GBBC Digital Finance

Guidance on ESG Reporting for Digital Assets

Produced by the ESG Working Group:
Science-Based Targets Sub-Working Group

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Part I: Background

Rationale for the Guidance

The digital asset sector is impacted by ESG risks that need to be accurately and transparently disclosed. Climate-related issues have become a key reputational risk for the digital asset sector regardless of any individual digital asset industry stakeholder's own emissions footprint. With climate change being an existential challenge for the world, it is imperative for digital assets to demonstrate they are aligned with global needs relating to decarbonization and climate solutions.

The digital asset sector has seen many different efforts taken to begin to credibly measure and disclose the GHG emissions footprint related to the sector. These efforts have been held back by a lack of transparent comparisons between different methodologies and data sets used, as well as limited data availability which is a consistent challenge in GHG emissions measurement across the value chain, particularly for Scope 3 emissions.

Through promotion of accurate, transparent methodologies, and improved data collection, this guidance is aimed to support clearer, more accurate, and greater comparability of reported emissions impact and forward-looking targets for various digital assets. By promoting an industry-wide approach that recognizes methodological and data realities for different parts of the digital asset value chain, this guidance aims to support development of metrics for current emissions as well as to support short-, medium- and long-term targets for digital assets that are aligned with global Net Zero Emissions by 2050 and the target to limit global temperature rise to 1.5˚ C.

Non-Technical Background

The Greenhouse Gas (GHG) Protocol, the global standard for measuring greenhouse gas emissions, categorizes a carbon footprint into three groups of emissions, or "Scopes":

- **Scope 1** covers direct emissions from owned or controlled sources, like emissions from fuel used in our company-owned cars, use of natural gas or diesel to power an entity's own data centers, and emissions from use of refrigerants in air conditioning.

- **Scope 2** covers indirect emissions from the generation of purchased energy, such as the electricity we buy to power our offices.

- **Scope 3** covers all other indirect emissions from a company's value chain generated due to business activity. The Greenhouse Gas Protocol outlines fifteen Scope 3 categories that can be measured. The following categories are the most relevant to the digital assets industry:

- **Category 1: Purchased goods & services** *Digital asset companies that purchase hardware would include the Scope 1 + 2 emissions embedded into those goods into their own Scope 3 emissions*
- **Category 2: Capital goods** *Digital asset companies that build and own their own data centers would include the Scope 1 + 2 emissions embedded in those facilities into their own Scope 3 emissions*
- **Category 5: Waste generated in operations** *Digital asset companies that own hardware would include the Scope 1 + 2 emissions related to end-of-life disposal of those assets within their own Scope 3 emissions*
- **Category 6: Business travel** *Digital asset companies whose staff travels extensively would include the Scope 1 + 2 emissions generated by that travel within their own Scope 3 emissions*
- **Category 8: Upstream leased assets** *Digital asset companies who lease space in data centers would include the Scope 1 + 2 emissions generated by that travel within their own Scope 3 emissions*
- **Category 11: Use of sold products** *Digital asset companies whose outputs underpin the activities of other digital asset activities (e.g., 'Layer 1' or 'base layer' digital asset providers) would include the Scope 1 + 2 emissions generated by 'Layer 2' digital asset companies that use their ledger within their own Scope 3 emissions)*
- **Category 15: Investments** *Digital asset companies who use distributed ledger technology to facilitate asset tokenization or enable financial services would need to include a range of Scope 1 - 3 emissions (depending on context) of those assets or financed, facilitated, managed or advised activities in their own Scope 3 emissions*

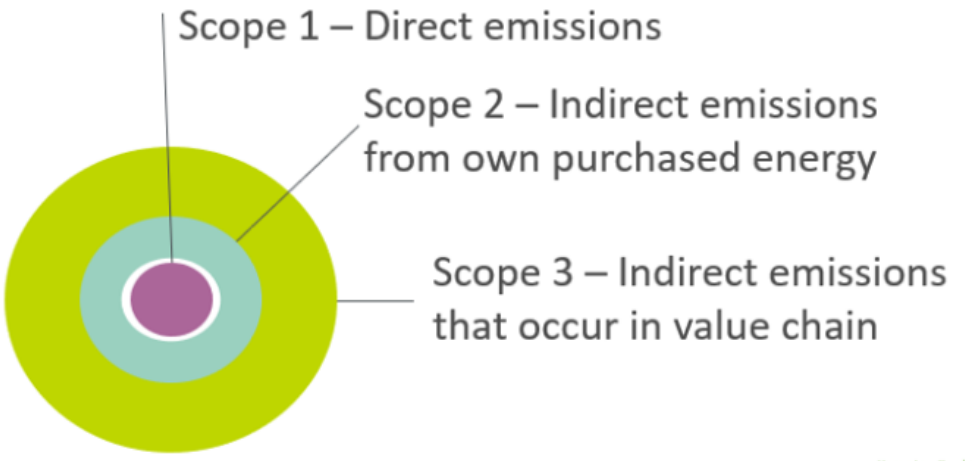


Diagram 1: Scopes 1-3

Due to the structure and nature of digital assets, including as a result of decentralization, Scope 3 emissions will frequently be the dominating contributor to a digital assets market participant's emissions footprint, although the balance between different categories within Scope 3 (see above examples and Diagram 2 for reference) will vary depending on the

business model, nature of interaction, and specific characteristics of the assets under consideration. Exceptions to this Scope 3 dominance may occur in respect of participants' interactions with digital assets that are mined using Proof of Work (PoW) systems where Scopes 1 and 2 entail significant sources of emissions due to PoW intensive computing power requirements and the associated hardware needed for PoW mining activities.

GHG Protocol - 15 Categories	
Upstream	Downstream
Purchased goods and services	Downstream transportation and distribution
Capital goods	Processing of sold products
Fuel and energy related activities	Use of sold products
Upstream transportation and distribution	End of life treatment of sold products
Waste generated in operations	Downstream leased products
Business travel	Franchises
Employee commuting	Investments
Upstream leased assets	

Source : The Greenhouse Gas Protocol (GHGP)

Diagram 2: Upstream and Downstream Categories

Overarching Principles

Accepting Responsibility

The overarching principle of emissions measurement is that every reporting entity is responsible for measuring, and to the extent possible mitigating, all of the emissions across its value chain, including:

- Upstream – for digital assets market participants, this will include Layer 1 DLTs and other providers of goods and services in respect of the participant's business; and
- Downstream – looking at the customers of the participants, including the activities that they undertake as facilitated by the activities of the digital assets market participant.

Notably, whilst facilitating customer understanding of their own emissions footprint through effective disclosure at the digital asset market participant level is helpful, disclosure does *not* transfer or reduce responsibility for mitigating emissions associated with the relevant digital assets at the market participant level, including Scope 3.

Alignment of Approach

The digital assets industry would derive significant benefit from alignment on net zero target setting, emissions calculation (including the methodological basis) and on reporting. There

are increasing mandatory requirements on other participants in the value chain, including investors and regulated institutions (who may be customers, or connected in other ways), to set targets, measure emissions, adopt science-based pathways to achieve net zero and report their results. Early voluntary adoption of a consistent approach by the industry will enable responsible participation in this process, including the ability to readily comply with the increasing information demands of stakeholders and the principles below are devised with this bigger picture in mind.

Transparency and Collaboration

Given the breadth of potential starting points for digital assets industry emissions measurement methodologies, and the fact that one-size will not fit all participants, it is important that participants are as transparent as possible about the measurement and calculation systems that they adopt and how they have applied them. In order to enable all participants in the value chain to comply with the first two principles, transparency, knowledge and data sharing and collaboration are key.

A Note on Proof-of-Work (PoW)

This guidance accepts the widely held view that PoW systems *'waste'* energy due to their use of high-power mining computers. However, the working group would emphasize that it recognizes that there are some strong arguments in favor of PoW consensus mechanisms, including highly effective decentralization features which have not yet been replicated in other systems, and that decarbonisation strategies should be adopted to the extent possible by all participants in the network to help with emissions mitigation.

Although they have little influence over the source of electricity used to mine in a PoW system, it is noted that intermediaries in the digital assets industry ecosystem remain accountable for emissions arising from this activity within their own Scope 3 emissions, wherever such emissions arise within their Scope 3 reporting boundary.

A trend towards non-PoW consensus mechanisms and/or adoption of comprehensive renewable energy strategies may mean that these issues become obsolete in the future. In the meantime, certain high emitting assets must be appropriately accounted for in calculations and reporting.

Objectives of the Guidance

The primary objective for this guidance is to promote digital asset company commitment to disclose their current greenhouse gas (GHG) emissions, including from their entire value chain, and accompany these disclosures with target setting aligned with the relevant Science-Based Targets Initiative (SBTi) guidance for future time-frames (short, medium, and long-term).

The Working Group recognized through engagement with industry stakeholders in two roundtable consultations that on the disclosure side, no single measurement or allocation process for relevant emissions will be equally applicable across the diverse array of digital asset stakeholders. Therefore, we aim to provide key characteristics of measurement and allocation processes that are used to assess their fit, completeness and relevance to the particular circumstances where they are applied and within the bounds of what is generally regarded as being 'science-based'.

A secondary objective for this guidance is to enhance market alignment concerning accounting for emissions in the digital asset value chain beyond Scope 1 and Scope 2, throughout various levels of Scope 3 value chain emissions. Emissions measurement is a complex process, and the common understanding of emissions that need to be calculated is often limited to just direct sources (as known as smokestack emissions), as well as those created in the process of generating heat & electricity that an entity purchases, and the emissions related to transportation, such as business travel.

Extent of Scope 3 Emissions

Scope 3 emissions, which includes business travel-related emissions but also many other types, is far broader than many people understand. In order for the guidance provided here to be relevant in the context of other reporting and target-setting frameworks like SBTi, there will need to be significant education required to provide greater familiarity with other existing emissions disclosure frameworks. To enable integration of the guidance provided here, including the measurement and calculation outcomes arising from its application, with the requirements of other relevant reporting and target setting frameworks like SBTi, significant education is required to enhance digital assets market participants' familiarity with the position of other businesses in the digital assets value chain, relevant other existing emissions disclosure frameworks, and the way in which their own activities concerning emissions calculation and disclosure, do or will interact.

This guidance seeks to assist with that process by defining how other emissions reporting activities in the upstream and downstream value chain integrate with (including how they may differ from) digital assets market participants' analysis and calculations. Mapping this chain and these vital interactions is a key part of what the guidance seeks to achieve.

The guidance also seeks to define how other emissions reporting impacts and connects to the measurement and reporting by companies upstream (information & communications technology) and downstream (tokenized assets and real economy activity connected by financial services activities enabled through distributed ledger technology) that flow into the digital asset industry's own GHG emissions (including the upstream-downstream emissions reporting flow from base-level (Layer 1) to other layers (e.g., Layer 2) applications.

Scope

This guidance is limited to focusing on how adopters (organizations in the digital asset value chain, which may include aspects which are of relevance to stakeholders or investors in those organizations, but does not include holders of or investors in digital assets, purely from the perspective of such holding or investment) measure and report their direct and indirect emissions. The full scope of reporting that adopters should cover is unlikely to be documented in a one-off effort since there is no universal methodology, or perspective on calculations arising from the application of such methodology, which is applicable to every potential adopter. However, understanding the background to calculation of emissions in one part of the value chain, and one's own relative position to that calculation point, brings the possibility of rationally applied, aligned emissions calculations across the industry, a few steps closer.

Adopters are expected to:

(1) Accept the overarching principles documented above;

(2) Understand the process behind 'science-based' target setting, including understanding a process for identification, measurement and calculation of emissions in one or more parts of the value chain (whether or not the methodology used is potentially applicable to their own value chain interaction or not), the indicators of robust methodologies and key potential calculation pitfalls;

(3) Map their own relative position to such 'calculation reference points' within the value chain and aim for alignment in their own approach to target setting and calculation;

(4) Rationally assess materiality factors with regard to the efforts that need to be made and priorities to be applied in calculating their own emissions, including

   (a) size of the relevant emissions, whether Scope 1, 2 or 3 and across all 15 Categories of Scope 3, and

   (b) the degree of influence available to cause mitigation of the measured emissions for target-setting purposes.

The meaning of the preceding paragraph should be understood as:

i. Setting an expectation that disclosure of emissions will prioritize the largest sources of emissions regardless of scope; and,
ii. Target-setting will prioritize large sources of emissions that the adopter is able to influence directly or indirectly to promote accountability for meeting the targets.

To avoid any ambiguity, within **the Scope 3 Category 15 reporting by digital assets organizations should include the emissions from those entities which are financed,**

facilitated or advised by the reporting entity. Given the complexity of value chains, the guidance has been developed with the expectation that measurement and reporting by entities in the digital asset value change will need to present their disclosures and set targets in a way that is in line with other science-based emissions reporting guidance & standards even though that guidance or standards may not cover digital assets today.

Part II: Guidance & Best Practice

Measurement

Many digital assets are generally characterized by low levels of direct (Scope 1) and purchased energy (Scope 2)-related emissions. The primary exception to this are proof-of-work digital assets that involve either direct emissions for use in mining. For example, direct sources of emissions would be proof-of-work miners who are co-located to generate electricity from flaring of fossil gas from oil & gas wells or are using fossil fuel-powered electricity generation assets purchased for that purpose. Where miners purchase, rather than generate, electricity they use, the relevant emissions would be measured as a Scope 2 emission, and could be affected by the renewable energy mix in the grid and time of use.

There is a digital asset industry-wide interest in transparent disclosure of the electricity used by proof-of-work miners for their own disclosure and GHG emissions mitigation efforts. Among the data that would be relevant for the industry is the electricity usage from proof-of-work mining, the share of electricity used that is from renewable sources, the share of the renewable energy that is peak versus off-peak use (which can indicate the degree to which use of renewable electricity is contributing to higher peak load versus providing price support for renewable generation by taking power off-peak hours), the GHG emissions embedded in the electricity used in mining of each individual proof-of-work asset, and detailed information about any renewable energy certificates (REC) used and the ways they have been validated to avoid double-counting.

All companies involved in the digital asset industry will have some value-chain emissions that would be Scope 3 emissions. These emissions will come from a variety of activities, which will not be homogenous across the digital asset sector. Consequently, there will not be a single metric that can be used for measuring or allocating emissions for all digital assets.

The types of value-chain emissions for companies involved in the digital asset industry can be conceptually separated between three sources (see diagram 3):

- Upstream emissions related to ICT activities, within digital asset value chain
- Downstream emissions where digital asset companies' activities are connected to off-chain real economy activities whether through financing or tokenization of real assets.

This guidance fits within other guidance which may be applicable to these different areas of the value chain, including SBTi guidance for ICT, GDF guidance for digital asset market participants, SBTi guidance for financial institutions and applicable SBTi guidance for other

sectors in which the real world assets in the downstream of the value chain may be engaged.

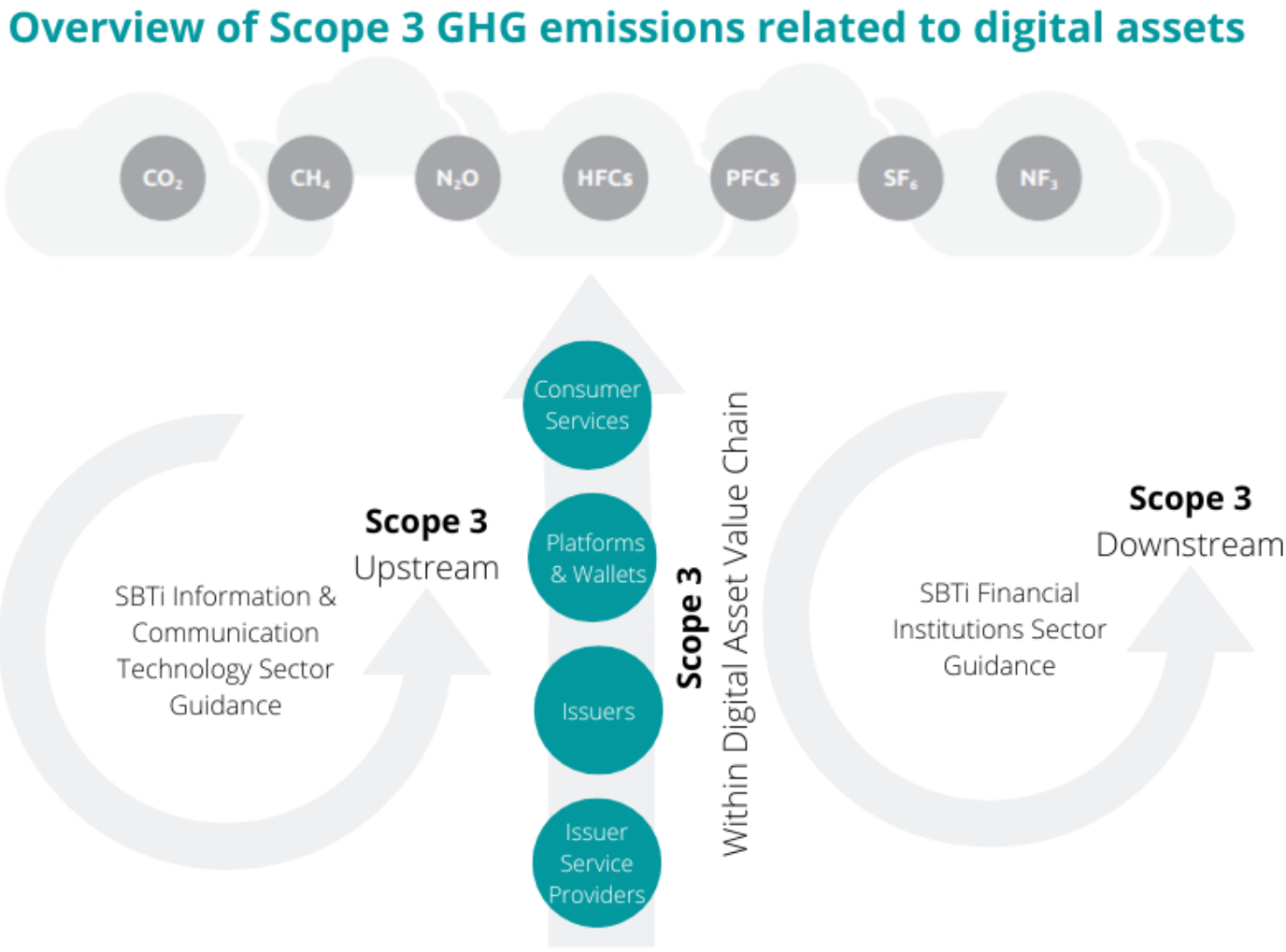


Diagram 3: Source: GBBC Digital Finance ESG Working Group

The digital asset value chain is most directly linked to two sectors where there is currently guidance from SBTi on the process of setting science-based targets and digital asset companies should align their target-setting process with SBTi guidance either directly with SBTi where possible, or else with reference to SBTi standards until there are SBTi standards covering the digital asset entity's material sources of value-chain emissions.

For example, there is currently SBTi guidance for ICT activities but this covers only mobile networks, fixed networks and data centers and may not fully cover the ICT-related value chain emissions for all digital asset providers. In the absence of complete science-based

targets, an entity will make reference to existing guidance and other related materials, such as the climate pathways for other sub-sectors within ICT which are produced by the International Telecommunications Union (ITU).

For digital asset entities involved in any financial service-related activities, they should refer to the financial services guidance from SBTi which covers activities including financial and monetary transactions including deposits, loans, investments and currency exchange. For the purposes of applying that guidance, the applicability is quite broad covering any entity which has combined revenue for all of these activities of 5% or more of the entity's total revenue.

Currently SBTi guidance for the financial services sector covers only short- and medium-term target setting and does not provide guidance for long-term Net Zero targets that are science-based. However, SBTi is currently in the process of drafting this guidance and entities developing Net Zero targets should review information such as foundation papers and other documents released by SBTi or similarly recognised organizations in the process of developing guidance on science-based Net Zero targets for financial institutions.

Carbon credits other than RECs and carbon offsets should be calculated and disclosed, but should not be applied as reductions of reported GHG emissions and should always be displayed separately from the gross GHG emissions. For Net Zero alignment and target-setting, disclosure of RECs, other carbon credits and carbon offsets cannot be presented in a way that suggests that they can be "netted" with gross GHG emissions to get a more accurate emissions footprint of a reporting entity.

An exception to the preceding is where an entity is able to demonstrate that it has mitigated or will mitigate 90% of its total baseline emissions under a science-based target and is applying its carbon offsets solely to mitigate the remaining 10% of its total baseline emissions. Any offsets used for such purposes will follow disclosure guidance for carbon offsets described in the Draft S2 climate disclosure standard issued by the International Sustainability Standards Board (ISSB) or other similar standard.

A Note on ISSB

The ISSB within the International Financial Reporting Standards (IFRS) Foundation has released Draft S2 Climate Disclosure Standard for comment and is in the process of finalizing the standard for disclosure of climate-related financial information. It aspires to become a 'baseline' disclosure standard and will be an important foundation for all climate-related disclosures. However, there will be an extended process for that standard to be finalized, adopted and phased-in. In the interest of promoting more rapid response to the climate change emergency, other standards and guidance will remain an essential part of coordinating action, particularly at the industry-level where that is not covered directly by

other standards or guidance. This is the case for digital assets, where guidance is needed to support action now that may eventually be covered by other global 'baseline' standards such as those issued by ISSB.

Best Practice Methodologies for Measurement of GHG Emissions

The Working Group has considered a number of other initiatives within the digital assets industry space working on carbon emissions and net zero relevant topics. One such initiative, the Crypto Climate Accord, has published guidance on methodologies for accounting and reporting electricity use and carbon emissions from cryptocurrency. The Working Group noted that a market participant's chosen methodology may vary depending on a number of factors including the digital asset in question, the availability of data and the use of the reported data.

There are a number of emissions calculation methodologies used, and none are yet considered as "best practice" for most companies involved in the digital asset industry nor are they intended to be 'standardized' metrics that must be used to follow this guidance. However, understanding current application of the methodologies in one or more context(s) in which they are used, identifying aligned and differing features and the relative position of the market participant to these reference positions is important in creating better alignment across the industry in terms of the approach.

To further these objectives, the GDF Working Group held two roundtable consultations to solicit feedback on positives, negatives, applicability and gaps arising from the application of different methodologies to different digital assets scenarios and different business models in the value chain.

One methodology discussed in the roundtable consultations was the Crypto Carbon Ratings Institute (CCRI) hybrid Crypto Climate Impact Accounting Framework developed in conjunction with South Pole and PayPal. This methodology allows for allocation of measured emissions for digital assets held and transacted based on a hybrid metric combining block rewards from mining and transaction fees. The intent of these workshops was to develop the disclosure guidance to reflect and contextualize what characteristics make a measurement methodology credible. The outcome of the workshops was to confirm the lack of single methodology and to focus in more detail on the different situations that digital assets entities may face in measuring and disclosing their emissions and setting forward-looking targets. We provide principles relevant to each to guide disclosure and target-setting activities today and highlight challenges that remain.

The three situations we identified are:

1) **High-emissions digital assets pursuing transition (and activities in relation to them)**

Digital assets falling into this category include the assets which are based on proof of work consensus mechanisms, already mentioned, and any other digital assets which entail a similarly high in-built emissions footprint due to activities required for integral activities like creation or transmission and/or due to the nature of the electricity used in functional interaction with the relevant digital asset. Since digital assets are a relatively new development, a credible transition plan for high-emitting digital assets will include a managed phase out of the high absolute emissions which will need to occur during a period of rapid growth. Emissions reduction made and measured on an intensity basis will generally be incompatible with a science-based approach because absolute emissions will continue to grow.

Emissions mitigation by increasing the share of electricity from renewable sources will also likely be incompatible with science-based targets unless paired with a climate solution that ensures that renewable demand from digital assets is not delaying the transition to renewable energy for other energy users. An example of such a climate solution would be automated movement of a proof-of-work network's electricity use to off-peak times to effectively provide a price floor for renewable generation while also ceasing electricity use during peak hours when it would be boosting demand to keep higher-emissions peaker power stations in service.

2) More advanced 'transition', and 'aligned' digital assets (which are not high-emissions assets) (and activities in relation to them)

For digital asset companies that do not themselves have high emissions directly or through their own use of purchased electricity, their emissions measurement methodology will rely on the ability to measure a wide range of their value-chain emissions. This will be challenging because of the lack of data from other digital asset value chain entities, difficulty allocating measured emissions between digital asset value chain participants, and lack of comprehensive and comparable methodologies to use.

In relation to the CCRI Methodology described earlier, the workshops noted this was only useful for digital assets market participants who operated on a basis using block rewards and transaction fees as incentives for providing processing capacity. Since a large number of participants are not themselves operating in this way, the methodology is not usable including where businesses are being operated using or providing services relating to private (permissioned) blockchains where neither block rewards nor transaction fees are applied.

Additional limitations were identified by the Working Group and potential for improvements, including:

i) It will need to be disclosed over what time frame the calculations are presented to be consistent between reporting entities –

Measuring the same length of time at different points of time, or different lengths of time for the same point in time will result in different outputs;

ii) Historical emissions estimation as an input into anything requiring an emissions trajectory will require estimating past data that may not be readily available –

Prior period data will be needed to show changes over time in attributed emissions to determine whether a digital asset entity is moving towards or away from a target and whether the pace of change is rapid enough to achieve an adopted target; and,

iii) Although the hybrid approach provides a clear calculation metric for holding and transacting in digital assets, the incorporation of hybrid methodology output into the emissions measurement by other digital asset value chain entities is not clearly defined –

Service providers to a digital asset miner or wallet will have some advised or facilitated emissions from each digital asset provider its product or service supports, but the process of aggregating the outputs across its first- and second-degree value chain entities is not clear in the hybrid methodology.

When digital asset entities have measured their emissions and emissions trajectories, they will be able to determine whether they are on track (aligned) with a trajectory like the Paris Agreement, Nationally Determined Contribution or Net Zero. If they are showing progress towards a target they will be 'aligned' and will continue to measure their emissions reduction to demonstrate continued alignment.

If they are not aligned with the target that they have adopted, they will be 'transitioning' and should develop a transition plan and explain whether it is in line with external frameworks for transition plans. Future measurement of emissions will be conducted to measure whether their emissions reduction efforts have brought them into alignment with their target, is on pace to become aligned and the time frame over which they will complete alignment, or be not aligned to a target that they have set.

3) Carbon-negative or climate-solutions digital assets (and activities in relation to them)

The prior two situations will cover a large proportion of the digital asset sector. However, there will be some digital asset entities who will have emissions but also create, measure or validate emissions reductions for other companies (whether digital asset related or not). These entities will need to measure their own direct, indirect and value-chain related emissions and trajectories.

Digital Asset Climate Solutions will also need to demonstrate the magnitude and source of emissions reductions that their product facilitates, as well as how it will be measured. Any digital asset entity Any digital asset market participant which is considering itself a 'climate solution provider' should be able to demonstrate its own transition plan or alignment as well as expect to be able to demonstrate that its product creates multiples of its own direct emissions footprint in climate mitigation and do so in a way that uses transparent methodology without relying on 'avoided emissions'.

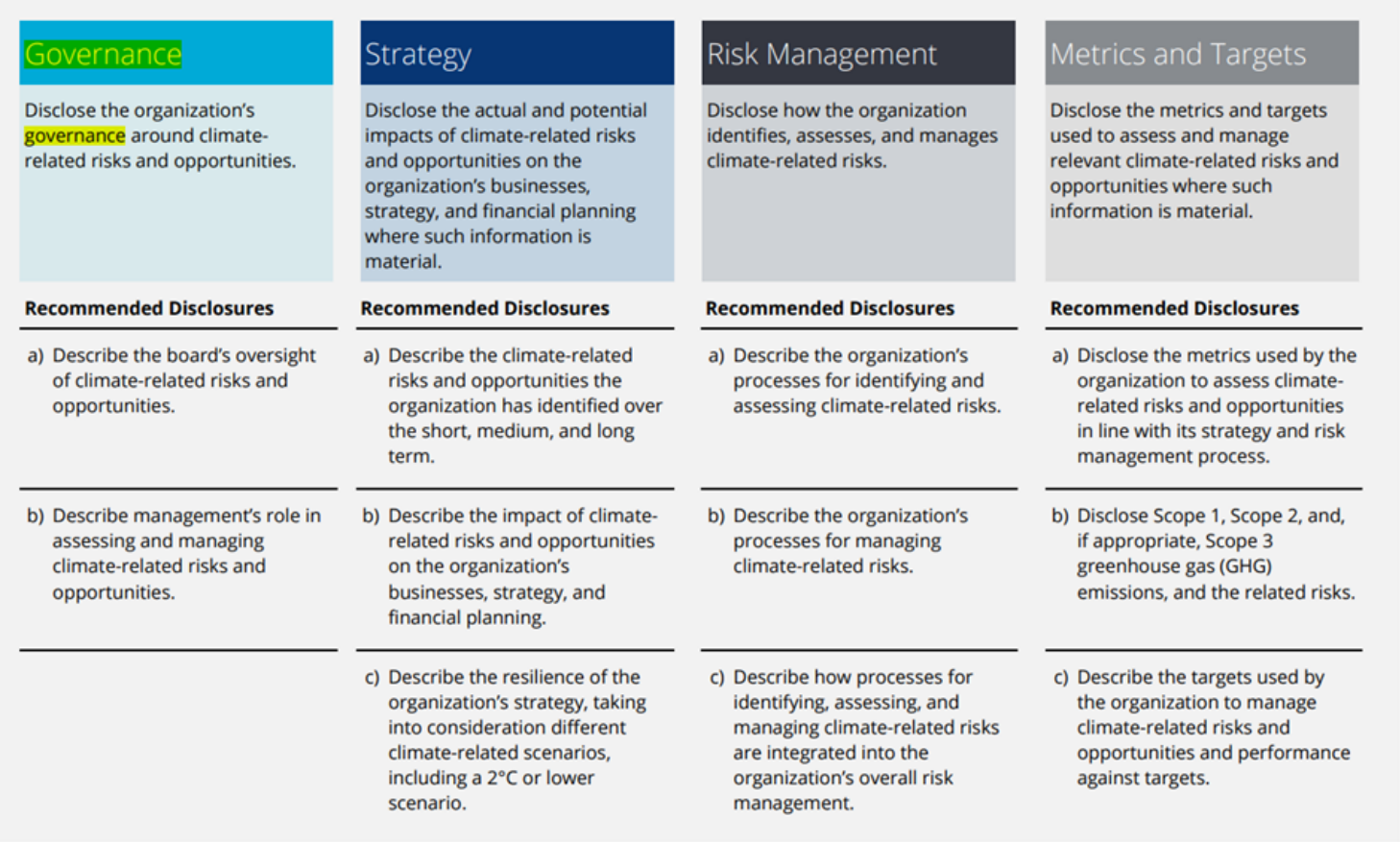
Governance

Whilst the Working Group has been focused on establishing base principles, methodology and measurement best practice, and open cross-industry engagement recognising interconnectedness of reporting via a commonly shared concept of digital assets industry value chain mapping, the Working Group has also considered the type of governance that digital assets market participants need to have in place to manage establishment of metrics and targets, reporting and verification, transition strategy setting and the adoption of actual net zero transition activities.

Governance can be considered at the technology level, the organizational level, and from the industry perspective (including through organizations like GDF and more broadly the right approach to interaction with other relevant stakeholders).

Technology level - In digital assets, there may be a tendency to consider strong governance features within underlying technology as potentially resolving governance challenges in other respects. The fact that blockchain enables transparency, immutability and traceability features may lend some substantial advantages in terms of the potential for 'climate-solutions' digital assets applications briefly mentioned above, and for recording data including emissions calculations; however, it does not necessarily provide a strong foundation for governance of ongoing metric and target suitability assessment, best practice evolution (including due to scientific understanding and evolving macro/physical conditions), or testing of and accountability for organizational ambition on climate targets and emissions reduction activities. These are all aspects which need to be accommodated in a robust governance arrangement covering digital assets emissions calculation, reporting and mitigation matters.

Organizational level – Not all digital assets organizations are companies or have centralized management boards or similar arrangements. However, some are, and much of the global thinking to date concerning what "good governance" looks like in the context of emissions reduction target setting and associated activities has focused on the way this is managed in a traditional corporate structure. Some of the principles are relevant whatever the organizational form and the following overview on the appropriate scope for disclosure, not of emissions metrics, calculations and outcomes, but on the mechanisms implemented to ensure that the methods and targets are appropriate and robust, is helpful:



Governance	Strategy	Risk Management	Metrics and Targets
Disclose the organization's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	Disclose how the organization identifies, assesses, and manages climate-related risks.	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
Recommended Disclosures	**Recommended Disclosures**	**Recommended Disclosures**	**Recommended Disclosures**
a) Describe the board's oversight of climate-related risks and opportunities.	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	a) Describe the organization's processes for identifying and assessing climate-related risks.	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.
b) Describe management's role in assessing and managing climate-related risks and opportunities.	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	b) Describe the organization's processes for managing climate-related risks.	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

Diagram 4: Source: Task Force on Climate-related Financial Disclosures

Common principles include:

i. An organizational structure to provide oversight and frequent review (such as a board or relevant committee)

ii. An organizational structure that has the power to influence and enforce where more day to day bodies or responsible persons may be failing (such as a shareholder role)

iii. A documented/integrated specific role responsible for carbon emissions/net zero policy and implementation (with scoped obligations) (such as a specialist sustainability employee / consultant)

iv. A periodic reporting programme including baseline and historic data as well as current which accommodates materiality in a rational manner and is framed taking into account the context of the audience reviewing / using the data that is being provided

v. Potentially a periodic third party engagement for verification (such as an audit)

vi. A 'bigger picture' process entailing regular risk and opportunity identification outside of whatever measurements, targets and strategies have already been adopted

vii. Maintaining 'sustainability sensitivity' including acknowledgement that climate change risks sit amongst a number of other environmental issues, including biodiversity loss, for example, as well as within the broader "ESG" picture, and that sustainability generally requires some mitigation of inherent 'short-termism' in organizations

viii. Incorporating feedback loops which enable adjustment of the systems that have been adopted in response to the reviews and bigger picture consideration processes referred to above

ix. Prioritizing a values-led approach with integrity, clarity, transparency including active participation in disclosure activities, appropriate data sharing and network collaboration, alignment with other relevant value chain approaches, integrating standards quality-testing and ambition-testing, as well as performance testing

Digital assets market participants using carbon offsets within their overall strategy need to adopt specific governance procedures to ensure robustness of the policy and the offsets and that reliance on offsets does not override commitment to potentially more ambitious mitigation activities.

Those participants adopting best practices in relation to emissions measurement and net zero target setting should consider the ways in which good governance can be integrated into these arrangements in their own organizational context.

Market level – Good governance in the market entails frequent exchange in open forums with other participants to help generate more complete value chain measurement using methodologies where 'translation factors' from one to another are understood and where gaps can be readily identified.

Good governance at this level also entails support for advance voluntary adoption and testing of systems and procedures, stakeholder and regulatory engagement with two-way contribution in regard to incorporation of digital assets market participants within mandatory reporting frameworks either directly or indirectly via inclusion of reported data that is rolled up into, for example, regulated investor reporting. The market also needs to maintain a dynamic, evolutionary approach. Current metrics and processes are by necessity 'starting points', they are intended to be subject to ongoing re-assessment, improvement and overwriting. This is not just because of better industry understanding and data availability over time, but also because of numerous external factors including scientific understanding and evolving physical environmental risks and the impact of climate events. Market level discussion forums, collaborative activities between different standards bodies and different aspects of value chains and resilient, well-integrated feedback structures to ensure that standards are regularly revisited and updated, are essential for healthy market development on these issues.

Part III: Glossary

Digital Asset (also known as a Crypto Asset or Virtual Asset) - Any asset that is represented digitally or electronically that is cryptographically secured. There are many different types of digital assets, not all of which will be capable of attracting personal property rights.[1]

Greenhouse gas (GHG) emissions – Includes all of the emissions covered by the UN Framework Convention on Climate Change (UNFCCC), namely carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).[2]

International Sustainability Standards Board (ISSB) – The International Sustainability Standards Board (ISSB) is a standard-setting body established in 2021-2022 under the IFRS Foundation, whose mandate is the creation and development of sustainability-related financial reporting standards to meet investors' needs for sustainability reporting.[3]

Scope 1 Emissions – Direct emissions from sources owned or controlled by a reporting company. A shorthand for scope 1 is 'burn' because it includes things your business burns, for example, fuel to heat or power buildings, vehicles, and other equipment. Scope 1 also includes accidental or fugitive emissions like chemical and refrigerant leaks and spills. Scope 1 will apply to businesses with a physical footprint, such as, brick-and-mortar stores, factories, office buildings, and company-owned vehicles and equipment.[4]

Scope 2 Emissions – Indirect emissions related to purchased electricity, steam, heat, or cooling.[5]

Scope 3 Emissions – Any emission beyond direct operations and electricity use, including supply-chain operations and end-product usage by customers.[6]

Partnership for Carbon Accounting Financials (PCAF) – A global partnership of financial institutions that work together to develop and implement a harmonized approach to assess and disclose the greenhouse gas (GHG) emissions associated with their loans and investments.

Science-Based Targets initiative (SBTi) – A science-based carbon reduction target is in line with what science says is necessary to limit global warming to no more than 1.5˚C above

[1] This working definition is adapted from a few sources including Digital Assets: Consultation paper and GDF-Code-of-Conduct-Part-IX-Principles-for-Custody-Custodial-Wallets.pdf.
[2] Required gasses and GWP values_0.pdf (ghgprotocol.org)
[3] International Sustainability Standards Board - Wikipedia
[4] What are scope 1 emissions?
[5] Scope 2 Guidance | Greenhouse Gas Protocol (ghgprotocol.org)
[6] Scope 3 Calculation Guidance | Greenhouse Gas Protocol (ghgprotocol.org)

pre-industrial averages – the aim of the 2015 Paris Agreement. Science-based targets must be approved by the SBTi.[7]

Sources

DLA Piper: Global Carbon Footprint Baseline Report: https://www.dlapiper.com/~/media/files/about/dla-piper-global-carbon-footprint-baseline-report-web.pdf?la=ko&hash=807695FEF3A895E03541DD47E8B4E0409F53B704

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GHG Protocol: Required Greenhouse Gases in Inventories: https://ghgprotocol.org/sites/default/files/standards_supporting/Required%20gases%20and%20GWP%20values_0.pdf

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International Sustainability Standards Board: https://en.wikipedia.org/wiki/International_Sustainability_Standards_Board

Sustain Life: What are Scope 1 Emissions?: https://www.sustain.life/blog/scope-1-emissions

[7] PDF DLA PIPER GLOBAL Carbon Footprint Baseline Report

ABOUT GDF
Global Digital Finance is the leading industry association advocating and accelerating the adoption of best practices for digital assets. Our goal is to promote and underpin the greater adoption of market standards through shared engagement forums with industry participants, regulators, and policy makers.

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