TECH-DRIVEN ESG PRACTICES

by nonfinancial firms and digital ratings and metrics agencies

Submission to the G20 Sustainable Finance Working Group (SFWG)

FC4S
FINANCIAL CENTRES FOR SUSTAINABILITY

IN PARTNERSHIP WITH

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About the International Network of Financial Centres for Sustainability (FC4S Network)

Established in early 2018, the Financial Centres for Sustainability (FC4S) Network is a collective of 36 financial centres working together to achieve the objectives set by the 2030 Agenda and the Paris Agreement. FC4S was born out of Italy's G7 Presidency in 2017, where green finance was a central theme, including the catalytic question: *"How can Financial Centres contribute to the delivery of the Sustainable Development Goals and the Paris Agreement on climate change?"* Initially established by the UNEP Inquiry as a nascent partnership initiative, FC4S is now hosted by the UNDP. As of May 2021, the 36 FC4S members include Abidjan, Abu Dhabi, Barcelona, Beijing, Busan, Cairo, Casablanca, Dublin, Frankfurt, Geneva, Guernsey, Hong Kong, Kigali, Lagos, Liechtenstein, Lisbon, London, Luxembourg, Madrid, Malaysia, Mexico City, Milan, Montreal, Mongolia, Nairobi, New York, Nur-Sultan, Paris, Rio de Janeiro, Seoul, Shanghai, Shenzhen, Stockholm, Tokyo, Toronto, and Zurich. It is estimated the network represents 80% of the global equity market and US$76.4 trillion equity market capitalisation. The global scale of the collective's vision is best represented by the regional variety of members, who all believe in driving convergence, exchanging experiences, and acting on shared priorities to accelerate the expansion of green and sustainable finance.

About the Green Digital Finance Alliance

The Green Digital Finance Alliance is a unique public private partnership co-founded by UN Environment and ANT Financial Services launched in Davos in 2017 to leverage digital technologies and innovations to enhance financing for sustainable development. The GDFA catalyses market innovation and policy action that leverages digital finance to, on the one hand, address the barriers to scaling sustainable finance and, on the other hand, promote innovation that un- locks sustainable investments in the real economy.

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FC4S members partook in a survey designed to support the development of this report. Representing a broad geographical base, they include Abidjan, Abu Dhabi, Casablanca, Dublin, Frankfurt, Geneva, Lagos, Luxemburg, Liechtenstein, Montréal, Paris, Rio de Janeiro, Stockholm, Tokyo, and Zurich. The following institutions also participated in one-on-one Interviews providing insights: Banco de España, Monetary Authority of Singapore (MAS), Bank New York Mellon, Datia App and Global AI.

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Introduction

Computer driven assessment of financial data and human-led assessment of non-financial information are two preponderant trends in financial and capital markets. Machine learning, Big Data and Artificial Intelligence (AI) play fundamental roles in the financial system. Fully automated wealth management services and algorithmic trading, for instance, are used to optimize financial decisions. The challenge of deploying digital technology for Environmental, Social and Governance (ESG) disclosure relates to the characteristics of the underlying data, which when compared with traditional financial accounting data is non-standard and incomplete. Most ESG risks tend to be under-disclosed, non-standardized, and inconsistent which significantly limits the ability for automated ESG disclosure.

Tech-driven alternative ESG ratings are becoming increasingly influential, enabled by advances in artificial intelligence (AI) and machine learning deployed to collect (or 'scrape') and analyze unstructured data from internet sources. These ratings help investors address the problem of low comparability of company ESG performance using self-disclosed data. However, that is only possible if an investor uses only one ESG rating provider, because design of rating algorithms varies among providers, resulting in low correlation between ratings. Global standards for integration of financial accounting and sustainability-related disclosure, coupled with requirements to use machine-readable disclosure formats (e.g., XBRL), would enable greater standardization of the design of rating algorithms and make it easier to audit and verify the quality of the underlying data leveraged.

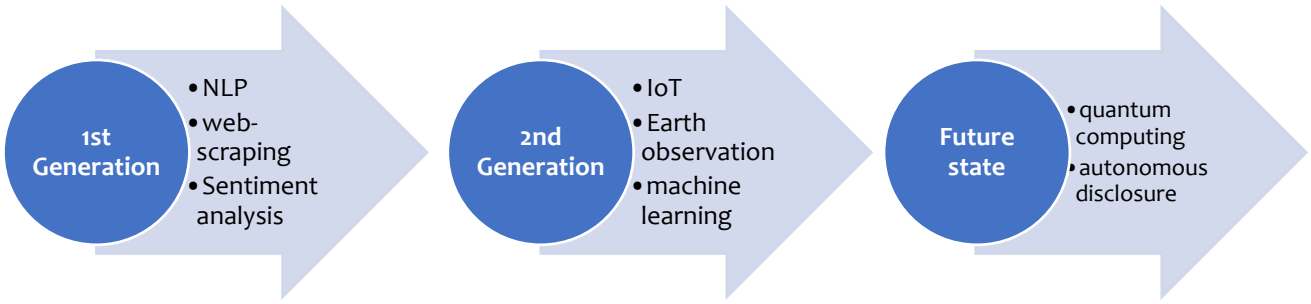
Declining technology costs, increased precision and regulatory shifts are currently driving a gradual change in technology deployment by both companies and third party ESG metrics and rating providers. It is a shift from mainly deploying AI for automated textual analysis of manually collected or web-scraped data towards layering new and additional asset level data using Internet of Things (IoT). This is enabled by both declining costs of cloud-based web platforms aggregating data from company assets via sensors and IoT devices and increasing availability of data collection tools based on satellites, aerial sensors, and other monitoring devices. It is an emerging paradigm shift which is happening at different speed across jurisdictions and with some IoT technologies holding greater promise to the purpose of improved disclosure. The paper will offer suggestions of how the G20 Sustainable Finance Sustainable Group (SFSG) can leverage this paradigm shift and as well as the role of regulation.

This paper takes stock of:

1) Corporate level practices of technology deployment to improve climate and nature risk disclosure.
2) Current practices of third party ESG metrics and rating providers for the financial sector.
3) Financial centre-level perspectives and practices in a digital shift to ESG.
4) Emerging recommendations.

A Paradigm shift on the horizon

Corporates and third party ESG metrics and rating agencies are on the verge of a digital paradigm shift, which is defined by a progression from a first generation to a second-generation technology mix for data harvesting and disclosure. First-generation tech-enabled solutions leveraged by ESG metrics and rating providers are mainly based on the Natural Language Processing (NLP) capabilities of AI for automated textual analysis of reports and web-scraping for sentiment data about companies, where algorithms are designed and trained to select specific keywords and categorise these to automatically analyse texts. It is not machine learning where the algorithms themselves progressively learn to detect new links between data points but rather where they pick up word based on pre-defined rules. For nonfinancial companies first generation technology mix is mainly manually collected data and data based on estimates using national statistical data inputs analyzed by software.



New disclosure regulatory requirements, increased availability of open-source data repositories, lower costs of incorporating intelligent chips into assets and 5G network roll-out in some jurisdictions opens for IoT deployment. As a result, a second-generation of digital solutions for disclosures and ESG automated metrics and rating is starting to emerge. The biggest difference is that it integrates machine harvested asset level data and Earth Observed data sets in addition to textual analysis. Future state of disclosures is fully automated reporting leveraging the increased computation and calculation powers of quantum computing to aggregate and analyze data from connected assets.

1) State of Corporate level tech-enables disclosure practices

Companies have made most progress with tech-driven practices for environmental and climate-related disclosure, while digital approaches for monitoring social and governance factors lag.

Climate and Environment. Corporate disclosure of environmental and climate-related information has improved in recent years. In addition to leveraging country level statistics to calculate carbon emissions of value chains, companies are starting to use the Internet of Things (IoT) for collecting data which they disclose. For instance, by automatically harvesting energy data either through own energy management cloud-based software or through a service provider. This shift has been happening mainly in regions with smart metering regulation (e.g., the EU), which enables companies to automatically harvest data on the energy consumption of their own operations (scope 1).

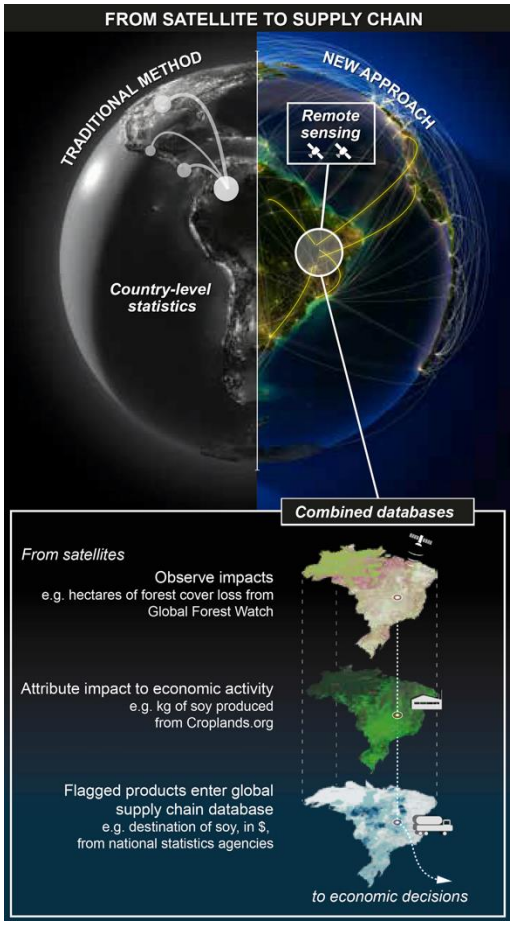


Figure 1 Connection of earth observation data from supply chains with country overall data. From "Satellites to Supply chains: New approaches connect Earth observation to Economic decisions" (2020)

Although this enables automatic calculation of energy efficiency scores, this does not equal carbon emissions. To translate energy scores into carbon emissions a company needs access to data on the exact energy mix of its energy consumption (scope 2). Some data platforms do offer real-time data on the energy source of a specific address, whether clean or fossil fuel based. For instance, companies have been using the electricity map platform, in combination with their energy consumption data, to measure the carbon footprint of their energy usage. This automated calculation requires real-time energy mix data, as energy may be clean during the day, but fossil fuel based in the evening. In the same way, vehicle tracking technologies are used to collect information, including fuel usage and distance travelled, from each vehicle's engine's computer. This information is used by companies to run data analyses and measure the carbon footprint of the use of vehicles. Smart Water Meters also allows companies to automatically harvest data on water use and water efficiency.

Moreover, companies are also starting to leverage earth observation technologies to access disclosure data. High resolution satellite monitoring from space is being deployed to obtain emissions data from facilities in supply chains, to monitor deforestation risks from suppliers as well as to assess physical climate risks. These new types of spatial data sets are processed using machine-learning techniques, layered, and are jointly analyzed with existing national statistics databases.

Nature related disclosures. Regarding data for disclosure of nature-related risks, 70% of a recent sample of 324 investors from 35 countries (53% asset owners and 47% asset managers) believe a lack of available data is a key barrier to making investments that support biodiversity[i]. Moreover, companies tend to under-report nature-related risks. The most mature part of disclosure relates to deforestation risk, where a small group of leading large companies have made timebound commitments to achieve deforestation-free supply chains. Many of these companies[ii] have realised

that certification does not guarantee a deforestation-free supply chain. Hence, they have turned to deploy technology to geolocalise suppliers in the most remote parts of their supply chains (tier 2 and 3 suppliers) and overlay this information with satellite data to monitor deforestation risks. Other corporates have been incentivised by investor pressure to adopt technology to track deforestation risks of first mile suppliers (i.e., suppliers from where the land conversion exposure is highest in the actual production of the soft commodity such as soy). Deployment of digital technology to monitor and disclose nature related risks is most mature for deforestation risks because satellite images are available via government funded open-source image repositories, which can be deployed for AI to automatically monitor changes in forest cover linked to a specific supplier. Deployment of digital technology to monitor and disclose other nature related risks, such as ocean plastic leakages in supply chains, are currently much less mature.

Corporate pathways to the paradigm shift

IoT can apply across a broad spectrum of sectors but for automated asset level reporting the technology is most advanced for real-estate, agriculture, transport, and utilities. IoT adoption is also progressing in manufacturing. To support further adoption policy makers will first and foremost need to ensure the underlying technology and infrastructure is available and accessible. The overwhelming majority of IoT connections are likely to require some form of wireless connectivity in the last mile, whether directly from terminal devices themselves or from aggregation hubs. In addition, regulators can issue regulation requiring shift to remote reading capabilities from assets such as smart meter regulation.

Turning to Earth Observation (EO) data then publicly funded earth observation data repositories are being leveraged by companies to shift into digital enabled disclosures on nature related risks and physical climate risks, which is most mature in the utility, extractive, and real-estate sectors. For nature related risk disclosure these data sets are mostly used by the agricultural sector for deforestation risk disclosure. There is a need to enable similar earth observation data for risk disclosures related to the oceans, as it constitutes a larger carbon sink than forests. It is easier for companies to leverage satellites to automatically capture deforestation risks than ocean-based risks such as plastic leakages from supply chains. Policy makers can enable access to high resolution (size of each pixel in the image) and spectral range (visible and non-visible light) satellite images to support a similar shift for ocean risks disclosures based on earth observation data.

2) State of tech driven ESG metrics and company ratings

Tech-driven ESG ratings are becoming increasingly influential because they offer financial service institutions the ability to compare ESG performance of companies, which is currently difficult due to the low degree of ESG reporting standardization.

Third party ESG metrics and rating agencies leverage technology to harvest three data layers which are translated into company ESG ratings. In the first place, these include sentiment data about

companies, where web-scraping technology is used to identify red flags and analyze media coverage and social media discussions about companies. Secondly, data about company behaviors available in public databases, including open-source environmental fine databases, is automatically collected. Thirdly, automated textual analysis of company disclosure reports is undertaken by algorithms. These data sets are harvested with high frequency to create automated company ESG scores.

Digital technologies deployed include the Natural Language Processing (NLP) capabilities of AI for automated textual analysis of reports and web-scraping for sentiment data about companies. Tn this case, algorithms are designed to select specific keywords and categorize them to automatically analyze texts. It is not machine learning where the algorithms themselves progressively lean to detect new links between data points rather in NLP algorithms pick up words based on pre-defined rules. For automated verification, the solutions would need to go further than leveraging the NLP capabilities of AI to use machine learning techniques. In this case, the machine is trained to enter databases with verification capabilities, such as satellite image repositories used to verify a deforestation risk claim found in a mention on social media.

Tech-enabled carbon accounting for SME disclosures

Limited SME ESG reporting has given rise to the demand for SME ESG data, opening space for digital solutions. SMEs have access to use software solutions based on manual inputs into a web-interface for generating content for ESG disclosures. Answers to questions are automatically compared to industry benchmarks and thereby given a score.

Most mature supply is emerging for SME carbon accounting[iii]. The first generation of these software tools was based on SME own data inputs. Examples include the French carbon footprint calculators for small businesses and the online carbon calculator. New solutions are emerging to further automate SME carbon footprint calculations eliminating the need for manual data entry. These solutions operate via open banking infrastructure: algorithms directly access SME expenditure data from banks via the so-called Application Programming Interfaces (APIs), then classify every purchase to a sector based on supplier codes and finally automatically ascribe a carbon footprint based on the size of the purchase and emission sector averages.

Nature metrics and rating practices

The market response to the general under-reporting of nature-related risks by corporates has been emergence of corporate and portfolio nature metrics by ESG analytics providers to respond to investor demands. Six metrics have emerged with corresponding methodologies offered by third party providers for FIs to understand nature risks of companies. These tools deploy digital technology mainly as software for conversion of input data drawn from corporate reports and from global input-output data bases with trade flow data (mainly EXIOBASE and Ecoinvent). The data sets in databases are mainly harvested from international trade statistics. However, several developing countries are not part of these databases such as the entire African continent.

Third party metrics and ratings providers pathways to the paradigm shift

If asset geolocation data was available, it could be overlayed with key upstream biodiversity data sets (e.g., the more than 250 biodiversity databases currently available) by ESG data providers to innovate new data products and services allowing companies and FIs to take biodiversity material risks into account in disclosures. This would enable a shift in the ESG data market from current reliance on proxies, sentiment data or sector averages, to calculate more accurate specific biodiversity risk metrics, where the input data is actual geolocated biodiversity risks, dependencies, and impacts. Disclosure of asset geolocation is linked to new types of risks, including new liabilities linked to sharing sensitive data, and new market risks associated with disclosing information to competitors about strategy and market position. Policy makers can therefore work on new types of data disclosure models where companies disclose geolocation on new types of data platforms, where asset geolocation data is only open to already validated investors and regulators, but not available on open-source platforms.

Emerging country practice landscape

Several nations have started to strategically work on their digital data infrastructure to scale digital ESG capabilities of both companies and third-party metrics and rating agencies. Below is a non-exhaustive list of emerging practices.

United Kingdom - Spatial Finance and the Catapult Satellite: The UK has strategically worked with addressing the data gap for physical climate risk assessment through spatial finance, which is the deployment of earth observation data to help green financial decision making. More specifically the UK has focused on making asset geolocation data available to enable climate physical risks assessment by financial institutions. The Spatial finance initiative was initiated by University of Oxford and the Smith School with a focus on developing repositories of physical asset geolocation and overlaying this with satellite data to enable financial decision making to consider an assessment of climate physical risk. Early 2021, the UK announced to take this a step further via an investment of £10 million in a new national green finance research centre that will advise lenders, investors, and insurers, enabling them to make environmentally sustainable decisions, and support a greener global economy.

Mexico – Stock Exchange: The Mexican Stock Exchanges (BMV and BIVA) have an ESG disclosure project which was originally intended to help the listed companies consolidate all their sustainability disclosures and tend to the different purposes the data is for (rating agencies, investor surveys, etc.). The idea is to create a system where companies can upload all their ESG data, and then this data can be fed to the different users. In principle, the use of this system would not be mandatory. Even without regulation behind it, the system would make it transparent to investors which companies are producing the data and which companies are not. It will create an important incentive for companies to make sure they are at least in line with their peers' reporting strategies.

Norway - Open Ocean Data Platform and the WEF C4IR Centre: In 2020 WEF and the Aker Group in Norway established the Centre for the Fourth Revolution Norway (C4IR Norway) dedicated to harnessing digital innovation for a sustainable ocean economy. The C4IR collaborate with the Government of Norway and the High-Level Panel for a Sustainable Ocean Economy. A strategic element of the C4IR in Norway is the Open Ocean Data Platform, which seeks to address the current data gap in marine ecosystems. The Open Ocean Data Platform is not established with finance as the specific use case, but it is a data platform with the potential to be leveraged both by corporates for disclosure and by finance for ocean risk assessment. Even though oceans constitute the world's largest eco-systems with large carbon storage capacity and rich biodiversity, their data foundation is much less mature than for land-based eco-system risks. For finance and corporates to account for ocean material risks, dependencies and impacts data needs to be made more readily available.

Switzerland – Draft Green Fintech Strategy and environmental data eco-system: Switzerland aims to become a global hub for green digital finance. As the first ever country Switzerland launched a green fintech action plan early April 2021[iv]. It identifies five concrete group of actions for Switzerland to improve framework conditions for green digital finance, whereof one is to foster access to data. The draft strategy identifies the need to establish an international Sustainability Data Platform. If established by market participants it could provide benefits not just to green fintechs, but also to data providers and financial institutions. Such a platform would cover data from ESG data providers, company sustainability disclosures and geospatial data, such as data from satellites. Given the complexity of establishing such a platform, the initial action is to convene interested market participants to jointly prepare a feasibility analysis, including scoping the universe of data sets and examining must-have features for the platform to serve green fintechs and other users optimally.

China – Blue Map app China is a country with many sensors generated climate and environmental data sets harvested at facility levels as well as emissions data sets harvested by satellites. Data infrastructure has been developed as part of the war against pollution rather than for green finance use. The gradual opening of Chinese capital and financial market and the building of wealth management departments in Chinese FI's as well as the increasing number of Chinese FI supporting the TCFD, means that this data is increasingly experiencing a re-purposing to the use case of green finance. It has developed environmental credit scores for deployment by finance. One example is the Blue Map app by IPE, which automatically analyses more than 2 million emission data a day and layers it with additional datasets to generate ESG company scores.

Japan – Green bond digital data platform: Japan has launched a Green Bond Issuance Promotion Platform as a step to leverage digital technology to make it easier for stakeholders to tap into the market. In addition, the Japanese Ministry of the Environment provides subsidies for expenses required by those who support companies, municipalities, and other bodies that work to issue Green Bonds, in the form of issuance support (granting external reviews, consultation on establishing a Green Bond framework, etc.). The aim is to maintain credibility in the environmental effects of Green Bonds and to reduce the issuer's transaction costs.

Italy and BIS – Acceleration tech sprint: Under the Italian G20 Presidency, Banca d'Italia and the Bank for International Settlements (BIS) Innovation Hub have launched the international G20 TechSprint 2021 competition to highlight the potential of new technologies to resolve some of the most pressing challenges in green and sustainable finance. Banca d'Italia and the BIS Innovation Hub, together with submissions from G20 finance ministries and central banks, have identified three high-priority operational problems, which are 1) Data collection, verification, and sharing 2) Analysis and assessment of transition and physical climate-related risks 3) Better connecting projects and investors.

Spain – Automated TCFD index: Several central banks and ESG data providers have designed algorithms for automated indexing companies' TCFD disclosure based on the four pillars of the framework and its 11 indicators. For instance, the Central Bank of Spain have designed an algorithm for market research purposes. The workflow and design of the algorithm is displayed below.

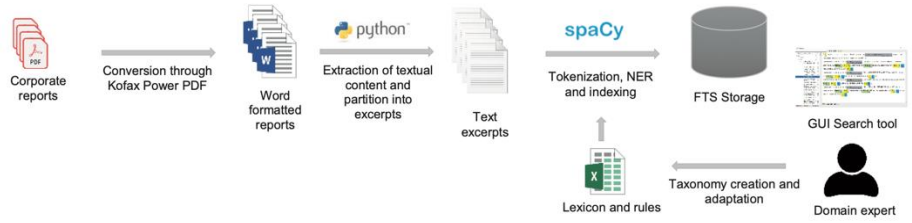
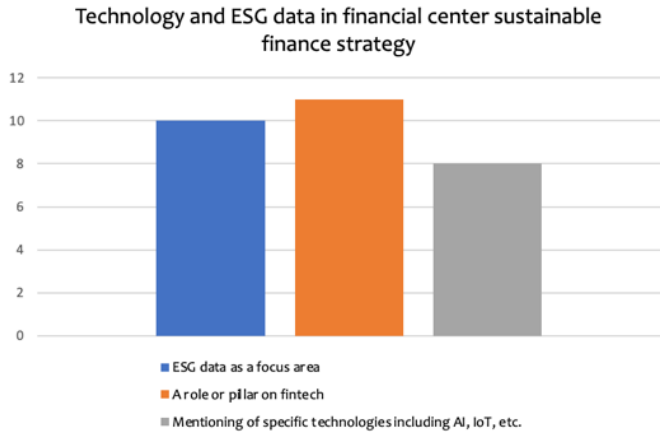


Figure 2 Design of AI supervised TCFD indexing of financial service institutions developed by Central Bank of Spain

The index leverages text mining to give an overview of the evolution of the level of climate-related financial disclosures present in the corporate reports of the Spanish banking sector.

3) Financial Centres for Sustainability (FC4S) perspectives and practices

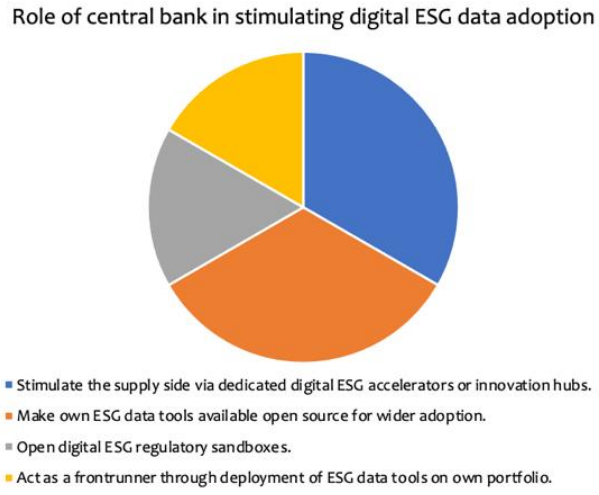
As an input into this paper a survey has been conducted with 15 global financial centres. These include Abidjan, Abu Dhabi, Casablanca, Dublin, Frankfurt, Geneva, Lagos, Luxemburg, Liechtenstein, Montréal, Paris, Rio de Janeiro, Stockholm, Tokyo, and Zurich. All but one of the surveyed financial centres have a sustainable finance strategy, with 71 percent including a dedicated pillar on ESG and 79 percent also include a specific focus on fintech. 57 percent of the financial centres sustainable finance strategies mention specific technologies like AI, IoT, etc.



Regarding financial centres perception of the most material ESG-data theme to address through tech-enabled approaches, climate risk data prevailed as top topic (selected by 64%). Nature risk data, human rights data and governance data followed on importance.

In addition, the survey found that the perceived most impactful roles of central banks in stimulating digital ESG data adoption include both central bank initiated and managed digital ESG accelerators and innovation hubs, and central banks making their own digital ESG tools open source to facilitate their wider adoption. Also, when asked about policymakers and regulators role to accelerate the adoption of digital ESG data, the majority highlighted their ability to "Stimulate the demand side via introduce or strengthening of ESG regulatory disclosure requirements", followed by "Stimulate supply by making public data available to ESG data innovators and FIs open source" and "Stimulate access to capital for ESG digital data innovators via public venture fund or credit schemes with preferential interest rates (incentive subsidies)."

Concerning asset classes, most of the surveyed financial centres (43%) find the biggest ESG data gap to be SMEs. Most financial centres ranked their ESG data gaps (in decreasing importance) as follows: Real Estate funds, Listed funds (ETFs), fixed income instruments and listed equity. Regarding financial sector actors, asset managers and banks are perceived to experience larger data gaps relative to asset owners, stock exchanges and financial advisory firms.



Finally, in the sampled financial centres the greatest barriers for adoption of tech enabled ESG solutions are mainly lack of ESG data itself, followed by lack of skilled ESG and digital professionals and lack of regulatory requirements for ESG disclosures. Less important barriers include lack of data automation available in the financial centre and insufficient degree of digitalization in the financial sector.

These findings reaffirm broader existing evidence from a FC4S late 2020 member assessment process, and compiled in the January 2021 "Shifting Gears II" report.[v] This assessment covered 24 financial centres globally, and highlighted that both data quality and availability are persistent challenges faced by most financial centres and generally by every type of financial industry stakeholder. Issues regarding data inaccessibility, unreliability, incompleteness, non-comparability, as well as lack of necessary skills or analytical capabilities are currently hindering progress in mainstreaming sustainable finance globally.

4) Emerging recommendations

The following are emerging priority actions to support the adoption of the new data sources for improved disclosure.

Recommendation # 1: Encourage integrated sustainability-related disclosures with financial accounting in machine readable formats.

The current reliance on the NLP capabilities of AI for automated textual analysis and sentiment data to generate automated ESG company ratings without verification of the data chain expose the market to risks of greenwashing. Regulations requiring disclosure data to quantify real contribution to quantitative targets will further stimulate a shift towards harvesting of asset level quantitative data for aggregation using cloud-based software, which will improve the data quality and accuracy of disclosures. In addition, standardized integration of these sustainability-related disclosures with financial accounting made available in machine readable formats (e.g., XBAL) would enable more - both companies and third party ESG metrics and rating providers - to add machine learning approaches into their technology mix.

Machine learning, unlike NLP, adds a cognitive layer in AI with the ability to progressively learn to make new links between data points. If quantitative standardized disclosure data is integrated with financial account data machine learning algorithms can be trained to analyze these data sets while linking them to data from the real economy, such as earth operation data sets in open databases. Thereby machine learning algorithms can automatically link disclosed risks to databases with large amounts of data from the real economy (e.g., satellite images) and to market price databases to automatically determine materiality based on real economy, self-reported and market price data. This can improve the deployment of digital technology for verification of disclosed data as well as to enable dynamic materiality assessment for risk management.

Recommendation # 2: Facilitate new digital enabled way to disclose asset geolocation data.

Data on asset geolocation holds the key to unlock the ability of ESG data providers to deploy the vast amounts of biodiversity and climate data available in open-source data registries for improved metrics and company ratings. Disclosure of asset geolocation is linked to new types of risks, including new liabilities linked to sharing sensitive data, and new market risks associated with disclosing information to competitors about strategy and market position. Policy makers can therefore work on new types of data disclosure models where companies are able to disclose geolocation on new types of data platforms, where asset geolocation data is only open to already validated investors and regulators, but not available on open-source platforms. It could start with the most material sectors for e.g., nature risks such as agriculture.

Recommendation # 3: Enable intelligent asset level reporting via IoT through regulation and infrastructure.

To support further adoption policy makers will first and foremost need to ensure the underlying technology and infrastructure is available and accessible. The overwhelming majority of IoT connections are likely to require some form of wireless connectivity in the last mile, whether directly from terminal devices themselves or from aggregation hubs. In addition, regulators can issue regulation requiring shift to remote reading capabilities from assets such as smart meter regulation.

Recommendation # 4: Improve the data foundation of global databases to include all geographies.

The emerging metrics offered by third party providers for financial institutions on company nature risk ratings are based on two main types of databases called EXIOBASE and Ecoinvent. Several developing countries are not part of these databases such as the entire African continent. That means nature risks arising from country operations in these countries are highly inaccurate and based on proxy data. Policy makers can support the improvement of this underlying data infrastructure to accurately reflect all jurisdictions.

Dedicated programme of work

Building on this initial scoping paper, the Financial Centres for Sustainability (FC4S) network will shortly launch a workstream focused on strengthening the capacity of FC4S members to strategically integrate sustainable digital finance into their work. A 12-month programme, this workstream is being developed in partnership with the Green Digital Finance Alliance (GDFA).

In advance of the programme launch, members are engaged in a mapping exercise that will draw out their specific needs in terms of sustainable finance digital knowledge, skills, and products. This will inform the development of the programme and potentially also for each member in terms of their specific individual capacity building needs in sustainable digital finance. The mapping exercise will be complemented by the FC4S annual members financial centre assessment program, which includes specific questions on members sustainable finance digital activities and challenges.

Based on the mapping and survey outcomes the key elements of a joint FC4S and GDFA sustainable finance digital workstream will be identified with a programme of work developed, including specific pathways to scale this agenda for each jurisdiction and at regional levels.

References

[i] (2021) Unearthing Investor Action on Biodiversity. Credit Suisse, IUCN, ZSL and The Nature Conservancy. file:///Users/mariannehaahr/Downloads/unearthing-investor-action-on-biodiversity%20(1).pdf

[ii] Unilever is one example of a company leveraging a mix of digital technologies to monitor deforestation risks in their supply chain. In 2020 they became the first company to use Google Erath Engine for commercial sustainable sourcing and a pioneer to use geolocation technology to trace the palm oil supply chain.

[iii] Including the ACT framework developed by ADEME in France and PCAF in the Netherlands may also become applicable to SMEs.

[iv] Green fintech Action Plan Switzerland: https://backend.finance.swiss/download/26/2021_Green_Fintech_Action_Plan_final.pdf

[v] (2021) Shifting Gears II: Financial centres set the stage for sustainable finance's exponential growth in the next decade. FC4S Network. https://www.fc4s.org/viewpdf.php?pdf_file=wp-content/uploads/2021/01/Shifting-Gears-II_FC4S-Public-Report_2021.01.20.pdf