

SFF 2022 Insights

# Enlisting FinTech to help create a sustainable future



McKinsey  
& Company



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## **Acknowledgements**

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## **Disclaimer**

The opinions expressed at the Singapore FinTech Festival 2022 and quoted in this publication are those of the speakers. They do not purport to reflect the opinions or views of McKinsey & Company, the Monetary Authority of Singapore, or Elevandi Limited.

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# McKinsey & Company

McKinsey is a global management consulting firm committed to helping organizations accelerate sustainable and inclusive growth. McKinsey works with clients across the private, public, and social sectors to solve complex problems and create positive change for all their stakeholders. McKinsey combines bold strategies and transformative technologies to help organizations innovate more sustainably, achieve lasting gains in performance, and build workforces that will thrive for this generation and the next.



Monetary Authority  
of Singapore

The Monetary Authority of Singapore (MAS) is Singapore's central bank and integrated financial regulator. As a central bank, MAS promotes sustained, non-inflationary economic growth through the conduct of monetary policy and close macroeconomic surveillance and analysis. It manages Singapore's exchange rate, official foreign reserves, and liquidity in the banking sector. As an integrated financial supervisor, MAS fosters a sound financial services sector through its prudential oversight of all financial institutions in Singapore – banks, insurers, capital market intermediaries, financial advisors and financial market infrastructures. It is also responsible for well-functioning financial markets, sound conduct, and investor education. MAS also works with the financial industry to promote Singapore as a dynamic international financial centre. It facilitates the development of infrastructures, adoption of technology, and upgrading of skills in the financial industry.



Elevandi is set up by the Monetary Authority of Singapore to foster an open dialogue between the public and private sectors to advance FinTech in the digital economy. Elevandi works closely with governments, founders, investors, and corporate leaders to drive collaboration, education, and new sources of value at the industry and national levels. Elevandi's initiatives have convened over 300,000 people to drive the growth of FinTech through events, closed-door roundtables, investor programmes, educational initiatives, and research. A flagship product is the Singapore FinTech Festival alongside fast-rising platforms, including the World FinTech Festival, Point Zero Forum, and the recently launched Elevandi Insights Forum.

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# Foreword

Sustainability is one of the most pressing issues of our time, demanding the attention of governments, corporate leaders, financial sector participants, and citizens generally. While much of the world has now rallied behind the imperative of reaching net zero emissions by 2050, the decisive question remains of delivering on these climate and sustainability commitments. History offers cause for pessimism.

FinTech can play an essential role in breaking a legacy of inertia and marshalling the resources needed to bridge the substantial gap between current funding of sustainability and environment, social, and governance (ESG) initiatives and the projected investment required to meet global aspirations. The industry sits at a crucial junction bridging finance and technology. It can help mobilize the necessary capital and support innovative technologies that bring the world closer to net zero. But, first, the core obstacle of access to comprehensive and trusted data to weigh decisions and integrate public- and private-sector efforts must be addressed.

FinTech is already active on this front, which is why the Singapore Fintech Festival featured various sessions around sustainability, including a dedicated knowledge plenary, an ESG Ecosystem stage and an ESG Fintech Zone exhibition showcasing the ESG ecosystem in Singapore.

## **Sopnendu Mohanty**

Chief FinTech Officer, Monetary Authority of Singapore  
Chairman of the Board, Elevandi

The gathering in Singapore from 2 to 4 November 2022 brought together thousands of people from around the world – finance professionals, technology experts, FinTech entrepreneurs, policymakers, regulators, academics, inventors, and many more – to address some of humanity's most significant issues. This publication surveys McKinsey & Company's perspectives on how FinTech can contribute to building a sustainable global system, drawing on the views offered by speakers during SFF 2022, including respected leaders from financial institutions, financial regulators, technology providers, FinTech founders, and non-governmental organizations.

This publication is jointly produced by McKinsey & Company, the Monetary Authority of Singapore (MAS), and Elevandi. McKinsey has helped MAS build the sustainable finance ecosystem in Singapore and collaborated on a series of publications and conferences.

The authors and their teams would like to thank all the SFF 2022 contributors for their insights. We hope this publication forms a springboard for FinTech and sustainability practitioners to find FinTech solutions to today's sustainability challenges and take definitive steps toward implementing these solutions across the financial sector. We can drive real change with the FinTech and sustainability communities coming together.

## **Joydeep Sengupta**

Senior Partner  
McKinsey & Company



# Snapshots from the Singapore FinTech Festival 2022



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# Leading voices on the need for a sustainable future<sup>1</sup>

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"The jury has reached a verdict. And it is damning. This report of the IPCC is a litany of broken climate promises. It is a file of shame, cataloguing the empty pledges that put us firmly on track towards an unliveable world."

**Antonio Guterres**

United Nations Secretary General at the launch of the IPCC Report, April 2022

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"This is a race for our lives. We need all instruments of public policy to accelerate action... we have to think of central banks and financial regulators as part of public policy."

**Tharman Shanmugaratnam**

Senior Minister and Coordinating Minister for Social Policies, Singapore and Chairman of the Monetary Authority of Singapore at the Transition Finance Towards Net Zero Conference, October 2022

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"The most important thing for the energy transition is to obtain a just and affordable transition..."

**Airlangga Hartarto**

Coordinating Minister for Economic Affairs, Indonesia at the Indonesia-Singapore Business Forum, June 2022

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"The biggest threat to our planet is the belief that somebody else will take care of it."

**Sir Robert Swan**

Officer of the Order of the British Empire, Polar explorer and founder of the 2041 Foundation for the Preservation of Antarctica

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"Real success can only come if there is a change in our societies and in our economics and in our politics."

**Sir David Attenborough**

English broadcaster, biologist and natural historian

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"Earth is now our only shareholder. Instead of 'going public', you could say we're 'going purpose'."

**Yvon Chouinard**

American environmentalist, philanthropist and founder of Patagonia

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"When you buy a [green product], you're saying to the companies that make these products: 'There's demand for these items.'"

**Bill Gates**

American business magnate, investor, philanthropist, author and co-founder of Microsoft

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"The net zero transition won't mean flipping a green switch or investing only in companies that are already green. Transition means transition. Financial institutions must go where the emissions are and back companies... to transform their businesses for a net zero world."

**Mark Carney**

United Nations Special Envoy for Climate Action and Finance and Former governor of Bank of England

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<sup>1</sup> Quotes as presented by Eric Lim, Chief Sustainability Officer of UOB at the SFF 2022 Global Plenary Session

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# Enlisting FinTech to help create a sustainable future

**After decades of activists, institutions, and scattered politicians raising the alarm over climate change, the world is finally catching on. Extreme weather and other catastrophic climate events, such as visibly diminishing ice caps, have drawn greater attention to this growing problem. Yet as nations rush to make promises to curb greenhouse gas emissions and decarbonize the economy, these pledges are made against a background of past failures to honor such commitments.**

This must change.

While the effort will require participation for all sectors, the FinTech industry can play an important role in mustering resources and leading the way to creating a sustainable world. With its twin-edged sword of financial and technical prowess, the industry can help move capital to where it can be most useful, while at the same time supporting the technical innovations needed for true change. The industry's importance was a central theme in the Singapore FinTech Festival (SFF) 2022 held in November, where leaders addressed the challenges from multiple perspectives.

## **Global action "a litany of broken climate promises"**

When the United Nations released an ominous assessment early in 2022 on international efforts to halt climate change, UN Secretary General António Guterres famously called the report "a litany of broken climate promises ... that put us firmly on track towards an unlivable world." The UN and other international bodies had been raising warnings about climate change since at least the mid-1990s, and almost three decades later there is little progress to show.

Yet in recent years more and more voices have sounded in support of making substantial efforts. In November 2021, business leaders from around the globe attending the UN Climate Change Conference pledged to work toward net zero greenhouse gas emissions by 2050. The conference – known as COP26 because it was the 26th in a series – embraced the target of keeping global warming to below 1.5 degree Celsius. Just a year later, at COP27, mentioning of this global goal in the final statement met with resistance, and the target was dismissed by some as unrealistic.<sup>1</sup>

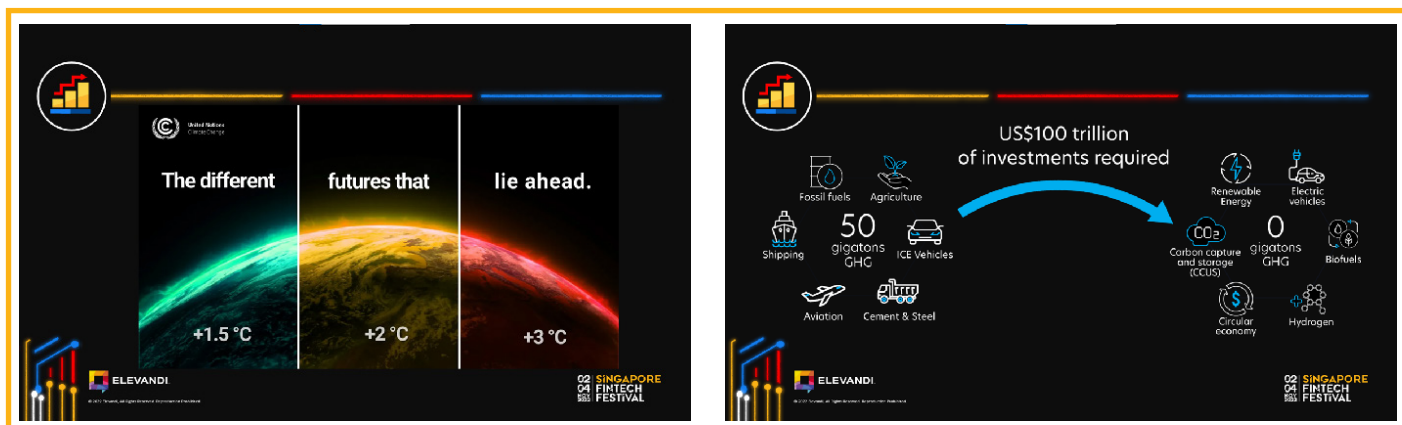
**"We are trying to pull off the largest industrial revolution known to man, estimated to be worth \$100 trillion in investments all within the next 28 years."**

– Eric Lim, Chief Sustainability Officer for United Overseas Bank

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<sup>1</sup> Valerie Volvici, ["Some countries have resisted 1.5°C goal in COP27 text, US says"](#), Reuters, November 2022





*Insights from the opening note of SFF2022 by Eric Lim*

In opening SFF 2022, **Eric Lim, Chief Sustainability Officer for United Overseas Bank**, recapped the promises made at COP26. He noted that more than 100 countries and about a third of world's largest companies have signed onto the goals, and financing for sustainability projects had grown more than 100-fold over the previous decade.

"This sounds great, and surely we're in great shape," Lim said, before reminding the conference of the world's disappointing track record. "We are trying to pull off the largest industrial revolution known to man, estimated to be worth \$100 trillion in investments all within the next 28 years. And we're going to need all of our ecosystem partners to be pulling in the same direction in a coordinated manner."

The difficulties of overcoming inertia in the battle to deliver sustainability were exacerbated in 2022 when global events erected new obstacles. Beyond the immediate tragedy of the war in Ukraine following the Russian invasion in February, this event was a catalyst for great uncertainty, especially around energy security. Countries put renewed emphasis on coal-generated electricity as natural gas supplies were threatened. Led by rising oil prices, inflation was resurgent and the possibility of a global recession loomed by the end of the year. Managing the global response to the war also sucked away substantial political energy that might have otherwise been directed toward climate change.

The impact was not uniformly negative, however. The sudden threat to energy security re-ignited efforts to move away from fossil fuels. In October, the International Energy Agency estimated the annual global investment in clean energy will increase by about 50 percent by 2030 to about \$2 trillion, largely as a result of disrupted energy flows from Russia.<sup>2</sup> "Energy markets and policies have changed as a result of Russia's invasion of Ukraine, not just for the time being, but for decades to come," its executive director, Fatih Birol, reported.

At COP27 in Egypt, the impact of the war added a new dimension to efforts to combat climate change. Along with the moving toward a net zero global economy, the delegates championed energy resilience, a faster move toward secure, clean, and affordable energy.



<sup>2</sup> Noah Browning, "[Energy crisis sparked by Ukraine war to speed up green transition -IEA](#)", Reuters, Oct. 27, 2022.

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# Capital mobilization, financial innovation crucial

**The move to a net zero global economy by 2050 will require the greatest reallocation of capital since World War II coupled with a massive influx of financial innovation. To date, financial mobilization toward this aspiration pales in comparison to the amount ultimately needed.**

In its January 2022 report, the McKinsey Global Institute (MGI) calculated that capital spending needed for the transition would total \$275 trillion between 2026 and 2050 or about \$9.2 trillion a year (Exhibit 1). The need represents an average increase in annual spending of about \$3.5 trillion or, for illustration, an amount equal to about half the annual global corporate profits.

In addition, the bulk of this spending would be needed in the early years of this period, going from about 6.8 percent of global GDP currently to almost 9 percent between 2026 and 2030, before tapering off again. While the

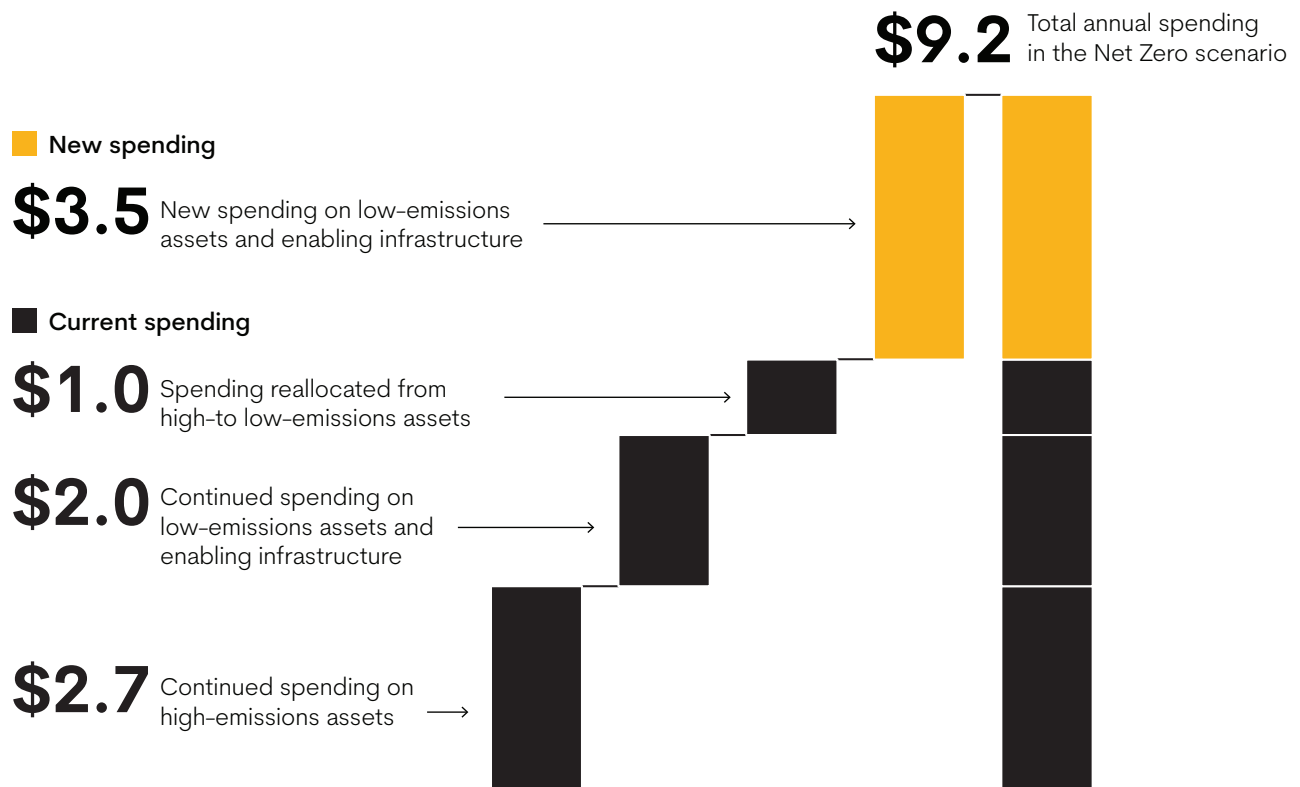
funding needed is significant, many of these investments would generate returns and would not be mere costs. In addition, innovation could bring down the costs of required technologies faster than expected.

FinTech could play a significant role in helping to mobilize the capital required to create global sustainability. So far, only a very small portion of the total need is covered through financing. In recent years financing for projects targeting reduced emissions grew, but remained well short of the total needs.



## Exhibit 1: Capital needs for transition to net zero

(\$ trillion)



Source: McKinsey Global Institute, [“The net-zero transition: What it would cost, what it could bring”](#), McKinsey, 2022.  
Based on the Network for Greening the Financial System (NGFS) Net Zero 2050 scenario, a hypothetical scenario and not a projection.

## Complex trade-offs and opportunities for innovators

The need for substantial investment in sustainability presents complex trade-offs even for companies with the best intentions. Those that can find an appropriate balance between competing forces, however, have the chance to capitalize on the many opportunities the transition presents.

Any change brings with it some level of risk, and in the march toward sustainability these risks present what some might see as an intractable dilemma. On the one hand, senior executives are faced with increasing pressure – including from their personal aspirations – to become net zero or carbon neutral, and on the other they are called upon to maintain resilient, profitable businesses, particularly in times of volatility. They may also face the choice between moving quickly and risk that the needed resources, whether materials, equipment, or talent lag demand.

And now, the geopolitical shocks of 2022 might tempt many to set aside sustainability goals at least temporarily in favor of tried-and-true fossil fuel-based operations, for example stopping or delaying investment in renewable energy sources. This might especially be true for the manufacturing, transportation, and energy sectors.

Our view, however is that such an approach is a false trade-off. Companies can be flexible and maintain a long-term focus on sustainability while creating the necessary resilience to withstand shocks. Indeed, continued efforts toward sustainability can build energy independence and add substantially to resilience.

"We have to balance the speed of execution, the cost of it, and other aspects such as energy stability," **Kattiya Indaravijaya, CEO of Thailand's Kasikornbank**, told SFF 2022 attendees. "If we want to accelerate the reduction of coal consumption, we have to be sure that other types of energy are available and sufficient to support our business operations. There will always be trade-off between transition costs and speed or the availability of raw materials."

The dual focus on resilience and net zero will require companies to explore materials transition and other green-business approaches early to secure access to the most promising innovations. While the risk is generally higher for first-movers, the rewards are also proportionately higher. For example, early investors can benefit from policy incentives, skilled talent attracted to cutting-edge



employers, partners who are equally willing to explore the potential, and securing a place in emerging value chains.

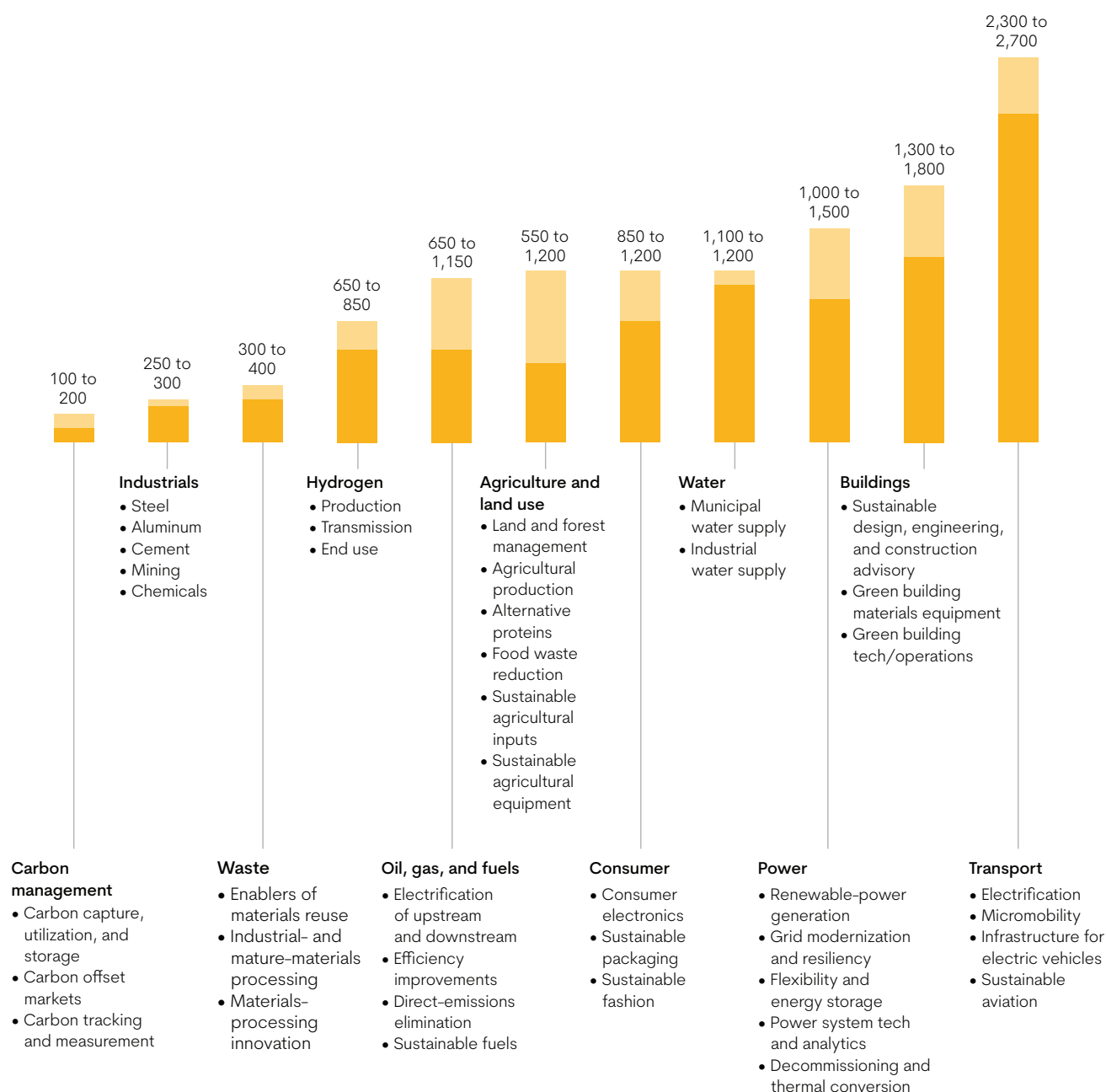
Amid this difficult balancing act, responsive companies will discover massive opportunities. Overall, McKinsey analysis of 11 industrial categories globally has shown that green offerings could generate more than \$12 trillion of annual sales by 2030 (Exhibit 2). Reaching this potential will require substantial investment in a wide range of sustainable goods and services, including materials, climate technology, and energy.

**"We have to have a backup plan to balance the speed of execution, the cost of it, and other aspects such as energy stability,"**

– Kattiya Indaravijaya, CEO of Kasikornbank

## Exhibit 2: Potential value pools exceed \$12 trillion

Addressable market size in 2030, selected categories, \$ billion



Source: Bob Sternfels et al., ["A devilish duality: How CEOs can square resilience with net-zero promises"](#), McKinsey, 2022.



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## Multiple roles for FinTechs in the climate transition

Fintech companies can play multiple roles in helping these sectors reach this potential. Along with being instrumental in accelerating the movement of capital to these areas, Fintech companies' technological know-how can be pivotal in developing and funding the innovation needed to find solutions around carbon capture, protection of natural ecosystems, and other sustainability themes.

Companies seeking to capture these profitable opportunities will need their own innovative new business models. At SFF 2022, **Jonathan Larsen, Chief Innovation Officer at Chinese insurer Ping An**, described the company's effort to pioneer personal carbon accounting. Essentially, Ping An offers its 110 million credit and debit card holders the option to create personal carbon accounts, which allow them to track their own carbon footprint based on purchasing patterns.

Larsen said personal carbon accounts are just one of many business opportunities FinTech can explore around sustainability. Rating services provide another promising avenue. "This whole space of climate change ratings creates profitable opportunities for service providers that are able to gather the right data, provide the right structure, and create the right alignment with government, with supranationals," he explained.

An additional role for FinTechs will be to educate clients on the implications of the climate transition for their businesses and to help them move forward. Indaravijaya at Kasikornbank observed that some clients have only limited awareness of how climate change or environment, social and governance (ESG) concerns will impact their business or create new opportunities. "We need to heavily and consistently communicate and also provide financial incentives, for example lower interest rates for those who want to change," she said.



Because these seismic changes foretell continuous innovation throughout the financial services value chain, we've seen an increasing focus on how FinTech can help meet sustainability objectives. So far, nimble companies have the edge. In many markets, start-ups have been the first to develop climate-tech businesses, for instance around renewable energy and electric vehicles, while incumbents have been slower to adapt. The transition is still nascent, however, and established companies have ample room to break into climate-technology domains if they move now.

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# FinTech has a solid start to closing gap

## The FinTech industry has had a solid start in focusing on work that contributes to sustainability.

In 2021, funding in FinTechs for Good (FinTechs that embed an ESG agenda into their core product portfolio, operations and mission) reached about \$2.1 billion, primarily in North America and Europe (Exhibit 3). The annual financing levels almost doubled on average each year from 2017 to 2021.

Specific activities in the FinTech industry's effort to support sustainability encompass six identifiable themes:

- **Sustainable everyday banking:** Products and services that match customers' environmental values, such as rewards for responsible shopping.
- **Impact fundraising:** Raising funds for environmental and social causes.
- **ESG intelligence and analytics:** Sustainability-related data and analytics, ESG ratings and research services.
- **Impact investing and retirement:** Opportunities that generate social and environmental impact along with financial returns.
- **Green and accessible financing:** Financing for sustainability projects and providing credit access to underserved groups.
- **Carbon tracking and offsetting:** Tracking individual and corporate carbon footprints based on financial transactions and identifying ways to offset them.

In 2021, the bulk of FinTech financing in this area, just more than 50 percent, went toward sustainable everyday banking, while the greatest growth since 2017 was seen in ESG intelligence and analytics and in carbon tracking and offsetting, both of which more than doubled on average each year over the period.

Generational changes will make such initiatives even more attractive as a business proposition. Research in 2021<sup>3</sup> has shown that about a third of the younger generations – millennials and generation Z – would prefer banks that reinvest their money in ESG-related activities even if it meant no or less financial benefits for them as customers. These levels were almost three times as high as those of older generations.

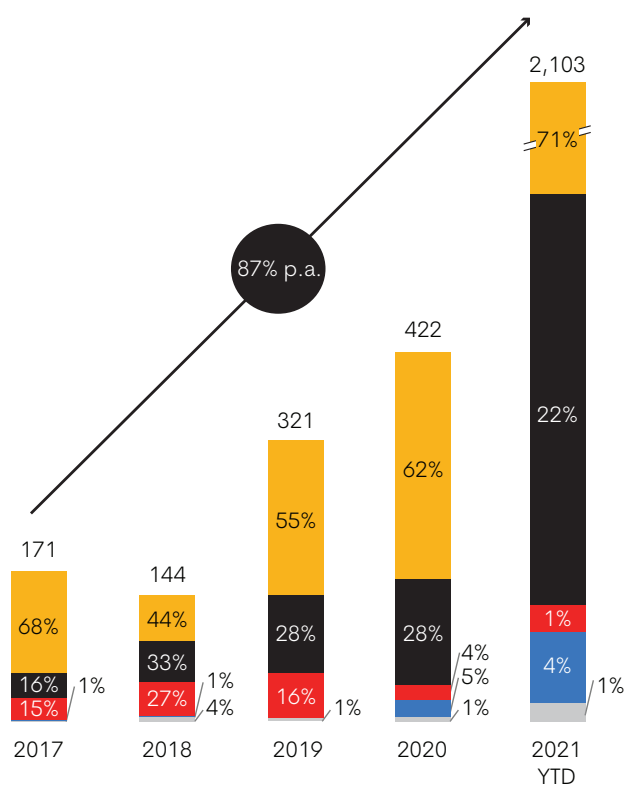
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<sup>3</sup> McKinsey Global Retail Banking Survey 2021

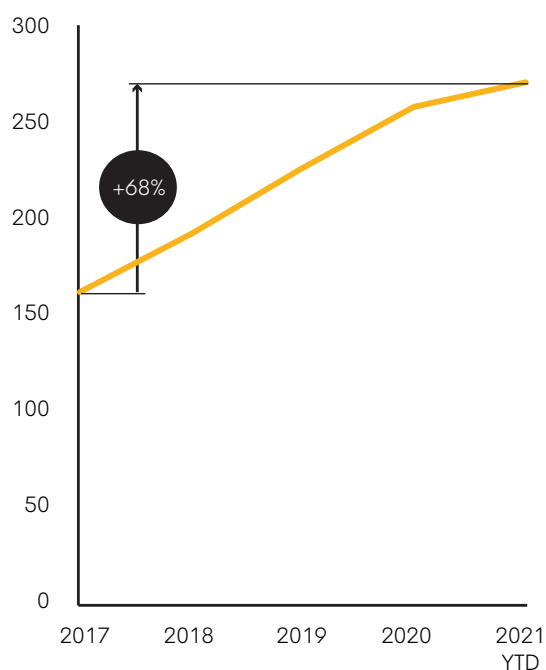
### Exhibit 3: FinTech for Good financing reaches \$2.1 billion in 2021

■ North America 
 ■ Europe 
 ■ Asia 
 ■ LatAm 
 ■ RoW

**Funding in FinTech<sup>1</sup> for Good by year and region**  
EUR mn



**# of FinTech for Good companies globally**



<sup>1</sup> FinTechs with non-zero funding as of Oct 2021, N = 140

Source: Dealroom.co, McKinsey Panorama Fintech

## Balancing profitability with social aspirations

Companies should realize that their considerations must move beyond mere profitability. The larger goal is to create authentic progressive leadership around sustainability themes and finding a balance between delivering to society and generating their own returns.

The transition to a net zero world will place uneven burdens across sectors, geographies, communities, and even individuals. For example, a McKinsey study in 2022 found that investment needs will be greater in relation to economic output in regions with relatively low GDP or greater fossil fuel resources than elsewhere (Exhibit 4).

World leaders formally acknowledged these disparities at COP27 by agreeing to create a global fund to help developing countries most vulnerable to the effects of global climate change. The action underscored that many countries that have contributed the least to the global problem will face the brunt of its impact.

The disparities will require companies to consciously value the social good they do along with the economic profit they generate. Progressive leadership means creating significant and positive change with a consistent and ethical approach.

"We want to drive change, to see our children and grandchildren grow up in a world where there is social stability and no clash of classes," **Anthony Tan, Co-Founder & Group CEO, Grab** (bottom left), declared at SFF 2022. "How do you do that? By uplifting the millions of people that we serve."

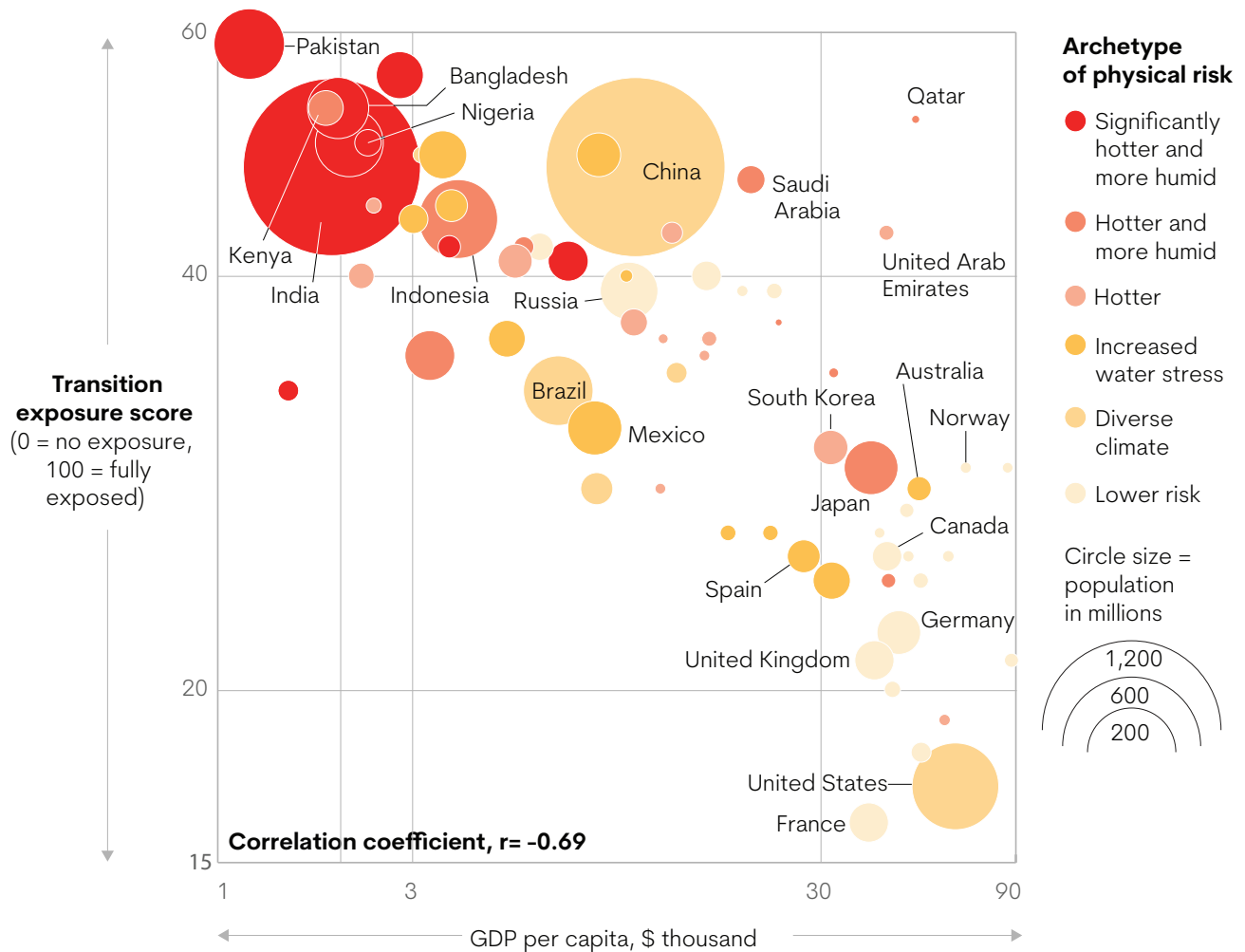
Tan acknowledged balancing shareholders expectations with social aspirations is difficult and forces companies to create new ways to maintain profitability while improving living standards, reducing poverty, and promoting other social benefits. Through innovation, Grab has reduced consumers' use of plastic, he noted, and has invested more than \$200 million to electrify its fleet.

In another example of innovation, long-time sustainability activist **Sonam Wangchuk, Founder, Himalayan Institute of Alternatives** (bottom right), told the SFF 2022 attendees they need to follow an "enlightened middle path of business and impact" to meet ESG challenges. He illustrated the idea by describing the Students' Educational and Cultural Movement of Ladakh (SECMOL), which he founded in India in 1988. The enterprise wing of the school has invented products such as carbon-neutral solar heating for buildings and artificial glaciers called Ice Stupa that store stream water for the summer when water can be in short supply. These innovations have generated income that allows the institution to operate without charging tuition fees.



## Exhibit 4: There is an uneven distribution of net zero burden

### Archetype of physical risk through transition exposure vs GDP per capita by country (logarithmic scale)



Source: McKinsey Global Institute, [“The net-zero transition: What it would cost, what it could bring”](#), McKinsey, 2022  
Based on the NGFS Net Zero 2050 scenario, a hypothetical scenario and not a projection.



## Focus on substance to avoid appearance of greenwashing

As sustainability efforts proliferate, companies must emphasize substance over hype. Activist groups have long viewed corporate responsibility programs with skepticism, and, for many, efforts such as Fintech for Good could be perceived as indulging in corporate greenwashing. Detractors are wary of programs that appear good for the brand, but are not core to corporate strategy.

**Stuart Kirk, a financial commentator and former Global Head of Responsible Investments at HSBC Asset Management** (bottom left), warned the conference against "mis-selling," which he defined as products and services, especially sustainability-related ones, not performing as advertised. "They have very little impact, and most people would be buying them expecting a certain thing to happen and they don't," he said. "So, there is a mis-selling element to this."

**Tariq Fancy, Founder of the Rumie Initiative** (bottom right), a Canadian agency that promotes digital learning in cut-off areas, seconded the caution. Companies that build ESG solutions have extraordinary space to innovate, but must also self-police to protect against the appearance of greenwashing, he told SFF 2022.

**"Build stuff that has real impact."**

– Tariq Fancy, Founder of the Rumie Initiative



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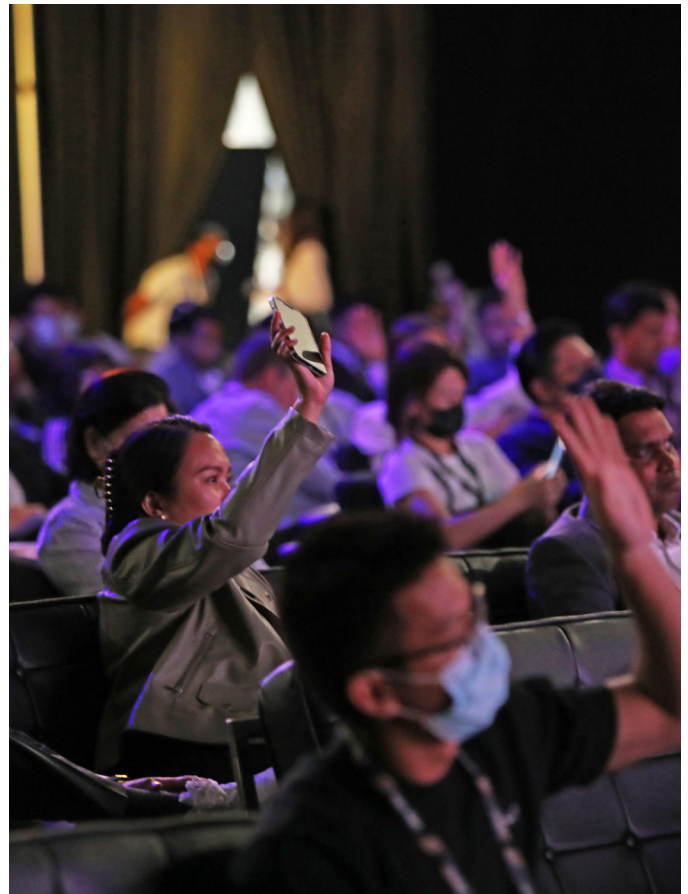
# Data remains crucial in supporting innovation

**Data collection and analysis is a crucial factor in whether FinTech innovation can successfully support sustainability goals. Data is necessary to make informed decisions, evaluate market participants, and assess the success – or failures – of initiatives. Yet good data remains a scarce commodity.**

A 2020 report found that lack of proper data figured in two of the top three reasons companies didn't assess ESG programs when judging competitors, suppliers, or capital programs (Exhibit 5).<sup>4</sup> The survey of investment managers and executives found that both groups ranked insufficient available data as the biggest reason for not taking ESG efforts into consideration. A lack of expertise to analyze data was ranked second by investors and third by executives.

FinTech is ideally placed to support the broad efforts needed to collate the data that will make ESG criteria part of financial and corporate decisions. Such information is critical in tracking greenhouse gas emissions and measuring the impact of measures to reduce them, among other core sustainability goals.

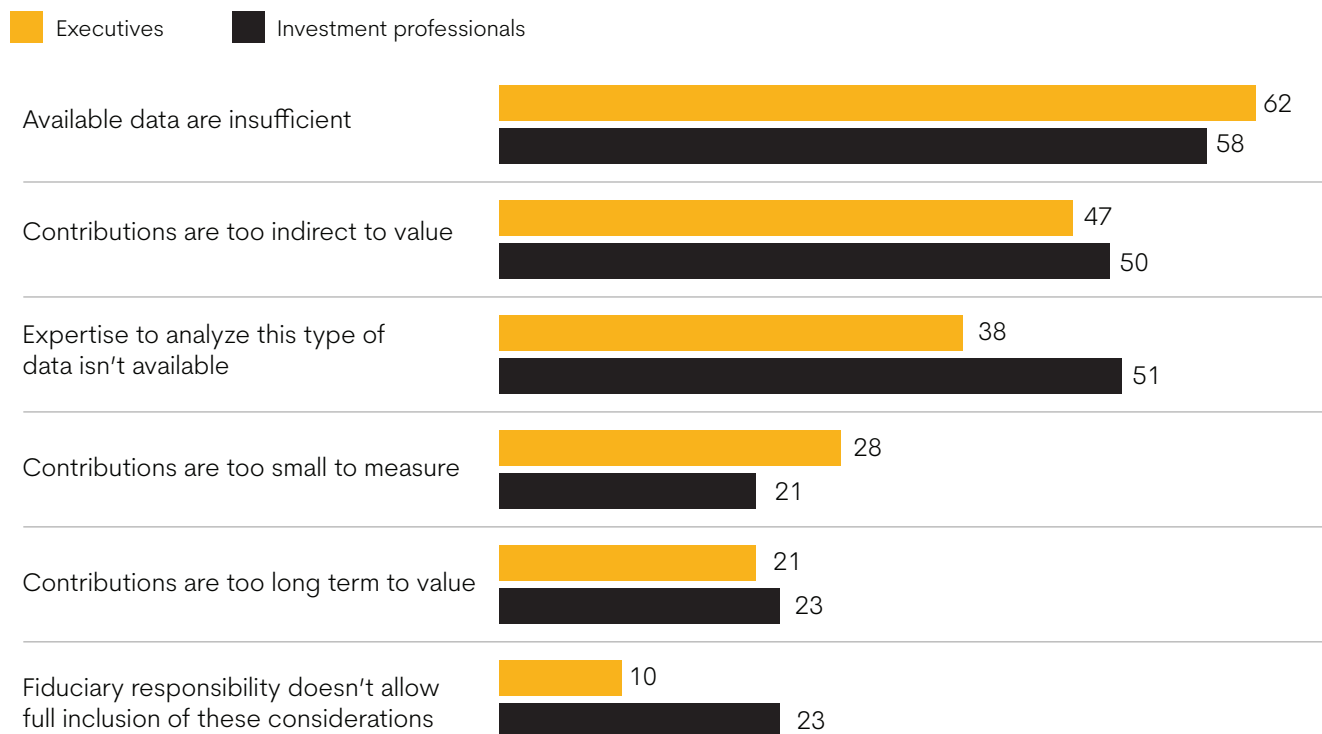
"We need system change, and it must be data- and behavior-led," **Antony Ruddenklau, Partner and Global Head of FinTech at KPMG** told SFF 2022, lamenting that there is almost no data available to support the change. "This is where FinTech comes in. FinTech enterprises are nimble. They're born in the cloud with data as a product. They can support fast transitions and help larger organizations to innovate."



<sup>4</sup> Lindsay Delevingne et al., "[The ESG premium: New perspectives on value and performance](#)", McKinsey, February, 2020.

## Exhibit 5: Data is a significant problem in judging ESG efforts

Reasons ESG considerations are not fully included in assessments of competitors, suppliers, and/or capital projects, % of respondents<sup>1</sup>



<sup>1</sup> Question was asked only of executives who said their organizations somewhat or do not include environmental, social, and governance considerations in their assessments of competitors, suppliers, and/or major capital projects and of investment professionals who said they do not include ESG considerations in their assessments. Respondents who said "other" or "don't know" are not shown. For executives, n = 414; for investment professionals, n = 110.

Source: Lindsay Delevingne et al., ["The ESG premium: New perspectives on value and performance"](#), McKinsey, February, 2020.



## Available data fragmented, hard to compare

The lack of trusted and usable data is not necessary because of a lack of trying. There are many groups that attempt to rank companies by ESG criteria, but the market remains very fragmented, creating the potential for conflicting assessments. In addition, there are serious limitations in available ESG data that make comparisons difficult. Among the most important are:

- Providers can conflate different underlying metrics to aggregate their ratings.
- Providers use inconsistent methodology to impute company metrics.
- Benchmarks based on ratings require careful peer group selection for valid comparisons.

In addition, legacy IT systems are often not equipped to produce appropriate ESG data or deliver it in a useful manner. Collecting ESG data is often done manually and is tedious and costly.

This challenge has prompted Singapore to include the creation of a trusted data stream as one of five core objectives in its FinTech development plan. The Monetary Authority of Singapore (MAS) is working with the financial

industry on Project Greenpoint, which aims to streamline the collection, access, and use of climate and sustainability data.

"Good data is foundational to driving the green and transition-finance agenda," **Ravi Menon, Managing Director of MAS**, said at SFF 2022. "Quality data is key in the fight against greenwashing and enabling stakeholders to make well informed ESG investment decisions."

For optimal use, financial institutions and corporates need reliable data on their customers and suppliers, particularly on their carbon footprints and on the efforts they are making to meet transition targets. Data on climate-related risks is also helps to assess the vulnerability of physical assets.

**"Good data is foundational to driving the green and transition-finance agenda."**

– Ravi Menon, Managing Director of MAS





Another obstacle in ESG data is the long time frame it needs to cover. A successful climate transition will be measured over decades, not months or even years. At many companies, CEOs and chief sustainability officers will come and go before any true successes can be celebrated. "It's about preserving the memory of what's been started and what needs to be completed over a number of years," observed **Maya Hari CEO of Terrascope**, a Singapore-based climate technology start-up.

**Helge Muenkel, Chief Sustainability Officer for DBS Bank**, added at the conference that data is critical for financial institutions across two dimensions. "Looking inward, we need better data because we need to make informed decisions on how to allocate capital," he said. "The outward-looking part is how do we use data and new analytical tools in our client engagement over decarbonization."



## Standardization essential, but faces hurdles

Making data more available is only one part of the solution. Companies, industries, and countries have different ways of gathering, storing, and presenting data, creating a hodge-podge of information that cannot be easily brought to together sensibly. Uniform reporting standards are needed to enable legitimate comparison and help companies and financial institutions identify prime investment opportunities.

A promising starting point would be for companies to work to create some level of standardization within their own business ecosystem. **Manjula Lee, Founder and CEO of World Wide Generation, Creator of the G17Eco platform** (bottom left), explained at SFF 2022 how her organization brought together various ESG standards and frameworks into a single digital taxonomy and is working with Singapore's exchange operator, SGX, to apply the platform to all listed companies, as well as the wider Singapore ecosystem of private companies and small and mid-sized enterprises (SMEs).

"We all have to work together. We all need to be on one interoperable system," she said. "We all need to be looking at the same golden source of trusted and comparable, verified data."

The question also arises of whether all data, even standardized data, should be evaluated equally. Are differences between regions or industries relevant when assessing a company's sustainability credentials?

"We need greater comparability. We need to create a greater mechanism and standard," **Mark Fitzpatrick, CEO at Prudential** (bottom right) said at SFF 2022. "But the standard cannot be the same throughout the world. What is needed in Singapore may be different in Thailand, (etcetera). There needs to be a localization of that data, that is important to guide investors."

Also, SMEs may be in danger of falling through the cracks. SMEs account for about 70 percent of global employment and economic output, but – partly because individually they have less resources than large companies to invest in data tools – they can easily fall into an information void, making decisions around sustainability more difficult. FinTech can be crucial in helping SMEs overcome this hurdle by creating ways to, for instance, generate valid data using existing transaction or payment reporting systems or the inputs the companies consume.

**Wu Shiwei, Chief Technology Officer at Huawei Cloud APAC**, told the SFF 2022 gathering that FinTech can help SMEs become more sustainable by reducing the costs of reporting through automation of other technologies. "If SMEs are running their business processes on a [standard] platform," he said, "you can actually analyze every step of the business process and set up benchmarks to compare their standards to best practice. In that way, resource requirements will be much less compared to manual verification by humans."





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## Blockchain technology can contribute to data integrity

Given that ESG data is fundamental to sustainability investment and lending decisions, there must be a way to deconstruct the data and verify its integrity. Otherwise, decisions based on this data have the risk of being ill-informed and companies remain open to accusations of greenwashing. Blockchain technology could address this challenge.

At SFF 2022, **John Lee, Managing Director and Global Lead of Digital Assets for Accenture**, used the example of green bonds. These financial instruments are marketed to investors interested in sustainability, but are frequently criticized for not being as friendly to the environment as touted. Using blockchain, traceable data can be embedded in green bond issues that corroborates where the funding went.

"With this, you've already radically increased visibility and transparency, and by definition reduced the cost," Lee said.

Voluntary carbon markets can follow a similar path. Currently, verifying that the benefits of a carbon project are in line with its claims can be difficult. Without technological interventions that manage the costs of producing traceable data, the commercial viability of laudable projects could be harmed. Again, blockchain technology can help here.



The Climate Action Data Trust, an initiative by the World Bank, the International Emissions Trading Association, and the Singapore government, is testing this idea. The project will use blockchain technology to set up a common registry for carbon projects. **Gene Hoffman, Director, COO and President of Chia Network Inc** (bottom left), which is providing the blockchain technology for the project, promised at SFF 2022, "The core value that blockchain brings is immutability of data, which helps build markets really well." He said his company is exploring similar initiatives that could create market instruments with embedded standards that can be used globally.

Of course, blockchain, the technology behind cryptocurrencies, has also faced immense criticism for its own electricity use, an artifact of how the system generally stored and verified data. At SFF 2022, **Vitalik Buterin, Co-founder of Ethereum** (bottom right), the second

largest cryptocurrency behind Bitcoin, said technology is helping the industry greatly reduce its own carbon footprint. Because of the need for massive, 24-hour-a-day computing power, the algorithm that was the industry standard, known as Proof of Work, had Ethereum consuming as much power as a wealthy country of about 3 million people.

In a changeover on September 17, 2022, known to the industry as "The Merge," Ethereum switched to a new algorithm, Proof of Stake, which reduced its power consumption by almost 100 percent, he said, adding, "Now, Ethereum consumes less energy than basically most mainstream, even centralized web services that everyone uses today."





## Deploying AI for data verifiability

While blockchain may be able to attest to the integrity of the data, it has no means to verify its veracity. "As soon as the blockchain needs to talk to the physical world, you're going to introduce another point of uncertainty," cautioned **Staci Warden, CEO of the Algorand Foundation**, a blockchain ecosystem. Another modern technology, artificial intelligence (AI), could hold the solution to this challenge.

AI and machine learning could be deployed to vouch for the validity of data. They could seek out and identify data abnormalities that could call into doubt the sustainability claims of particular instruments. "You can only commit to what you can measure, and that's where big data and AI can play a big role," said **Liu Feng Yuan, Business Development Vice President at Aicadium Singapore** (bottom, first on the left).

AI can also be used to support third-party verification of environmental commitments. NovA!, an initiative launched by MAS, is designed to help financial institutions use AI to generate verifiable insights on environmental risks, focusing at first on Singapore's real estate sector. NovA! aims to gather water and electricity data to monitor whether consumption levels meet efficiency targets that are part of sustainability-linked loans. "Rather than using paperwork to set efficiency benchmarks, we can work with the national utilities to get account level data to enable sectoral or peer comparisons, and then use a verifiable platform like NovA! to monitor performance", said Liu, who is working with MAS on the project.



Another AI application could use satellite data to help agribusinesses track and verify efforts to reduce deforestation, providing vital evidence for NGOs, banks, and companies.



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# Public sector as regulator and partner

Encouraged at least in part by increased concern for climate change, regulators around the world are taking a keen interest in sustainability claims by corporations, particularly their reporting activities. In mid-2022, the US Securities and Exchange Commission proposed new rules compelling companies to enhance and standardize sustainability disclosures, as well as mandating new climate risk disclosures. In Europe, the Corporate Sustainability Reporting Directive similarly expanded reporting requirements starting with the 2023 fiscal year.

## Regulators' efforts welcomed

The various directives make clear regulators' intentions to make sustainability a core priority for businesses. Ruddenklau at KPMG said this regulatory shift is a reason why the bank expects that the global ESG FinTech market will grow from about \$21 billion in 2022 to more than \$160 billion in five years. "Why are we so bullish?" he asked. "Because there are regulatory tailwinds like no other system change that we're seeing currently. This is probably the largest change we've seen since International Financial Reporting Standards were introduced 20 years ago."

The forced shift will not be easy for many companies. **Injeti Srinivas, Chair of the International Financial Services Centres Authority in India**, told the SFF 2022 gathering that the regulatory attention "will require a lot of commitment, accountability and genuine team spirit to integrate ESG objectives with business objectives."





Investors will also be caught up in the scramble to oversee ESG claims and disclosures more diligently. **Nikhil Rathi, Chief Executive of the UK Financial Conduct Authority**, said at SFF 2022, "A core part of the challenge is enabling and encouraging investors to perform well as stewards of their companies as effectively as possible. That means interacting through AGMs [annual general meetings] in a more open and accessible way, rapid voting disclosures after meetings, and increasingly investment votes on transition plans."

Rathi also noted that because data is an increasingly important part of the value chain for financial companies, financial regulators have had to become data regulators as well. Unlike in other areas, however, companies seem to welcome increased oversight of ESG data, he said, adding, "Industry is very keen for ESG data providers to become regulated so as to create some common benchmarks."

Increased regulation also generates greater complexity for financial companies, especially those with multi-national operations. Benchmarks used by various jurisdictions compete for prominence and are sometimes contradictory. An international agreement may be needed similar to the Basel Accords, which unified global regulation of capital, market, and operational risk.

### **Public-private partnerships can support ESG data sharing**

The public sector must also partner with private companies to pursue the common objective of compiling credible data on ESG activities. The scale and range of challenges in the effort put it beyond the means of private resources alone.

The NovA! pilot in accessing water and electricity usage data in Singapore is a clear example of how public-private partnerships might work in this area. Where possible, the aim should be to create a common and clean set of verifiable data that is broadly available. Individual companies would be spared the repetitive and costly task of answering similar questions from different entities and partners, and data presented would be uniform to all who need it.

For such public-private partnerships to succeed, incentives must be aligned. Companies supplying the data must have some benefits proportionate to their efforts in gathering and submitting the data.





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# Conclusion

Despite good intentions from public and corporate leaders over many years, there is undoubtedly great pessimism around society's willingness and ability to meet the climate change challenge. Given the world's track record to date, this pessimism is not entirely unjustified.

The cycle of neglected commitments needs to be broken, and the FinTech industry can be a major catalyst. The industry sits at a critical juncture of finance and technology and is ideally placed to help mobilize the massive capital needed to fulfill sustainability goals. It can also provide much needed support for innovative ideas to reduce greenhouse gas emissions, build renewable energy sources, and other vital efforts.

Having reliable, verifiable data will significantly increase the likelihood of attaining these aspirations and must be addressed as quickly as possible. Two of the newest technologies – blockchain and artificial intelligence – could be instrumental in meeting this challenge. Along with initiatives within the industry, partnerships with the public sector will be essential for success.

Climate change is the most frightful challenge society has faced in human memory. Inertia that leads to inaction must be broken quickly, and the weight of FinTech would make a mighty sledgehammer.



# Related reading

McKinsey has published extensively on sustainability, financial technology, as well as the intersection of the two. For more on these topics, refer to the selection of publications below.



## [The net-zero transition: What it would cost, what it could bring](#)

This report looks at the economic transformation that a transition to net zero emissions would bring, a transformation that would affect all countries and all sectors of the economy, either directly or indirectly. It estimates the changes in demand,

capital spending, costs, and jobs to 2050 for sectors that produce about 85 percent of overall emissions and assesses economic shifts for 69 countries.

## [Shapers of sustainability](#)

How can countries and institutions accelerate the mobilization of capital to close the funding gap required for the transition? McKinsey convenes leading experts across the field to answer this crucial question as part of McKinsey's Shapers of Sustainability interview series.



## [Accelerating toward net zero: The green business building opportunity](#)

Surging demand for zero-carbon technologies, materials, and services gives companies opportunities to build new green businesses. Leaders that move quickly could see exponential growth.



## [How to make ESG real](#)

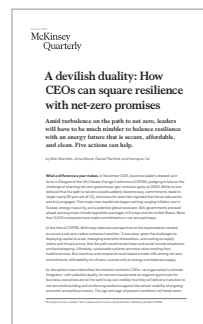
While ESG is likely to evolve both in substance and name in the coming years, its underlying impulse is here to stay. Here's how companies can take a more systematic and rewarding approach to ESG.

## [Innovate to net zero](#)

Achieving net zero emissions will involve a significant economic transformation. Developing, scaling, and deploying climate technologies will be critical to keep global warming to less than 1.5 degrees Celsius. The global decarbonization transition will open new markets and imperil others. We explore how businesses that can innovate quickly and collaborate across value chains will be able to take advantage of enormous green growth opportunities.

## [Fintech microsite](#)

A collection of articles on the disruptive technologies driving start-ups and revolutionizing banking, payments, and insurance.



## [A devilish duality: How CEOs can square resilience with net zero promises](#)

Amid turbulence on the path to net zero, five actions can help leaders be much nimbler and balance resilience with an energy future that is secure, affordable, and clean.