

Deloitte.
Insights



Deloitte's 2020 Global Blockchain Survey

From promise to reality

DELOITTE BLOCKCHAIN

At Deloitte, our people collaborate globally with clients, regulators, and policymakers on how blockchain and digital assets are changing the face of business and government today. New ecosystems are developing blockchain-based infrastructure and solutions to create innovative business models and disrupt traditional ones. This is occurring in every industry and in most jurisdictions globally. Our deep business acumen and global industry-leading audit, consulting, tax, risk, and financial advisory services help organizations across industries achieve their varying blockchain aspirations. Reach out to our leaders to discuss the evolving momentum of blockchain and digital assets, prioritizing initiatives, and managing the opportunities and pain points associated with blockchain adoption efforts. To learn more, [let's talk](#).

Contents

Introduction: The evolution of blockchain	2
A more “real” reality for blockchain	4
Digital assets today and tomorrow	9
Cybersecurity	13
Global digital identity	15
Regulatory considerations	17
Governance in blockchain consortia	19
Regional analysis	21
Concluding thoughts: The road taken	24
Appendix	25
Endnotes	36

Introduction: The evolution of blockchain

MORE THAN A decade has passed since the introduction of what we know today as blockchain technology. Over that time, the promise of what the technology could offer businesses and industries has evolved from a cryptocurrency payment platform to something bigger, game-changing, and truly disruptive. In recent years, we have seen sentiment about blockchain's potential similarly evolving, along with companies directing actual investment dollars toward applications.

In [Deloitte's 2019 Global Blockchain Survey](#), we observed this continuing trend in thinking and investment, even if some vestiges of doubt and old-school thinking remained about the technology's promise.¹ This year's survey suggests that those doubts are fading further, and that blockchain is solidly entrenched in the strategic thinking of organizations across industries, sectors, and applications.

There are more substantive examples in the marketplace of how both startups and

mature businesses are deploying blockchain. Organizations appear to be more committed than ever to blockchain and are demonstrating this by implementing it as part of their normal course of business.

That's the key takeaway from our 2020 Global Blockchain Survey, which finds that leaders no longer consider the technology groundbreaking and merely promising—they now see it as integral to organizational innovation. This year, the C-suite is putting money and resources behind blockchain as a strategic solution in more meaningful and tangible ways—in projects big and not so big—putting into motion more widespread blockchain processes, controls, and even new business models. As with any business solution, there are still real-world challenges to overcome. Still, in 2020, both bold and modest in-production proof points across a wide variety of implementation scenarios demonstrate that blockchain technology works—and can work—for many different organizations, businesses, and industries.

A SPECIAL NOTE

During the period in which we fielded this survey, the COVID-19 virus was only beginning to emerge as a global health crisis. In most nations that we surveyed, few understood the coronavirus's full impact until after we closed the survey on March 3, 2020. We are confident that our survey data—and our analysis—accurately reflect the state of blockchain technology, but only time will tell, of course, what long-term effect, if any, the current global health crisis will have on blockchain and digital asset adoption practices.

OVERVIEW AND METHODOLOGY STATEMENT

Deloitte conducted this survey between February 6 and March 3, 2020, primarily as a research vehicle to gain greater insights into the overall attitudes and investments in blockchain as a technology. The release of the survey highlights in this article reflects those opinions and perceptions around blockchain and the potential impact of the technology in the future. The information shared provides summaries of a subset of the overall data and insights collected.

The survey polled a sample of 1,488 senior executives and practitioners in 14 countries and regions (Brazil, Canada, China Mainland, Germany, Hong Kong SAR, Ireland, Israel, Mexico, Singapore, South Africa, Switzerland, the United Arab Emirates, the United Kingdom, and the United States). Respondents had at least a broad understanding of blockchain, digital assets, and distributed ledger technology (DLT) and were familiar with and able to comment on their organizations' blockchain and digital asset investment plans and perceptions, among other metrics.

In order to expand the diversity of our respondent pool in this year's survey, we identified a group of 100 respondents who are specifically and directly engaged in blockchain technology development projects and also have received a minimum of US\$3 million in venture funding in the past year. These 100 respondents took the same survey as the other respondents and are counted among the 1,488 overall respondents in the analysis.

A more “real” reality for blockchain

OUR 2019 SURVEY results suggested that organizations had moved away from the concept of “blockchain tourism” and were defining and developing more permanent implementations. In 2020, an increasing number of leaders have expressed this sentiment, saying

that they see blockchain as a top-five strategic priority, and are increasing their investments in staffing and blockchain technologies. Our latest survey data suggests that organizations clearly view blockchain as a top priority, edging up to 55% of respondents (versus 53% in 2019 and 43% in 2018).

FIGURE 1

Changing views of blockchain’s relevance within organizations

Blockchain’s standing as a top-five strategic priority continued in 2020 with a clear majority of respondents.

Q. Which of the following best describes how you currently view the relevance of blockchain to your organization or project in the coming 24 months?

■ 2020 ■ 2019 ■ 2018



Notes: N= 1,488 (2020 global survey); N=1,386 (2019 global survey); N=1,053 (2018 global survey). Some totals may not add up to 100% due to rounding.

Sources: Deloitte’s Global Blockchain Survey, 2018, 2019, and 2020.

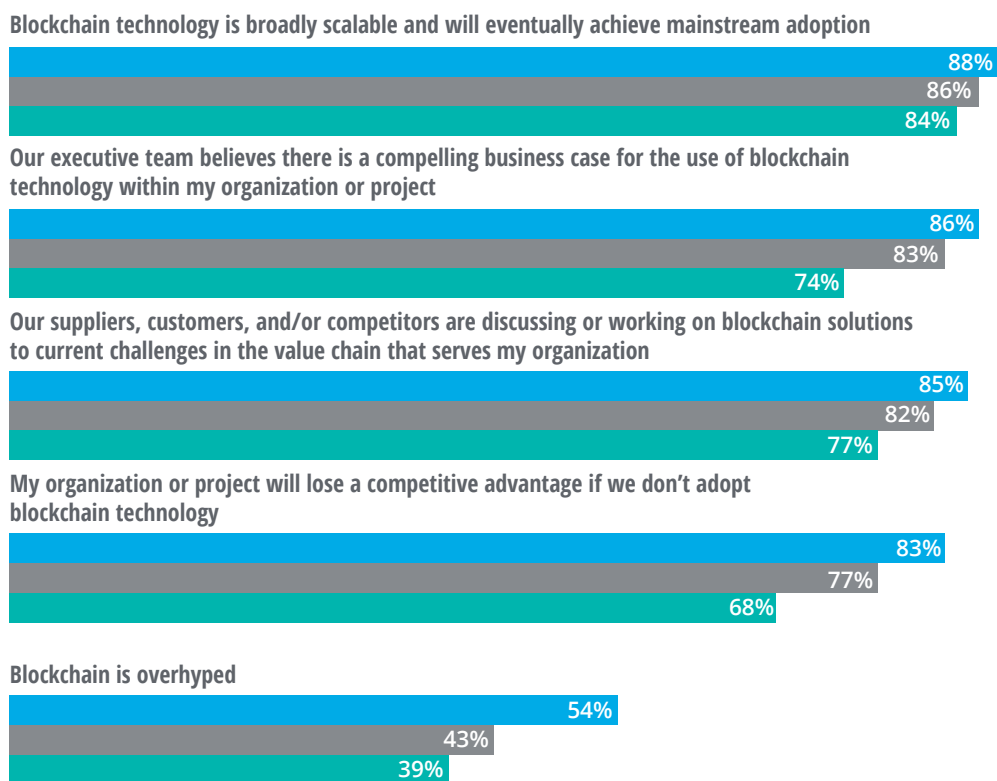
FIGURE 2

Survey respondents' changing attitudes on blockchain and its adoption

Blockchain sentiment follows a pattern of general improvement even against a backdrop of heightened introspection.

Q. What is your level of agreement or disagreement with each of the following statements regarding blockchain technology?

■ 2020 ■ 2019 ■ 2018



Notes: Figures represent the percentage of respondents who strongly or somewhat agree with each statement. N= 1,488 (2020 global survey); N=1,386 (2019 global survey); N=1,053 (2018 global survey).

Sources: Deloitte's Global Blockchain Survey, 2018, 2019, and 2020.

A key takeaway emerged, as we noted ever more positive thinking around current blockchain applications, continuing the acceptance of blockchain that we observed in our prior surveys. Consider figures 1 and 2, which demonstrate this evolved thinking.

The number of respondents who strongly or somewhat see blockchain as broadly scalable ticked up to 88%, compared to 86% last year and 84% in 2018. Those who said their company will lose competitive advantage if they don't adopt blockchain also improved to 83%, up from 77% last

year and 68% in 2018. Some 86% of respondents strongly or somewhat said that blockchain offers a compelling business case, versus 83% last year and 74% in 2018.

Respondents across regions offered strong positive sentiment. On the issue of blockchain's scalability, for example, respondents from countries and regions such as Hong Kong SAR, Brazil, Israel, and the United Arab Emirates registered above-average sentiment. On the issue that organizations would sacrifice competitive advantage by *not* adopting blockchain, respondents from China Mainland,

Ireland, and Canada showed above-average sentiment. Each metric revealed an eclectic mix of regional leaders, reflecting the globally diverse character of the technology. (Later in this article, we will discuss in greater depth regional differences in blockchain adoption.)

Of course, attitude alone doesn't drive blockchain adoption. But sentiment matters, because it leads to investment and confidence. To that end, our survey reveals that companies continue to put hard-earned dollars into blockchain initiatives. For example, 82% of respondents said that they are hiring staff with blockchain expertise or plan to do so within the next 12 months (versus 73% last year). That number jumps to 89% when considering only the same kinds of companies we considered last year (revenue >US\$100 million). APAC (China Mainland, Singapore, Hong Kong SAR) served as a leading region in hiring, with some 89% of all respondents saying that they are hiring staff with blockchain expertise or plan to within the next year. Other metrics from the survey also point to steady or increasing blockchain investment levels.

To be sure, as companies adopt and implement blockchain solutions—and as leaders increasingly accept blockchain as a fact rather than a future breakthrough, there remains an underlying level of uncertainty about current and future applications of blockchain technologies. And we don't expect that organizations will sort this all out right away—this process will continue to take time, depending on industry, maturity, risk tolerance, and budgets. Some remain skeptical: While our survey respondents generally expressed positive sentiments, several data points indicate that sentiment is not unanimous. For example, the number of respondents who consider blockchain to be “overhyped” actually rose significantly this year, hitting 54% versus 43% in 2019 and 39% in 2018. Additionally, we found that those who think blockchain offers more security than conventional IT systems fell to 64% from 71% in 2019.

But notwithstanding such cautionary notes, new blockchain implementations seem to find expression on a nearly daily basis. These production proof points are the clearest signs yet that blockchain is making a tangible difference in how business gets done across regions and industries.

Certainly, we see the advancement of large-scale initiatives that have the potential to be transformational across an array of domains. Libra, for example, represents a new blockchain-based financial infrastructure that aims to simplify global money movement and commerce, and to foster financial inclusion among those on the periphery of the banking system.² As another example, a Hong Kong SAR-based DLT solution for trade finance focuses on demonstrating the application of DLT through smart contracts, reducing the risk of fraudulent trade and duplicate financing, while improving the industry's transparency and productivity.³

Yet other examples range from a DLT platform to improve transparency and productivity on behalf of Southeast Asian bancassurance players to a prospective blockchain-enabled track-and-trace platform to increase transparency, trust, and communication across stakeholders in a large North American port.⁴ Still another example represents the first blockchain solution in the certification industry that Deloitte helped develop on behalf of a leading Nordic quality assurance organization.⁵

These types of large-scale projects are, understandably, the ones gaining media attention. But we are also monitoring smaller-scale examples of blockchain adoption that are proving to be just as transformational in the way people live and the way work gets done, affecting a variety of areas such as title transfer and protection, patient data storage and retrieval systems, platforms to make voting easier and more secure, and tracking food sourcing. These and other real-world

implementations serve as nuanced but tangible proof that blockchain is finding its footing in the stream of global commerce.

While blockchain was once classified as a technology experiment, it now represents a true agent of change that is affecting the entire organization.

In this regard, our survey clearly brings to light an important perspective: It affirms that such heightened production is here to stay, with 39% of global respondents saying they have already incorporated blockchain into production (41% of respondents from companies with greater than US\$100 million in revenue), a significant increase from 23% last year, as figure 3 shows.

However, we are noting some key differences in the broader adoption figure, with, for example, 31% of US respondents saying that blockchain is already in production—which starkly contrasts with China

Mainland, where the figure was nearly double, at 59%. The APAC region, more generally, stood at 53%. Meanwhile, Ireland (48%) and United Arab Emirates (43%) were also drivers of this push, with TMT, financial services, and retail/wholesale/logistics/distribution serving as leading industries. For these regions, industries, and sectors, especially, the future of blockchain is very much happening right now.

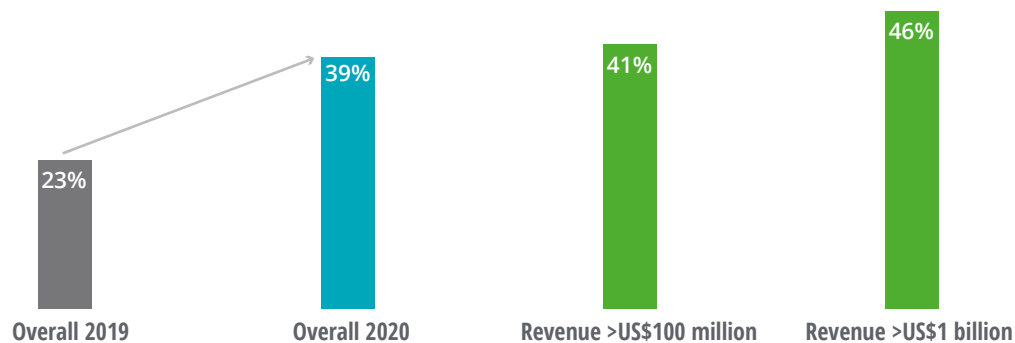
But there is a reality at play that extends far beyond use cases and deployment initiatives. Put simply, while blockchain was once classified as a technology experiment, it now represents a true agent of change that is affecting the entire organization. Blockchain long ago made the leap from theoretical to practical, and many

FIGURE 3

To what extent have organizations brought blockchain into production compared to last year?

This year's survey shows a substantial jump in blockchain adoption.

- Percentage of respondents citing they have already brought blockchain into production in 2019
- Percentage of respondents citing they have already brought blockchain into production in 2020
- Percentage of respondents citing they have already brought blockchain into production in 2020 per different revenue categories



Note: N=1,488 (2020 global survey); N=1,386 (2019 global survey).
Sources: Deloitte's Global Blockchain Survey, 2019 and 2020.

organizations today recognize the need to address related accountability challenges, particularly as those challenges relate to customers, suppliers, investors, governmental and regulatory agencies, and society at large. Related issues of pressing concern include areas such as cybersecurity, global digital identity, compliance with established accounting, audit, internal control, tax and financial reporting frameworks, governance, and the full implications of an ever-increasing digital asset development. Relevant parties, including regulators and standard-setters, have been working to understand, monitor, and address these concerns as they emerge; those organizations and nations that don't find a clear path could risk losing

market share to others that have addressed these challenges.

It is also worth noting an even larger point: When an organization integrates a blockchain platform into its core operations, virtually everyone who supports those core operations becomes a stakeholder: the C-suite; the board of directors; internal and external auditors; legal, compliance, and financial professionals; and of course everyone directly involved in the blockchain system itself. The story of blockchain in 2020 is a story of tangible, real-world implementations across large and small scales. But it is also a story about how blockchain affects the entire organization and makes everyone a participant in its success.



Digital assets today and tomorrow

A SIGNIFICANT PART OF blockchain’s appeal and enduring sustainability as both a tool and a platform is inherent in its use of digital assets and the role those assets will play in the future of commerce. While most commonly associated with cryptocurrencies such as bitcoin and Ether, digital assets are much more diverse and can be used for a variety of purposes.

We define a *digital asset* as “something represented in a digital form that has intrinsic or acquired value.” In recent years, the term has come to include those assets that are represented, held, and transacted on a blockchain or blockchain-like network. Aside from cryptocurrencies, examples of digital assets may include everything from digital representations of land, commodities or fiat currency, to tokenized debt or equity, to a financial instrument, and beyond.⁶

Digital assets offer their users many benefits, including the tokenization of physical asset facilities, allowing for easier, more frictionless trading on secondary markets. They provide a heightened degree of historical transparency and record of provenance. And because digital assets allow for larger, more indivisible assets to become divisible, they can help create a more inclusive, accessible trading ecosystem.⁷

In light of these and other benefits, it’s no surprise that our survey respondents view digital assets very favorably. Nearly 89% said they believe that digital assets will be very or somewhat important to their industries in the next three years. An outright majority (53%) report that

digital assets will be very important. Both figures affirm the potential of digital assets and are significant considering blockchain’s growing overall importance.

Further bolstering the perceived importance of digital assets is the fact that 83% of survey respondents said they strongly or somewhat believe they will serve as an alternative to, or outright replacement for, fiat currency in the next five to 10 years. In China Mainland, that figure rises to 94%.

While our survey revealed great faith in digital assets’ future importance, it shows no clear or specific consensus about exactly how those assets will be used or the specific role they will play—a kind of incoherence that we have seen in blockchain use cases in the past and today.

A fundamental question remains: Are those who adopt still-evolving digital assets fully aware of the cross-border regulatory compliance and professional guidance challenges that *continue to emerge*?

But their importance is nonetheless manifest across an array of use cases, from IP rights management to facilitating track-and-trace to virtual representation of an equity instrument and beyond. While this likely won’t shake out

immediately, we expect more use cases to develop as organizations gain additional experience and increased comfort levels with blockchain in general and digital assets more specifically.

Despite their many benefits, digital assets' growing adoption raises potential issues regarding new tax and regulatory compliance for both businesses and regulators.

Even so, a vast majority of survey respondents expressed confidence that they will meet their regulatory burdens. Some 80% claimed to be very or somewhat prepared to deal with the regulatory aspects of digital assets: Know Your Customer, tax, GAAP/FAS, etc. However, it is unclear from our data whether organizations are fully prepared for the considerable compliance challenges looming in the future, including process, policy, and alignment of governance.⁸

A fundamental question remains: Are those who adopt still-evolving digital assets fully aware of the cross-border regulatory compliance and professional guidance challenges that *continue* to emerge? This may not be an easy question to answer, as individuals and organizations evolve their own thinking about—and tolerance for—adopting blockchain and digital assets.

Following the technology continuum

Today, we are witnessing new and significant changes across all facets of society, including how we shop, the way we pay for things, how we bank,

how we access and disseminate information, how we travel, and how we manufacture—from assembly lines to automated processes. Artificial intelligence (AI) is now a leading contributor to that change, making machines smarter and processes more efficient through technologies such as robotics and 3D printing.

Of course, what we are seeing with digital assets is just another waypoint on this technology continuum, with each major change delivering great promise and great disruption. As always, the change process takes time and often takes place without most people even realizing it's happening.

Businesses—and eventually, customers and end users—learn to adapt to the latest technologies and solve the other issues that accompany assimilation of change, such as regulatory and use case priorities. We expect that the adoption of digital assets will follow a similar path. Even as these technologies rapidly advance, we have a long way to go in the full adoption cycle, which will take time and a change in thinking about digital assets. Accountability challenges must be appropriately managed, and people will need to develop realistic ideas about what digital assets are and what they are not.

While digital assets may be the future, there remains an important, immediate need for organizations to become more comfortable with them, especially in terms of barriers to adoption and regulatory hurdles.

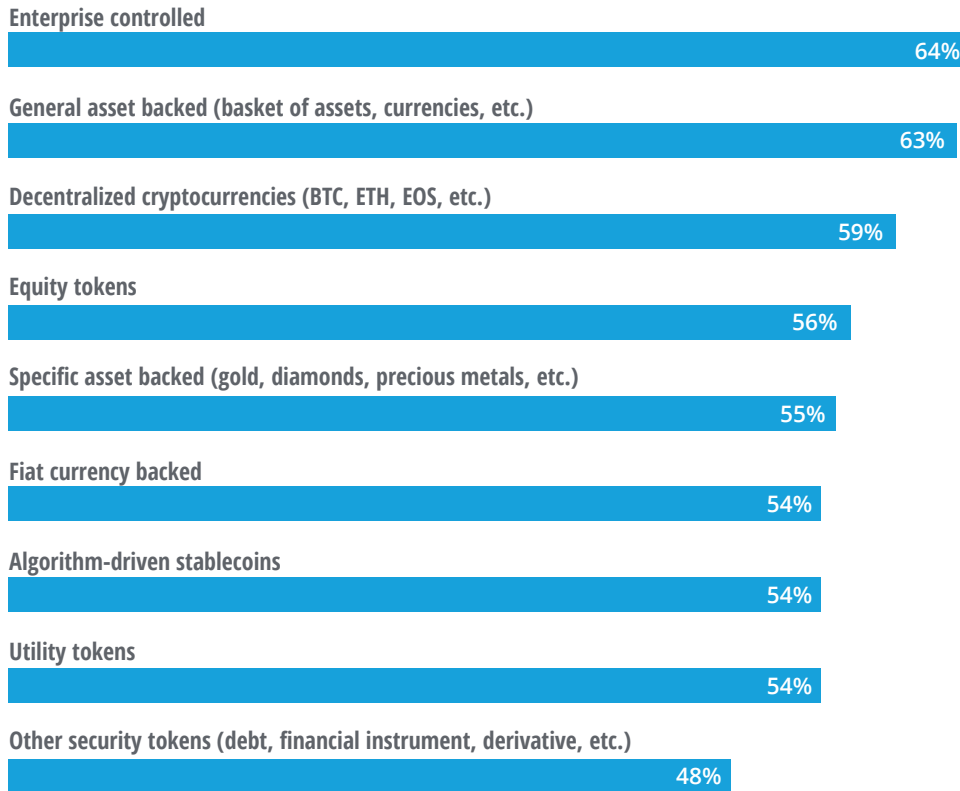
FIGURE 4

Which digital assets are most under consideration?

Respondents are open to using an array of digital assets in their business models.

Q. Are you considering the use of the following digital assets in your business model?

■ Percentage of respondents who considered using the digital assets in their business models



Note: N=1,488.

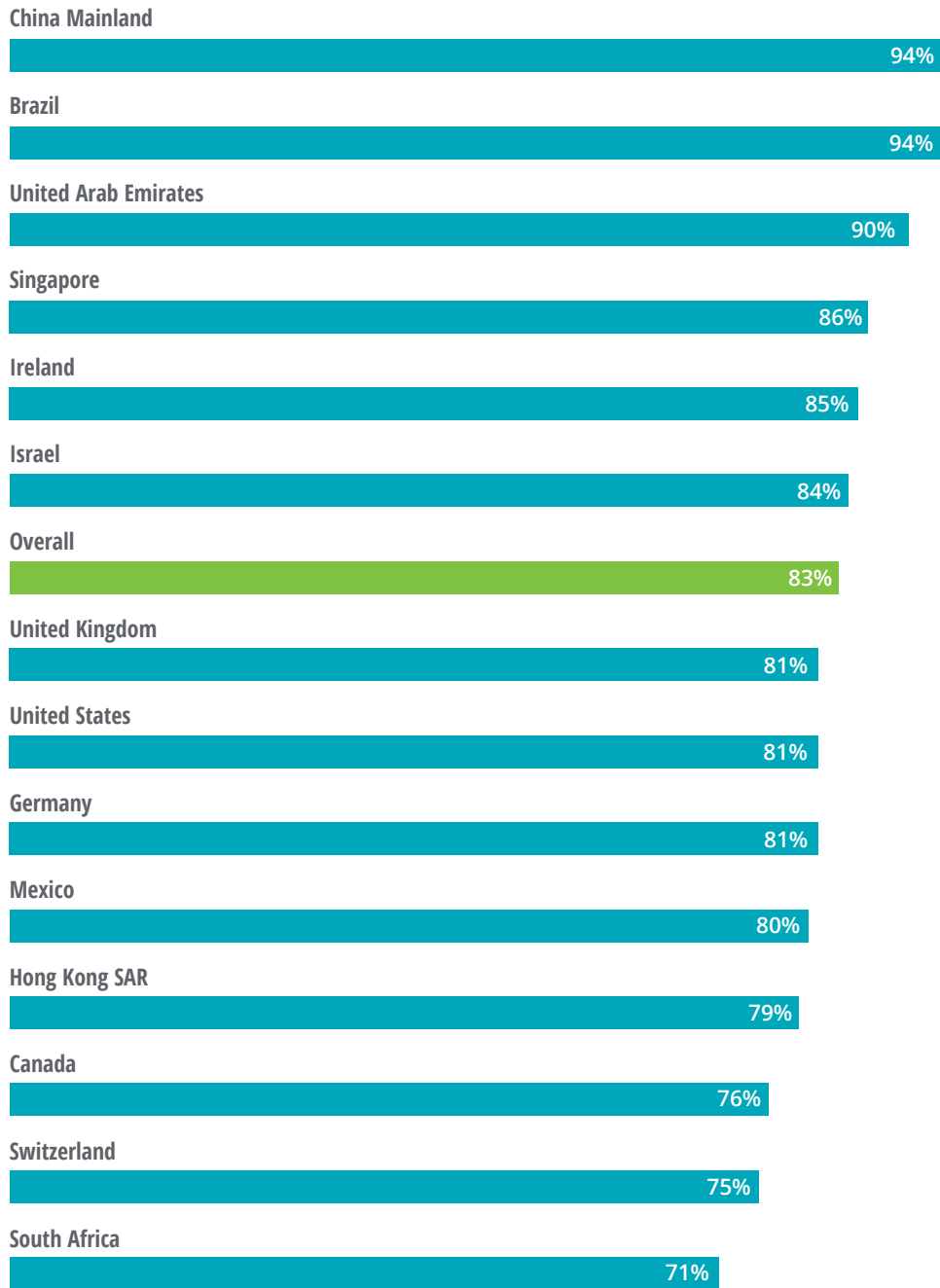
Source: Deloitte's 2020 Global Blockchain Survey.

FIGURE 5

Digital assets as alternative to or replacement for fiat currencies, by country

Brazil, China Mainland, and UAE lead the countries and regions that consider digital assets a promising alternative to or replacement for fiat currencies.

■ Percentage of respondents who strongly or somewhat agree that digital assets will be an alternative to or replacement for fiat currencies in the next five to 10 years.



Note: N=1,488.

Source: Deloitte's 2020 Global Blockchain Survey.

Cybersecurity

IN ADDITION TO the tax and regulatory concerns surrounding the increased use and adoption of digital assets, 66% of survey respondents also expressed concern that cybersecurity issues may be further hampering the widespread acceptance and use of these tools, more than any other source of concern. A majority (58%) said that cybersecurity is one of several issues that affects their overall blockchain- or digital assets–related strategy. Somewhat surprisingly, only 21% of respondents said that cybersecurity issues are, in themselves, enough to prevent progress in their blockchain or digital assets strategies. In the real world, this means that organizations might be concerned about cybersecurity but that they may not fully recognize the importance of preparedness measures they should take to alleviate cyber threats.

This dichotomy is further borne out in a simple search of the latest news, which shows what often appear to be monthly—if not weekly—reports on data breaches at large organizations that result in the theft of valuable private financial, health, and other personal information. As a result, there is growing concern—not only about how to best protect systems from being attacked but about who owns and is, ultimately, responsible for the information being sought. And, in the process it seems, people are trying to figure out the difference between cyber myth and reality.

The split between myth and reality is also intrinsic to the blockchain story and its ability to deter cyberattacks. On the one hand, blockchain’s inherently cryptographic character offers at least some measure of assurance that the foundational blockchain platform is safe from cyberattack. And the distributed nature of blockchain suggests a

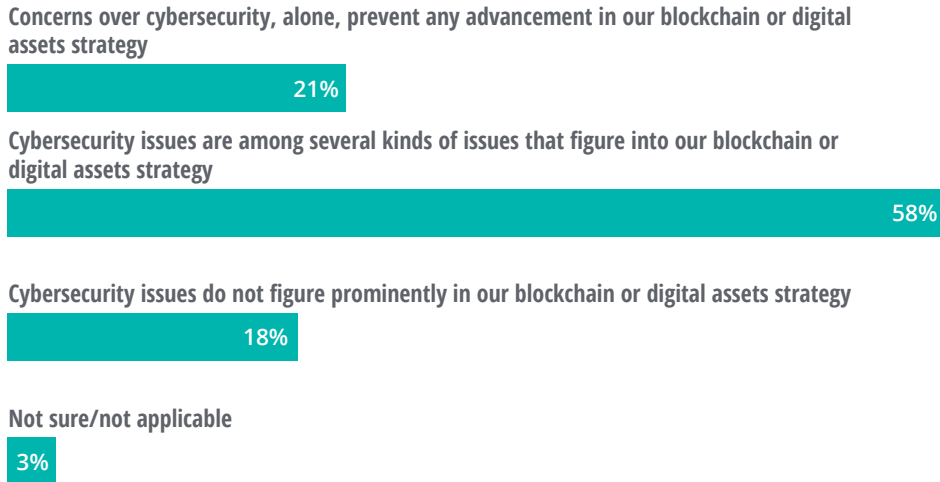


FIGURE 6

How cybersecurity is affecting blockchain or digital assets strategy

Cybersecurity issues figure in most organizations' blockchain or digital assets strategy; however, only around one-fifth see cybersecurity concerns alone preventing them from advancing that strategy, suggesting some balancing of concerns.

Q. How do cybersecurity issues affect your organization's blockchain or digital assets strategy?



Note: N=1,488.

Source: Deloitte's 2020 Global Blockchain Survey.

degree of transparency that would allow for quick detection of an attack. But even a system designed to provide protective assurance is at least potentially vulnerable to the kinds of attacks that have burdened legacy systems in industry and government in recent years. For one thing, attacks can emanate from anywhere at key access points to the blockchain system. And advancements in quantum computing may one day challenge and possibly overcome existing methods of

cryptography that are inherent to blockchain security platforms. Other examples abound.

Unfortunately, organizations' efforts to solve these issues remain a work in progress, and cybersecurity remains a problem in search of a viable solution at the moment. Of course, progress in this area could help allay fears around increasing cybersecurity threats and the relative safety of blockchain-enabled systems. Vigilance remains very much a part of the equation.

Global digital identity

OUR SURVEY DATA underscores the importance that a global digital identity will play in the future. Some 90% of survey respondents believe that such an identity will be very or somewhat important in their blockchain and digital assets strategy moving forward. Nearly two-thirds of respondents (63%) said that a global digital identity will be very important. And a majority of respondents see a global digital identity as having its greatest impact in global financial transactions (29%) and data privacy/ownership (27%).

Somewhat surprisingly, respondents attached far less importance to areas such as law enforcement (5%), health care/patient identity (9%), international travel (7%), and regulatory compliance (7%).

Eventually, we believe these areas may take on greater importance, both for businesses and end users, and play an increasingly important role on the impact that digital identity could have on people's daily lives. Until the general population develops a greater understanding—and acceptance—of digital identity, however, the full benefits provided by this technology will likely remain untapped.

Our survey results also tell another interesting story. While digital identity carries great promise, the path to achieve it is far less direct. The belief that it will be instrumental in fostering global

transactions, delineating personal data ownership, streamlining regulatory requirements across jurisdictions (KYC/AML, anti-terrorist, illegal acts, related parties, etc.), among other impacts, is a promising start—and one worth pursuing, as our survey respondents suggested.

But the reality is that we remain far from achieving success in these areas. Just as global digital identity needs to gain wider acceptance among the

Global digital identity is still, in many ways, based on theory and likely not ready for full-scale implementation. Still, new insights into how it might potentially affect different market offerings and blockchain protocols are emerging and progress continues, if only incrementally.

general public, it also needs to address people's concerns about the safety and unauthorized dissemination of their valuable, personal data. These are, to say the least, difficult challenges to overcome.

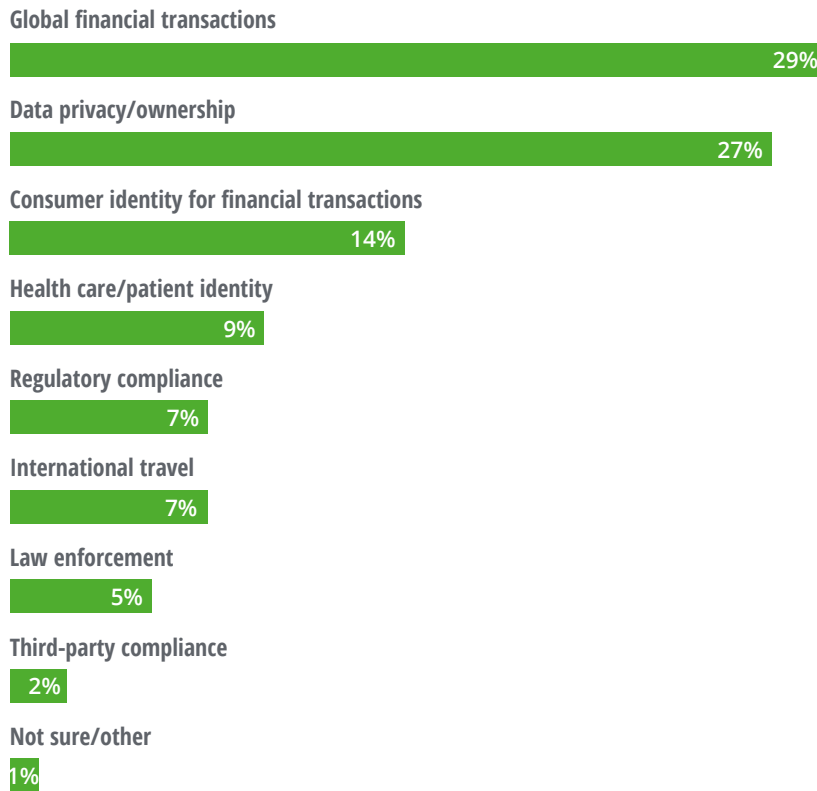
The fact is, global digital identity is still, in many ways, based on theory and likely not ready for full-scale implementation. Still, new insights into how

FIGURE 7

Areas of greatest positive impact of global digital identity

Financial transactions and data privacy top the list of areas that respondents see benefiting most from a global digital identity.

Q. In which area would a global digital identity have the greatest positive impact?



Notes: N=1,488. Total does not add up to 100% due to rounding.
Source: Deloitte's 2020 Global Blockchain Survey.

it might potentially affect different market offerings and blockchain protocols are emerging and progress continues, if only incrementally. While we remain far from a solution in global

digital identity, at least for the time being, we believe it won't be too long until it becomes a widely accepted and utilized protocol across all business sectors.

Regulatory considerations

OUR SURVEY DATA suggests that respondents are generally confident in their ability to meet blockchain-related regulatory requirements. The overwhelming majority of respondents said that they have confidence in their organizations' abilities to meet such requirements across areas that include tax, financial reporting, industry-specific regulations, and securities laws (figure 8). This is consistent with the story surrounding digital assets-related regulations, as discussed above.

An absence of regulatory harmony in a blockchain and digital assets construct offers management, regulators, standard-setters, and professional service providers the chance to work together in forging common guidance and establishment of best practices.

Even so, such levels of self-confidence may belie deeper issues that surround the regulatory challenges that color the blockchain landscape. Blockchain is often based on a multiparty, cross-border architecture, spanning many geographies and their respective regulatory regimes. Simply put, different governments adopt distinctly different

positions on blockchain and digital assets. And many countries and regions have regulations that directly affect blockchain configurations, even if the regulations themselves don't directly relate to blockchain, such as the General Data Protection Regulation (GDPR) that governs privacy within the European Union (EU).⁹ Geographic variability within a blockchain architecture creates further complexity, notably around which laws prevail and when, a dynamic that gets even more challenging as regulations of all kinds evolve and often become more complex.

Indeed, the issue of properly certified financial and process records will only grow as blockchain becomes more widely used and particularly in cross-border configurations. This places a special responsibility on all those who play a part in the financial reporting ecosystem to have the most current skillsets to identify and respond to new and different risks in this environment. It is especially important that those who *lead* organizations remain current in a fast-evolving and often confusing regulatory environment because it is leadership that sets the tone about properly applied standards. For their part, professional service providers who have a sophisticated understanding of the underlying technology and the evolving regulatory complexity that governs its application will play a critical role in assuring compliance.

With greater blockchain adoption across regions and industries, and applications—and regulatory regimes evolving in the process—organizations will need to keep up. Indeed, our survey shows some 70% of survey respondents calling the pace of regulatory change very or somewhat fast. This suggests a degree of awareness of this change.

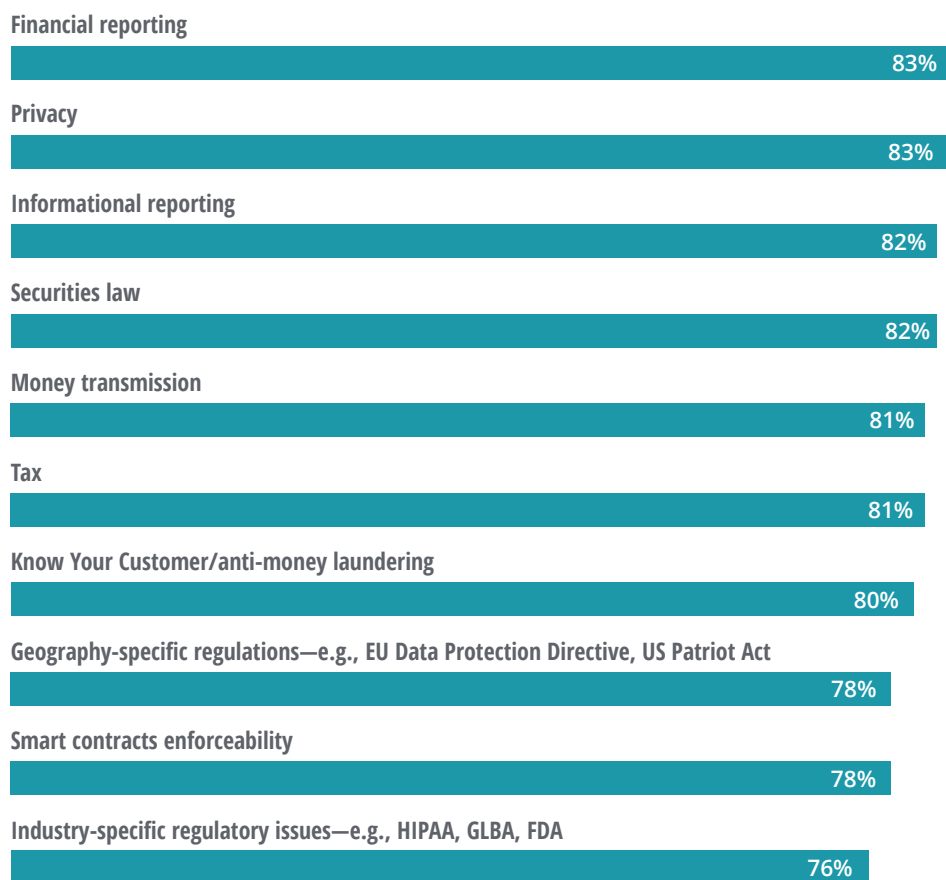
FIGURE 8

Confidence in meeting blockchain regulatory requirements

Respondents are confident that they can satisfy a full array of blockchain-related regulatory requirements.

Q. How much confidence does your organization or project have in meeting these blockchain-related regulatory and reporting requirements?

■ Percentage of respondents who are very or somewhat confident in meeting regulatory requirements



Notes: N=1,488. Percentages equal more than 100 percent because respondents were allowed to submit more than one answer.

Source: Deloitte's 2020 Global Blockchain Survey.

But their overwhelming expression of confidence in meeting this challenge to which we alluded above may veil a measure of complacency that is unwarranted and, in the long term, perhaps untenable.

The good news is that where challenges exist, opportunity is often not far behind. An absence of regulatory harmony in a blockchain and digital

assets construct offers management, regulators, standard-setters, and professional service providers the chance to work together in forging common guidance and establishment of best practices. Engagement among diverse parties may help to engender greater understanding by all who play a role within the global blockchain ecosystem of the attendant risks, responsibilities, and requirements.

Governance in blockchain consortia

THE CONTINUING EMERGENCE of blockchain consortia is further driving the acceptance and implementation of blockchain-based solutions in businesses across the globe.

Our [2019 Global Blockchain Survey](#) showed business leaders fundamentally understanding that joining a consortium could help them address the complexities inherent in implementing new blockchain solutions but were primarily concerned with issues related to the concept of *coopetition* and working toward a common goal with other organizations with which they traditionally compete.

While some of those issues remain this year, this is becoming less of a roadblock in the development of new consortia. Today's conversations revolve more around how consortia are run, how decisions are made, and how profits are shared across the membership. In a [recent article](#) on governance and structuring considerations in blockchain consortia, we focused on four key areas of concern that we believe business leaders need to address before joining or starting a consortium: decision-making authority, funding and revenue sharing, legal structures and risk, and identification and ownership of intellectual property.¹⁰

As our research found, many consortia that begin with good intentions to help its members succeed in their blockchain-related endeavors often fail because of internal infighting and perceived inequities over issues related to the amount of



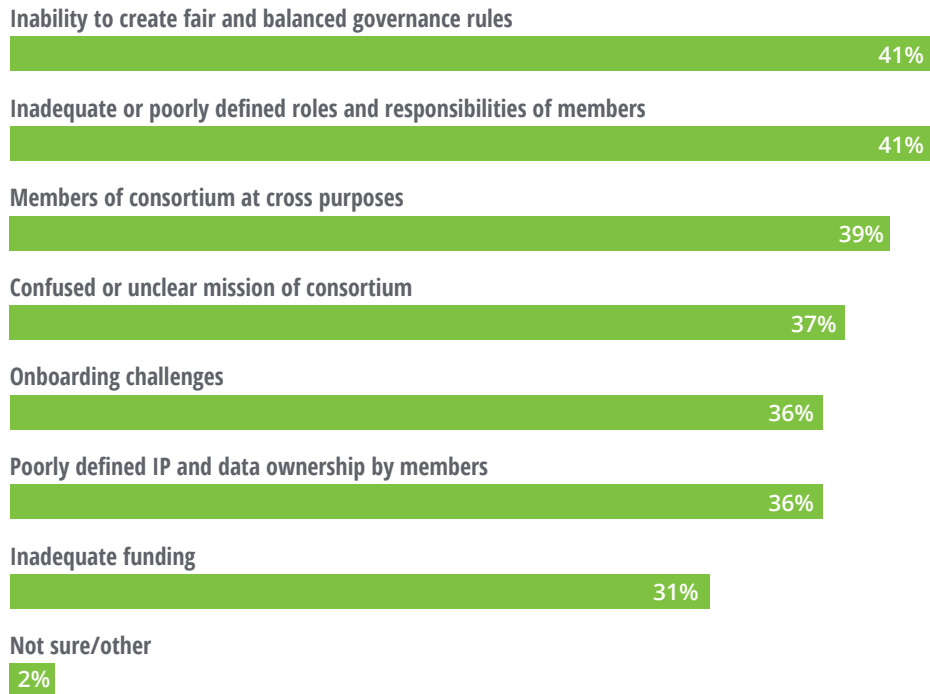
FIGURE 9

Challenges of joining blockchain consortia

Consortia face a full array of challenges to attract new members, with rules and participant roles and responsibilities heralding the list.

Q. What do you feel are the greatest challenges in participation in a blockchain consortium?

■ Percentage of respondents who feel the issue is a challenge in participation in a blockchain consortium



Notes: N=1,488. Percentages equal more than 100% because respondents were allowed to submit more than one answer.

Source: Deloitte's 2020 Global Blockchain Survey.

money and effort that individual members commit, the amount of profit that members receive, and legal considerations that may benefit some members over others.

Because of this, we found that organizations are—for good reason—placing an increasing emphasis on performing due diligence and addressing key

governance-related concerns before agreeing to participate in a consortium. We believe this trend will continue for the foreseeable future, as increased acceptance of the consortium model is crucial to the overall success and growth of blockchain-enabled solutions across business sectors.

Regional analysis

Asia Pacific

In the Asia Pacific region, we continue to see strong belief in the strategic value of blockchain. Much as in our 2019 report, there is widespread recognition of blockchain as an important strategic tool. Also, as with last year, we are finding that some countries and regions are much stricter than others about the free flow of data and information across—and within—their boundaries.

In China Mainland, for example, there remains some trepidation over how cross-border, multiparty blockchain configurations can and will affect their control over their business and governmental data. While cryptocurrencies remain illegal in China Mainland, we continue to find that the importance of private blockchains—and to some extent, permissioned blockchains—cannot be overstated. That said, it's important to note that because China Mainland also has restrictions on cross-border flow of data, it affects where companies set up shop.¹¹ It is also worth noting that despite cryptocurrencies' legal status in China Mainland generally, the country does see cryptocurrencies—and digital assets more generally—as a potential tool to help shake the US dollar's dominance in global financial markets.¹² Toward that end, the Chinese central bank recently unveiled plans for a digital version of the yuan, the Chinese national currency, on a trial basis.¹³

Private blockchains should remain a vital technology pursuit, especially given the size of Chinese industrials, their typically large numbers of subsidiaries, and the vast amounts of data they produce. However, anyone who does business there needs to find ways to accommodate the facts

on the ground, including regulatory realities that could affect their business.¹⁴

Outside of China Mainland, cryptocurrency remains the coin of the blockchain realm in regions such as Hong Kong SAR and Singapore, which have a more accepting ethos about cryptocurrency than China Mainland has. They're competing for a different, freer kind of business and have been going head to head in developing a regulatory landscape that is more conducive to the growing acceptance of cryptocurrencies.¹⁵

While both regions remain highly competitive in this space—albeit at a relative startup stage—they are targeting the same types of investors (crypto players, etc.). Such healthy competition could ultimately accelerate cryptocurrencies' acceptance in the broader marketplace.

European Union

Throughout the EU (including the United Kingdom for our purposes here), blockchain remains a matter of priority, with different markets adopting distinctly positive, albeit different, approaches to the technology. In Germany, blockchain has gained new momentum as policymakers have actively engaged the legislative process. Examples of such legislative initiatives include the publication of a draft law to regulate the offering of cryptocurrency tokens, as well as public support and promotion of lighthouse projects that use blockchain technologies in the national administration. There is also substantial activity around the development of cryptocurrency regulation that might cast Germany as a safe regulatory environment for cryptocurrency activity.¹⁶

In the Nordic region, we're seeing continued growth around DLT, which both local governments and business are using.¹⁷

The UK market is seeing ongoing and increasingly mature activity across key sectors with several substantial projects now live, typically among industries reliant on complex, multiparty, and international supply chains. Additionally, we are seeing a hastening of activity linked to digital assets, both in the traditional sectors as well as in areas such as custody services.¹⁸

Middle East

In the Middle East, the United Arab Emirates is a leader in the adoption of blockchain. In April 2018, the United Arab Emirates initiated a national blockchain strategy with the goal of conducting 50% of government transactions using blockchain by 2021. Similarly, in 2016, the Emirate of Dubai defined a first-of-its-kind blockchain strategy across multiple verticals with the goal of becoming the first government in the world to conduct 100% of applicable transactions via blockchain.¹⁹

There is general optimism that 2020 will see the continued emergence of a strong digital assets ecosystem in the United Arab Emirates, as evidenced by the attraction of global players and the entry of regulated digital asset exchanges in the region.

As we mentioned in our 2019 report, Israel, too, represents a leader in blockchain innovation, and remains a core of entrepreneurial activity. Interestingly, though, a process of introspection and examination about the technology may be underway: Our survey reveals a decline in Israeli respondents characterizing blockchain as a top-five strategic priority (34% versus 40% in 2019), far lagging the figure for overall respondents, at 55%. On the other hand, some 40% of Israeli respondents said they have already brought blockchain into production, comparable to overall respondents, and markedly ahead of last year's response of only 2%.

In the Middle East region outside of the United Arab Emirates and Israel, blockchain generally has seen only early, limited adoption, although the Kingdom of Bahrain is developing a national strategy to promote the adoption of blockchain within public and private sectors.²⁰

FIGURE 10

Select country comparisons

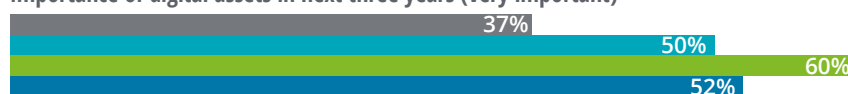
Countries and regions show differing attitudes about blockchain along a number of metrics.

■ China Mainland ■ Singapore ■ UAE ■ Germany

Blockchain technology is broadly scalable and will eventually achieve mainstream adoption (strongly agree)



Importance of digital assets in next three years (very important)



Our executive team believes there is a compelling business case for the use of blockchain technology within my organization or project (strongly agree)



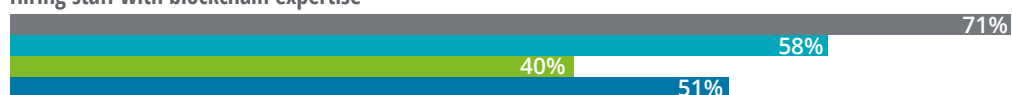
Blockchain as a top-five strategic priority



Already brought blockchain to production



Hiring staff with blockchain expertise



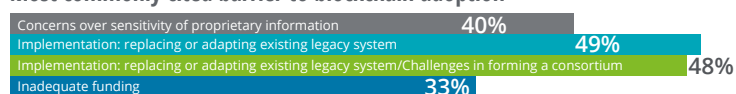
Digital assets will be alternative to or replacement for fiat currency (strongly agree)



Most commonly chosen blockchain use case



Most commonly cited barrier to blockchain adoption



Note: N=211 (China Mainland); 109 (Singapore); 40 (UAE); 141 (Germany).

Source: Deloitte's 2020 Global Blockchain Survey.

Concluding thoughts: The road taken

OVER THE PAST year, we have witnessed progress in the adoption and implementation of real-world blockchain-enabled solutions across a variety of businesses and sectors.

Attitudes toward blockchain have obviously, and measurably, shifted as executives and business leaders implement blockchain-enabled solutions, whether they be through the use of digital assets specifically or innovative applications of blockchain more generally. Organizations have stepped up their investments, demonstrating their commitment to blockchain technologies.

Still, progress along the implementation continuum is not always detectable to the naked eye. Only by looking more closely and viewing how organizations are responding to challenges with cybersecurity; global digital identity; compliance with established accounting, audit, internal control, tax and financial reporting frameworks; and governance and other consortium-related issues

can we see that blockchain has already pivoted from the realm of the possible into the world of the practical. Our survey again demonstrates real *doing* across industries and regions versus mere *planning*, which was a hallmark of our first survey in 2018.

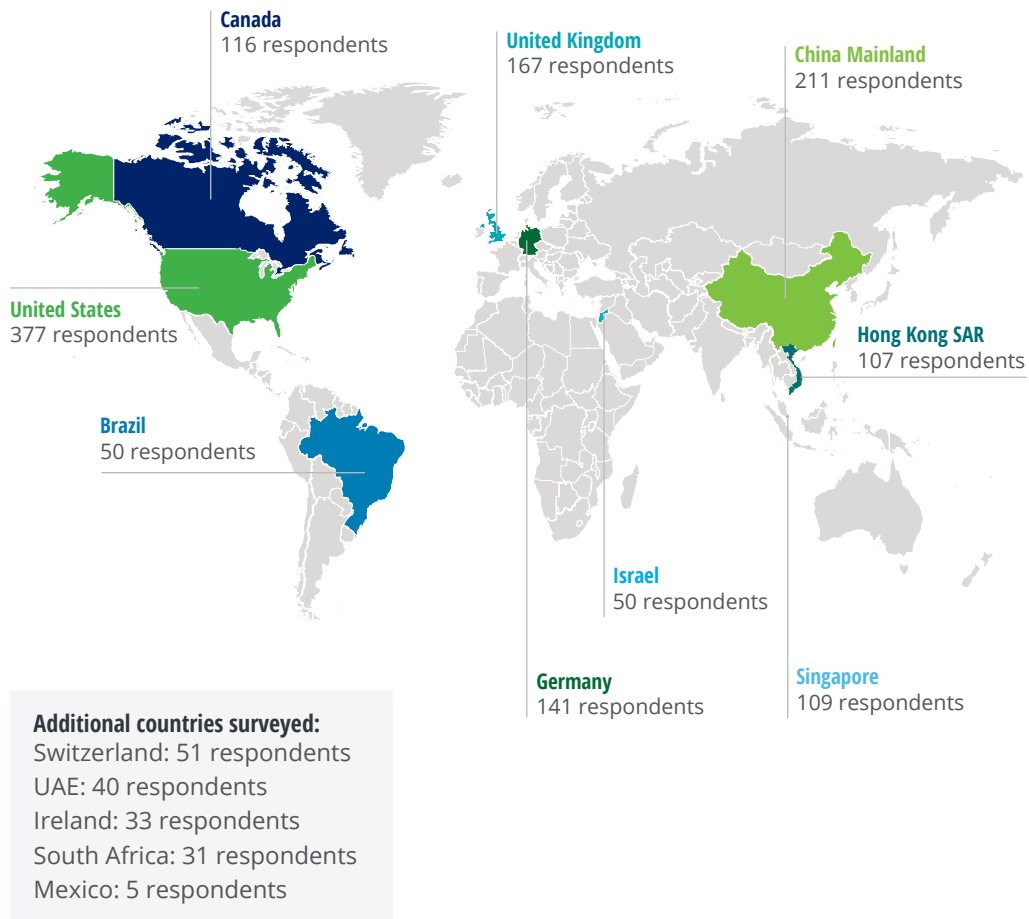
Blockchain was once recognized only as the foundation for cryptocurrency; today, leaders accept it as a robust solution that enables advances in 3D printing, AI, digital security, and beyond. And these are not mere words but hard-dollar strategic investments made by individuals and organizations that view the world through a strategic prism.

Blockchain already is an integral and vital tool upon which—and with which—new, cutting-edge solutions are being created, and we are confident that blockchain solutions will gain even greater traction within the global business community over the next 12 to 24 months.

Appendix

FIGURE A1

To summarize, the survey was fielded in 14 countries and regions and 11 languages (total number of respondents=1,488)



Source: Deloitte's 2020 Global Blockchain Survey

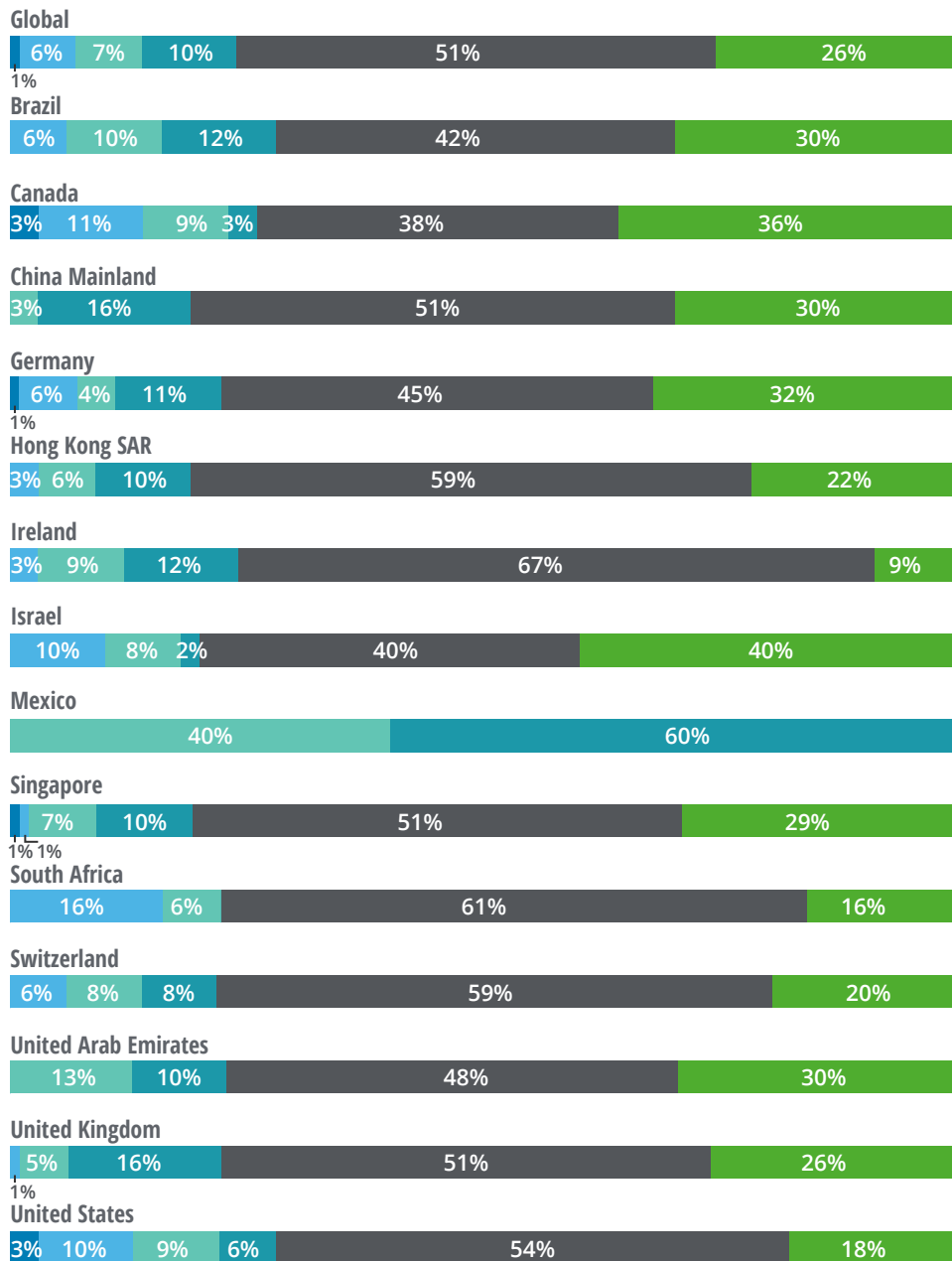
FIGURE A2

Company overall annual revenues in 2019

Respondents are senior-level executives at mostly large companies.

Q. Which of the following best represents your organization's or project's overall annual revenues in 2019?

- Pre-revenue
- Less than \$10 million
- \$10 million to less than \$50 million
- \$50 million to less than \$100 million
- \$100 million to less than \$1 billion
- \$1 billion or more



Notes: N=1,488. Some totals do not add up to 100% due to rounding. All currency figures are in US dollars.
 Source: Deloitte's 2020 Global Blockchain Survey.

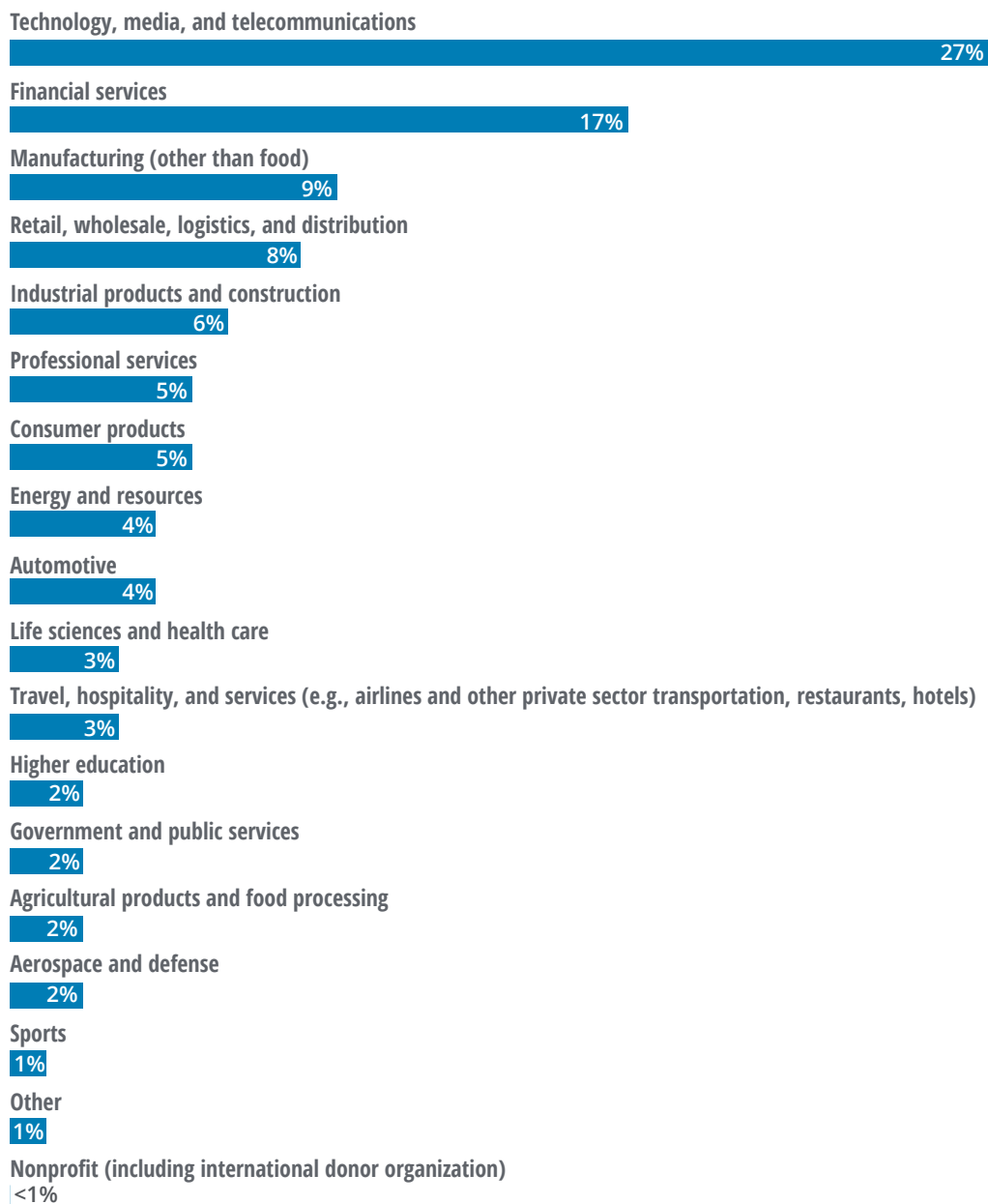
FIGURE A3

Primary operations of organizations by industry

Respondents come from an array of industries, with TMT, financial services, and nonfood manufacturing predominating.

Q. In which of the following industries does the organization you work for or the project you are working on primarily operate?

■ Percentage of total respondents by industry



Notes: N=1,488. Totals do not add up to 100% due to rounding.

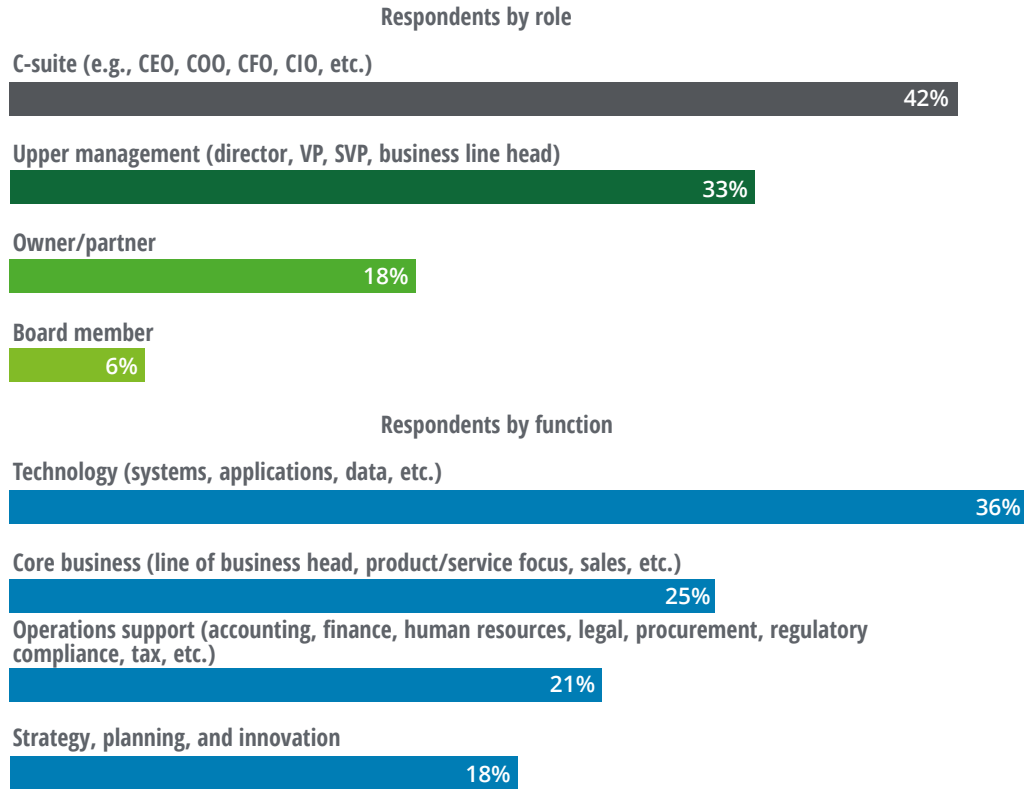
Source: Deloitte's 2020 Global Blockchain Survey.

FIGURE A4

Respondents by job role and function

The overwhelming majority of respondents were from C-suite and upper management; a plurality held technology roles.

Q. Which of the following best describes your current role and functional area?



Notes: N=1,488. Totals may not add up to 100% due to rounding.

Source: Deloitte's 2020 Global Blockchain Survey.

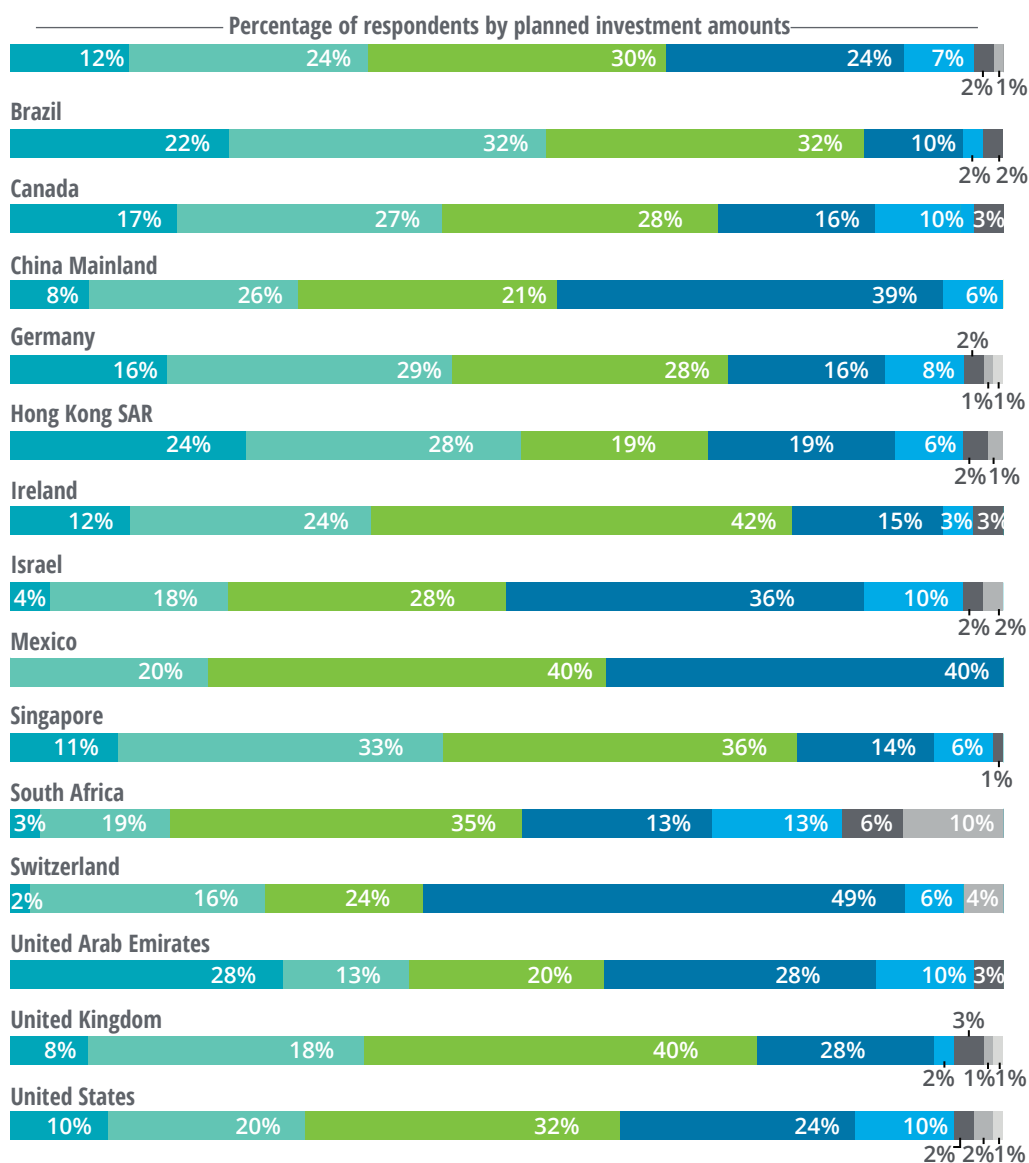
FIGURE A5

Approximate blockchain investment that organizations will make in the next 12 months

Blockchain investment plans are strong, with some 36% planning at least \$5 million in spending over the next 12 months.

Q. Again, thinking specifically of blockchain technology, what is the level of investment that your organization or project is expected to make in the next 12 months?

- \$10 million or more
- From \$5 million to less than \$10 million
- From \$1 million to less than \$5 million
- From \$500,000 to less than \$1 million
- Less than \$500,000
- Not sure
- No investment
- Prefer not to answer



Notes: N=1,488. Some totals may not add up to 100% due to rounding. All currency values are in US dollars.

Source: Deloitte's 2020 Global Blockchain Survey.

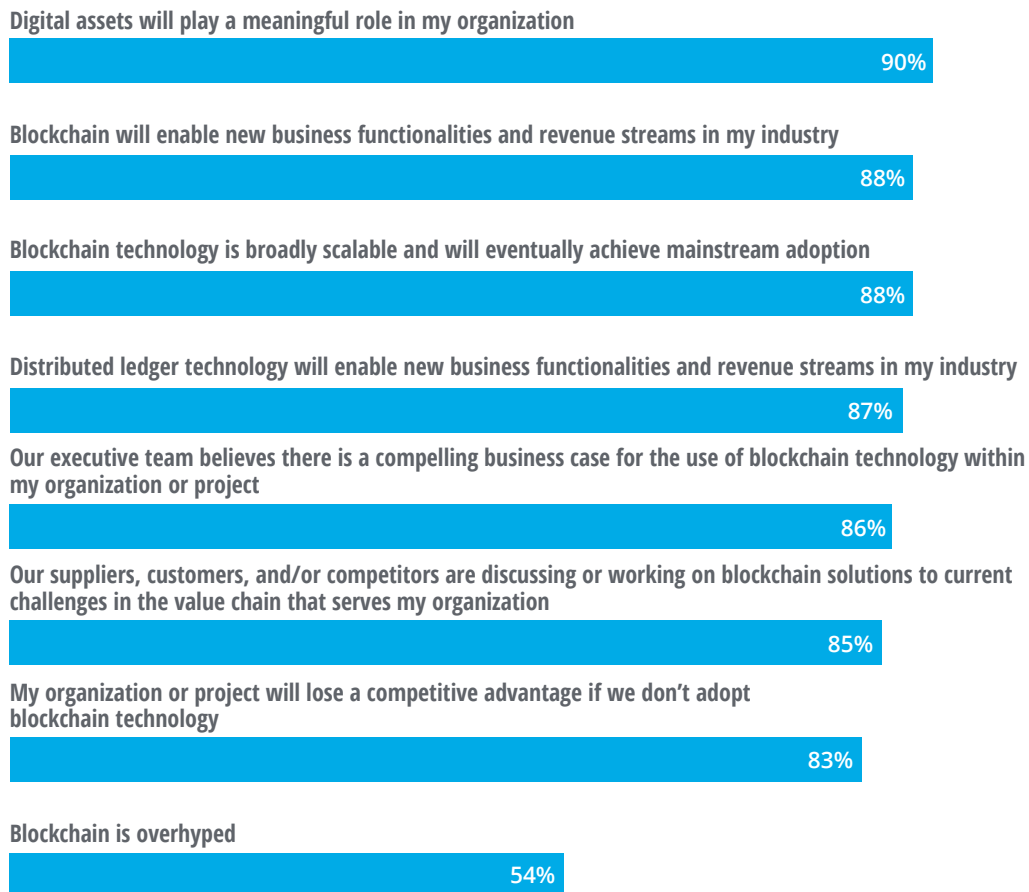
FIGURE A6

Attitudes on blockchain and its adoption

Sentiments about blockchain remain strongly positive, even more so than last year overall, although vestiges of skepticism remain.

Q. What is your level of agreement or disagreement with each of the following statements regarding blockchain technology?

■ Percentage of respondents who strongly or somewhat agree



Note: N=1,488.

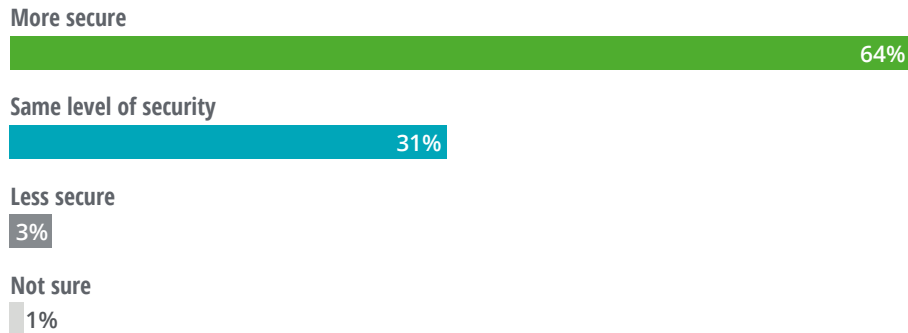
Source: Deloitte's 2020 Global Blockchain Survey.

FIGURE A7

Level of security offered by blockchain solutions compared to conventional IT solutions

Respondents continue to feel that blockchain-based solutions provide greater security than traditional IT approaches, though somewhat less than last year (71% in the 2019 survey)

Q. Do you believe that a blockchain-based solution is currently more secure, less secure, or at the same level of security as systems built from more conventional information technologies?



Notes: N=1,488. Totals do not add up to 100% due to rounding.

Source: Deloitte's 2020 Global Blockchain Survey.

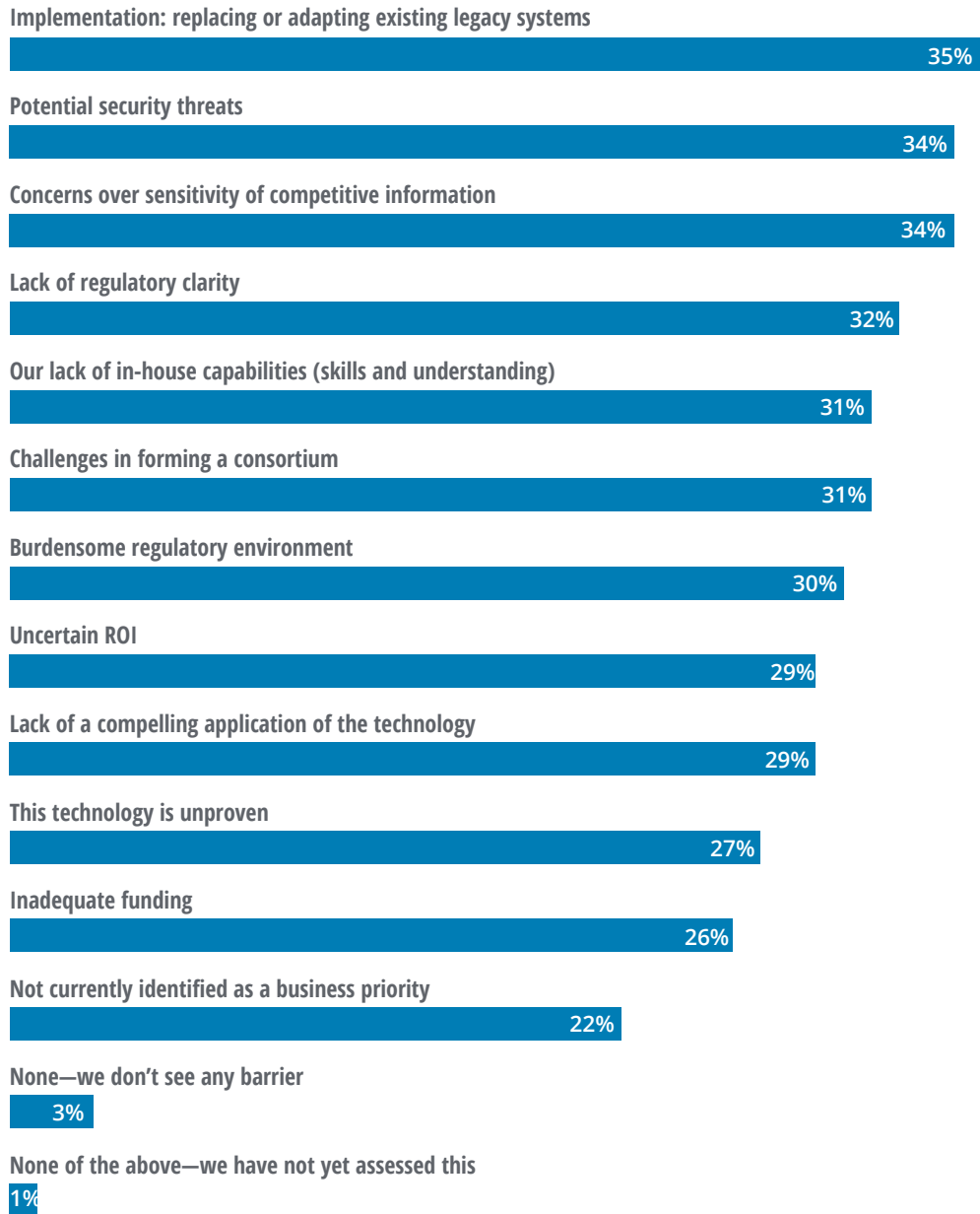
FIGURE A8

Barriers to greater adoption in blockchain technology

Barriers to adoption continue to vary depending on organizations' unique circumstances.

Q. What are your organization's or project's barriers, if any, to increasing adoption and scale in blockchain technology?

■ Percentage of respondents who feel the issue is a barrier to greater blockchain investment



Note: N=1,488. Percentages equal more than 100 percent because respondents were allowed to submit more than one answer.

Source: Deloitte's 2020 Global Blockchain Survey.

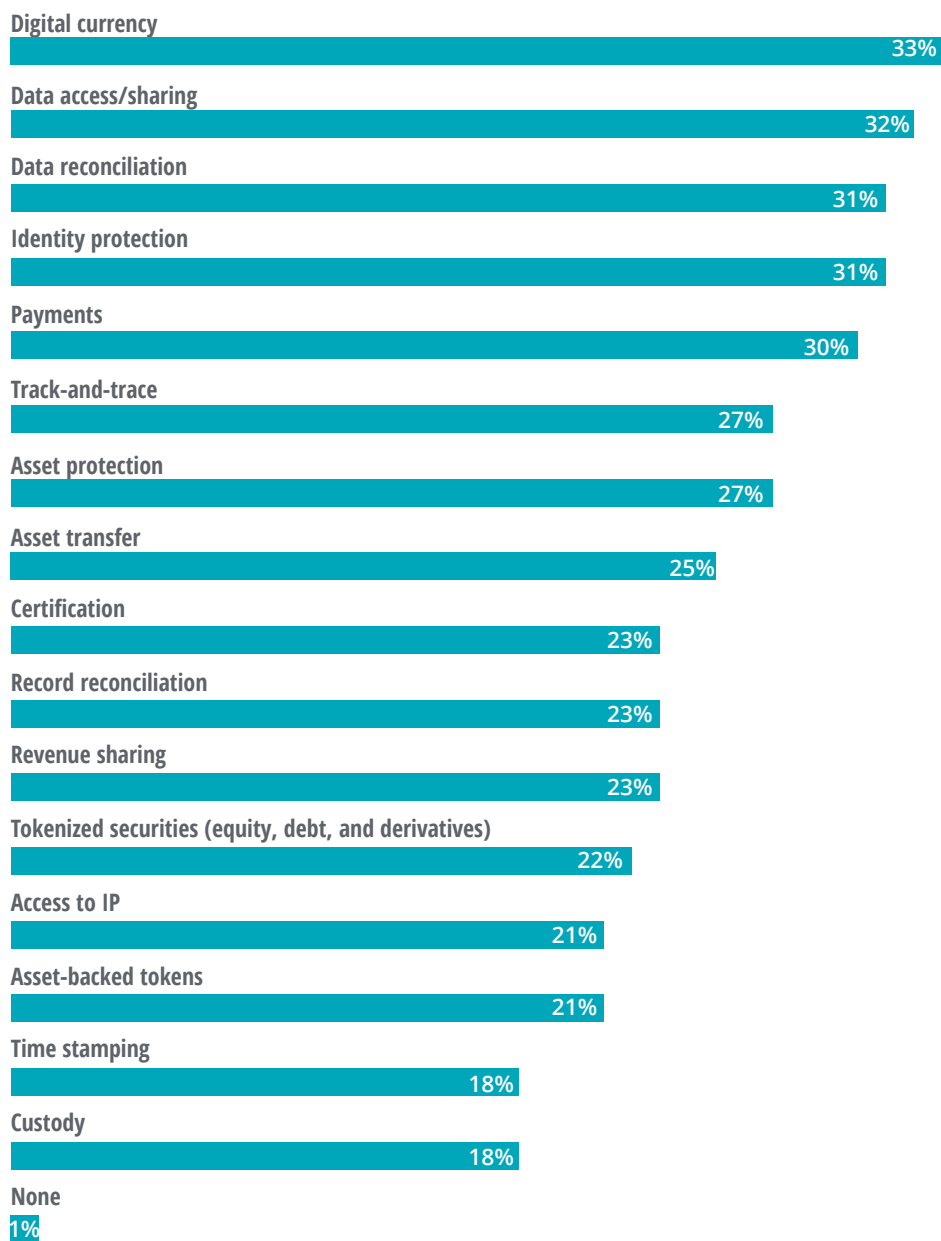
FIGURE A9

Blockchain use cases

A wide array of use cases beyond payments and transactions is receiving attention.

Q. On which of the following blockchain use cases is your organization or project working?

■ Percentage of respondents citing blockchain use case as an area of focus



Notes: N=1,488. Percentages equal more than 100% because respondents were allowed to submit more than one answer.

Source: Deloitte's 2020 Global Blockchain Survey.

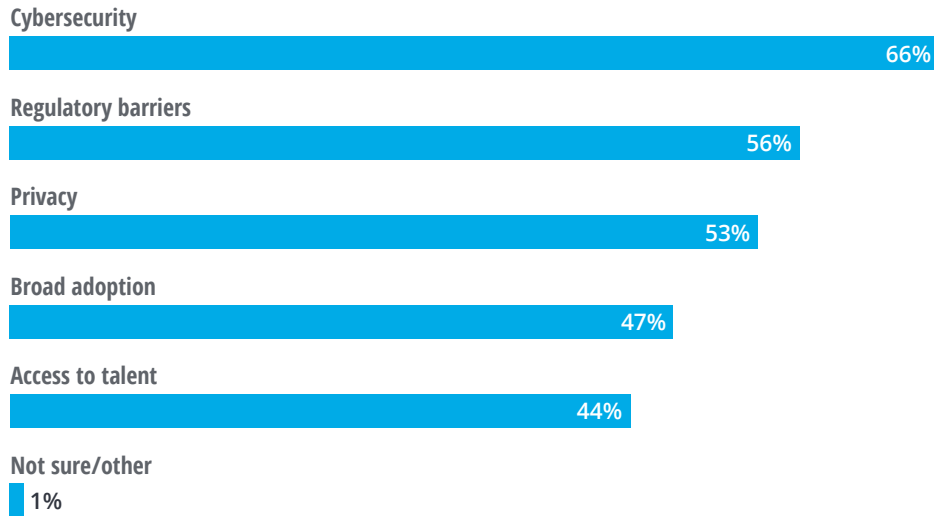
FIGURE A10

Obstacles to acceptance of digital assets

Most respondents cited cybersecurity as the biggest obstacle to the global acceptance of digital assets, markedly more than any other choice.

Q. What do you see as the biggest obstacles to the acceptance of digital assets globally?

■ Percentage of respondents who feel the issue is an obstacle to acceptance of digital assets globally



Notes: N=1,488. Percentages equal more than 100% because respondents were allowed to submit more than one answer.
Source: Deloitte's 2020 Global Blockchain Survey.

Endnotes

1. Linda Pawczuk, Rob Massey, and Jonathan Holdowsky, *Deloitte's 2019 Global Blockchain Survey: Blockchain gets down to business*, Deloitte Insights, May 6, 2019.
2. Deloitte, *Libra: Shaping the evolution of financial infrastructure*, 2020.
3. Matthew Lam, "Exclusive: Deloitte Blockchain Lab on the 3 collaborations with HKMA," *Blockchain News*, August 6, 2019.
4. Deloitte, "Deloitte and China Life Insurance (Overseas) developed the first cross-border Bancassurance DLT platform in Greater China," press release, December 14, 2017.
5. Deloitte, "Deloitte and DNV GL deliver the first blockchain solution in the certification industry," press release, 2020.
6. Deloitte, "What's the thing? A tax lens on the proliferation of digital assets," 2019; Deloitte, *Libra: Shaping the evolution of financial infrastructure*.
7. Patrick Laurent et al., "The tokenization of assets is disrupting the financial industry. Are you ready?," *Inside*, November 19, 2018.
8. Deloitte, "What's the thing? A tax lens on the proliferation of digital assets."
9. Information Commissioner's Office, "Right to erasure," accessed May 15, 2020.
10. Rob Massey et al., "Governance and structuring considerations in blockchain consortia," Deloitte, 2020.
11. Simone McCarthy, "Will China's revised cybersecurity rules put foreign firms at risk of losing their secrets?," *South China Morning Post*, October 13, 2019.
12. Michael J. Casey, "Why the U.S. shouldn't let China dominate the digital currency race," *Fortune*, April 7, 2020.
13. David Pan, "China will 'undoubtedly' pursue digital yuan, central bank says," *CoinDesk*, April 6, 2020.
14. Fan Long, "China is opening doors to blockchain—private and public," *Cointelegraph*, December 30, 2019; Library of Congress, "Regulation of cryptocurrency: China," August 16, 2019.
15. Franca Ciambella and En-Lai Chong, "Blockchain & cryptocurrency regulation 2020: Singapore," *Global Legal Insights*, 2020; Tim Alper, "New Singapore crypto tax rules could help it compete with Hong Kong," *Cryptonews*, July 29, 2019.
16. Ian Hall, "German blockchain strategy aims to head off 'stablecoin' currencies," *Global Government Forum*, October 10, 2019; Federal Ministry of Finance, "German government adopts blockchain strategy," September 18, 2019.
17. Elena R, "Cryptocurrency in the Nordic countries: 2019 results," *CoinPedia*, December 14, 2019.
18. Stuart Davis, Sam Maxson, and Andrew C. Moyle, "Blockchain & cryptocurrency regulation 2020: United Kingdom," *Global Legal Insights*, 2020.
19. United Arab Emirates, "Emirates blockchain strategy 2021," January 16, 2020; Smart Dubai, "Smart Dubai announces achievements of Dubai blockchain strategy 2020," January 26, 2020.
20. Kingdom of Bahrain, "Emerging technologies," October 1, 2019.

About the authors

Linda Pawczuk | lpawczuk@deloitte.com

Linda Pawczuk leads Deloitte Consulting's Global & US Blockchain and Digital Assets group, teams highly regarded for industry experience, technical skillset, and global reach. In her 30-year career, Pawczuk has been recognized for strategic leadership, business collaboration, and successful execution of large, complex global transformation programs—areas central to blockchain's future. She was named by Barron's as one of "[4 Women Who Make a Difference in Blockchain](#)" in August 2018. She has written and presented extensively on blockchain and high-risk and high-impact transformation. Pawczuk is based in Denver.

Jonathan Holdowsky | jholdowsky@deloitte.com

Jonathan Holdowsky is a senior manager with Deloitte Services LP and part of Deloitte's Center for Integrated Research, managing a wide array of thought leadership initiatives on issues of strategic importance to clients within the consumer and manufacturing sectors. His current research explores the promise of emerging technologies such as additive and advanced manufacturing, Internet of Things, Industry 4.0, and blockchain. Holdowsky served as a coauthor of [Deloitte's 2019 Global Blockchain Survey](#), among other blockchain publications. Holdowsky is based in Boston, MA.

Rob Massey | rmassey@deloitte.com

Rob Massey leads Deloitte's Blockchain and Digital Assets efforts in tax for the global firm. He has more than 20 years of professional experience in tax consulting for technology companies including search, SaaS and gaming with an expertise in blockchain, cryptocurrency and tokenization. He serves companies throughout the blockchain ecosystem inclusive of miners, specialty chip design and manufacturing, payment processing, wallet hosting, exchanges, ETFs, hedge funds, tokenization, and protocol development. Massey is based in San Francisco, CA.

Brian Hansen | brianhansen@deloitte.com

Brian Hansen is National Audit and Assurance Blockchain and Digital Assets leader for Deloitte & Touche LLP and also serves as the group partner in charge of the Bay Area Audit & Assurance practice. He leads strategic initiatives related to the marketplace, resources and eminence building and has more than 25 years of experience serving large complex global organizations as well as emerging financial institutions including clients in digital assets, securities, banking, fintech, investment and asset management, and specialty finance. Hansen is based in San Francisco, CA.

Acknowledgments

The authors express their deep gratitude to the following for their contributions to the development of this report (in alphabetical order): **Louisa Bai, Soumak Chatterjee, Wilson Yin Pok Cheung, Tim Davis, Selsabila El Moutaouakil, Driss Lahjouji, Rasmus Winther Moelbjerg, Jens Hermann Paulsen, Michael Prokop, Antonio Senatore, Paul Sin, Amy Steele, Peter Taylor, and Tyler Welmans.**

The authors also express their appreciation to the following for the support that made this report possible (in alphabetical order): **Govind Awasthi, Chris Brodersen, Claudina Castro Tanco, Jennie Chang, Carmen Levy, Michael Marzelli, Paige Montgomery, Tracey Parry, Gina Sanchez, and Chuck Stern.**

Contact us

Our insights can help you take advantage of change. If you're looking for fresh ideas to address your challenges, we should talk.

Industry leadership

Linda Pawczuk

Global & US Consulting Blockchain and Digital Assets leader | Principal | Deloitte Consulting LLP
+1 720 264 4854 | lpawczuk@deloitte.com

Linda Pawczuk is the Global & US Consulting Blockchain and Digital Assets leader and a principal at Deloitte Consulting LLP. She is based in Denver.

Rob Massey

Global Tax Blockchain and Digital Assets leader | Partner | Deloitte Tax LLP
+1 415 783 6386 | rmassey@deloitte.com

Rob Massey leads Deloitte's efforts for tax in Blockchain and Digital Assets for the global firm, serving companies throughout the blockchain ecosystem. He is based in San Francisco.

Brian Hansen

US Audit & Assurance Blockchain and Digital Assets leader | Partner | Deloitte & Touche LLP
+1 415 783 8238 | brianhansen@deloitte.com

Brian Hansen is the audit and assurance leader for the US Blockchain and Digital Assets group and is based in San Francisco.

Michael Prokop

US Risk & Financial Advisory Blockchain and Digital Assets leader | Managing director |
Deloitte & Touche LLP
+1 713 982 2998 | mprokop@deloitte.com

Mike Prokop is a managing director in Deloitte & Touche LLP's Energy, Resources & Industrials practice specializing in regulatory and operational risk. He is also the US lead for Blockchain and Digital Assets efforts on behalf of the Deloitte Risk & Financial Advisory practice. He is based in Houston.

Tim Davis

Global Center of Excellence for Blockchain Assurance leader | Principal | Deloitte & Touche LLP
+1 206 716 7593 | timdavis@deloitte.com

Tim Davis leads Deloitte's Global Center of Excellence for Blockchain Assurance and in that role coordinates our global approach to providing assurance over Blockchain and Digital Assets. He is based in Seattle.

Paul Sin

Asia Pacific Blockchain Lab leader | Partner | Deloitte China
+8 522 852 6448 | psin@deloitte.com.hk

Paul Sin has more than 20 years of IT management and consulting experience, currently leading the Asia Pacific Blockchain Lab. He is based in Hong Kong SAR.

Antonio Senatore

Global CTO Deloitte Blockchain Team and EMEA Blockchain Lab | Deloitte Ireland
+3 531 417 2300 | asenatore@deloitte.ie

Antonio Senatore is a senior technology advisor who currently serves as CTO of the Global Deloitte Blockchain Team and leader of the EMEA Blockchain Lab. He is based in Dublin.

The Deloitte Center for Integrated Research**Jonathan Holdowsky**

Deloitte Center for Integrated Research | Senior manager | Deloitte Services LP
+1 617 437 3198 | jholdowsky@deloitte.com

Jonathan Holdowsky is a senior manager with Deloitte Services LP and part of Deloitte's Center for Integrated Research, leading thought leadership initiatives that explore the promise of emerging and disruptive technologies. He is based in Boston.

About the Deloitte Center for Integrated Research

Deloitte's Center for Integrated Research focuses on developing fresh perspectives on critical business issues that cut across industry and functions, from the rapid change of emerging technologies to the consistent factor of human behavior. We look at transformative topics in new ways, delivering new thinking in a variety of formats, such as research articles, short videos, in-person workshops, and online courses.

Connect

To learn more about the vision of the Center for Integrated Research, its solutions, thought leadership, and events, please visit www.deloitte.com/us/cir.

Deloitte.

Insights

Sign up for Deloitte Insights updates at www.deloitte.com/insights.



Follow @DeloitteInsight

Deloitte Insights contributors

Editorial: Matthew Budman, Rupesh Bhat, and Sayanika Bordoloi

Creative: Sonya Vasilieff, Yashita Vedi

Promotion: Hannah Rapp

Cover artwork: Daniel Hertzberg

About Deloitte Insights

Deloitte Insights publishes original articles, reports and periodicals that provide insights for businesses, the public sector and NGOs. Our goal is to draw upon research and experience from throughout our professional services organization, and that of coauthors in academia and business, to advance the conversation on a broad spectrum of topics of interest to executives and government leaders.

Deloitte Insights is an imprint of Deloitte Development LLC.

About this publication

This publication contains general information only, and none of Deloitte Touche Tohmatsu Limited, its member firms, or its and their affiliates are, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your finances or your business. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

None of Deloitte Touche Tohmatsu Limited, its member firms, or its and their respective affiliates shall be responsible for any loss whatsoever sustained by any person who relies on this publication.

About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. In the United States, Deloitte refers to one or more of the US member firms of DTTL, their related entities that operate using the "Deloitte" name in the United States and their respective affiliates. Certain services may not be available to attest clients under the rules and regulations of public accounting. Please see www.deloitte.com/about to learn more about our global network of member firms.