


-  **Green and Sustainable**
-  Finance Cluster
-  Germany



**TCFD Think Tank**

# **User Guidance on TCFD Recommendations**

**Implementing TCFD step by step  
in your company**

-  **Green and Sustainable**
-  Finance Cluster
-  Germany

## Symbole

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**Definition**



**Further Reading**



**Key Message**



**Example**



**Food for Thought**

## Foreword Green and Sustainable Finance Cluster Germany

Transparency is fundamental to evaluating risks and allocating capital efficiently. For this purpose, the consistent disclosure of financial results, the handling of opportunities and risks, the status and the making of forecasts are indispensable. This also applies to understanding the effects of the climate crisis.

The analysis of climate-related risks is challenging, as neither the exact path towards a world compatible with the Paris Agreement nor the exact timing and extent of the physical effects of the climate crisis can be predicted. Many actors are only slowly recognising the significance of the climate crisis for their future economic success. In fact, changes due to the climate crisis affect all parts of the global economic system. The associated changes not only represent a considerable risk, but also open up new business opportunities for companies that strategically consider the climate crisis.

Risk-return profiles in the lending business and in asset management will change considerably as a result of the climate crisis. They are a result of the physical effects of climate change, climate policy and regulation, changing demand structures and new emerging technologies. Avoiding climate-related risks will prove difficult in certain asset classes or sectors, which may lead to a revaluation of such activities.

The Financial Stability Board has set up an industry-led Task Force on Climate-related Financial Disclosures (TCFD) to assess information relevant to climate-related risk. The TCFD has issued recommendations for the voluntary and consistent disclosure of climate-related financial information. These are intended to help investors, lenders and insurance companies understand significant climate-related risks and opportunities. Globally, the TCFD recommendations are now understood as a guideline and numerous companies have committed themselves to their implementation.

The Green and Sustainable Finance Cluster Germany e.V. (Cluster) showed in its Baseline Report published in August 2018 that the TCFD recommendations seem too abstract for German financial institutions. There is little understanding of practical implementation approaches of the TCFD recommendations. In cooperation with experienced financial market practitioners, the Cluster has therefore established a think tank for overcoming practical implementation issues. This is supported by the in-depth knowledge of the Frankfurt School of Finance & Management, PwC Deutschland, d-fine and right. based on science.

Within the framework of the TCFD Think Tank, four workshops with selected financial market practitioners were held. In the course of this process, a deeper understanding of the TCFD recommendations was built up. The findings are now made available to the interested public, in particular financial institutions, in the form of short briefs. They are tailored to the needs of practitioners in order to independently advance the implementation of the TCFD recommendations.

# 1 NEW QUALITY OF THE DIALOGUE: FINANCIAL CLIMATE-RELATED RISKS AND OPPORTUNITIES

The recommendations developed by the TCFD are groundbreaking, as they explicitly point out that

- a) Strategic resilience must be examined against the background of climate-related risks and opportunities and
- b) Reporting on climate risks and opportunities to be financially assessed are to be found in financial reporting, and not - as has often been the case in the past - in sustainability reports or non-financial statements<sup>1</sup>.

Climate-related risks and opportunities can affect a financial institution at two levels:

- Company level (e.g. in the context of reputational or operational risks)
- Core business: investment and loan portfolio

Since the core business is usually significantly more affected by financial impacts and it is assumed that the financial sector can exert a catalytic effect on the real sector via its influence on customers (investees, borrowers, etc.), this will be focused more strongly in the following.

*Figure 1 also illustrates core features of the TCFD recommendations.*

*Figure 1: Core features of the TCFD recommendations.*

Adoptable by all organizations	Strong focus on risks and opportunities related to transition to lower-carbon economy
Designed to solicit decision-useful, forward-looking information on financial impacts	Included in financial filings

*Source: Final Report Recommendations of the Task Force on Climate-related Financial Disclosures (2017), p. iii.*

<sup>1</sup> See e.g. :  
Banque de France (2018). Green Finance – A new frontier for the 21st century. Rede des französischen Zentral-bankpräsidenten Francois Villeroy de Galhau on 08 April 2018 in Amsterdam.  
Institute for Sustainability (2019). Analyses of CSR-RUG reporting and TCFD recommendations, p. 12.



### Further reading

TCFD Think Tank: *TCFD in a nutshell* (2019)

To be able to identify the **financial impact of** climate-related risks and opportunities, their driver need to be identified, see Figure 2:

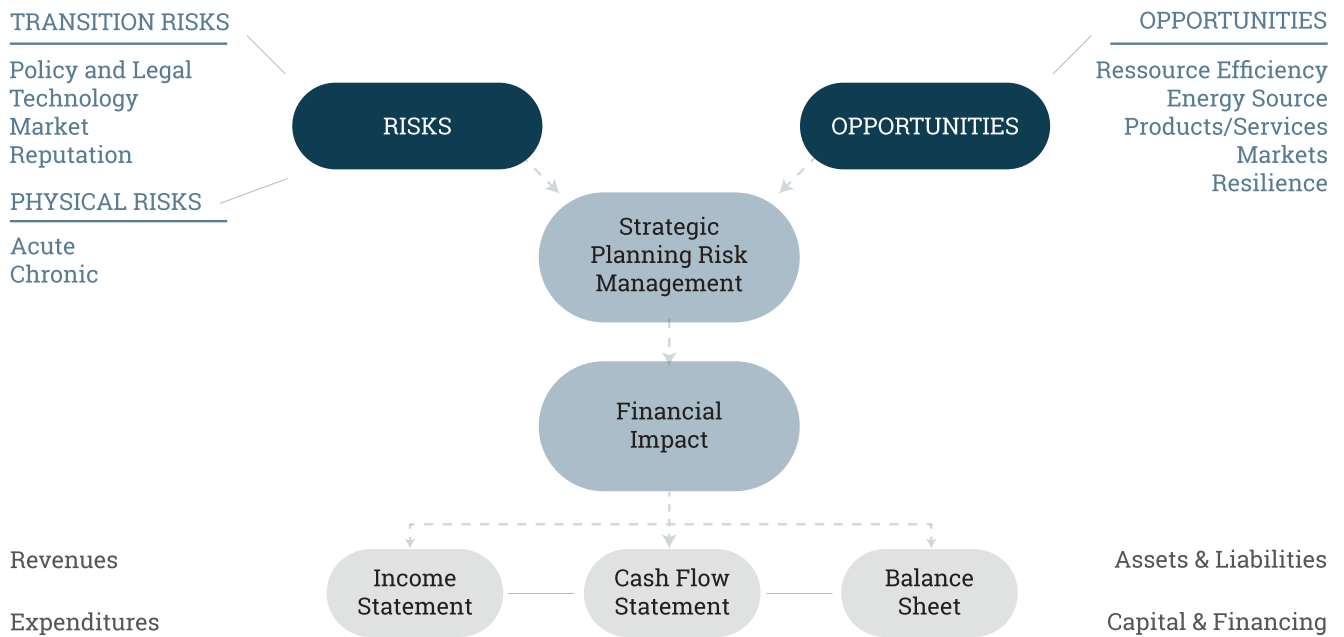


Figure 2: Drivers of climate-related risks and opportunities and their assessment according to TCFD

Source: Final Report Recommendations of the Task Force on Climate-related Financial Disclosures (2017), S. 8.



### Further reading

TCFD Think Tank: *Physical Climate-Related Risks* (2019)

According to the TCFD, climate risk drivers are to be assessed by means of scenario-based analysis (hereinafter referred to as scenario analysis). It allows companies to assess the potential financial impact of climate-related risks and opportunities as well as to inform interest groups about how the company is resiliently positioned with regard to these risks and opportunities.

The results of the scenario analysis can be used to

# 1

... compare these results with results of other internal sector and country analyses

# 2

... discuss these internally in the credit and investment decision-making or with the company concerned

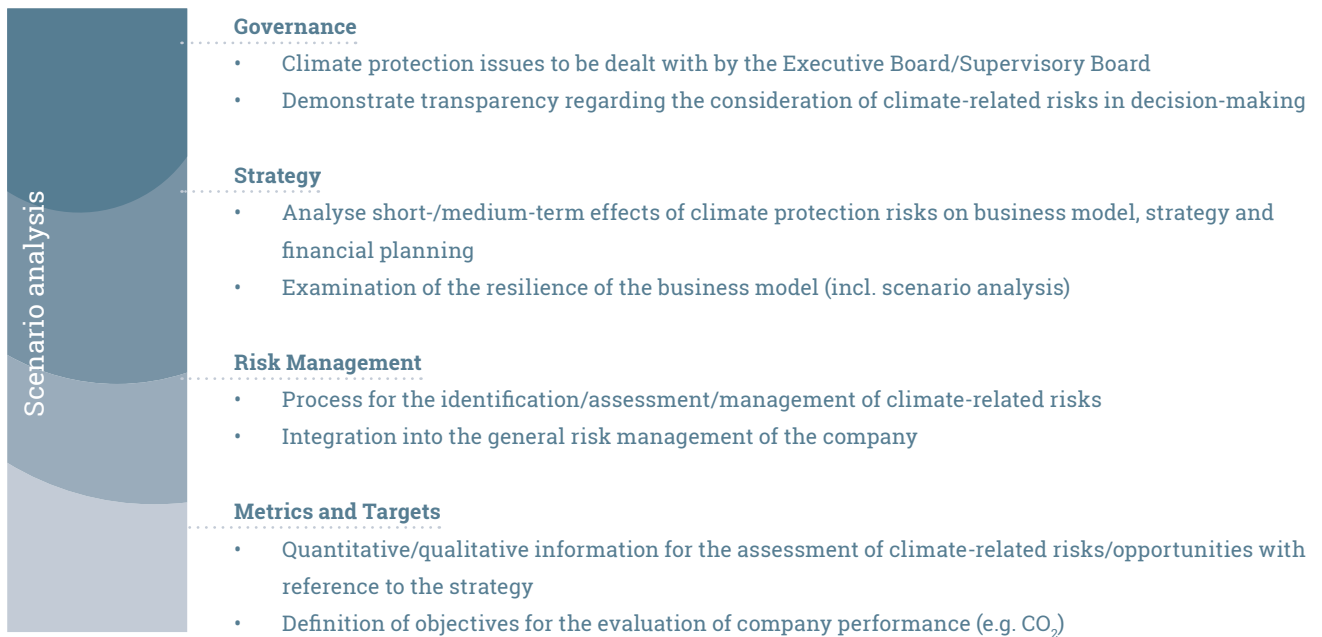
# 3

... expand existing processes (risk management, PD determination, impairment tests).

# 4

... extend an existing TCFD report or to report publicly for the first time along the TCFD recommendations.

Scenario analysis is used in 3 of the 4 classic reporting fields addressed by TCFD, see figure below: TCFD fields of action and link with *scenario analysis*



In addition to the general recommendations<sup>2</sup> summarised in the graph above, the TCFD has developed specific guidance for the financial sector: banks, insurance companies, asset managers and owners<sup>3</sup>. From here on, the focus lies exclusively on the requirements for banks, especially in lending business and asset management, with regard to the fields of action: Strategy, Risk management and Metrics &

2 TCFD (2017). Final Report Recommendations of the Task Force on Climate-related Financial Disclosures

3 TCFD (2017). Annex D - Supplemental Guidance for Financial Institutions

targets<sup>4</sup>.

	Banks	Asset Manager	Asset Owner
Strategy	<p>Banks should describe significant concentrations of credit risk in CO2-intensive assets.</p> <p>In addition, banks as financial intermediaries should consider disclosing their climate-related risks (transition and physical risks) in its lending and other business activities</p>	<p>Asset managers should describe how climate-related risks and opportunities are reflected in products or investment strategies. They should also explain how the transition to a low-carbon economy could affect individual products or investment strategies.</p>	<p>Asset owners should describe how climate-related risks and opportunities are reflected in relevant products or investment strategies. This should be done from the perspective of the overall fund or investment strategy or individual investment strategies for different asset classes. Scenario analysis: Asset owners should consider discussing how climate-related scenarios are used.</p>
Risk management	<p>Banks should describe the risk classification framework used (e.g. Enhanced Disclosure Task Force's framework for defining "Top and Emerging Risks"<sup>5</sup>).</p>	<p>Where applicable, cooperation with invested companies should be described in order to promote better disclosure of climate-related risks and opportunities and to improve data availability and asset managers' ability to assess climate-related risks and opportunities.</p> <p>In addition, it should be described how key climate-related risks and opportunities are identified and assessed for each product and investment strategy. If necessary, a description of the resources and tools used in the process could be published.</p>	<p>Where applicable, cooperation with invested companies should be described in order to improve disclosure of climate-related risks and opportunities.</p> <p>In addition, it should be explained how the positioning in the overall portfolio is taken into account with regard to the transition to a low-carbon economy. It could also be explained how asset owners actively manage the positioning of their portfolios in connection with the transition.</p>

4 With regard to the four basic fields of the TCFD, the main focus is on the design of the dimensions strategy, risk, metrics and targets. This is because they are most closely linked to the scenario analysis required by the TCFD. This does not mean that the governance dimension is less important; it is only a downstream issue for the issues considered here.

5 The Enhanced Disclosure Task Force was established by the FSB in to make recommendations on financial risk disclosures for banks. It defined a top risk as "a current, emerged risk which has, across a risk category, business area or geographical area, the potential to have a material impact on the financial results, reputation or sustainability of the business and which may crystallise within a short, perhaps one year, time horizon." An emerging risk was defined as "one which has large uncertain outcomes which may become certain in the longer term (perhaps beyond one year) and which could have a material effect on the business strategy if it were to occur."

<p>Metrics &amp; targets</p>	<p>Banks should identify metrics for assessing the impact of climate-related risks and opportunities on their credit and other financial intermediary business in the short, medium and long term. The key figures given can relate to the credit exposure, equity and debt or trading, broken down by:</p> <ul style="list-style-type: none"> <li>- Industry</li> <li>- Geography</li> <li>- Credit quality (e.g. investment grade or non-investment grade, internal rating)</li> <li>- Average tenor</li> </ul> <p>Banks should also indicate the level and percentage of coal-related assets relative to total value, as well as the corresponding shares in credit and other financing business.</p>	<p>Metrics for assessing climate-related risks and opportunities in each fund or investment strategy should be described. It should be noted how the metrics have changed over time.</p> <p>Where appropriate, the key figures taken into account in investment decisions and monitoring can be addressed.</p> <p>The weighted average CO2-intensity of the individual funds or investment strategies shall be documented, provided that the data is available. In addition, all metrics should be mentioned and their methodology described if they are useful for decision-making.</p>	<p>Metrics for assessing climate-related risks and opportunities in each fund or investment strategy should be described. It should be discussed how the metrics have changed over time.</p> <p>The weighted average CO2-intensity of the individual funds or investment strategies shall be documented, provided that the data is available. In addition, all metrics should be mentioned and their methodology described if they are useful for decision-making.</p>
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Source: TCFD (2017). Annex D- Supplemental Guidance for Financial Institutions.

### Concrete anchoring in the organization today and in the future

According to the TCFD, climate-related risks and opportunities should be incorporated into the classic strategy development and risk management process. Their treatment is therefore not significantly different, but complementary to the risks. Thus, they complement the existing risk assessment.

The way in which individual companies interpret and implement the TCFD recommendations in company valuations and credit processes varies greatly. This mainly depends on the following factors:

1. Type of institution
2. Process depth and current status of consideration of climate-related risks within the organisation (e.g. oil sector: are key financial indicators, assets, i.e. oil reserves, the status quo or strategic planning of the company taken into account in the valuation?)
3. Perspective: Which specialist areas are involved in the implementation or which organisational area is responsible for the implementation.



## EU maps out journey to final destination

In general, the disclosure of climate-related risks and opportunities should be understood as a journey. The European Commission<sup>6</sup> states: „Methods and best practices in climate-related reporting are evolving rapidly. These guidelines recognise the need for a flexible approach. Businesses and other organisations are urged to continue to innovate and improve climate-related reporting beyond the content of these guidelines. Companies should also ensure that their approach to climate-related reporting is regularly adapted to the latest scientific evidence“.

In order to accompany the companies on this journey, the guideline shows how climate-related disclosure can be specifically designed for each reporting field. The recommendations are divided into „necessary“ disclosures (type 1) and „extended“ disclosures (type 2). For example, in the field „Outcomes“ in Type 2, „climate performance of the company influences financial performance, preferably with reference to financial KPIs“ is recommended“ is to be described. Type 1 recommendations are designed to be more flexible for companies in their choice of indicators.



### Further reading

TCFD Think Tank: *Regulatory developments in the wake of the TCFD recommendations* (2019)

## TCFD IMPLEMENTATION STEP BY STEP

### Part 1: Organizational Placement of the TCFD Implementation

Before starting the implementation of the TCFD recommendations in a pilot project, one should consider relevant issues in the context of the TCFD and affected organisational units.

**In order to successfully implement the TCFD recommendations on all dimensions, a cross-departmental approach should be adopted.**

In order to identify and anticipate the impact of climate-related risks and opportunities on the core business, the following questions along the four fields of action of the TCFD should be examined:

1. Governance: How does management deal with climate-related opportunities and risks?
2. Strategy: How do climate-related opportunities and risks affect the business model, the strategy and financial planning?

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<sup>6</sup> European Commission (2019). Consultation document on the update of the non-binding guidelines on non-financial reporting (Update planned for June 2019)

3. Risk management: Which processes are used to identify and manage climate-related opportunities and risks?
4. Metrics and targets: What key performance indicators and targets has the company defined?<sup>7</sup>

If a company wants to implement the TCFD recommendations across all fields of action, a cross-departmental approach is recommended.

Figure 4 shows which organisational units should be included in the respective question:

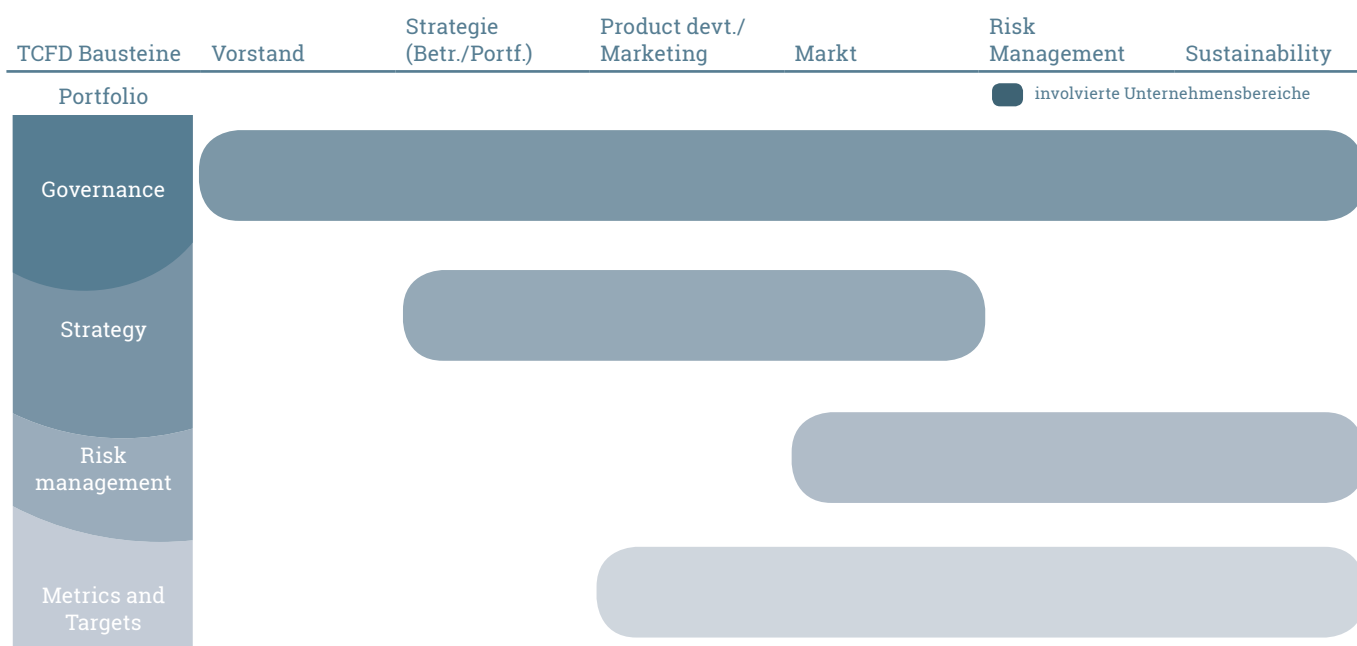


Figure 4: Assignment of TCFD questions to organizational units in financial institutions

**A central control unit for orchestrating the TCFD implementation process is helpful.**

The TCFD guidelines focus on the role of management and strategy. A diffusing approach based on the corporate strategy and the Board of Management is therefore recommended for implementation, involving the other divisions at an early stage in the process. Ideally, a kind of TCFD steering committee is set up for this purpose, which includes representatives of all relevant organisational units and has the widest possible decision-making and enforcement powers.

**Regular exchange of the involved areas is essential.**

In addition to the TCFD Steering Committee, a format should be defined for a regular exchange between the organisational units. The aim should be to analyse the corporate strategy with regard to climate-related risks and opportunities within the framework of a target/performance analysis and thus to be able to evaluate the effects of climate change on the core business qualitatively or quantitatively from

<sup>7</sup> Please see TCFD (2017). Final Report Recommendations of the Task Force on Climate-related Financial Disclosures, S. 10f.

the respective point of view of the department. The results can then be discussed in the TCFD Steering Committee.



**Further Graphic:**

TCFD Think Tank: *Emerging new structures* (2019)

## Part 2: Scenario analysis as a supportive methodology for the implementation of the TCFD

TCFD puts great emphasis on the future-oriented assessment of financial climate-related risks and opportunities. To this end, scenario analysis is recommended as an important and useful tool for companies. The TCFD describes scenario analysis as a way of „evaluating a set of hypothetical outcomes by considering a variety of alternative plausible future states under a set of assumptions and constraints“. Scenario analyses are useful if:

- the effect of a variety of impacts should be captured that are interrelated and can interact positively or negatively with each other
- possible results are very uncertain, will have an impact in the medium to long term and the potential disruptive effects are significant,
- historical trends and data sets do not provide a good prediction of future trends (e.g. rapid or disruptive changes)..

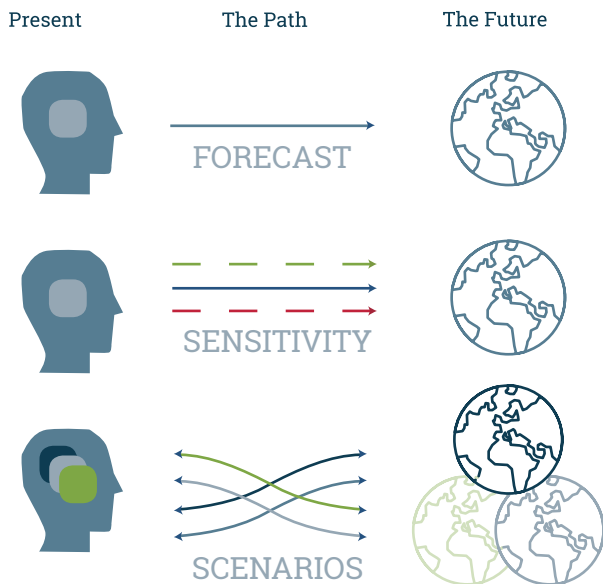
Climate scenarios describe a plausible and consistent development path that leads to a specific target / carbon particle concentration in the atmosphere, which limits global warming to a certain temperature level with a certain probability. The central indicators of economic and population growth, sector- or country-specific CO<sub>2</sub>-emissions, technology costs and raw material prices often determine the future path. The target paths must be plausible, consistent, meaningful and transparent with regard to their assumptions. Accordingly, scenarios and the results of scenario analysis do not represent forecasts or predictions and make no statements on the probability of occurrence.



**Further reading:**

TCFD Think Tank: *Outlook: Shared Socioeconomic Pathways (SSPs)* (2019)

The term scenario analysis is often mistakenly used in connection with projections and sensitivity analyses. Strictly speaking, these forms of analysis are not scenario analyses because they either update existing variables or vary the value of a particular variable and do not represent an entire set of variables. Figure 5 visualizes the three forms of analysis of climate risks.



Source: Shell 2017 Scenarios & Energy Transitions, p. 3

### Is the use of scenario analyses in strategic planning a novelty?

In some sectors, scenario analysis is a widely used part of the methodology for determining uncertainties, e.g. in the energy sector. Analysts in the financial sector are already using sensitivity or scenario analyses for certain parameters or assumptions. Scenario analyses of climate-related risks and opportunities are therefore only supplements.

The TCFD has created a so-called TCFD Knowledge Hub<sup>8</sup>. It is intended to bundle resources such as publications, tools, etc. to help organisations identify, analyse and communicate climate-related financial information. These include a guideline on climate-related risk management and the introduction of scenario analyses in an organisation.

<sup>8</sup> <https://www.tcfdhub.org/home/about/>

## How can we approach scenario analysis?

# 1

### Preparatory phase

- Identification of the relevant departments and contact persons and initial discussion of vulnerability
- Building understanding of the TCFD recommendations
- Development of a uniform language
- Understanding the goal of scenario analysis

# 2

### First materiality estimation

- First assessment of the short-term materiality of climate-related risks and opportunities on the basis of a representative portfolio

# 3

### Pilot phase

- Selection of a methodological approach and, if necessary, tools
- Selection of scenarios and discussions of underlying assumptions as well as possible effects on the pilot portfolio and business activities
- Derivation of most important risk drivers
- Checking the integration of models and databases into existing processes (business, credit and investment decisions)

## 1. Preparatory phase

Different organisational areas have to be integrated into the TCFD implementation process. Ideally, the representatives of the departments come together in the TCFD Steering Committee already established and coordinate the preparatory phase. This will create a common understanding of the TCFD recommendations and develop a common language. In addition, initial discussions will be held on the vulnerability of the company to climate-related risks, and decisions will be made on the (climate) strategy, the level of ambition and the type of risks to be considered. The basic objectives and framework<sup>9</sup> of the

<sup>9</sup> Modelling perspectives (e.g. portfolio view vs. individual company view), risk assessment (e.g. transient and/or physical), time frame, etc.

scenario analysis will also be discussed.



#### **Weiterführende Literatur**

TCFD Think Tank: *TCFD in a Nutshell* (2019) und *Physische Risiken* (2019)

## **2. First materiality estimation**

Before starting with a comprehensive scenario analysis, a first assessment of the short-term materiality of climate-related risks and opportunities should be made on the basis of a representative portfolio. The estimation can be made on the basis of heat maps.



For example, TCFD sectors might represent 30% of the underlying assets in the investment or loan portfolio or occur in a particular country or sector. Within the framework of this status quo analysis, significant risks such as sector, technology, country can be identified and potential hot spots of climate-related risks in the portfolio localised. On this basis, it is possible to prioritise the portfolio parts/segments in which the portfolio has the largest potential for a pilot phase and thus a comprehensive scenario analysis should be carried out.

## **3. Pilot phase**

In the pilot phase, the scenario analysis is run on a portfolio part defined on the basis of the prioritisation in the first material assessment (hereinafter referred to as pilot portfolio).

### **Selection of a methodical approach and tools**

The selection of the appropriate approach and tools for scenario analysis should be made along the following three steps:

1. Define objectives: What are the objectives of the scenario analysis? Should the scenario analysis provide indicative results (e.g. heat maps) or TCFD-compliant results (i.e. financial indicators)? At what level should the analysis take place (portfolio, sector/geographical framework, individual assets, etc.)?
2. Choose approach: Should the analysis be tool-based or process-integrated? Should capacities for scenario analysis be developed internally or purchased externally?
3. Select external tool: please refer to guide for tool selection.

## **Selection of scenarios and discussion of underlying assumptions and possible impact on pilot portfolio and business activities**

According to the TCFD recommendations, a scenario analysis does not have to be quantitative per se. A qualitative approach is possible if scenario analyses are not regarded as a data source but are used to stimulate discussion on lending, investment strategies or perspectives for specific countries, regions or sectors. A qualitative approach can therefore be an important step in building internal knowledge and understanding and a starting point for the subsequent implementation of a quantitative approach.<sup>10</sup>

Material risks must be identified for both qualitative and quantitative approaches. For this purpose, tangible scenarios with changing prices, demands or technologies are played out in order to identify risks and opportunities in the focus industries, regions or countries.

### **Checklist for scenario selection**

In order to maintain TCFD conformity, at least two climate scenarios must be considered<sup>11</sup>. Climate scenarios are based on forecasts of global warming coming from scientific research that range from 1.5°C to 6°C or more. According to the TCFD recommendations, a scenario with a climate target < 2°C should be chosen in addition to other relevant scenarios. For sectors/companies with a strong regional focus, the Nationally Determined Contributions (NDCs) of individual countries can provide particularly useful scenarios for climate-related scenario analyses.

The selected scenarios should have the following characteristics:<sup>12</sup>

- **Plausible**  
The description of the events in the scenario and the justifications should be plausible..
- **Scope**  
Different scenarios should concentrate on other combinations of key factors. Reference should also be made to the evolution over time of the same key factors and the resulting differences in results.
- **Consistent**  
Indications of current trends must be taken into account in the analyses. The goal of the scenario analysis is to investigate the ways in which factors interact. Every action should result in a reaction.
- **Relevant**  
The results of the individual scenarios should provide specific insights into the future strategic and /or financial effects of climate-related opportunities and risks

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10 <https://www.iigcc.org/download/navigating-climate-scenario-analysis-a-guide-for-institutional-investors/?wpdmdl=1837&refresh=5ccc46e4b33271556891364>; S. 28

11 Marsh & McLennan Companies & CDP (2018). Reporting Climate Resilience: The Challenges Ahead, S. 9.

12 <https://www.tcfhub.org/home/scenario-analysis>

- **Challenging**

The scenarios should explore alternatives that significantly change the „business as usual“ assumptions. At least one of the multiple scenarios to be considered should be challenging.

### **Derivation of key risk drivers**

Once agreement on the scenarios is in place, the scenario analysis can be carried out within the framework of the pilot portfolio. The results of this analysis should show key risk drivers.<sup>13</sup>

### **Testing integration of models and databases into existing processes**

When implementing and modelling climate scenarios, care should be taken to strike a balance between completeness and efficiency. Scenario analyses should therefore be designed to offer pragmatic solutions.

The findings from the previous steps are incorporated into the modelling process: What are the material risks? Which risk drivers could be derived? Which data are available in which quality? For which data do gaps or uncertainties exist? What are my assumptions and parameters?

Here one can fall back on qualitative assessments or choose a tool-supported quantitative approach.

This can be developed or purchased by the user (see guide for tool selection). Further aspects when using scenario analyses include:

- Scenarios are not forecasts or predictions. Scenarios should not be associated with probabilities, but should illustrate alternative future paths at system level.
- Good performance in a scenario analysis is not necessarily a sign for strategic resilience. Key assumptions in different scenarios should be understood in order to be able to vary them and thus distinguish true from fictitious resilience. For example, there may be interactions between new technologies and emerging alternative fuels.
- The interpretation of the results requires a precise understanding of the most important assumptions / narratives. In addition to the recommendation to use at least one 2°C scenario, the TCFD does not specify which scenario to use or how to calibrate values of the key parameters. Although this ensures flexibility, it makes comparisons between the results of scenario analyses of different organisations more difficult. We therefore recommend either testing against very transparent scenarios or using a set of principles when developing proprietary scenarios. A „How-to“ guide to this can be found, for example, in „Investor primer to transition risk analysis“<sup>14</sup>

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<sup>13</sup> For a detailed description of the derivation of scenario analysis results, see e.g. Publications of The CO-Firm „Primer on scenario analysis“

<sup>14</sup> Raynoud, Julie & Röttmer, Dr. Nicole (2018). Investor primer to transition risk analysis: <http://et-risk.eu/wp-content/uploads/2018/02/Investor-primer-to-transition-risk-analysis.pdf>



## Part 3: Guide for tool selection

### Objectives of scenario analysis as basis for tool selection<sup>15</sup>

The selection of a suitable methodological approach and, if necessary, a tool for scenario analysis is closely linked to the goals that a financial institution sets itself alongside the introduction of scenario analyses. To make the right choice, financial institutions should internally decide which questions they want to answer with the scenario analysis. Table 2 below can be used to accompany the discourse on the organisation-specific goals. The objectives of the scenario analysis by user group were derived from the TCFD's supplementary notes for the financial sector.

See Table 2: Objectives of scenario analysis by user group<sup>16</sup>

User groups	User	Questions	Objective
Market	Equity Analyst <sup>17</sup>	<ul style="list-style-type: none"> <li>• Who could be winners and losers (structurally) considering adaptive capacity?</li> <li>• What are the material impacts of climate change on existing risk factors/are new risk factors identified?</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding scenarios and plausibility assessment</li> <li>• Understanding and performing materiality analyses</li> <li>• Analyzing the time points of occurrence of risks and opportunities</li> <li>• Understanding the drivers of different enterprise operations</li> </ul>
	Asset Manager /Owner <sup>18</sup>	<ul style="list-style-type: none"> <li>• Can the sector/company actively manage its risks and opportunities?</li> <li>• What are the material impacts of climate change on existing risk factors/ are new risk factors identified</li> </ul>	<ul style="list-style-type: none"> <li>• Pursuing an investment strategy that includes climate-related risks and opportunities</li> <li>• Selecting companies that realize profitable transformation<sup>19</sup> / Identifying winners and losers</li> <li>• Developing products that structurally incorporate climate-related risks and opportunities</li> <li>• Ensuring a financially robust shift of the portfolio</li> <li>• Represents active ownership in relation to climate-related risks and opportunities of investees</li> <li>• Tracking metrics to control financial and non-financial performance, including climate-related risks and opportunities</li> </ul>

<sup>15</sup> The criteria considered here are followed by presentations and discussions in the TCFD Think Tank in Q1 and Q2 2019. For further criteria and parameters see TCFD (2017). „Technical Supplement - The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities, p. 9.

<sup>16</sup> To illustrate this, three requirements per actor were linked to the objectives at organisational level by way of example.

<sup>17</sup> PRI (2018) Implementing the Task Force on Climate-related Financial Disclosures (TCFD) Recommendations - A guide for Asset Owners, S. 37ff.

<sup>18</sup> PRI (2018). Implementing the Task Force on Climate-related Financial Disclosures (TCFD) Recommendations - A guide for Asset Owners, S. 37ff.

<sup>19</sup> PRI (2018). Implementing the Task Force on Climate-related Financial Disclosures (TCFD) Recommendations - A guide for Asset Owners, p. 29.

	Credit Analyst <sup>20</sup>	<ul style="list-style-type: none"> <li>• Which, if any, new risk factors occur?</li> <li>• To what extent, e.g. do they influence the indebtedness of a company?</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding the financial materiality of individual scenario building blocks for sectors/companies</li> <li>• Understanding the risk drivers</li> <li>• Assessment of opportunities</li> </ul>
	Portfolio Manager	<ul style="list-style-type: none"> <li>• How could climate change affect the relative risk-return profile of the sectors?</li> <li>• To what extent can the stock selection influence the average sector risk?</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding the drivers of climate-related risks</li> <li>• Understanding the impact on risk-return profiles of sectors</li> <li>• Determination of the gap between traditional valuation and valuation in the scenario</li> <li>• Recognition and assessment of risk concentration in the portfolio</li> <li>• Estimation of the risk-return potential of stock picking</li> <li>• Understanding cross-sectoral shifts</li> <li>• Understanding of company characteristics that facilitate financial assessments, including their adaptability</li> <li>• Tracking metrics to control financial and non-financial performance, including climate risks and opportunities</li> </ul>
Risk-controlling	Risiko Manager	<ul style="list-style-type: none"> <li>• Would a change in the materiality of risk factors or new risk factors mean changes in general risk management?</li> <li>• Especially for banks: Climate change in the context of credit, market and liquidity risks.</li> </ul>	<ul style="list-style-type: none"> <li>• Defining climate risks in scenarios per risk category (credit, market, liquidity and operational risk)</li> <li>• Understanding and carrying out plausibility assessments of scenarios</li> <li>• Understanding structural characteristics of opportunities and risks</li> <li>• Assessment of risk factors with regard to their materiality</li> </ul>
Sustainability department	CSR Manager	<ul style="list-style-type: none"> <li>• Which metrics should be retrieved from the specialist departments for the disclosure of climate-related risks?</li> <li>• Qualitative vs. quantitative: Which financial indicators should be mapped?</li> </ul>	<ul style="list-style-type: none"> <li>• Embedding of metrics in financial and non-financial reporting (e.g. management report, non-financial report) and corporate communication</li> </ul>

Source: PwC (2019)

<sup>20</sup> UNEPFI (2018). Navigating a new Climate - Assessing Credit Risk and Opportunity in a changing Climate: Outputs of a Working Group of 16 Banks piloting the TCFD Recommendations; PART 2: Physical Risks and Opportunities, S. 53-61.

## Questions derived from the objective for tool selection

Depending on the objective, it must be discussed whether a supporting tool should be used for the scenario analysis<sup>21</sup>. This raises the question of whether the tool should be built internally or purchased from external providers. In the recent past, various enterprises have introduced a variety of different tools to the market. The providers and their tools differ above all in terms of their **methodological approaches, granularity and the results of the modelling**<sup>22</sup>. This section provides an initial guide for the selection of the appropriate tool.

### 1. Conformity with TCFD requirements (see Figure 2):

- Future-oriented (vs. e.g. extrapolation)
- Scenario-based (vs. stress test)
- Financial effects as output (vs. e.g. non-financial CO2-derived indicators)

### 2. Modelling logic:

The modeling logic depends directly on the respective objective. Should the analysis be asset-related, i.e. „bottom-up“ or „top-down“? In the case of portfolio risks (see e.g. User - Portfolio Manager in the table above), top-down/sectoral approaches are sufficient. When selecting equities/granting loans (see e.g. User - Asset Managers), „bottom-up“ approaches should be chosen.

### 3. Nature of the risks considered

It is important to clarify which risks need to be covered by the tool in advance:

- „Outside-in“ vs. „inside-out“: According to the Directive on non-financial reporting, climate-related information should include, where necessary, both the risks to the financial performance of the company due to climate change (outside-in) and the risks of a negative impact on the climate due to the activities of the company (inside-out)<sup>23</sup>. Care should therefore be taken to cover both types of risk. However, it is not mandatory to use one tool for both views.
- Transition and/or physical risks

### 4. Ease of integrating the tool into the relevant processes

If the risks turn out to be material (high financial impact) and relevant (significant sizes of the portfolio affected), the possibility of integrating the results into the relevant processes should be clarified: i.e. risk management, fundamental analysis, credit processes. The necessity of answering this question is due to, among other things, the question posed within the context of the

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<sup>21</sup> TCFD does not prescribe the use of a tool-based approach. However, the results of a tool-based analysis should be consistent with the recommendations.

<sup>22</sup> PRI (2019). „Directory of climate scenario analysis tools“ Website: <https://www.unpri.org/climate-change/directory-of-climate-scenario-tools/3606.article>

<sup>23</sup> European Commission (2019). Consultation document on the update of the non-binding guidelines on non-financial reporting

TCFD recommendations regarding the integration of the processes for identifying, assessing and managing climate risks into the general risk management of the company<sup>24</sup>. Before contacting potential suppliers as a user, it should first be clarified internally within the company whether:

- the results of the tool can be embedded (as a key indicators) in an existing system<sup>25</sup>.
- the information derived from the tool, e.g. risk drivers, should be used as a basis for comparison with own analyses.
- „only“ mechanisms of action should be adopted in own analyses.
- the inputs are to be used in the own analyses depending on the unit under consideration - sector, enterprise, scenario data.

#### **5. Type of Outputs<sup>26</sup>**

- quantitative (effects on EBIT, sales, CAPEX, OPEX, expected loss, profit, etc.) and / or
- qualitative (traffic light scores, expert judgement, etc.)

#### **6. Mechanism of action**

Linked to the question of output, the next step is to find out with which mechanism of action the outputs are to be generated, for example by extrapolating past data or using future-based approaches<sup>27</sup>. Are market dynamics such as the behaviour of competitors taken into account?

#### **7. Is the adaptability of companies taken into account?**

In order to obtain a fair view of the companies to be analyzed within the framework of the scenario analysis, companies should be evaluated using the tool on the basis of their adaptive capacity (financial strength, structural position with regard to IP and assets, etc.).

In addition to the target-driven questions, further „technical“ questions arise for the tool providers, e.g.:

#### **8. Degree of coverage**

At which level does the analysis take place? Which geography areas / economic sectors, companies / assets (closely linked to the question of modeling logic) are covered and to what degree?

#### **9. Assumptions made / data used:**

What assumptions are made and clearly described about the key drivers of change, including poli-

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24 Source: "Final Report Recommendations of the Task Force on Climate-related Financial Disclosures" (2017).

25 For further information please consult: "World Business Council for Sustainable Development" (2017); "Sustainability and enterprise risk management: The first step towards integration", Website: <https://www.wbcsd.org/Programs/Redefining-Value/Business-Decision-Making/Masurement-Valuation/Resources/Sustainability-and-enterprise-risk-management-The-first-step-towards-integration>

26 Eng verknüpft mit der Integrierbarkeit in die Prozesse in Punkt 3

27 Cf. also Question 1: „Conformity with requirements of the TCFD?“

cy measures and future technology costs?

## 10. Possibilities of updates of the tool

How and when are updates made?

Based on two central criteria:

- Perspective/modeling logic: top-down vs. bottom-up and
- Type of risks considered: outside-in vs. inside-out

an initial rough classification of the existing methods/tools can be made, which can serve as guidance for the selection:

Figure 6: Classification of methods for assessing climate risks and opportunities



\*= The tools shown are partly not completely TCFD compliant. An illustrative and incomplete description of the scenario tool market is shown. Source: d-fine

## Further reading

1. IIGCC: *Navigating climate scenario analysis – a guide for institutional investors* (2019)
2. Marsh & McLennan Companies & CDP: *Reporting Climate Resilience: The Challenges Ahead* (2018)
3. SASB Foundation & CDP worldwide & CDSB: *TCFD Implementation Guide* (2019)
4. World Business Council for Sustainable Development: *Sustainability and enterprise risk management: The first step towards integration* (2017)
5. 2° Investing Initiative. Methodology for the 2°C Portfolio Check.
6. Kepler Chevreux & The CO-Firm: *Investor primer to transition risk analysis* (2018)
7. CDP: *Technical Note on Scenario Analysis* (2019)
8. UNEPFI: *Navigating a new climate - Assessing credit risk and opportunity in a changing climate: Outputs of a working group of 16 banks piloting the TCFD Recommendations; PART 2: Physical risks and opportunities* (2018)
9. PRI: *Implementing the task force on climate-related financial disclosure (TCFD) recommendations - A guide for asset owners* (2018)
10. Raynoud, Julie & Röttmer, Dr. Nicole: *Investor primer to transition risk analysis* (2018)
11. Shell: *Scenarios & Energy Transitions* (2017)



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