A framework for assessing and managing dependencies in corporate transition plans

Executive Summary

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Abstract

The urgency of mitigating climate change has increasingly driven companies to develop corporate climate transition plans (CTPs). Factors beyond the direct control of a company can significantly influence the successful implementation of CTPs, but this issue is not addressed comprehensively by existing scientific literature or CTP assessment frameworks. This perspective paper introduces the concept of transition plan dependencies, highlighting the necessity of considering external factors such as economic trends, technological advancements, policy environments, and sectoral transitions. Through a combination of a systematic literature review and semi-structured interviews, we propose new frameworks and metrics for identifying, quantifying, and managing these dependencies. We use sectoral examples to illustrate the framework and quantification methods, and we suggest next steps to improve the analysis and the management of dependencies in corporate transition plans. This paper aims to serve as a foundation for further academic research on transition plan dependencies and its practical applications.

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Executive summary

The urgency of mitigating climate change has increasingly driven companies to develop corporate climate transition plans (CTPs). These plans outline strategies for reducing greenhouse gas emissions and for contributing to a low-carbon economy. However, the implementation of CTPs often relies on factors beyond the direct control of a company.

These dependencies can threaten the credibility of CTPs and, as a result, disclosure regulations such as the Corporate Sustainability Reporting Directive in the European Union and organisations such as the Glasgow Financial Alliance for Net Zero (GFANZ) or the Transition Plan Taskforce recommend or require that firms disclose dependencies. However, they offer limited guidelines on what constitutes a dependency or what indicators to use to account for them. Besides, most assessment methodologies do not account comprehensively for dependencies when rating corporate transition plans.

This paper introduces the concept of transition plan dependencies, highlighting the necessity of considering external factors such as changes in infrastructure, technology, and policy environments. Through a combination of a systematic literature review and semi-structured interviews with 14 transition experts, we propose new frameworks and metrics for identifying, quantifying, and managing these dependencies.

Our findings are as follows. First, multidimensional and non-mutually-exclusive dependencies – as highlighted in our framework – can threaten the credibility of a CTP. Second, while quantifying the risk associated with these dependencies is feasible, qualitative assessments may be used as a starting point. Third, given that companies have varying degrees of control over managing dependencies, these dependencies should not be used as an excuse to delay action.

Categorising and identifying dependencies

CTPs hinge on a complex network of dependencies, impacting their feasibility and financial viability. This paper provides a categorisation of the dependencies that can impact a company directly and throughout its supply chain (Table 1).[1]

Dependencies are multidimensional and interconnected, making these categories non-mutually exclusive. A decarbonisation lever can face multiple constraints; for example transitioning mining vehicles to low-carbon energy can be difficult due to both technology and infrastructure challenges. In addition, dependencies are likely to interact with one another. For instance, consumer demand influences low-carbon product scaling, which policymakers can influence

[1] This table was co-developed with the European Commission's Joint Research Centre

through carbon taxes. Disentangling certain mechanisms or determining a hierarchy between dependencies is difficult.

Table 1. Typology of dependencies that can influence a corporate transition plan.

Category	External dependency	Type
1. Non-physical	1.1 Policy strategy	- National decarbonisation strategy - Geopolitical environment (e.g. threats to energy security, trade of critical resources)
	1.2 Regulatory framework	- Real economy regulation (e.g. permitting process) - Carbon pricing mechanisms and subsidies - Financial regulation - Legal framework (e.g. ESG litigation risks)
	1.3 Market and Economics	- Capital availability and cost - Energy and commodity prices
	1.4 Public acceptance	- Concerns about local effects (e.g. “Not in my backyard”) - Just transition (e.g. local impact on employment)
	1.5 Consumer and client behaviour	- Willingness to reduce demand and/or adapt behaviours - Willingness to pay a green premium
2. Physical	2.1. Infrastructure and logistics	- Availability of infrastructure and logistics for transport, distribution, and storage
	2.2 Technology	- Technology readiness levels and innovation - Efficiency improvement - Technology lock-in
	2.3 Resource availability	- Availability of land, raw materials, and other inputs
	2.4 Ecosystem services	- Climate change impact (e.g. decreased water availability for power generation)
	2.5 Labour availability	- Availability of skilled workers

Exposure to transition plan dependencies is context specific as a supportive enabling environment is the result of factors that vary across geographies**.** Such factors can be the policy strategy and regulatory frameworks, economic conditions (e.g. cost of capital being a stronger constraint in some low-income countries), the industrial landscape (e.g. collaboration to develop Carbon Capture and Storage (CCS) infrastructure), the resource availability and the competition between actors to secure them, and the geopolitical context.

Firm-specific characteristics influence the ability to address dependencies. Sectoral differences are critical, with decarbonisation in sectors like steel relying on less mature technologies and on the decarbonisation of other sectors. A company's position in the value chain and its degree of vertical integration also affects its control over certain factors. Additionally, a firm’s size and market power impact its ability to influence suppliers and clients. Finally, ownership structure plays a role, with state-owned companies potentially facing fewer constraints on capital and resource availability. Shareholders can also play a key role in pushing for an ambitious decarbonisation strategy or constraining its implementation.

Quantifying dependencies

This paper also proposes an approach for quantifying dependencies. Our framework recommends evaluating dependencies on the size of their impact on a transition plan and on their likelihood of occurring. The three metrics for quantifying CTP dependencies are below:

- **Impact:** the emission reduction or removal (per year or cumulative). This is the most straightforward metric to estimate, especially when the contribution from each decarbonisation lever is quantified.
- **Probability:** the likelihood of a dependency preventing the planned emission reduction or removal. This is more challenging and could be informed by third-party data such as the technology readiness levels from the International Energy Agency[2].
- **Risk:** Combined metric of impact multiplied by probability of the dependency.

Various quantification tools can improve the estimates such as sensitivity analysis, scenario analysis, and Marginal Abatement Cost Curves (MACCs). Besides, these tools enable stakeholders to challenge assumptions made on different dependencies when the assumptions are disclosed transparently.

Firm-specific characteristics can make quantification harder as firms operating across multiple sectors and jurisdictions face greater exposure to diverse dependencies. Smaller firms or those operating in developing countries can face bigger challenges. Quantification requires substantial data, often unavailable in certain sectors or in developing countries.

Qualitative assessments can provide a useful first step to separate between the highest and lowest probabilities, especially when quantification is challenging. Individuals in the company would be able to provide such qualitative estimates but information is often scattered throughout the company.

We recommend a multi-step process – i.e., focus on the most important decarbonisation levers, identify dependencies likely to impact them and quantify this impact, and then estimate the likelihood using in-house expertise, scientific literature, or other relevant data. Combining these metrics results in the risk of exposure to a dependency. In the absence of sufficient information on the likelihood, we suggest prioritising dependencies on the impact.

This framework does not account for companies' strategies to address them. The extent to which a company can influence a certain dependency could diminish the associated risks. Combining the exposure to dependencies and the strategy and ability to address them would result in a more precise assessment of the risk posed by these dependencies.

[2] IEA (2023), ETP Clean Energy Technology Guide, IEA, Paris https://www.iea.org/data-and-statistics/data-tools/etp-clean-energy-technology-guide

Addressing dependencies

Acknowledging the significance of external dependencies should not prevent actors from acting. While CTPs rely on external factors, companies have a degree of control over these transition plan dependencies and are responsible for managing them.

A critical first step in managing dependencies is to conduct a comprehensive analysis. This involves the identification, quantification, and prioritisation of dependencies, allowing companies to design effective mitigation strategies. This should be an iterative process to reflect changes in the external environment so that companies can anticipate potential disruptions and adjust their CTPs.

Transparent reporting on dependencies and planned responses is also crucial. It allows to better manage stakeholders' expectations and to improve coordination with other actors such as policymakers. Reporting on dependencies should precisely define the dependency and what action is needed from the company or other actors to overcome it. Transparency around the different assumptions is increasingly recommended and/or required by international reporting frameworks and regulations. Vague references to external factors do not convey actionable insights and can undermine confidence in the CTP.

Finally, companies can directly act to mitigate dependencies. Relevant actions include:

- securing long-term contracts
- lobbying for policies to support decarbonisation
- developing external linkage and control on who operates in the domain and how (e.g., develop a joint venture with a company developing CCS)
- collaborating with peers, suppliers, or any other relevant stakeholder
- shifting to activities and/or geographies with a more supportive enabling environment e.g., prioritising decarbonisation levers relying on more mature technologies
- making contingency plans in case a dependency prevents emission reductions.

Determining a company's control over a dependency is challenging and company- specific. This can be subjective and counterintuitive. Control is not necessarily greater for Scope 1 emissions than for Scope 3 emissions. For instance, a mining company may face infrastructure and technological constraints in transitioning equipment to low-carbon energy (Scope 1) but have more influence over Scope 3 emissions as it can replace emissive products with low-carbon alternatives. Further work on quantifying the control of a company over CTP dependencies and the quality of its strategy to address them would be valuable.

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