



INTRODUCTION OF A STANDARDISED CARBON FOOTPRINT METHODOLOGY

Summary report from the online stakeholders' consultation

I. INTRODUCTION

The present report summarizes the stakeholders' views, expressed in the public open consultation which was conducted by the European Commission, DG MOVE, between 21 March and 13 June 2014.

The consultation was aimed to map the opinions of stakeholders regarding the harmonisation of carbon footprinting at transport service level; and in particular to:

- obtain information on the state of the art;
- rate the level of importance of the challenges that have to be tackled;
- rate the objectives to be pursued;
- assess possible policy measures.

II. METHODOLOGY

The consultation was carried out using a web-based questionnaire that was available via the Commission's standard Interactive Policy-Making tool.

It combined 53 closed as well as open questions, for which the respondents could further elaborate their opinions. The consultation was advertised on the dedicated Commission's website. The hyperlink to the consultation website was further disseminated through existing stakeholder mailing lists, and through a number of events to which Commission's representatives participated.

The questionnaire was structured as follows:

1. Respondent's profile
2. Current status of carbon footprinting
3. Problem definition
4. Objective
5. Policy measures

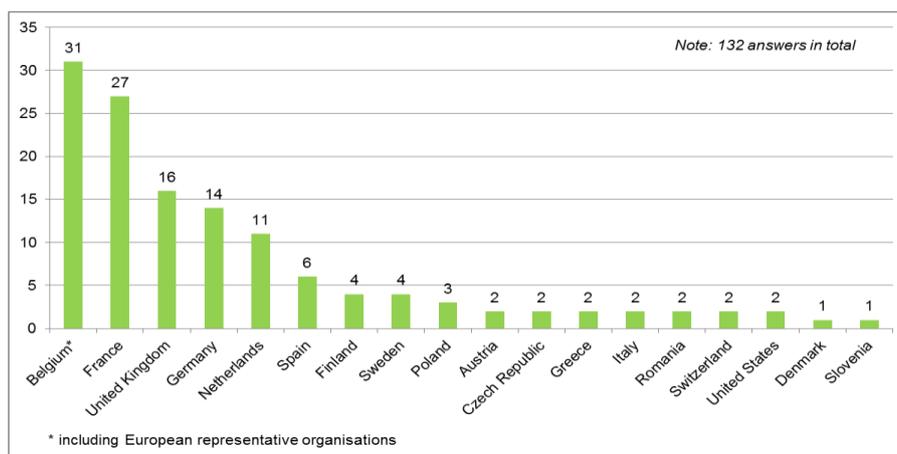
III. RESPONDENTS' PROFILE

In total, 161 responses were submitted. They were corrected for empty responses and multiple/updated answers by the same person. Consequently, 132 stakeholder replies were taken into consideration for further processing. These results were updated with additional information obtained in the form of general comments (3) and official position papers (11).

Geographical coverage

The responses originate from eighteen different countries, mostly members of the European Union. Four non-EU respondents come from Switzerland and the USA.

Figure 1 Geographical coverage of the stakeholder consultation



The countries best represented in the stakeholder consultation are Belgium (23%), France (20%), United Kingdom (12%), Germany (11%), and the Netherlands (8%). In the case of Belgium, it is relevant to point out that thirteen respondents represent organizations with a European (international) representative function (e.g. associations).

Organizational profiles

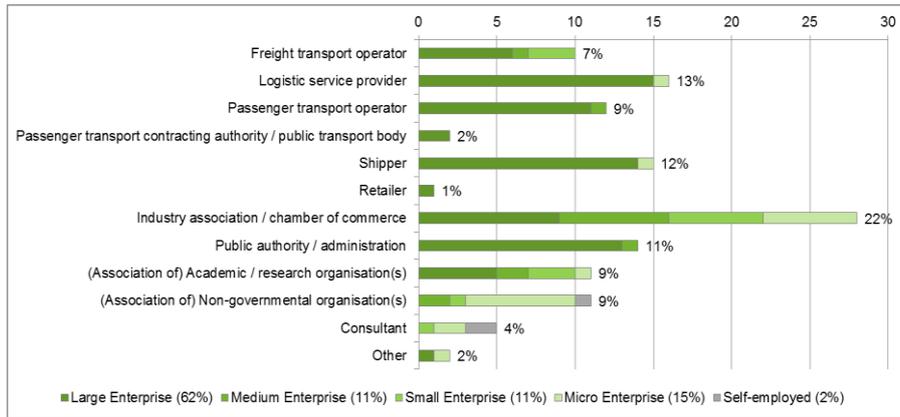
80% of the respondents answered on behalf of an organization or institution; the remaining 20% declared themselves as individuals.

Figure gives an overview on the type and size¹ of the respondents' organizations. All the relevant types of stakeholders are covered with the consultation: 30% of the respondents are operators or providers of transport services, 13% shippers and retailers, 22% industry associations and chambers of commerce, 11% public authority and administration, 13% organizations within research, development and consultancy, and finally 9% NGOs.

Furthermore, most respondents represent large enterprises (62%).

¹ In this questionnaire, the size of a company was referred to the number of staff, i.e. micro enterprise (<10 workers), small enterprise (10-50 workers), medium enterprise (50-250 workers), large enterprise (>250 workers). See EU Recommendation 2003/361.

Figure 2 Type and size of the respondents' organisation



Role within the logistics sector

The transport segments covered by the questionnaire range from urban transport through national and international intra-EU, to international extra-EU/intercontinental transport. All transport segments are represented by a comparable number of stakeholders, as shown in Figure 3.

Figure 3 Transport segment(s) covered

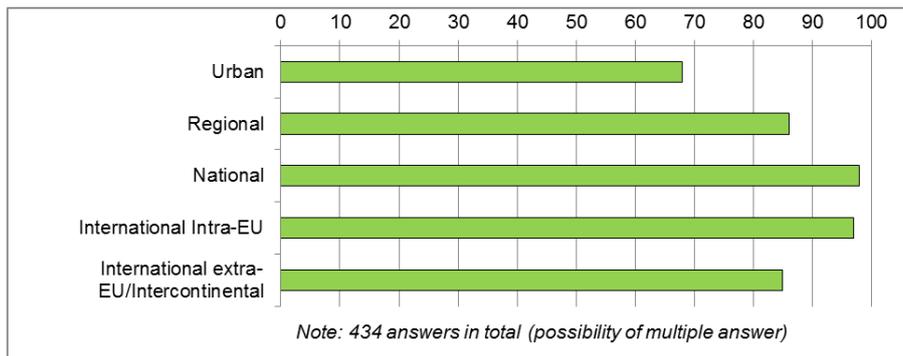


Figure 4 demonstrates that all transport modes took part in the online consultation, and Figure 5 presents the allocation of respondents according to the sector represented (45% freight sector only, 12% passenger sector only, and 43% for both freight and passenger). These proportions should be kept in mind when interpreting results for individual sectors (see e.g. Tables 1, 2 and 3).

Figure 4 Mode(s) of transport covered

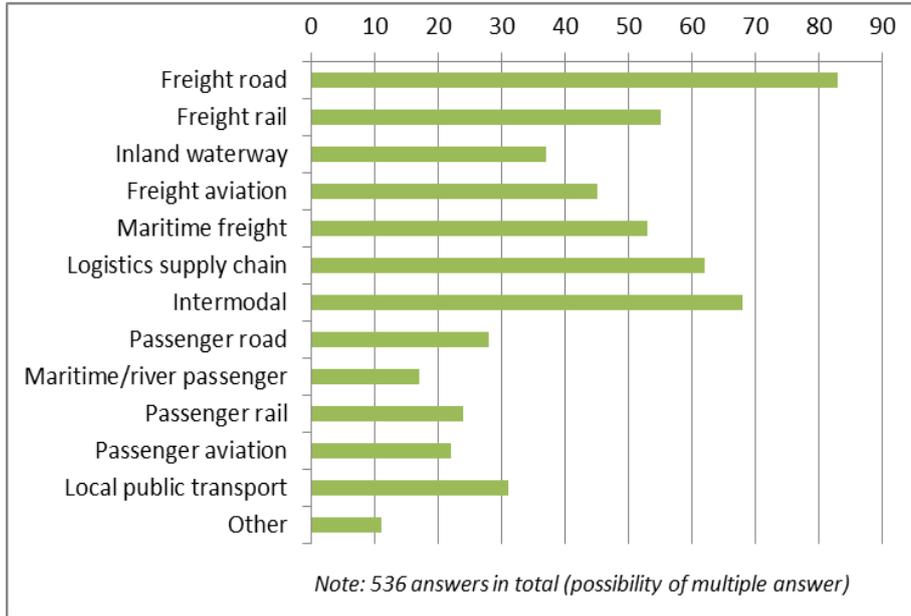
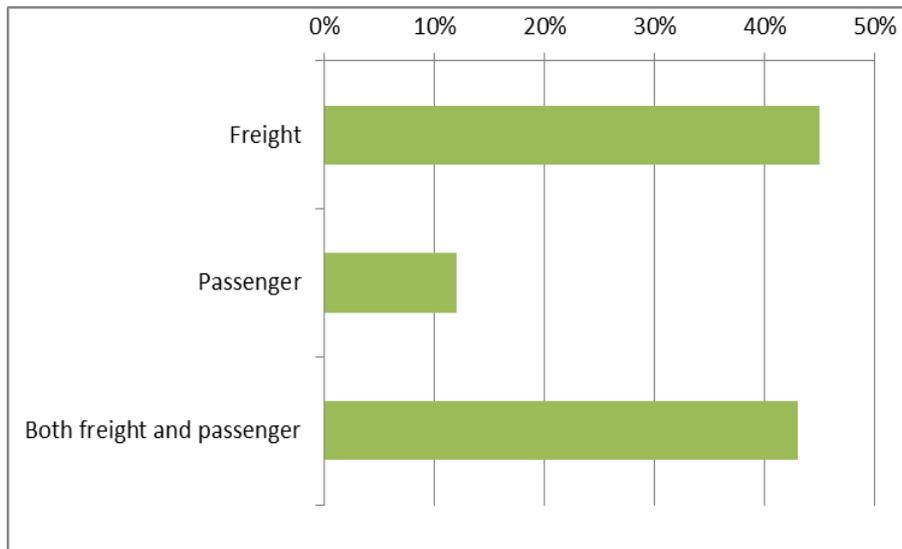


Figure 5 Allocation of respondents according to the sector represented



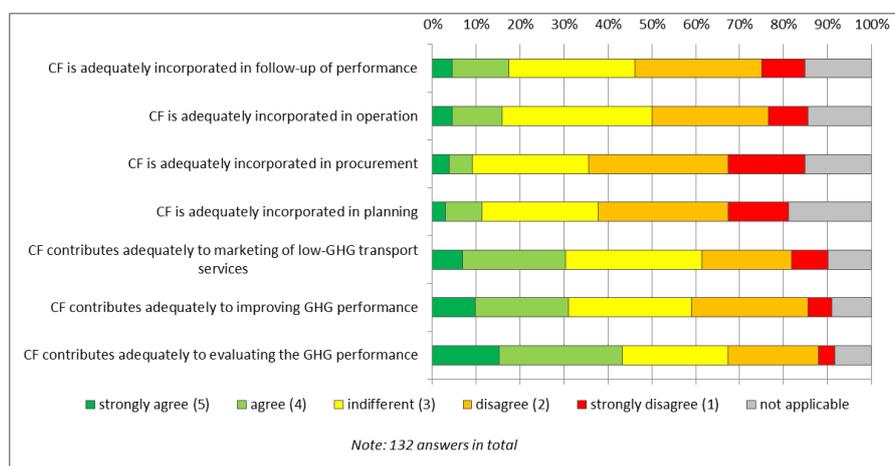
IV. CURRENT STATUS OF CARBON FOOTPRINTING AT THE SERVICE LEVEL

This sub-section provides information on the stakeholders' opinions on the current status of carbon footprinting of individual transport services as a tool used to stimulate sustainable transport solutions.

Application and added value of carbon footprinting in the market

In the first place, the respondents provided their opinion on seven statements related to the current application and added value of carbon footprint calculation. Aggregated results are shown in Figure 6 below.

Figure 6 Current application and added value of carbon footprinting



Almost half of the respondents, 44%, agree with the statement that carbon footprinting contributes adequately to evaluate GHG performance, while 24% are indifferent, 24% do not agree and 8% consider it not applicable.

However, they vary more in their opinion about whether carbon footprinting has currently a positive impact on improving GHG performance (agree: 31%, indifferent: 28%, disagree: 32%, not applicable: 10%) or on the marketing of green transport services (agree: 30%, indifferent: 31%, disagree: 29%, not applicable: 10%).

At this point, it should be noted, that the stakeholders see a large future potential of carbon footprinting with respect to improving efficiency of transportation and reducing GHG emissions. This is depicted in Figures 16, 23 and 24.

As regards the current use of carbon footprinting in relevant business processes (planning, procurement, operation, follow-up of performance), a significant proportion of respondents state that it is not adequately incorporated:

- in procurement (48%),
- in planning (42%),
- in operation (34%)
- in follow-up of performance (37%).

The overall results presented by Figure 6, may be further detailed and allocated respectively to passenger and freight transport, as shown in Table 1.

Table 1 Current application and added value of CF with respect to logistics sector²

Statement	Freight transport		Passenger transport	
	Agree	Disagree	Agree	Disagree
CF contributes adequately to evaluating the GHG performance	41%	24%	38%	24%
CF contributes adequately to improving GHG performance	30%	31%	26%	36%
CF contributes adequately to marketing of low-GHG transport services	30%	27%	24%	31%
CF is adequately incorporated in planning	11%	39%	15%	43%
CF is adequately incorporated in procurement	10%	47%	11%	49%
CF is adequately incorporated in operation	16%	31%	18%	42%
CF is adequately incorporated in follow-up of performance	18%	37%	17%	36%

The views expressed by stakeholders representing freight and passenger sectors are generally aligned. The only noteworthy difference concerns the issue of the incorporation of carbon footprinting in regular business operations (it is considered inadequate by 42% respondents from the passenger transport sector, whereas this opinion is shared by only 31% of their freight transport counterparts).

Table 2 zooms specifically in the freight sector, distinguishing here two main types of stakeholders: (1) freight transport operators (FTO)/logistics service providers (LSP) and (2) shippers. It is worth noting that in general there are no significant divergences between these two groups, perhaps apart from their perception of added value of carbon footprinting on marketing activities (as much as 60% of shippers and only 24% of FTO/LSP agree with the statement)³.

² Participating stakeholders: freight sector #115, passenger sector #72.

³ This may be probably explained by the fact that the shippers tend to use carbon footprinting as an argument for consumers to buy their products.

Table 2 Current application and added value of CF with respect to stakeholders' role⁴

Statement	FTO/LSP		Shippers	
	Agree	Disagree	Agree	Disagree
CF contributes adequately to evaluating the GHG performance	56%	16%	53%	20%
CF contributes adequately to improving GHG performance	32%	28%	40%	13%
CF contributes adequately to marketing of low-GHG transport services	24%	28%	60%	20%
CF is adequately incorporated in planning	4%	44%	13%	53%
CF is adequately incorporated in procurement	8%	52%	13%	53%
CF is adequately incorporated in operation	12%	20%	7%	40%
CF is adequately incorporated in follow-up of performance	20%	36%	13%	33%

Additional stakeholder comments and explanations made under this section highlighted that:

- *A variety of different approaches for calculating carbon footprint of transport services currently exist in the market. Consequently, it results in significant divergences between the outcomes of these calculations. An alignment for the whole logistics sector is therefore required, preferably on the global level.*
- *Carbon footprinting as a measure for GHG reduction has been implemented on the market following different methods and needs. Also, the knowledge of the topic and awareness of possible benefits from carbon footprinting vary significantly between the stakeholders. This adds to the complexity of the current situation.*

Carbon footprinting in the respondents' organisations

55% of respondents assess the overall carbon footprint of their transport activities at a company level (see Figure 7, first question). 30% do not calculate a carbon footprint, but 7% are planning to do so in future (mid-term). Finally, 8% of the consulted stakeholders are not aware of any information related to the carbon footprint from their transport activities. This overall picture is roughly comparable for both freight and passenger transport.

Regarding freight transport, we illustrate two issues:

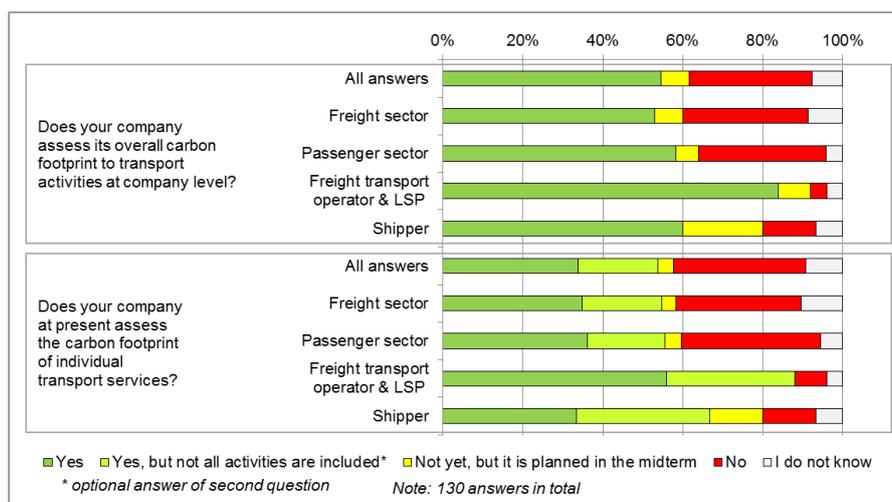
- firstly, the share of shippers planning to calculate their carbon footprint at a company level in the mid-term (20%) is higher than the average (7% of all answers for the freight sector);

⁴ Participating stakeholders: FTO/LSP #25, shippers #15.

- secondly, carbon footprinting at a company level is more commonly used by freight transport operators and logistics service providers: 84% of the responding FTOs and LSPs calculate their carbon footprint, and an additional 8% plan to do so in future.

Similar results have been obtained when looking at carbon footprinting at an individual transport service level (see Figure 7, second question). Over half of the respondents (55% in total, 60% from the freight transport⁵, 52% from the passenger transport⁶) state that they assess the carbon footprint from their transport services (however, a number of these footprints do not include all the relevant activities). It is to be noted that this share is significantly higher for FTOs and LSPs (88%).

Figure 7 Application of carbon footprinting in respondents' company



It needs to be mentioned that a certain number of the respondents face mandatory frameworks for calculating and/or reporting their GHG emissions or fuel consumption. They include:

- as regards GHG emissions – data required by the EU Emissions Trading System (EU ETS), the French ‘Grenelle de l’environnement’, decree no. 2011-1336 and law no. 2010-788 for the UK quoted companies;
- as regards fuel consumption – data required by A4A members (Air Carrier Financial Reports, US).

64 respondents have specified the method for calculating the carbon footprint of individual services:

- 23% of them use average default values (e.g. fixed grams GHG per pkm or tkm),
- 17% applies average vehicle emissions (e.g. per vkm),
- 30% measure real-world fuel consumption,
- 14% combine these methodologies,

⁵ Including the responses provided by the stakeholders representing both sectors

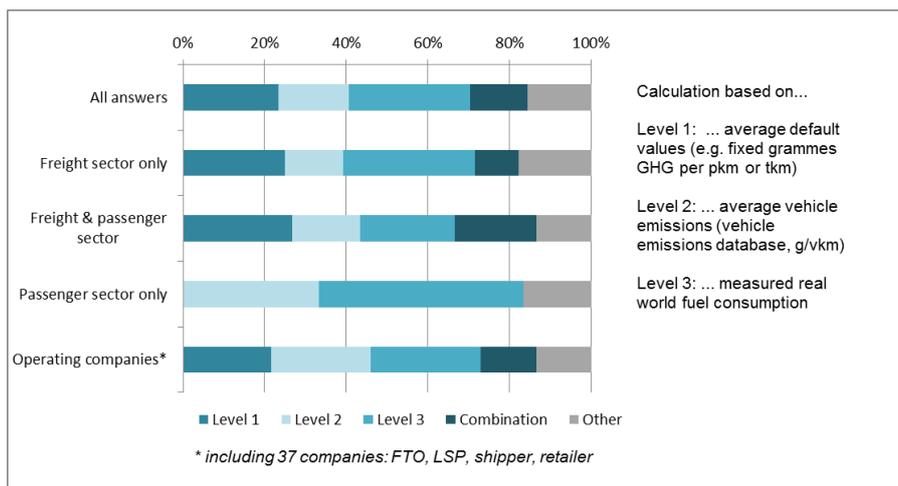
⁶ idem

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- 16% use other calculation options, e.g. covering approaches based on local/regional traffic models or marginal impacts of measures.

Figure 8 presents these results graphically, including a distinction between different stakeholder groups⁷. As can be seen, the methods used by the passenger sector differ significantly from those declared by other stakeholders. However, the results obtained for this sector are based on a rather low number (6) of answers⁸ and therefore should be interpreted carefully.

Figure 8 Level of calculation of carbon footprinting applied today



Several respondents highlighted that they use different levels of detail for their carbon footprint calculations (or combination of these), as it is very much related to the availability of data. This availability, in turn, very often depends on the scope of activities (own activities or sub-contracted processes) and on the actual data collection methods that are used.

65 respondents provided detailed information on the relevant methodologies, data, and tools actually used in their organizations. The most representative examples of these are depicted below:

- Methodologies: CEFIC⁹, CEN EN 16258¹⁰, Clean Cargo Working Group¹¹, Decree 1336¹², Greenhouse Gas Protocol¹³, ISO 14064¹⁴,; own approach;

⁷ Including freight and passenger transport operator, logistics service provider, shipper, and retailer.

⁸ By 1 industry association/chamber of commerce, 1 passenger transport contracting authority/public transport body, 2 passenger transport operators and 2 shippers.

⁹ <http://www.cefic.org/>

¹⁰ CEN, 2012. EN 16258:2012 Methodology for calculation and declaration of energy consumption and GHG emissions of transport services (freight and passengers), Brussels: European Committee for Standardization (CEN), <https://www.cen.eu>

¹¹ <http://www.bsr.org/en/our-insights/blog-view/clean-cargo-working-group-transparency-and-transformation-in-ocean-transport>

¹² <http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000024710173>

¹³ <http://www.ghgprotocol.org/>

¹⁴ http://www.iso.org/iso/catalogue_detail?csnumber=38381

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- *Data/Tools: Bilan Carbone¹⁵, DEFRA¹⁶, ecoTransIT¹⁷, HBEFA¹⁸, NTM¹⁹, UBA²⁰;*
- *Initiatives: GreenFreight Europe²¹/Smartway²², IATA²³, Logistics Carbon Reduction Scheme²⁴;*
- *Reporting schemes: Carbon Disclosure Project²⁵, GreenFreight Europe²⁶, GRI guideline²⁷, annual company's sustainability report.*

Evaluation of EN 16258 and other standards

The European standard CEN EN 16258 has been published end 2012. It sets out the methodology and requirements for calculating and reporting energy consumption and greenhouse gas (GHG) emissions in transport services (freight and passengers).

More than a half of the respondents (52%) indicate to be familiar with EN 16258. No significant differences can be seen between the stakeholder groups, as shown in Figure 9.

15 <http://www.associationbilancarbonate.fr/en>

16 <http://www.ukconversionfactorscarbonsmart.co.uk/>

17 <http://www.ecotransit.org/>

18 <http://www.hbefa.net/e/index.html>

19 <http://www.transportmeasures.org/en/about-ntm/strategy/>

20 <http://www.umweltbundesamt.de/en/the-uba>

21 <http://www.greenfreighteurope.eu/>

22 <http://www.epa.gov/smartway/>

23 <http://www.iata.org/whatwedo/environment/Pages/environmental-assessment.aspx>

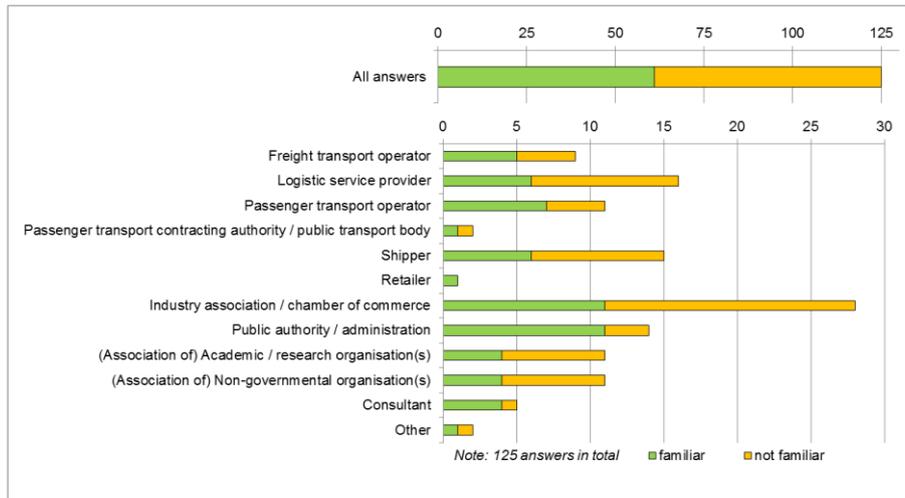
24 http://www.fta.co.uk/policy_and_compliance/environment/logistics_carbon_reduction_scheme.html

25 <https://www.cdp.net/en-US/Pages/HomePage.aspx>

26 <http://www.greenfreighteurope.eu/>

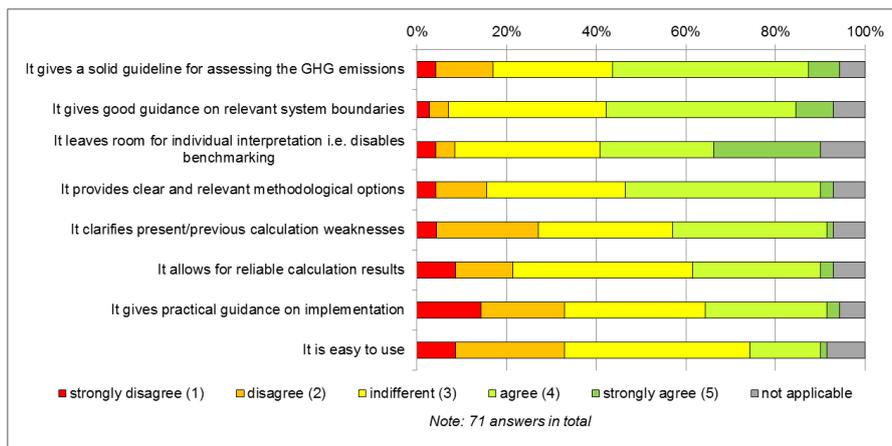
27 <https://www.globalreporting.org/reporting/g4/Pages/default.aspx>

Figure 9 Analysis of type of organisation and familiarity with EN 16258



The 71 organizations that are aware of this standard, have answered additional eight questions, assessing the EN 16258 in some more detail. The results of this assessment are presented in Figure 10.

Figure 10 Assessment of EN 16258



Approximately half of these respondents agree that EN 16258:

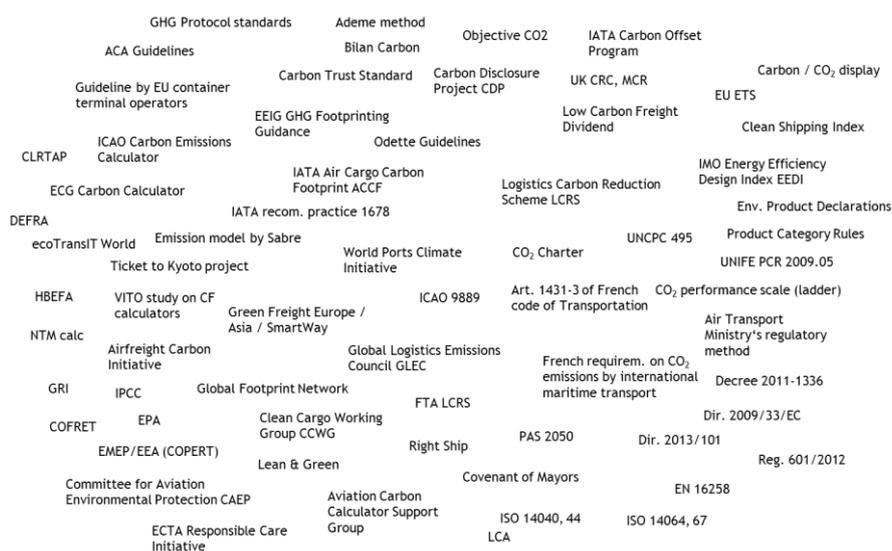
- gives solid guidelines for assessing the GHG emissions (51%);
- gives good guidance on relevant system boundaries/scope (51%);
- provides clear and relevant methodological options (46%).

However, 49% of the respondents replying to these additional questions state that the standard leaves room for individual interpretation, which disables benchmarking of calculated carbon footprints (only 8% disagree with this statement, and 32% are indifferent). In addition, 27% of the respondents consider that EN 16258 does not provide sufficient clarification of the unsolved issues associated with the calculation of carbon footprints (30% do not have an opinion on this) and only 31% of them confirm it allows for reliable calculation results. Furthermore, 33% evaluate the guidance on implementation by the EN 16258 to be impractical and only 17% agree it is an easy to use standard.

In their replies to the open question regarding EN 16258, many stakeholders indicate that it was a 'good start', but requires further development. Various difficulties still need to be solved; such as complexity, room for interpretation (e.g. concerning specific sectors and services), and options for data use. Stakeholders also point out, that in some aspects EN 16258 deviates from certain mandatory schemes²⁸. Besides that, the costs of purchasing the standard are considered as relatively high.

As regards other standards and initiatives, a large number of respondents (92 out of 130 providing their feedback to this question), irrespectively of their role (e.g. transport operator, administration, or academic), confirm their methodological knowledge and awareness of different approaches for assessing GHG emissions from logistic activities. These additional standards and initiatives mentioned by the stakeholders are illustrated in Figure 11.

Figure 11 Additional standards and initiatives mentioned by the stakeholders²⁹



V. PROBLEM DEFINITION

The following section focuses on the problems and their specific root causes concerning carbon footprinting on service level.

The initial analysis showed that the main problem is the lack of possibility to benchmark transport services on their GHG performance. This can be considered as an information failure, which makes it impossible for transport users to choose the most optimal transport mode, transport service or service supplier. It may result in sub-optimal choices by market players (customers, travel service providers, shippers and transport operators) and consequently in higher GHG emissions, fuel consumption and costs.

Two main drivers were also pre-identified for this problem:

- reported carbon footprints are not aligned;
- many companies/service providers do not report GHG emissions of transport services.

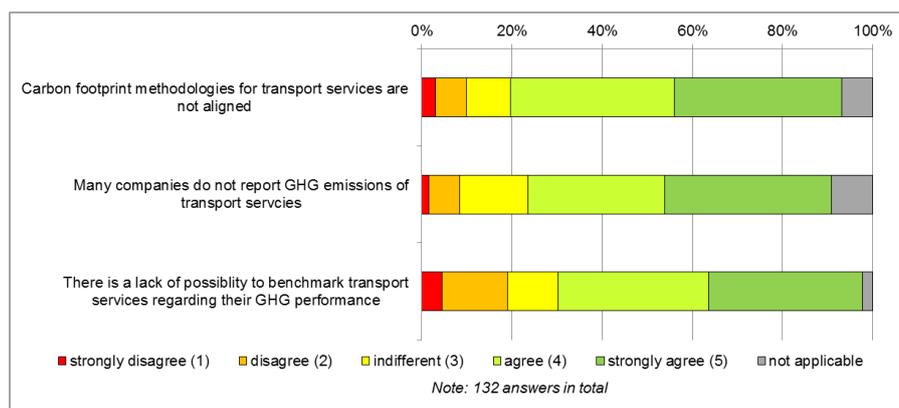
²⁸ such as French Decree no. 2011-1336

²⁹ Doubling of issues caused by different naming by the stakeholders cannot be ruled out.

These assumptions were broadly supported by the stakeholders (see Figure 12). 73% of them state that the methodologies are not aligned and 67% confirm, that many companies do not publish the carbon footprinting results. In addition, almost 70% of the respondents are of the opinion that currently it is impossible to benchmark transport services on their GHG performance. This situation applies to both passenger and freight transport.

Both issues are analysed in more detail in the remainder of this chapter.

Figure 12 Evaluation of underlying problems

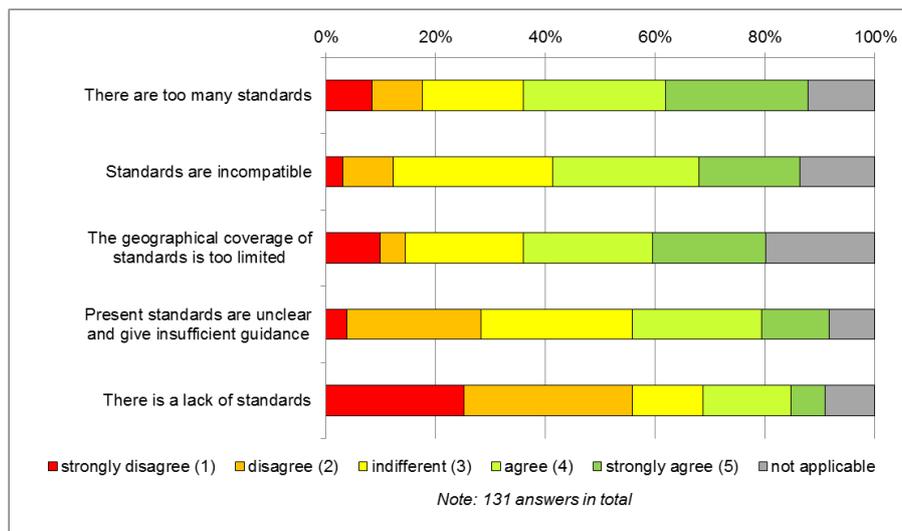


- At the point, it is also worth noting some pertinent open comments provided by the stakeholders to this part of the questionnaire: *Carbon footprinting of logistics services is a complex issue due to [the specificity of the] market, where a substantial share of transport/logistics operations is subcontracted. Therefore, in order for carbon footprinting to become an effective tool, a simple system needs to be developed, enabling participation of small- and medium-sized companies.*
- *Double counting of emissions from different markets (e.g. logistics, energy) needs to be avoided.*
- *An external audit might be an option for better comparability of tools and calculation results, although this may increase the administrative burden and costs.*
- *Currently, carbon footprinting is not an important criterion compared to the usual elements taken into consideration while contracting transport services, such as price and service level. The benefit of reporting carbon footprints may still be unclear to some market players, and to the demand-side in particular (e. g. clients, consumers).*

Problem driver: Reported carbon footprints are not aligned

The respondents were requested to evaluate underlying root causes and other relevant aspects related to this first problem driver. The results are summarized in Figures 13 and 14.

Figure 13 Evaluation of available standards



Around half of the respondents confirm that there are too many standards (52%), they are incompatible (45%), and their geographical coverage is limited (43%).

Figure 14 Evaluation of level of alignment of today's carbon footprints on service level

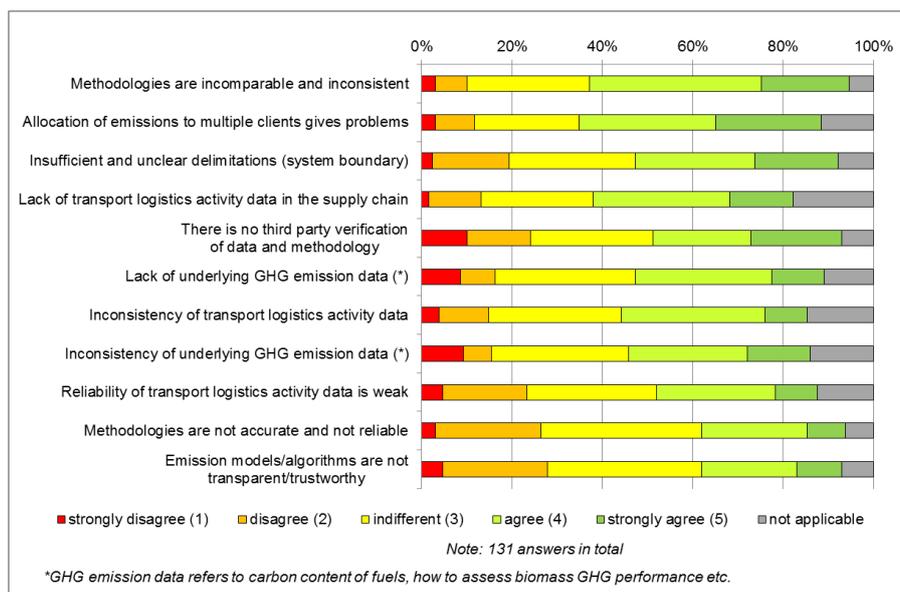


Figure 14 demonstrates that the main causes for the non-alignment of reported carbon footprints according to the stakeholders are the following:

- there is a lack of consistency and comparability between different carbon footprints: the allocation of emissions is complex (53%), methodologies/tools are inconsistent (57%) and system boundaries are incomparable (45%);
- there is a lack of reliability and accuracy regarding the reported information: the data on logistics activities are hardly available in the supply chains (44%); and even these data can be accessed, they are not sufficiently consistent (41%). The lack of GHG

emission data in the market (42%) and their inconsistency (40%) can be considered as a direct consequence of this situation.

In addition, the respondents tend to agree, that:

- transport/logistics data is of weak reliability (36% agree, 24% disagree)
- there is no third party verification of methodologies and data (42% agree, 24% disagree).

On the other hand, no clear opinion of the stakeholders can be derived on:

- the inaccuracy and unreliability of methodologies (agree: 31%, disagree: 27%).
- the transparency and trustworthiness of emission models/algorithms (agree: 31%, disagree: 28%).

Additionally, in the form of open comments the stakeholders reported other relevant issues to be taken into consideration, and concerning primarily carbon footprint methodologies and data:

- *All future approaches are likely to cover Scope 3 processes³⁰ and multimodal transport operations to fully reflect global logistics chains and networks.*
- *As long as no standardized calculation and reporting scheme exists, the reported GHG emissions may be unclear concerning their scope, and as such misleading for interpretation. This non-transparency may result in illegitimate practices (such as "greenwashing"³¹), leading to unethical profit-making.*
- *The development of alternative energy market (e. g. electricity, biofuels) requires a sector-wide aligned methodology and availability of input data.*
- *Any effective standardization process should take a form of an iterative approach, specified in subsequent steps, e.g. from simple to straightforward and from an overall framework to detailed guidance.*
- *Both the calculation and reporting of GHG emissions need to be aligned globally. One of the options to be considered may be establishing a world-wide organisation/system dealing with correct application of the standards and external verification.*
- *The external GHG emissions reports should be specified in sufficient detail, taking into consideration such aspects as:*
 - ✓ *the purpose of reporting GHG emissions externally,*
 - ✓ *the scope and the requirements of reporting with respect to:*
 - *type of information (emissions caused and/or avoided),*
 - *level of detail (shipment, aggregated)? This is linked to the sensitivity of sharing information,*
 - *data and report format,*
 - *parties between which the information needs to be exchanged.*

³⁰ The Corporate value chain (Scope 3) standard covers the company's own (Scope 1 & 2) as well as sub-contracted processes, including all transport and location-related activities (e.g. transshipment, storage, administration, commuting). A detailed description of the transport carbon footprint calculation according to the Scope 3 Standard was published in the "Technical Guidance for Calculating Scope 3 Emissions" (WRI; WBCSD, 2011c) in 2013.

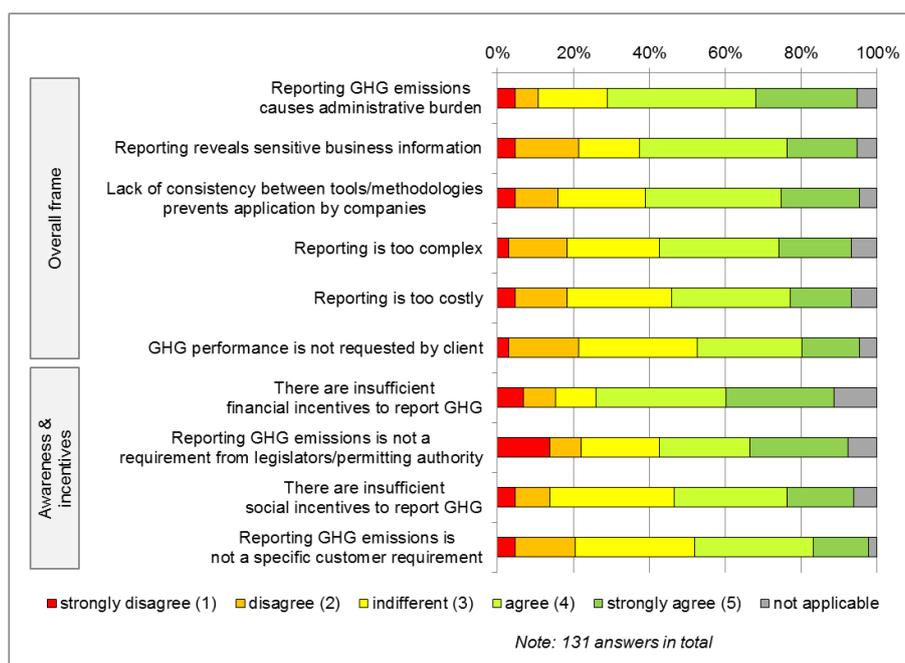
³¹ Disinformation disseminated by an organization so as to present an environmentally responsible public image (<http://www.oxforddictionaries.com/definition/english/greenwash>).

- ✓ Possibilities of [establishing] sector-specific standards and relevant options enabling simplification (e.g. key indicators).

Problem driver: Many companies do not report GHG emissions of transport services

Even if a company has calculated the footprint of its transport service, it may still decide not to report these GHG emissions. The stakeholders were asked to comment on several statements related to this issue. The aggregated results of this inquiry are summarized in Figure 15.

Figure 15 Overall framework, awareness and incentives for reporting



The survey shows that currently companies consider the reporting of GHG emissions as too complex (50%) and costly (47%). It may also cause an administrative burden (56%) and lead to the disclosure of sensitive business information (57%). In addition, 43% of the respondents state that carbon footprints are not (yet) requested by clients.

Another important barrier preventing from reporting carbon footprints is lack of financial (63%) as well as social (47%) incentives, stakeholders argue. Furthermore, half of the respondents confirm that reporting GHG emissions is not a requirement from legislators or permitting authorities.

These data are further detailed specifically for freight and passenger transport in Table below.

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Table 3 Overall frame of and awareness and incentives for reporting with respect to logistics sector

Statement	All answers		Freight sector		Passenger sector	
	Disagree	Agree	Disagree	Agree	Disagree	Agree
Reporting is too complex	18%	50%	18%	54%	25%	44%
Reporting is too costly	18%	47%	18%	49%	26%	35%
Reporting reveals sensitive business information	21%	57%	22%	57%	29%	51%
GHG performance is not requested by client	21%	43%	22%	41%	22%	44%
Lack of consistency between tools/methodologies prevents application by companies	16%	56%	18%	57%	11%	65%
Reporting GHG emissions causes administrative burden	11%	66%	9%	69%	7%	67%
There are insufficient financial incentives to report GHG	15%	63%	17%	61%	17%	65%
There are insufficient social incentives to report GHG	14%	47%	14%	46%	13%	53%
Reporting GHG emissions is not a specific customer requirement	21%	46%	20%	43%	15%	57%
Reporting GHG emissions is not a requirement from legislators/permitting authority	22%	50%	22%	47%	26%	47%

Additional stakeholders' comments and explanations relating to this problem driver refer to the following issues:

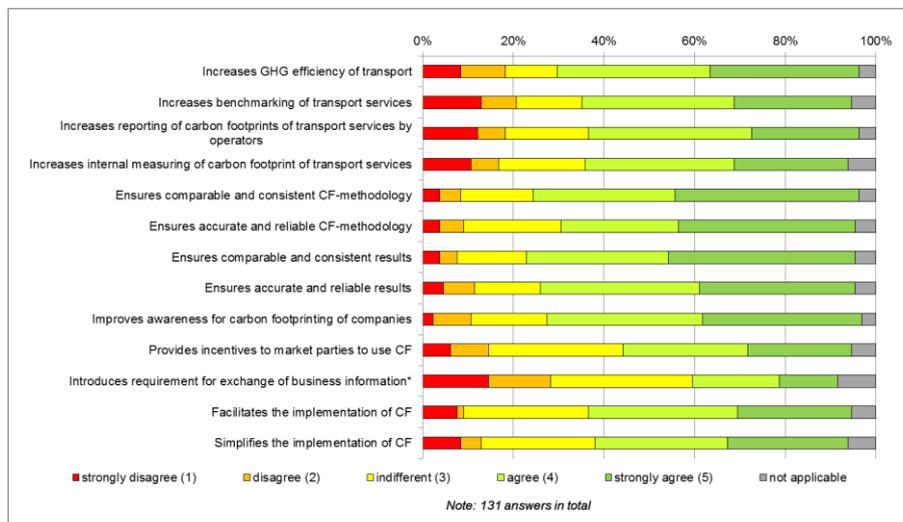
- *Benefits resulting from GHG reporting may overcome the related difficulties. However, these benefits (e.g. progress enhancement, efficiency increase, cost reduction and traceability) need to be quantified and communicated within the industry sector to motivate GHG reporting.*
- *Risks related to the disclosure of sensitive business information:*

- ✓ *Reporting on GHG emissions may reveal sensitive data on energy/fuel efficiency of the transport processes. This transparency may lead to additional cost pressure from customers.*
- *The complexity of GHG reporting needs to be addressed from different perspective, bearing in mind that:*
 - ✓ *The communication of carbon footprints requires expertise and (external) guidance.*
 - ✓ *The complexity may be reduced through:*
 - *an elaborated set-up process and proper implementation of reporting schemes,*
 - *combination of current reporting schemes (e.g. EU ETS) and IT tools.*
 - ✓ *The impact of the reporting depends on a company size*
- *In some countries, GHG reporting is already mandatory by law (France). In case of such compulsory schemes, any carbon footprinting system needs to be accompanied by a respective administrative framework (authority, sanctions, and appeals processes) to be effective.*
- *A voluntary system may not lead to sector-wide GHG reporting.*
- *There are mixed views as regards the introduction of financial incentives for GHG reporting (e.g. fees, taxes, waiver of existing financial systems, and purchase of offsets).*
- *Examples of indirect financial incentives may include:*
 - ✓ *Environmental Ship Index (ESI): "Ships can receive a discount on their port dues if they're cleaner than current legislation (includes CO₂, NO_x, SO_x and on shore power supply connection)."*
 - ✓ *Rijkswaterstaat in the Netherlands has developed a CO₂ performance scale for publicly procured projects. They incentivise lower fuel consumption and restrict (sometimes) access to tenders to those contractors who score high on their CO₂ performance scale.*
 - ✓ *The reported carbon footprint may be a sales factor for companies in tendering processes.*
- *Despite the number of customer requests, carbon footprints of transport services are still low, some companies (e.g. airlines) have already integrated the GHG reporting into their sustainability reporting activities.*
- *General public awareness as regards GHG emissions and climate change aspects is generally at a low level.*

VI. POLICY OBJECTIVES

In this section, the stakeholders were asked to evaluate a set of potential policy objectives related to a common framework for carbon footprinting at transport service level.

Figure 16 Evaluation of objectives for the common CF framework at transport service level



According to the aggregated information collected from all the answers, the most relevant policy objectives include:

- ensuring comparable and consistent carbon footprint methodology and results (agree: 71%, disagree 8%);
- ensuring accurate and reliable results (agree: 69%, disagree 11%); and
- increasing GHG efficiency of transport (agree: 66%, disagree:18%).

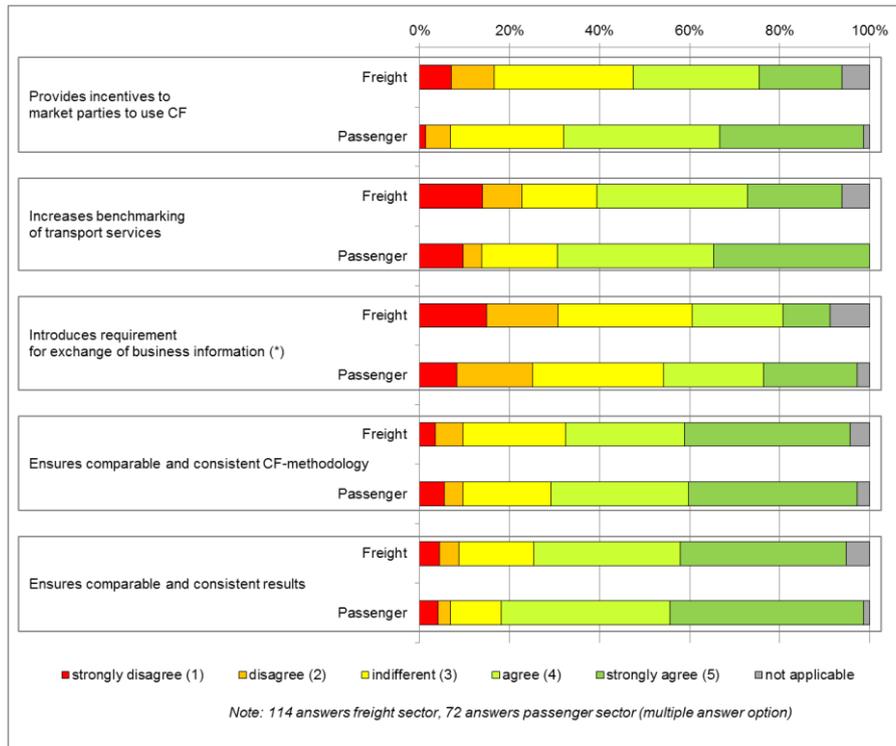
Almost all other policy objectives receive a share of agreement that lies between 50% and 66%. There are two exceptions:

1. No clear overall opinion can be derived for the policy objective related to the introduction of requirements for exchange of business information (agree: 32%, disagree 29%).
2. The policy objective "to simplify the implementation of carbon footprinting" (agree: 25%, disagree: 6%). This policy objective was hardly evaluated though, as only 36 stakeholders answered this question (25 stated 'not applicable').

There are some differences between the views expressed by the freight and passenger sectors. The most important ones are reported below:

- to provide incentives to market parties to use CF: agreement passenger: 67%; freight: 46%;
- to increase benchmarking of transport services: agreement passenger: 69%; freight: 54%;
- to introduce requirements for exchange of business information: agreement passenger: 43%; freight: 31%;
- to ensure a comparable and consistent carbon footprint methodology: agreement passenger: 68%; freight: 63%;
- to ensure comparable and consistent results; agreement passenger: 81%; freight: 69%).

Figure 17 Main differences in evaluating the objectives by freight and passenger sectors



Some stakeholders provided additional comments and explanations with respect to the policy objectives:

- *An aligned methodology and reporting framework needs to be developed on the market, however due account should be taken of the existing approaches.*
- *Companies' awareness of carbon footprinting (and the related benefits) should be significantly improved (esp. for the freight operators and shippers). However, there is rather a clear preference for voluntary policies going hand in hand with economic motivation resulting from the application of GHG reduction measures (technical, operational, organisational). Mandatory schemes are not considered appropriate.*
- *Awareness building may be promoted with the support of industry-led initiatives.*
- *Part of the solution may be development and promotion of a relevant software tool for carbon footprint calculation. In order to be effective, however, it should meet certain requirements, related to accessibility (free of charge), user-friendliness (easy to use), update (reflecting state-of-the-art), completeness (considering both supply chains and individual business), etc.*
- *Carbon footprint calculations need to be subject of external (independent) audits.*

VII. POLICY MEASURES

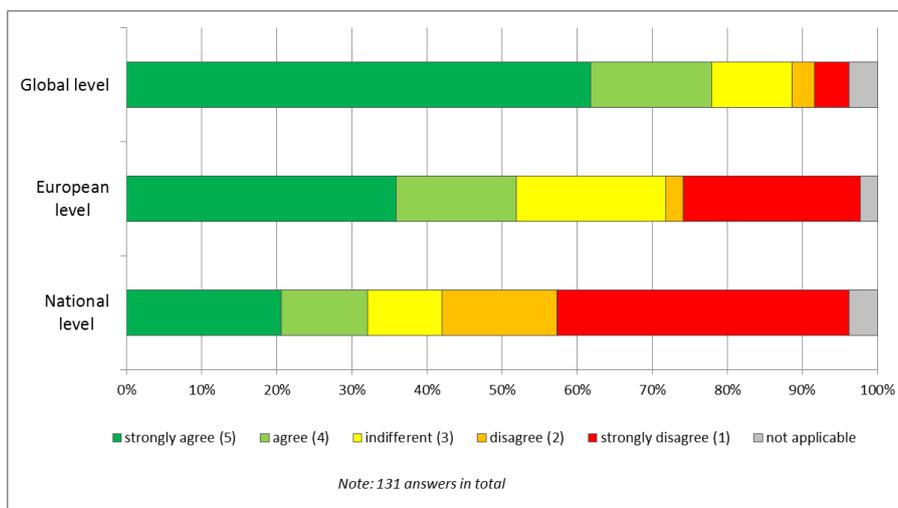
A number of policy measures can be used to stimulate an effective and efficient carbon footprinting scheme for the transport sector. The stakeholders were therefore asked what focus the policy options should have.

As demonstrated by Figure 18, the respondents prefer the coordination of carbon footprint reporting at the service level to be carried out on a global scale; however it is worth noting that a European approach also receives a strong support from the stakeholders:

- Coordination of CF on the global level: 78% agree, 8% disagree, 11% indifferent;
- Coordination of CF on the European level: 52% agree, 26% disagree, 20% indifferent;
- Coordination of CF on the national level: 32% agree, 54% disagree, 10% indifferent.

The world-wide approach is supported in particular by the LSPs and shippers.

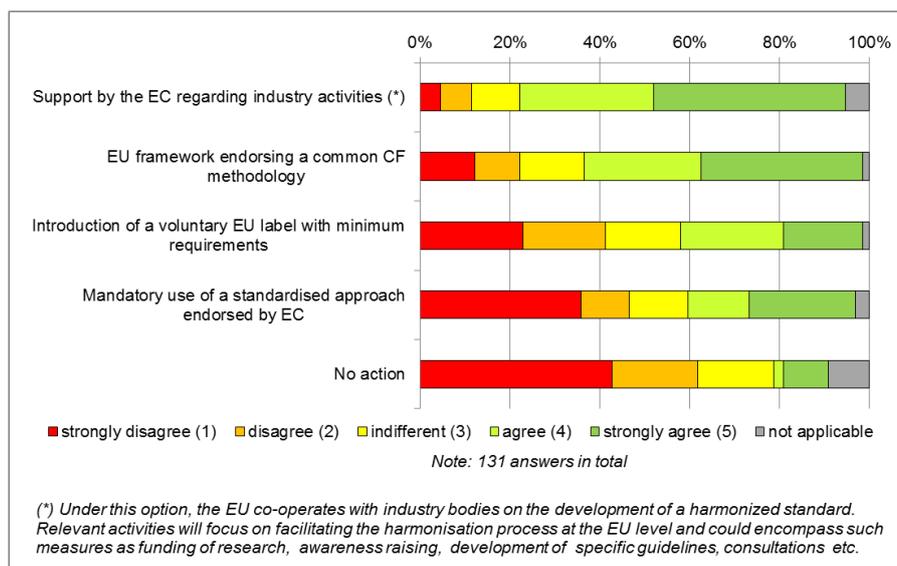
Figure 18 Coordination level of further development of CF reporting



Harmonisation of methodologies and calculations

The harmonisation of methodologies is one of the potential areas for policy intervention. Several options can be identified, ranging from 'no action' to a 'mandatory approach endorsed by the Commission'. Figure 19 illustrates stakeholders' opinion on this aspect.

Figure 19 Measures on EU-level to improve harmonization



According to the respondents, there is a clear need for measures that improve the methodological harmonisation of carbon footprinting on a European level (62% disagree with the 'no action' scenario).

Participating organisations underline in particular the meaningfulness of the European support for industry activities (supported by 73% of the respondents). Relevant activities may focus on facilitating the harmonisation process at the EU-level and could include funding of research, awareness raising, development of specific guidelines, consultations, etc.

In addition to this, 62% of the stakeholders support the option of an EU framework endorsing a common carbon footprint methodology.

The introduction of a voluntary EU label with minimum requirements and the mandatory use of a standardised approach receive a relatively lower share of agreement (varying from 37% to 40%).

There were some additional comments to this point.

Most of these confirm an important role of the EU in the harmonisation process:

- *The EU should support existing initiatives of carbon footprinting and stimulate convergence of their methodologies and outcomes (SMEs should be encouraged to participate in these initiatives).*
- *Any EU action should lead eventually to establishing an international/global approach (e.g. in terms of a common CF methodology or a relevant labelling/reduction scheme). In this context, a European-based system can be regarded as an intermediate step (not necessarily restricted to the EU's Member States). The globally accepted approach may be then incorporated in any future European standard or legislation.*
- *Harmonisation activities need to be accompanied by:*
 - ✓ *improving stakeholders' awareness on the objectives and benefits of carbon footprinting and increase their technical knowledge on the relevant methodologies and tools associated with carbon footprinting;*

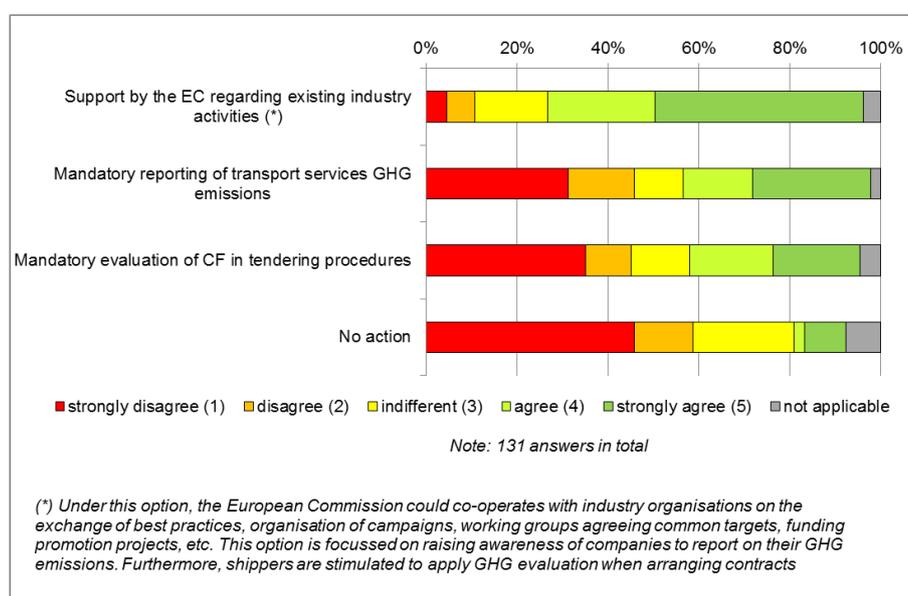
- ✓ *framework for data management, availability and exchange, e.g. consumption data, emission factors;*
- ✓ *external verification of carbon footprints;*
- ✓ *incentives for low carbon actions.*

Certain respondents, however, consider that the harmonisation of carbon footprinting should remain an industry-driven process, and be coordinated by existing organizations/initiatives such as ICAO, IMO, GFE, and LCRS.

Increase reporting of carbon footprinting by the industry

A similar picture may be sketched while analysing the respondents' contributions on possible measures to increase the level of reporting carbon footprints of transport services (see Figure 20).

Figure 20 Measures on EU-level to increase CF reporting



The majority of the stakeholders (59%) see a clear need for a relevant action on the EU-level. This action should take account of existing industry activities (69%), and, for example, include exchange of best practices, organisation of campaigns, organisation of working groups that set common targets, funding promotion projects, etc.

Stakeholders are divided in their opinions as regards the introduction of a mandatory reporting measure (agree: 41%, disagree: 46%) and the mandatory evaluation of carbon footprints in tendering procedures (agree: 37%, disagree: 45%).

Additional stakeholders' remarks to this question indicate that:

- *The establishment of a globally accepted standard should be a pre-condition for mandatory reporting of carbon footprints.*
- *There should be a level playing field for all stakeholders active in the supply chain (i. e. European/non-European, shipper/transport operator/LSP, small/large).*
- *The standardised reporting scheme needs to be clearly aligned with the agreed objectives (e.g. what is reported? What is the intention?)*

Which institution monitors the reporting process?). It may be facilitated by providing tools, e.g. CF calculators offering a standardized reporting framework or/and reporting templates. All three issues are also a condition to include carbon footprints as a criterion in tendering procedures.

- *Carbon footprinting may be embedded into the European Corporate Social Responsibility (CSR) activities³².*
- *Measures applied to promote reporting of carbon footprints should be accompanied by:*
 - ✓ *improving stakeholders' awareness on the objectives and benefits of carbon footprinting;*
 - ✓ *best practice guidance and incentives for low carbon actions.*

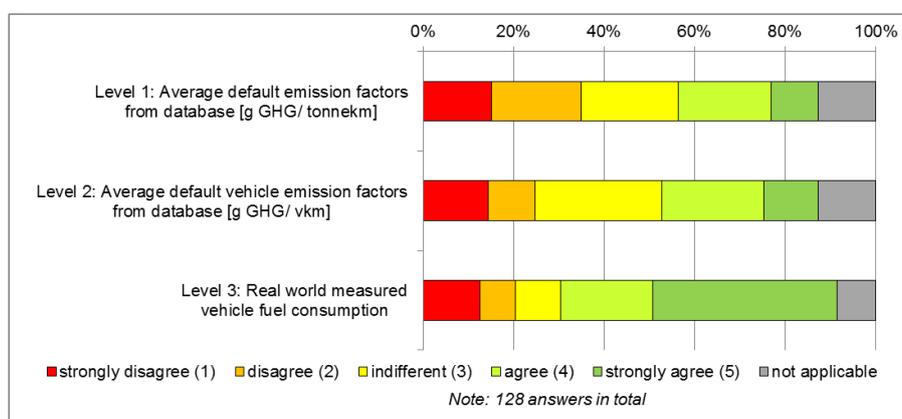
Level of detail of emissions calculations

GHG emissions can be calculated with different levels of accuracy³³. Generally, the more accurate, the more complex are the calculations.

As presented above, 55% of the participating companies calculate their (overall) carbon footprint, of which at least 30% uses real-world measured fuel consumption or a combination of real-world data and defaults.

The survey revealed that the vast majority of the stakeholders (61%) prefer to use this level of detail for GHG emission calculations (disagree: 20%), followed by those choosing the level 2 (34% agree; 25 % disagree), and the level 1 calculations (31% agree; 35% disagree).

Figure 21 Recommended emission calculation level



Additional stakeholders' comments and explanations with respect to the calculation level of carbon footprints provide that:

- *A carbon footprint calculation of transport based on real-world measured vehicle data is seen as the most appropriate level for internal and external benchmarking of*

³² http://ec.europa.eu/enterprise/policies/sustainable-business/corporate-social-responsibility/index_en.htm

³³ Three basic accuracy levels for transport carbon footprint calculations can be distinguished: (1) Default performance-based emission factors (g/tonne-km), (2) Default vehicle emission factors (g/vkm) and (3) Measured vehicle energy consumption (litre, kg, kWh, NM3)

transport services. However, there are two main options to be considered as regards the data:

- ✓ collected and used per shipment (i. e. transport from point A to B with specific vehicle, load factor, traffic situation, etc.);*
- ✓ derived from measured data per shipment during a reference period, which needs to be aggregated into a meaningful average for the specific operator's vehicle system (e. g. average fuel consumption of defined vehicle class 'VOS'³⁴ level' or equivalent).*
- The use of default values offers simplicity in calculating carbon footprints and may be an alternative in case real data is not available (e.g. Scope 3 transport³⁵). However, default values do not reflect all relevant emission factors (e.g. the real payload, driving behaviour) to be allocated to a service, being therefore less preferred for benchmarking.*
- A step by step approach with a defined timetable should be applied while introducing the obligation for a higher level of detail in carbon footprint calculations.*
- In the frame of developing a harmonized methodology for CF calculation of transport services, the following issues shall be analysed:*
 - ✓ whether the methodology is applicable for all modes identically;*
 - ✓ relevant additional processes that may influence the carbon footprint of transport services (e. g. transshipment, warehousing, total life cycle) and therefore should be included into the assessment scope;*
 - ✓ whether the methodology is meaningful in terms of derived result(s): for internal benchmarking (e.g. efficiency of own vehicles, driving practise), external benchmarking (e.g. pre-trip information, buying/contracting decisions), and for possible indicators (e.g. GHG per tkm, per TEU's, per trip (flight), per m³).*
- Possible measures that can be taken by the Commission may include the support for the establishment/provision of:*
 - ✓ technology and guidance for measuring real-world consumption;*
 - ✓ relevant databases;*
 - ✓ tools for calculating carbon footprints.*

Data exchange

Data exchange between relevant parties (including input data - e.g. regarding fuel consumption and GHG emission data) is crucial for making CF calculations within the logistic chain. Therefore, this issue was also evaluated by the stakeholders in the context of the survey.

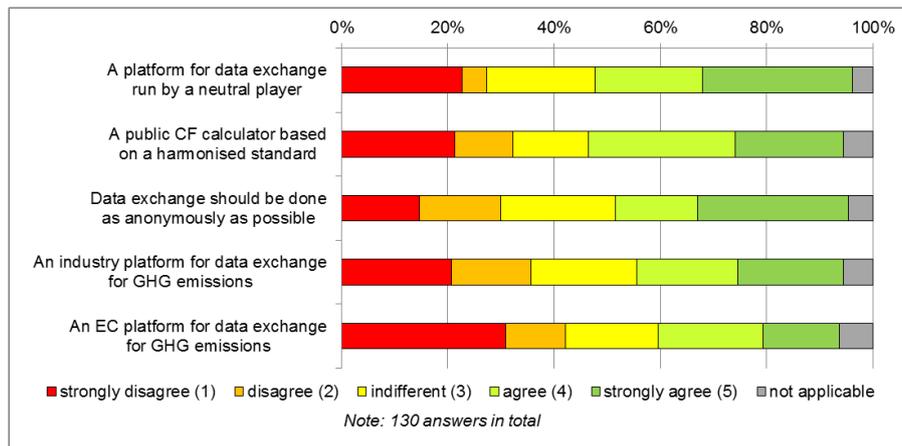
After analysing replies to this point, it becomes apparent that the stakeholders have different opinions with respect to the way in which carbon footprint data can be exchanged. However, it should be noted that:

³⁴ VOS refers to vehicle operating system, referred to in CEN standard EN 16258

³⁵ It is understood a reference is made here to the specific "Category 4: Upstream Transportation and Distribution" and/or "Category 9: Downstream Transportation and Distribution" of the "Technical Guidance for Calculating Scope 3 Emissions" (see also footnote 36)

- the option 'An EC platform for data exchange for GHG emissions' receives the relatively highest ratio of disagreement (disagree: 42%, agree: 34%);
- two options, i.e. 'A platform for data exchange run by a neutral player' and 'A public CF calculator based on a harmonised standard' receive the highest support (agree: both 48%, disagree: 27% and 32%, respectively).

Figure 22 Effective way of exchanging CF data and calculations



Additional stakeholders' comments with respect to data exchange are the following:

- *The main focus should be on the sensitivity of business data used in the carbon footprint calculation. Confidentiality of this information needs to be guaranteed. The submitting company should remain owner of the information.*
- *In addition, it is necessary to analyse the level at which data needs to be exchanged, e.g.:*
 - ✓ *raw data to calculate the carbon footprint of the relevant service;*
 - ✓ *calculated carbon footprints on the shipment level or on an aggregated level, i.e. a meaningful average of a reference period of a sub-contractor;*
 - ✓ *qualitative information, e.g. clustered transport service providers with comparable environmental (GHG) performance;*
 - ✓ *between which parties the data should be exchanged:*
 - bilateral;
 - along the logistic chain, e.g. including final consignee;
 - publicly.
- *Data exchange requires a standardised protocol that can be then used by relevant tools/software.*
- *Although not all the stakeholders prefer a reporting platform, those who support its development indicate the platform should be led by a neutral player. Such system may be operated by the industry itself or, alternatively, be shared by various stakeholders (e.g. industry, public authorities, etc.).*
- *The use of a future platform should be voluntary. Certain stakeholders specify both disadvantages and benefits of such a platform: On the one hand it was evaluated as*

complex and costly, on the other hand, a platform may realise greater data reliability, transparency of results and the ability of monitoring carbon footprinting

- *The establishment of the platform may be facilitated by public funding (including EU funds).*
- *Possible additional data to be exchanged along the supply chain may regard country-specific electricity/fuel/biogas factors, Radiative Forcing Index and other default values.*

Potential effectiveness of increased benchmarking by carbon footprinting

The stakeholders addressed also higher level objectives of carbon footprinting: its potential impacts on GHG reduction and the possibility of benchmarking transport services.

Figure 23 shows, that while the respondents do not consider carbon footprinting more effective instrument than other related environmental policies, such as vehicle regulation, fuel taxation and infrastructure pricing, they evaluate it very positively in terms of its potential for GHG reduction. Indeed, 57% of the participating stakeholders believe that CF reporting at service level leads to improved GHG efficiency of transport (disagree: 18%)³⁶.

Figure 23 GHG reduction effectiveness by CF in comparison to other policy measures

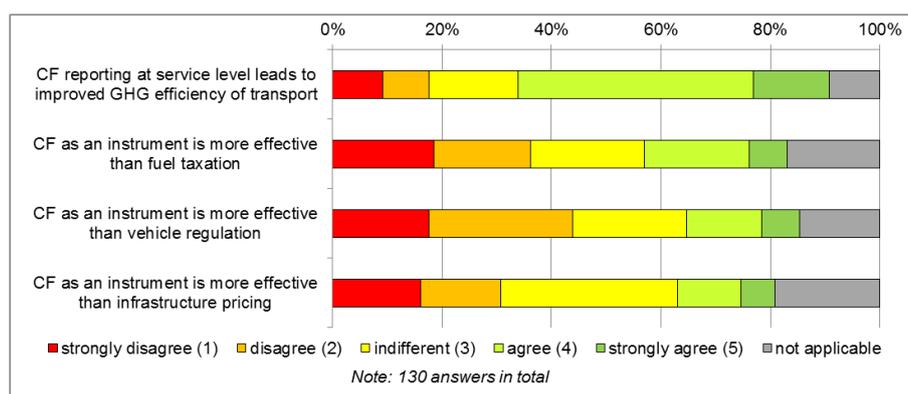


Figure 24 further details the stakeholder's views on the relation between the increased CF benchmarking and specific environmental and economic aspects of transport services. The majority of respondents confirm that this measure is likely to result in significant benefits, by:

- providing incentives for operational measures lowering fuel consumption (agree: 61% of the stakeholders, disagree: 6%);
- providing incentives for technical measures lowering fuel consumption (agree: 55%, disagree: 7%);
- ensuring credibility of reported GHG emission data (agree: 63%, disagree: 3%);
- improving GHG efficiency (agree: 51%, disagree: 3%).

However, at the same time part of the respondents indicate that the increased benchmarking may also lead to some less positive impacts concerning:

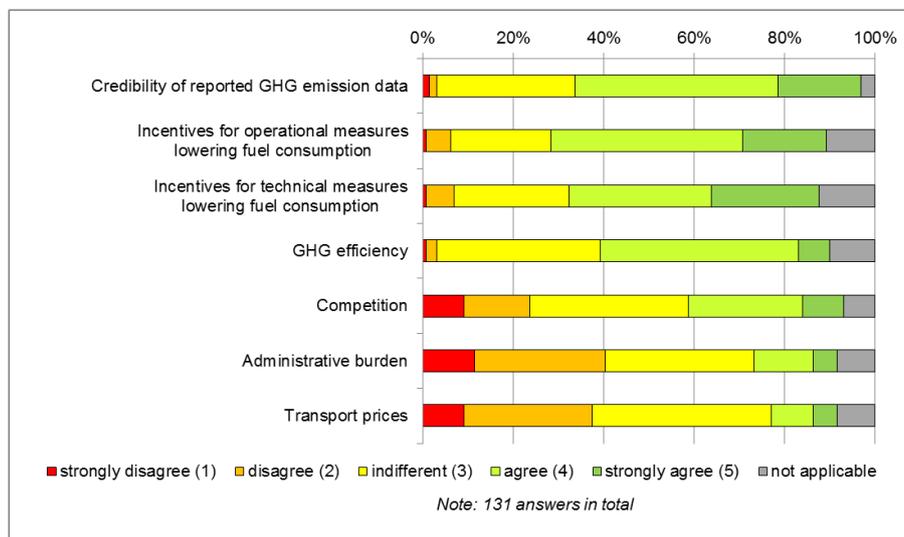
- administrative burden (negative effect: 40%, positive effect: 18%);

³⁶ This evaluation of potential of carbon footprinting may be interesting to combine with a former question on its current status (see Figure 6).

- transport prices (negative effect: 37%, positive effect: 15%).

With respect to the impact on competition, 34 % of the participating stakeholders are of the opinion that this measure will result in positive effect, whereas 24% say the contrary.

Figure 24 Impact of increased benchmarking by CF



Additional stakeholder comments with respect to the effects that can be expected with increased benchmarking with carbon footprint information are:

- *It is necessary to distinguish between internal and external benchmarking.*
- *The establishment of a standardised methodology is a pre-condition for any future external benchmarking.*
- *The benefits of benchmarking should be shared between all parties of the logistics sector, i.e. by shippers, consumers and transport operators. Specifically transport operators should be encouraged to improve efficiency of freight transport and, thus, reduce GHG emissions;*
- *Benchmarking should not be applied in the whole market, but only to compare transport services which can be meaningfully benchmarked. Some stakeholders favour internal benchmarking only.*
- *Benchmarking may:*
 - ✓ *promote modal shift, reduction of total fuel consumption, improve road safety standards and strengthen companies' market positions (e.g. enhanced image and credibility);*
 - ✓ *have an effect on the administrative burden, though this is highly dependent on the design of the carbon footprinting system and may decrease after the system has been implemented;*
 - ✓ *result in higher transport prices, but this does not necessarily have to cause a negative effect on the market, since transport prices are considered to be at a very low level at the moment. Higher transport prices may stimulate [the development of] other innovative technologies and alternative fuel types;*

- ✓ *not have an impact in specific market sectors (e.g. aviation), where operators are already under high pressure to reduce their emissions.*

Overall comments

In addition to the topics covered above, some stakeholders provided additional comments in forms of official position papers and e-mails, highlighting the following aspects:

- *the definition of a comprehensive scope for the carbon footprinting of transport services in addition to transport processes should include other elements like nodes and infrastructure;*
- *the general objective (GHG reduction) should be extended to other environmental impacts of transport, e.g. emissions of NO_x and particulate matter;*
- *there is a need for definition of relevant key performance indicators for addressing environmental behaviour that may accompany emission figures: e.g. fuel efficiency, payload, empty running, carbon intensity of fuels, modal split on company level, etc.;*
- *the policy focused on carbon footprinting of transport needs to be aligned with other policy actions in the environmental domain, such as Product Environmental Footprint (PEF), Product Category Rule (PCR);*

VIII. SUMMARY AND CONCLUSIONS

Carbon footprinting of transport services contributes adequately to evaluate GHG performance and has a large potential for reducing GHG emissions. The possibility to benchmark different transport operations according to their GHG performance and subsequent reporting of results are regarded as important incentives for improving efficiency of the transport and logistics sector.

Today however, the effectiveness of this instrument is very much limited, mostly due to the existence of many standards and tools, making carbon footprints mutually incomparable and unsuitable for benchmarking different transport services. EN 16258 is evaluated as a step forward, but offering rather a general framework that requires further development.

Consequently, the respondents see a clear need for the alignment of carbon footprinting approaches, and the establishment of a common methodological framework, where the role of the EU is perceived as particularly meaningful. This process however, should build on the existing initiatives, take account of recent developments in this matter and steer towards a global harmonisation.

The results of the survey indicate that there are several important issues to be taken into consideration while developing a harmonized and effective carbon footprinting system. The stakeholders require adequate guidance on the interpretation of carbon footprinting methodologies, ask for setting up standardised parameters for the measurement and exchange of data, and recommend a future standard to be based on real-world calculations, ensuring better comparability of results. They also highlight the need to safeguard business sensitive data and to strike the right balance between the accuracy of information on GHG emissions and efforts/costs of companies measuring and reporting it.

The establishment of a harmonised methodology is considered as an important factor for the introduction of a common reporting scheme, and also the possible development of specific labelling programmes targeting technical and operational measures reducing fuel/energy consumption. In this context, the respondents prefer a voluntary reporting approach that addresses sensitivity issues of business data exchange and takes account of possible

*Introduction of a standardised carbon footprint methodology.
Summary report from the stakeholders' consultation*

impacts on competition aspects and transport prices.