



SUSTAINABILITY: Technology-enabled

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FROM ESG-THEMED DATA MINING TO BLOCKCHAIN VOTING, TECHNOLOGIES AROUND SUSTAINABILITY PRACTICE AND REPORTING ARE EXPANDING RAPIDLY

Companies are starting to discover how they can incorporate new technologies such as artificial intelligence (AI), blockchain or the Internet of Things (IoT) to advance their environmental, social and governance (ESG) efforts and the way they report on them.

Over the past decade the world's biggest companies have started to come under pressure from stakeholders to improve the management of natural resources and human capital.¹ Although most non-financial data disclosure remains voluntary, stakeholders are now requesting that these companies release at least some non-financial data.

However, these expectations create problems for companies, the primary problem being that although many of them are following the

guidelines of the Global Reporting Initiative (GRI), there is no single global standard for ESG reporting. It does not help that dozens of third-party indices and rankings compare companies' ESG performances using different metrics and methodologies, all with different conclusions. At best, this results in confusion for businesses, investors and green-minded consumers. At worst, it raises suspicions of "greenwashing".

"It's a very unorganised field," confirms Andreas Feiner, CEO of Arabesque S-Ray, which measures the sustainability of companies. "There are multiple datasets, and then multiple accounting standards to assess what is good or what is bad. No one holds you accountable if you only show the good stuff. Sometimes [voluntarily disclosed] ESG data discredits itself, because people just don't trust it anymore."

THE GREAT CONVERGENCE

Change may come in the form of gradual standardisation in the reporting industry and the technology they use to report with. The dominant standard, the GRI, has been used by three-quarters of the global Fortune 250 companies that produce ESG reports.² On environmental topics, it has aligned with another standard-bearer, the Carbon Disclosure Project (CDP). “What we are trying to create is a singular global standard, like that of the International Financial Reporting Standards,” says GRI’s chief executive, Tim Mohin.

Ioannis Ioannou, associate professor of strategy and entrepreneurship at London Business School, notes that there is a growing convergence in ESG metrics. “It took us more than 80 years to converge financial metrics, so by comparison the speed for sustainability data is much higher. That’s due to the pressure companies are facing to be more transparent, more accountable, and tell the world what they are doing beyond their financials.”

The global spread of mandatory reporting might help too. According to Professor Ioannou, compulsory disclosure has precipitated a virtuous cycle in countries in which it has been introduced, “where you see the companies which want to perform best on sustainability taking additional steps to set themselves apart.”

A DIGITAL BOOST

Potential changes in reporting requirements create opportunities to include digital solutions.

“The mainstreaming of ESG reporting is only going to be done if data is precise, comparable and consistent,” argues Mr Mohin. The GRI recently released a digital tool that allows companies to input data and produce analogous reports. “We need a system where information is disclosed more frequently, precisely and comparably between companies.”

Third-party digital software could also speed up company reporting, according to Professor Ioannou. “A lot of companies complain that ESG reporting is costly, time consuming, and they are



not sure what the use is,” he explains. “Emerging software will produce reports for different sustainability standards in a fraction of the time. The effort and cost are going to come dramatically down—and that deals with a major issue that companies are facing in their reporting.”

The use of such technologies to provide a digital reporting history is still nascent but promises improved accountability and a more timely delivery of sustainability data. “We’ll be able to go back and see who is responsible for what data, and trace the whole chain of command,” Professor Ioannou argues. “The software creates a clear path of accountability and eventually facilitates auditing and checks on these numbers.”

THE NEW GOLDMINE: PUBLIC DATA

Simultaneously, the ever-expanding troves of publicly available data will bolster the limited disclosure done by companies. By mining tens of thousands of news articles, civil society reports, trade journals and social media posts daily, and using machine learning to make sense of the findings, third parties are already providing an objective perspective that can beef up businesses' selective disclosures.

"Sustainability reporting is still a very manual operation," says Hendrik Bartel, CEO of TruValue Labs, a Silicon Valley start-up that uses AI to analyse corporate sustainability. "But there's enough modern computer technology out there, enough computing power, and enough data to build on ESG disclosure in a scalable and objective way. This can give an outside-in look at a company."

By monitoring sustainability metrics in real time, rather than relying on information published in annual corporate social responsibility or ESG reports, advanced digital technologies boost transparency significantly. Their findings are likely

to be highly valuable to investors, who may find the current flow of conflicting rankings confusing.

"The concept that big data and machine learning can help in sustainability is starting to get established. More and more investors realise that a combination of self-reported data from companies, with external information that comes from big data and machine learning, is the way forward," explains Mr Feiner. His company, Arabesque S-Ray, has developed a tool which uses machine learning and big data to monitor the sustainability efforts of global majors.

Furthermore, by revealing information about a company's behaviour, such technologies could help shift capital away from the worst-offending businesses—a prerequisite in the transition to a more sustainable economy. According to Mr Feiner, there is one way to measure and influence sustainability, and that is the reallocation of capital. "If you are in a position where you can steer capital flows to companies that are run better on these issues, and away from companies which are less well behaved, this is somewhere you can really have an impact."



INTO THE FUTURE

The IoT promises to capture more data that could be used in the sustainability arena. And blockchain technology, particularly its next iteration – the Lightning Network, which operates on top of a blockchain to enable faster transfers through bidirectional channels—will help consumers trace the component parts that make their products.

“The current blockchain technology is not very efficient, but the next version will be much more so,” Mr Feiner notes. “It will help us follow a supply chain in a very concrete manner, so you can see what’s produced, which company has touched it, and where that was.”

This will be particularly useful in developing countries, Mr Feiner adds. “This technology will be very important because a lot of the big problems that we have don’t happen in Germany or the UK, they happen in emerging or frontier countries that are less transparent. If you can follow the ingredients of a car to where they’ve been produced, or follow your meal, or your pharmaceutical product, then this transparency will help you get a much better picture.”

A good example is the Rochester, New York-based Seneca Park Zoo, a funder of conservation projects in developing countries. It has turned to a blockchain-based platform to monitor its tree-planting efforts in Madagascar.³ Thanks to a system of wireless sensors and satellite imagery, donors to the projects are able to receive real-time updates on their phone about their trees being planted—a transparent system that should also encourage further gifts.

But the use of new technologies has not been limited to the environmental component of ESG principles in terms of reporting or the verification of environmental issues. The governance sphere is also experimenting with blockchain and AI.

In May 2018 Spanish bank Santander introduced voting via blockchain technology at its AGM, with one in five shareholders making use of the new tool.⁴ Blockchain voting provides two benefits

to the bank, whose capital is “very fragmented”, according to its global head of investor relations, Sergio Gamez. It allows for the results to be given in real time, compared with the usual 2-3 weeks of delay, while transparency is ensured with each voter receiving a copy of the ledger at the end of the process.

Even boardrooms, usually seen as impervious to change, are opening up to the possibilities of AI. These changes range from automating the repetitive tasks of the audit committee to improving strategic decision-making by tracking capital allocation patterns. And some companies have even taken it a step further. In 2014 Deep Knowledge Ventures, a Hong Kong-based venture capital fund, was the first organisation to add an “AI member” to its board in the form of an algorithm called Vital. By formulating an opinion based solely on data analysis, Vital—which has an observer status on the board but an equal voting right in assessing ventures—has reportedly helped the firm to avoid investments in irrational, “overhyped” projects.⁵

Although the ability to adequately measure and report on sustainability is still being debated and developed, it is clear that the technological tools to aid these processes exist and can be further adapted, leaving more time for sustainability managers to focus on strategy and deployment rather than reporting and data checks.



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¹ <https://www.globalreporting.org/resourcelibrary/Sustainability-and-Reporting-Trends-in-2025-1.pdf>

² KPMG International Survey of Corporate Responsibility Reporting 2008.

³ <https://www.itweb.co.za/content/Per03qZg2orvQb6m>

⁴ https://www.santander.com/cs/gs/Satellite/CFWCSancomQP01/en_GB/Corporate/Press-room/Santander-News/2018/05/17/Santander-and-Broadridge-Complete-a-First-Practical-Use-of-Blockchain.html

⁵ <https://asia.nikkei.com/Business/Artificial-intelligence-gets-a-seat-in-the-boardroom>

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