

HSBC AND FRANKLIN TEMPLETON
ON IMPLEMENTING CHANGE

WHY GLOBAL NORTH-SOUTH AI
EQUITY IS IMPORTANT

KEY QUESTIONS TO ASK BEFORE
JOINING THE AI REVOLUTION

AI FOR ESG

IMPACT

2024

AN FII INSTITUTE PUBLICATION

**HOW AI CAN INNOVATE
AND IMPROVE ESG AND
SUSTAINABLE FINANCE
PERFORMANCE**



FII INSTITUTE
Future Investment Initiative Institute

Impact
on Humanity

AI, ESG AND SUSTAINABILITY

Sustainable finance and ESG goals are ever more important to investors and businesses around the world. But all require analyzing data – and lots of it. And while those twinned trends in finance become more popular, keeping track of them both becomes more challenging.

There are more than 1,400 open-end and exchange-traded funds with a climate-related mandate as of June 2023, compared with fewer than 200 in 2018, according to Morningstar research. The pace of growth is continuing. AI can help understand the shape of the market, and help filter out the wheat from the chaff. But it can do more than aid sustainable finance to grow. Intelligently deploying AI in your organization can unlock environmental benefits through better use of energy, more intelligent forecasting – reducing waste – and more humane staffing. The AI revolution is well and truly upon us. And it's time to take advantage.

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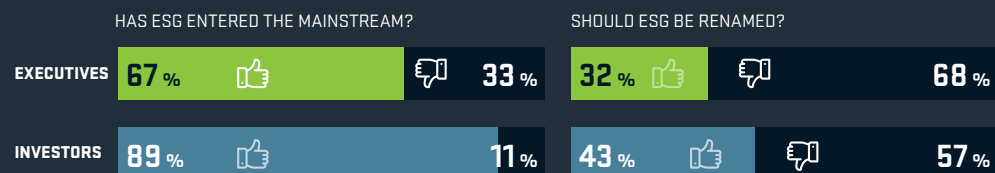
surge in **assets held in climate funds** in past 18 months

SOURCE: MORNINGSTAR, INVESTING IN TIMES OF CLIMATE CHANGE, 2023

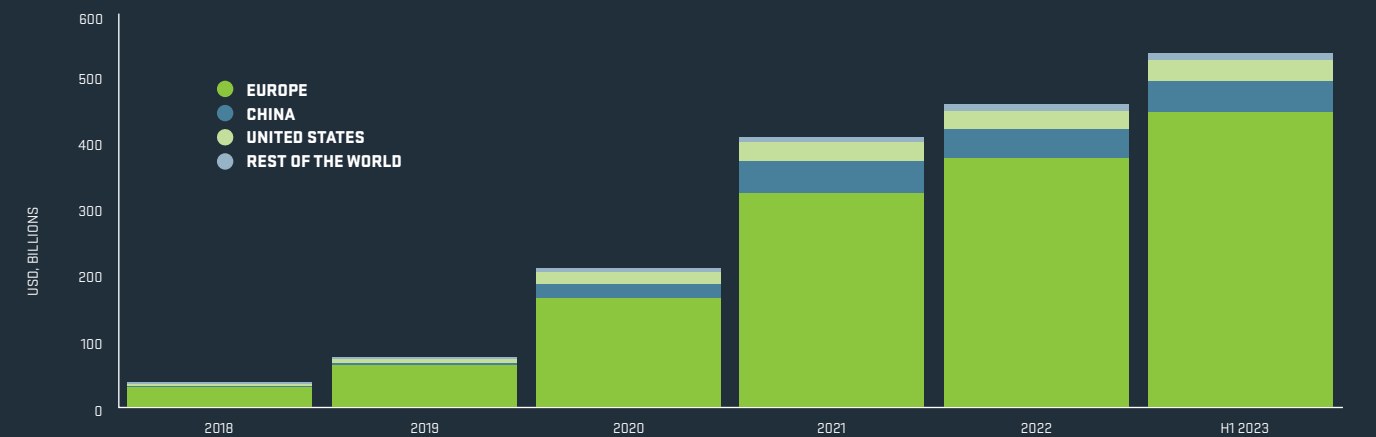
1999

first global sustainability benchmark, the **Dow Jones Sustainability World Index**, launch date

ESG'S TARNISHED IMAGE NOT SO PROBLEMATIC



THE GLOBAL LANDSCAPE OF CLIMATE FUNDS



SOURCE: MORNINGSTAR DIRECT, MORNINGSTAR RESEARCH, DATAS AS OF JUNE 2023



ILLUSTRATIONS BY JAMES GILLEARD

James Gilleard is a UK-born, Japan-based illustrator. He has worked on illustration projects including books (Walt Disney's Haunted Mansion), magazine covers and web graphics, to concept art for TV and film for the likes of Netflix, Walt Disney and Dreamworks.

EDITORIAL

FUTURE, PRESENT, AND PAST

→ IN DISCUSSIONS SPANNING RIYADH, Miami, and Hong Kong, and looking ahead to our FII PRIORITY Summit in Rio de Janeiro, one theme stands out: the transformative potential of AI in finance!

While the promises are bold, our focus remains on asking crucial questions. How do we ensure tech innovations promote equality? Who stands to gain, and who might be left behind in the AI revolution? And are the benefits distributed equitably between the Global North and South?

This report not only explores the future of finance but also delves into the current ESG trends and the sustainability of financial practices. By reflecting on the past, we aim to create a meaningful path forward.

Our goal is for readers to grasp the possibilities of an AI-driven financial future while recognizing the importance of inclusive decision-making for all global stakeholders.

ESG and AI are two of our main pillars at the Fii-Institute. We will pursue this conversation with your active participation



Richard Attias
CEO, Fii Institute

CONTACT US:
info@fii-institute.org

@fiiiksa
 Fii Institute
 Future Investment Initiative

COVER: JAMES GILLEARD ; ILLUSTRATION: ANJE JAGER/SOOTHING



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info@fii-institute.org

@fiiksa
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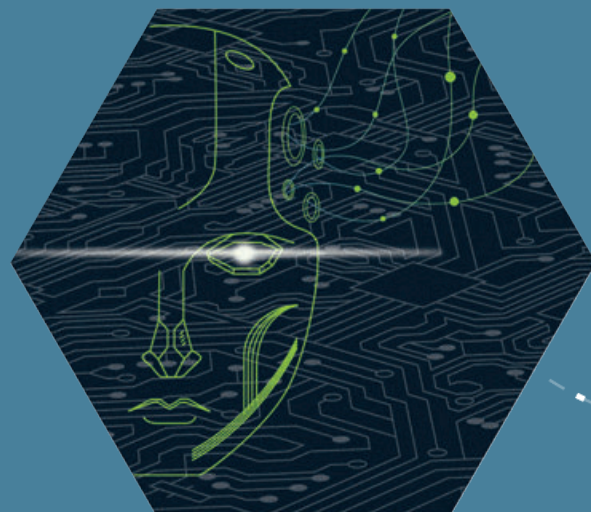
SETTING THE STAGE

Every story has a backdrop, and in the interconnected worlds of AI and ESG, or sustainable finance, it's worth seeing how those two came together.

Sustainable finance and ESG have been around since the 1960s and 1990s respectively.



AI has been around as a term since the 1950s - though often as a theoretical technology.



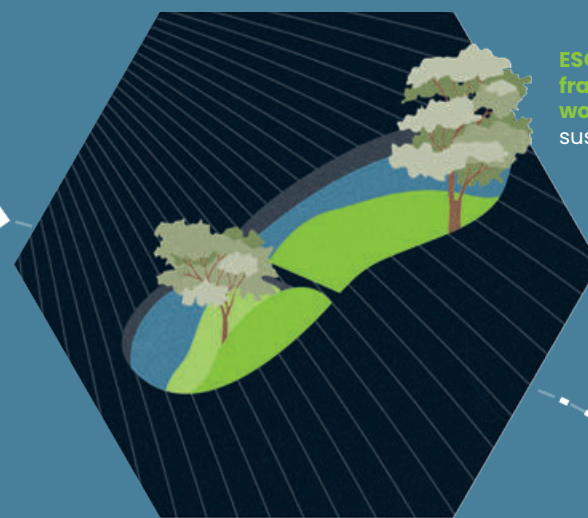
The two briefly intertwined for the first time in the 1990s, as machine learning pored through data patterns - but then diverged...



ChatGPT provided the ability to analyze vast volumes of free text data - perfect for complex ESG reporting.



ESG reporting became a fragmented, confusing world - making investing in sustainable finance tricky.



The benefits of bringing both together can help unlock efficiencies that can result in more funding for sustainable projects.



ILLUSTRATION: CARINA DYLLUS

AI, ESG AND SUSTAINABLE FINANCE

Working your way through the range of finance options and products available can be tricky at the best of times – but ESG adds another complicated dimension to the equation. However, AI help is at hand to make finance more sustainable.

THE ISSUE AT STAKE

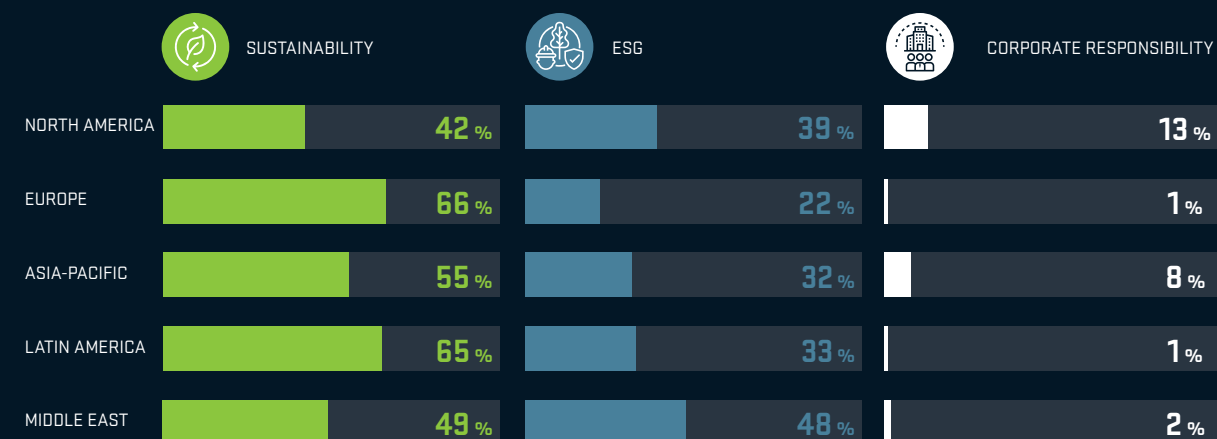
→ **SUSTAINABLE FINANCE IS AT a crossroads.** The world is facing climate change, biodiversity loss, and resource depletion head-on, all of which threaten the foundation of our economy and society. Sustainable finance has stepped in as a powerful tool to channel investments towards environmentally and socially responsible initiatives, driving the much-needed transi-

tion to a greener, more equitable future. But integrating environmental, social, and governance (ESG) factors into financial decision-making is tough. Companies are drowning in complex, often contradictory and sometimes unreliable ESG data. Only 4.4% of companies worldwide provide climate-related disclosures that meet the Corporate Sustainability Reporting Directive

(CSRD), International Sustainability Standards Board's (ISSB) sustainability and climate-related standards and the US Security and Exchange Commission's (SEC) proposed rules on ESG disclosure. Investors, corporations, and regulators often struggle to make informed and responsible choices. More than 9 in 10 rely on third-party solutions for ESG management.

WHY WORDS MATTER

ESG is an all-important issue. And tackling it is vital. But companies can't choose how to describe the problem – so how can humans understand what's being tackled? Handily, AI can help.



TOTALS DO NOT EQUAL 100% AS THIS RESEARCH ONLY LISTS THE TOP THREE REPORT TITLES PER REGION
SOURCE: THE STATE OF SUSTAINABILITY AND ESG IN 2023, NASDAQ

AI TO THE RESCUE?

AI can help. Its advanced algorithms and machine learning can process and analyze massive amounts of ESG data, separating the need-to-know from the duff data, helping get on top of sustainability metrics with unprecedented speed and accuracy.

The latest generation of large language model (LLM) tools are tailor-made to trawl through free text and analyze meaning. Trained on vast volumes of data, they are able to learn patterns and relationships in how language is used. That's important, because ESG reporting still hasn't settled on a single global standard: companies even argue about what terminology to use (see Why words matter infographic).

Some are already putting this to use. In November 2023, Nasdaq launched Nasdaq Sustainable Lens, an AI-powered SaaS platform that helps companies and investors navigate and utilize ESG data from across thousands of firms. And San Francisco company TruValue Labs uses AI to analyze ESG-related data on 16,000 securities in real time.

GOING FOR GREEN

At the same time, AI can help develop new "green" financial products, including sustainability-linked bonds and ESG-focused exchange-traded funds (ETFs). AI could help analyze supplier invoices to help build a better understanding of Scope 3 emissions for companies that may seek to be part of a green ETF.

It can more dynamically price financial products based on their ESG credentials, and power decentralized finance (DeFi) platforms that provide traceable funding for environmentally-friendly projects. In April 2022, Singaporean telecommunications company Singtel

“The trend in alternatives, which is driven by performance, is here to stay. The performance of alternative assets has outperformed everything else.”

GREGG LEMKAU

Co-CEO, BDT & MSD Partners at FII PRIORITY Miami 2024

launched a \$100 million, five-year digital sustainability-linked bond (SLB) in collaboration with United Overseas Bank (UOB) and Singapore investment platform ADDX. “Digital securities now play a vital role in climate action,” said Oi-Yee Choo, CEO, ADDX, as she launched the bond.

Used well, AI can enhance analytics skills, drive innovation, and foster collaboration between technologists, financiers, regulators, and policymakers. But used poorly, it can add complication to an already convoluted process – and waste precious natural resources along the way. On current projections, global water demand to power AI could reach 6.6 billion cubic meters by 2027 – or six times the annual water needs of a country the size of Denmark.

So as we stand at this crossroads of environmental urgency and technological advancement, how do we use AI as a catalyst for scaling sustainable finance? How do we

follow the pathway to harmonize profit with planetary health? Join us on this journey as we uncover the transformative potential of AI in shaping a more sustainable and resilient financial landscape. ■

1 <https://www.nasdaq.com/solutions/ir-intelligence/resources/state-of-sustainability-and-esg/2023>

2 <https://www.thomsonreuters.com/en-us/posts/wp-content/uploads/sites/20/2023/11/the-state-of-corporate-esg-2023.pdf>

3 <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/54265151>

4 <https://www.thomsonreuters.com/en-us/posts/wp-content/uploads/sites/20/2023/11/the-state-of-corporate-esg-2023.pdf>

5 <https://www.singtel.com/about-us/media-centre/news-releases/singtel-partners-uob-and-addx-on-large-east-foreign-currency-digital>

6 <https://arxiv.org/abs/2304.03271>

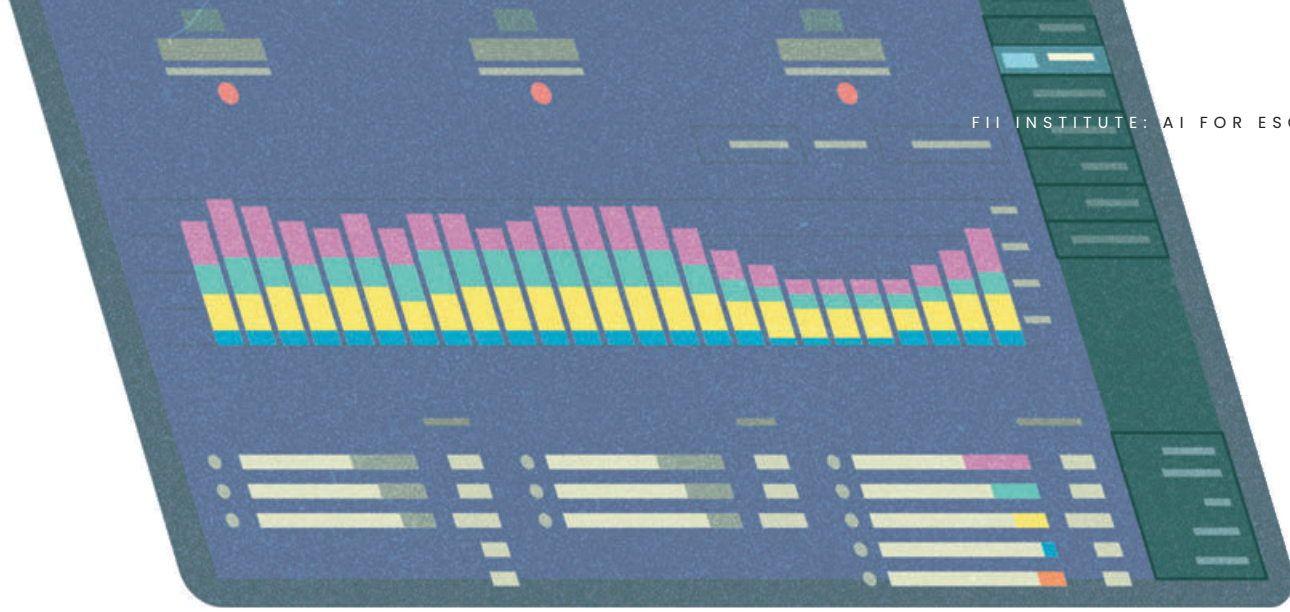
ILLUSTRATIONS: JAMES GILLEARD



HOW AI CHANGES EVERYTHING

The revolutionary technology has been around for seven decades – but has come into its own in the last two years. Here’s how AI can change the game for ESG and finance.





ON THE CUSP OF CHANGE

The AI revolution has created a grand setting that promises to transform all sectors – including ESG and sustainable finance.

→ **WHEN A GROUP OF RESEARCHERS** gathered at Dartmouth University one long, hot summer nearly 70 years ago to unite their disparate, divergent areas of study under the shared banner of “artificial intelligence”, they likely didn’t imagine the impact a single chatbot would have had on the world.

But ChatGPT has changed things enormously since its November 2022 release. It has kickstarted a race between big tech giants, and overhauled industries big and small. We stand on the cusp of change, as this report will uncover, with financial services and companies’ ESG goals materially altered.

However, AI has been more deeply embedded in both worlds than you might think – even if not always using that term. To know where we’re going, it’s always

useful to understand where we’ve come from.

A LONG HISTORY

Since at least the 1980s, data-driven, quantitative trading strategies have been deployed by companies seeing to gain an advantage over the market. Founded in 1982 by Jim Simons, Renaissance Technologies was a pioneer in applying quantitative models to financial markets. Its early use of data and computational techniques laid the groundwork for the algorithmic trading revolution.

Quantitative analysts, or “quants,” became the rock stars of Wall Street, employing complex machine learning models to predict stock movements. Hedge funds began investing heavily in the development of proprietary algorithms.

That was advanced in the 1990s, with Goldman Sachs’s proprietary risk management software, SecDB, born in 1993, which allowed the firm to manage risk across different financial markets using a unified system. Long-Term Capital Management deployed Nobel laureates Myron Scholes and Robert C. Merton to create complex mathematical models that could exploit market inefficiencies. The collapse of LTCM in 1998, however, highlighted the risks of over-reliance on data-driven models without human involvement.

BIG DATA, BIG ACTION

Algorithmic trading took hold in the new millennium, with companies like Citadel Investment Group and D.E. Shaw & Co. spearheading the adoption and development of so-



phisticated trading algorithms that could execute orders in milliseconds based on market conditions. Betterment launched its robo-advisors in 2008, a precursor to the modern-day promise of an AI-enabled, chatbot-powered financial advisor.

The exponential increase in computational processing power in the 2000s set off an arms race as companies sought to put more power behind their computerized trading algorithms. Speed was of the essence, and firms bought data centers closer to financial trading floors in order to be first to make market moves.

Most of those initiatives capitalized on the ability of AI in the early 2000s to sift through vast volumes of numerical data at speed, but since then we have been awash in a sea of data. Everything from stock transactions and global economic indicators to social media sentiment can help dictate where investors should put their money.

This vast torrent of data helped machine learning evolve. Algorithms became more sophisticated, learning not just from structured data, but parsing news articles, tweets, and even satellite images to forecast market trends. High-frequency trading (HFT) algorithms, capable of executing orders in

milliseconds in response to market conditions, proliferated, further blurring the lines between human and machine decision-making.

ENTER ESG

The advancement of natural language processing (NLP), an AI technology that enables machines to understand and interpret human language, in the late 2010s not only helped traders find an edge. It also improved ESG analytics by allowing AI systems to analyze unstructured data sources, such as news articles, social media posts, and corporate sustainability reports, for insights into ESG performance.

NLP enables real-time analysis and monitoring of how a company is meeting its ESG goals, giving investors more insight than ever into where they should – and shouldn’t – put their money. AI systems have since been put to use to not only analyze past and present ESG data, but also predict future ESG performance based on historical trends, company policies, and broader industry or societal shifts.

Today, AI is an integral part of both the ESG and sustainable finance ecosystems, enhancing the accuracy and ability to analyze companies’ ESG goals. That said, there are challenges: data quality, transparency, and the potential for

bias in AI systems remain major hurdles to achieving fully reliable and unbiased ESG assessments. And as the ever-changing ESG criteria evolve, so must the algorithms that analyze them, requiring ongoing refinement and adjustment.

But big changes are happening, as we’ll learn in the subsequent pages of this report, as we hear from those at the forefront of these advances. ■

MAKING BIG CHANGES

One leading financial firm is successfully adding AI into its practices – and is several steps ahead of many on the road to our AI-enabled future.

→ **THE ARTIFICIAL INTELLIGENCE** revolution promises to be bigger than the internet revolution for the finance sector, believes Deep Ratna Srivastav, Global Head of AI & Digital Transformation, Franklin Templeton.

Franklin Templeton’s vision for the future, led by Srivastav and his team, is testing how AI can radically transform every part of the finance value chain – from product sales and distribution to investment management, trading and risk management.

“As these two worlds start to come together, it can radically change the whole value chain, right from the point-of-sale process, to the buying process, to the distribution to the wealth processes, and to trading,” Srivastav said. Finance as an industry is ripe for an AI-driven overhaul, he reckons, since at its core, it is a “knowledge-based setup” revolving around harnessing information to make decisions.

Franklin Templeton has been working in the world of AI for years, but traditionally the technology has been used mainly to sort through vast volumes of numbers at scale.

However, the rise of generative AI in a post-ChatGPT world affords financial firms the ability to sift through additional contextual data, which is often stored in free text, he explained. This can help the company better advise customers on the right financial products for them – and also expand the range of specialized products they can offer.

GOING EXASCALE
One of the biggest opportunities Srivastav sees from the AI revolution is using the technology to deliver personalization and financial inclusion at a massive scale. Historically, the investment management industry has been criticized for only serving the wealthy who can afford premium advice. AI could democratize access by understanding each individual’s specific goals, risk appetite and circumstances to construct personalized investment portfolios and recommendations.

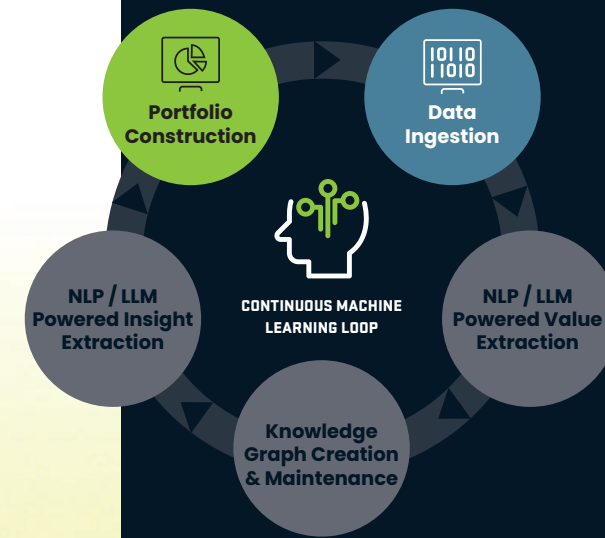
“It can really drive financial inclusion,” he said. “Our industry is sometimes criticized, as you ‘the doctors for the healthy people,’ right? The only people you end up advising are the good quality: the

rich, the people who can really afford it, and not those who cannot.” But AI’s ability to scale at will can help shift those perceptions – and open up access to a new range of people. “This is an opportunity to change all of that,” he said.

One key challenge for investment managers is incorporating contextual knowledge around companies, industries and macroeconomic trends into their analytical models. That’s particularly important when assessing individual firms’ ESG claims – as we’ve previously explored in this Spotlight report – because of the thicket of different claims and language used to advertise a company’s green credentials. →

USING AI TO DEVELOP THEMATIC PORTFOLIOS

The power of artificial intelligence can help develop more thematic investment portfolios, which have more than \$800 billion in assets under management, according to Morningstar.



SOURCE: FRANKLIN TEMPLETON INDUSTRY ADVISORY SERVICES. FOR ILLUSTRATIVE PURPOSES ONLY.

ILLUSTRATIONS: JAMES GILLEARD

→ This is where modern AI techniques like large language models (LLMs) can make a massive difference by digesting reams of unstructured data, Srivastav believes.

“We have many years of past investment notes and reports, key drivers of what we should be looking at from an investment perspective,” he said. And Franklin Templeton wants to leverage that long history of expertise for its current crop of advisers, codifying the transfer of knowledge that previously happened institutionally through AI. “We’re trying to harness that by reading simple reports, and connecting multiple reports from different sources. Then you start connecting them back to original research reports. Suddenly you get this feedback loop going,” Srivastav explained.

He cautioned, however, that getting AI’s analytical capabilities to a level of 85–90% accuracy from the current 40–60% would be crucial for real-world applications. And while the AI revolution is in its early stages, it’s not quite at that level. But that could happen soon. “If we get this right, all these different areas of investment processes can be harnessed into one common workflow,” he said.

THE FUTURE OF EMBEDDED FINANCE

Looking ahead 15–20 years, and thanks to AI, Srivastav painted a future where finance is deeply embedded into every individual’s life in a manner akin to how healthcare is evolving with personalized medicine, genetic profiling and nutrition advice. “Finance should be radically different,” he said. “It will get significantly embedded in the individual’s lives of people, across different applications.”

This embedded finance environment, powered by AI, could provide

people real-time awareness and gentle course corrections for better financial decision making around spending, saving and investing. “Individuals suffer from significant wrong decision making, a lack of action, and constantly regretting financial decisions,” he explained. “By being more aware, people will find it easier to take the right actions for their future.”

While visionary, implementing this AI-driven future for finance has its challenges. Srivastav stressed the importance of getting data governance, security, compliance and transparency protocols right before anything else. Talent management is a top priority, with firms needing

to transform their DNA by reskilling and hiring people with skills like product management, research science and engineering.

There are also potential risks like AI models making flawed decisions, concentrating decision-making power, lacking transparency and perpetuating biases that need guarding against. “There can be risks where machine learning algorithms are taking the wrong decisions,” he said. “There can be a lack of transparency, lack of inclusion or more biases.”

And crucially, Srivastav underscored that no single firm can go it alone on AI. Realizing its full potential requires an ecosystem approach

DEEP RATNA SRIVASTAV

Deep Ratna Srivastav is Global Head of AI & Digital Transformation, Franklin Templeton. He develops and integrates client and market insights into Franklin Templeton’s client interactions across business lines globally. Deep is an Electronics Engineer and an MBA from Indian Institute of Management, Ahmedabad with a focus on Quantitative Research and Marketing. He got certified as Six Sigma Black Belt in GE. He is IBM certified in Python for Data Science and SQL.



ILLUSTRATIONS: JAMES GILLEARD

by integrating trading systems, research systems and unconventional data sources through partnerships.

“You need to connect with research systems, trading systems, and unconventional data forms,” he said. “These have to all be packaged together for the delivery mechanism.” He pointed to a core optimization engine the company has had in place for years. It required extensive partnerships to bring it into existence.

CHAMPIONING CHANGE

For firms like Franklin Templeton who started their AI journey years ago, finding product champions across different business units to

implement use cases has been critical, in addition to CEO-level commitment to innovation.

With investment management being a relatively new field from a scientific perspective, the timing is ideal for the AI revolution, according to Srivastav. Decades of development have converged at the right time to provide a killer app for generative AI that can be used in many industries – finance included. Whether it replicates the kind of transformation AI has unleashed in healthcare over the next 15 to 20 years, or takes an even faster trajectory given finance’s data-richness, remains to be seen. But the opportunities seem boundless – if the sector gets it right. ■

CAN AI EVER BE SUSTAINABLE?

The new technology has the ability to improve efficiencies and highlight areas for improvement – but what impact does using it have on the environment?

→ **ARTIFICIAL INTELLIGENCE HAS** already proven to be a game-changer in many ways. But when used to unlock new patterns, innovate new thinking, and find new strategies for saving the planet, the potential could be enormous, analysts say.

Using a range of AI-powered levers could reduce worldwide greenhouse gas (GHG) emissions by 4% in 2030, an amount equivalent to 2.4 Gt CO₂e – equivalent to the 2030 annual emissions of Australia, Canada and Japan combined, according to research by

PwC UK. And at the same time, using AI for environmental applications could contribute up to \$5.2 trillion to the global economy in 2030 – which would be a 4.4% increase over business as usual.

“If you’re really doing some kind of AI for climate work, and the energy you’re using is renewable, and you’re being quite thoughtful about how you’re doing the work, and you’re not just constantly streaming large language models, I think it can be definitely [sustainable],” said Sasha Luccioni, AI and climate lead at AI company Hugging Face.

However, before you start reaching for the latest AI models and layering them into your business, be aware that generative AI is a double-edged sword. “You have to put in a lot of thought into it and make sure you consider all the factors,” warned Luccioni.

THE RISKS

The reality is that AI is an energy- and resource-intensive industry. Training GPT-3, by now an outmoded version of the large language model that powers ChatGPT, used 3.5 million liters of water

thanks to the cooling needed to ensure the data centers that processed the requests worked efficiently, according to one academic study. That’s provided it used centers based in the United States, which work more efficiently. If it was trained on Microsoft’s centers in Asia, researchers worry, water usage would have been nearer 5 million liters.

Likewise, training GPT-3 consumed 1,287 MWh, and led to emissions of more than 550 tonnes of carbon dioxide equivalent, similar to flying between New York and San Francisco on a return journey 550 times. GPT-4, the model currently in use for ChatGPT at the time of writing, has 570 times more parameters – which doesn’t mean that it took 570 times the energy to train, but does mean it’s likely to be greater still.

And using the models themselves to try and pore through data

to find answers to become more sustainable could end up doing the opposite: every prompt sent to a chatbot like ChatGPT uses up to 100 times more energy than sending an email – far faster than renewable energy sources can spin up to mitigate the energy impact.

Data centers are an increasing environmental hog, according to forecasts. By 2030, machine learning training and data storage could account for 3.5% of all global electricity consumption, according to the International Energy Agency. Pre-AI revolution, data centres used up 1% of all the world’s electricity demand in any given year.

“Trying to decarbonize things before expanding is key,” Luccioni said. “If you’re expanding on existing infrastructure, and that infrastructure is – for example – carbon intensive, you’re multiplying the factor by however much you grow by.”



THE BENEFITS

All that said, Luccioni doesn't advise entirely against using AI to try and eke out more environmental, social and governance benefits from your business – or using it to try and power sustainable finance initiatives. Instead, she says it should be used judiciously, and with care that your overall benefits outweigh your overall impacts.

One major factor that can affect how sustainable the use of AI in business could be is the efficiency of the AI model you deploy. "Make sure you're using the model that's best suited to your purpose, and not just a general purpose model that can do everything," she said. Many generative AI models currently on the market – including ChatGPT and others – are Jacks of all trades, and masters of none, and as such are comparatively inefficient in how they operate. Using a specialized model, tailored to your task, is one way to cut back on the carbon footprint – and with a range of open-source models out there available

to tweak, can help. Once you have your tailored model, fine-tuning it to make it even more efficient is a must-do, says Luccioni. "There are all sorts of techniques for making the model more energy efficient," she said. "Things like distillation and pruning."

Not only does this make the outputs quicker – making your business more efficient in its operation – but it can drastically draw down the energy use.

And finally, keeping an eye on energy sources can help improve the sustainability of your AI usage. Powering the models with sustainable sources of energy, and taking advantage of the changes in our global climate can all add up and help organizations be able to report better ESG results. "Make sure that the energy source you're using is as renewable as possible, as low carbon as possible," said Luccioni. "And use data centers that are in places that are colder and therefore need less overhead for cooling." ■

ILLUSTRATIONS: JAMES GILLEARD

4.4%
increase in global economy using AI for environmental applications

SOURCE: PWC UK / MICROSOFT RESEARCH

4%
reduction in greenhouse gas emissions by 2030

SOURCE: PWC UK / MICROSOFT RESEARCH

An AI query is up to **100x** more energy intensive than an email

SOURCE: UNIVERSITY OF WASHINGTON

AN ONGOING CONVERSATION

FII Institute is far more than its reports, as these insights into how AI is affecting ESG and sustainable finance from our events this year highlight.



“ AI can be a force for good and for evil. Given the right framework and regulations, it can be a force for good. ”

H.E. YASIR AL-RUMAYYAN,
GOVERNOR,
PUBLIC INVESTMENT FUND,
CHAIRMAN, FUTURE
INVESTMENT INITIATIVE
INSTITUTE, SPEAKING AT FII
PRIORITY HONG KONG

“ When we look at investing, we look for strong AI leadership, quality of the tech stack, strong product-market fit, and sustainable financial performance. ”

Navneet Govil,
Executive Managing Partner & CFO,
SoftBank Vision Fund,
speaking at FII PRIORITY Miami



“ Unlike the US economy, there are global discussions for the next five or ten years on opportunities for AI and vast cross-cutting opportunities, yet it may result in higher unemployment and severe economic impact. ”

Secretary Steven Mnuchin,
77th Secretary of the Treasury of the United States, Founder & Managing Partner, Liberty Strategic Capital, speaking at FII PRIORITY Miami

PHOTOS: FII INSTITUTE

“ I believe it’s possible to build AI models that are really aligned with human values. It’s about being intentional in how we design, deploy, and develop some of these AI models.” ”

H.E. Paula Ingabire,
Minister of ICT and Innovation, Rwanda,
speaking at FII7



“ AI can impart historical lessons, such as analyzing economic policies. By serving as a tool for comprehensive historical evaluations, AI offers insights into what has and hasn’t worked, enabling us to learn from past experiences and avoid reinventing the wheel. ”

The Hon Julie Bishop, 38th Foreign Minister of Australia,
Chancellor, Australian National University,
speaking at FII PRIORITY Hong Kong



“ How can governments ensure AI is safe and fair without stifling private innovation? ”

Richard Attias, CEO, FII Institute,
speaking at FII PRIORITY Miami

“ The arrival of intelligence that is not human is heralded by a lot of questions. AI is likely to double everyone’s productivity, but there are questions about what happens when computers start to make decisions. ”

Eric Schmidt,
Co-founder, Schmidt Futures,
speaking at FII PRIORITY Miami





“ A powerful and natural duo, AI and blockchain revolutionize industries. Blockchain ensures transparency and trust, while AI brings intelligent analysis, elevating efficiency and outcomes. ”

Yi Bao, Chairman, Cedarlake Capital, speaking at FII PRIORITY Hong Kong



“ Digitalization, with blockchain and AI at the forefront, represents a megatrend set to shape the next investment decade. Regulating AI is crucial; yet, we must foster spaces where ethical actors are the ones harnessing AI. ”

Jenny Johnson, President & CEO, Franklin Templeton, speaking at FII PRIORITY Miami



“ Innovation causes risk. But we need innovation moving forward. Technology offers great economic opportunities. ”

Sophia the robot, speaking at FII7



“ We should prioritize responsibilities for sound macroeconomic and financial policies that provide the foundation for growth, employment and prosperity. ”

Kristalina Georgieva, Managing Director, International Monetary Fund, speaking at FII7



AI & ESG COMBINE

Doing right by your business, and by the planet, takes effort that AI can help with – but how can investors and executives harness that potential?



ILLUSTRATIONS: JAMES GILLEARD

FIVE LETTERS, LOTS OF POTENTIAL

The combination of AI and ESG could be transformative – but must be done carefully to capitalize the most.

→ **CLIMATE CHANGE, SOCIAL UNREST,** and corporate scandals have all rocked our planet in the last few decades. Out of controversy, a new investment approach has gained momentum: environmental, social, and governance (ESG) consciousness. This paradigm shift in the financial sector reflects a growing recognition that traditional investment models fixated on financial returns are no longer enough. Investors and companies are now compelled to consider the broader impact of their decisions on the planet – and its people.

ESG's history can be traced back to the 1960s and 1970s, when socially responsible investing (SRI) emerged as a way for investors to align their portfolios with their personal values. At that time, investors began to screen out companies involved in the production of tobacco, alcohol, firearms, and other so-called “sin stocks.” But ESG is a world away from SRI, swapping discounting the negative for valuing the positive.

By the early 2000s, the modern ESG movement was in full swing. Public trust in business practices had been hit by high-profile corporate scandals, such as Enron and WorldCom. Investors recognized the

risks associated with poor corporate governance, environmental harm, and human rights abuses. To ensure it never happened again, more comprehensive frameworks for evaluating a company's non-financial performance were established.

RESPONSIBLE INVESTMENT

The United Nations helped take the lead with its 2006 Principles for Responsible Investment (PRI) initiative. This set out voluntary guidelines for companies looking to involve ESG considerations in their investment decision-making. The global network of investors who signed up to the initiative topped 4,000, and represented the collective holding of more than \$120 trillion in assets under management. Money talked: ESG took hold.

As ESG has become more broadly adopted, the field has also grown increasingly sophisticated. ESG data and analytics have become more robust, allowing investors to better assess and compare the sustainability performance of companies across different industries and geographies.

This, in turn, has led to development of a wide range of ESG-focused investment products, from index

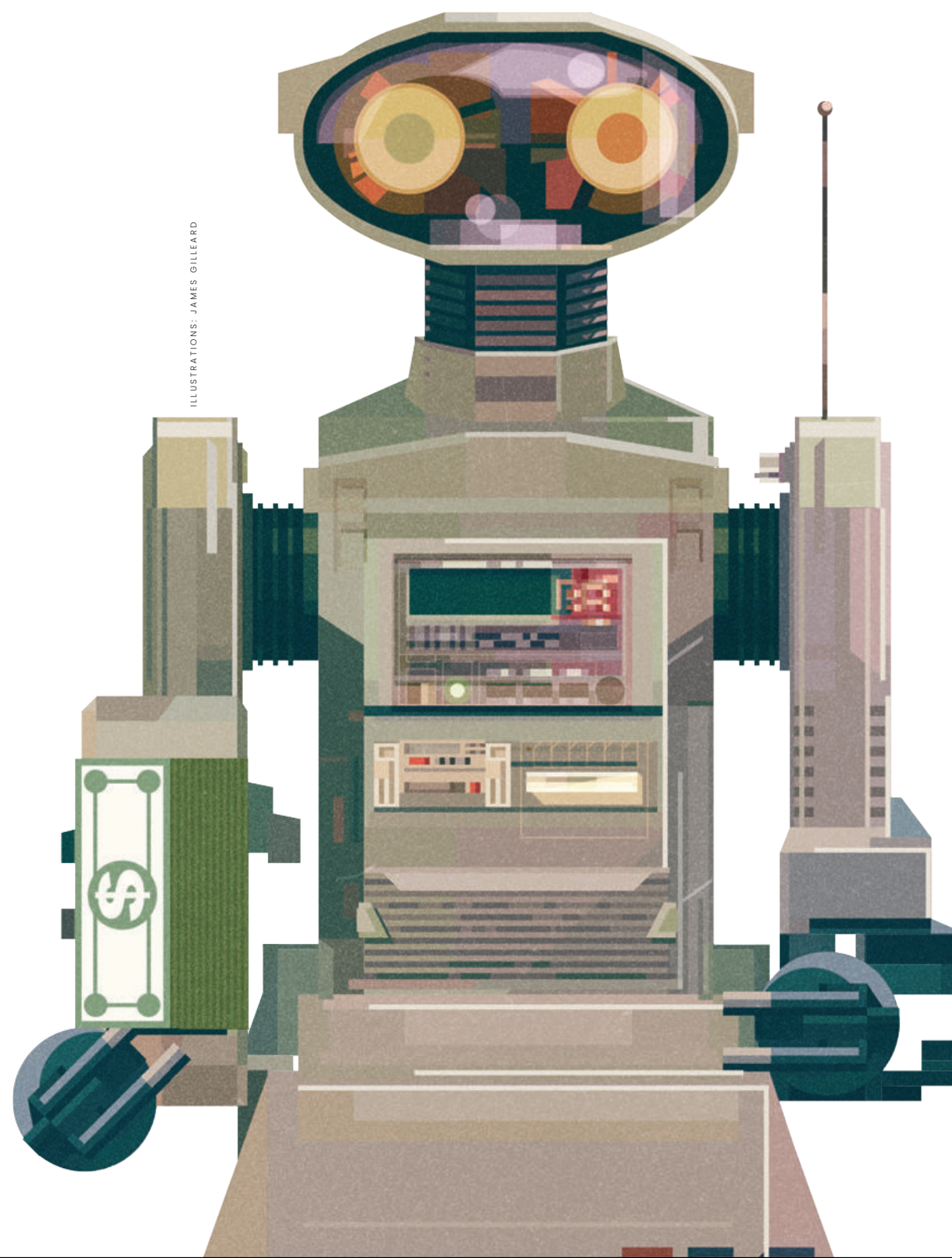
funds to actively managed strategies.

ESG's rise has also prompted a rethinking of the role corporations play in society. Companies are under growing pressure from investors, consumers, and policymakers to address environmental and social issues, and to be more transparent about their governance practices. This shift has led to the emergence of new corporate reporting frameworks, such as the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB), which aim to standardize the disclosure of ESG-related information.

The covid-19 pandemic helped enhance the adoption of ESG investing, as the cold light of global crises highlighted the importance of building resilient, sustainable businesses. The pandemic has also highlighted the social and governance challenges facing companies, such as employee well-being, supply chain management, and crisis preparedness.

REACHING THE FUTURE

But as ESG investing continues to evolve, the role of AI, will become increasingly important. AI-powered



ILLUSTRATIONS: JAMES GILLEARD

ESG data analysis can help investors and companies more effectively identify, assess, and manage material sustainability risks and opportunities. By leveraging machine learning algorithms to process vast amounts of structured and unstructured data, AI can provide deeper insights into a company's environmental footprint, social impact, and governance practices.

AI can be used to analyze satellite imagery and other remote sensing data to monitor deforestation, water scarcity, and other environmental indicators. It can also be used to scrape social media and news sources to identify emerging social and reputational risks, such as labor disputes or product safety issues. AI can help detect patterns of financial misreporting, insider trading, and other forms of corporate misconduct.

And AI can play a crucial role in helping companies and investors navigate the complex and rapidly evolving ESG landscape. Just 10% of companies measured their full greenhouse gas emissions in 2022, according to Boston Consulting Group. AI can help by tallying the output automatically, reducing workload and increasing accountability. By automating the collection, aggregation, and analysis of ESG data, AI can provide real-time insights and recommendations to support more informed decision-making.

The combination of AI and ESG – five simple letters, brought together to form a new paradigm – can be a powerful one. In the pages ahead, we'll learn about best practices and key considerations when melding two major needs of the moment. ■

THE MORAL MAZE

Achieving environmental, social and governance goals may seem easier with AI – but there are issues that need to be avoided.

RUNNING YOUR BUSINESS with a conscience has become the default decision for the leaders of most organizations around the world. But staying competitive is tricky – and the race to adopt AI is tempting.

Generative AI can have a huge positive impact on an organization’s ESG credentials. It’s ca-

pable of quickly poring through data, analyzing how a company operates, where its inefficiencies lie, and suggesting solutions that can support a smoother, more environmentally and socially friendly operation of an organization.

At the same time, corporate governance can be improved by using AI to identify where there

are issues in the way a company is run, and provide more dependable solutions to iron out those biases or problems.

There are already examples of companies applying it: AI is currently being used to forecast and predict air quality in urban cities, allowing policymakers to implement decisions that can improve

air quality when needed. It is improving pest management by identifying and eliminating pests from commercial tomato crops. It’s better optimizing energy use of air conditioning units; and it’s helping classify waste to help improve recycling rates.

But as with any tool, AI needs to be deployed conscientiously in order to make it work to its maximum effect. And there is a risk, without due care and attention, that it could accentuate existing issues – or give the veneer of solving a problem while raising another one that had not previously been thought of.

UNINTENDED CONSEQUENCES

One of the biggest pitfalls with deploying generative AI for ESG purposes is the potential for unforeseen or unintended negative consequences. While the technol-

ogy may suggest solutions that appear environmentally or socially beneficial on the surface, the ripple effects could be more complicated.

AI models are notoriously shallow in their knowledge. While they give the impression of understanding the world around them, they don’t have a true understanding, but deploy pattern matching based on the data they were trained on. This makes them prone to outputting plausible-sounding but ultimately misguided recommendations.

For example, an AI tasked with improving a company’s environmental impact might recommend switching to a new industrial process that reduces carbon emissions. However, this new process could have other detrimental impacts the model failed to account for, such as increased water pol-

lution or human health hazards.

There are also concerns about perpetuating historical biases and injustices if the training data itself is problematic. AI models simply reinforce and amplify the patterns in their training data. If that data reflects societal biases around gender, race, or other factors, the model’s recommendations could act to perpetuate those same biases, even if unintentionally.

And as can be seen in the map showing from where notable machine learning models have emanated, there is a huge gulf in representation from the Global South. For this very reason, those in the Global South may think twice whether they want to implement the use of AI models that do not represent their beliefs, or perpetuate biases against them.

AI IN ACTION: ENVIRONMENT

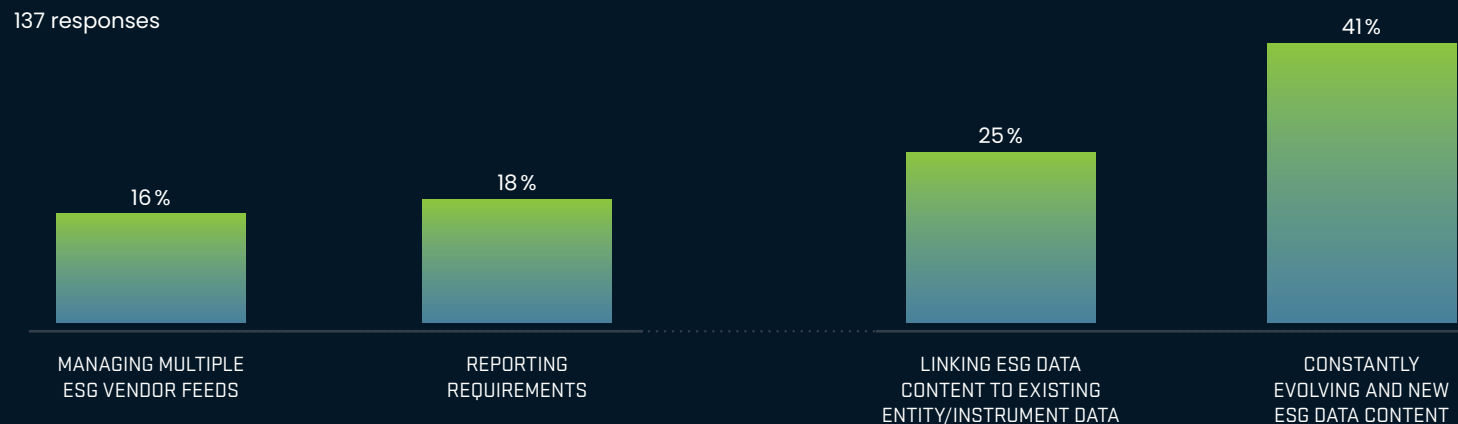
The problem: A shipping company executive wants to ensure that they are not damaging the seabed over which their vessels travel. They affix a camera to the bottom of their ship, and use AI-powered object detection to analyze the seabed for signs of damage.

The potential benefit: If any problems are identified, the company can quickly take action to change its voyage procedures in a way that would prevent the damage – benefitting the environment, and avoiding a potential PR disaster.

The potential risk: Image classification is a mid-range carbon emitter among various generative AI tools, meaning that while one environmental issue is being resolved, another is being created.

WHAT IS YOUR BIGGEST CHALLENGE WHEN MANAGING ESG DATA?

137 responses



SOURCE: BLOOMBERG EUROPEAN ESG DATA TRENDS SURVEY 2024

AI IN ACTION: SOCIAL

The problem: A customer-facing company wants to improve interactions with its clients, and believes that generative AI chatbots could help do so by providing conversational support on helplines.

The potential benefit: What would previously have been a slow, labor-intensive process can become relatively simple and effective, as well as bringing cost savings to the business.

The potential risk: AI chatbots can be comparatively easily “jailbroken”, or hacked, to produce outputs that an organization has put limits on, if not carefully monitored. Simultaneously, while efficiencies may be gained with positive social benefits for customers, the company could be criticized for putting human staff out of work.

➤ **GOVERNING WITH BLACK BOXES**

On the governance front, AI-driven decision-making raises transparency and accountability issues. Neural networks are essentially black boxes – it can be extremely difficult to understand why they arrived at a particular output. If a company bases major strategic or operational decisions on opaque AI recommendations, it becomes problematic to provide clear justification to investors, or to assign responsibility if something goes wrong.

For this reason, there needs to be human oversight and the ability to audit how an AI system made its recommendations.

There are also valid concerns around the existential risk of del-

egating too many decisions to artificial intelligence. As these systems become more capable, and with the potential next generation of models able to “reason”, or make linkages more like a human than they currently do, leaders wanting to use AI will have to ask where we draw the line on delegating decision-making authority to machines that may not share human values or ethical considerations.

STICK OR TWIST?

Despite the risks, consensus is growing that the potential benefits of AI for ESG initiatives are too significant to ignore entirely. The key is developing robust governance frameworks to ensure the technolo-

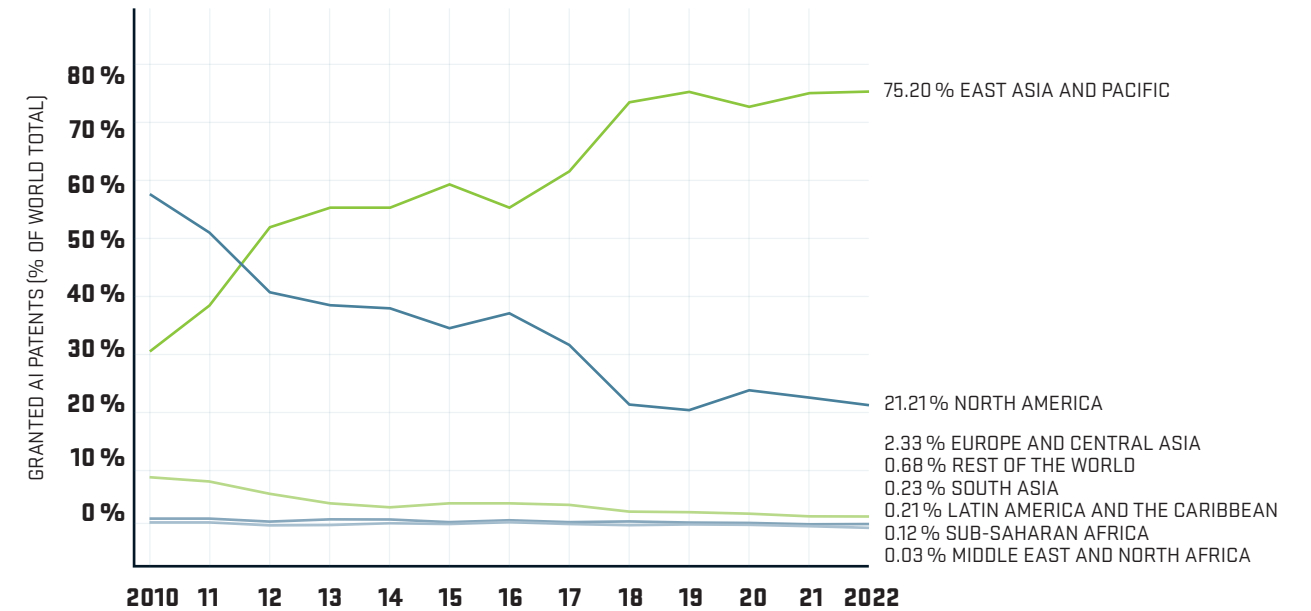
gy is deployed responsibly and with proper oversight.

This could involve having human domain experts closely vetting and approving any AI-generated recommendations before implementation. It may also necessitate greater model transparency, including developing internal models that an organization can oversee training on and can properly understand how they work.

Ultimately, AI should be viewed as a tool to assist and augment human judgment for ESG goals – not a panacea to simply be deferred to without discernment. By proactively addressing the pitfalls, we can maximize the positive impact while avoiding unintended harm. ■

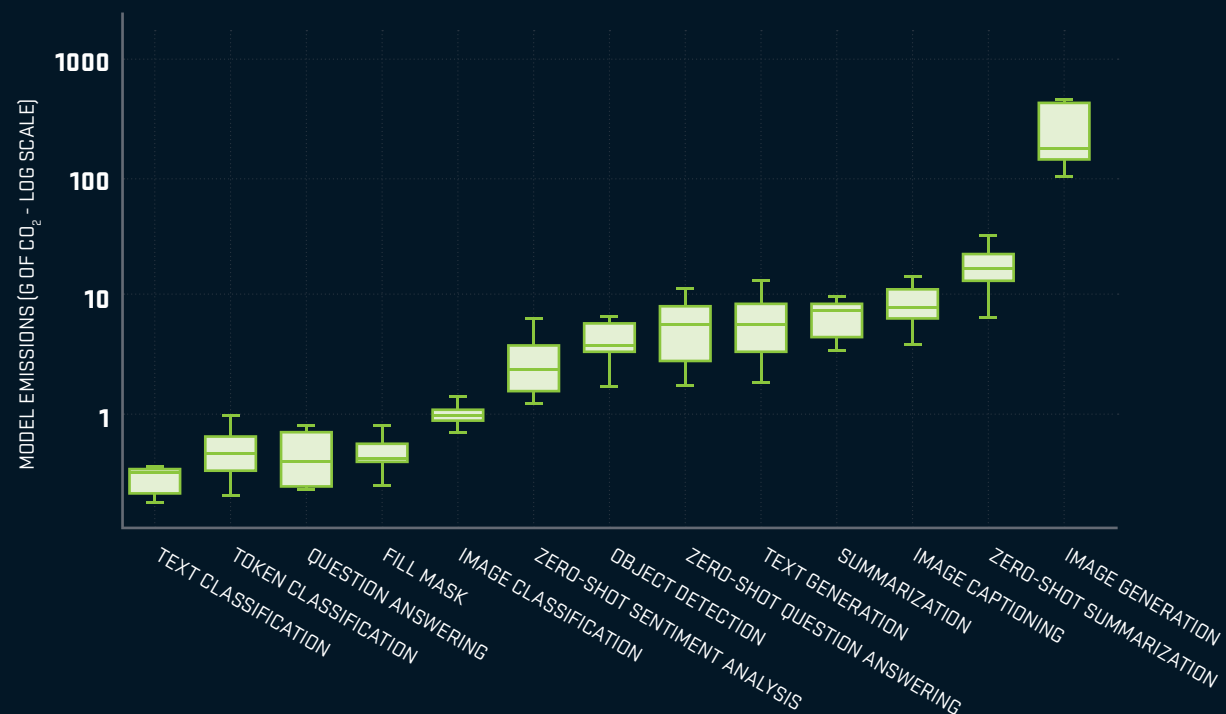
GRANTED AI PATENTS (% OF WORLD TOTAL) BY REGION, 2010-22

Source: Center for Security and Emerging Technology, 2023



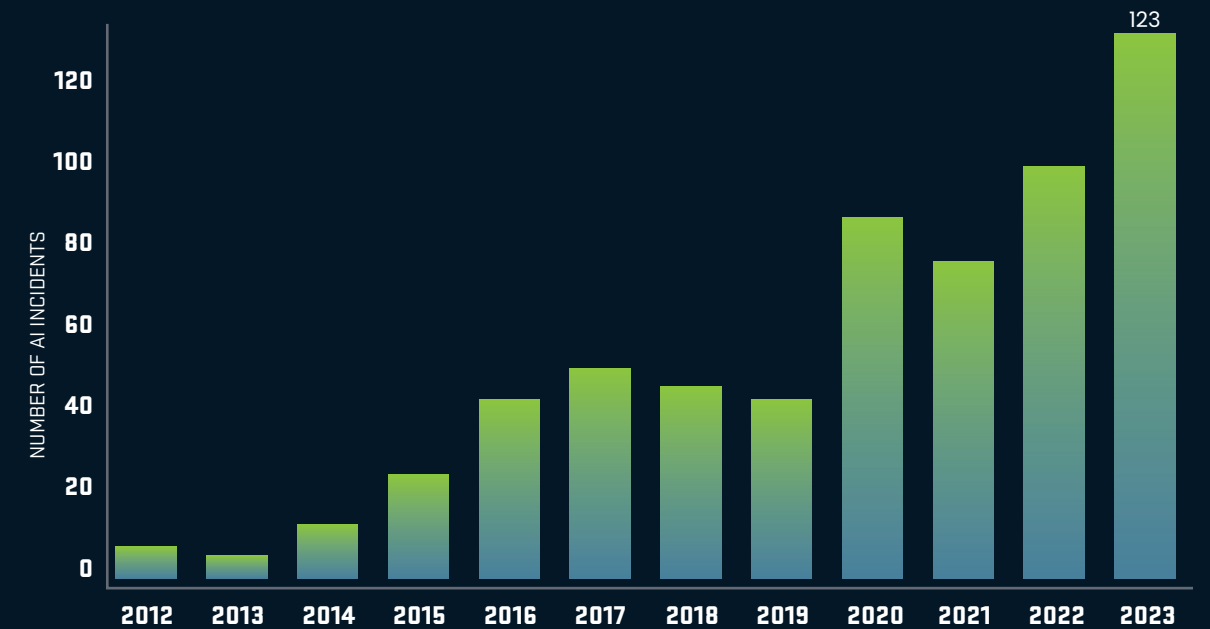
CARBON EMISSIONS BY TASK DURING MODEL INFERENCE)

Source: Sasha Luccioni et al, 2023

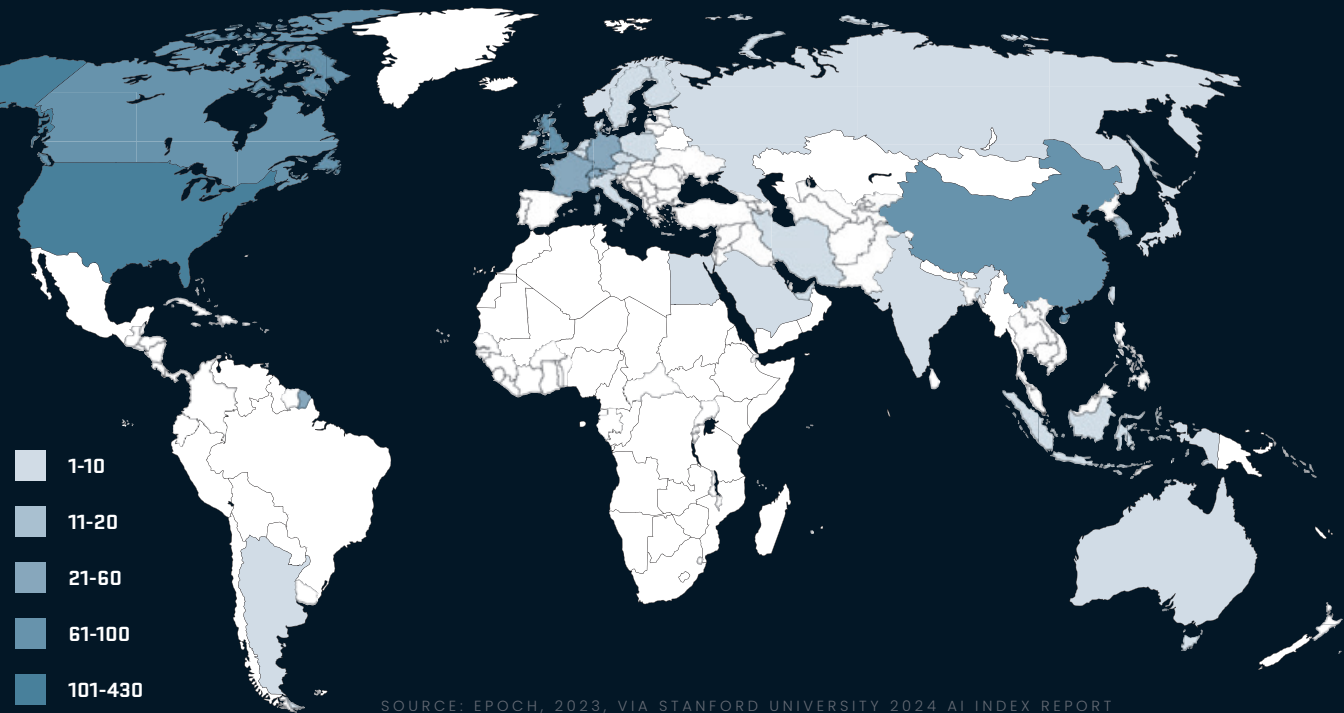


NUMBER OF REPORTED AI INCIDENTS, 2012-2023

Source: AI Incident Database 2023



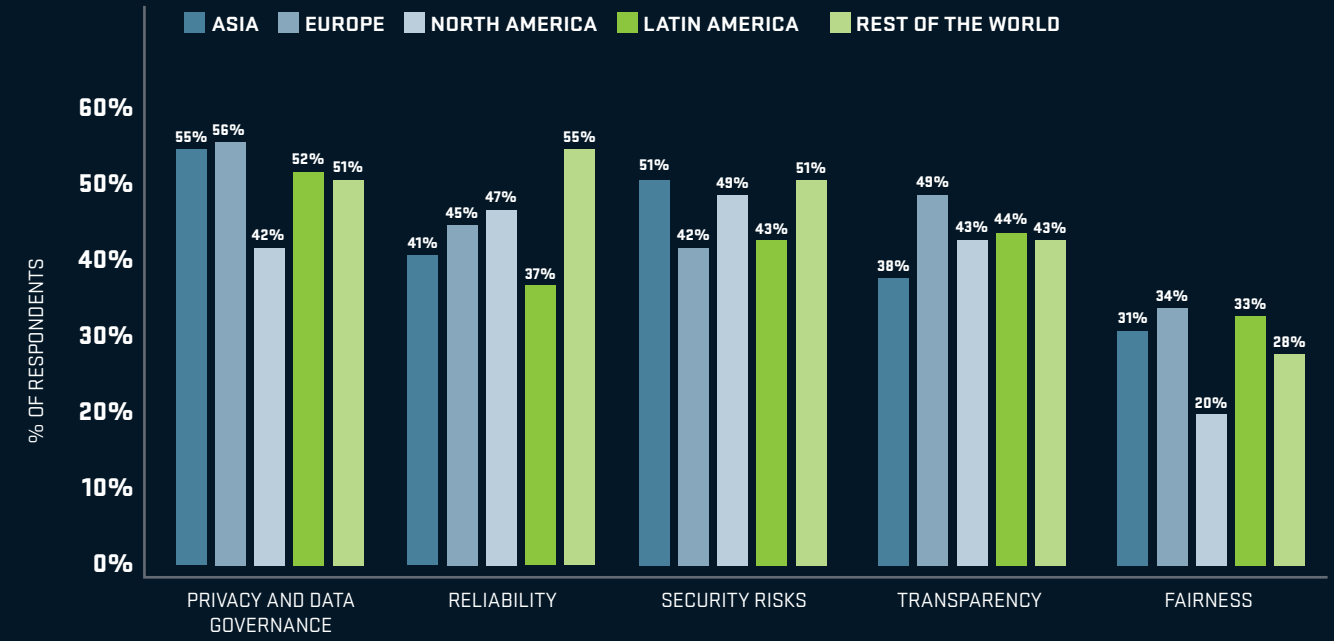
NUMBER OF NOTABLE MACHINE LEARNING MODELS BY GEOGRAPHIC AREA, 2003-2023 (SUM)



SOURCE: EPOCH, 2023, VIA STANFORD UNIVERSITY 2024 AI INDEX REPORT

RELEVANCE OF SELECTED RESPONSIBLE AI RISKS FOR ORGANIZATIONS BY REGION

Source: Global State of Responsible AI Report, 2024



AI IN ACTION: GOVERNANCE

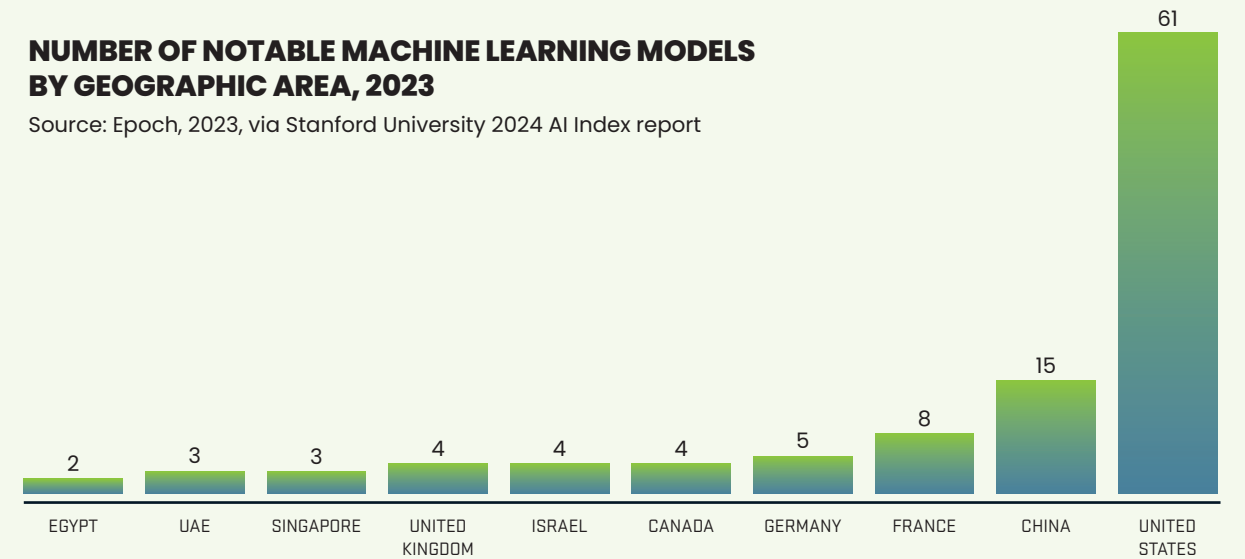
The problem: A business leader wants to eliminate unconscious bias in their organization, and so asks generative AI to audit its documentation and policies to ensure that those issues are resolved.

The potential benefit: AI can undertake the task at a far higher speed and greater efficiency than a human would, and at lower cost.

The potential risk: Generative AI tools themselves are pre-loaded with implicit biases, reflecting the backgrounds of their human creators. The United States is the home of more notable machine learning models currently on the market than every other country combined – meaning that its outputs reflect the sensibilities of that culture.

NUMBER OF NOTABLE MACHINE LEARNING MODELS BY GEOGRAPHIC AREA, 2023

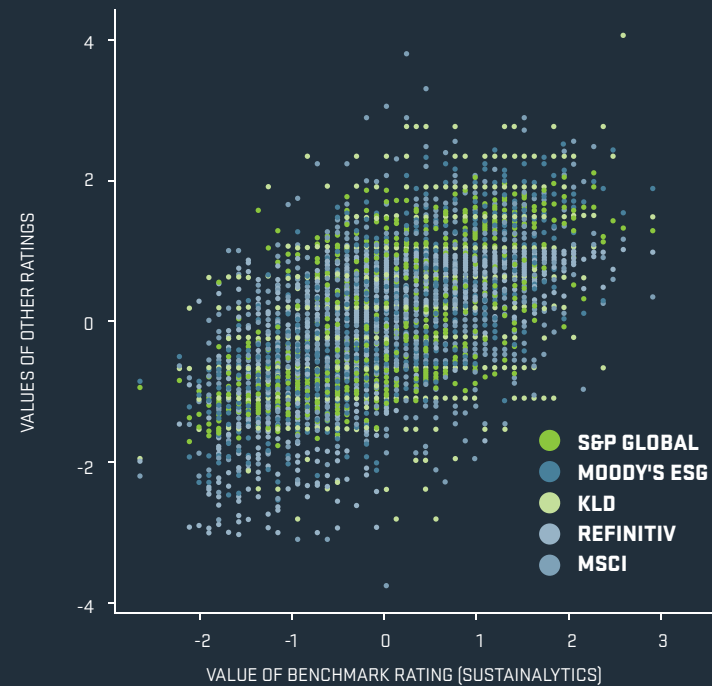
Source: Epoch, 2023, via Stanford University 2024 AI Index report



DRILLING DOWN INTO THE NUMBERS

Here's how AI, ESG and sustainability can intertwine.

ESG RATING DISAGREEMENT



76%

of investors believe AI can help with supply chain traceability

75%

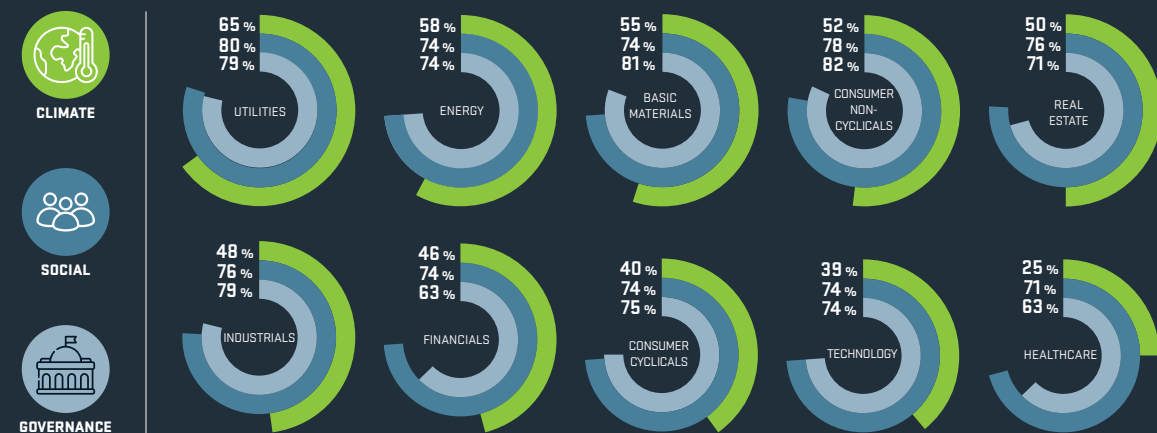
of investors believe AI can help with tracking controversies

92%

of executives believe AI can help with better data estimation

SECTOR REPORTING

Percentage of companies providing disclosures by sector



SOURCES: BLOOMBERG INTELLIGENCE, ECFI RESEARCH REPORT NO 19, BLOOMBERG INTELLIGENCE, THE STATE OF SUSTAINABILITY AND ESG IN 2023, NASDAQ

OUR ESG INCLUSIVE TOOL

How we inform investment strategies to support emerging markets, and make a more just world.

→ **AT FII INSTITUTE, WE RECOGNIZE** that global sustainable development will not be achieved using a system that doesn't incorporate the needs and realities of all markets.

While there has been a surge in ESG investing over the past decade, with an estimated \$38 trillion in sustainability-led assets now under management worldwide, emerging markets continue to receive less than 10 percent of ESG capital flows, despite accounting for 58 percent of global GDP.

That is why, in 2022, we released our Inclusive ESG Framework and Scoring Methodology – an accessible toolkit available on FII Institute's website. It provides a direct road map for the future of ESG, particularly in emerging markets, and was produced

after convening a community of global heads of sustainability, ESG, and stewardship: CEOs, government officials, social innovators, thought leaders, and other experts to engage in vital conversations that will shape the global ESG agenda.

FII Institute has argued since 2019 that ESG, as most commonly interpreted, does not efficiently target investment in emerging economies. So we offered a pathway forward – one that would bring emerging markets to the attention of investors, unlocking some of the vast resources that will be needed to transition to a just and low-carbon world.

Our Inclusive ESG Methodology is guided by what investors told us. They wanted standard KPIs to avoid confusion. They wanted fair analysis without greenwashing.

They wanted to know what good performance looks like in emerging markets, which differ in several key factors from developed markets.

The market has responded favorably to the Inclusive ESG Framework and Methodology. In addition to investor interest, capital market authorities in both Saudi Arabia and Senegal have incorporated the Inclusive ESG Framework into the development of ESG taxonomies to guide company disclosures on their respective exchanges.

Organizations with healthy ESG scores not only perform better financially; they can weather the storms of change. They have the longevity and stability so that they can continue delivering their valuable solutions to humanity without interruption.

HOW IT WORKS

The Inclusive ESG Score is tailored specifically to the challenges of emerging markets. The score's systematic materiality approach emphasizes industry risk, ensuring an equitable evaluation of companies operating within diverse sectors. To promote transparency and accuracy, the Inclusive ESG Score differentiates performance and disclosure analytics and positively weights year-on-year ESG improvement. The Inclusive ESG Score is powered by ESG Book's sophisticated sustainability data assets capture, and is built in alignment with the latest global ESG standards.



CURRENT PERFORMANCE

The Inclusive ESG Performance Score shows the sustainability performance of companies based on publicly available company data.



MOMENTUM SCORE

The Inclusive ESG Future Momentum Score indicates the anticipated future company performance based on current performance and over-time improvement.



DISCLOSURE SCORE

The Inclusive ESG Disclosure Score shows the level of corporate transparency on material ESG topics.

ASSESSING THE MARKET

A wide range of tools and services are helping assess ESG and sustainable finance principles – here, we chart a small sample of what’s available.



MAKING A DIFFERENCE WHERE IT MATTERS THE MOST

It's not just in aiding ESG investment strategies that AI can be used. Its real-world impact can be felt by helping organizations run better.

→ **MUCH OF THE FOCUS ON AI** in the ESG world is fixated on how the technology can help unlock new trading strategies, wade through the morass of ESG reporting, and analyze the raft of sustainable finance options available to investors.

But businesses around the world can and should also use AI tools to help make a difference to how they operate. AI can not only measure our progress towards sustainable development goals, but it can also help motivate them.

Companies like Pano AI, an organization based in Australia and the United States, are using AI to automatically detect, verify and classify forest fires in real time. For companies with long supply chains in tree-dense areas, this AI vision tool can help track activity on the ground and ensure that their workers are treating the environment in a way that upholds their business's ESG claims.

It's not just at a company level that innovation and support is happening. The Asian Development

Bank supports the Smart Energy Innovation Fund (SEIF), which since 2021 has accelerated the development of artificial intelligence and digitalization technologies including wider smart technologies for smart energy applications towards commercialization.

Whether big or small, business leaders can use AI to achieve their own ESG targets, too. The use of AI in energy management to reduce carbon emissions can be a key contributor to the "E" in "ESG", while the tech can also help correct any

biases in employment strategies – contributing to the "S". And it can also ensure that regulatory compliance is followed – a key pillar of the "G" in the three-letter term.

WALKING THE TALK

Many companies, supported by FII Institute, use AI to make our planet more environmentally and socially good. Interstellar Lab, which has been backed by FII Institute's ACT arm, commercializes biofarming platforms by combining AI, advanced hardware and bioscience. The goal of the company is to eventually supply plant-based ingredients at scale, both on Earth and in space.

Also in the food space, Dogtooth Technologies has developed AI-enabled agricultural technology that uses smart robotics to navigate rows of strawberries and raspberries, detect and locate the ripe ones, as well as pick and check the fruit before placing them into a punnet, thereby enabling fruit harvesting businesses to replace the hand-picking method and save time.

Timbeter, based in Tallinn, Estonia, is a forest tech company specializing in timber measurement and data management using artificial intelligence and machine learning. The company's aim is to make forestry more sustainable, one log at a time. By improving the traceability of logging, Timbeter aims to eradicate illegal logging using its pioneering algorithms.

And a healthy population puts the "S" in "ESG". That's why the French company AZmed, in which FII Institute's ACT arm invested in 2021, is so vital. It is the first French company to commercialize AI-powered radiology software, which is already used in more than 250 healthcare institutions by more than 2,500 doctors a day. ■

HOW AI HELPS ESG

These four companies, backed by FII Institute, uphold and maintain core ESG principles that all of us should follow.

| | |
|--|--|
| <p>AZMED</p> <p>Founding year: 2018</p> <p>FII investment year: 2021</p> <p>Sector: AI Driven, Smart Diagnostics for Medical Imaging</p> <p>Focus: Sustainability</p> <p>HQ: Paris, France</p> |  |
|  | <p>DOGTOOTH</p> <p>Founding year: 2014</p> <p>FII investment year: 2022</p> <p>Sector: AG Tech</p> <p>Focus: AI & Robotics</p> <p>HQ: Cambridge, UK</p> |
| <p>INTERSTELLAR LAB</p> <p>Founding year: 2018</p> <p>FII investment year: 2021</p> <p>Sector: Aviation & Aerospace</p> <p>Focus: Sustainability</p> <p>HQ: Paris, France</p> |  |
|  | <p>TIMBETER</p> <p>Founding year: 2013</p> <p>FII investment year: 2022</p> <p>Sector: Biodiversity</p> <p>Focus: Sustainability</p> <p>HQ: Tallinn, Estonia</p> |

PHOTOS: DOGTOOTH, WOKEPHOTOIT / GETTYIMAGES; INTERSTELLAR LABS, ER PRODUCTIONS LIMITED / GETTYIMAGES

YOU CAN'T SPELL SUSTAINABILITY WITHOUT AI

Sustainable finance can be supercharged with the transformative power of artificial intelligence – permanently altering the future course of financial markets.



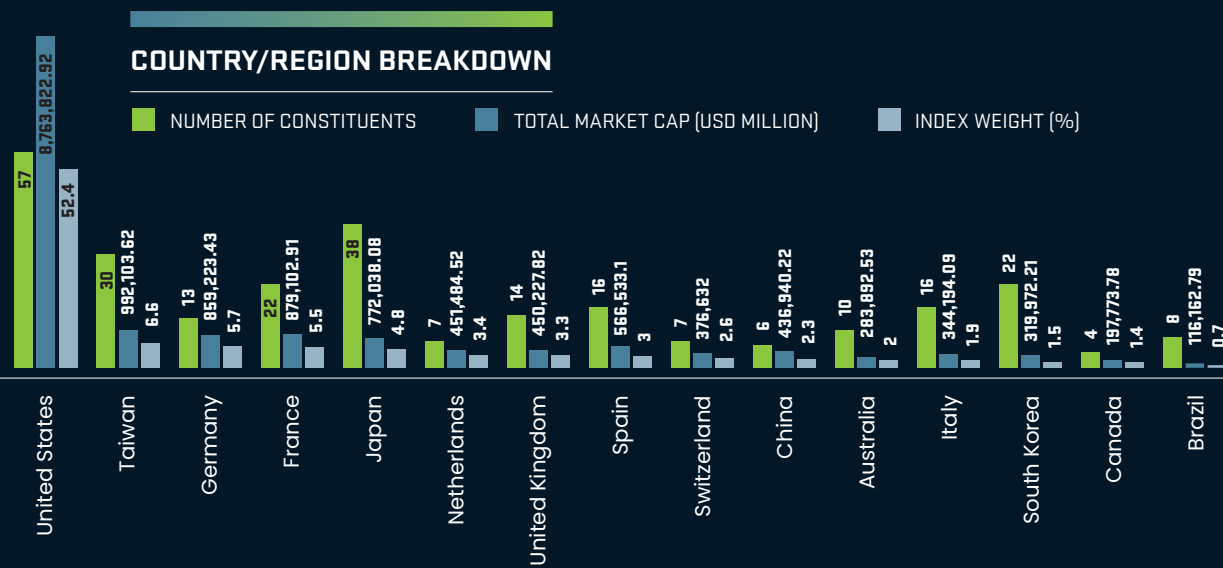
SUPERCHARGING SUSTAINABLE FINANCE

Decades of development could be sped up by the advent of generative AI – but we should tread carefully.

MORE THAN 30 YEARS ago, the heads of 13 of the world’s leading financial firms took a stand against the norm. Ahead of the 1992 Rio Earth Summit, the group of banks issued the UNEP Statement by Banks on the Environment and Sustainable Development in New York, and formed what would become the United Nations Environment Programme Finance Initiative (UNEP FI) – a partnership between UN Environment and the global financial sector to change finance, and to finance change.

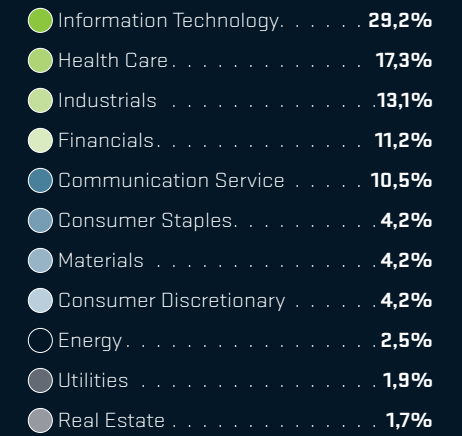
It was a landmark moment, and a recognition, above all, that those who control the money can help shape the world for the better. Two years later, in 1994, the first annual UNEP FI Global Roundtable on the topic of “Greening Financial Markets” was held in Geneva. By 1996, ISO 14001 was formally adopted as a voluntary international standard for corporate environmental management systems, and in 1999, the first global sustainability benchmark, the Dow Jones Sustainability World Index, was launched.

This index remains in operation today, and has achieved an annualized return of 6.01% over the last ten years – a testament to how it’s possible to do good by the planet, and by shareholders. What was once a niche market has now become a mainstream phenomenon, with trillions of dollars in assets under management following ESG-focused strategies. Institutional investors have been at the forefront of this movement, recognizing the material risks and opportunities presented by sustainability-related factors.



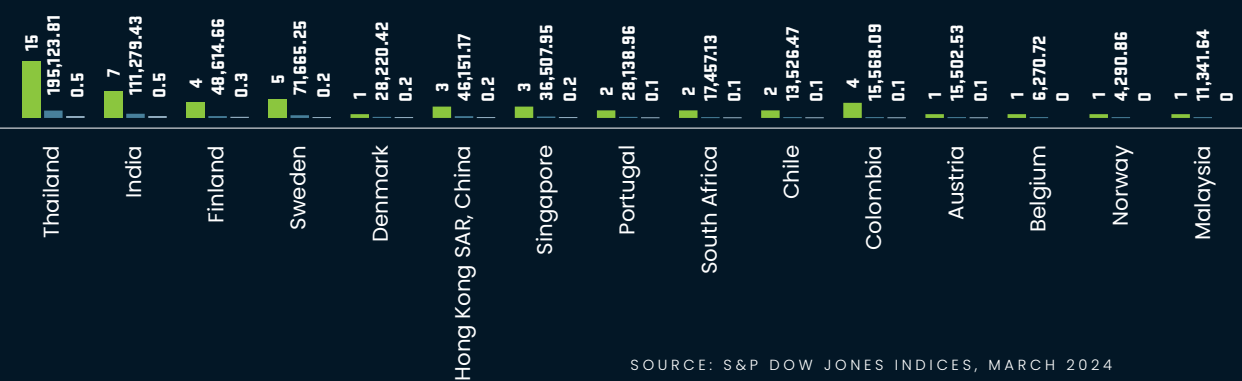
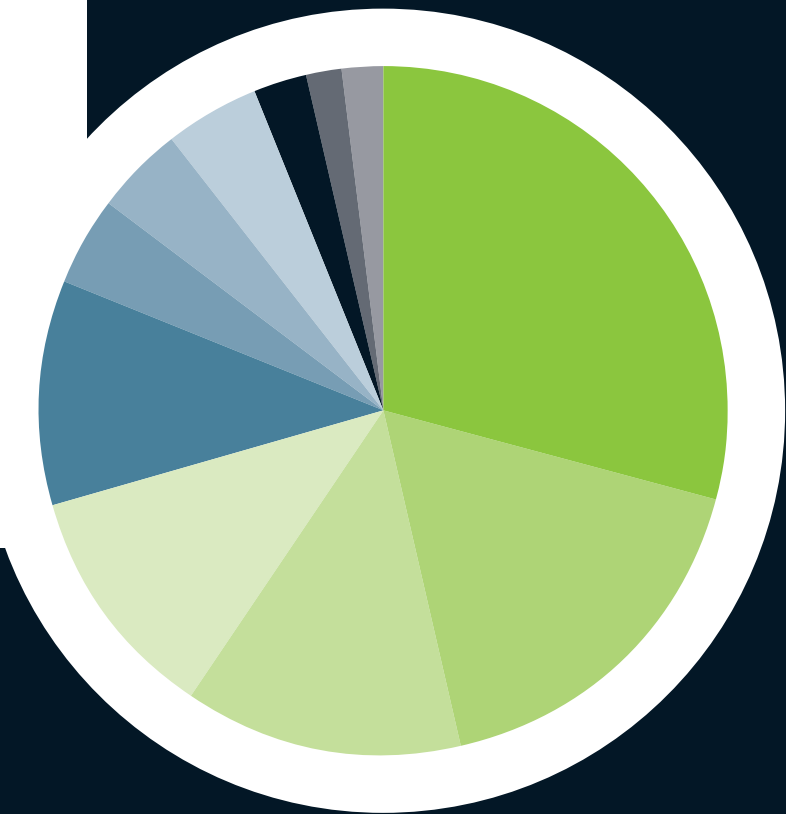
DOW JONES SUSTAINABILITY WORLD INDEX

The index, launched in 1999, has evolved – and encompasses large swathes of the globe, and numerous industries.



ALL HAIL AI

And with the rise of tech tools like AI, sustainable finance can become ever more efficient – and more answerable to the goals of environmental good. AI-powered tools and algorithms have revolutionized the way investors analyze and integrate ESG data into their decision-making processes. From automated ESG data extraction and aggregation to predictive modeling of sustainability-related risks, AI has become an indispensable ally in the quest for greater responsibility and impact.



SOURCE: S&P DOW JONES INDICES, MARCH 2024



NATALIE BLYTH

Natalie Blyth is HSBC's global head of commercial banking sustainability, a role she took up in 2022. She joined HSBC in 2007 from Deutsche Bank and spent seven years leading the Global Consumer sector for Global Banking and Markets. Prior to this, Natalie spent 11 years at Dresdner Kleinwort Wasserstein. She has worked as a solicitor at Stephenson Harwood and has a BSc in biochemistry.



I'm particularly excited by the potential for AI to improve the way we work and how we might serve our customers in a sustainable finance context."

NATALIE BLYTH

HSBC's global head of commercial banking sustainability

SEEKING SUSTAINABILITY

HSBC is leading the way in integrating sustainability throughout its operations, with wide-reaching effects on the financial sector and beyond.



ILLUSTRATIONS: JAMES GILLEARD

→ **CLIMATE CHANGE POSES AN** existential threat to the future of the planet – making the urgency to embrace sustainable practices and transition towards a greener future never more pressing. Global banking giant HSBC has recognized the pivotal role of technology in this transformation, and is exploring how it can leverage AI to push forward sustainable finance initiatives and support its clients on their sustainability journeys.

"We believe that, used responsibly, AI can make us faster and more efficient, removing manual and time-consuming processes and freeing up our people to add value," said Natalie Blyth, Global Head of Commercial Banking Sustainability at HSBC.

AI could help play a vital role in addressing the challenges of climate change, said Blyth. "Climate change is an urgent global challenge for society. Addressing it requires strong data capabilities and the ability to rapidly scale solutions to support a more sustainable future. In this context, AI – and generative AI in particular – presents significant opportunities."

Recognizing the immense potential of AI, HSBC views it as a catalyst for accelerating sustainable finance solutions. Blyth expressed her excitement about the possibilities AI offers, saying, "I'm particularly excited by the potential for AI to improve the way we work and how we might serve our customers in a sustainable finance context."

Advanced algorithms and predictive analytics enable HSBC to dive deep into environmental, social, and governance (ESG) data, empowering the bank to better support its clients in mitigating and adapting to climate-related risks. "AI's ability to process vast amounts of unstructured data, news, and satellite images to identify patterns could help financial institutions and their clients make better-informed decisions that align with both their financial objectives and ethical considerations," Blyth explained.

STRATEGIC OBJECTIVES

HSBC has ambitions to become a net zero bank by 2050 and support its clients on their own transition journeys, underscoring its

commitment to sustainability. The bank has been working with machine learning models for over a decade in a number of ways and believes that the insights provided by AI have the potential to help the bank work closely with its clients to achieve sustainability ambitions.

But the generative AI revolution, kickstarted by the release of ChatGPT in November 2022, has changed things further. Blyth said that this current stage of the AI revolution could help advance the bank's strategic objectives. "Looking ahead, we hope to use AI in commercial banking to combine our deep business knowledge and global reach with AI-driven technical expertise to build scalable, value-led sustainable finance solutions for our clients that will help to make us their trusted transition partner across the globe."

One key initiative is HSBC Innovation Banking, which specializes in developing banking propositions for rapidly evolving sectors, including AI and tech, with specialized offerings in climate tech. The bank has an ambitious goal of making available \$1 billion of financing to early-stage climate tech companies around the world, including those leveraging AI to develop and scale up solutions to achieve net zero emissions.

HSBC'S AI ENABLEMENT

AI's ability to analyze vast amounts of data within seconds holds the potential to boost operational efficiency and enable faster and more accurate decision-making. Blyth highlighted the bank's plans to leverage AI technology to crunch unstructured data and gain deeper insights into how customers operate, identifying opportunities to support their sustainability goals.

"Above all, I am excited about exploring the ways that we can embrace the power of AI – within robust risk, governance and ethical frameworks – to enhance our customers' experience, provide them with the sustainable finance products they and their suppliers need, and make HSBC the trusted partner to support them through their sustainability journey," Blyth said.

But every major advancement needs to be treated carefully, because as we have previously explored in this report, generative AI can sometimes be a double-edged sword, with as many risks as there are benefits.

While acknowledging the potential biases inherent in AI systems, Blyth explained HSBC is committed to using data and AI ethically and responsibly. She outlined the bank's approach to balancing building its own solutions and leveraging the expertise of best-in-class partners, while adhering to clear risk management frameworks and data ethics principles.

ETHICAL LEADERSHIP

"We're committed to using data and AI ethically and responsibly to meet our clients' and regulators'

expectations and needs," Blyth said. To that end, they're not just talking the talk, but walking the walk. "We have established an AI Centre of Excellence and, in 2020, we were one of the first banks to publish our AI and data ethics principles," she said.

But that's just what the bank does that's public-facing. Internally, HSBC follows practices such as working with representative data, testing, and evaluating at several stages to mitigate potential biases. The bank also takes the approach of highlighting the importance of designing AI systems to improve human capabilities, rather than supplant them. "It's also really important, I believe, to design AI systems with a focus on augmenting human capabilities rather than replacing them," she said.

Beyond improving the way the bank operates, Blyth believes that AI can have more meaningful impacts beyond banking and into the broader business world. She envisions AI's potential in the future to support climate change mitigation and adaptation efforts. AI could generate granular, accessible information on weather forecasts, market prices, and agriculture, empowering communities most vulnerable to climate change to make informed decisions. As the world grapples with the urgent challenge of climate change, HSBC's commitment to harnessing the power of AI for sustainable finance represents a significant step towards a more sustainable future. By leveraging AI's capabilities in data analysis, pattern recognition,

and decision-making, the bank aims to empower its clients with tailored sustainable finance solutions, while adhering to robust risk management frameworks and ethical principles.

What's more, financial institutions like HSBC can play a pivotal role in mobilizing finance and directing capital to support projects and technologies that improve climate resilience for these communities in emerging markets. "These communities will also need access to mitigation and adaptation finance," she said. Better access to robust and detailed data could also support financing decisions, ultimately driving sustainable development and resilience.

LOOKING AHEAD TO THE FUTURE

But it's only through leading by example that HSBC can make the most difference. "The insights provided by AI have the potential to help us to work closely with our 1.3 million commercial banking clients across the world to provide financing solutions that can support them as they work to reduce emissions and become more sustainable across their value chains," she said.

"As the world's largest trade bank, we work to support clients with solutions to help them decarbonise their supply chains and trade activity. We also want to help the new economy grow," said Blyth. "This includes providing sustainable finance to new economy companies using AI to help address climate change." ■

“It’s also really important, I believe, to design AI systems with a focus on augmenting human capabilities rather than replacing them.”

NATALIE BLYTH



→ **AS THE WORLD'S DECISION-**makers grapple with the urgent need to transition to a more sustainable and equitable economic model – often in discussions at FII Initiative gatherings held around the globe – they are beginning to recognize that AI can play a crucial role in unlocking new pathways toward this goal.

There are a number of ways in which this transformative technology can help. One of the key ways AI can support sustainable finance is through enhanced data analytics and decision-making capabilities. The sheer volume of financial, environmental, and social data relevant to sustainable investing is vast and growing exponentially. AI-powered tools can sift through this vast amount of information, identify patterns and insights that may elude human analysts, and enable more informed, data-driven decision making.

WIDENING THE LENS

AI algorithms can analyze satellite imagery, supply chain data, and consumer trends to provide real-time assessments of a company's environmental footprint and sustainability practices. This granular, AI-driven intelligence can then be used by investment managers to more accurately price in climate-related risks and oppor-

tunities, leading to more sustainable investment allocations.

Money talks, and the decisions made by investors can help shift attitudes, as well as actions.

But beyond this, AI can help develop new sustainable financial products and services. By harnessing the power of predictive analytics, AI can help design investment vehicles, insurance products, and lending programs tailored to underserved communities and regions transitioning to a green economy. One of the key areas this is happening is in Singapore, which issued more than \$22 billion of green, social, sustainability and sustainability-linked bonds and loans in 2022. Singapore also has the highest concentration of companies in its carbon services and trading ecosystem, with more than 100 firms.

But beyond that, AI can help identify optimal clean energy financing structures for remote rural areas, or develop micro-insurance policies that protect smallholder farmers against the impacts of climate change.

RULE TAKERS AND GIVERS

However, as the power of AI in sustainable finance grows, it is crucial that we ensure this technology is deployed in a way that promotes global equity and inclusion. There is a valid concern that the benefits

of AI-driven sustainable finance could accrue disproportionately to well-resourced institutions and communities, further exacerbating existing economic and social disparities.

The companies developing the tools that have kickstarted the generative AI revolution are predominantly based in the Global North. The companies also frequently train their models on underpaid, overworked staff in the Global South. It is an issue we have previously raised in our AI Impact Report, published earlier this year. What is presented as a transformative technology for the whole world runs the risk of entrenching already existing divides, and not only that – of widening them. For that reason, we choose to highlight four companies from around the world using AI in sustainable finance (see sidebar).

And at the same time, while sustainable finance regulations are welcomed, the earliest innovators tend to be in the Global North (see map), and their rules become the de facto global ones.

To address this challenge, we must place more emphasis on AI governance frameworks that center the voices and needs of underrepresented stakeholders. Establishing multi-stakeholder advisory boards to guide the development of sustainable finance AI tools, en-

HOW TO SHARE THE SUSTAINABLE SPOILS

AI can help unlock new efficiencies in sustainability, but ensuring we raise all voices around the world equally is important.

What is presented as a transformative technology for the whole world runs the risk of entrenching already existing divides, and not only that – of widening them.

Ensuring that they include diverse representation from marginalized communities, civil society organizations, and local financial institutions, could be one step forward.

GIVING A VOICE

Additionally, capacity-building initiatives that empower local actors in the Global South to leverage AI for sustainable finance should be a priority. This may include providing training and technical assistance to help community banks, microfinance institutions, and cooperative lenders harness AI to enhance their sustainable lending and investment practices. Our Grassroots Initiative

program, powered through the FII THINK pillar, is helping to start that shift, by putting computers into schools and teaching the next generation the digital skills to thrive.

But more can be done. Partnerships between global tech firms, development finance institutions, and regional or local organizations will be crucial in this regard. Because it's only by co-creating AI-powered sustainable finance solutions that are tailored to the unique contexts and needs of different communities, we can work towards a more equitable distribution of the benefits.

The data used to train and deploy sustainable finance AI systems also

needs to reflect a truly global perspective. Too often, the datasets underlying AI applications are skewed towards the experiences and realities of the Global North. Concerted efforts must be made to incorporate data sources from the Global South, ensuring that the insights generated by these AI tools are representative of diverse geographies, cultures, and socioeconomic conditions.

SEEING CLEARLY

Transparency and accountability mechanisms must be built into the design and deployment of sustainable finance AI. Generative AI tools are well known for being so-called

“black boxes”. But that doesn't work in the world of finance. Clear, explainable decision-making processes, along with avenues for redress and recourse, will be essential in building trust and mitigating the risk of biased or discriminatory outcomes.

As the world races to address the challenges of climate change, biodiversity loss, and socioeconomic inequity, the pivotal role of sustainable finance cannot be overstated. AI has the potential to dramatically accelerate the flow of capital towards sustainable, inclusive, and resilient development – but only if we proactively shape this technology to serve the interests of all.

AN EQUAL REVOLUTION?

Emerging markets have...

10%
of sustainable capital flows

58%
of global GDP

90%
of global population

SOURCE: ESG BOOK

EVOLUTION OF SUSTAINABILITY REGULATIONS SINCE 2022

SOURCE: ESG BOOK



FOUR COMPANIES USING AI TO HELP SUSTAINABLE FINANCE

- Ahya**
This Saudi Arabian company, founded in 2023, has developed the first bilingual API in Arabic and English to allow clients to integrate climate action into their customer experiences.
- Intensel**
Companies and asset managers want to be able to assess the climate risk of their work down to an asset level – something this Hong Kong AI business can do.
- Kora Sustainability**
Based in Latvia, Kora Sustainability rewards users for actions that reduce their ecological footprint – rewards that can be spent with participating businesses.
- Dydon AI**
Swiss firm Dydon AI helps companies comply with taxonomy requirements put in place by EU regulations to more accurately report their climate impact.



TAKEAWAYS

Key questions to answer before layering AI into your ESG and sustainable finance strategies.

→ **THE POTENTIAL FOR AI TO IMPROVE THE WORLD'S** ESG performance, and to kickstart and grow sustainable finance, is in theory limitless.

But as we've explored throughout this report, there are plenty of questions that still need to be answered – as well as plenty of actions you can take now in order to capitalize on the disruptive potential of this world-changing technology.

WHAT CAN YOU DO?

- 1 Integrate AI tools and analysis into your business workflow to help identify useful investments.
- 2 Empower teams internally to conduct trails exploring the opportunities of AI to unlock better ESG understanding.
- 3 Be aware AI is a double-edged sword that uses resources and has its own environmental impact.
- 4 Recognize that for all their disruptive power, AI tools also have inherent biases that need to be checked at all times.
- 5 Acknowledge the circular impact. The more we improve the standard of sustainable finance with AI technology, the more it will serve AI and ESG – making a virtuous cycle.

WHAT DO YOU NEED TO BE AWARE OF?

- 1 Recognize uncertainty. We're still figuring out what will be the technologies in AI that will help improve the financial models of financial institutions.
- 2 Acknowledge the relative youth of the tech. The generative AI revolution is less than two years old, and its best use cases may not yet be discovered.
- 3 Be conscious of the risks. From reputational risks if AI misfired to the environmental impact of constantly querying it, there are risks that come with the rewards.
- 4 Success won't be felt equally. The Global North still dominates the discourse, and is making the advances in the world of AI. Better representation is needed.
- 5 Understand the final destination has not been agreed. Conversations – such as those we have at landmark FII events around the world – can help shape the new future.

ILLUSTRATIONS: JAMES GILLEARD

AI CAN IMPROVE FINANCE AND ESG BUT GROWTH MUST BE GLOBAL

FII-I has three pillars to deliver its mission: THINK, ACT and XCHANGE

- 1 FII-I THINK**
Identify societal challenges and current inhibitors. Curate the brightest ideas to address societal issues
- 2 FII-I ACT**
Catalyze innovation and initiatives by mobilizing partners and resources
- 3 FII-I XCHANGE**
Create platforms for live discussions on the future of humanity. Share knowledge, stories and publications with different stakeholders

→ THE RACE TO ADOPT AI IN all aspects of our lives has already begun. But as FII Institute has made clear in continued conversations at successive events around the world, leaders and decision-makers must think carefully about how to ensure its positive impacts are felt equally – and its negative impacts are minimized.

The impacts of AI are particularly pronounced when applied to something as central to the way our world works as finance and ESG. The decisions reached by analyzing data using AI can dictate billions, if not trillions, of dollars of spending – and can affect the planet’s most vulnerable.

Tech companies often speak of disruption, and the disruptive nature of their products, as a benefit. There is little doubt that can be the case, when wielded with care. But who benefits from the AI revolution

needs to be considered when thinking about energy management, sustainable finance, and the use of AI in trading.

FII Institute aims to be a global convocation of the world’s greatest minds. And as such, we recognize the importance of including all voices in the conversation. Historically, the Global South has been overlooked. As our FII PRIORITY Compass highlights, people in those areas are worried they will be left behind in this latest revolution. We must work together to ensure they are not.

ABOUT THE FII INSTITUTE
THE FUTURE INVESTMENT INITIATIVE (FII) INSTITUTE is a global nonprofit foundation with an investment arm and one agenda: Impact on Humanity. Global, inclusive and committed to Environmental, Social and Governance (ESG) principles, we foster great minds from around the

THE FII INSTITUTE

is guided in all it does by a strong purpose, vision and mission.

PURPOSE
“Enabling a brighter future for humanity”

VISION
“Bringing together the brightest minds and most promising solutions to serve humanity”

MISSION
“Creating a purposeful present, promising future”

PHOTO: ADOBE STOCK, FII INSTITUTE

world and turn ideas into real-world solutions in four key areas: Artificial Intelligence and Robotics, Education, Healthcare and Sustainability. We are in the right place at the right time: when decision-makers, investors and an engaged generation of youth come together in aspiration, energized and ready for change.

We harness that energy into three pillars: THINK, XCHANGE, ACT.

- Our **THINK pillar** empowers the world’s brightest minds to identify technological solutions to the most pressing issues facing humanity.
- Our **XCHANGE pillar** builds inclusive platforms for international dialogue, knowledge-sharing and partnership.
- Our **ACT pillar** curates and invests directly in the technologies of the future to secure sustainable real-world solutions.

Join us to own, co-create and actualize a brighter, more sustainable future for humanity. ■

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Kingdom of Saudi Arabia

CONTACT
For clarifications and inquiries, kindly email: info@fii-institute.org

EDITOR
Chris Stokel-Walker

Upcoming Events

FII Priority Summit
in Rio de Janeiro, Brazil,
June 11-13 2024

FII8
in Riyadh, Saudi Arabia,
October 29-31 2024



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