# Strategic responses to climate change in the automotive industry

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DOCTORAL PROGRAMME CLIMATE CHANGE

## Why should companies worry about climate change?

In 2011, the transportation sector accounted for 22% of global CO2 emissions (figure 1). Three quarters of these emissions are caused by road traffic, i.e. passenger and freight transport. Against this backdrop, national and international climate policies are putting more and more **pressure on the automotive industry** to reduce GHG emissions.

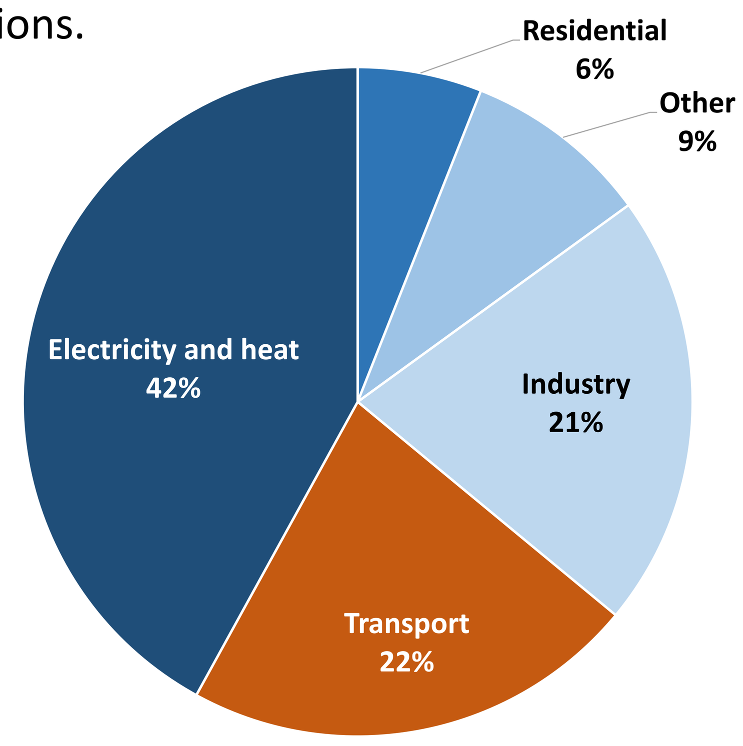



**Figure 1:** World CO2 emissions by sector in 2011 (IEA 2013)

To achieve emission reduction targets it will necessitate both the introduction of new technologies and services as well as different usage patterns of automobiles. This might lead to a **fundamental transformation of existing business models and supply chains** of companies in the sector. The consideration of climate change in corporate strategy-making processes is therefore of increasing importance for affected firms.

## What are the goals of this research?

The objective of this study is to develop a better understanding of corporate climate change strategies in the global automotive industry and their determinants.

The main **research questions** are:
(1) What are the characteristics of climate change strategies in the automotive industry?
(2) Which different types of strategies exist?
(3) How do strategies differ according to country-specific factors (e.g. legislation, stakeholder pressure, NGO and consumer perceptions) of the company and its position in the supply chain?

## Which companies are analyzed?

This study considers original equipment manufacturers (OEMs) as well as first- and second-tier suppliers. The sample comprises **116 companies** from different countries (figure 3). About one third of the companies are OEMs and two thirds are suppliers.

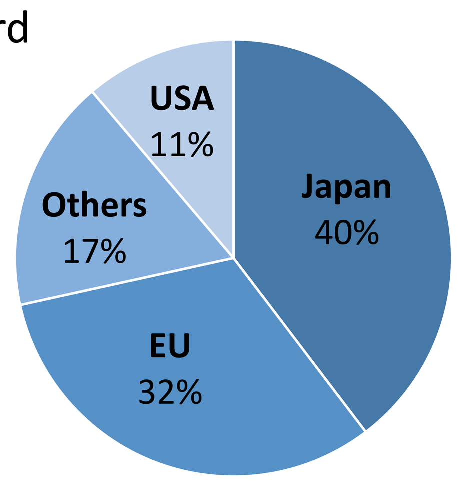



**Figure 3:** Regional affiliation of companies (HQs)

## How can companies respond to climate change?

This study defines a **corporate climate change strategy** as a company's selection of the focus and the level of different measures in response to climate change; so-called **climate change management activities** (CCMAs). A company can pursue several CCMAs or none at all. It may also vary the level to which different activities are implemented. CCMAs can furthermore be targeted at mitigating climate change (**mitigation**) or at adapting to the consequences of climate change (**adaptation**). This research will focus on mitigation activities.

The eleven CCMAs can be categorized according to different fields of strategic action. From a corporate viewpoint, CCMAs can happen inside (**internal**) and/or outside of the company (**external**). External activities are carried out in cooperation with (1) suppliers and customers (**vertical**), (2) with companies within the same sector that are not part of the supply chain and/or with companies in different sectors (**horizontal**), (3) with non-market actors such as politicians, the general public and NGOs (**contextual**).

Figure 2 summarizes possible CCMAs in relation to mitigation, adaptation and their focus as found in the literature.

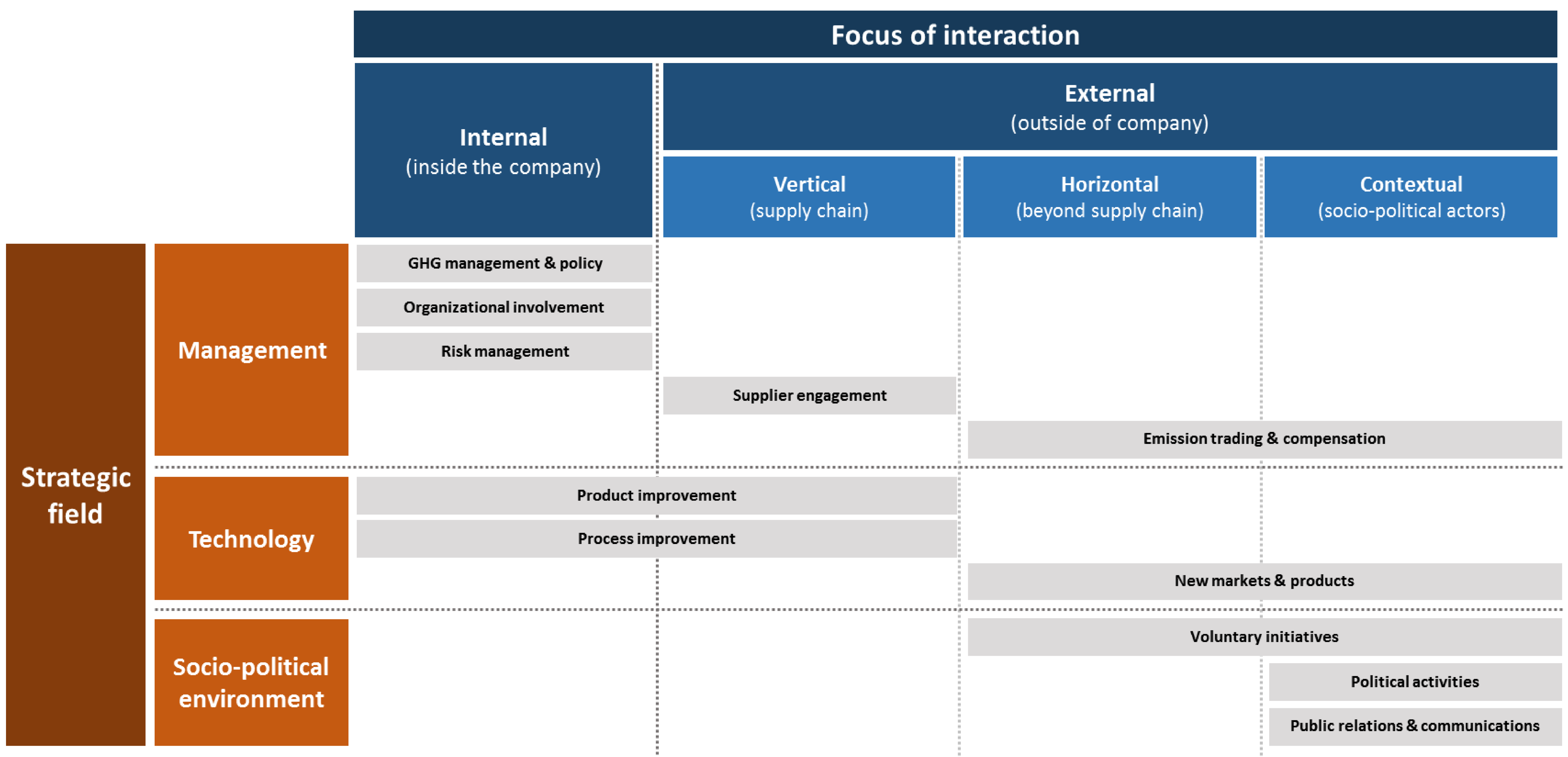
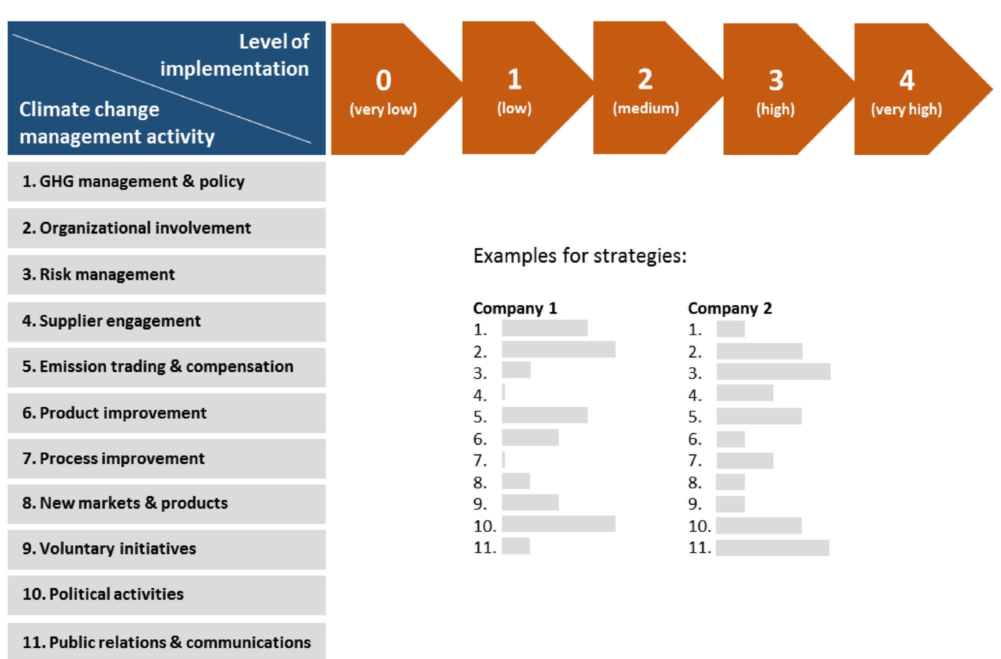



**Figure 2:** Classification of climate change management activities – the CCCS framework

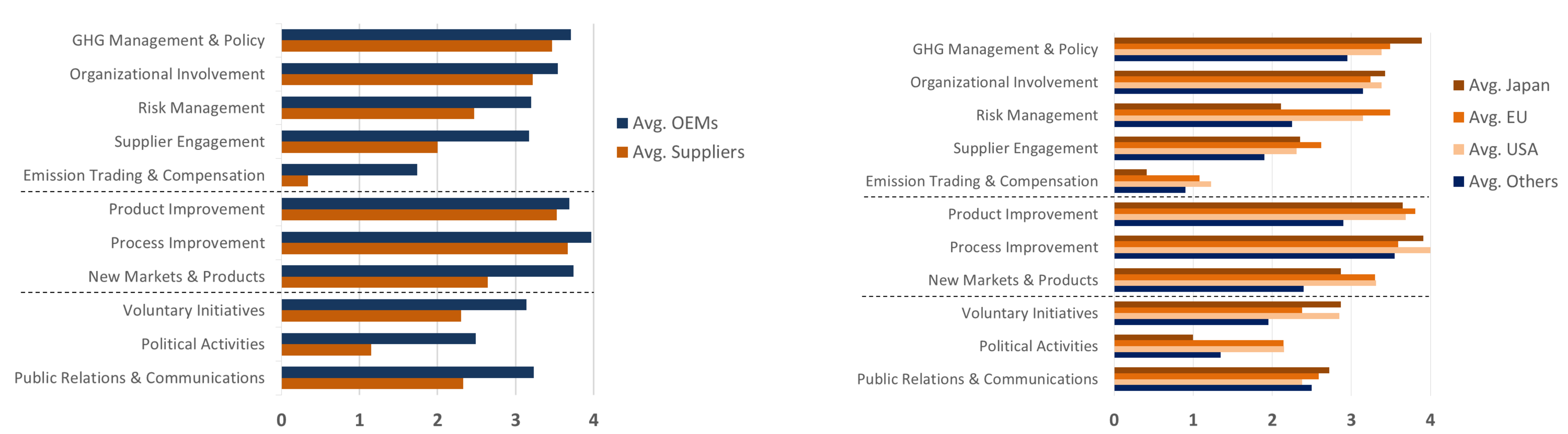
## How are climate change strategies analyzed?

A secondary data analysis was conducted. For this, corporate reports (e.g. environmental, sustainability, annual), websites and the Carbon Disclosure Project served as data source. Strategies were "graded" on a Likert scale by applying a qualitative **content analysis** (**step 1**). A subsequent **cluster analysis** revealed different types of strategies implemented by companies (**step 2**).




## Results of the cluster analysis


## Differences regarding supply chain and regional affiliation

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