DATALAND

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The Climate Data Challenge

The Critical Role of Open-Source and Neutral Data Platforms

Technical Supplement to the 2024 Climate Risk Landscape Report

May 2024

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Abbreviations and acronyms

API	Application Programming Interface
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht (The German Federal Financial Supervisory Authority)
ESG	Environmental, Social, and Governance
ESRS	European Sustainability Reporting Standards
EU	The European Union
GHG	Greenhouse gas
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
OECD	Organisation for Economic Co-operation and Development
PCAF	Partnership for Carbon Accounting Financials
SFDR	Sustainable Finance Disclosure Regulation
TCFD	Task Force on Climate-Related Financial Disclosures
SFDR	Sustainable Finance Disclosure Regulation
SME	Small and medium-sized enterprise
WEF	World Economic Forum
WG	Working Group
WMO	World Meteorological Organization
UN	United Nations
UNEP	United Nations Environment Programme
UNEP FI	United Nations Environment Programme Finance Initiative

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Executive summary

In the face of escalating climate change impacts, the demand for robust climate data has surged among various stakeholders, including financial institutions, market participants, and regulators. These data are critical for conducting comprehensive climate risk assessments, enhancing reporting and disclosure quality, and underpinning effective climate mitigation and adaptation strategies.

However, significant hurdles persist, notably in data availability, quality, comparability, and timeliness, compounded by the high costs of data acquisition. These challenges hinder effective climate risk and opportunity assessments, underscoring the need for accessible and reliable climate data. The report explores the challenges that companies, including financial institutions, could face in relation to climate data.

In essence, the report seeks to answer the following key questions:

- How can we bridge these gaps and overcome the obstacles in data challenges?
- How could the development of free, open-source and neutral data platforms present possible solutions to not only enhance the quality of climate risk data but also ensure its effective integration into business decision-making and disclosures?
- How can collaborative efforts fuel these platforms?

Using Dataland as an example amongst other similar initiatives, such as Net-Zero Data Public Utility and OS-Climate, the report discusses how developing free, neutral, and open-source data platforms that facilitate the collection and presentation of company-specific raw data could present potential solutions. The guiding premise here is that the collection and presentation of raw data would remove potential bias and enhance information transparency. Combining feedback from members of the UNEP FI Dataland Working Group (WG), which operates under Phase III of UNEP FI's Climate Tools for Risks and Opportunities Working Group, the report examines the potential use cases and limitations of such a neutral, open-source data platform. By way of conclusion, it highlights user-preferred features in similar platforms, offering insights to guide their future development.

1. **Introduction:** The need for a free and neutral data platform

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1.1 The relevance of climate data

Climate data are crucial for financial institutions and market participants, as well as regulators such as central banks (NGFS, 2022). Beyond understanding the actual impacts of climate change on different aspects, which include the social and economic implications that have already been realised, it is crucial to have climate data of sufficient availability, quality, timeliness, and comparability. These data enable the evaluation of climate risks and opportunities as well as their potential impacts. Climate data are therefore indispensable for the development of effective strategies and policies for climate mitigation and adaptation.

Depending on the specific needs and requirements of the end users, climate data can be categorised differently, each denoting various levels of granularity requiring different data sources, to support a variety of use cases.

For example, the Internal Monetary Fund (IMF) includes a wide range of climate change indicators that are categorised into: (i) Greenhouse Gas (GHG) Emissions; (ii) (Climate) Mitigation; (iii) (Climate) Adaptation; (iv) Transition to a Low-Carbon Economy; (v) Climate Finance; and (iv) Climate and Weather as shown in Figure 1.

Figure 1: Climate Change Indicators by the International Monetary Fund (IMF, 2024).

Another example is the list of climate indicators provided by the World Economic Forum (WEF), with data curated from the World Meteorological Organization (WMO), as shown in Figure 2. In this example, the data shed light on the physical elements of climate change. Here, climate data are classified in relation to broad themes of environmental impacts deriving from climate change. These include global mean surface temperature, emissions concentration, sea level rise, glacier mass balance, sea ice extent, ocean heat content, and ocean acidification.

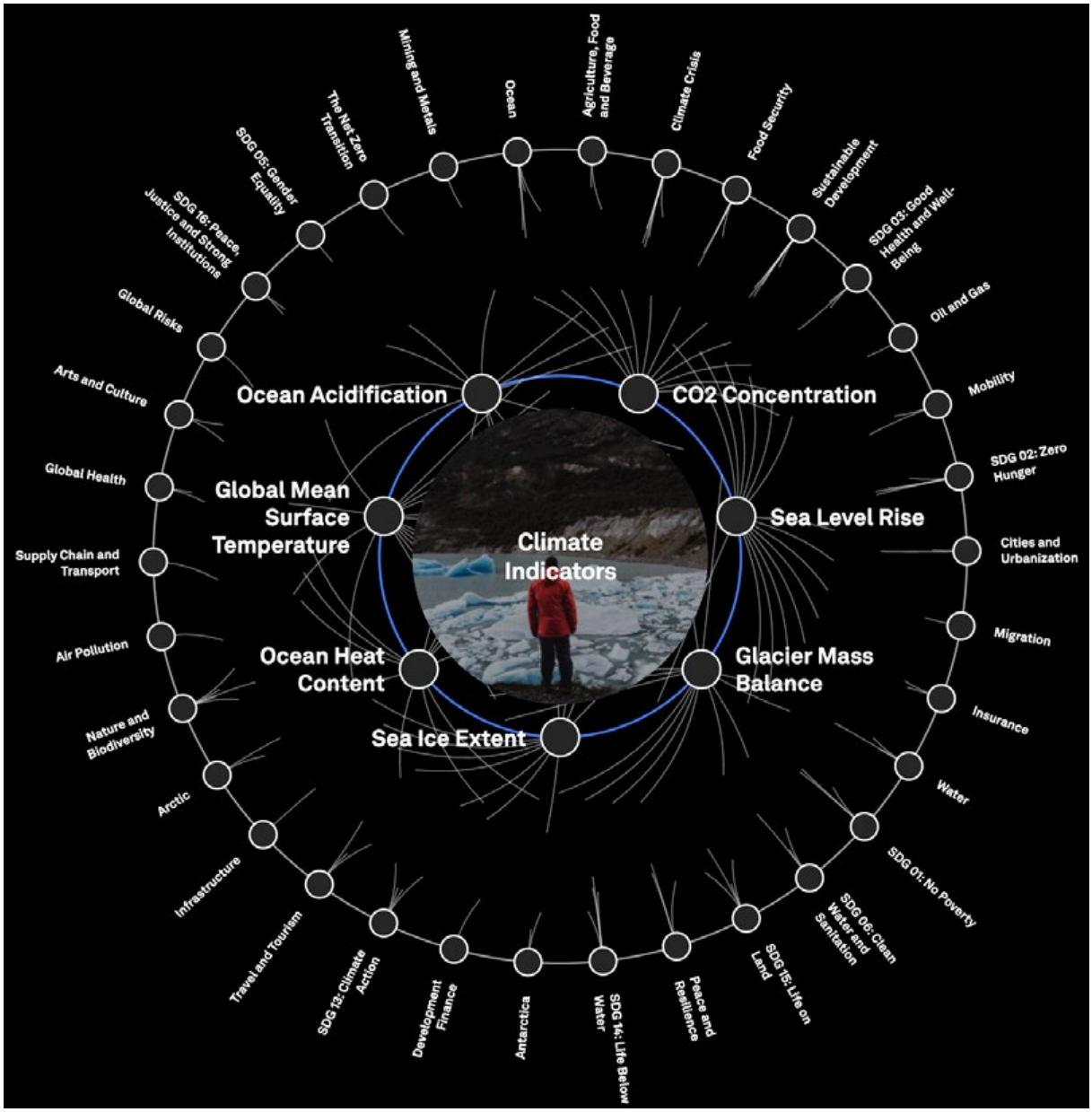

Figure 2: Climate Indicators by the World Economic Forum (WEF, 2024).

Given the extensive array of climate data that can be acquired for different purposes, including climate risk assessment, mitigation and adaptation, different levels of granularity are required. To meet their data needs, financial institutions regularly collect a range of third-party data from commercial and open-source solution providers or databases. These include primary data directly sourced from surveys, reports, or other communications with companies, and secondary data that can be transformed by applying

a process of scoring, formular applications, or other means to a primary data source (KPMG, 2017; Climate Partner, 2023).

Financial institutions leverage climate data across a multitude of applications, encompassing: analytical assessments for diverse objectives; fulfilling reporting and disclosure obligations and expectations in line with regulatory and voluntary frameworks; conducting climate-related stress tests; and guiding engagement activities with clients and suppliers.

In a survey conducted amongst members of the UNEP FI Dataland WG, financial institutions were shown to use climate data most commonly in order to support reporting and disclosures for compliance reasons, as indicated in Figure 3. Such data are also used for the evaluation of emissions performance and the execution of climate stress testing. To enhance risk and opportunity assessments, particularly when faced with data deficiencies or insufficient quality, financial institutions also acquire climate data for comparative analysis. This includes aligning with industry benchmarks and developing proxy approaches to yield estimates for (future) risk exposures, especially for unlisted and private entities.

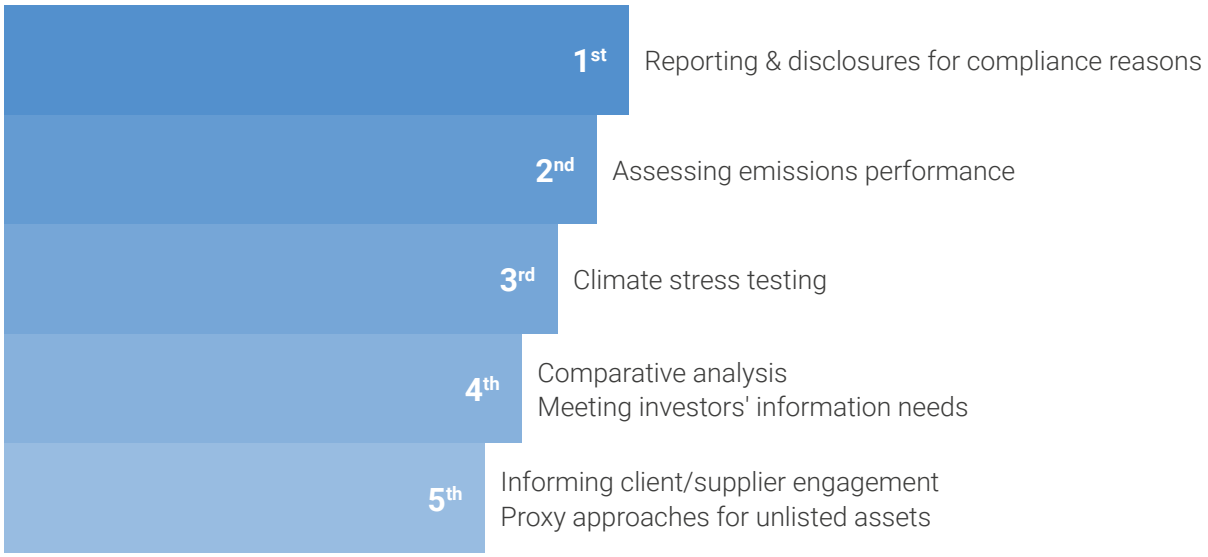

Figure 3: Survey results for common use cases for climate data (UNEP FI, 2024).

However, concerns over data quality, comparability, timeliness, and availability, coupled with the perceived high cost of data acquisition, could be hindering effective climate risk and opportunity assessments. Chapter 2 will dive deeper into the current problem faced by many financial institutions as users of climate data.

1.2 Problem statement

As the world grapples with the escalating impacts of climate change, there is a notable increase in awareness among industries, consumers, and regulators regarding its potential effects on the global economy and natural ecosystems. This heightened awareness has catalysed increasing demand for climate data to support comprehensive climate risk assessments and effective reporting and disclosures, as well as other analyses

crucial for holistic risk management. However, despite the critical need for these assessments and disclosures, several key challenges persist and these are hindering progress in this vital area.

While financial institutions are faced with increasing regulatory pressure for climate disclosures and related risk management, data availability and quality remain obstacles that need to be overcome. Nevertheless, even when data are available, users would still be confronted with the task of identifying what data attributes and metrics would be relevant and suitable for various analytical pursuits. This exercise is often complicated by diverse formats of how climate-related data are presented by companies. This diversity arises from the lack of universally applicable and accepted standards for climate risk assessment. When juxtaposed with the high cost of available commercial solutions as indicated by a study from the German Federal Financial Supervisory Authority (BaFin), this lack of clarity compounds the challenges financial institutions could face when attempting to accurately measure and project climate risks and their impacts (BaFin, 2024). Chapter 2 dives deeper into the current situation and problems.

In summary, financial institutions are increasingly expected to become transparent about their environmental footprint and related risk management practices, while at the same time there is an acute need to address critical gaps in data availability, reliability, comparability and timeliness, as well as in accessibility and support. Meeting this need would enable financial institutions to adequately access climate data platforms, while also enabling new platforms to be created that would permit effective climate risk and opportunity management.

Addressing these challenges is imperative to enhance resilience, promote sustainability, and ensure that industries, consumers, and regulators are equipped with the information necessary to respond effectively to the multifaceted threats posed by climate change. The resolution of these issues is crucial for paving the way towards a more informed and sustainable future. This will require a concerted effort across sectors so that solutions can be developed that make climate risk data more accessible and reliable. However, questions remain: how can we bridge these gaps and overcome the obstacles to not only enhance the quality of climate risk data but also to ensure their effective integration into business decision-making and disclosures?

1.3 Proposed solution

To address the challenges highlighted in Section 1.2, one viable solution is to create free, open, collaborative, and neutral data platforms. Examples include Dataland, which focuses on company-specific raw data, as well as initiatives such as Net-Zero Data Public Utility and OS-Climate. These platforms can fulfil the need for systems capable of requesting, processing, and systematically presenting raw and company-specific data in a neutral manner. Proposals for these platforms form part of a wider discussion on innovative approaches to address the current gaps in data availability and quality, as well as the selection of relevant data attributes for varied analytical purposes.

Such neutral data platforms have a twofold role. Firstly, they strive to act as central aggregators, bringing together the varied data needs and interests within accessible frameworks that could guide data collection and subsequent assessments. This effort seeks to harmonise the fragmented and often incompatible nature of existing climate data sources. Through the implementation of structured data frameworks by Dataland informed by regulatory standards like the EU Sustainable Finance Disclosure Regulation (SFDR), on the one hand, and of voluntary frameworks such as the World Wildlife Fund's Pathway to Paris, on the other, users from different regions can become more informed when engaging with their stakeholders and clients. For example, under the SFDR, which is a regulation seeking to enhance market transparency in the financial market, financial market participants are required to disclose data on a list of climate and other environment-related indicators as part of their "Statement on principal adverse impacts of investment decisions on sustainability factors" (EUR-Lex, 2019; EUR-Lex, 2022). In this regard, data platforms that offer data frameworks developed in line with such regulatory standards would help provide a clear structure that outlines essential data attributes, including metrics and the format for presenting data. This structure could help users, including financial institutions, in better comprehending corporate or clients' environmental footprint specific to different indicators. In turn, this could inform their risk management and decision-making.

Secondly, the introduction of free, open-source, and neutral data platforms can also potentially address some of the inefficiencies and financial challenges by improving data accessibility and reliability. On one hand, the accessibility to data can be addressed given the open-source nature and free access of the platform. On the other hand, for platforms focusing on collecting raw and entity-level data directly released by companies, they could serve to potentially remove bias from data aggregation and transformation. Furthermore, with a set of web-based infrastructure available to facilitate users' easy access to data and related updates from companies, it is possible to improve the timeliness of data and their integration into users' internal systems.

However, it is important to note that such platforms represent one of many strategies for closing the identified gaps and enabling more effective management of climate risks and opportunities. Chapter 3 explores the potential use cases and limitations of the Dataland platform.

2. Current situation and problem

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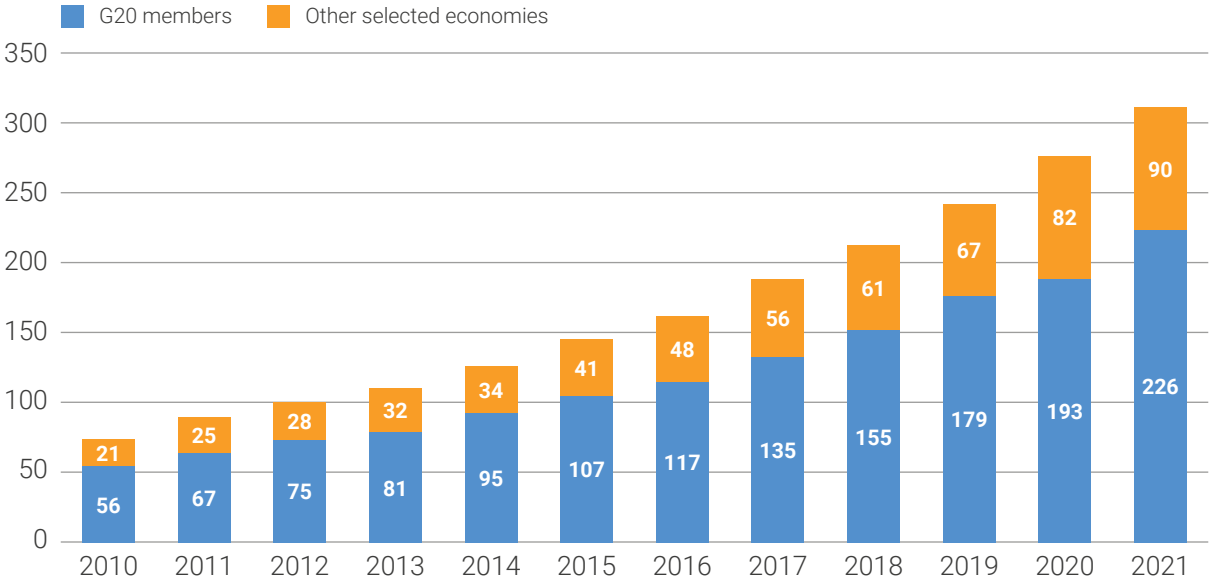
2.1 Call for more robust climate risk assessments and data due to increasing regulatory pressure for climate disclosures and risk management

Recent years have witnessed a rapid escalation in regulations and policies on environmental, social, and governance (ESG) issues. Financial institutions are consequently under pressure to gather and leverage ESG data (including climate data) in order to improve their disclosures and their risk management strategies (UNEP FI, 2023a; 2023b). Several studies highlight this trend. Examples include research by ESG Book, which shows that global ESG regulations have increased by 155 per cent over the last decade (ESG Book, as cited in ESG News, 2023). Complementing this finding, another study by the Sustainable Finance Regulations Platform reports a similar increase in sustainable finance-related regulations and policy measures across the G20 member states and other selected economies, as shown in Figure 4. This underscores the widespread momentum toward enhancing climate data utilisation and financial resilience against environmental risks.



Source: UNCTAD

Note: Other selected economies including Switzerland, as well as 13 developing economies (Bangladesh, Chile, Egypt, Hong Kong (China) Kenya, Malaysia, Nigeria, the Philippines, Singapore, Thailand, the United Arab Emirates and Viet Nam) and ASEAN. Relevant measures of the EU are in the number for the G20

Figure 4: Sustainable finance policy measures and regulations in G20 member states and selected economies (Sustainable Finance Regulations Platform, 2023).

Building on this foundation, it follows that reporting and disclosures would stand out as one of the primary use cases of climate data within the financial sector, as shown in Figure 3. This trend is driven by the growing recognition of the critical role that accurate and comprehensive climate-related information plays in informing stakeholders and complying with regulatory demands. As financial institutions strive to align their operations and decision-making with emerging standards, the need for detailed environmental data becomes increasingly indispensable. This necessity is reflected in financial institutions' consistent priority to invest in ESG data acquisition, as Figure 5 shows.

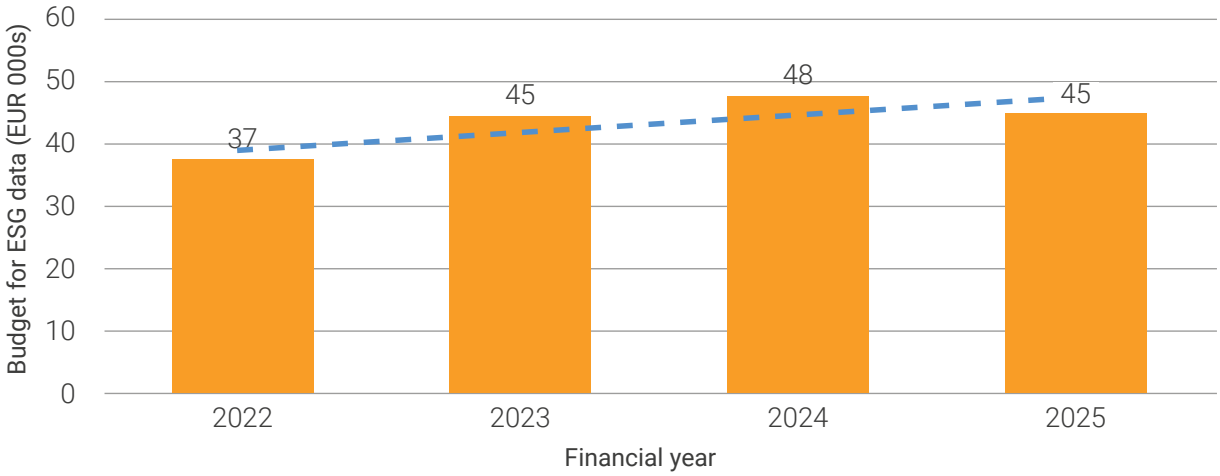


Figure 5: Average budget for capital management institutions for acquiring ESG data per financial year increases steadily (BaFin, 2024).

2.2 Critical gaps in climate and ESG data availability

While climate data is essential for effective disclosures and risk assessments (as discussed in 2.1), significant gaps in data critically undermine the robustness of related risk analyses and could compromise the efficacy of relevant decision-making. A BaFin study shows that many capital management institutions (75 per cent) find that the data coverage by external ESG data providers is at least partially insufficient, as Figure 6 indicates.

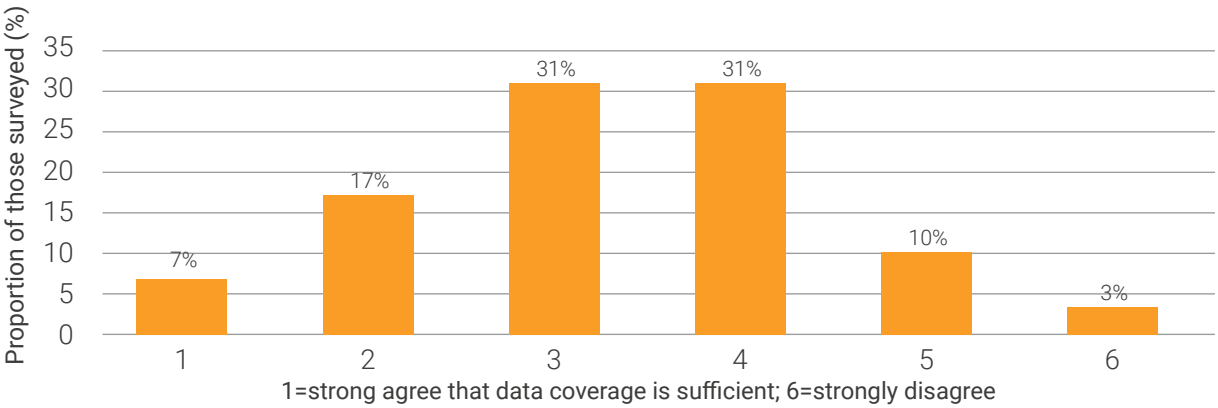


Figure 6: Rating for data coverage by external ESG data providers (BaFin, 2024).

Survey results from UNEP FI Dataland WG members also hint at the data availability problem as financial institutions agreed that there is a significant data gap with regards to emissions-related data, as Figure 7 shows.

Figure 7: Survey results concerning perceptions of a data gap (UNEP FI, 2024).

A primary obstacle to users' compliance with disclosure frameworks could stem from information disparity concerning the type of data required by different reporting standards for disclosures. For example, uncertainty might well arise regarding the necessary level of data granularity, metrics, data presentation, and appropriate time horizons for disclosures. Without clarity on data requirements, the full potential of data for predictive analytics, trend analysis, and strategic planning could remain untapped. In summary, given the diversity of standards and frameworks, there is a critical need for resources that could shed light on what potentially useful data attributes might be and how they can be presented. An example of such resources includes standardised data frameworks developed in line with these disclosure standards, as explored in Chapter 3.

Among the different types of climate data, WG member financial institutions find entity-level data the most challenging to access, as Figure 8 shows. This is followed by Scope 3 emissions data, which includes indirect GHG emissions upstream and downstream along the value chain.

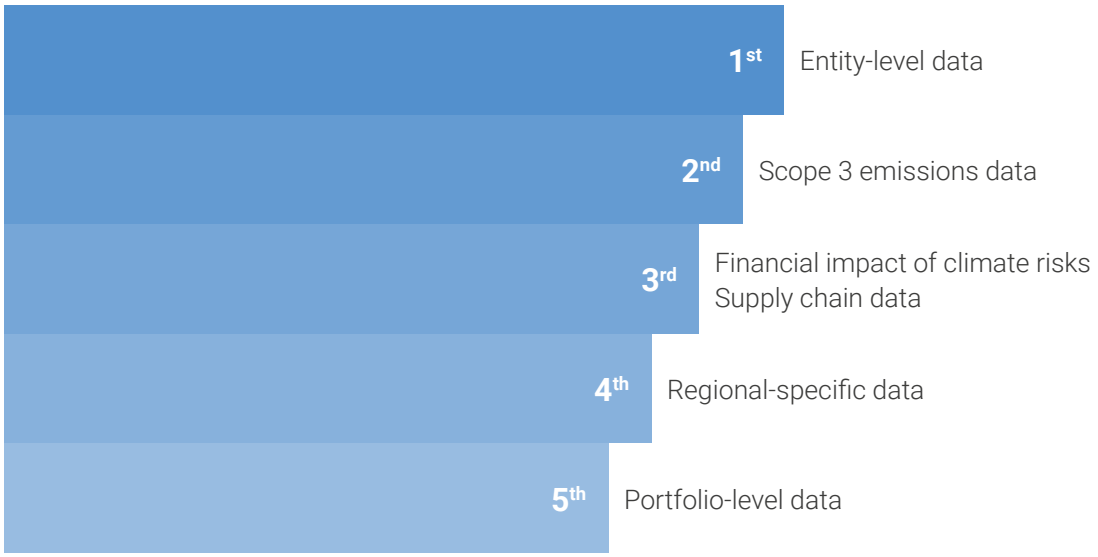


Figure 8: Survey results concerning the most challenging types of climate data to collect or access (UNEP FI, 2024).

The data availability challenge is further compounded by regional disparities in data availability and quality. Many regions, including the emerging economies, could potentially be at the forefront suffering from a lack of comprehensive and reliable climate data (UNEP FI, 2023c). This could be primarily due to differences in resource availability and prioritisations (UNEP FI, 2024). Consequently, it becomes difficult to accurately assess and plan for climate risks. Additionally, there is a notable scarcity of data regarding unlisted assets, private funds, and small and medium-sized enterprises (SMEs). This is because these private and smaller entities are often not subject to mandatory disclosures, as the study from the Organisation for Economic Co-operation and Development (OECD) indicates (2020).

Issues with data availability not only hinders the ability of financial institutions to conduct thorough risk assessments; it also poses a challenge for investors and policymakers aiming to understand the full landscape of climate risk across different sectors and regions. This is why it is essential to bridge these data gaps. Doing so will help enhance the resilience of financial markets to climate-related risks and foster informed decision-making that supports sustainable development and climate change mitigation and adaptation strategies.

2.3 Data reliability and the need for standardised disclosures and comprehensive risk assessments

Data reliability is crucial for ensuring that stakeholders can make informed decisions based on accurate and trustworthy information (UNEP FI, 2023b). For financial institutions, having reliable emissions data helps address the need for comprehensive climate-related risk and opportunity assessments. In turn, this supports the setting of targets for emissions reductions as well as assisting decision-making for client financing

(UNEP FI, 2023a). It also helps financial institutions meet investors' information needs (Douma & Dallas, 2018). In general, data reliability can be understood through various aspects, including: the quality of data; the comparability of data across different entities, sectors and periods; and the timeliness of data's availability. These elements are foundational to the integrity of financial markets, environmental policymaking, and the strategic planning of businesses across the globe. However, several studies indicate that market participants generally experience a lack of reliability in climate and ESG data.

For example, Figure 9 shows a general negative perception of ESG data quality from external solutions providers, given that 62 per cent of responding financial institutions disagree that the quality of such data is high.

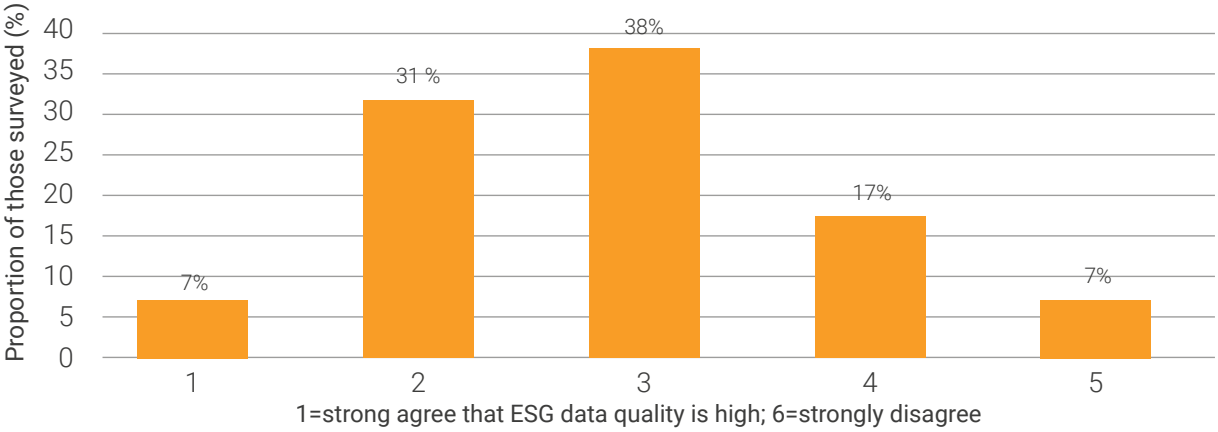


Figure 9: Rating of ESG data quality from external solutions providers (BaFin, 2024).

Figure 10 shows that financial institutions perceive transition risk data currently available in the market to be largely unreliable. Issues concerning data reliability stem from member institutions' reservations over data quality, comparability, and timeliness.

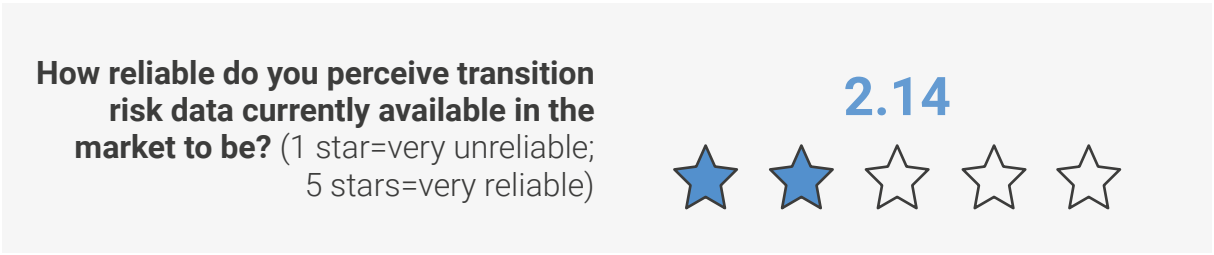


Figure 10: Survey results of perceived data reliability (UNEP FI, 2024).

Different studies have explored where the data reliability issue might stem from. One plausible explanation is the lack of comparability due to the use of different assumptions and risk assessment methodologies. For example, research from the OECD shows that the risk adjusted performances assessed by different ESG indices vary, given different assessments on volatility and returns and modelling assumptions (OECD, 2020). The same study also indicates a potential size bias that points to the lack of data comparability, as larger companies tend to have higher ESG scores assessed by third-party rating agencies than smaller businesses, as displayed in Figure 11. This disparity likely stems from the heavier burden ESG disclosures place on smaller companies, which may struggle with the costs and the implementation of necessary risk mitigation and adaptation

measures. This situation sheds light on the potential limitations of ESG ratings and scorings when it comes to fully capturing the ESG efforts of companies of different sizes.

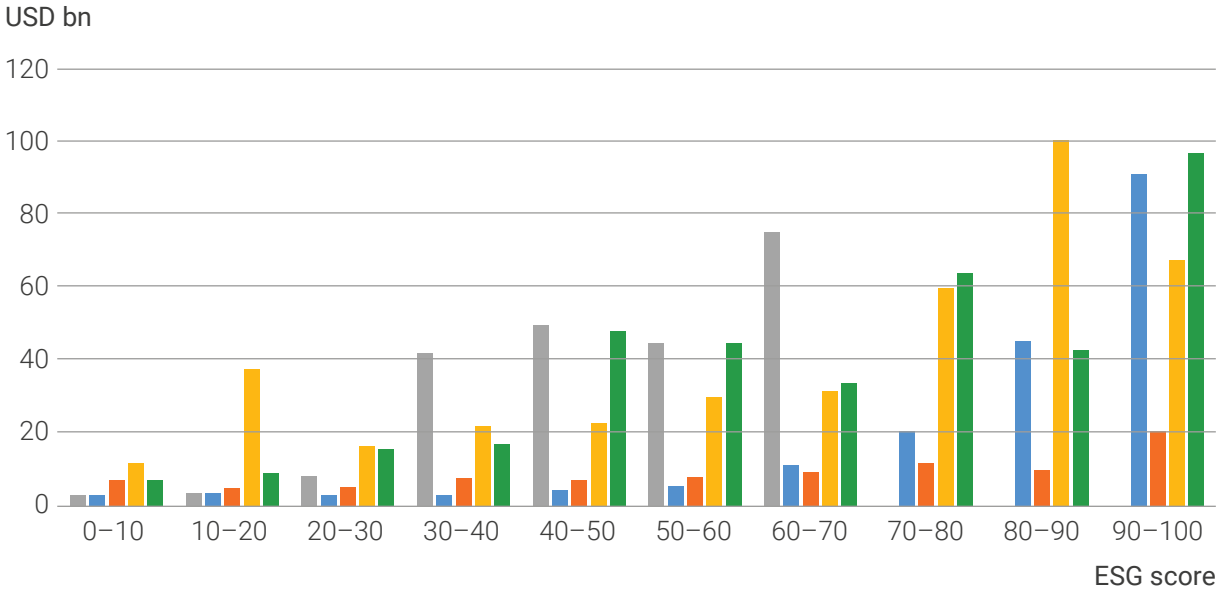


Figure 11: Average company market capitalisation positively correlates with ESG score (OECD, 2020).

A paper by Busch et al. (2020) further sheds light on the comparability and reliability issues of climate data. By comparing emissions data from a range of sources, the researchers found a significant disparity in the consistency and, consequently, the comparability and reliability of corporate emissions performance estimates provided by third-party data providers compared to those directly obtained from corporate reports. They found that third-party estimations are less consistent when compared to data stemming directly from corporate reports; however, the combination of Scopes 1 and 2 third-party estimated data raises consistency levels. These findings underscore the pressing need for standardised disclosures in the realm of environmental reporting. Enhancing the reliability of emissions data, especially through harmonising methodologies and criteria used across different reporting frameworks, could significantly bolster the accuracy and usability of such information for stakeholders. In turn, this would contribute to more informed decision-making processes in addressing climate-related risks and opportunities.

There is no one-size-fits-all methodology for risk assessment that combines transition and physical climate risks, on the one hand, and the interconnectedness of both risk types, on the other. That said, bottom-up risk assessments that utilise company-specific raw data can help address the data quality and reliability issues commonly found among third-party data providers.

2.4 Accessibility and funding gap that needs to be closed to enable effective climate risk assessment

This section discusses the crucial accessibility and funding gap that could hinder the comprehensive assessment of climate risks and opportunities.

Firstly, an accessibility barrier concerning ESG and climate data exists. Several studies have pointed to the concerns of data users such as financial institutions over the costs and perceived value-for-money of current market solutions. For example, one study indicates shows that only 18 per cent of surveyed capital management institutions agreed that the costs for obtaining such data were reasonable, as indicated in Figure 12. Complementary to the findings cited, Figure 13 shows that financial institutions share a similar perspective as they do not perceive high value-for-money for climate solutions in the market.

Resolving the accessibility issue of climate-related data could empower businesses to effectively assess and manage the risks and opportunities posed by climate change. These include the effective evaluation of the potential financial impacts of climate change, which has been identified as one of the pain points in climate risk assessments by financial institutions, as Figure 8 indicates. With access to data, financial institutions would be better positioned to more accurately price and manage climate-related risks (Douma & Dallas, 2018). In addition, access to sufficient data would allow companies to understand how to bolster their resilience against climate-related risks and seize climate-related opportunities, including determining the allocation of sufficient risk capital for climate risk adaptation and mitigation (OECD, 2021).

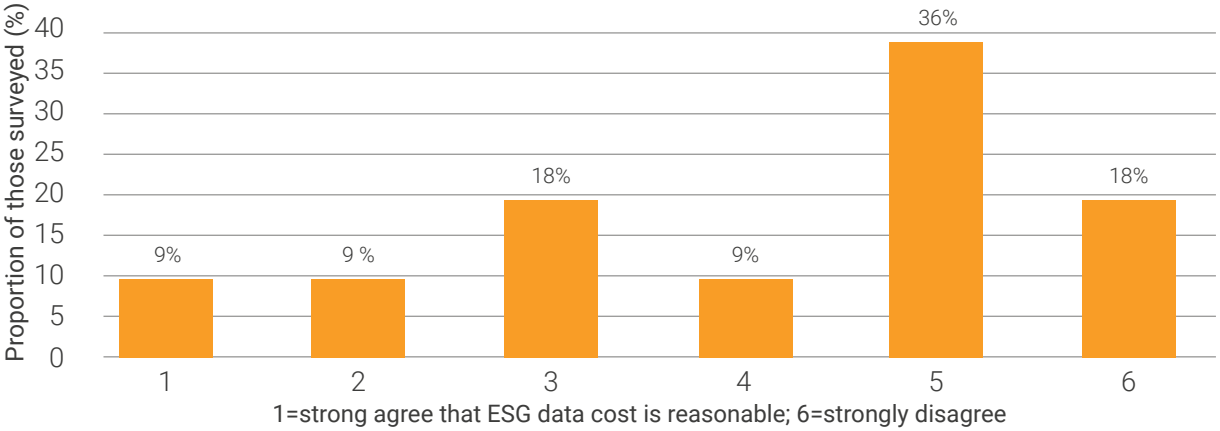


Figure 12: Survey results concerning how reasonable participants find ESG data costs to be (BaFin, 2024).

Secondly, a gap exists in the funding required to develop and implement solutions that could tackle the prevailing data challenges. The consensus among the UNEP FI Dataland WG members highlights the value of a neutral, public, and transparent data platform that offers raw data. This viewpoint underlines the importance of funding the development and enhancement of innovative tools, methodologies, and platforms that aim to signif-

icantly improve the quality, detail, and reliability of climate-related data. Collaborative efforts to enhance access to reliable data are essential for fostering the development of these solutions. Innovative initiatives such as Dataland and the Net-Zero Data Public Utility—which adopt a non-profit, mission-driven governance model and leverage technological advancements like open-source software and peer-to-peer sharing platforms—are poised to transform ESG and climate data from commercial goods into common resources. These initiatives aim to promote accessibility, collaboration, cost-sharing, and network benefits for all stakeholders.

Recognising the transformative potential of such projects highlights the critical importance of closing the funding gap. Bridging this gap would enable the necessary groundwork to be laid for businesses and investors to effectively assess, respond to, and capitalise on the risks and opportunities presented by the changing climate.

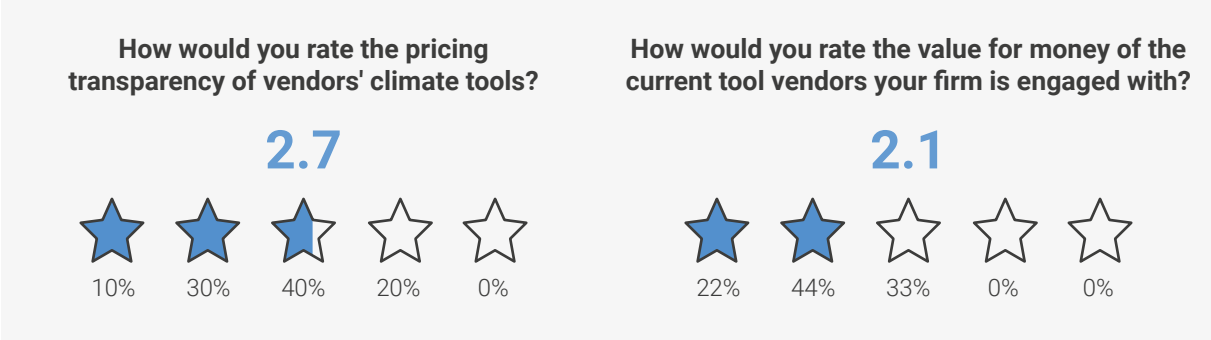


Figure 13: Survey results concerning perceived value-for-money of climate solutions in the market (UNEP FI, 2024).

2.5 Call for transparency in solutions currently available in the market

The call for increased transparency in the market's available solutions is pivotal for empowering users to access tailored data and risk assessment methodologies that align with their unique needs and interests. Transparency in both modelling and pricing plays a crucial role in this context.

On the modelling front, ensuring transparency allows users consistent access to climate data, such as corporate emissions performance. This consistency is critical for financial institutions conducting comprehensive risk assessments, thus allowing for equitable comparisons across industries. It not only aids the pinpointing of potential risk exposures and vulnerabilities associated with asset holdings or financing decisions; it also forms the foundation for in-depth risk assessments by banks and investors. This becomes increasingly relevant as more countries and regions implement carbon taxes and emissions trading schemes, highlighting the financial importance of emissions data.

In terms of pricing transparency, data transparency and consistency equip users with the necessary information to make well-informed decisions when choosing the most suitable set-up for their requirements. This aspect of transparency helps users navigate the optimal data selection for them, thus enhancing their decision-making process.

Despite the recognised need for transparency, Figure 13 shows that challenges persist within the current climate analysis tools and data sources landscape. These notably relate to costs and pricing structures. Meanwhile, Figure 14 sheds light on similar issues concerning the methodologies employed by solution providers. This opacity can hinder financial institutions from making fully informed decisions. Specifically, the lack of clear pricing and cost information complicates the process of identifying value-for-money solutions, with many institutions calling for greater clarity and a preference for specific functionalities over bundled services. Additionally, the methodologies underlying these tools often lack transparency, making it difficult for institutions to understand the assumptions and potential biases that may influence the analysis. These biases could stem from data limitations, among other factors, which further complicates the assessment of climate risks and opportunities. Without transparent methodologies and an understanding of potential biases, financial institutions face increased challenges in effectively leveraging climate data and tools for risk management and strategic planning.

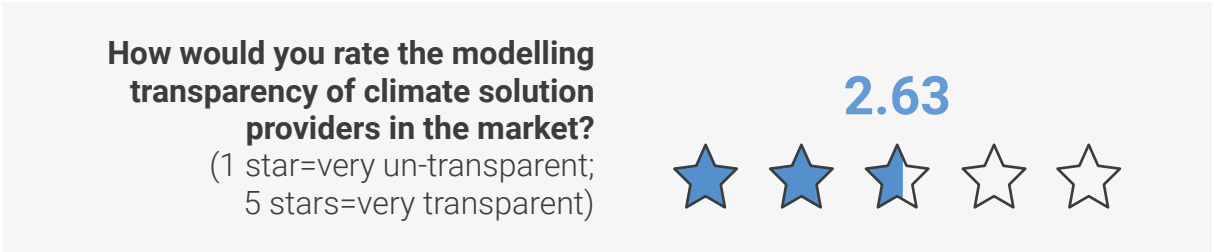
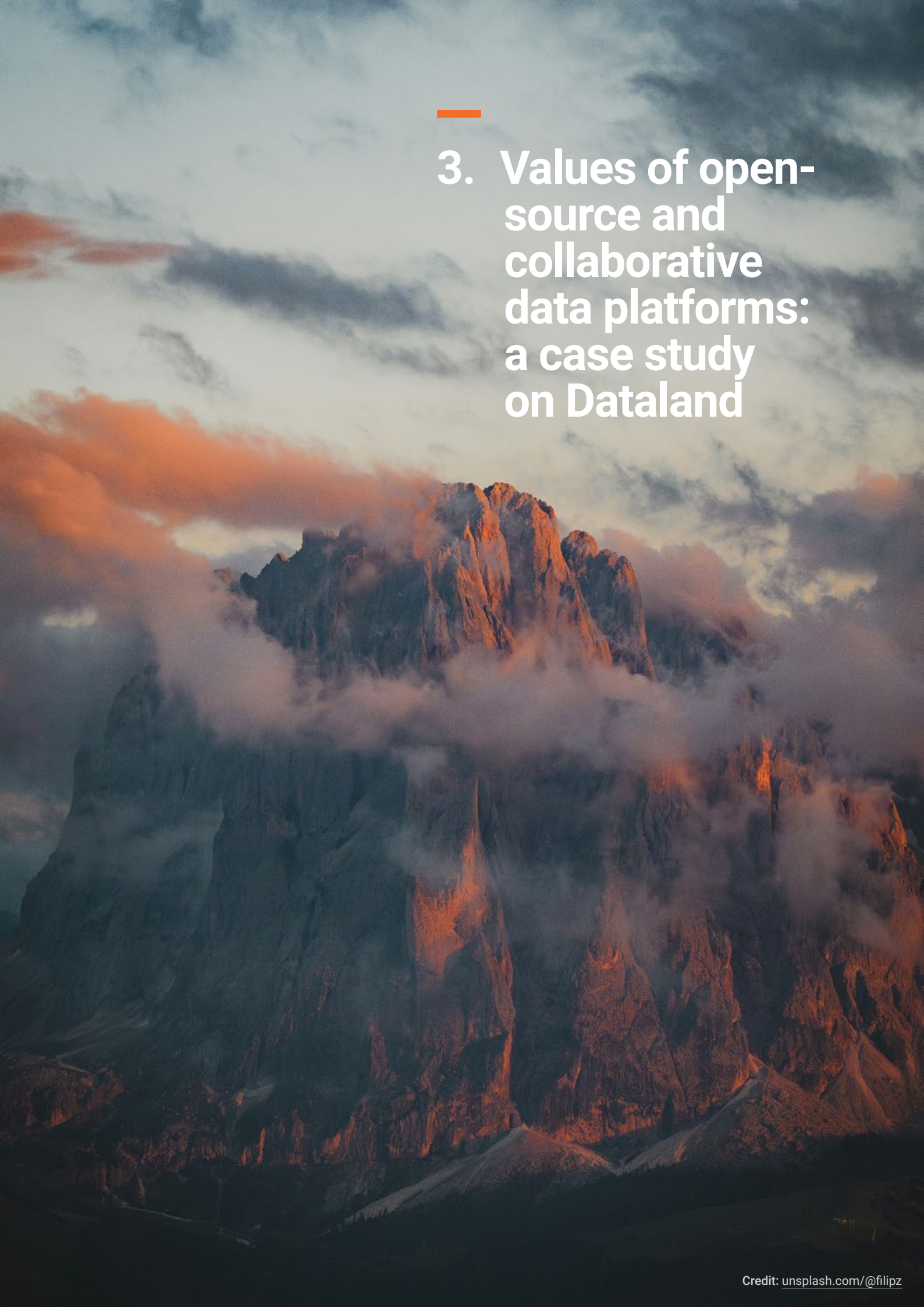


Figure 14: Survey results concerning perceived modelling transparency of climate solution providers currently in the market (UNEP FI, 2024).

3. Values of open-source and collaborative data platforms: a case study on Dataland



Credit: unsplash.com/@filipz

This chapter discusses how collaborative and open-source data platforms that provide users with company-specific raw data can be a potential solution to the data challenges explored in Chapter 2. Acknowledging that there are other initiatives that share a similar vision, such as the Net-Zero Data Public Utility, this report's discussion uses the Dataland platform as an example. Feedback from members of the UNEP FI Dataland WG is leveraged to guide discussions around user experience and potential limitations.

3.1 Potential benefits of open-source and collaborative data platforms

Collaborative efforts in building open-source data platforms are essential, as they help open up access to sustainability data by a wide range of stakeholders, making it available as a common resource. Since these platforms (often along with their source codes) are publicly available, users benefit from the removal of a major access barrier. This accessibility looks to enable wider participation and informed decision-making, while also reducing the costs associated with data processing.

Past successes in collaborative action initiatives in knowledge, open-source software, and hardware standards serve as compelling examples of the transformative power of collective action. Initiatives such as open-access online educational resources and collaborative platforms like Wikipedia have made knowledge more accessible to all, while projects like Linux have revolutionised the software industry. Embracing principles of openness, inclusivity, and community-driven governance has enabled these initiatives to convert commercial goods into common resources that empower individuals and organisations alike. In the context of sustainability data, this approach is expected to enhance the availability of decision-useful information and value creation, as exemplified by platforms including OS-Climate and Dataland.

Non-competitive collaboration provides a pathway to focus on the collective goal of improving access to sustainability data at a lower cost. By recognising the non-competitive nature of raw company data, organisations can redirect their energies towards innovation and value-added usage in various applications, from reporting and risk management to investment strategies and supply chain management. Enhanced collaboration between data users and data owners facilitates a more comprehensive understanding of data needs, capabilities, and limitations, leading to more robust analyses and decision-making processes. Additionally, such collaboration promotes transparency, trust, and accountability in data practices, ultimately benefiting all stakeholders involved.

3.2 Overview of the Dataland platform and principles

3.2.1 Walkthrough of the platform

A walkthrough of typical workflows below serves as a model of how similar platforms can be operated. Understanding how the platform functions helps uncover ways for establishing and enhancing new solutions in order to better address the data challenge.

First, the platform provides data frameworks that are established in line with existing regulatory and voluntary disclosure frameworks, such as the SFDR and EU Taxonomy (d-fine & Dataland, 2024a). These frameworks detail a variety of metrics and data attributes for users to deploy, whether for soliciting data from clients or for analytical purposes. Users select the frameworks that align with their data needs. They can then perform searches on the platform according to their chosen framework(s), with simple inputs such as company name or identifier. Filters by sector and country are also available to help users identify the appropriate data scope. Upon performing data searches on the platform, data can be viewed on screen or downloaded where they are available on the platform. This process occurs via a standardised API connection, which can accommodate a variety of different internal systems. The data available on the platform are company-specific and directly provided by the reporting entities. No further transformation or aggregation is added in order to avoid the introduction of potential bias.

Apart from leveraging the platform to search for company-specific climate and ESG data disclosed according to established data frameworks, users can also request data that fit their specific needs. In the case where users already have their own dedicated bespoke data framework(s), these can also be implemented using the open-source code provided by Dataland (d-fine & Dataland, 2024b).

In instances where data are absent or incomplete, users can opt to directly request the missing data through Dataland from the respective companies that they are interested in. This information can be sourced without the user in question having to disclose their identity. Upon data submission from the company from which data was requested, users receive prompt notification from Dataland so as to ensure the timeliness of the data. Subject to the company's permission, the data become accessible to any registered Dataland users.

3.2.2 A case study into Dataland's offerings and principles

Dataland addresses the critical issues of data availability, accessibility, and reliability by serving as an open-source platform. This platform has a membership community open for free registration and access that facilitates the flow of corporate sustainability data. The current users of the platform include investors, banks, companies and third-party service providers. The platform is established with the vision that better data will position market participants to make more informed decisions concerning business operations, strategy-setting and financing choices. This objective is facilitated through a commitment to neutrality and transparency, ensuring open access to directly released company data.

Responding to the issue concerning data reliability, a platform such as Dataland that allows free access to raw data directly provided by companies can serve as a potential solution. Since such raw company data are presented on the platform in standardised formats according to dedicated data frameworks, it helps to enhance data comparability and consistency. Moreover, these data frameworks are developed in alignment with regulatory disclosure standards, such as the SFDR and the EU Taxonomy, as well as voluntary initiatives as exemplified by the Pathway to Paris framework. As such, the platform can also help users with compliance to disclosure standards by identifying data attributes specific to these standards' requirements. More information on the supported frameworks can be found here[1].

Taking Dataland as a case study example, the platform is built with the purpose of letting the data flow by removing potential incentives to acquire data for profit maximisation. This is ensured through a set of six principles that the platform is built to uphold. These principles reflect the key elements for corporate ESG reporting, recognised as essential for meeting information needs of stakeholders, as per the findings of a report by the Principles for Responsible Investment and International Corporate Governance Network (Douma & Dallas, 2018).

Credit: unsplash.com/@kencheungphoto

1 github.com/d-fine/Dataland/wiki#supported-frameworks

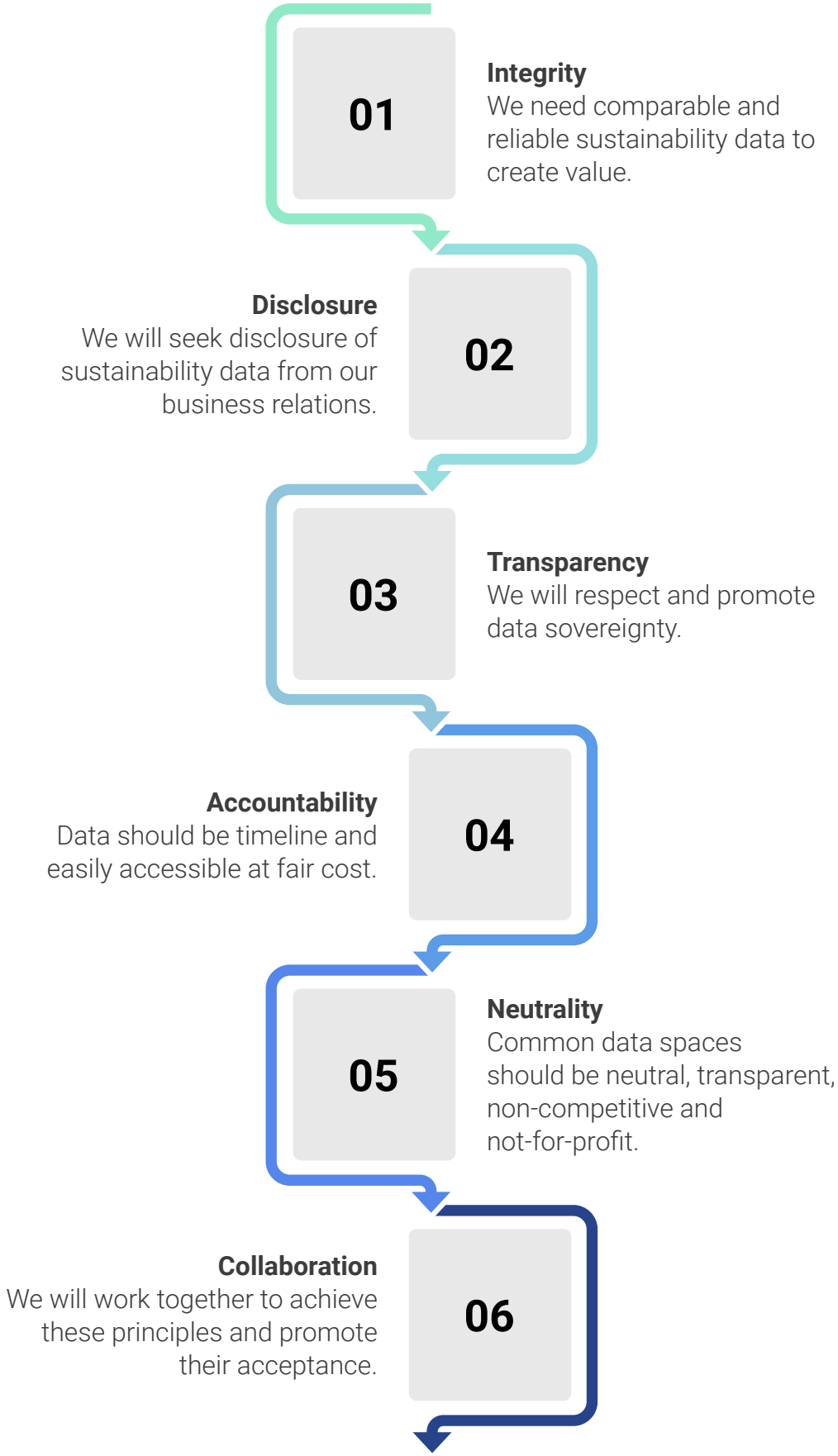


Figure 15: How open-source, neutral data platforms can be developed using Dataland's principles as an example (Dataland, 2024).

The governance structure of Dataland is designed to support the principles of the organization. Principles 1 and 4 address the fundamental requirements of data users, whereas Principle 3 focuses on the needs of data owners. Principles 2 and 6 advocate for collaborative action, which is a goal facilitated by Dataland as a platform. Principle 5 encapsulates the ethos of Dataland, with its Articles of Association and governing bodies crafted to ensure alignment with this principle in a credible manner.

Principle 5 commits to illustrate neutrality and non-competitiveness as core values. Regarding the first, Dataland maintains neutrality by allowing the integration of any data framework, standard, and metric on its platform. The only provision is that they align with the scope of raw company data and have the backing of Dataland's stakeholders. As for non-competitiveness, this is demonstrated by Dataland's encouragement of external entities to utilise its platform for developing commercial, value-added applications. At the same time, Dataland itself refrains from such activities to preserve its stance of neutrality and non-competition.

The principles shed light on how Dataland aspires to solve the data challenge, including those discussed in Chapter 2. Meanwhile, the platform provides a set of infrastructure and resources that enable the data gaps to be bridged.

3.3 User experience with Dataland

Based on users' feedback, the overall experience with Dataland is positive. This finding is supported by the survey results shown in Figure 16, which shows that WG members who used the platform found it particularly useful for identifying comparable entity-specific data due to the structured data frameworks provided. Other users' feedback on the platform complemented this general positive experience. An asset manager believed the platform provided comparable sustainability data, while an investment advisor believed the platform provided such data in a timely and cost-efficient manner (Dataland, 2024). Contributing factors to this positive user experience include a user-friendly interface.

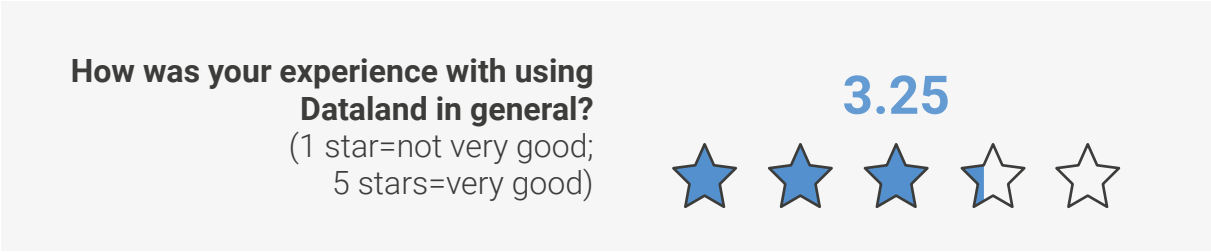


Figure 16: Survey results concerning general user experience with Dataland (UNEP FI, 2024).

However, the key value propositions from Dataland or similar data platforms users perceive are rooted in its concept—namely, building a dataset through collaborative efforts, which enhances in quality and becomes more cost-effective with greater utilisation, as explored in 3.1.

Users and potential clients also recognise that Dataland provides the necessary infrastructure for utilisation of a common data space. According to Figure 17, member institutions most commonly used the platform to solicit useful data attributes for risk assessments, client engagement, and supportive comparative analysis, among other purposes.

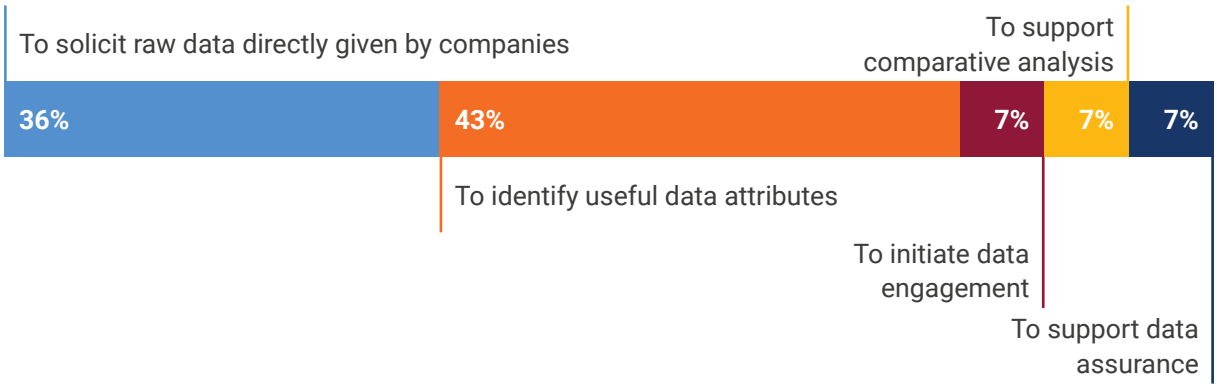


Figure 17: Survey results concerning main use cases of the Dataland platform (UNEP FI, 2024).

The platform's data frameworks have received positive feedback from member institutions, as Figure 18 indicates. These data frameworks specify data attributes and metrics that can be used to help assess company performance on given indicators. As a result, users believe that the platform helps prepare them to become more informed when carrying out client engagement and making financing decisions.

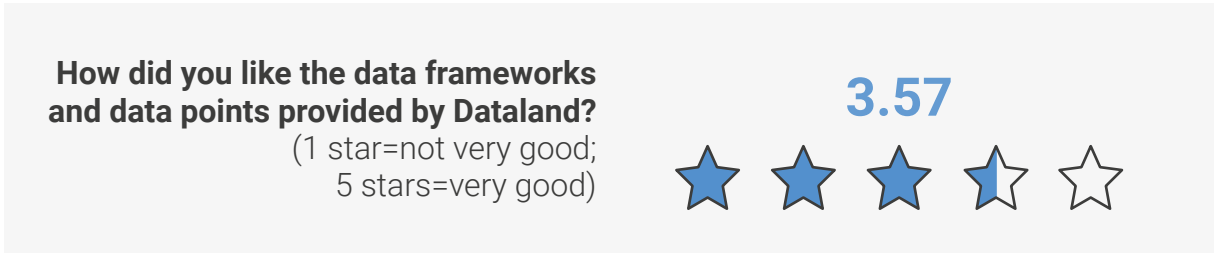


Figure 18: Survey results concerning rating for Dataland's data frameworks (UNEP FI, 2024).

However, while there is contentment with data quality available on the platform, as shown in Figure 19, members have also raised concerns over the scope of data currently available. Consequently, it is recognised that Dataland would need to achieve a critical mass of users before it can effectively serve as a primary data provider with extensive coverage of raw company data.

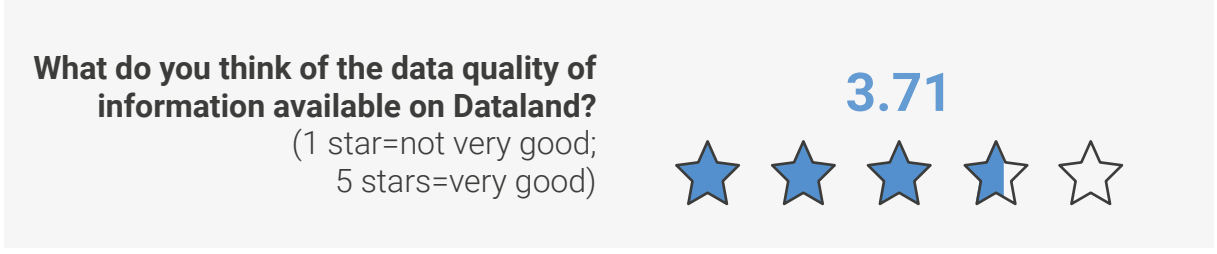


Figure 19: Survey results concerning perceived data quality on Dataland (UNEP FI, 2024).

On the operational front, users also recognise Dataland's web-interface as user-friendly since it provides easy access to data and to data requests. For example, features such as data download via the API connection facilitate the integration of external data into internal systems by streamlining the transfer and updating processes. This is achieved as APIs automate the process of fetching data from external platforms like Dataland. This automation allows for regular, scheduled data updates without manual intervention, thus ensuring that the internal systems always have access to the most current data.

3.4 Potential limitations: A case study on Dataland

The current model upon which Dataland operates is largely dependent on voluntary disclosures by companies. This means that in order for Dataland to display raw data from companies, it currently resorts to: (i) extracting information from public disclosures; and (ii) sending requests for data to companies for voluntary disclosures upon the discretion of the companies themselves, based on their willingness and strategic decisions to share such information.

On the one hand, this model helps data users, including financial institutions who might not always be best positioned to reach out to companies of interest, to initiate requests for data without exposing their identity. However, on the other hand, such an operational model can entail limitations. In the context of the Working Group, although member institutions have identified companies from which they were interested in having more data, the response rate from these companies was below the levels desired. As companies might lack incentives to respond to data requests, it could result in a data scope that is insufficient to meet the data consumption needs and requirements of users.

On the other hand, the current model specialises in collecting company-specific data. As such, while it promises to contribute to bottom-up analysis (as discussed in 2.3), it can also imply that the platform is currently incapable of offering any sectoral or regional comparison or benchmarking functionality. This is a sought-after feature by financial institutions, as indicated by WG members' feedback (Figure 20).

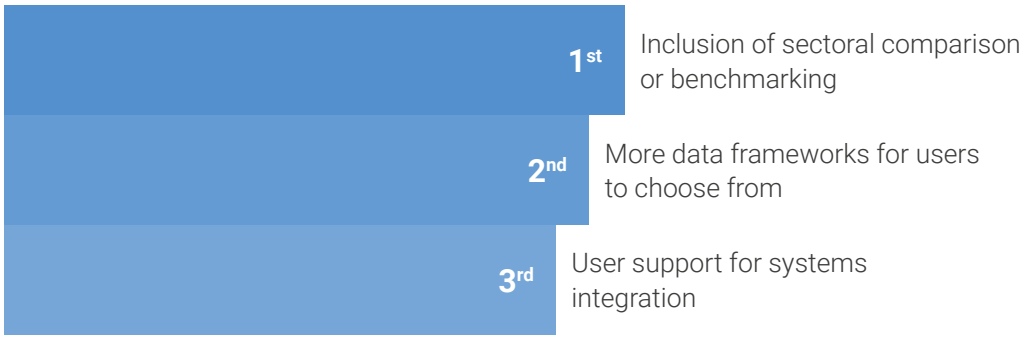


Figure 20: Survey feedback on desired future developments for the data platform (UNEP FI, 2024).

Additionally, practical issues such as difficulties with using features like APIs can limit users' ability to fully leverage platforms like Dataland. To mitigate these challenges, solution providers might offer targeted technical support to assist users with key operations, including data import/export and API utilisation. Furthermore, investing in capacity-building to enhance users' skills and their understanding of various risk assessment methodologies (including their advantages, disadvantages, and applicable scenarios) can empower users to make more informed choices regarding the appropriate data framework for data gathering and analysis.

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4. Implications and the way forward

Credit: unsplash.com/@filipz

4.1 Dataland's future development

Dataland's core focus is on helping users access raw data rather than processed data. This strategic focus is critical for several reasons, chiefly ensuring transparency and neutrality in the data available to its users. By providing raw data, Dataland empowers users to conduct their analyses, interpretations, and conclusions without the influence of prior processing or analysis that could introduce bias. Raw data serve as the unaltered record of corporate sustainability efforts, free from any modifications, summarisations, or interpretations that might skew understanding or decision-making.

On the other hand, Dataland is neutral and operates as non-profit organisation. Consequently, the platform abstains from offering competitive, value-added services based on raw data, such as rating, in-depth analysis, or sophisticated benchmarking services. Instead, Dataland positions itself as a non-competitive, neutral platform that offers the data infrastructure for the development of value-added services and applications by others. Acknowledging that the platform currently lacks regional- and sector-specific data (as discussed in 3.4) and that users deem features such as data on sectoral averages desirable (as discussed in 4.2), Dataland's focus would remain at present on raw company data. The facilitation of other types of non-entity-specific data will not be facilitated in the near future. The timing for this will depend on Dataland's success in enriching its current scope of raw company data by achieving a critical mass in its user base.

However, in the near term, Dataland plans to introduce various new features and enhancements. These include integrating private data spaces to enable companies responding to data requests to specify who can access their data. The introduction of this feature enhances privacy and control over the information disclosed and should help to incentivise voluntary disclosures. On the other hand, 'waterfall' features will also be added to allow users to set preferences for how they would like to access and prioritise different data sources, ensuring easy access to the data seen as most relevant to users' needs. Additionally, there will also be improvements on the machine-readability of data. This will come with enhancements in the platform's ability to present data that can be directly read and processed my machines and algorithms, facilitating automated data analysis and integration into workflows. Then, to enhance data quality and reliability, the platform will implement automated and semi-automated quality controls designed to check the accuracy of data uploaded to the platform. It will also offer support features that facilitate users to deploy and manage custom data models. As mentioned in 3.1 and 3.2, users can benefit from the freely accessible source code of Dataland. These allow them to implement any necessary modifications so as to adapt the interface to their own needs and their own bespoke data frameworks. This process currently requires technical expertise and development resources. To help users with less technical knowledge, forthcoming improvements have been designed to simplify this process. These enhancements seek to enable a wider range of users to use their chosen data frameworks effectively or to adapt existing frameworks to meet their unique requirements. Dataland remains committed to ongoing development of its data frameworks based on regulatory standards and user feedback.

4.2 Desired features of an ideal open-source and neutral data platform

Based on engagement with the WG members and insights gained from the Dataland project, several key ideal features have been identified for advancing and refining neutral and open-source data platforms such as Dataland's, as shown in Figure 20.

Firstly, the development of sector-specific data to support comparative analyses of companies' performance within and between sectors is identified as a top priority by users. The development of such benchmarking features is believed to contribute to enhancing the accuracy and depth of climate data analysis, particularly in situations where companies or entire sectors may lack incentives to disclose critical information such as emissions performance or associated business activities. This lack of incentive can stem from the absence of regulatory requirements amongst other factors. Sectoral benchmarks, especially those tailored to specific regions, can facilitate the use of proxy methods for estimating these undisclosed data points. This offers a way of working around data gaps and enabling more comprehensive environmental risk assessments.

The second most sought-after feature is the continuous establishment and enhancement of data frameworks. Using Dataland as an example, the provision of data frameworks that help users identify useful data attributes for specific analyses could be an essential value proposition, as Figure 18 shows. In addition, providing user support for systems integration, such as data download via API, is similarly important to users.

Another desired feature specific to platforms such as Dataland, whose operational model builds upon sending data requests and receiving voluntary data disclosures from companies, is the improvement of incentives for information sharing. As discussed in 3.4, the current lack of incentives by companies to respond to data requests represents a notable hurdle. The provision of financial incentives to support voluntary disclosures and promotion of mutual benefits for voluntary disclosures marks one possible option. Alternatively, other operational means within the platform itself could present a solution. One example would be granting companies control over who can access their data. Another would be to perform integrated assessments of physical and transition risks, as opposed to considering them separately, as at present. A further possibility would be to consider accepting anonymous data submissions, accompanied by basic information on the sector and region in question. While these additional features might serve to encourage companies to respond in higher volumes to data requests and to disclose company data voluntarily, they could also add to the risk of data transparency and quality becoming compromised. In recognition of this, it is recommended that these additional features be considered (assuming they are available) as a potential support to meaningful comparative analysis.

5. Conclusion

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Leveraging company-specific raw data could help remove potential bias due to data transformations or processing while providing such data on a free and open-source platform helps foster an accessible solution that could be continuously enhanced with joint efforts from data users and reporting companies. Then, through providing data frameworks informed by regulatory and voluntary disclosure standards, users can be better equipped to identify and select potentially useful data attributes that could help them assess risk exposures and vulnerabilities due to the actual and potential impacts of climate change. By addressing the challenges of data reliability, accessibility, and the need for standardised disclosures, these platforms have the potential to significantly advance climate risk assessment and management.

However, platforms that operate on models that are dependent on voluntary responses from companies to data requests need to be bolstered through incentivising reporting companies to broaden data scope. As we move forward, the need exists for concerted, cross-sectoral efforts to realise the vision of a climate data infrastructure that is comprehensive, accessible, and reliable. This will involve not only the continuous development of platforms like Dataland but also a collective commitment to overcoming the barriers of data consumption. By prioritising the development of sector-specific data, enhancing incentives for voluntary disclosures, and improving support for data framework navigation and API integration, the potential for a solution for data accessibility and reliability can be realised. Doing so will enable more informed, effective decision-making in response to the climate crisis.

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UN environment programme

finance initiative

UNEP Finance Initiative brings together a large network of banks, insurers and investors that collectively catalyses action across the financial system to deliver more sustainable global economies. For more than 30 years the initiative has been connecting the UN with financial institutions from around the world to shape the sustainable finance agenda. It has established the world's foremost sustainability frameworks that help the finance industry address global environmental, social and governance (ESG) challenges. Convened by a Geneva, Switzerland-based secretariat, more than 500 banks and insurers with assets exceeding US$100 trillion work together to facilitate the implementation of UNEP FI's Principles for Responsible Banking and Principles for Sustainable Insurance. Financial institutions work with UNEP FI on a voluntary basis and the initiative helps them to apply the industry frameworks and develop practical guidance and tools to position their businesses for the transition to a sustainable and inclusive economy.

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