GREAT BRITAIN (GB) TO SCHENGEN AREA ROAD TRANSPORT UNDER THE EUROPEAN UNION'S (EU) ENTRY/EXIT SYSTEM

Methodological approach to gathering evidence from GB goods and passenger transport operators

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1 Executive summary

The European Union (EU) plans to implement the Entry/Exit System (EES), a new system to strengthen the EU border. It will track the duration of stay of 'third-country' citizens in the Schengen area, which is expected to facilitate enforcement of existing limitations in a more rigorous and automated way. The Department for Transport (DfT) would like to understand the likely direct and indirect impact on road transport operators registered in the United Kingdom (UK) of the enforcement action against the UK national commercial drivers they employ. This will focus on cross-border journeys from Great Britain (GB) to the Schengen area via Heavy Goods Vehicles (HGVs) and passenger transport coaches.[1]

Frontier Economics and SYSTRA have been commissioned to develop proposals for a robust and reliable framework for monitoring and evaluation of the impact of EES implementation.

1.1 Evidence review and data mapping

An evidence review identified a range of secondary sources relevant for understanding how EES implementation is expected to impact UK operators and their UK-national drivers. Specifically, sources were identified based on their ability to provide information on indicators within the following evidence themes:

- Composition and nationality of HGV and coach drivers
- Operator characteristics and type of goods transported
- Dependency on UK nationals, including the extent of post-Brexit adjustments made before implementation of EES
- Trip volume, frequency, and duration of GB-Schengen cross-border commercial road journeys

Mapping the identified sources to the required indicators highlighted important data gaps and limitations. These emerging data gaps include:

- The dependency of UK-registered HGV and coach operators on UK-national drivers (specifically for cross-border travel)
- Current HGV and coach operator operating models, the flexibility to shift these models, and the associated costs
- The total number of coaches and passengers that travel by coach that cross the GB-Schengen border, and the average duration of coach tours by month

[1] Given that EES will be introduced only in the Schengen area and will, therefore, not be introduced for goods entering Northern Ireland, this work will focus specifically on travel from GB to mainland Europe. Principally, short straights such as the Dover–Calais ferry crossing.

1.2 Monitoring and evaluation options

The identified sources and evidence gaps informed the design of one monitoring option and two evaluation options for assessing the impact of EES implementation.

1.2.1 Monitoring option

The monitoring option would track changes in the indicators identified in the evidence mapping phase. It would monitor changes in key outcomes over time to assess direct and indirect impacts, capture any breaks in trends in numerical data, and provide qualitative input from operators to understand the likely impact and wider contextual factors.

1.2.2 Basic evaluation option

The basic evaluation option would supplement the data collected for the monitoring option with additional insights and data aimed at assessing the attribution of EES implementation to observed changes. It would use a mixed-method approach to assess the strength of the evidence of the impact of EES implementation and gather and assess evidence on alternative hypotheses. We do not expect the basic evaluation to provide precise estimates of effect size.

1.2.3 Advanced evaluation option

The advanced evaluation option would build on the basic evaluation option by capturing more specific data from primary and secondary sources. It would estimate the incremental cost impacts of EES implementation on HGV and coach operators and use a trade-cost simulation approach to understand the likely effects on industry performance and wider indirect effects on cross-border trade.

1.3 Proportionality assessment

Finally, each option was assessed based on the scale of investment required and the contribution it would make to the evidence base. A summary is presented in Table 1 below.

Table 1 Summary of proportionality assessment

	Monitoring option	Basic evaluation option	Advanced evaluation option
Scale of investment	£417k–£463k	£461k–£512k	£541k–£595k
Contribution to the evidence base	Broad overview of changes in industry and operator trends. Limited to trend observation and	Assesses the role of EES implementation in observed trend changes. Unable to	Generates quantifiable insights on the effect of EES implementation on trade. Requires the collection of detailed

	Monitoring option	Basic evaluation option	Advanced evaluation option
	contextual understanding.	provide an estimated effect size.	cost and revenue data, making it unsuitable for analysing the coach market.
Timeline for findings	Baseline: 26 weeks Follow-up: 24 weeks	Baseline: 26 weeks Follow-up: 26 weeks	Baseline: 26 weeks Follow-up: 28 weeks
	Monitoring option	Basic evaluation option	Advanced evaluation option

Source: *[Insert Source here]*
Note: *[Insert Notes]*

There are many uncertainties, such as the quality of the data and the strategic importance of the findings, that may not be possible to determine without conducting a baseline data collection first.[2] Therefore, the recommendation is to consider a sequential decision-making process, starting with a baseline (with or without a primary survey) to fill the initial information gaps and to provide a better indication of response rates and representativeness of the data collected.

Table 2 displays the glossary of key terms and acronyms used within this report.

Table 2 Glossary of key terms and acronyms

Term	Explanation
90/180 Schengen rule (duration of stay limitations)	The Schengen rule is a duration-of-stay limitation that caps the total number of visa-free days for third-country nationals within the Schengen area at 90 in every 180-day period for both work and leisure journeys.
Before vs after analysis	Compares qualitative and quantitative data collected from before the start of EES introduction with the same information after its implementation.
CATI	Computer Assisted Telephone Interviewing – a structured interview conducted by phone.
Coach	A comfortably equipped single deck passenger transport vehicle, used for transporting passengers from the UK internationally, for example, holidaymakers and touring musicians. A passenger transport, standard international operator licence is required to operate a vehicle for hire or reward (payment or payment in kind) that can carry nine or more passengers internationally.

[2] This is because baseline data will provide insight into the response rates and completeness of qualitative and quantitative data collected. It will also provide insights into the extent to which EES implementation is likely to impact UK-registered operators and their drivers, which is not available through the existing evidence.

Term	Explanation
Cognitive testing	A method used to test respondents cognitive understanding of survey questions and answer options, to improve wording and question order before the full launch.
Contextual factor	The external conditions that influence how the direct and indirect impacts of an intervention, policy or shock are realised.
Contribution analysis	A theory-based evaluation method used to assess whether a shock has contributed to an observed outcome by exploring a range of qualitative and quantitative evidence.
Counterfactual	A comparison group (of HGV and coach operators) that is not exposed to EES implementation and is used as a benchmark to measure its effects.
Counterfactual analysis	Compares changes in operators affected by EES implementation with estimates of what would have happened to operators if EES had not been implemented.
CPT	Confederation of Passenger Transport – a UK trade association representing bus, coach, light rail and metro operators.
Descriptive analysis	The process of summarising and interpreting data to inform a high-level understanding of the wider setting and analysis.
DiD	Difference-in-differences – compares changes over time in operators impacted by EES implementation through enhanced enforcement of the 90/180 limit, with changes over time in a similar comparison group that was not impacted by this enhanced enforcement.
Direct impact	The immediate effect of an intervention, policy or shock that occurs as a result of its implementation.
Displacement	When the impacts of a policy, intervention or shock are reduced due to activity moving elsewhere.
Enforcement of the 90/180 rule	The anticipated increase in the enforcement of the Schengen area 90/180-day immigration limit following the implementation of EES.
Entry/Exit System (EES)	Entry/Exit System – an EU-implemented automatic register of personal details, for any third-country national arriving at a Schengen border crossing point. Scheduled to become operational in October 2025.
GB	Great Britain – refers to the mainland UK, including England, Scotland and Wales but not Northern Ireland.
GDPR	General Data Protection Regulation – data protection rules that set out how personal data must be collected, used, and stored lawfully and securely.
Gravity model	A model used to predict the international flow of goods, people and services.
HGV	Heavy Goods Vehicle – vehicles with a Maximum Authorised Mass of over 3,500kg.

Term	Explanation
Indirect impact	The secondary effects that occur as a result of the direct impacts.
Interbus Agreement (Interbus)	A treaty that facilitates the cross-border transport of passengers by coach and bus between the EU and certain non-EU countries.
LGV	Light Goods Vehicle – usually a van or similar small vehicle which weighs more than 2,500kg and less than 3,500kg Maximum Authorised Mass either alone, or when used with a trailer.
Margin of error	A statistical measure that defines the range within which the true value is expected to lie, given the sample size.
Maryland SMS	Maryland Scientific Methods Scale – a framework to assess the rigour of impact evaluations.
Mixed methods	A research approach that combines quantitative data (for example, surveys) with qualitative data (for example, interviews).
Population group	The full group you want to understand or draw conclusions about (for example, all GB operators running international services).
Public Service Vehicle (PSV) operator licence	A Public Service Vehicle operator licence is required to operate vehicles that are designed or adapted to carry nine or more passengers and payment is taken for carrying passengers (hire or reward) this category includes buses or coaches, either on scheduled routes or for private hire. It includes four licence types: standard (national) standard (international), restricted (maximum of two vehicles, normally eight passenger seats or fewer), and special restricted (licensed private hire or taxi operators running local services, with stops less than 15 miles apart).
Push-to-web survey	A survey approach where people receive an invitation by post (or email) that directs them to complete the survey online.
Quasi-experimental	A type of impact evaluation method used to estimate the causal effect of a policy, intervention or shock, without random assignment of participants.
RHA	Road Haulage Association – a UK trade body representing road transport operators.
RORO	Roll-on, roll-off – road goods travelling to Europe via vessels that are designed for cargo to be wheeled on and off.
Schengen area	29 European countries which have abolished border checks at their common or internal borders.
Shock	A sudden and significant event that disrupts usual operation.
SIC code	Standard Industrial Classification codes – standardised sector identifiers commonly used by the Office for National Statistics (ONS).

Term	Explanation
SME	Micro-, small-, and medium-sized enterprises – any organisation that has fewer than 250 employees and an annual turnover less than or equal to £44m or a balance sheet total of less than or equal to £38m.[3]
Spillovers	Impacts of a policy, intervention or shock that extend beyond the intended targets.
Standard International Operator Licence (SIOL)[4]	Goods Vehicles: The Standard International Operator Licence is required for operating goods vehicles over 2,500kg Maximum Authorised Mass internationally for payment (hire and reward). Holders of these licences can run fleets comprised entirely of HGVs or LGVs or fleets with a mixture of the two vehicle types. Passenger Transport: PSV Standard International Operator Licences are applicable to vehicles that are designed or adapted to carry nine or more passengers. Vehicles that carry fewer passengers, would normally be licensed as taxis.
Thematic analysis	A way of analysing qualitative data by coding responses and grouping them into repeated themes and patterns.
Theory-based evaluation	An evaluation approach that examines impacts by exploring how and why a shock is expected to impact the target group, based on hypotheses.
VOL	The Vehicle Operator Licensing database – the central digital system used in Great Britain to manage, process, and record all goods and public service vehicle operator licences. It is operated jointly by the Driver and Vehicle Standards Agency (DVSA) and the Traffic Commissioners for Great Britain.

Source: Frontier Economics

[3] https://www.gov.uk/government/publications/procurement-act-2023-short-guides/supplementary-information-small-and-medium-sized-enterprises-definition-html

[4] Further details on goods vehicle and PSV licencing can be found at Goods vehicle operator licensing guide - GOV.UK and Public service vehicle operator licensing guide - GOV.UK.

2 Introduction

2.1 Background to the EU's EES

The EU plans to implement EES to modernise and improve management of the EU's borders. EES, which began a phased roll out in October 2025, will replace the manual stamping of passports with an automatic register of personal details of any third-country nationals arriving at a border crossing point, including their name, travel document, biometrics, and their date and place of entry and exit.[5] According to the EU, the EES modernises border checks and enhances the security of Europe's borders. It is expected to lead to greater enforcement of the Schengen area short-stay limit, which caps visa-free stays at 90 days in any rolling 180-day period (90/180), more systematically.[6]

Duration of stay limitations have applied to UK nationals since 2021, including road transport workers (notably drivers) employed by operators undertaking goods and passenger transport between the UK and the EU (HGV and coach operators). The haulage and coach sectors have expressed concern that drivers may face more systematic enforcement action if they exceed the 90/180-day limit than is the case at present. This could have direct implications for UK operators (for example, if goods or passengers are prevented from crossing into the EU) and on UK drivers who could face individual fines or a ban on future entry.[7]

2.2 Purpose of this document

DfT is interested in understanding the feasibility of developing a framework to monitor and evaluate the effects of EES implementation. In particular, DfT would like to understand the likely direct and indirect impact of EES implementation on UK-national drivers who are employed by operators registered in the UK and make cross-border journeys from GB to the Schengen area.[8] The effects on drivers may generate broader effects on their operators; these effects could further spill over into the operation of UK-EU supply chains.

Frontier Economics and SYSTRA were commissioned to develop proposals for a robust and reliable framework, as described above, based on a review of the evidence base and an assessment of evidence gaps. The framework proposes three options and includes an assessment of available evidence and evidence gaps, and an assessment of the proportionality of each proposed option.

The remainder of this document is structured as follows:

[5] https://travel-europe.europa.eu/ees_en

[6] A full explanation of what EES is and its benefits can be found at: EU Entry/Exist System: What is the EES?

[7] https://www.rha.uk.net/news/news/detail/schengen-90-180-day-travel-have-your-say

[8] Given that EES will be introduced only in the Schengen area and will, therefore, not apply to Ireland, this work will focus specifically on travel from GB to mainland Europe. Principally, short strait crossings such as via the Dover–Calais ferry.

- Section 3 sets out the approach and geographical scope of the framework
- Section 4 describes the current setting around the transport of goods and passengers in more detail
- Section 5 outlines the key evidence themes and relevant indicators that form the basis of the evidence review and monitoring and evaluation options
- Section 6 describes the findings of the evidence review and data mapping exercise
- Sections 7 to 10 set out the proposed monitoring and evaluation options and the indicative timeline
- Section 11 provides indicative resource requirements and costs for each option
- Section 12 sets out the expected learnings and insights from each option
- Section 13 summarises the proportionality assessment and provides recommendations for next steps

3 Approach

DfT commissioned this work with the overarching objective of delivering a feasibility study of options to monitor and evaluate the impact of EES implementation on the UK's commercial road transport sector, and on its supply chains. This section presents the approach to designing the monitoring and evaluation options that achieve this objective.

The work involved three stages:

1. **Evidence review and mapping**: to scope and assess the data and other evidence available to inform an understanding of the impact of EES implementation on UK drivers and operators. This included the identification of key research themes and associated indicators, a review of the evidence available in relation to each, and the identification of emerging data gaps. See Section 5 for more details.
2. **'How to' study**: to set out how evidence will be gathered to fill evidence gaps, and the methodologies that can be used to implement a monitoring and evaluation (M&E) framework that meets the research requirements. This presents three options for DfT to answer their objectives and explore direct and indirect impacts of EES implementation and wider contextual factors, considering the identified data gaps outlined in the evidence review stage. See Section 7 for more details.
3. **Proportionality assessment**: to identify and assess the differences between the three options presented in the 'how to' study. This involved an assessment of the resources required for each option, the learnings and analytical robustness of the outputs, and a summary of the trade-offs among the three options. See Section 13 for more details.

3.1 Geographical scope

DfT is interested in understanding the impact of EES implementation on UK-registered HGV and coach operators, and on UK-national drivers undertaking journeys in the Schengen area. EES limitations do not apply to travel between Northern Ireland and Ireland due to the operation of the Common Travel Area and the absence of routine border checks. Ireland is also not a member of Schengen, so it is exempt from introducing EES.[9] Therefore, this framework design focuses on the implications for operators running GB-Schengen area routes (principally, short straights such as the Dover–Calais ferry crossing) and their associated supply chains.

[9] DfT Common Travel Area guidance 2022 https://www.gov.uk/government/publications/common-travel-area-guidance/common-travel-area-guidance

4 Transport of goods and passengers internationally

Monitoring and evaluating the impact of the EU's EES requires a clear understanding of the context within which goods and passenger transport companies operate. In this section, we briefly outline why and how EES is expected to impact UK-registered HGV and coach operators, as well as the drivers who work for them. We also highlight areas of evidence that will need to be considered to monitor and assess the extent of this impact.

The introduction of EES adds a layer of complexity to the movement of goods and passengers between the UK and the Schengen area, as once fully implemented, all third-country nationals passing the border into the Schengen zone will be required to submit personal details and biometric information upon first entry. Prior to this, border checks have been manual. While there has been a rise in the number of UK nationals refused entry to the EU for overstaying the 90/180-day limit since Brexit, the total numbers are small (180 people in 2022). It is unclear how many of these were tourists versus HGV or coach drivers.[10] As a result, current evidence on the UK HGV and coach driver compliance during the manual enforcement period is very limited.

EES implementation will make it easier for the Schengen area border officials to identify 'overstayers', making compliance with the 90/180 limitations unavoidable. UK-based goods and passenger transport operators may therefore need to introduce new methods of tracking driver movements and to adapt their employment and business models to avoid supply chain disruptions caused by their drivers being stopped at the border and issued penalties.

An additional complexity is that leisure days also count towards the 90-day threshold, meaning that drivers using their allowance for personal trips further limit their working availability.[11] This is likely to have a greater impact on small and medium-sized enterprises (SMEs), which may lack the workforce flexibility to rotate drivers effectively.

4.1 Potential impact on HGV operators

In 2023, 77% (1.9 million tonnes) of goods exported from the UK by UK-registered vehicles were unloaded in France, Belgium, the Netherlands and Germany.[12] The implementation of EES arrives at a challenging time in which the road freight sectors in the UK and the EU have been experiencing a decade-long profitability decline, with insolvencies rising in the last five

[10] https://ec.europa.eu/eurostat/databrowser/view/migr_eirfs__custom_16791383/default/table?lang=en

[11] https://www.gov.uk/travel-to-eu-schengen-area#:~:text=Your%20total%20stay%20in%20the,day%20period%20keeps%20'rolling'

[12] https://www.gov.uk/government/statistics/road-freight-statistics-2023/international-road-freight-statistics-united-kingdom-2023

years.[13,14] EU nationals accounted for 10% of HGV drivers working in the UK in 2021.[15] Therefore, if EES implementation leads to an increased demand for EU drivers to undertake this specialised work, this could further change the UK HGV workforce. This challenge could be further compounded by the sector's high fragmentation, with 92% of operators employing fewer than 10 people in 2023, limiting the capacity of SME firms to recruit or adapt their workforce effectively.[16]

4.2 Potential impact on coach operators

In 2023, 15.1 million passengers travelled by sea between the UK and the EU.[17] Data collected by the Port of Dover suggests that 77,495 coaches transited through the port (in either direction) in 2024.[18] Therefore, travel restrictions and the EES monitoring system could also have significant impacts on passenger transport. The impact is likely to be particularly acute for operators that rely on seasonal tourism, as they may find it particularly challenging to manage driver time effectively in the EU during peak months.

While we lack data on the extent of labour shortages in the UK, the European coach sector had around 10% vacancies unfulfilled (roughly 105,000 bus and coach driver positions) in 2023, and over 80% of operators reported severe difficulty hiring drivers.[19] As with HGV operators, this may limit operators' ability to adapt their employment models (for example, by hiring more drivers on part-time contracts) to ease the impact of EES implementation.

4.3 Evidence themes

This industry summary highlights several evidence themes that would be required for the design of a monitoring or evaluation framework, including:

- Composition and nationality of HGV and coach drivers
- Operators' characteristics and the types of goods transported
- Dependency on UK nationals, including the extent of post-Brexit adjustments made before implementation of EES

[13] *Department for Transport.* (2023). Understanding the road freight market (p. 36, 63). GOV.UK. https://www.gov.uk/government/publications/understanding-the-road-freight-market

[14] https://trans.info/en/transport-business-closure-404900

[15] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/fallinhgvdriverslargestamongmiddleagedworkers/2021-10-19

[16] *Department for Transport.* (2023). Understanding the road freight market (p. 9). GOV.UK. https://www.gov.uk/government/publications/understanding-the-road-freight-market

[17] https://www.gov.uk/government/statistics/transport-statistics-great-britain-2024/transport-statistics-great-britain-2023-international-travel#where-we-travel

[18] https://www.portofdover.com/corporate/about/key-facts/

[19] https://www.sustainable-bus.com/news/bus-coach-drivers-shortage-iru-figures/#:~:text=Europe%E2%80%99s%20bus%20and%20coach%20driver,mentioned%20%5B%E2%80%A6

- Trip volume, frequency, and duration of GB-Schengen cross-border commercial road journeys

The following section breaks down these evidence themes into indicators relevant to HGV operators, coach operators, or both.

5 Main categories of evidence

In this section, we provide more detail on the indicators under the evidence themes identified in Section 4 and for which it would be appropriate to gather more evidence. The list of indicators is based on our assessment of the available evidence to date. It does not preclude the addition of any other indicators that may be suggested for inclusion by further work.

Composition and nationality of UK HGV and coach drivers

HGV & coach drivers

1. Total UK workforce size and evolution over time, including breakdown of driver nationalities (UK-national, EU-national, and other third-country nationals)
2. Information on how workforce size and nationality vary by operator characteristics (eg fleet size, type of goods, or passenger transport) and whether the operator undertakes journeys within the Schengen area
3. Total number of UK-national, EU-national, and other third-country-national drivers that do and do not travel from GB to the Schengen area
4. Relationship between nationality and route assignment

HGV drivers

5. Splits by type of goods transported

Coach drivers

6. Splits by passenger transport type (coach tours vs scheduled travel)

Operator characteristics and type of goods transported

HGV & coach operators

1. Total number of (UK-registered) operators
2. Splits of operators by fleet size and number of employees
3. Information on types of operating models and flexibility to shift
4. Information on the costs and revenues of operators operating in the Schengen area

HGV operators

5. Splits of operators by licence type, types of goods transported, and volume of cross-border goods transported

Coach operators

6. Splits by type of passenger transport (scheduled vs tours) and volume of cross-border passengers transported

Dependency on UK nationals, including the extent of post-Brexit adjustments made before implementation of EES

HGV & coach operators that undertake journeys in the Schengen area

1. Current driver rotation patterns and flexibility to make changes
2. The extent to which driver days in the EU are currently monitored and managed, including driver leisure days
3. Effects on the length of driver rotations and recruitment practices
4. Effects on monitoring of driver days in the EU and management methods (for example, shifts in employment models)
5. Differentiation by operator size
6. Information on partnerships or contracts between UK and EU operators and changes over time
7. Interaction with other rules (such as drivers' hours rules and permitted transport movements)
8. Number of vacancies and difficulties in recruiting drivers (by nationality)

HGV operators that undertake journeys in the Schengen area

9. Interaction with other HGV movement rules (such as the UK-EU Trade and Cooperation Agreement rules)
10. Seasonality of goods traded (for example the increase in goods movements in the run up to Christmas)
11. Differentiation by type of goods transported

Coach operators that undertake journeys in the Schengen area

12. Interaction with other coach journey rules (such as Interbus Agreement rules)
13. Seasonality of travel to Europe (for example, number of trips per month)
14. Differentiation by type of passenger transported

Trip volume, frequency and duration of GB-Schengen cross-border commercial road journeys

UK-GB operators that undertake journeys in the Schengen area

1. Cross-border trips as a proportion of total trips
2. Frequency of cross-border trips per week, month and quarter

GB-Schengen goods trade

3. Total number of cross-border trips with splits by destination and evolution over time
4. Distribution of cross-border trip duration and evolution over time
5. Principal routes and their proportion of total cross-border trade
6. Type of goods transported with splits by destination and port of entry or exit, and evolution over time
7. Effects of EES implementation on goods' travel times and costs

GB-Schengen passenger transport

8. Total number of cross-border trips with splits by destination, type of travel (tours vs scheduled) and evolution over time

9. Distribution of cross-border trip duration and evolution over time
10. Principal routes for scheduled travel and coach tour routes and their proportion of total cross-border passenger transport

6 Data mapping and evidence gaps

This section summarises the findings of the data-mapping exercise and the evidence gaps identified.

Data mapping was used to assess the quality and relevance of the indicators listed in Section 5 of the identified data sources. The assessment produced quality and relevance rankings for sources into low, medium, and high (the process and definitions of which can be found in Annex A).

The exercise identified several datasets that would be useful in assessing the extent of the direct and indirect impacts of the EU's introduction of EES on the UK HGV and coach operators. A summary of the most relevant evidence sources assessed is provided in Annex A.

This data mapping identified several evidence gaps. For both HGV and coach drivers, there is a lack of information on current operating models. Having a baseline understanding of business operating models is essential to understanding how businesses can adapt to ensure UK-national employees are not at risk of exceeding the 90/180-day Schengen duration-of-stay restrictions. There is also limited information on operator characteristics and their relative dependency on UK nationals for making cross-border trips, which would provide important contextual information for understanding the extent to which businesses are likely to be affected.

These gaps highlight the importance of primary data collection through a primary survey to understand and monitor the direct impacts of the new enforcement measures on operators and drivers. There is potential for additional benefit from qualitative input from industry bodies to provide high-level contextual information, such as the ability of HGV and coach operators to mitigate the impacts of implementing the EES.

Table 3 presents the list of indicators with emerging data gaps for each theme, including a description of the specific missing information and its relevance.

Table 3 Emerging data gaps by theme

Evidence theme	Indicators with gaps	Description of gaps
Composition and nationality of HGV drivers	2. Information on how these vary by operator characteristics	More granular industry breakdowns would help to understand the wider indirect impact on UK trade.
Composition and nationality of HGV drivers	3. Total number of UK-national, EU-national, and other third-country-	A better understanding of the nationalities of drivers who cross

Evidence theme	Indicators with gaps	Description of gaps
	national drivers that do and do not travel from GB to the Schengen area 4. Relationship between nationality and route assignment	borders is needed to determine reliance on UK nationals.
Composition and nationality of coach drivers	1. Total UK workforce and evolution over time, including breakdown of work nationalities 3. Total number of UK-national, EU-national, and other third-country-national drivers that do and do not travel from GB to the Schengen area 4. Relationship between nationality and route assignment	No source was found that identifies the composition of coach drivers, and specifically those who cross borders.
Composition and nationality of coach drivers	2. Information on how workforce size and nationalities vary by operator characteristics 6. Splits by passenger transport type	The impacts of EES implementation are likely to differ by passenger transport type (tours vs scheduled) and characteristics, which are important for assessing the extent of expected impact.
HGV operator characteristics	3. Information on types of operating models and flexibility to shift 4. Information on the costs and revenues of operators operating in the Schengen area	Current (and changes to) operating models are important for understanding the direct and indirect impacts of EES implementation.
Coach operator characteristics	1. Total number of operators 2. Splits by fleet size and number of employees. 3. Types of operating models and flexibility to shift 4. Information on the costs and revenues of operators operating in the Schengen area 6. Splits by passenger transport type	There is limited basic information available on coach operators, particularly those that operate within the Schengen area.
Dependency on UK nationals – HGV operators	All indicators	There is limited information on current HGV operators' dependence on UK-national drivers, their ability to adapt operating models or other methods to mitigate the effects of EES implementation, and the extent to which they monitor time

Evidence theme	Indicators with gaps	Description of gaps
		spent against Schengen limitations of stay rules.
Dependency on UK nationals – coach operators	All indicators	There is limited information on the current coach operators' dependence on UK-national drivers, their ability to adapt operating models or other methods to mitigate the effects of EES implementation, and the extent to which they monitor time spent against Schengen limitations of stay rules.
Trip volume, frequency, and duration for GB-Schengen cross-border HGV journeys	4. Distribution of cross-border trips by duration and evolution over time	Understanding the duration (and frequency) of trips would guide the assessment of the extent of impact.
Trip volume, frequency and duration for GB-Schengen cross-border HGV journeys	7. Effect of EES implementation on goods' travel times and costs	Potentially useful for understanding wider impacts.
Trip volume, frequency and duration for GB-Schengen cross-border coach journeys	2. Frequency of cross-border trips per week, month and quarter 8. Total number of cross-border trips with splits by destination, type of travel, and evolution over time 10. Principal routes for scheduled travel and coach tours and their proportion of total cross-border passenger transport	Some information is available for scheduled travel, but nothing has been found for coach tours.
Trip volume, frequency and duration for GB-Schengen cross-border coach journeys	1. Cross-border trips as a proportion of total trips 9. Distribution of cross-border trip duration and evolution over time.	Necessary for assessing the extent of impact. Some qualitative information is available on the proportion of total trips and the trip duration.

Source: Frontier Economics

Notes: Research indicator numbering corresponds to the numbering in Section 5

7 Overview of the M&E approach

The following section presents an overview of the commonalities among the monitoring, basic evaluation, and advanced evaluation options, including a description of how they relate and feed into each other. This section covers available data sources, the approach to primary data collection, an overview of the analysis methodologies, and a list of common challenges faced by the M&E options, considering the research context.

7.1 Data

The data mapping exercise described in Section 6 identified secondary data from a mix of public and private sources to support the M&E framework. For many indicators, secondary sources either do not cover the required information or provide only contextual information, such as wider HGV or coach operator trends (not specific to the Schengen area cross-border trade and travel). In such instances, primary data collection is required to obtain reliable and relevant information. Details of the primary data collection process are explored in Section 7.3. The M&E framework includes four types of data:

- **Public secondary data**: often long-term and regular sources that can be used to monitor changes in the transport of goods and passengers. Usually limited detail
- **Private secondary data**: a mixture of one-off or regular sources from private or third-sector organisations
- **Primary quantitative survey data**: online survey shared with HGV and coach operators to fill identified data gaps and assess expected effects of EES implementation
- **Primary qualitative interview data**: semi-structured interviews with HGV and coach operators and industry stakeholders to fill data gaps and gather perspectives on the effects of EES implementation

Annex B provides a breakdown of the key indicators required for the M&E framework and the different data sources available for building an understanding of each.

7.2 Public and private secondary data

Where available, the monitoring and both evaluation options would draw on regularly published, high-quality quantitative data sources to monitor changes in key indicators over time. A summary of the most relevant secondary data sources is provided in Table 4.

Table 4 Relevant secondary data sources

Database	Summary	Variables used	Data location and release frequency
Annual Population Survey (APS)	National survey covering employment by occupation and nationality. Used to estimate the size and nationality composition of the driver workforce.	Total number of drivers, split by nationality (UK, EU and third-country), split by industry segment (goods or passengers)	UK Data Service; quarterly
Vehicle Licensing Statistics (DfT and DVLA)	National administrative dataset of all registered vehicles in the UK.	Total number of licensed vehicles by type and region	DfT/Gov.uk; quarterly
Road Freight Statistics (DfT)	Survey of international road freight activity of UK-registered HGVs.	Number of cross-border trips, trip duration, and route breakdown	DfT/Gov.uk; annually
UK Trade Statistics (ONS and HMRC)	Official trade statistics on goods flows between the UK and the Schengen area.	Goods volumes and values, commodity type, and port of entry and exit	HMRC/ONS; monthly
Roll-on, Roll-off Freight Statistics (DfT)	Port-level data on vehicle and passenger crossings.	Number of UK and non-UK vehicles, frequency, and volume of crossings	DfT Port Freight Stats; quarterly
Fleet Data (Motor Transport)	Private dataset of the UK's largest HGV fleet operators, covering size, depot location, and structure.	Fleet size, operator type, and licensing status	Motor Transport (subscription); weekly

Source: *Frontier Economics*
Note: *Further details on these data sources, including access links, are available in Annex A.*

7.3 Primary data collection

The collection of primary data would serve three important purposes:

- **Fill data gaps identified in evidence mapping**: bespoke primary surveys can target the collection of specific information on UK HGV and coach operators that are involved in Schengen area trade and travel.[20]
- **Provide depth of understanding**: interviews and focus groups can explore 'how' and 'why' changes occur and can be used to gather insight on complex processes (such as driver rotation models and their flexibility).
- **Explore wider contextual factors**: semi-structured interviews with operators and industry experts can be used to explore the wider setting that might influence outcomes.

This framework presents the options for conducting primary interviews with a mixture of industry experts and HGV and coach operators, and the options for running a survey with HGV and coach operators.

7.3.1 Operator profiles & sample frames

Operator profiles

There are two populations of interest:[21]

1. HGV operators registered in the UK that hold a Standard International Operator Licence (SIOL) undertake at least some of their business in the Schengen area
2. Coach operators registered in the UK that hold a SIOL

Based on the HGV and coach populations described in Annex C.1, possible primary data collection options are presented in Table 5. In Table 5, the maximum realistic base size is estimated on there being 9,652 goods vehicles operators that hold an SIOL and 1,702 public service vehicle (PSV) operators that hold an SIOL, with a 10:1 ratio agreeing to interview (based on previous experience interviewing this audience, although the response rate could be lower, depending on approach).

[20] In particular, the evidence review highlighted particular gaps in information on (i) the dependency of UK-registered HGV and coach operators on UK-national drivers (specifically for cross-border travel), (ii) current HGV and coach operating models, the flexibility to shift these models and the associated costs, and (iii) total numbers of coach and passengers that travel by coach that cross the EU border and the average duration of coach tours by month.

[21] A population of interest is the group that we wish to represent in research.

Table 5 Possible primary data collection options

Population	Qualitative interviews	Quantitative survey	Maximum realistic base size
1. All HGV operators that hold SIOLs	Yes	Yes	965
2. All coach operators that hold SIOLs	Yes	Yes	170

Source: SYSTRA

Sample frames

We propose using the operator licence records held in VOL to identify in-scope organisations.

Specifically, we propose using the list of operators holding a SIOL. This provides a practical sample of coach and HGV organisations (that currently run or have the option to run international services), with business names and addresses, which require minimal cleaning.

Future work could also consider screening membership lists from organisations such as the Road Haulage Association (RHA) (around 8,500 members), the UK Coach Operators Association (UKCOA) (around 115 members), the Confederation of Passenger Transport (CPT) (around 900 members), or Logistics UK (around 21,000 members). However, this is not recommended due to likely bias: survey responses would be limited to members and may not be representative of the broader operator population. While this approach could offer efficiency gains, these are likely to be outweighed by concerns around sample coverage and representativeness.

7.3.2 Primary interviews approach

We recommend including a round of primary interviews before the EES implementation, to explore the pre-EES context for HGV and coach industries and to understand the extent to which operators are aware of and concerned about the EES. Primary interviews would be conducted one-to-one. They would be semi-structured, lasting 1 to 1.5 hours, and use topic guides to guide discussion, allowing unexpected themes to be raised and explored.

Two groups of stakeholders would be included in the primary interview fieldwork:

- Interviews with industry experts
- Interviews with HGV and coach operators

Interviews with industry experts

Interviews with industry experts, such as HGV and coach trade associations of different sizes, would provide insights into industry-wide standards, including common practices in hiring drivers and managing driver rotations. Interviews would include questions to help understand the direct and indirect impacts of EES implementation, such as the extent to which the costs of trade and travel to the EU have changed since the UK's EU Exit (2021).

In addition to contributing to the evaluation, pre-EES interviews with industry experts and organisations would help with the primary research design. Early engagement should be conducted to identify if experts:

- are planning to conduct related research and any collaboration opportunities (for example, if RHA is planning to survey its members, it would be better to coordinate on questions if possible and conduct one coordinated survey, rather than separate surveys, which would potentially increase the burden and decrease response rates)
- are willing to endorse the evaluation research (for example, include their logos on the advance letter, promote the survey through their communications channels, or potentially share the survey link with their members)
- can provide profiling information on the four populations of interest to feed into the survey quota and sampling design
- can advise on the quantitative sample frames, particularly the proposed coach operator SIC codes
- can advise on operators they recommend approaching, including in the qualitative research

Given the tight timelines, we strongly recommend that DfT engage with stakeholders before commissioning the supplier to understand what research they may be planning to conduct and explore whether collaboration is possible. The evaluator should work closely with DfT to identify the most relevant experts to include and to minimise the burden imposed on them.

Interviews with HGV and coach operators

Interviews with HGV and coach operators would provide valuable insights into the expected impact of EES implementation on specific operators and would enable exploration of the reasons why this impact has occurred, why the operators associate the impact with EES and whether they had considered any mitigating actions.

Pre-EES qualitative interviews with HGV and coach operators should be conducted before the baseline quantitative surveys. The interviews' purpose is to:

- explore the relevant evaluation indicators and questions
- feed into the quantitative survey design

- assess the extent to which operators have already made changes in anticipation of EES

The second point is particularly important due to the tight timings for conducting surveys before EES implementation, which is anticipated for October 2025.

Upon commissioning, the evaluator should prepare a first draft of the survey questionnaire. During the qualitative interviews, researchers can go through the questionnaire with participants, asking them to explain how they understand each question to assess whether it is interpreted as intended. They would also identify whether respondents have the information available to answer each question. Where there are difficulties (for example, if the respondent says they do not know), the researcher could explore with the respondent what information they could provide and identify any changes to the question. This would help avoid a separate cognitive testing phase and allow the evaluator to finalise the survey tool within the qualitative fieldwork period. This review of the questionnaire is expected to take up to 20 minutes, leaving 40 minutes for the semi-structured interview.

The semi-structured qualitative discussion would cover:

- operator characteristics, including the type of trade or travel conducted in the Schengen area:
  - Types of goods being transported (export and import)
  - Scheduled coach services or tours
  - Nature, duration, itineraries of coach travel, passenger information (activities, accommodation, and spending)
- types of operating models, the reasons for these, their advantages and disadvantages, and their flexibility to change
- current hiring and driver rotation patterns, as well as flexibility to adapt
- how drivers are assigned to jobs, including the role of nationality
- the extent to which driver days in the EU are currently monitored and managed, including driver leisure days
- interaction with other international market access rules, such as drivers' hours rules and pick-up and drop-off limitations
- anticipated changes in the monitoring and management of the number of days UK nationals spend driving in the EU (for example, shifts in employment models)
- changes in cross-border trip patterns at the operator level.

In both the baseline and follow-up interviews, the evaluator should explore when changes were made, what specifically was changed, and how pre-EES practices differ from anticipatory or post-implementation behaviours. Where relevant, interviews should consider possible hypotheses for changes, including but not limited to EES implementation.

Where primary survey data is unavailable, interviews would also be used to gather additional information and background on operator and industry-level changes since the introduction of EES. This would draw on insight from operators and stakeholders to indicate wider trends in cross-border HGV and coach activity.

Suggested baseline interview sample sizes are relative to the wider sectors:

- Fifteen interviews with HGV operators that undertake journeys in the Schengen area
- Eight interviews with coach operators that undertake journeys in the Schengen area
- Five interviews with industry experts, for example, appropriate stakeholders from organisations such as the RHA or the CPT

If DfT wishes to conduct qualitative research only and no quantitative survey, these sample sizes may be increased. The sample should include a good spread by the following parameters (and any additional considerations raised by stakeholders):

- Proportion of operations in the Schengen area
- Type of goods transported (HGV operators only)
- Schedule or tour model (coach operators only)
- Size of organisation (employees or turnover)
- Size of fleet
- Locations travelled to

The qualitative sample would be freely found using online searches, which means the evaluator can ensure a good spread. All details would be checked with each operator during the recruitment process. Some of the information (for example, organisation size) may be available on a SIC sample frame; however, it relies on information registered with Companies House, is not available for all operators, and is not reliable, so it would also need to be checked with each operator.

It is suggested that follow-up research include a mix of operators who took part in the baseline interviews and newly recruited participants. Additional topics and questions for the basic evaluation are discussed in Section 9.2.1.

7.3.3 Primary survey approach

A primary survey would enable HGV and coach operators to address the evidence gaps identified and, where a baseline survey is conducted, provide an indication of changes over time for use in the monitoring and evaluation options.

With EES implementation originally planned for 2023 and then 2024, operators may have already changed aspects of their operations. This cannot be overcome, but it would be

possible to include questions in the qualitative interviews and the survey to identify if changes have been made.

Given the complexities of the coach operator sample frame discussed earlier, and the need to design questions that different operators can answer consistently, we would usually recommend a pilot. As this is not possible within the available timelines, the proposed approach is to conduct a large number of qualitative interviews before the quantitative survey to inform the survey design.

Proposed approach

A census approach is recommended survey distribution, with all HGV and coach operators in the sample frame invited to complete the survey. This approach will ensure the views of all in-scope operators, who wanted to share their opinions, are captured. Response rates should be monitored to ensure a variety of organisations respond (a mix of business sizes, sectors, and types of operations), as previous research has indicated that the impacts of EES implementation may vary by the characteristics of businesses operating internationally.

A postal 'push-to-web' approach is most appropriate, with the primary means of completion through an online survey form. Computer-Aided Telephone Interviewing (CATI) should also be offered as a secondary data-collection method for those who prefer to provide their views in that format.

As for the interviews, we recommend sending an advance letter to the sampled HGV and coach operators signed by DfT and, where possible, other relevant stakeholder organisations. This would emphasise the importance of the research, authenticate it, and encourage participation in the surveys. This letter would also outline the information that would be collected, so participants know what to expect.

Figure 1 summarises the method for a baseline survey, which would be replicated at the follow-up points to measure change (for example, after 1 year and 3 years). Each survey should be sampled as a cross-sectional survey to measure changes across the sector, but operators are still allowed to participate in follow-up surveys if they have completed previous waves.[22] This is necessary given the relatively small population.

Due to the small eligible population, we also recommend allowing coach operators who have participated in the qualitative research to also participate in the quantitative research if they are willing (rather than screening them out).

The monitoring and basic evaluation options would consist only of the core survey and an additional survey module with questions for operators that undertake journeys in the Schengen area. It is assumed that this survey includes only questions that operators can answer without looking up information (for example, by asking for approximations within bands). If the basic

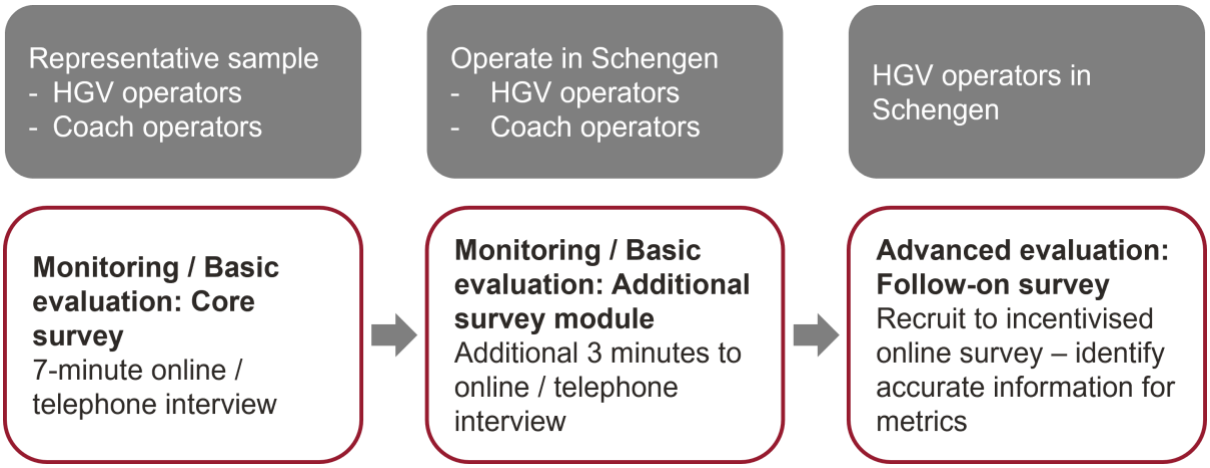
[22] A cross-sectional survey draws a fresh sample in each wave rather than recontacting the same participants.

or advanced evaluation options are selected, a few more questions would be added to the additional survey module to capture operator-reported impacts of EES implementation.[23]

The suggested method is a mixed-mode online and telephone survey to maximise response rates.

The advanced evaluation includes an additional survey conducted on a quantitative sample of HGV operators that undertake journeys in the Schengen area. This survey includes questions asking for more precise details, which participants would likely need to look up, such as detailed cost and revenue data.

Figure 1 Baseline survey method



Source: SYSTRA

Table 6 displays the minimum sample size of UK HGV operators required to ensure a sufficient sample of operators undertaking journeys in the Schengen area. It also presents a realistic target for coach operators in the UK based on the total population. The table indicates the margins of error, assuming that about 50% of the sample gives a particular response.[24]

[23] Operator-reported impacts include stated impacts or expected impacts of EES enforcement gathered from HGV and coach operators. This alone lacks robustness as individuals may be biased or unable to isolate the impact of EES restrictions from other drivers of change (such as from the wider impacts of Brexit or from other policies, for example, International Passenger Transport Regulations). However, this can provide valuable insight into issues such as what actions operators may have taken to mitigate the impact of EES enforcement (such as changing driver rotations and reducing work).

[24] A margin of error tells us how many percentage points our results will differ from the real population value. Assuming the data has no bias, were we to replicate this survey repeatedly under identical conditions, we are 95% confident that a statistic will fall within a certain number of percentage points more or less than the percentage measured in this survey.

Table 6 Primary survey estimated sample sizes and margins of error

	Population estimates	Total interviews	Margin of error (+/-)
1. All HGV operators that hold SIOLs	9,652	~900	3.1%
2. All coach operators that hold SIOLs	1,702	~150	7.6%

Source: SYSTRA

Looking at the change between the baseline and a follow-up would involve comparing samples of approximately:

- 900 baseline UK HGV operator responses with 900 follow-up UK HGV operator responses
  - The margin of error would be around 4.6%
- 150 baseline UK coach operator responses with 150 follow-up coach operator responses
  - The margin of error would be around 11.3%

An important point of caution is that without a pilot, response rates can only be estimated. While a larger sample of HGV operators can be drawn to mitigate against a lower response rate (for example, drawing at 15:1), the limited population of coach operators means it may be necessary to accept a smaller sample size.

Quotas for the operator survey should be set based on the information in the sample frame (for example, turnover and number of employees).

The coach operator sample would be screened from multiple SIC codes, including non-qualifying organisations, so unlike the HGV operators, it will not be possible to use the sample frame to set quotas. The coach industry is fragmented with a large number of SME operators and little centralisation of information, which means an alternative, reliable population profile has not been identified. This means quotas are not recommended for coach operators (population 4).

This approach should be reassessed following stakeholder engagement, if stakeholders identify appropriate profiling information.

Quantitative questionnaire

The questionnaire would be designed to measure the relevant indicators, building on the qualitative exploration to design questions appropriate for the monitoring, basic, and advanced evaluation options. In particular, the types of information collected would include:

- Workforce size and nationality
- Operator revenues
- Operation costs
- Driver costs (salaries)
- Average trip duration and cost
- Awareness of the Schengen 90/180-day restrictions since the UK's EU Exit
- Impact of the Schengen 90/180-day restrictions since the UK's EU Exit (basic and advanced evaluation only)

For the monitoring and basic evaluation options, questions referring to operator costs and revenues, and driver costs would ask operators the extent to which each has changed over a given timeframe.

For the advanced evaluation, which requires specific cost and revenue data, operators would be asked to provide more specific information on annual revenues and costs over a given timeframe. To reduce concerns about sharing sensitive commercial information, operators would be allowed to provide a range for each question. Additional questions would also be included to understand how financial performance varies with changes to trade or passenger volumes.

A summary of likely questions is outlined in Annex C.2. Wherever possible, questions should replicate those asked in previous surveys, such as the CPT Bus Industry Costs, DfT Continuing Survey of International Road Haulage by UK Registered Vehicles, and Business Attitudes to Roads in England (from the DfT question bank). Other questions lack precedent and would need to be designed for this survey.

7.4 Methodologies for analysis

The monitoring option and both evaluation options are designed to follow a mixed-methods approach, synthesising evidence from multiple methods using a variety of quantitative and qualitative information sources. A description of the proposed methods is presented in Table 7, along with an explanation of their use in each option.

Table 7 Methodologies proposed for the mixed methods approach

Methodology	Description	Role in the monitoring option	Role in the basic and advanced evaluation options	Data requirements
Descriptive analysis	This method collates information on the overall context of HGV trade and coach passenger transport from GB to the Schengen area and insights on the impact of EES implementation on UK-registered operators. This informs a high-level understanding of the wider setting and analyses.	It would provide a high-level understanding of the wider setting and the extent of EES's reach.	Both the basic and advanced evaluation options would analyse operator-reported views on whether and how EES implementation has impacted them, as captured in primary interviews and surveys. They would explore the actions operators may have taken to mitigate impacts, along with other contextual factors, to help assess the attribution of impacts to EES.	Low – can use a large variety of quantitative and qualitative data, including data with only one incidence.
Before vs after analysis	This method compares information collected before the introduction of EES with the same information after EES is operational.	It would analyse changes over time (for example, the level and type of HGV trade between GB and the EU).	Both evaluation options would compare operator expectations of the impact of EES implementation with 'actual' reported impacts. With multiple rounds, this method can analyse the persistence of impacts over time.	Medium – requires quantitative or qualitative data before and after implementation.
Counterfactual analysis	This method compares changes in operators affected by EES implementation with estimates of what would have happened to those operators if EES had not been implemented, yielding an estimate of the size of the impact of EES implementation.	Not applicable	The advanced evaluation option would use only quantitative data to indicate the size of the impact of EES implementation. With qualitative data, this method indicates whether impacts are attributable to EES.	High – requires before and after data for operators affected by EES implementation and a non-affected comparison group.

Source: Frontier Economics

The impact evaluation options would aggregate the findings from the different analyses and draw on principles used in 'theory-based contribution analysis' approaches to assess the strength of evidence of a causal contribution of EES to changes in direct and indirect outcomes of interest.[25] A contribution analysis is a systematic method that examines the available evidence in support of (or against) an anticipated or theorised change (HM Treasury: The Magenta Book 2020). Although commonly used in policy impact assessments, the principles can be used to evaluate the extent to which a shock, such as the introduction of EES, has impacted a group of interest, such as HGV and coach operators. It would be used by the evaluation options to build a credible, evidence-based contribution narrative that explains the extent to which EES implementation is likely to have contributed to observed changes in outcomes, accounting for alternative explanations.

7.5 Monitoring and evaluation challenges

There are several key challenges the evaluation faces, which are mitigated by the proposed approach:

- **Baseline survey data collection.** Given time constraints, DfT may decide it is not feasible to collect baseline survey data. If the survey is not conducted, M&E would need to rely more on (limited) secondary data sources and qualitative insight. Follow-up surveys would also need to be adapted to fill some of the evidence gaps left by its omission.
- **Anticipatory effects.** Operators may make adjustments before October 2025, in anticipation of EES implementation. Baseline data collected in September 2025 may, therefore, include some of the effects of EES implementation. While a baseline survey can help limit the influence of anticipatory behaviour, some operators are likely to have adjusted their practices to comply with Schengen time-of-stay limits up to, or even over, a year before EES is implemented.
- **Attributing changes in outcomes to the EES programme.** This is challenging because operators may be affected by other external shocks or policies, whether in the absence of or alongside EES, which also affect the outcomes of interest. For example, it may be difficult to disentangle the wider impact of Brexit or COVID-19 on trade and value chains from the specific impact of EES implementation. The proposed approach focuses on identifying additionality through multiple approaches, triangulating different sources of evidence to build a contribution narrative.[26]
- **Impacts take time to manifest.** Impacts on trade can take a long time to develop. The proposed approach includes a range of short-run and longer-run impacts and is flexible for use over longer timeframes. Furthermore, the suggested pre-EES data collection

[25] https://assets.publishing.service.gov.uk/media/5e96cab9d3bf7f412b2264b1/HMT_Magenta_Book.pdf

[26] For example, evidence on the impact on operating models can be combined with evidence on the impact of EES implementation on the number of HGV or coach operators operating in the EU to infer the impact of EES implementation on operating models.

approach can serve as a valuable proof of concept and baseline for the expected second phase of the impact evaluation activity.

- **Spillovers**. The introduction of EES may result in impacts for HGV and coach operators that do not conduct business within the Schengen area (for example, through increased competition for domestic trade or travel contracts), as operators are put off running operations there. The extent of spillovers arising is something that would be explored through self-reported impacts and qualitative engagement.
- **Displacement**. EES implementation may result in Schengen-area goods and passenger transport operations moving from the UK to the EU, especially if cross-border travel requirements and monitoring become asymmetrically stringent. The extent of geographical relocation arising from EES would be explored through a combination of secondary data, self-reported impacts, and qualitative engagement.
- **Self-reported data on outcomes and perceptions have limitations.** This data is valuable for providing metrics that are not otherwise available. However, it is influenced by personal perceptions, memory and attitudes, which may result in inconsistencies or biases. Self-reported data would be analysed cautiously. Qualitative work would be used to explore self-reported data in depth, and insights from a range of stakeholder groups would be triangulated to contrast and validate findings, yielding more robust and comprehensive results.

8 Monitoring option

The monitoring option seeks to understand the direct and indirect impacts of the implementation of EES, in light of broader contextual factors. As this is a monitoring-only option, it does not aim to measure the extent to which changes to observed metrics are attributable to EES implementation, or how these measures compare to a world in which the EES were not implemented.

The following section presents the monitoring option, starting with the list of relevant indicators, the metrics used to assess them, and the primary data sources, followed by a description of the types of analysis used to assess the indicators. Each methodology option includes an example and a recommendation for presenting the results.

8.1 Monitoring indicators

Indicators for the monitoring options were presented and agreed upon during the first evidence mapping phase of work. Each quantitative indicator has now been assigned a metric for measurement using secondary data or for the primary survey. Indicators have also been divided into those that relate to the measurement of direct impacts, indirect impacts, or wider contextual factors.[27] The full list of indicators, their measurable metrics, and data sources is provided in Annex B.

8.2 Analysis methods and presentation of data

Analysis of the information collected as part of the monitoring option would involve a combination of a descriptive analysis to outline the baseline and contextual setting of the HGV and coach operator landscape, and a before vs after analysis to assess changes in key metrics over time.

The baseline and follow-up analyses are presented separately as the aims, types of analysis, and presentation of results would differ. An illustrative example is provided for each analysis.

8.2.1 Baseline analysis

Descriptive analysis: this analysis would use a combination of the available primary and secondary data (including qualitative insights) to build an understanding of the baseline UK HGV and coach operator landscape and to explore the contextual factors that will likely

[27] Direct impacts refer to changes that result directly from the introduction of EES (eg changes in operator revenues or decisions to operate in the EU). Indirect impacts refer to second-order effects that are a consequence of the direct impacts (eg changes in the volume and cost of HGV trade or coach passenger transport to the EU). Contextual factors refer to wider settings or influences that help explain why EES has led to a given change (eg if operators are unable to flex driver rotations, they may be forced to reduce operations in Europe to comply with EES).

influence the impact that EES implementation will have on UK-registered HGV and coach operators.

The quantitative indicators assessed would include direct indicators, such as the number of UK operators that conduct operations within the Schengen area and the nationality of drivers, and indirect ones, such as an understanding of the distribution of market share within the HGV and coach operators industry and a summary of existing GB to the Schengen area travel and trade. It would also assess contextual factors such as the extent to which driver rotation is based on the number of days spent in the EU. The full list of direct, indirect, and contextual indicators is presented in Annex B.

Example: composition and nationality of HGV drivers. Data collected at baseline from the APS on UK HGV driver nationalities would be analysed and compared to survey responses from HGV operators about their drivers' nationalities. Findings would be summarised in a table to enable easy assessment of differences, such as in Table 8.

Table 8 Example presentation of baseline quantitative data

		Sample size	UK nationals	EU nationals	Non-UK or EU nationals
UK average (APS)		300	84%	15%	1%
Survey sample average		2000	80%	17%	3%
Survey data	Large operators (50+ trucks)	400	70%	27%	3%
Survey data	Medium operators (25–49 trucks)	650	80%	17%	3%
Survey data	Small operators (1–24 trucks)	950	85%	12%	3%
Survey data	Operates in the Schengen area	300	65%	30%	5%
Survey data	Domestic only	1700	90%	10%	0%

Source: Frontier Economics

Note: Numbers presented are for illustrative purposes only and do not reflect actual data.

Qualitative indicators would also be analysed to provide depth of understanding of baseline operating models, including how driver rotations are managed and whether operators monitor the number of driver days spent in the EU.

Example: Driver hiring and shift rotation practices. Interview responses that explain how operators manage driver hiring and rotations would be assessed for patterns and summaries presented in thematic summary tables, for example, Table 9 below.

Table 9 Example presentation of baseline qualitative data

Theme	Thematic analysis	Example quote
Driver rotation is based on the number of days spent in the EU	Just over half of the operators asked confirmed that driver rotations are dictated by the number of days the driver has spent in the EU over the previous 180-day period.	'Since Brexit, we monitor driver days in the EU and assign jobs accordingly'
Operators struggle to hire EU nationals	All operator interviews suggested that they would hire more EU nationals as drivers, but are limited by a lack of supply.	'HGV operators are experiencing huge labour supply issues; these issues have worsened since Brexit'

Source: Frontier Economics
Note: Information and quotes presented are for illustrative purposes only and do not reflect actual data.

The baseline analysis would be written up and presented in a baseline report that would include summary statistics of quantitative and qualitative information. The findings presented can then be used for quantitative or qualitative comparisons in future analysis.

8.2.2 Follow-up analysis

The following assumes that DfT would run two follow-up surveys and interview rounds; first, a year after the introduction of EES, and a second, three years after. These timelines are indicative and may be revised at a later stage as further evidence emerges.

Descriptive analysis: In all future monitoring rounds, descriptive analysis would be a useful tool for exploring the role of contextual factors that explain some of the observed changes. A full list of the contextual factors is provided in Annex B. These include:

- types of operating models and operator flexibility to adjust
- the extent to which, and how, operators monitor driver work and leisure days in the EU
- the role of partnerships between UK and EU operators

At follow-up, qualitative analysis would explore operator and industry experts' (such as stakeholders from HGV and coach industry bodies) perceptions on whether and how EES implementation has had an impact and any discussions of alternative explanations for observed changes (for example, continued impact of leaving single market arrangements). It would involve thematic analysis of interview transcripts to identify commonalities and patterns in operators' and experts' responses. For example, the analysis would explore whether and how perceptions of impact differ across types of operators (for example, by operator size or by type of trade or passenger transport).

Example: Changes in operations in the Schengen area. Qualitative information would be collected from operators and industry experts on whether and how their operations or industry-wide operations in the Schengen area have changed since the introduction of EES. Interviewers would explore the reasons why this might have changed and the relative importance of different explanations. Responses would be assessed for patterns and key themes, which would be identified and presented in a table, as in the baseline analysis example.

Before vs after: Would focus on tracking changes over time of direct and indirect indicators. The analysis would compare quantitative and qualitative data collected and assessed at baseline (see examples in Section 8.2.1) with the same data collected and assessed at follow-ups. The full list of direct and indirect indicators is presented in Annex B. The indicators include:

- Indicators of the direct effect of EES implementation:
  - Changes in the workforce size and nationality
  - Changes in operator size and level of operations in the Schengen area
  - Changes in operator costs and revenues
- Indicators of the indirect effect of EES implementation:
  - Changes in the total volume of goods and passengers transported to the Schengen area by UK-registered operators
  - Changes in the cost of GB-to-Schengen area goods and passenger transport

The findings from this analysis would be presented in summary statistic tables to easily compare changes over time. Quantitative data would include statistical testing to determine whether differences over time are statistically significant (larger than might otherwise be expected by chance). Where results are significant, this indicates a real effect, although this effect cannot be directly attributed to EES implementation. Table 10 presents an example of how quantitative analysis would be presented.

Table 10 Example of before vs after analysis summary

Metric or Theme	Baseline	Follow-up 1	Follow-up 2	Comment
% of workforce with EU nationality (APS)	15%	17%	19%	No significant change
% of operators with operations in the Schengen area (survey)	18%	16%	12%*	Baseline to Follow-up 2 difference is significant at the 10% level

Source: *Frontier Economics*

Note: *Information and quotes presented are for illustrative purposes only and do not reflect actual data. Statistical significance indicated by asterisks: * p < 0.1, ** p < 0.05, *** p < 0.01.*

Qualitative data would be presented as a summary of the thematic analysis. For example, when exploring the extent to which driver rotation is based on the number of days spent in the EU, the thematic summary would consider how operator insight has changed over time. For example:

> *A small majority of the operators interviewed at baseline reported that decisions around driver rotations were dependent on the number of days each driver had spent in the EU over the last 180-day period. However, at follow-up, all drivers reported monitoring driver days in the EU and using this to assign delivery routes. Furthermore, when asked, most operators reported more careful monitoring of driver days in the EU because of the introduction of EES.*

Where more than three time points are available or expected (for example, in the secondary data used), a dashboard could be created to present the trends graphically and enable the addition of further future data rounds. This would give DfT a clear view of changes in employment, vehicle licensing, operator activity, and other cross-border trends.

9 Evaluation options

The evaluation options go beyond the monitoring option because they seek to determine the extent to which changes in indicators are attributable to the introduction of EES. This framework presents two evaluation options: a basic evaluation and an advanced evaluation.

9.1 Objectives and research questions

Each evaluation option seeks to answer four thematic questions that align directly with the evidence themes assessed in the monitoring evaluation:

- Has EES implementation led to changes in the **composition and nationality of the HGV and coach workforce**?
- Has EES implementation led to changes in **operator characteristics and operating models**?
- Has EES implementation led to a change in the **dependency on UK nationals**?
- Has EES implementation led to changes in the type of **goods and passengers transported** to and from the Schengen area?

Table 11 presents the list of sub-questions that would be assessed as part of the basic and advanced evaluations. Both methods would take a theory-based contribution analysis approach to synthesise evidence from a range of approaches and data sources to build a contribution narrative.

Table 11 Impact evaluation sub-questions

Evaluation question	Sub-questions
Has EES implementation led to changes in the **composition and nationality of the HGV and coach workforce**?	1. Changes in the size of the workforce of UK-registered HGV and coach drivers. 2. Changes in the nationality of HGV and coach drivers working for UK operators.
Has EES implementation led to changes in **operator characteristics and operating models**?	1. Changes in the number of HGV and coach operators that report conducting work in the Schengen area. 2. Changes in the duration of HGV and coach driver trips to the Schengen area. 3. Changes in overall revenue and costs reported by UK HGV and coach operators.

Evaluation question	Sub-questions
	4. Changes in the revenue and costs associated with conducting work in the Schengen area. 5. Changes to UK HGV and coach operating models (including partnerships with EU firms).
Has EES implementation led to a change in the **dependency on UK nationals**?	1. Changes in the number of HGV and coach operators reporting recruitment difficulties. 2. Changes in recruitment and driver rotation models. 3. Changes in HGV and coach operators' monitoring of driver days in the EU.
Has EES implementation led to changes in the type of **goods and passengers transported** to and from the Schengen area?	1. Changes in the volume of trade and coach passengers travelling to and from the Schengen area via road, over time. 2. Changes to the type of trade and passenger transport to and from the Schengen area. 3. Changes to the cost of cross-border trade in goods. 4. Changes to the cost of cross-border passenger transport.

Source: Frontier Economics

9.2 Basic evaluation option

The basic evaluation option builds on the monitoring-option design to provide a deeper understanding of the direct, indirect and contextual effects of EES implementation, including additional methods to identify the specific role of EES. This evaluation would rely on a theory-based approach to explore:

1. the pathways to impact and the degree to which the available evidence supports them,
2. other potentially influencing factors (for example, wider policy changes).

9.2.1 Primary data collection

The primary data required for the basic evaluation would closely align with the monitoring option, with additional survey questions to capture self-reported or expected impacts of EES implementation in the baseline and follow-up surveys, for example, by asking operators multiple-choice questions to capture the extent to which they expect EES implementation to impact the volume or frequency of trade they carry to the Schengen area. It could also ask to what extent they believe EES is responsible for changes in the cost of international trade, and explore alternative reasons for operator-observed changes.

9.2.2 Analysis of additional information

The basic evaluation would extend the analysis conducted as part of the monitoring option follow-up analysis, using the additional information collected as part of the primary survey. It would draw on new and existing primary and secondary data sources to build a contribution narrative to determine the strength of evidence on the extent to which EES contributed to changes in the indicators of interest. Details on the analysis methods are explained below.

Descriptive analysis

This method would assess additional quantitative primary evidence to explore whether EES implementation has had a direct or indirect impact on the indicators of interest and the extent of any impact.

A quantitative analysis would use questions taken from the survey on perceived impacts of EES implementation. For example, operators would be asked about changes in driver nationality, the level of cross-border operations in the Schengen area, and costs and revenues, followed by a question about the extent to which they consider EES responsible for these changes.[28] The analysis would explore patterns in responses, for example, of the operators who report a change, what percentage consider most or all of this change to be due to EES? A further breakdown analysis would explore how this differs across operator types (for example, the size and extent of operations in the Schengen area).

Example: changes in the Schengen area operations. In the primary survey, operators would be asked whether they undertake journeys in the Schengen area, whether their level of operations has increased, decreased, or stayed the same and to what extent they consider EES implementation to have impacted this change. These responses would be analysed and presented in summary statistics tables, such as Table 12.

Table 12 Example presentation of impact survey questions

	Sample size	Due to EES = Yes, completely	Due to EES = Yes, partially	Due to EES = No
Operators that report a reduction in Schengen area operations	43	27	13	3

Source: *Frontier Economics*
Note: *Information and quotes presented are for illustrative purposes only and do not reflect actual data.*

[28] Responses are collected on a 5-point scale, for example, not responsible, slightly responsible, moderately responsible, mostly responsible, and completely responsible.

Before vs after analysis

This method would use survey and interview responses to assess how the reported impacts of EES implementation have changed over time, comparing baseline responses on the expected impacts of EES implementation to follow-up responses on 'actual' impacts, and using additional future rounds to explore the persistence of these impacts. A qualitative analysis of interview information would compare patterns in responses across the different interview rounds to explore how perceptions about the impact of the EES implementation on operators and the wider industry have changed over time. This method would also explore how operator and expert perceptions of the effects of post-Brexit policy changes and broader factors, such as rising fuel costs, have evolved.

Quantitative analysis of survey data would compare how responses about the relative role of EES change over time, focusing on the impacts that have seen the most significant changes. For example, if a large change in the number of operators that undertake journeys in the Schengen area is identified (as part of the monitoring before vs after analysis), the basic evaluation would assess to what extent operators report these changes result from EES implementation and explore whether this impact appears to be increasing or decreasing over time.

Table 13 presents an example of how quantitative information could be presented for the 'change in Schengen area operations' example.

Table 13 Example of quantitative before vs after impact analysis summary

Metric or Theme	Baseline (expected)	Follow-up 1	Follow-up 2	Comment
% of operators reporting EES as 'partially' or 'completely' responsible for reducing their Schengen area operations	75% (n=250)	62% (n=250)	41%** (n=250)	Significant difference in the proportion of operators expecting an impact between Baseline and those experiencing an impact at Follow-up 2.

Source: *Frontier Economics*

Note: *Information and quotes presented are for illustrative purposes only and do not reflect actual data. Statistical significance indicated by asterisks: * p < 0.1, ** p < 0.05, *** p < 0.01.*

Before vs after analysis of qualitative data could be used to summarise changes in the findings of thematic evidence over time. For example, for an assessment of whether EES was a main cause of operators reducing their operations in the Schengen area, the findings could be summarised as 'Baseline and follow-up responses are consistent with EES being a strong expected or perceived cause of reduced Schengen area operations'.

Contribution analysis

The final step of the basic evaluation is to examine the available evidence collected against each indicator of interest to build a credible contribution narrative. Assembled evidence could be presented in an evidence matrix to easily identify where the evidence is strongest and weakest. A matrix based on the 'change in Schengen area operations' example is presented in Table 14. Additional insights would include a breakdown of the findings to explore which types of operators are more likely to be affected and under what circumstances.

Table 14 Example contribution analysis evidence matrix

Analysis findings	Evidence type	Evidence summary
Decline in HGV operators active in the Schengen area	Survey	63% of 400 operators report reduced Schengen area operations
High incidence of operators citing EES as a reason for reduction	Survey	Over 90% of operators consider EES a partial or sole reason for the reduction in their Schengen area operations
Reduction is not persistent	Survey	Only 41% of operators reported EES as partially or completely responsible three years later
Brexit's impact is insufficient alone	Industry insight	Experts believe that the number of HGV operators operating in the Schengen area has been stable since the UK's EU Exit (before EES)

Source: Frontier Economics
Note: Information and quotes presented are for illustrative purposes only and do not reflect actual data.

9.3 Advanced evaluation

The advanced evaluation option refers to a more analytically ambitious approach to assessing the impacts of EES implementation. It aims to go beyond basic trend analysis or monitoring by identifying whether, how, and to what extent the policy has affected operator outcomes. This could involve quantitative techniques to support causal inference, richer quantitative and qualitative analysis, or a combination of both.

This section outlines two broad approaches. The first assesses the feasibility of quasi-experimental methods, which are commonly used to estimate causal impacts from policy changes. The second sets out an alternative approach based on simulating the trade and cost effects of EES implementation, drawing on detailed primary data and trade modelling techniques.

9.3.1 Lack of feasibility of quasi-experimental methods

A natural starting point in quantitative causal inference is to consider 'counterfactual methods', which involve estimating what would have happened to the operators affected by EES if automated Entry/Exit enforcement mechanisms had not been introduced. Most methods involve identifying a suitable comparison group of operators similar to the affected group but not impacted by EES implementation and the resultant enhanced enforcement of the 90/180 limit. This comparison group indicates what would have happened to the affected group in the absence of the enhanced enforcement.

In principle, the strongest way to ensure comparability between affected and unaffected groups would be through random assignment: if exposure to EES were randomly determined, this would allow the use of experimental methods. However, as EES is an EU regulatory change that applies universally to all UK nationals, including relevant road transport operators, it is out of scope.

Instead, comparability could be obtained through 'quasi-experimental methods', that is, methods that construct two groups that differ only in their exposure to EES, while being otherwise similar concerning the outcomes of interest. The most plausible method for analysing this would be Difference-in-Differences (DiD).

DiD is a widely used method in policy evaluation and has been applied to analyse the impact of post-Brexit policy changes.[29] It consists of comparing changes in outcomes over time between a group of operators impacted by EES implementation through enhanced enforcement of the 90/180-day limit, with changes over time in a similar comparison group that was not impacted by this enhanced enforcement. The estimated effect is the difference in outcome changes between the two groups, assuming that in the absence of enhanced enforcement, both groups would have followed a similar trend. This assumption is justified by observing that, before the introduction of EES, the two groups ('treated' and 'control') followed a similar trend in the outcome of interest (parallel trend assumption).

$$DiD\ estimate = \left(after^{treated} - before^{treated}\right) - \left(after^{control} - before^{control}\right)$$

However, we consider this approach to be unsuitable for the analysis of EES, given the lack of a natural comparison group and lack of pre-trend data:

- **EES affects all operators conducting cross-border work:** there is no segment of the international road freight or coach market that is exempt from the travel restriction if they employ UK or other third-country national drivers. This rules out the use of a clean,

[29] See notably Gasiorek, Michael, and Nicolò Tamberi. "The effects of leaving the EU on the geography of UK trade." Economic Policy 38, no. 116 (2023): 707–764; and Du, Jun, Liu, Xingyi, Shepotylo, Oleksandr, and Shi Yujie, (2024), "Unbound: UK Trade post-Brexit", Research Paper, Aston University.

unaffected comparison group within the international sector: one of the basic requirements for counterfactual analysis exhibited in previous Brexit impact analysis.

- **Domestic-only operators are not comparable to cross-border operators:** while one could define the treatment group as those doing cross-border work and the control group as those operating domestically, this raises serious concerns around comparability. These concerns fall into two main areas:
  - **Structural and operational differences:** the two groups can differ significantly in business models, fleet and staffing usage, movement restrictions, and the types of services offered. These differences affect core outcomes, such as costs, revenues, and service patterns, and risk violating the parallel trends assumption.
  - **Suitability and relative price dynamics:** the potential cost-increasing effect of EES implementation on cross-border operators can distort relative prices within the market. As a result, domestic operators may not serve as a natural counterfactual, as they could also be indirectly affected by the policy through shifts in demand or competitive pressure.
- **Difficulty identifying treatment and control group status:** comparability aside, identifying which operators engage in cross-border work is not straightforward. There is no licensing regime or administrative dataset that clearly distinguishes international from domestic-only operators. In practice, group assignment would require direct questioning through primary data collection, adding cost and complexity, with no guarantee of a robust or balanced sample.

For these reasons, we do not recommend pursuing a DiD-based evaluation approach as an advanced evaluation methodology in this context. While it is a well-established method in impact evaluation, it is unlikely to offer proportionate or defensible results in this context.

9.3.2 Trade modelling – our preferred approach

Instead, under the advanced option, we propose to focus on methods for developing a more robust estimation of the incremental cost impacts of EES implementation on HGV and coach operators, and then using a trade cost simulation approach to understand likely effects on industry performance, as well as broader indirect effects on cross-border trade and value chains.

To develop a more robust approach to cost impacts, it would be necessary to:

1. **Collect information on the incremental effects of EES implementation on operator costs**. If confidential commercial information cannot be accessed, respondents can be asked to specify ranges of monetary cost values.[30] In any event, responses would likely

[30] Companies House may be a suitable source of cost and revenue data for some companies. However, simplified filing options for small and micro businesses mean it is unlikely to provide the information for all. A future evaluator may still wish to use Companies House data to validate the survey responses of larger companies.

provide a range of estimates. Our approach would be to take a midpoint as the central estimate and present sensitivities (how the results change when the assumptions are adjusted) based on low and high bounds.

2. **This would need to be supplemented by information on revenues**. The combination would allow us to calculate an *ad valorem* (percentage) rate that captures the cost-effectiveness of EES implementation. As for costs, operators would be able to provide ranges, and we would take the midpoint.
3. The impacts of the cost effect can then be calculated using an **econometric model of trade** (known as a gravity model).[31] These are standard models used to simulate the effects of policy changes on cross-border transactions.
4. The intuition is that **changes to costs affect cross-border transactions** (flows of people, or goods). The cost effects of EES implementation are one subset of costs affecting cross-border transactions. We can control for these broader costs by drawing on other measures of policy variables. Since we are particularly interested in transport services, the main source of data on broader costs is likely to be the Organisation for Economic Co-operation and Development's (OECD) services trade restrictiveness index.[32] The index captures other cost measures, including restrictions on cross-border movements via cabotage.
5. We account for other country-specific and time-specific contextual factors. The former can include the specific regulatory environment and economic structure (for example, the economy size). The latter can include energy cost shocks (such as oil prices) and broader effects related to the UK's withdrawal from single market arrangements, such as increased stringency in border checks and paperwork.
6. Combining these sources of information with data on trade (or on volumes of passengers) allows us to estimate the impacts of the cost change induced by the implementation of EES. The results should be interpreted as a what-if simulation. It allows us to estimate how much the variable of interest (passenger flows, cross-border trade) has changed relative to the baseline of no EES.
7. Given that industry performance metrics (such as revenues) are a function of trade and passenger flows, we can infer the effects on industry from the estimated changes to trade and passenger flows. To do this, we would draw on industry information on how financial performance varies with changes to trade or passenger volumes. This information could be retrieved either through the interviews or the survey, as set out in Section 7.3.

In summary, given the lack of a valid control group, comparability concerns, and data limitations, a DiD-based evaluation is not feasible in this context. Instead, the advanced option should focus on estimating the cost impact of EES implementation and modelling its effects on trade and operator performance using trade simulation tools. This offers a more proportionate and robust way to assess and quantify the impact of EES implementation on

31 https://www.wto.org/english/res_e/booksp_e/advancedwtounctad2016_e.pdf

32 https://www.oecd.org/en/publications/oecd-services-trade-restrictiveness-index_b9e5c870-en.html

HGV and coach operators. However, this approach still entails a relatively high cost of data collection, particularly in obtaining accurate operator-level employment, cost, and revenue data through bespoke primary research.

10 Timeline

The baseline workplan, presented in Figure 2Figure 2, is expected to be the same across the three options and to last approximately 6 months. The follow-up work plan, presented in Figure 3, would differ slightly for each option but is expected to take between 24 (monitoring option) and 28 weeks (advanced option) to complete.

A baseline survey is only expected to be feasible if it is started at least 4 months before the introduction of EES. A shorter timeframe risks not completing data collection before EES is introduced (currently planned for October 2025). If this timeline is not feasible, DfT should consider conducting an interview-only baseline data collection, with much shorter timelines (see Figure 4). The implications of not running a baseline survey for the M&E options would be:

- **Monitoring and basic evaluation**: No quantitative data for before and after analysis for many indicators, including changes in the nationality of drivers for operators that undertake journeys in the Schengen area, changes in the number of operators that report operations within the Schengen area, and cost and revenue information. In order to assess these changes, the follow-up survey would need to include questions about how these indicators have changed since the introduction of EES. Responses would be subject to recall bias, which may lead to distorted or selective responses.
- **Advanced evaluation**: The advanced evaluation includes the collection of detailed operator cost and revenue data at baseline. Without this information, the follow-up survey would need to request detailed cost and revenue data for the last 1 to 3 years. This additional burden may reduce response rates and delay survey completion.

With or without a survey element, DfT should ensure sufficient commissioning time to allow more time for survey and interview design. DfT should also engage with stakeholder organisations in advance to mitigate the risk that they may not be available to interview immediately upon commissioning.

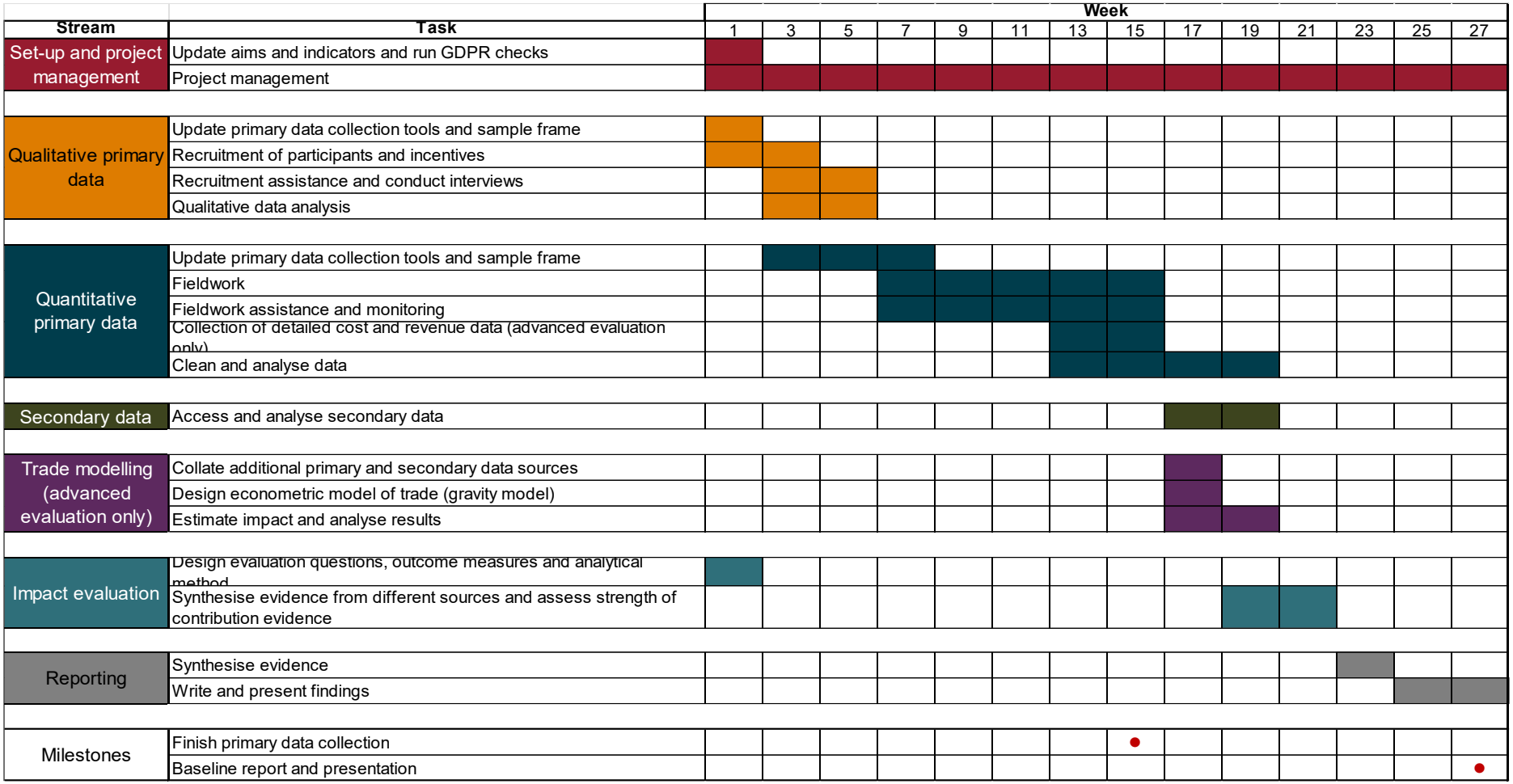
Figure 2 Proposed workplan – baseline with primary survey

Stream	Task	Week 1	3	5	7	9	11	13	15	17	19	21	23	25
Set-up and project management	Update aims and indicators and run GDPR checks													
	Project management													
Qualitative primary data	Design sample and primary data collection tools													
	Recruitment of participants and incentives													
	Recruitment assistance and conduct interviews													
	Analyse qualitative data													
Quantitative primary data	Design primary data collection tools and sample frame													
	Fieldwork													
	Fieldwork assistance and monitoring													
	Clean and analyse data													
Secondary data	Access and analyse secondary data													
Reporting	Synthesise evidence													
	Write and present findings													
Milestones	Finish primary data collection								●					
	Baseline report and presentation													●

Source: *Frontier Economics and SYSTRA*

Note: *Columns represent 2-week periods.*

Figure 3 Proposed workplan – follow-up with primary survey



Source: *Frontier Economics and SYSTRA*

Note: *Columns represent 2-week periods.*

Figure 4 Proposed workplan – baseline without primary survey

		Week								
Stream	**Task**	1	3	5	7	9	11	13	15	17
Set-up and project management	Update aims and indicators and run GDPR checks									
	Project management									
Qualitative primary data	Design sample and primary data collection tools									
	Recruitment of participants and incentives									
	Recruitment assistance and conduct interviews									
	Analyse qualitative data									
Secondary data	Access and analyse secondary data									
Reporting	Synthesise evidence									
	Write and present findings									
Milestones	Finish primary data collection					●				
	Baseline report and presentation									●

Source: *Frontier Economics and SYSTRA*

Note: *Columns represent 2-week periods.*

11 Resource requirements and cost assessment

This section outlines the estimated cost and resource requirements for each monitoring and evaluation option, associated with the timeline set out in Section 10. Costs are presented based on an assumption of one baseline and one follow-up round of primary data collection (including both survey and interviews). Assessments include a detailed list of tasks and resource requirements, along with the level of expertise required for each item. Cost estimates assume all work would be carried out externally and are split into a lower and a higher bound. Lower bounds are representative costs based on the tasks and blended day rates, whereas higher bounds include additional assurance and account for delay-associated risks.

11.1 Resource and competency requirements

Resource and cost estimates are based on the availability of the following capabilities and their blended day rates:[33]

- **Researcher**: requires experience designing qualitative and quantitative research tools, including interview topic guides and survey questionnaires. Other skills include creating sample frames, conducting depth interviews, managing fieldwork, and cleaning and analysing primary data with findings written up into clear research outputs.
  - Day rate: £900
- **Economist**: requires experience working with international trade policies (for example, UK to EU flows of goods and passengers), skills in analysing datasets and interpreting economic trends, experience in quantitative and qualitative methods of analysis, skills in applying theory-based evaluation methods, experience in synthesising a range of evidence, and communicating the findings.
  - Day rate: £1,600
- **Analyst or Junior Researcher**: requires technical skills in data analysis, including data cleaning, manipulation, and visualisation, and experience with tools such as SPSS for the analysis of survey data and Stata or R for the analysis of secondary datasets.
  - Day rate: £700
- **Project manager**: requires experience in planning, risk management, budgeting, and stakeholder coordination.
  - Day rate: £1,200

It is expected that any fieldwork (such as conducting quantitative interviews via telephone) would need to be completed by a fieldwork specialist, giving a fixed rate cost, including set-up, fieldwork management, and interviewing based on the agreed assumptions.

[33] Blended day rates provide a weighted average rate for different experience levels.

Due to the short timings available for completing baseline fieldwork (and the limited estimated number of coach operators), the costs in Table 15 and Table 16 assume that the fieldwork specialist:

1. Sends an initial letter to organisations drawn in the sample frame explaining the survey, which includes a link to the survey
2. Follows this up with an email including the survey link
3. Follows this up by phoning operators who have not responded to ask them to complete the online survey or conduct the survey as a telephone interview

This approach aims to maximise the number of completed interviews within the available fieldwork period.

There is a significant cost to including the initial mail-out, and with sufficient time, a pilot would help identify its impact on response rates to assess whether it is worthwhile. As a pilot is not possible, a decision could be taken to reduce costs by around £50,000 and not send an initial letter to all sampled organisations. The risk is that lower response rates result in a smaller, less precise sample.

Table 15 Resource and cost estimations – baseline

Workstream	Task	Resources needed	Estimated cost
Set-up and project management	Update aims and indicators GDPR checks	Researcher – 4 days Economist – 2 days + 0.5 day each	LB: £7k HB: £8k
Set-up and project management	Project management	Project manager – 15 days (6 months) + 4 days	LB: £18k HB: £23k
Qualitative primary data	Design sample and primary data collection tools	Researcher – 4 days Analyst – 2 days + 0.5 day each	LB: £5k HB: £6k
Qualitative primary data	Recruitment of 28 participants and incentives	Fieldwork specialist	£11k
Qualitative primary data	Field management and conducting interviews	Researcher – 3 days Analyst – 9 days + 1 day each	LB: £9k HB: £11k

Workstream	Task	Resources needed	Estimated cost
Qualitative primary data	Analyse qualitative data	Researcher – 3 days Analyst – 9 days + 1 day each	LB: £9k HB: £11k
Quantitative primary data	Design primary data collection tools and clean sample frame	Researcher – 7.5 days Analyst – 5 days + 1 day each	LB: £10k HB: £12k
Quantitative primary data	Fieldwork (including purchasing sample frame)	Fieldwork specialist	£92k
Quantitative primary data	Field management and monitoring	Researcher – 1 day Analyst – 3 days + 1 Analyst day	LB: £5k HB: £6k
Quantitative primary data	Clean and analyse data	Researcher – 4 days Analyst – 9 days + 1 day each	LB: £10k HB: £12k
Quantitative primary data	Collection of detailed cost and revenue data (advanced evaluation only)	Fieldwork specialist Analyst – 1 day	£30k
Quantitative primary data	Clean and analyse detailed cost and revenue data (advanced evaluation only)	Researcher – 0.5 days Analyst – 1.5 days	£2k
Secondary data	Access and analyse secondary data (this includes data access costs)	Economist – 1.5 days Analyst – 3 days + 1 Analyst day	LB: £5k HB: £6k
Reporting	Synthesise evidence	Economist – 1 day Researcher – 2.5 days Analyst – 4 days + 0.5 days each	LB: £7k HB: £9k
Reporting	Write and present findings	Economist – 4 days Researcher – 9.5 days Analyst – 12 days + 1 day each	LB: £23k HB: £26k

Workstream	Task	Resources needed	Estimated cost
		Total	**LB: £243k** **HB: £270k**

Source: *Frontier Economics and SYSTRA*
Note: *HB – higher bound, LB – lower bound. Numbers have been rounded up to the nearest whole number.*

Table 16 Resource and cost estimations – follow-up

Workstream	Task	Resources needed	Estimated cost
Set-up and project management	Update aims and indicators GDPR checks	Researcher – 4 days Economist – 2 days + 0.5 day each	LB: £7k HB: £8k
Set-up and project management	Project management	Project manager – 15 days (6 months) + 4 days	LB: £18k HB: £23k
Quantitative primary data	Update primary data collection tools and sample frame*	Researcher – 4 days Analyst – 2 days + 0.5 days each	LB: £5k HB: £6k
Quantitative primary data	Recruitment of participants and incentives	Fieldwork specialist	£11k
Quantitative primary data	Recruitment assistance and conduct interviews	Researcher – 3 days Analyst – 9 days + 1 day each	LB: £9k HB: £11k
Quantitative primary data	Qualitative data analysis	Researcher – 3 days Analyst – 9 days + 1 day each	LB: £9k HB: £11k
Quantitative primary data	Additional impact evaluation questions (+20 minutes)	Fieldwork specialist Researcher – 1 day Analyst – 3 days	£4k
Quantitative primary data	Additional impact questions analysis	Researcher – 1.5 days Analyst – 3 days	£3k
Quantitative primary data	Update primary data collection tools and sample frame*	Researcher – 7.5 days Analyst – 5 days	LB: £10k

Workstream	Task	Resources needed	Estimated cost
		+ 1 day each	HB: £12k
Quantitative primary data	Fieldwork	Fieldwork specialist	£92k
Quantitative primary data	Fieldwork assistance and monitoring	Researcher – 1 day Analyst – 3 days	£3k
Quantitative primary data	Clean and analyse data	Researcher – 3.5 days Analyst – 6 days + 1 day each	LB: £7k HB: £8k
Quantitative primary data	Design and collection of additional impact evaluation questions	Fieldwork specialist (£8k) Researcher – 2 days Analyst – 6 days	£14k
Quantitative primary data	Additional cleaning and analysis of impact questions	Researcher – 0.5 days Analyst – 1.5 days	£2k
Quantitative primary data	Collection of detailed cost and revenue data (advanced evaluation only)	Fieldwork specialist (£30k) Researcher – 0.5 days Analyst – 1.5 days	£31k
Quantitative primary data	Additional cleaning and analysis of detailed cost and revenue data (advanced evaluation only)	Analyst – 1.5 days	£1k
Secondary data	Access and analyse secondary data (this includes data access costs)	Economist – 1.5 days Analyst – 3 days + 0.5 day each	LB: £5k HB: £6k
Trade modelling (advanced evaluation only)	Collate additional primary and secondary data sources	Economist – 1 day Analyst – 3 days +0.5 days each	LB: £4k HB: £5k
Trade modelling (advanced evaluation only)	Design an econometric model of trade (gravity model)	Economist – 2.5 days Analyst – 3 days +0.5 days each	LB: £6k HB: £7k
Trade modelling (advanced evaluation only)	Estimate impact and analyse results	Economist – 2 days Analyst – 4 days + 0.5 days each	LB: £6k HB: £7k

Workstream	Task	Resources needed	Estimated cost
Impact evaluation	Design evaluation questions, outcome measures and analytical method	Economist – 4 days Analyst – 5 days + 1 day each	LB: £10k HB: £12k
Impact evaluation	Synthesise evidence from different sources and assess strength of contribution evidence	Economist – 2 days Analyst – 4 days + 0.5 days each	LB: £6k HB: £7k
Reporting	Synthesise evidence	Economist – 1 day Researcher – 2.5 days Analyst – 4 days + 0.5 days each	LB: £7k HB: £8k
Reporting	Write and present findings	Economist – 4 days Researcher – 9.5 days Analyst – 12 days + 1 day each	LB: £23k HB: £26k
Reporting	Additional impact evaluation write-up	Economist – 1 day Researcher – 1.5 days Analyst – 2.5 days +0.5 days each	LB: £5k HB: £7k
		Total	**LB: £298k** **HB: £325k**

Source: *Frontier Economics*

Note: **includes additional impact evaluation questions for the basic evaluation. HB – higher bound, LB – lower bound. Note that costs are provided using 2025 rates; work conducted in 2026 and beyond will likely be subject to price inflation.*

11.2 Comparison of option costs

Given the nested nature of the M&E options, many of the resource requirements and costs included in Table 15 and Table 16 are common across all options. Table 17 provides a summary of how the overall cost differs across options.

Table 17 Comparison of estimated costs

	Monitoring option	Basic evaluation option	Advanced evaluation option
Baseline	£211k–£238k	£211k–£238k	£243K–£270k
Follow-up	£206k–£225k	£250k–£274k	£298k–£325k

	Monitoring option	Basic evaluation option	Advanced evaluation option
Total	**£417k–£463k**	**£461k–£512k**	**£541k–£595k**

Source: Frontier Economics and SYSTRA

12 Learning and insights

This section assesses the expected insights generated under each monitoring and evaluation option, the robustness of the evidence they can produce, and the feasibility of generating such insights, as well as data quality, risks and methodological robustness, measured by the Maryland Scientific Methods Scale (SMS).[34]

12.1 Insights from the three options and robustness

Table 18 presents a summary of the learning and insights expected from the three M&E options, including an assessment of the feasibility and robustness.

Table 18 Summary of learning and robustness

	Monitoring	Basic evaluation	Advanced evaluation
Summary	A broad overview of trends using a variety of data sources. However, it does not attribute changes to the EES	Builds on the monitoring analysis to assess possible causes of observed changes. However, it does not provide a precise estimate of the impact of EES implementation	Models the cost and trade effects of EES implementation using detailed operator data. However, this data is hard to collect at scale, especially for coach operators
Learning potential	Low to moderate – limited trend observation and contextual understanding	Moderate – can suggest causality and test alternative explanations	High – provides simulated effect sizes and indirect impact estimates
Feasibility	High – relies mostly on secondary data and primary research	Moderate – requires well-designed primary data but is deliverable within budget and timeline constraints	Low to moderate – hinges on access to commercially sensitive data and assumptions within the modelling framework
Robustness	Low – Maryland SMS level 1 to 2	Low – Maryland SMS level 2	Medium – not SMS scorable*
Risk	Low – primary collection limited to non-sensitive, high-level information	Medium – non-complex and flexible analysis method, requires additional data collection	High – data burden, complexity, and credibility risks if input data is weak

Source: Frontier Economics

[34] https://whatworksgrowth.org/resource-library/the-maryland-scientific-methods-scale-sms/

Note: **Assessment based on the additional primary and secondary data collected: https://whatworksgrowth.org/wp-content/uploads/16-06-28_Scoring_Guide.pdf*

12.2 Challenges in assessing the proportionality of conducting follow-up data collection and the additional value of baseline learnings

There are three factors to consider when assessing the proportionality of a monitoring and evaluation approach: the scale of investment, the strategic importance, and the contribution to the evidence base.

At present, several factors limit the ability to assess the proportionality of follow-up data collection, and these limitations cannot be fully resolved at the design stage. For example:

- **Anticipatory effects**: given repeated delays to the introduction of EES, many operators may have already adapted key aspects of their operations. Moreover, EU immigration rules have applied to UK nationals entering the Schengen area since the UK's EU exit. The EES is not a change in the rules but a replacement of existing manual checks and recording of stays with a digital system. This could mean that baseline data collected just before implementation could already reflect partial policy effects, reducing the ability to identify change over time.
- **Level of strategic priority**: the level of spending on monitoring and evaluation activity should be aligned with the strategic importance of its outputs. As this evolves, DfT may reassess the proportionality of the outlined approach.
- **Data quality**: the quality of learning depends critically on the rate of survey and interview responses and the representativeness of the sample. If the data collected is of low quality, for example, due to timing issues or a low response rate, it will constrain the validity of any comparisons or contribution analyses conducted at later stages.

These challenges create uncertainties that, in turn, affect the assessment of the proportionality of the different options. However, collecting baseline data would allow testing of the sampling and data-collection processes. It would help assess the quality of the responses and provide an early indication of how many operators are likely to be impacted by Brexit, for example, by identifying how many operators undertake journeys in the Schengen area and the proportion based in the UK versus the Schengen area. It could also offer initial insights into anticipatory effects and other trade-related shocks. Therefore, the suggested approach considers a sequential decision-making approach, starting with a baseline that provides the necessary information to assess the proportionality of a future follow-up round.

13 Proportionality summary

13.1 The role of proportionality assessments

Proportionality assessments compare the expected costs of an analysis approach with the expected benefits derived from its learnings. The level of analysis should be proportionate to the problem being addressed and to the government's assigned priority level. It should also reflect the scale or impact of the measure and recognise the preconditions that must be in place.[35]

The DfT evaluation strategy and programme report outlines three broad criteria for prioritisation that support increased investment in M&E of interventions and shocks:[36]

- Scale of investment:
  - This assessment includes a detailed breakdown of the expected costs associated with each M&E option.
  - Due to existing evidence gaps, the size of the expected impact of EES implementation remains uncertain. However, there is a general presumption of negative effects, based on industry statements and the experience of businesses engaged in cross-border trade post-EU exit.[37]
- Contribution to the evidence base:
  - If primary data collection is conducted as expected, the findings should fill the identified evidence gaps. However, experience in gathering information from HGV and coach operators and the industry has not been tested through pilot studies, so response rates and data quality may differ.
- Strategic importance:
  - This reflects the policy significance of the M&E findings. Even though there are large evidence gaps that could be filled, this alone may not warrant M&E if the strategic importance is low. This assessment does not consider proportionality in relation to strategic importance, as government priorities in this area are still evolving and are expected to become clearer as EES is implemented.
  - As the introduction of EES is an EU initiative, the resources available to the UK government to influence its impact are limited.

[35] https://assets.publishing.service.gov.uk/media/67587ba55a2e4d4b993bfa83/better-regulation-framework-guidance-2023.pdf

[36] https://www.gov.uk/government/publications/dft-monitoring-and-evaluation-programme/dft-evaluation-strategy-and-programme-2022

[37] https://blogs.sussex.ac.uk/uktpo/files/2023/03/73-final.pdf

13.2 Summary of option proportionality

Table 19 presents a summary of the proportionality assessment, including an assessment of the scale of investment required and each option's contribution to the evidence base. This assessment does not include a summary of the strategic importance of each option, which DfT would need to consider before conducting any work.

As highlighted in the previous section, there are many uncertainties, such as the quality of the data and the strategic importance of the findings, that may not be possible to determine without conducting a baseline data collection first. Therefore, the recommendation is to consider a sequential decision-making process, starting with a baseline (with or without a primary survey) to fill initial information gaps and provide a better indication of response rates and the representativeness of the collected data.

Table 19 Summary of proportionality assessment – overall

With or without baseline primary survey	Proportionality category	Monitoring option	Basic evaluation option	Advanced evaluation option
With a baseline survey	Scale of investment	£417k–£463k	£461k–£512k	£541k–£595k
With a baseline survey	Contribution to the evidence base	Broad overview of changes in industry and operator trends. Limited to trend observation and contextual understanding.	Assesses the role of EES in observed trend changes. Unable to provide an estimated effect size.	Generates quantifiable insights on the effect of EES implementation on trade. Requires the collection of detailed cost and revenue data, making it unsuitable for analysing the coach market.
With a baseline survey	Timeline for findings	BL: 26 weeks FU: 24 weeks	BL: 26 weeks FU: 26 weeks	BL: 26 weeks FU: 28 weeks
Without a baseline survey	Scale of investment	£300k–£341k	£344k–£390k	£392k–£441k
Without a baseline survey	Contribution to the evidence base	Some important data would not be captured over time. Assessment relies more heavily on less	Lack of data limits before vs after analysis and relies on more qualitative assessments of	Cost and revenue data would have to be collected retrospectively in the follow-up survey. Potentially limiting

With or without baseline primary survey	Proportionality category	Monitoring option	Basic evaluation option	Advanced evaluation option
		representative interview data.	changes and the role of EES.	the reliability of responses.
Without a baseline survey	Timeline for findings	BL: 18 weeks FU: 24 weeks	BL: 18 weeks FU: 26 weeks	BL: 18 weeks FU: 28 weeks

Source: *Frontier Economics*

Note: *Estimated costs without a baseline survey may differ if a longer, more representative qualitative data collection is conducted. BL – baseline, FU – follow-up*

13.3 Monitoring and evaluation risks and mitigation activities

Table 20 below sets out a view of the key risks.

Table 20 Risk register

Risk	Likelihood	Impact	Mitigating actions
Insufficient time available to complete a baseline survey	HIGH	MEDIUM	Without a baseline survey, a longer and more representative qualitative data collection should be conducted to better understand the factors contributing to the impacts of EES implementation and the potential quality of follow-up survey data.
Changes in the strategic priority of the work	MEDIUM	LOW	DfT should assess the current and potential future importance of filling the existing evidence gaps.
Difficulties in engaging operators or industry experts for primary research	MEDIUM	MEDIUM	The evaluator and DfT should work together to engage operators and industry experts, allowing sufficient time and flexibility for appointments. Where feasible, DfT should consider engaging with specific industry bodies, such as the RHA, to encourage engagement. Any primary data collection should emphasise the benefits of taking part.
Secondary data availability	LOW	MEDIUM	The evidence-mapping phase has ensured that data are available and accessible.

Source: *Frontier Economics*

Annex A Evidence review approach

This first stage of work reviews the qualitative and quantitative evidence, assessing its robustness, gaps, uncertainties and limitations, and what further research and data collection may be required to gather sufficient evidence to inform the M&E options.

The search method involves three key steps:

1. **Keyword search:**

Using sites such as Google search, Google Scholar, and GOV.UK to conduct a keyword search, an initial list of possible sources is identified. Table 21 provides a list of search terms that were used to identify sources for each evidence theme.

Table 21 Search terms by evidence theme

Evidence theme	Research indicator	Search terms
Composition and nationality of UK HGV drivers	1. Total UK workforce size and evolution over time, including breakdown of work nationalities 2. Information on how the workforce size and nationality vary by operator characteristics 3. Total number of UK-national, EU-national and other third-country-national drivers that do and do not travel from GB to the Schengen area 4. Relationship between nationality and route assignment 5. Splits by type of goods transported	'HGV driver composition [demographics/nationality] UK data', 'Composition of international HGV drivers UK data', 'Individual-level border crossings data UK/Schengen'
Composition and nationality of UK coach drivers	1. Total UK workforce size and evolution over time, including breakdown of work nationalities 2. Information on how the workforce size and nationality vary by operator characteristics 3. Total number of UK-national, EU-national and other third-country-national drivers that do and do not travel from GB to the Schengen area 4. Relationship between nationality and route assignment 6. Splits by passenger transport type	'Coach driver composition [demographics/nationality] UK data', 'International passenger transport driver composition UK data', 'Individual-level border crossings data UK/Schengen'
HGV operator characteristics and	1. Total number of UK-registered operators	'HGV vehicle operators UK',

Evidence theme	Research indicator	Search terms
type of goods transported	2. Splits of operators by fleet size and number of employees 3. Information on types of operating models and flexibility to shift 4. Information on the costs and revenues of operators operating in the Schengen area 5. Splits of operators by licence type, type of goods transported and volume of cross-border goods transported	'Composition of international HGV vehicle operators UK', 'Road freight operators UK'
Coach operator characteristics	1. Total number of (UK-registered) operators 2. Splits of operators by fleet size and number of employees 3. Information on types of operating models and flexibility to shift 4. Information on the costs and revenues of operators operating in the Schengen area 6. Splits by type of passenger transport and volume of cross-border passengers transported	'Coach operators UK', 'Composition of international coach travel operators UK', 'International coach travel operators UK'
Dependency on UK nationals (HGV operators)	1. Current driver rotation patterns and flexibility to make changes 2. Extent to which driver days in the EU are currently monitored and managed (for example, sponsor the visas of EU workers), including driver leisure days 3. Effects on the length of driver rotations and recruitment practices 4. Effects on monitoring of driver days in the EU and management methods (for example, shifts in employment models or sponsoring workers' visas) 5. Differentiation by operator size 6. Information on partnerships or contracts between UK and EU operators and changes over time 7. Interaction with other rules, such as drivers' hours rules. 8. Number of vacancies and difficulties in recruiting drivers (by nationality) 9. Interaction with other HGV movement rules, such as Trade and Cooperation Agreement rules.	'HGV operator business/employment models' 'Impact of duration of stay limitations on UK HGV operators', 'Employment patterns in HGV operators', 'HGV operator compliance with 90/180-day restrictions' 'EES impact perception UK HGV operators' 'EES industry report UK'

Evidence theme	Research indicator	Search terms
	10. Seasonality of goods traded 11. Differentiation by type of goods transported	
Dependency on UK nationals (coach operators)	1. Current driver rotation patterns and flexibility to make changes 2. Extent to which driver days in the EU are currently monitored and managed (for example, sponsoring the visas of EU workers), including driver leisure days 3. Effects on the length of driver rotations and recruitment practices 4. Effects on monitoring of driver days in the EU and management methods (for example, shifts in employment models or sponsoring workers' visas) 5. Differentiation by operator size 6. Information on partnerships or contracts between UK and EU operators and changes over time 7. Interaction with other rules, such as drivers' hours rules. 8. Number of vacancies and difficulties in recruiting drivers (by nationality) 12. Interaction with other coach journey rules, such as Interbus Agreement rules 13. Seasonality of travel to Europe (for example, number of trips per month) 14. Differentiation by type of passenger transport	'Coach operator employment models' 'Impact of duration of stay limitations on UK coach operators' 'Seasonal employment in coach passenger transport operators UK', 'Employment patterns in passenger transport operators', 'International coach operator compliance with 90/180-day restrictions' 'EES impact perception UK coach operators' 'EES industry report UK'
Trip volume, frequency and duration of GB-Schengen cross-border goods trade	1. Cross-border trips as a proportion of total trips 2. Frequency of cross-border trips per week, month or quarter 3. Total number of cross-border trips with splits by destination and evolution over time 4. Distribution of cross-border trip duration and evolution over time 5. Principal routes and their proportion of total cross-border trade 6. Type of goods transported with splits by destination and port of entry or exit, and evolution over time	'Road freight trade GB-Schengen ' 'Transport of goods GB-Schengen' 'Annual border crossing UK road freight' 'UK goods trade data' 'Principal road trade routes by volume of trade, GB to Schengen'

Evidence theme	Research indicator	Search terms
	7. Effect of EES on goods travel times and costs	
Trip volume, frequency and duration of GB-Schengen cross-border passenger transport	1. Cross-border trips as a proportion of total trips 2. Frequency of cross-border trips per week, month or quarter 8. Total number of cross-border trips with splits by destination, type of travel (tours vs scheduled) and evolution over time 9. Distribution of cross-border trip duration and evolution over time 10. Principal routes for scheduled travel and coach tour routes and their proportion of total cross-border passenger transport	'International coach travel timetable' 'Volume of GB to Schengen coach tours' 'EU coach tour seasonality'

Source: Frontier Economics
Notes: Research indicator numbering corresponds to the numbering in Section 5.

2. Assessment against quality criteria

The search results went through an initial assessment to narrow down the list of papers and datasets, based on the source's abstract or summary, as well as top-level information. The exclusion criteria included:

- Geography: evidence must be relevant to the UK or the EU, as the context surrounding GB-Schengen goods and passenger transport is highly location-specific.
- Date of publication or most recent update: to the extent available, preference will be given to live datasets that are collected regularly and that include data from 2019 (pre-Brexit) onwards.[38] For qualitative sources, preference will be given to the most recent sources, although older relevant sources, such as evidence from the European Parliament on EES from 2014 to 2017, will also be considered.

Sources were then assessed against the following relevance and quality ratings (ratings are considered separately for HGV and coach industries):

- Relevance: evidence should cover at least one of the research objectives for the relevant groups, for example, preference will be given to evidence that covers UK operators or drivers and those that are involved in Schengen-area travel. The rating system is defined as follows:

[38] Where available, regularly collected data sources that date back to 2019 are prioritised as this provides evidence on three time periods: i) pre-Brexit, ii) post-Brexit but pre-EES, iii) post-EES. Data sources that do not collect data past 2019 will not be considered as they cannot provide information on periods ii) and iii).

- High: sources that fully address multiple evidence indicators. For example, DfT RORO data fully address several indicators covering the frequency and type of cross-border trips.
- Medium: sources that fully address one or two evidence indicators or partially address multiple. For example, APS data provides UK-wide driver nationality figures but does not indicate whether drivers are involved in GB-Schengen travel.
- Low: sources that partially address one or two evidence indicators. For example, pay-as-you-earn tax (PAYE) data from HMRC uses broad industry categories that would only provide partial evidence on the driver nationality indicator.

- Quality: evidence should come from a credible source or organisation, such as the UK government, the European Commission, the RHA, and high-impact research journals. For data sources, quality assessment will also consider collection methods, assumptions made, and usability. For qualitative sources and survey data, the assessment will include sample sizes, biases, assumptions, and fieldwork approach. The rating system is defined as follows:
  - High: administrative data sources and large-scale surveys (at least 500 responses) from credible sources (such as the UK government or academic institutions). For example, the APS, RORO and HMRC trade data.
  - Medium: administrative and survey data sources (at least 200 responses) from less recognised sources (such as industry bodies). For example, Fleet Data from Motor Transport or survey data from the RHA.
  - Low: small sample surveys (less than 200 responses) and qualitative data from either credible or less recognised sources.[39] Although not included in the summary below, this includes UK or EU policy papers and industry reports.

3. In-depth review and addition to the evidence mapping document

The assessed evidence then went through an in-depth review to capture the information relevant to understanding the extent to which EES implementation is expected to impact UK drivers and operators, in line with the evidence themes. This includes recording any data sources relevant to measuring current and future evidence theme metrics in an evidence mapping document. All relevant sources were captured in an evidence review template, which differentiates between evidence types and provides information for each source.

The search process (literature assessed, search terms, and organisations searched) was peer-reviewed by SYSTRA project director (expert in research and evaluation) and project manager (expert in transport policy, strategy, and business case development including road freight and logistics). These colleagues also assessed the list of evidence gaps supplied by

[39] Note that while 'low' quality data sources will not be considered for use in the monitoring and evaluation framework, they can provide useful background information.

Frontier and conducted a desk search to confirm that they were unaware of any secondary sources for these gaps. This review included input from the following industry experts:

- Consultancy business director: oversight of all consultancy staff and project portfolio
- Data science principal consultant: regularly works with a range of datasets across our project portfolio
- Director, net zero transport: currently conducting a road freight project partnering with an external freight economist organisation (consulted without disclosing any project information)
- Director, bus operations

Table 22, Table 23, Table 24, Table 25 and Table 26 provide a summary of the findings of the evidence review for each evidence theme.

Table 22 Evidence review summary – Driver composition

Evidence source	Overview	Evidence type	Periodicity	Scope	Relevant indicator(s)	Limitations	Relevance ranking	Quality score
Annual Population Survey (APS)	Number of HGV drivers (SOC2010 = 8211) by nationality and age – potential to request the same breakdown for bus and coach drivers (SOC2010 = 8213).	Secondary data	Regular or live	HGV drivers Coach drivers	1. Total UK workforce size and evolution over time, including breakdown by nationalities 3. Total number of UK-national, EU-national and other third-country-national drivers that do and do not travel from GB to Schengen	Relies on individuals correctly identifying their occupation. No indicator for whether the driver works outside the UK.	Medium	High
Annual Survey of Hours and Earnings (ASHE)	Earnings data collected in the UK. Contains breakdowns by occupation, employment type (full-time or part-time), sex, region, industry, and age group.	Secondary data	Regular or live	HGV drivers Coach drivers	1. Total UK workforce size and evolution over time, including breakdown by nationalities 2. Information on how the workforce size and nationality vary by operator characteristics	No indicator for nationality or whether the driver works outside the UK.	Medium	High
Pay As You Earn (PAYE) HMRC data	UK payrolled employment by nationality, region, industry, age and sex.	Secondary data	Regular or live	HGV drivers Coach drivers	1. Total UK workforce size and evolution over time, including breakdown by nationalities 2. Information on how the workforce size and nationality vary by operator characteristics 3. Total number of UK-national, EU-national and other third-country national drivers that do and do not travel from GB to Schengen	Uses broad industry categories 'transportation and storage' No indicator for whether the employee is a driver or works outside the UK.	Low	High

Source: Frontier Economics
Notes: Research indicator numbering corresponds to the numbering in Section 5

Table 23 Evidence review summary – Operator characteristics

Evidence source	Overview	Evidence type	Periodicity	Scope	Relevant indicator(s)	Limitations	Relevance ranking	Quality score
Fleet Data (Motor Transport)	Licensing data on the UK's largest HGV fleet operators, including fleet sizes, operator types, depot locations, and corporate structures.	Secondary data	Regular or live	HGV operators	Unclear, given the lack of access to raw data. 2. Splits by fleet size 5. Splits by licence type	Data from a private industry news and insights provider – uncertainty about pricing and data quality	High	Medium
Understanding the road freight market (DfT)	Report on the state of the road freight sector in the UK. Contains information on operating models and operator characteristics.	Primary (survey) and secondary (DfT and Companies House)	One-off (2024)	HGV operators	1. Total number of (UK-registered) operators 2. Splits by fleet size 3. Flexibility to shift operating models	Lack of profitability metrics for EU-trade-focused firms, and for firms of different sizes	High	High
Vehicle licensing statistics data tables (DfT)	Number of licensed vehicles by different types at the regional level.	Secondary data	Regional or live	HGV and coach operators	1. Total number of (UK-registered) operators (by region)	No disaggregation based on coaches and HGV vehicles by operator size or business model	Medium	High
An Analysis of the UK Coach Market (Low Carbon Vehicle Partnership)	Report on the state of the coach sector in the UK.	Secondary data	One-off (2018)	Coach operators	2. Splits by fleet size	Lack of recent data (2018)	Low	Medium

Source: Frontier Economics

Notes: Research indicator numbering corresponds to the numbering in Section 5

Table 24 Evidence review summary – Dependency on UK nationals

Evidence source	Overview	Evidence type	Periodicity	Scope	Relevant indicator(s)	Limitations	Relevance ranking	Quality score
HGV driver vacancies (RFS03) (DfT)	Quarterly data from Q4 2021 to Q4 2024 on the number and share of operators experiencing missing deliverables due to a lack of available drivers, vacancies, and rising wages, as well as the reasons for these instances.	Primary data (survey)	Regular or live	HGV drivers	8. Number of vacancies and difficulties hiring drivers (and the reason for vacancies)	No metrics linking wage increases or missing deliverables to the lack of EU drivers	High	High

Source: Frontier Economics
Notes: Research indicator numbering corresponds to the numbering in Section 5

Table 25 Evidence review summary – Trips (1)

Evidence source	Overview	Evidence type	Periodicity	Scope	Relevant indicator(s)	Limitations	Relevance ranking	Quality score
Road goods travelling to Europe (RORO)	Numbers of all UK- and foreign-registered vehicles travelling to Europe.	Secondary data	Regular or live	HGV trade	1. Cross-border trips as a proportion of total trips 2. Frequency of cross-border trips 3. Total number of cross-border trips and evolution over time	No limitations.	High	High
Road freight statistics (DfT)	Data on international road freight activity of British and NI HGVs based on business-level surveys (IRHS).	Secondary data	Regular or live	HGV trade	3. Total number of cross-border trips and evolution over time 5. Principal routes and their proportion of total cross-border trade	Only covers HGV vehicles registered in the GB and NI.	High	High
Port freight and sea passenger statistics (DfT)	Data about ports, shipping, and sea passengers.	Secondary data	Regular or live	HGV trade Coach passengers	3. Total number of cross-border trips and evolution over time 8. Total number of cross-border trips with splits by destination, type of travel (tours vs scheduled)	No identifier for the mode of passenger travel (for example, foot, coach or car).	Medium	High
Coach timetables (DfT)	Timetables of UK coach companies by company and route.	Secondary data	Regular or live	Coach trips	8. Total number of cross-border trips with splits by destination, type of travel (tours vs scheduled) 2. Frequency of trips 10. Principal routes for scheduled travel and coach tour routes and their proportion of total cross-border passenger transport	Only includes timetables for major suppliers, such as Flixbus, National Express, and Megabus. Requires knowledge of specific software.	High	High

Source: Frontier Economics
Notes: Research indicator numbering corresponds to the numbering in Section 5

Table 26 Evidence review summary – Trips (2)

Evidence source	Overview	Evidence type	Periodicity	Scope	Relevant indicator(s)	Limitations	Relevance ranking	Quality score
International road freight statistics (DfT)	Summary of the latest statistics on the activity of UK-registered HGVs operating internationally. Derived from surveys of businesses that undertake journeys with road goods vehicles.	Secondary data	Regular or live	HGV trade	6. Types of goods transported with splits by destination and port of entry or exit, and evolution over time.	Only covers HGV vehicles registered in the UK. Based on survey responses, scaled to be representative of the total HGV volume.	Medium	High
UK trade data (HMRC)	Overseas trade tables with the latest monthly trade data. Available in monthly, quarterly and annual downloads with breakdowns for types of goods, trading partners and UK ports.	Secondary data	Regular or live	HGV trade	6. Types of goods transported with splits by destination and port of entry or exit, and evolution over time.	The mode of travel requires classifying ports into rail, air, and road.	High	High

Source: Frontier Economics

Notes: Research indicator numbering corresponds to the numbering in Section 5

Annex B Monitoring indicators and data sources

Table 27, Table 28, Table 29, and Table 30 provide the list of indicators and associated metrics that would be used to provide evidence against each theme and the primary data source for the metric.

Table 27 Monitoring indicators – Composition and nationality of HGV and coach drivers

Mode	Indicator	Metric	Type	Primary data source
HGV	1. Total UK workforce and evolution over time	Workforce size	Direct	APS
HGV	2. Information on how these vary by operator characteristics	Workforce size and % drivers by nationality	Direct	Primary survey
HGV	3. Total number of UK, EU, and other third-country nationals who do and do not travel from GB to Schengen	% of drivers by nationality	Direct	APS
HGV	4. Relationship between nationality and route assignment	Not applicable	Contextual	Primary interviews
HGV	5. Splits by type of goods	Workforce size and % drivers by nationality and by type of goods transported	Direct	Primary survey
Coach	1. Total UK workforce and evolution over time	Workforce size	Direct	Primary survey
Coach	2. Information on how these vary by operator characteristics	Workforce size and % drivers by nationality	Direct	Primary survey
Coach	3. Total number of UK, EU, and other third-country nationals who do and do not travel from GB to Schengen	% of drivers by nationality	Direct	Primary survey

Mode	Indicator	Metric	Type	Primary data source
Coach	4. Relationship between nationality and route assignment	Not applicable	Contextual	Primary interviews
Coach	6. Splits by passenger transport type	Workforce size and % drivers by nationality by type of travel (scheduled vs tour)	Direct	Primary survey

Source: Frontier Economics
Notes: Research indicator numbering corresponds to the numbering in Section 5

Table 28 Monitoring indicators – Operator characteristics

Mode	Indicator	Metric	Type	Primary data source
HGV	1. Total number of (UK-registered) operators	Number of HGV operators in the UK	Direct	HMRC (SIC codes)
HGV	2. Splits by fleet size and number of employees	Fleet size of HGV operators	Direct	Primary survey
HGV	2. Splits by fleet size and number of employees	Number of employees working for HGV operators	Direct	Primary survey
HGV	2. Splits by licence type and volume of cross-border goods transported to the Schengen area	Number of operators with national and international licences (and travel to the Schengen area)	Direct	Vehicle Licensing Statistics (DfT)
HGV	2. Market concentration	Herfindahl-Hirschman Index (HHI), share of operators by size brackets	Indirect	Vehicle Licensing Stats and Fleet Data
HGV	3. Types of operating models and flexibility to shift	Not applicable	Contextual	Primary interviews and Understanding the Road Freight Market (DfT)
HGV	4. Revenues of operators	Revenues of operators	Direct	Primary survey
HGV	4. Running costs of operators	Total operation costs of HGV operators	Direct	Primary survey

Mode	Indicator	Metric	Type	Primary data source
HGV	4. Driver cost of operators (such as recruitment costs and salaries)	Total costs associated with drivers for HGV operators	Direct	Primary survey
HGV	4. Revenues from Schengen-area services for UK operators	% of revenue from Schengen-area services	Direct	Primary survey
HGV	5. Breakdown for operators that undertake journeys in the Schengen area	Revenues and costs for HGV operators that undertake journeys in the Schengen area	Direct	Primary survey
Coach	1. Total number of (UK-registered) operators	Number of coach operators in the UK	Direct	Primary survey
Coach	2. Splits by fleet size and number of employees	Fleet size of coach operators	Direct	Primary survey
Coach	2. Splits by fleet size and number of employees	Number of employees working for coach operators	Direct	Primary survey
Coach	3. Types of operating models and flexibility to shift	Not applicable	Contextual	Primary interviews
Coach	4. Revenues of operators	Revenues of operators	Direct	Primary survey
Coach	4. Running costs of operators	Total operation costs of coach operators	Direct	Primary survey
Coach	4. Driver cost of operators (for example, recruitment costs and salaries)	Total costs associated with drivers for coach operators	Direct	Primary survey
Coach	4. Revenues from Schengen-area services for UK operators	% of revenue from Schengen-area services	Direct	Primary survey
Coach	6. Splits by type of passenger transport (scheduled vs tours) and volume of cross-border passengers transported to the Schengen area	Number of coach operators that do scheduled travel and tours to the Schengen area	Direct	Primary survey
Coach	6. Breakdown for operators that undertake journeys in the Schengen area	Revenues and costs for HGV operators that undertake journeys in the Schengen area	Direct	Primary survey

Source: Frontier Economics

Notes: Research indicator numbering corresponds to the numbering in Section 5. The cost of purchasing the SIC sample frame is between £220 and £300 per thousand records. Fleet Data requires a £100-per-year subscription.

Table 29 Monitoring indicators – Dependency on UK nationals

Mode	Indicator	Metric	Type	Primary data source
HGV	1. Current driver rotation patterns and flexibility to make changes	Reported flexibility in managing driver rotations	Contextual	Primary interviews
HGV	2. Extent to which driver days in the EU are currently monitored and managed (for example, use of visas), including driver leisure days	Not applicable	Contextual	Primary interviews
HGV	3. Effects on the length of driver rotations and recruitment practices	% of operators reporting recruitment issues due to EU travel limits	Contextual	Road freight statistics (RFS03)
HGV	3. Effects on the length of driver rotations and recruitment practices	Change in weekly hours over time	Direct	ASHE, road freight statistics (RFS03)
HGV	3. Effects on length of driver rotations and recruitment practices	Change in wage levels	Direct	ASHE, road freight statistics (RFS03)
HGV	3. Effects on the length of driver rotations and recruitment practices	% of operators experiencing vacancies	Direct	road freight statistics (RFS03)
HGV	3. Effects on length of driver rotations and recruitment practices	% of EU-eligible vacancies	Direct	road freight statistics (RFS03)
HGV	3. Effects on the length of driver rotations and recruitment practices	% of operators reporting missing a delivery in the last week due to a vacancy	Indirect	road freight statistics (RFS03)

Mode	Indicator	Metric	Type	Primary data source
HGV	4. Effects on monitoring of driver days in the EU and management methods (for example, shifts in employment models or use of visas)	Not applicable	Contextual	Primary interviews
HGV	4. Effects on monitoring of driver days in the EU and management methods (for example, shifts in employment models or use of visas)	% of operators using EU-national drivers	Direct	APS, primary survey
HGV	5. Differentiation by operator size	Not applicable	Contextual	Primary interviews
HGV	6. Information on partnerships between UK and EU operators and changes over time	Not applicable	Contextual	Primary interviews
HGV	7. Interaction with other haulage rules, such as limitations on the number of drop-offs per job	Not applicable	Contextual	Primary interviews
HGV	11. Seasonality of goods traded	Types of goods transported by destination and port by month	Indirect	HMRC trade data (monthly)
Coach	1. Current driver rotation patterns and flexibility to make changes	Not applicable	Contextual	Primary interviews
Coach	2. Extent to which driver days in the EU are currently monitored and managed (for example, use of visas), including driver leisure days	Not applicable	Contextual	Primary interviews
Coach	3. Effects on the length of driver rotations and recruitment practices	% of operators experiencing vacancies	Direct	Primary survey
Coach	3. Effects on the length of driver rotations and recruitment practices	% of EU-eligible vacancies	Direct	Primary survey
Coach	3. Effects on the length of driver rotations and recruitment practices		Direct	Primary interviews

Mode	Indicator	Metric	Type	Primary data source
Coach	4. Effects on monitoring of driver days in the EU and management methods (for example, shifts in employment models or use of visas)	Not applicable	Contextual	Primary interviews
Coach	5. Differentiation by operator size	Not applicable	Contextual	Primary interviews
Coach	6. Information on partnerships between UK and EU operators and changes over time	Not applicable	Contextual	Primary interviews
Coach	13. Seasonality of travel to Europe	Total number of cross-border trips with splits by destination, type of travel, and period	Indirect	Port of Dover, primary collection
Coach	14. Differentiation by type of passenger transport	Not applicable	Indirect	Primary survey, mainly for scheduled-trip coaches

Source: *Frontier Economics*
Notes: *Research indicator numbering corresponds to the numbering in Section 5. Detailed data is available from the Port of Dover, priced on a case-by-case basis.*

Table 30 Monitoring indicators – Trip volume

Mode	Indicator	Metric	Type	Primary data source
HGV	1. Cross-border trips as a proportion of total trips	% of GB-to-Schengen trips by UK vs EU firms	Indirect	RORO and IRHS
HGV	2. Frequency of cross-border trips per week, month and quarter	Number of cross-border trips and overall road freight trips by week, month and quarter	Indirect	RORO and IRHS
HGV	3. Cross-border volume of goods transported	Goods volume transported to the Schengen area	Indirect	RORO, Port Freight Stats, and HMRC
HGV	4. Distribution of cross-border trip cost and evolution over time	Average cross-border trip duration, for example, price-per-mile or price-per-tonne	Indirect	Primary survey and interviews
HGV	5. Principal routes and their proportion of total cross-border trade	Main countries of trade for HGV operators	Indirect	IRHS and HMRC trade data
HGV	6. Type of goods transported with splits by destination and port of entry or exit, and evolution over time	Type of goods transported with splits by destination and port of entry or exit, and evolution over time	Indirect	RORO and IRHS
HGV	7. Effect of EES on goods travel times and costs	Average cost per cross-border road freight operation	Indirect	Primary survey and interviews
Coach	1. Cross-border trips as a proportion of total trips	% of GB-to-Schengen trips by UK vs EU firms	Indirect	Primary survey
Coach	2. Frequency of cross-border trips per week, month and quarter	Number of cross-border trips and overall passenger coach trips by week, month and quarter	Indirect	Port of Dover and primary survey
Coach	8. Total number of cross-border trips with splits by destination, type of travel (tours vs scheduled) and evolution over time	Number of coach passenger trips by destination and duration of the trip	Indirect	Port freight, passenger stats (DfT), and Port of Dover

Mode	Indicator	Metric	Type	Primary data source
Coach	8. Cross-border volume of passengers transported	Passenger volume transported to the Schengen area	Indirect	Port Freight and Passenger Stats (DfT)
Coach	9. Distribution of cross-border trip duration and evolution over time	Average cross-border trip duration (for example, price-per-mile or price-per-tonne)	Indirect	Primary survey and interviews
Coach	10. Principal routes for scheduled travel and coach tour routes and their proportion of total cross-border passenger transport	Number and type of routes for scheduled travel and coach tours % of total cross-border passenger transport	Indirect	Primary survey and interviews

Source: Frontier Economics
Notes: Research indicator numbering corresponds to the numbering in Section 5

Annex C Primary data collection

C.1 Operator profiles and sample frames

HGV and coach population sizes

The RHA reports the following population sizes of all operators in the UK:

- **58,262** road freight enterprises in the UK[40]
- **Approximately 3000** coach operators in the UK[41]

It is challenging to find accurate information for HGV and coach operators registered in the UK who undertake journeys in the Schengen area for at least part of their business.

The Traffic Commissioners: goods and public service vehicle operator licence records include a register of all goods and public service vehicle operator licence holders in GB as recorded on the Vehicle Operator Licensing database (VOL). Statistics of SIOL holders (updated 6 July 2025) show:

- 9,652 goods vehicle operators hold SIOLs (prefix O in column B of the spreadsheet) – this could contain operators who solely operate LGVs, while others may operate 'mixed fleets' (fleets that contain both HGVs and LGVs)
- 1,702 public service vehicle (PSV) operators (prefix P in column B of the spreadsheet) hold SIOLs

It should be noted that there may be some operators who do some international work but who do not hold or do not need to hold a SIOL, for example, LGVs and HGVs who transport their own goods or property (own account, using a restricted operator licence), and coaches who may transport their own people (such as a university) and are therefore not included in this register. It will not be possible to identify these operators based on the proposed sampling method.

C.2 Quantitative survey

Quantitative survey topics we would expect to include (to be agreed with the client):

- [HGV] What is the nature of your business?
  - Events, sports or exhibition hauliers
  - Perishable goods

[40] https://www.rha.uk.net/News/Industry-Facts-and-Stats

[41] https://www.rha.uk.net/Campaigns/Coaches#:~:text=There%20are%20around%203%2C000%20coach,attributed%20to%20coach%20tourism%20alone

- Manufacturing
- General haulage
- Removals
- Other, please specify

- [Coach] What type of services does your company provide?
  - Charter
  - Tours
  - Scheduled or fixed routes
  - Commuter
  - Special services or shuttle
- Roughly how many company-owned or leased vehicles does your company have continuous use of at present?
- How many drivers or other employees do you currently employ? (split by full-time or part-time)
  - Drivers
  - Engineering staff
  - Management and administrative staff
- [Coach operating scheduled and tour services] What proportion of the drivers you currently employ work on…
  - Scheduled services
  - Tours
- What proportion of the drivers you currently employ are…
  - UK nationals
  - EU nationals
  - Non-EU nationals
- Do you operate any international services that require cross-border travel to the Schengen area?
  - Yes/No
- [Those operating European services] What proportion of the drivers you currently employ make journeys between Great Britain and the Schengen area?
- How many drivers do you currently employ for European work?
- On average, what is your total annual revenue?
- [Those operating European services] On estimate, what percentage of your total annual revenue is made up by cross-border travel to the Schengen area?
- What are the estimated total operating costs of your HGV or coach services per annum?
  - Driver wages
  - Fuel costs

- Other fixed costs (for example, other labour and staff costs, insurance, maintenance)
- Administration costs (for example, management, welfare, and non-operational costs)

- What are the estimated annual total costs associated with drivers that operate international journeys between GB and the Schengen area?
- Before this interview, had you heard of the EU Entry/Exit system, also known as EES?
  - Yes/No
- What impact, if any, does the EU Entry/Exit system, or EES, have on your business?
- Are you aware of the 90/180 rule?
  - Yes/No
  - Add explanation
- Were you aware of this rule?
- [Those operating international services] Have you made any changes to your operations due to the EU Entry/Exit system, or EES 90/180 rule?
  - Yes/No

[If yes] Please describe what these are.

- What impact has the 90/180 rule had on your business since Brexit (31 January 2020)
- What impact do you think the 90/180 rule will have on your business when it is implemented (currently expected in October 2025)

C.3 Qualitative interviews

Qualitative interview topics we would expect to include (to be agreed with the client)

Respondents asked to complete a brief pre-interview questionnaire with organisation details

Organisation details

- [HGV] What is the nature of your business (for example, events, sport or exhibition hauliers, perishable goods, manufacturing, general haulage, or removals)
- [Coach] What type of services does your company provide? (Charter, tours, scheduled or fixed routes, commuter, or special services or shuttle)
- Roughly how many company-owned or leased vehicles does your company have continuous use of at present?
- On average, what is your total annual revenue?
- How many employees does your organisation employ in total? (Explore the type of contract, full-time or part-time)

- What are the estimated total operating costs of your HGV or coach services? Driver wages, fuel costs or other fixed costs (for example, other labour and staff costs, insurance, and maintenance), and administration costs (for example, management, welfare, and non-operational costs)
- Roughly what percentage of your total annual revenue is made up of cross-border travel to the Schengen area?
- Where do you travel in the Schengen area and how often?
- How flexible is your organisation to change its operations?
- Do you have partnerships with other organisations? (Explore for details)

Driver details

- How many drivers do you currently employ? (full-time or part-time)
- What proportion of the drivers you currently employ are UK nationals, EU nationals, or non-EU nationals?
- How many of your drivers travel to the Schengen area?
- What are the estimated total costs associated with drivers that operate international journeys between GB and the Schengen area?
- What are your current driver rotation patterns?
- How flexible are you in making changes in driver assignments? How do you manage that? What issues do you encounter, and how do you overcome them?
- Is there a relationship between nationality and route assignment? If so, what?
- To what extent do you monitor and manage working driver days in the EU? How? (for example, use of visas)?
- To what extent do you monitor and manage driver leisure days in the EU? How?
- What effect do monitoring driver days in the EU and management methods have? (for example, shifts in employment models or use of visas)

Changes in operations

- What changes have you seen in your business over the past few years? [probe to fully understand what has caused the change, for example, COVID-19, EES, or haulage rules, and the attitudes towards these]
- Has there been any change in your partnerships? [probe to understand details and reasons]
- What legislation has had the greatest impact on your business? What is the impact? How have you responded?

If not mentioned spontaneously and explore in more detail

- Before this interview, had you heard of the EU Entry/Exit system, also known as EES?

- What impact, if any, does the EU Entry/Exit system, or EES, have on your business? [probe on the 90/180 rule]
- Have you made any changes to your operations due to the EU Entry/Exit system, or EES? Please, can you describe what these are? [probe on the 90/180 rule and fully explore when changes were made]
- What impact has EES already had on your business? Is this positive, negative or neutral?
- What changes have you already made?
  - Where you operate
  - Number of drivers
  - Nationality of drivers
  - Driver costs
  - Length of trips
- What impact do you think EES will have on your business? Positive, negative or neutral? [probe to fully understand when and how it will impact]
- What additional changes do you plan to make? When? What steps have you already taken? Are these positive, negative or neutral?

Concluding comments

- How would you sum up the effect that EES has had on your business already?
- What effect do you expect EES to have on your business in the future?
- What, if anything, could help your organisation manage the changes caused by EES enforcement?



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