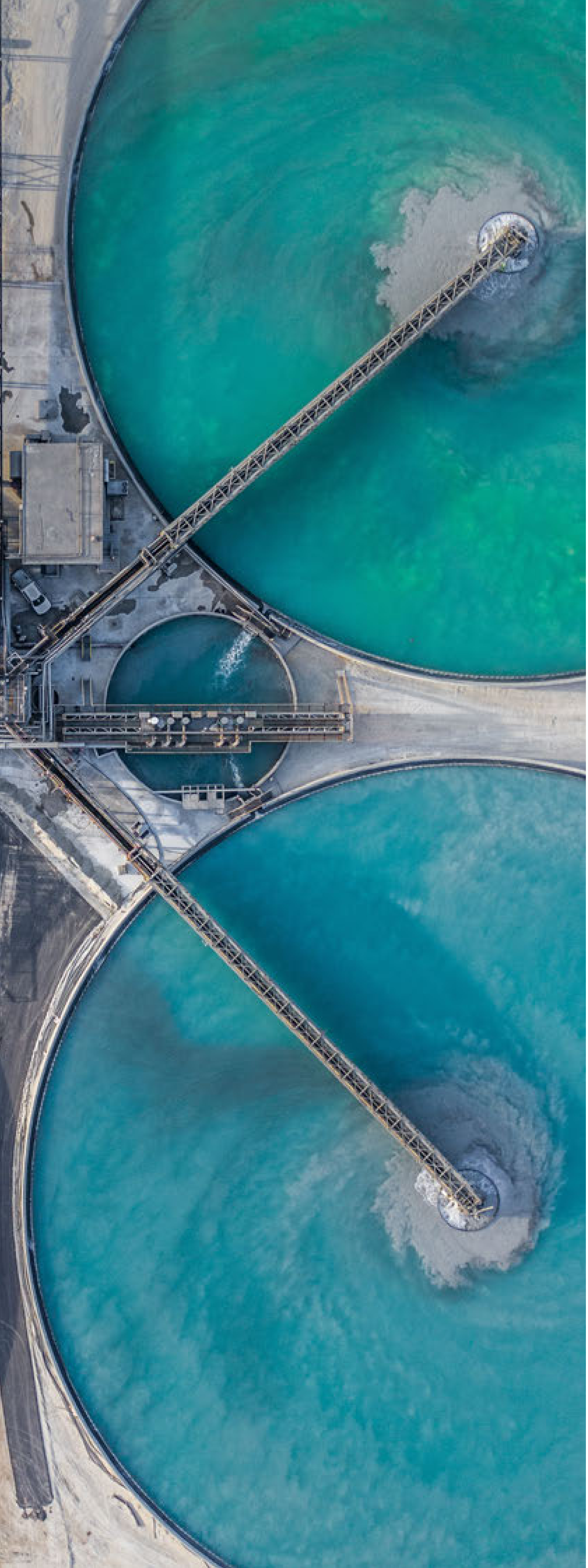
# US infrastructure 2021 – 22: The path to growth

Our survey shows investment in infrastructure assets looks set to accelerate with an anticipated boost from the US infrastructure bill and a growing focus on sustainability and technology



## Contents

# Foreword

The US infrastructure market is at a critical juncture. President Biden's approximately US$1 trillion plan for investment in key infrastructure asset classes has attracted bipartisan support. That paves the way for large-scale spending across the country, with investment in transport, energy and power, water and digital connectivity at the center of proposals that offer the prospect of fundamental transformation.

President Biden's plans reflect a twin imperative: to renew and modernize US infrastructure, but also to provide further stimulus to the US economy as the recovery from the COVID-19 pandemic continues. The combined effect could be an unprecedented boost for the US infrastructure market.

Against this backdrop, White & Case, in association with Acuris Studios, surveyed key US infrastructure market participants—the public authorities commissioning new projects and the investors, financiers and developers who will fund, deliver and manage them. Our survey results reflect on current market sentiment, identify the opportunities that participants are prioritizing and pinpoint the challenges.

Boosted by substantial support from the Biden administration and rising demand for infrastructure investment both in the US and internationally, our research reveals that the mood is upbeat with four main findings:

**1. Growth industry**
Respondents see the US as a land of opportunity. Their intentions are to grow not only their investments in US infrastructure, but also the size of their teams.

**2. The COVID-19 effect**
While the majority state that the pandemic had a negative effect on levels of investment in US infrastructure, it also prompted respondents to consider new practices including investing in a more diverse set of assets and improving digital technology.

**3. Sector watch**
While transportation (in particular, roads, tunnels and bridges) is seen as the key investment sector in 2022, social infrastructure has rocketed up the agenda due to the pandemic and the growing influence of environmental, social and governance (ESG) issues.

**4. A connected future**
Sustainability and technology are the watchwords for respondents when it comes to futureproofing their infrastructure investments.

**Methodology**

In the third quarter of 2021, White & Case, in partnership with Acuris Studios, surveyed 85 senior-level investors that have, or plan to, develop/fund/invest in US infrastructure, and 15 public authorities that have awarded or plan to award a PDA, DBOM, DBFOM or lease for the development or replacement of US infrastructure.

Investors surveyed included infrastructure funds, pension funds, sovereign wealth funds, sponsors, developers, institutional investors and commercial banks.

Chapter 1

# US infrastructure: Plans, progress and the path to growth

The global pandemic has not dampened enthusiasm for infrastructure investment in the US. Investors and developers are looking to increase their stakes in multiple sectors and states

Despite the volatility of the past 18 months, global infrastructure has continued to attract significant investment. US infrastructure in particular has been under the spotlight. President Biden's approximately US$1 trillion plan could be the stimulus for both the US economy and for private investment into the asset class. Research group S&P Global estimated that the bill could add US$1.4 trillion to the US economy over the next eight years.

**Pedal to the metal**

While the pandemic undermined confidence in certain asset classes, the long-term profile of infrastructure—and its more reliable income streams—has offered a safe haven. More than a third (34 percent) of investors, financiers and developers in our survey have invested US$10 billion or more in global infrastructure assets over the 12 months ending Q3 2021.

Moreover, investment now looks set to accelerate. Almost half of respondents (49 percent) expect to invest more than US$10 billion in global infrastructure over the 12 months to Q3 2022. That figure includes 15 percent who expect to make investments of more than US$20 billion in the asset class.

This acceleration may reflect both demand- and supply-side drivers. Certainly, as confidence returns in the wake of the pandemic, many investors, financiers and developers are likely to find it easier to make significant new commitments.

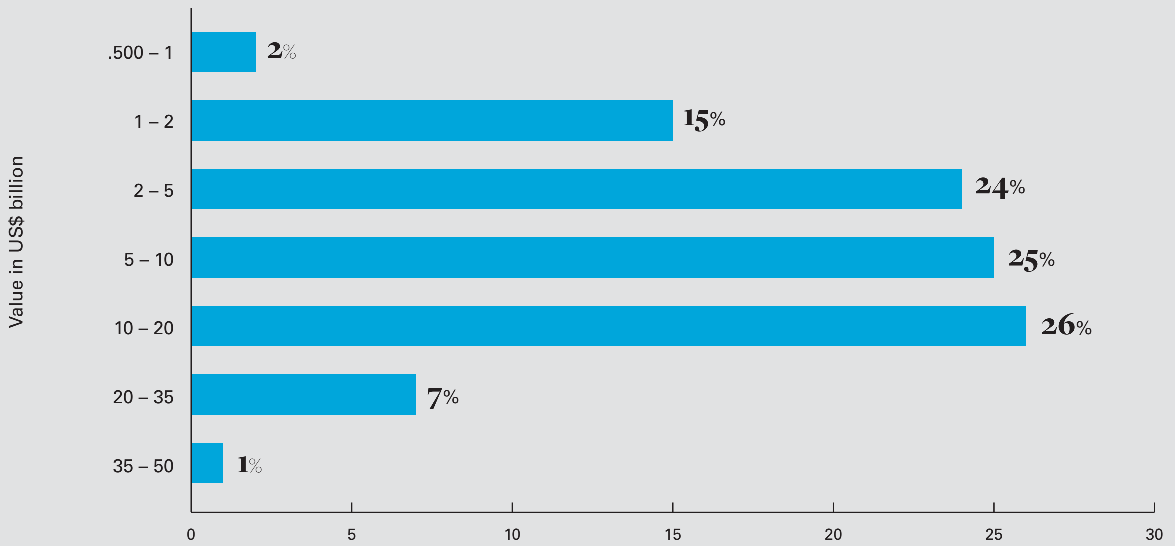
But on the supply side, many of the public authorities surveyed are now considering whether to put delayed projects back on the agenda. Almost three-quarters (73 percent) of these respondents found it necessary to cancel the procurement of a project over the past year. As these projects are resurrected, the opportunities available to infrastructure investors will multiply.

There is also a drastic need for investment in the asset class. A 2021 report from the American Society of Civil Engineers (ASCE) stated that there is an "investment gap of US$2.6 trillion this decade, which could cost the country US$10 trillion in lost GDP by 2039." This necessity breeds opportunity—there is an array of sectors where good returns are available because the need for optimization is so great in the US. For investors willing to turn the dial on asset performance, the prospects are lucrative.

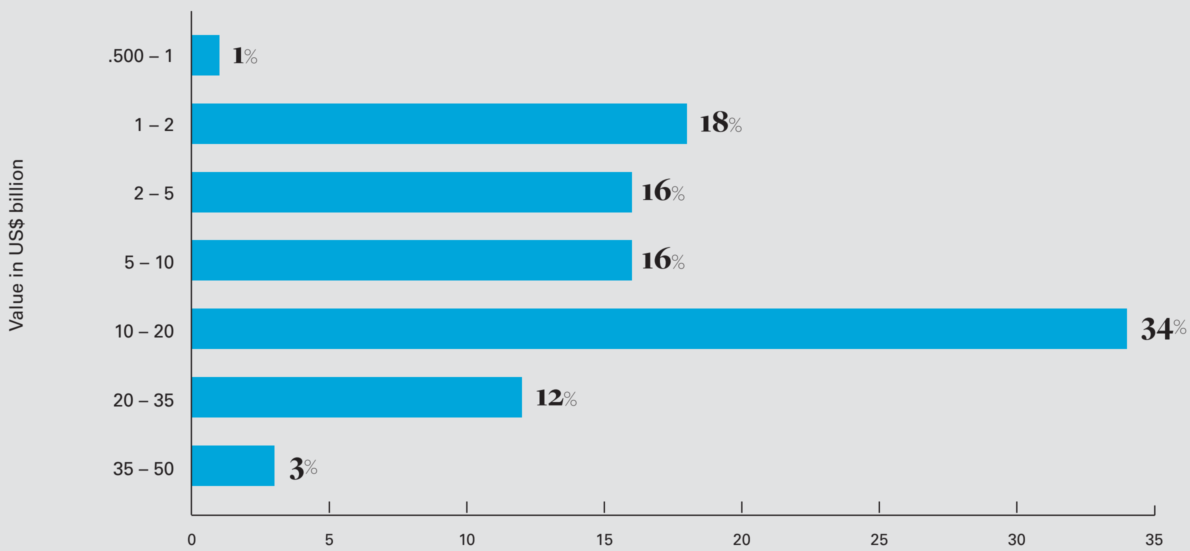
**US $1.4 trillion**

**Estimated sum the infrastructure bill could add to US economy in next 8 years**

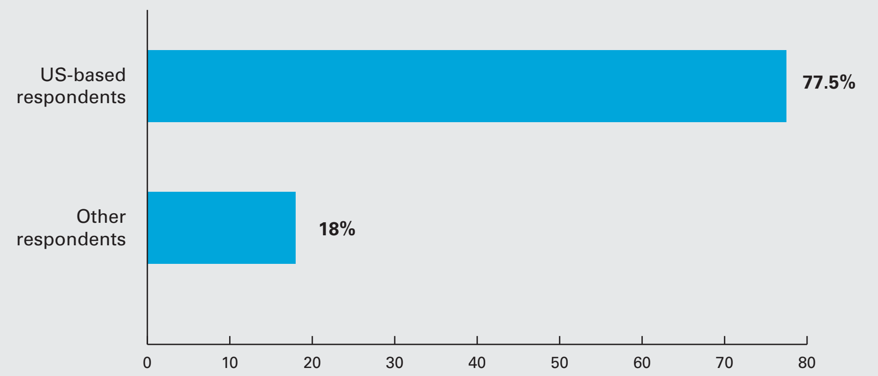
**What was the level of your organization's global infrastructure investment over the past 12 months?**



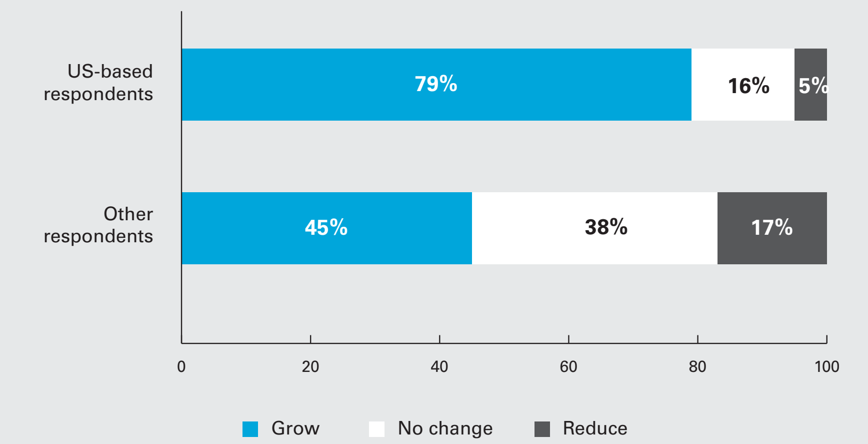

**What do you expect your organization's level of global infrastructure investment will be over the next 12 months?**



**Approximately what proportion of your total infrastructure investment is in the US compared with the rest of the world?**




**How do you expect the size of your team that deals with infrastructure in the US to change over the next year?**




### Home and away

Respondents—both domestic and international—view the US as a key market for infrastructure investment. For US-based respondents, the home market is clearly the first port of call as they search for opportunities. On average, these firms hold more than three-quarters (77.5 percent) of their total infrastructure assets in the US.

However, while non-US firms understandably have higher allocations to global assets, their exposure to the US is significant, accounting, on average, for 18 percent of their infrastructure assets.

Moreover, many respondents, both US- and non-US-based, appear to be gearing up to expand their infrastructure investment resources in the country. Among the former, 79 percent expect their US infrastructure deal-focused teams to increase in size over the next 12 months; 45 percent of non-US respondents say the same (only 17 percent see teams reducing in size).

Clearly, many investors expect to sate their overall appetite for increased infrastructure exposure with a particular focus on US assets. Investors, financiers and developers can see the need for modernization given the legacy issues faced by the US infrastructure sector. A huge leveling up exercise is required to raise standards across a swath of subsectors, from airports and bridges to water and waste water, and these respondents are preparing to put more boots on the ground to deliver on that objective.

### States of play

In terms of regional distribution, much of the infrastructure investment to come is expected by respondents to be focused on a handful of key states. New York (cited by 45 percent of respondents) and California (44 percent) rank one and two respectively as the states where respondents are planning investments over the coming year.

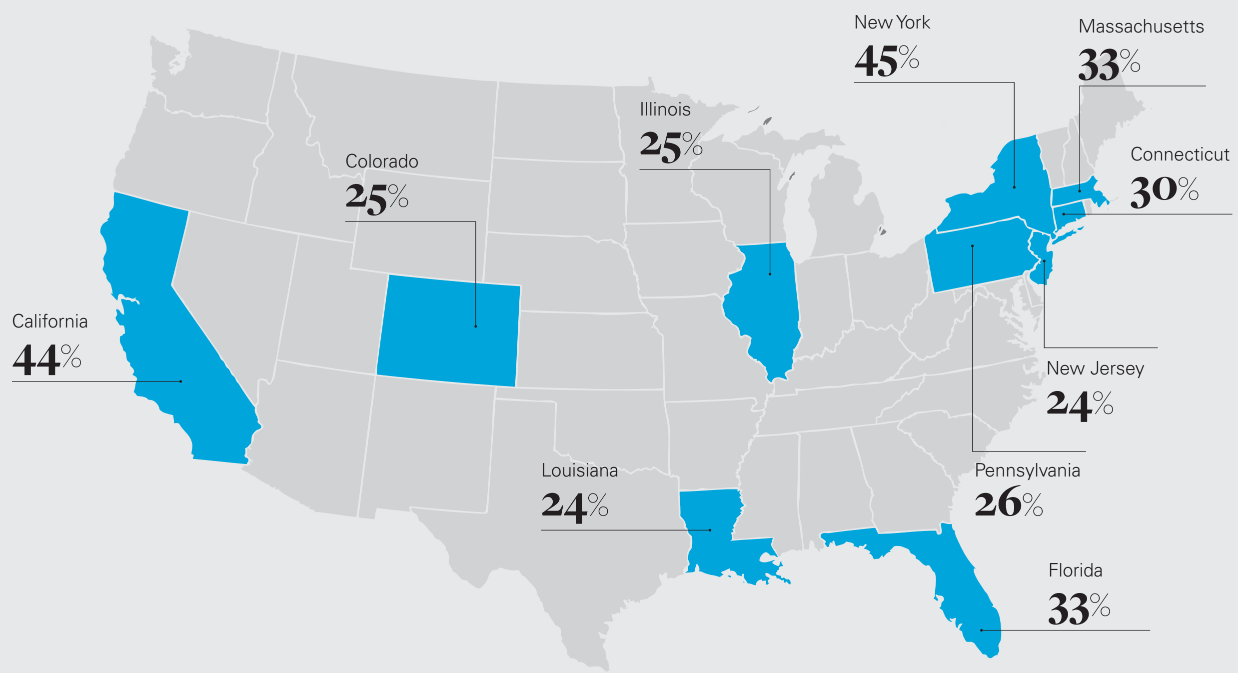
Given the high profile of these states, it is hardly surprising that they feature in the top two, but a look at this year's Infrastructure Report Card, compiled by the American Society of Civil Engineers (ASCE), demonstrates that both are in dire need. The report estimates that 9.9 percent of bridges in New York are structurally deficient, while the condition of California's roads is "among the worst in the nation, ranking 49th according to the latest US News and World Report Ranking." Florida—where 13 percent of roads are in sub-standard condition, according to the ASCE—is also attracting significant interest, with a third (33 percent) of respondents planning investments there over the next 12 months.

These investment intentions largely mirror respondents' views of which states offer the most attractive opportunities, with New York and California topping the survey here. Notably, Connecticut is seen as the third most attractive state for infrastructure investment over the next 12 months, climbing above Massachusetts and Florida.

**45%**

**of respondents are planning investments in New York state**

**In which US states and territories do you plan to invest in infrastructure over the next year?**




"Infrastructure in New York is quite old and with so much emphasis on infrastructure development, things will now change for the better," says the head of infrastructure at one Asia-Pacific–based pension fund. Meanwhile, at a US commercial bank, the head of infrastructure argues: "California is going to see robust investment levels, with smart city and smart building development projects now under consideration, alongside plans for integrated renewable energy facilities."

**Sector watch**

From a sectoral viewpoint, infrastructure investors are interested in a broad range of assets. Roads (and adjacent projects such as bridges and tunnels) are regarded as a standout area of opportunity, cited as a likely area of investment by almost two-thirds of investors (65 percent). Given that surface transportation has the biggest projected funding gap in the country, US$1.2 trillion according to ASCE, if public authorities focus on optimizing these assets with private sector expertise, there should be no lack of investment opportunities.

> **Spending on highways alone is not going to mitigate the underlying issues in the US. Healthcare and childcare support need to be increased**

"The key theme [for the future of US infrastructure] will be the rebuilding of roads," says the head of energy and investment at a pension fund based in the Asia-Pacific region. "Compared to other countries, the US already has good connectivity. But it is important that the government continues to invest."

Many investors are also homing in on less "traditional" areas of the infrastructure market. Social assets such as healthcare facilities and elder-care facilities feature in the investment plans of 55 percent of respondents, for example.

Indeed, when asked which sectors should receive more funding, social needs featured heavily. The director of investment at a pension fund in the US says: "Spending on highways alone is not going to mitigate the underlying issues in the US. Healthcare and childcare support need to be increased."

The climate change agenda is also influencing many respondents' investment intentions, particularly in the context of green energy. Solar and offshore wind, for example, are both regarded as a priority by 29 percent of investors. And 23 percent intend to invest in carbon-capture assets that enable the energy industry to reduce the impact of its activities. For more on ESG and climate change, see *A changing world*, page 13.

## Digital watch

One area in which respondents may lack a certain level of foresight is digital transformation. While a certain percentage of respondents do intend to invest in these assets—28 percent have plans for towers, for example, while 24 percent cite data centers and fiber to homes—traditional sectors are still gaining the lion's share of investment.

However, the pandemic provided definitive proof that the future is digital. If the US is to be at the forefront of digital transformation, then investment must keep pace with China, which is committing between US$1.5 and US$2.5 trillion over the next five years to "innovative infrastructure," according to an announcement by the Communist Party of China at the 2020 National People's Congress.

This is not to underestimate the desire for exposure to the digital economy. Many respondents point to the need for greater support for digital infrastructure.

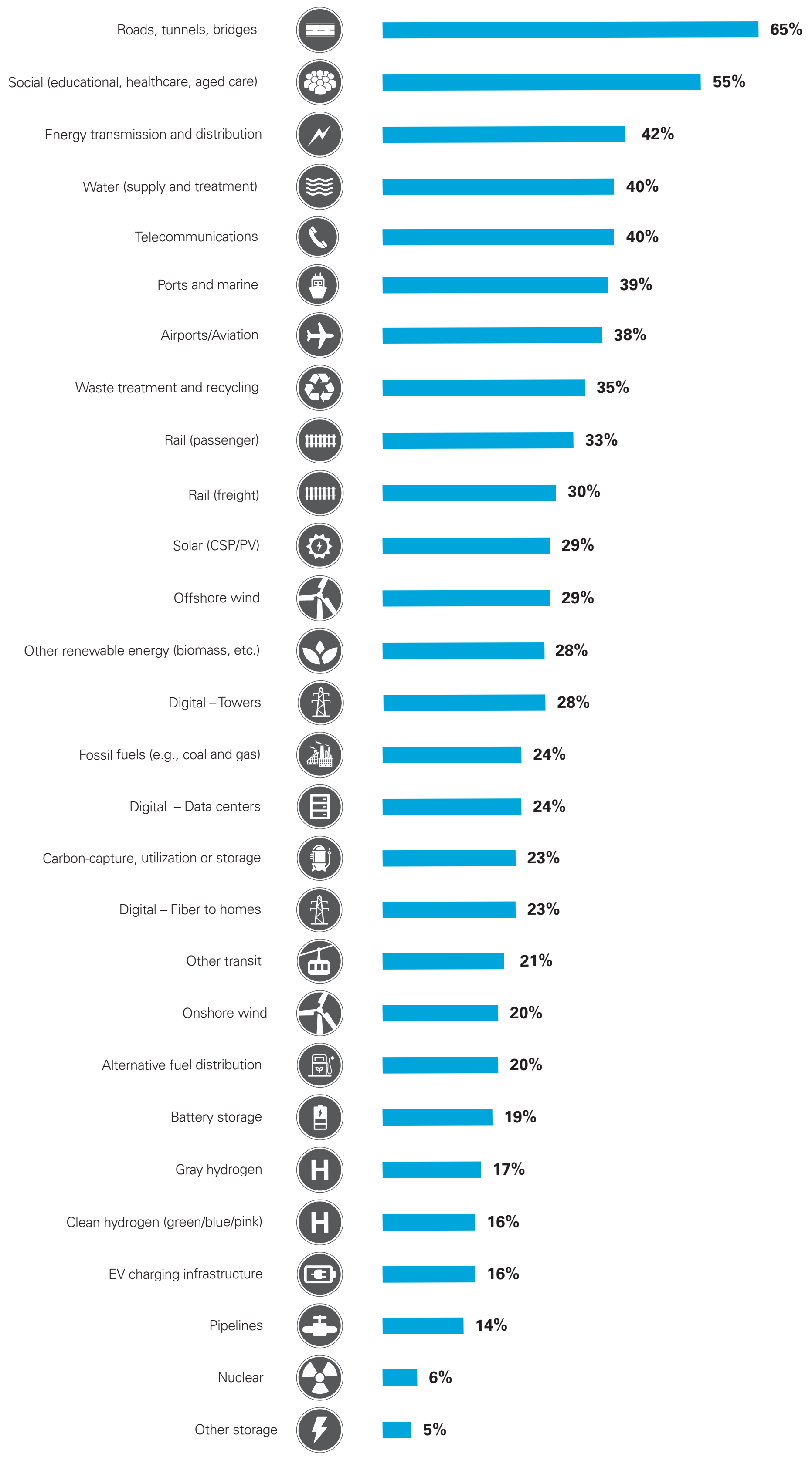
## Happy returns

Meanwhile, respondents continue to identify key benefits of investing in US infrastructure. For those in the US, it is the strength of long-term returns (cited by 48 percent) that stands out, followed by the possibility of developing knock-on or secondary opportunities (46 percent). Indeed, investors are flooding infrastructure funds—according to research group Preqin, US$54.8 billion was raised globally for deals in H1 2021, with US$31.8 billion of that coming in the second quarter (an 88 percent increase on the same period a year earlier).

The political and economic stability that the US offers is also a key benefit. "US projects provide the long-term growth opportunities that other regions might be lacking," says the head of infrastructure at a US infrastructure fund. "The projects are managed well, are cost-effective and procurement is efficient."

Non-US-based respondents see the market slightly differently. More than half (56 percent) single out the possibility of consolidating related opportunities as they pursue infrastructure strategies in the US.

### In which US infrastructure sectors do you plan to invest in 2022?



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# The US is the largest and most influential economy in the world. You do get those competitive advantages when investing there

With so much fragmentation in individual industries and across different sectors, there is a wealth of opportunities in the US market for those with the expertise.

Geographical diversification (44 percent) is the next key benefit for international investors, with US assets representing a foundation stone of their global portfolios. "The US is the largest and most influential economy in the world," says the director of infrastructure at a European investment fund. "You do get those competitive advantages when investing in the US."

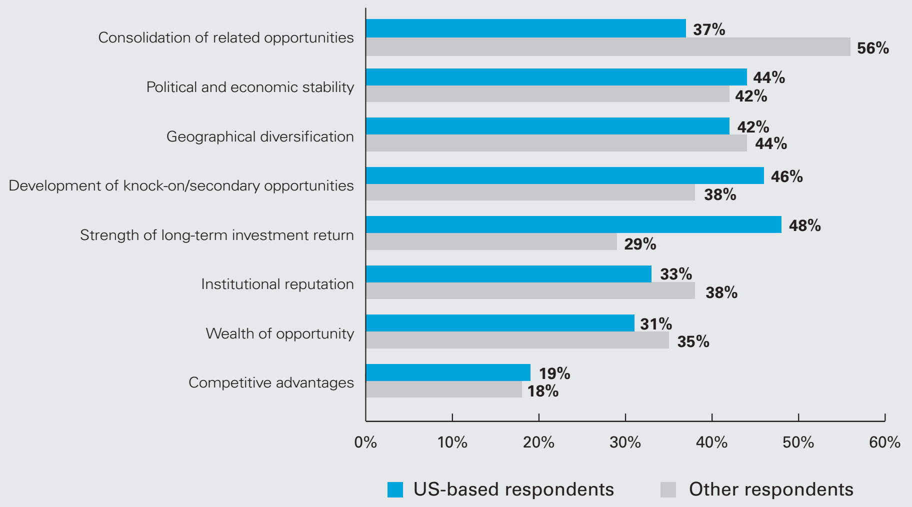
**Facing the challenge**

As for challenges, there are both similarities and differences between US-based respondents and their international counterparts. For example, both groups point to a perceived lack of institutional and governmental support for public-private partnerships (P3) as a key worry. Although, in many cases, this may be more a matter of perception than reality. While there have been some unsuccessful deals, many public authorities support the public-private model and expect to use it for future deals. For more on P3s, see *Delivering the goods*, page 23.

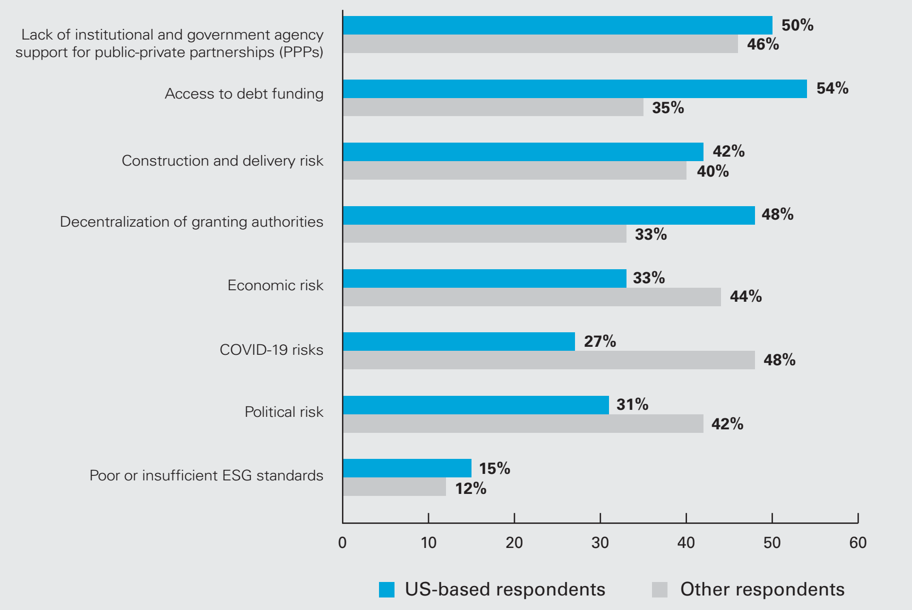
When it comes to differences, respondents from outside the US tend to be more worried about big-picture issues. For example, 48 percent of these respondents cite COVID-19 risks as a challenge as they consider US infrastructure investment; 44 percent cite economic risk.

This makes sense. For investors, financiers and developers on the ground in the US, it is the granular challenges of infrastructure investment that are now front of mind. Non-US-based respondents face these obstacles too, of course, but are also contemplating macro themes as they make decisions about international asset allocation.

**What do you consider to be the greatest benefits to investing in infrastructure in the US?**




**What do you consider to be your greatest challenges to investing in infrastructure in the US?**

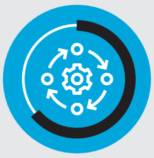


# The COVID-19 effect

The pandemic took a toll on all asset classes in the past two years, and infrastructure is no exception. According to the ASCE, airports (which lost an estimated US$23.3 billion in revenue), roads (revenue from the federal Highway Trust dropped 49 percent in May 2021 compared with the same period in 2019) and wastewater (the pandemic caused a US$12.5 billion shortfall for utilities) are just a few of the sub-sectors hit hard by COVID-19.

Our survey bears this out. Almost two-thirds of respondents (61 percent) say the crisis negatively impacted their level of investment in US infrastructure—and that figure includes 34 percent who strongly agree with this view. Not only did the pandemic undermine confidence, but it made it much more difficult, in practical terms, to do deals, with travel restrictions, lockdown measures and new models of working presenting significant obstacles.

However, according to our respondents, the impacts of COVID-19 have not all been negative, prompting many to consider new opportunities and ways to work differently. For example, two-thirds of respondents (66 percent) say the pandemic prompted them to diversify into new infrastructure asset classes, while 64 percent have improved their investment technology.

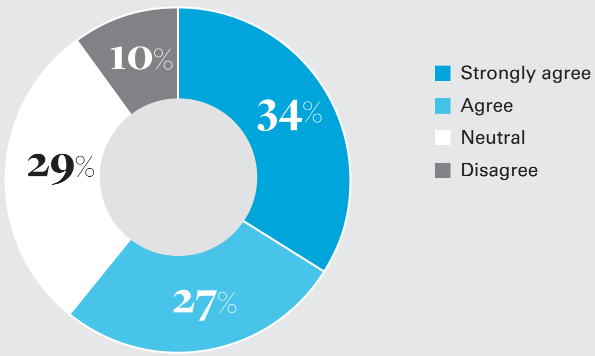


**64%**

**of respondents say the pandemic prompted them to improve their investment technology**

The latter point may be one of the very few upsides of the pandemic. Digital connectivity is now often referred to as a utility, and companies and investors are beginning to realize this. However, digital infrastructure is not regulated as a utility and the developments in the infrastructure market are now outpacing the regulatory framework, with funding pouring into areas such as fiber to the home. The head of infrastructure investment for an institutional debt investor in the US says: "There will be increased focus on digital infrastructure development post-pandemic. Fiber line plans and tower developments are some of the investment opportunities that we would be interested in."

**Please state to what extent you agree or disagree with the following statement: COVID-19 negatively impacted our organization's level of investment in infrastructure in the US**

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**The impacts of COVID-19 have not all been negative, prompting many of our respondents to consider new opportunities and ways to work differently**

## All eyes on ESG

While ESG was on investors' horizon pre-pandemic, COVID-19 pushed the needle into the red. Investors across all asset classes have become more engaged with ESG concerns since the onset of the crisis, reflecting growing awareness of the fragility and interconnectedness of the world in which we live. Data from Bloomberg Intelligence's ESG 2021 midyear outlook shows that ESG assets are on track to exceed US$50 trillion by 2025. And infrastructure is very much part of that mix—56 percent of respondents cited an increased focus on ESG issues as another key change related to the pandemic.

As well as adding to the imperative for climate solutions and the energy transition, the pandemic is likely to make investors more determined to address inequality—with more attention on how to support investment in underserved communities. In a climate context, for example, this may lead to increased investment in flood protection or water management.

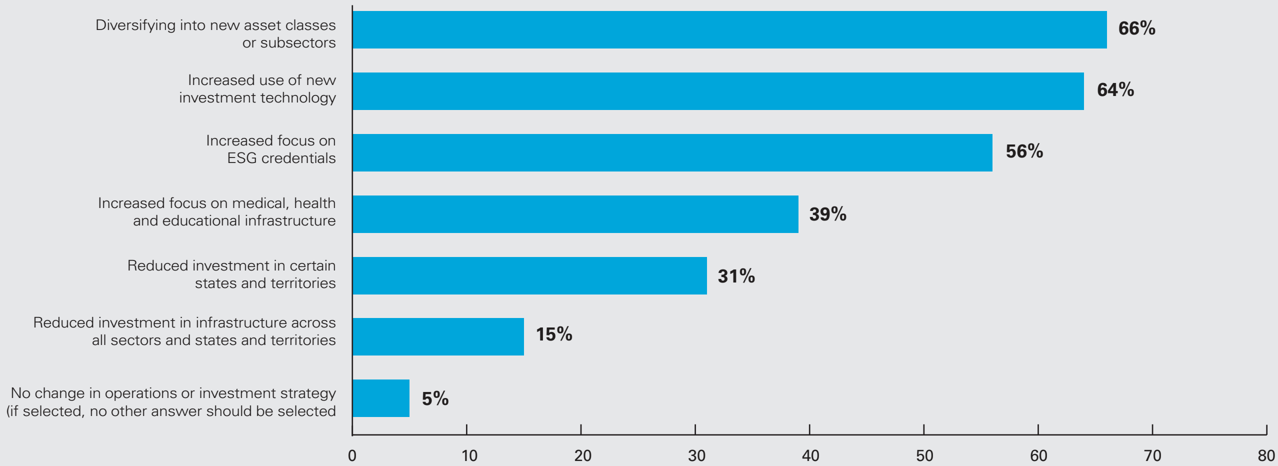
**56%**

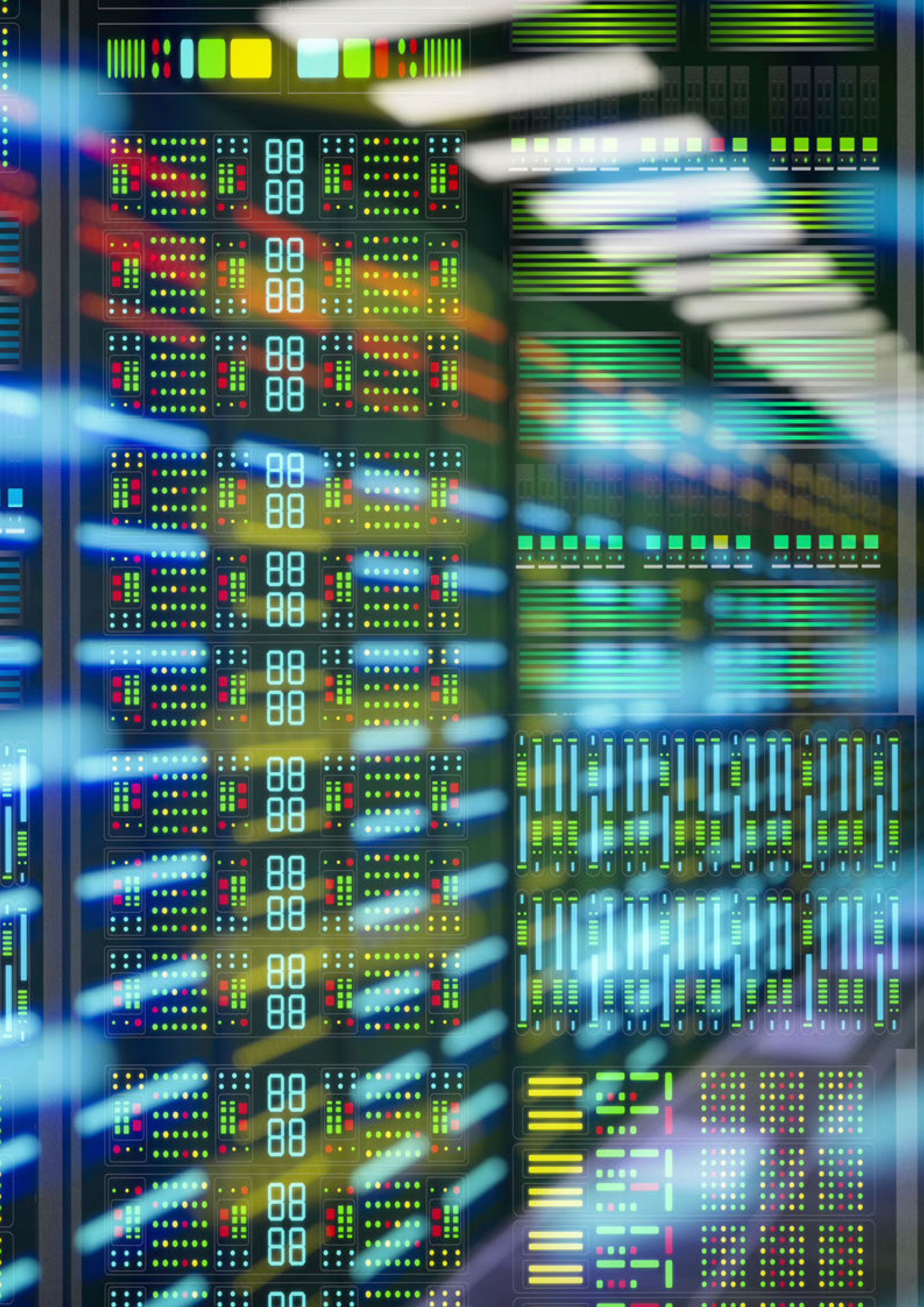
**of respondents cited an increased focus on ESG issues as a key pandemic-related change**

The director of strategy at a US-based developer makes the point quite bluntly: "Clean water and clean air projects need to receive more funding in the coming years."

These changes will likely be enduring. As the global economy recovers from the pandemic, confidence can be restored. And infrastructure investors will be in an ideal position to capitalize on some of the changes made through necessity. For more on ESG and climate change, see *A changing world*, page 13.

**Has COVID-19 resulted in any of the following changes in your organization's operations or investment strategy for the long-term?**





Chapter 2

# A changing world: Technology, ESG and climate change

The pandemic has irreversibly hastened existing trends in the world of infrastructure. Digitalization, ESG considerations and climate change are no longer side issues, they are fundamentals

As the US infrastructure market accelerates, several key themes are set to dominate. One is the question of technology, with even traditional infrastructure assets now incorporating significant innovation. ESG considerations are at the fore too, particularly in the wake of the pandemic. And with the effects of climate change already being felt, this issue is also moving center-stage.

**Future-proofing investments**

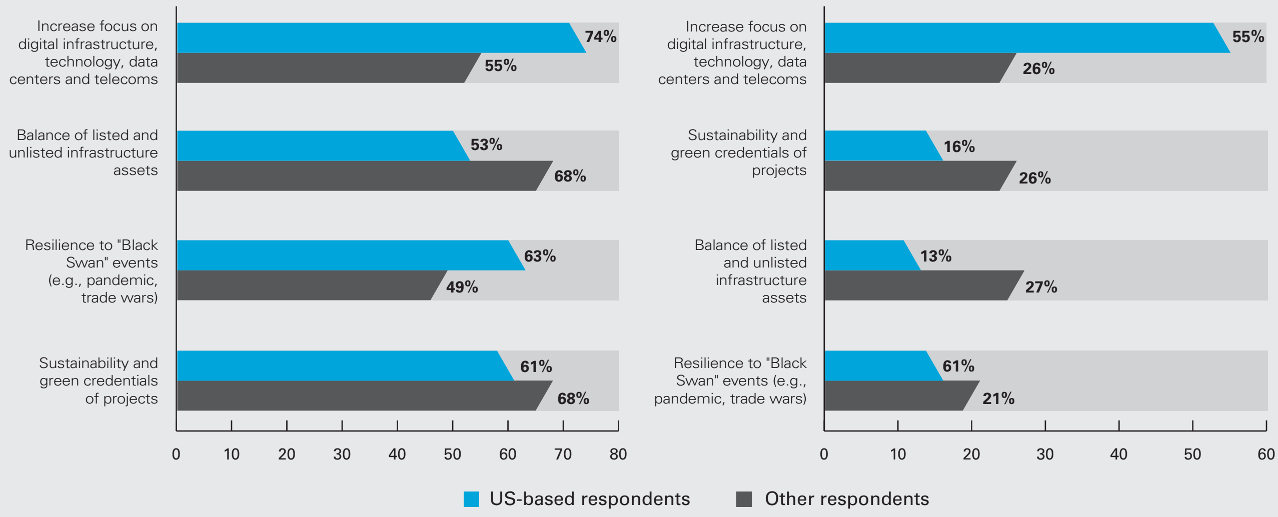
Both investors and commissioning public authorities are increasingly conscious of these concerns as they plan for the future. For example, 68 percent and 61 percent respectively of non-US and US respondents say sustainability is a key consideration as they weigh how to future-proof their investments. The senior managing director of a European pension fund warns: "The green credentials of projects will be key—we do not want to invest in projects that may cause potential damage to the surrounding regions or the environment at large." This is all consistent with President Biden's Build Back Better agenda that looks to address major environmental issues.

74%

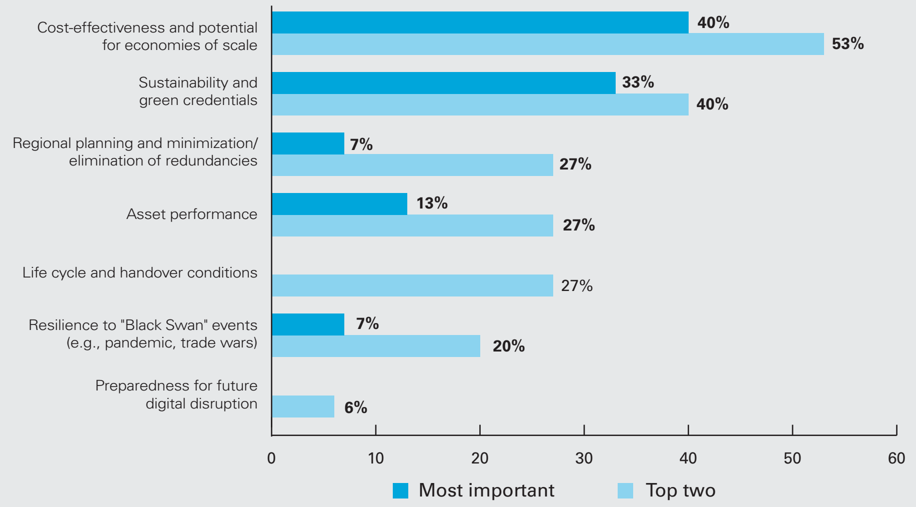
**of US respondents say an increased focus on digital infrastructure is a key consideration**

Almost three-quarters of US respondents (74 percent) point to an increased focus on digital infrastructure as a key consideration, with 55 percent of their non-US counterparts saying the same. "Demand for digital products will increase, so we have to think about the opportunities to incorporate those capabilities," says the director of M&A at one European developer.

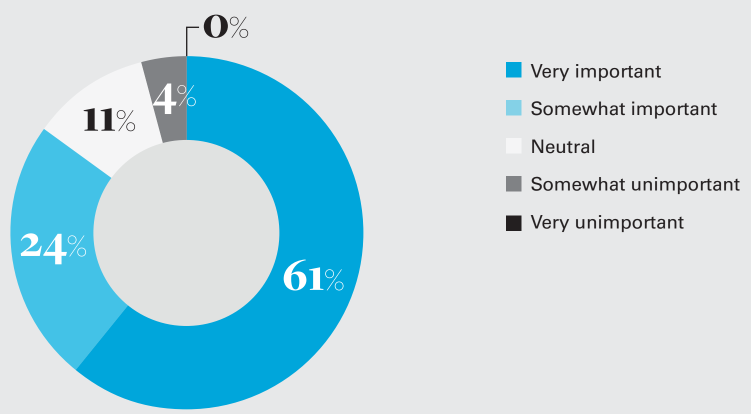
**When investing in US infrastructure, what key considerations do you take to future-proof the investment?**



**When planning the development of infrastructure in the US, what key considerations do you take to future-proof such infrastructure?**




**When contemplating investing in a US infrastructure project, how important are technology considerations to your decision?**




For public authorities, the key priority is to secure cost-effectiveness, potentially through economies of scale, with 53 percent of respondents pointing to this imperative. Clearly, public authorities are determined to secure value for money as they begin to tackle the challenge of revitalizing US infrastructure.

However, other issues resonate in the same way as they do for investors. For example, 40 percent of public authorities see sustainability as a key future-proofing consideration. And 20 percent are focused on resilience to black swan events.

### Fundamental 1: Technology

It is convenient to separate infrastructure investment into traditional sectors—e.g., road networks or energy transmission—and emerging categories—including digital assets. But the reality is far more complex. Convergence is taking place at speed. Road networks, for example, increasingly incorporate multiple examples of smart features enabled by technology, from lane management systems to automated tolling; the energy sector is focused on new solutions in areas such as storage.

Innovations in technologies such as robotics and artificial intelligence (AI) will power the infrastructure networks of the future. And there are clear economic benefits to smart technologies such as AI and blockchain—research from ABI Research found that smart city technologies could drive more than US$20 trillion in economic benefit over the next decade.

In this context, 85 percent of investors, financiers and developers say that technology considerations are a key element in their decision-making process when they contemplate investments in US infrastructure. That includes 61 percent who describe these considerations as very important.

### Innovation, innovation, innovation

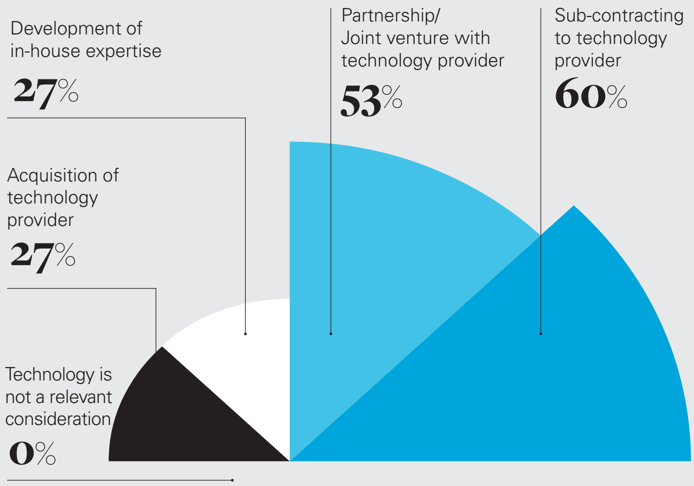
It is not just that stakeholders regard technological innovation as an essential part of the mix in new infrastructure projects—though this is certainly the case—but also that there is significant potential to drive value and even create new business models. For example, local public authorities and their infrastructure providers are focused on how to use digital capabilities to optimize services ranging from transport to waste collection, with a view to minimizing energy consumption and wasted time. In the energy sector, digitalization of the grid offers the prospect of a step-change in efficiency and power management.

**US $20 trillion**

**The amount of economic benefit smart technologies could drive in the next decade**

Moreover, the ongoing trend of urbanization in the US—around 87 percent of people are expected to live in US cities by 2050, up from 75 percent in 1990—will put huge strains on the country's existing urban infrastructure. New technologies have the potential to resolve some of those strains while also supporting sustainability.

## How do you engage with other entities to deliver technological transformation to infrastructure projects?




**Delivery systems**

For their part, US public authorities are excited about what an increased focus on new technology and innovation could deliver for modern infrastructure. However, there are concerns about whether traditional infrastructure providers have the right skill sets to deliver digital transformation.

For this reason, more than half of the public authorities surveyed (60 percent) expect to sub-contract to a technology provider as they consider how to secure the features they want. Many (53 percent) see a key role for partnerships and joint ventures with such providers as they focus on transformation.

This may see new entrants to the US infrastructure market, or new alliances between technology providers and traditional infrastructure players. The interplay between digital and traditional assets will see hybrids emerge. The risk profile of these hybrid assets will also be interesting because there will be assets that have traditionally had a long-life risk profile that will now include a digital element; this element may have the effect of leading to an overall shorter risk horizon because technological developments related to the digital portion of the asset are likely to outpace the economic useful life of the underlying traditional infrastructure asset.

**Fundamental 2: ESG**

As the world seeks to "build back better" from the COVID-19 crisis, ESG issues will likely move center-stage. Even pre-pandemic, environmental imperatives were an increasingly important preoccupation for investors. Between 2018 and 2020, total US-domiciled assets under management using sustainable investing strategies rose to US$17.1 trillion, from US$12 trillion, according to the Forum for Sustainable and Responsible Investment's 2020 trends report.

However, the pandemic has accentuated this trend and emphasized more starkly than ever the interconnectedness of society and the fragility of our world, building awareness of key ESG issues.

Against this backdrop, investors, financiers and developers are acutely aware of the need to factor ESG considerations into their decision-making. Their ability to deliver good ESG outcomes will be a crucial determinant of the success of new infrastructure projects, both commercially and in terms of reputation and brand. Strong corporate governance and attention to the supply chain will be key.

Our survey respondents absolutely get that message.

More than three-quarters describe ESG considerations as important when they are contemplating investment in US infrastructure; that includes 53 percent who regard this issue as very important. "Our investors are very clear—ESG issues are now a crucial part of our due diligence," says the director of strategy at one developer.

Moreover, respondents regard these issues as particularly pressing in the US marketplace.

Some 60 percent say that ESG considerations are more important in US projects than in projects in emerging jurisdictions. "ESG has become a crucial element of our value calculations," says the head of infrastructure at a US-based investor.

One challenge for the infrastructure market in this regard will be staying on top of numerous ESG issues simultaneously, engaging and responding on a broad range of imperatives, rather than only the most eye-catching areas of debate.

**Environmental issues**

In the environmental realm, 49 percent of investors, financiers and developers pick greenhouse gas emissions as a key ESG consideration. Their focus in the future will increasingly be on how to manage emissions in infrastructure projects—and to minimize their carbon footprint even in projects that rely on fossil fuels. The ongoing movement away from fossil fuels and into energy transition and renewables will only increase.

But other environmental issues will be important too. Some 45 percent of respondents single out water and waste management as a key concern—and with good reason. The Environmental Protection Agency estimates that drinking water, wastewater and irrigation systems will need US$632 billion in additional investment over the next decade.

And investors and developers are going further than just "talking the talk," with many signing up to reporting networks including the head of investment at a fund in the Asia-Pacific region who says: "We have signed the UN-backed PRI [Principles of Responsible Investing] because we know the importance of ESG and sustainable investment. When contemplating investments, we will be looking to implement these principles."

**Social factors**

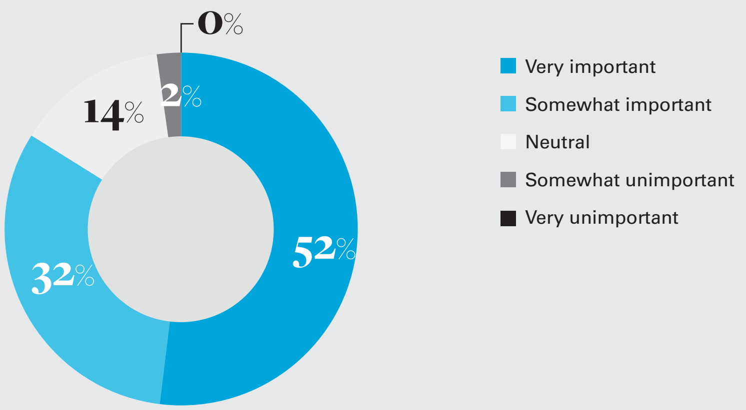
On social issues, meanwhile, the number-one ESG issue is labor standards, singled out by 46 percent (it is the largest concern by some distance—12 percentage points ahead of second-placed fair marketing and advertising). Respondents are acutely aware of the need to maintain high standards both within their own organizations and throughout the supply chain.

This focus on jobs and labor standards is particularly apt, given the emphasis on jobs and labor standards in President Biden's Infrastructure Bill and in *The American Jobs Plan*. Within it, there are a number of references to "strong labor standards" including,

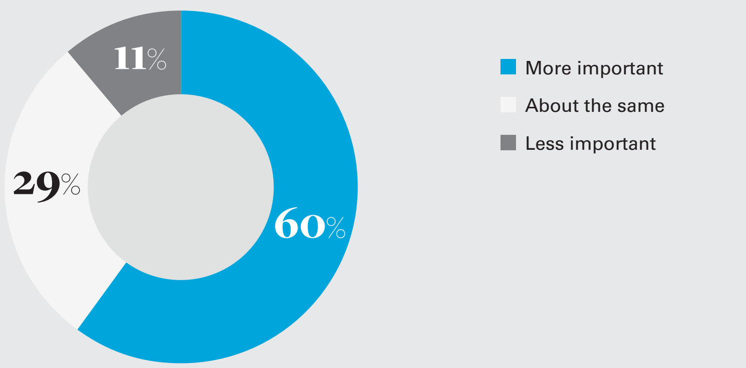
**US $632 billion**

**Estimated investment needed in drinking water, wastewater and irrigation systems in the next decade**

**When contemplating investing in a US infrastructure project, how important are ESG considerations?**




**When contemplating investing in a US infrastructure project, how important are ESG considerations in comparison to investing in a project in an emerging jurisdiction?**



this: "The President's plan will ensure that these investments produce good-quality jobs with strong labor standards, prevailing wages and a free and fair choice to join a union and bargain collectively."

As far as many respondents are concerned, the success of the infrastructure plan will be revealed through how it affects the people. And this includes higher labor standards.

The head of finance at a US developer says: "Improving the living standards of the US population is something that would make the plan more successful. Success will not be regarded separately when projects are completed. They should benefit the population."

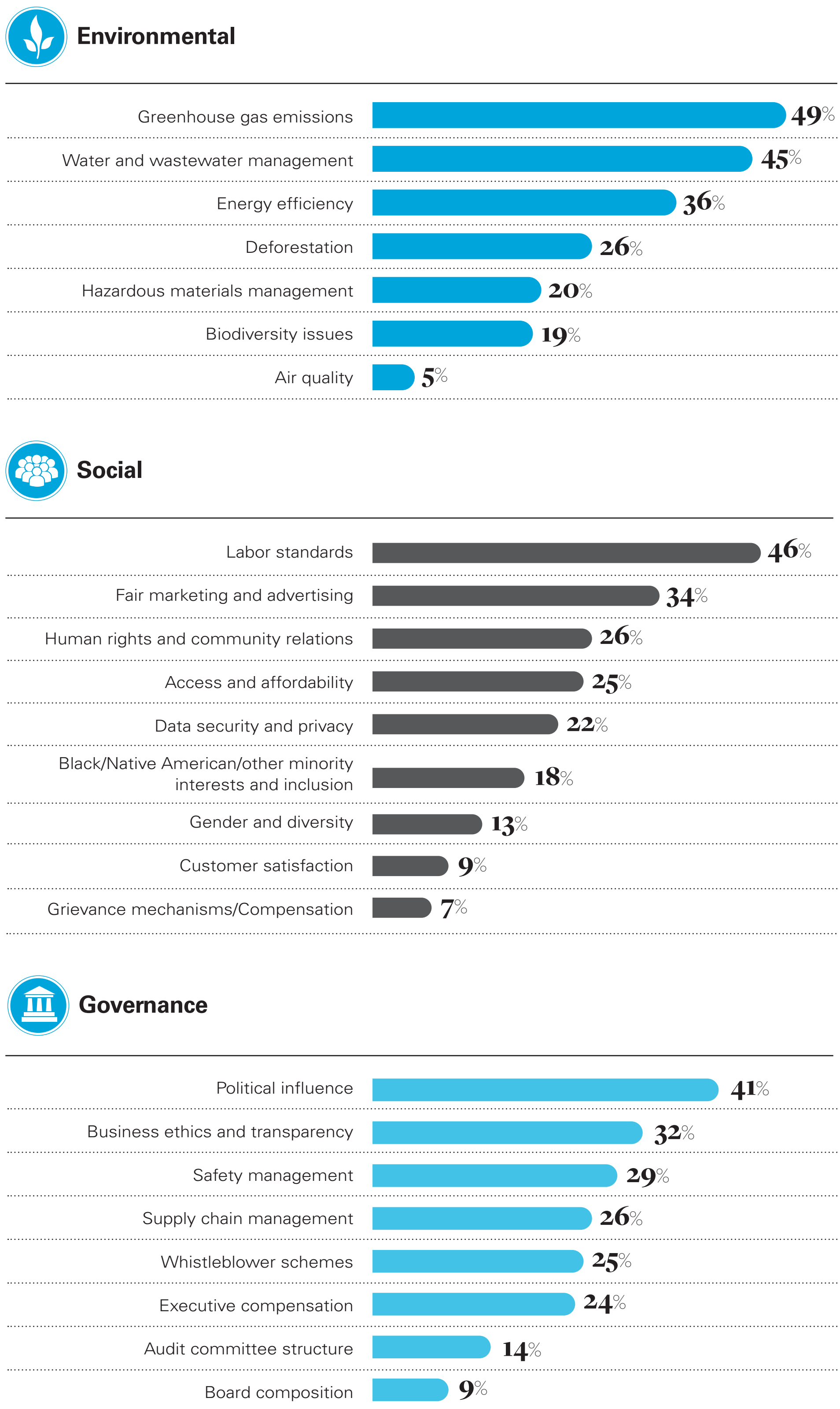
**Governance matters**

The G in ESG often takes a back seat to the more high-profile E and S. However, for infrastructure professionals, it is every bit as important. Poor governance practice can break a business and send investors running for the hills. As the director of infrastructure at a US pension fund says: "When contemplating investing in any infrastructure project, we have to analyze potential risk areas—good governance norms are highly important."

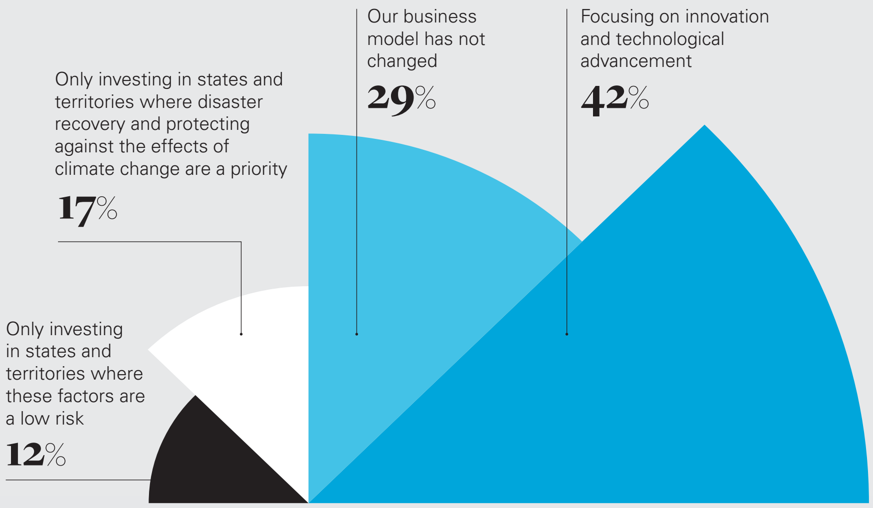
The top-two governance considerations in our survey both relate to good business practice. In a marketplace where contracts are often awarded by public sector authorities, 41 percent of respondents cite political influence as a key ESG consideration. This is followed by approximately a third (32 percent) who point to business ethics and transparency as their main governance consideration.

The ability to build strong relationships with elected officials and their staff without overstepping the mark will be vital. Indeed, a separate 2020 survey by Royal Bank of Canada bears this out. The bank's *Global Asset Management Responsible Investment Survey* found that corruption and bribery was the top ESG issue on institutional investors' minds.

**What are the most important environmental, social and governance considerations when contemplating investing in a US infrastructure project?**



**Is your organization making any of the following changes to accommodate climate change and weather risk in the US?**




> **The focus has to shift from highway development and move on to the more future-ready sectors**

### Fundamental 3: Climate change and weather risk

While closely intertwined with the E of ESG, climate change and weather risk has reached a point where it is a category in itself—particularly for those in the infrastructure sector. The US is becoming used to the often profoundly negative impacts of climate change. From forest fires that have ravaged the country—up to July 2021, 80 wildfires had burned 1,157,976 acres in 13 states, according to the National Interagency Fire Center—to flooding in New York and surrounding areas, weather-related risk is becoming painfully obvious.

Clearly, there is significant potential for these impacts to hit key infrastructure. For investors, financiers and developers, weather risk is becoming a central calculation as they assess potential projects. "We collect weather risk data from multiple sources," explains the director of infrastructure at an Asian developer. "It has become an important part of our risk analysis."

For now, few respondents are considering pulling back from particular types of investment or regions of the country because of elevated risk. Many believe that innovation and transformation can help them manage risk, rather than forcing them to beat a retreat. Indeed, 42 percent believe a focus on innovation and technological advances can help them to accommodate climate change impacts in the US. Just 12 percent say they will only invest in states where weather risk is of less concern.

However, that may change in time, with some investors now expressing real anxiety. "The low-risk states will provide more consistent returns," says a partner in one European investment fund. "Weather risk is not the same throughout the US, and we will prefer the low-risk regions."

Public authorities, too, are well aware of the dangers of extreme weather in relation to climate change. They also see the potential for new technologies to mitigate some of the dangers—60 percent are prioritizing the focus on innovation in the context of weather risk. But many see problems as inevitable—60 percent are also determined to prioritize disaster recovery plans and other protective solutions.

And a number of respondents from public authorities state that funds need to be channeled into more environmentally friendly subsectors to counter the growing risk of climate change. "The sustainable energy generation sector is one that should be supported more," says the director of investment at one public authority. "The focus has to shift from highway development and move on to the more future-ready sectors."

**60%**

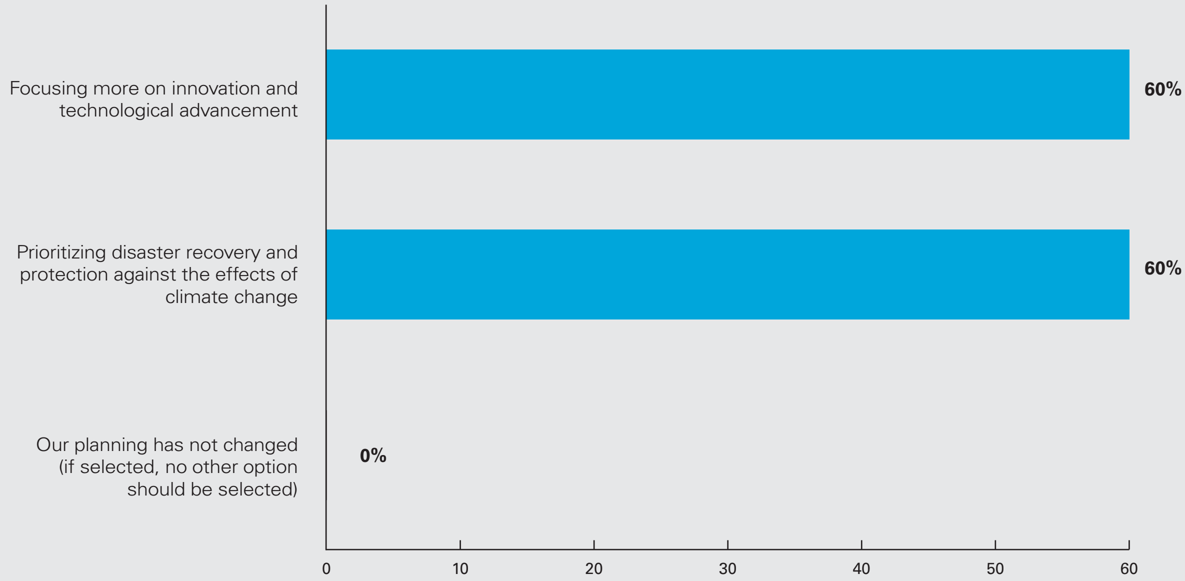
**of public authorities surveyed are prioritizing innovation in the context of weather risk**

### A renewable hope

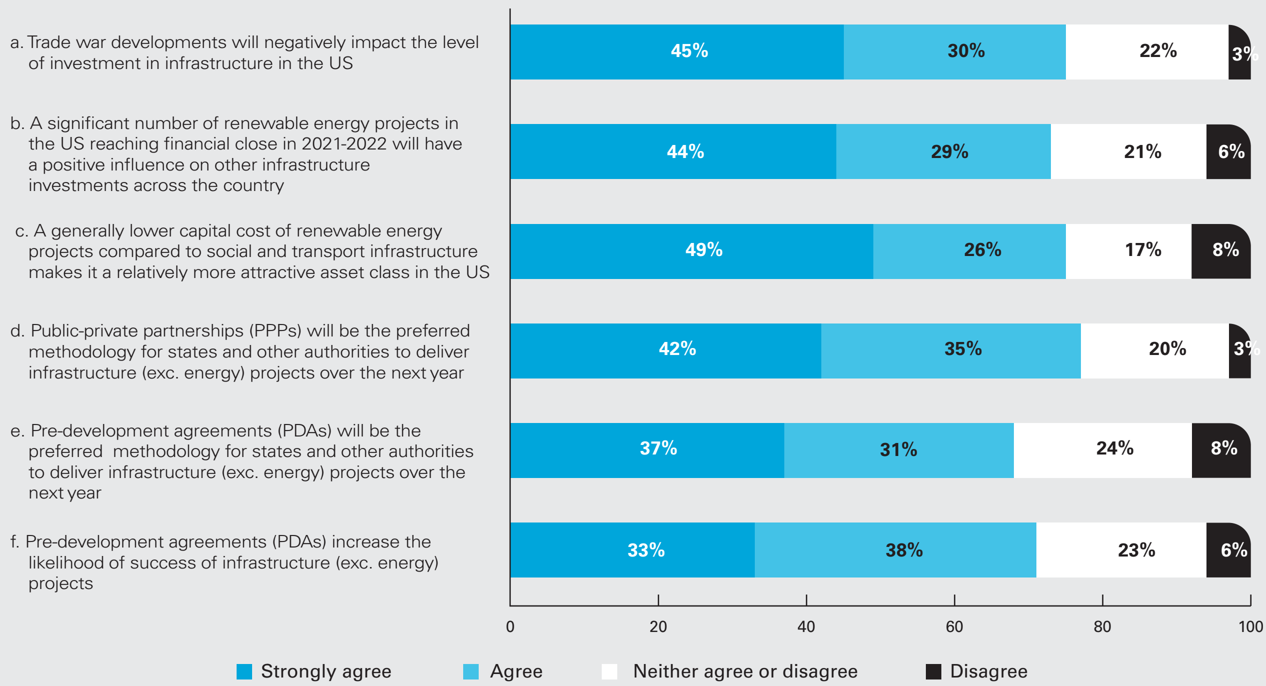
It is fortunate then that renewable energy projects continue to attract significant interest, but with a significant number due to reach financial close this year and next, there may be more space for other types of infrastructure projects to catch the eye. Indeed, 73 percent of respondents believe this will likely be a positive influence on the broader infrastructure sector over the next 12 months.

Nevertheless, new renewable energy projects will continue—and investors and financiers are unlikely to be in short supply. Three-quarters of respondents (75 percent) agree that the generally lower capital cost of renewable energy projects compared to social and transport infrastructure makes them more attractive in the US; that includes almost half (49 percent) who strongly agree with this argument.

**Is your organization's infrastructure planning changing to accommodate climate change and weather risk in the US in either or both of the following ways?**




**Please state to what extent you agree or disagree with the following statements:**



Chapter 3

# Looking ahead: The future for US infrastructure

Respondents are broadly optimistic about the outlook for the US infrastructure sector, but there is no room for complacency. In this final chapter, we explore funding and future plans and reveal seven key factors for infrastructure success

It is an exciting time for US infrastructure. Alongside the potential passage of President Biden's historic bill, our research indicates that investors, financiers and developers expect to step up their activity over the year to come—and public authorities are ready to return to projects that were delayed during the pandemic.

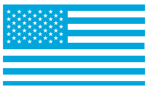
However, on a range of key issues, this optimism is more nuanced. The US infrastructure sector continues to grapple with a number of challenges as it plots its path toward recovery and renewal.

**The search for funding and innovation**

As chapter 1 revealed, while US-based respondents are largely prioritizing US infrastructure over the next 12 months, their non-US-based counterparts intend to allocate a more limited proportion of their portfolio to the US marketplace. Public authorities will hope to attract as broad a range of competitors for new projects as possible.

Europe (excluding the UK) is one likely source of that competition, our research shows. Three-quarters of respondents (76 percent) expect market participants from the region to be among the three most significant funders of US infrastructure projects over the next 12 months. Canada (65 percent) and Japan (56 percent) are also seen as important sources of funding for the US infrastructure market.

International partners can also be vital allies, as the imperative to integrate new technologies into infrastructure projects continues to increase. Almost all respondents (98 percent) believe US suppliers will be key providers of innovation and technology, but they also see partners in Germany (85 percent) and Japan (74 percent) as likely sources of the disruptive tools now required. Switzerland, Singapore, Russia and Israel are also regarded highly for their technological prowess.

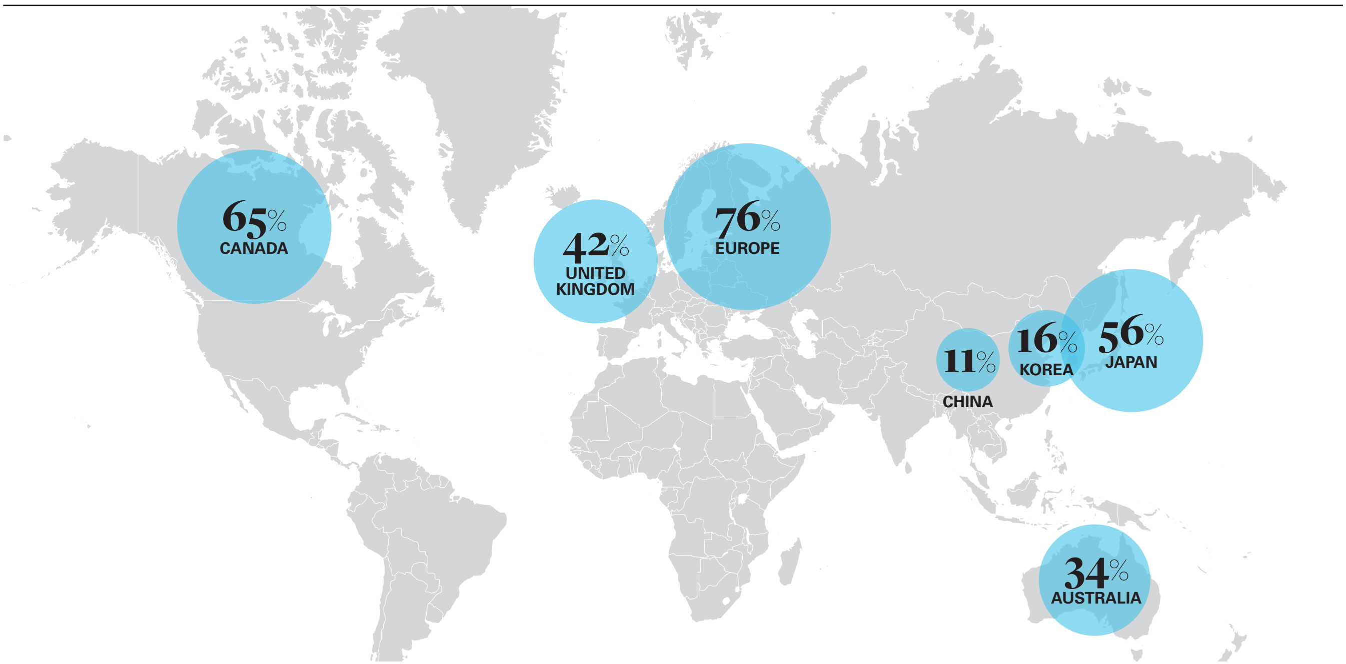


**98%**

**of respondents believe US suppliers will be key providers of innovation and technology**

One aspect that may be hindering more foreign investors is the steep learning curve and the plurality of legal and operational obstacles that they need to overcome to access the US market. One key to overcoming these obstacles is to either partner with a US firm or work closely with local experts and to convince public authorities of their ability to get the job done, regardless of their country of origin.

**Where do you expect to see cross-border investment in US infrastructure coming from geographically over the next year?**



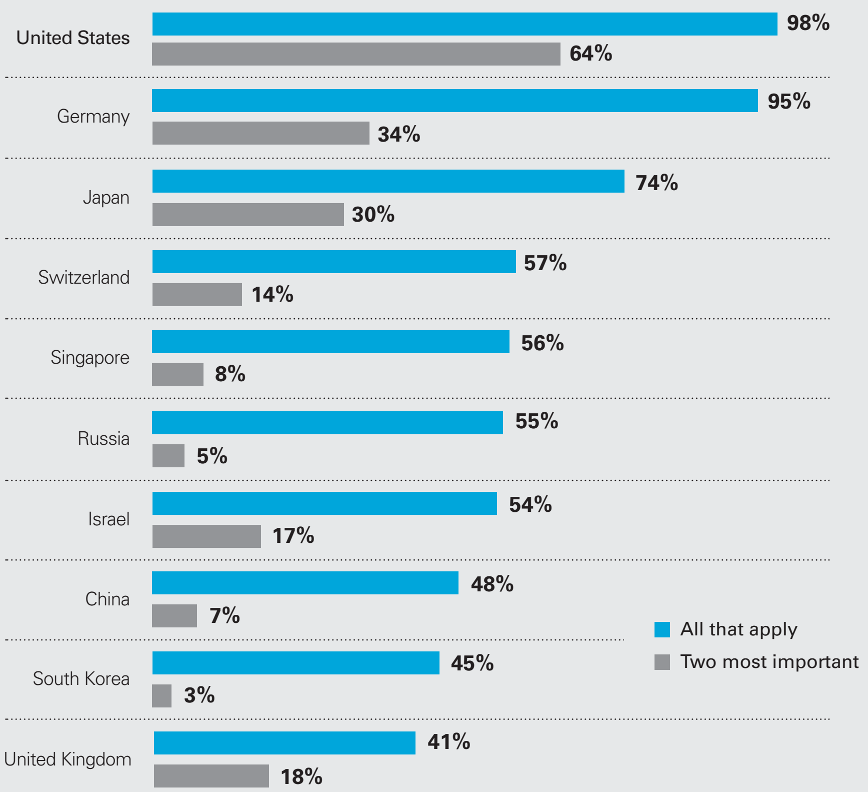

**The finance factor**

While two-thirds of respondents (63 percent) believe funding levels in the infrastructure bill are currently sufficient for the infrastructure sector's needs, that still leaves a great deal of room for partnerships and private financial investment.

Among private finance sources, a broad range of support is available. However, pension funds and development-focused financial institutions are seen as the most likely targets for those seeking capital, with 38 percent of respondents citing each of these.

However, the key for private investment is to play a defining role in the deployment of capital. If capital from public sources is distributed around the country through traditional procurement, it will likely be seen as a wasted opportunity from a private capital perspective. Traditional procurement is usually focused on the design and construction rather than the long term maintenance profile, cost and optimization. If the focus fails to shift to include asset performance, customer service and quality standards, the country will likely find itself generating the same legacy problems of deferred maintenance that it is facing today.

**From which countries do you expect technology in the infrastructure space to originate over the next three years?**



**Delivering the goods**

Public authorities continue to focus on a variety of different delivery mechanisms for infrastructure projects. Encouragingly, more than three-quarters (77 percent) say public-private partnerships (P3) will be among their preferred options for infrastructure projects outside of the energy sector; 68 percent say the same of pre-development agreements (PDAs). Indeed, 71 percent believe that PDAs can increase the likelihood of a successful outcome for a project.

Our survey results show that the public authorities themselves are keen on P3s—of the public authorities we interviewed, 86 percent agreed that P3s were the preferred way to deliver infrastructure projects (no public authorities disagreed), sending a clear message to investors that these types of partnerships are a solution to the infrastructure gap.

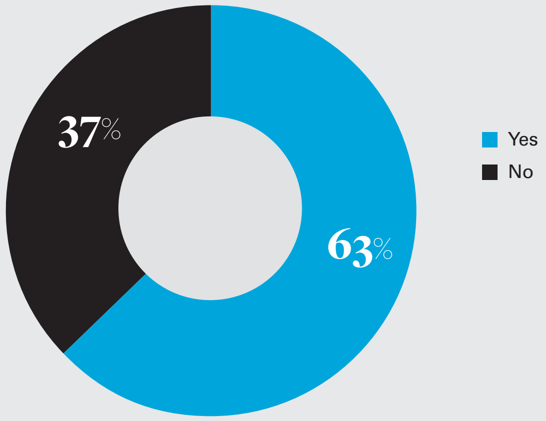
And, while the infrastructure bill does not actively promote P3s, there are several sections that could prove beneficial. These include Section 70701, which would require a value for money analysis, which in turn would require public agencies to weigh the cost but also benefits of public versus private finance for projects. Meanwhile, Section 80403 would raise the cap on private activity bonds (PABs) for qualified highway and surface freight transfer facilities from US$15 billion to US$30 billion. PABs are tax-exempt bonds that enable lower interest rates for assets that have been developed and operated by the private sector.

Investors need to approach the different states and municipalities and work closely with them to ensure their goals are aligned.

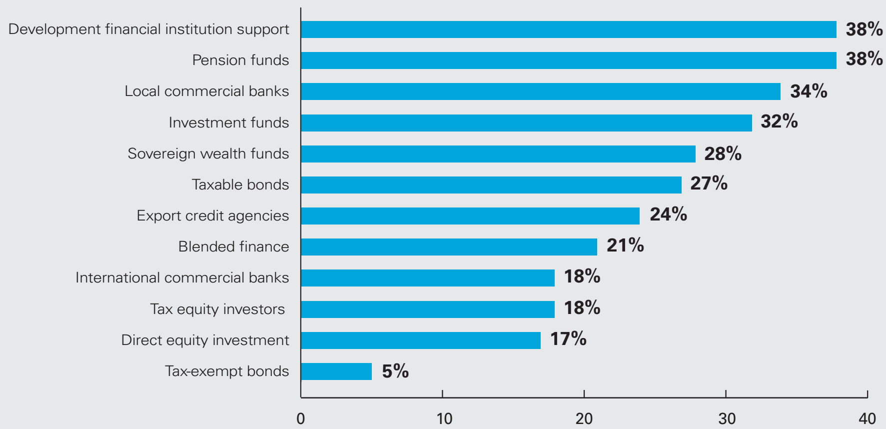
**86%**

**of public authorities surveyed agreed that P3s were the preferred way to deliver infrastructure projects**

**Do you think the proposed funding levels in the latest version of the US bipartisan infrastructure plan announced in June 2021 are sufficient overall?**




**Which sources of private financial investment will you look to in order to access infrastructure projects in the US in 2021/2022?**

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**Public authorities are keen on P3s, sending a clear message to investors that these types of partnerships are a solution to the infrastructure gap**

**Focused on the future**

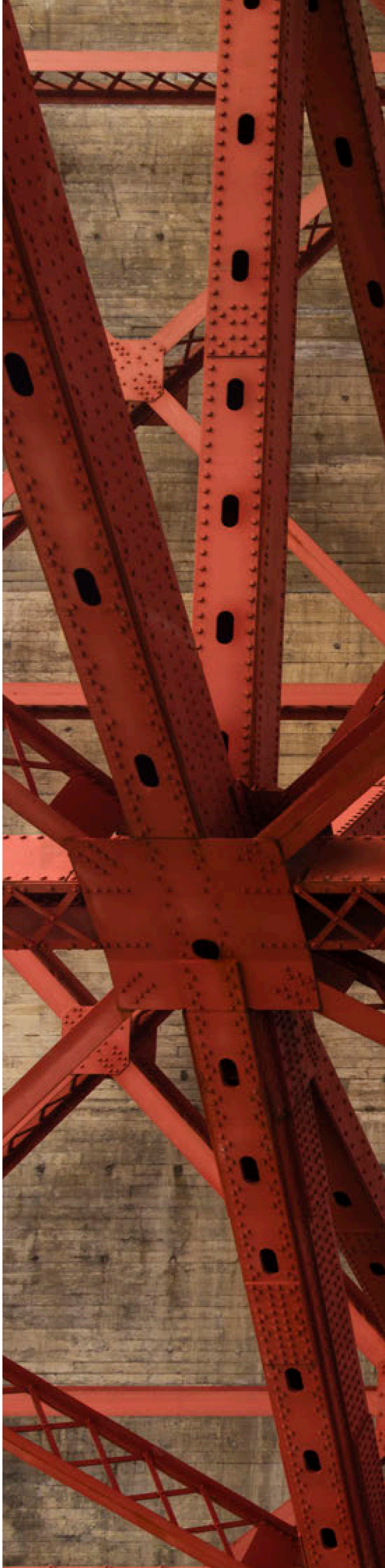
The prospects for US infrastructure investment look bright. There is no doubt that COVID-19 has had a significant impact on the development and financing of infrastructure over the past 18 months, but the negative effects of the pandemic are now beginning to ease—and the sector is harnessing some elements of the disruption for positive benefit. Low-carbon projects, digital infrastructure and public health are good examples.

Many of the key themes that respondents highlighted as emerging over the next 12 months will come to reflect this new reality. Respondents point to the continuing rise of smart and digital infrastructure; further prioritization of renewable energy; environmental projects and broader ESG issues, and the importance of social infrastructure. They expect to see upgrades to road, rail and other transport networks, with an emphasis on technology and sustainability here too. And they see scope for increased investment and fundraising, including from the private equity sector.

US federal funding, proposed in the Biden administration's infrastructure plans, would result in an additional boost for the US infrastructure sector. Survey respondents point to seven factors that could make the infrastructure plan successful in delivering the necessary new upgrades and infrastructure to meet the future needs of the US population:

1. A greater focus on regional and local growth
2. Societal and local government involvement
3. Highlighting ESG issues across the board
4. Brownfield and greenfield development in tandem
5. Greater transparency and more information
6. Gaining agreement early in the process to avoid delays and issues
7. Spotlighting innovation

US infrastructure market participants are looking at a golden opportunity. Huge federal government spending should unlock the ability to do deals at the state and local level. The key is for both the public and private sectors not to waste that opportunity.





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