

CAPCO

ESG IN FINANCIAL SERVICES

TODAY AND IN THE FUTURE



INTRODUCTION

This article explores the current ESG trends and issues within financial services and how technology could potentially help address them. We will also look at new

types and sources of data that are emerging in the real economy and consider how the financial services industry can integrate them into products and services.

479

green bonds issued worldwide in 2019

\$185BN

raised to fund environmentally sustainable projects

74%

of global investors plan to increase their ESG ETF allocation

\$30.4TRN

of global AUM related to ESG criteria

1. CURRENT SITUATION

1.1 ENVIRONMENTAL AND SOCIAL IMPERATIVES

Public interest in ESG is growing exponentially. With demands for action far outpacing political will, firms cannot afford to wait, either in a reputational and financial sense, for governments and regulators to act. Social and environmental movements have become increasingly influential over the last decade, forcing all organisations to consider ESG at the strategic level.

There is a real cost to getting this wrong. The following examples show that, although there is a lack of coherent standards and regulation, investors will ultimately sell if poor ESG practices are identified.

Firm	Event	Pre-Event share price	Post-Event share price	type	Notes
	Deepwater horizon rig fire	\$60.57 (Apr 2010)	\$29.20 (June 2010)		BP stock fell 51% in 40 days, in which over 130 million gallons of crude oil was released into the Gulf of Mexico.
	Modern slavery accusations	£4.12 (May 2020)	£2.47 (Aug 2020)		£1.3bn of the company's market value wiped out in a matter of hours as a report found workers in a factory in Leicester to be in poor condition.
	Intended IPO failure	Valued at \$47bn (Jan 2019)	\$10-12bn before pulling out of IPO (Sep 2019)		Concerns over Adam Neumann's leadership and governance of the firm (including serious conflicts of interest involving leasing buildings that he partly owned back to WeWork).

TABLE 1: Examples of unethical behaviour and the effect on share performance

1.2 STRUCTURING THE PROBLEM

At the moment there is no common definition of what makes a 'sustainable' company or what constitutes good ESG practice. This means that the manner in which ESG is explained and classified lacks clarity, which causes problems when measuring and reporting ESG.

Without clear standards, who is the ultimate judge and jury? ESG practice becomes a subjective judgement, whether on the

part of investors, consumers or firms themselves. It is evident that more work needs to be done to level the playing field around reporting, performance, and benchmarks of success across corporate and financial services participants.

Another consequence of inadequate standards and regulations is that firms lack a disincentive for bad behaviour.

1.3 REGULATION AND STANDARDS

The overall ESG regulation picture depends on where you are in the world, and indeed the direction you look. Regulatory bodies across the world are increasing their focus on ESG, but there is no coherent view.

In Europe, regulation is increasing, with new legislation and standards being issued to create a comprehensive, standardised approach across the continent¹.

In the US ESG policy making has reversed under the Trump administration. That reversal is now being reversed as President Biden begins his first term and looks to be prioritising climate change², immediately signing an executive order committing the US to rejoin the Paris Climate Agreement.

In Asia, Hong Kong has followed Europe's lead and introduced legislation targeting disclosures standardisation.

There remains however a big difference in how different countries, and indeed different continents, are treating ESG (policy and regulation). Without a movement towards some global standards, ESG disclosure will continue to be a grey area for investors and global companies.

Within the EU

new ESG frameworks and legislations, such as the disclosure and taxonomy regulation, are coming into force – and presenting a new challenge for financial services businesses as they need to become more aware of their ESG position. This means that firms may need to adjust their investing priorities and characteristics to move away from a short-term profit-taking approach and towards a more inclusive balance of metrics.

World Economic Forum (WEF)³

it was announced at the 2020 WEF that a proposal, formulated by 140 of the world's largest companies, will support efforts to establish a core set of common metrics and disclosures on non-financial factors for investors and stakeholders. This proposal aims to mainstream reporting and create a generally accepted international accounting standard.

A UN Proposition

for responsible investment encourages investors to use responsible investment⁴ to enhance returns and better manage risks (incorporating the six key principles of responsible investing). This has garnered over 3000 signatories, some of the world's leading investment managers among them.

TABLE 2: Examples of key upcoming ESG related legislation and action globally

1. <https://www.capco.com/Intelligence/Regulatory-Horizon>
2. <https://www.ft.com/content/0dd92570-a47b-11e9-974c-ad1c6ab5efd1>
3. <https://www.weforum.org/press/2020/01/measuring-stakeholder-capitalism-world-s-largest-companies-support-developing-core-set-of-universal-esg-disclosures/>
4. <https://www.unpri.org/about-the-pri>

1.4 GLOBAL HARMONISATION

Like regulations, the overall harmonisation of adherence to ESG factors varies across the world. Robeco⁵, the international asset manager, measures ESG credentials in over 150 countries and reports a similar picture to the regulatory landscape, whereby Europe leads the way in ESG practice. The scoring is based on mid-to-long term factors that have an indirect impact on a government's ability to implement economic policies to achieve

sustainable economic performance and generate sufficient revenue. The higher the score, the better the country (in terms of ESG practice). The below map highlights the palpable lack of harmonization across the globe, as countries have different standards and abilities for undertaking ESG practices.

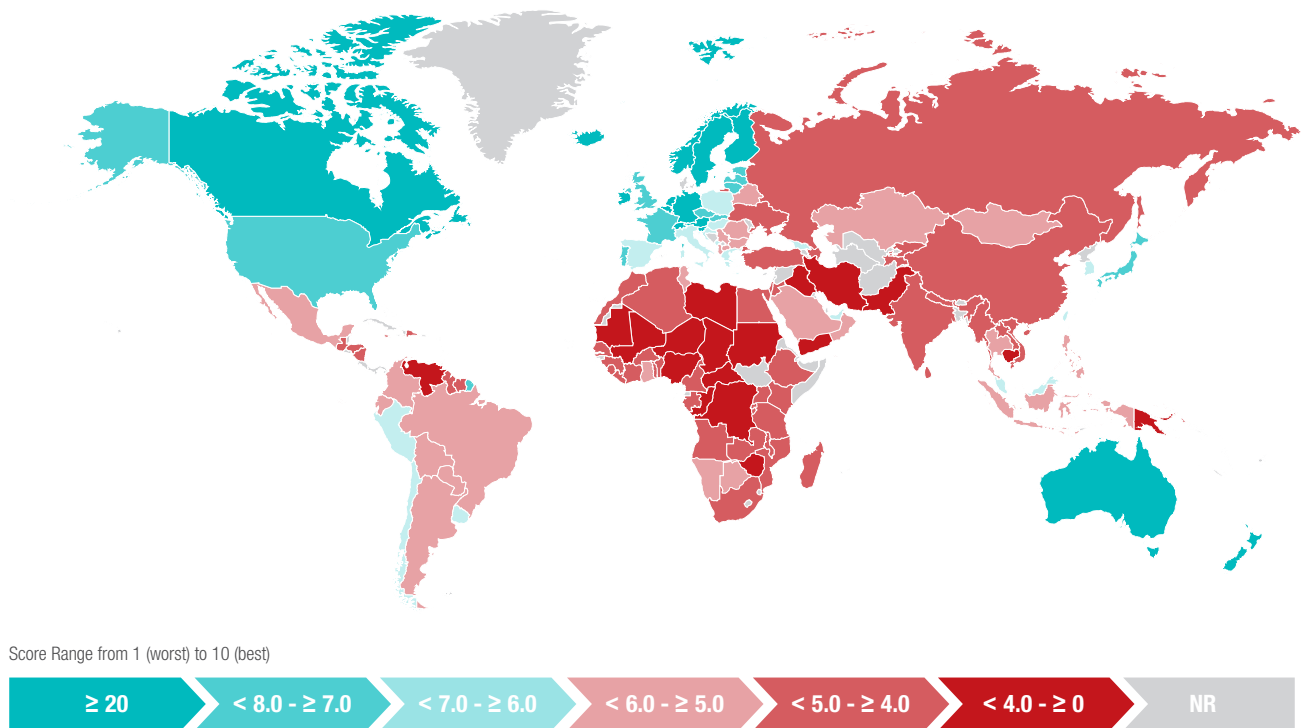


FIGURE 1 – ESG index by different country⁴

5. <https://www.robeco.com/uk/key-strengths/sustainable-investing/glossary/country-sustainability-ranking.html>

1.5 POLITICAL AGENDA

Politics and the ESG agenda are intricately interconnected. As more pressure mounts on governments to enforce social responsibility, ESG may begin to filter through to laws and regulations. In recent years, we have seen new laws such as GDPR, net-zero emissions targets and even social regulations such as the 'sugar tax' being enforced. The more obvious ESG related policy is around climate change which has moved to the forefront of many political agendas. But, like regulation, these policies differ at the national level.

This past year has brought new priorities for governments, with the COVID-19 crisis and social movements such as Black Lives Matter reshaping the political and cultural landscapes and consequently forcing governments to shift their focus.

Given their significant impact on societies around the globe, and that of other developments that link into the ESG construct, it seems inevitable they will come to inform new regulation and other legislation as it emerges in the future. With a current lack of clear guidance on ESG adoption, governments need to double down on providing clear signals and policy to provide an incentive for businesses to transition to more ESG-centric business models. Without a change in existing commercial ecosystems, there is a potential risk that financial markets and businesses may be cut off from global pools of money and liquidity. If business models and ultimately economies are not rebuilt or directed in a more sustained fashion this prediction may soon become a reality.

2. THE PROBLEM

2.1 DATA AND MEASUREMENT

Aside from harmonization, the other key problem facing the world of ESG is measurement. ESG data is often qualitative; it is non-financial and not readily metricised in monetary terms. This makes it increasingly hard for the investment market, as ESG factors are accordingly highly subjective and thus difficult to quantify. A combination of misreporting, lack of disclosure and an overall distrust of ESG related data makes it increasingly hard to judge how compliant firms are with ESG measures.

In 2016 there were 125 global ESG data providers, and according to the Global Initiative for Sustainability Ratings there are now many more. Research by Capco⁶ highlights many inconsistencies between sourcing, collation, analysis and critically interpretation between the different data providers, which means there is also no real consistency among ESG scores.

Focusing on the case of Boohoo, a UK-based fast-fashion firm, reveals the problems arising from these inconsistent standards and metrics. Boohoo was rated AA by MSCI (its second highest ranking) and reported higher than average supply-chain labour standards in the ESG ranking in June 2020. This ranking placed it amongst the top 15 percent of its peers, which attracted many ESG funds to Boohoo's portfolios.

However, an investigation by The Sunday Times⁷ found that Boohoo's staff were paid below the minimum wage and worked in terrible conditions. Yet that exceptional score meant that many sustainable funds had invested in the retailer, despite not behaving sustainably or ethically. The fact that Boohoo ended up in so many sustainable funds illustrates how inconsistent and ultimately damaging the existing investment infrastructure can be when it comes to ESG.

What does the finance industry need?

The lack of consistency highlighted in the above example is a real worry for the ESG investment market. There needs to be far greater transparency within the data. If the industry achieves transparency around ESG scoring, it will enable financial institutions to be certain that they are investing in a truly sustainable cause. Greater transparency comes through better data collection and more reliable sources. Alongside increased transparency, there needs to be a supported, recognized framework which is sponsored by the industry and regulators. The International Organization for Standardization (ISO) could be a powerful force in providing more clarity to such frameworks. For financial companies, it would be valuable for all elements of the finance chain, as they would be able to see how well they are performing and also how others are performing.

If the industry can get those factors right, it would be extremely beneficial:

- Banks could increase their focus on products that provide financing to those asset producers who follow certain sustainability or environmental standards.
- Asset managers could use real-time data, provided by potential investee companies, to assess, monitor and adjust portfolio construction to maintain visibility on green credentials – almost a proxy for an environmental stop-loss mechanism.
- Insurance companies would be free to offer discounts or rebates based on real-time emissions monitoring, be it a car, a lorry or a factory.

6. <https://www.capco.com/Intelligence/Capco-Intelligence/The-Rise-Of-ESG-And-Its-Implication-For-Firms>

7. <https://www.thetimes.co.uk/article/boohoo-fashion-giant-faces-slavery-investigation-57s3hxcth>

3. THE FUTURE OF ESG – THE ROLE OF TECHNOLOGY

In this section we explore how technology can be used to help with ESG measurement. We will look at some of the potential considerations that firms within the financial industry may take when looking to provide

more coherent ESG information in the future and how data capture, analysis, manipulation and interrogation can drive better ESG decision making.

3.1 MONITORING SENTIMENT

Advances in technology and artificial intelligence (AI) have made it easier than ever for computers to automate complex tasks at remarkable speeds. Utilizing AI and technologies such as sentiment analysis could be key for helping tackle the problem of ESG measurement, and by extension public perception. Individuals are often the greatest arbiter of ESG, and crowd wisdom can provide great insight into how a company is doing in terms of ESG goals and achievements. Sentiment analysis, which can measure the 'tone of the text' (sentiment etc) can also automate tasks that would be virtually impossible for humans. This technology can access the unstructured data which makes up around 80 percent of the world's data⁸. This unstructured data comprises conversations, emails, social media, blogs, images and videos, which are difficult to analyse using traditional tools. This represents a brilliant opportunity to utilise AI and other technology to investigate companies' sentiment using previously unavailable pools of data.

Analysts at Refinitiv have developed a new model using machine learning and natural language processing (NLP)⁹. To assess potential risks, the BERT model investigates any potential ESG controversies by assigning a probability score to each ESG controversy topic and then analysing the nuances

of the financially focused language across 715 million words in the Reuters News Archive. This demonstrates how AI and new technologies are already being used to help provide insightful information about ESG where previously meaningful measurement would have been elusive.

AI could be used to understand sentiment in the same way that banks use AI to automate Know Your Customer (KYC) processes. Financial institutions investigate new potential clients before allowing them to open a new account. They will often scan social media, the news and other online sources to ensure that the potential customer is a 'good citizen'. There is potential for firms to use the same technology and methodologies for ESG related factors. For example, a green fund manager could use AI or web scraping to investigate a potential investment and understand whether management are 'ESG responsible' before investing or adding to a sustainable fund. This way, managers can determine whether firms are sustainable through both innovative primary research and more traditional third-party secondary research, creating a more holistic view of an ESG investee.

8. <https://www.ibm.com/blogs/watson/2016/05/biggest-data-challenges-might-not-even-know/>

9. <https://www.refinitiv.com/perspectives/ai-digitalization/next-level-nlp-and-potential-esg-controversies/>

3.2 NETWORK THEORY – UNDERSTANDING ESG LINKS

We can see how public sentiment and AI can be used to drive our understanding of the external view of the firms ESG profile, be it our own firm or indeed firms within our ecosystem (investee companies, suppliers, customers etc). This approach offers great insight into how well a firm is doing, but doesn't necessarily provide great detail on the underlying driving factors. Henry Ford was quoted as saying "Half the money I spend on advertising is waste, and the problem is I do not know which half". The same can be seen in ESG factors: the subject matter is different, but the sentiment and underlying message is the same. To effect real ESG value, delivering meaningful and efficient change to a firm's stakeholders, an understanding of the drivers, metrics and what can be adjusted or changed most efficiently is key. To move from 'token' green, social or governance initiatives – so called 'band aids for bullet wounds' – we need to understand the links in our ESG ecosystem. In this area a new school of thought can be applied and considered: Graph Theory.

This discipline doesn't merely look at lists and look for correlation and statistical meaning (in a traditional sense) but moves beyond causal relationships to the links between them. Although causality is useful, it doesn't help with finding out what you don't know or should know, rather merely to understand what you currently can see. Given the vast array of factors and data that could drive ESG performance, it is fundamental to understand the links of the data; from there, better and fuller analysis and decisions can be made.

By getting to the bottom of the interlinking of datasets or nodes, we can identify key nodes and find out what in practical terms is driving our ESG profile and what we can change. A model example could be the consideration of the firm's electricity bill: many factors will affect this, but which one should you put effort into in order to reduce the carbon footprint of the firm? The below graphic shows a simple Graph Theory approach and some basic analysis.

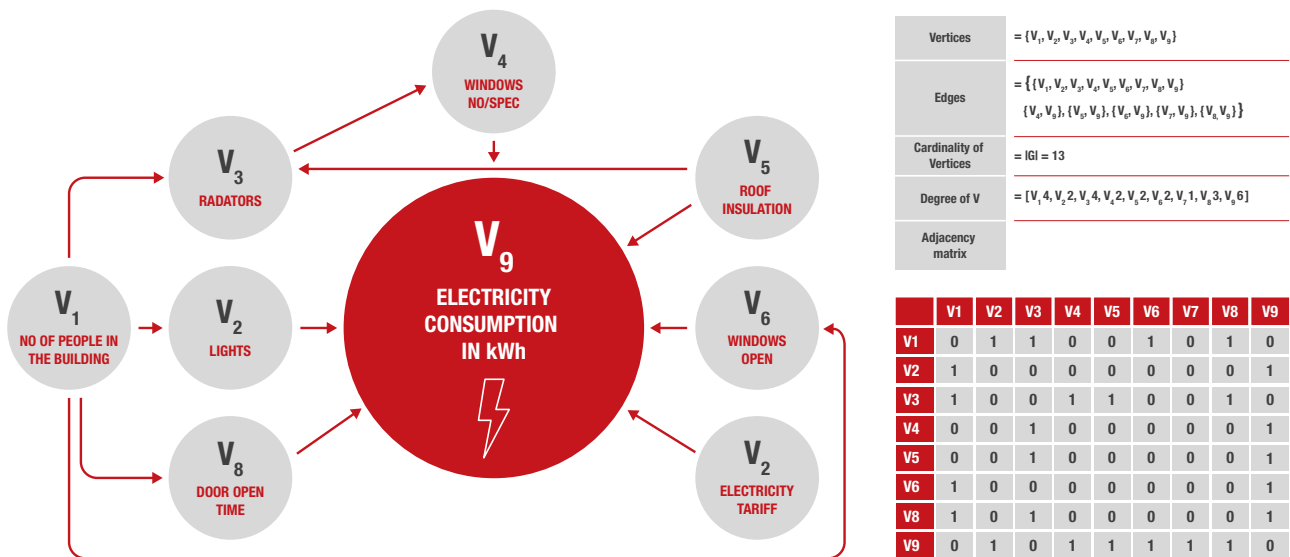


TABLE 3 – Example of a possible energy graph mapping exercise and associated tabular analysis

From this initial appraisal further deductions and work can be undertaken, recognising that the core driver of the electricity bill may indeed be affected by seemingly unrelated subjects. In the case of the electricity bill the links are fairly intuitive, but when considered in deeper detail or across wider subjects the network theory approach can surface significant insights into unsighted drivers of ESG performance.

From this point, once links are established, tools utilising technology such as API calls, blockchain or artificial intelligence can be utilised to solve for both data needs and manipulation in pursuit of understanding the fundamental drivers in an ESG related system. From an electricity bill through to global temperature increases, there is an understood relationship, whether communicated via popular culture, environmental movements, or commonly discussed science. Thirty years ago, however, that relationship was still the subject of debate. The advent of graph theory and related analyses can now be used to try and get ahead of the curve on new ESG issues and stop us having to learn the hard and slow way.

With the rise of ESG factors and considerations, financial companies are under increasing scrutiny to only provide financial products or include companies in portfolios where good ESG practice is in place. Where Graph Theory can help firms understand their own ESG profile, it can also be used to understand and predict others.

Recent research shows that a large heterogenous information network that covers necessary information can be used to predict firms that are more likely to be added to investment exclusion lists in the near future¹⁰. Using the principles of

Graph Theory, companies can use big data to build information networks that monitor firms and identify more socially responsible investments. Organisations can use data, such as negative media coverage, to predict which companies are on a similar path to other firms that have previously performed poorly, such as Enron or WeWork. The combination of data and theory can connect sequences or events in ways that are not always obvious in traditional methods.

Information networks can be utilised to help understand the ESG profile of a company through better information gathering. Similar to sentiment analysis, network theory principles can navigate through vast networks to compile true ESG profiles. For example, a researcher may utilise such technologies to understand how 'green' a company is before they consider including them in their green portfolio. The researcher can tap into the vast information network to see how the company behaves and has behaved in the past. By investigating their supply chain or past business dealings, through readily available data, the researcher can make an informed decision and predict the likelihood of the company behaving unethically in the future – and thus decide whether to include it in a portfolio.

Placed alongside traditional methods of measurement, Graph Theory principles can help provide a balanced scorecard for ESG portfolios and measurement. However, on their own Graph Theory and similar predictive disciplines only show a link – single stream analysis and tech is unlikely to solve for or provide the total ESG solution. Going forward, a combination of disciplines and technologies is likely to meet the most complex needs in pursuit of fulfilling ESG aims.

10. <https://journalofbigdata.springeropen.com/articles/10.1186/s40537-020-00295-9>

3.2 COMBINATIONS OF TECHNOLOGIES

As new technologies continue to emerge, they can be explored in combination.

Outside of finance, existing technologies such as drones are being used to help restore the world's forests¹¹. The drones work by flying across a specified area, collecting data about soil conditions and then planting in prime locations. It is estimated that these drones can plant 400,000 trees a day. This fascinating example, albeit unrelated to financial services, is a great illustration of how technologies from different industries are being combined to benefit the environment.

Another technology that could be combined with a range of others is real-time imagery. In their newest Flight Simulator video game, Microsoft have brought the game alive by incorporating real-time geographic imagery into a large computing cloud platform, which is then streamed in real-time over the internet to players' systems. The real-time imagery is live data from satellites around the globe which, combined with large-scale computing and high bandwidth data streaming, gives players a truly realistic gaming experience without the need to read data off a traditional disc.

These examples are not cited to imply that financial institutions should bring out new computer games or plant billions of trees, but rather to demonstrate that by using technologies drawn from diverse industries it is possible to benefit society and make widescale ESG reporting possible. Using the examples above, firms could combine satellite imagery, AI sentiment analysis and drones to measure the overall perception and effect of their operations on the environment in real-time.

For example, an insurer with a large call centre could use Wi-Fi or Bluetooth data from staff phones, coupled with data on their employees' car profiles from DVLA (the UK's Driver and Vehicle Licensing Agency) and via AI processing measure real-time effects of congestion on the environment when their employees leave work in the evening. However, although this is potentially a worthy combination of technologies from an environmental perspective, from a societal perspective the rights of the individual must be weighed before their adoption.

If they can accurately measure the effect and actively aim to reduce vehicle numbers by introducing car-pooling or cycle-to-work schemes, the insurer can reduce their associated carbon footprint and, critically, provide relevant and demonstrable evidence in support of those reductions. This in turn would send a positive message to the wider investor community and improve their ESG related reporting. It would be particularly useful for large oil and gas firms where the true effect of fossil fuel production can be analysed. For example, it is estimated that an NGO carbon tracker that uses satellite imagery can analyse fossil fuel plants with 90 percent accuracy¹². Technologies are not just limited to the above examples, but a combination of those mentioned could provide an even more detailed understanding of companies' emission profile, again – which is critically evidence based.

11. <https://www.standard.co.uk/news/world/treeplanting-drones-could-help-restore-world-s-forests-a4116376.html>

12. <https://carbontracker.org/reports/nowhere-to-hide/>

3.3 TOKENISATION – RATIFYING ETHICAL SUPPLY CHAINS

To truly create a standardised and coherent ESG picture across markets requires a way to share data, in real-time, across industries. One potential technology that could help combat this issue is tokenisation and wider ledger technology. Tokenisation technology enables the creation of a real-time and verifiable shared database of assets and attributes a secure code or identifier to them. Tokenisation's founding principles are centred around trust and security, and this makes it a prime candidate to help solve some of the issues around ESG measurement.

3.3.1 Impact investing

Tokenisation can help in impact investing, where investors or funds seek to generate financial return through investment in positive, measurable social and environmental projects. Blockchain related technology has given rise to a new category of applications referred to as impact tokens. These tokens might include projects such as rainforests in Brazil that are being tokenised and then traded as carbon offsets (credits).

These tokens represent a UN Sustainable Development Goal (SDG)¹³ related impact with the specific goal of unlocking investments with positive social and environmental impacts. They can be used to make performance-based payments, track impacts through supply chains, or verify claims to support SDGs. A report of over 200 projects by IISD¹⁴ (International Institute for Sustainable Development) found that impact tokens had four key benefits – they increase trust between parties, promote financial and social inclusion, improve data collection and incentivise behaviour that promotes sustainability. It was also found that token technology provided verified proof of impact for investors. This exemplifies the opportunity that

technology presents in unlocking a growing trend and one that is beneficial to society.

3.3.2 Traceability in supply chains

A key advantage that tokenisation offers over other technologies is the ability to add traceability to products and services. This is beneficial for both sides of the financial services coin. Investors can make sure that the firms they are investing in are abiding by good practice and their products are part of an ethical supply chain. For companies seeking investment, traceability provides reliable ESG information that they are behaving correctly at all levels of their supply chain – and thus likely to attract more investment if they are considered 'ethical'.

Ledger technology has been introduced into the diamond industry to facilitate best practice and greater transparency, as both shareholders and customers are motivated by sustainability. By tracking diamonds through the entire supply chain, it can be proven that they are ethically sourced. Everledger¹⁵, for example, provides a blockchain solution to facilitate diamond tracking from mine to customer, enabling easier compliance with increasingly strict measures.

Another example where ledger technology could be utilised for ESG reporting is the case of electric vehicles, currently at the forefront of automotive industry thinking. However, the most expensive elements of EV batteries is cobalt. Recent reports exposed the inhumane mining of cobalt in the Congo, where an army of 40,000 children were found working in toxic conditions¹⁶.

13. <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

14. <https://www.iisd.org/sites/default/files/publications/impact-tokens.pdf>

15. <https://www.everledger.io/making-the-commercial-case-for-blockchain-diamond-tracking/>

16. <https://www.amnesty.org/en/latest/campaigns/2016/06/drc-cobalt-child-labour/>

Blockchain could be utilised here to track and trace whether the cobalt was ethically obtained. Indeed, Volvo has already announced that it would be following this procedure¹⁷. This represents a big step towards a more virtuous supply chain and shows how organisations can use emergent technologies to improve their value chain auditing while signalling to investors that they truly care about ESG.

In financial markets, ledger technology could be used to ensure trade finance¹⁸ and supply chains are clean of any illegal activities around enforced sanctions or embargoed countries. Moreover distributed ledger technology could incorporate screening capabilities, identifying the chain of custody and creation of financial products from which the inputs were derived. Thus, when a product or service is created in a way that contravenes restrictions or comes close to becoming a sanctions issue, an alert can be triggered, staving off any potential issues before they arise. This technology can help eliminate misinformation, whilst also helping to signal to markets that companies are behaving legally and ethically, through the continuous monitoring of supply chain inputs and outputs.

The potential for tokenisation or similar DLT technologies to make an impact on ESG measurement is vast, especially around supply chain. If these solutions and technologies can be implemented across different industries and supply chains, it will inject traceability into the process and generate more trusted and real-time information. This will in turn enable rating agencies (or the wider public) to obtain better information, providing for more accurate ESG related scores, and thus superior ESG information to markets.

However, for DLT to work effectively, all players must take part and utilise the technology together. Scale adoption is therefore a key barrier and limitation currently, but greater demand for this traceable solution will drive take-up ultimately. In the meantime, the key is to find the use cases which are effective in isolation, to prove – if on a limited scale – the value of this approach, as already seen in the diamond industry.

17. <https://www.media.volvocars.com/global/en-gb/media/pressreleases/269598/volvo-cars-tech-fund-invests-in-blockchain-technology-firm-circular>

18. <https://capco.com/Intelligence/Capco-Intelligence/Unlocking-Global-Trade-Finance>

4. CONCLUSION

We have highlighted the growing importance of ESG across all aspects of the financial services world. From investors to investees, good ESG practice should be at the forefront of firms' future strategies.

Despite the current absence of global regulatory harmonisation, ESG standards are increasingly becoming a feature of public discourse, whether via supranational organisations such as the EU or through social and environmental activists with international reach such as Extinction Rebellion. All businesses and institutions are facing increased public scrutiny of their practices, suppliers and investments and the growing risk of boycotts and protests organised via social media, as well as lasting reputational damage.

The first step to addressing these issues is understanding the problem. The technologies outlined in this document can be combined to gain a greater understanding of each organisation's operating landscape. By better understanding networks such as supply chains, energy usage and employee habits, targeted interventions in response to new information or regulation will be possible – giving businesses the opportunity to approach ESG in a flexible and agile fashion.

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ABOUT CAPCO

Capco is a global technology and management consultancy dedicated to the financial services industry. Our professionals combine innovative thinking with unrivalled industry knowledge to offer our clients consulting expertise, complex technology and package integration, transformation delivery, and managed services, to move their organizations forward.

Through our collaborative and efficient approach, we help our clients successfully innovate, increase revenue, manage risk and regulatory change, reduce costs, and enhance controls. We specialize primarily in banking, capital markets, wealth and asset management and insurance. We also have an energy consulting practice in the US. We serve our clients from offices in leading financial centers across the Americas, Europe, and Asia Pacific.

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