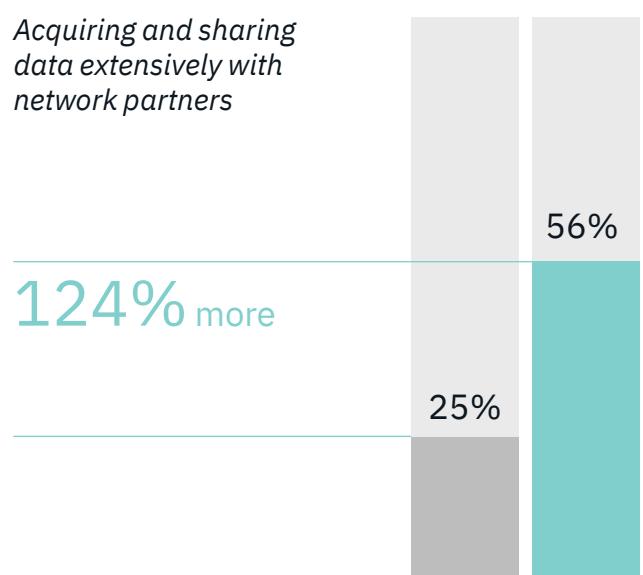
**Figure 17**

### ... and acting

Torchbearers are charting a course to open those ecosystems

*Acquiring and sharing data extensively with network partners*

**124% more**



**Torchbearers**  
**Aspirationals**

## Step two: Develop a platform strategy

One thing is certain: the emergence of digital business platforms will necessitate a new approach to data sharing. These digital platforms were the first to shed the legacy rules of business and reconceive e-commerce as ecosystems. These platforms became vehicles for trusted exchanges among multiple producers and consumers. They earned revenues by orchestrating connections among parties and designing their platforms to exploit network effects.

In every industry, platform players are adding demand-side economics to the more traditional supply-side economics, opening up their platforms for others to join, and otherwise rewriting the rules that once determined value creation. Today, platforms dominate markets in every region. Some already hold winner-takes-most status.

Business platforms have well-known economies of scale, for which companies are generating outsized returns. But when it comes to data—and also customer engagement—it's the economies of scope that often shape strategy. Economies of scope are an evolution in a company's strategy from specialized to expansive.

Organizations on platforms create economies of scope by extending to adjacent spaces, connecting broad categories of complementary products and services in a way that makes experiences more holistic for customers. A platform that links real estate agents, home inspectors, insurers, and mortgage lenders, for example, puts the customer at the center of a more seamless experience.

In every industry, companies are turning to platforms and ecosystem partners in pursuit of new heterogeneous data. Telecommunications carriers are offering streaming video services, including access to online movie libraries. Some are becoming financial service providers. Electronics manufacturers have joined with healthcare providers and insurers to scale health and wellness platforms. Connected cars are linking with hotel chains and travel companies to provide concierge services.

New value is created by the breadth and diversity of the interactions the platform owner orchestrates, usually beyond a single industry. (See sidebar, “The Cognitive Enterprise.”)

## Insight: The Cognitive Enterprise

As AI, automation, IoT, blockchain, and 5G become pervasive, their combined impact will reshape standard business architectures. The “outside-in” digital transformation of the past decade is giving way to the “inside-out” potential of data exploited with these exponential technologies.

We call this next-generation business model the Cognitive Enterprise.<sup>19</sup> It’s composed of four fundamental areas: 1) Market-Making Business Platforms, 2) Enterprise Experience, 3) Intelligent Workflows, and 4) Human-Technology Partnership.

- *Market-Making Business Platforms.* We see companies placing bets on the creation of business platforms to solidify competitive advantage and differentiation. These platforms must be massively digitally connected from the outside in and fully cognitively enabled from the inside out. Once made, the choice of platform represents a big bet for the organization.
- *Enterprise Experience.* We see organizations looking to differentiate their platforms and processes through the design and operation of consistent experiences that straddle the worlds of the customer, employee, enterprise, and ecosystem. Trusted data is at the heart of such experiences.
- *Intelligent Workflows.* Cognitive organizations operating on business platforms are often focused on being the very best in one main area, whether it's a customer-facing experience or an aspect of their supply chains. That ambition is achieved by applying exponential technologies to rethink strategic workflows that can scale with ease so that both human and machine learn continuously.
- *Human-Technology Partnership.* For all the focus on the impact of new technologies and AI, the most important aspect of the Cognitive Enterprise is still going to be its people. Making this work seamlessly will require a much stronger set of continuous feedback mechanisms and methods of engaging the wider organization in the co-creation of compelling experiences.

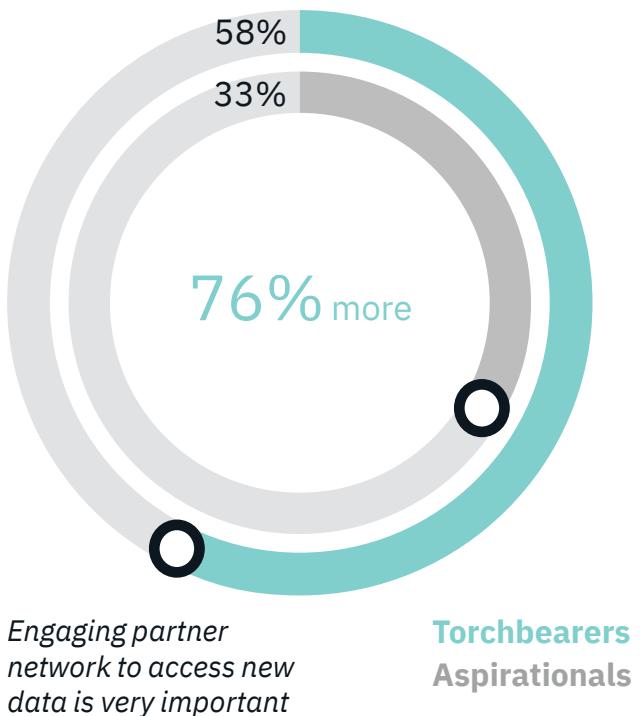
“By building PPP, our Public Private Partnership platform, we are supporting new business entrants, including startups and foreign companies, to use open and affordable data to take a leading position in the competition among cities.”

Takahiro Matsushita,  
Director General, Office for  
Strategic Policy and ICT  
Promotion, Tokyo Metropolitan  
Government, Japan

**Figure 18**

### Between friends

Torchbearer CMOs seek new data from partners



CMOs, in particular, understand the need to share data across their partnerships (see Figure 18). They have historically been eager to gain a deep understanding across their value chains of who buys what, when, and why. Now they can go much further. The rich patterns revealed by abundant and heterogeneous data on business platforms lead to more granular personalization for customers and a better understanding of their needs.

In our previous C-suite study, “Incumbents Strike Back,” the incumbent organizations we surveyed declared their intentions to own new platforms. They were eager to orchestrate platforms and extract new value from data. The discussion was focused on making an entrance and learning to scale with ease.<sup>20</sup> Two years later, the question is less about how they scale new platforms and more about how they capitalize on their advantage.

A recent study of more than 250 business platforms revealed their four most common mistakes. One was the failure to develop trust with users and partners. The professors from Harvard, Oxford, and MIT who conducted the study advised, "...put trust front and center. Asking customers or suppliers to take a leap of faith, without history and without prior connections to the other side of a market, is usually asking too much of any platform business."<sup>21</sup>

To increase trust, they suggest, data on the performance of platform members must be transparent. That includes trust mechanisms such as user reviews. The platform operator is then responsible for validating that feedback—identifying the fakes—and computing easy-to-understand scores.<sup>22</sup>

On business platforms, learning fosters trust and is a function of how well data flows through the platform. Chinese online retailer Alibaba, for example, gave new life to the small shops it brought onto its platform by exposing them to new customers. But it also freely shared data that helped those shops create closer bonds with their customers and improve their performance. As the authors of a 2019 *Harvard Business Review* article noted, when Alibaba bridged its retail with its payment platforms, it created a service valued by both buyers and sellers, "fostering trust between them."<sup>23</sup>

Global brands have turned to Alibaba's Tmall Innovation Center to develop and design new products specific to Chinese consumer tastes. Major consumer brands have tapped into the shopping data from Alibaba's sprawling ecosystem to develop new and customized products for the Chinese market, from mouthwash to baby gear, candy to beer. Not all the action takes place online. With data from Alibaba, global brands are crafting marketing campaigns and deciding which neighborhoods to target. They can even utilize Alibaba's smart vending machines to give consumers an opportunity to sample new products and provide feedback in real time.<sup>24</sup>

Platforms, respondents in virtually every industry tell us, are fast becoming a disruptive force. "At one time, low-cost carriers created a disruption in the airlines industry. Now, it is the transformation of airlines to become full retail platforms," says one COO in the US. "Digital will be thought of as a platform instead of a channel," notes a US banking CIO.

**"We plan to give the clients in our ecosystem full access to data so they can do business with each other and learn about each other's skills and capabilities."**

CEO, Financial Markets, France

## TradeLens: A Torchbearer's tale

TradeLens is riding the wave of change made possible by cross-industry collaboration. This open shipping platform underpinned by blockchain technology was launched to help modernize the world's supply chain ecosystems. It now consists of more than 100 different organizations, collectively handling more than half of the world's ocean container cargo.<sup>25</sup>

The platform was jointly developed by Maersk and IBM and lays the foundation for digital supply chains. It empowers multiple trading partners to collaborate—publishing and subscribing to events data—by establishing a single shared view of a transaction without compromising details, privacy, or confidentiality.

Many of the processes for transporting and trading goods are expensive, partly as a result of manual and paper-based systems. Replacing these peer-to-peer—and often unreliable—information exchanges, TradeLens enables digital collaboration among the multiple parties involved in international trade.<sup>26</sup>

Shippers, ocean carriers, freight forwarders, port and terminal operators, inland transportation, customs authorities, and others can interact more efficiently through real-time access to shipping data and shipping documents, including IoT and sensor data. The members of the platform gain a comprehensive view of their data and can collaborate as cargo moves around the world, helping create a transparent, secured, immutable record of transactions.<sup>27</sup>

Organizations with expectations to lead the next wave of change understand what is needed. “We are the driving force in next-generation logistics,” says a healthcare CIO in Mexico. “This requires much more open ecosystems, with the strategic focus on enabling a broad set of stakeholders. The key is transparent data sharing.”

To date, most data sharing takes place within existing value chains. Many governments are eager to encourage wider data sharing so they can grow their GDP, jumpstart innovation, and contribute to the public good. That’s why some regions have already mandated data sharing and others are considering it.

In the European Union, for example, banks are required to share transactional data with others—when their customers consent. That has spurred the “open banking” movement.<sup>28</sup> Many incumbents aren’t grumbling; instead, they’re finding that it’s a positive forcing mechanism. Their eyes are now on a new future. Some are creating the open API platforms to monetize their data. Startups once seen as competitors are now their partners. (See sidebar, “TradeLens: A Torchbearer’s tale.”)

“One of our top priorities is to drive revenue growth by bringing new products and services into our ecosystem,” says a banking CIO in Hong Kong. “To do this, we will accelerate our integration with API providers in different industries.”

“In the ‘platformication’ of industry,” one CIO says, “the dark horse is legislation.” Uncertainty regarding regulations has a dampening effect. “There are no open API regulations, no appetite to come up with ways to allow the sharing of derived data and ways to monetize it. We need to be able to create marketplaces. Regulations need to be updated,” says a banking CIO in the United Arab Emirates.

Many banks already have the trust required to orchestrate the activities on platforms and serve as trusted custodians of user data. In a recent survey, seven in ten customers indicated they are willing to share personal information and data with their banks or other financial services institutions, the highest percentage response for any industry measured.<sup>29</sup>

Likewise, seven in ten bank executives surveyed tell us that platform business models are disruptive for the banking industry as a whole. In addition, survey respondents from the most visionary banks expect

to earn an average of 58 percent of their revenues from platform initiatives in the next three years. This is more than twice the average percentage expected by respondents from less visionary banks.<sup>30</sup> Banks are early-stage leaders in learning the virtue of simultaneously monetizing trust and data.

we.trade, a collaboration with 14 banks, established a blockchain network for cross-border trade finance. Banks have traditionally facilitated trade deals by serving as intermediaries and providing financing for transactions. But, says Roberto Mancone, former Chief Operating Officer at we.trade, “The traditional trade finance model run by banks had not evolved for decades. Banks were not able to scale their platform to make it available to all clients, while companies did not want to be exposed to counterparty risk.”<sup>31</sup>

Often, companies have found that a barrier to trading with businesses in other countries is the difficulty of guaranteeing that a contract will be enforced. we.trade’s built-in smart contracts eliminate this form of counterparty risk. The smart contracts guarantee that if one party in a transaction fulfills the necessary requirements, as previously agreed and recorded in the blockchain, the payment process is executed automatically. The smart contracts help ensure that all parties receive instant triggers demonstrating how one side is following the agreement and notifying the other when it is time to implement their side of the deal—such as by sending payment.<sup>32</sup>

### **Step three: Quantify your data dividend**

Data may be an organization’s most valuable asset, but it’s off the balance sheet—and difficult to quantify, both in terms of costs and direct returns. Compounding that challenge is the nature of data: its value can grow exponentially when shared.

The economic value of data sharing, however, is difficult to decode. Moreover, organizations are worried that they might mistakenly give away the crown jewels. The level of risk organizations are prepared to accept hangs entirely on their confidence in execution.

By quantifying the value of enterprise data, determining how it might grow when it’s shared, and tying it to their objectives to strengthen trust, organizations can drive collaboration across the enterprise and across their ecosystem of partners.

**“The biggest challenge organizations need to address is to become data-driven in their decision making. Instead of being afraid of the data, organizations need to look at data as their biggest weapon to fight and drive digital disruption.”**

**Fausto Sosa, IT VP, Cemex, Mexico**

**“You have to choose:  
What is your highest  
value?...I’m all for  
success...but we cannot  
put success above trust.”**

Marc Benioff, Chairman,  
co-Chief Executive Officer,  
and Founder of Salesforce<sup>33</sup>

**Figure 19**

### Net worth

The Torchbearers are integrating new modes of monetization into their data strategies

*Pursuing data  
monetization strategies*

62%

**130% more**

27%

### Torchbearers Aspirationals

Six in ten Torchbearers, twice as many as the Aspirationals, have taken the first step by formulating an enterprise data monetization strategy (see Figure 19).

They are applying data monetization to new business models. Some industries are ahead of others: seven in ten Torchbearers in banking have a monetization strategy in place, and seven in ten are applying that monetization strategy to establish new business models. Six in ten Torchbearers in the automotive industry do the same, while just four in ten Torchbearer consumer products enterprises do. This mirrors the overall progress of those industries in moving to business platforms.

At a minimum, decoding the economic value of data sharing and establishing an enterprise-wide data monetization strategy can help organizations decide with whom to partner. Then organizations can focus their efforts on engineering trust among key partners in the ecosystem.

As organizations are learning, data is your currency. Trust is the key to accessing more of it and also to unlocking its full value.

# Action guide

## *How to share data in the platform era*

### **1. Use data to refresh your business strategy**

Be restless and look for deeper insights into customers, markets, and competitors.

- Use data to identify new strategies, including those that expand your partnership network.
- Digitally connect your enterprise from the outside in and cognitively enable it from the inside out to create market-making platforms.
- Use interactive tools to identify new events and trends as they happen so you can reinvent yourself over and over again.

### **2. Develop a data-sharing roadmap**

Decide what data you are prepared to share and what data you have to keep close to your chest.

- Architect your organization to be open, including using open APIs with your partners.
- Create a blueprint of what proprietary data can be shared, what value can be derived from that, and how you can derive that value.
- Engineer your workflows for transparency so that you can liberally and securely share data with partners and customers.

### **3. Establish secure data exchange**

Create security, transparency, and accountability for data that runs through your business platforms, well beyond your enterprise's borders.

- Make each member of your C-suite accountable for ecosystem-wide sharing of his or her organization's data.
- Build robust business platforms that enable principled data sharing—both internally and externally.
- Implement smart contracts that trigger the secure sharing of fit-for-purpose data with network partners.

### **4. Build and keep trusted partnerships**

Recognize each party's role and understand the rewards you can achieve through deep collaboration.

- Clearly quantify the value of teaming and investing in business platforms.
- Agree to leverage each other's network of networks to access powerful new sources of data.
- Identify collective gaps where you and your partners need to invest to hone your competitive edge.

### **5. Create a data monetization strategy**

Recognize your data as one of the most valuable assets your company has, and establish a monetization strategy.

- Carefully quantify the value of data to all participants in your ecosystem.
- Shape and scale your go-to-market model to leverage the intrinsic value of the data.
- Become a data custodian—a trusted enterprise that safeguards partners' and customers' data while helping them monetize it.

---

*Recommendations are based on extensive analysis of comparative data, as well as on numerous deep-dive interviews with C-suite executives at leading Torchbearer organizations around the world. They identify key differences for how Torchbearers drive their businesses as compared to those in the other stages.*

## Conclusion

# Return on trust

The Torchbearers have illuminated a new path to value from data. They've shown how data can be utilized to rebuild trust with customers and business partners and, in so doing, create new economic value—a return on trust.

The Torchbearers, who lead their peers in innovation, performance, and mastering change, stand apart from others in three areas:

**Trust from your customers.** Torchbearers are strengthening their relationships with customers by becoming trusted custodians of personal data, demonstrating transparency by revealing data about their offerings and workflows, and using the trust advantage they've earned to create differentiating business models.

**Trust in your data.** Torchbearers are instilling confidence in their data and AI models enterprise wide. That confidence is stimulating a culture of true data believers and data-based decision makers. In turn, it's elevating the experiences they can create for customers and partners along their value chains.

**Trust across ecosystems.** Torchbearers are taking on the challenge that could shape their future—learning how to share data on business platforms without giving away their competitive edge. They've turned the corner from amassing data to determining how best to monetize it, including how to build ecosystems to create new exponential value.

Trust, the Torchbearers understand, has for some time been the missing factor in the value-from-data equation. Trust, they realize, could be their sustainable advantage.

## Acknowledgments

This year's Global C-suite Study would not have been possible without the insights and collaboration of thousands of contributors. Our special thanks go out to:

### **Board, executive, and C-suite participants**

Over 13,000 C-suite executives who participated in one-hour or longer interviews.

### **External experts**

Shivvy Jervis  
Futurest, innovation strategist, and broadcaster

Professor Rita Gunther McGrath  
Columbia Business School  
Professor of Executive Education and best-selling strategy author

Professor Amy Webb  
NYU Stern School of Business  
Quantitative futurist and founder and CEO of the Future Today Institute

Professor Robert Wolcott  
Kellogg School of Management  
Co-founder and Chairman, The World Innovation Network (TWIN Global)

### **IBMers across the world**

Over 4,500 IBMers who engaged with our clients to conduct interviews, summarize the results, and contribute additional insights from work we do with them.

## Related IBV studies

### **The Cognitive Enterprise**

Reinventing your company with AI

### **Incumbents Strike Back**

Insights from the 19th Global C-suite Study

### **Plotting the platform payoff**

The CEO Perspective of the 19th Global C-suite Study

### **The enterprise guide to closing the skills gap**

Strategies for building and maintaining a skilled workforce

### **The end of the beginning**

Unleashing the transformational power of GDPR

## Research methodology

The IBM Institute for Business Value, in cooperation with Oxford Economics, interviewed 13,484 C-suite executives from 98 countries and 20 industries. Our 3,819 face-to-face meetings and 9,665 live phone interviews collected both quantitative and qualitative responses. For these sessions, we deployed an in-depth survey to uncover how organizations are extracting value from data and exponential technologies to enable business innovation, expand customer engagement and trust, and optimize their business ecosystems.

Respondents in our study represent a balanced mix of six C-suite roles: CEOs, CFOs, CHROs, CIOs, CMOs, and COOs. Data collection was specified at the country and industry levels to acquire a representative set of global respondents.

Our analysis of survey results applied a variety of statistical methods and practices to create regression and correlational models. We used exploratory factor analysis to develop response themes. We also used IBM Watson AI technologies against thousands of qualitative interview responses to conduct sentiment analysis and classify study findings into narrative themes. Then, IBM Watson Project Debater revealed how the prevalent themes were viewed from multiple perspectives.

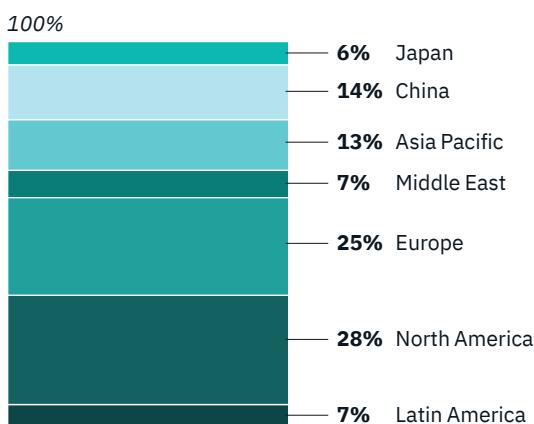
We classified every participant into one of four stages. The horizontal axis is driven by combined responses to three questions: the extent to which an organization's data strategy is integrated with its business strategy; the extent to which the C-suite recognizes the value of data as a strategic asset; and the extent to which the enterprise is aware of and understands the strategic value of data.

The vertical axis is driven by three additional questions: the degree to which an organization has met its expectations for creating value from the strategic use of data; the extent to which the enterprise can access, extract, or link the data together; and the extent to which it can create insights from data.

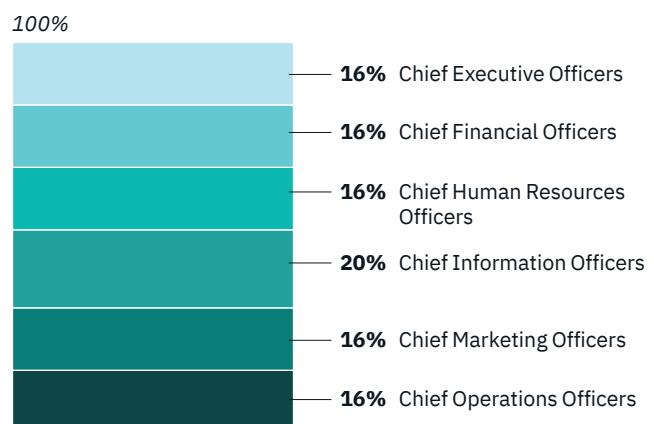
For this study, we asked respondents to do a self-assessment on more than 100 aspects, including financial performance versus industry peers. We cross-validated responses by comparing two objective financial measures—revenue growth and profitability—where the information was publicly available. Our analysis confirmed a high correlation between self-assessed and actual performance, thereby lowering the potential for distortion from a systemic “halo effect.”

In some parts of our analysis, our researchers recognize that a simple reporting of absolute contrast belied the true significance of performance differences. So, to explore the magnitude of a given performance difference in such cases, we report relative, rather than absolute, differences.

### Respondents by region



### Respondents by role



## Notes and sources

- 1 Craft, Ethan Jakob. "5 Key Takeaways From The 2019 Edelman Brand Trust Survey." *AdAge*. June 18, 2019. <https://adage.com/article/digital/5-key-takeaways-2019-edelman-brand-trust-survey/2178646>
- 2 Ellett, John. "B2B Buyers Don't Trust Vendors—And That Is A Huge Opportunity for Marketers." *Forbes*. October 10, 2018. <https://www.forbes.com/sites/johnellett/2018/10/10/b2b-buyers-dont-trust-vendors-and-that-is-a-huge-opportunity-for-marketers/#1616ea146a01>
- 3 "2nd Annual ARF Privacy Study." Advertising Research Foundation. August 2019. [https://cdn.thearf.org/ARF\\_Knowledgebase/ARF%20WhitePapers/2019-Privacy-Study.pdf](https://cdn.thearf.org/ARF_Knowledgebase/ARF%20WhitePapers/2019-Privacy-Study.pdf)
- 4 Sterling, Greg. "Survey: 58% will share personal data under the right circumstances." *Marketing Land*. June 20, 2018. <https://marketingland.com/survey-58-will-share-personal-data-under-the-right-circumstances-242750>
- 5 Unpublished IBM Institute for Business Value Consumer Survey. 2018.
- 6 "2019 Cost of a Data Breach Report." IBM and Ponemon Institute. July 2019. <https://www.ibm.com/security/data-breach>
- 7 Martine, Kelly D., Abhishek Borah, and Robert W. Palmatier. "Research: A Strong Privacy Policy Can Save Your Company Millions." *Harvard Business Review*. February 15, 2018. <https://hbr.org/2018/02/research-a-strong-privacy-policy-can-save-your-company-millions>
- 8 Johnson, Lauren. "Why Nestlé is Doubling Down on First-Party Data and Trust to Prepare for GDPR." *Adweek*. March 13, 2018. <https://www.adweek.com/digital/why-nestle-is-doubling-down-on-first-party-data-and-trust-to-prepare-for-gdpr>
- 9 Alibasa, Benedict. "Retail Giant Carrefour Saw Sales Boost From Blockchain Tracking." *CoinDesk*. June 4, 2019. <https://www.coindesk.com/retail-giant-carrefour-saw-sales-boost-from-blockchain-tracking>
- 10 "Usage-based Insurance Market to hit \$107bn by 2024." Global Market Insights. December 3, 2018. <https://www.globenewswire.com/news-release/2018/12/03/1660531/0/en/Usage-based-Insurance-Market-to-hit-107bn-by-2024-Global-Market-Insights-Inc.html>
- 11 "Platform for Accelerating the Circular Economy." World Economic Forum. October 16, 2019. <https://www.weforum.org/projects/circular-economy>
- 12 "AB InBev joins the Foundation's growing Circular Economy 100 network." Ellen MacArthur Foundation. June 6, 2018. <https://www.ellen-macarthurfoundation.org/news/ab-inbev-joins-the-foundations-growing-circular-economy-100-network>
- 13 "Cameras that guess age and sex headed to stores." The Associated Press: Finance & Commerce. April 23, 2019. <https://finance-commerce.com/2019/04/cameras-that-guess-age-and-sex-headed-to-stores>
- 14 Ibid.
- 15 Unpublished IBM Institute for Business Value Consumer Survey. 2018.
- 16 Cave, Dr. Stephen. "The ethical and political questions raised by AI." Ada Lovelace Institute. January 28, 2019. <https://www.adalovelaceinstitute.org/the-ethical-and-political-questions-raised-by-ai>
- 17 Desjardins, Jeff. "Every Single Cognitive Bias in One Infographic." *Visual Capitalist*. September 25, 2017. <https://www.visualcapitalist.com/every-single-cognitive-bias>
- 18 "Ethics Guidelines for Trustworthy AI." European Commission. April 8, 2019. <https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai>

- 19 Bellisimmo, Jay, Dr. Alessandro Curioni, Glenn Finch, Mark Foster, et al. "The Cognitive Enterprise: Reinventing your company with AI." IBM Institute for Business Value. February 2019. <https://ibm.co/cognitive-enterprise>
- 20 "Incumbents Strike Back: Insights from the Global C-suite Study." IBM Institute for Business Value. February 2018. <https://ibm.co/incumbents-strike-back>
- 21 Yoffie, David B., Annabelle Gawer, and Michael A. Cusumano. "A Study of More Than 250 Platforms Reveals Why Most Fail." *Harvard Business Review*. May 29, 2019. <https://hbr.org/2019/05/a-study-of-more-than-250-platforms-reveals-why-most-fail>
- 22 Cusumano, Michael A., Annabelle Gawer, and David B. Yoffie. *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power*. July 2019.
- 23 Zhu, Feng, and Marco Iansiti. "Why Some Platforms Thrive and Others Don't." *Harvard Business Review*. January-February 2019. <https://hbr.org/2019/01/why-some-platforms-thrive-and-others-dont>
- 24 Hsu, Jenny W. "Alibaba's 'Innovation Center' Gives Brands Edge in China." *Alizila*. November 26, 2018. <https://www.alizila.com/alibaba-innovation-center-gives-brands-an-edge-in-china>
- 25 "TradeLens adds major ocean carriers Hapag-Lloyd and Ocean Network Express." TradeLens blog. July 2, 2019. <https://blog.tradelens.com/news/press-releases/tradelens-continues-expansion-with-addition-of-major-ocean-carriers-hapag-lloyd-and-ocean-network-express>
- 26 Ibid.
- 27 Ibid.
- 28 "Open banking and its APIs debut in Europe and the U.K." PR Newswire. April 6, 2018. <https://www.prnewswire.com/news-releases/open-banking-and-its-apis-debut-in-europe-and-the-uk-300625650.html>
- 29 Diamond, Sarah, Nick Drury, Anthony Lipp, et al. "Banking on the Platform Economy." IBM Institute for Business Value. September 2019. [ibm.co/platform-banking](https://ibm.co/platform-banking)
- 30 Ibid.
- 31 "we.trade: Helping companies trade seamlessly with IBM Blockchain." IBM. <https://www.ibm.com/case-studies/wetrade-blockchain-fintech-trade-finance>
- 32 Ibid.
- 33 Gold, Hadas. "Trust is the new buzzword in Davos. Here's why." *CNN Business*. January 25, 2019. <https://edition.cnn.com/2019/01/25/business/trust-companies-davos/index.html>

© Copyright IBM Corporation 2019

IBM Corporation  
New Orchard Road  
Armonk, NY 10504

Produced in the United States of America  
November 2019

IBM, the IBM logo, ibm.com, and Watson are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at: [ibm.com/legal/copytrade.shtml](http://ibm.com/legal/copytrade.shtml).

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

THE INFORMATION IN THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.

This report is intended for general guidance only. It is not intended to be a substitute for detailed research or the exercise of professional judgment. IBM shall not be responsible for any loss whatsoever sustained by any organization or person who relies on this publication.

The data used in this report may be derived from third-party sources and IBM does not independently verify, validate or audit such data. The results from the use of such data are provided on an "as is" basis and IBM makes no representations or warranties, express or implied.

70028970USEN-01

## The right partner for a changing world

At IBM, we collaborate with our clients, bringing together business insight, advanced research, and technology to give them a distinct advantage in today's rapidly changing environment.

## IBM Institute for Business Value

The IBM Institute for Business Value, part of IBM Services, develops fact-based, strategic insights for senior business executives on critical public and private sector issues.

## For more information

To learn more about this study or the IBM Institute for Business Value, please contact us at [iibv@us.ibm.com](mailto:iibv@us.ibm.com). Follow @IBMIBV on Twitter, and, for a full catalog of our research or to subscribe to our monthly newsletter, visit: [ibm.com/ibv](http://ibm.com/ibv).

**IBM**  
®