IFC Workshop on "Addressing climate change data needs: the global debate and central banks' contribution"

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Introducing the work programme of the BIS Innovation Hub Singapore Centre on green finance and climate risk data[1]

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[1] This contribution was prepared for the workshop. The views expressed are those of the authors and do not necessarily reflect the views of the Central Bank of the Republic of Türkiye, the BIS, the IFC or the other central banks and institutions represented at the event.

Introducing the work programme of the BIS Innovation Hub Singapore Centre on green finance and climate risk data

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Abstract

Central banks and financial authorities have an important role to play in alleviating the implications of climate risks on the financial system. They need to carefully monitor and mitigate climate risks and must make sure that they get the adequate and reliable data they need to do so. However, climate change and its impacts are complex, and central banks and financial authorities have only just started building the foundations for working with climate risk data, bridging data gaps and experimenting with suptech tools to visualise data for predicting and forecasting. In response to these challenges, the Bank for International Settlements Innovation Hub (BISIH) Singapore Centre has built collaboration on green finance and climate risk data into its work programme since the centre was established in 2019. In this paper, we describe our climate risk- and data-related work by introducing our work programme and by explaining how we collaborate with our partners. We highlight how we teamed up with the Monetary Authority of Singapore (MAS) to lay the foundations for working with climate risk data in Projects Ellipse and Viridis. Then, we describe how we have worked together with the Network for Greening the Financial System (NGFS), the MAS and Banque de France (BdF) to bridge data gaps by offering a data directory (Project NGFS DD 2.0). We also provide information on how the BISIH Singapore Centre facilitates a collaboration community to work on climate risks topics, such as the digital twin use case of the De Nederlandsche Bank (DNB).

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1. Introduction

Relative to other risks facing financial services, climate risk is relatively new, but it has received more and more attention over the last few years (Grippa et al (2019), Huang et al (2018)). It is worth noting that the concept of risk due to weather or seasons is not new, and hedging against weather patterns, namely through weather derivatives and insurance, has been a common practice in financial institutions for a long time. In fact, it started in 1997 when the first transaction in weather derivatives took place (Perez-Gonzalez and Yun (2013)). However, this approach is only short-term and transactional in nature. It involves a payout from the seller of the derivative to the buyer if adverse weather has affected the buyer's output; for example, and quite simplistically, weather causing damage to crops or flooding closing down a factory. In contrast to these short-term perspectives, dealing with climate risks is much more complex and long-term in nature. Climate change has the potential to cause structural change and its impact goes beyond one organisation to affect society as a whole. This is a key reason why the topic is on government agendas and a universal, coordinated approach is required (Grisey (2022)).

One of the issues facing a universal and coordinated approach is the lack of data, the lack of consistency in approaching how to assess and measure risks, and the retrospective rather than future-looking data that are considered when assessing climate risks (Schmieder and Tissot (2022)). These are issues that supervisors and regulatory authorities face now that most of them have an added responsibility to assess climate risk in discharging their supervisory duties. In response to these challenges, the BISIH Singapore Centre has built collaboration on green finance and climate risk data into its work programme since the centre was established in 2019 (BIS 2019b). In this paper, we describe this climate risk- and data-related work. In Section 2, we introduce the work programme of the BISIH Singapore Centre and explain how we collaborate with our partners to address climate risk. In Section 3, we explain how the MAS, the BISIH Singapore Centre and others teamed up to lay the foundations for working with climate risk data in Projects Ellipse and Viridis. Then, we explain how the NGFS, the MAS, the BdF and the BISIH Singapore Centre have started to bridge data gaps by offering a data directory (with Project NGFS DD 2.0). In Section 4, we provide information on how the BISIH Singapore Centre facilitates the Ellipse Data and Knowledge Platform (EDKP) collaboration community to work on climate risk topics such as the digital twin use case of the

DNB. This collaboration community offers horizon scanning for future projects that might be added to the BISIH Singapore Centre's future work programme. We conclude in Section 5 by offering an outlook on the work programme of the BISIH Singapore Centre on green finance and climate risk data.

2. Work programme of the BISIH Singapore Centre on green finance and climate risk data

The BISIH Singapore Centre is part of the BIS Innovation Hub, a growing network of BISIH Centres around the world (BIS (2019a)). The BISIH aims to foster innovation and collaboration amongst central banks and financial authorities. Its work is structured around six core themes:

i. suptech, regtech and monetary policy tech
ii. next-generation FMIs
iii. central bank digital currency
iv. open finance
v. cyber security
vi. green finance (BIS (2024a))

As regards the latter, the BISIH is particularly interested in climate risk data, green bonds/loans/listed equity, sustainability-linked products, standardisation of ESG (environmental, social and governance) disclosures, measurement of environmental liabilities and impact, stress testing of portfolios and exposures, and carbon trading (BIS (2021)).

Over the last years, the BISIH Singapore Centre's work programme in the green finance space has focused on climate risk data by running three projects (Ellipse, Viridis and NGFS DD 2.0) and by facilitating the EDKP collaboration community to foster exchange on current topics such as climate risk data. When the BISIH Singapore Centre started its work in 2019, the transformational shift in the volume, velocity and variety of data had already been ongoing for quite some time (Borio (2011)). However, even today banking supervisors still rely heavily on template-based data, which are often outdated and difficult to compare. Therefore, the MAS and the BISIH Singapore Centre launched Project Ellipse (BIS (2022)), supported by the Bank of England, the International Swaps and Derivatives Association, Financial Network Analytics and Accenture. The objective of Project Ellipse was to enable supervisors to become more forward-looking by using technology solutions to work with granular data and to combine structured and unstructured sources of data. Supported by advanced analytics, the EDKP platform offers

early warning indicators, analytics and prudential metrics. Next, the MAS and the BISIH Singapore Centre took into account the challenges of climate risk and launched Project Viridis (Wright and Nyberg (2017), von Kalckreuth (2022), BIS (2024b)). Project Viridis has been built on the platform from Project Ellipse and has climate risk data integrated into it. These data were initially drawn from available data sources in order to show that supervisors can already get first insights on which entities are more exposed to climate-related financial risks as well as any potential systemic exposure in sectors and geographies. As a modular platform, Viridis allows for further advancements and international alignment on climate risk data and metrics to be integrated into it in the future, providing richer insights. However, one of the key lessons for the BISIH Singapore Centre from Project Viridis was that the lack of decent quality and readily accessible climate-related data remains a challenge. Therefore, the centre teamed up with the NGFS, MAS and BdF to create a new version of the NGFS Data Directory (BIS (2024a)). This collaborative website will enable users to check out where to find specific climate risk data sources. At the start of the project, the partners went through a user-centric design process to undertake functionality improvements and to enhance the effectiveness and usability of the NGFS Data Directory. We also explored the latest technology tools to better search and browse on the data directory. In the next few months, we will continue working on this project together with the support of an industry partner.

In parallel to its projects, one of the objectives of the BISIH Singapore Centre is to foster central bank collaboration on climate risk topics. Its Project Ellipse is a prototype that authorities can test in their own environments and which may help them to explore new solutions (BIS (2023b)). It also presents an opportunity for the global regulatory community to further consider, explore and collaborate on common solutions to future-proof the data and analytical capabilities of supervisors. Therefore, the centre facilitates the EDKP collaboration community, consisting of 18 central banks and financial authorities. In addition to fostering collaboration, another objective of the collaboration community is horizon scanning for the BISIH Singapore Centre in the climate risk space The work programme of the BISIH Singapore Centre on green finance is summarised in Figure 1.

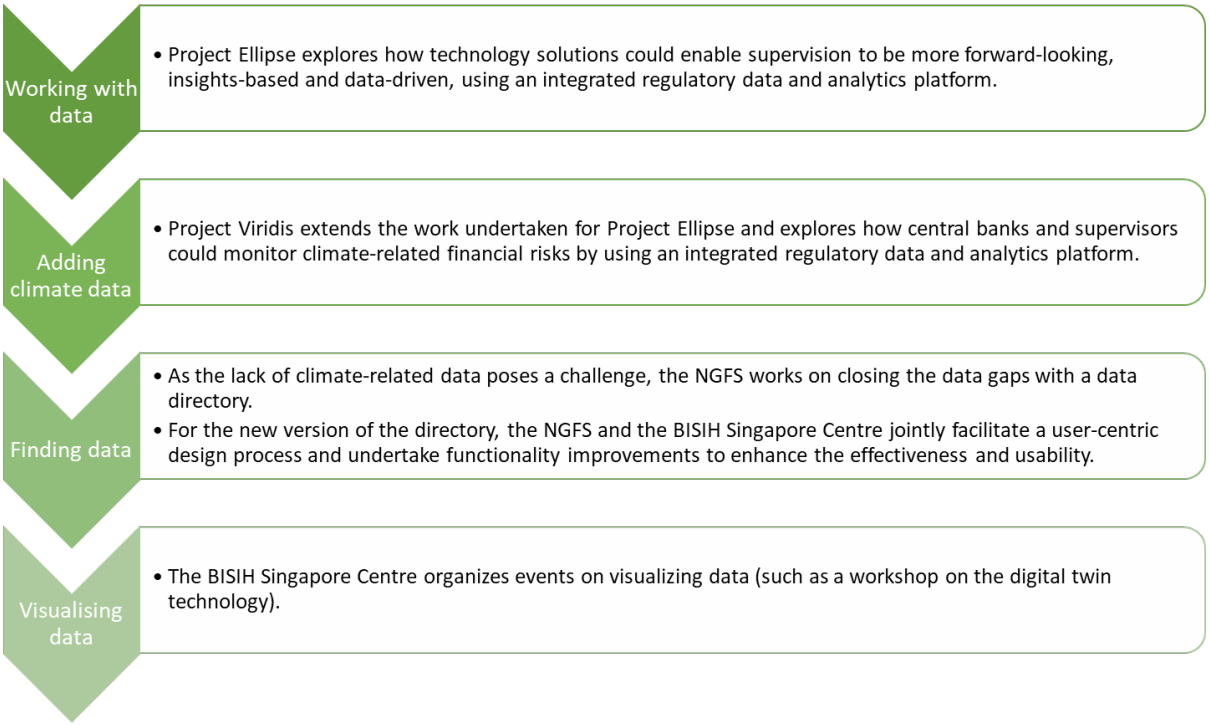

Figure 1: Green finance work of the BISIH Singapore Centre

3. Projects of the BISIH Singapore Centre on green finance and climate risk data

Projects Ellipse and Viridis: Laying the foundations for working with climate risk data

In 2021, the BISIH Singapore Centre and the MAS launched Project Ellipse (BIS (2022)). A collaboration with the Bank of England, the International Swaps and Derivatives Association, Financial Network Analytics and Accenture, this project aimed to transform supervision into a forward-looking, insight-driven and data-driven approach. This was achieved by developing an integrated regulatory data and analytics platform. A key feature of the Ellipse prototype is its ability to amalgamate both structured and unstructured data sources, which are pertinent to real-time current events. Subsequently, advanced analytics are employed on these consolidated data sources, yielding early warning indicators, analytics and prudential measures for supervisors. Specifically, the project refined existing regulatory data on large exposures and combined them with unstructured data. Innovative analytics methods, including machine learning and natural language processing, were utilised to identify risk correlations and analyse sentiment. Real-time alerts were generated for supervisors to investigate potential issues. Network analytics were also employed to illustrate exposure connections, highlighting potential systemic risks to the banking system. The result was the Ellipse platform prototype, capable of extracting valuable insights from the collected data

and presenting them through dashboards as early warnings for supervisory focus. This phase of Project Ellipse showcased the development of a unified platform, enabling authorities to promptly access integrated data sources, supporting and enhancing their supervisory evaluations.

Subsequently, the BISIH Singapore Centre and the MAS addressed the challenges of climate risk with the initiation of Project Viridis (BIS (2024b)). Project Viridis expands on the work conducted for Project Ellipse, examining how central banks and supervisors can monitor climate-related financial risks via an integrated regulatory data and analytics platform. The project operates under the assumption that initial insights on climate risks can be derived from existing data sources. These insights can aid supervisors in identifying financial entities with significant exposure to climate-related risks, as well as potential systemic exposure in sectors and geographies.

The Viridis platform offers authorities a comprehensive perspective of climate-related risks affecting financial institutions and the financial system as a whole, constructed from individual entity risks. At the institutional level, supervisors can view the top entities to which each bank is exposed, with the portfolio of borrowers categorised by industry sector and country in order to easily spot risk concentrations. For each entity to which the financial system has exposures, reported and modelled data on Scope 1, 2 and 3 absolute emissions and emission intensities are provided, if available. Entities' emissions are compared with those of the data-available entity universe to spot firms with a relatively higher carbon footprint. A transition risk measure is the anticipated impact of expected carbon prices or taxation in jurisdictions where entities operate. When entities have disclosed transition strategies, such plans can be combined with carbon pricing trajectory information to evaluate the monetary impact on the entity under various scenarios. When financial institutions possess comprehensive data on the portion of their counterparties' emissions that is linked to financing supplied to those counterparties, a view of financed emissions (by scope) can be aggregated and displayed. Banks can also total up the emissions trajectory (taking into account transition plans) of their counterparties to outline their own financed emission trajectories under various scenarios.

Financial institutions may have their own transition strategies, which could involve phasing out existing non-green exposures or strategically repositioning their business away

from specific entities. These transition plans can be overlaid to present authorities with a clear view of financed emission trajectories and evaluate the relative impact of the assumptions made by a bank in formulating these projections. Accessing such detailed data would likely necessitate an in-depth collaboration between supervisor and supervisee. In instances where data on entities' assets (eg factories, production centres etc) are accessible, the Viridis climate risk platform can offer a more detailed perspective of the physical risks such entities face. Such information can be extracted from entity disclosures, which could cover key operational centres or break down operational costs by geographical location where production facilities are present. Data on the occurrence of various physical hazards (eg floods, erosion etc) by geographical location can provide a rudimentary view. Where available, this view can be combined with existing risk mitigation measures implemented by different jurisdictions (eg stricter building code expectations in high wind zones) to estimate an entity's sensitivity to different physical hazards.

Project NGFS Data Directory 2.0: Creating a platform to find climate risk data

As the lack of good quality and readily accessible climate-related data has posed a challenge for central banks, supervisors and the financial sector alike, the NGFS worked on assessing and systematically mapping climate-related data needs and availability in order to identify gaps. In this process, the NGFS gathered a unique data set of 1,200 climate-related raw data items and 750 climate-related relevant data sources – catering to the specific use cases of financial sector stakeholders – in a directory, as outlined in NGFS (2021). One key – and initially unexpected – conclusion of this work was that a significant number of gaps were in reality perceived gaps, as the data existed but the user was unaware of it. Against this backdrop, the NGFS published in 2022 the *Final report on bridging data gaps* (NGFS (2022)) and made the NGFS Data Directory (DD)[6] – a curated version of its directory – publicly available to facilitate the dissemination of climate-related relevant information and to highlight the actual data gaps that needed to be bridged, as opposed to perceived gaps.

The DD was built to systematically identify and map climate-related data gaps and provide evidence-based conclusions about the main gaps and key challenges to closing them in order to finally enable the NGFS to propose policy recommendations and solutions. To do

[6] See ngfs.dev.masdkp.io/.

this, the NGFS applied a user-centric approach which classifies climate-related data sources into seven main stakeholder categories[7] and eight main use cases,[8] and built up the DD from both ends: identifying available climate-related data sources that are actually used within and beyond the NGFS community, but also metrics foreseen in some use cases and the associated aspirational data points. This consisted of a very tedious manual process of reviewing and classifying data.

Slightly derived from its intended initial use (see above), the DD can be thought of – and used – as a catalogue of available climate-related metrics and data sources based on specific stakeholder use cases. In directing users to the raw data items for which the sources are known/available, the DD can help financial sector stakeholders identify important and relevant climate-related data sources in order to meet their needs, facilitate access to data and improve the broader dissemination of existing climate-related data, thus closing perceived gaps. Similarly, by linking climate-related data needs to available sources, the DD can improve broader knowledge of missing climate-related data items by pointing to potential actual gaps that have not been identified so far and creating incentives to bridge them.

The NGFS sees the DD as a public good, a living tool aimed at fostering better dissemination of climate-related metrics, raw data items and sources and offering a practical solution to bridge the gaps. As the perception of climate data gaps remains entrenched and new data sets are becoming available, the need for a directory of climate-related relevant information is not going away. Meanwhile, the current DD, which has significant drawbacks, can be improved. Indeed, despite being a rich repository, it remains significantly underutilised and the information is static, leading to progressive obsolescence.

To ensure that the DD remains relevant, the NGFS is looking to establish it as a collaborative website where information (new data sources and metrics, as well as additional content on existing data sources and metrics) can be crowdsourced and curated by a community of interested professionals (including but not limited to those from NGFS members and observers), while maintaining the credibility and reliability of the information. The NGFS Secretariat thus approached the BISIH Singapore Centre to jointly facilitate a user-centric

[7] Central banks, supervisors, credit institutions, insurers, pension funds, other buy-side entities and asset managers.

[8] Exposure quantification, investment and lending decisions, macroeconomic modelling, economic growth analysis, financial stability monitoring, climate-related disclosures, scenario analysis and stress testing.

design process and to undertake functionality improvements to enhance the effectiveness and usability of its DD.

At the start of the project, the BISIH Singapore Centre set up a series of design thinking workshops to map out the desired user journeys. Overall, there was broad consensus that the DD should be a current (ie regularly updated) and trusted reference on climate-relevant data for financial services stakeholders. It was also clear that the process of updating and maintaining it should be easy. Regarding governance, it was agreed that, in order to maintain the quality of information in the DD, any changes would only be made by accredited users such as staff from central banks and regulatory authorities, while non-accredited users would only be able to browse the DD. Features would also be introduced to enable accredited users to provide access to data (where available) and rate the quality of data items, sources and metrics. Finally, it was deemed crucial that greater filtering features be introduced in order to enhance searchability. The user journey, in terms of navigating through the DD, would also need to be further simplified to cater to a broader base of users. The outcomes of these workshops have been integrated into a wireframe for the new version of the DD (the DD 2.0), which fed into a detailed report on this design thinking process.

Overall, the project received good support both at the design thinking workshops, with participants[9] of various backgrounds recognising the usefulness of the product, and via several other channels. The DD has a clear value added and could serve as a solid basis upon which various national directories could be built.

In preparation for the development phase, the project manager (BISIH Singapore Centre), product owners (BdF and MAS) and NGFS Secretariat organised a 1.5-day in-person workshop in Paris on 29 February and 1 March. The workshop facilitated the exchange of ideas among participants, who also attended presentations by potential vendors which could be engaged during the development phase. These presentations allowed the project team to further improve and crystallise the design features from the wireframe. The workshop was also the occasion to discuss important points for the post-development phase, such as the soft

[9] The workshop participants included potential public sector users, ie central bankers and financial supervisors/regulators, and potential private sector users, ie financial institutions.

launch of the DD 2.0, the handover to a permanent host and key enablers for the DD 2.0's success.

With the completion of both the design thinking phase and the preparatory work for the development phase, and with key enablers already identified for ensuring success in the post-development phase, the project team has proceeded to the development phase. The BISIH Singapore will stay engaged until the soft launch (foreseen for the COP29) and handover to the permanent host, while the NGFS is also looking to partner with interested stakeholders (professional associations, data providers etc) to deliver the DD 2.0 as a public good and unlock the full potential of the wealth of already existing climate-related data.

4. Horizon scanning of the BISIH Singapore Centre on green finance and climate risk data

As outlined above, one of the objectives of the BISIH Singapore Centre is to foster the collaboration of central banks and financial authorities on climate risk topics by facilitating the EDKP collaboration community. The community meets on a regular basis to exchange views on upcoming topics and projects in the suptech space, with a particular focus on climate change and artificial intelligence. The community also gets together for workshops and hackathons. For example, at the beginning of June 2024 the MAS and the BISIH Singapore Centre ran an in-person hackathon for the EDKP collaboration community, focusing on suptech tools for climate risk, amongst other topics. The last virtual workshop was held in November 2023, when the BISIH Singapore Centre and DNB facilitated an exchange on visualising climate risk data for the community. The topic of the virtual workshop, the digital twin technology, was inspired by the Digital Twin project of the DNB, BdF and Hong Kong Monetary Authority (HKMA). The project first started as a pilot of a workstream, led by DNB, under the Working Group on Green Finance of the BIS Innovation Network. The workstream was tasked with exploring ways to increase the amount of sustainability-related data using innovation. To explore this, the members of the workstream adopted a "learning by doing" approach to obtain insights into specific barriers and possibilities via experimentation. Specifically, the members of the workstream created a minimum viable product of a digital twin solution for physical climate-related risks (BIS (2023a)).

Physical climate risks can have a sudden and significant impact on the financial system or an individual institution. Climate change is exacerbating those risks by making natural

disasters more common and increasing their intensity. However, the data for quantifying these risks in a timely manner are often lacking. This makes it hard to account for these risks in decision-making by central banks and supervisors when natural catastrophes occur or when changing circumstances affect forward-looking estimates of risk. Digital twin technology can increase the visibility of those risks. A digital twin is a digital representation of a real-world entity, event or system. It allows for the real-time monitoring of an asset or system, or a simulation of its performance, under different conditions. The technology has various applications, ranging from manufacturing to healthcare services and urban planning. If applied to the financial sector, digital twins could be replicas of financial institutions, infrastructures, assets, systems, processes etc. In this case, a digital twin could form the linking pin that connects financial and environmental data.

In the first phase of the Digital Twin project, a general theoretical framework and open source IT solution were developed. The project incorporated three case studies: one in the Netherlands on flood risk, one in France on flood risk and one in Hong Kong SAR on cyclone risks. The IT solution consists of a framework that extracts, combines and models various internal and external data sources into digital twin architecture, making it possible to conduct interactive analyses. By making a digital replica of financial institutions (or parts thereof), the effect of climate-related events can be immediately viewed or modelled in a digital environment. The difference with existing dashboards is that a digital twin offers an interactive environment that is also suitable for scenario analyses. Moreover, and in contrast to existing scenario analyses, the analysis is always performed on the latest available data, such as real-time satellite data. This allows the supervisor to engage more interactively with physical climate risk. Overall, the case studies demonstrated the value of a shared theoretical basis and the technical feasibility of such a digital twin solution. After the minimal viable product was delivered, DNB, BdF and HMKA opted to advance the project to further refine the framework and IT solution by incorporating financial and real-time data.

International collaboration has played a crucial role in bringing the project to its current stage, and the EDKP community has offered many opportunities, such as the above-mentioned virtual workshop and hackathon. The virtual workshop aimed to inspire and enthuse other participants in the community about the topic. It has led several members to also participate with the topic in the EDKP hackathon. The goal during the hackathon was to implement other

use cases of climate risks and further generalise the framework to make it more accessible to other jurisdictions. As the Digital Twin initiative progresses, rather than solely visualising and analysing the effect of physical climate risks, it can eventually be utilised for real-time operations.

5. Conclusions

In our paper, we have shown how the work programme of the BISIH Singapore Centre and its collaboration partners on green finance and climate risk data contributes to global discussions and initiatives to address climate change data needs. Our work started with Project Ellipse and Project Viridis to lay the foundations for working with climate risk data. Next, we have been working on closing existing data gaps with our Project NGFS Data Directory 2.0. In the coming months, we will further elaborate on suptech tools to visualise climate risk data in order to enable supervisors to become more data-driven and forward-looking in their day-to-day work on climate risk. As a result, the work programme of the BISIH Singapore Centre and its collaboration partners will further add to the ongoing discussion of central banks and financial authorities on the intersection between technology, sustainability and finance.

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BIS Innovation Hub

Introducing the Work Program of the BISIH Singapore Centre on Green Finance and Climate Risk Data

Dr. Patrick Hoffmann, Maha El Dimachki, Kenneth Gay, Léa Grisey, and Zooey Bossert

May 2024

Work program of the BISIH Singapore Centre on Green Finance and Climate Risk Data

Working with data

- Project Ellipse explored how technology solutions could enable supervision to be more forward-looking, insights-based and data-driven, using an integrated regulatory data and analytics platform.

Adding climate data

- Project Viridis extends the work undertaken for Project Ellipse and explores how central banks and supervisors could monitor climate-related financial risks by using an integrated regulatory data and analytics platform.

Finding data

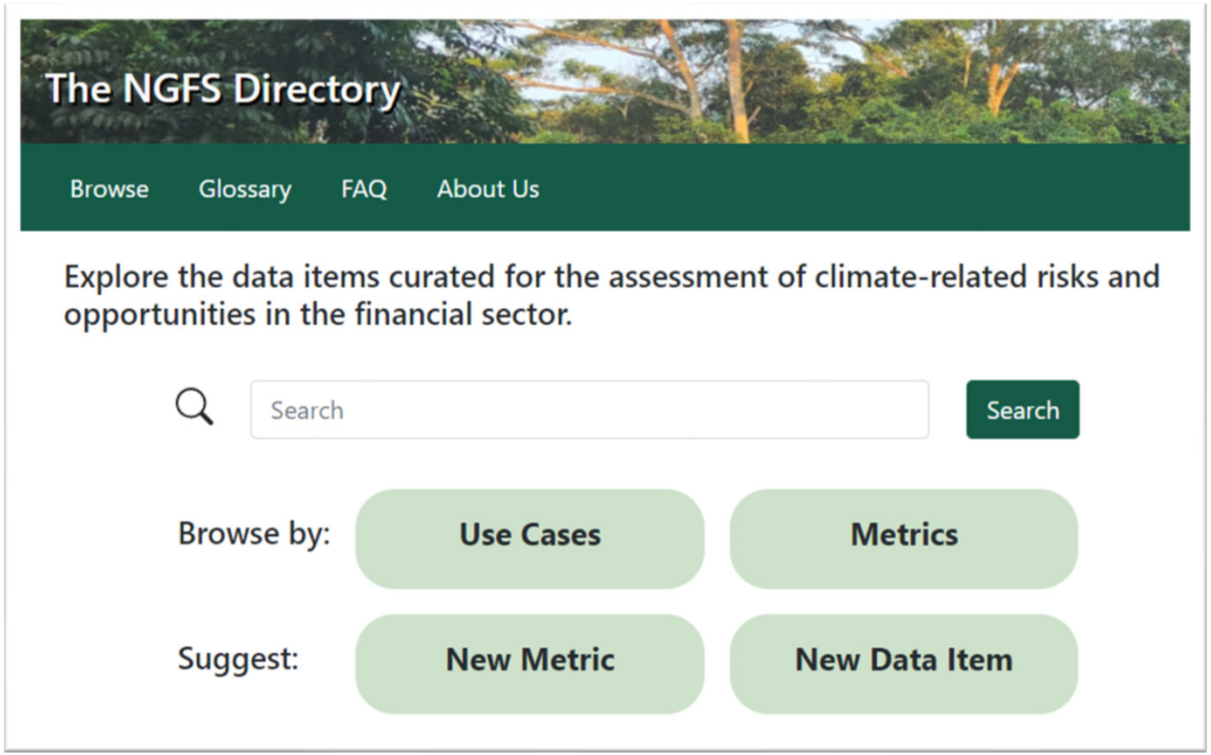
- As the lack of climate-related data has posed a challenge, the NGFS worked on closing the data gaps with a Data Directory.
- For the new version of the DD, the NGFS and the BISIH Singapore Centre will jointly facilitate a user-centric design process and will undertake functionality improvements to enhance the effectiveness and usability.

Visualizing data

- BISIH Singapore Centre organised a virtual workshop on the digital twin concept for the EDKP community in November 2023.
- In a next step, use cases around the digital twin concept will be part of the MAS/BISIH hackathon in June 2024.

Project NGFS DD 2.0 - Overview

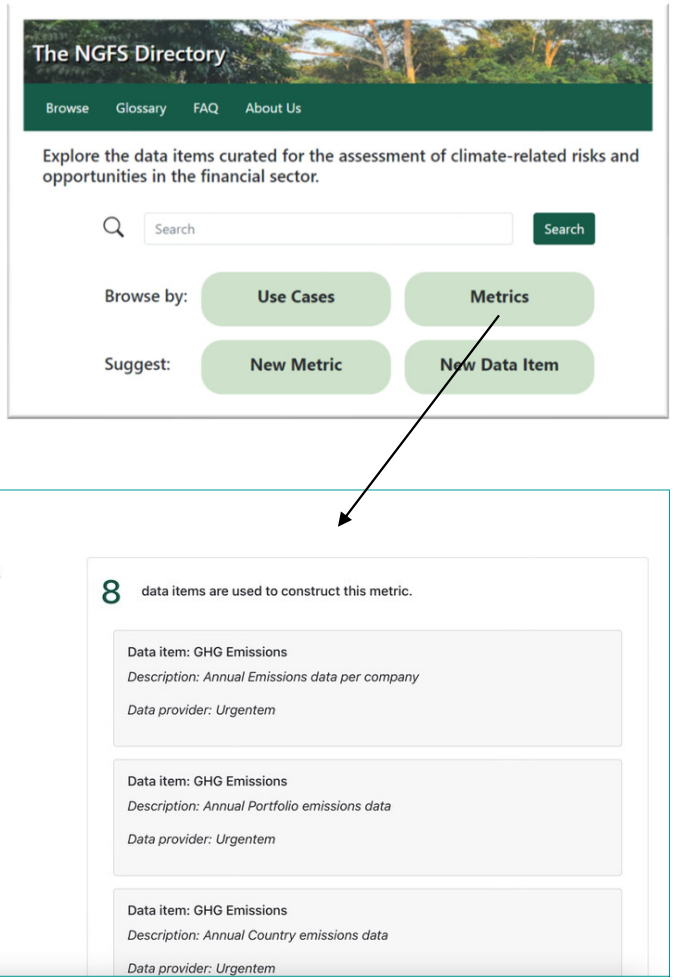
- The first version of the NGFS Data Directory was built to identify, map and plug climate-related data gaps.
  - However, was largely manually collated by the NGFS's Expert Network on Data working group.
- The NGFS Secretariat has approached the BIS Innovation Hub Singapore Centre to explore a user-centric re-design and re-build of the Data Directory (i.e., to build a version 2.0).
- The aim is to **incorporate functionality improvements** to **enhance the effectiveness** and **usability** of the NGFS Data Directory through a user-informed approach.



Project NGFS DD 2.0 - Problem statement

- The design of the current Directory needs to be improved and re-designed to facilitate searching and browsing through data sources.
  - The Directory is currently not well utilised and does not function as a useful public repository of green and climate-related data

- Directory lacks the functionalities or features that support crowd-sourcing new data sources to help with the updating of the available information (i.e., information is static).



Project NGFS DD 2.0 - Proposed solution

- To ensure that the Directory remains relevant, the NGFS is looking to establish the Directory as a **collaborative website** where information (new data sources and metrics, additional content on existing data sources and metrics) can be crowd-sourced.

- This would be an opportunity for the BISIH to explore **latest public communication tools**, **data generation tools** and **design methods** to better communicate and disseminate public resources and verified data in the green finance space. It would also allow us to explore how to promote and facilitate more effective two-way interactions and communications between the "experts"/expert sources and the public.

Project NGFS DD 2.0 - Examples of types of functionality improvements we hope to explore

- Broaden the search possibilities by adding further browsing functionalities (e.g., by data item, data provider, or full text search)
- Allow for more detailed searches for existing functionalities (e.g., by increasing the possibilities to filter use cases, metrics, risk types, data source types)
- Implement web analytics tools to monitor critical web usage metrics
- Exploratory study of the usefulness and appropriateness of other innovative tools and models to supplement NGFS and crowd-sourced data

Project NGFS DD 2.0 - What would success look like?

- Provide collaborative website as a public resource
- Greater and more consistent data for green and climate finance reporting
- Information on the website can be crowd-sourced / dynamically updated and populated (e.g., in a next step the website could be updated with data on biodiversity)
- Code sharing to promote collaboration over competition

Are you interested in collaborating with us?

The BIS Innovation Hub invites central banks and regulatory authorities to form a collaboration community where authorities can work together to further build the platform and create new applications to serve common use cases and priorities.

The Ellipse collaboration community will operate in a private repository at least until 30 Jun 2026 and will make available the Data and Knowledge Platform in its repository for all community members. The community intends to enable participation, usage and contributions in much the same way as a fully open-source environment.

- *18 CBs or regulatory authorities have already joined the EDKP community – e.g. Bank Indonesia, BNM, BoJ, Bundesbank, DNB, ECB, FINMA…*
- *Many have started to test EDKP, some have installed EDKP already*
- *First Hackathon conducted in March 2023 resulting to 4 new use-cases from the 8 CBs/reg. auth. participating*
- *Next Hackathon planned for June 2024*

***Next steps** for the EDKP:*

***Expanding the circle of members** and **introduce further use-cases** to make the EDKP even more interesting for members. **Use-cases should come more and more from member commits;** however, we plan to **host furthers Hackathons** to get the members engaged in the initiative.*

BIS Innovation Hub

Thank you very much for your attention!
Do you have any questions?