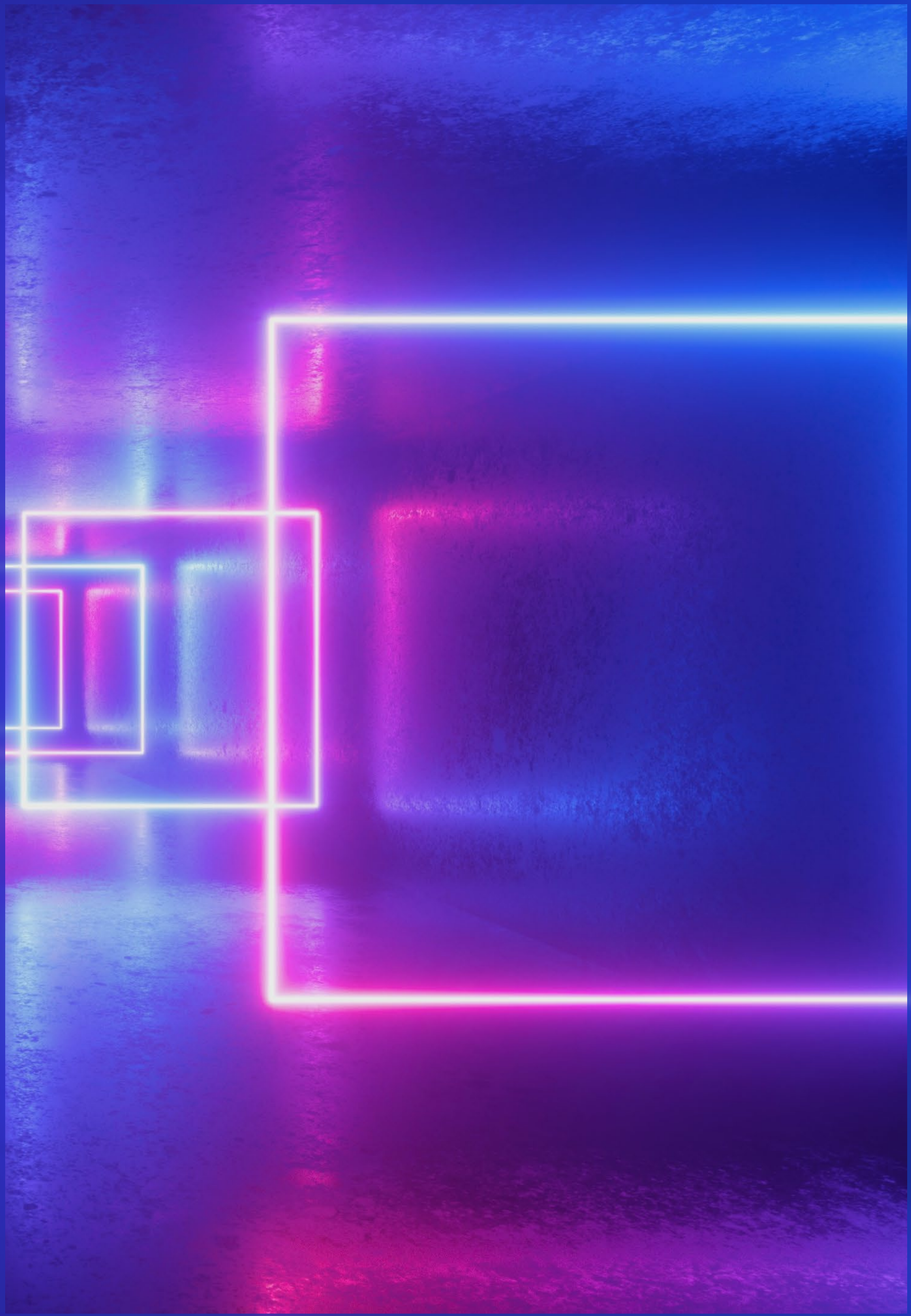
Monetary Authority of Singapore

Enabling tomorrow:

The emergent ESG Fintech ecosystem



KPMG in Singapore

Foreword: KPMG

ESG (Environmental, Social, and Governance) will be the greatest behavioural driver of system wide change across all industry sectors over the next ten years – this is a key finding from KPMG's recent research.[1] The financial services sector will fuel this transformation through capital, liquidity, and risk management services. Yet, incumbent financial institutions are not as well positioned as they could be to take on their instrumental role; it will likely take three to five years for them to develop repeatable capabilities to address such massive demand.

For financial services companies, meeting ESG requirements will involve a myriad of initiatives – new business and operating models, significant external partnering and, most importantly, accessing and transforming significant new sets of data. Collectively, these initiatives will take time for large organizations to design and deliver. This is where financial technology (fintech) firms can bring real value – helping to drive both system wide and organizational changes.

Our near-term challenge is the transition to a low carbon economy – specifically in terms of transition finance. Globally, net-zero commitments over the next seven years are significant. The Achilles' heel of the financial services sector is the access to, transformation of, and packaging of data to inform and codify the new decisions needed for transition. The financial services sector will need to work through real economy sectors, supply chains, and consumers to identify and collect this data to inform decision making. It will also need to learn how to incorporate real time climate, environmental, and physical data signals to support its decision-making models, building on how insurers have harnessed physical risk management previously. Fintech companies can play a big part in this process.

In this initial report, we provide transparency on the use cases, investor opportunities, and emerging capabilities where ESG fintech will add value to transition and broader ESG transformation using data. We are also welcoming your feedback on our ESG Fintech Taxonomy and your engagement to help us – KPMG and the Monetary Authority of Singapore – build deeper insight into this exciting and fast-growing sector of fintech.

There's lots to be done – we look forward to working with you to create measurable change in the financial services landscape.

Antony Ruddenklau
Global Head of Fintech & Innovation,
KPMG International

1. 30 Voices on 2030, KPMG Singapore / Voices on 2030, KPMG International

Foreword : Monetary Authority of Singapore

Climate change is undisputedly one of our time's most pressing survival issues. Global greenhouse gas emissions (GHGs) must peak by 2025 and drop 45 percent by 2030 relative to 2019 to achieve the Paris Agreement target of limiting global warming to a 1.5°C increase.

However, today's emissions trajectory indicates that these goals will be challenging. Tackling the climate challenge is a highly complex issue. It requires a concerted decarbonization effort across all sectors of our economy while concurrently balancing our economic and social growth as a nation.

To that end, the financial sector plays a critical role in catalysing Asia's transition to a net-zero future through effective capital allocation. But, as with every daunting challenge, there lies a greater opportunity. In Singapore, we have the unique competitive advantage of bringing together an integrated approach to tackle this complex challenge. As a leading international financial centre with a global fintech hub, we can bring together advancements in fintech to anchor technical competencies and innovative solutions to mobilize our financial services players towards effective transition financing.

Today, ESG fintech is a nascent space, but it is already showing signs of growth and is expected to accelerate further. We are at an early phase of our journey into ESG fintech. This report helps us understand the innovation happening and discover meaningful use cases that aim to inspire and activate our ecosystem towards greater collaboration between financial services players and ESG fintechs. Collectively, I am confident we will unlock even more opportunities while doing our part for the planet.

Sopnendu Mohanty
Chief FinTech Officer, Monetary Authority of Singapore (MAS)

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Executive summary

Tackling climate change – a key component of ESG – is the defining challenge of our time.
Climate change is the critical issue of our time. Efforts to address it require a rapid transition to a low carbon economy in order to achieve net-zero targets. This is estimated to require $9.2 trillion spending on physical assets annually - $3.5 trillion a year more than is currently being spent.[2]

We engaged the fintech industry to map an ESG fintech taxonomy that facilitates the system change needed to address climate change, as well as social and governance issues. This taxonomy defines the fields of play and use cases that fintechs can accelerate to help drive this change.
Several factors are conspiring to reduce the effectiveness of our capital markets, our large corporate institutions, public institutions, and SMEs, our largest commercial segment, in tackling ESG issues. Fintechs can accelerate the change required, innovating faster than large institutions, solving and sourcing the significant market gap for trusted data where legacy firms have struggled in connecting industry sectors, segments, and organizations. They can also act as the Research & Development (R&D) driver for the broader public/private ecosystem by transforming trusted data into digital services that can be consumed, white labelled, or licensed.

With tailwinds, the ESG fintech segment will achieve 68 percent compound annual growth over the next three years:[3] the fastest and most attractive investment case in the fintech market.
Regulatory change, institutional investor demand, corporate technical debt, and a lack of accessible data are all driving significant demand for climate, decarbonization and social impact-focused fintech. ESG is the fastest growing segment of fintech (albeit starting from a low base). We forecast that the next three years will see successful companies established in this formative segment, a sentiment supported by the investor and expert stakeholder engagement conducted during the formation of this paper.

2. https://www.mckinsey.com/capabilities/sustainability/our-insights/the-net-zero-transition-what-it-would-cost-what-it-could-bring
3. *KPMG Analysis: Fintech Strategic Review 2020*

Carbon services, green data and market infrastructure, as well as investment management segments represent the largest growth prospects.

We have identified eight ESG fintech segments, including both vertical and horizontal contributors. The payments segment has dominated fintech growth over the last fifteen years, and green and socially focused payment services can now enable financial inclusion and social uplift. In addition, other services will be required to decarbonize, capitalize transition, and establish the market and data infrastructure needed to support a new trusted sustainable finance ecosystem.

The sourcing, transformation, and use of data will be the critical enabler for ESG fintech to bridge the real economy and financial sectors.

The proposed ESG Fintech Taxonomy recognizes that most real economy ecosystems or sectors have a co-dependent relationship with system change. Real economy actors, particularly SMEs, have the data, signals, and commercial behaviours needed to source, manage, and deliver desired outcomes from ESG. Such collaboration is the best manifestation of the open data movement; it requires a combination of industry specific applications and organization of any data captured into decision making insights for all financial services sectors.

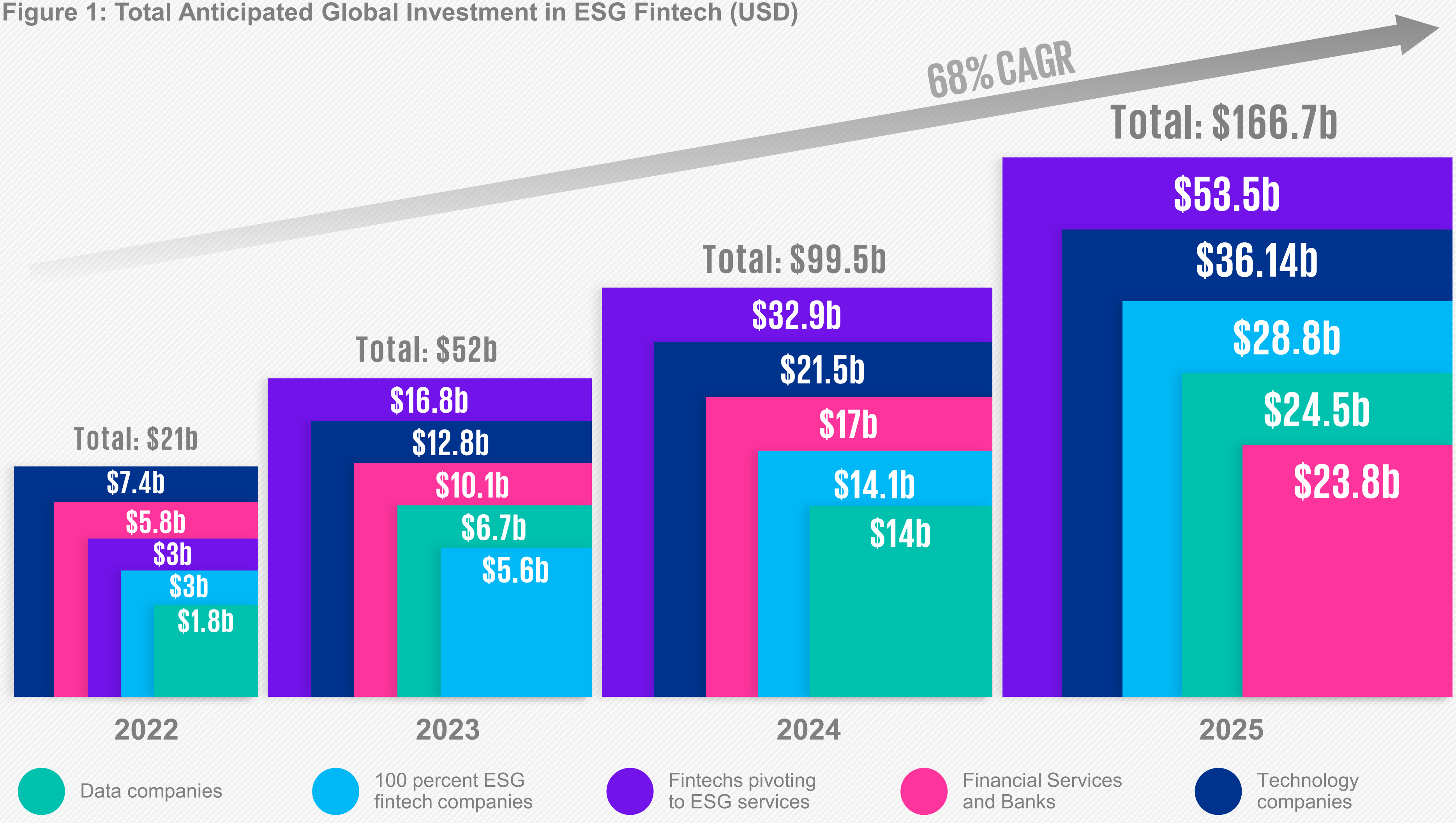
Purposeful expansion of the ESG fintech ecosystem not only drives greater acceleration of capital and liquidity towards ESG causes, but also contributes significant value-add to the real economy.

We estimate that for every 40 cents invested into the ESG fintech segment, 60 cents of gross value-added benefit[4] will be accrued to the wider economy through improved capital flow to the organizations, infrastructure, and communities that ESG fintechs serve. While we have not estimated the economic or environmental benefits at this stage, we expect them to be significant.

This is the first review globally to put shape and numbers to the nascent segment of ESG fintech. We welcome your feedback and input as we continue our efforts to understand this exciting space. Please reach out for more information. Our next paper will be released in H1 2023.

4. KPMG Analysis: Fintech Strategic Review 2020

Figure 1: Total Anticipated Global Investment in ESG Fintech (USD)



* The above represents the total global spending into ESG fintech product verticals and enabling segments

Introduction to research

It's an exciting time for companies and fintechs in the financial services sector. Despite increasing geopolitical and macroeconomic tensions – from rising inflation and interest rates to the Ukraine conflict and a looming global recession – the sector is fast becoming a lynchpin to enable a more prosperous and sustainable future, not only for consumers, businesses, and governments, but for the planet itself.

Across the world, ESG action is growing. Many countries and organizations have committed to phase out the use of coal, reduce GHG emissions, invest in green energy, and accelerate financial inclusion. Turning these commitments into results while managing and mitigating increasing ESG-related risks will take significant collaboration and cooperation.

Numerous fintechs are working to understand and seize the opportunities created by the intersection of ESG and financial services – with more emerging every day. VC, PE, and corporate investors have also noted ESG fintech's rise and are starting to make substantial investments. While many of these are still at the early deal stage, investment levels are expected to rise quickly.

As we face an uncertain future, the convergence of ESG and fintech has potential to redefine how governments, regulators, businesses, and communities tackle ESG issues and vastly improve results. To make the most of this, we must understand how ESG and fintech are merging and how to forge an optimal path forward.

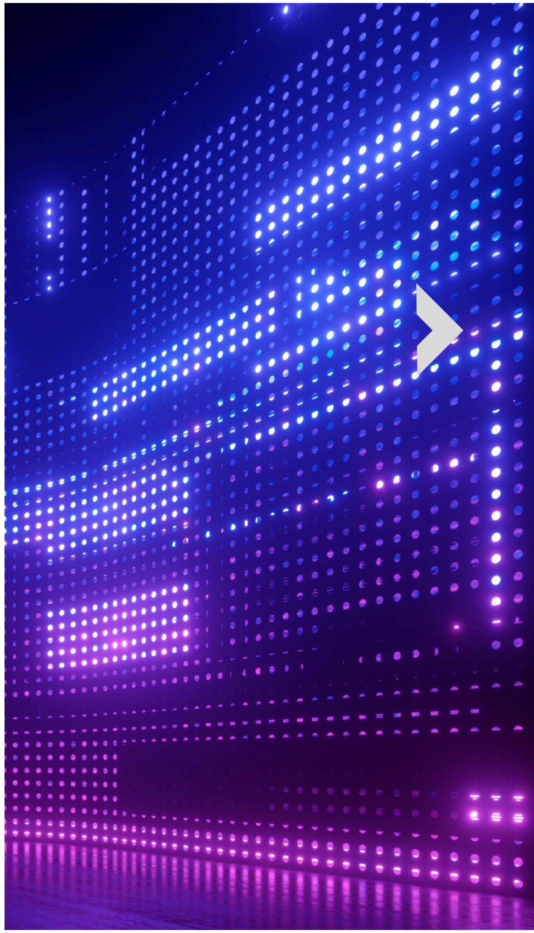
▶ Purpose of this report

Financial services will play a critical role in creating a more sustainable, ESG-driven future. This report seeks to foster a better understanding of how companies and fintechs in this sector can support ESG objectives and enable more transparent, accurate, and effective outcomes. It provides a primer on how ESG and fintech are converging and where VC and PE investors are focusing their attention. We give an overview of the ESG imperative, discuss financial services' role in contributing to ESG outcomes, and examine the convergence of ESG and fintech.

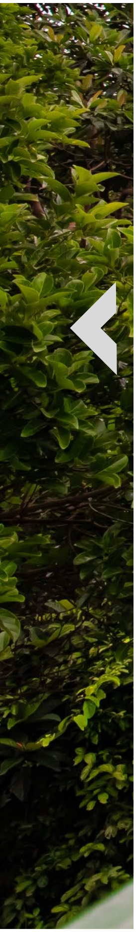
An ESG fintech taxonomy is proposed in order to lend structure and clarity to how we define this domain. This also aims to permit the exploration of current and future trends in key horizontals (i.e., green market infrastructure and data services) and verticals (i.e., regtech, insurtech, carbon services, investment management, lending, and payments/transactions).

▶ Approach to this report

In order to develop our ESG fintech taxonomy, we analysed VC and PE investment in the ESG domain based on data identified in KPMG's Pulse of Fintech, as well as conducting expert interviews and secondary research. The nascent nature of this field necessitated several assumptions when assessing ESG fintech spend. See *About the report* for more information on methodology. All currency figures are in USD.



The ESG imperative



As one of the critical issues of our time and a key facet of the larger ESG equation, efforts to address climate change are expected to drive long-term transformation across almost every aspect of society, from government priorities and regulations to the operations of industries and the behaviours of consumers.

The direct impacts associated with climate change are manifold, including more extreme weather events, increasing sea levels, declining food security, and negative economic impacts. For example, the Asian Development Bank suggests that without mitigation, climate change could cause the GDP of Southeast Asia to decline by 11 percent by 2100.[5] The resonating effects – including business continuity issues, shifting risk and insurance models, and other wide-ranging industry impacts – will take a toll on the livelihoods and wellbeing of people. This is a particular concern for societies and economies in regions and countries more vulnerable to climate change.[6]

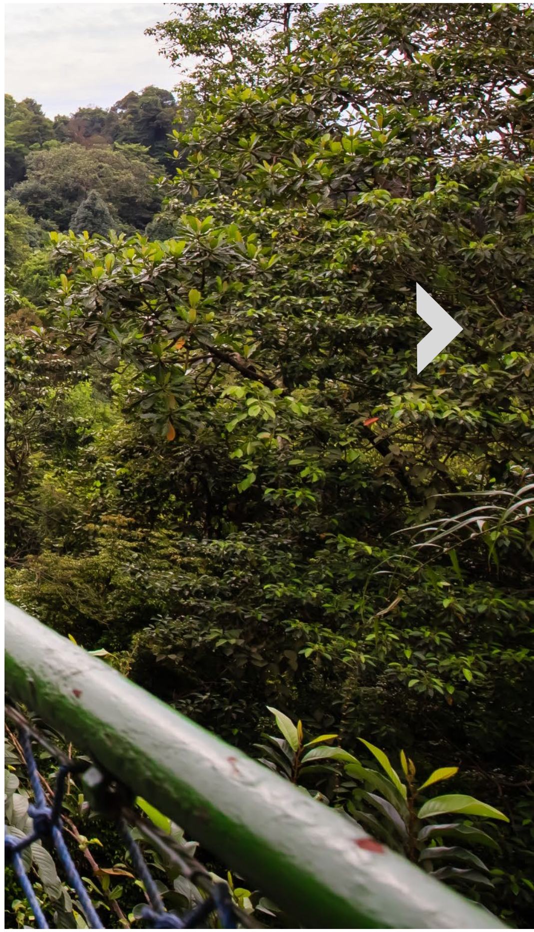
But with great challenges, come great opportunities. The next few years will be a time of great transition as governments and businesses work to achieve their climate change mitigation targets.

The opportunities being created as part of this transition are unprecedented, and expected to not only reshape existing industries but also to foster and create new ones.

Recognition of the extent of the climate change challenge and its related opportunities has increased dramatically in recent years, helping drive a broader ESG imperative – one that includes the need to improve social and governance outcomes in addition to environmental ones.

What does ESG mean for businesses?

- **Environmental:** A company's impact on the environment (e.g., GHG emissions, waste generation) and exposure to climate risks (e.g., flooding, drought).
- **Social:** A company's impact on its people, stakeholders, and communities it operates in and exposure to social risks (e.g., inappropriate labour practices).
- **Governance:** A company's governance, risk, controls, and accountability structures and processes.



5.https://www.adb.org/sites/default/files/publication/684891/adbi-wp1223.pdf
6.https://www.mckinsey.com/~/media/mckinsey/business%20functions/sustainability/our%20insights/climate%20risk%20and%20response%20physical%20hazards%20and%20socioeconomic%20impacts/mgi-climate-risk-and-response-full-report-vf.pdf

Commitment to ESG outcomes

Over the past few years, a number of countries and organizations have made significant commitments related to ESG outcomes. For example, global agreements made at COP26 in 2021 included the phase-down of coal power, operational details for the practical implementation of the Paris Agreement (e.g., principles for carbon markets), and reaffirmation of the pledge to deliver $100 billion a year in climate finance to developing countries. A number of financial institutions and central banks also announced plans to realign a significant amount of their investments towards achieving net-zero emissions globally, while thirty countries and six major vehicle manufacturers set a goal to have all new car and van sales be of zero-emission vehicles by 2040.[7]

More recently, in September 2022, members of the Alliance for Financial Inclusion updated and strengthened the commitments in a number of their accords, including the Sharm El-Sheikh Accord on Inclusive Green Finance, the Denarau Action Plan on gender inclusive finance, and the Sochi Accord on Inclusive FinTech.[8]

Barriers to ESG action

Given their significant commitments, governments and businesses are under enormous pressure to make real progress on ESG initiatives. However, their ability to definitively achieve these targets in the eyes of their key stakeholders is a significant concern. Key barriers to achieving ESG outcomes include:

- **Data:** The availability, credibility, and comparability of ESG-related data is a major stumbling block for achieving ESG and climate change objectives, making it difficult to collect, assess, report on, and compare results across companies and countries. Organizations commonly use different techniques and data sources to gather and assess their data as there are no standard ESG reporting requirements globally. These individualized methods can make it difficult to trust the veracity of the data and results being reported.
- **Actionability:** The process of turning data into the insights needed for decision making and to support new use cases is complex and time consuming for most organizations today – and innovative technologies and solutions that can enable this process are still in a relatively nascent stage of development.

7. https://www.un.org/en/climatechange/cop26
8. https://www.afi-global.org/newsroom/news/afi-members-set-new-goals-for-financial-inclusion/

▶ The intersection of ESG and financial services

Growing awareness of the major barriers that could prevent governments and businesses from achieving their ESG objectives is putting the financial services sector in the spotlight. Banks, insurance companies, wealth management companies, and other financial services companies and fintechs are increasingly being recognized as potential enablers of ESG outcomes – not only within the financial services sector itself, but also among governments and organizations across sectors.

We are already starting to see incumbent financial institutions, established real economy players with fintech offerings, and emerging fintechs focusing on the development and delivery of ESG fintech solutions (e.g., carbon exchanges, climate risk modelling) in response to growing interest. We're also seeing a growing number of VC, PE, and corporate investors becoming interested in ESG fintech solutions.

Additional drivers of ESG-fintech convergence

In addition to the external demand from governments and other organizations working to achieve ambitious ESG commitments, two other key trends are driving interest, activity, and investment in companies operating at the intersection of ESG and financial services: the emergence of finance-focused regulations and changing customer expectations and demands.

Emergence of finance-focused ESG regulations

Governments and regulators around the world are rapidly increasing their focus on the intersection between ESG and the financial services sector. At an ecosystem level, numerous jurisdictions have included green finance initiatives in their sustainability and climate change action plans or as part of specific sustainable finance regulations. Others are soon expected to do so. For example:

- **Europe:** Europe is considered the forerunner for most ESG initiatives, including many relating to green finance. In 2018, the European Commission released a Sustainable Finance Action Plan aimed at financing sustainable growth. The plan contains a number of initiatives, including the development of a Sustainable Finance Disclosure Regulation, which was enacted as of 2021. This aims to prevent greenwashing and improve the transparency of sustainability claims made about investment products by financial market participants. The plan also includes low carbon climate benchmark rules to help drive investment capital to climate initiatives, and a green taxonomy that classifies environmentally sustainable economic activities.[9, 10]

9. https://qontigo.com/eu-introduces-new-benchmark-rules-to-combat-climate-change.
10. https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en

- **Singapore:** Singapore's Green Plan 2030 includes a number of targets focused on building a green economy, including making the country the leading centre for green finance and services to facilitate Asia's transition to a low-carbon sustainable future.[11] Singapore is currently undertaking a number of initiatives to support this target. In May 2022, the MAS's Green Finance Industry Taskforce issued its second consultation paper on a green taxonomy and associated standards for Singapore-based financial institutions.[12]

- **China:** At the federal level, China has undertaken several initiatives aimed at clearly defining green sectors and projects. In 2019, it released a Green Industry Guidance Catalogue identifying a clear list of green industries in the country. China also issued a Green Bond Endorsed Project Catalogue in 2021, which includes a list of projects eligible for green bonds. At the municipal level, the Shenzhen municipal government released China's first regulations to govern green finance development in 2020 – including the requirement for financial institutions to disclose their environmental impact information by 2022-2023.[13] This is viewed as a pilot project, with the plan to see similar initiatives rolled out across other municipalities.

Evolving ESG-focused fintech regulations and initiatives, such as those outlined above, combined with shifting rules and regulations related to data and privacy are driving interest and investment in a wide-range of fintech solutions. These range from infrastructure and data plays to support regulatory compliance through to wealth management solutions aimed at evaluating potential investments from an ESG perspective.

It is important to note that while many jurisdictions recognize the overarching ESG imperative, the mechanisms they are using to drive related activities and investment are typically jurisdiction specific. This means that the maturity level of ESG-focused fintech subsectors and solutions can be quite different from country to country, based on their specific priorities.

11. https://www.greenplan.gov.sg/targets
12. https://abs.org.sg/docs/library/second-gfit-taxonomy-consultation-paper
13. https://www.senecaesg.com/insights/shenzhen-releases-regulations-to-oversee-regional-green-finance/

Moving towards global ESG reporting standards

While ESG reporting is voluntary in most jurisdictions, there are several initiatives underway that could help drive its standardization. Two key initiatives include:

- **European Sustainability Reporting Standards:** In 2021, the European Commission tasked the European Financial Reporting Advisory Board to develop sustainability reporting standards for use across Europe. Draft standards were released in early 2022, with final standards expected by the end of 2022 and sector-specific standards expected in 2023.
- **International Sustainability Standards Board (ISSB):** The IFRS (International Financial Reporting Standards) Foundation established the ISSB to develop the IFRS sustainability disclosure standards. In March 2022, the organization released draft general sustainability-related disclosure requirements and draft climate-related disclosure requirements, with final versions expected by year end.

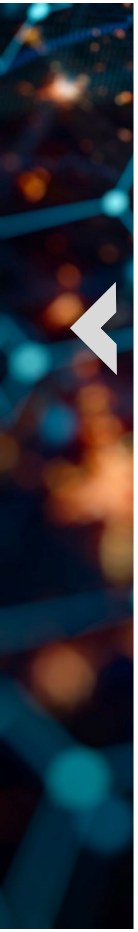
Changing customer expectations

Shifting customer demands are driving greater focus on ESG solutions, not only in financial services but in almost every B2C sector. In the investment space, for example, millennial investors are increasingly demanding banking products and investment options that align with environmental and corporate social responsibility principles. According to Refinitiv data, investor interest in sustainable assets increased by 34 percent in 2020; for millennial investors, this number was almost double (61 percent).[14] Millennial investors' recent interest in sustainability extends across the ESG domain, with 75 percent of this group believing that their investments can influence change and 84 percent believing that their investments can help lift people out of poverty.[15]

Financial services companies themselves – banks, insurance companies, wealth management firms, and others – are also on the hunt for fintech solutions that can help them move the dial in terms of both their internal ESG activities and the products and services they offer to clients. Amid increasing macroeconomic uncertainty, there will likely be even more demand for solutions that can help them address multiple priorities, such as the need to evaluate sustainable investment opportunities while also improving operational efficiencies.

14. https://www.refinitiv.com/es/recursos/informes-especiales/redefining-investor-data-needs-wealth-management
15. https://www.forbes.com/sites/worldeconomicforum/2021/02/08/what-the-rise-of-the-millennial-investor-means-for-a-sustainable-world/

ESG Fintech: A new world of opportunity



Over the next few years, technology will be a key enabler for the transformation of governments and businesses to achieve their climate change and other ESG commitments.

Scope of transformation required spans every sector and geography, the extent of which is difficult to envision. One estimate suggests that total global spending will need to rise by $3.5 trillion a year – each year – in order to achieve net-zero in 2050.[16]

Many different technologies will be required to power the great transition ahead. These include artificial intelligence (AI) and machine learning based solutions that can collect, analyze, and drive actionable insights and accurate reporting, as well as blockchain-based solutions to support credible carbon emissions trading regimes and mechanisms to track value chain activities.

The core of many of the technologies needed to enable immediate climate change outcomes have already been engineered – by financial services companies, data companies, big technology players, fintechs, and other start-ups. What's needed now is investment to help adapt these core technologies (e.g., blockchain, data collection and reporting, climate risk modeling) to ESG and climate change use cases.

Such endeavours are already happening. A number of existing financial institutions, real economy players, data companies, fintechs, and other companies have already developed new ESG fintech solutions or adapted existing solutions to deliver ESG value. An increasing number of VC, PE, and corporate investors are also showing interest in ESG fintech and making investments in the space.

But much more is needed. In the remainder of this section, we highlight players active in the ESG fintech space, discuss high level ESG fintech investment trends, and share an ESG Fintech Taxonomy that KPMG and MAS developed to illustrate the sector as it currently exists.

What is ESG fintech?

ESG fintech refers to fintech solutions addressing issues at intersection of ESG, financial services and technology. These include financial services-based technologies, products and services that are being adapted to ESG and climate change use cases.

16. https://www.weforum.org/agenda/2022/01/net-zero-cost-3-5-trillion-a-year/#:~:text=Douglas%20Broom&text=Getting%20to%20net%20zero%20by,in%20a%20low%2Dcarbon%20world.

Key players in the ESG fintech space

The ESG fintech space features an incredibly broad cross section of player types. In addition to incumbent financial institutions, these include enabling ESG fintechs and a number of pure play fintechs, such as Stripe, Robinhood, Nubank, Bolttech, and FTX. In addition to incumbent institutions, players in the ESG domain include:

- **100 percent ESG fintech companies:** Start-up companies created to address specific ESG fintech opportunities.
- **Existing fintech companies with ESG services:** Start-up fintechs that are now pivoting to defined ESG use cases.
- **Data companies with services relevant to ESG:** Big data and technology companies that already address financial services use cases and that are extending their capabilities to ESG data.
- **Technology companies with adjacent services for ESG:** Companies that currently serve the financial services sector (e.g., assurance, attestation, verification) that are extending their capabilities to ESG offerings.

Examples of innovative solutions: Where fintech meets ESG

- *Funding companies focused on alternative energy, cleantech, or the transition to net zero.*
- *Lending to organizations looking to make ESG-related changes to their operations (e.g., to reduce GHG emissions).*
- *Developing platforms to collect and analyze ESG data for governance, risk, and compliance purposes.*
- *Improving climate risk assessment for investing and insurance purposes.*
- *Creating tools to conduct portfolio risk analysis and measurement related to ESG.*
- *Providing support and infrastructure for carbon tracking, measurement, and trading.*
- *Enhancing know-your-customer (KYC) capabilities to incorporate ESG variables and improve client lifecycle management.*

Figure 2: The diversity of the ESG fintech cohort

ESG fintech investment trends

Globally, both VC and PE investors are starting to recognize the important roles that fintechs can play in solving ESG challenges. For example, fintechs can help to drive the energy transition, facilitate robust and accurate ESG data and reporting, build the infrastructure for carbon trading, and foster financial inclusion, in addition to numerous other activities. Investors see the potential for strong growth ahead, similar to the convergence of technology and financial services that has been witnessed in recent years.

While still in the nascent stage, VC and PE investment in ESG fintech companies is expected to reach $6 billion by the end of 2022. Investment is equally split between ESG native fintech companies and fintechs pivoting to ESG.

Figure 3: Latest rounds of funding examples

Greenbacker	Descartes Underwriting	Deepki	Mio tech	Mosaic	Creditas	Generate	Solfacil	Alter5
Investment management	**Insurtech**	**Data**	**Data**	**Lending**	**Lending**	**Lending**	**Lending**	**Investment management**
Provider of specialized financing services intended to fund solar, wind, co-generation, and other alternative energy projects.	Provider of insurance underwriting services intended to offer a new generation of parametric insurance that builds resilience against climate risk.	SaaS-based data management platform designed to digitalize the management of large property portfolios.	Provider of big data solutions that focuses on sustainability and ESG data.	Developer of a residential solar lending platform intended to provide crowdfunded loans for residential solar projects.	Developer of a digital secured lending platform designed to offer lending, investment, and financing services at lower interest rates.	Provider of specialty finance services capital intended to deploy sustainable infrastructure.	Developer of a solar fintech platform designed to unlock investments in the distributed solar market.	Developer of technology and a financial platform designed to provide institutional investors with direct access to a wide range of curated sustainable investments.
$330m	**$120m**	**$165m**	**$150m**	**$200m**	**$310m**	**$300m**	**$130m**	**$119m**

*Pitchbook data analysis (October 2022)

While many investments in the 100 percent ESG fintech space are still focused on early-stage companies, the level of investment is expected to grow very quickly over the next three years. KPMG projects that total annual investment will double in 2023, then rise to $14.1 billion in 2024, and $28.8 billion in 2025.

In addition to funds from traditional VC and PE firms, significant ESG fintech-focused deals are also anticipated from major banks and financial institutions, big technology companies, and big data firms. Figures 4 to 6 provides projections for each of these groups.

Singapore expected to help drive ESG fintech investment

Singapore is expected to play a significant role in fostering and attracting ESG fintech investment over the next few years. KPMG anticipates total annual investment in Singapore-based ESG fintech to reach $6.59 billion by 2025.

Figure 4: Banks and Financial Institutions (ESG spend)

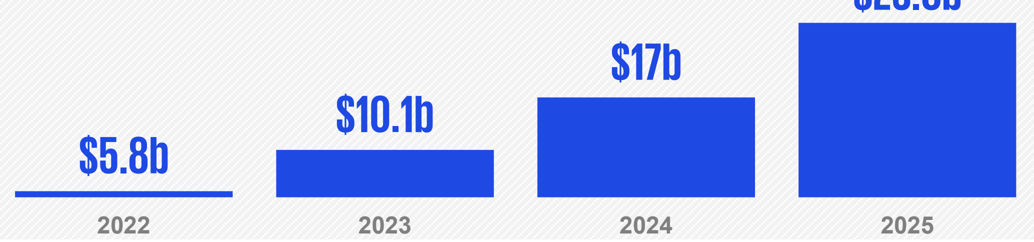


Figure 5: Technology Companies' (ESG spend)

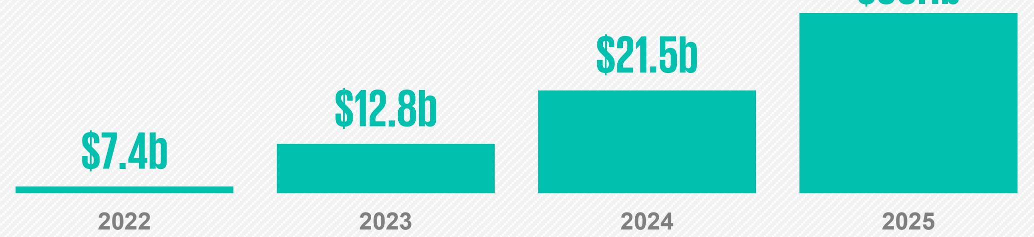
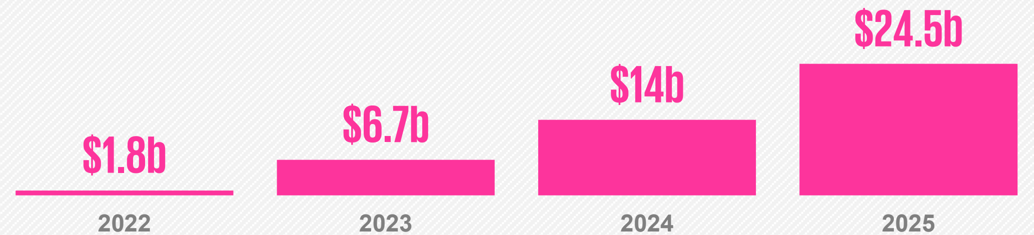


Figure 6: Data Services (ESG spend)



Defining the ESG fintech ecosystem

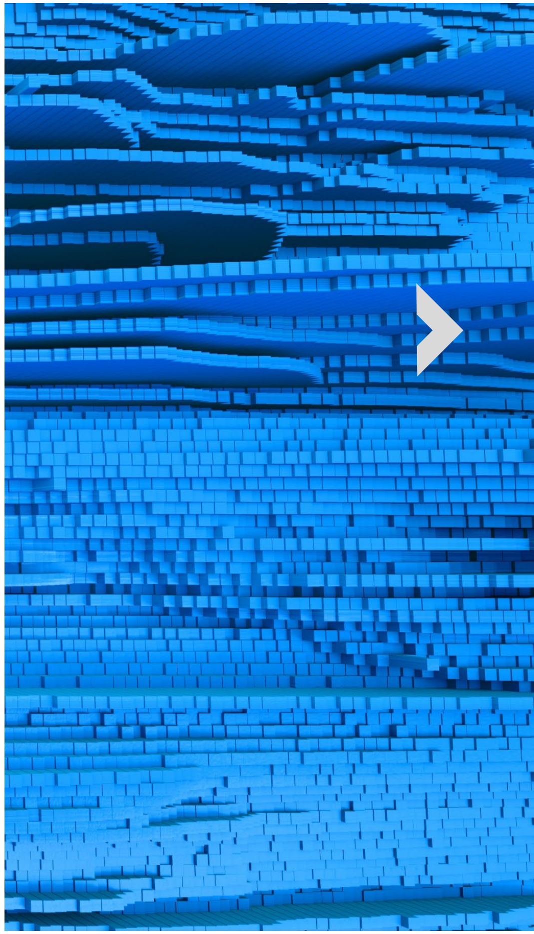
Although relatively nascent compared to other sectors, the global ESG fintech ecosystem is already incredibly diverse. Different jurisdictions have prioritized different aspects of ESG within financial services, meaning that the global ecosystem will not mature in a linear fashion. Rather, regions will see different ESG fintech product verticals mature at different rates. For example, carbon services will likely mature more rapidly in jurisdictions with regulated carbon trading regimes, such as the EU, China, New Zealand, California, and New York.[17] Likewise, fintech will mirror existing financial sector strengths in capital markets, transaction banking, wealth management, and asset servicing.

While individual product areas may evolve independently in different jurisdictions, data is expected to be a key focus of ecosystem development the world over, given that the success of all product verticals is likely to depend on the ability to identify, collect, analyse, and compare data effectively and accurately. Similarly, infrastructure to support delivery of ESG fintech solutions – such as the development of digital assets for carbon trading – will also be a key priority in most, if not all, jurisdictions.

▶ The ESG Fintech Taxonomy

The ESG fintech space is complex and diverse, with immense connectivity and overlap between enablers, product verticals, financial services subsectors, real economy sectors and market activities. Figure 7 gives an overview of the taxonomy co-developed by KPMG and MAS to illustrate the current ESG fintech space. Below is a brief explanation of each category of the taxonomy.

- **Enablers** are the horizontal building blocks of the ESG ecosystem, including both green market infrastructure (e.g., exchanges, platforms, indices) and data services (e.g., collection, verification, analytics).
- **Product verticals** are the categories of ESG fintech product offerings seen currently. These include regtech, insurtech, carbon services, investment management, lending, and payments/transactions.
- **Financial services subsectors** are the subsectors within financial services to which different product verticals can be tailored. These include private markets (e.g., private equity firms, venture capital firms, family offices), asset and fund managers, banking institutions (e.g., retail, wholesale, capital markets), real estate, and insurance (e.g., general, life, commercial, reinsurance).
- **Real economy activities** are current areas where there is extensive overlap with potential ESG fintech value propositions. They include agriculture and food, energy, smart cities, supply chain, manufacturing, building and construction, carbon markets, social impact, nature-based solutions and impact investing.



17. https://www.rbcgam.com/en/ca/article/understanding-carbon-markets/

Figure 7: ESG Fintech Taxonomy

Real economy ecosystems

- Agriculture
- Energy
- Smart cities and mobility
- Supply chain
- Manufacturing
- Building and construction
- Maritime
- Carbon markets
- Social impact
- Nature based solutions & impact investing

Financial Services sectors

- Private markets
- Asset Management & Pensions
- Banking & Capital Markets
- Real Estate
- Insurance

Product vertical segments

- Regtech
- Insurtech
- Carbon services
- Investment Management
- Lending
- Payments / Transactions

Enabling horizontal segments

- Data (e.g., data collection, analytics, verification)
- Infrastructure (e.g., reporting, exchanges, indices)

Expected evolution of the ESG Fintech Taxonomy and ecosystem

Over the next few years, tremendous innovation is expected in the ESG fintech space. While many of the technologies already exist to underpin ESG fintech solutions (e.g., AI, machine learning, blockchain), there will likely be a major uptick in the development of specific and tailored ESG fintech solutions. This development will likely occur both within and across levels of the ESG fintech taxonomy. Internal innovation within incumbent institutions will fuel much of the demand – for example, an insurance company looking to understand and model climate change risk – as well as new external platforms like the development of data stores to feed into ESG regtech solutions that can be used by different financial services sector participants.

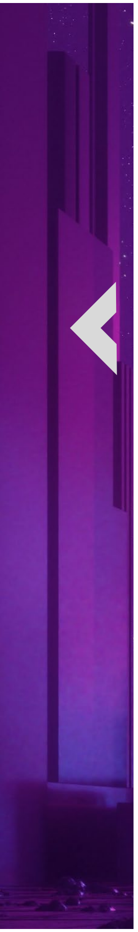
There will likely also be an increase in companies from real economy sectors looking to pivot or extend their offerings into ESG fintech. This will primarily come from adjacent technology providers that have services that can support financial services across the data continuum. We forecast that the sourcing of physical data signals will be the prime use case for initial adoption, while aggregator platforms and digital services will also drive consumption within financial services. Examples of these types of services include:

- Smart building companies pivoting to carbon services given their ability to estimate carbon emissions from the use of utilities.
- Sourcing and collection of SME emissions data from across supply chains to inform trade finance.
- Farm production data applied to bank lending in the context of climate change.
- Supply chain tracking deployed into circular economy financing.
- Electric vehicle tracking to inform lending-as-a-service solutions.
- Use of provenance platforms to identify, measure and fund transition of product sourcing.

Data: The lifeblood of ESG fintech
To achieve transition and broader ESG objectives, trusted data is required to fuel decision making, product development, assurance, and attestation. Fintechs have a part to play across the entire data lifecycle from sourcing through to attestation. Figure 8 details the many use cases that fintechs are well positioned to target that will be critical to delivering a network effect of ESG.

Figure 8: Examples of ESG fintech solutions in the ESG data continuum

Spotlight on product verticals and enabling segments



This section of the report spotlights each of the major ESG fintech product vertical segments and horizontal enabling segments including how they align with ESG outcomes, examples of sector players, current investment, and future trends to watch for over the next few years.

- ▶ Regtech
- ▶ Insurtech
- ▶ Carbon services
- ▶ Investment Management
- ▶ Lending
- ▶ Payments / Transactions
- ▶ Data
- ▶ Infrastructure

Approach to commentary

To support our review of product verticals and horizontal enabling segments, we undertook a review of existing data and research and conducted various interviews with subject matter experts. To help quantify each domain, we developed an estimate of total Global investment Activity (VC, PE and M&A) in ESG fintech. We also assessed the desirability, visibility and feasibility of each the product vertical segments.

Figure 10: Total Global Investment Activity in ESG Regtech

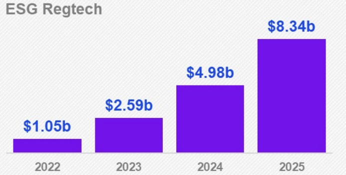
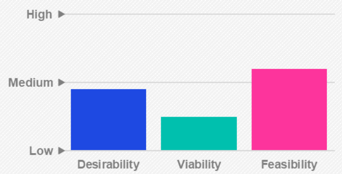


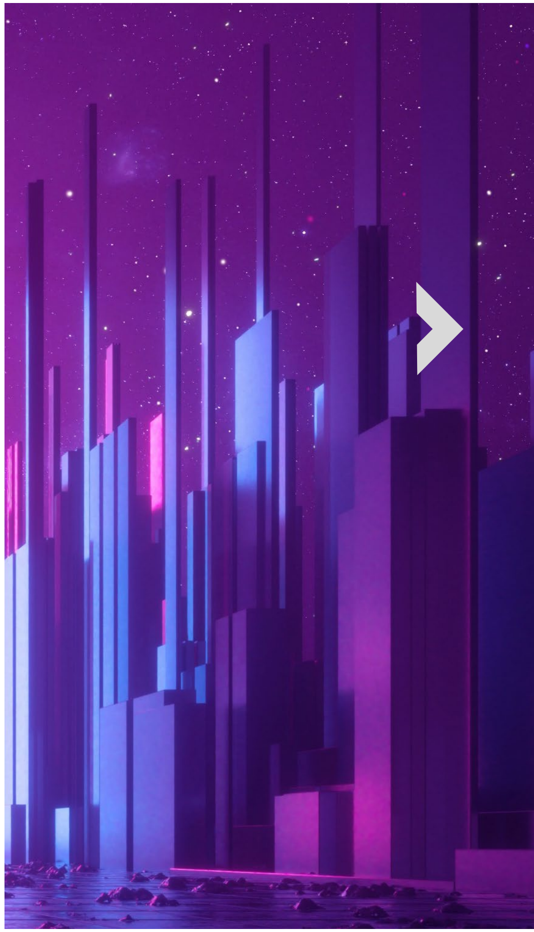
Figure 11: Investor sentiment in 2022



Desirability:
What is the long term thesis for market change?
What will be the level of demand for these services?
Will regulation support or inhibit demand?
How big is the total market?

Viability:
Is this a profitable domain?
Are commercial models easy to deploy?
What is the path to profitability?
Is the service complementary or core to change?

Feasibility:
How easy it to enter this market?
How easy is to scale effectively?
Do capabilities exist or do they need to be developed?
Can distribution be aided by adjacent or incumbent players?



► Regtech

Regtech refers to innovative technologies and solutions that help organizations respond to the ever-changing regulatory environment, while also providing enhanced data for financial sector decision-making, reducing compliance risks, and improving protections for consumers, businesses, and investors. Regtech often leverages AI and machine learning to automate and enhance specific activities within an organization (e.g., data collection, monitoring, compliance reporting).

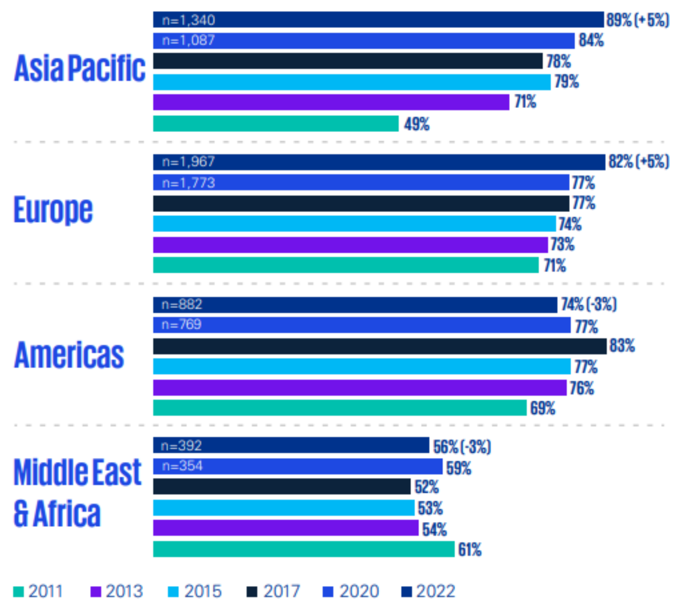
In the case of ESG regtech, technologies and solutions are often developed to align with specific regulatory requirements or voluntary disclosure frameworks (e.g., the Global Reporting Initiative reporting standards) or to provide verification of ESG attributes for assets, modelling related to climate change risks, and similar activities. Regtech is seen as particularly valuable to potential investors as it has applicability across all three pillars of ESG (i.e., environment, social, governance).

There is little doubt that regtech has a very strong value proposition, given that a large number of companies are reporting results, even if not required to do so by regulation. According to KPMG's Survey of Sustainability Reporting 2022, 96 percent of the G250 (i.e., the world's 250 largest companies by revenue based on the 2021 Fortune 500 ranking) report on sustainability and ESG matters.[18]

At a regional level, the Asia-Pacific saw the largest percentage of its big companies reporting on sustainability and ESG issues (89 percent in 2022), followed relatively closely by Europe (82 percent in 2022). After a strong result in 2017 (83 percent), the Americas saw sustainability reporting fall to 74 percent in 2022.[19]

18. https://assets.kpmg/content/dam/kpmg/xx/pdf/2022/10/ssr-executive-summary-small-steps-big-shifts.pdf
19. https://assets.kpmg/content/dam/kpmg/xx/pdf/2022/10/ssr-small-steps-big-shifts.pdf

Figure 9: Regional sustainability reporting rates (2011-2022)



Base: 5,800 N100 companies

Source: KPMG Survey of Sustainability Reporting 2022, KPMG International, September 2022

Contribution to ESG outcomes

Regtech solutions can contribute to a wide range of ESG outcomes. For example:

- Automation of ESG reporting, including data collection, synthesis, analysis, and reporting.
- Verification of ESG-related models (e.g., climate change risk models, credit risk assessment models, climate vulnerability models).
- Improved accuracy, consistency, and transparency of ESG data and results.
- Extension of existing reporting mechanisms to include ESG data and standards.

Turnkey Group (Singapore)

Turnkey provides risk management services targeted at environmental management software and consultancy firms. The company provides modular, customizable ESG risk management services combined with real-time data, security, and analytics to enable activities within the financial sector, supply chain activities, corporate sustainability, and investors to manage risk.

Sector players
There is no globally mandatory standard for ESG reporting, nor is there a single process for collecting and calculating results. As such, regtech products and services are still a relatively small contributor to the overall ESG fintech space, though interest and investment in the domain is growing rapidly. Several large financial services focused data and regtech players have already developed ESG offerings intended to support decision-making and risk management. For example, MSCI provides ESG data, rankings, indexes, and other products for use by a range of financial services sector participants, including banks, insurance companies, and wealth management companies. ESG fintech companies focused specifically on the regtech domain have also emerged in a number of jurisdictions, though most are still relatively small in terms of the investment they are attracting.

Examples of recent deals in the regtech space include:
Greenomy ($7 million): Belgium-based Greenomy has developed sustainability software intended to help issuers and investment funds to comply with the new EU Taxonomy. The company's software collects, verifies, and shares relevant ESG data and gives bespoke recommendations to improve sustainability scores, enabling clients to allocate capital and companies to adjust activities towards their climate goals.

- **RegASK ($6 million):** Singapore-based RegASK is a digital platform that uses AI to augment regulatory research and management of ESG issues. The platform monitors, anticipates and reports updates or changes made to relevant regulations and is able to analyze any compliance gaps of products.

ESGenome (Singapore)
ESGenome is a joint initiative by MAS and SGX Group under Project Greenprint to develop a common disclosure utility that will facilitate sustainability reporting for SGX-listed companies. It helps listed companies simplify their disclosure processes using a core set of metrics that are mapped across global standards and frameworks and enables investors to access the data in a consistent and comparable format.

Current investment

ESG regtech is a fast-growing domain. Many existing providers are pivoting their product roadmaps to support banking supervision, underwriting, and regulatory reporting requirements. Current development is focused primarily on three key areas:

- **Assessment of supply chain risk:** Assessment and surveillance tools for climate risk and climate volatility, ethical sourcing, and provenance.
- **Policy compliance technology and portals:** Tools that embed new ESG policies into day-to-day workflows, internal decision support mechanisms, and monitoring activities.
- **Corporate reporting disclosures:** Establishment of external disclosures to meet voluntary or regulatory requirements across a variety of frameworks.

Future trends

The evolution of ESG regulations in different markets will likely increase interest and investment in ESG regtech in the years ahead, particularly as more jurisdictions introduce mandatory regulatory requirements (e.g., GHG emissions reporting, adherence to sustainable finance criteria). In the interim, large financial services-focused data players will likely continue to evolve their offerings in the domain.

Figure 10: Projected total global investment activity in ESG regtech

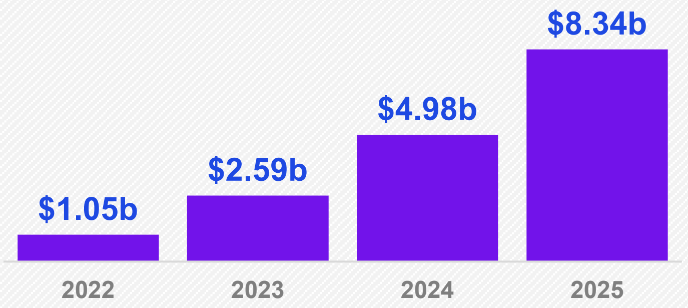
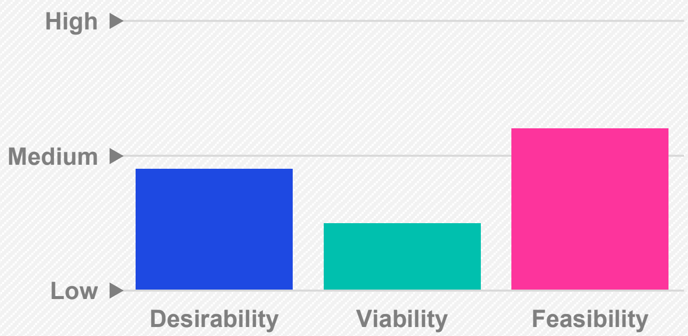


Figure 11: Investor sentiment in 2022



Insurtech

Insurtech refers to innovative technologies specifically focused on improving the efficiency and effectiveness of any or all components of the insurance value chain (e.g., sales, policy administration, underwriting, claims management), either directly or by enabling established insurance and other companies.

ESG insurtech products and services typically provide solutions and tools that help insurance companies assess and manage ESG related risks. Concern about climate risk in particular is growing very quickly given the rising cost of extreme weather events. Germany-based Munich Re's 2021 data on natural disasters found that extreme weather events (e.g., storms, floods, wildfires) destroyed $280 billion in assets in 2021 – up from $210 billion in 2020 and $166 billion in 2019. Of this total, there was approximately $120 billion in insured losses – up from $82 billion in 2020 and $57 billion in 2019.[20] Climate change could also lead to greater occurrence of adverse health events (e.g., asthma, heat stroke), which could affect health insurers.

Contribution to ESG outcomes

Insurtech technologies and solutions can contribute to a wide range of ESG outcomes. For example:

- Modelling and assessment of climate change risks and risk exposures (e.g., property, health)
- Using satellite and other data in order to assess financial risks related to climate change.
- Incorporating ESG risks into pricing structures and policies.
- Using innovative technologies to assess damage for claims purposes.
- Creating new products tailored to the changing ESG environment (e.g., electric vehicles, net-zero operations, energy transition).
- Creating new products tailored to providing underinsured people with coverage.

Sector players

The insurance industry is ripe for disruption, which has led to the rapid growth of a number of start-ups in the domain (e.g., US-based Lemonade and Root Insurance, China-based ZhongAn and Waterdrop, India-based PolicyBazaar, Singapore-based Singlife, Germany-based Clark, France-based Luko). The vast majority of these insurtechs, however, have focused on disrupting traditional parts of the insurance value chain, rather than on ESG-focused services.

20. https://www.munichre.com/en/company/media-relations/media-information-and-corporate-news/media-information/2022/natural-disaster-losses-2021.html

Many of the advancements on the ESG side of the insurtech space are being driven by insurance companies themselves in a bid to better embed climate change risks into their processes, policies, and products. There is also a growing number of technology companies looking to leverage their capabilities to help insurance industry participants better model, measure, or track climate change risks or related claims – or to provide new products and services aligned with the transition to a low carbon economy.

Examples of recent deals in the insurtech domain include:

- **Descartes Underwriting ($120 million):** France-based Descartes specializes in providing next-generation corporate insurance solutions to address climate change and other merging risks. The company's solutions pair new data sources with AI technologies to assess a spectrum of natural catastrophes and emerging risk exposures.[21]

Tractable (UK)
Tractable has developed a deep learning automation platform designed to automate image recognition. The company's provides AI related to accident and disaster recovery to the insurance sector using a platform capable of receiving images and videos, performing analyses on received items, and sharing results to connected devices.

Current investment
Arguably, underwriters have been ahead of the curve on assessing physical and transition risks for some time. However, the quantum of climate risk is significantly increasing and climate patterns are changing globally. This will necessitate the acceleration of AI/machine learning-driven services and solutions. The continuing digitization of the sector will also drive changes in user demand. Key investments domains we are seeing currently include:

- Use of satellite and drone technology to predict and measure physical risks across resources, production activities, and distribution.
- Development of microinsurance products that can be distributed to underserved markets to support financial and social inclusion.
- Digital services that incorporate ESG factors into impact investment, carbon reporting, and investment screening processes.

21. https://www.descartesunderwriting.com/descartes-underwriting-raises-120-million-to-become-a-category-leader-in-corporate-insurance-worldwide/

Future trends

Interest and investment in insurtech are expected to rise significantly in future. Corporates will likely be particularly interested in ESG-focused insurtech offerings given their growing concern about climate change risks and the potential impact of extreme weather events on the industry. Looking at ESG offerings more broadly, inclusion will likely also drive some investment as insurtechs around the world look to provide insurance offerings to individuals or businesses that cannot currently afford it.

Figure 12: Projected total global investment activity in ESG insurtech

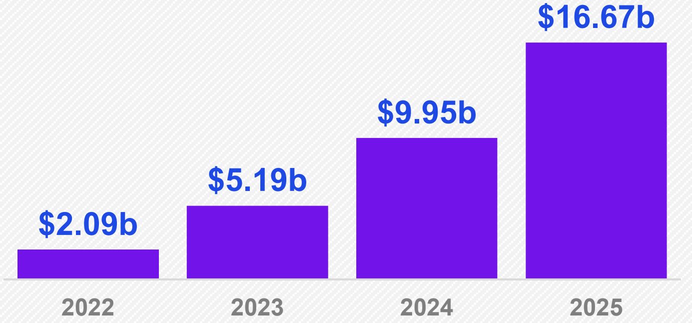
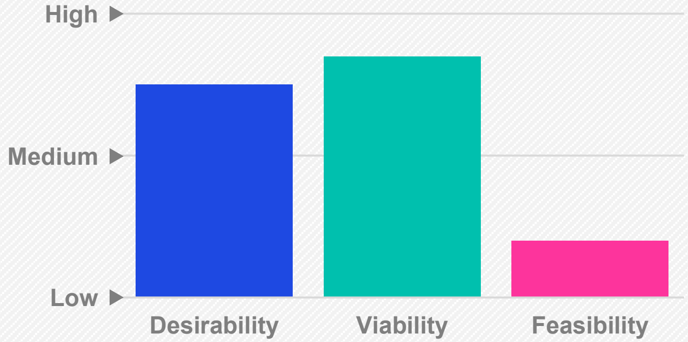


Figure 13: Investor sentiment in 2022



▶ Carbon services

Carbon services refers to a broad category of product and service offerings that align with the drive towards a low carbon economy or net-zero operations within organizations – from carbon credit and trading platforms to decarbonization projects that can be securitized to help the planet. Interest in carbon services has grow significantly in recent years as a means to verify carbon reduction activities in order to enhance traceability and transparency.

Carbon trading is one of the most prolific areas of investment in the carbon services domain given the growing number of jurisdictions that have set GHG emissions reduction targets. A significant amount of attention to date has focused on the data collection and data analytics related to trading initiatives, in addition to infrastructure platform construction. Currently, a number of jurisdictions with carbon trading regimes have multiple carbon exchanges – including China, which has approximately a dozen – but the infrastructure underpinning these offerings is still maturing.

Contribution to ESG outcomes

Carbon services can contribute to a wide range of ESG outcomes. For example:

- Tracking of data required to calculate GHG emissions and to prove reductions.
- Developing and facilitating the use of carbon benchmarks and indexes.
- Ensuring decarbonization projects are transparent, accurate, and verifiable.
- Developing and authenticating carbon credits (e.g., digital tokens).
- Providing individuals and businesses with mechanisms to track and reduce their carbon footprint.
- Creating trusted infrastructure (e.g., exchanges) to facilitate carbon credit trading.

Sector players

The carbon services sector is quite broad, with an increasing number of fintech players operating in the space. These range from companies providing blockchain-based infrastructure to trade carbon credits to retail-focused companies working to give consumers more insight into their carbon footprint so that they will change behaviours.

In addition to start-ups, a number of large corporates have made inroads into the carbon services domain, including data and infrastructure companies like MSCI – which has developed numerous ESG-focused indices, including to help measure and assess risks associated with the transition to a low carbon economy.[22]

A number of players in this space operate across multiple categories of ESG fintech. For example, Australia-based Viridios Capital provides carbon services (e.g., carbon credit portfolio and registry management, carbon offset project origination, technology services related to valuing carbon offset projects) in addition to ESG-focused asset management.[23]

Examples of recent deals in the carbon services domain include:

- **Watershed ($70 million):** US-based Watershed became a unicorn with its most recent funding round. It provides carbon management software to companies, in addition to helping its clients source renewable energy supplies, carbon removal solution services, and carbon offset projects.
- **Flowcarbon ($32 million):** US-based Flowcarbon uses blockchain technology to improve the democratization transparency, and tracking of carbon credits.
- **Greenly ($21 million):** France-based Greenly offers a carbon accounting platform to businesses in order to track and report on their GHG emissions.
- **Klima ($17 million):** Germany-based Klima gives individual consumers insights into their individual carbon footprint, in addition to advice on how to make changes that matter.
- **Climatetrade ($14.7 million):** Spain-based Climatetrade provides a blockchain-based platform for trading carbon credits focused on connecting businesses with offset projects.

22. https://www.msci.com/our-solutions/indexes/low-carbon-indexes
23. https://viridioscapital.com/

Air Carbon Exchange (Singapore)
AirCarbon Exchange operates a global trading platform focused on the voluntary carbon trading market. The exchange's services are targeted at companies, financial traders, carbon project developers, and other industry stakeholders. While based in Singapore, the company's underlying distributed ledger technology is designed to allow the carbon market to scale efficiently to help meet global net-zero goals.

Unravel Carbon (Singapore)
Unravel Carbon is an enterprise software that helps companies track and reduce their carbon emissions, focusing on Asia's supply chains. It is the first AI-powered decarbonization platform in Asia that converts any company's accounting data into full supply chain carbon data in seconds, provides detailed emission analytics and generates relevant climate solutions automatically.

Current investment
Carbon services is one of the newest and fastest growing verticals within ESG fintech. Transition and net-zero commitments are fuelling investment in the space. Current investments are largely smaller in size, with most funding going to early stage fintechs. Key areas receiving attention from investors include:

- **Carbon emissions assessment:** Estimating, calculating, and tracking carbon emissions across a variety of assets including real estate, infrastructure, supply chains, and agriculture.
- **Carbon trading:** Establishing necessary market infrastructure, pricing and transparency mechanisms, and marketplaces to support the trading of carbon assets (i.e., physical, digital or derived).
- **Carbon accounting:** Capturing and accounting asset-level carbon emissions and providing an audit trail to organizational carbon emissions in order to meet emissions reporting obligations - which is currently a major system wide challenge.
- **Carbon infrastructure:** While adjacent to financial services, the capture and sequestration of carbon has significant relevance to investment management, project finance, and long-term patient capital allocation.

Future trends

Given the ambitious targets set by many governments and businesses to reduce their GHG emissions in order to transition to low carbon operations or work towards net zero, interest and investment in the domain is only expected to grow in the years ahead.

Figure 14: Projected total global investment activity in carbon services

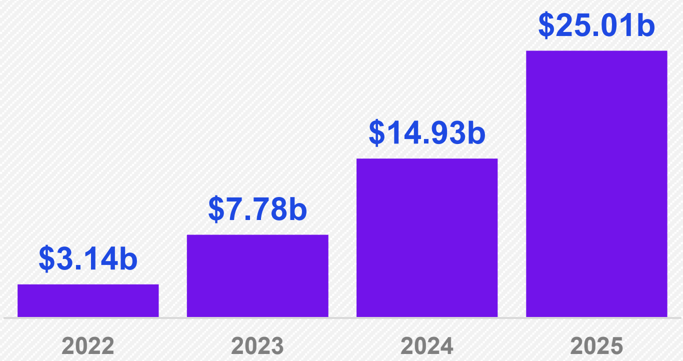
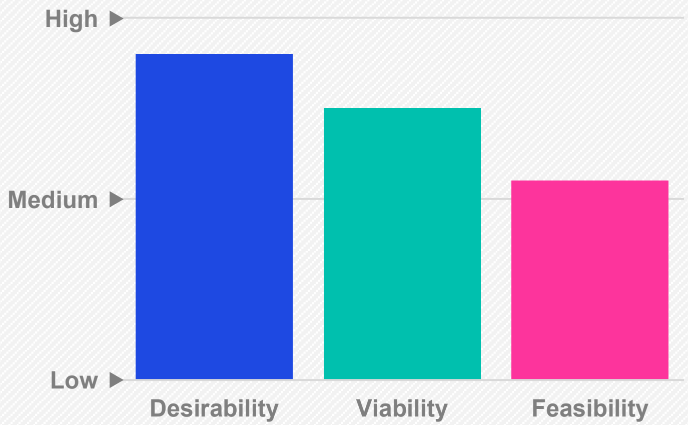


Figure 15: Investor sentiment in 2022

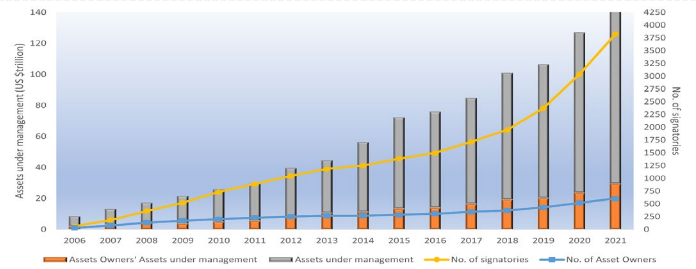


▶ Investment management

Investment management – which includes wealthtech – refers to products and services related to the development, management, and delivery of investment products directed at investment management companies, asset owners, and all categories of investors. ESG-focused investment management as a subsector in the domain has grown quite significantly in recent years given increasing recognition and interest in ESG principles, as well as demand for green investment products by consumers.

One only needs to look at historical trends to see the rise in interest in ESG-focused investment management practices. As of 2021, total assets under management with PRI (Principles for Responsible Investment) signatories was well over $120 trillion worldwide (See Figure 16).[24]

Figure 16: Assets under management of PRI Signatories (2006-2021)



24. https://www.unpri.org/about-us/about-the-pri

Contribution to ESG outcomes

Investment management can contribute to a wide range of ESG outcomes. For example:

- Developing green investment opportunities (e.g., bonds).
- Enabling investors or investment managers with the data they need to make more sustainable investment decisions.
- Helping investment managers create and validate ESG portfolios.
- Providing investments to infrastructure projects with an ESG focus (e.g., renewable energy projects).
- Supporting companies working to transition to net zero or to improve their ESG outcomes.
- Connecting ESG-focused investment opportunities with investors – both traditional and otherwise.
- Providing innovative ways to access capital for ESG-focused products – or to invest in ESG-focused products (e.g., crowdfunding platforms).
- Providing retail investors with sustainable investment opportunities.
- Verifying the sustainable element of investible assets.

Sector players
There is a significant number of wealth management firms already involved in the ESG-focused investment management space. While the largest are based in the US, other jurisdictions have also seen a growing number of such firms. In addition to traditional wealth managers that have created ESG-focused funds or embraced sustainable investment principles, there is also a growing number of wealthtechs operating in the domain, including Carbon Collective – a robo-advisory firm focused on impact investing and Clarity AI – a platform company focused on providing investors, companies, and governments with the insights they need to make better ESG investments.

Examples of recent deals in the investment management space include:

- **Greenbacker Group ($330 million):** US-based Greenbacker Group is focused on providing individual and institutional investors with investment opportunities in renewable energy infrastructure.
- **Alter5 ($119 million):** Spain-based Alter5 operates a platform to facilitate connections between developers of renewable energy projects and sources of financing.
- **Novus ($72 million):** US-based Novus is an investment management firm focused on working with companies committed to incorporating ESG into their business operations and strategies.
- **Ellevest ($53 million):** US-based Ellevest provides a digital investment platform and wealth management services aimed at giving women more control over their investment decisions. Its proprietary algorithm incorporates women's salary peaks, assets, recommendations, goal-specific portfolios, and savings options.
- **Moneybox ($46 million):** UK-based digital wealth manager MoneyBox provides savings products and socially responsible investing opportunities to retail investors through a smartphone app. The firm underwent rapid growth during the pandemic and currently has 800,000 users.

Clarity AI (US)
Clarity AI provides a sustainability technology platform designed to deliver environmental and social insights to investors, companies, governments, and consumers in order to drive more socially responsible capital allocations. Its platform uses machine learning and big data to provide insights and tools to help users better understand and optimize social and environmental impacts.

Tumelo (UK)
Tumelo provides an impact-focused financial technology platform designed to bring investment platforms closer to their end investors. Its technology provides investment firms with insights on the companies they own and empowers them to engage with customers on issues they care about (e.g., gender equality, climate change) so that they can enhance their customer experience and better protect the planet.

Current investment
The investment management domain is already going through its own digitization journey, with a number of wealthtechs focused on the space. ESG builds on this, with current investments spanning product, distribution, research, asset allocation, and investment management. Existing digital distribution channels are pivoting to include ESG in their portfolios, while the balance of investment is focusing on the maturing of assets and market infrastructure. Key areas of current inward funding include:

- Firms that are opening up investment for funds, retail investors, and private markets into cleantech or carbontech industries – such as renewables, decarbonization assets, energy transition, low carbon alternatives, and ethically founded firms.
- Robo-advisory and digital advice models that support impact or other socially responsible investment at scale.
- Digital infrastructure, including digital asset businesses that are supporting the scaling of carbon as an asset class through market infrastructure and distribution ecosystems – all across nature-based solutions, carbon credits, and offsetting.

Future trends

Investment management will remain a high priority for investors, and will likely continue to revolve around enabling managers to improve the performance of ESG-focused portfolios, enabling individuals to make sustainable investments more easily, and providing developers with innovative ways to access capital for low- or zero-carbon initiatives. One key challenge for investment management firms and wealthtechs today is the perception that sustainable investments require a trade-off. A 2021 survey showed that 70 percent of investors believe sustainability investing implies a financial trade-off, while 76 percent cite performance concerns as the biggest barrier to such investing.[25] Given these perceptions, there could be an increasing focus on analytics companies that are able to improve the performance and perception of ESG-focused funds, or improve the selection of investment opportunities.

Figure 17: Projected total global investment activity in ESG investment management

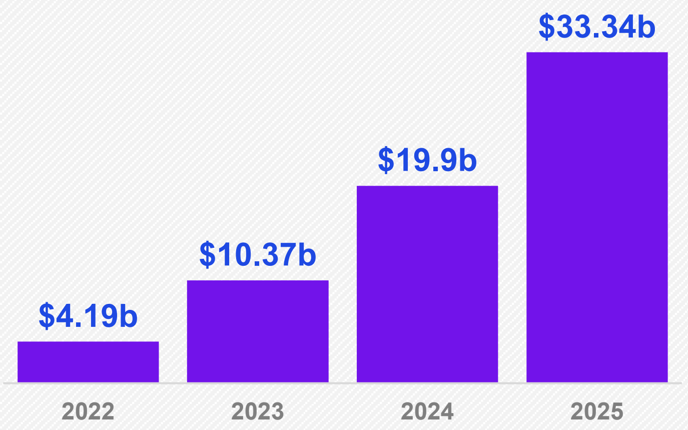
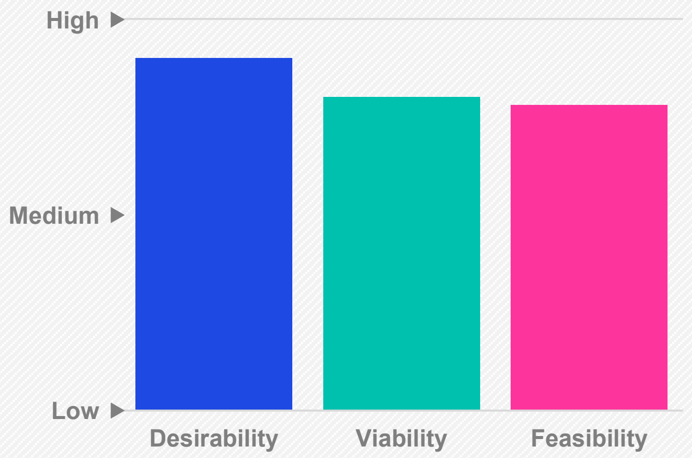


Figure 18: Investor sentiment in 2022

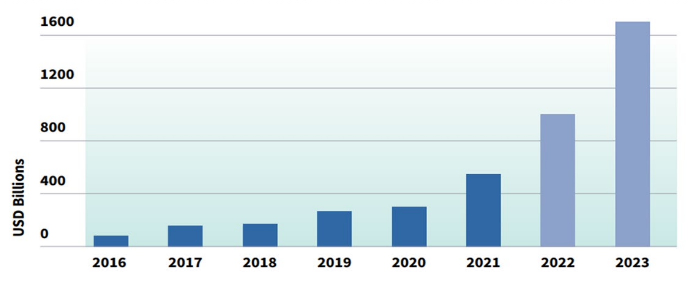


25. https://www.morganstanley.com/ideas/sustainable-investing-sentiment-covid-19

▶ Lending

Lending is one of the most active areas of ESG fintech, with numerous financial institutions and fintechs offering green loans and other types of debt vehicles aimed at facilitating ESG activities or the implementation of small- and large-scale projects focused on the transition to a low-carbon economy (e.g., installation of solar panels, transition of a corporate fleet to electric vehicles). Companies are also starting to link traditional lending products to ESG, such as by providing incentives to consumers who buy sustainable products or by providing specific ESG-centered rewards to consumers (e.g., planting trees, contributing to programs supporting a vulnerable group) who use their product.

Figure 19: Green bond market has consistently grown over recent years



From a social responsibility perspective, there has also been a growing focus on lending products (e.g., microloans) and alternative platforms (e.g., crowdfunding platforms) aimed at fostering financial inclusion – a major global concern given that one-third of adults (approximately 1.7 billion people) remain unbanked in the world today.[26]

Lending enablement is also a key space in terms of ESG fintech, with companies looking for ways to improve credit rating activities, provide alternative credit rating options, incorporate ESG into the credit rating process, and help financial services companies to closely monitor their loans or portfolios for ESG related risks (e.g., climate risk, transition risk).

26. https://www.weforum.org/agenda/2022/05/new-technologies-improve-financial-inclusion/

Contribution to ESG outcomes

Lending can contribute to a wide range of ESG outcomes. For example:

- Developing ESG focused lending products (e.g., green bonds, sustainability-focused loans).
- Improving access to lending to underbanked and unbanked populations and those with credit challenges.
- Providing access to alternative lending platforms and other lending products to support sustainability objectives.
- Facilitating relationships between lenders and funders for ESG-related projects.
- Offering products and solutions uniquely aligned to key groups (e.g., women, small businesses).
- Providing support to consumers, companies, and other organizations to make investments in the transition to net-zero or low-carbon operations.
- Supporting the development of renewable energy installations.

Sector players

There are numerous lending companies focused on the ESG space, or providing lending products aligned with ESG principles. In developed countries, many lending players have focused on providing lending for renewable energy projects, energy efficiency improvements, and similar activities. A number of fintechs have also set up to provide financial services that can transform agriculture. Their activities include, for example, facilitating large farming groups and collaborative communes' instalment payments on agricultural equipment, enabling farmers to purchase machinery that helps them cultivate crops with ease.

Looking at the ESG domain more broadly, an increasing number of fintechs are also working to provide services to underbanked and unbanked populations, such as through the provision of microloans for small businesses or lending products targeted at vulnerable groups. Increasingly, lending-focused fintechs are also using open data and AI to provide unique insights to help consumers better manage their cash flows and optimize the lending process, whether directly or as a B2B offering.

Examples of recent deals in the lending space include:

- **Creditas ($310 million):** Brazil-based Creditas is a lending company focused on democratizing access to credit in the country.
- **Generate ($300 million):** US-based Generate is a sustainable infrastructure provider that provides companies and municipalities with financing options (e.g., build-own-operate finance) for sustainable development activities, such as green energy, mobility, water, waste, and smart city projects.
- **Mosaic ($200 million):** US-based Mosaic provides lending for different types of home energy and energy efficiency projects (e.g., solar panels, battery storage, EV charging).
- **Solfacil ($130 million):** Brazil-based Solfacil provides lending solutions for solar power installation projects.
- **Brighte ($75 million):** Australia-based Brighte provides an end-to-end automated digital application designed to facilitate interest-free payments for people looking to make home energy-focused improvements.

Fusion Microfinance (India)

Fusion Microfinance provides financial services intended to offer economic opportunities to underprivileged women in order to transform lives. The company's services leverage the distribution network to channel other products and services as well as help women entrepreneurs to get financial support for starting their businesses, enabling clients to increase employment opportunities and improve financial literacy.

Indifi (India)

Indifi provides an online lending platform designed to help small businesses obtain debt financing. The company's platform carries out credit assessment through automated data collection, processing, and analysis and gives access to loans based on the business requirements within a specific time frame, enabling businesses to get loans easily, quickly, and without any collateral.

Current investment

While lending is at the heart of banking, fundamental shifts in the nature of credit assessment are notably missing from both bank and fintech developments to date. This is primarily due to a lack of data signals, in addition to the still largely manual nature of bank lending processes. Fintechs will need to either scale applications or create niche segment- or sector-based solutions to support system wide change within legacy banks. Currently, investors are showing confidence in the development of adjacent or specific renewables solutions, such as:

- **Renewables lending:** Solutions that target consumer and residential applications, such as efficient energy use and home or commercial use of renewable energy solutions. Given the size of purchase and lack of “green” mortgage stock, solutions that support transition financing/re-financing mortgages are also of interest to investors.
- **Democratization:** Companies that offer digital lending solutions for emerging and fast-growing economies that are underserved or unbanked. These solutions are typically being provided by payments platforms using algorithmic microlending.
- **Niche lending:** Solutions focused on sectors impacted by climate change. This is largely occurring in the agriculture and horticultural sectors to date, such as by incorporating rural and farm financing/re-financing as a secondary social impact benefit into the niche value proposition.

Future trends

Given the current challenges in the global macroeconomic environment, interest in direct consumer lending products may decline, though there could be growing interest in solutions able to help consumers reduce their energy spend, while at the same time transitioning to lower impact forms of energy.

There will likely be an increase in fintechs focused on the B2B lending space, including on enabling companies to make changes that increase operational efficiently. SMEs are the largest segment in the global economy in terms of revenue, employment, and environmental aspects, however, this segment is heterogeneous and lacks transparency given it is largely privately held. Accessing, acquiring, and using data from this segment will be of vital importance to supply chain platforms, financial institutions, service providers, and local communities in future.

Regulators are now providing a set of tailwinds for fintech and other firms (e.g., aggregators) to fill this data and service gap. We expect many ESG fintech companies, like their payments brethren, to see this as a strategic opportunity to access the pivot between consumers, supply chains, and employees. With many companies and countries dedicated to reducing their GHG emissions or to achieving net zero, there could also be a rise in alternative lending solutions focused on helping companies finance their energy transition.

Enablement will likely also continue to gather interest from investors, particularly as it relates to improving credit decisions and integrating ESG principles and risk assessment into lending decision-making and portfolio analysis.

Figure 20: Projected total global investment activity in ESG lending

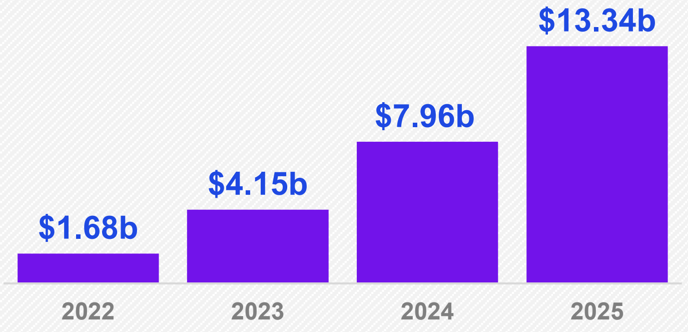
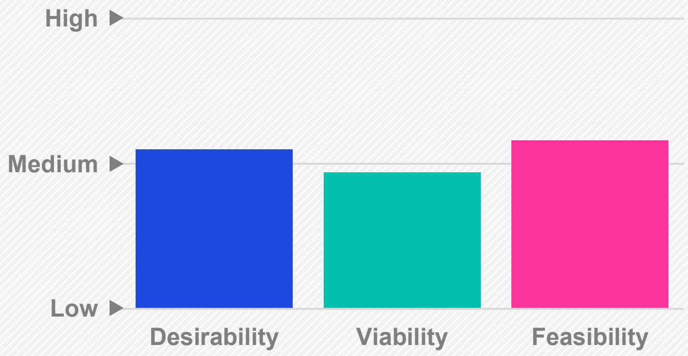


Figure 21: Investor sentiment in 2022



▶ Payments and transactions

The payments domain attracts the largest share of fintech funding globally; it includes a wide range of activities such as neobanking services, payments processing, platform provision, and buy-now-pay-later services, among others.

In terms of the ESG payments fintechs, direct products and services often focus on the social pillar of ESG, including providing easy and convenient access to banking services to unbanked and underbanked populations around the world.

There are also a number of fintechs focusing on enabling consumers to make better and more sustainable purchasing decisions. For example, US-based Ecountabl gives consumers insights into the ESG impact of their purchases. It powers this capability using data on the ESG activities of companies and brands around the world. There are also fintechs focused on enabling banks and other financial institutions with the data and insights they need to influence their customers to make more ESG friendly purchasing decisions.[27]

Contribution to ESG outcomes

Payments and transactions can contribute to a wide range of ESG outcomes. For example:

- Providing better access to banking products to unbanked and underbanked populations.
- Improving access and reducing costs associated with money transfer and remittances.
- Providing data or insights in order to sway customer purchasing behaviours towards more ESG friendly alternatives and brands.
- Enabling financial institutions to provide stronger ESG insights to their consumers.

27. https://www.fintechnews.org/esg-and-fintechs-technology-enables-impact-goals/

Sector players
The payments space globally is relatively mature. It includes a number of global giants like PayPal and Stripe, regional players (e.g., Alipay, Paytm, Toss), and technology companies (e.g., Apple, Google) and non-bank companies (e.g., Amazon). On the ESG front, many of the players involved in the payments space have focused on improving access – providing access to banking services in remote and less developed regions of the world.

There are also a number of market players focused on enabling more sustainable decision making with respect to purchases – whether direct-to-consumer or by providing platforms for use by financial institutions.

Examples of recent deals in the payments sector include:

- **bKash ($250 million):** Bangladesh-based bKash provides a mobile payments services platform intended to ensure access to a broader range of financial services for the people of Bangladesh – where a high percentage of people are unbanked or underbanked. The company's platform provides mobile money transfer and mobile banking services, making payments and money transfers accessible, easy, and convenient.

Enfuce (Finland)
Enfuce is a one-stop shop payments processing company focusing on providing businesses with the ability to issue their customers debit and credit cards – whether plastic, digital, or tokenized – in addition to digital wallets. It recently extended its offerings to include a carbon tracking tool for calculating the emissions of transactions.[28]

Stripe (US)
Stripe is a global online payment processing and credit card processing platform for businesses valued at US$74 billion. In addition to its own sustainability investments, Stripe now offers Stripe Climate, which allows its B2B customers to direct a portion of their revenue towards helping scale emerging carbon removal technologies.[29]

28. https://enfuce.com/product/mycarbonaction/
29. https://stripe.com/en-ca/climate#

Current investment

Payments has been the largest sector of investment in fintech for the last ten years. It is the seed corn of the digital transformation of commerce and financial services. While we are seeing some new ESG fintechs emerge to address specific needs, incumbent fintechs are the largest change agents in the payments domain at present. Investors are supporting later stage rounds to fund product development in areas such as:

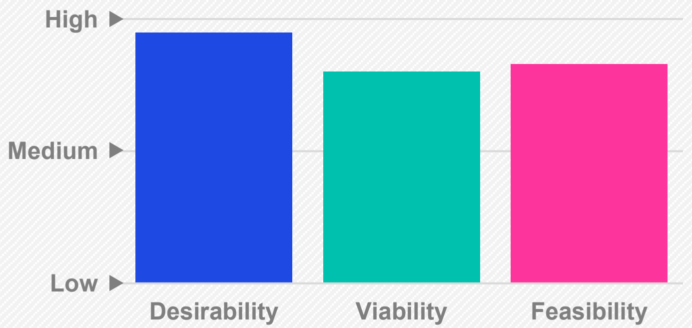
- **Impact analytics:** While not yet a driver of behavioural change, wallet and user interface owners are investing heavily in giving consumers the ability to track their environmental impact, assess the providers they use, and meet their personal ethical objectives.
- **Digital lending:** While not strictly ESG, payments firms are investing in new content-based services and in green lending options that draw on their abundance of transactional and contextual data. Some of this investment is also going to serve underbanked segments as well as to draw ESG signals into the credit assessment process.

Future trends

Looking to the future, ESG fintech solutions in the areas of payments and transactions will likely continue to focus on enhancing access to banking products and services in more remote and less developed regions of the world. B2B solutions focused on enabling companies to incentivise or encourage their customers to make more sustainable purchasing decisions will likely also receive attention.

Figure 22: Projected total global investment activity in ESG payments and transactions

Figure 23: Investor sentiment in 2022



► Enablers: The foundation of the ESG fintech taxonomy

Achieving organizations' and governments' long-term targets related to GHG emissions reductions as well as ESG in general is a complex endeavour. Governments and businesses run the risk of being accused of greenwashing due to not having built the foundations needed to prove that their results are accurate and truly beneficial.

This challenge cannot be underestimated as much of the world turns its attention to ESG. Being able to conduct activities and prove results in ways that are transparent, accurate, comparable, and secure will be critical in the years ahead.

To help solve this challenge, numerous companies – both experienced market players and emerging fintechs – are focusing on enabling the ESG fintech ecosystem through either data or infrastructure. This section studies these building blocks of the ESG ecosystem in more detail.

► Green market infrastructure

While ESG is a global issue, the infrastructure intended to help governments and businesses solve different aspects has typically been quite fragmented and jurisdiction-specific, with different protocols on how different activities should be conducted and few truly global mechanisms to share resources, knowledge, technologies, and insights across jurisdictions.

This has led a number of infrastructure companies (e.g., digital exchanges) and fintechs to focus on filling these gaps by establishing infrastructure that can be used to underpin and connect regional and global ESG fintech ecosystems in ways that are transparent, accurate, and secure.

Contribution to ESG outcomes

Infrastructure companies can enable a wide range of ESG outcomes. For example:

- Providing the infrastructure for collecting, analyzing, and monitoring ESG data.
- Creating the infrastructure to support ecosystem measurement and reporting.
- Developing standard protocols and platforms that can be used across the globe.
- Developing the digital assets and tokens needed to enact carbon trading regimes in a trusted, verifiable, and secure way.

Sector players
Numerous companies around the world are working to develop the infrastructure to support the transition to a low-carbon economy and the delivery of ESG targets, including major players like Google, Ant Group, AWS, and ServiceNow. There are also a number of fintechs focused on creating specialized and niche infrastructure offerings to a global audience. Examples of infrastructure fintech players include:

- **Blockchain Triangle (Bermuda):** Blockchain Triangle operates a digital finance platform designed to fund and manage climate and infrastructure assets. This platform reduces the costs and complexities of capital placement by connecting big data and financial services. It's digital security issuance platform enables corporate service providers, issuers and investors to interact in a secure and fully-compliant environment for easy and transparent access to climate and infrastructure projects.
- **Topl (US):** Topl operates a decentralized protocol aimed at building an impact technology economy. This protocol offers a novel blockchain that empowers businesses to prove and monetize ethical and sustainable practices, enabling them to transform their impact into an asset.
- **Frigg (Switzerland):** Developer of a Software-as-a-Service platform designed to make sustainable finance accessible and transparent. This platform empowers sustainable infrastructure developers to issue digital securities in the form of bonds.

Current investment
Infrastructure is a major focus of ESG fintech investment around the world. Although much of this investment is happening within existing infrastructure companies, we are also seeing some investment in companies focused on niche infrastructure plays. Currently, much of the investment in infrastructure is going to one of the following key areas:

- **Platforms:** Developing platforms intended to facilitate knowledge exchange, data exchange, and other activities related to ESG and the transition to a low carbon economy.
- **Exchanges:** Developing exchanges and related infrastructure (e.g., digital assets and tokens), often based on digital ledger technologies, to establish and exchange carbon credits.
- **Reference libraries**: Creating central repositories of data that can be used as a source of truth for ESG-related calculations.

Future trends

Over the next few years, ESG will continue to be a major play for infrastructure companies in the financial services sector, particularly those that already provide the backbone for key financial services sector activities.

Figure 24: Investor sentiment in 2022 (ESG Infrastructure)

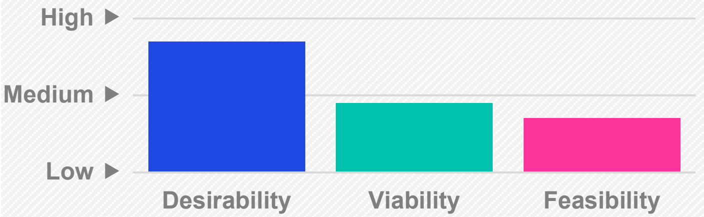
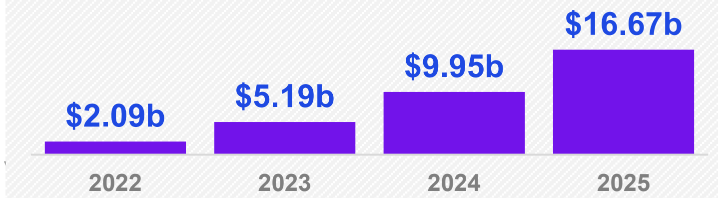


Figure 25: Projected total global investment activity in ESG infrastructure



commitments and targets, their ability to prove the results of any ESG-focused activities is hampered by inconsistent reporting protocols in jurisdictions around the world, inconsistent data collection methods within and across organizations that make it difficult to trust the accuracy and comparability of results, poor data sources or reconciliation of data between sources, and the lack of a single source of truth for the data needed to measure and report on ESG outcomes.

The ESG data challenge is a massive issue – one that spans all of the product verticals of ESG fintech (i.e., regtech, insurtech, investment management, carbon services, lending, and payments). This is driving numerous data companies and fintechs to focus on the space – offering solutions and tools aimed at providing accurate, consistent, comparable, and trusted means to collect, analyze, and verify data for ESG reporting. We are also seeing an increasing number of government and regulatory initiatives aimed at fostering the creation of robust data solutions able to help address data challenges at regional and national levels.

Contributions to ESG outcomes

Data companies can provide a wide range of ESG-related services. For example:

- Creating mechanisms to source data from across real economy sectors, consumers, and other sources.
- Validating data sources and information.
- Aggregating data sources across systems and platforms.
- Providing data collection, measurement, and reporting services for compliance, governance, or commercial purposes.
- Providing attestation and assurance services for ESG data and reporting.

Sector players

Data is a critical enabler of most, if not all, products and services in the ESG fintech space. As a result, numerous data providers and assessors are developing products in the domain, including large data services firms like MSCI, Refinitiv, TruValue Labs, and ESGBook. These major firms are likely to play a key role in driving investment in the ESG data space, with niche fintechs focused on providing unique and specific services.

Examples of data-focused ESG fintech players include:

- **Climate Engine (Canada):** Climate Engine provides real-time data analytics using a combination of satellite-based data (i.e., raw data from Earth observation platforms) and company assets to help companies better manage and reduce their climate risks.
- **EcoVadis (France):** EcoVadis is a sustainability ratings provider and platform focused on helping companies to benchmark their sustainability ESG activities using a universal scorecard that tracks a range of metrics related to the environment, labour practices, human rights, ethics, and procurement across companies, sectors, and countries. It also offers an array of reporting and performance improvement tools to help companies improve their results.

Public-private partnerships

There is growing interest in forming partnerships between the public and private sectors to resolve ESG data challenges. For example, public sector and industry players are collaborating to develop a global open climate data utility – the Net-Zero Data Public Utility – to provide a centralized repository of key climate transition-related data that is easily accessible by all stakeholders.[36]

Closer to home, MAS is collaborating with CDP to explore the exchange of information between CDP's disclosure system and MAS's Project Greenprint technology and data initiatives to make high-quality ESG data more readily available, including to financial institutions.[37]

34. https://www.nzdpu.com/
35. https://www.mas.gov.sg/news/media-releases/2022/mas-and-cdp-to-jointly-promote-access-to-quality-esg-data

Current investment
Data is a major focus of ESG fintech investment globally, particularly on the part of major data firms like MSCI and Refinitiv. We are also seeing some investment in niche fintech companies working to solve specific data challenges, including in areas like the tracking of data related to carbon offset projects.

Future trends
Moving forward, data will continue to be a major source of ESG fintech investment given the critical role it plays in all product verticals. While much of this investment will likely occur among the big data firms, investors and corporates will likely continue to fund fintechs focused on providing niche data solutions for different product verticals or for real economy plays.

Figure 26: Investor sentiment in 2022 (data services)

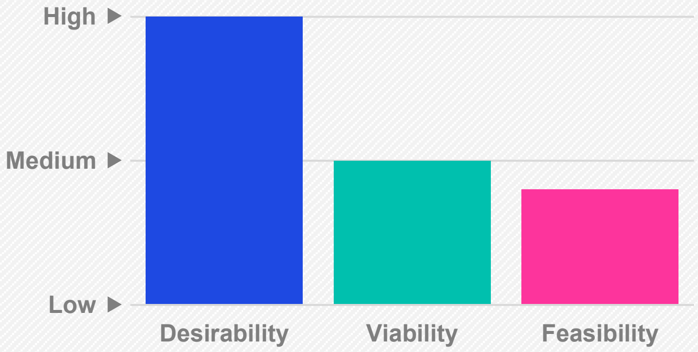
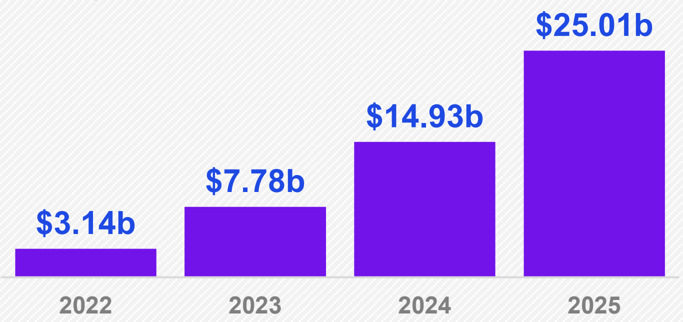


Figure 27: Projected total global investment activity in ESG data services



Snapshot: Singapore's growing ESG fintech ecosystem

Singapore is rapidly becoming a key hub for ESG fintech development, with significant support from key market participants, including MAS, investors, and the start-up community and ecosystem partners. We have seen strong participation and interest in the ESG fintech space – and anticipate that this participation will grow over time as the market and ecosystem continues to mature and evolve. The Singapore Fintech Association has outlined several emerging local fintechs pioneering the ESG space. In future reports, we will document the evolution of this growing ecosystem map.

Regtech

- Turnkey http://turnkey.tech
- ESGenome https://www.sgx.com/sustainable-finance/esgenome
- ESG Tech https://www.esgtech.co
- U-Reg https://www.u-reg.com

Insurtech

- Zensung www.zensung.com
- Singlife https://singlife.com

Carbon services

- Adatos.AI https://www.adatos.com
- Aircarbon Exchange https://www.aircarbon.co/exchange
- Climate Resources Exchange International (CRX) www.climateresources.net
- T-RECs.Ai https://www.trecs.ai
- Southpole https://www.southpole.com
- Terrascope https://www.terrascope.com/about
- Unravel Carbon https://www.unravelcarbon.com
- Zuno Carbon https://zunocarbon.com

Investment management

- Endowus www.endowus.com
- New Wealth https://www.newwealth.com.sg
- StashAway https://www.stashaway.sg

Lending

- Rootant www.rootant.com

Payments and Transactions

- Ant Group https://www.antgroup.com
- DBS https://www.dbs.com.sg
- MasterCard https://www.mastercard.com.sg
- Visa https://www.visa.com.sg
- Ripa https://www.ripaglobal.com
- Razer Fintech www.razer.com

SFA SINGAPORE FINTECH ASSOCIATION

Data

- Arcstone https://www.arcstone.co
- CO2X https://www.co2x.co/wp
- Hamurni https://hamurni.com
- Agridence Rubber https://rubber.agridence.com
- Givvable https://www.givvable.com
- AIcadium https://aicadium.ai
- Equilibrium https://equilibrium.sg
- Fencore https://fencore.co
- GreenOn https://greenon.io
- Global Initiatives www.globalinitiatives.com
- Gait https://gaitglobal.com
- Miotech https://www.miotech.com
- GreenArc https://www.greenarc.com.ph
- Artius Global https://artiusglobal.com
- Nexus FrontierTech https://nexusfrontier.tech

Infrastructure

- STACS https://stacs.io
- Sgtraderx https://sgtradex.com
- Envision Digital https://www.envision-digital.com
- Evercomm https://www.evercomm.com.sg/

SINGAPORE FINTECH ASSOCIATION

Conclusion

Looking back over the last thirty years, it is easy to see how fast the financial services world has evolved, particularly when it comes to the collection and reporting of financial data.

Over the last ten years, the sector has evolved even further as financial institutions and fintechs have harnessed innovative technologies digital platforms, and developed new capabilities. Cloud technologies, the internet of things, AI, machine learning, blockchain, big data analytics have all changed the game.

Now, those technologies are being harnessed to propel the financial services sector into another big wave of innovation and ingenuity – this one focused on enabling consumers, businesses, governments, and the world to reach the lofty ESG and climate change goals that are not simply a business imperative, but an imperative for the future of our planet.

Fortunately, many of the technologies already exist. Now, we are seeing financial services companies, fintechs, and others embracing them, using them to create unique ESG fintech solutions. We are seeing VC, PE, and corporate investors pouring money into ESG fintech – a trend expected to be resilient even as the world faces the looming cloud of recession.

Over the next five years, we are going to see ESG fintech solutions and investment accelerate around the world. We will see ESG and fintech converging in new ways we have not even envisioned yet, particularly as the world slowly moves towards regional and global ESG standards and frameworks.

At KPMG and MAS, we are committed to being a part of this exciting next evolutionary phase. We recognize the time for ESG fintech is only beginning. As the sector evolves, we will continue to share insights, data, and knowledge with you so that we, together, can achieve our ambitions ESG goals.

About KPMG's ESG Fintech Services

KPMG loves this market.

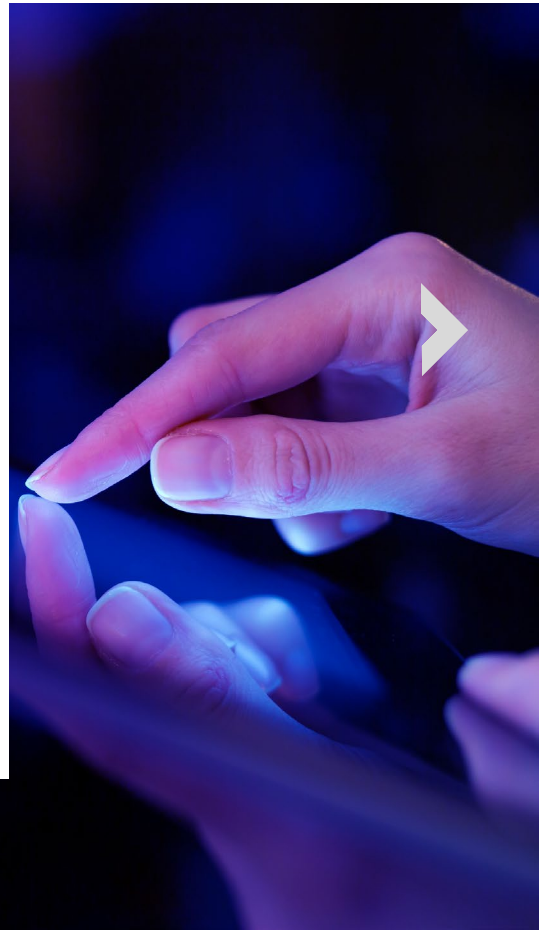
ESG is at the heart of our firm's global purpose and, combined with our global fintech presence in over 50 markets, we are well-positioned to support this fast-growing market.

At KPMG in Singapore, we are pioneering the incubation and acceleration of ESG fintech. Working with a supportive regulator and within a thriving fintech ecosystem, we are collaborating on several growth initiatives focused on ESG and fintech:

- **Climate Finance Accelerator:** Supporting Google Cloud, KPMG is driving the ideation of the problem statements highlighting top of mind challenges faced by financial institutions and corporates, and identifying and incubating the key fintechs to solve these challenges and thus, support decarbonization globally.
- **ESG Banking Centre of Excellence:** The ESG Banking Centre of Excellence delivers value to the financial industry and the real economy, by enabling banks to provide green financing. This is delivered through the four key services of ESG Capability and Capacity Building, Research and Insights, ESG Digital Assets, and the Business Foundry.
- **ESG Business Foundry:** Seated within the ESG Banking Centre of Excellence, the Business Foundry scales Series A+ fintechs to support green financing for both incumbent financial services providers and real economy corporates, through the import of fast growth scale-up green fintechs intending to setup presence in Singapore and Asia Pacific, and export of regional scale-up green fintechs for international expansion through KPMG's globally connected networks.
- **ESG Impact Hub:** ESG Impact Hub, a physical FinTech collaboration hub which aims to attracts founders, entrepreneurs, and start-up teams from across the globe, was recently launched with KPMG as one of the key partners. Our teams seated within the hub will focus on the innovating and transforming the ESG landscape within Singapore and Asia, with the Business Foundry being core to this goal.

Our ESG Fintech team is multidisciplinary, with many diverse and highly skilled people. We hail from around the world – and include software developers, researchers, learning professionals, start-up coaches, product managers, and regulatory specialists.

Come and see us or meet us online.



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About the report

▶ Methodology

The underlying data and analysis for this report was based on a review of current investment trends and market data activity as per the KPMG Pulse of Fintech 2022, a review of disclosures and statements about ESG product spend from the market, in combination with a series of subject matter expert interviews and surveys. The dataset used for this report considers the following investment transaction types: Venture Capital (including corporate venture capital) ("VC"), private equity ("PE") Investment, Mergers and Acquisitions ("M&A") and in-house ESG Technology spend for the FinTech vertical. We conducted desktop secondary research to validate our assessment. Additionally, we made assumptions on the allocation of spend and investment to deliver the vertical and enabler forecasts.

The fintech vertical

A portmanteau of finance and technology, the term refers to businesses who are using technology to operate outside of traditional financial services business models to change how financial services are offered. Fintech also includes firms that use technology to improve the competitive advantage of traditional financial services firms and the financial functions and behaviors of consumers and enterprises alike. For the purposes of this report, Fintech has been defined as "Companies using new technologies including the internet, blockchain, software and algorithms to offer or facilitate financial services usually offered by traditional banks including loans, payments, wealth or investment management, as well as software providers automating financial processes or addressing core business needs of financial firms. Includes makers of ATM machines, electronic trading portals and point-of-sale software."[30]

Within this report, we have defined a number of fintech sub-verticals:

1. **Payments/transactions:** Companies whose business model revolves around using technology to provide the transfer of value as a service including both B2B and B2C transfers.
2. **Lending:** Any non-bank that uses a technology platform to lend money often implementing alternative data and analytics OR any company whose primary business involves providing data and analytics to online lenders or investors in online loans.
3. **Carbon Services:** Any company providing financial, financial intermediation and legal services related to helping companies decarbonise.[31]
4. **Insurtech:** Companies utilizing technology to increase the speed, efficiency, accuracy and convenience of processes across the insurance value chain. This includes quote comparison websites, insurance telematics, insurance domotics (home automation), peer-to-peer insurance, corporate platforms, online brokers, cyber insurance, underwriting software, claims software and digital sales enabling.
5. **Investment management:** Companies or platforms whose primary business involves the offering of investment management services using technology to increase efficiency, lower fees or provide differentiated offerings compared to the traditional business model. Also includes technology platforms for retail investors to share ideas and insights both via quantitative and qualitative research.
6. **Regtech:** Companies that provide a technology-driven service to facilitate and streamline compliance with regulations and reporting as well as protect from employee and customer fraud.

30. Source: Pitchbook
31. https://www.edb.gov.sg/en/about-edb/media-releases-publications/singapore-is-well-positioned-to-become-a-carbon-services-and-trading-hub-for-southeast-asia-and-the-asia-pacific.html

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Gautam Jain	SC Ventures	**Standard Chartered Bank**
Harald Eltvedt	SC Ventures	**Standard Chartered Bank**
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