C3.ai

Delivering ESG Performance with AI

Table of Contents

Introduction

Companies are facing increasing pressure from a wide range of stakeholders to improve transparency and performance on environmental, social, and governance-related issues. Collectively referred to as "ESG," the movement for greater transparency and disclosure has been driven by the increasing public awareness of the impacts that firms have on the planet and society, as well as the close link between those impacts and their long-term financial performance. As a result, the significant environmental and social impacts of business have drawn increased scrutiny from investors, regulators, customers, and broader society. Paramount among the ESG challenges these companies face are those related to climate change, including managing direct and indirect emissions in an effort to reach net zero emissions[1] by the middle of the century.

ESG spans issues across Environment, Social, and Governance, and this breadth is what makes it so challenging for companies to pursue a robust corporate ESG program. Unable to tackle everything, companies need to prioritize the areas that are most relevant and important. In the absence of robust software tools and overwhelmed by the swirling stakeholder discussion, companies often choose to focus on a limited number of ESG issues without understanding whether they are truly the most important. There are examples of energy companies choosing to solely focus on Environmental issues with GHG emissions, manufacturing companies choosing to focus on the Social issues with workplace safety, and financial services companies choosing to focus on the Social issues with diversity, equity, and inclusion. However, software tools can help with this "materiality" or prioritization analysis by supporting a data driven and stakeholder aligned decision on a few different areas of where to focus.

The path to ESG transparency and accountability is complex and there are many challenges along the way. Companies who solve these challenges will stand to benefit through capturing new market opportunities for sustainable products and services, attracting ESG-aligned capital flows, increasing customer satisfaction, and attracting and retaining top talent. Key challenges for companies include:

- Highly fragmented ESG data requiring significant manual effort to consolidate, validate, and report

- Difficulty keeping pace with rapidly emerging and evolving ESG risks and opportunities while maintaining alignment with ever-changing stakeholder expectations

- Inability to identify tangible opportunities to rapidly decarbonize in line with societal expectations

- Difficulty managing a diverse and globally distributed portfolio of initiatives and projects intended to improve ESG performance

- Inability to keep up with a wide range of rapidly evolving voluntary and regulatory ESG reporting requirements

---

1. *Net Zero emissions is a term representing a common goal for zero net carbon dioxide-equivalent emissions between emissions reductions and carbon offsets.*

Fragmented ESG Data

Many companies are initially relieved to find that ESG covers a list of issues that the corporation has been managing for a long period of time. ESG or environmental, social, and governance goals include improving operational efficiency, eliminating safety incidents, preventing spills or toxic releases, recruiting and retaining a diverse and talented workforce, and creating economic benefits for communities. However, the benefits of this "head start" often become a liability when companies take stock of the current state of their ESG data.

Typically, companies face a complex web of solutions that each contain fragments of the company's overall ESG data. These legacy systems were not designed to communicate with one another nor support the kind of top-down, enterprise solution needed to provide a single hub for company ESG performance management and reporting. Employee diversity data may exist in the company's human resources management system; environmental and safety compliance data may be stored in multiple legacy environmental health and safety (EHS) systems; audits and compliance-related information may exist in governance and risk management systems.

Figure 1: Illustration of Numerous Sources for ESG Data Across an Enterprise

As a result, companies frequently find themselves spending thousands of employee (or consultant) hours extracting ESG data from a patchwork of legacy, frequently non-standardized systems, and spending significant additional time and resources subsequently rationalizing, validating, and consolidating these data into a single, centralized repository. In many cases, a significant amount of data exists in a single email or spreadsheet and not in any system at all. This painful, tedious process is typically repeated every year when the company produces its sustainability report(s).

Rather than focusing on high value activities such as engaging priority stakeholders and leading ambitious initiatives to improve ESG performance, sustainability teams within companies often find themselves spending the vast majority of their time wrangling data to meet a wide range of internal and external demands for ESG data. Furthermore, without collaboration tools to prioritize, assign, and project manage initiatives to improve ESG performance across business units, many companies struggle to align on objectives and outcomes across disparate efforts. In many cases, such projects fall on the corporate sustainability team who have limited bandwidth and operational knowledge in specific business units.

Keeping Pace with Emerging ESG Risks

While many ESG issues may be familiar to large companies, stakeholder expectations are rapidly redefining how companies must manage and report on those issues. Within the last few years, for example, several significant shifts upended ESG reporting expectations for companies, including:

- The COVID-19 pandemic rapidly shifted ESG reporting expectations. Investors, employees, and other stakeholders suddenly sought information from companies to better understand what they were doing to protect employee and public health, how they were securing valuable company and employee data in the shift to remote work, and how environmental or social priorities might change in response to acute economic pressures.

- Expectations for companies to increase transparency about their efforts to create a diverse and inclusive work environment have rapidly increased, with large asset managers such as BlackRock, State Street, and Vanguard making employee diversity and inclusion a top priority for engagement and proxy voting.

- Significant increase in investor attention to human capital disclosure resulted in revised disclosure requirements from the US SEC in 2021[2]

- Efforts leading up to, during and after annual COP events in recent years put pressure on companies to more robustly communicate their decarbonization plans, including an unprecedented number of companies announcing emission reduction targets, including plans to reach net zero emissions by 2050 or earlier
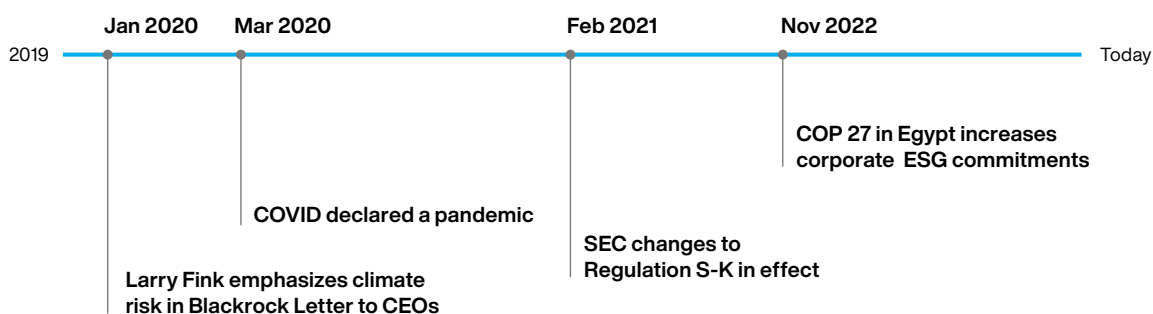

Figure 2: Timeline of Recent Events Impacting ESG Expectations

Given the nature of business in the 21st century, maintaining a social license to operate requires companies to effectively identify what ESG issues are prioritized by critical stakeholder groups, including investors, employees, customers, communities, business partners, regulators, civil society organizations, and others. Companies lack the tools to keep pace with the rapidly shifting priorities both across and within each of these stakeholder groups and struggle to ensure that their ESG performance management and reporting efforts remain aligned with these priorities. Companies frequently rely on internal engagement teams to remain abreast of rapidly shifting priorities; these teams require modern analytical capabilities to ensure their companies can keep pace with rapidly shifting ESG expectations.

---

2.   *https://www.sec.gov/rules/final/2020/33-10825.pdf*

Rapid Decarbonization

Among many sobering facts from the International Panel on Climate Change's Sixth Assessment Report[3], limiting global warming to 1.5°C or less would require greenhouse gas emissions to peak in 2025 and reduce by half by 2030. Companies face pressure by investors, regulators, employees, and broader society to communicate clear and comprehensive goals and plans for how they will decarbonize, consistent with pathways required to limit global warming to 1.5°C or less.

Many companies have publicly announced ambitious decarbonization goals, including in many cases reaching net zero emissions by the middle of the century. Stakeholders are pushing companies to demonstrate near-term reductions to signal that companies are on track to deliver on these ambitious goals. Companies must balance decarbonization goals with their broader financial goals, including deciding which assets to divest, which to invest in to improve efficiency and reduce emissions, and finally what new low-carbon technologies or businesses to invest in to drive the business in the future.

Figure 3: Scope 1, 2, and 3 emissions tracked in corporate decarbonization plans

Companies must therefore develop capital allocation plans that designate significant dollars for long-term ESG initiatives without sacrificing near-term financial outcomes. There is a delicate balance between reducing emissions in the near-term while enabling current assets to fund longer-term strategic investments in a low-carbon future, and most companies today don't have the capabilities to analyze the tradeoffs for different scenarios. In a perfect world, companies would focus primarily on ESG initiatives that are most relevant to their line of business and positively impact their bottom line.

3.   https://www.ipcc.ch/assessment-report/ar6/

Finding decarbonization opportunities is difficult. Many companies rely on low-resolution factor-based emissions data such as industry averages to baseline emissions across their operational footprint, which prevents them from pinpointing high-value opportunities to reduce emissions or the ability to measure the impact of completed projects. As a result, companies struggle to measure and benchmark carbon emissions across or within assets in real time, identify high and low-performing assets or equipment, and find opportunities to invest in strategically important assets to reduce carbon emissions.

Developing a Strong ESG Project Portfolio

While reducing greenhouse gas emissions is frequently touted as a top ESG priority, as noted previously, companies are pursuing ambitions goals across a wide range of environmental, social, and governance issues. Companies are seeking to reduce their adverse impacts to land systems and biodiversity, to positively impact communities and uphold human rights, to protect customer and employee data, to ensure the safety and health of workers, to promote a diverse and inclusive workforce, and to ensure their companies act with unwavering integrity and business ethics. Many companies struggle to develop comprehensive systems of project management and accountability to ensure that ESG performance targets are established, tracked, and met across such a diverse range of issues and objectives.

Sustainability and ESG teams find themselves managing an ever-increasing list of projects and initiatives, and struggle to understand whether these efforts are having an impact. Is the company's performance improving on these issues? Are external stakeholders aware and, if so, are these performance improvements in line with stakeholder expectations? How is the company performing relative to peers? Despite pouring significant resources into these efforts, many companies lack the data and analytical capabilities to answer these foundational questions about the strategy and impact of their ESG programs.

Companies frequently lack a centralized system to holistically track and manage a diverse portfolio of ESG efforts. Without the right data to help them track and measure whether their efforts tie to improvement in ESG metrics, sustainability and ESG teams are unable to determine if they are on track to deliver on their publicly stated goals and targets. They also frequently struggle to benchmark performance both internally and against peers to identify areas of high and low performance. Even when these data are available, they are often months out of date, meaning companies are only able to assess the effectiveness of their ESG projects and initiatives months or even years after the fact.

As the pace and performance expectations continue to heat up, companies will need robust, real-time analytical capabilities to ensure their ESG efforts are producing the results they – and their critical external stakeholders – expect.

Reporting Effectively

The land of ESG reporting standards is complex and dizzying. Reporting standards, frameworks, and guidelines are constantly evolving, and companies are being pushed to adopt these standards by a range of different stakeholders – including investors, customers, civil society organizations, regulators, and other stakeholder groups. Simply keeping up with this rapidly evolving set of reporting expectations is difficult for many companies. However, evaluating each standard typically requires an extensive review of dozens to hundreds of individual metrics or KPIs and gap analysis to determine what percentage of these may already be tracked by the company internally.

Different stakeholders both internal and external to a company may seek different ESG information. Financial Teams and Investors may seek comprehensive data describing ESG risks and opportunities and their contribution to the company's long-term financial performance. Customers may require extensive ESG information to account for how upstream and downstream players contribute indirectly to customer's own ESG impacts – for example, in the form of Scope 3 or indirect greenhouse gas emissions. Employees and local communities may wish to understand how the company's local operations impact their air and water.

As a result, companies must select the right standards and frameworks to report their ESG information in a format that supports each stakeholder groups' unique informational needs. There are a multitude of options, including GRI, SASB, TCFD, and CDP. Many companies have responded by adopting multiple reporting standards and producing dozens of ESG reports targeted at different audiences. Ensuring these reports can all be populated with accurate, auditable data in a timely fashion presents a significant challenge for companies, often requiring teams of individuals and months of work. In many cases, consulting firms are hired to help fill this gap and/or perform a data audit.

GRI
Disclosed standard
Multi-stakeholder audience
40 standards
300+ metrics

SASB
Disclosed standard
Investor audience
77 standards
1,000 metrics

TCFD
Disclosed framework
Investor audience
11 recommended disclosures

CDP
Questionnaire + database
Investor audience
3 questionaires
~2,000 metrics

Figure 4: Select Priority ESG Reporting Frameworks

Finally, companies struggle to ensure that all the data included in their reports are accurate and complete. Many companies follow largely manual processes, with dozens of individuals across the company uploading facility or asset-specific data into a shared drive or spreadsheet. These data are then aggregated up to the corporate level for external reporting purposes. Errors at any point along the data "chain of custody" can result in extensive rework to identify and correct, a process which repeats each year when new data become available. Facing increasing stakeholder scrutiny and accusations of greenwashing, data transparency and auditability is paramount.

How AI Can Turbocharge ESG Efforts

Artificial intelligence and machine learning (AI/ML) provides a powerful tool to help companies drastically reduce the manual effort required to drive their ESG programs, while providing advanced analytical capabilities and insights that enable them to identify opportunities, set goals, create projects and initiatives, and share their ESG performance trajectory to establish themselves as industry leaders. The C3 AI ESG application, built on the C3 AI Platform, was developed to provide these capabilities:

1.   Unify ESG Data on a Single Platform

First, companies need the ability to integrate with legacy systems containing ESG data and unify those data into a single platform. Integrating these data into a single, unified data image on the C3 AI ESG application provides companies with a single pane of glass to understand their overall ESG performance, to set goals and targets, and finally to leverage these data for external reporting purposes. In most cases, by integrating with just 5 enterprise software systems – environmental health & safety, enterprise resource planning, HR management, governance risk & compliance, and supply chain management – over 80% of the relevant ESG data can be captured.

2.   Identify Highest Priority (Material) Issues, Aligned with Stakeholders

Once integrated, companies then need a method to determine which ESG issues they should prioritize. Advanced analytical tools such as natural language processing (NLP) and sentiment analysis can help companies to exponentially increase the depth and breadth of information available to them to identify emerging ESG risks or opportunities early on. By ingesting and analyzing investor information such as engagement guides, proxy voting results, press releases, and social media accounts, companies can monitor how investor ESG priorities are evolving in real time. Extending this approach to all priority stakeholder groups for a company – including customers, employees, business partners, communities, regulators, civil society organizations, and others – companies can monitor thousands of materials published each day to separate the "signal" from the "noise" to monitor how their ESG priorities need to adapt in real-time to shifting stakeholder expectations. This provides focus for ESG teams as well as the ability to proactively react to changes in stakeholder expectations.

3. Drive Performance Improvements and Track Against Targets

Having determined what issues to prioritize, companies need advanced analytical capabilities to drive performance on those issues. Decarbonization – many companies' top priority – will require companies to leverage existing operational data to calculate greenhouse gas emissions in real-time, identify emissions reduction objectives, and utilize AI/ML for advanced benchmarking, gap-to-potential analysis, and project emissions ROI forecasting – both within and across facilities. Beyond decarbonization, companies require a single environment to track initiatives and projects related to a diverse range of other ESG objectives – including reducing health and safety incidents, improving employee engagement, and minimizing adverse impacts to biodiversity and land systems. The C3 AI ESG application can provide scenario analysis and issue alerts if targets at risk of not being met, giving teams sufficient lead time to intervene and get performance back on track.

4. Communicate ESG Performance Across Standards

Finally, companies can take advantage of AI/ML to automate the process of mapping their ESG data to the rapidly evolving set of ESG reporting standards and frameworks, significantly reducing the time needed to produce ESG reports while improving the accuracy and auditability of the data. Anomaly detection can provide companies with confidence that the data they are putting into the public domain are accurate and complete. Data traceability from source system through to external report can assure companies of the integrity of their reported ESG data. By dramatically accelerating the time it takes to produce a report, companies can leverage C3 AI ESG to augment their ability to share success stories and bring stakeholders along in their ESG journeys.

Conclusion

Today companies are at an inflection point with ESG, facing increasing stakeholder pressures and emerging opportunities to stand out as sustainability leaders. Despite the previously mentioned challenges – integrating fragmented ESG data across the enterprise, identifying critical ESG priorities, achieving rapid decarbonization, managing a complex and diverse portfolio of ESG projects, and finally accurately reporting ESG performance – the promise of ESG is lucrative. Companies that can rise to the challenge and leverage AI/ ML to accomplish industry leading ESG goals will be rewarded handsomely by investors, customers, and broader society.