

**CSLS**

Center for Sustainable  
Logistics & Supply Chains



# MEASURING INDUSTRY'S TEMPERATURE AN ENVIRONMENTAL PROGRESS REPORT ON EUROPEAN LOGISTICS



# KÜHNE LOGISTICS UNIVERSITY AT A GLANCE



24 professors  
focused on  
logistics and  
management



 <p>Global Student Satisfaction Awards 2019</p> <p>★★★★★ Awarded category „Best quality of Student Life“</p>	 <p>CHE Ranking 2018</p> <p>●●●●● 1st tier/green dots in all relevant main criteria</p>	 <p>Wirtschafts Woche 2019</p> <p>★★★★★ Top 20 in institutional research output of 200 universities (DACH region)</p>	 <p>StudyCHECK.de</p> <p>★★★★★ 100% recommendation rate by current students</p>
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Top-ranked  
university in  
terms of  
research and  
teaching



# CENTER FOR SUSTAINABLE LOGISTICS AND SUPPLY CHAINS | WHAT IT IS ABOUT



*The CSLS is an independent research center dedicated to improving the sustainability of global logistics operations and supply chains,*

- building on **KLU's** strong track record of logistics-focused research around environmental sustainability,
- leveraging the partnership and five years of initial funding from **Kuehne+Nagel**,
- founded in September 2020.

# CENTER FOR SUSTAINABLE LOGISTICS AND SUPPLY CHAINS | WHAT WE FOCUS ON



*The United Nations Sustainable Development Goals (SDG) provide the framework for our research and outreach efforts.*

*How can negative effects of today's logistics operations and supply chains on the SDG be mitigated?*



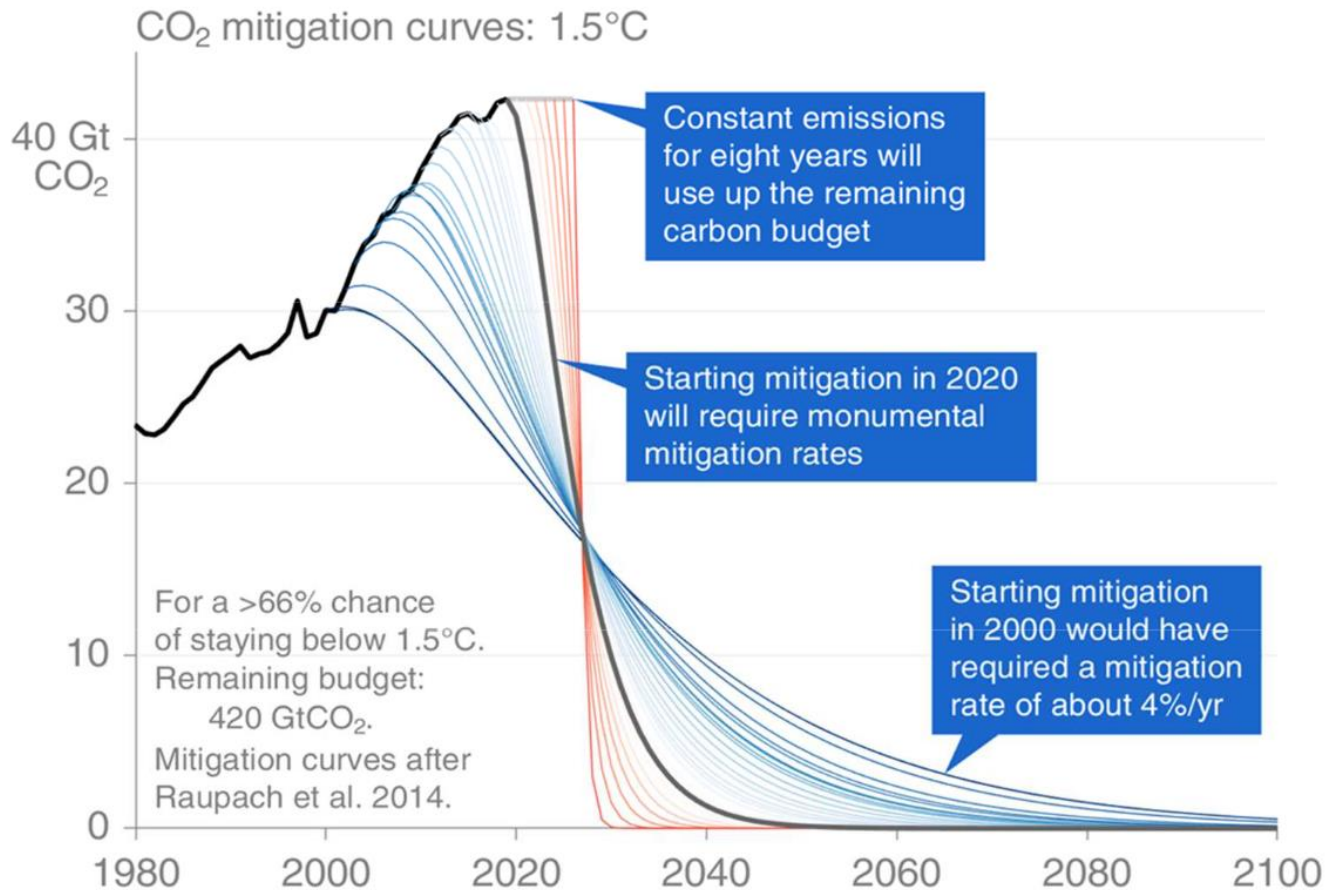
*How can logistics operations and supply chains contribute to achieving the SDG?*

e.g., combat climate change through reducing emissions from logistics



e.g., combat climate change through enabling more circular material flows

# CENTER FOR SUSTAINABLE LOGISTICS AND SUPPLY CHAINS | WHAT WE FOCUS ON



Andrew (2020)

# MEASURING INDUSTRY'S TEMPERATURE

A joint investigation by KLU's Center for Sustainable Logistics and Supply Chains and F&L

Online Survey

13. Please rate the following developments in terms of their likely contribution to the decarbonisation of your logistics operation over the next 5 years?

	1 - no contribution	2	3	4	5 - major contribution
Vehicle telematics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vehicle automation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online platforms for logistics services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advances in transport management systems (TMS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vehicle routing software innovation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet of things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved supply chain visibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3D printing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

F&L Annual Event



Case Studies

**CASE STUDY FROM SAINT-GOBAIN ROVER AND TRANSPOREON**

This case study illustrates how digitalization can simultaneously increase operational efficiency, service quality and environmental performance across a large road-based distribution system. It relates to the German distributor/ operator of Saint-Gobain Rover, Europe's leading manufacturer of mineral wool insulation products. Around 10,000 trucks to give shape the company's fleet plans to deliver 5 million cubic metres of insulation material to over 100,000 customer sites. These vehicles run approximately 21 million kilometres a year in total.

Distributing these construction materials presents several logistical challenges. Demand is highly seasonal and delivers highly time-critical because even short delays can interrupt work on building sites. Orders arrive at short notice and destinations can be changed at any time. To meet this demand, a high level of vehicle utilization is required. This means it is very difficult to transport to plan and execute. Where the pattern of demand is so variable, it is very difficult to maintain a high level of customer service while trying to achieve a high level of vehicle utilization. Under-utilisation of vehicle capacity results in more trucks and fuel consumption and emissions.

In an effort to optimize this trade-off, Saint-Gobain Rover engaged logistics system provider Transporeon and its Real Time Visibility partner Isover to install a Time Slot Management system with extensive tracking and tracing of the company's deliveries. This is one of several cloud based logistics applications that Transporeon provides for its broad portfolio of shippers, suppliers, retailers and carriers. Saint-Gobain Rover were their able to track 90% of all its deliveries to the minute, predicting the precise arrival time to more than 90% of all sites, at least in class offering.

In addition to tracking and tracing the new system will comprise dynamic slot time management (slot-booking) based on accurately estimated time of arrival (ETA) data, smart transport engagement and optimized transport execution. This will offer a stream of service and operational benefits. Service quality will be enhanced by more reliable deliveries, resulting in fewer time for late arrival, greater delivery transparency and more accurate ETAs. On the operational side, saving time, lower interaction time, cancellability and empty running will all be reduced while overall vehicle utilization will be raised. Through vehicle ID and accurate vehicle identification should significantly cut fuel consumption and CO<sub>2</sub> emissions per tonne of product delivered. The new vehicle monitoring system will also permit the tracking of CO<sub>2</sub> emissions across Saint-Gobain Rover's delivery network, supporting the company's transport emission process and reporting.

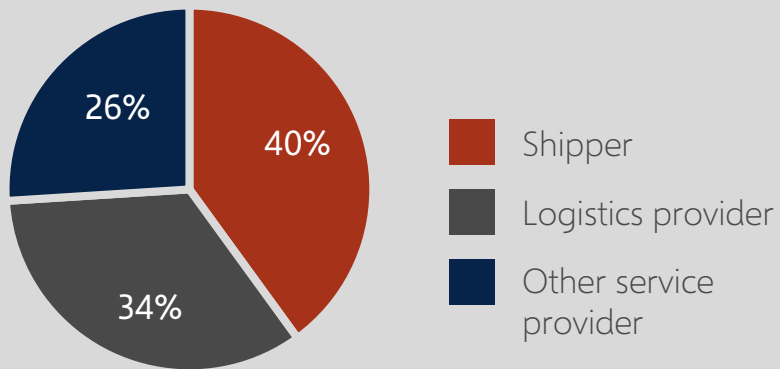
**TRANSPOREON** **ISOVER**  
SMART-GOBAIN



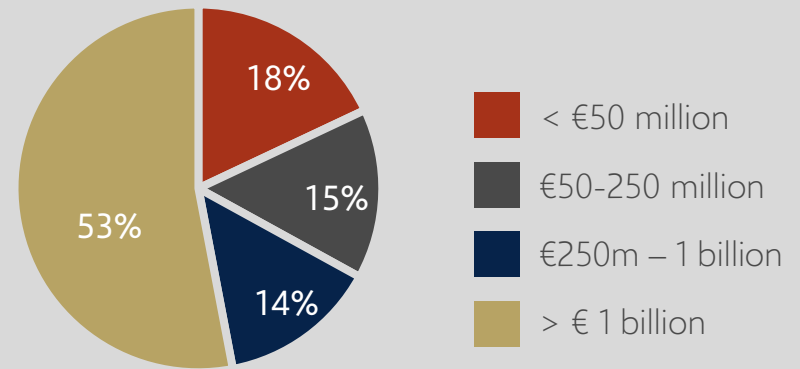
[the-klu.org/sustainabilitystudy](http://the-klu.org/sustainabilitystudy)

# SAMPLE

92 logistics experts answered our questions



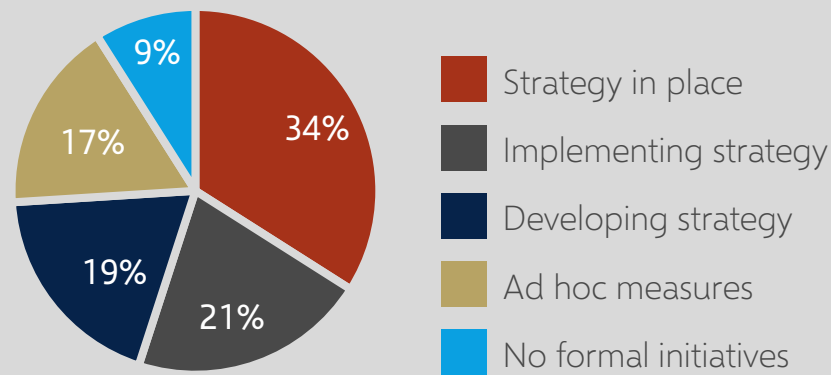
Sample by type of organisation



Sample by annual company turnover

# STRATEGY DEVELOPMENT

More than half of the companies have a sustainable logistics strategy in place or are implementing one

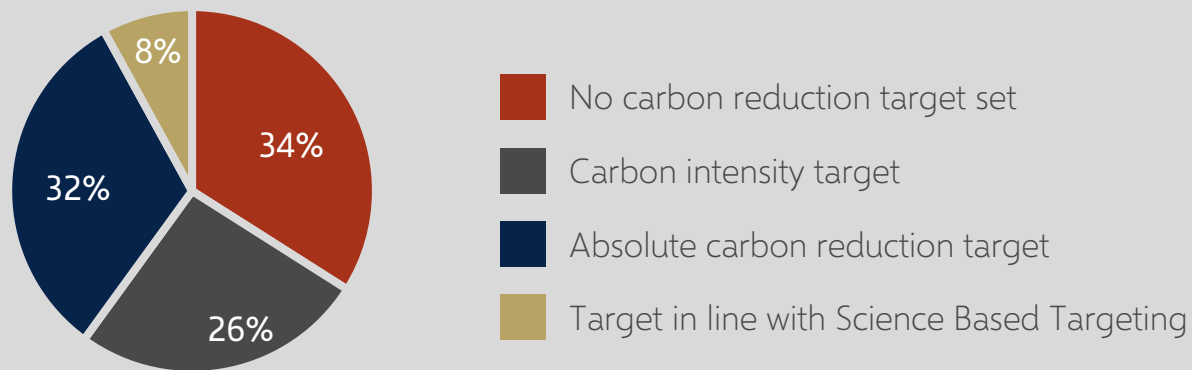


Stage in sustainable logistics strategy development



# TARGET SETTING

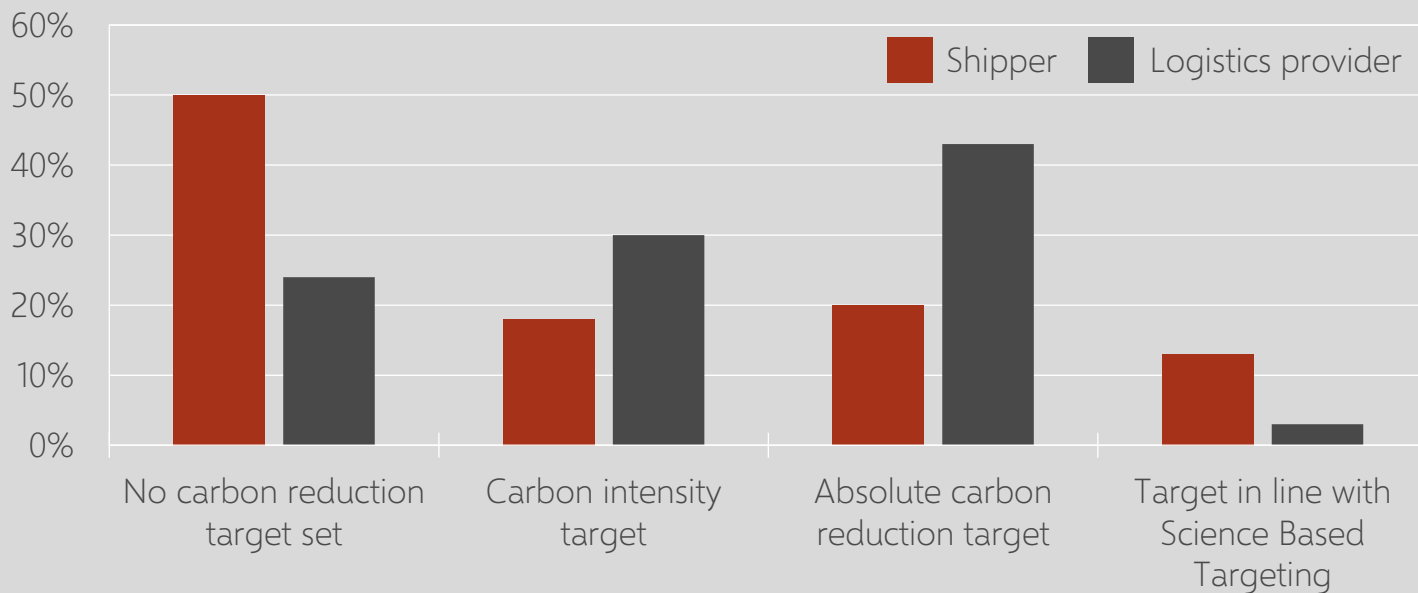
A third of companies now set absolute carbon reduction targets for logistics



Types of carbon reduction targets

# TARGET SETTING

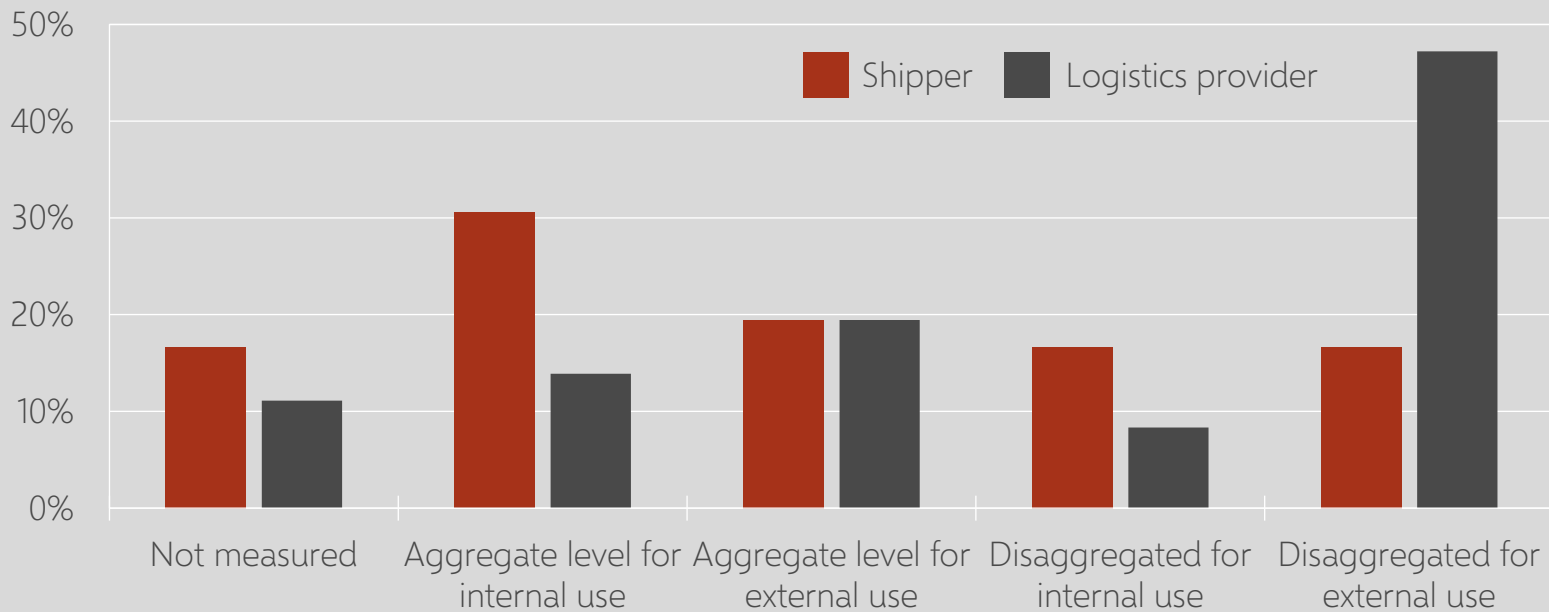
A third of companies now set absolute carbon reduction targets for logistics



Types of carbon reduction target by type of business

# EMISSION MEASUREMENT

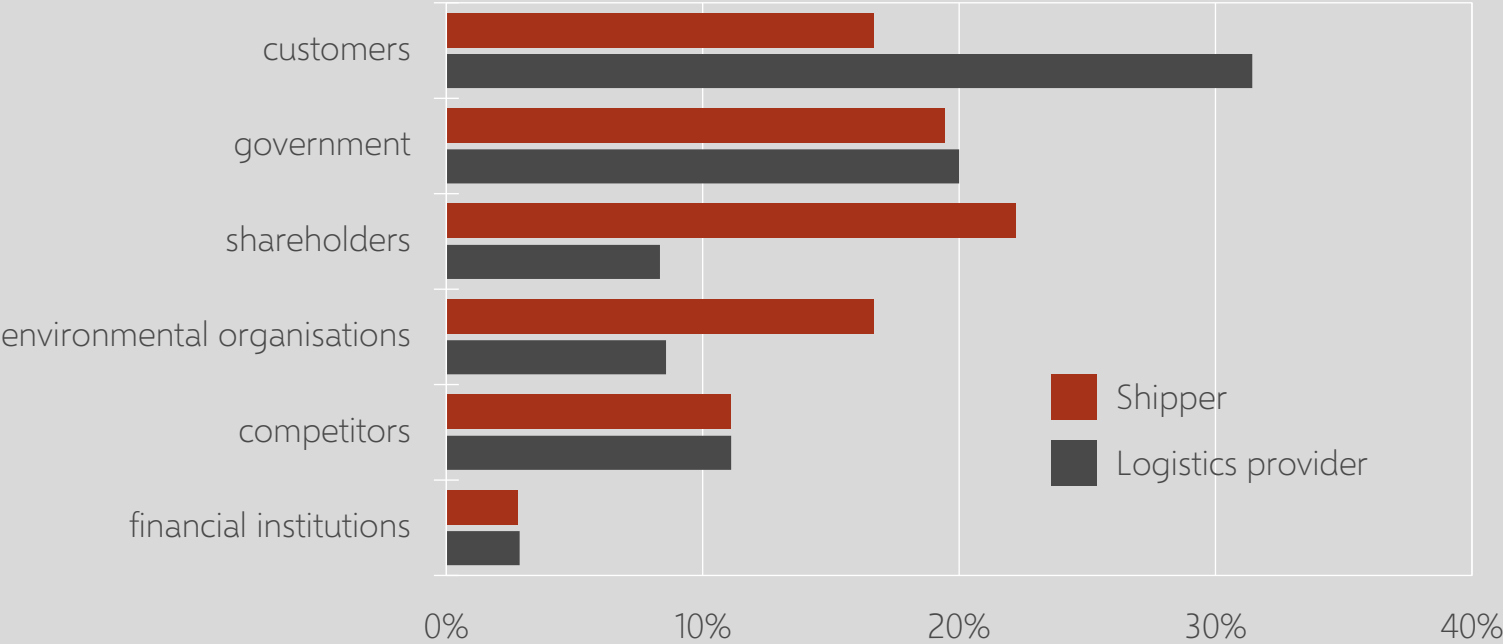
85% of the surveyed companies measure their logistics CO<sub>2</sub> emissions in some form



Logistics CO<sub>2</sub> measurement by type of business

# EXTERNAL PRESSURE

Pressure to improve logistics sustainability is building but needs to be strengthened

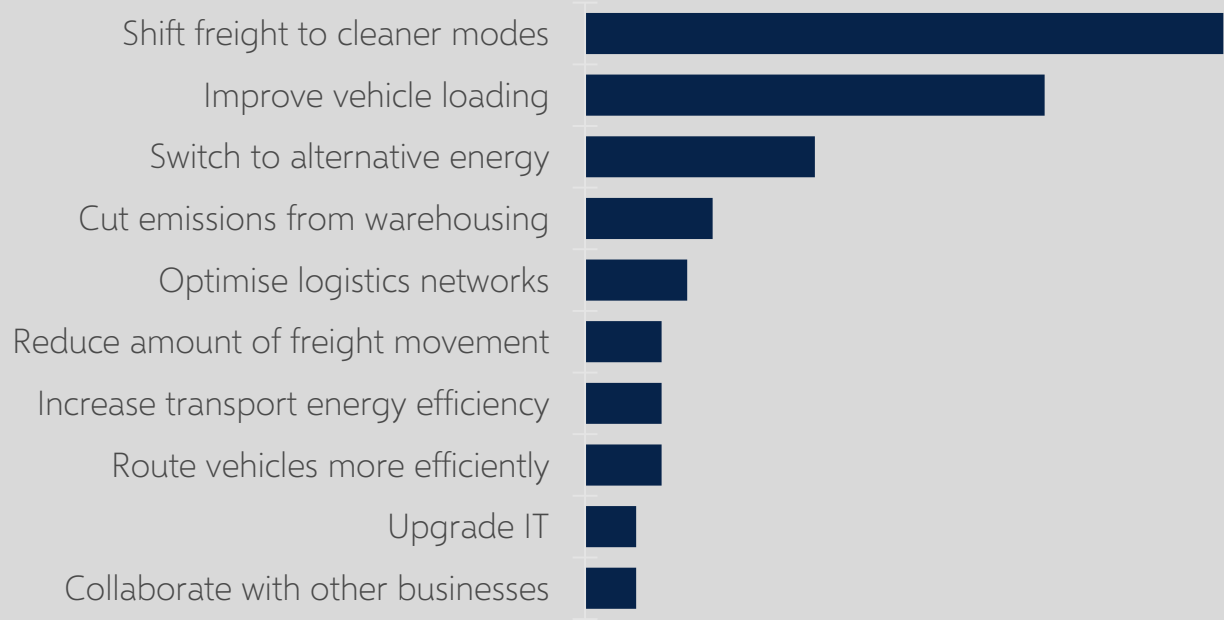


Sources of strong external pressure by type of business



# DECARBONIZATION INITIATIVES

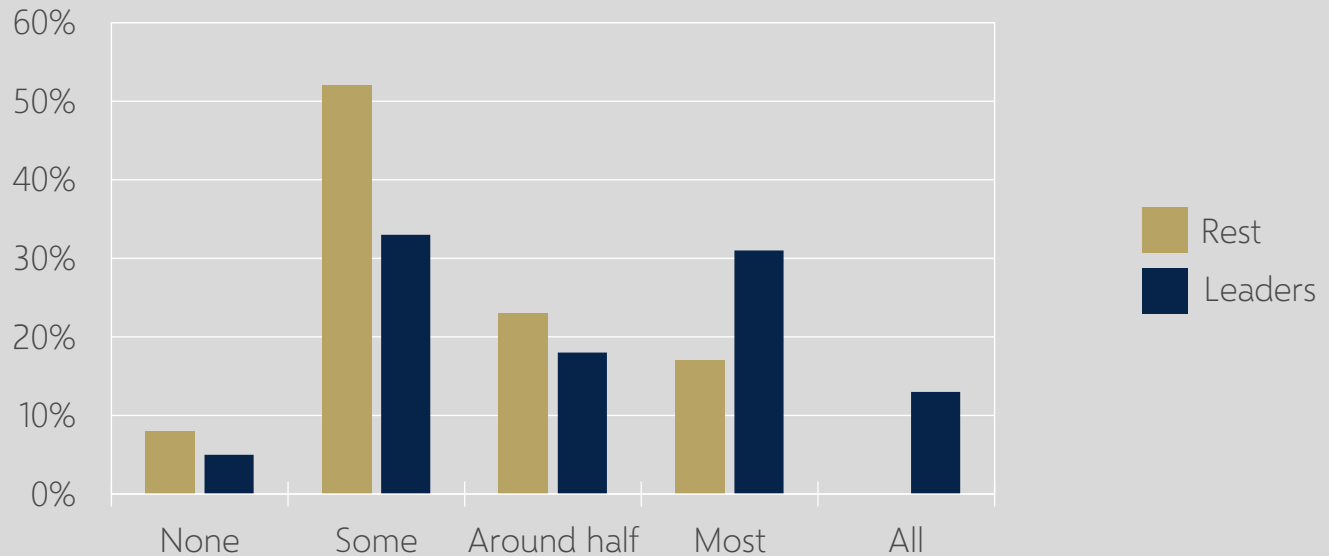
Modal shift and improved vehicle loading are deemed to be the most cost-effective interventions



Most cost-effective way of reducing logistics CO<sub>2</sub> emissions by weighted number of responses

# DECARBONIZATION INITIATIVES

Modal shift and improved vehicle loading are deemed to be the most cost-effective interventions



Proportion of logistics CO<sub>2</sub>-reducing measures also cutting costs

# DIGITALIZATION

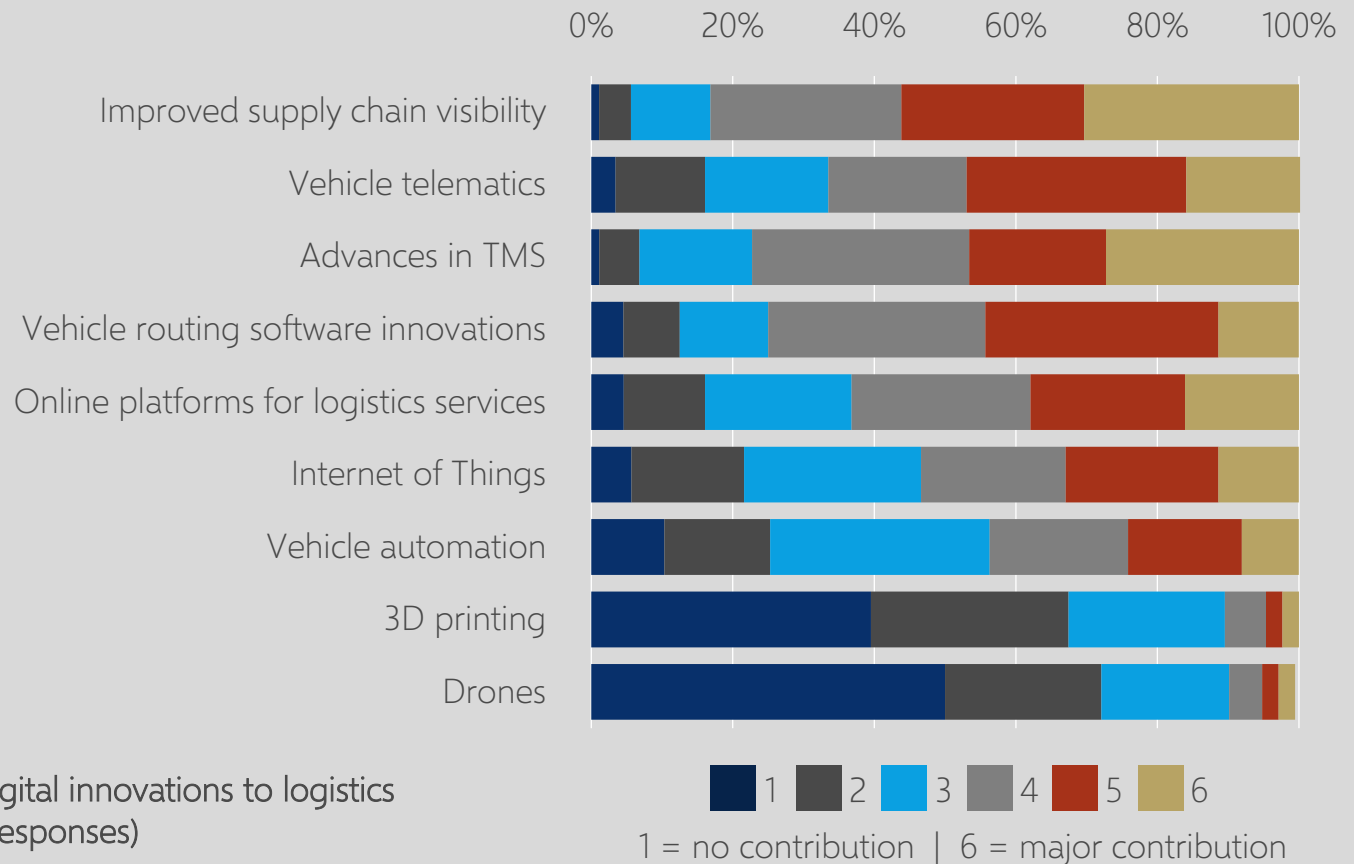
Digitalisation has the potential to be a decarbonisation game-changer

	past 5 years	next 5 years
Logistics Providers	38%	86%
Shippers	9%	64%

Share of respondents rating impact of digitalisation on logistics as "high or transformational"

# DIGITALIZATION

Digitalisation has the potential to be a decarbonisation game-changer





# SKILLS REQUIREMENTS

Meeting sustainable logistics targets will require greater managerial knowledge and skill

## Methods of improving sustainability

technical advice on a broad range of subjects including advances in vehicle technology, material handling innovations, non-fossil energy sources, etc.

## Environmental change management

Behavioural dimension, helping managers to motivate employees, suppliers, etc. to prioritise environmental improvement and secure buy-in

## Sustainability principles & trends

Helping managers to understand the changing nature and scale of the environmental challenge and to keep abreast of public policy developments

## Strategy development

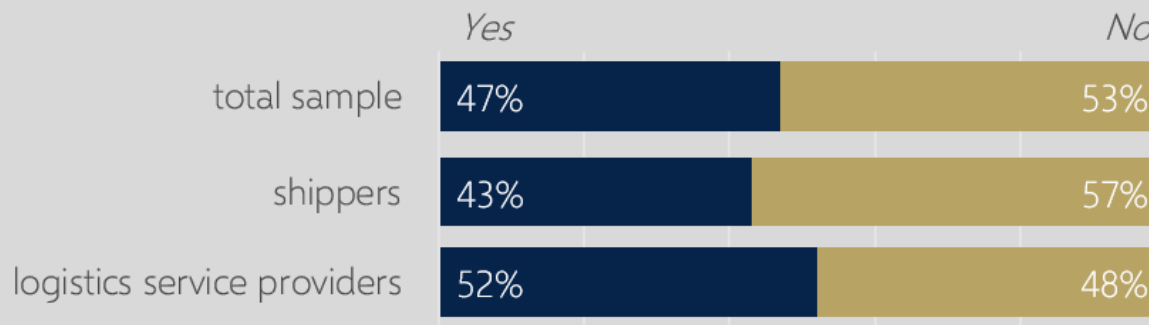
how to optimise the balance between commercial and environmental objectives, how to engage supply chain partners in strategy development process, etc.

## Measurement and reporting of emissions

Advice and training, particularly on Scope 3 emissions and comparing the carbon intensity of freight transport modes on a consistent basis

## EUROPEAN GREEN DEAL

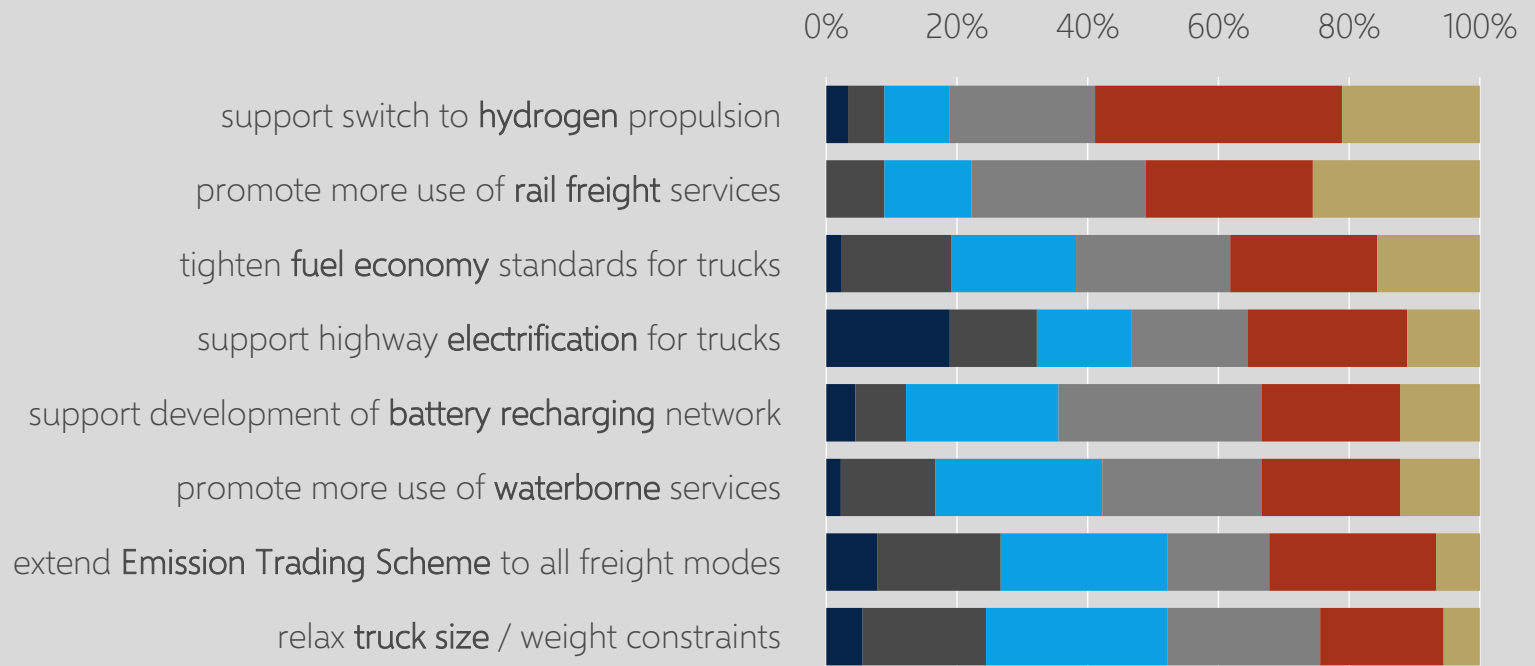
Managers need persuasion that ambitious Green Deal emission targets are achievable



Confidence in Green Deal achieving 90% emission reduction for freight transport by 2050

# EUROPEAN GREEN DEAL

Managers need persuasion that ambitious Green Deal emission targets are achievable

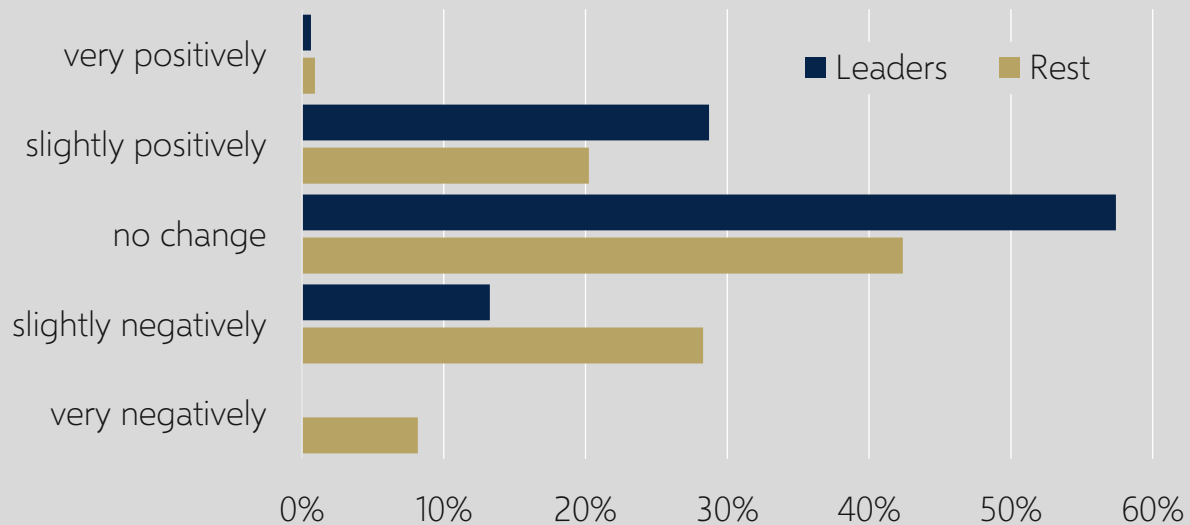


Rating of policy measures by likely effectiveness in cutting logistics CO<sub>2</sub> emissions (% of responses)

1 2 3 4 5 6  
 1 = no contribution | 6 = major contribution

# IMPACT OF COVID-19

Recovery from the pandemic is having a limited impact on companies' logistics decarbonisation plans



Effect of Covid-19 recovery on CO<sub>2</sub> reduction efforts (% of responses)




# THE ROAD AHEAD

... is long and winding



# THE ROAD AHEAD

Five principal solution areas to decarbonize logistics exist. There is no silver bullet.

						<b>operations</b>
<b>Reduce Level of Freight Movement</b>	<b>Shift Freight to Lower Carbon Mode</b>	<b>Improve Vehicle Loading</b>	<b>Increase Energy Efficiency</b>	<b>Switch to Low Carbon Energy</b>		<b>behavior</b>
						<b>regulation</b>
						<b>technology</b>

McKinnon (2018)

# THANK YOU!



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