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ISO STANDARD FOR INVESTMENT, FINANCING AND CLIMATE CHANGE (ISO 14097)

WORKING GROUP SCOPING DOCUMENT - NOV 2017

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ISO 14097: SCOPE AND OBJECTIVE

The ISO 14097 *"Framework and principles for assessing and reporting investments and financing activities related to climate change,"* was proposed by the French standardization body AFNOR and approved by ballot in January 2017. The convenors are Stan Dupré (CEO of 2° Investing Initiative – commissioned by AFNOR) and Massamba Thioye (UNFCCC secretariat), with AFNOR acting as secretariat.

OBJECTIVE. The overarching objective of ISO 14097 is to create the first standard for assessing and reporting investments and financing activities related to climate change, including:

- The impact of investment decisions on GHG emissions and resilience trends in the real economy;
- Alignment of investment and financing decisions with low carbon transition pathways and the Paris Agreement climate goal; and
- The risk to financial value for owners of financial assets (e.g. private equity, listed stocks, bonds, loans) arising from international climate targets or national climate policies.

USE CASE. The specific scope of ISO 14097, to be clarified during the project scoping period, includes:

- Defining benchmarks on decarbonisation pathways and resilience/adaptation goals;
- Tracking of progress of investment portfolios and financing activities with respect to these benchmarks;
- Identifying best-practice methodologies for the definition of "science-based" targets for investment portfolios; and
- Developing metrics for tracking targets' progress with respect to low carbon transition pathways and broader climate change goals.

The standard will support investors' work on climate-related issues by:

1. Harmonizing definitions, concepts and methodological frameworks related to the measurement of contributions to climate goals (mitigation and adaptation) and exposure to climate-related risks;
2. Identifying relevant climate actions for each type of financial activity;
3. Provide reporting and communication requirements and guidance for financial institutions; and
4. Provide a measurement framework to connect financial activities to their impact on mitigation/adaptation on the ground.

The following table describes the use cases of both direct users of the Standard and potential users of the information provided by organizations in compliance with the standard:

USERS	USE CASE
Financial Institutions	• Set target and identify action for climate contributions to voluntary commitment platforms and track their performance over time • Report on contribution to climate targets via emerging mandatory reporting programs
Climate Policymakers	• Track global progress toward the Paris Agreement (and future climate policies) via commitment and monitoring platforms • Understand financial risk associated with different financial portfolios and investments in the context of 2°C goal and other policy ambition levels • Set indicative targets, reporting requirements against these targets, develop negotiated agreements, and introduce incentives (e.g. tax breaks) for private financial institutions
Financial Authorities	• Design new climate-related capital requirements • Ensure market transparency on material climate-related risks

INTRODUCTION

This report provides the options for standardizations examined by the working group of ISO 14097. It is based on a review of more than 130 financial institutions' actions and initiatives on the integration of climate-related issues and current standards and disclosure frameworks aiming at improving financial institutions' practices and its comparability.

The report identifies 7 concepts (see figure 1 next page) as the most used by financial institutions currently considering climate issues in their practices and presents a critical analysis of concepts building on the criteria developed by the French government and 2° Investing Initiative (2Dii) in the context of the International Award on Investor Climate-related Disclosures. The criteria was developed to assess the best practices of climate disclosure in the context of the implementation of the Article 173 of the Energy Transition Law on mandatory climate disclosure for investors and banks. An independent jury composed of Public Administration, Members of the Parliament, Investor Groups and Advocacy NGO's applied this criteria in the selection of the Award winners.

The report provides an overview of how current standards integrate this concepts as they are presented by standards organizations and policy documents, highlights the caveats and gaps. The analysis reveals that:

- There is a lot of guidance about disclosure, but limited technical guidance on how to actually manage climate risks and impacts;
- As far as guidance on disclosure for financial institutions is concerned, there is a lot of high-level guidance on how to report on the approach, but the guidance on metrics to be used is much more scattered and limited.
- More precisely on metrics, it is to be noted that the existing guidance almost exclusively focus on various ways to measure the 'exposure' of financial institutions to climate-relevant activities (using indicators such as carbon intensity, and green and brown taxonomies on business activities and technologies) but is almost inexistent when it comes to calculating the consistency with climate goals, the related value-at-risk, or the impact of the actions undertaken by the financial institution.
- Finally, the guidance generally presents caveats in the consistency between the concepts used (e.g. green investments) and the way they are translated into metrics (e.g. impact metrics).

We build on this analysis to provide a set of recommendations for the WG10 members of ISO 14097 to consider when defining the scope of the standard moving forward:

- **Clarify the objective(s)** addressed by the standard based on the current objectives pursued by financial institutions, these being i.) the management of climate-related financial risks; and ii.) the contribution to the achievement of climate goals.
- **Define the scope of the working group**. We suggest to focus the the of the ISO 14097 working group on the functions of *investment portfolio* and *loan book management*, assuming that the standard created will be adapted to other services at a second stage
- **Define a list of financial institutions 'actions'** that can contribute to climate-related risk management and/or support the achievement of climate goals and **document** how these actions are linked to the achievement of the objective(s).
- **Define metrics** that serve each of the objective. Value at risk metrics for the assessment of climate-related risks should include a relevant forward-looking time frame and account for the adaptive capacity of investees in a portfolio. Impact metrics assessing the contribution to climate goals should track the evolution of company indicators at 'physical asset-level' (e.g. CAPEX expenditures).

Based on these recommendations the WG10 examined the advantages and disadvantages of standardizing processes for the assessment, management and disclosure of climate-related risk and financial institutions' contribution to the Paris Agreement.

This process led to the definition of the scope of the standard: at a first stage, the standard will focus on developing a framework to assess the contribution of investments to the Paris Agreement. Standardization avenues around climate scenarios will be as well considered. At a second stage the group will focus on developing a framework for the management of climate-related risks associated to different climate scenarios, the extent at which this topic will be addressed will depend on the market's response to the TCFD and the HLEG recommendations.

Section one of this report provides an overview of investor's disclosure on climate–related actions, section 2 provides a review of existing standards, section 3 provides the implications of the findings for the work of ISO 14097. Section 4 provides the scope of ISO 14097 and explores the advantages and disadvantages around each standardisation option.

1 FI'S DICLOSURE ON CLIMATE-RELATED ACTIONS

1.1 LANDSCAPE REPORT: PROCESS AND METHODOLOGY

The need for standardization arises primarily from what is being executed in practice. Thus, to determine these needs and the possible standardization priorities of ISO 14097, the climate-related investment actions or initiatives of a wide range of financial institutions have been examined. A focus was given to **the identification of concepts and/or "buzzwords"** used by financial institutions when disclosing their climate-related actions. It thus does not pretend to disentangle discrepancies or caveats in the use of those concepts but rather present a snapshot of financial institutions' narratives on climate-related actions.

The types of actions considered include both individual and cooperative actions or initiatives. Individual actions considered are related to financial institutions undertaking standalone climate activities while cooperative actions/initiatives relate to coalition of financial institutions providing support on climate actions:

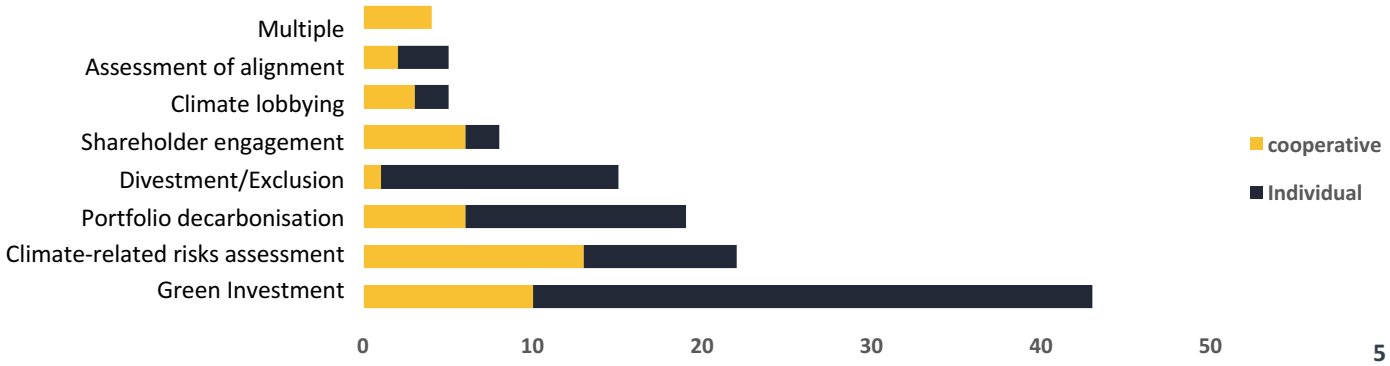
Individual actions are those carried out by a single entity being a financial institution or investor on its own. Around 80 individual initiatives were selected from the NAZCA platform due to their relevance for climate-related investments. These individual initiatives stem from banks, insurance companies, pension funds, asset owners and asset managers. In addition, a series of top 20 financial institutions rated by the Asset Owner Disclosure Project (AODP), top 10 banks and multilateral banks (MDBs) based on the amount of assets under management were considered in the analysis as well as the initiatives of the winners of the International Award on Investor Climate-related Disclosures.

Cooperative actions/initiative in general have a broader scope as they involve coalitions of financial institutions (e.g. IGCC, IIGCC, PRI) providing technical support on a wide range of investor practices. There are some coalitions focusing on a specific climate practice (e.g. Aiming for A on shareholder engagement) and other initiatives regrouping financial institutions' commitments on climate change (e.g. PDC, Montreal Carbon Pledge). There are also platforms where financial institutions disclose their climate actions (e.g. low carbon registry, NAZCA) thus signaling to other financial institutions the work of their peers. In total around 50 cooperative initiatives were studied for this report.

Sources of information. Several sources of information were considered. For individual initiatives, public announcements, sustainability and climate reports were used. Most of the initiatives included come from sustainability reports as very few organizations have published climate reports. The publication of climate reports mainly emerged in 2016 in the context of the International Award on Investors Climate-related Disclosures. In the case of cooperative initiatives, their websites and published reports have been reviewed.

Categorization process. Content analysis of the aforementioned data sources was carried out. The content study was of qualitative nature and so a categorization process was adopted. The initiatives were grouped into conceptual categories based on the narrative and terminology used by the investor or coalition. Thus, categorization provides a snapshot of the types of actions pursued by financial institutions and coalitions. Seven categories emerged from the 130 initiatives analyzed. Notably, these categories do not operate at the same level. For example, some of them relate to the actions taken in the process of target setting (e.g. alignment and risk), while others relate to actions taken to achieve the target (e.g. divest/include). Some others are associated with processes (e.g. portfolio decarbonisation). The breakdown of these categories is shown in figure 1 below.

Figure 1: Breakdown of actions by type (Source: authors)



1.2 LANDSCAPE REPORT: EXAMPLES OF FI' ACTIONS

Assessment of the alignment with Climate Goals relates to all actions integrating the use of a 2°C or related benchmark in investment practices enabling the estimation or definition of the exposure to sectors/asset classes/activities that are 'misaligned' with climate goals. In the case of financial institutions, it relates to the use of methodologies capable of quantifying the alignment with the 2°C climate goal based on a specific scenario and the use of the results to inform investment decision-making. Overall, actions on alignment with climate goals are not widely spread amongst financial institutions. The main methodologies reported by financial institutions are the 2°C portfolio check (2II 2015b) and Trucost's energy mix methodology (ERAFP 2017).

Below a few examples of financial institutions' practices/initiatives:

AXA Managers	AXA does not have an objective to align its investments with a 2°C scenario. However, the insurer has back-tested its equity and corporate portfolios to identify a plan for stock reallocation to improve intra-stock allocation and meet potential climate goals using a portfolio benchmark methodology.
NDC Invest by IDB	Platform to help countries implement their commitments under the Paris Agreement including internal and external funding mobilization.
ERAFP	ERAFP's target is to align its portfolio with a 2°C scenario. Since 2016, ERAFP measures and discloses the current energy mix of its equity portfolio and benchmarks it against the energy mix needed under a 2°C scenario in 2030 and 2050.

Climate-related risk assessment relates to actions in which the narrative is focused on the mitigation and adaptation to both transition and physical risks. In the case of financial institutions, it relates to the processes and use of metrics to assess risk exposure. The metrics used vary. The proprietary models identified provide either a cross-asset class (i.e. Mercer TRIP model) or a cross-sector analysis (i.e. Moody's environmental heat map). The in-house models generally focus on one risk parameter such as carbon prices for transition risks or windstorm events for physical risks. In the case of cooperative initiatives, it the climate-related risk assessment relates to the promotion of best practices including the use and development of disclosure frameworks.

Below a few examples of financial institutions' practices/initiatives:

Initiative	
The Environment Agency Pension Fund (EAPF)	Assesses climate-related risks using Mercer TRIP model. Mercer's analysis is undertaken as part of strategic asset allocation reviews.
Wells Fargo Bank	Assesses risks in their loan portfolios including modelling the effect of a carbon price on their power and utilities industry customers.
AXA Managers	Assesses the credit impact of environmental issues using the Moody's approach, which examines direct environmental hazards, consequences of regulatory or policy initiatives across 86 sectors.

Green Investments are mostly related to investments in companies that support or provide environmentally friendly products or that follow environmentally friendly practices. Thus, a broad set of activities can be included. Green investment is the most common action undertaken by financial institutions. Only few of FIs are however more specific in their narrative by reporting actions on climate solutions. Regardless of the label used, financial institutions tend to use green investment goals or the results of green/brown metrics to communicate their contribution to climate goals. However, the narrative on how the current green shares or targets relate to the Paris Agreement target is in most cases unclear. Cooperative initiatives focus their efforts on increasing the amount of assets invested but only a few of them promote overarching investment goals in line with climate scenarios (e.g. Ceres Clean Trillion Campaign).

Below are a few examples of financial institutions' practices/initiatives:

Bank of America	The bank has a $125 billion goal to support clients connected to clean energy and other environmentally supportive activities. It has directed $49 billion since 2013, with $15.9 billion in 2016 alone.
Local Government Super	LGS invests in a mandate in which all international listed companies must derive 50% of revenue from resource efficiency and environmental markets
Clean Trillion Campaign	To encourage investors, companies and policymakers to invest an additional $1 trillion per year globally in low-carbon energy

Divestment/Exclusion relates to the selling of assets or avoidance of purchase of assets that are, generally, carbon intensive or highly exposed to the fossil fuel extractive industry. Financial institutions tend to associate their divestment/exclusion actions with either their climate risk management policy or the overarching objective of contributing to the Paris Agreement goals. When divestment/exclusion is a result of risk management measures, financial institutions mainly rely on carbon and even alignment metrics (e.g. IRCANTEC 2016). When divestment/exclusion is initiated to contribute to policy goals, decisions are mainly driven by long-term national or international goals or NGO pressure (e.g. Deutsche bank and JP Morgan decision to stop financing new coal projects in developed countries).

Below are a few examples of financial institutions' practices/initiatives:

Initiative	
BNP Paribas	The bank's coal policy excludes all mining companies that generate more than 10% of their revenues from thermal coal and power producers that emit more than 600kg of CO_2/MWh.
JP Morgan	JPMC will not provide project financing or other forms of asset-specific financing where the proceeds will be used to develop a new greenfield coal mine.
AXA	In May 2015, AXA decided to divest from the companies most exposed to coal-related activities. The divestment concerns electric utilities and mining sectors deriving over 50% of their turnover from coal combustion / coal mining.

Portfolio Decarbonisation is the process through which financial institutions reduce portfolio exposure to GHG-emissions and align their portfolios with the climate economy of the future (ICC 2017). This concept can may integrate elements of two general objectives financial institutions are pursuing: i.) risk/return management through the reduction of the exposure to GHG emissions; and ii.) contribution to policy goals related to the aim to align portfolios with the real economy. This interpretation can however change from one investor to another. Portfolio decarbonisation implies an initial first step of determining a 'starting point' to understand the current situation, generally accomplished by measuring the carbon footprint of the portfolio, followed by the initiation of climate actions (e.g. divest/invest, shareholder engagement).

Below are a few examples of investor's practices/initiatives:

Initiative	
Mirova	Mirova offers three specific funds that are dedicated to decarbonisation, its Global Energy Transition Fund (equity) which only invests in companies providing solutions to the energy transition issue, its Green Bond fund and Mirova Eurofideme 3, a fund dedicated to renewable energy infrastructure.

Below are a few examples of financial institutions' practices/initiatives (Cont.) :

Initiative	
Ciasse des dépôts Group	The Group set a carbon footprint reduction goal of 20% per thousand euros invested in all its directly held listed equity portfolios from 2014 to 2020. From 12/2014 to Dec. 12/2016 the carbon footprint of its portfolio has reduced by 27%. The reduction is due to reallocations within the portfolio and to a reduction in GHG emissions from companies.

Shareholder Engagement refers to financial institutions' encouragement of companies to reduce GHG emissions, developing CAPEX plans aligned with a 2°C goal and improving practices on climate-risk assessment and scenario analysis and disclosure, among others. As in the case of divestment, shareholder engagement actions can be driven either by the objective to manager risk exposure or the objective to contribute to the Paris agreement by reducing the investees GHG emission levels. Due to the different pathways of engagement (e.g. one-to-one dialogue, collaborative, AGM), both individual and cooperative initiatives on engagement can be numerous, however, the review showed that disclosure of individual engagement activities is not a common practice.

Below are a few examples of financial institutions' practices/initiatives:

Initiative	
APG Asset Management / Stichting Pensioenfonds ABP (ABP)	Asked the Chinese wind energy company Longyuan to reconsider its coal activities (about 10% of total turnover) and investigate whether a complete transition to renewable energy would be more attractive
Transition Pathways Initiative	Provides data on how future carbon performance would compare to the international targets and national pledges made as part of the Paris Agreement for use in investment decisions and engagement
Aiming for A	Investor coalition undertaking engagement with the ten largest UK-listed extractives and utilities companies

Climate Lobbying is the act of attempting to influence companies, governments and policy makers to create legislation or conduct activities that support the fight against climate change. Climate lobbying can be both a cooperative practice and an individual one, however, there is much more evidence on cooperative efforts that individuals. This is partly due to the confidential nature of climate lobbying and the limited regulations on disclosure.

Below are a few examples of investor's practices/initiatives:

Initiative	
Global Investor Statement on Climate Change	Call on governments to develop an ambitious global agreement on climate change by the end of 2015 to give investors the confidence to support and accelerate the investments in low carbon technologies, energy efficiency and climate change adaptation.
PRI Investor Working Group on Corporate Climate Lobbying	The group is focused on inconsistencies between companies' public positions and those of the trade associations which they support, as well as inconsistencies between policy positions and policies to limit warming to 2 degrees Celsius.
IIGCC Initiative on EU Company Climate Lobbying	IIGCC coordinated a letter on behalf of 51 investors from 8 countries representing over 4.4 trillion in AUM which asks companies about their positions on investor-agreed climate policy issues in relation to their business strategy and how they ensure alignment between their stated positions and lobbying practices.

1.3 CRITICAL ANALYSIS

As described in 1.1, the previous section summarizes the concepts as they are presented by investors and banks, irrespective of their relevance or the consistency of their application. This section provides a critical analysis of investor's practices based on the evaluation criteria of the International Award on Investor's Climate-related Disclosures. A focus is given to the best-practices.

The review shows that financial institutions actions fundamentally pursue two climate-related objectives through their investments and lending activities:

- **Managing climate-related financial risks and opportunities** relates to the evaluation of financial risks associated with the materialization of climate change and the transition to a low-carbon economy, and the strategies needed to avoid or minimize the negative impact of such risks on the portfolio;

- **Contributing to climate goals** relates to the objective of reducing greenhouse gas (GHG) emissions to support the transition to a low-carbon economy and the objectives of the Paris Agreement; and

While the objectives for pursuing climate-related actions are in general disclosed by investors, the disclosure on the process carried out to pursue these objectives shows some inconsistencies. Most investors tend to use metrics to set targets that are not directly linked with their objective. This is turn, creates a disconnection between the actions taken to achieve the target, the way its results are going to be measured and the way to track progress on the target.

A more consistent process to pursue these objectives, could potentially include: i. the identification of the available climate-related actions (e.g. portfolio construction, engagement) that are consistent with the objective; ii.the definition of KPIs that will allow the for measurement of results of the action; iii. setting a target based on the relevant actions and measuring its progress. This process was however not observed in current disclosure.

To highlight the caveats that might be preventing financial institutions from adopting a better structured process, we present here a critical analysis of the concepts and their integration in the investment process by building on the criteria developed by the French government and 2Dii to assess the best practices of climate disclosure in the context of the implementation of the Article 173 of the Energy Transition Law on mandatory climate disclosure for investors and banks (2ii 2015d, 2016b).

Table 1 (Cont): Analysis of current disclosure practices based on the evaluation criteria of the 2°C Award (Source: Authors)

PROCESS	CRITERIA	PRACTICES	CAVEATS
Definition of the "starting point" of an investor whose objective is to contribute to the Paris Agreement	*"A detailed description of the depth of the analysis, the shortcomings of the methodology, and the data granularity and uncertainty is provided. A plan to address them is communicated"* (Criteria 2.1.2) *"The entity discloses a quantitative assessment of the misalignment with targets and precisely identifies the hotspots and actions required"* (Criteria 2.1.2)	Best practice methodologies for defining the starting point include the use of the 2°C portfolio check (2ii 2015b) or the Trucost Energy Mix indicators (ERAFP 2017). Some other investors are either using green/ brown share metrics from data providers (e.g. FTSE Russel, Morningstar) or using an in-house taxonomy. Few other investors use the carbon footprint results to define the starting point.	•By definition, contributing to the Paris agreement is a dynamic concept that requires understanding the starting point, meaning how well/poorly the investor is situated with respect to the climate goals, and deciding on the climate actions that are more likely to have an impact in the real economy. Thus, this starting point should be able to inform on the investor's 'alignment' with the climate goals. •Both best practice methodologies inform on the exposure to activities that are 'misaligned with the climate goals', enabling an understanding of the current situation. •The other methodologies used (e.g. green/brown, carbon footprint) do not consider a 2°C benchmark, therefore they do not allow us to understand the investor's current situation.

Table 1 (Cont): Best-practices on the disclosure of the landscape report concepts based on the evaluation criteria of the 2°C Award (Source: Authors)

PROCESS	CRITERIA	APPLICATION	CAVEATS
Definition of the "starting point" of an investor whose objective is to manage climate- related risks	*"The method and indicator used directly inform the value at risk for the portfolio, regarding both ET risks and physical risks"* (Criteria 2.3.1)… *"The value at risk disclosed is based on a clearly defined adverse scenario, precise and consistent with the investment horizon of the assets and portfolio"* (Criteria 2.3.2)… *"The entity states that the financial analysis is based on issuer by issuer"* (Criteria 2.3.4)…	Among the best-practice methodologies investors use the Mercer TRIP model to assess the exposure to physical and transition risks across asset classes and the Moody's environmental heat map to assess the exposure to transition risks across sectors in their fixed income portfolio. Other practices include the assessment of a single risk e.g. carbon prices or windstorm events. Some other investors use the results of the carbon footprint and compare their results against the market's benchmark.	•The methodology used to define the starting point should account for the materialization of risks related to either transition or physical or both types of risks (depending on the type of investor). This requires the use of scenarios or scenario parameters (e.g. commodity prices) that model the economy's situation under climate stress. •Best practice methodologies account for this by indicating the exposure of the portfolio/assets in some form of value at risk. These methodologies may however present caveats around the time horizon considered and the usability of the results for portfolio construction or even engagement activities. •Other methodologies used, such as the carbon footprint, do not assess the investees' exposure to market, policy and technology factors related to the transition. Furthermore, the metric does not inform us about the investor's financial risks associated to their portfolio composition.
Target setting	*"The entity discloses a comprehensive set of targets, based on a robust methodological approach (i.e. consistent with the Paris Agreement goals".* (Criteria 2.2.1.) *"The target is defined in such a way that its achievement necessarily leads to quantifiable additional reductions of GHG emissions in the real economy, directly triggered by the actions of the investors. The target is benchmarked to international and/or national climate targets…"* (Criteria 2.1.3)	Investors are setting two types of targets: i.) "qualitative" targets on the alignment of their portfolio with a 2°C scenario or the decarbonisation of their portfolio. ii.) "quantitative" targets expressed in the unit of measurement (e.g. TWh, returns, CO_2) of the metrics used to define the starting point. The review showed that no investor is currently setting "quantitative" targets based on best-practice metrics, thus here we will focus on highlighting the caveats associated with targets set based on the results of less suitable methodologies. These targets are generally set in the form of green share or emissions reduction targets.	•Neither green share targets nor emissions can be directly related to climate targets as current methodologies do not allow the quantification of green investment levels or the share of the carbon budget needed to achieve the Paris Agreement goals. SBTI is currently working towards a methodology for financial institutions (see page 18). •This limitation however does not prevent financial institutions from defining actions that can support their objective(s). The review showed that investors' practices on this aspect present inconsistencies. This is because in some cases one action can be used to address either or both objectives. However, the analysis of the results of the actions, or the KPIs measuring the results of the actions should be objective-specific. In this way it is possible to determine that the action carried out is actually supporting the achievement of the target.

Table 1 (Cont): Best-practices on the disclosure of the landscape report concepts based on the evaluation criteria of the 2°C Award (Source: Authors)

PROCESS	CRITERIA	APPLICATION	CAVEATS
Execution of climate actions	*"The description of engagement activities describe the level of support brought to relevant bilateral engagement, investor support for external resolutions and projects of resolution, the leadership of the investor in initiating resolutions, the positions adopted, questions asked in AGMs and the impact on the companies' decisions and plans. Where no impact has occurred, a description is provided on why the assets are kept even if the company strategy is not in line with the required changes." (Criteria 2.1.3)* NB: The criteria of the award assess the disclosure of engagement actions, they do not assess disclosure on portfolio reallocation actions.	Climate actions generally refer to portfolio construction and engagement actions: •Portfolio construction relates to the re-allocation of investments that can impact the cost and availability of capital of low/high-carbon intensive companies, projects or assets. The actions considered in the review are green investments, portfolio decarbonisation and divestment/exclusion. •Engagement relates to the process of influencing corporate behavior and capital allocation decisions of investees. The actions considered in the review are shareholder engagement. Climate lobbying is not considered here as impact is difficult to measure due to the involvement of multiple stakeholders (e.g. investees) and the lack of publicly available information on their actions.	•There are several inconsistencies when investors disclose their climate actions. These inconsistencies do not only concern the relevance of the actions (see above) but also the KPIs or other metrics used to measure the results of the actions. Inconsistencies on the KPIs or metrics used are present due to the lack of metrics which are both relevant, and sufficiently well-adapted to each type of action and to the overarching climate objective. •Most financial institutions use exposure metrics (e.g. green share, carbon intensity) to measure their contribution to climate goals, however, these metrics do not communicate changes in the real economy. Likewise, financial institutions use exposure metrics to measure the change in carbon-related risks associated with their climate actions, however these metrics do not capture the changes in technology, policy and market prices that will affect the investor's financial exposure.

2 REVIEW OF EXISTING STANDARDS

In order to support climate-related activities amongst various stakeholders, there are a number of ongoing standardization processes. In general, these processes fall into two main categories: the development of framework standards and the development of disclosure guidance and frameworks. The focus of this section is fourfold:

- to review the supply of climate-related and broader ESG frameworks that integrate climate issues;
- to identify the coverage of the concepts/'buzzwords' financial institutions include in their narrative;
- to identify the gaps presented by the most relevant standards; and
- to identify sources of improvement and prioritize options for standardization moving forward.

Table 2 provides a high-level summary of the standards and disclosure frameworks reviewed, and it relation with the concepts identified in section 1 (see page 5-8). The colour coding is as follows: green for no use of concepts, yellow for use of one or two concepts and red for use of three or more concepts.

The review showed that most frequently-addressed concepts are climate risk assessment and green investments. These two concepts are however addressed in different forms with frameworks including either a quantitative or a qualitative assessment of climate-related risk and green investments being considered as a subset of environmental investments. It was found too that there are more disclosure frameworks than standards covering multiple topics, however, such frameworks present a significant trade-off between the scope of topics included and granularity of the disclosure and related guidance.

Table 2: Overview of overlap between landscape review concepts and concepts in relevant standards and initiatives (Source: authors)

	Name of standard/initiative	Concept addressed
ISO standards	ISO 14007- Environmental management: Determining environmental costs and benefits-Guidance	
	ISO 14008-Monetary valuation of environmental impacts and related environmental aspects: Principles, requirements and guidelines	
	ISO 14080-Greenhouse gas management and related activities: Framework and principles for methodologies on climate actions	
	ISO 14090-Framework for adaptation to climate change Principles, requirements and guidelines	
	ISO/NP 14030 Green Bonds - Environmental performance of nominated projects and assets	Green investment
	NWIP Green Finance: Assessment of Green Financial Projects	Green investment
Other Organizations	GHG Protocol	Portfolio decarbonisation
	ORSE – Carbon footprint sector guidance	Climate risk assessment
	CICERO	Green investments, climate risk assessment
	Natural Capital Coalition - Financial sector supplement	Climate risk assessment
	Portfolio Carbon Initiative	Climate risk assessment, divestment, shareholder engagement
	Science Based Target Initiative	Assessment of alignment
	EC High Level Expert Group - Green Bonds Standard	Green investment
	GRESB Real Estate Assessment	Climate risk assessment
	China Green bond regulation	Green investment
	Climate Bonds Standard	Green investment
	IFIs framework for Green Gas Accounting	Climate risk assessment
	EIB Environmental and Social Handbook	Climate risk assessment Green investment

Table 2 (Cont.): Overview of overlap between landscape review concepts and concepts in relevant standards and initiatives (Source: authors)

		Name of standard/initiative	Concept addressed
Disclosure Frameworks	Standardisation Organizations	CDSB Reporting Framework	
		GRI- Financial Sector guidance	Green investments, Shareholder engagement
		SASB Financial Supplement	Climate risk assessment, green investments, shareholder engagement
	Non-Profit	AODP Survey	Climate risk assessment, green investments, shareholder engagement, climate lobbying, divest/exclude, portfolio decarbonisation
		CDP Climate Change Questionnaire	Climate risk assessment and climate lobbying
	Industry	Task Force on Climate-related Financial Disclosures	Climate risk assessment, shareholder engagement, portfolio decarbonisation
		JSE Socially Responsible Investment index	
		Singapore Exchange Ltd., Policy Statement on, and Guide to, Sustainability Reporting for Listed Companies	
		Green Bond Principles	Green investments
		BM&FBOVESPA Corporate Sustainability Index (ISE)	
	Policy makers and regulators	Article 173 of the French Energy Transition Law	Climate risk assessment, green investments, shareholder engagement, divest/exclude, assessment of the alignment to climate goals
		International Award on Investor Climate-related Disclosures	Climate risk assessment, shareholder engagement, assessment of the alignment to climate goals, Green investments, portfolio decarbonization
		US SEC Commission Guidance Regarding Disclosure Related to Climate Change	Climate risk assessment
		NAICS Insurer Climate Risk Disclosure Survey	Climate risk assessment

2.1 ISO STANDARDS

The urgent call for organizations to act on climate change and the increasing number of climate-related activities being undertaken by organizations imperatively calls for more standardization. To address this need, several ISO standards are currently under development. The following tables summarizes the climate-related focus of the relevant ISO standards in relation to the concepts identified from financial institutions' narratives in section 1 of this report.

There are however other ISO standards not described here that could be used to draw inspiration from in terms of definitions and principles to be used in the ISO 14097. This is the case of ISO 14064-1 on general rules on carbon accounting, ISO 14064-2 on the definition of emissions reductions, ISO 14067 on the carbon footprint of products, ISO 14026 on environmental communication for rules to prevent greenwashing and ISO 31000 on risk management.

The ISO standards analysed here have distinct scopes in the provision of guidance to cater to climate change efforts. In general, these standards are more focused on companies' direct impacts on climate change or broader sustainable development goals, with the exception of the ISO 14030 on Green Bonds, thus not covering financial actors across the investment chain.

ISO 14008 – Monetary valuation of environmental impacts and related environmental aspects: Principles, requirements and guidelines *(under development)*	The standard provides a framework to determine the monetary values of environmental aspects (i.e., natural resources use and releases) and impacts (i.e., impact of 1kg of CO_2 emitted on health, the built and natural environment) resulting from an organization's activities. A number of monetization methods are included for all types of environmental impacts; this is not mitigation or adaptation specific. The standard does not cover any of the concepts identified. This standard could be used to assess the level of "greenness" of a company and potentially its "climate friendliness" provided it is jointly used with guidance defining green activities.
ISO 14080 - Greenhouse gas management and related activities: Framework and principles for methodologies on climate actions *(under development)*	The standard provides a framework to establish approaches and processes to identify, assess, revise, develop and manage methodologies that reduce current and/or future climate change risk, with a focus on GHG-related methodologies. The standard defines climate actions as any initiative to achieve climate change measures or goals based on mitigation and/or adaptation priorities under climate change policies. Financing institutions (if applicable) should test the applicability of new methodologies developed to assess climate actions and their role in the deployment of resources in a way that supports cost effective and potentially efficient mitigation or adaptation. The standard does not cover any of the concepts identified. It has a focus on direct actions made by the company thus its application for financial institutions is limited to operational issues.
ISO 14090 - Framework for adaptation to climate change Principles, requirements and guidelines *(under development)*	The standard provides guidance on the integration of adaptation to climate change within or across organizations, understanding vulnerabilities and uncertainties. It includes assessment of the exposure of operations and activities to climate hazards, including sensitivity analysis of operations, and assessment of an organization's ability to cope with climate related hazards (adaptive capacity). No direct overlap was identified, as the standard focuses on companies' direct exposure to climate risks. The standard would be of particular value to funding organizations such as financial institutions and insurance firms by providing assurance that adaptation investments meet a robust standard of quality.

ISO/NP 14030 Green Bonds – Environmental performance of nominated projects and assets *(under development)*	The standard will aim at harmonising multiple green bond definitions and the principles followed in the specification of requirements for nominating projects and assets for funding, including the eligibility, use of proceeds, disclosure requirements and description of assurance options. It aims at defining the assessment and description of the environmental benefits associated with green bonds. The potential main users of the standard are issuers of debt obligations but the disclosure associated might be used as well by any financial institution or analyst.	ISO/NP 14030 integrates the concept of green investments. It does not aim at refining the concept of "green" but rather at developing a framework to promote investments in the green bond market. At the time of the drafting of this report, there is no evidence that an intended objective of this standard is to support investors' risk or contribution actions.
NWIP Green Finance: Assessment of Green Financial Projects	This new work item proposal (NWIP) proposed by the Standardization Administration of China aims at: • providing a universal definition and classification of green financial projects based on international consensus and best practices; and • providing a comprehensive framework for assessing green financial projects. Its objective is to enable a better allocation of financial resources, risks management, evaluation of progress, understanding of impact and communication of information about green projects.	The NWIP on green finance notably integrates the concepts of green investments. It not only aims at developing a green taxonomy but also at defining the impact of the investments' underlying projects. The standard however does not plan to assess the impact of financial instruments.
ISO 14007- Environmental management: Determining environmental costs and benefits-Guidance *(under development)*	The standard offers organizations guidance on determining, and communicating, the environmental costs and benefits (covering both non-monetary and monetary terms) associated with their environmental aspects. Climate change is one of the impacts to be quantified. The provisions include benchmarking impact relative to a reference (e.g. carbon dioxide for global warming).	The standard does not cover any of the concepts identified. The usefulness of the standard's reporting provisions for financial analysts is limited as companies can choose the environmental impacts to report on.

2.2 OTHER ORGANIZATIONS' STANDARDS

Several other organizations beyond ISO are working towards the standardization of investor practices on climate change. The scope of each organization varies, with some starting to work on company standardization and subsequently producing additional documentation for financial institutions. Others are dedicated only to defining standards for the financial sector. This standards are then more targeted and thus integrate at least one of the concepts identified in the landscape review.

GHG Protocol

The GHG protocol developed one of the most important carbon accounting standards for direct (scope 1 and 2) and indirect (scope 3) emissions. The Corporate Value Chain Standard on scope 3 emissions provides guidance on accounting and reporting of GHG emissions from equity and debt investments and project finance. The standard however was not a success among financial institutions due to the lack of more detailed guidance on the accounting of emissions. In order to overcome the confines of the Corporate Value Chain Standard, the GHG Protocol, together with UNEP FI launched in 2014 the Financed Emissions Initiative. This initiative, however, was not successful in standardizing carbon accounting rules due to the lack of sufficient understanding and consensus on the most meaningful, practical and actionable climate metrics.

The standard is related to the concept of portfolio decarbonisation as, from a conceptual point of view, the first step towards decarbonizing a portfolio is to measure the carbon footprint. This standard is not yet developed but it is worth considering as it has been one of the most important efforts made towards the harmonization and comparability of GHG accounting of investment portfolios.

ORSE – Carbon footprint sector guidance

Developed by the French Observatory on Corporate Social Responsibility (ORSE), the guide aims at helping financial institutions to gain a better understanding of how issues relating to climate change affect it and the need to quantify the Greenhouse Gas Emissions from its operations. A range of approaches are recommended in this guide according to the specific features (and objectives) of the financial institutions. The guide:

- Defines the general principles for quantifying GHG emissions (scope 1, 2, 3, excluding financed emissions);
- Offers methodological recommendations for quantifying the emissions financed by their activities (Scope 3 – category 15 'Investments'); and
- Contribute to the emergence of shared methodological principles at European and International level.

The guide touches upon the concept of climate-related risk by referring to the methodology proposed as a "first step towards having access to the strategic tools for measuring climate and carbon risks". It gives a particular focus to the country risks related to the location of the assets being financed (i.e. not the institutions)

GRESB Real Estate Assessment

The assessment is the global standard for ESG benchmarking and reporting for listed property companies, private property funds, and investors that invest directly in real estate. It assesses performance against 7 sustainability aspects, including the risks and opportunities associated with investments. Among the climate-related risks it includes climate change adaptation and natural hazards. At the time of this review access to the ESG scorecard was not granted, this the visibility on the requirements is limited.

The assessment notably integrates the concept of climate-related risks, specifically the exposure to physical risks, as part of its ESG framework. Visibility on the assessment process is limited due to the lack of public documentation.

Portfolio Carbon Initiative

The Initiative launched by UNEP FI, WRI and 2° Investing Initiative emerged as a second step of the Financed Emissions Initiative to develop alternative metrics for financial institutions. PCI has two goals:

i.) provide guidance on how to define, assess, and track climate performance for asset owners and banks; and

ii.) provide guidance on how to identify, assess, manage, and track GHG-related risks (recently renamed transition-risks) for financial institutions.

The initiative has produced a conceptual framework on transition risks assessment and management (WRI/UNEP FI 2015) and a framework for defining and measuring the "climate friendliness" of portfolios(2ii 2015c).

The carbon asset risk framework provides key elements to consider in the identification, assessment of exposure, evaluation of financial impact and management of risks. The framework describes:

- the risk factors affecting investees and consequently the factors affecting financial intermediaries and investors. It examines risk factors such as policy and legal, technology, market and economic, and reputational;
- the differences between factors affecting the exposure to transition risks. It analyses differences across sectors and companies' business models including differences in physical assets and operations as well as differences in the financial instruments (i.e. investments or loans) providing financing to companies; and
- the processes to follow in the assessment and management of transition risks. It includes avenues for the evaluation of risks, data needs, use of scenario analysis, and risk assessment models. In addition, it addresses the pathways to manage transition risks of new and current investments for financial intermediaries and investors.

The framework for defining and measuring the "climate friendliness" of portfolios defines "climate friendliness" as the intent to reduce GHG emissions and aid the transition to a low-carbon economy through investment activities. The framework:

- defines and analyses the conceptual and operational differences between the objectives pursued by investors actions on climate change, namely climate friendliness and carbon risk;
- defines avenues for investors to increase their climate friendliness by asset class and achieve a positive climate impact, defined as GHG emissions reductions in the real economy through positioning and signaling; and
- assesses the landscape of available metrics and their suitability for different climate strategy.

For more specific information on PCI's frameworks refer to Annex 3.

The initiative is focused on one of the main concepts of the landscape review, namely climate-risk assessment. In addition, it highlights the concepts of divestment and shareholder engagement as the actions to be undertaken in other to manage risks.

Science Based Target Initiative

SBTI was launched by CDP, WRI, WWF and UNGC. It defines, guides and promotes science-based target setting from companies. The aim of the initiative is to establish target setting as a standard business practice by 2020. So far 297 companies have joined the initiative of which 65 have approved science based targets. The initiative proposes several methods for target setting, two of which are based on an approach that allocates the respective share of an estimated carbon budget in a 2°C world to a company based on a sectoral or economic allocation. The initiative is currently exploring how to extend the methodology to investment and lending portfolios.

The initiative can be associated with the concept of assessment of the alignment with climate goals, as it defines the trajectory of carbon emissions that a company should follow under a 2°C scenario. Deviations from the target or the target's pathway would imply a misalignment with respect to the 2°C benchmark.

Natural Capital Protocol's Finance Sector Supplement – Natural Capital Coalition	The financial sector supplement of the Natural Capital Protocol, currently under public consultation, provides guidance on i.) identification of natural capital-related risks and opportunities; ii.) definition of the objective(s) and scope of the analysis (e.g. shareholder engagement, assessment of portfolio risk and opportunities); and iii.) measurement and valuation of natural capital. The valuation techniques of natural capital include qualitative, quantitative, monetary and value transfer. Thus, the supplement does not intend to standardize the use of value at risk nor the methodologies but rather to provide the basic principles needed in the calculation such as the baselines, time horizons, spatial boundaries etc.	The standard integrates the concept of climate-related risks assessment while focusing on a broader set of risks: natural capital risks. The standard does not prioritize the types of risks (physical or transition) that financial institutions should consider, rather it leaves open the option to financial institutions to address the risks that are material to them.
Climate Bonds Standard and Certification – Climate Bonds Initiative	The Standard's objective is to provide the green bond market with the trust and assurance needed to scale up the market. It standardises: i. Mandatory requirements in the use of proceeds, their tracking and management, and reporting prior and post issuance; and ii.) The eligibility criteria for projects and assets. CBI provides a taxonomy of investible areas (also referred to as a "Green taxonomy") and additional screening criteria for some technologies (e.g. solar, wind) within a sector (e.g. power). The Standard is aligned with the recommendations of the Green Bond Principles (see page 23).	The Standard is associated with the concept of green investment as its overarching objective is to allow financial institutions and governments to screen and prioritize investments in climate and green bonds under good conditions of assurance.
Green Bonds Standard and label recommendation - European Commission High Level Expert Group on Sustainable Finance	In July 2017 the HLEG on Sustainable Finance published its early recommendations to create a financial system that supports sustainable investments in Europe. Among its 8 recommendations, there is one that has been signalled as one of the priorities moving forward: the development of an European Standard and label for green bonds. The main driver of this recommendation relates to the need to spur green bond market growth through official European standards. The successful implementation of the recommendation will be backed by the already developed standards and principles on green bonds (see page 23) and the French TEEC label for investment funds.	This standardization initiative is notably related to the concept of green investments. The development of the standard and level will include among other things the definition of "green" at European level. Since it is an early recommendation, visibility of the integration of other concepts identified in the landscape review is limited.
International Financial Institution Framework for an harmonized approach to Greenhouse accounting	The IFI's framework sets out a common approach of accounting and reporting of GHG emissions. It includes guidance on the use and reporting of GHG accounting methodologies (e.g. GHG Protocol, Clean Development Mechanism methodology, etc) including the output indicators used, baselines, boundaries and scope of emissions considered. Specific guidance for GHG accounting of energy efficiency and renewable energy projects has been developed by IFI. The financial institutions following the framework are AfDB, AfD, ADB, EBRD, EIB, GEF, IDB, KFW, NDF, NEFCO, and WBG.	The framework does not directly communicate the concepts reviewed. However, since GHG emissions are used for the appraisal of projects, it could be indirectly related to climate or broader environmental risks assessment. This however depends on the bank's communication strategy.

China Securities Regulatory Commission – Green Bonds Guidelines	The guidelines define green bonds as a corporate bond through which fundraising is aimed at supporting green projects. The green projects taxonomy used is the one defined by the Green Finance Committee. The guidelines require a commitment letter to the CSRC relating to the green attributes of the issuance and prohibit the issuance of green bonds by non-green issuers (e.g. oil companies) although exceptions can apply. The guidelines recommend that issuers disclose the environmental impacts or benefits associated to the bond. These guidelines apply to listed companies. Issuance of green bonds by financial entities are regulated by China's central bank. The guidelines address the concept of green investments though the use of the green projects taxonomy developed by the Green Finance Committee.
European Investment Bank - Environmental and Social Handbook	EIB Handbook provides guidelines on the assessment and management of environmental and social impacts and risks. The guidelines cover EIB's internal policies as well as those needed to be followed by banks, fund managers, and project promoters that collaborate with EIB. The guidelines include a climate-related standard that comprises EIB's policy, its policy in practice and the requirements of banks, fund managers and project promoters. The policy requires its financing to be aligned with EU climate policy. This is done through: • Assessing and reporting the carbon footprint of financed investment projects the annual aggregate GHG emissions and savings. • Reflecting the value of carbon – both financial and economic – in its financing decision-making requirements and processes. The carbon price varies from 30 to 50 EUR depending on the project's timeline. • Including Key Performance Indicators for the Corporate Operational Plan with currently an annual percentage target for lending of at least 25% based on a consistent set of definitions regarding climate action projects. • Assessing carbon credits potential In the appraisal of financial intermediaries, EIB assesses banks and fund managers on their capacity to on-lend funds in line with the climate standard. EIB requires financial intermediaries to apply the same eligibility criteria for global loans or equity/debt funds dedicated to renewable energy, energy efficiency or climate action. The EIB handbook guidelines refer to two concepts identified: climate-related risk assessment and green investments. The climate-related risk assessment concept is addressed in the integration of a carbon price in the project's appraisal while the green investments concepts is partially addressed through their lending target on "climate actions".

2.3 DISCLOSURE FRAMEWORKS STANDARDIZING DISCLOSURE PRACTICES

Disclosure is the aspect most addressed by standardization initiatives and frameworks, with standardization organizations, non-profits, industry, policymakers and regulators developing and promoting multiple frameworks. Disclosure on climate issues is currently prescribed in broader ESG disclosure frameworks and climate-related frameworks for companies and financial institutions or only for financial institutions. Of the 14 disclosure frameworks reviewed, 11 cover all types of industries and only 3 are financial sector-specific.

Contrary to process-based standards, which tend to focus on one standardization topic or process (e.g. methodologies to define the starting point, to set targets etc.), disclosure can focus on multiple processes. In the latter case, disclosure can either complement standards or focus on topics that have not yet been standardized.

2.3.1 FRAMEWORKS FROM STANDARDIZATION ORGANIZATIONS

Sustainability Accounting Standard Board - Financial Supplement

SASB's supplement is financial institution-specific. It recommends to describe the process for identifying and assessing climate-related risks as well as other sustainability-related risks in order to identify the industries and geographies in a portfolio that are most exposed to these risks and quantify the risk exposure (e.g. dollar amounts of investments, changes in cash flow) to these industries. The supplement for commercial banks/asset managers advises reporting on the amount and percentage of sustainability themed (incl. climate change) lending and project finance/investments. The guidelines for asset managers advise to disclose the number of proxy votes supporting ESG issues, including climate change, and the percentage of shareholder resolutions resulting in company action. It advises reporting on the ratio of embedded CO_2 emissions of proved hydrocarbon reserves held by investees based on a standard formula.

The reporting standard integrates three concepts identified in the landscape report: climate risk assessment by suggesting both a qualitative and quantitative assessment, green investments by advising the quantification of sustainability/green themed assets and shareholder engagement through the reporting of proxy voting activities of asset managers. For more information please refer to Annex 3.

Climate Disclosure Standards Board Reporting Framework

The CDSB corporate reporting framework communicates material climate-related information from companies to financial institutions. Among the disclosure requirements it includes: management's strategy to address long- and short-term climate risks and its relation to the future outlook of the organization, and the principles to report on GHG emissions and GHG reduction targets.

The standard does not consider any of the concepts identified in the landscape review as it is refers mainly to company related processes. It is however important to consider it as its reporting requirements can be useful for future standards on investors' climate actions on engagement and divestments/investments.

Global Reporting Initiative's Financial Sector Supplement

GRI provides additional guidance for FIs (i.e. asset management, insurance, retail, commercial and corporate banking) on broader environmental and social (E&S) issues. Organisations are encouraged to adopt and implement policies to carry out the assessment of E&S risks and report the percentage of their investment portfolio that has been designed to deliver a specific environmental or social benefit, the percentage of assets subject to positive and negative E&S screening, and the percentage and number of companies with which engagement on E&S issues has occurred.

The reporting guidance includes climate issues within the reporting of environmental aspects. It indirectly addresses two concepts identified in the landscape report: green investments and shareholder engagement. Climate risk assessment is addressed to a lesser extent as disclosure is focused on the risks of transactions.

2.3.2 FRAMEWORKS FROM NON PROFIT ORGANIZATIONS

Asset Owners Disclosure Project Survey	AODP conducts and publishes the results of an annual survey issued to the world's 1000 largest asset owners on their management of climate change risks and opportunities. Investors decide whether they would like to publish their responses, thus limiting the visibility of investors' practices. The questions include topics such as the role of climate strategy and climate risk assessment in governance and management processes. Thus, investors do not have to disclose the results of portfolio or other investment-related risk assessment but rather describe the process. Regarding risk management, the survey assesses the internal and external (e.g. with asset managers) processes for managing climate-related risks including the use of scenario analysis, portfolio reallocation actions, and the availability of their proxy voting record and votes of some specific shareholder resolutions. The survey also includes engagement activities with other stakeholders such as credit agencies and policymakers. The survey additionally includes questions on metrics used and results including carbon intensity and reduction targets as well as assets invested in low-carbon solutions. For more information on the specific questions refer to Annex 3.
	This initiative addresses several concepts identified in the landscape review, including climate risk assessment, shareholder engagement, green investments, climate lobbying, divest/exclude and portfolio decarbonisation. However, a focus is given to two concepts: risk assessment and engagement.
Carbon Disclosure Project Climate Change Questionnaire	The CDP questionnaire is being used by both companies and financial institutions. Its core elements address climate strategy, level of governance, carbon targets (scope 1 and 2), and climate risks and opportunities. The questions are mainly related to companies' direct activities, with no specific questions on financial institution portfolios. Investors however have the opportunity to additionally disclose information on their investment-related activities. However, the information collected tends to be very general. Investors can provide information on: i. the process to identify, assess and manage risks (physical and transition) and opportunities, its prioritization and integration in business strategy; ii. the engagement activities in climate policy; and ii. the scope 3 emissions of their investment portfolio. For more information on the questions through which investors could potentially disclose on their risk assessment and management processes please refer to Annex 3.
	The questionnaire includes two main concepts: the assessment of climate related risk assessment and climate lobbying. Climate risk assessment can be both qualitative or quantitative. Reporting on climate lobbying includes the focus of the legislation and the proposed legislative solution.

2.3.3 INDUSTRY-LED FRAMEWORKS

Johannesburg Stock Exchange Socially Responsible Investment index	The SRI index assesses company performance in 4 categories: environment, society, governance and related sustainability concerns as well as climate change. The climate change category requires companies to report their climate-related policies, their absolute or normalised GHG emissions, and the long-and short-term targets on emissions reduction.
	The index does not relate to any of the concepts identified in the landscape report. So far, disclosures from financial institutions do not concern their investment portfolios.

Climate Bonds Standard and Certification – Climate Bonds Initiative	Launched by the International Capital Market Association, the principles provide voluntary process guidelines that recommend transparency and disclosure in four priority areas: i.) the use of proceeds; ii.) the process for project evaluation and selection; iii) the management of proceeds; and iv) overarching reporting principles. The GBP do not attempt to define "green" nor take a position on what should be considered as "green". Thus its criteria only mentions a non-exhaustive list of what could be considered green. The GBP recommend the use of qualitative performance indicators and, where feasible, quantitative performance measures (e.g. energy capacity, electricity generation, etc.), and disclosure of the underlying methodology and or assumptions. It encourages the monitoring and disclosure of impact. The GBP provides voluntary guidance for impact reporting for some types of projects (i.e. renewable energy, energy efficiency, water and wastewater). The GBP are associated with the concept of green investment as the overarching objective of the initiative is to drive the growth of the market though improved transparency.
Singapore Exchange Ltd., Policy Statement on, and Guide to, Sustainability Reporting for Listed Companies	The sustainability reporting guide encourages the adoption of internationally accepted reporting frameworks, such as the GRI Sustainability Reporting Guidelines, in disclosing the company's sustainability performance. The guide encourages companies to report business or legal developments related to climate change mitigation or adaptation that may have an impact on the organization. It is thus very general and does not provide details on how this information should be disclosed. The guide does not relate to any of the concepts identified in the landscape report.
Task Force on Climate-related Financial Disclosures	The 4 core climate-related disclosure elements applicable to both companies and financial institutions of the TCFD recommendations are: i. governance; ii. strategy; iii. risk management; and iv. targets and metrics. The TCFD also encourages the use of scenario analysis. Here we will focus on the specific disclosure guidance for risk management, metrics and targets, and scenario analysis. For the specific recommendations refer to Annex 3. **Risk management** relates to the description of the process for identifying, assessing and managing climate-related risks. Banks should adopt the use of traditional risk categories such as credit, market, liquidity and operational risk as well as a classification of the types of risks (i.e. according to their impact potential). Insurance companies should assess re-insurance portfolios including in the analysis the spatial location, business divisions or product segments. The risks that should be considered relate to physical, transition and liability risks. Asset owners should describe the engagement activities with investees on climate-related risks and their portfolio's positioning in relation to the transition to a low-carbon economy. Asset managers should describe the engagement activities with investees and their process for assessing and managing climate-related risks for each product or investment strategy. **Metrics and targets** general recommendations relate to disclosure of metrics used to assess climate-related risks, GHG emissions and targets set to manage climate risks. Banks should disclose the metrics used in their lending portfolio and other financial intermediary business. Possible metrics relate to credit exposure or equity and debt holdings broken down at a relevant granularity (e.g. industry, geography). Banks should also provide the relative percentage of carbon-related assets to total assets, lending and other financing sources. Insurance companies should provide the aggregated risk exposure to weather-related catastrophes of their property business by jurisdiction. Asset owners/asset managers should describe the metrics used to assess climate-related risks in each fund/product or investment strategy.

Task Force on Climate-related Financial Disclosures	**Metrics and targets (cont.)** The TCFD recommends that asset owners/asset managers disclose the weighted average carbon intensity for each fund/product or investment strategy. While the TCFD acknowledges that carbon footprint should not be interpreted as a risk metric it believes that this is an important first step in disclosure which can help the development of relevant climate-related metrics. Carbon footprint is however not a good proxy metric due to its backward-looking nature. In addition, methodologies generally do not consider scope 3 emissions, thus disregarding the most relevant emissions from energy-intensive sectors. Carbon footprint (measured as CO_2 per $ of AUM) can also be affected by market cycles, meaning that in a bearish market the carbon footprint decreases as the value of companies increases (2ii 2017c). **Scenario analysis** is recommended to be applied using a 2°C or lower scenario in addition to two or three other scenarios. Organisations should disclose the scenario assumptions (e.g. technology changes, input parameters) and the sensitivity, timeframes and information on the resiliency of the organization. The disclosure guidelines include three concepts identified: climate risk assessment, portfolio decarbonisation and shareholder engagement. Recommendations on risk management are however more precise than in other disclosure frameworks as they include industry-specific risk and most relevant portfolios by type of investor.
Green Bond Principles	Launched by the International Capital Market Association, the principles provide voluntary process guidelines that recommend transparency and disclosure in four priority areas: i.) the use of proceeds; ii.) the process for project evaluation and selection; iii) the management of proceeds; and iv) overarching reporting principles. The GBP do not attempt to define "green" nor take a position on what should be considered as "green". Thus its criteria only mentions a non-exhaustive list of what could be considered green. The GBP recommend the use of qualitative performance indicators and, where feasible, quantitative performance measures (e.g. energy capacity, electricity generation, etc.), and disclosure of the underlying methodology and or assumptions. It encourages the monitoring and disclosure of impact. The GBP provides voluntary guidance for impact reporting for some types of projects (i.e. renewable energy, energy efficiency, water and wastewater). The GBP are associated with the concept of green investment as the overarching objective of the initiative is to drive the growth of the market though improved transparency.

2.3.4 POLICY MAKERS AND REGULATORS

Article 173-VI French Energy Transition Law

Article 173 includes provisions on disclosure of climate-specific criteria by institutional investors. Investors should disclose the consideration and assessment of their i.) exposure to physical and transition risks; and ii.) contribution to the international climate goals and the energy transition. Examples of indicators to use in the analysis are the investments in thematic funds, the coherence of CAPEX of issuers with climate objectives, and past, current and future GHG emissions of investees.

To assess their contribution, investors should set indicative targets that are aligned to a 2°C pathway and measure their progress and deviations. Investors should explain how these targets are consistent with the French low-carbon strategy and the actions taken to achieve the target. These actions can include engagement with issuers, changes in investment/divestment policy or an increase of thematic funds, labelled funds or other relevant assets.

The guidelines of the International Award on Investor Climate-related Disclosures (2ii 2016b), an initiative launched by the French Ministry of Environment and the Treasury, provide a detailed description of what should be considered as best-practice reporting under the provisions of Article 173 (see page 25).

This standardization initiative includes nearly all the concepts identified in the landscape review, notably the assessment of climate risks, green investments, shareholder engagement and divest/exclude. It as well includes the concept of alignment to climate goals in the target setting process.

NAICs 2010 insurer climate risk disclosure survey

The survey comprises eight questions that assess insurers' strategy and preparedness in the areas of investment, mitigation, financial solvency, emissions/carbon footprint and engaging consumers. Insurers are encouraged to disclose climate risks as per US SEC disclosure. For climate-related risks, insurers have to consider methods of risk distribution such as contingency plans to reduce financial leverage and resolve any liquidity issues in the event of a sudden loss in surplus and cash outflows as a result of a catastrophic event, risks assessment or catastrophe re-insurance.

NAICs survey integrates the concept of climate-related risks assessment, related to the exposure to physical risks. For more information on the questions refer to Annex 3.

US SEC Commission Guidance Regarding Disclosure Related to Climate Change

SEC's guidance is complementary to the Regulation S-K. The guidance suggests the inclusion of climate related information on four main reporting items of Regulation S-K: i. Item 101 on the description of the business activities and compliance with environmental regulation and capital expenditures for environmental control facilities; ii. Item 103 on the administrative or judicial proceedings arising from laws and regulations targeting discharge of materials into the environment or primarily for the purpose of protecting the environment; iii. Item 303 relates to disclosure on the liquidity, capital resources and operations allowing analysts to understand the known trends, events or uncertainties that might have a material effect on the financial performance of the business; and iv. Item 503 on the most significant risk factors that make an investment in the company speculative or risky. Disclosure on these items should consider the impact that climate change might have have on a company's business, through changes in legislation and regulation, international accords (e.g. EU ETS), business trends and physical impacts.

The disclosure guidance on climate change integrates the concept of climate-related risks assessment. The format of the filings however calls for a more qualitative disclosure.

International Award on Investor Climate-related Disclosures	The award was launched in close collaboration with the French Treasury by the French Minister of Environment and 2°Investing Initiative. It is a voluntary instrument that acts as guidance on climate-related disclosure and an enhancer to current and forthcoming legislation. It enables governments and regulators to follow and track progress on metrics and reporting practices, and the overall market uptake. The Award signals best-practice metrics to financial institutions of all sizes, thus increasing accessibility to small financial institutions. The evaluation criteria were set up to capture the climate-related guidelines provided by in the implementation guidelines of Article 173. Four areas of disclosure were identified and assessed through a total of 24 criteria. The four areas are: i.) climate strategy, ii.) consistency with climate goals, iii.) exposure to climate risk and iv.) communication to clients and beneficiaries. To allow for full visibility across practices, no weighting of the criteria was done. The criteria were submitted for public consultation and publicly available during the whole application process. The Award is focused on two of the concepts identified in the landscape review: climate risk assessment and alignment to climate goals. It however provide provides guidance on other topics such as shareholder engagement and Green investments.

2.4 GAP ANALYSIS

The previous section summarizes the concepts as they are presented by standards organizations and policy documents, irrespective of their relevance. In the table below we summarize the items included in the most relevant and prescriptive guidance documents, by providing the most precise recommendations and highlighting their constraints or gaps based on a list of standardization topics that could be addressed in ISO 14097. We further assess the additional work required in order to be able to build on and use these standards and guidance frameworks as a base for the ISO 14097. For more details on each recommendation please refer to Annex 3.

Table 3 : Analysis of the potential use of the reviewed standards and guidance documents (Source: authors)

TOPIC	MOST PRECISE RECOMMENDATIONS	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
MANAGEMENT			
Management processes			
Climate-related financial risks	**PCI Carbon Asset Risk framework (see page 81):** Defines the options for managing transition risks considering the type of investor (e.g. underwriters, lenders, shareholders) and the investment type (new investments or current holdings). Among the options for managing risks, it considers the promotion of risk disclosure, proper risk pricing, thorough due diligence, sectoral policies, sector and subsector diversification, investments with ESG screens, sector/security avoidance, and engagement to understand risk management and align risk and return perspectives.	The list of mitigation actions is non-exhaustive and high-level, however, it provides a good base for how management strategies can change across investors. The framework does not document the process for evaluating the impact of the actions.	The WG would need to fine-tune the list of mitigation actions and build on the management options to develop a framework describing both the standard risk management process, and the process to follow when measuring the actions' impact.
	The Natural Capital Coalition Financial sector supplement (see page 85): The decisions to manage risks could include: i. Adjust sector or asset allocation in your portfolio to enhance risk management; ii. Support certain sectors over others on the grounds of their natural capital impacts or dependencies; iii. Engage companies or other entities to take action to minimize specific impacts or reduce specific dependencies; and others	The list of mitigation actions is high-level. It does not make distinctions on differences across investors.	The WG would need to fine-tune the list of mitigation actions to more climate-specific ones. A framework describing the process to follow when measuring the actions' impact also needs to be developed.
GHG emissions reduction induced by the activities	**PCI climate metrics report (see page 95):** The following best practices are recommended: - Employ carbon footprinting at portfolio level to understand broad exposure across asset classes. - Use a mix of sector-specific metrics to inform target setting in climate relevant industries (e.g. set technology exposure targets for industries with decarbonisation roadmaps). - Select screening thresholds intentionally (e.g. : screening 30% vs. 50% of revenues for brown/green activities) - Combine portfolio construction activities with shareholder engagement to influence investee capex, R&D strategy, and GHG emissions. - Prioritize efforts in segments and markets for which a small additional investment can make a difference. This includes technologies that currently have a large investment gap and lower liquidity asset classes.	PCI does not provide guidance on the impact pathways associated with each action, nor on the KPIs needed to track and measure the results of the actions. The guidance provides general recommendations on metrics to be used in the process of target setting, but does not provide a framework for target setting itself, meaning that the application of the recommendations are limited in practice.	•Consider more recent best practice metrics (e.g. 2°C portfolio check) relevant in the target setting process. •Include a list of climate-relevant actions and associated processes to measure impact, which interacts with the target setting and measurement of progress process. •Develop impact metrics that quantify the additional or incremental GHG emissions reduction in the real economy due to climate actions

Table 3 : Analysis of the potential use of the reviewed standards and guidance documents (Source: authors)

TOPIC	MOST PRECISE RECOMMENDATIONS	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
MANAGEMENT			
Scenario choice			
Scenario design process	**The PCI Carbon Asset Risk framework:** - The choice of scenarios (and any alterations to underlying assumptions) should reflect perspectives on the most likely manner in which risk factors (policy, technology, and market conditions) will play out over time. -The scenario should also reflect a time frame that is consistent with financial exposure. - Scenarios should account for all current and likely-to-be-enacted policies and commitments. - Assumptions regarding demand can be crucial, as they drive company choices on potential capital expenditure, and form a key input to forecasting commodity prices.	Both frameworks provide general recommendations on factors to consider when selecting a scenario including the probability of occurrence, risk factors, timeframes and macroeconomic assumptions. More specific recommendations on these factors taking into account the type of investor and thus the scenario's use case is need in order to enable its application by investors.	More specific guidance on the design and use of scenarios needs to be developed. The guidance can provide recommendations on the relevant factors (e.g. assumptions, scope, timeframe, ambition, uncertainty) to consider depending on the objective behind the use of scenarios.
	The Natural Capital Coalition Financial sector supplement: Scenarios could consider: i. amending line items in financial models (e.g., assuming the cost of a specific natural resource doubles); ii. altering probabilities (e.g., making certain scenarios more likely); iii. altering discount rates (e.g., giving greater weight to future impacts).		
Scenario 'translation' process	No standard or initiative reviewed covers these topics.		
Standard scenarios			
DISCLOSURE OF…			
Process for climate risk management	**AODP survey (see page 86):** The questions include: - What range of climate change-related portfolio risk mitigation actions do you undertake? (e.g. hedging allocation of low carbon assets to hedge against high carbon stranded assets, negative screens (or positive inclusion criteria) on selected investment options). - What percentage of your total portfolio is invested in high carbon and/or emissions-intensive sector assets? - Do you identify, disclose and quantify your investments in low carbon assets? - Have you made a commitment to invest in low carbon assets as part of a strategy to manage/mitigate climate risk in your portfolio? - Have you successfully engaged with companies on climate change related issues over the last year, resulting in demonstrable achievements? - What were the most notable and demonstrable achievements of your climate change related engagement activities in this period?	The survey could be improved by providing guidance on what is considered as best practice. The granularity of the survey questions could be improved. This can be done by asking more specific questions on the analysis carried out and its results, and how the results responded to differences in exposures at asset class, sector or geographic level.	The WG can build on the list of climate mitigation actions provided by the survey and define a list of climate-related actions relevant to the investors' objectives. In terms of disclosure, the WG could use the survey's climate action related questions and improve its granularity using the list of climate actions mentioned above. A clear distinction between reporting on the actions, and reporting on the impact of the actions, needs to be made.

Table 3 : Analysis of the potential use of the reviewed standards and guidance documents (Source: authors)

TOPIC	MOST PRECISE RECOMMENDATIONS	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
DISCLOSURE OF…			
Process for climate risk management	**TCFD recommendations (see page 89):** *Insurance companies should:* - describe key tools or instruments, such as risk models, used to manage climate-related risks in relation to product development and pricing. - describe the climate-related scenarios used in the analysis of their underwriting activities, including the critical input parameters, assumptions and considerations, and analytical choices. *Asset managers should:* - describe how they manage material climate risks for each product or investment strategy. - describe the engagement activity with investee companies to encourage better disclosure and practices related to climate-related risk. *Asset owners should:* - describe how they consider the positioning of their total portfolio with respect to the transition to a lower-carbon energy supply, production, and use. This could include explaining how asset owners actively manage their portfolios' positioning in relation to this transition. - describe engagement activity with investee companies to encourage better disclosure and practices related to climate-related risks. - consider including discussion of how climate-related scenarios are used, for example to inform investments in specific assets.	The guidance provided by the TCFD on the disclosure of the activities carried out to manage climate-related risks is very general. This means that a comparative overview of the processes, actions and strategies carried out by financial institutions is not clear. The scenario analysis disclosure recommendations are also general, and are limited to insurers and asset owners.	Moving forward the WG could potentially define relevant parameters enabling an understanding of the rationality behind investor management practices (e.g. types of actions, management processes and data needs, and exposure thresholds). The WG should then require disclosure based on these parameters. The scenario analysis recommendations could be improved by requiring the disclosure of parameters that inform on the relevance, likelihood and implications of the materialization of an adverse scenario.
	Article 173 (see page 93): - For the criteria relating to environmental objectives, an indication that they cover: i. the climate change-related risks corresponding to physical risks and to transition risks. - On the integration of the results of ESG and climate-related analysis in the investment policy: description of the way in which the results of the analysis are integrated in the investment policy: i. Description of the changes made to the investment policy following this analysis, in terms of divestment decisions and risk management ii. Implementation of an engagement strategy with issuers: presentation of engagement policies; voting policy; and assessments of the implementations of these policies. iii. Implementation of an engagement strategy with portfolio management companies: presentation of engagement policies, terms of exercising voting rights for which the management is delegated, and assessment of the implementation of these policies	Article 173's reporting on the risk management process covers general changes in investment policy (e.g. portfolio reallocation and engagement) and management processes. It does not provide granularity on the relevant business segments to disclose (e.g. product, portfolio) by type of financial institution. This in turn creates a problem of comparability of actions and processes among peers.	The WG could build on the disclosure recommendations of Article 173 but will need to ensure that these are adapted to its user types, considering variances in the management process across different investors. Such differences should be identified and specified in a framework for managing climate-related risks (see page 26).

Table 3 : Analysis of the potential use of the reviewed standards and guidance documents (Source: authors)

TOPIC	MOST PRECISE RECOMMENDATIONS	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
DISCLOSURE OF…			
Process for climate risk management	**NAICS Insurer Climate risk Disclosure Survey (see page 89):** - Does the company have a climate change policy with respect to risk management and investment management? If no, how do you account for climate change in your risk management? - Has the company considered the impact of climate change on its investment portfolio? Has it altered its investment strategy in response to these considerations? - Describe actions the company is taking to manage the risks climate change poses to your business including, the use of computer modeling.	There is no detailed guidance on the disclosure of the changes of the investment strategy. It however covers the disclosure on the process in place for the management of risks pertaining to both underwriting and investment activities.	The most relevant input to the WG is the recommendations on disclosure of actions based on the results of scenario analysis and stress testing (see page 85). The group could build on this to develop specific recommendations on scenario analysis for the insurance sector.
Process for climate impact management	**Article 173:** The contribution to compliance with the international objective to limit global warming and to achieving the energy and ecological transition objectives shall be assessed using information relating: - to the way in which the entity analyses the coherence of its investment policy with these objectives; - to indicative targets by specifying how the investor assesses their consistency with the international and national objectives; - to the actions carried including changes to the investment/divestment policy, engagement with issuers, increase in assets invested in thematic funds, in financial securities or infrastructure assets contributing to the energy and ecological transition, in UCTIS falling under a label, charter or initiative; and - for the last completed financial year, to its position in relation to indicative targets that it set and the reasons that explain any differences.	The application decree requires disclosure on the different avenues that can be taken to "assess" the contribution to the climate goals. Here assessment can be interpreted more as the "intended" contribution of the investor as these avenues do not inform directly on impact but rather on the process put in place to support the investor's objective.	The WG could potentially build on Article 173's disclosure requirements as they satisfy the general reporting needs of a framework on the management process of GHG emissions (see page 24). The WG will however have to include additional disclosure provisions on the process used to define climate actions, setting targets based on a defined scenario, and tracking its impacts.
	2° Invest Award (highest score) (see page 25): Financial institutions should disclose: - a 'contribution' target defined in such a way that its achievement leads to quantifiable additional reductions of GHG emissions in the real economy, triggered by the actions of the investors. The target is benchmarked to international and/or national climate targets. - A comprehensive set of targets based on a robust methodological approach. - A quantitative assessment of the misalignment with targets and precisely identifies the hotspots and actions required. -On bilateral engagement activities, support for external resolutions and projects of resolution, the leadership in initiating resolutions, positions adopted, questions asked in AGMs and the impact on the companies' decisions and plans.	The award criteria evaluate the results of a process for climate impact management. The criteria mention key factors to consider in the process (e.g. benchmark your targets to international targets) but does not provide enough details on the process to follow nor its disclosure.	The WG can complement the disclosure recommendations of the framework for "managing climate impact" (see page 24) with those of the award.

Table 3 : Analysis of the potential use of the reviewed standards and guidance documents (Source: authors)

TOPIC	MOST PRECISE RECOMMENDATIONS	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
MEASUREMENT AND DISCLOSURE OF…			
Results of portfolio assessment			
Exposure to climate-relevant activities	**The Natural Capital Coalition Financial sector supplement:** The supplement provides guidance on the assessment of risks related to natural capital. It addresses the definition of the objective of the assessment (e.g. financial consequences of biodiversity impacts), the scope (e.g. portfolio or entity level), the targeted audience, the coverage of impact or dependencies, the baselines of the assessment, the scenarios, the geographic and temporal boundaries, possible analysis to run based on natural capital information including the estimation of the financial value associated to risks and the portfolio exposure to climate risks and opportunities (e.g. green investments)	The supplement is process-based. It does not provide a methodological framework; thus, it is not prescriptive on the methodological assumptions to follow (e.g. allocation rules), the indicators to use and the ways to report.	The WG can build on the different types of analysis and examples that the supplement covers (e.g. assessment of risk and opportunities, estimation of total value) to define concepts that are currently being used by investors interchangeably such as “exposure” and “risk”.
	SASB Financial sector guidance: - The criteria on integration of ESG risk factors requires the reporting of the percentage of assets under management, by major asset class, that employ sustainability themed investing (incl. climate change) and screening (exclusionary, inclusionary, or benchmarked). - Asset managers should report the ratio of embedded CO_2 emissions of proved hydrocarbon reserves held by investees based on a standard formula.	The standard requires reporting on green/brown share indicators as part of the disclosure on ESG issues integrated in the risk analysis. The indicators however do not communicate on risk but rather on the exposure to climate activities. The standard does not provide a classification of sustainability themed investments.	Draw inspiration from available taxonomies to classify green/brown or aligned/misaligned investments. In the case of corporate bonds, Moody’s heatmap can be used. For other asset classes, taxonomies will have to be developed. The work of rating agencies can be reviewed for that purpose (see page 37). Building on this classification and the use of asset-level data of investees, the WG can then define company exposure indicators and rules to allocate this exposure to securities.
	Article 173: The description of the methodologies used in the analysis implemented may include: – the overall characteristics of the methodology; –details on the main underlying assumptions and their compatibility with the international objective to limit global warming; – explanations for the relevance of the method and scope used.	These disclosure requirements apply to methodologies used for the integration of climate-related criteria in the investment process. It is thus very general and does not provide specific information on the units of the output indicators and the key assumptions.	The WG should consider including disclosure provisions that will help users to understand clearly the relation between the exposure metrics use case and the investor’s objective, specially in cases in which the metric does not inform directly on the objective.

Table 3 : Analysis of the potential use of the reviewed standards and guidance documents (Source: authors)

TOPIC	MOST PRECISE RECOMMENDATIONS	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
MEASUREMENT AND DISCLOSURE OF…			
Results of portfolio assessment			
Exposure to climate-relevant activities	**Criteria of 2° Invest Award (highest score):** Financial institutions should provide a detailed description of the depth of the analysis, the shortcomings of the methodology, and the data granularity and uncertainty. A plan to address them is communicated.	The criteria of the 2° Invest Award allows to assess all types of methodologies used for the integration of climate-related criteria in the investment process. This generality is later compensated by evaluating specific elements relevant to processes and methodologies for the assessment of the consistency with climate goals and climate risks (see below and page 32).	The WG could complement disclosure requirements on exposure indicators with some provisions of the award criteria by requiring investors to highlight the shortcomings of the methodology (e.g. relevance of allocation rules) and its accuracy.
	TCFD recommendations: - Asset owners/asset managers should disclose the weighted average carbon intensity for each fund/product or investment strategy. While the TCFD acknowledges that carbon footprint should not be interpreted as a risk metric, it believes that is an important first step in disclosure that can help the development of relevant climate-related metrics. - Banks should provide the amount and percentage of carbon-related assets relative to total assets as well as the amount of lending and other financing connected with climate-related opportunities	As highlighted by the TCFD, the weighted average carbon intensity is not a risk metric. The recommendations however do not provide information on which practices to avoid, limit or continue when using the indicator.	The WG could examine the extent to which exposure indicators (in this case carbon footprint and brown share) could be useful to inform risk assessment and management process. This will require examining the limitations of current metrics and setting guidelines of effective use.
Value at Risk	**Criteria of 2° Invest Award (highest score):** Financial institutions disclose: - Method and indicators that directly informs the value at risk for the portfolio, regarding both transition risks and physical risks. - A value at risk based on a clearly defined adverse scenario, precise and consistent with the investment horizon of the assets and portfolio. - The most relevant types of impacts related to physical/transition risks for the investor. - A financial analysis is based on micro-level data. - An analysis covering all relevant asset categories offering a comprehensive picture of the value at risk for the investor. Exclusions are limited and duly justified. - An analysis covers all climate-relevant sectors and technologies, including both upside and downside. Exclusions are duly justified.	The criteria evaluates disclosure of results, in that sense the criteria provide the necessary details to understand the relevance of the indicator. However, the visibility on the methodology and scenario assumptions is limited to some factors (e.g. scope, granularity, consistency of time horizons).	The WG can build the standard's disclosure requirements on the value at risk based on the general principles covered in the award criteria. The disclosure requirements will however have to include as well requirements on the process used to assess risk (see next page).

Table 3 : Analysis of the potential use of the reviewed standards and guidance documents (Source: authors)

TOPIC	MOST PRECISE RECOMMENDATIONS	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
MEASUREMENT AND DISCLOSURE OF…			
Results of portfolio assessment			
Value at Risk	**TCFD recommendations:** *Banks should :* - consider characterizing their climate-related risks in the context of traditional banking industry risk categories such as credit, market, liquidity and operational risk. - Provide the metrics used to assess the impact of (transition and physical) climate-related risks on their lending and other financial intermediary business activities in the short, medium, and long term. Metrics provided may relate to credit exposure, equity and debt holdings, or trading positions, broken down by: industry, geography, credit quality, average tenor. *Insurance companies should:* - describe the processes for identifying and assessing climate-related risks on re-/insurance portfolios by geography, business division, or product segments, including i. physical risks from changing frequencies and intensities of weather-related perils; ii. transition risks resulting from a reduction in insurable interest due to a decline in value, changing energy costs, or implementation of carbon regulation; and iii. liability risks that could intensify due to a possible increase in litigation. - describe the range of climate-related events considered and how the risks generated by the rising propensity and severity of such events are managed. - provide the aggregated risk exposure to weather-related catastrophes in their property business by relevant jurisdiction. *Asset managers should:* describe how they identify and assess material climate-related risks for each product or investment strategy. This might include a description of the resources and tools used. *Asses owners should:* describe how climate-related risks and opportunities are factored into relevant investment strategies. This could be described from the perspective of the total fund or investment strategy or individual investment strategies for various asset classes *Asset managers/asset owners should:* - describe metrics used to assess climate-related risks and opportunities in each product/fund or investment strategy and how these metrics have changed over time. - provide metrics considered in investment decisions and monitoring	The TCFD recommendations require a description of the process used to identify and assess climate-related risks, and the metrics used in the assessment. It therefore allows for different levels of disclosure i.e. from a general to a more specific one. The TCFD does not provide detailed recommendations on the disclosure of the main assumptions of the methodology used (e.g. allocation rules) their relevance for risk assessment, and the scenarios considered in the methodologies.	The WG can build on the disclosure requirements of the TCFD, in particular regarding the differences by types of investors. This will require specifying the disclosure of key model assumptions (e.g. time horizons, adaptive capacity, ambition of the scenario), and principles that risk indicators should follow (e.g. forward looking).

Table 3 : Analysis of the potential use of the reviewed standards and guidance documents (Source: authors)

TOPIC	MOST PRECISE RECOMMENDATIONS	INCONSISTENCIES OR GAPS	NEEDS MOVING FORWARD
MEASUREMENT AND DISCLOSURE OF…			
Results of portfolio assessment			
Value-at-risk	**AODP Survey:** - Do you measure portfolio-level risk associated with physical impacts relating to climate change/potential climate change related 'stranded assets'? - Does your organisation calculate/estimate portfolio level carbon liabilities/stranded asset levels under direct or intrinsic carbon price scenarios? - Do you use a forward looking base case for climate change risk mitigation?	AODP disregards the risk associated with technology and production risk factors. The questions on risk assessment are general and allow for a wide range of responses.	The WG needs to phrase the disclosure requirements in a way that covers exposure to the most material risk factors, while allowing investors to disclose on those other risk factors being addressed through the methodology.
Consistency with climate goals (e.g. 2D benchmark)	**Article 173:** The description of the methodologies used in the analysis implemented may include: – the overall characteristics of the methodology; –details on the main underlying assumptions and their compatibility with the international objective to limit global warming; – explanations for the relevance of the method and scope used.	These disclosure requirements apply to all methodologies used. It is thus very general and does not provide specific information on the units of the output indicators and key assumptions.	Despite having good frameworks providing guidance on disclosure, there is no framework developed on the assessment of the consistency with climate goals. Thus, prior to providing guidance on disclosure, the WG should focus on ensuring that current and future metrics account for a good methodological basis that includes the use of consistent 2°C benchmarks, time frames and output indicators.
	Criteria of 2° Invest Award (highest score): Investors and financial institutions disclose: - A detailed description of the depth of the analysis, the shortcomings of the methodology, and the data granularity and uncertainty. - A comprehensive set of targets based on a robust methodological approach. - A quantitative assessment of the misalignment with targets and precisely identifies the hotspots and actions required. - All relevant asset categories. Exclusions are limited and duly justified. - All climate relevant sectors and technologies, including both brown and green. - How it relies on both direct and indirect activities associated with issuers in key relevant sectors and specifies hypothesis and shortfalls. - An analysis that is both forward and backward looking. - An analysis based on country- geolocated data, thus allowing the analysis of the alignment with local, national, and global targets and policies.	The criteria evaluates the disclosure of results and the relevance of the methodology used. No major gaps were identified in the disclosure requirements.	
Outcomes of 'actions'			
Impact on GHG emissions and resilience	No standard or initiative promoting standardization reviewed covers these topics.		
Impact on financial risk exposure			

Table 3 : Analysis of the potential use of the reviewed standards and guidance documents (Source: authors)

TOPIC	MOST PRECISE RECOMMENDATIONS	INCONSISTENCIES OR GAPS	NEEDS MOVING FORWARD
MEASUREMENT AND DISCLOSURE OF…			
Results of portfolio assessment			
Value-at-risk	**The PCI Carbon Asset Risk framework:** 1.Identifies and discusses two main types of approaches to evaluating risks: i. company level using asset-level data for existing portfolios and new investments; and ii. financial portfolio level applicable to existing investment portfolios. 2. Defines the steps towards assessing transition risk at company level through the screening of companies using exposure data and risk factors (e.g. asset level data, type and duration of the financial relationship and baseline scenario data). The framework identifies other qualitative factors (e.g. corporate strategy, efforts to engagement with investors) relating to the company's management of carbon-related risks should be considered to understand their positioning against future challenges. 3. Defines the steps for the assessment of risk at portfolio level. The steps consist in the i.) identification of risk factors, ii.) testing the relationships among them to ensure they are unique, ii.) combine them with macro-scenario data to stress test the portfolio, iv.) generate the data describing the impacts of changes in risk factors to the portfolio; v. analyze results and optimize the portfolio with regard to the risk factors.	The framework is conceptual. Although it does provide the general factors to consider in the assessment of climate risks, it does not provide methodological guidance on how to calculate value at risk at portfolio level, instead, it covers company level analysis.	The WG could potentially build on the company-risk framework to define risk or exposure indicators. Building on the portfolio framework could however be more challenging as the framework is high-level. The WG group will have to define best practice allocation rules by type of asset class (see page 45) and best practice methodologies. In the absence of relevant metrics, the WG should explore the development of metrics building on existing frameworks (e.g. Moody's heatmap, Barclays' financial road map, carbon supply costs curves of the Carbon Tracker Initiative).
	SASB Financial sector guidance: - Commercial banks/asset managers/insurers should discuss how it assesses climate risks to its loan portfolio/funds and/or clients portfolios/investment portfolio. - The registrant shall identify specific industries (or sectors) in which it has exposure to risks from the trends it has identified. - The registrant shall identify specific geographies (e.g., regions, countries, states, etc.) and/or demographic segments (e.g., income, education, etc.) in which the registrant has activity and recognizes risks from the broad sustainability trends disclosed. -The registrant should quantify its exposure to sustainability risks as the dollar amount of investment in industries most susceptible to the risks the registrant has identified, or if available, as a risk-adjusted exposure (e.g. to cash flow or discount rates) to these industries.	SASB requires disclosure of value at risk indicators at sector level. Disclosure should however be addressed across asset classes in order to inform strategic asset allocation. More granular disclosure on the methodology's assumptions is need to understand the consistency between the methodology used and the investor's management strategy.	The WG can build on the SASB recommendations by including disclosure recommendations at a more granular level. The WG disclosure recommendations on value at risk indicators can also account for the terminology used in the SASB framework in order to ensure consistency across frameworks.

The analysis reveals the following elements:

•There is a lot of guidance about disclosure, but limited technical guidance on how to actually manage climate risks and impacts. The most precise guidance documents the ISO 14097 working group can build on are:

- PCI - Carbon Asset Risk (WRI/UNEP FI 2015)
- PCI -Climate Strategies and Metrics - Exploring Options for Institutional Investors. (2ii 2015c).
- Natural Capital Coalition. Financial Sector Supplement

•There is little guidance on scenario design and no guidance on how to 'translate' scenarios to make them relevant for their use case. There most relevant (but still high level) recommendations come from:

- PCI - Carbon Asset Risk (WRI/UNEP FI 2015)
- Natural Capital Coalition. Financial Sector Supplement

•As far as guidance on disclosure for financial institutions is concerned, there is a lot of high-level guidance on how to report on the approach, but the guidance on metrics to be used is much more scattered and limited. The most precise guidance can be found in the International Award on Investor Climate-related Disclosures evaluation criteria (2ii/MEEM 2016b).

•More precisely on metrics, it is to be noted that the existing guidance almost exclusively focus on various ways to disclose on the' exposure' of financial institutions to climate-relevant activities (using indicators such as carbon intensity, and green and brown taxonomies on business activities and technologies) but methodological guidance is almost inexistent specially when it comes to calculating the consistency with climate goals, the related value-at-risk. There is little guidance provided on this by standardization organizations and initiatives, more relevant documents developed by other organizations include:

•Investor Climate Disclosure: Stitching Together Best Practices (2ii 2016a)

- Lighting the Way to Best Practice - Climate Reporting Award Case Studies. (2ii 2017b).

- Finally, a critical element to highlight is the lack of guidance on metrics that quantify the impact of climate-related actions. Currently there is no guidance allowing to track, estimate and report on the impact of actions consistent with the investor's objective (i.e. contribute to climate goals or manage risks) and investors targets under a 2°C scenario.

2.5 ADDITIONAL FRAMEWORKS TO CONSIDER

The review of standards and initiatives showed that there is enough room for improvement provided there is an interest on building on the current work of certain organizations. More critically, it showed that there are topics currently not addressed, notably in the case of scenarios and impact of actions. This section reviews additional documents developed by public or private organizations that do not work towards standardization but which work could be of use for ISO 14097 when considering the standardization avenues identified in 2.4.

2.5.1 SCENARIO CHOICE

When considering standardization options around the scenario choice, one can think about three possibilities:

1. General guidance to design scenarios that can be used by financial institutions and can communicate on their key assumptions, including scope, timeframe, ambition, uncertainty, etc.
2. Guidance on the outputs necessary to inform risk assessment or/and consistency of financial assets with climate goals, and guidance on the associated steps to 'translate' climate scenarios and technology roadmaps.
3. Production of 'standard scenarios' (2°C or a range) that can be directly used by financial institutions.

As reviewed in section 2.4, the are few initiatives providing relevant guidance for the design of scenarios, and no initiative addressing the 'translation' of outputs or the production of standard scenarios. When looking at the developments of other organizations around this topic, the outlook is very similar. A couple of organizations stand out due to their technical angles, which complement the conceptual frameworks and general recommendations layout by the standardization initiatives reviewed. Two major sources of information stand out, these are the Intergovernmental Panel on Climate Change (IPCCC) guidance on Climate and Socio-Economic Scenario Development and the tool developed by the Deep Decarbonisation Pathways Project (DDPP).

TOPIC	DESCRIPTION	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
MANAGEMENT			
Scenario choice			
Scenario design process	**IPCCC's guidance on Climate and Socio-Economic Scenarios Development:** The guidance provides an overview of the different methods for developing climate and socio-economic scenarios, the advantages and disadvantages of the existing methods and its relevance in impact assessment (from a physical viewpoint). It provides recommendations on the selection of the baseline period, the input and output variables to consider, the approach to follow when combining baselines with modelled data, the geographic and sectoral scope and granularity of the chosen data, the time horizons, the factors to consider when converting emissions pathways to atmospheric concentrations or radiative forcing, the consistent use of scenario components (e.g. differences between CO_2 and CO_2-equivalent concentrations), and the most relevant uncertainties to consider.	The guidance is designed to address the main methodological challenges for different types of climate and economic scenarios that integrate both physical and technology changes under a certain GHG concentration trajectory. This approach notably limits the granularity of the recommendations provided for the scenarios and models that are mainly used by the financial industry (e.g. IAMs).	Both sources provide information on different approaches used for the design of scenarios. Thus, the study of both is necessary if the WG is interested in providing guidance by type of scenarios (i.e. transition or physical scenarios).
	DDPP's tool: The DDPP provides guidance through an excel tool allowing any user to develop scenarios based on an energy system model. The tool compares a reference scenario with a mitigation scenario, thus any climate outcome can be modelled. It covers several sectors including power, fossil fuels, cement, steel, auto, shipping and real state and their aggregation. Users are required to provide the baseline and the 2050 values of key input indicators (e.g. efficiencies, plan characteristics, emissions and capacity factors).	•Assumes the scenario trajectory is linear over time, meaning that changes in trends between periods are not captured. •Drivers such us commodity prices, and policy changes are not modelled and thus have to be captured indirectly	

2.5.2. EXPOSURE TO CLIMATE-RELEVANT ACTIVITIES

The standards and standardization initiatives reviewed mainly focus on the disclosure of 'exposure' indicators, without providing guidance of the principles or characteristics that these exposure indicators should fulfil. This approach which aims at increasing comparability across reporting, limits and in some occasions misleads as the underlying methodology of the exposure indicator varies from provider/FI to provider/FI.

This section provides an overview of the exposure indicators' current offers, including carbon footprint, green/brown exposure and ESG rating providers. It does not aim to discuss the methodological constraints in connecting exposure indicators with climate goal or climate risks, but to identify approaches or taxonomies that could eventually be reviewed in ISO 14097 to define guidelines on how to assess the exposure of a portfolio to climate-relevant business activities or/and technologies

TOPIC	DESCRIPTION	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
MEASUREMENT AND DISCLOSURE OF…			
Results of portfolio assessment			
Exposure to climate-relevant activities	**Carbon footprint data providers:** Carbon footprint is perhaps the most frequently-offered service of providers. Methodological differences in their offering and use rely on the accounting rules used (e.g. scope, double counting, time boundaries, allocation rules to investors), the asset class coverage, the sources of GHG data and the quality of their data processing and uncertainties reduction. For a review of differences across 12 providers see 2ii 2015c.	As highlighted above one can argue about the ability of these metrics to capture forward-looking information under a 2°C scenario moving forward. It is however important to understand to what extend these metrics can better capture today climate issues and which changes need to be made in order to develop more adapted climate exposure indicators. This is however an open discussions today that will not be addressed through this document.	Provided there is a common understanding on the most suitable metrics to quantify exposure, the working group can review the offering of the mentioned organizations to determine which indicators (e.g. production capacity or units, carbo intensity) can be of potential use and under which conditions.
	Green/brown exposure: Investors primarily access green/brown exposure metrics through ESG data providers or bespoke databases. Examples include Verisk Analytics on oil, gas, & coal sectors, ThomsonReuters on project finance, and GlobalData for the power sector. Methodological differences in their offering and use respond to the exposure data used (e.g. share of renewable technology, fuel efficiencies etc), the scope of sectors and companies covered, and the classification system of companies. For a review of differences across 13 providers see 2ii 2015c. At project level the offering varies. Few ESG data providers have green/brown classifications at project level (e.g. Trucost, Moody's). Most of the classification and certification is being done by second opinion providers such as CICERO and CBI.		
	ESG rating providers: Several providers systematically evaluate companies on a variety of ESG criteria. The scores are based mainly on qualitative data and benchmarking against industry practices. Methodological differences in their offering and usage respond to the sector and company coverage, the components assessed, the scoring system (e.g. From D- to A+) and the primary sources of information. For a review of differences across 10 providers see 2ii 2015c.		

2.5.3. OUTCOMES OF ACTIONS

The review of standards and initiatives showed that current guidelines address the actions that investor's undertake without focusing on the complexities around the relevance and additionality or impact related to the action and associated objective behind the action. There are however few other frameworks that do not necessarily address the topic from a portfolio construction perspective that can be considered for its process-based and project-level approach.

TOPIC	DESCRIPTION	INCONSISTENCIES OR GAPS	STEPS MOVING FORWARD
MEASUREMENT AND DISCLOSURE OF…			
Outcomes of 'actions'			
Impact on GHG emissions and resilience	**CDM methodologies**: The Clean Development Mechanism (CDM) requires the application of a baseline and monitoring methodology in order to determine the amount of Certified Emission Reductions (CERs) generated by a mitigation CDM project activity. Over 7700 projects and 380 Programmes of activities registered under the CDM are hosted in nearly 100 developing countries. To date CDM projects and programmes have generated more than 1.8 Billion CERs. Over 200 methodologies developed, tested and refined under the CDM over the last 15 years represent one of the most comprehensive repository of monitoring and emission reduction estimation methods. The CDM methodologies were developed in a bottom up process to respond to the context in developing countries (e.g. including tiered approaches for monitoring, addressing issues related to data gaps). CDM methodologies tend to detail the emission reduction estimates (i.e. ' how to' besides 'what to' measure and quantify), where possible including conservative default factors. IFIs technical working group on harmonisation of methodologies, with over 25 members, employs some elements of the CDM methodologies besides its tools (e.g. grid emission factors developed under the CDM)	- There are gaps in the available methodological approaches in some sectors (e.g. integrated approaches for urban sector climate action, some specific areas of agriculture). CDM methodologies do not cover the quantification of the impacts of policies. Not all methodologies include tiered approaches (i.e. ranging from tier one conservative macro level defaults to tier 3 requiring accurate and frequent measurements within the project boundary with potentially higher credit generation). - CDM methodologies notably only apply at project level.	- Develop integrated approaches for relevant sectors including reliable and conservative defaults to achieve simplification. Apply technology (e.g. digitisation) to reduce transaction costs for broader uptake and to cover the needs of different type of applications and stakeholders.
	ICAT Transformational Change Guidance: Developed by the Initiative for Climate Action Transparency, the guidance aims for a better understanding of the impacts and potential impacts of policies on the National Determined Contributions and the SDGs at international, national and sub-national level. The guide provides a general approach to assessing the impact of policy actions or instruments by providing principles, concepts and procedures to follow before, during and after the implementation of the policy. For the financial industry, the framework can be used to assess the impact of changes on policies for loans, credits and grants. Two other interesting guidelines around the same vein are the GHG protocol policy and action standard (GHG 2014) and the ADEME method to quantify the GHG impact of an action to reduce emissions (ADEME 2015).	The guidance is relevant for a sub group of financial institutions, notably mainly development banks. Its application to other financial institutions is limited as drivers for actions are not always policy oriented.	The limitations in adapting the guidance to a broader audience of financial institutions relate mainly to the guidance's focus on the policy side rather than investment side. However, the structuring of the process can draw inspiration for the development of a framework to assess impact of portfolio construction actions.

3 RECOMMENDATIONS FOR ISO 14097

3.1. CLARIFY THE OBJECTIVE: RISK MANAGEMENT OR CONTRIBUTION TO CLIMATE GOALS

The landscape review confirmed the conclusion of the previous pre-standardization work conducted by WRI, UNEP-FI and 2Dii in the context of the Portfolio Carbon Initiative - PCI - (see figure 2):

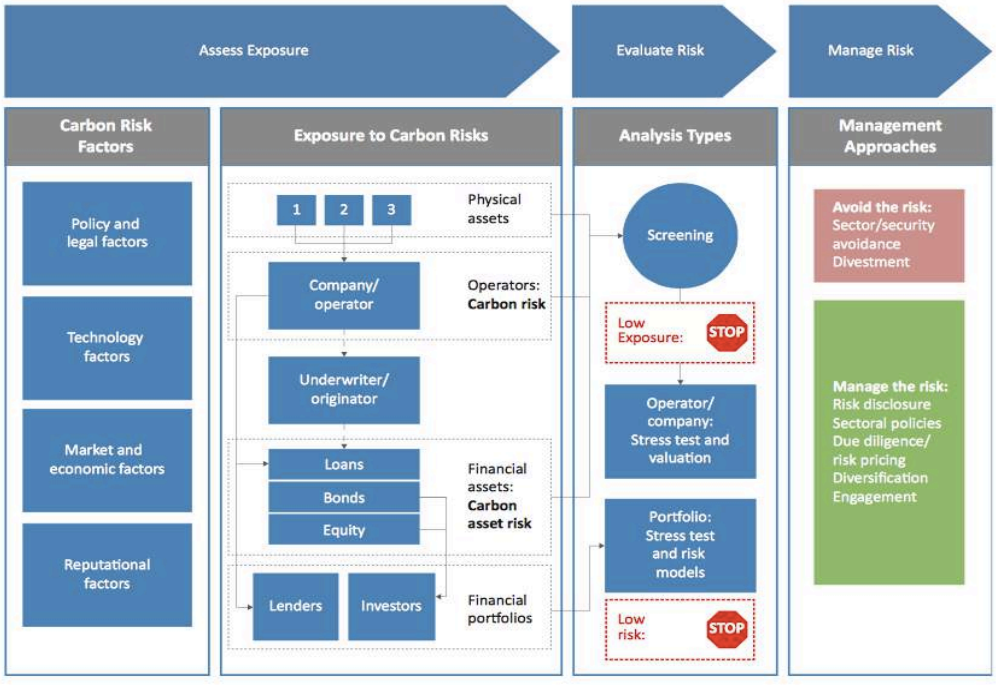
- Most standards and standardization initiatives have been designed for non-financial companies, which have a more direct impact on GHG emissions than financial institutions. The indirect nature of financial institutions' connection with GHG emitting activities creates complexity in understanding the dynamic of risk transfer on the one hand, and its potential influence on GHG emissions in the real economy on the other hand.

- In line with the findings and recommendations of PCI, our review concludes that financial institutions can fundamentally pursue two climate-related objectives through their investments and lending activities:
  1. **Managing climate-related financial risks and opportunities,** by better assessing, mitigating and hedging them.
  2. **Contributing to the achievement of climate goals**, through the influence they have on investee companies' GHG emissions.

- Each of these objectives fundamentally require different approaches, metrics, tools and types of actions:
  - For instance, the easiest way to manage climate-related financial risks related to a stock portfolio is to reduce its exposure to the most risky activities, or hedge the risks through the use of derivatives. However, none of these actions contribute significantly to GHG emissions reductions, since the activities in the real economy are likely to be impacted very marginally – or not at all – by these decisions.
  - Equally, if shareholders request an investee power company to shut down a coal-fired power plant before the end of its lifetime, the action might contribute to GHG emissions reductions, but it will not necessarily improve the financial returns of the company and the investor.

The review of financial institutions' narratives related to their climate actions reveals that they very often mix these two objectives: sometimes because they pursue both at the same time, sometimes because they primarily seek reputational benefits, without a clear understanding of the actual concrete outcomes expected.

Figure 2: Framework for Assessing Carbon Risk and Assessing and Managing Carbon Asset Risk (Source: WRI/UNEP FI 2015)



3.2. DEFINE THE SCOPE OF THE WORKING GROUP

Financial institutions develop various financial activities that can have an impact on climate (*contribution*) or contribute to mitigate climate-related financial risks (*risk management*), they notably include:

- Origination of loans and deals,
- Services of underwriting of equity and debt,
- Securitization,
- Design of derivative contracts,
- Asset-management,
- Investment product packaging and retail.

These core functions are associated with hundreds of support services such as advisory, legal and marketing at each stage, construction of indexes, equity research and credit ratings, clearing, custody of securities, etc. In the context of PCI, UNEP-FI, WRI and 2°ii have started to list these services (WRI/UNEP FI 2015). Besides financial institutions also undertake various actions that are not related to investment and lending, such as lobbying activities, communication and operational plans to reduce GHG emissions (e.g. policy related to travel, use of paper, etc.).

In line with the focus of most methodological and standardization work identified, including the core scope of PCI and the TCFD, we suggest the ISO 14097 working group to focus on the functions of ***investment portfolio*** (see above) and ***loan book management,*** assuming that the standard created will be adapted to other services at a second stage. The scope of the standard will exclude all actions that are not specific to the finance sector, such as lobbying activities, and operational GHG emissions management, these actions being relevant but already covered by existing standards.

3.3. DEFINE FINANCIAL INSTITUTIONS' ACTIONS

In the context of investment portfolio and loan book management, financial institutions undertake a number of 'actions' that can contribute to climate-related risk management and/or support the achievement of climate goals, as opposed to a 'business as usual' approach. The table below lists these core actions for illustrative purposes.
The standardization work will involve further developing and documenting this list and turning it into a 'library' of climate-related actions.

ASSETS	ACTION
Equity investments in VC, PE, real assets	Blacklist/limit exposure to certain projects
	Invest more in certain projects
	Set climate-related conditions
Listed equities	Divest/reduce exposure to certain stocks
	Invest more in certain stock
	Engagement with the issuers on their actions
Bonds	Divest/reduce exposure to certain bonds
	Invest more in certain bonds
	Favor bonds associated with climate-related actions from the issuer
Loans	Limit lending to certain activities
	Limit exposure to certain activities through securitization
	Set above-market conditions for lending to certain activities to increase volume
	Increase lending to certain activities through marketing
	Define climate-related conditions for lending to certain activities
	Change risk weights and related capital charges for certain activities in internal risk models
Commodities	Limit trading activities on certain commodities to prevent impact on market prices
Derivatives	Use of derivatives to hedge climate-related risks

3.4. DOCUMENT HOW ACTIONS LINK WITH THE ACHIEVEMENT OF THE OBJECTIVES

3.4.1. LINK WITH RISK MANAGEMENT

These actions are linked to risk management in four ways:

- Limiting the exposure to assets perceived as 'more risky' (e.g. high cost oil extraction, coal power) than currently reflected in risk pricing, and therefore reducing the 'value-at-risk' if the climate risk materializes faster and stronger than expected by the market;
- Similarly, increasing the exposure to other activities positively exposed to climate-related opportunities (e.g. renewable power, electric vehicles) for which the market might undervalue the potential.
- Influencing risk mitigation actions by the investee/issuer, by setting conditions.
- Hedging a risk by getting exposed to an instrument (security, derivative) with reverse correlation.

It is to be noted that the link between actions and the outcomes in terms of risk mitigation is very poorly documented, both in the guidance documents and in the investors' disclosures. In many cases, actions that have questionable impact on the risk exposure (due to flawed risk metrics in many cases) are presented as risk management measures. For instance, the reduction of the carbon footprint of a portfolio, using scope 1 and scope 2 emissions (direct and related to electricity purchase) is very often presented as a risk management measure, even though there is strong evidence that carbon intensity at portfolio level and carbon-related risk exposure are very poorly correlated (2ii 2017c). Another frequent confusion relates to the association of investments in 'climate labelled' bonds issued by corporates or sovereigns (labelling of the issuer based on ring-fenced climate-related activities) with risk mitigation, even though the creditworthiness of the issuer remain uncharged by the label, relative to 'standard' bonds from the same issuer. On the other hand, straightforward risk management measures such as the use of derivatives are very rarely described.

In this context, a possible task of the ISO 14097 working group will be to better document the potential impact of various types of actions on risk exposure, and develop genuine *risk* metrics to measure the 'starting point' and the outcomes. Based on the existing body of guidance and practices, this work will involve guidance on how to define and estimate the ***'value at risk'*** related to climate risks, and how to design and use the related ***climate scenarios***.

3.4.2. LINK WITH CLIMATE CONTRIBUTION

These actions can contribute to climate goals in three ways:

- Limiting the exposure to activities perceived as 'misaligned with climate goals' (e.g. high cost oil extraction, coal power), which can – *under certain circumstances*– reduce the availability and increase the cost of capital for investees and thus limit their development, accelerate their decline or influence the nature of their investment plans.
- Similarly, increasing the exposure to activities that need to further expand under a climate scenario (e.g. renewable power, electric vehicles) that can contribute to improve the availability and cost of capital for the related companies and thus support their expansion.
- Finally shareholder engagement (e.g. use of voting rights to push climate-related resolutions), climate-related conditionality for lending or direct investments, and the signal sent by investment and divestment decisions can influence the investment plans and operational decisions of the investees, in a way that saves GHG emissions.

When reviewing both the guidance and the narrative of financial institutions, it is to be noted that there is a lot of confusion regarding the actual impact of investors' 'climate actions' on GHG emission reductions in the real economy. In many cases changes in portfolio allocation (reweighting, divestment, additional exposure, etc.) on liquid assets such as large cap stocks and investment grade bonds are presented as a way to reduce GHG emissions, even though the impact of such actions on the cost of capital and the influence on the issuers' decisions are likely to be nonexistent, or at best very marginal.

In this context, a key task of the ISO 14097 working group will involve defining the ***'pathways to impact'*** on GHG emissions associated with different actions, and provide guidance on how to ***track the impact and influence on investees' climate-related decisions***. This work will involve defining metrics to assess the 'starting point', set targets, and estimate the outcomes of actions.

In doing so, the working group will need to find the right level of sophistication of metrics and assessment processes to avoid greenwashing on the one hand and a burdensome assessment process on the other hand. The existing discussion of impacts (e.g. report from Oxford on fossil-fuel divestment[1]) shows indeed that in many cases, the actual outcomes of an action (e.g. divesting from stocks) will depend on many 'unknown' factors, such as the reaction of other market players, the other factors in the investee companies' investment decisions, etc. The way forward will probably involve pre-defining the order of magnitude associated with different types of actions, and the conditions for potential success, in order to create ***categories of actions***, with more or less 'climate impact potential.'

3.5. DEFINE METRICS THAT SERVE THE OBJECTIVE

The review of practices reveals that, as a direct consequence of the confusion regarding the objectives pursued, the availability of data drives the definition of performance metrics, which in turn drives the design of many actions. In other words, many investors primarily define their approach to improve the indicator they communicate externally (example in fig 1), rather than defining an indicator relevant to the goal they are trying to achieve (example in fig 2).

Fig 1.

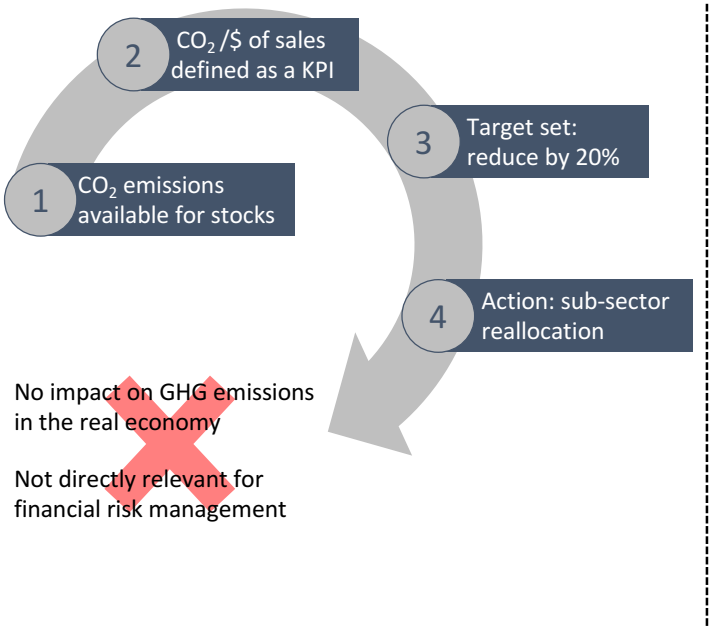
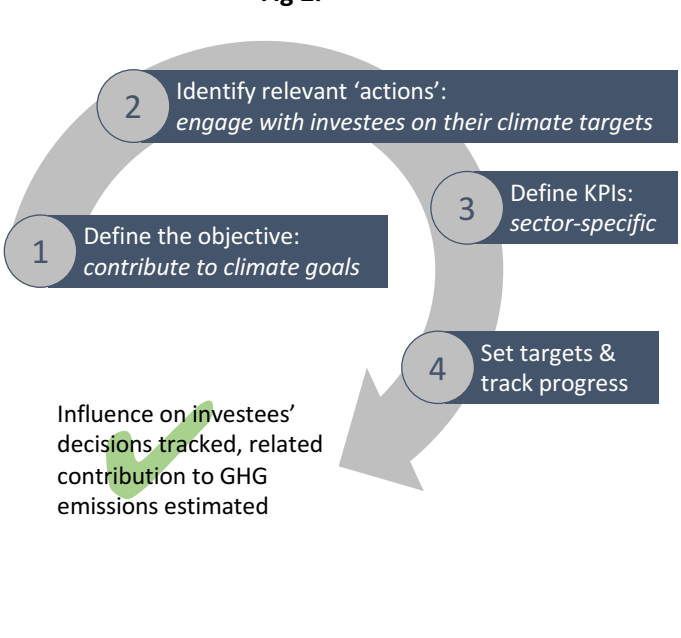


Fig 2.



Building on the recommendations of PCI (WRI/UNEP FI 2015, 2ii 2015c, 2ii 2013) and the work done by the French government in the context of the Article 173 (2ii/MEEM 2016), the ISO 14097 project will define measurement frameworks and metrics in relation to one of the two objectives listed above. The 'soft' impact of actions on reputation and awareness raising (e.g. the signal sent by the decision of a large investor to divest from coal mining) will be discussed, but will not constitute a core focus of the recommendations regarding impact measurement and risk metrics.

3.5.1. DEFINE GENUINE CLIMATE IMPACT METRICS

The review of practices show that most investors use 'exposure metrics' in association with a narrative on their climate contribution, confusing changes in exposure with changes in the real economy.

One of the main reason for that, illustrated in figure 1 below, is the confusion between:
•Changes due to the sale or acquisition of securities (see 1 in the figure 1)
•Changes due to an evolution of the scope of the issuer (see 2 in figure 1), and
•Changes due to actual evolution of assets and activities in the real economy (see 3 in figure 1**).**
In this example, changes at all levels (1, 2 and 3) contribute to the evolution of the indicator (e.g. green share, carbon footprint, etc.) at portfolio level, but only changes at level 3 are actually linked with emission reductions/increases in the real economy. Level 1 and 2 contribute to an evolution of the indicator but only due to 'accounting effects'.

A second reason, illustrated in figure 2 relates to the use of different consolidation rules by reporting companies, and the existence of gaps in reporting that generate additional accounting effects. Another frequent bias relates to the use of volatile denominators in the calculation of ratios (e.g. CO_2/$ of sales that can be exposed to fluctuations of prices) that 'pollute' the performance indicator.

When it comes to setting climate targets and assessing the impact of investors' 'actions' on the decisions of investee companies and the related GHG emissions, these flaws become a major hurdle given their weight compared to the impact of actions. To address these flaws, the main solution explored to date by practitioners is tracking the evolutions of indicators at the 'physical asset-level': i.e. at the level of the power plant, the oil field, the production of vehicles…

Following this path, the standardization work will notably involve:
•Defining the relevant assets in each key industry, and the relevant indicators associated (production, CO_2 intensity, etc.),
•The timeframe (past or forward-looking, number of years, etc.) of the consolidation rules,
•The way to estimate and track how the 'action' of an investor can influence the decisions of an investee
•The way to measure the baseline, a 2° target, the achievements and to compare them.

Figure 1: MISLEADING EFFECT OF TURNOVER

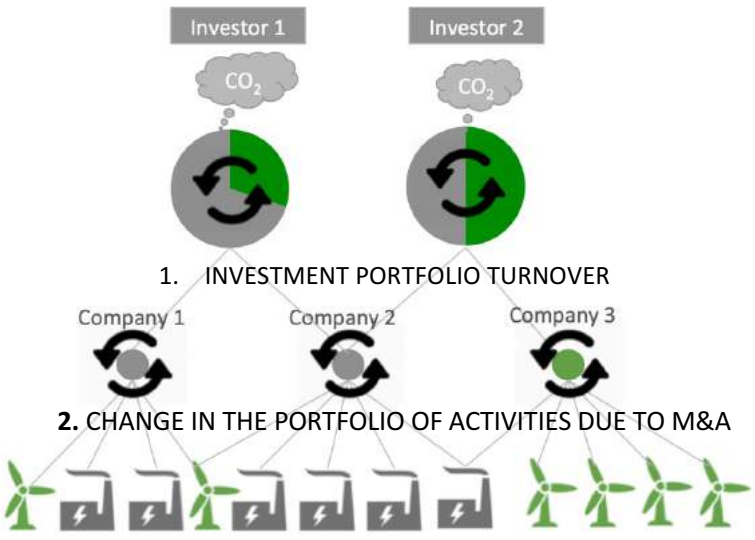
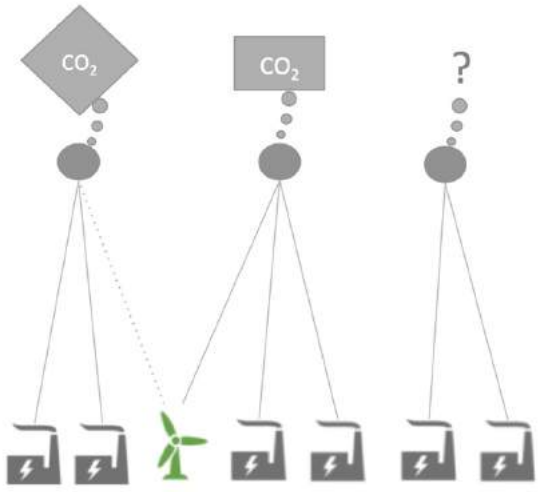


Figure 2: MISLEADING EFFECT OF CONSOLIDATION RULES



3.5.2. DEFINE GENUINE RISK METRICS

Similarly, most investors use indicators of exposure to climate-relevant activities (e.g. green technologies or business segments, carbon intensity of activities, etc.) as a proxy for exposure to carbon-related risks such as public policy risks, litigation, and other constraints on high-carbon activities. Research shows that these proxies are largely irrelevant when it comes to assessing the financial value-at-risk related to climate factors (policy risks, litigation risks, technology risks, physical risks, etc.) (2ii 2017c). Indeed, the risk faced by a physical asset in the real economy (e.g. power plant) is not necessarily transferred to the investor exposed to this asset. As a consequence many other factors than the consistency of the activity with decarbonisation pathways enter into the risk equation for investors.

The table below presents an overview of the different economic players that can be impacted by climate-related risks (column 1), of the way the risk is transferred across the investment and lending chain (column 2) and provides examples of obstacles to this transfer. It illustrates how a risk can be material at the 'bottom' of the chain without necessarily being material at the 'top'. The main obstacles to the risk transfer include:

- The investment horizon that might be shorter than the window of materialization (see 3.1),
- The speed of materialization that might led time to adapt (discussed in 3.2)
- The 'buffers' (pricing power, insurance, etc.),

Who ?	Nature of risk transfer	Example of obstacle to the risk transfer
Society	A power producer emits large amounts of CO_2 associated with a cost for society: the damages related to future physical impacts of climate change (social cost of carbon)	
Physical assets	If the country is likely to introduce climate constraints (e.g. taxes, caps) at some point in time, the power plants located there might be shut down or face extra costs.	In the absence of foreseeable policy that likely to be implemented in the remaining lifetime of the asset, the risk remains an 'externality' impacting Society only.
The owner of the physical asset	The owner of the plant then faces impairments and higher costs, impacting its P&L and balance sheet	However, if the regulation allows it to transfer the cost to consumers, the impact can be partly or fully offset
The security issued by the owner (e.g. bond)	The credit rating of the producer can be downgraded, thus leading to a drop in the market value of the bond	But the company may also have a financial cushion big enough to absorb the losses and maintain its credit rating.
The owner of the security	The investor's portfolio will lose value when the bond is downgraded	But if the bond comes to maturity before the risk of downgrade materializes, the portfolio will not lose value
The financial system as a whole / Financial stability	The climate constraints apply to other power producers and other sectors and the materialization and transmission of risk occur quickly, some large financial institution might default and create a domino effect	But if the risk materializes more gradually, or that the portfolio of financial institutions is not exposed enough to the sectors at risk, the risk might not affect the finance system as a whole.

As a consequence, the potential standardization work on this topic will involve the development of genuine 'value-at-risk' metrics based on the sensitivity of valuation and credit worthiness assessment to adverse climate scenarios. To perform this work, the ISO 14097 working group will be able to build on a growing body of methodological work from analysts (S&P, Moody's, Kepler, HSBC, Barclays') and non-for-profit research (Carbon Tracker, Oxford, 2Dii, etc.). This work would involve the development of guidance on how to adapt risk models to integrate climate-related parameters, which parameters are necessary in climate scenarios, which times can be applied, how to account for the adaptive capacity of companies over time, how to present the results and the assumptions.

4. CONCLUSIONS OF ISO 14097

Building on the landscape review and the recommendations provided the by ISO 14097 conveners, the ISO 14097 WG discussed the advantages and disadvantages of addressing a series of topics in the standard. The discussion led to the definition of the the priorities of the standard.

At a first stage the standard will focus on developing a framework to assess the contribution of investments to the Paris Agreement, this will include the process to set targets, climate actions and the metrics to measure progress on targets and the impact of actions. Standardization avenues around scenarios will be as well be considered. At a second stage the group will focus on developing a framework for the management of climate-related risks however the granularity of the standard on this topic will be discussed at a further stage. The main points to be addressed during the development of the standard are summarized below.

TOPIC	Sub-topics and associated work for the ISO group	Pros	Cons
MANAGEMENT AND DISCLOSURE OF...			
Management processes			
GHG emissions reduction induced by the activities	Description of a standard climate impact management framework based on best practices and exiting guidance	- Need for guidance given the lack of finance-sector specific guidance. - Confusion/ inconsistencies found in investors narrative (i.e. actions for risk and contribution are being used interchangeably). - Required by NAZCA and Art. 173. - FIs uptake is driven by the need to communicate on this topic and the lack of internal resources to work on it.	- We are at a stage in which FIs are still defining practices, thus there is a chance for a possible pushback from investors, specially regarding the process to set targets (see page 42).
	List a description of actions that can lead to impacts, description of the 'impact pathways' and protocol to estimate the outcomes ex-ante and ex-post.		
	Process to set relevant and actionable climate-related targets and manage them		
Results of portfolio assessment			
Consistency with climate goals (e.g. 2D benchmark)	Guidance on how to 'translate' the well below 2°C macro-economic target from a scenario into an indicative benchmark/target for financial assets, including: burden sharing rules, time frames, etc. Guidance on how to compare a portfolio with this benchmark building on exposure indicators	- External pressure from international organisations (e.g. UNFCCC) and NGO's requiring investors to be accountable for their actions. - Private sector can get involved to set the bar. - No guidance on the topic (except for disclosure) due in part to the limited availability of methodologies.	- FIs are currently exploring their options and thus practices are still being defined.
Outcomes of 'actions'			
Impact on GHG emissions and resilience	Guidance on how to track, estimate and report on the impact of a range of 'actions' (reallocation of portfolio, shareholder engagement, etc.) on the decisions of investees, their investment plans and the related committed emissions or emission reductions. Guidance on how to compare the results with voluntary targets and 2D benchmarks	- This will signal to customers, beneficiaries, governments and regulators which FIs are doing something meaningful against climate change and distinguish them from other organizations marketing misleading information.	- Risk of push back from FIs doing greenwashing as actions will not result in impact. - FIs that are "honest" in their approach may pushback due to the difficulties around impact measurement (e.g. in the case of collective actions). The WG might opt for developing different "shades" of metrics.

TOPIC	Sub-topics and associated work for the ISO group	Pros	Cons
MANAGEMENT AND DISCLOSURE OF…			
Management processes			
Climate-related financial risks	Description of a standard risk management process based on best practices and exiting guidance Listing and description of risk mitigation 'actions' and the process to measure their impact	- Perception that the sector might be more motivated by this topic (latent demand), but needs to be tested as FIs seems to communicate more on impact - There is no standard process developed, however there is high level guidance suggesting how do it. The guidance needs to be complemented by a technical one. - Financial regulators may be interested to assess long term systemic financial risk even if it is considered irrelevant by individual investors that have shorter term investment horizon. This is because if an given investor can always say I will take action before the risk materialize (say by selling the stocks that are associated to asset exposed to the risk of being stranded or through hedging), the system as a whole will not be able to mitigate the risk.	- Financial risks are currently managed in the short term. Thus, there is limited use of scenarios in this context (other than a 2°C scenario) - Addressing this topic could overlap with the next steps of the TCFD and partners, however, this scenario is not considered as plausible at this stage. - Traditional risk management processes play a role in the investor's competitiveness, even though there is some guidance from regulatory authorities on risk management there is not an urge for standardization on risk management.
MEASUREMENT AND DISCLOSURE OF…			
Results of portfolio assessment			
Value-at-risk	Guidance on how to calculate and disclose the value-at-risk for various types of assets in a given climate scenario, building on exposure indicators	- It could be potentially beneficial for financial supervisory authorities but not necessarily to investors due to the commercial gains associated to the investment strategy.	- FIs are currently exploring their options and thus practices are still being defined. Taking that direction may disincentive innovation. - Limited availability of relevant methodologies at portfolio level. Thus requiring the development of metrics, thus going beyond standardization.
Outcomes of 'actions'			
Impact on financial risk exposure	Guidance on how to assess the impact of various 'actions' on the value at risk in a climate scenario, backtest the performance, and calculate standard risk indicators in a business as usual scenario.	- Signal to customers, beneficiaries, governments and regulators the FIs that are taking action on climate-related risk (and the financial benefits associated) and distinguish them from other organizations with poor risk management processes.	- FIs are currently exploring their options and thus practices are still being defined. Taking that direction may disincentive innovation. - Additional complexities may arise due to the lack of a framework to calculate value at risk.

TOPIC	Sub-topics and associated work for the ISO group	Pros	Cons
MANAGEMENT AND DISCLOSURE OF...			
Scenario design			
Scenario design process	General guidance design well below two degrees that can be used by financial institutions and communicate on their key assumptions, including scope, timeframe, ambition, uncertainty, etc.	- Required by all approaches - Response to the TCFD - In the context of contribution, there is no need to develop 4°C,3°C. Only 2°C is useful.	- Risk to duplicate TCFD work, however at this stage the intention, timeline and level of granularity is unclear. - The scientific community has the leadership on the scenario design process, while the finance community has to develop the expertise needed for the 'translation' process.
Scenario 'translation' process	Guidance on the outputs necessary to inform risk assessment or/and consistency of financial assets with climate goals, and guidance on the associated steps to 'translate' climate scenarios and technology roadmaps.		
Standard scenarios	Production of 'standard scenarios' (2°C or a range) that can be directly used by financial institutions.[1]		- It is unclear the extend at which standardising scenarios at this stage is worthwhile if the convergence of practices from the industry or from government pressure may lead to some form of standardization - There is an ongoing debate on the financial community around the advantages and disadvantages of using the same scenarios.
MEASUREMENT AND DISCLOSURE OF…			
Results of portfolio assessment			
Exposure to climate-relevant activities	Description of how to assess the exposure of a portfolio to climate-relevant business activities or/and technologies including: - The relevant indicator(s) per activity (carbon intensity, production units, production capacity, cost curves, sales, etc.). -The rules to allocate volume of activities to securities and their owners -Templates to report results.	- There are different taxonomies and metrics used that prevent comparison, thus there is a need for convergence. The standardization of the process to assess exposure will help to disentangle the caveats presented when disclosing about risk and contribution actions[2].	-There are already several taxonomies and methodologies developed these however do not connect the dots with climate targets. The working group would eventually need to develop metrics, which goes beyond standardization work (with some exceptions).

1. Long term global scenario makes sense only for well below 2 degrees. Otherwise, specific local and short term environment should be used.
2. e.g. investing is shale oil goes against the Paris Agreement goals but if the investor's goal is to manage risks, shale oil might be a good option due to the lower sunk costs compared to conventional oil).

The 2° Investing Initiative (2°ii) is a non-profit company set-up to produce research on pathways for aligning the financial sector with climate goals. Its research is provided free of charge and 2°ii does not seek any direct or indirect financial compensation for its research. 2°ii is not an investment adviser, and makes no representation regarding the advisability of investing in any particular company or investment fund or other vehicle. A decision to invest in any such investment fund or other entity should not be made in reliance on any of the statements set forth in this publication. The information & analysis contained in this research report does not constitute an offer to sell securities or the solicitation of an offer to buy, or recommendation for investment, in any securities within the United States or any other jurisdiction. The information is not intended as financial advice. The research report provides general information only. The information and opinions constitute a judgment as at the date indicated and are subject to change without notice. The information may therefore not be accurate or current. No representation or warranty, express or implied, is made by 2°ii as to their accuracy, completeness or correctness. 2°ii does not warrant that the information is up to date.

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