



CSLS

Center for Sustainable
Logistics & Supply Chains

Decarbonizing the operations of small and medium-sized road carriers in Europe

An analysis of their perspectives, motives, and challenges

January 2021 | Moritz Tölke & Alan McKinnon

© Smart Freight Centre and Kühne Logistics University [2021]

Suggested citation: Toelke, M. and McKinnon, A.C. (2021) Decarbonizing the operations of small and medium-sized road carriers in Europe. Smart Freight Centre (Amsterdam) and Kühne Logistics University (Hamburg).

This publication may be reproduced in whole or in part in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgment of the source is made. Smart Freight Centre would appreciate receiving a copy of any publication that uses **Decarbonizing the operations of small and medium-sized road carriers in Europe** as a source. No use of this publication may be made for resale or any other commercial purpose whatsoever, without prior permission in writing from Smart Freight Centre.

Disclaimer

The views expressed in this publication are those of Smart Freight Centre and staff, consultants, and management, and do not necessarily reflect the views of the Board of Trustees of Smart Freight Centre. Smart Freight Centre does not guarantee the accuracy of the data included in this publication and does not accept responsibility for the consequence of its use.

Acknowledgements

This report was written by Moritz Tölke as part of his master thesis at the Kühne Logistics University in 2020 under supervision of Professor Alan McKinnon. The research greatly benefited from the “European Transportation Survey 2020” conducted by transport management platform provider Transporeon. Others, who contributed to the research and the paper are: Eszter Toth-Weedon, Sophie Punte, Alan Lewis and Folkert Bloembergen of Smart Freight Centre as well as Serge Schamschula, Philipp Hoffmann and Gitte Willemsens from Transporeon.

We also thank the various experts and practitioners who have taken the time to share their thoughts on the industry as part of the studies. We further want to recognize the great assistance that [AEMS](#), [BGL](#), [CLECAT](#), and [Sovereign Speed](#), have provided by shaping and sharing the Road Carrier Survey.

About Smart Freight Centre

Smart Freight Centre (SFC) is a global non-profit organization dedicated to an efficient and zero-emissions freight sector. SFC works with the Global Logistics Emissions Council (GLEC) and other stakeholders to drive transparency and industry action – contributing to Paris Climate Agreement targets and Sustainable Development Goals.

About Kühne Logistics University & the Center for Sustainable Logistics and Supply Chains

Kühne Logistics University – Wissenschaftliche Hochschule für Logistik und Unternehmensführung (KLU) – is an independent, state-certified university that focuses on the fields of Transport, Global Logistics, and Supply Chain Management. In 2020, KLU founded the Center for Sustainable Logistics and Supply Chains (CSLS), an independent research center dedicated to improving the sustainability of global logistics operations and supply chains.

About Transporeon

Transporeon connects a worldwide network of more than 1,200 industrial shippers and retailers with over 100,000 logistics service providers in 100+ countries in real time. Its security-certified platforms offer digital solutions for freight benchmarking and sourcing, freight assignment and shipment execution, time slot management, shipment tracking, and end-to-end supply chain visibility.

Contact

Smart Freight Centre
Keizersgracht 560, 1017 EM, Amsterdam, Netherlands
P.O. Box 11772, 1001 GT, Amsterdam, Netherlands
Tel office: +31 6 4695 4405
www.smartfreightcentre.org
info@smartfreightcentre.org

Executive summary

Around 20% of Greenhouse Gas (GHG) emissions from European transport are caused by heavy-duty road vehicles. The amount of road freight movement in the EU is projected to rise at an average rate of 1.1% per annum over the next 30 years, an increase of 47% by 2050. In the absence of more intensive efforts to decarbonize European trucking, this additional freight traffic will emit much more CO₂.

Many governments, shippers, and logistics service providers (LSPs) around Europe have realized that they must act urgently to cut these road freight emissions. They have therefore started to develop ambitious decarbonization targets and strategies. Despite the high industry profile of the larger LSPs, the vast majority of the road freight market in Europe is made up of small and medium-sized (SME) carriers. Much of their haulage work is done on a subcontracted basis for the larger LSPs. For the industry to move towards a zero-emission future, it is essential that these carriers become fully engaged in the decarbonization process. This raises two questions. First, how committed are they to driving down GHG emissions? Second, how can they be incentivised to intensify this commitment? Research was undertaken to answer these questions in May and June 2020. It involved online questionnaire surveys and in-depth interviews with carriers and industry leaders.

One of the surveys was conducted by the transport management platform provider Transporeon, collecting responses from over 800 European carriers. This research provided a unique insight into the European road freight SME carrier market:

Perspectives

- Two-thirds of carriers consider freight decarbonization to be a priority for their sector
- Many carriers do not perceive environmental improvement as offering business benefits

Know-how

- 43% of the carriers are not able to calculate and report their emissions
- Capability to calculate and report emissions is significantly higher in countries with Green Freight Programs
- Carriers that are aware of decarbonization solutions tend also to implement them

- Carriers are twice as likely to implement operational than technical fuel efficiency measures
- Bigger fleets have a greater awareness of decarbonization and take 10-30% more carbon-reducing actions
- Limited knowledge and uncertainty are major barriers to the adoption of carbon-reducing measures

Factors

- Cost pressures and customer expectations are the biggest drivers for climate action

Actions for stakeholders

- Governments can support the sector with regulations, pressure on truck manufacturers, infrastructural and financial support
- Freight buyers can integrate decarbonization into procurement and collaboration: selecting greener carriers, offering longer contracts, paying a GHG-reduction premium
- Truck manufacturers (OEMs) and their suppliers can improve their engagement with SME carriers
- Industry associations, green freight programs, NGOs and research institutes can focus more on the needs of SME carriers
- Carriers can increase their ability to measure and manage emissions, be more proactive and share information

It will be crucial for all players in this sector to be sincere about their commitment, to collaborate and to overcome traditional business practices and prejudices to move forward into a zero-emission future. Governments, OEMs and the buyers of road freight services can help SME carriers overcome the barriers currently preventing them from giving emission reduction the attention it deserves. Smart Freight Centre, Kühne Logistics University and Transporeon seek to support the decarbonization of this segment of the European trucking market through advocacy, research, digital solutions, and climate action.

Foreword

The supply chains that meet our material needs are vast and complex. They rely on a logistics industry that is highly fragmented. The European road freight sector, for example, comprises over half a million of carriers, the vast majority of whom are very small enterprises. Many of them work on a subcontract basis for larger logistics service providers who in turn handle most of the distribution for manufacturing and retail businesses. Today, these businesses are putting increasing pressure on their logistics providers to cut carbon emissions across their supply chains. For this to happen the multitude of small road freight operators, upon whom the whole system heavily depends, must be motivated and helped to engage in the decarbonization process.

Many politicians and policy-makers are pinning their hopes on zero-emissions truck technology to deliver this decarbonization. There is a widely held view that, as long as we can develop and manufacture enough electric and hydrogen trucks, and provide the associated infrastructure, the road freight sector will decarbonize by itself.

However, one must look beyond the supply of new vehicle technology and ensure that the demand conditions are right for the forthcoming shift from fossil-fuel to renewable-energy trucking. Hundreds of thousands of small operators, the majority of whom work on slim profit margins, will have to be incentivised to buy the new generation of low carbon vehicles. And, while we are waiting for

this market transformation, there is much more that they can do to cut carbon emissions from their existing fleets.

To date, little of the research on road freight decarbonization has examined the attitudes and concerns of small carriers. The new research summarised in this report is therefore timely and welcome in helping to improve our knowledge of their environmental efforts. We are grateful for the opportunity provided by Transporeon to reach over 800 of carriers through their network to see how the situation varies across several European countries. The better we understand the motivations of SME carriers and the barriers they face, the better can be the response by policy-makers, vehicle manufacturers and, of course, the carrier's clients, for whom low carbon logistics is becoming a more pressing goal.

There is wide agreement that multi-stakeholder collaboration will be essential to achieve zero-emission road freight transport. Let's make sure that we include the large community of SME carriers in this endeavour.

Sophie Punte
Executive Director
Smart Freight Centre

Alan McKinnon
Professor of Logistics
Kühne Logistics University



Research methods

This report presents the results of two online surveys and a series of in-depth interviews that were conducted with European SME road freight carriers in May and June 2020.

1. Transportation Survey

Description A joint study with Transport Management Platform provider Transporeon as part of its 2020 European Transportation Survey. Additional questions were included in this survey enquiring about the current interest and capabilities of carriers in measuring and cutting GHG emissions.

Carriers 811 carriers from 32 European countries (list of countries in appendix)

Composition of example by fleet size

Fleet size (amount of HDV's)	Number of carriers
1-10	137
10-20	143
20-50	246
50-100	153
100-250	132
Total	811

The complete European Transportation Survey 2020 can be found here:
<https://www.transporeon.com/en/expertise/insights-1/report-carrier-survey-2020/>

2. Road Carrier Survey

Description Detailed, online survey exploring attitudes, awareness and commitments on subject of decarbonization.

Carriers 30 carriers from Austria, Denmark, Germany, Ireland, the Netherlands & United Kingdom

3. Carrier Interviews

Description Generating qualitative information on necessary support mechanisms to promote wider adoption of decarbonization practices.

Carriers 6 carriers from Austria & Germany



Contents

Executive summary	3
Foreword	4
Research methods	5
1. The importance of SMEs	7
2. Carrier perspectives	8
3. Carrier know-how	10
4. Factors influencing carrier decarbonization efforts	15
5. Actions for stakeholders	17
6. Conclusions	21
References	22
Appendix	23



1. The importance of SMEs

1/5

Share of heavy-duty vehicle GHG emissions of total European transport GHG emissions

>500.000

Number of European road carriers

99%

Share of European road carriers with less than 50 employees

+47%

Projected growth of freight movement by heavy goods vehicles 2015-2050

"The success of the European Green Deal depends on our ability to make the transport system as a whole sustainable"

European Commission, 2020

The European transport sector remains one of the only sectors that still shows an increase in total emissions compared to 1990 levels. Road freight transport is one of the most difficult components to decarbonize, with heavy duty vehicles (HDVs) alone accounting for around 1/5 of European transport-related GHG emissions. With an expected growth of freight movement of 47% by HDVs in Europe from 2015 to 2050, the crucial role of the sector on the path to a low-carbon world becomes clear.

The European Commission, national governments and a growing number of large buyers of freight transport services (both shippers and logistics service providers (LSPs) subcontracting their transport) have stepped up their efforts in recent years and are now pursuing ambitious GHG emission reduction targets and strategies for freight. Smart Freight Centre (SFC) is supporting multi-national companies (MNCs) and their partners globally in these efforts and their journey towards zero emission logistics.

What makes the road freight market so distinctive in comparison to many other industries is its highly fragmented nature comprising over half a million companies providing road haulage services for hire. 99% of these companies have fewer than 50 employees.

Pursuit of zero-emission road freight in Europe will require the involvement and buy-in of this multitude of SME carriers. Their environmental commitment and efforts have attracted relatively little attention until recently. This report provides unique insights into the perspectives, motives and challenges of these SME road carriers on the topic of decarbonization. It analyses qualitative and quantitative data to give an overview of the road freight SME sector and recommends ways in which it might become more fully engaged in the decarbonization process.

2. Carrier perspectives

Figure 1. Priority of decarbonization for the road carrier sector

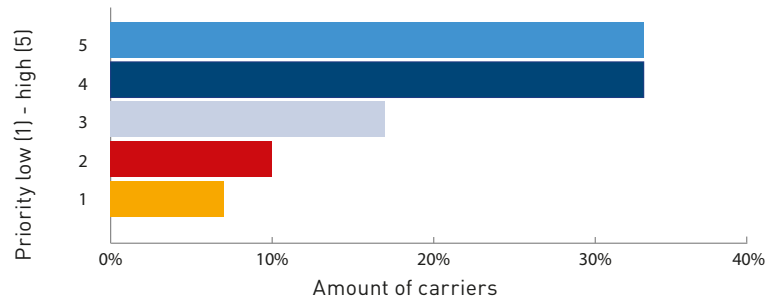


Figure 2. Importance of fuel efficiency in daily operations

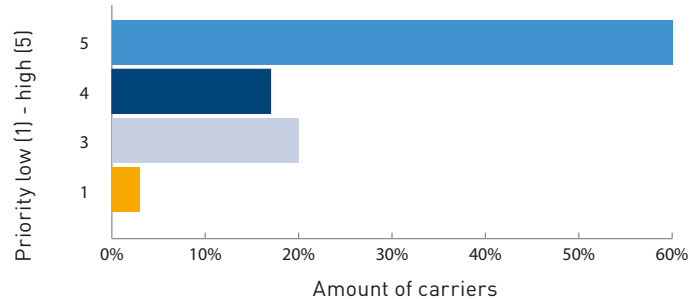
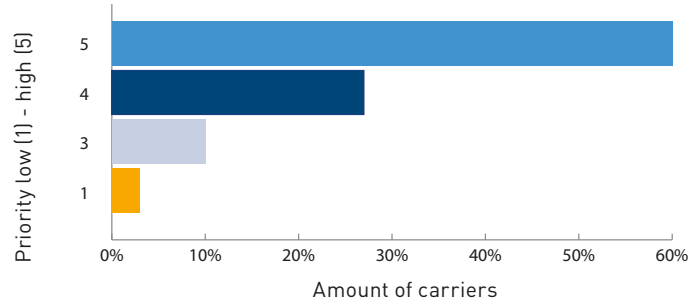


Figure 3. Importance of fuel efficiency in the long-term strategy



Two-thirds of carriers consider freight decarbonization to be a priority for their sector

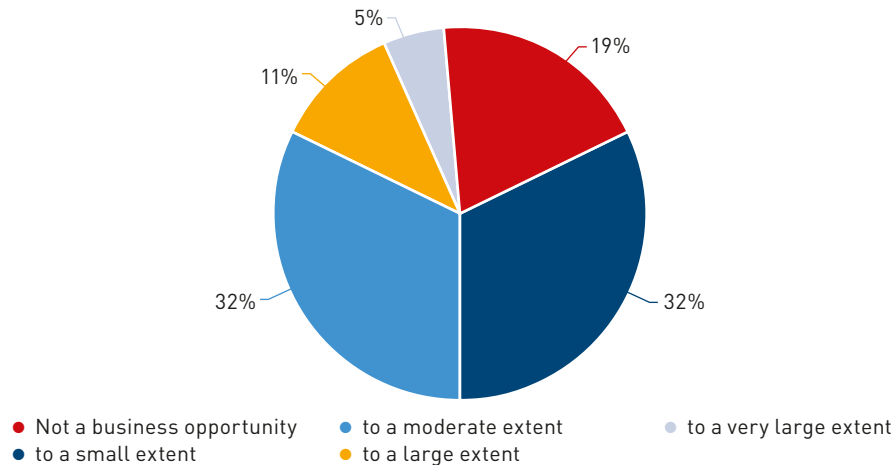
- When asked about the amount of priority decarbonization should have for the road freight sector, roughly two-thirds of the carriers rated it high (4) or very high (5) (Figure 1).
- 77% of companies claim that fuel efficiency in daily operations is of high importance to them (Figure 2).
- 87% agree that fuel efficiency in the longer-term strategic development of the business is of high importance (Figure 3).

In recent years we have seen increasing numbers of large shippers and LSPs setting ambitious carbon-reduction targets and committing to a zero-emission future. To what extent is this trend also being supported by the broader carrier base?

It seems that the importance of this topic is clearly recognized by the SME carriers and that they are indeed aware of its relevance and urgency. The most practical way of assessing a carrier's efforts to decarbonize is in terms of fuel efficiency. On this criterion the responses were also very promising (Figure 2 & 3).

However, the awareness of the urgency and importance of decarbonization might not translate directly into action by the carriers if business conditions are not favorable.

Figure 4. Percieved business opportunity in environmental efforts (% of carriers)

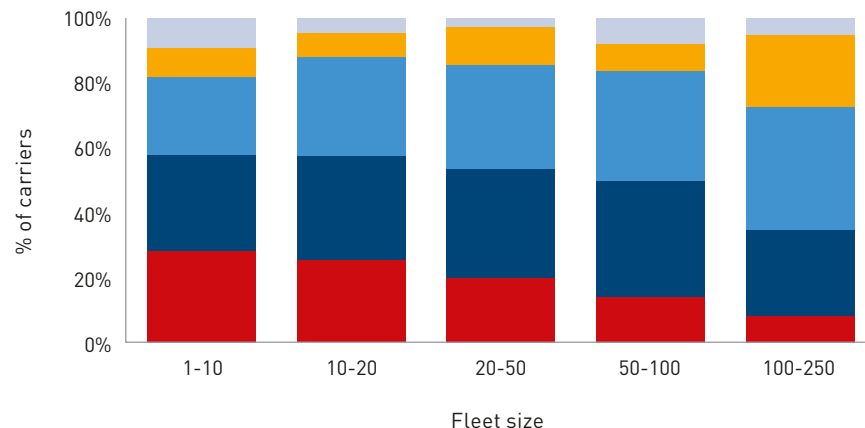


Many carriers do not perceive environmental improvement as offering business benefits

- Around half of the 811 respondents saw little to no opportunity, while the other half were more optimistic (Figure 4).
- Around 70% of companies with larger fleets of over 100 vehicles see a moderate to high business value in environmental efforts,
- 60% of those with under 20 vehicles believe that these efforts yield little or no commercial benefit (Figure 5).

Small carriers who typically work on tight margins and are under constant market-pressure, clearly need to focus on the commercial aspects of the business. Therefore, even if they are aware of the urgency of decarbonization, they might only be able to act when business conditions allow, and clear economic benefits are seen.

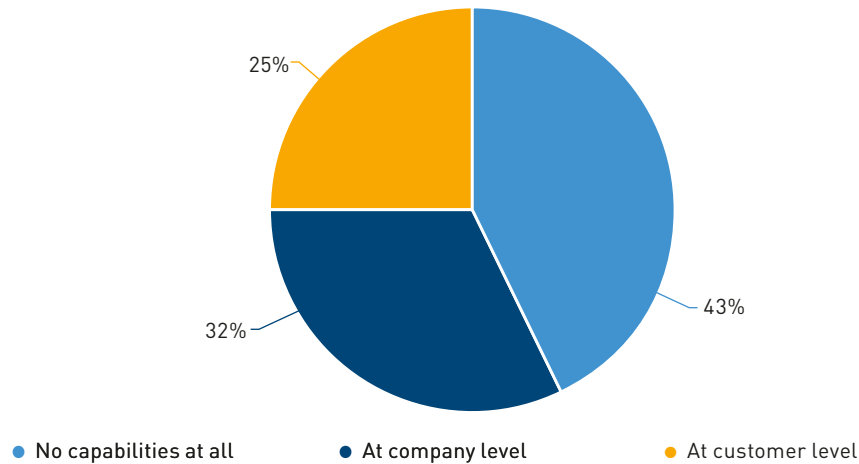
Figure 5. Percieved business opportunity in environmental efforts / Fleet size breakdown



Earlier studies, such as the “SFC - barriers for carriers report” discovered that carriers often associate environmental efforts with high upfront costs and risks, and are uncertain about the potential benefits and return on investment. This limits the perceived business opportunity, particularly for smaller fleets. There is a strong correlation between fleet size and perceived scale of business opportunity (figure 5). As fleets with less than 10 vehicles account for the vast majority of European trucking operations, the companies operating them need to be given greater assurance that it is in their economic interests to cut their GHG emissions.

3. Carrier know-how

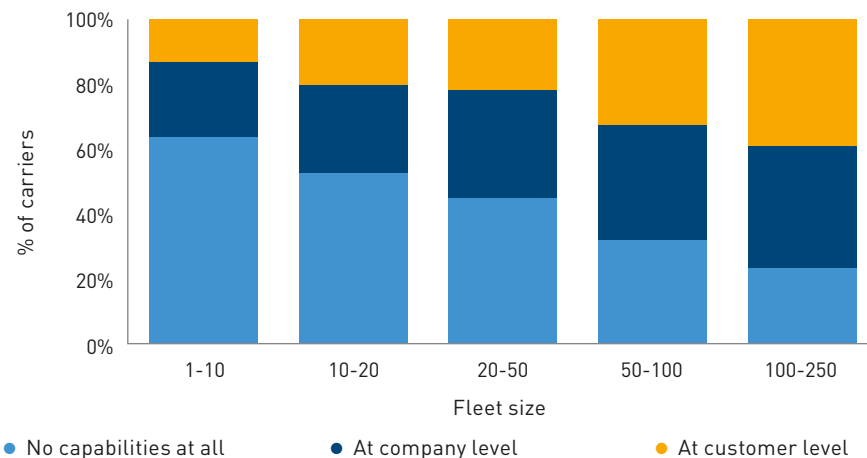
Figure 6. Capability to calculate transport related emissions



43% of the carriers are not able to calculate and report their GHG emissions

- A quarter of smaller carriers have the capability to calculate transport-related GHG emissions at a customer level (Figure 6).
- A third can only measure their GHG emissions at a company-level (Figure 6).
- A large proportion (43%) indicated that they are currently unable to measure their GHG emissions (Figure 6).
- Around 60% of the carriers with fewer than 10 vehicles claim to have no emission measurement capabilities (Figure 7).
- Only a fifth of carriers with more than 100 vehicles lack these capabilities (Figure 7).

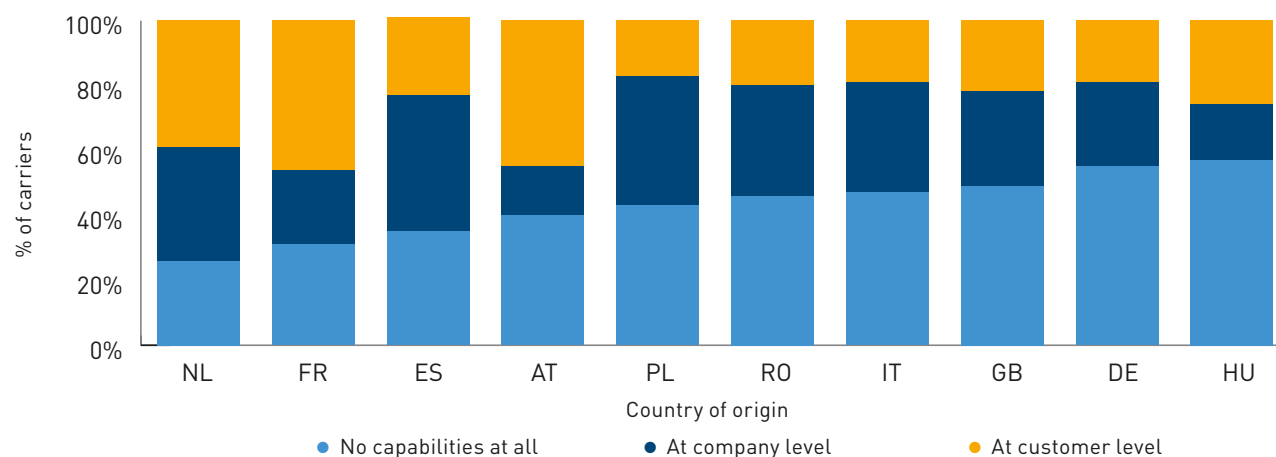
Figure 7. Capability to calculate transport related emissions / Fleet size breakdown



Calculating GHG emissions is the first step on a company's path towards decarbonization, because it is the necessary precursor to the setting of meaningful emission reduction targets and monitoring progress towards achieving them. As large buyers of freight services are now declaring such targets and applying them to their Scope 3 emissions (which include emissions from road carriers working on their behalf), carriers will need to have the capability to provide individual clients with GHG emissions data. It is surprising, and concerning, that such a large proportion of carriers claim to be unable to measure their emissions, as this only requires them to estimate their total fuel consumption and multiply this figure by a standard emission factor per liter of diesel fuel. Again, there is a direct correlation between fleet size and this capability.

Capability to calculate and report GHG emissions is significantly higher in countries with Green Freight Programs

Figure 8. Capability to calculate transport related emissions / Country breakdown



It is clearly beneficial that one common calculation standard is adopted by all players in the industry and across the supply chain to achieve harmonization and comparability. The [GLEC Framework](#), developed by SFC and GLEC, is built on existing calculation methodologies and it will be a basis for the future ISO 14083 norm for freight emissions calculations.



- **In France and the Netherlands, more than two-thirds of carriers are able to calculate GHG emissions, while in Germany fewer than half say they are able to do so (Figure 8).**
- **46% of the French sample can disaggregate their GHG emissions by customer - the highest percentage across all the countries surveyed, followed by Austria and the Netherlands (Figure 8).**

Clear differences arose across the ten countries with the largest numbers of carriers. The relatively high figure in France is likely to be the result of legislation requiring carriers to report CO₂ emissions to their clients, supported by the

carrier program Objectif CO₂. Small carriers with fewer than 50 vehicles can calculate these emissions using a simplified methodology. However, enforcement is understood to be lax, particularly when shippers do not demand the CO₂ data. This may partly explain why roughly one-third of the French carriers surveyed still lack the ability to calculate their GHG emissions. This illustrates, on the one hand, the positive effect of national regulations, but, on the other, the need for adequate enforcement. Green freight initiatives like Lean & Green in the Netherlands seem to have a beneficial effect on the ability to calculate GHG emissions among small carriers even though they have no legal status.

Carriers that are aware of decarbonization solutions tend to also implement these

As GHG emissions are a function of fuel consumption, they are reduced by improving fuel efficiency. Road freight operators can cut their fuel consumption and thereby GHG emissions in many different ways. We enquired about carriers' awareness and uptake of ten of the main fuel / carbon-reducing measures.

Five of them are operational and the other five technical — relating to the design of the vehicles. The results display a very close statistical correlation between awareness and implementation rates¹. When a carrier is aware of an initiative there is a high probability that it will implement it². This indicates again the importance of awareness-raising in green freight programs.

Table 1: Overview of awareness and implementation rates

Measure	% Awareness	% Implementation	% Diff.
Eco-Driver training	76	69	7
Fleet manager training	44	40	4
Transport route optimization	64	57	7
Fuel consumption monitoring	78	78	0
Driver performance tracking	64	60	4
Shorter vehicle-renewal cycles	37	30	7
Vehicle aerodynamics	33	24	9
Low rolling resistance tires	37	28	9
Light weighting	28	19	9
Anti-idling devices	23	17	6

Operational Technical

Carriers are twice as likely to implement operational as technical measures

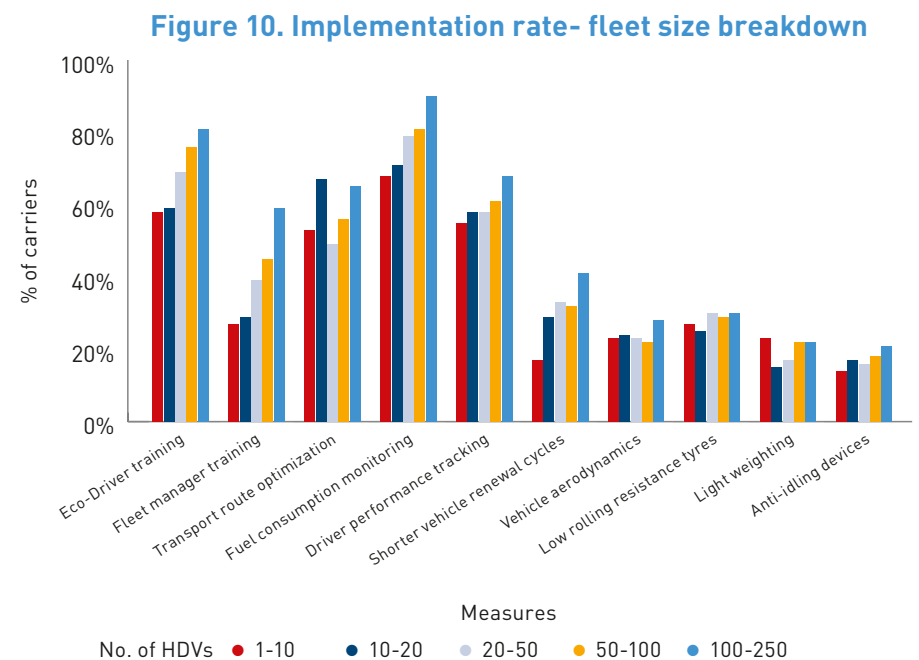
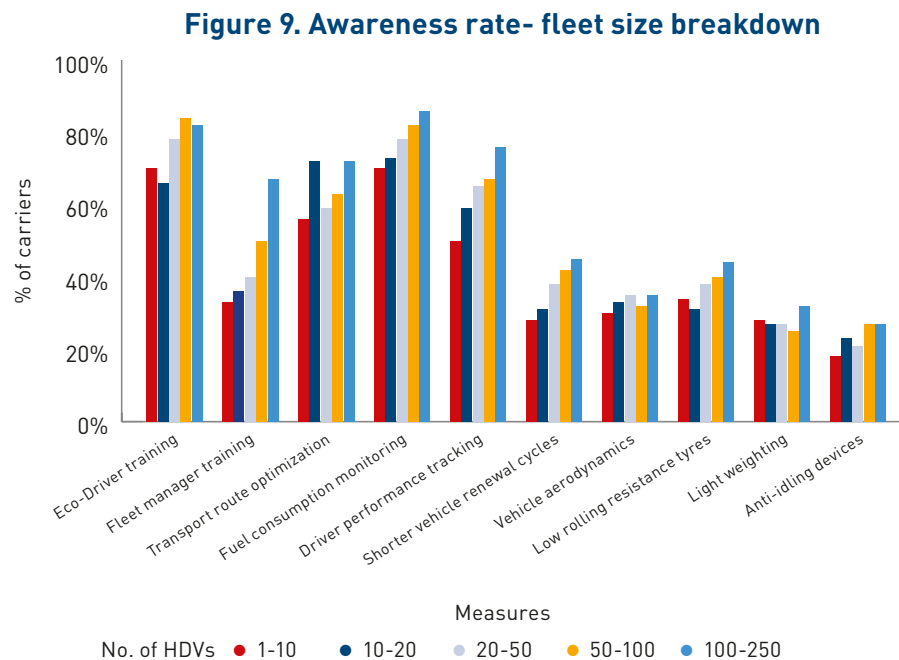
- **The awareness and implementation rates for all the operational measures are significantly higher than those for technical measures (Table 1).**
- **Fuel consumption monitoring and eco-driver training are the top two measures, while light-weighting and use of anti-idling devices are the least known about and implemented (Table 1).**

As confirmed by the subsequent interviews, operational measures are favored because they can be more quickly and easily implemented and offer wider benefits in driver productivity and transparency.

¹ Using a Spearman Rank test the correlation coefficient is 0.99.

² The study asked if the measures are known to the carrier. Some carriers might be aware of specific measures but do not feel that they possess sufficient knowledge about them; so the actual rate of awareness might be higher than indicated by the survey results.

Bigger fleets have greater awareness of decarbonization and take 10-30% more carbon-reducing actions



- **The rates of awareness and implementation are partly a function of the fleet size, particularly in the case of operational initiatives (Figure 9 & 10).**
- **Size of fleet is much less of a differentiator in the case of technical measures (Figure 9 & 10).**

The relatively low adoption rates for technical measures across the small carrier community suggests that there is a large untapped potential to cut fuel consumption and drive down GHG emissions. The potential of these measures to simultaneously cut emissions and costs has been proven in various studies. The fact that some of them have a relatively low uptake among small carriers suggests that there may be a knowledge gap.

Figure 11. Knowledge of available fuel efficiency measures

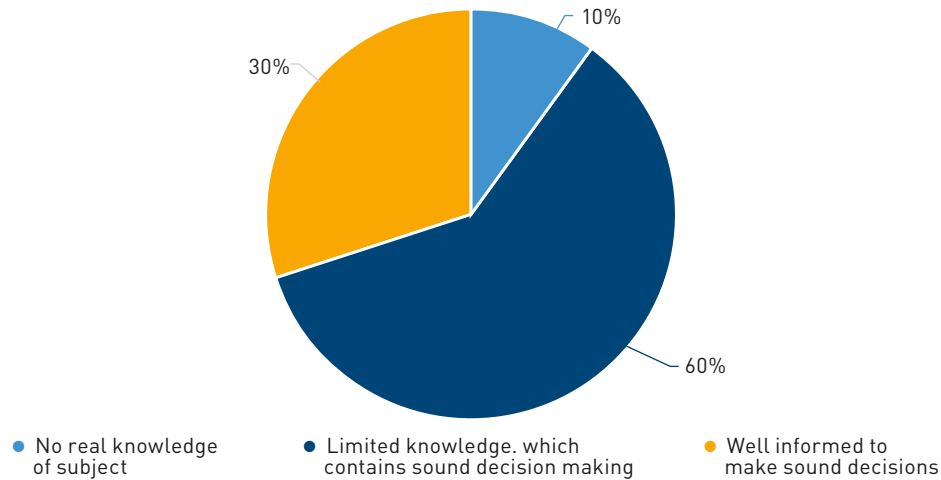
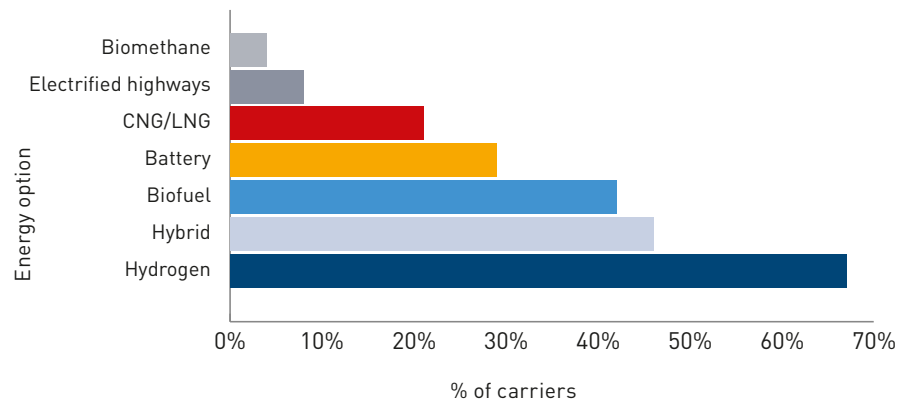


Figure 12. Energy options most fitting for the future operations of the carrier (multiple selection)



Limited knowledge and uncertainty are clear barriers

The Road Carrier Survey asked carriers how well informed they felt about available fuel economy measures in general (Figure 11).

- **10% of carriers declared that they had no knowledge, while a further 60% felt that their knowledge was limited.**
- **Only 30% indicated that they were well enough informed to make sound decisions on fuel efficiency measures.**

The results reinforce the case for advisory schemes aimed at smaller carriers and providing them with clear guidance on the commercial and environmental benefits of these measures.

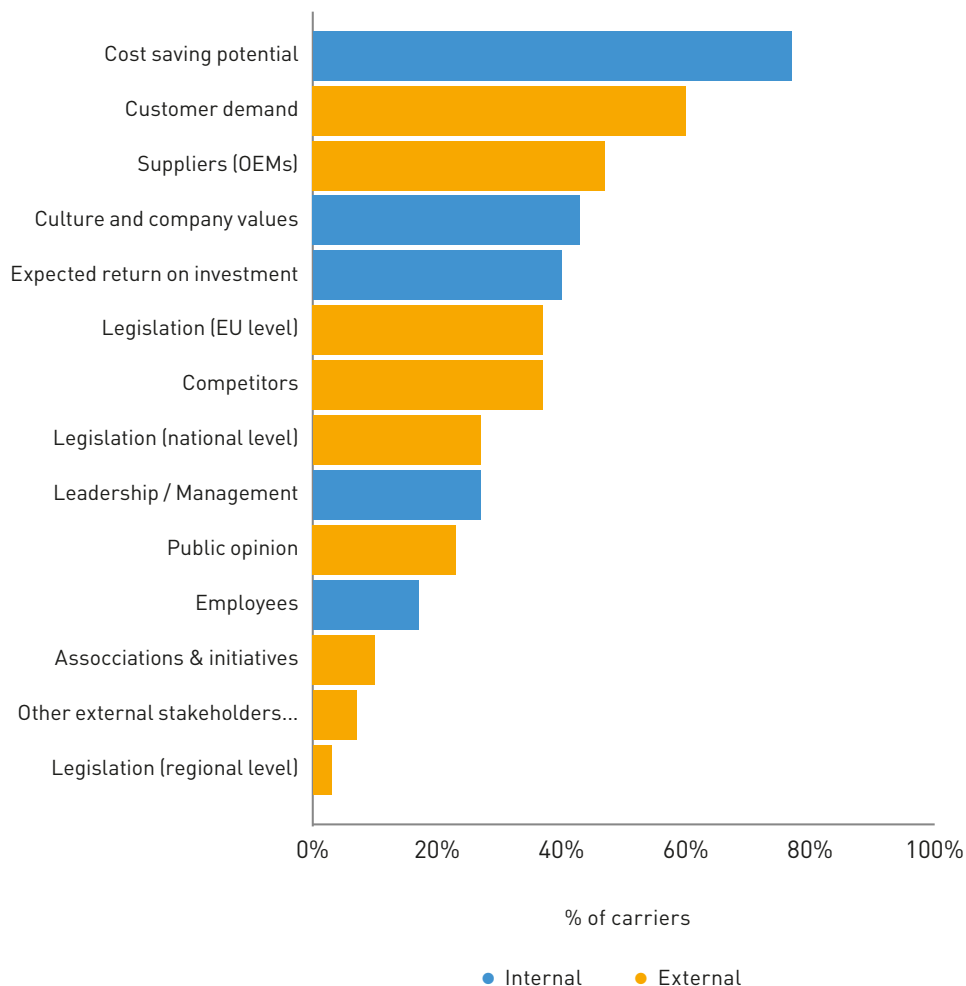
Advice will also be required on the choice of future low-carbon powertrains for trucks. Currently there is much debate in Europe over the relative contribution that different energy solutions might make.

- **Two-thirds of the respondents identified hydrogen as one of the most 'fitting fuels for their future operations' (Figure 12).**
- **Hybrids and biofuel are the second and third most popular powertrain options (Figure 12).**

The interviews indicated that there is currently much uncertainty among carriers about the availability, distance range and infrastructural requirements of the various powertrain technologies. They are unsure which technology will prevail in the long run and do not want to back the 'wrong horse'.

4. Factors influencing carrier decarbonization efforts

Figure 13. Driving internal & external factors for decarbonization investments



Cost pressures and customer demand are the biggest drivers for climate action

Small carriers' efforts to reduce fuel consumption and GHG emissions are subject to a broad range of internal and external influences. Those participating in the Road Carrier Survey were asked to identify the five most important factors affecting decisions relating to the business as a whole and more specifically to decarbonization investments, chosen from a list of fourteen options.

- **The cost-saving potential was the highest-ranked factor by a significant margin, reflecting competitive conditions and slim profit margins in the European trucking industry. Expected return on investment was also highly ranked.**
- **Customer demand was the second most highly rated factor, and highest-ranked among external factors, well ahead of legislation at either EU or national levels and public opinion.**
- **Truck manufacturers (OEMs) which manufacture the vehicles, were considered the third most important driver of decarbonization in the road freight sector.**
- **Of factors internal to the carriers, company culture and values were highly rated.**

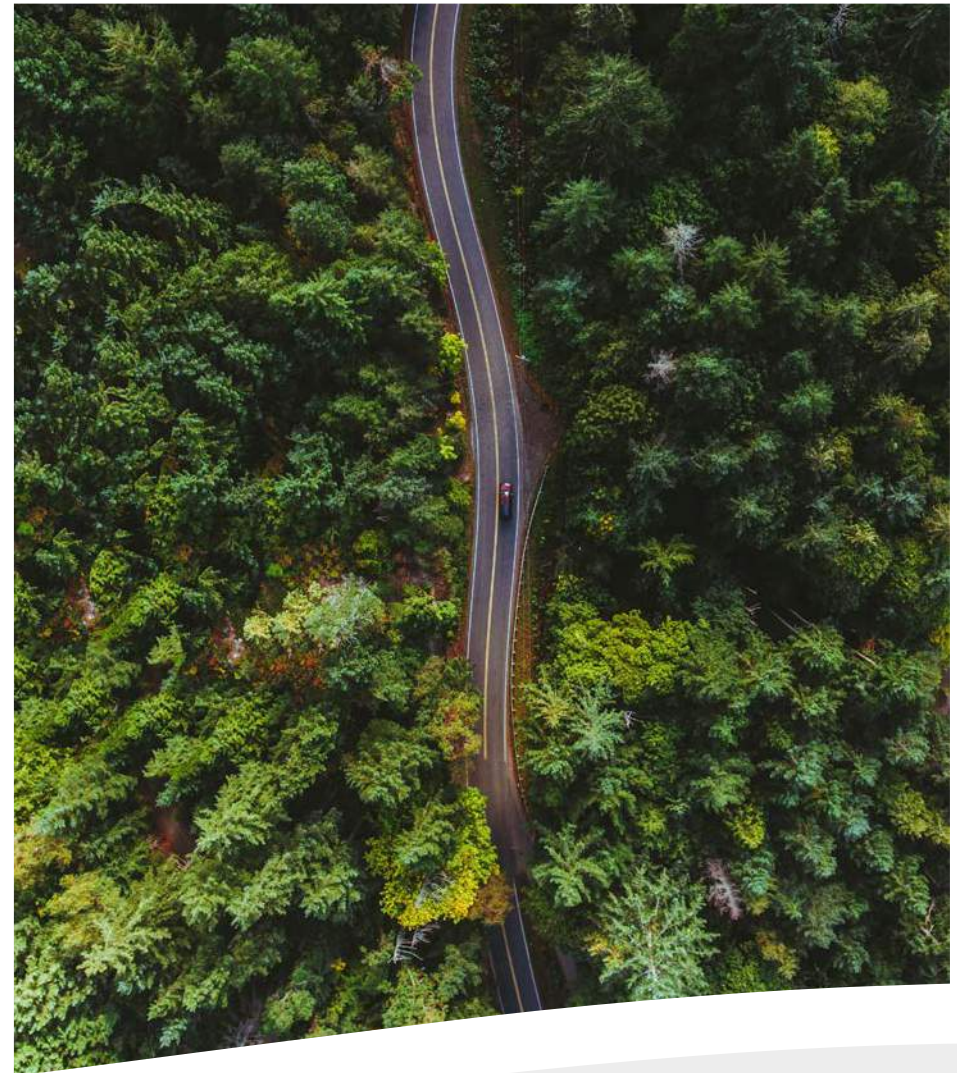
The focus on financial benefits shows how improved fuel efficiency is motivated primarily by the desire to save money.

The high ranking of external pressure from freight buyers also reveals how much pressure clients can exert on the carbon intensity of a small carrier's operations. Some of this pressure probably relates explicitly to environmental performance, but it may also have an indirect influence via competitive pressure to achieve higher fuel efficiency.

New vehicle technology and its promotion by the OEMs also strongly influences carriers' investment decisions. As carriers steadily renew their truck fleets their average fuel efficiency will rise as a result of EU fuel-economy standards. These standards requires trucks produced from 2025 on to be at least 15% more fuel efficient than the average new truck in 2019, and 30% more by 2030.

This illustrates a point emphasised by interviewees: that the EU and national governments have a crucial role to play in the decarbonization of European road freight operations. Most of them saw the government as an enabler for systematic change, introducing measures and guidelines for stakeholders across the industry.

Building on these observations, the next section outlines a series of recommendations for the main stakeholders and gives some brief examples of exemplary efforts by some organisations.



5. Actions for stakeholders

During the interviews, we asked carriers what incentives and changes to legal and business conditions would be required to increase engagement with the decarbonization process. These were paired with the insights of industry experts from LSPs, industry associations, green freight programs and NGOs. Recommendations, based on this research, outline promising ways forward.

Government can provide support

This support can take various forms. It can be aimed at different stakeholder groups and provided by both the European Commission and national governments:

- **Promote adoption of mandatory European-wide standards** on emission reporting as well as carbon reducing initiatives like driver-training or the use of low-rolling resistance tires. This will encourage wider uptake and help to create an environmental level playing field.
- **Provide advice** to road freight operators on critical decarbonization issues, such as the strengths, weaknesses and cost effectiveness of differing low-carbon powertrain technologies and future plans for adapting infrastructure to the needs of decarbonized truck fleets.
- **Maintain pressure on OEMs** to reduce the emission intensity of their vehicles by tightening the EU-wide GHG emission standard for heavy-duty vehicles introduced in 2019.
- **Offer financial support** to further incentivize the SME carrier base. Carriers consulted suggested a mix of subsidies, to support the upfront investment into fleet improvements and renewals, and other fiscal measures such as reduced taxes and road tolls for lower carbon vehicles.



In December 2020 the European Commission published its [Sustainable and Smart Mobility Strategy](#). This strategy recognizes the necessity for easier access to finance for SMEs, to help fund fleet renewals and innovative, green investments. The European Commission is calling on national governments to offer one-stop-shop solutions to carriers for financial support. The strategy also aims to improve the quality and level of information about zero-emission vehicles and includes measures intended to increase demand for these vehicles such as carbon pricing and road charging. The establishment of a European emissions calculation framework is also proposed. However, it is worth noting that the majority of the strategy is focused on passenger transport and most of the references to freight relate to modal shift. As small road carriers account for a much larger share of European freight movement and related GHG emissions than all the alternative modes combined, it is crucial that the new EU mobility strategy fully supports their decarbonization.

Freight buyers can integrate decarbonization into procurement and collaboration

Customer demand is a clear driver of carriers' business decisions. Most of the interviewees agreed that decarbonization will become an increasingly large factor in their customer relationships in the future. However, price is still the main decision variable at the moment. And the majority of freight buyers still prioritise lower freight rates over sustainability. As a result, the vast majority of them do not request any GHG emission data from their carriers³.

Given the power that buyers of freight have within the road haulage market, the current lack of customer pressure partly explains the lack of engagement from the carrier base and wide perception that cutting emissions yields little commercial benefit.

- **Lengthen freight contracts** and tie them to investments by the carrier in fuel efficiency measures. This helps to remove business risks and reduce the uncertainties associated with fuel/GHG-reducing investments.
- **Set minimum requirements for decarbonization and emission reporting in freight tenders.** These can range from vehicle emission standards to good environmental practice. This creates market pressure, showing carriers that the topic indeed matters and that emissions-reduction efforts are being rewarded. To support buyers, SFC recently developed Smart Freight Procurement Guidelines and a standardized Questionnaire, that can be found [here](#).

76%³

Share of carriers with 0% - 10% of their customers asking for transport related GHG emissions

- **Provide financial support.** Assist carriers with upfront investments via co-investment schemes or green freight surcharges or other financial support mechanisms and models. Support may also come from collaborative efforts involving several freight buyers.



The climate-friendly shipping program Skicka Grönt (Swedish for "Send Green") was initiated by DHL Freight in Sweden. Customers using the program pay a fixed surcharge for every parcel or pallet shipped and the income generated from these surcharges is fully invested in clean technologies within the Swedish transport network.

The concept is simple. DHL signs agreements with carriers in their domestic network in Sweden who want to invest in more expensive clean technologies and helps them to pay for these extra expenses from the Skicka Grönt fund.

³ Transportation survey

OEMs and suppliers can improve their engagement with SME carriers

The significant influence that OEMs have on the carrier base cannot be discounted. The carriers we interviewed, however, felt that truck manufacturers could work more closely with small carriers to help them cut emissions. The carriers often feel ill-informed about available technical measures, the benefits they offer and financing options.

OEMs have a great opportunity to utilize their contacts with the carriers by

- **Adjusting their sales practices**, especially towards carriers with smaller fleets. Possible technical emission-reduction measures and different truck specification options need to be presented and promoted to these carriers.
- **Issuing clear guidance on future vehicle and low-emission fuel technologies.** Carriers need to be given reliable and unbiased information on their availability, scope of application, financing and end-of-life residual values of the different options.



The European Automobile Manufacturers Association recently published its policy paper titled “[Road freight transport on the way to carbon neutrality](#)”. The paper includes a clear commitment to bringing zero-emission vehicles to the market and is accompanied by [the pledge](#) that by 2040 all new commercial vehicles will be fossil-free. It will be crucial

for the manufacturers to engage and educate the carriers early on to help them manage the transition to renewable-energy truck fleets.



Carriers can take the first initial steps, be proactive, and share information

In addition to the actions of external stakeholders, the carriers themselves also need to act.

- Carriers need to tackle this topic in a more **proactive** manner as far as their resources allow. Despite the current lack of outside business pressure, there are good reasons for carriers themselves to take the lead in cutting fuel use and GHG emissions.
- The research has shown that parts of the market have already invested in decarbonization efforts and thus accumulated valuable knowledge and experience. A better **exchange of information** and real-world experiences among the carriers, especially those with small fleets, can help to build interest and trust in the decarbonization process.



The German mid-sized carrier **Bartkowiak** has proactively reduced the fuel consumption intensity of its 85 HDVs over the last decade, utilizing a wide range of operational and especially technical measures like light-weighting, aerodynamic wing and tail

features and driver incentives. Their success is showing significant fuel- efficiency gains (5-10% each) resulting in lower GHG emissions and substantial costs benefits. Bartkowiak is promoting their journey and achievements online, in conferences as well as through their own book, advocating for the topic among their peers.

Industry associations, green freight programs, NGOs and research institutes can focus more on the needs of SME carriers

Associations and green-freight initiatives can, and should, help in supplying:

- **Knowledge-sharing platforms**
- **Practical advice**
- **Advocacy**



SFC offers **Smart Transport Manager Training** to SME road carriers around the world to spread awareness and

knowledge about the described operational and technical measures. STMT equips transport managers with the tools and skills needed to reduce fuel consumption and cut costs within their own transport operation. For more information, see [here](#).

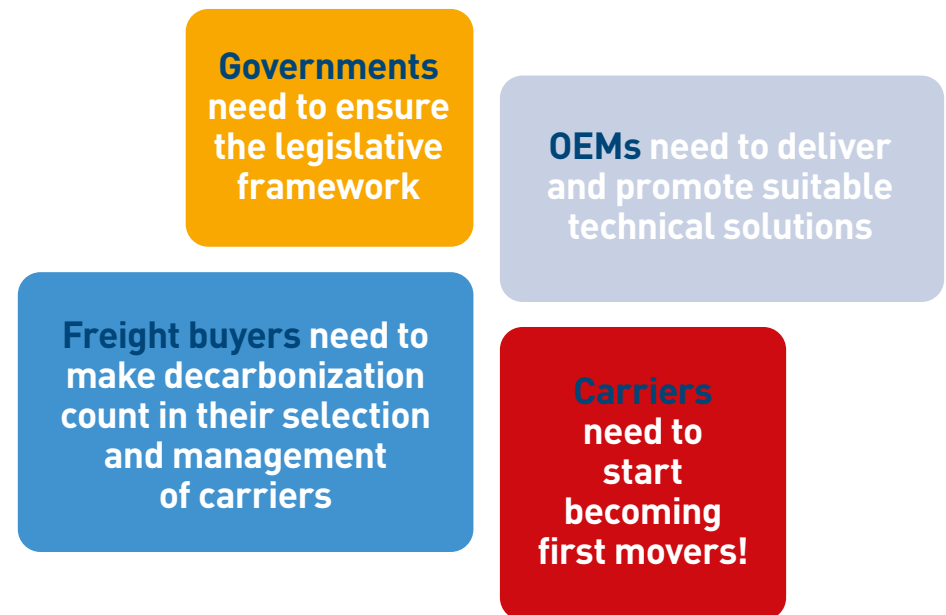
SFC is also currently developing a **LEFV (Low-Emission-Fuels & Vehicles) Matrix**. The LEFV Matrix is a decision-making support tool that assists companies in selecting the appropriate LEFV solutions and prioritizing in which countries they should be implemented. The tool will incorporate information from the political, economic, social, technical and environmental dimensions, enabling shippers, logistics suppliers and other partners to collaborate on implementing LEFV solutions today. For more information, see [here](#).

5. Conclusions

This report has highlighted the critical role that SME road carriers will play in the transformation of the European road freight market towards a zero-emission future. It has presented important new insights gathered directly from the carriers to improve our understanding of the difficulties they face in trying to cut their emissions.

- The current decarbonization ambitions of shippers and LSPs are dependent on the attitudes and capabilities of the hundreds of thousands of small carriers that populate the European trucking industry.
- Across Europe, many small carriers seem to be aware of the urgency and importance of the topic, but their overall engagement with decarbonization initiatives is limited for a variety of reasons.
- Many of them lack information about the range of technical and operational measures that can cut fuel consumption and emissions.
- Uptake of these measures is inhibited by uncertainty about their financial impact and a perception that freight buyers have little interest in environmental performance.
- There is a close correlation between the size of a company's fleet and the extent to which it sees environmental improvements yielding commercial benefits.
- Financial savings and pressure from customers are the main factors influencing the uptake of emission reduction efforts
- Stronger external pressure from governments, in the form of carrots and sticks, will also be needed to get the decarbonization of the SME trucking sector onto the right track.

For a successful shift towards decarbonized trucking to happen, it will be crucial for all players in this sector to be sincere about their commitment, to collaborate, and to reform old business practices and attitudes.



Smart Freight Centre, Kühne Logistics University and Transporeon seek to support the decarbonization of this segment of the European trucking market through advocacy, research, digital solutions, and climate action.

References

1. Aarnink, S. & Faber, J. & den Boer, E. Market barriers to increased efficiency in the European on-road freight sector. Delft. (2012). https://theicct.org/sites/default/files/publications/CE_Delft_4780_Market_Barriers_Increased_Efficiency_European_Onroad_Freight_Sector_def-2.pdf
2. Department for Transport. Freight Carbon Review 2017. (2017). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/590922/freight-carbon-review-2017.pdf
3. Deutsche Post DHL Group. Skicka Grönt. (2020). <https://www.dhl.com/se-en/home/our-divisions/freight/sustainability/skicka-gront.html>
4. European Automobile Manufacturers Association. ACEA Policy Paper Road freight transport on the way to carbon neutrality. (2020). Retrieved from <https://www.acea.be/publications/article/policy-paper-road-freight-transport-on-the-way-to-carbon-neutrality>
5. European Automobile Manufacturers Association & Potsdam Institute for Climate Research. Joint statement: The transition to zero-emission road freight transport. (2020). Retrieved from <https://www.acea.be/publications/article/acea-pik-joint-statement-the-transition-to-zero-emission-road-freight-trans>
6. European Commission. EU Reference Scenario 2016. 2016. https://ec.europa.eu/energy/sites/ener/files/documents/20160713%20draft_publication_REF2016_v13.pdf
7. European Commission. Sustainable and Smart Mobility Strategy. (2020). Retrieved from <https://ec.europa.eu/transport/sites/transport/files/legislation/com20200789.pdf>
8. European Energy Agency. Carbon dioxide emissions from Europe's heavy-duty vehicles. (2020). Retrieved from <https://www.eea.europa.eu/themes/transport/heavy-duty-vehicles/carbon-dioxide-emissions-europe>
9. McKinnon, A. Decarbonizing logistics. Kogan Page. London. (2018). ISBN: 978-0749483807 <https://www.koganpage.com/product/decarbonising-logistics-9780749483807>
10. Science Based Targets. Companies Taking Action. (2020). <https://sciencebasedtargets.org/companies-taking-action>
11. Transport & Mobility Leuven, and IRU. Commercial Vehicle of the Future. (2017). <https://www.iru.org/sites/default/files/2017-07/iru-report-commercial-vehicle-of-the-future-en%20V2.pdf>
12. Smart Freight Centre. Barriers for Carriers to adopt fuel-saving technologies and measures Mapping barriers relevant to road freight carriers. (2016). <https://www.smartfreightcentre.org/pdf/Barriers-for-Carriers-SFC-Final-Dec2016.pdf>
13. Smart Freight Centre. Global Logistics Emissions Council Framework for Logistics Emissions Accounting and Reporting. (2019). <https://www.smartfreightcentre.org/en/how-to-implement-items/what-is-glec-framework/58/>

Appendix

A. List of origin countries of carriers from Transporeon's European Transportation Survey 2020.

Code	Country	Code	Country
AT	Austria	IE	Ireland
BE	Belgium	IT	Italy
BG	Bulgaria	LT	Lithuania
BY	Belarus	LU	Luxembourg
CH	Switzerland	LV	Latvia
CZ	Czech Republic	MK	Mazedonia
DE	Germany	NL	Netherlands
DK	Denmark	NO	Norway
EE	Estland	PL	Poland
ES	Spain	PT	Portugal
FI	Finland	RO	Romania
FR	France	RS	Serbia
GB	Great Britain	SE	Sweden
GR	Greece	SI	Slowenia
HR	Croatia	SK	Slovakia
HU	Hungary	UA	Ukraine

CSLS

Center for Sustainable
Logistics & Supply Chains

Join our journey towards efficient and zero-emissions global freight and logistics

Contact

Smart Freight Centre
Keizersgracht 560, 1017 EM
Amsterdam, Netherlands

P.O. Box 11772, 1001 GT
Amsterdam, Netherlands

Tel office: +31 6 4695 4405
www.smartfreightcentre.org
info@smartfreightcentre.org