

THE ROLE OF A CHIEF TECHNOLOGY OFFICER IN SUPPORTING THE FIRM'S ESG JOURNEY

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Our mission is to make investment better. Better for clients, so they achieve their financial goals. Better for companies, so they get the capital they need to grow. And better for the economy, so everyone prospers.

Our purpose is to ensure investment managers are in the best possible position to:

- Build people's resilience to financial adversity
- Help people achieve their financial aspirations
- Enable people to maintain a decent standard of living as they grow older
- Contribute to economic growth through the efficient allocation of capital

The money our members manage is in a wide variety of investment vehicles including authorised investment funds, pension funds and stocks and shares ISAs.

The UK is the second largest investment management centre in the world, after the US and manages over a third (37%) of all assets managed in Europe.

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EXECUTIVE SUMMARY

Imagine the excitement of the four engineers who invented the first internal combustion engine; visualise the adrenaline rush of the Wright brothers at their first flight; and the amazement of mathematicians when their first digital computer completed its computation accurately. These and hundreds of other technological advancements – big and small – over the last century propelled and advanced human civilisation and shape the world that we live in today.

Now, imagine once more.

Picture these early engineers in a time machine living through fast-forwarded time over the few decades. On one hand, they will be in awe of how their inventions evolved and shaped the timeline, yet on the other hand, there might be a sense of responsibility for it all too.

The work organisations are doing today have a long-lasting impact. The financial services sector employs a significant workforce and ecosystem of suppliers and partners globally. It facilitates the efficient allocation of capital through lending, financing and investments that have future-linked outcomes. How these investment opportunities are evaluated and directed today will affect society for several decades to come.

This paper explores how Technology and Technologists can be influencers and enablers to delivering measurable and sustainable positive outcomes across all dimensions of E, S and G. Proven and emerging technologies can solve challenges linked to **Data** (extraction, ingestion, lineage, processing, analytics and insights), **engagement** of all relevant stakeholders across the ecosystem (strategy, compliance, employees, partners, suppliers, regulators and customers etc.), **capture** repeatable business

processes through standardisation, codification and automation by embedding human intelligence to **scale** and reduce manual efforts. Business leaders also need to consider adjusting ways of working that allows a balanced culture.

One such area is developing the business case and justification for ESG. This is especially difficult if you are growing and delivering excellent shareholder value today with existing practices. Business leaders need to take a long-term view and contemplate their organisation's purpose, as well as the value they want to add to the society.

We can already observe broad trends that are shaping that future. For example, in the post-pandemic era new hires look for flexibility of workplace and hybrid ways of working and alignment of values. Organisations that are not able to flex, struggle to recruit and retain talent. Parallels can be drawn using other broad themes linked to climate events, geopolitics, supply chain management – all of which affects businesses locally and globally. Doing good and doing good business are synonymous. They can hold purpose, prosperity, and shareholder value at the same time and are able to strike a good balance between them.

We have identified the following actions for technology leaders to consider:

- 1 Champion your firm's journey to a sustainable business. Engage with the key stakeholders across your firm, in the industry, and with the regulators and suppliers. Benchmark your firm against best practices. Sponsor and define a systematic approach to adopting sustainable practices. Find early wins in the areas of instrumenting your office space, enterprise-wide technologies, data-centre design, device refresh programmes, for example. Use firm-wide open innovation forums to source and fund ideas, as well as to empower individuals and teams
- 2 Consider the systems and platforms you need to put in place for **ESG accounting, trading and offsetting**, and how these systems will integrate with the firms' own systems and across your supply chain. Advance your Enterprise Architecture with these changes and think carefully about centrally funded shared utilities.
- 3 Don't try to solve the **data challenge** all at once. Start small, use trusted internal data sources, and use customer/ colleague journeys to determine external datasets needed. Conduct due diligence on your data providers on their data lineage, profiling and processing. Most data providers use their assumptions, methodologies and technologies used to process data. The more transparency, the better. Continue to influence your providers. Build your data strategy, architecture, tooling and invest in building appropriate skills
- 4 Use ESG projects as candidates to accelerate your journey to Cloud. Take full advantage of **cloud native capabilities** and technology patterns (automation, containerisation, devSecOps etc.). Data analytics and reporting make excellent candidates for these projects, especially as external data source providers are likely to be SaaS or API-based
- 5 Invest in building **new skills, People, and Talent** across the firm including soft and hard technical skills. Communicate your plans widely to inspire and invite colleagues. Create new and existing roles and opportunities for colleagues that shows a gratifying career path Take a proactive stance on Regulation and Industry Standards. Join working groups and help create centralised standards that will eventually benefit everyone.

The key is to take **small steps, take individual responsibility**, and **practice stewardship** to leave a legacy.

AN INTRODUCTION TO ESG

There has been a growing realisation that the consideration of Environmental, Social, and Governance (ESG) factors are a critical component to success in business across all sectors. Customers, employees, shareholders, lenders, rating agencies and regulators are increasingly demanding companies to consider their environmental impact, their contribution to society, and how they conduct themselves. This is especially true for financial services, whose view needs to be fixed on the long-term objectives.

According to the IA's Investment Management Survey, just under half (47%) of the £10 trillion of assets under management in the UK are now integrating ESG in the investment process. This is driven by a combination of client demand for sustainable strategies, improved data quality, and reclassification of assets to reflect regulatory changes. Market leaders have realised the significance of ESG considerations and the potential value they can add to their business. Market laggards,

on the other hand, may lose out unless they take immediate action to embed ESG into their business practices.

In pursuing change, the investment management industry has a series of challenges that it needs to handle. For example, regulatory requirements are continuing to evolve at pace and there are currently no global standards. Clients (and the wider stakeholders) need clear and consistent communication around investment strategies and optionality – whilst still demanding industry leading returns on their investments. The scrutiny will be particularly higher if the firm itself has made commitments on climate change and net zero.

Whilst there is no single definitive definition of ESG, below is a summary of the key aspects.

ENVIRONMENTAL

The 'E' in ESG is about the environmental impact of our actions on the planet. It focuses on protecting the environment and our planet by acting on climate change, sustainable consumption and production, and management of natural resources.

In terms of investment decision making, it also includes environmental risks to businesses. For example, the impact of climate change on increasing the risk of floods for an agricultural business.

For investment managers, focusing on the environment is not only the right thing to do, but also about protecting and enhancing long term value in the assets in which we invest.

In the wider economy, action on the 'E' can take many forms and lead to benefits, including but not limited to a significant reduction in energy consumption and carbon emissions. For example, investing in smarter infrastructure, transitioning to renewable sources of energy and tackling GHG emissions. Creating a circular economy through the continual use of resources, reducing waste, extending shelf life of products, developing better equipment and infrastructure, as well as reusing and repurposing. Finally, preserving ecology and biodiversity by mitigating the effects from land and water use to waste and pollution, to material disposal and chemical consumption.





SOCIAL

The 'S' in ESG focuses on People and Prosperity.

The People agenda focuses on delivering a diverse and supportive environment for a future-fit workforce. At a minimum, this should include a reduction in accidents and incorporating social safeguards. For an investment management firm, the focus is more likely to be on creating an inclusive, diverse, and equitable environment for all employees, and may also include providing access to health and medical services.

The Prosperity aspect delivers a positive economic and societal impact. Firms should ensure that their activities are creating economic benefits for all their stakeholders and local communities. For best practice, firms can provide sustainable capital and investing into research and development and product innovation.

The 'S' within ESG has traditionally been seen as more ambiguous compared to the 'E' or 'G'. However, this view is changing as social topics increasingly gain the attention of stakeholders. The 'Social' cannot be ignored.

GOVERNANCE

The 'G' is the foundation of ESG. Robust governance processes are key to delivering long term value and ensuring accountability throughout the firm.

Strong governance requires effective identification and mitigation of material risks. It requires an ethical environment supported by responsible information management and practices. Firms must also have a clear purpose that is monitored by a diverse body of representation.

ESG AND THE CTO

A Chief Technology Officer (CTO) plays a central role in modern organisations. A typical CTO has three key strands (1) build and align a technology strategy that is tightly aligned with the business vision and growth strategy (2) build appropriate culture and talent pool to execute and operationalise at scale by focusing colleagues, suppliers, and partners, locally and globally on things that matter (3) form and mature alliances and partnerships –

including large technology providers, start-up community and (3) to innovate through exploration and experimentation with emerging technologies and platforms for competitive advantages.

In the context of ESG, a CTO will view this from two angles – (1) **to support the delivery on their own organisation's ESG strategy**, and (2) **to support the front office** – fund managers, portfolio managers and relationship managers in providing systems, platforms and data to help enhance the quality and confidence in the decision-making process linked to capital allocations/ financing/ investments they make on their client's behalf.



For their own organisation's journey, the CTO will need to interlock with other key stakeholders across functions such as Corporate Strategy, Risk, Compliance, facilities and operations, and Marketing. They will have a deep understanding of their long-term sustainability strategy, the specific metrics and key performance indicators (KPIs) that need monitoring and improving. They will start by putting systems in place to benchmark the as-is and use insights from these platforms to find transformational opportunities.

Exemplar case studies in this document include KPMG's own transformation journey – from small and simple steps such as changing the type of lights used to smart instrumentation of a large office space, to engaging employees through a traveller dashboard where they can see their carbon footprint and tips on how to improve it at the time of travel booking.

To help the front office in enhancing decision making linked to capital allocations is multi-faceted, complex, and often has competing forces. The CTO needs to navigate these complexities and build an iterative roadmap and bring the business along on the journey. The CTO needs to carefully plan and deliver smaller component parts to deliver specific use cases that progress the overall ESG agenda. For example, the CTO may set-up a small data ingestion and cleansing process to draw insights for an investment in a privately owned firm – they will codify human intelligence in business rules and automate means of sharing insights through visualisation with the fund manager.

In solving this single use case, the CTO needs to consider the use of cloud platforms and guardrails that need to be put in place to safeguard information held in multi-tenanted cloud platforms, make decisions on key

technologies (databases, toolchains, code repositories, testing, rules engines, container management etc.), create re-integrated patterns of these technologies so they can replicate these environments through infrastructure-as-code to make provisioning and decommissioning easy. They need to consider programming languages (skills available in the firm and in the market), technologies to process structured and unstructured data including that hidden in meeting minutes, news headlines, social media, audio and video files etc as much of the data the research teams will collect will increasingly be diverse.

As there is no uniform way of reporting on ESG data globally, the CTO needs to consider creating reporting engines that can scale. Over time, we will see the same technology platforms could be shaped for reuse in the B2B and B2B2C context. And, finally those organisations that see themselves as a technology firm, there is an opportunity to create these complex platforms as products so they can be deployed globally for your own firm but may also be packaged and sold in the market for new streams of revenue.

For both internal and external perspectives above, technologies and technologists are enablers and accelerators of an organisation's ESG journey.



THE BUSINESS CASE FOR CTO ENGAGEMENT ON ESG

1. C-Suite and Board buy in

ESG has evolved from being a topic that was primarily owned by sustainability experts to being a C-suite and board-level concern. Long-term sustainability is at the heart of the C-suite agenda and ESG has quickly become a top five board risk item within financial services. There is a need for ESG considerations to be incorporated in processes and operations. CTOs must consider how to incorporate ESG in a systematic and repeatable way throughout each business line.

2. Mitigating Risk

Risk management and mitigation are key drivers for embedding ESG into business models. ESG risks are a threat to growth and there is a clear business mandate to account for them. There are three types of risks that CTOs need to consider, so to ensure that the value of the firm is protected.

3. Reputational Risk

Failure to integrate ESG factors into the business model can lead to reputational and legal risks for the firm. Companies that clearly define their ESG agenda can set themselves apart as ESG leaders and head off these risks. CTOs need to ensure that investor relations have all the necessary ESG information required to ensure ESG goals and strategy are properly relayed to relevant parties. Any investment firms not participating in ESG will eventually start to lose customers and employees.

4. Physical Risk

Physical risk arises from climate-related scenarios, such as: sea-level risk, heat and cold waves, flooding, hurricanes, and wildfires. This also includes risks such as mass migration. CTOs must be aware of how these risks can affect their supply chain risks and communicate this intelligence to their firms.

5. Transition Risk

Transition risk arises from failure to keep up to the changing policies, regulations and strategies that are put in place to address ESG factors. In the past, this type of risk has been purely climate related. However, there are now growing risks from social developments as well.

A CTO must be aware of these risks. They must understand what data can best mitigate these risks and provide that data to stakeholders in a timely manner.

6. Investor Demand

Stakeholders increasingly scrutinise companies' ESG performance and transparency. Corporate climate action, net zero targets and goal setting are being closely monitored by consumers and investors alike.

Investors are vocal about allocating their capital into companies which support ESG values and initiatives. There is strong interest in impact investing and promoting responsible, sustainable investment criteria. Client demand is a primary catalyst for investment managers to consider sustainability investment metrics in the business decision-making process. A CTO must understand this demand and act on it. They should be able to project a credible and agile ESG strategy that will hold up to investor scrutiny.

7. Regulatory developments

ESG has become increasingly embedded in policies and regulation across the financial services landscape. Firms must ensure compliance to key standards and regulations. Failure could lead to missing out on market opportunities or litigation for non-compliance.

ESG regulations, such as TCFD, SFDR, SDR, EU Taxonomy, and CSRD are complex and ever changing. For example, the introduction of SFDR in March 2021 led to three new categories of funds – Article 6, Article 8, and Article 9 funds. These are organised according to the level that a fund incorporates ESG characteristics into the investment process. A CTO will need to implement an agile system that can develop and evolve as regulations and policies do. They will need to ensure that the architecture can ensure both inputs and outputs.

8. Governance

All businesses need a defined governance strategy to reach their ESG goals. Robust governance processes are key to measure, track, and report ESG performance. CTOs play a key role in driving forward the technology used in these processes.

A key part of the governance process is an effective stewardship strategy. This is important to remain credible, carry out investor mandates and remain regulatory compliant.

9. Opportunities: Financial impact and assessment of upside

ESG incorporation is likely to become a standard input for consideration in the investment decision making process. It is no longer enough just to make a profit, that profit must be a sustainable one. Market leading firms have radically reassessed the importance and value of ESG to their business. Integrating ESG into a business has demonstrated it can lead to material impacts, such as growth from new products and services, enhanced margins in assets and services, better ratings, and reduced cost of capital. CTOs must consider what they can provide their teams to show potential for ESG-related outperformance, collate data on potential investments and help teams develop a scalable and usable solution for doing this.

10. Talent

ESG issues have become a key factor in attracting and retaining top talent as employees are seeking purpose from work. Individuals want to work for companies which have values that align with their own. A firm's commitment to building a fair and inclusive workplace is instrumental in attracting top talent.

It is a challenge to find specialist ESG talent. However, creating an equitable environment for all employees across a variety of backgrounds will assist with recruiting a diverse pool of talent. It has become increasingly difficult to retain this talent – a CTO must facilitate upskilling and integration within the team to ensure talent retention.

There are a range of internal and external drivers that are informing the need for companies to fundamentally re-evaluate the way they conduct business. CTOs need to be a key driver in delivering the ESG agenda. They must ensure ESG is embedded into every aspect of operational and regulatory processes, and linked to the overall business strategy.

THE ROLE OF THE CTO IN THE ESG JOURNEY

The below outlines the key areas in which the CTO function and technology play a vital role in facilitating ESG change, as well as overcoming some of the main challenges organisations face when embedding ESG.

DATA, ANALYTICS AND REPORTING

Data is the linchpin for organisations looking to reduce their carbon footprint, protect their capital, and comply with regulations. Complete and accurate data enables organisations to understand and mitigate ESG risks, facilitate proper ESG reporting, and therefore ensure compliance across all elements of ESG - such as human rights policies, governance policies, and climate risk mitigation.

Investors are looking to ESG data when investing capital. There is a need for more visibility through reliable, accurate data to combat greenwashing or social impact washing – which provide false perceptions of how sustainable a company is.

Reporting on and measuring ESG criteria is the most efficient way to track the success of a business meeting their ESG targets and goals, therefore being able to produce and obtain accurate, reliable data is crucial.

Reliable data is a critical enabler to achieve net-zero pledges made by organisations. Measuring and reporting on Scope 1, 2, 3 emissions require businesses to report on many different categories, including but not limited to: energy consumption, heat usage, electricity usage, water usage, and business travel. To capture all the relevant data, multiple different areas of the business must be engaged and understand which data is necessary to provide.

Reliable data is also key to measuring their contribution to the 'S' and 'G'. Measuring and disclosing on diversity and inclusion is key to ensuring businesses align with the social element of ESG.

Data owners must be aware of the information they will need to provide. Obtaining and understanding ESG data is arguably the largest challenge businesses face when embarking on their ESG journey, and a CTO is instrumental to overcoming these challenges.

A CTO will need to understand the data landscape, what each data set is used for, who needs what, and for what cause. Investment teams make decisions based upon this data, internal teams can help steer business direction based upon it, and investor relations can use it as a tool for increasing AUM. In organisations where a Data Officer is also appointed, both the CTO and CDO will share responsibilities in delivering capabilities and addressing the challenges below.



Challenges

Obtaining ESG data is challenging due to a lack of consistency. A lack of consistency or commonality in reporting standards, impact measurement, regional variances and sparse disclosure of thresholds and methodologies used by ESG rating agencies make it challenging to interpret exactly which data is required, and when.

The need for accurate and reliable data extends beyond the firm level; It is also important for businesses to understand and obtain data from their external supply chains. Understanding and obtaining data from external supply chains pose additional challenges as businesses will need to obtain data from multiple different suppliers and vendors. As the data is being provided from external sources it becomes difficult to validate the accuracy.

These challenges result in information that is ambiguous and therefore difficult to source, as well as subsequently measure impact to avoid greenwashing of any impact claims. This is currently a very manual and time-consuming process for many firms, both in collating internal data and external supply chain information.

The process of data collation can be extremely complex, and it can be difficult to validate when it is being provided by numerous external sources and vendors. Many organisations can inadvertently fall into the trap of greenwashing - leveraging data which may not be reliable or only considers ESG metrics and data from the organisation itself rather than its supply chain. Establishing assurance around ESG data and its origins are fundamental for CTOs and investors.

Sourcing reliable data is not only challenging but can also be quite costly for firms. As previously mentioned, collating ESG data within an organisation can be an incredibly manual task which often requires dedicated resources – firms will now need to build this cost into their operations. Additionally, commissioning third party data providers can become expensive for firms, especially if they work with more than one data provider. While larger businesses are typically better equipped to dedicate resources and finances to obtaining accurate, reliable, ESG data, smaller firms may not be. The cost of data is a challenge which firms need to work to overcome to avoid the risk of greenwashing.

Key activities/role of the CTO function

The CTO must understand and help mitigate against the greenwashing risks associated with data inconsistencies. As this is one of the greatest challenges associated with ESG it is vital that the CTO play a key role in overcoming the challenges surrounding ESG.

To overcome the data challenges, the CTO can add value in the following ways:

- Leveraging advanced data and analytics tools to develop forward looking scenarios
- Scrutinise sourcing and lineage of ESG data, including supply chain data
- Implementing governance and stewardship levers (internal and external data)
- Engaging with ratings agencies, suppliers, regulators and peers
- Ensuring quality and assurance of ESG data
- Building expertise in ESG analytics
- Increasing the accessibility of data analytics and insights for CIOs and wider C-suite
- Ensuring the successful digitisation of documentation to support a) ESG portfolio management, b) the classification of products, and c) workflow information
- Ensuring that suppliers comply with ESG ambitions of the firm
- Vendor selection and implementation

Exemplar – ESG Data Solutions

CTOs should look to develop a tool or partner with a third-party data analytics platform to assist them with overcoming pain points previously outlined. A tool which can run advanced analytics on a broad range of data to extract objective and actionable insights can be a key solution to overcome data related challenges. Using the insights generated by a data and analytics tool, firms will be able to better understand their relevant ESG considerations without dealing with the complexity and large and cost time investment that is typically required.

When developing tools or looking for a partnership, consider the following criteria:

- 1) Ability to analyse structured data and unstructured content from various sources such as data lakes, legal documents, prospectuses, research reports, annual reports etc.
- 2) Support computation of ESG standings across a wide range of asset classes, including equities, government bonds, corporate bonds, etc.
- 3) Supports the end-client learning and ability to define their own investment criteria and materiality when deciding on their ESG risk appetites.
- 4) Monitors emerging technical ESG standards
- 5) Some of the more advanced use cases will include generating summary of large documents, internal and client meetings and be able to initiate relevant internal processes based on the actions agreed, build patterns over time and detect deviations in target investments

A single tool or, system is unlikely to be able to offer all the features required. It is, therefore, important to recognise that a CTO is likely to assemble a system of systems that integrate and interoperate to deliver the outcomes and use cases for the firm.

Sustainable Supply Chain

To ensure a sustainable supply chain, firms can take multiple different approaches to obtain external ESG data of suppliers and vendors. One approach is to engage all categories on reducing emissions through the Carbon Disclosure Project process.

UK firms are legally required to have a Modern Slavery statement which is updated on an annual basis and published to their website. Given the importance of the topic, firms can engage suppliers to ensure higher risk suppliers are doing what they can to mitigate Modern Slavery within their work force. Every two years, firms can carry out an analysis on their suppliers to determine which should be deemed 'higher risk' based on factors such as industry, country of operation and spend. Those deemed high risk could be asked to complete a Modern Slavery questionnaire, which allows for a more thorough understanding of which policies and procedures suppliers have in place. Firms can then carry out a weighted scoring process that will identify areas of concern based on low scores. These areas can be followed up on with each supplier to a) provide recommendations for strengthening their policies, and b) gain an understanding of what they have done, what they are missing and any plans to improve this. Firms can actively track medium and high-risk suppliers for Modern Slavery risks to further mitigate these risks.

In addition to Modern Slavery, disclosing on Diversity within the supply chain is another issue that is becoming increasingly demanded by clients.

Obtaining accurate, reliable data from external sources requires more time and manual labour than obtaining internal data. However, ensuring correct ESG data -- both internally and externally -- is key to mitigating the risk of greenwashing. To assist with companies on their ESG journeys we have included an example of a Sustainable Procurement Questionnaire together with the CTO ESG tear-sheet in the appendix.

ESG REGULATION AND FRAMEWORKS

Regulation is one of the primary drivers in ESG transformation. Regulators are now calling on asset managers to publish annual entity-level **TCFD** reports setting out how they consider climate-related risks and opportunities when managing investments, along with product-level reporting obligations for in-scope firms to report annually. These reporting obligations require in-scope firms to report annually against a series of prescribed climate-related metrics, namely Scope 1, 2, and 3, greenhouse gas emissions, total carbon emissions, carbon footprints and carbon intensity.

In addition, TCFD guidance has been updated to include a range of climate-related metrics, such as amount of senior management remuneration impacted by climate considerations, and amount of expenditure or capital investment deployed towards climate risks and opportunities. ESG regulations are only becoming more stringent and are likely to shift towards mandatory rather than voluntary in the imminent future. Businesses must prepare for the requirements that are placed upon them by regulators, or risk fines and legal action for breaching compliance.

Investor pressure also has an impact in driving regulation as investors are demanding action from asset managers to create transparency in how they are tackling ESG issues, such as carbon emissions and human rights.

Verifying data and providing assurance are critical to progress transparency and standardisation in ESG, for example through standardised disclosures such as the EU's **SFDR** and **CSRD and incoming UK Sustainable Disclosure Requirements (SDR) and investment labels**. While there is still room to improve to get to a place where there is consistent, holistic ESG reporting standards, mandatory unified corporate disclosures are on the horizon. The implementation of unified disclosures will act as a catalyst to providing a degree of clarity and removing the ambiguity that currently surrounds ESG reporting frameworks.

The use of technology enables firms to meet the criteria of the regulations and reduce risk by providing time and cost-efficient solutions by sourcing accurate, real-time data, as well as identifying ESG-related risks.

The CTO function is crucial in the ESG regulatory planning and implementation process, identifying data gaps, and continuously monitoring areas of improvement.

Challenges

As previously highlighted, sourcing accurate, real-time data to support sustainability claims in ESG funds is a key challenge, which can make the required reporting and disclosures required by key regulations difficult.

ESG Frameworks

Additionally, the absence of a unified, global regulatory framework leads to variances in the information that is being disclosed as organisations can opt to use different frameworks. The lack of standardisation creates ambiguity and vagueness; this makes it difficult to compare how 'ESG friendly' or sustainable a company is, which standards companies should align with, and which data is required. There are numerous ESG frameworks that exist across jurisdictions, many of which use different data sets, different methodologies, and different outputs.

Three of the leading frameworks, GRI (Global Reporting Initiative), SASB (Sustainability Accounting Standards Board), and CDP (Carbon Disclosure Project) are all widely used across various industries; however, their reporting criteria varies. In addition, the International Sustainability Standards Board (ISSB) is finalising two new frameworks which are expected to be widely adopted by financial services firms.

GRI: The GRI Standards are a modular system of interconnected standards, comprising of three series of standards: the GRI Universal Standards, the GRI Sector Standards, and the GRI Topic Standards. They allow organisations to publicly report the impacts of their activities in a way that is transparent to stakeholders and interested parties.¹

¹ [GRI – Standards \(globalreporting.org\)](https://www.globalreporting.org/)

SASB: SASB standards identify 77 industries and have created ESG criteria most applicable to financial performance across each industry. The SASB standards are widely used globally and were designed to assist companies disclose financially-material sustainability information to investors. They allow organisations to publicly report the impacts of their activities in a structured way that is transparent to stakeholders and other interested parties.²

CDP: CDP's disclosure platform provides the mechanism for reporting in line with the TCFD recommendations. They translate the TCFD recommendations and pillars into disclosure questions and have created a standardised annual format. CDP disclosure aims to drive investment and procurement decisions towards a sustainable and carbon neutral economy.³

ISSB: The ISSB is developing two new Sustainability Disclosure Standards, one setting out general sustainability-related disclosure requirements and one setting out specific climate-related disclosure requirements. These two frameworks build upon existing investor-focused reporting initiatives such as SASB and TCFD, with the ultimate objective for them to become the global standard-setter for sustainability disclosures for financial services.⁴

The inconsistency in metrics and reporting criteria poses a challenge of its own when it comes to ESG frameworks. The complexity of the current ESG regulatory landscape poses another.

ESG Regulations

The current global ESG regulatory landscape is complex and ever-changing, which makes it increasingly difficult for companies to understand which regulations they are in scope for and what they need to do to comply with each regulation. Due to the constantly evolving regulations, many firms are feeling challenged when trying to stay up to date with regulatory changes – as is evident from firms' implementation of the EU's SFDR. The coherence of international regimes will be further compounded by the UK's Sustainability Disclosure Requirements (SDR) regime and investment labels. Each ESG regulation has its own timeline, scope, and requirements. Navigating the global ESG regulatory horizon is a laborious, manual process. If prompt action is not taken to scope out which regulations a firm must comply with, as well as the obligations of each regulation, this could potentially result in non-compliance risk.

Key activities for the CTO function

The CTO is well placed to both address and overcome key challenges associated with ESG regulations and standards. The use of technology can drastically assist with overcoming the ambiguity which surrounds the regulations and standards, as well as the manual labour required of internal staff.

To overcome the regulatory and ESG standard challenges, the CTO can add value in the following ways:

- Implementing tools and technology to assist with regulatory horizon scanning
- Assisting with mapping and gap analysis
- Facilitating peer collaboration

² [Standards Overview – SASB](#)

³ [What we do – CDP](#)

⁴ [IFRS – ISSB: Frequently Asked Questions](#)

*Market leading example***ESG Regulatory and Reporting Assessment Tool**

CTOs could look to integrate a tool into their internal processes that can identify key ESG data such as regulatory requirements, standards, obligations and any other data needed to identify areas for improvements. This tool can be built in-house, or it can be created in partnership with a third party.

An ideal version of this tool should look to incorporate the following features:

- ESG-related reporting requirements from as many countries as possible for global scope should aim for 100+ countries
- Include both voluntary and non-voluntary reporting requirements
- Capture status of pending regulations
- Identify reporting impact of relevant subsidiaries
- Live updates from global regulatory sources, with useful search options across categorised news

The tool should aim to produce two key outputs. Firstly, it should be able to provide a global ESG reporting regulatory dashboard which shows the reporting requirements and the impact to the organisation.

The second output should be a global ESG reporting regulatory report, which shows pertinent details for the ESG reporting regulation including: country, relevant standards (e.g., SEC climate rule, CSRD, ISSB, TCFD), scope, effective dates, reporting frequency, assurance requirements and a summarised and detailed description of reporting requirements.

Using a technology-based tool is a key to overcome the laborious process of navigating the complex regulatory landscape – it allows for accurate, standardised outputs, and demands less time and manual labour from internal resources.

ENTERPRISE ARCHITECTURE, DESIGN AND IMPLEMENTATION

The Covid-19 pandemic has shown the world the importance of operational resilience in businesses. Technology has allowed us to continue to be connected to colleagues and perform our day-to-day functions in the workplace - almost without skipping a beat. The shift from working full time in office to working remotely during the pandemic has highlighted the importance of the role of technology plays on a global scale. It is indisputable that as remote and flexible working becomes the norm firms need to keep up to date with new technology to ensure they are resilient to potential future shocks, like Covid-19.

Successful design and deployment of technology underpins any effective transformation project. Businesses should treat digital transformation as an opportunity, rather than an IT challenge. Market-leading institutional investors appreciate the necessity of tools and technology to facilitate ESG investing and create transparency for their clients and regulators. Such organisations are already conducting impact assessments on their current state processes, integrating screening tools into their investment procedures, embedding ESG risks, obligations and expectations, in conjunction with compliance responsibilities. This process is a vast undertaking that is currently complicated by inconsistent regulatory expectations and data quality.

The design and execution of technology should not only seek to align to existing BAU processes and strategic data architecture across the organisation, but also to adhere to sustainability practices. There are an increasing amount of solution providers that seek to minimise the negative impact of IT operations on the environment by designing, engineering, operating, and disposing of hardware in an environmentally conscious way.

These practices including creating efficient computing workloads help to advance and accelerate emission reductions, through the reduction of the carbon footprint of those activities.

Challenges

Implementation of new technology is critical to the acceleration of the ESG transformation journey within a business. Facilitating and coordinating the movement to future state technologies can be challenging within a highly regulated industry. As can adjusting the mindset of businesses to view digital transformation as a business-wide opportunity, not just an IT challenge. However, as investment organisation's clients expect real-time, accurate and transparent ESG information accessed in a variety of technological mediums, technology design and implementation must be treated as a business priority.

Working towards a sustainable future hinges on the use of strategic and fit-for-purpose technologies. Strategy and well-planned transformation methods are the two significant parameters that will help businesses implement successful ESG initiatives. The key to implementing sustainable IT practices to achieve net zero is technology design and implementation – it is critical for CTOs to support the entire organisation to implement new technology designs which will support them on their ESG journey.

Role of the CTO function

To overcome the technology design and implementation challenges, the CTO can add value in the following ways:

- Create and maintain Enterprise Architecture for the firm
- Build a clear view on Buy vs. Build and Adopt vs. Adapt. Any custom development is likely to take time and resources whilst off-the-shelf solutions may not deliver exact business needs and will require internal change
- Conduct impact assessments of current state tools and technology
- Review and design enterprise architectural patterns and guidelines, as well as channels and scoring
- Define Journey to Cloud and adoption of cloud-native technologies
- Evaluate the supply chain
- Minimise the negative impact of IT operations on the environment i.e., hardware etc.
- Secure a partnership with a provider of cyber security technology
- Implement a robust escalation policy for data breaches
- Implement technology-based benchmarking tools
- Assess modelling capability and flexibility
- Implement scenario analysis tools (climate, Tax etc.)
- Assess third-party models and internal options
- Design of dashboards linked to ESG metrics

Market-leading example

Carbon Traveller Dashboards

As part of the transition to Net Zero, CTOs can look to create an internal dashboard that allows employees to view the carbon emissions which they have generated. One area where this dashboard could deliver clear value is in tracking emissions from business travel. Cutting emissions in this area is an important part in meeting carbon reduction targets, and a dashboard will help all employees be more responsible and sustainable.

Some features that CTOs can look to integrate into their carbon traveller dashboards include:

- Clear metrics for employees to view
 - Carbon emissions in kgCO₂e (kilograms of carbon dioxide equivalent)
 - Breakdowns in terms of Air / Rail / Car Travel
 - Travel Emissions trend over time
 - Individual emissions vs average emissions for their position / role
- Daily data refresh of the dashboard
- Advice and tips for reducing emissions

Carbon footprint awareness is the first step in the journey to Net Zero. A carbon emissions dashboard provides a solid foundation for firms to progress on their journey and the CTO has an important role in creating this foundation.

PEOPLE, SKILLS, AND TALENT

There has been a shift in employment patterns in recent years. Employees are no longer just seeking to obtain employment at any organisation to work from 9-5 and perform the duties of their role – they are also seeking to gain a sense of purpose from their work. Individuals are increasingly looking to find an employer which aligns with their own values and ethics and are increasingly selective.

ESG related factors, such as diversity, human rights, health and safety, and sustainability are more frequently factored into the decision-making process of job seekers alike. Ensuring a fair, inclusive workplace is critical to attracting, retaining and progressing good talent. One method for firms to build a fairer and inclusive workplace is to integrate transparency into their internal processes, for example by publishing a comprehensive Inclusion, Diversity and Equality policy. Factoring the 'E', the 'S' and the 'G' into their business models can be a key differentiator in the market to both attract and retain talent.

Challenges

As mentioned, attracting, retaining and upskilling talent continues to be an ongoing challenge for employers. In turn, it is equally important to ensure that organisations have inclusive and equitable hiring processes applied from career entry through to the senior talent. Through effective collaboration with HR, the CTO can aid in establishing entry-level trainee programmes. The programmes should be focussed on building an internal pipeline of talent to address future skills needs. Additionally, focus should be on data collection to better understand the make up and challenges of the workforce. After analysing the data, initiatives can be put into place to address the challenges.

Retention of talent is another challenge that the CTO must help to overcome. Developing and delivering

relevant training that supports upskilling and progression can help with talent retention and employees feeling invested in and valued.

CTOs play a crucial role in attracting and retaining top talent, as well as upskilling and reskilling employees.

Key activities for the CTO function

To overcome the people, skill and talent challenges, the CTO can add value in the following ways:

- Emphasising and demonstrating the importance of inclusion, diversity and equity within the business.
- Implementing systems to ensure an inclusive and equitable hiring process.
- Using data to address shortfalls, set targets and monitor progress.
- Designing and implementing training to upskill and reskill employees supporting career development and progression from across the business.
- Implementing an entry-level trainee programme for school/college leavers and graduates.
- Regular monitoring of skills and training gaps to ensure they are remediated.
- Enabling teams to contribute to causes that align to their values by offering them volunteering time to support their chosen charities.
- Participating in student and local community outreach increasing understanding of career paths.
- Building the capability to experiment with new technologies in a safe environment. A 'sandbox' environment with exemplar data and technologies where colleagues could try their hands on technologies and either through formal hackathons or, informal 'learning and play time', teams of colleagues could build new services and learn from this experience.
- Offering employment schemes that cater for different career pathways.



Market Leading example

KPMG's IT's Her Future

KPMG's IT's Her Future⁵ is a dedicated firm-wide programme to tackle gender diversity. It aims to encourage more women to go into technology careers, while providing the support necessary to allow for their growth and development in the field.

Aside from providing mentors, networking opportunities and targeted training, IT's Her Future also has several specific initiatives in place including:

- The Propeller Senior Leadership Programme. This initiative provides female senior managers with a tailored development process involving exclusive Director-level training.
- The Future Leaders Technology Programme. This initiative offers work experience to girls in Years 9 and 10. These girls participate in a tech challenge, learn to code and are provided with a KPMG graduate mentor.

IT's Her Future has won several awards, including 1st place at the Women in IT Awards for DEI Initiative of the Year 2021 and 1st place at the Women in IT Awards for Education and Training Initiative of the Year 2021 for the Future Leaders Technology Programme.

Inclusion, Diversity and Equity (IDE) learning

Another method for CTOs to drive forward Inclusion, Diversity and Equity (IDE) in their firms is through creating virtual learning courses that employees can access through their company intranet. These courses can be created in-house or can be created in partnership with third parties.

Any courses should look to touch on the following topics:

- An overview of IDE at the firm
 - What does IDE mean to the company?
 - IDE Strategy and Targets
 - Links to any IDE policies or extra resources in the workplace
- Unconscious bias training
 - Provide learnable steps for changing behaviours and decision-making
 - Address specific processes such as recruitment, performance management and work allocation
- Personal responsibility and accountability
 - Stimulate thought on the tangible things each employee can do as individuals in the firm
 - Help employees develop an action plan for personal improvement in their approach to IDE

Firms and their CTOs should look to create an inclusive environment where all colleagues thrive and reach their full potential. This environment is fundamental to success as a business and educational training will play a key part in its creation.

⁵ [IT's Her Future \(kpmgcareers.co.uk\)](https://kpmgcareers.co.uk)

KEY TAKEAWAYS

Businesses that are not taking ESG seriously are beginning to lose customers, employees, and financing; eventually they will become unviable. Market leaders are taking a strategic response to ESG, adapting their products and services, processes, operations, and value chains. How we view ESG factors is changing from purely a risk-based process into areas of potential value creation and outperformance – however, assessing what is ‘good’ in ESG remains a challenge. The ratings providers, long the custodians of scoring, are facing increasing pressure as scrutiny into the disparate rating processes intensifies.

Stakeholders, whether they be owners, regulators, employees, or customers, are pushing for increased transparency – and it is working. More mandatory reporting standards are fast approaching and, where it is not mandatory, lenders and investors are still withdrawing funding from, and voting against, businesses not considering ESG. Culture has always been important for employees, and this now includes considering the environment and business practices in which they work. Customers, especially those with long term horizons such as institutional investors and millennials, are demanding that long term factors be considered.

COVID-19 has highlighted the social and governance elements within ESG, as businesses seek to enhance resilience and ensure that their social capital is enhanced through efforts to both protect and enhance the experience of workforce and customers. Governance – which can arguably be described as the key pillar of ESG – has been tested by the recent pandemic which highlighted the importance of operational resilience to extreme change and our ability to undertake radical transformation swiftly; it provides an opportunity to embed ESG into future board level decisions. Finally, it is likely that financiers will be judged on how they support individuals, communities, and business.

There is a key trend towards the incorporation of ESG as a driver of value. We see illiquid investors leading the way in using ESG measurements and increasingly impact measurement as a determinant of enterprise value. Their long-term horizon and the need to ensure that risks and opportunities are identified at the outset and incorporated throughout any strategy is key to success.

ESG is not a hygiene factor for today. It presents material qualitative long-term risks that are increasingly being measured in a quantitative way. Its impact is already profound, and it is a critical factor for financial services firms that want to position themselves strategically in preparation for further fundamental changes coming down the track. ESG is no longer a choice; it is an imperative – and the CTO is instrumental in acting as an accelerator to embedding ESG into business processes.



ACTION PLAN / TEAR AWAY SHEETS

As exemplified throughout this report, technology has become instrumental to embedding ESG into a business, as well as combating key ESG related challenges – and CTOs are well placed to act as a facilitator of change. CTOs sit within the centre of the network of a business, and possess the skillset and knowledge to be an accelerator to embed ESG into organisations existing processes and structures.

We have designed an ESG tear-sheet to assist CTOs with developing a credible, straight forward action plan to address the key challenges and ESG issues outlined in this paper.

The ESG tear-sheet outlines key ESG activities, a summary of the main challenges associated with each activity, and suggested actions and recommendations of how to overcome each challenge.

We have also attached the guidance of what types of questions could be included in a Sustainable Procurement Questionnaire across the 'E', 'S', and 'G'.

ESG Activity	Challenges	Suggested Actions
Data, Analytics and Reporting	<ul style="list-style-type: none"> • Mitigating against greenwashing risks • Obtaining accurate, reliable internal data for ESG reporting and disclosures • Obtaining accurate, reliable external data to ensure sustainable supply chains • Increasing the accessibility of data analytics and insights for CIOs and wider C-suite • Ensuring the successful digitisation of documentation to support a) ESG portfolio management, b) the classification of products, and c) workflow information 	<ul style="list-style-type: none"> • Develop or source technology-based systems which can assist with identifying and collating relevant data required for ESG related purposes – reporting, disclosure, portfolio management • Implement controls and systems in the procurement process to ensure you can easily capture relevant data required to report and disclose • Ensure that the right information is available to the right team at the right time to make key decisions in a timely and accurate manner
ESG Frameworks and Regulations	<ul style="list-style-type: none"> • Maintaining the ability of a firm to respond both rapidly and consistently to an ever-evolving client, market, and regulatory space – particularly where conflicting objectives have arisen • Understanding which regulations and frameworks the firm is in scope for, and what is required of them to comply 	<ul style="list-style-type: none"> • Implement technology solutions and tools to assist with regulatory horizon scanning and scoping to reduce the laborious process on internal resources • Implement a technology solution which indicates what the requirements of in scope regulations look like in practice for the firm, and what actions are required • Implement a technology solution that utilises a building block approach that will allow you to enhance and add in additional requirements overtime as and where needed

ESG Activity	Challenges	Suggested Actions
Enterprise Architecture, Design and Implementation	<ul style="list-style-type: none"> • Ensuring operational resilience in businesses for potential future shocks (like Covid-19) • Ensuring that the design and execution of technology not only aligns to existing BAU processes but also adheres to sustainability practices 	<ul style="list-style-type: none"> • Frame the implementation of new technological designs as a business opportunity rather than an IT challenge • Implement Green IT operations to minimise the negative impact of IT operations on the environment • Conduct an impact assessment of current state tools and technology and create a forward-looking plan of action to overcome any gaps
People, Skills and Talent	<ul style="list-style-type: none"> • Building in-house expertise • Maintaining in-house expertise • Building a pipeline of entry-level talent 	<ul style="list-style-type: none"> • Identify a broad range of skills and behaviours that are needed and in different areas of the business • Form affiliation with industry and professional bodies • Adapt hiring processes to recruit colleagues that have higher alignment to the values of the firm • Work with HR and Procurement to develop an entry-level trainee programme • Work with HR and Procurement to attract experienced hires as well as entry-level talent starting their careers • Work with HR to ensure inclusive hiring processes • Procure appropriate training and learning tools to facilitate the upskilling and professional development of employees
Procurement and Supply Chain	<ul style="list-style-type: none"> • Ensuring a sustainable procurement process • Collecting relevant and accurate data on suppliers 	<ul style="list-style-type: none"> • Develop and implement a questionnaire to send to suppliers to collate the relevant ESG data • <i>Please find below an example of a Sustainable Procurement Questionnaire to use as a guideline</i>

SUSTAINABLE PROCUREMENT QUESTIONNAIRE

	Requirement	Supplier Response options	Answer
	Is your company considered an SME? The UK definition of SME is small or medium-sized enterprise with fewer than 250 employees, a turnover of less than €50 million, or a balance sheet total of less than €43 million. If you are an SME this will be taken into consideration during the scoring process.	Yes/No	
Environment			
1	Does your company report publicly on its Corporate Responsibility and environmental performance?	Yes/No	
2	Is your company certified by environmental standard ISO 14001?	Yes/No	
3	Does your company report their carbon emissions?	Yes/No	
4	Does your company respond to the CDP Climate Change questionnaire if yes, what score did you receive for the last two years	Yes/No	
5	Is 50% or more of your electricity from renewable sources?	Yes/No	
6	Has your company committed to/or set a Science Based Target for carbon reduction with the Science Based Target Initiative?	Yes/No	
7	Has your company assessed its direct operations and supply chain for impact on deforestation?	Yes/No	
8	Has your company developed a circular economy strategy?	Yes/No	
9	Can you provide details of key carbon reduction initiatives completed over the last 3 years?	Max 250 words	
10	Do you ask your Suppliers to report their Carbon emissions?	Yes/No	
<i>This next two questions must be completed if supplying products which consume energy:</i>			
11	Are energy efficiency features designed into your product(s)?	Yes/No	
12	Does your product(s) have an energy efficiency rating or certificate from an appropriate scheme? e.g., Energy star	Yes/No	

	Requirement	Supplier Response options	Answer
Inclusion, Diversity and Social Equality			
13	Do you monitor the diversity profile of your employees?	Yes/No	
14	Do you publish representation data on the diversity of your employees;	Tick those that apply	
		Gender	
		Ethnicity	
		Disability	
		Sexual orientation	
	Social Mobility		
15	Do you publish a pay gap report beyond gender?	Yes/No	
16	Do you have Diversity in the composition of your Board (at least 30% across Gender, Ethnicity, Disability)	Yes/No	
17	Do you provide mandatory diversity training for all your staff?	Yes/No	
18	Does the organisation's policy/training refer to the following elements of Inclusion, Diversity and Social Equality?	Tick those that apply	
		Gender	
		Ethnicity	
		Disability	
		Sexual orientation	
		Social Mobility	
	Flexible/Part time working		
	Provide further details on your policy/training you have	Max 200 words	
19	Do you offer any of the below to improve IDSE	Tick those that apply	
		School/college leaver trainee programme	
		Graduate programme	
		Experience of work (students at school/college or university)	
		Insight Days	
		Outreach programmes with local schools/community organisations	
		Work with specialist recruiters	

	Requirement	Supplier Response options	Answer
Inclusion, Diversity and Social Equality			
20	Do you provide your staff with engagement surveys that can be analysed by diversity group?	Yes/No	
21	Do you have in-house development/talent programmes to improve your pipeline of diverse talent?	Yes/No	
22	Do you ensure that your digital products and services are accessible for all including those with disabilities/ Long term conditions by using the Web Content Accessibility Guidelines (WCAG) 2.0? These guidelines explain how to make web content more accessible for people with disabilities, and user friendly for everyone.	Yes/No	
23	Do you participate in a workplace equality index If so, which?	Yes/No, if yes which?	
24	Are you signed up to the BiTC Race at work charter or similar?	Yes/No, if yes which?	
25	Is your company signed up to the Disability Confident scheme or similar?	Yes/No, if yes which?	
26	Do you participate in external charters / schemes that address social mobility issues, e.g., Women in Finance Charter?	Yes/No, if yes which?	
27	Is your company either a Living Wage Foundation accredited employer or service provider? http://www.livingwage.org.uk/	Yes/No	

	Requirement	Supplier Response options	Answer
Modern Slavery			
28	Has your company complied with its obligations to submit a Modern Slavery statement under section 54 Modern Slavery Act 2015 for your most recent financial year? Please enter 'N/A' if you fall outside of the scope of section 54(2).	Yes / No / N/A	
29	Has your company assessed its supply chain to identify businesses with a high risk of slavery or human trafficking?	Yes/No	
30	Do you provide mandatory anti-slavery and human trafficking training to all employees within your business to help them identify and seek to mitigate the risk of this within their roles?	Yes/No	
Supply Chain			
31	Is your organisation a signatory to the UN global compact, Ethical Trading Initiative or similar? If yes, please state which.	Yes/No	
32	Do you have a supplier code of conduct for your supply chain?	Yes/No	
33	Do you have a sustainable, responsible or ESG Supplier Programme?	Yes/No	

GLOSSARY OF TERMS

Carbon Footprint: An estimate of the total emission volume of greenhouse gases — usually expressed in terms of carbon dioxide (for example: 5 tons of CO₂-equivalent).⁶

Cloud Computing: Cloud computing is on-demand access, via the internet, to computing resources— applications, servers (physical servers and virtual servers), data storage, development tools, networking capabilities, and more—hosted at a remote data centre managed by a cloud services provider (or CSP). The CSP makes these resources available for a monthly subscription fee or bills them according to usage.⁷

Climate-related risks: Climate-related risks can be divided into risks related to the physical impacts of climate change (e.g., extreme weather events and rise of sea level) and risks related to the transition to a lower-carbon economy (e.g., changing market demand and carbon pricing). Climate-related risks are often underestimated by companies because of their complexity and long-term effects.⁸

Corporate Governance: Corporate governance is the system by which companies are directed and controlled. The purpose of corporate governance is to facilitate effective, entrepreneurial and prudent management that can deliver the long-term success of the company. Corporate governance is therefore about what the board of a company does and how it sets the values of the company, and it is to be distinguished from the day-to-day operational management of the company by full-time executives.⁹

Divestment: In business law, divestment is when a business sells off its subsidiaries, investments, or other assets for a financial, ethical, or political objective. The business must partially or fully remove the asset from its financial records.¹⁰

Due diligence: The process by which a buyer of or an investor in a company, asset or business investigates the records of the target to support its value and find out whether there are matters on which it requires further information or which it should use as a platform to renegotiate the price.¹¹

Energy efficiency/clean technology (energy technologies): Any process, product, or service that reduces negative environmental impacts: through environmental protection activities, through the sustainable use of natural resources, or goods that have been specifically modified or adapted to be significantly less energy -or resource- intensive than the industry standard. Clean technology and the energy sector overlap with certain technologies, including renewable / non-emitting energy technologies like solar, wind, hydro, wave, tidal, geothermal, biofuels, biomass, nuclear, carbon capture and storage, transmission technologies like smart grids and energy storage, and energy efficiency technologies like green buildings and cogeneration.¹²

Engagement: It is a relational process between investors and companies. It can help protect long term-term investment value and successful ESG engagement can lead to positive financial returns following the initial engagement. It can lead to enhanced exchange of information, the production and diffusion of new ESG-related knowledge and reduce exposure to various risks.¹³

ESG incidents: Specific environmental, social or governance events that have a substantial negative impact. These incidents can reflect gaps in a company's management systems, corporate strategy or policy development.

ESG integration: The systematic and explicit inclusion of material ESG factors into investment analysis and investment decisions.¹⁴

⁶ [What is a carbon footprint \(conservation.org\)](https://www.conservation.org/what-is-a-carbon-footprint/)

⁷ [What is Cloud Computing? | IBM](https://www.ibm.com/cloud/what-is-cloud-computing/)

⁸ [Climate-related risks and opportunities - KPMG Netherlands \(home.kpmg\)](https://home.kpmg.com/au/issuesandinsights/articlespublications/2019/04/climate-related-risks-and-opportunities/)

⁹ [What is corporate governance? | Overview | ICAEW](https://www.icaew.com/what-is-corporate-governance/overview)

¹⁰ [divestment | Wex | US Law | LLI / Legal Information Institute \(cornell.edu\)](https://www.wex.com/US-Law/LLI/Legal-Information-Institute/cornell.edu/divestment)

¹¹ [Due diligence | Practical Law \(thomsonreuters.com\)](https://www.thomsonreuters.com/practice-areas/transactional-law-services/transactional-law-services-articles/2019/04/01/190401-due-diligence/)

¹² [The Clean Technology Market Entry Guide \(europa.eu\)](https://ec.europa.eu/energy/topics/clean-technology/clean-technology-market-entry-guide/)

¹³ [\(unpri.org\)](https://www.unpri.org/)

¹⁴ [ESG integration techniques for equity investing | Technical guide | PRI \(unpri.org\)](https://www.unpri.org/esg-integration-techniques-for-equity-investing/technical-guide)

ESG materiality analysis: Materiality is the principle of defining the social and environmental topics that matter most to your business and your stakeholders. Materiality assessment should be used as a strategic business tool, with implications beyond corporate responsibility (CR) or sustainability reporting. Organisations can get most benefit from their materiality process by using it as an opportunity to apply a sustainability lens to business risk, opportunity, trendspotting and enterprise risk management processes.¹⁵

ESG risks: These focus on the potential effect an organisation's stakeholders (such as customers, outsourcing suppliers, employees, or the environment) may exert and in reverse, the impact that the organisation may have on its stakeholders and the environment due to its activities. When occurring, ESG risks will have or may have negative impacts on assets, the financial and earnings situation, or the reputation of the firm.¹⁶

Global (sustainability) goals: These include the SDG targets and indicators, thresholds set by the UNFCCC Paris Agreement, expectations set out in the Universal Declaration of Human Rights, and other environmental, social, governance, and development objectives established by political or socio-economic institutions.

Greenwashing: It implies any dishonest practices used by businesses to represent themselves as more sustainable either by giving a false impression or providing misleading information as to the sustainability of a product/service.¹⁷

Green bond: The key difference between a 'green' bond and a regular bond is that the issuer publicly states it is raising capital to fund 'green' projects, assets or business activities with an environmental benefit, such as renewable energy, low carbon transport or forestry projects.¹⁸

Human Rights: Human rights are rights inherent to all human beings, regardless of race, sex, nationality, ethnicity, language, religion, or any other status. Human rights include the right to life and liberty, freedom from slavery and torture, freedom of opinion and expression, the right to work and education, and many more. Everyone is entitled to these rights, without discrimination. The Universal Declaration of Human Rights was adopted by the UN General Assembly in 1948.¹⁹

Responsible investment: A strategy and practice to incorporate environmental, social and governance (ESG) factors in investment decisions and active ownership. This can be integrated into investment policies in many ways including high-level public statements, a standalone responsible investment policy, or by embedding responsible investment considerations into an organisation's main investment policy.²⁰

Social bond: Bonds used to fund projects with a social or community benefit such as improving healthcare or social services.²¹

Stewardship: Stewardship is defined as the responsible allocation and management of capital across the institutional investment community – and crucially – to create sustainable value for beneficiaries, the economy and society.²²

Sustainability bond: Sustainability bonds are bonds where the proceeds will be exclusively applied to finance or re-finance a combination of both green and social projects.²³

Thematic investing: Thematic investing is characterised as a top-down investment approach that capitalises on opportunities created by macroeconomic, geopolitical and technological trends. These are not short-term swings – but long term, structural, transformative shifts.²⁴

¹⁵ [KPMG NZ ESG Materiality Assessment \(assets.kpmg\)](#)

¹⁶ [ESG risks in banks \(assets.kpmg\)](#)

¹⁷ [ESG: Addressing greenwashing in financial services - KPMG United Kingdom \(home.kpmg\)](#)

¹⁸ [Sustainable Insight: Gearing up for Green Bonds \(assets.kpmg\)](#)

¹⁹ [Human Rights | United Nations](#)

²⁰ [An introduction to responsible investment: policy, structure and process | Introductory guide | PRI \(unpri.org\)](#)

²¹ [Sustainable Insight: Gearing up for Green Bonds \(assets.kpmg\)](#)

²² [The UK Stewardship Code 2020 \(assets.kpmg\)](#)

²³ [Sustainability Bond Guidelines \(SBG\) » ICMA \(icmagroup.org\)](#)

²⁴ [Thematic Investing - MSCI](#)

RELEVANT REGULATORY AND GLOBAL INDUSTRY BODIES

- 1) Intergovernmental Panel on Climate Change (IPCC)
- 2) International Platform for Climate Finance (IPCF)
- 3) Net Zero Asset Owner Alliance
- 4) Net Zero Asset Managers Alliance
- 5) Science-Based Targets Initiative (SBTi)
- 6) United Nations Sustainable Development Goals (UN SDGs)
- 7) Sustainable Finance Disclosure Regulation (SFDR)
- 8) Task Force on Climate-related Financial Disclosures (TCFD)
- 9) UN Global Compact (UNGC)
- 10) UN Guiding Principles on Business and Human Rights (UNGP)
- 11) World Economic Forum (WEF) Stakeholder Capitalism Metrics
- 12) International Sustainability Standards Board (ISSB)
- 13) International Financial Reporting Standards Foundation (IFRS)
- 14) Global Reporting Initiative (GRI)
- 15) Impact Investing Institute (I3)
- 16) United Nations Principles of Responsible Investing (UN PRIs)
- 17) European Sustainability Reporting Standards (ESRS)
- 18) Corporate Sustainability Reporting Directive (CSRD)



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