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# Safety Culture and Work-Related Road Accidents

BOMEL Limited

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# EXECUTIVE SUMMARY

## Background

The Government has set challenging targets for reducing road fatalities by 2010 and research evidence has suggested that up to one-third of current road traffic accidents involve people at work. Encouragingly, unlike private road users, occupational drivers work within organisational structures which may be able to help deliver improvements. There are also clear commercial benefits for organisations to adopt driver safety management systems, such as financial benefits linked to reduced accident rates and fulfilling legislative duty of care responsibilities. In order to explore some of the potential organisational mechanisms through which road risk may be managed, BOMEL Ltd was commissioned by the Department for Transport (DfT) to identify whether there is a relationship between an organisation's safety culture and the attitudes of its drivers to safe driving behaviour and company accident liability. This has increased understanding of the elements of safety culture that have the greatest influence on driver attitudes and has led to practical recommendations as to how safety culture could be improved in order to help reduce occupational road risk.

## Scale of the problem

There are no official statistics for casualties connected with work-related journeys as the STATS 19 accident data forms do not record journey purpose. However, despite limitations, analysis revealed that accidents involving buses/coaches, heavy goods vehicles (HGVs) and light goods vehicles (LGVs), as either the primary or secondary vehicle in the accident, accounted for 26% of all road fatalities in 2001 and for approximately 17% of all serious injury (SI) road accidents. However, this is almost certainly an underestimate as the figures do not account for company cars. The Work-related Road Safety Task Group (WRSTG) estimated that 25% of road accidents involve someone at work.

## Underlying occupational road risk factors

In order to identify the areas where improvements would be most effective in the management of work-related driving risk, a review of the key contributory factors was undertaken, which involved interviews with key DfT personnel, liaison with stakeholder groups and a review of the existing occupational road risk (ORR) research. Management of occupational road risk (MORR) featured heavily, with poor management systems blamed for increasing driver stress and failing to deliver incident reporting systems that will sufficiently inform driving risk assessments. Stresses caused by commercial pressures were thought to be worsened by other road users and fatigue was raised as a symptom of excessive work pressure. The importance of good planning to help reduce stress and fatigue was, therefore, also

raised as a key factor in the management of ORR. Much debate existed on the effectiveness of driver training for controlling ORR, with a belief that changing people's attitudes towards safe driving will bring about a more lasting improvement compared with skills training. Finally, concern was raised about drivers' general lack of appreciation of, and compliance with, the rules of the road.

A model of ORR was developed based on the Influence Network (IN) technique (see Sections 2.2 and 8.2) to highlight the factors with the strongest influence on ORR in order to help focus improvement measures. Direct factors were identified as fatigue/alertness, individual attitudes, pressure/stress, compliance and suitable human resources. The organisational factors deemed critical in influencing ORR were pay and conditions, training, procedures, planning, incident management/feedback and communications. At the policy level, the key factors identified were contracting strategy, ownership and control, organisational structure, safety management and profitability. There were no factors at the environmental level identified as having a dominant influence. At the organisational level, six out of the seven factors identified (excluding pay and conditions) were grouped as key components of organisational safety culture, which provided an early indication of the importance of safety culture in managing ORR.

## The study

The current study was designed to investigate the relationship between organisational safety culture, worker driver attitudes and accident liability (risk), with the aim of focusing on the potential benefits of organisational safety culture improvements. Seven companies participated in the survey, all of which varied in business type, size and vehicle fleet. The sample consisted of company car drivers (low and high mileage) and HGV drivers, a significant proportion of which were from the small haulage sector, in order to provide a representative cross-section of working drivers.

The research involved three main phases: 1) measurement of organisational safety culture; 2) measurement of driver attitudes; and 3) collection of company and accident data. Organisational safety culture was measured using the Health and Safety Executive's (HSE's) Health and Safety Climate Tool (HSCST), chosen after considerable review of the available measurement tools. To gain a greater understanding of the additional influences on company drivers once they leave the confines of the organisation and its inherent safety culture, drivers were also interviewed.

The interviews were semi-structured in nature and addressed the contribution of individual factors (e.g. age, driving experience), attitudes to company driving rules and procedures, attitudes to specific driving violations, pressure and fatigue, and organisational driving safety management (including individual accident

involvement, training, incident reporting and feedback). The companies were also asked to provide available accident and company data.

## Relationship between safety culture, driver attitudes and accident liability

The key components of organisational safety culture (training, procedures, planning, incident feedback, management and communications) were represented within the HSCST and interview questions in order that results from both could be directly corroborated. In order to answer the original research question regarding the extent of the relationship between organisational safety culture, drivers' attitudes and accident liability, survey results from each of the participating companies were pulled together. The findings generally revealed that the majority of companies exhibited more positive aspects of safety culture than negative and the majority of drivers displayed more positive attitudes than negative. In four of the participating companies there appeared to be a close relationship between safety culture and drivers' attitudes, but the relationship was found to be weaker in the other three companies. One of the companies was strong in all areas of safety culture, while for two companies areas requiring improvement were identified.

It is suggested that the findings should be thought of more in terms of the strength of the relationship in specific areas of safety culture. It is concluded that the strength of the relationship between safety culture and driver attitudes is at least moderate although varies between companies. Perhaps most importantly, the relationship appears to be strong enough to suggest that improvements to a company's safety culture could be used to influence driver attitudes and help reduce occupational road risk.

To further encourage companies to address safety culture as a way to reduce road accident risk, evidence was provided on the relationship between driver attitudes and accident liability (i.e. accident risk). Although caution was exercised in interpreting company accident data due to its inherent limitations (in terms of breadth and depth), it was concluded that there is a moderate relationship between accident rate and driver attitudes. More specifically, low company accident rates corresponded with the highest percentage of drivers with positive attitudes and the lowest percentage of drivers with negative attitudes and vice versa.

## Cross-sector issues

In order to understand the extent to which individual company issues and controls may be of help to other organisations and the DfT, the survey findings were assessed in the context of wider sector issues. In order to highlight these wider issues, the findings were considered according to company size (large and small companies) and road-user type (HGV and cars).

The findings highlighted that tanker drivers carrying hazardous loads had most appreciation of rules/procedures; safety measures applied to HGV drivers were generally not applied to car drivers even within the same company, and safety management systems were lacking in the smaller companies although big companies were not always better at addressing driver safety management. Overall, the cross-sector analysis revealed that although larger hazardous operations were more likely to have good driving safety management systems in place, this was not always the case, suggesting there may be deeper reasons influencing the extent to which companies manage ORR.

## Influence Network workshops

Influence Network (IN) workshops were hosted to focus on car driver and LGV driver ORR, and they were attended by key industry stakeholders and driving safety representatives from a selection of the participating companies. Attendees were invited to identify the key direct level factors that they felt showed most potential for reducing ORR. The workshops then took each of these factors in turn in order to assess which factors at the organisational, policy and environmental levels had most potential for reducing the negative impact this direct level factor had on ORR (termed a path of influence) and how improvements could be brought about. The paths of influence for each of the direct level factors were consolidated for both workshops in order that the factors with overall significance in the management of ORR could be clearly identified.

In addition to the factors identified during workshops, the improvement measures suggested by drivers during the interviews were also consolidated and merged with the key workshop factors. On the basis of this consolidation exercise, it was concluded that the most critical factors for management of car driver ORR are:

- fatigue
- pressure
- training
- Incident management
- communications.

The most critical factors for management of LGV ORR are:

- planning
- fatigue
- management/supervision.

Of the factors identified, the organisational ones were all key components of safety culture, reinforcing the potential influence safety culture could have on work-related

driving safety. To bring about improvements in these areas, a wide variety of work-related road risk control measures were generated from both the driver interviews and the IN workshop sessions.

## Case studies

To illustrate further the available measures for improving occupational road risk, case studies have been developed to highlight best practice and areas for improvement based on the research undertaken with each of the participating companies. The driving safety improvements described have been structured according to the key components of organisational safety culture, further demonstrating the potential that safety culture has in the management of ORR. A series of key messages for companies looking to encourage a positive safety culture and to reduce ORR are highlighted:

- Appreciate the potential risk to car drivers and the ways in which they can be minimised.
- Appoint someone to steer and have responsibility for safety initiatives to ensure they do not lose momentum.
- Encourage effective communications about driving safety through structured systems such as training, guidance and accident/incident reporting.
- Apply best practice to minimise the inherent risks presented by occupational driving.
- Ensure the importance of driving safely is always clearly underlined, as implicit and explicit messages sent out by management play an important part in shaping employee attitudes to driving safety.
- Bear in mind the cost-benefits of safe driving, such as from more fuel efficient driving.
- Involve the workforce in the ORR management process to add credence.
- Educate employees about the usefulness of sharing accident/incident information.
- Encourage accident and incident feedback.
- View training sessions and procedures/guidance as an opportunity to teach skills and imbue corporate safety messages and driving professionalism.
- Incorporate assessment needs and use evaluation findings to inform further training (if appropriate) so that the process is cyclical, offering continuous improvement.

## Recommendations

The following overall recommendations were made based on the findings of the current study:

1. The DfT, companies and other stakeholders should consider aspects of safety culture when addressing work-related road safety issues, in particular, training, procedures, planning, incident management/feedback, management/supervision and safety communications.
2. Companies should be aware that by improving safety culture they can improve the safety attitudes of drivers remote from the fixed workplace and that this, in turn, is likely to influence road accident involvement.
3. Companies should consider improving incident reporting and feedback as a way to learn from driving incidents, and these systems should be tailored specifically for use with on road incidents.
4. Companies should acknowledge that car driving carries risks as well as driving larger vehicles and that there may considerable learnings from managing LGV operations which can be applied to improve car driving safety.
5. There should be emphasis on persuading smaller companies of the significance of ORR and the benefits to be gained from addressing the issues, while at the same time appreciating that large companies may share some of the weaknesses shown by smaller firms.
6. Although a range of factors may need to be assessed depending on individual companies, for LGV drivers fatigue, planning and management/supervision should warrant consideration as should fatigue, pressure, training, incident management and communications for car drivers.
7. In terms of assessing ORR, companies should look at how component parts of culture (e.g. training, procedures, planning, incident management) apply to driving safety. They should assess their own areas of weakness and strength, and they should develop improvement measures as appropriate.
8. Drivers should be consulted on problem areas and solutions to ensure that driving risk management is likely to be effective. Employee representative bodies should be used to help bring about influence.

In terms of how to improve safety culture and deciding which approaches to risk control might be suitable, the case studies in Section 9, the IN paths of influence described in Sections 8.3 and 8.4, and the risk control measures/approaches listed in Appendix A of this report should be used as guidance.

9. **The DfT could think about the following areas as offering potential to encourage companies to address ORR:**
   - Using good practice companies as a platform for raising industry standards in general.

- Initiatives to increase the value of driver professionalism (e.g. accreditation of company driver training and award schemes, raising the public profile of professional drivers).
- Campaigns to increase public awareness of ORR.
- Continued emphasis on the financial benefits of managing ORR.
- Consideration of legislation that will help to reduce ORR.
- Clear messages to companies that a positive safety culture can benefit driver attitudes and accident levels.
- The dissemination of this report to industry to help demonstrate how cultural changes can be made to help manage work-related road safety.

10. **The following areas should be considered for further investigation:**
    - An evaluation of the best way to measure organisational safety culture in the ORR context (e.g. whether or not a questionnaire approach is appropriate and, if so, how it should be designed, what it should contain and how it should be disseminated).
    - Further study of the work vehicle groups not covered in this project, e.g. maintenance van drivers, delivery drivers, bus and coach drivers, and wider coverage of small haulage companies.
    - An evaluation of driver safety training to gauge the relative merits of skill and attitude-based training and to measure training outcomes.
    - An investigation into appropriate accident/near miss management systems tailored for on road incidents. In particular, these should be designed to collect information on the human contributions to work-related road accidents. Particular emphasis should also be placed on the feasibility of collecting reliable near miss data and the efficacy of such data in terms of learning from road incidents and effecting improvement.
    - There should be further investigation of what motivates companies towards developing management systems and culture, the way these interrelate to address ORR, and how to develop and disseminate key messages which come from this work.
    - The research approach resulted in the collection and development of a rich dataset, not all of which was explicitly used to address the original research question. This therefore provides a ready made occupational driving database available for further analysis and evaluation. Further work could potentially include interrogating the data to add to the occupational driving risk profile and correlating accident liability (risk) with the likelihood of violating.

# 1 INTRODUCTION

This report has been prepared by BOMEL Ltd under Contract No. PPAD 9/31/107 issued by the Department for Transport (DfT) in December 2002 based on a tender submission. The project is concerned with 'Organisational Safety Culture and Accidents' and specifically seeks to address the feasibility of using organisational safety culture as a mechanism for reducing occupational road risk (ORR).

This project was commissioned in support of action, given the challenging targets set out in the Government's *Road Safety Strategy* which includes a 40% reduction in the numbers of people killed or seriously injured in road accidents by 2010 compared to the 1994–98 average. There is evidence to suggest that a significant proportion of road accidents involve someone who was 'at work' at the time of the accident, so clearly this group must be engaged if the targets are to be achieved. The Government appointed Work-related Road Safety Task Group (WRSTG, 2001) recommended that there is a need for research to learn more about at-work road safety issues and this report can be seen as a part of the response.

BOMEL's remit primarily involved adding to the understanding of the relationship between organisational safety culture, driver attitudes to safety and accident liability (risk). There is a clear need to establish which cultural factors have an important influence on ORR, how these relate to driver attitudes and how companies, the DfT and other stakeholders can best address these issues in order to bring about improvement and reduce the risk of at-work road accidents.

## 1.1 Background

It is well understood that effective efforts to achieve high safety standards must recognise the importance of culture. All individuals are strongly influenced by the culture of which they are a part. Culture influences people's values, their beliefs and can, in turn, determine their behaviour. Individuals can easily 'forget safety' but a safe culture can compensate for this by providing reminders and ways of working that serve to sustain vigilance. There now exists a number of organisations that are considered to have created such healthy and sustainable safety cultures. Many high hazard industries such as the nuclear, petrochemical and aviation industries have been heavily involved in the process of 'engineering' safety cultures for a number of years, and a critical part of this process has been first to understand the exact nature of their existing cultures and determine where potential weaknesses lie in order to design organisational changes that will help to build and sustain a safe culture.

Traditionally, driver safety has focused on the individual and the vehicle. However, this neglects the context in which drivers at work are operating and does not reflect the systems approach which underpins modern human factors sciences in relation to general safety matters and accident causation. Organisational safety culture can be

thought of as the way in which companies 'think' and act towards safety and the safety systems which they have. This implies a homogeneity which can readily be envisaged in a fixed workplace with a constant workforce where these values can be visible and transparent. In the case of workers driving off-site, it is important to explore the characteristics and strength of culture required for it to translate into individual values and how those may be affected by external factors encountered while on the road or in the face of competing cultures at intermediate stops.

In the case of road transport, it is necessary to identify the influences which motivate companies to address road safety, for example, operators carrying hazardous loads may exhibit a specific approach to safety. However, the oil and gas industry has been in the forefront of safety culture initiatives with well-developed safety management systems addressing the organisational measures needed to achieve the goal of influencing individual attitudes to safety. Explicit efforts are made to encourage safety principles to be carried beyond the workplace to all aspects of daily life. Despite this, recent figures suggest that almost one-third of fatalities across the part of the industry dealing with oil and gas exploration, drilling and extraction are associated with land transportation, representing the most significant accident category.

There is clearly a need to explore further the relationship between organisational safety culture and work-related road accidents, and the mechanisms and influences which can be used to reduce risk. For example, firms with a strong brand identity may provide a cultural mechanism through which safety can be reinforced. BOMEL work in relation to deliveries, and the pre-planning and interface issues between drivers and sites highlights significant differences depending on whether drivers are moving between their own company premises and controlled conditions or to third party locations where there may be conflicting attitudes, causing delay or aggravation for the driver. Comparison between conditions where road transport is central to the business (e.g. logistics firms) or an incidental feature must also be addressed. The significance of terms and conditions (both of individuals and commercial contracts) affecting the personal and employer pressures on the drivers needs further consideration as adverse influences may undermine safety culture. It is therefore safety culture in these wider, as well as driving specific, circumstances which has been addressed in this study.

## 1.2 Scope of work

The objective of the research was to investigate the extent of the relationship between an organisation's safety culture and the attitudes of its drivers to safe driving behaviour and company accident liability. From this main objective a number of subsidiary objectives were also identified:

- To determine any correlation between the overall safety culture of organisations and their drivers' attitudes to safe driving behaviour.

- To recommend how safety culture could be improved in a way that is practicable and meaningful for those responsible for work-related driving activities, and the road safety impact that might be anticipated.

These objectives were addressed through the following activities reported on throughout this summary report:

- A review of the scale of the ORR problem through analysis of the available occupational driving and accident data (see Section 2.1).
- Identification of the underlying factors contributing to ORR through consultation with DfT personnel, industry stakeholders and a review of current research (see Section 2.2).
- A review of existing research on the factors associated with workplace driving risk (Section 2.2).
- The selection of a safety culture measurement tool, development of questions to measure driver attitudes and the development of a framework through which to triangulate the data gathered (see Chapter 4).
- A study of seven companies' safety culture and drivers' attitudes and an analysis of the nature and strength of a possible relationship between safety culture and driver attitudes (see Chapter 5).
- A comparison of the issues across companies and across driving sectors (see Chapters 6 and 7).
- Influence Network (IN) workshops to gather industry stakeholder views on the factors with the most potential to manage ORR (see Chapter 8).
- Case studies to reflect the company findings in order to highlight examples of best practice through safety culture development and also to highlight areas for improvement (see Chapter 9).

# 2 UNDERSTANDING THE PROBLEM

## 2.1 Occupational road risk (ORR)

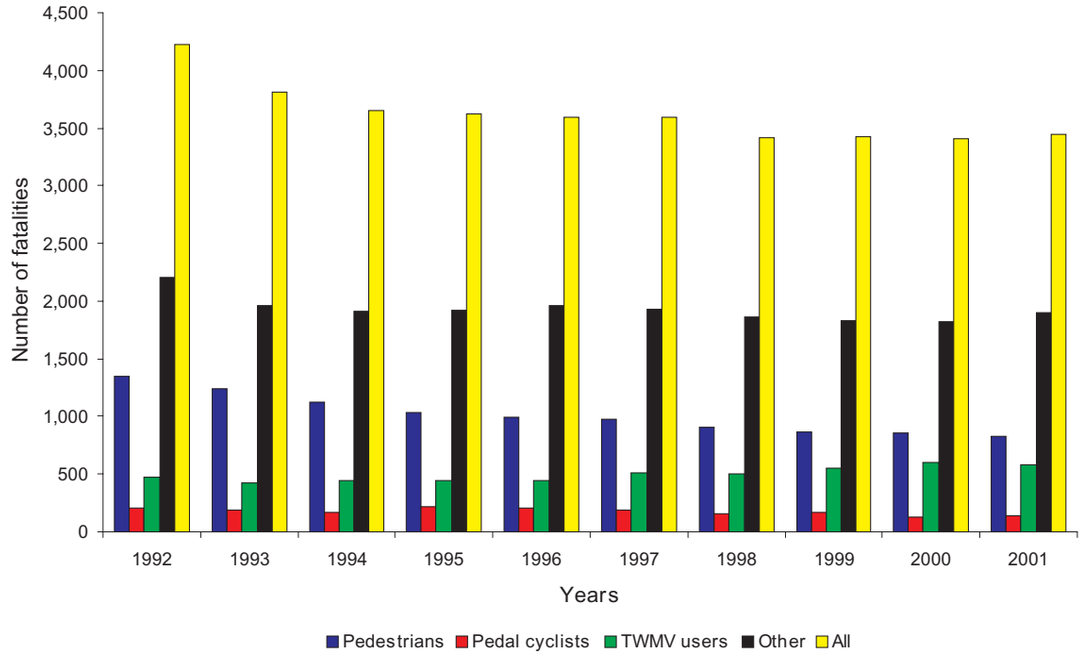
### *2.1.1 STATS 19 data*

It has been recognised by the DfT and in the report by the Work-related Road Safety Task Group (WRSTG, 2001) that there are no reliable statistics about casualties connected with work-related traffic incidents. The main source of road traffic accident data is that collected by the police using the STATS 19 form following an accident involving injury or death. This information is then passed to the DfT for analysis and publication in *Road Accidents Great Britain*.

One of the fundamental problems for measuring the scale of occupational road risk (ORR) is that currently the STATS 19 form does not record journey purpose. However, from what is available within STATS 19, it is possible to get a feel for the potential scale of ORR, at least for certain types of vehicles.

Figure 2.1 shows the total number of road accidents causing death or injury over the 10-year period from 1992 to 2001. The overall number had gradually decreased to a minimum of 3,409 in 2000 but this has risen again to 3,450 in 2001. The 'other' category is used to group most vehicles, many of which are likely to be engaged in work activity. Members of the other groups may have been involved in an accident with a vehicle being used for work purposes (note TWMV stands for two wheeled motor vehicle).

**Figure 2.1: Number of fatalities in road accidents 1992–2001**



Looking in more detail, Figure 2.2 shows the road accidents in 2001 by road user type. It can be seen that accidents involving cars account for around half of all fatal accidents and those in which an individual is killed or seriously injured (KSI). In terms of vehicles likely to be used for work purposes, it is appropriate to focus on LGVs and HGVs and buses/coaches as they are relatively unlikely to be in domestic use. These groups are involved in nearly 5% of all KSI accidents. It should be remembered that many of the car accidents may have involved company cars but currently the data does not allow these to be separated out. It is also the case that cars and other groups, such as pedestrians, may have been involved in an accident with a vehicle being used for work.

Figure 2.2 shows the fatalities and serious injuries to road users when each user had the primary role in the accident, whether that be a single or multiple vehicle accident and whether or not pedestrians were involved. This data is limited in that it does not show other user types in accidents when more than one user type is involved. This means that, for example, it is not possible to see the number of pedestrians killed by different vehicle types or the second vehicle type in accidents with more than one vehicle. However, it is possible to analyse the data in this way in order to gain a more detailed picture of user type involvement. Concentrating on buses/coaches and LGVs/HGVs in this analysis (Figure 2.3) offers probably the best estimate of work-related road accident risk that is available from the STATS 19 data.

**Figure 2.2: Road accidents 2001 by road user type**

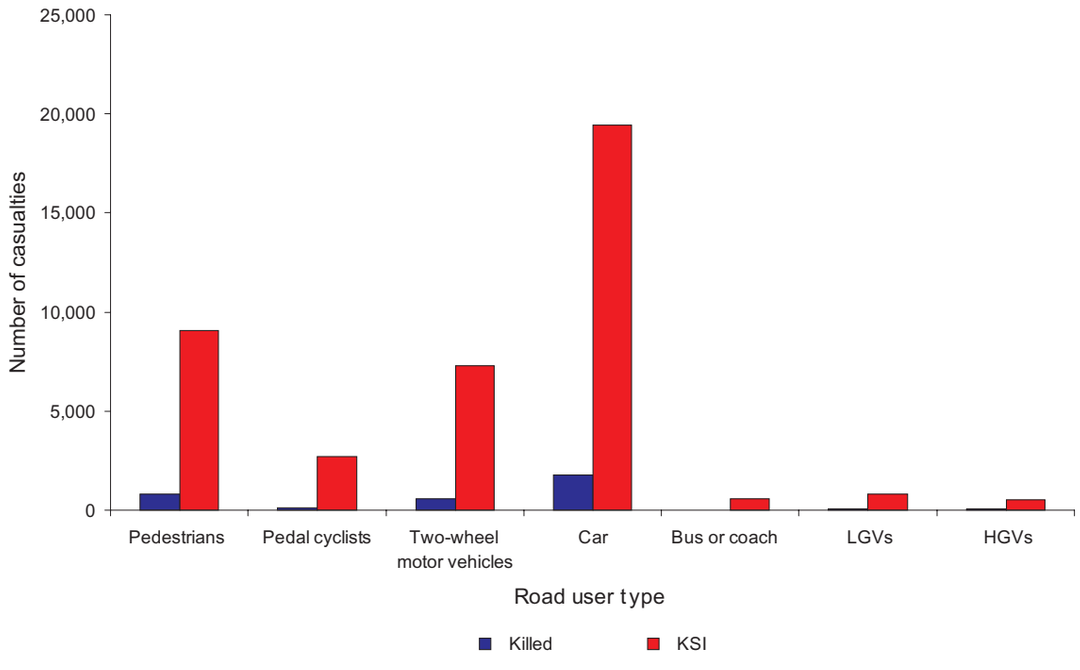
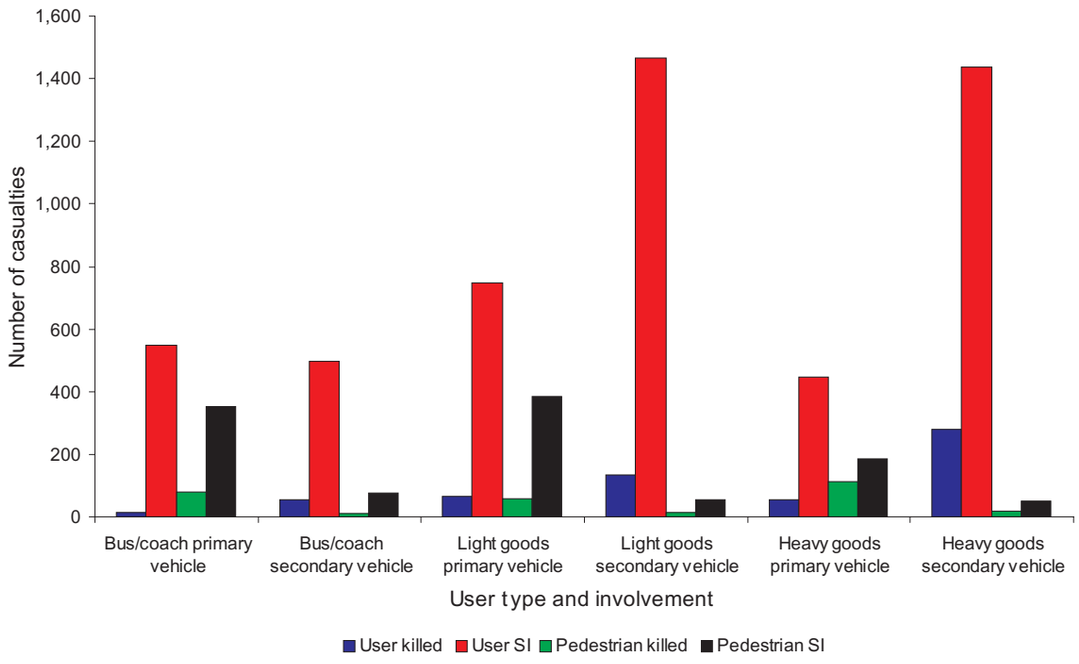


Figure 2.3 shows the number of road accidents in 2001 in which buses/coaches, HGVs and LGVs were either the primary or secondary vehicle involved. This is broken down according to whether there was injury to the vehicle user or to a pedestrian. The crucial fact which emerges is that accidents involving these work-related vehicles accounted for 898 fatalities in 2001, which is 26% of all road fatalities in that year, and for approximately 17% of all serious injury (SI) road accidents in this period. It is important to note that the estimate of work-related road casualties from Figure 2.3 is almost certainly a conservative one since accidents involving company cars and specialist work vehicles are not included.

**Figure 2.3: Road accidents in 2001 according to road user type and role in accidents**

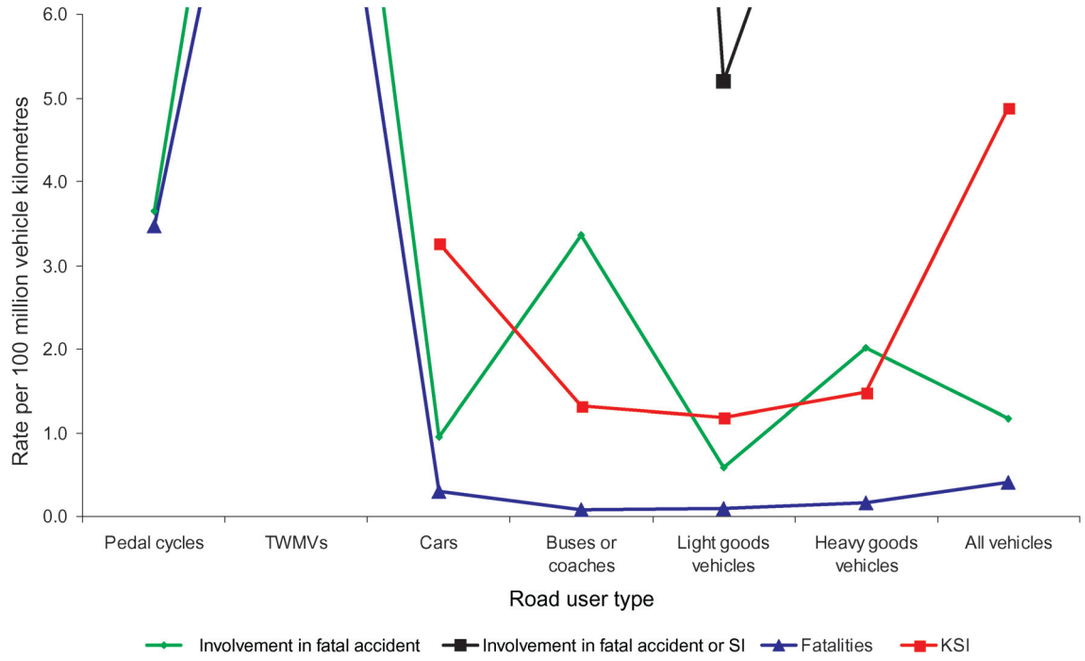



Judging the significance of work-related road risk based on the absolute number of accidents or casualties is problematic in that it does not take into account exposure, i.e. the amount of time spent by different user groups on the roads. The STATS 19 data does offer a measure of risk based on exposure in the form of casualty and vehicle involvement rates per 100 million vehicle kilometres. Figure 2.4 shows the 2001 casualty and involvement rates per 100 million vehicle kilometres for different road user groups.

The scale in Figure 2.4 has been shortened in order to have a closer look at the rates for the vehicle groups most likely to be engaged in work activity, i.e. buses/coaches, HGVs and LGVs. It can be seen that the fatality and KSI rates for these vehicle groups are slightly lower than the corresponding rates for cars. However, the

involvement rate in fatal accidents is disproportionately higher for buses/coaches and HGVs than it is for cars (or indeed LGVs). This suggests that the former group of vehicles (likely to be engaged at work) is at more risk of being involved in an accident leading to a fatality but perhaps because of their size there is more chance of the fatality being someone in a smaller vehicle.

**Figure 2.4: Road accident casualty and involvement rates in 2001 by road user type**




## 2.1.2 *Other sources of data*

Given the limitations with the STATS 19 data, it is useful to look for alternative sources of information which might help to quantify ORR. Possible sources which were considered were:

- HSE data from the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) (1996/97–2001/02)
- data from insurance companies
- information from studies on work-related road risk.

### RIDDOR data

RIDDOR (HSE, 1996) places several restrictions on the notification, under the Health and Safety Regulation, of accidents involving moving vehicles on roads. In general, such accidents do not need to be reported unless they are connected with:

- exposure to a dangerous substance
- loading/unloading
- construction, repair or maintenance work
- an accident involving a train.

A preliminary look at the available data demonstrated that RIDDOR data is currently of little use for analysing work-related road accidents. Most types of accidents on the road are exempt from RIDDOR reporting and therefore only a small proportion of road accidents are captured by the HSE. Indeed the HSE's jurisdiction does not generally extend beyond the fixed workplace and the police are the enforcers on the highway. Furthermore, due to the way in which RIDDOR data is coded, it is not immediately clear how any road accidents which are reported might be classified.

### Insurance data

Insurance companies clearly have a vested interest in ORR and were identified as a potential source of data to help understand better the scale of the problem. In pursuit of such data, contacts were made with the Association of British Insurers (ABI) and with the Motor Risk Manager in one of the leading insurance companies in Great Britain. It was found that insurance companies generally collect information on the type of road accident along with certain information on causes and the associated costs. It also became apparent that there is no central pool of insurance data which is readily accessible and could be used to help measure ORR. Furthermore, insurance companies do not have common reporting procedures or causation codes, which creates further difficulties with the data. Given these limitations, insurance companies do not seem to be in a position to add to the understanding of the ORR profile or the efficacy of corporate controls to reduce risk.

### Research on ORR

Given the lack of hard incident data surrounding work-related road accidents, it has been useful to look at independent research which has studied the issue. The Royal Society for the Prevention of Accidents (RoSPA) has recognised the risks from driving as part of work for many years now. Based on an assessment of road accidents in 1996, RoSPA estimated that about 25% of these were being instigated by people who were at work at the time. Company car drivers were judged to be an important group as it was also estimated that 1 in 3 of Britain's 3 million company cars at the time would be involved in an accident every year. RoSPA concluded that for someone who is required to cover a substantial annual mileage as part of their job, the average annual risk of dying in a road accident is significantly greater than the risk of dying in any other kind of workplace accident. By way of example, RoSPA estimated that car drivers who drive 25,000 miles a year as part of their job

may face an annual average probability of dying in an accident roughly equivalent to that faced by miners (around 1 in 7,500).

More recently, the Work-related Road Safety Task Group (WRSTG, 2001) in their report to the Health and Safety Commission (HSC) and the Government provided details on research commissioned by the HSE to gain insight into the scale and nature of ORR. Data from the Office of National Statistics (ONS) compiled from coroners' returns was used to identify commercial vehicles involved in accidents resulting in death. It was concluded that just under one-quarter of road traffic fatalities involved a commercial vehicle (i.e. large goods vehicles, buses etc.). This is consistent with the finding from the STATS 19 data taken from Figure 2.3 in Section 2.1.1. The researchers found that data on at-work drivers of motor cars and other vehicles was more difficult to obtain but by looking at previous research findings, gaining access to confidential insurance claims data and reviewing results from specially commissioned police surveys, they estimated that between one-quarter and one-third of all road traffic incidents involve someone who was at work at the time.

Looking at company car drivers in particular, work has been done which indicates an increased accident liability (risk) for this group. Work carried out by the Transport Research Laboratory (TRL, 1999) for the DTLR* (the former incarnation of the DfT) found that there were somewhere in the region of two and a quarter million company owned cars in Britain and that over half of all new cars sold each year were registered in a company's name (note tax changes may have changed the scale of these figures). This indicates that company car drivers are the largest group of working drivers. It has been estimated from this research that when factors such as mileage are taken into consideration, company car drivers have an increased accident likelihood of between 30 and 50% compared with private motorists.

## 2.2 Identifying factors in occupational road accidents

### *2.2.1 Structuring Influences on ORR*

In order to identify improvements which can reduce the likelihood of work-related road accidents effectively, it is first necessary to build a model of ORR which highlights those factors thought to have the strongest influence. Such an approach was developed using the Influence Network (IN) technique. This approach allows consideration of a wide range of human, hardware and external factors which may exert influence on an undesirable event, in this case work-related road accidents. The factors are structured at different levels of influence, ranging from those which may have directly caused the event to organisational or even Regulatory impacts (see Section 8.2 and, for illustration, Figure 2.5 for more details). In developing a model of ORR, two main sources of information were used:

* Department for Transport, Local Government and the Regions.

- stakeholder groups
- relevant studies on ORR.

It was important to gather such information in order to ensure that the research was wholly aligned with current thinking, issues and other work being carried out in the area. The stakeholders who were contacted over the course of the study are listed below:

- the DfT – Road Freight Operations Policy; Freight Logistics Division; Road Safety Policy
- the HSE – Work-Related Road Safety Policy; Safety Unit; HSE Road Safety Records; Services Sector Road Haulage Topic Specialist; Work-Related Stress Priority Programme Manager
- Occupational Road Safety Alliance (ORSA )/RoSPA
- Nottingham University
- University of Manchester
- Central Motorway Police Group
- Norwich Union
- MAC Driver Training
- Brake Fleet Safety Forum
- Institute of Logistics and Transport
- Freight Transport Association
- Road Haulage Association
- Association of Car Fleet Operators
- British Chemical Distributors and Traders Association
- South Eastern and Metropolitan Traffic Area Network – Traffic Commissioner.

The following sources of information were used to further develop the model of ORR based on recent work. The list was not intended to be exhaustive but instead to reflect current thinking and up-to-date research:

- *Report of the Work-Related Road Safety Task Group* (WRSTG, 2001)
- *Traffic Commissioners' Annual Reports 2001–02* (DfT, 2002)
- *Steering your business safely – Creating a crash free culture* (Murray and Dubens, 2000)
- *Occupational road safety: A literature review* (HSL, 2003)

- *Overcoming the barriers to fleet safety* (Murray, 2001)
- *The contribution of individual factors to driving behaviour: Implications for managing work-related road safety* (HSE, 2002a)
- *Managing occupational road risk: The RoSPA Guide* (RoSPA, 2003)

### 2.2.2 Stakeholder consultation on ORR

*Management* of occupational road risk featured strongly among the opinions of those who were spoken to. The HSE are particularly concerned with the management side since they see this as the area where they can contribute most to Regulations of the risks. The current HSE stance is that it may be appropriate to enforce existing health and safety legislation if it can be shown that a serious management shortcoming contributed to a work-related road accident.

The fact that a road traffic accident was non-reportable under RIDDOR would not obviate its investigation by the HSE. However, the HSE are keen that more evidence on the scale and causes of occupational road accidents is gathered before they commit to more involvement. Of particular interest to the HSE are the organisational/cultural mechanisms which have the potential to influence ORR. If these can be identified then this might provide the HSE with a means of enforcement. One difficulty envisaged was the linking of safety culture with safety performance, an aspect being tackled by the current study.

Research on current management practice has found that many systems are strong on claims management but weaker on *accident investigation* and analysis for risk management purposes. One of the main problems is a lack of an agreed basis for classifying and analysing key aspects of work-related accidents. In order to improve the situation, change management and implementation have been identified as key barriers. Some consultees felt that large companies are better at road risk management than smaller companies but even at the good end of the industry there is still a paucity of companies with systems in place.

Work *stress* and *pressure* were consistently mentioned as likely influences on ORR. There are stresses directly related to commercial and work pressures, and these can be compounded by other road users. *Fatigue* may be one symptom of excessive work pressure.

There appears to be a certain amount of debate regarding the effectiveness of driver *training* on controlling ORR. One opinion is that driver skills training will not reduce risk because it is not a lack of skill which underpins accidents. It is instead people's attitudes to driving which governs crash involvement. Increasing the skill level of drivers may only serve to make people over confident regarding their ability and this may actually increase risk. On the other hand, it has been reported that companies who adopt driver training programmes do experience a reduction in the

number of accidents they have. However, there is generally a lack of hard evidence on the direct benefits of driver training. It may be that companies who adopt training generally focus their safety culture towards road risk and the increased awareness brings a reduction in accidents as opposed to the training itself.

### 2.2.3 Studies on ORR

A trawl of the publications gathered at the outset of the study provided further evidence with regard to the important factors in ORR. Several factors appear to be well established in connection with road accidents, such as speeding, drinking and driving, inattention, age and experience (WRSTG, 2001; Murray and Dubens, 2000; RoSPA, 1998; HSE, 2002a), and it is to be expected that such factors are likely to influence road accidents in general. There are, however, a number of factors which are more specifically related to occupational driving and which present the opportunity for control through company systems.

The lack of good quality *incident recording and management* is clearly flagged as hampering attempts to control ORR. This has been identified as a barrier both in terms of establishing the scale of ORR and identifying underlying causes (Murray, 2001; WRSTG, 2001). Furthermore, it has been identified that some companies/ organisations tend to be guarded when it comes to this kind of accident data, especially smaller companies. It has been noted that there exists a 'do not admit liability' culture which makes it difficult to obtain useful information on work-related road accidents (Murray, 2001). This highlights the importance of organisational trust when it comes to accident reporting and investigation.

As was apparent from the consultations, *fatigue* and *stress* are strongly associated with occupational road accidents in the literature. With respect to fatigue, it is noted that rules on drivers' hours are frequently flaunted, often resulting in prosecution (Traffic Commissioners' Reports 2000–02 — Dft, 2002). Fatigue has been tied back to poor work scheduling at the organisational level. Another symptom of poor scheduling is thought to be a heightened sense of time urgency for drivers which increases the likelihood of speeding and other driving *violations* (HSL, 2003).

Time pressure is known to be a contributing factor to *stress* which has also been identified as a predictor of involvement in motor vehicle accidents. Important sources of driving stress are thought to be long working hours, shift/night work, unrealistic scheduling and the sense of feeling rushed (HSL, 2003). There are likely to be certain commercial pressures which underpin many stressors, for example, it has been acknowledged that *contracting* and *conditions of pay* may be detrimental to driving safety. Pressure on goods delivery operators from customers and performance-related pay may cause drivers to consider safety as an afterthought (Traffic Commissioners' Reports 2000–02 — DfT, 2002; Murray, 2001). The contribution of stress and fatigue to work-related road accidents highlights the importance of good *planning* in the management of ORR.

The issue of driver *training* is prominent in the literature as it was in consultation. Several sources (see HSL, 2003; HSE, 2002a) argue that driver attitudes are much more important than skills training. There is evidence to suggest that attitude rather than skill is related to crash involvement, assuming that driving skill has reached a minimum standard (DETR, 2000).

It is claimed that there is little hard evidence to show any safety effects of skill-based training and that such training may actually be counterproductive by fostering a dangerous level of self-confidence in people (HSL, 2003). Instead, there is a belief that changing people's attitudes towards safe driving will bring about a more lasting improvement compared with skills training. However, Murray and Dubens (2000) make the point that attitude and behaviour do not necessarily move in the same direction. It appears that training will be useful as part of an overall package of measures to manage ORR, and it should cover attitudes and behaviour as well as driving skills. However, efforts to utilise such training may encounter inflexible attitudes against change and it is important to consider the change management and implementation of any such programmes (Murray, 2001).

Finally, it is acknowledged that several personality characteristics have been associated with unsafe driving (HSE, 2002a), the most prominent of these including hostility/aggression, thrill seeking and impulsiveness. In a work context, it has been argued that such factors are very difficult to control in terms of driving safety (HSL, 2003). At best, companies could tailor their recruitment procedures in an attempt to take into account personality factors when selecting drivers. However, many companies will not have the expertise to make such judgements and such practice may infringe employment law in any case. It is therefore considered that personality factors are extremely difficult if not impossible for companies to influence and as a result present little opportunity to reduce ORR.

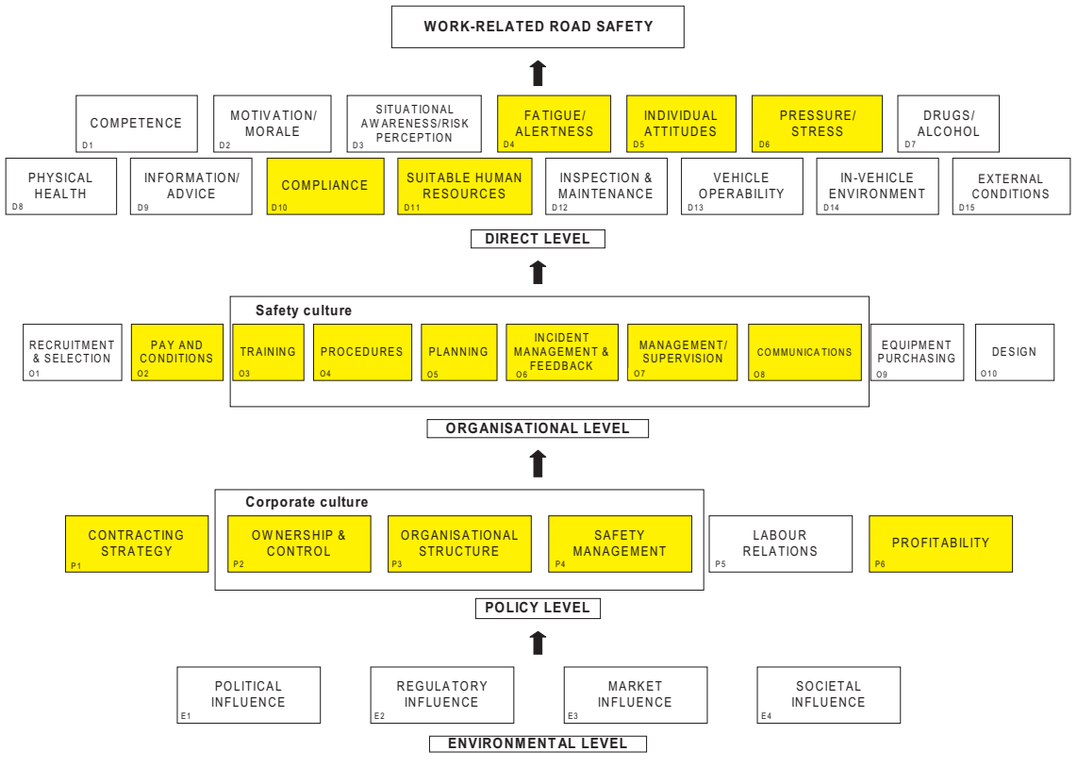
### *2.2.4 Influence Network model of ORR*

Based on the review of the factors potentially involved in work-related road accidents summarised above, a model of ORR has been developed. The model is based on the IN technique (Section 8.2) and highlights those factors thought to have the strongest influence on occupational road safety at a direct, organisational, policy and environmental level of influence.

Figure 2.5 highlights the factors within the IN identified as having an important influence on ORR (coloured factors). At the organisational level of the model, six out of the seven key factors are grouped within a box entitled 'safety culture', this is also the case for three out of the five factors at the policy level. These factors are all grouped under safety culture as they represent key components of an organisation's overall safety culture (see Chapter 3). This provides a strong early indication of the potential relationship between safety culture and ORR and the importance of safety

culture in managing ORR. This model has been used to help inform data collection, structuring, analysis and interpretation over the course of the study.

**Figure 2.5: IN model of ORR**




## 2.3 Current approaches to managing ORR

Along with the gradual understanding of the nature of ORR and the factors involved, there has been a corresponding movement towards approaches for better management of the risks. The overriding philosophy put forward by many sources (RoSPA, 1998; WRSTG, 2001; HSL, 2003) is that ORR, where possible, should be covered within companies' existing safety management systems. This being the case, there is heavy emphasis towards the HSE's model of safety management, HSG-65, (HSE, 1997a) as being the framework within which ORR should be managed. Assuming a company has a safety management system in place, this will involve building the control of ORR into existing safety policies and procedures, ensuring clear roles and responsibilities for ORR, planning and carrying out work to take into account of ORR, and monitoring ORR performance.

There now exists very detailed and comprehensive guidance on how to manage ORR. These approaches are broadly structured along the lines of HSG-65 but provide the specific details which are thought necessary to manage the risks

associated with driving for work effectively. Guidance which was reviewed as part of the current study included:

- *Firms on the move: A guide to improving the safety of work-related journeys* (Derbyshire Road Safety Partnership, 2001)
- *ICON Road Haulage Safety Solution* (Road Haulage Association Insurance Services, 2001)
- *Managing occupational road risk: The RoSPA Guide* (RoSPA, 2003)
- *Steering your business safely: Creating a crash-free culture* (Murray and Dubens, 2000)
- *Driving at Work: Managing work-related road safety* (DfT/HSE, 2003).

Although this guidance comes from a number of different sources, it is possible to pick out several common threads which appear to be considered as central to managing ORR. An important first step is being able to find out the extent of the risk which exists and this is dependent on collecting and analysing data in the right way. Once this is achieved, it is generally agreed that there needs to be an assessment of 'where a company is at' in terms of how they manage ORR. Tools are provided in the publications listed above which allow companies to carry out such a survey. A starting point will be to review the company's safety policies and procedures in terms of the incorporation of road risk. It is also important to review and define the responsibilities of all those involved with transport operations, particularly drivers, supervisors and transport managers.

At the heart of managing ORR there should be systems which ensure the implementation of a raft of practices which help to control the risk. The 'ICON Road Haulage Safety Solution' package can be used to illustrate the types of measures which are required. A system of recruitment and selection should be in place to ensure that prospective drivers have suitable licences and driving experience, that they have any training which is required and that they are fit and healthy to undertake the job. Maintenance schedules should be developed which, among other things, include regular spot checks and logs for defects as well as clear reporting and monitoring of actions.

In terms of measures which are directly applicable to being on the road, drivers should be given a basic induction that takes them through the main hazards they are likely to encounter in their job, the rules they are expected to follow and violations they must avoid, and how they are expected to deal with other road users. This should apply to agency drivers as well as employees. Drivers should be particularly clear on the procedures which are to be followed in the event of an accident and how it should be reported. Managers should ensure that any information drivers need to assist them with safe driving is effectively communicated. Finally, training needs should be assessed and a suitable programme of training should be put in place

which covers driving attitudes and behaviour as well as skill. Essentially, all these cover the elements of safety culture assigned in the IN model shown in Figure 2.5.

## 2.4 The need for a deeper understanding

Much of the guidance relating to ORR leans towards the more tangible aspects of management, such as policies, procedures, risk assessments, recruitment, training, data analysis and maintenance. While these measures are clearly vital to any successful safety management system for ORR, they are not the whole picture. It is also acknowledged in some of the guidance that individual attitudes and safety culture are important aspects which should be taken into account, as these, in turn, may influence the efficacy of the measures proposed. In simple terms, safety management systems will be ineffective if people have the attitude that they are not worth complying with or if a culture exists whereby safety is not regarded as being important.

The fact that individual attitudes and organisational culture are now recognised as important factors in the management of ORR raises some important questions for those who have an interest in controlling the risks. Fundamentally:

- What is the extent of the relationship between organisational culture and drivers' attitudes?
- Is this relationship strong enough to be used as a lever to improve work-related driving safety?
- If so, what measures are available to reduce the risks?

The current study aims to provide a better understanding of how these questions can be answered.

# 3 ATTITUDES, CULTURE AND SAFETY

## 3.1 Defining attitudes

Attitudes are widely discussed throughout the social psychology literature and several different definitions currently exist. However, most of those proposed describe an attitude as consisting of values, knowledge and behaviour. One clear definition of an attitude is:

> *'certain regularities of an individual's feelings, thoughts and predispositions to act toward some aspect of his environment'*
> (Secord and Backman, 1969)

Attitudes reflect a person's tendency to feel, think or behave in a positive or negative manner towards the object of the attitude. Attitudes can be held about the physical world, hypothetical constructs and about other people. Attitudes can also be held about safety at work.

## 3.2 Defining safety culture

Safety culture is believed to be a key predictor of safety performance (Advisory Committee for Safety in Nuclear Installations [ACSNI], 1993). A positive safety culture is therefore much sought after across many high-risk business domains in order to help prevent incidents and accidents. However, there remains debate with regard to the exact nature of safety culture and, as a consequence, there is still no universally accepted definition (Reason, 1998). Given this state of affairs, it is important to establish a practical and 'working' definition of safety culture so that it can be used to help understand and influence safety performance.

Some of the more practical definitions of safety culture in the literature (Bate, 1992; Thompson *et al.*, 1996) suggest two separate ways of thinking about safety culture: as something an organisation *is* (the beliefs, attitudes and values of its members regarding the pursuit of safety) and as something that an organisation *has* (the structures, practices, controls and policies designed to enhance safety). Both of these are essential for working towards an effective safety culture.

For the purposes of the current investigation, the following definition of safety culture has been created based upon our understanding of the concept:

> *The attitudes towards safety of employees at all levels of an organisation (what the company IS) and the way in which these beliefs translate to actual safety behaviour, systems, policies and practice (what the company HAS).*

Using this definition, safety culture should be visible at all levels of a company. Examples of safety culture 'characteristics' might be the safety policies and procedures issued by senior management, the commitment to implementing safety policy shown by line management and the willingness to comply with safety rules shown by the workforce.

## 3.3 Relating attitudes and safety culture

Cox and Cox (1991) suggest that 'constructive' attitudes are probably the most important single index of the effectiveness of a safety culture as they result from all other contributory features. Harvey *et al*. (2002) suggested that the number of groups of attitudes relevant to safety vary from two to nine and vary in nature, although most include job satisfaction, individual responsibility, management responsibility, leadership style and communication, commitment, risk awareness and risk taking (Cheyne *et al*. 1998; Cooper and Phillips, 1994; Cox and Cox, 1991; Dedobbeleer and Beland, 1991; Diaz and Cabrera, 1997). While the debate regarding a definitive set of key safety attitudes moves on, developing an understanding of existing and apparent employee attitudes towards safety remains immensely valuable for every company concerned with understanding the safety culture of their organisation.

## 3.4 Attitudes, safety culture and work-related driving

### *3.4.1 Attitudes and work-related driving accidents*

In order to develop a deeper understanding of the individual factors (including attitudes) affecting driving safety, a review of the pertinent literature was commissioned by the HSE (2002a). The review identified a number of individual factors associated with driving behaviour, including age, gender, education, personality, risk perception, social deviance, experience, stress, fatigue, physiology and, specifically relevant to this study, driver attitudes (see also HSL, 2003). The driver attitudes discussed in the review included attitudes towards traffic violations and drink driving and attitudes as related to fatigue. Two key conclusions were that drivers who regularly commit traffic violations tended to endorse the associated driving behaviour and drivers with poor attitudes, rather than poor skill, were more likely to crash. Further work in the field of traffic violations (Meadows, 1994; Parker *et al*., 1995) also found that drivers who commit relatively high levels of driving violations are more likely to be involved in road traffic accidents.

Traditionally, at-work driver safety has focused on the individual and the vehicle. However, this neglects the context in which drivers at work are operating and does not reflect the systems approach which underpins modern human factors sciences in relation to general safety matters and accident causation. Research undertaken at the Transport Research Laboratory (Downs *et al*., 1999) suggests that it would be of benefit for organisations to address work-related driver safety within a

comprehensive cultural approach. However, traditional ways of thinking about safety culture may not apply to at-work driving.

### 3.4.2 Rethinking safety culture for work driving

Organisational safety culture has been defined as the attitudes towards the safety of employees at all levels of an organisation and the way in which these beliefs manifest themselves in actual safety behaviour, systems, policies and practice. However, this definition implies a fixed workplace with a constant workforce where values can be visible, shared and transparent.

In the case of workers driving off-site, it is important to explore the characteristics and strength of the organisational safety culture and how this might be affected by external factors encountered while on the road or in the face of competing cultures at intermediate stops. The fundamental issue is whether an organisation's safety culture carries outside of the fixed workplace and, if it does, does it make any difference to driver behaviour once on the road?

For example, consideration of deliveries and the pre-planning and interface issues between drivers and sites highlights significant differences depending on whether drivers are moving between their own company premises and controlled conditions or to third party locations where there may be conflicting attitudes causing delay or aggravation for the driver. It is therefore driving safety culture in these wider and driving specific circumstances that needs to be addressed.

In summary, the current study is concerned with the extent to which organisational safety culture is filtered down to drivers and how it affects their behaviour once they leave the organisational environment. Also, the potential of using organisational safety culture as a lever through which to improve attitudes and, potentially, driving behaviour. The study was therefore established to develop a better understanding of the relationship between organisational safety culture, worker driver attitudes and ORR. The findings help provide a focus for organisational safety culture improvements as related to driver attitudes and thus provide a basis for reducing work-related road traffic accidents.

# 4 SURVEY APPROACH

## 4.1 Overview

The approach used to investigate the relationship between organisational safety culture, driver attitudes to safety and accident liability (risk) was based on the following elements:

- a measure of organisational safety culture using an established assessment questionnaire and collection of appropriate company literature
- a measure of driver attitudes to safety through detailed interviews
- collection of company road accident data.

This information was gathered during the study of a range of companies and their work-related driving activities, the results of which are presented in Chapter 5. The data collected has been triangulated in order to explore the relationships between culture, attitudes and accidents.

## 4.2 Safety culture measurement

The safety culture survey tool is an increasingly popular method of identifying and measuring the strength of organisational safety culture and to date has been used mainly in the energy, chemical process, transport and large manufacturing industries. The Health and Safety Executive (HSE) actively encourages organisations to improve their safety and has released a generic safety climate questionnaire (HSE, 1997b).

Over the last 20 years or so there has been a growth in safety culture measurement with certain factors becoming established as safety culture indicators such as management commitment to safety, workforce involvement, personal responsibility, attitudes to hazards, rule compliance, and workplace conditions (see Zohar, 1980). A number of different tools are currently available in the public domain, several of which were reviewed in order to help select the most appropriate tool for the purposes of this study. These included:

- the Health and Safety Climate Survey Tool (HSCST) developed by the HSE and released in 1997
- the Loughborough University Safety Climate Assessment Toolkit (LSCAT) developed and used in the joint industry project ‘The measurement of safety climate in safety cases’ (HSE ref: project 3389)
- the Airline Safety Culture Index (ASCI) developed by the Australian Bureau of Air Safety Investigation (BASI) in 1998.

The safety culture measurement tools were reviewed according to several criteria including validation, extent of use, adaptability, time to complete, dimensions covered and ease of analysis. On the basis of the review and reference to HSE Research Report 042 (2002b), it was decided that the HSCST was the most appropriate measure of safety culture for this study. The main advantages of the HSCST over the other tools include extensive use across a range of industry sectors and coverage of a variety of dimensions, such as organisational commitment and communication, risk-taking behaviour and the supervisor's role in safety.

## 4.3 Development of attitude measure

### *4.3.1 Interview rationale*

The safety culture assessment measures individual attitudes in relation to organisational safety. However, in order to develop a greater understanding of the additional influences on company drivers once they leave the confines of the organisation and its inherent safety culture, an interview was developed to addresses the contribution of individual factors and personal attitudes to driving behaviour.

The interview was developed to incorporate the factors deemed to have potentially the strongest influence on occupational road risk (ORR), as identified during meetings with the DfT, other stakeholders and thorough analysis of ORR studies (for a discussion of these factors see Section 2.2 and to view the resulting Influence Network (IN) see Figure 2.5).

A number of the areas covered during the interview related directly to items on the HSCST in order that the safety culture and driver interview results could be directly corroborated.

### *4.3.2 The driver interview*

The interview was largely based on the review of important factors in ORR (Section 2), and consists of the following five parts:

#### Part 1: Background information

This first part collects demographic information, such as gender, age and driving experience. Other potential influences on driving, such as the driver's terms of employment and payment, are also asked about. Finally, journey planning is explored in order to determine the extent to which safety considerations are built into planning, or indeed if planning is undertaken at all.

### Part 2: Compliance with company rules and regulations

In order to understand how company safety rules and procedures affect drivers while they are out on the road, this part of the interview explores drivers' attitudes to company driving guidance and rules.

### Part 3: Attitudes to driving violations

As highlighted previously, there is strong evidence to suggest that it is driving violations, not driving mistakes or lapses, which are most responsible for crash-involvement (DETR, 2000). This being the case, the likelihood of interviewees committing driving violations was assessed. This assessment was based on work carried out for DETR (2001) which used Ajzen's (1988) Theory of Planned Behaviour to analyse driving attitudes and behaviour. This theory describes the three major determinants of behaviour:

- beliefs about the consequences of behaviour (known as behavioural beliefs)
- the subjective norm which is based on beliefs about social pressure to carry out behaviour (known as normative beliefs)
- perceived behavioural control which is based on beliefs about the ease or difficulty with which the behaviour can be performed or avoided (known as control beliefs).

In order to gauge occupational drivers' likelihood of violating behaviour, and thus their likelihood of crash involvement, the interview explores four separate driving violations based on the three components of intention (behavioural, normative and control beliefs). Respondents are presented with four driving violation scenarios: shooting amber lights, close following, drinking and driving, and speeding. For each scenario, respondents are asked to rate on a five-point Likert scale how they feel about the consequences of this particular behaviour (behavioural belief), the pressure they would feel to carry out the behaviour (normative belief), and their belief about the ease or difficulty with which the behaviour can be performed (control belief). Drivers' responses allow an assessment of their likelihood of exhibiting violating behaviour.

### Part 4: Work pressures

Stress and fatigue have both been extensively highlighted as key contributory factors in ORR. They are also both concepts that can be a direct result of the wider safety management structure and thus open to improvement through mechanisms such as job redesign. The interview therefore explores occupational drivers' feelings about sources of pressure at work and feelings of fatigue, as related to issues such as job scheduling.

### Part 5: Safety management

The final part of the interview probes the drivers for their opinions on aspects of the organisation's safety management systems. This includes questions on driver training as well as accident and incident management and feedback. Finally, drivers were asked for any improvements which they feel could be made to their safety while on the road.

## 4.4 Accident and company data

Accident data and company safety policies and procedures were also sought from participating company management. The intention was to use this information to help set the survey results in context.

Each participating organisation was asked to provide the following accident data:

- data relating to driver accidents occurring in the last 10 years
- near misses relating to driving
- any insurance data highlighting trends in accident claims and/or premiums
- average driver mileage per year.

Efforts were also made to collect, among other things, safety policies, driver recruitment, selection and training procedures, and any driving safety guidance which was available.

## 4.5 Linking culture, attitudes and accident risk

Of paramount importance to fulfilling the study objectives and answering the research questions, it was necessary to have a clear plan as to how the information relating to culture, attitudes and accident risk can be linked to search for relationships. The questions fundamental to this study are recapped below:

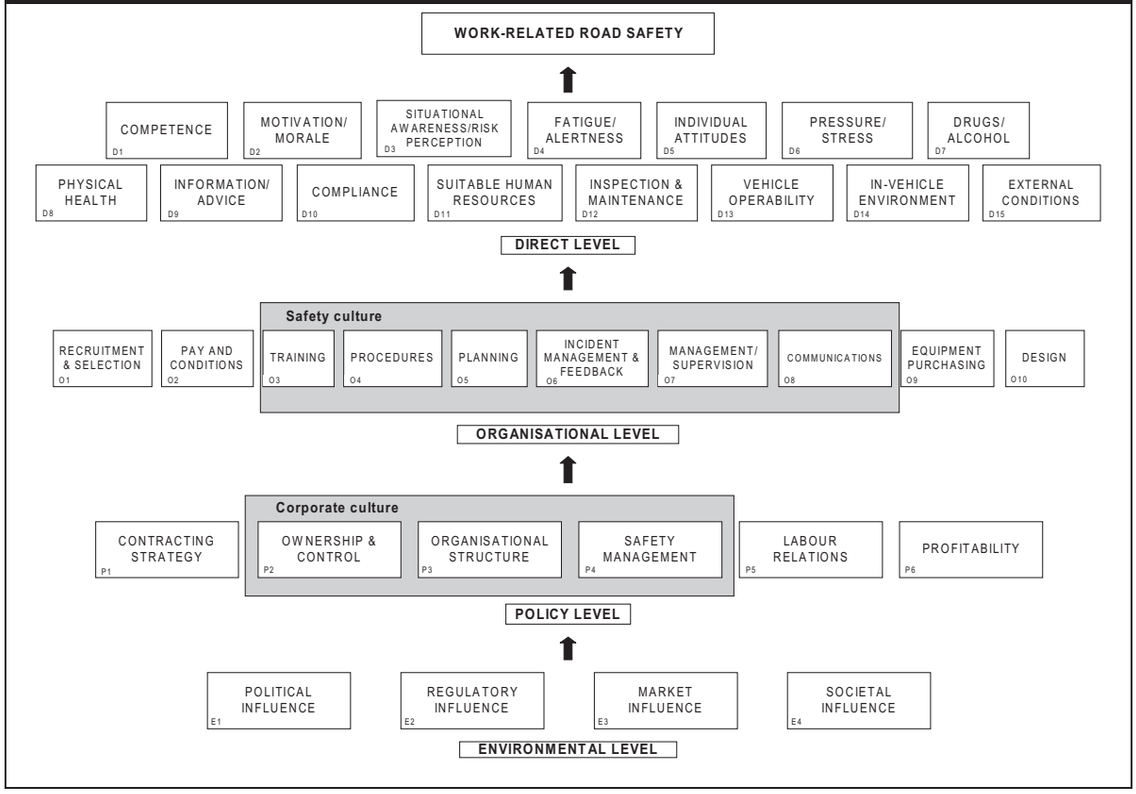
- What is the extent of the relationship between organisational culture and drivers' attitudes and accident liability?
- What measures are available to reduce ORR through changes to culture and attitudes?

To answer the first question it is logical to examine first the relationship between organisational culture and driver attitudes and then the link between driver attitudes and accident liability. If there is a strong enough association between culture and driver attitudes, and between attitudes and accident liability, then it follows that changes to culture can be used to influence attitudes in the direction of reducing the risk of occupational road accidents. The process of examining these linkages is now described.

### 4.5.1 *Linking organisational culture with driver attitudes*

To assess the relationship between safety culture and attitudes, it is important to be clear on exactly what is meant by safety culture. As described in Chapter 2, the Influence Network (IN) can be used to illustrate the key components of safety culture (Figure 4.1). At the organisational level of the model, six of the factors are grouped within a box entitled 'safety culture', this is also the case for three of the factors at the policy level. Broadly speaking, these represent what a company has (e.g. safety training, safety procedures etc.) and what they stand for (e.g. attitude of management to safety, extent to which safety is communicated), and together they can be used as indicators of a company's safety culture. The approach for drawing comparisons between organisational safety culture and driver attitudes is described below.

**Figure 4.1: IN highlighting safety culture factors**




The HSCST and the driver interview both cover the safety culture factors at the organisational level of the IN, namely, training, procedures, planning, incident management and feedback, management/supervision and communications. This allows qualitative examination of the agreement between how the organisation as a whole scores on these factors (organisational safety culture from the HSCST) and the driver's description of these factors (driver attitudes from interview). Owing to the small number of participants in relation to the number of variables, it was not

possible to test the level of agreement between safety culture and driver attitudes reliably using a statistical test of correlation. The level of agreement was therefore defined as 'strong', 'moderate' or 'weak' based on a qualitative analysis of the HSCST and driver interview data.

Table 4.1 shows the specific comparisons made between the items in the HSCST and the interview according to each safety culture factor. As well as examining the overall organisational culture against driver attitudes, it was also necessary to look at driver subcultures (e.g. car, HGV etc.) as measured by the HSCST in relation to the attitudes for that group. Checking these relationships provided pointers as to whether or not focusing on subcultures might provide a better means of influencing drivers. Table 4.1 references the safety culture factors (F1, F2 etc.) and items (Nos 1, 2 etc.) in the HSCST and specific parts (Pt 3, Pt 5 etc.) and questions (Q11, Q17 etc.) in the interview script.

**Table 4.1: Areas for qualitative comparisons between safety culture and driver attitudes**

| Safety culture factor | Coverage in the HSCST | Coverage in interview |
|---|---|---|
| Training | F1 (Organisational commitment & communication) No 51<br>F6 (Competence) No 38<br>F7 (Risk taking) No 21 | Pt 5 (Training) |
| Procedures | F8 (Rules and procedures) Nos 12, 26, 36, 45 | Pt 2 (Rules and regulation) |
| Planning | F1 (Organisational commitment & communications)<br>No 54<br>F6 (Competence) No 44 | Pt 1 (Planning) |
| Incident management/ feedback | F10 (Accidents and near misses) All | Pt 5 (Accidents, action, feedback, near misses) |
| Management/supervision | F1 (Organisational commitment & communications)<br>Nos 24, 20, 39 | Pt 3 (Attitudes to driving situations) Q11c<br>Pt 5 (Accidents, action, feedback, near misses) Q17a |
| Communications | F1 (Organisational commitment & communications)<br>Nos 9, 5<br>F2 (Management) No 49 | Pt 5 (Accidents, action, feedback, near misses) |

### *4.5.2 Linking driver attitudes with accident liability*

In order to look at the relationship between driver attitudes to safety and accident liability (i.e. the likelihood of accidents occurring), it is necessary to have a measure of driver attitudes and of the number of accidents a company has incurred over a set period of time.

It was possible to calculate the percentage of drivers tending towards negative safety attitudes in each company and the percentage of those tending towards positive safety attitudes. Drivers were categorised in this way according to their attitudes in six key areas (see Table 4.2). A positive attitude in an area was given a score of plus one, whereas a negative attitude received minus one. If it was not possible to make a judgement, no score was given. This means the driver's overall attitude to driving safety falls on a scale of +6 (very positive) to -6 (very negative). A score of zero is taken as a neutral attitude.

**Table 4.2: Items used for driver attitude scoring**

| Factor (interview question) | Positive score | Negative score |
|---|---|---|
| Planning (Q4a, b) | Consider *safety* factor in planning OR think more *safety* should be considered in planning | No thought to *safety* in planning OR no more *safety* consideration needed in planning |
| Rules (Q6a) | Driving *safety* rules acceptable OR wants more driving *safety* rules/ guidance | Suggestion driver doesn't follow driving *safety* rule OR doesn't see point in driving *safety* rules |
| Training (Q14a, g) | Can see benefits of driver *safety* training AND/OR would like further driver *safety* training | Had no further driver *safety* training AND doesn't feel need; OR had further training but thinks it's pointless |
| Accident feedback (Q17b) | Would always report driving accident OR would like more feedback OR thinks feedback is beneficial | May not always report driving accident/ incident OR doesn't want (anymore) feedback |
| Near miss feedback (Q18d) | Wants (more) driving near miss feedback OR thinks it is/would be beneficial | Doesn't want/see point in driving near miss feedback OR might not/doesn't report them (if Near Miss system) |
| Tendency to violate (Pt 3) | No tendency to violate on any driving scenarios (out of 4) | Tendency to violate on more than one (out of 4) driving scenarios |

To obtain a comparable measure of accident risk it was necessary to calculate the accident rate for each company. This is simply the number of accidents in a period divided by the total number of vehicle kilometres driven in that period and it is usually expressed as the number of accidents per 1,000,000 vehicle kilometres. This information was sought from the participating companies in the study and, where possible, accident rates were calculated.

## 4.6 Research methodology and protocols

In order that information on company safety culture and driver attitudes could be collected from a range of companies, two researchers were tasked with visiting the participating organisations and administering the HSCST and driver interviews to company employees. The process of data collection was broadly based on the following methodology:

- Information on the study background and objectives was sent to company management, and their agreement to participate was confirmed and dates for visits arranged.
- Two researchers conducted the interviews in parallel in two private rooms on the company's premises. Before starting the interview the researcher would explain the purpose of the interview, reassure the employee of interview confidentiality and would obtain their full consent to participate.
- Interviews would last approximately one hour and then the employee would be asked to complete the HSCST in order that their answers could be compared.
- At each company the researchers would also circulate copies of the HSCST for completion by non-interviewees, in order to obtain an organisational measure of safety culture. This questionnaire was either circulated as hard copy or electronically, depending on the participating company.

In the following chapter, the evidence gathered from seven companies is presented in order that conclusions about the nature and strength of a relationship between organisational safety culture and driver attitudes can be drawn.

# 5 COMPANY FINDINGS

## 5.1 Company A

### *5.1.1 Company profile*

Company A is a large manufacturer of snack foods. Manufacturing and warehousing sites are situated throughout the UK, and the snacks are prepared and then distributed to warehouses, wholesalers and direct to retail outlets via a large fleet of articulated lorries. The survey results are based on data collected from the company's two main operations sites, one in the South and one in the North of England, and from the company head office which is also in the South.

Table 5.1 details the total number of employees participating in the study within Company A. The driver interview sample is broken down by the type of vehicle driven by the employee and whether drivers classed themselves as 'management'. The safety culture questionnaire sample is broken down according to job role: driver, management or non-driving staff. The group of non-driving staff includes manual and non-manual job roles.

**Table 5.1: Company A sample breakdown**

| Driver interview with safety culture questionnaire | | | | Safety culture questionnaire only | | | | Grand total |
|---|---|---|---|---|---|---|---|---|
| Truck | Car | Car: management | TOTAL | Driver | Management | Non-driving staff | TOTAL | |
| 12 | 5 | 4 | 21 | 36 | 23 | 28 | 87 | **108** |

### *5.1.2 Organisational safety culture*

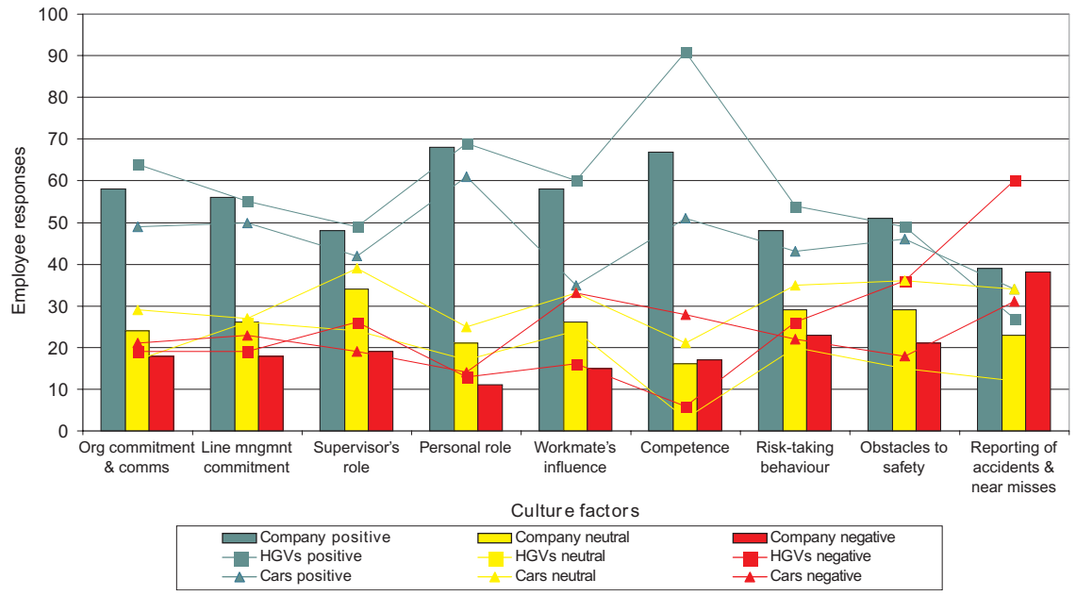
The total sample consists of 108 employees (including those interviewed), 33 responses from the Northern site, 24 from the Southern site and 51 from head office.

The overall company culture indicates that many people feel that they know what to do to be safe and that their contribution to safety is a worthwhile one. A high proportion of HGV drivers indicated that they understand the risks associated with their job although they are negative towards incident reporting and company rules compared to the rest of the sample. Car drivers scored highest on 'personal role' which suggests they appreciate the importance of health and safety but lowest on 'workmates influence' which indicates they are not convinced that others attach enough importance to these issues.

Figure 5.1 compares the HSCST responses of the HGV and car drivers at Company A with the overall organisational response. Looking for differences enables

consideration of whether drivers are operating under a different subculture compared with the rest of the company.

**Figure 5.1: Driver safety culture compared with organisational safety culture**




Firstly, looking at the overall trends from Figure 5.1, the positive responses from HGV drivers tend to be the same as, or higher than, the company culture measure, whereas the car drivers' favourable responses tend to be a bit less. Car drivers have more neutral responses than the company as a whole, while HGV drivers tend to be more decisive, positive or negative. Both groups of drivers tend to have more negative responses than the company as a whole. This initial analysis immediately indicates that the average company trends are not necessarily indicative of drivers' views.

The biggest differences between HGV drivers and car drivers were on the factors 'competence' and 'workmates influence'. Car drivers' responses indicated less appreciation of the risks associated with their job and less faith in their workmates' attitude to safety compared with HGV drivers.

The general feeling from Company A is that the safety culture is positive in several areas, evidenced primarily by the systems in place to promote HGV driver safety and a general interest shown by many people who took part in the survey. However, there are signs which indicate room for improvement, such as the fact that less safety measures apply to company cars and that the time available to look at safety appears to be an issue in some parts of the company.

### 5.1.3 Driver attitudes

In total 21 interviews were completed in Company A, 12 with articulated lorry (HGV) drivers and 9 with company car drivers. The car drivers were a mix of sales staff and those in management positions. The key findings from the survey of Company A driver attitudes are now described. HGV drivers identified schedules as the most important planning aspect and that these should have peak traffic times and rest breaks built in. Car drivers do not consciously think about safety in journey planning.

On the whole HGV drivers were of the attitude that driving rules are not difficult to follow although perhaps there are too many and some are not practical. There are no company written rules on car driving safety but the majority of drivers thought this would be of benefit.

Half of the HGV drivers experience driving pressure from tight schedules and long hours whereas another 40% do not feel any pressure. Faster and more aggressive driving are the most likely consequences of pressure for these drivers. A variety of driving pressures were mentioned by the car drivers, with the main categories relating to congestion/other road users and job demands, such as meeting targets and schedules. Such pressures were related to reduced awareness while driving, speeding and mood changes.

Driver fatigue is a widespread issue among the HGV drivers, with the most likely side-effect being loss of concentration. Similarly, just over half of car drivers reported that tiredness was an issue, with loss of concentration being the main side-effect.

Driver training is available to all HGV drivers and is of greatest benefit in terms of raising awareness of safety. The majority of car drivers had received no driver training from Company A but more than half said they would like such training.

The company takes a good approach to HGV accident reporting but the information this generates is not being effectively fed back to everyone. On the other hand, several car drivers did not know about, or were not clear on, accident reporting requirements. All drivers agreed that they received no feedback on road accidents. Again, the majority felt that this would be useful.

### 5.1.4 Relating organisational culture and driver attitudes

Section 4.5 provides a detailed description of the approach that was used to relate organisational safety culture with drivers' attitudes about safety.

In essence, a company's positive, neutral and negative responses from the HSCST for the six key safety culture factors — training, procedures, planning, incident

management/feedback, management/supervision and communications — have been compared to the responses against these factors from the driver interviews.

Table 5.2 highlights the final safety culture scores (percentage of positive, neutral or negative responses) and the percentage of drivers according to positive or negative attitudes. As well as including the overall safety culture results, the safety culture results based on the six key safety culture factors have also been highlighted.

**Table 5.2: Company A safety culture and driver attitude scores**

| Source | Number of participants | Positive | Neutral | Negative |
|---|---|---|---|---|
| All HSCST | 108 | 56% | 25% | 19% |
| Six key HSCST factors | 108 | 56% | 23% | 21% |
| HGV driver attitude ratings | 12 | 84% | 8% | 8% |
| Car driver attitude ratings | 9 | 67% | 0% | 33% |

The overall safety culture score indicates that the majority of Company A (56%) have a positive outlook on safety although that still leaves considerable room for improvement. The scores for the six key safety culture factors are very similar to the overall HSCST scores, confirming that these six factors provide a good measure of the overall safety culture.

The majority of both HGV and car drivers were rated as having a positive attitude to driving safety. HGV drivers were overwhelmingly positive (84%), whereas only two-thirds of car drivers were classed as having positive attitudes. Detailed analysis by culture factor reveals that the company scored favourably in terms of training, procedures, planning and management, and less favourably on incident management/feedback and communications (see Table 5.3).

Table 5.3 shows that drivers appear to be in line with the organisational view and each other with regard to training (positive), procedures (positive) and incident management (negative). As regards planning, the overall company response appears more positive than HGV drivers, who had issues with scheduling, and car drivers, who didn't think of safety in journey planning. In terms of management, the overall company culture emerged as very positive but both sets of drivers had issues with management with regards to their appreciation of certain driving pressures. Finally, the company's communications on safety received a considerably negative response. This was consistent with the findings from car drivers, although most said they would appreciate more driving safety related information. HGV drivers on the other hand appeared to receive better communications on safety issues.

It can be seen from Table 5.3 that, in almost all cases, there is an association between the organisational responses to the six aspects of safety culture and drivers' perceptions of the factors. It is concluded, therefore, that there is a moderate to

strong relationship between Company A's organisational safety culture and drivers' attitudes to safety. Note that where driver attitudes do not sway far enough to be classed as either overall positive or overall negative, they have been coded as 'mixed'.

**Table 5.3: Relating organisational safety culture and driver attitudes summary**

| Safety culture factor | Organisational safety culture rating | HGV driver attitude rating | Strength of HGV relationship | Car driver attitude rating | Strength of car relationship |
|---|---|---|---|---|---|
| Training | Positive | Positive | Moderate to strong | Positive | Moderate to strong |
| Procedures | Positive | Positive | Moderate to strong | Positive | Moderate to strong |
| Planning | Positive | Mixed | Moderate | Negative | Weak |
| Incident management/ feedback | Negative | Mixed | Moderate to Strong | Mixed | Strong |
| Management/ supervision | Positive | Mixed | Moderate | Mixed | Moderate |
| Communications | Negative | Mixed | Moderate | Positive | Moderate to strong |

(Note: Table 5.3 only provides an overall rating for organisational safety culture and drivers' attitudes and should not be used alone to draw conclusions regarding the strength of the relationship between safety culture and drivers' attitudes without reading the associated text.)

Overall, it is concluded there is a moderate to strong relationship between organisational safety culture and drivers' attitudes in Company A. The organisation's and drivers' views on training and procedures were most positive, with more weaknesses in planning, incident management and communications.

As part of the interviews, employees were asked to provide suggestions for improving driving safety within the company. This resulted in the generation of a variety of measures which are generally applicable to Management of Occupational Road Risk (MORR). These have been gathered together from all the companies in the survey and are shown in Appendix A under the factors found to be most important in MORR.

## 5.2 Company B

### *5.2.1 Company profile*

Company B is a large multi-national energy company engaged in all aspects of energy related business, including oil and gas exploration and production, petrochemicals, fuel distribution, lubricants, gas power and renewables.

Participating employees were sampled from the 'downstream' side of the business, which was primarily concerned with providing products straight to the consumer. More specifically, the sample was taken from the UK-based lubricant and logistical operations. The former consisted of company car drivers engaged in sales, marketing and general business activities in the South of England. The latter was made up of tanker drivers working out of distribution centres to supply forecourts around the country. This took into account sites in Scotland, the Midlands and the South East.

Table 5.4 shows the breakdown of staff sampled at Company B. All 15 of the company car drivers interviewed also classed themselves as management. The table shows that a grand total of 84 employees from Company B participated in the study, 32 of which were interviewed and completed the safety culture questionnaire and the remaining 52 completed the safety culture questionnaire only.

**Table 5.4: Company B sample breakdown**

| Driver interview with safety culture questionnaire | | | | Safety culture questionnaire only | | | | Grand total |
|---|---|---|---|---|---|---|---|---|
| Tanker | Car | Car: management | TOTAL | Car driver | Management | Non-driving staff | TOTAL | |
| 17 | 0 | 15 | 32 | 19 | 19 | 14 | 52 | **84** |

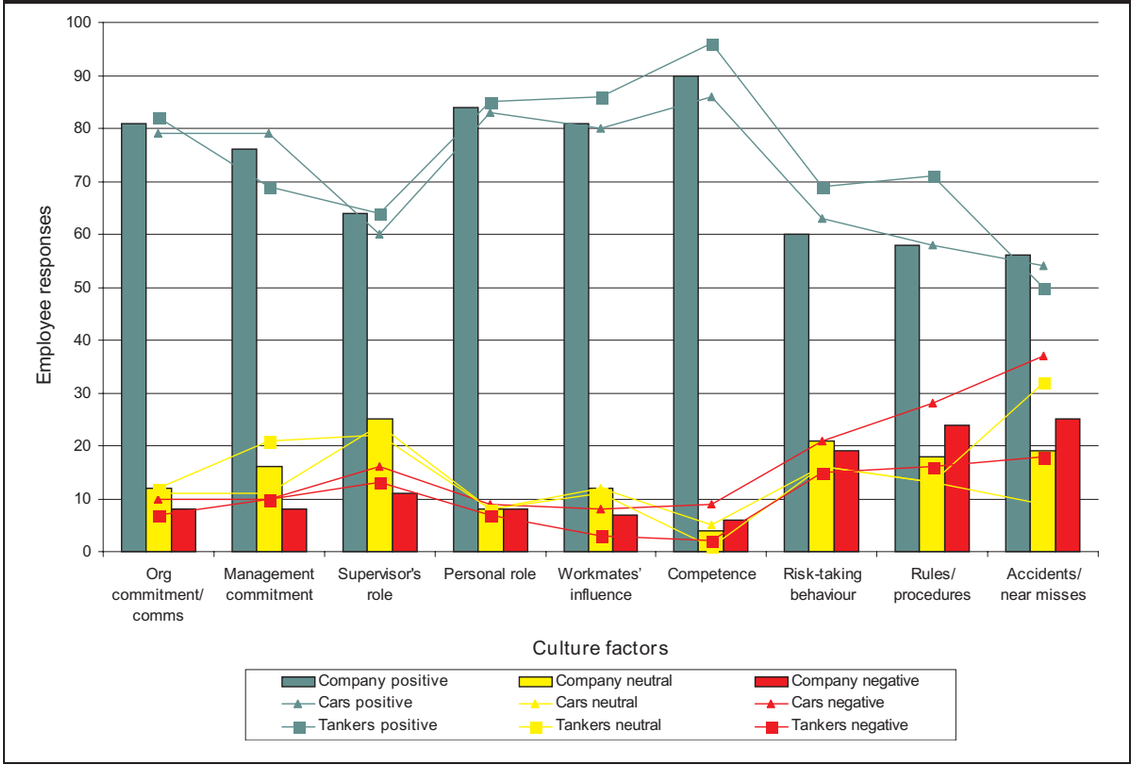
## 5.2.2 *Organisational safety culture*

The overall results showed a largely positive safety culture in Company B. The factor 'competence' was rated most positively by the whole organisation as well as by car and tanker drivers independently. This indicates that Company B employees feel confident in their understanding of the possible safety risks at work and their own level of responsibility and understanding regarding health and safety. The factor 'accidents/near misses' showed the most room for improvement across the whole organisation and among all drivers in the area of near miss reporting. Employees felt that near misses were not always reported.

Figure 5.2 highlights the response of car drivers and tanker drivers at Company B compared with the overall organisational response. This helps to provide early evidence for a possible link between drivers' attitudes and organisational safety culture.

Figure 5.2 highlights several similarities between the organisational safety culture and both driver safety cultures. Car drivers and tanker drivers both rated 'competence' as their most positive safety culture factor and 'accidents/near misses' as the least positive factor (in relation to near miss reporting). This finding directly reflects the organisational responses to these factors.

**Figure 5.2: Driver safety culture compared with organisational safety culture**




Perhaps the greatest difference between car driver culture and tanker driver culture is suggested by the fact that car drivers were more negative and less positive in relation to 'rules/procedures' compared with tanker drivers. This may be explained by the nature of the tanker driver's job role where rules and procedures are critical to their safety and so they are appreciated more. This perhaps hints at a more general trend whereby tanker drivers responded more positively and less negatively in relation to six of the nine factors compared with car drivers and the overall organisation. This suggests that despite the overall positive safety culture results, tanker drivers appear to be operating under a slightly more positive safety subculture, probably due to the hazardous nature of their job in terms of the loads they carry.

In overall terms, talking to managers, making observations while carrying out the study, and reviewing company literature highlighted that Company B take safety very seriously and that driver safety is an important and explicit part of this.

### 5.2.3 *Driver attitudes*

A total of 32 drivers were interviewed in Company B, made up of 15 company car drivers and 17 tanker drivers. Most car driver were in the car two to three days a week with a one-hour drive either side of a meeting, although some had to drive up

to four hours in a day. The tanker drivers worked a combination of 12-hour day and night shifts delivering fuel to retail outlets.

Tanker drivers worked to timed delivery schedules which were planned for each driver by Company B's route management system. Drivers generally felt the estimated timings were unrealistic and should take more account of peak traffic times. Car drivers gave the impression that journey planning amounted to reaching the destination in the easiest and quickest time, and that the company could do nothing to improve driver planning.

Both car and tanker drivers were of the view that the complete company ban on using mobile phones while the engine is switched on is unreasonable at times and difficult to follow (interviews were several months before the change in legislation pertaining to mobile phone use while driving). In addition to this, car drivers reported that observing the '12-hour' rule, i.e. the working day *including driving* must not exceed 12 hours, is difficult due to business pressures.

Car drivers reported that distractions caused by work issues and tight schedules caused by poorly arranged meetings can generate pressures which affect driving performance. Reduced awareness and mood swings are the likely consequences. Tanker drivers spoke of pressure from tight schedules, although most did not feel that this affected their driving performance. In addition to pressure, fatigue was found to be an issue for most car and tanker drivers at least some of the time, leading to a reduction in awareness. Tanker drivers found changing from one shift pattern to another, e.g. day shift to night shift, to be the most tiring time.

Both sets of drivers had very positive attitudes to driver training, pointing to several benefits including enhanced hazard awareness and the perception of safe distance. However, tanker drivers were much clearer on accident reporting and they received more incident feedback than company car drivers. Most drivers agreed that feedback either was or would be of benefit.

### 5.2.4 *Relating safety culture with driver attitudes*

Table 5.5 highlights the final safety culture and car and tanker driver attitude scores as an overall positive, neutral or negative percentage.

**Table 5.5: Company B safety culture and driver attitude scores**

| Source | Number of participants | Positive | Neutral | Negative |
|---|---|---|---|---|
| All HSCST | 84 | 72% | 15% | 13% |
| Six key HSCST factors | 84 | 75% | 12% | 13% |
| Car driver attitude ratings from interviews | 15 | 80% | 13% | 7% |
| Tanker driver attitude ratings from interviews | 17 | 94% | 6% | 0% |

The overall safety culture scores indicate 72% of positive organisational responses with only 13% of negative responses to all HSCST statements. In addition, the overall scores for the six key safety culture factors are almost identical, confirming that these six factors provide a good summary of the safety culture at Company B.

Car and tanker driver attitudes also showed a considerably positive response, with 80% of car drivers being rated as having a positive attitude (7% were rated negatively) and an extensive 94% of tanker drivers rated as having a positive attitude. The strongly positive tanker driver attitudes was also apparent in the safety culture results at the outset, when tanker drivers appeared to have a slightly more positive safety culture than car drivers and the overall organisation. Overall, there appears to be a moderate to strong relationship between organisational safety culture and drivers' attitudes at Company B.

Looking at the factors in detail, Table 5.6 provides a summary of the overall rating of each of the six key safety culture factors at Company B. It also provides an overall car and tanker driver attitude rating for each factor and summarises the conclusions drawn with regard to the strength of the possible relationship between organisational safety culture and driver attitudes.

Table 5.6: **Relating organisational safety culture with car and tanker drivers' attitudes**

| Safety culture factor | Organisational safety culture rating | HGV driver attitude rating | Strength of HGV relationship | Car driver attitude rating | Strength of car relationship |
|---|---|---|---|---|---|
| Training | Positive | Positive | Moderate | Positive | Moderate to strong |
| Procedures | Positive | Positive | Strong | Positive | Moderate |
| Planning | Positive | Negative | Weak | Positive | Moderate to strong |
| Incident management/ feedback | Positive | Negative | Moderate | Positive | Strong |
| Management/ supervision | Positive | Positive | Strong | Positive | Strong |
| Communications | Positive | Positive | Moderate to strong | Positive | Moderate to strong |

(Note: Table 5.6 only provides an overall rating for organisational safety culture and drivers' attitudes and should not be used alone to draw conclusions regarding the strength of the relationship between safety culture and drivers' attitudes without reading the associated text.)

It would appear from the findings highlighted in Table 5.6 that all of the key safety culture factors do appear to have some degree of relationship with both car and tanker driver attitudes. In addition, the majority of the factors showed either a moderate to strong relationship or a strong relationship between safety culture and driver attitudes.

The only relationship deemed 'weak' was between car drivers' attitudes and safety culture for the factor 'planning'. Interestingly, although overall the relationships were strong, more of the slightly less strong relationships were between car driver attitudes and the overall safety culture.

This tendency for car drivers' attitudes to show slightly less alignment with the overall safety culture could be due to the sample of car drivers coming from an acquired part of the company. They may not have had time to absorb fully the existing positive organisational safety culture at Company B (especially being more detached from the fixed workplace). An additional reason could be that car drivers are not put through the same comprehensive training system as tanker drivers and this is being reflected in their generally less positive attitudes. Tanker driver attitudes, on the other hand, were more positive than the organisational safety culture results probably due to the high degree of training that tanker drivers undergo in comparison to other Company B employees.

In conclusion, these findings support the earlier assertion that a moderate to strong relationship between organisational safety culture and drivers' attitudes exists at Company B.

The suggestions for improving driving safety made in the interviews are shown in Appendix A as part of the collection of risk control options gathered from all the companies in the study.

## 5.3 Company C

### *5.3.1 Company profile*

Company C is part of one of the world's largest manufacturers of concrete. It produces and delivers concrete throughout the London and South East region for the UK arm of the company. In order that the concrete is delivered from the production plant to customer sites, Company C operates an extensive fleet of trucks. 100 trucks service the London area, while 22 trucks service Kent (reflective of the difference in workload between regions). Each production plant is allocated a regular group of trucks to transport their concrete deliveries.

The majority of Company C's fleet consists of independent haulage carriers (IHCs or more commonly termed 'owner drivers'). These drivers are self-employed and own, maintain and drive a Company C branded lorry. Some of the IHCs own

multiple lorries and employ other drivers (also self-employed) to drive their other trucks. A small proportion of the trucks are owned by Company C and are driven by drivers employed by the company. Drivers are required to reach the customer site as soon as possible, since the load has a limited lifespan. The driver plans his own journey to the site and usually has a matter of minutes to do this. The average day will consist of between five to six concrete 'drops'. The Company C sample is shown in Table 5.7.

**Table 5.7: Company C sample breakdown**

| Driver interview with safety culture questionnaire | | | | | Safety culture questionnaire only | | | Grand total |
|---|---|---|---|---|---|---|---|---|
| Self-employed single IHC | Self-employed multiple IHC | Self-employed & driving on behalf of multiple IHC | Employed driver | TOTAL | Manager | Non-driving staff | TOTAL | |
| 6 | 2 | 6 | 3 | 17 | 11 | 33 | 44 | **61** |

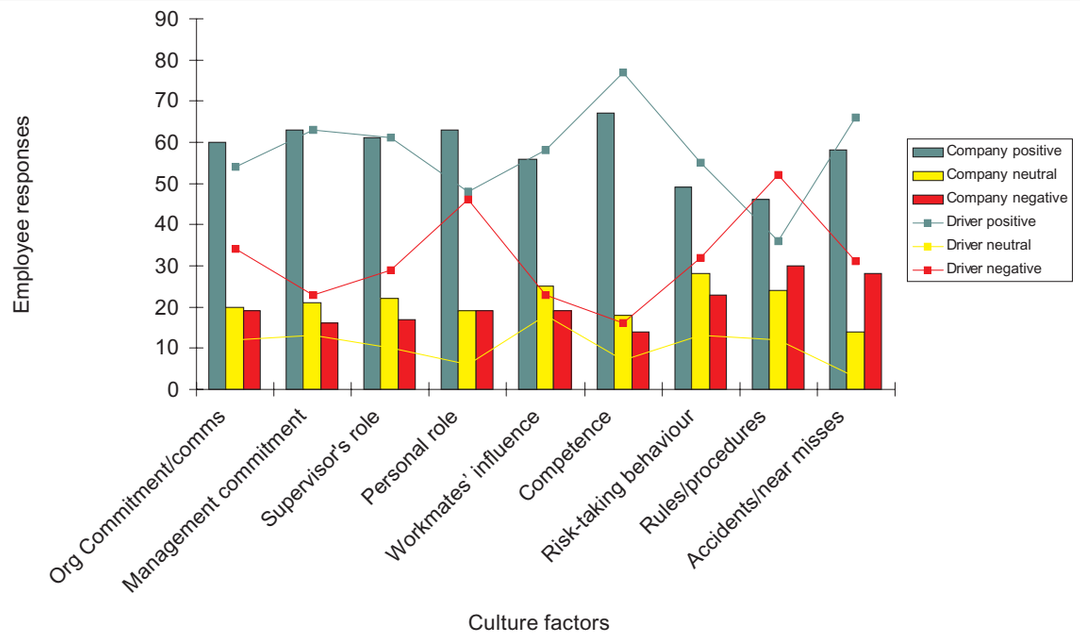
## 5.3.2 *Organisational safety culture*

A review of the safety culture questionnaire results illustrates that for the majority of the safety culture factors more than 50% of the organisation and the drivers responded positively. Both the organisation and the drivers responded to the factor 'competence' most positively. The main area for improvement was rules/procedures, which received a low positive response from the organisation and a particularly negative response from the drivers. The drivers' results also indicated room for improvement under 'personal role', and the organisation as a whole viewed 'risk taking behaviour' less positively than other factors. Other indicators suggested that at senior management level safety culture is positive, but this possibly becomes less positive as it moves down the organisation. Management of some key safety indicators also indicated room for improvement.

Figure 5.3 directly compares the truck drivers' safety culture with the overall organisational safety culture.

Figure 5.3 illustrates how for the three factors 'organisational commitment and communication', 'personal role' and 'rules/procedures' drivers responded less positively and more negatively. The factors 'management commitment' and 'supervisor's role' both received the same percentage of positive response (63% and 61% respectively) from both the organisation and the drivers. However, the drivers' negative response to both factors was larger than the organisation's by an average of 10%. These results suggest drivers may be working under a slightly more negative safety subculture.

**Figure 5.3: Comparison of driver and organisational safety culture**




This negative inclination could possibly be explained by the nature of the drivers' jobs. The majority of drivers (14) are self-employed and are therefore reasonably independent from Company C. It follows that a factor such as 'organisational commitment and communication' is likely to score less positively with these drivers compared with Company C employees. Drivers also responded more negatively to the factors 'personal role' and 'rules/procedures', both of which explore workers' beliefs about company safety rules and procedures. However, as independent entities, self-employed drivers may not feel embraced by Company C's rules and procedures and therefore may not feel positively towards them, especially if they do not feel the rules directly relate to their driving role.

In conclusion, although similarities between the organisational safety culture and driver safety culture do exist, the driver safety culture is prone to be slightly more negative.

### 5.3.3 *Measurement of drivers' attitudes*

In total 17 interviews were completed with Company C truck drivers. The key points emerging from the driver interviews may be summarised as follows:

- Planning time was predominantly used to assess the quickest/shortest route and to avoid peak traffic times.
- Safety rules and guidance did not formally exist and only a handful of drivers felt the need for any formal rules.

- Single IHCs appeared to be worst afflicted by work-related driving pressures, citing pressure to pay off their lorry and conflict experienced at customer sites. Despite this, a high proportion of drivers said they did not experience any sources of pressure while driving.
- Most drivers did not see fatigue as an issue, although those that did perceived a loss in concentration and increased agitation at the wheel as a result.
- Only two drivers (both employed by Company C) had received on-the-road driver safety training while in employment at Company C. Of those that had not received training, the majority did not want any.
- Accidents were discussed unofficially through the company grapevine. The desire for official company feedback was mixed.
- Driving near misses were experienced on a daily basis, although these were more likely to be relatively minor. The company near miss system was known about by most of the drivers, but rarely used.

### 5.3.4 *Relating organisational culture with attitudes*

Table 5.8 highlights the final safety culture and driver attitude scores as an overall positive, neutral or negative percentage.

**Table 5.8: Company C safety culture and driver attitude scores**

| Source | Number of participants | Positive | Neutral | Negative |
|---|---|---|---|---|
| All HSCST | 61 | 57% | 22% | 21% |
| Six key HSCST factors | 61 | 56% | 20% | 24% |
| Driver attitude ratings from interviews | 17 | 47% | 18% | 35% |

The overall safety culture score indicates that employees responded positively to the majority (57%) of the items in the safety culture questionnaire, however 22% of responses were neutral and 21% were negative, indicating that there is still considerable room for improvement. The overall scores for the six key safety culture factors are almost identical, again confirming that these six factors provide a good measure of the overall safety culture.

Driver attitudes were not rated quite as positively as company safety culture; just under half (47%) the drivers were rated as having a positive safety attitude to driving safety while 35% were rated as having a negative attitude. This inclination for drivers to respond more negatively was also reflected in the earlier comparison of driver safety culture with organisational safety culture. Despite this difference, in broad terms the company and drivers provided similar proportions of positive and negative responses.

In light of the general trend in results, but allowing for drivers' tendency to express a more negative outlook, it appears that there is a moderate relationship between organisational safety culture and driver attitudes at Company C.

Looking at the factors in detail, Table 5.9 provides a summary of the overall rating of each of the six key safety culture factors at Company C. It also provides an overall driver attitude rating for each factor and summarises the conclusions drawn with regard to the strength of the possible relationship between organisational safety culture and driver attitudes.

Table 5.9: **Relating organisational safety culture and driver attitudes summary**

| Safety culture factor | Organisational safety culture rating | Driver attitude rating | Strength of relationship |
|---|---|---|---|
| Training | Positive | Negative | Very weak |
| Procedures | Negative | Negative | Strong |
| Planning | Positive | Negative | Weak to moderate |
| Incident management/feedback | Positive (accident reporting); Negative (Near Miss reporting) | Negative | Moderate |
| Management/supervision | Positive | Positive | Strong |
| Communications | Negative | Negative | Moderate |

(Note: Table 5.9 only provides an overall rating for organisational safety culture and drivers' attitudes and should not be used alone to draw conclusions regarding the strength of the relationship between safety culture and drivers' attitudes without reading the associated text.)

At Company C the majority of key safety culture factors do appear to have some degree of relationship with driver attitudes, however, for the factors training and planning the relationship appears weakest. Overall it was concluded there is a moderate relationship between organisational safety culture and driver attitudes at Company C.

The suggestions for improving driving safety made in the interviews are shown in Appendix A as part of the collection of risk control options gathered from all the companies in the study.

## 5.4 Company D

### *5.4.1 Company profile*

Company D provides a range of agricultural contracting services to local businesses, including farm management, soil sampling, lime spreading, provision of fertilisers and specialist cattle, and road haulage. The company is located on a working farm in the home counties and employs approximately 10 full-time personnel to fulfil a

range of roles from agricultural specialist to HGV driver. Company D owns up to 15 different working vehicles. For the road haulage element of the business, the primary vehicles used are two 32 tonne rigid tipper lorries which are available for transporting aggregates, such as stone, sand, topsoil, stones for patios and rockeries and chalk rejects. Company D also offers the services of a 40 tonne articulated lorry, which is driven by a self-employed driver. In addition to the larger vehicles, other commercial vehicles include a pick-up truck and a vans and there are also four company cars and six tractors. Trips generally tend to be within a 30–40 mile radius of the business premises.

Table 5.10 details the total number of employees participating in the study within Company D. The driver sample consists of employees qualified to drive the HGVs and also those that only drive the <7.5 tonne commercial vehicles. The safety culture questionnaire sample consists of one non-driving member of staff and other company drivers.

**Table 5.10: Company D sample breakdown**

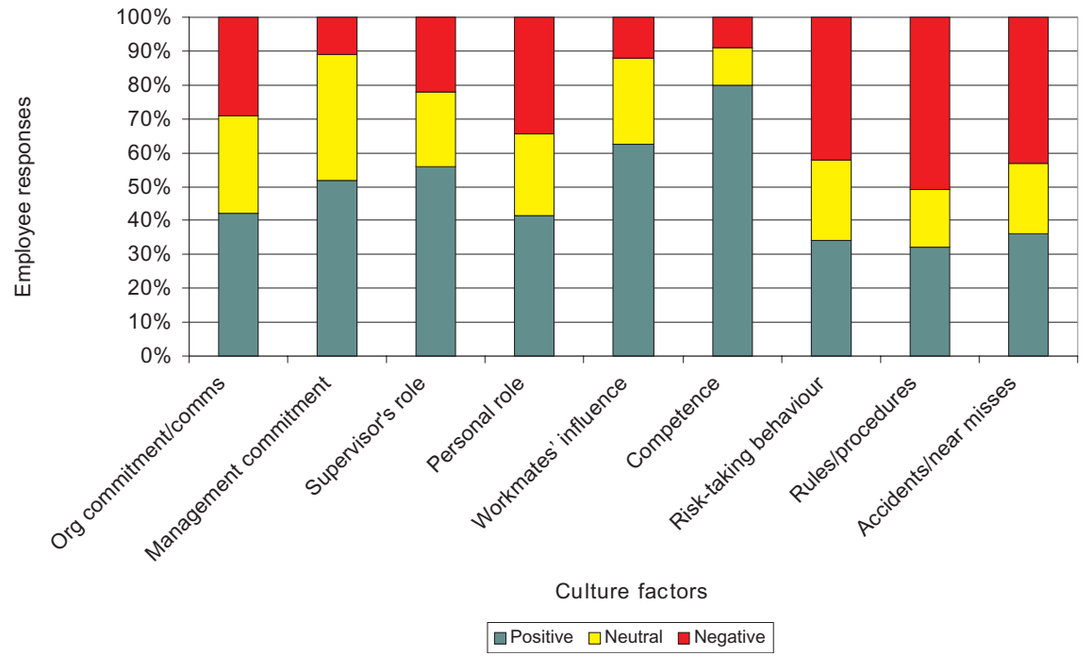
| **Driver interview with safety culture questionnaire** | **Safety culture questionnaire only** | | | | **Grand total** |
|---|---|---|---|---|---|
| **HGV and other drivers** | **Driver** | **Manager** | **Non-driving staff** | **TOTAL** | |
| TOTAL: 4 | 2 | 0 | 1 | 3 | **7** |

### *5.4.2 Organisational safety culture*

Figure 5.4 displays Company D's response to each of the nine safety culture factors being measured using the HSCST. The total sample consists of seven employees. The percentage of positive, neutral and negative responses to each of the nine safety culture factors is highlighted in the chart.

An initial look at Figure 5.4 highlights that responses to each of the nine safety culture factors are mixed. Just over half (5) of the factors received a weak response (less than 50% of responses to these factors were positive). The areas showing most room for improvement relate to risk-taking behaviour, rules and procedures, and accidents/near misses. The apparent need for improvement in these last two areas is interesting considering that a reasonably comprehensive (considering the small size of the company) driver safety handbook exists which clearly outlines rules/ procedures for drivers as well as including details about accident reporting. This suggests that although these guidelines exist, they may not be disseminated or communicated effectively.

**Figure 5.4: Organisational safety culture results**




Four of the factors appear reasonably positive, receiving more than 50% of positive responses. The area related to employees' own safety competence showed the most positive result, with 80% of the organisation responding positively to the associated HSCST statements. In addition, the factor 'workmates' influence' also received the next biggest positive response, suggesting that employees at Company D not only feel strongly about their own abilities to work safely but also their colleagues' abilities.

Owing to the small number of drivers (4) it was not of value to assess the driver responses separately.

### 5.4.3 *Driver attitudes*

Key points emerging from the driver interviews at Company D may be summarised as follows:

- The main consideration for drivers when planning a journey was the suitability of the route for the vehicle, which suggests an implicit consideration for safety.
- Despite an existing driver handbook, the majority of drivers said there were no official company rules or guidance related to driving safety. Two of these drivers also felt that rules would not be useful.
- The main source of driving pressure for drivers was a heavy workload, which increased during the peak summer season. Drivers felt this pressure could lead to an increase in their driving speed.

- Only one driver felt fatigue was an issue and that it could reduce driving concentration levels.
- There was no driver safety training, but two drivers felt it would be of benefit.
- In the event of an accident, all drivers said they would report it to their boss; however, two of the drivers also said there were some circumstances when they would not report an accident at all.
- The majority of drivers (3) said they did not receive accident feedback and only one of these thought it would be useful to receive feedback.
- Company D did not have a near miss system and employees did not feel it would be beneficial to implement one.

### *5.4.4 Relating organisational culture with attitudes*

Company D's total safety culture sample consisted of six drivers and only one non-driving member of staff because almost all of its employees drive company vehicles. Furthermore, four of these six drivers were also interviewed. Therefore, it is expected these drivers' attitudes would be reflected in, and therefore dominate, the results of the HSCST. It is therefore important to exercise caution when interpreting both the nature and strength (strong, moderate or weak) of the possible relationships between safety culture and drivers' attitudes, as they should already be fairly closely aligned.

Table 5.11 highlights the final safety culture and driver attitude scores as an overall positive, neutral or negative percentage.

**Table 5.11: Company D safety culture and driver attitude scores**

| Source | Number of participants | Positive | Neutral | Negative |
|---|---|---|---|---|
| All HSCST | 7 | 45% | 24% | 31% |
| Six key HSCST factors | 7 | 46% | 22% | 32% |
| Driver attitude ratings from interviews | 4 | 25% (1 driver) | 0% | 75% (3 drivers) |

(Note: percentages for 'all HSCST' and 'six key HSCST factors' do not reflect the number of employees, but the number of responses rated positive, neutral or negative.)

The overall scores for drivers' attitudes highlight how three out of four drivers (75%) were rated negatively while only one driver received a positive rating (25%). This would indicate drivers' attitudes are perhaps more negative than the overall safety culture. However, it must be noted that due to the small sample size (four drivers were interviewed), one driver's opinion could sway the overall result. Based on the results it appears that there is a fair degree of negativity both in driver attitudes and in the overall company culture.

In order to explore this relationship in more detail, Table 5.12 provides a summary of the overall ratings for each of the six key safety culture factors at Company D. It also provides an overall driver attitude rating for each factor and summarises the conclusions drawn with regard to the strength of the possible relationship between organisational safety culture and driver attitudes. Note that where driver attitudes do not sway far enough to be classed as either overall positive or overall negative they have been coded as 'mixed'.

**Table 5.12: Relating organisational safety culture and driver attitudes summary**

| Safety culture factor | Organisational safety culture rating | Driver attitude rating | Strength of relationship |
|---|---|---|---|
| Training | Positive | Mixed | Moderate |
| Procedures | Negative | Mixed | Moderate |
| Planning | Positive | Positive | Moderate |
| Incident management/feedback | Negative | Negative | Moderate |
| Management/supervision | Positive | Mixed | Inconclusive |
| Communications | Negative | Negative | Moderate to strong |

(Note: Table 5.12 only provides an overall rating for organisational safety culture and drivers' attitudes and should not be used alone to draw conclusions regarding the strength of the relationship between safety culture and drivers' attitudes without reading the associated text.)

At Company D the majority of key safety culture factors appear to have a moderate relationship with driver attitudes, with training and particularly planning appearing to have most agreement on positive aspects. However, the safety culture factor 'communications' appears to have the strongest relationship with driver attitudes, albeit tending towards negative culture and driver attitude ratings. This is supported by the finding that almost 30% of the HSCST responses to 'communications' items were negative and the driver handbook did not appear to be well communicated to employees. Similarly, a negative company view towards incident management and feedback was also reflected in driver attitudes. Finally, although 57% of the responses to management questions were positive, there was a suggestion from some responses that management may turn a blind eye to rule breaking and at least one driver independently concurred with this. Overall, it would appear that there is a moderate relationship between safety culture and drivers' attitudes at Company D, mostly stemming from the shared negativity towards communications, incident reporting and management attitude to procedures.

The suggestions for improving driving safety made in the interviews are shown in Appendix A as part of the collection of risk control options gathered from all the companies in the study.

## 5.5 Company E

### *5.5.1 Company profile*

Company E is a family run small haulage company that has been operating for over 30 years. It is jointly owned by three full-time directors, two of which are father and son, who also do most of the driving work. Company E's premises are in the South East of England, just outside the M25 motorway. The company owns six vehicles, ranging from commercial vans to one >7.5 tonne vehicle. The eldest director (the father) does the least driving and tends to concentrate more on office-based duties, e.g. company finances. His son is the only director with a >7.5 tonne licence and therefore is the only person to drive the >7.5 tonne lorry. The third director probably does the most driving, especially in the smaller vehicles, as he does not hold an HGV licence. The company collect and deliver almost any product anywhere in Europe. The nature of the job means that they often have very short notice about a journey, which could mean spending two to three days in the office and then suddenly being called to drive potentially anywhere in Europe. Table 5.13 highlights the three directors participating in the study at Company E.

Table 5.13: **Company E sample breakdown**

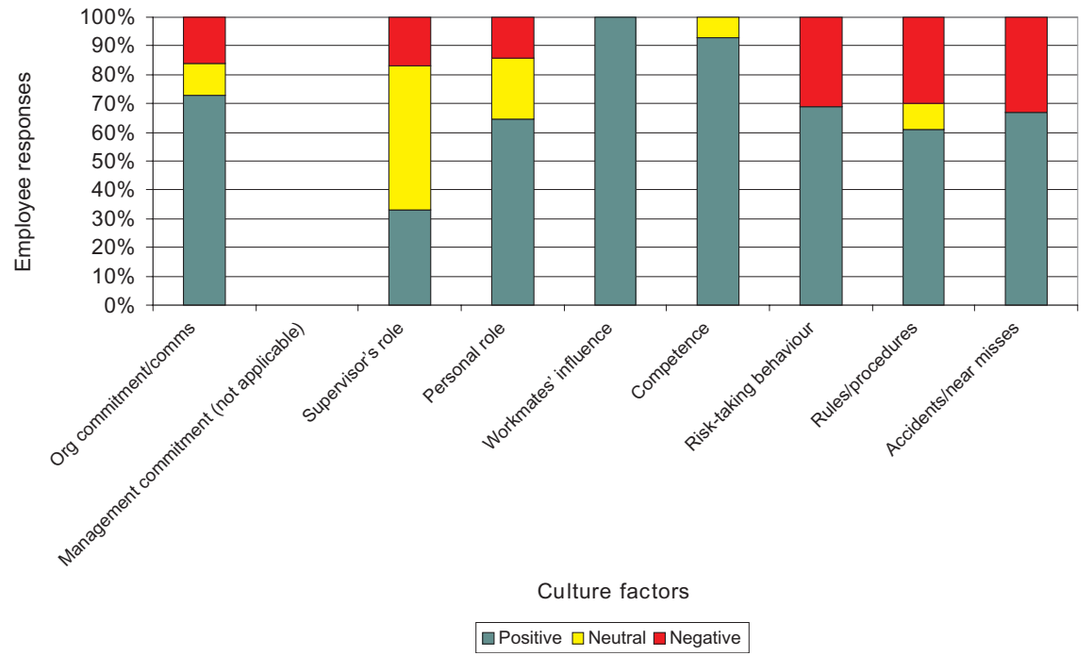
| **Driver interview with safety culture questionnaire** | | **Grand total** |
|---|---|---|
| **HGV driver >7.5 tonne licence** | **Drivers <7.5 tonne licences** | |
| 1 | 2 | **3** |

### *5.5.2 Organisational safety culture*

Figure 5.5 displays Company E's response to each of the nine safety culture factors being measured using the HSCST. The total sample consists of three company directors who are also the drivers (all of the company).

Figure 5.5 clearly highlights that all three drivers feel positively about the factor 'workmates' influence'. This strong response may be explained due to Company E being a small family run business, with each of the drivers holding an equal stake in the business and having a shared responsibility. This may also explain the positive response to the factor 'organisational commitment and communication'. The factor 'competence' also showed a strong positive response, indicating that as well as trusting their colleagues with their safety, they also trust themselves to work safely.

**Figure 5.5: Organisational safety culture responses**




The three factors that received the highest percentage of negative responses were 'accidents/near misses' (33% negative), 'rules/procedures' (30% negative) and 'risk-taking behaviour' (31% negative). However, these factors still received a high positive response (between 60% and 70%). The negative response to the factor 'rules/procedures' could again possibly be explained by the small nature of the company. An organisation consisting of three staff are not legally required to have a written safety policy from which rules and procedures may stem. Similarly, although accidents/near misses are no doubt discussed, a formal reporting system did not exist which probably underpinned some of the negative responses to this factor.

Recruitment of the smaller haulage companies proved challenging. Many of the companies contacted directly by telephone said they were either too busy to participate in the study, could not be sure when their drivers would be available or did not feel they needed any help with regard to safety. Overall this suggested an industry focus on short-term gain as opposed to potential long-term benefits. However, Company E showed an interest in the study unlike the majority of the small haulage companies contacted, reflecting a positive attitude to safety.

Finally, it is worth noting that many of the safety culture items on 'supervisor's role' and 'management commitment' were not relevant to a small organisation consisting only of three directors/drivers with equal responsibilities. This suggests that the HSCST may not be an appropriate measure of safety culture for a company of this size and nature.

### 5.5.3 Drivers' attitudes

Key points emerging from the driver interviews at Company E may be summarised as follows:

- Company E drivers consider a number of factors before embarking on a journey. The highest mileage drivers both demonstrated a consideration for safety when they mentioned planning break times.
- All three drivers agreed there were not any current driving rules and guidance at Company E.
- The main source of pressure came from various time constraints on the drivers, although they did not feel it affected their driving performance.
- Fatigue was not a major issue as the drivers prepared for long journeys with sufficient resting time, although one driver said it may become an issue after 9–10 hours of driving.
- Company E did not provide driver safety training and two of the drivers that were asked did not want training.
- Accidents were discussed informally among the drivers to identify lessons; there was no official reporting system for accidents or near misses.

### 5.5.4 Relating safety culture with drivers' attitudes

Table 5.14 highlights the final safety culture and driver attitude scores as an overall positive, neutral or negative percentage. As well as including the overall safety culture results, the safety culture results based on the six key safety culture factors are also included.

**Table 5.14: Company E overall safety culture and driver attitude scores**

| Source | Number of participants | Positive | Neutral | Negative |
|---|---|---|---|---|
| All HSCST | 3 | 71% | 9% | 20% |
| Six key HSCST factors | 3 | 73% | 4% | 23% |
| Driver attitude ratings from interviews | 3 | 67% (2 drivers) | 0% | 33% (1 driver) |

Table 5.14 highlights that the clear majority (71%) of responses to all the HSCST statements were positive, as were 73% of responses to the six key HSCST factors. Very few responses were neutral and 20% of responses were negative (23% for six HSCST factors). Drivers' attitudes showed a similar positive weighting, with two drivers (67%) being rated as having an overall positive attitude and one driver rated as having a more negative attitude. However, as Company E only consists of three drivers, one driver being rated negatively is still a significant proportion of the overall sample.

It must be remembered that, due to the small sample size and the nature of the statements within the HSCST (i.e. not wholly suited to small companies), caution must be exercised when drawing conclusions from Company E's results. A detailed attempt to draw conclusions regarding the strength of a relationship between drivers' attitudes and an overall organisational safety culture may prove spurious and thus misinform the overall research question. Therefore, this was not attempted for each safety culture factor.

Overall, it would appear that the drivers' results on the HSCST and their attitudes expressed during the interviews do show some alignment, both showing a tendency to be more positive than negative. Taking into account the limitations of the data (due to the small sample size), it is concluded that a moderate relationship between organisational safety culture and drivers' attitudes may exist at Company E.

The suggestions for improving driving safety made in the interviews are shown in Appendix A as part of the collection of risk control options gathered from all the companies in the study.

## 5.6 Company F

### *5.6.1 Company profile*

Company F is a relatively small health and safety consultancy employing around 25 permanent staff. The company provides a range of services to the hazardous industries sector, including offshore oil and gas, transport, construction and agriculture. The range of expertise available extends from safety and reliability engineering to human factors based solutions. Work is undertaken for a variety of industry stakeholders as well as Government departments and Regulatory bodies. Site visits, client meetings and business development engagements can be anywhere in the UK and necessitate periodic road travel for a number of Company F employees. Company F has a comprehensive safety policy and quality procedures which cover safety, but none of this applies explicitly to driving for work.

Table 5.15 shows the number of drivers interviewed at Company F as well as the safety culture questionnaires which were returned, providing an overall sample size of 13. The car drivers at Company F can be classed as occasional business drivers.

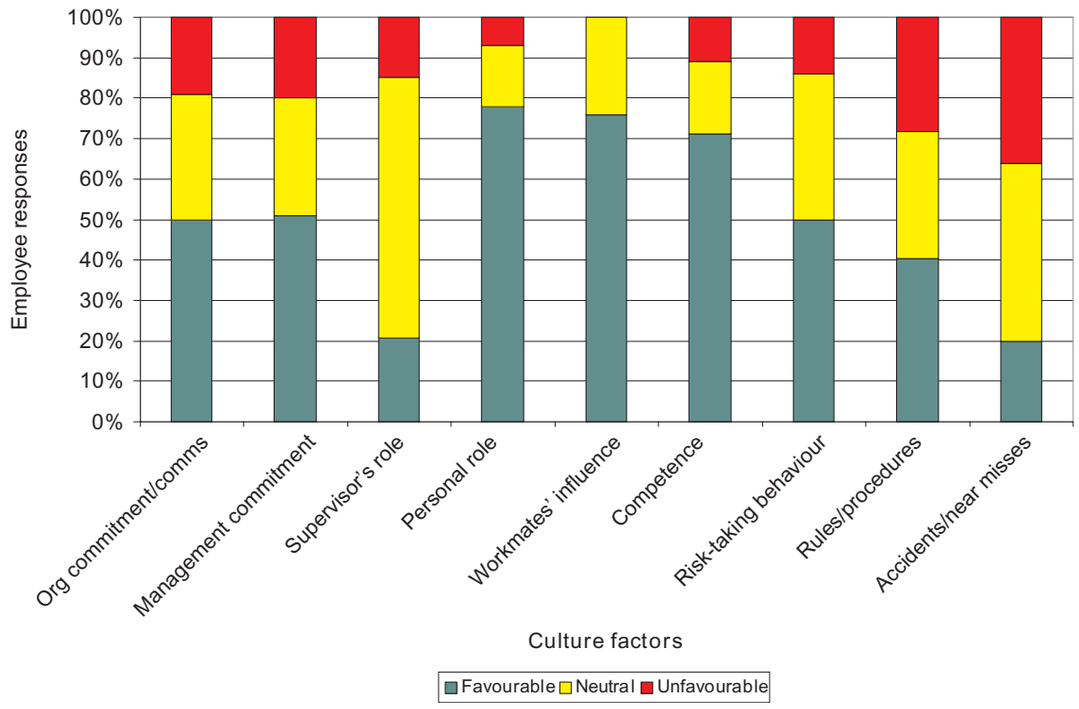
**Table 5.15: Sample breakdown**

| Driver interview with safety culture questionnaire | | | Safety culture questionnaire only | | | | Grand total |
|---|---|---|---|---|---|---|---|
| Car | Car: management | TOTAL | Driver | Manage-ment | Non-driving staff | TOTAL | |
| 4 | 0 | 4 | 0 | 1 | 8 | 9 | **13** |

### 5.6.2 *Organisational safety culture*

The organisational safety culture responses in relation to the nine safety culture factors are shown in Figure 5.6. This shows the percentage of employees who were positive, neutral or negative towards each of the factors. Several factors received a very positive rating, including personal role (78%), workmates' influence (76%) and competence (72%), with very little negative opinion (none in the case of workmates' influence). This suggests that Company F employees are aware of their health and safety responsibilities, they know how to stay safe and they trust fellow employees to be safe.

**Figure 5.6: Organisational safety culture responses**




Overall, most factors received relatively few negative responses, with the exceptions being rules/procedures (28%) and accidents/near misses (36%). In the first instance the trend appears to be that some safety rules are difficult to follow. The negative opinion towards accident/near miss reporting is perhaps misleading. Closer inspection of the data reveals that almost all the unfavourable responses from drivers and the organisation were in relation to the statement 'near misses here are always reported'. This is largely irrelevant in company F because there is little or no practical need for a near miss system in an office-based consultancy. As such, employees were either neutral or could not agree, but it would be unreasonable to interpret this as unfavourable.

It is of note that there is a relatively large proportion of neutral responses for several factors, such as supervisor's role and risk-taking behaviour. This is almost certainly

reflecting the fact that many of the questions relating to these factors were not relevant to Company F and so respondents could neither agree nor disagree.

Owing to the small number of drivers (4), it was not of value to assess the driver responses separately.

### 5.6.3 *Drivers' attitudes*

The key findings from the survey of Company F car drivers' attitudes are as follows:

- Planning is largely concerned with reaching the destination on time although safety consideration may sometimes come into play.
- No driving rules exist and drivers are split 50/50 on whether these would be of benefit.
- Several factors can sometimes cause driving pressure but it appears these seldom affect driving performance.
- Overall, fatigue does not seem to be a major issue for drivers although for at least one driver tiredness may have an affect.
- Driver training is not perceived as an issue due to the limited business driving.
- No accident reporting system exists and the drivers are split 50/50 on whether or not accident feedback would be useful. The drivers are generally doubtful towards the utility of a near miss reporting system.

### 5.6.4 *Relating safety culture with driver attitudes*

Table 5.16 shows the safety culture and driver attitude scores as the percentage of responses which were either positive, neutral or negative.

**Table 5.16: Overall safety culture and driver attitudes ratings**

| Source | Number of participants | Positive | Neutral | Negative |
|---|---|---|---|---|
| All HSCST | 13 | 51% | 32% | 17% |
| Six key HSCST factors | 13 | 45% | 30% | 25% |
| Driver attitude ratings from interviews | 4 | 75% (3 drivers) | 25% (1 driver) | 0% |

In terms of the overall safety culture rating from the HSCST, assuming the neutral responses relate mostly to items which were non-applicable, there were three times as many positive statements compared with negative. When the six safety culture factors were looked at in more detail, the proportion of negative responses increases at the expense of positive ones although the difference is not large given the small sample size.

Care must be taken when comparing driver attitudes to organisational culture due to the small sample size. However, it is fair to say that the attitudes of drivers are clearly stacked towards being positive, with three being rated as such, and that there is a similar pattern in the overall company culture towards safety, with a clear majority of positive responses. In light of this it appears there is at least a moderate relationship between organisational safety culture and driver attitudes at Company F.

The existence of the relationship suggested by Table 5.16 is further strengthened by looking at the different areas of safety culture in Table 5.17. This provides the organisation's rating of each safety culture factor as well as the overall driver attitude rating for each factor. Note that where driver attitudes do not sway far enough to be classed as either overall positive or overall negative they have been coded as 'mixed'.

**Table 5.17: Relating organisational safety culture and driver attitudes summary**

| Organisational safety culture factor | Safety culture rating | Driver attitude rating | Strength of relationship |
|---|---|---|---|
| Training | Positive | Positive | Strong |
| Procedures | Negative | Mixed | Moderate |
| Planning | Positive | Positive | Strong |
| Incident management/feedback | Positive | Mixed | Moderate |
| Management/supervision | Positive | Mixed | Moderate |
| Communications | Negative | Mixed | Strong |

(Note: Table 5.17 only provides an overall rating for organisational safety culture and drivers' attitudes and should not be used alone to draw conclusions regarding the strength of the relationship between safety culture and drivers' attitudes without reading the associated text.)

Table 5.17 clearly shows there to be a moderate to strong relationship between organisational safety culture and driver attitudes to safety within Company F. The factors training and planning showed the strongest relationship between organisational safety culture and driver attitudes with both rated as positive. Drivers tended to have mixed views on procedures, incident management, management commitment and communications. However, in each case there was considerable agreement with the predominant company view.

The suggestions for improving driving safety made in the interviews are shown in Appendix A as part of the collection of risk control options gathered from all the companies in the study.

## 5.7 Company G

### *5.7.1 Company profile*

Company G is a family owned business based in the Thames Valley that specialises in gravel extraction, waste disposal and power generation. Gravel extraction is at the core of Company G's operations, with three main gravel processing sites located

close to their head offices. Company G's fleet consists of two employed HGV drivers and three self-employed owner drivers who own Company G branded vehicles. All of the vehicles are able to carry up to 32 tonnes, have eight wheels and operate a tipping mechanism. The drivers' main duty is to transport gravel extracted from the three company extraction sites to various construction projects within a 30–40 mile radius.

Table 5.18 details the total number of employees participating in the study within Company G.

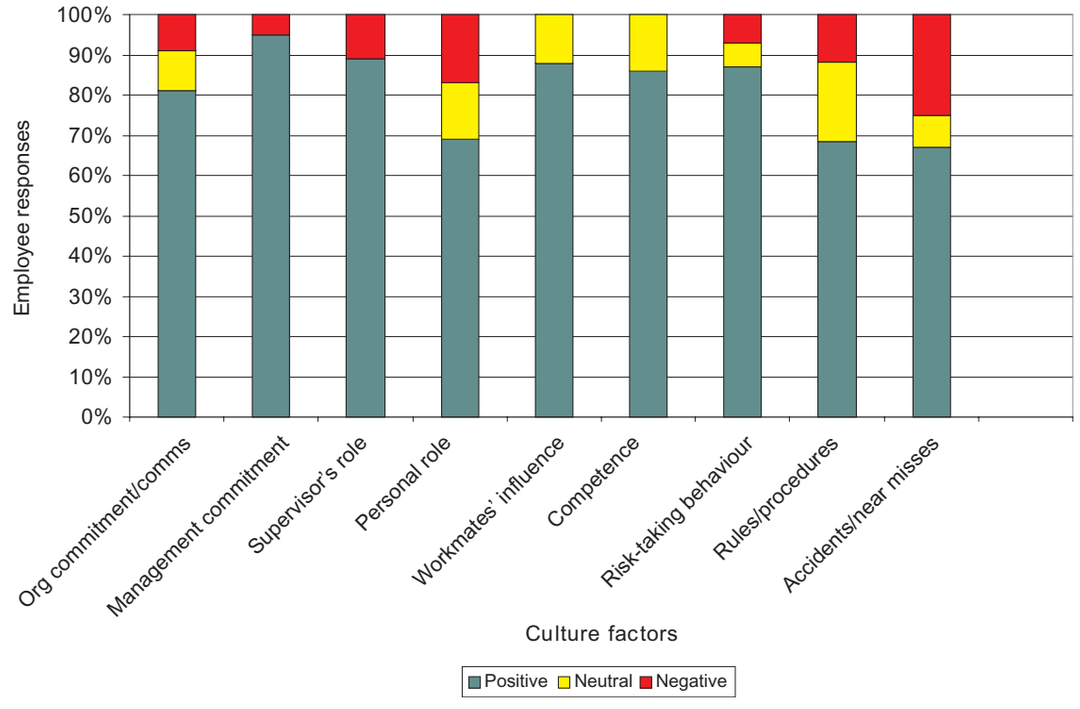
**Table 5.18: Company G sample breakdown**

| Driver interview with safety culture questionnaire | Safety culture questionnaire only | | | | Grand total |
|---|---|---|---|---|---|
| **HGV drivers** | **Driver** | **Manager** | **Non-driving staff** | **TOTAL** | |
| TOTAL: 3 | 1 | 3 | 0 | 4 | **7** |

## 5.7.2 *Organisational safety culture*

Figure 5.7 displays Company G's response to each of the nine safety culture factors being measured using the HSCST. The total sample consists of seven employees. The percentage of positive, neutral and negative employee responses to each of the nine safety culture factors is highlighted in the chart.

**Figure 5.7: Organisational safety culture results**



On first inspection, the results for Company G look very positive. All nine factors have received over 60% of positive responses from employees. The factor 'management commitment' received the highest percentage of positive responses (95%). 'Workmate's influence' and 'competence' also received a high percentage of positive responses (87% and 86% respectively) and were the only factors not to receive any negative responses. The weakest factor was 'accidents/near misses' with 67% of positive responses and 25% of negative responses. Owing to the small number of drivers (3), it was not of value to assess the driver responses separately.

Overall the safety culture at Company G looks positive, with over 60% of the responses to all nine safety culture factors being positive. Company G's interest in participating in the study (in contrast to many other small operators) also suggests a positive outlook towards driving safety.

### 5.7.3 *Driver attitudes*

Key points emerging from the driver interviews at Company G may be summarised as follows:

- Journey planning was not undertaken consciously, it was more a case of setting off and finding the easiest way to the destination.
- Company G has no rules on driving safety and the interviewees felt there was no need for such rules.
- Work-related driving pressures did exist for two out of the three drivers in the form of workload and schedules.
- All drivers reported feelings of tiredness but only one felt this affected driving performance.
- None of the drivers had been through further driving training and none wanted it.
- There is no formal incident feedback in Company G and drivers generally did not feel this would be useful.

### 5.7.4 *Relating organisational culture with attitudes*

Company G's total safety culture sample consisted of four drivers and three managers. Therefore, it is expected these drivers' attitudes would be reflected in and, as a result, influence the results of the HSCST. It is therefore important to exercise caution when interpreting both the nature and strength (strong, moderate or weak) of the possible relationships between safety culture and drivers' attitudes, as they should already be fairly closely aligned.

It was fair to conclude from the interviews that drivers' attitudes to measures which might be expected to reduce ORR (training, procedures, planning, incident

management) were predominantly negative. The reason for this negative rating is that these systems are not in place at Company G and on the whole drivers do not want them. The negative driver attitudes towards four of the key safety culture factors appears at odds with much more positive responses in relation to these factors from the results of the HSCST. Overall, a trend emerged whereby safety through measures such as training, procedures, incident management/feedback and communications was thought to be generally a good idea in the company but this was not necessarily put into practice and did not translate into driving safety.

Table 5.19 highlights the final safety culture and driver attitude scores as an overall positive, neutral or negative percentage. As well as including the overall safety culture results, the safety culture results based on the six key safety culture factors have also been highlighted.

**Table 5.19: Company G safety culture and driver attitude scores**

| Source | Number of participants | Positive | Neutral | Negative |
|---|---|---|---|---|
| All HSCST | 7 | 80% | 11% | 9% |
| Six key HSCST factors | 7 | 77% | 12% | 11% |
| Driver attitude ratings from interviews | 3 | 0% | 0% | 100% (3 drivers) |

It can be seen from Table 5.19 that the overall safety culture scores are very similar to those obtained when only the key safety culture factors are analysed, suggesting that the key factors are giving a good measure of safety culture. The overall safety culture within Company G appears to be very positive. However, all three drivers were rated as having attitudes towards driving safety tending towards the negative. This is illustrated for each of the key safety culture factors in Table 5.20.

**Table 5.20: Relating organisational safety culture and driver attitudes summary**

| Safety culture factor | Organisational safety culture rating | Driver attitude rating | Strength of relationship |
|---|---|---|---|
| Training | Positive | Negative | Weak |
| Procedures | Positive | Negative | Weak |
| Planning | Inconclusive | Negative | Moderate to strong |
| Incident management/feedback | Positive | Negative | Weak |
| Management/supervision | Positive | Positive | Moderate to strong |
| Communications | Positive | Negative | Weak |

(Note: Table 5.20 only provides an overall rating for organisational safety culture and drivers' attitudes and should not be used alone to draw conclusions regarding the strength of the relationship between safety culture and drivers' attitudes without reading the associated text.)

In summary, the overall picture which emerges is that people in Company G think that safety considerations in general are a good idea, such as through training, procedures, accident reporting etc., and this is reflected by the positive safety culture ratings. However, when related to driver attitudes and driving practice, these good intentions are not carried through. This appears to account for the inconsistency in the Company G findings and it is therefore concluded that there is a weak relationship between organisational culture and driver attitudes.

The suggestions for improving driving safety made in the interviews are shown in Appendix A as part of the collection of risk control options gathered from all the companies in the study.

# 6 CROSS-COMPANY COMPARISONS

## 6.1 Overview

The survey work described so far has allowed analysis of the relationship between organisational culture and driver attitudes within specific companies. There is now a need to pull these findings together in order to consolidate and add to the evidence regarding the strength of the relationship. Furthermore, there is a need to assess the relationship between driver attitudes and accident liability (in other words, accident risk). For a full description of the approach used to analyse these relationships see Section 4.5.

## 6.2 Relating culture and attitudes

Table 6.1 shows the overall positive and negative responses to the safety culture questions for each company alongside the percentage of drivers who were classed as having either a positive or negative attitude towards driving safety. It can be seen that, overall, most companies received a much greater proportion of positive responses to the questions on safety culture compared with negative responses. In addition, the majority of companies had more drivers with positive attitudes to safety compared with negative attitudes.

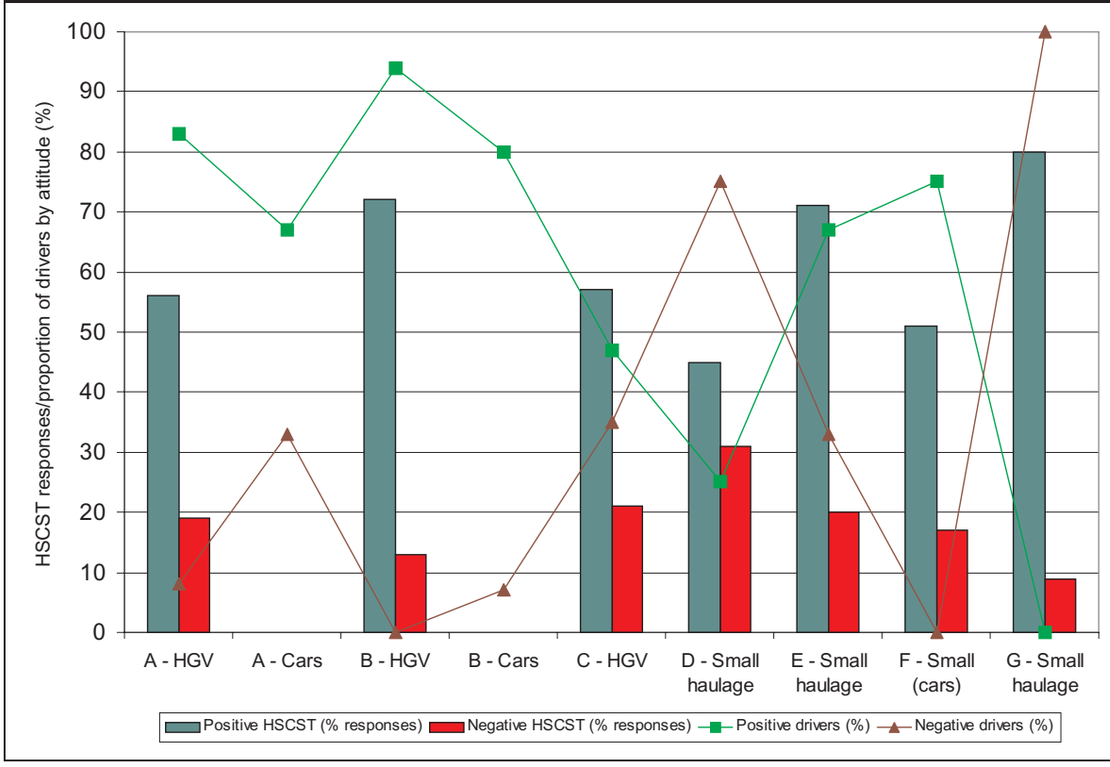
Table 6.1: **Organisational responses to culture questions against driver attitudes for ALL companies**

| Company | Total drivers | Positive HSCST (% responses) | Positive drivers (%) | Negative HSCST (% responses) | Negative drivers (%) |
|---|---|---|---|---|---|
| A – HGV + cars | 108 (12 HGV; 9 cars) | 56 | 83 (HGV), 67 (cars) | 19 | 8 (HGV), 33 (cars) |
| B – HGV + cars | 84 (17 HGV; 15 cars) | 72 | 94 (HGV), 80 (cars) | 13 | 0 (HGV), 7 (cars) |
| C – HGV | 61 (17 drivers) | 57 | 47 | 21 | 35 |
| D – Small haulage | 7 (4 drivers) | 45 | 25 | 31 | 75 |
| E – Small haulage | 3 (3) | 71 | 67 | 20 | 33 |
| F – Small (cars) | 13 (4 drivers) | 51 | 75 | 17 | 0 |
| G – Small haulage | 7 (3 drivers) | 80 | 0 | 9 | 100 |

(Note: Percentages do not add to one hundred because neutral respondents are not shown.)

Figure 6.1 allows a visual comparison of how each company's organisational safety responses compare to the positive and negative attitudes of drivers. This helps to support the basic finding that favourable company responses towards organisational safety may or may not be related to the number of drivers with positive attitudes to safety, depending on the company. In Company B, for example, a very high percentage of positive safety culture responses is matched by a high proportion of HGV and car drivers with positive attitudes to safety. In Company G, however, all drivers were rated as negative towards driving safety despite a very favourable impression of safety culture from the questionnaire responses. Using Figure 6.1 as a fairly basic first level of analysis, safety culture and driver attitudes appear to best go together in companies A, B, E and F, with more misalignment in companies C, D and G. It should be borne in mind that the samples vary in size considerably from company to company.

**Figure 6.1: Organisational culture responses against proportion of drivers by attitude for ALL companies**




Although Figure 6.1 provides a first level indicator of the relationship between safety culture and driver attitudes across the companies, it is necessary to look at the different elements of safety culture in order to gain a more realistic picture and to help show where improvements may be necessary. Table 6.2 shows the associations between organisational safety culture and driver attitudes according to six of the main components of safety culture — training, procedures, planning, incident

reporting/feedback, management and communications. Positive relationships are highlighted in green, with areas which could be improved upon coloured red. Straightaway it can be seen that some organisations, like Company B, appear to have drivers with positive attitudes in most areas which match the general company culture. Other companies, like C and G, have drivers tending towards more negative attitudes in several areas irrespective of whether the company culture is positive or negative in that area.

**Table 6.2: Organisational culture related to attitudes by culture factor and by company**

| Factor | Rating | Company | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A HGV | A Cars | B Cars | B Tanker | C | D | E | F | G |
| Training | Organisation | Pos | | Pos | | Pos | Pos | – | Pos | Pos |
| | Driver | Pos | Pos | Pos | Pos | Neg | Mix | – | Pos | Neg |
| | Relationship | M to S | M to S | Mod | M to S | Weak | Mod | – | Strong | Weak |
| Procedures | Organisation | Pos | | Pos | | Neg | Neg | – | Neg | Pos |
| | Driver | Pos | Pos | Pos | Pos | Neg | Mix | – | Mix | Neg |
| | Relationship | M to S | M to S | Strong | Mod | Strong | Mod | – | Mod | Weak |
| Planning | Organisation | Pos | | Pos | | Pos | Pos | – | Pos | Incon |
| | Driver | Mix | Neg | Neg | Pos | Neg | Pos | – | Pos | Neg |
| | Relationship | Mod | Weak | Weak | M to S | Weak-Mod | Mod | – | Strong | Mod-Strong |
| Incident feedback | Organisation | Neg | | Pos | | Pos | Neg | – | Pos | Pos |
| | Driver | Mix | Mix | Neg | Pos | Neg | Neg | – | Mix | Neg |
| | Relationship | M to S | Strong | Mod | Strong | Mod | Mod | – | Mod | Weak |
| Management | Organisation | Pos | | Pos | | Pos | Pos | – | Pos | Pos |
| | Driver | Mix | Mix | Pos | Pos | Pos | Mix | – | Mix | Pos |
| | Relationship | Mod | Mod | Strong | Strong | Strong | Incon | – | Mod | Mod-Strong |
| Communication | Organisation | Neg | | Pos | | Neg | Neg | – | Neg | Pos |
| | Driver | Mix | Pos | Pos | Pos | Neg | Neg | – | Mix | Neg |
| | Relationship | Mod | M to S | M to S | M to S | Mod | Mod-Strong | – | Strong | Weak |
| **Overall conclusion** | | **M to S** | | **M to S** | | **Mod** | **Mod** | **Mod*** | **M to S** | **Weak** |

Positive link | Potential improvement through culture

Key: Pos – positive; Neg – negative; Mix – Mixed; Mod – moderate; Incon – inconclusive; M to S – moderate to strong

* This is an overall judgement – not possible to analyse by each factor due to small sample, and culture questionnaires only came from drivers

As well as giving a general idea of whether or not company culture matches driver attitudes, Table 6.2 also shows that companies may be more advanced in some areas of culture compared with others. For example, although Company B has a strong safety culture which filters through to most drivers, there are still aspects of car driver planning and incident management which could be improved upon. Similarly, although Company C has room for improvement on many aspects of organisational and driver safety, management commitment to safety still received a positive response from both drivers and the company as a whole.

Table 6.2 suggests that there may be areas of safety culture which might be weaker for company drivers in general. Incident reporting/feedback, planning for car drivers and safety communications (of guidance/incidents etc.) have frequently emerged as areas either lacking application to driving and/or felt to be of little use to drivers. Training and procedures tend to be seen as more relevant to driving, although drivers in certain companies were sceptical about the usefulness of such measures.

It is clear that the relationship between safety culture and driver attitudes is not a case of 'yes' or 'no' but instead should be thought of in terms of the strength of the association in specific areas of safety culture. Using this line of thought, it has been concluded that there is probably at least a moderate relationship between safety culture and driver attitudes which is stronger in some companies and weaker in others. The relationship appears to be strong enough to suggest that improvements to a company's safety culture can be used to influence driver attitudes. However, a strong safety culture is not a guarantee of positive attitudes to safe work-related driving unless the culture is appropriately focused.

## 6.3 Attitudes and accidents

In order to encourage companies to address safety culture as a way to reduce road accident risk, it is important to build evidence on the relationship between driver attitudes and accident liability (i.e. accident risk). This has been done in the current study by relating the measure of driver attitudes (negative or positive — see Section 4.5) for each company to the corresponding company accident rate and looking for trends across companies, i.e. do companies with a high percentage of drivers with positive attitudes also fall among the lower accident rates and vice versa.

Driving accident/incident data was collected from the companies involved in the study where this was available. This included the total vehicle kilometres for the period under consideration in order that driving exposure could be taken into account. It transpired that the three larger companies in the sample were able to provide accident data, i.e. Companies A to C, whereas this was not available from the smaller companies for one reason or another. For Companies A and B it was necessary to collect data for HGVs and for cars since both types of drivers had been included as part of the sample.

The reason for the unavailability of data from the smaller companies was generally because such information was not formally collected. This meant that there was either no recorded accident data or only an informal estimate. In addition, the small companies either had no formal reporting requirement or a requirement which did not extend to driving accidents. The result was that the small companies either had no accident data or data which would have been too unreliable to use in the analysis. It became apparent that the collection and use of driving accident data was generally poor irrespective of the size of the company. This was highlighted by the fact that in some cases, the larger companies in the study struggled to provide useful accident

data. Problems which were evident in these cases included poor storage of data, inflexible data structure, difficulties with obtaining data subsets and lack of information on accident causes. As such it is difficult to see how such datasets can provide a useful basis for learning and improvement in the sense related to safety culture. All the indications were that data may be collected but not necessarily used effectively.

Owing to the size of the companies providing accident data, it was necessary to decide which parts of the companies accident data should be gathered from in order to reflect the accident liability of the drivers who took part in the study. This was necessary in order to control for the effects of subcultures within companies. Only certain parts of the companies were assessed in terms of drivers' attitudes so it was important that only accident data for the groups to which these drivers belonged was used in the analysis, otherwise road accidents from other parts of the company may skew the results. Therefore, the accident data used in the analysis was as closely matched as possible to the groups which were sampled from.

Accident rates for Companies A, B and C were calculated by dividing the number of accidents for the six-month period January to June 2003 by the associated total vehicle kilometres driven in that period. This is expressed as the rate of accidents per one million vehicle kilometres driven. The results are shown in Table 6.3 along with the percentage of drivers who were classed as having an overall positive or negative attitude to driving safety in each of the companies (see Section 4.5).

**Table 6.3: Accident rates against percentage of drivers with positive and negative attitudes**

| Company | Positive attitude drivers (%) | Negative attitude drivers (%) | Incident rate (per 1,000,000 vehicle km) | Notes |
|---|---|---|---|---|
| B – HGV | 94 | 0 | 0.34 | This is Company B Logistics UK |
| B – cars | 80 | 7 | 1.9 | This is only 3 business units within Company B UK Lubes |
| A – cars | 67 | 33 | 5.4 | This is Company A cars UK |
| A – HGV | 83 | 8 | 7.7 | This is only Company A South and North distribution sites |
| C – HGV | 47 | 35 | 24.9 | This is only the 5 Company C plants, sampled in the study |
| (Note: This table should not be interpreted without reference to the associated discussion.) | | | | |

Before interpreting Table 6.3 it is important to consider the limitations associated with the results. As already mentioned in this section, the data which was available from companies was limited in several ways. There are also several limitations relating to the comparability of the rates which have been calculated and these will now be discussed.

The reporting requirements laid down by each company and how these are communicated and acted upon will clearly have an effect on the number of accidents which are recorded. This was observed to differ between, and even within, companies. Companies A and B clearly state that, for HGV drivers, all accidents/ incidents must be reported. Within Company C there was uncertainty regarding what the requirement was. Further to this, compared to Company A, Company B appeared to be better at feeding back information on accidents, which seemed to increase the credibility of the system. Finally, the car drivers sampled in Company A are not clear on the requirement to report car accidents. All the factors discussed here will have an effect on the number of incidents reported within each company.

As well as what is defined as an accident, the way in which data is coded and grouped has an effect on its comparability. This may be to do with the actual recording system or simply to do with the structure of the company business. As an example of the former, Company B groups car incidents as 'light vehicles' which can be anything under 3.5 tonnes and probably includes many small delivery vans. This makes it difficult to see the extent of car incidents only. In terms of how data is grouped, the car driver data presents particular difficulties. Many of those driving a car as part of their job tend to spend a lot of time with clients and may not be attached to one office in particular, if any at all. This makes it difficult to say that all the incidents used in the analysis came from the groups which were sampled.

In light of the preceding discussion, extreme care must be taken when interpreting the rates shown in Table 6.3 since these may not be directly comparable. This being the case, statistical comparison is not appropriate and little weight can be attached to relatively small differences between the rates. However, larger differences can be used as a rough indicator of how driver attitudes may relate to accident liability.

Using the approach described, the results in Table 6.3 can be separated into three broad bands:

- Company B has the lowest accident rate (tankers) out of the three companies for which rates could be calculated, closely followed by the second lowest rate (cars). Taking car and tanker drivers together, Company B also has the highest percentage of drivers with positive attitudes and the lowest percentage of drivers with negative attitudes.
- Company A car drivers have the next lowest rate, although it is almost three times greater than the rate for Company B car drivers. This is closely followed by the accident rate for Company A HGVs. Company A is the next best after Company B in terms of the percentage of drivers with positive attitudes compared to those with negative attitudes.
- Company C has by far the highest accident rate (HGVs), which is over three times greater than the rate for Company A HGVs. Company C also has the

highest percentage of drivers with negative attitudes and the lowest percentage of those with positive attitudes.

For the companies where accident data was available, bearing in mind the limitations which have been described, there appears to be at least a modest relationship between accident rate and driver attitudes. The company with the most positive/least negative drivers had the lowest accident rate and vice versa. This finding is consistent with the picture of safety culture which has been assembled for each of these companies. Company B (lowest accident rate/most positive drivers) has shown the most mature safety culture in the study with clear driving safety standards and rules, excellent driver training and a policy to report and try to learn from all driving incidents. Company A (next lowest rates/percentage of positive drivers) has good driver training and guidance for HGVs, although not for car drivers, and is generally not as strong on communications and incident management. Company C (highest accident rate/most negative drivers) have no formal driver training, unclear rules/reporting requirements and relatively ineffective lines of communication.

# 7 CROSS-SECTOR ISSUES

## 7.1 Gaining a wider understanding of ORR

The trends that emerge from cross-company comparisons will help to establish the extent to which individual company findings are generally applicable and are therefore usable in terms of understanding ORR. However, individual company issues and controls are of limited help to the DfT unless they are extended to the wider areas which the DfT can influence. It is therefore necessary to gather together the wider sector issues, including commonalities and differences, in order to help highlight these wider issues. This will involve consideration of the findings according to company size and road user type.

## 7.2 Road user type

### *7.2.1 HGV main issues*

The companies considered in order to identify common issues for HGV drivers were Companies A, B, C and G. Although companies D and E also run at least one articulated lorry, it was felt that inclusion of these companies might pick up too many non-HGV issues since the drivers in these companies also drive LGVs and cars. In companies A and B, only the HGV driver survey results were considered, cars were excluded.

In terms of positive trends across the companies, the culture factors 'competence' and 'workmates' influence' both emerged as strong. This suggests that HGV drivers feel clear on the risks associated with their work, understand their responsibilities and trust their fellow drivers to work safely. In Companies A and B this is likely to stem from the fact that comprehensive systems are in place to manage safety, including while driving. This suggests a relationship between the training, guidance and feedback provided in these companies and the drivers' level of safety knowledge and awareness. In companies C and G, however, such systems are less developed or are completely absent. This makes it more difficult to account for the drivers' apparent confidence in terms of safety 'competence'. It may be that drivers feel 'competent' about safety without having a full appreciation of the risks and their responsibilities.

In terms of specific attitudes to driving safety, HGV drivers from all companies mentioned that meeting schedules was a factor which could cause pressure while driving at least some of the time and that this pressure could have detrimental effects on driving in some cases. In addition, there were drivers in all companies who said that tiredness affected their driving in the form of reduced awareness or lack of concentration. There was a split between Companies A/B and C/G in terms of attitudes to rules, incident feedback and safety training. In Companies A and B, driving safety rules, training and incident feedback were all established and most

drivers appreciated these, give or take a few specific complaints. In Companies C and G these aspects of safety management were less advanced and drivers often did not see the need for them. Company B drivers displayed the least negative attitude to rules/procedures probably because of the hazardous nature of the load they are carrying and the high level of safety awareness training employed by Company B.

The negative cultural aspects associated with HGV drivers appear to be related to rules/procedures (excepting Company B) and the reporting of accidents/near misses. The driver attitudes to rules/procedures have already been discussed in the previous paragraph. With the exception of Company B, many drivers were either discontent with the suitability of driving rules or did not see the need for them. In terms of reporting, near misses applied to driving has been found to be a difficult issue, including the definition of exactly what is meant by a driving near miss and how management can make use of such information. Perhaps of more concern is the finding that not all accidents are reported, including, in some cases, driving incidents.

### *7.2.2 Car main issues*

Looking at the car driver responses (from Companies A, B and F) to the Health and Safety Climate Survey Tool (HSCST) it can be seen that 'personal role' and 'competence' emerge as the most positive factors overall. This indicates that most drivers attach importance to health and safety and feel that they understand their responsibilities, at least in general. On the negative side, the most common factors were 'rules/procedures' and 'accidents/near miss reporting'. The feeling was that not all safety rules are easy to follow and accidents/near misses are not always reported, especially the latter.

For car drivers, it is likely that the factors which emerge as significant from the HSCST responses are probably being thought of in general terms. This is because driving is seen as incidental to their job, in contrast with HGV drivers who are more likely to think about the HSCST items, such as competence or rules, in terms of driving because driving is the core part of their job. Therefore, the car driver attitude findings will be more useful for identifying common car driver issues and more relevant for comparison with HGV driver trends.

For car drivers, there were common issues relating to most of the factors covered in the driver interviews. These can be summarised as follows:

- Journeys are undertaken with little if any conscious thought to safety.
- There was a general lack of appreciation towards certain car driving safety rules or indeed the need for any.
- Car drivers in all companies mentioned schedules as a primary source of driving pressure, usually with negative consequences on driving.

- The majority of car drivers flagged tiredness as an issue, with loss of concentration being a common side-effect.
- For many of the high mileage car drivers, training was either desirable or had been of benefit.
- Incident reporting/feedback was commonly one of the weakest areas relating to occupational car driving. Reporting requirements were often unclear and feedback was either patchy or absent.

### 7.2.3 HGVs compared with cars

HGV drivers and car drivers both responded most favourably to the organisational culture factor 'competence'. This suggests that most drivers felt they had a good understanding of the risks and safety responsibilities associated with their job. However, only the HGV drivers from Companies A and B and, to a lesser extent, the car drivers at Company B had the training, rules/guidance and incident reporting/feedback to warrant this confidence in terms of driving risks. Of the other groups, many of the HGV drivers in Companies C and G were confident that they 'knew what they were doing', while the car drivers in Company A perhaps lacked appreciation of the risks associated with driving and the Company F car drivers were only occasional business users.

HGV drivers responded favourably to 'workmates' influence' as well as competence, whereas for car drivers the factor 'personal role' emerged as a prominent factor. This may reflect the different nature of drivers' jobs. Although both groups are alone while driving, it was observed that most HGV drivers take the opportunity to spend time with each other in the canteen or mess room while car drivers may be more isolated even in the office. This could explain why HGV drivers have more trust in their colleagues while car drivers rely more on their individual contribution.

For both HGV drivers and car drivers, the culture factors receiving the most negative responses were 'rules/procedures' and 'accident/near miss reporting'. In terms of driving rules, drivers in both groups talked about the difficulty following certain rules or did not feel the need for driving rules. Common difficulties were reported from rules relating to a complete ban on mobile phone use (interviews prior to legislation) and rules on driving time and when to take breaks. As regards accident/near miss reporting, it became well established that near miss reporting may be extremely difficult to apply to driving. Companies A and B had near miss reporting of some sort but the applicability to driving was questioned. Of more concern was the finding that some driving incidents may not be reported, albeit those of a more minor nature.

On the specific driving issues, both sets of drivers agreed that meeting schedules was the main source of driving pressure and that tiredness was often an issue, with

both leading to a general reduction in concentration or awareness. In terms of the management of road safety through, for example, planning, rules, training and incident management, it might at first be expected that HGV drivers are subject to much more stringent measures and generally have a more positive attitude towards this. However, while this is true in Companies A and B, the same cannot be said for Companies C and G. Furthermore, the car drivers in Company B are subject to arguably a tighter driving management structure than some of the HGV drivers and have a more positive attitude to driving safety. This suggests that vehicle type (e.g. HGV or car) is not the prime motivator to managing ORR and that other factors, such as company size or the nature of the business, need to be considered. This will be covered in Section 7.3 which follows.

## 7.3 Size of company

### *7.3.1 Large company — main issues*

The companies considered in order to identify issues for large corporations were Companies A, B and C. Companies B and C are multi-national organisations while Company A is one of the market leaders in a consumer product industry.

As already touched on in Section 7.2.3, the safety culture factor 'competence' received favourable responses from all three large companies and for car drivers as well as HGV drivers. This was taken to indicate that these drivers feel clear on the risks associated with their work and that they understand their responsibilities in terms of safety. In Companies A and B this is thought likely to stem from the level of training, guidance and feedback provided to drivers, especially HGV drivers. In Company C, however, the safety management system applied to driving is much less developed which gives rise to the notion that drivers may be more 'safety competent' in some areas compared to others and perhaps they underestimate the risks in some areas. This is the first indication that large companies are not necessarily better at addressing driver safety.

The differences between Company C and the other two large companies in the survey turn out to be something of a recurring theme when large company issues are analysed. Companies A and B both have comprehensive driver handbooks for HGV drivers but this was not apparent in Company C. There is a very strict reporting requirement for driving accidents in Company B whereby all road incidents must be reported irrespective of location, vehicle or driver. Company A requires all HGV accidents to be reported but this does not seem to apply to their car drivers. The reporting in Company C was very fragmented and there appeared to be no clear guidance. This was perhaps one of the reasons why accident data available from Company C was more basic and difficult to obtain.

In general, Companies A and B were found to have more advanced safety management systems compared to Company C, including training, guidance,

incident reporting and feedback. Company B in particular had clear driving safety standards and excellent training, especially for HGV drivers. Having said this, all three large companies did engage in various driving safety initiatives to try to raise awareness of driving safety. In Company C, for example, an initiative to raise awareness of the dangers posed by/to cyclists was undertaken and an accident hotline has been set up to try to encourage accident reporting.

The reporting of pressure and fatigue as issues affecting driving was another common finding from those driving for large companies. Pressure was more often than not related to tight schedules and, for some car drivers, meeting targets. Feelings of tiredness are probably related to such pressure and would often lead to reduced awareness.

Despite well advanced safety management systems in Companies A and B, there were areas which could be improved upon in terms of how the companies approach driver safety. In Company A, very little of the HGV safety management system is applied to car drivers and, in Company B, not all of it is applied. In both companies there was difficulty with obtaining anything more than top level accident numbers. This suggests that trends in accident causes could be better analysed or better presented. Finally, difficulties with communicating driving rules and guidance down to those who actually drive for work were noticed in several cases.

Finally, the receptiveness to the current study can help to make judgements about the relative safety culture in the three large organisations. The study was extremely well received in Company B, which may be considered typical of their proactive approach to safety. There was something of a mixed reaction in Company A, which gave rise to the feeling that safety is often competing with productivity in this organisation. In Company C, the study was welcomed by senior management but this failed to filter down to middle managers and the workforce, which brings into question the level of cultural commitment to safety in Company C.

### *7.3.2 Small company — main issues*

The findings from Companies D, E, F and G were used to assess the main issues relating to small companies' management of driver safety. Companies D, E and G are small haulage companies, whereas Company F is a small consultancy employing occasional business use car drivers.

All the small companies returned favourable responses for the safety culture factors 'competence' and 'workmates' influence'. As already discussed, these companies did not have the systems of training, reporting/feedback, guidance etc. which would normally be associated with 'safety competence'. It may be that drivers do not fully appreciate risks and lack safety awareness in certain areas, such as driving. The fact that 'workmates' influence' emerged is perhaps because people get to know each

other well in small companies and so are more inclined to think positively towards colleagues.

The most common negative responses were in relation to ‘rules/procedures’ and ‘accidents/near misses’. The smaller companies tended to have either no rules, informal rules or rules which were not adequately conveyed to the workforce and/or were not enforced, perhaps giving rise to the feeling that safety rules are not that important. Such an attitude to reporting requirements would account for the negative responses to the ‘accidents are always reported’ item.

There was a general lack of safety management applied to driving in the small companies. This resulted in a lack of planning, rules/guidance, training and incident reporting/feedback within these companies. Company F, for example, has a comprehensive safety policy but without any mention of business driving. A prevalent attitude in the small haulage companies was that people knew what they were doing (no need for rules) and had enough driving experience (no need for training), and that little if anything could be learned from past accidents (no point in accident reporting/feedback).

Despite the apparent negative attitudes of some individuals to ORR in small companies, there were several examples of positive thinking and steps in the right direction. Company E drivers, although only three in number, talked about planning breaks into long journeys. Company D has a driver safety handbook but the problem seems to be with the communication of its contents. As an important final point, the fact that any of the small companies took part in the study at all should be regarded as positive in terms of their safety culture/attitudes considering that only 11% of small companies who were contacted were willing or able to take part.

### *7.3.3 Large compared to small companies*

In general, it does not follow that larger companies are significantly better at managing ORR. Although larger companies are stronger in many areas they also share similar weaknesses with smaller companies in other areas. A particular example in this study is Company C where there are several failings similar to those observed in smaller operators, e.g. lack of clarity on reporting, poor communication of driver rules and lack of, or absence of, driver training. It is concluded that one of the reasons for these similarities is that the majority of Company C drivers are independent haulage contractors (i.e. owner driver who work for themselves on behalf of Company C). There appears to be less investment in terms of the safety of these drivers because they do not ‘belong’ to the company, perhaps reflecting a lack of policy level ‘ownership’ of safety. Similarly, small operators invest relatively little in the safety of their drivers, apparently because they do not feel the need or because of financial constraints.

Other conclusions from the comparison of large companies with small companies in terms of how they approach ORR are as follows:

- Favourable responses to the safety culture factor ‘competence’ existed irrespective of company size. This suggests people feel they have a good understanding of the risks associated with their job. The argument is made that only Companies A and B have the safety management systems in place to be confident that ‘safety competency’ is being adequately addressed.
- Workmates’ influence appears stronger in smaller companies perhaps because employees have more chance to get to know one another.
- Large companies employ more driving safety initiatives than smaller companies.
- Driving pressure from schedules and tiredness affect drivers irrespective of company size.
- Drivers in smaller companies tend to exhibit more of an attitude that they know what they are doing and that there is little need for safety management.

# 8 INFLUENCE NETWORK WORKSHOPS

## 8.1 Purpose and aims

The cross-company comparisons in Chapter 6 have helped to establish the extent to which individual company findings are generally applicable and therefore usable in terms of understanding ORR. In Chapter 7 this is taken a stage further by exploring industry sector cultural issues which are relevant to ORR. It is now necessary to widen the analysis even further to identify where improvements are best targeted and the influences which are required. This should help the DfT and others to decide where they might best use resources in order to exert influence.

The important cultural and attitudinal factors relating to ORR need to be set in the context of the wide range of human, hardware and external factors which also have potential influence. Key stakeholders must be involved in the process of identifying the most significant factors and the influences needed to reduce ORR. Workshops based on the IN approach have been used to meet these goals. The aims of both workshops were identical and are listed below:

- What are the important influences on ORR in the wider context, cultural and otherwise?
- Which of the key factors in ORR can make most difference across industry in terms of reducing risk?
- What are the higher level influences which are needed to have direct impacts on risk?
- What specific measures are needed to bring about improvement, e.g. what type of training is needed or what are the key elements of planning?

## 8.2 Approach

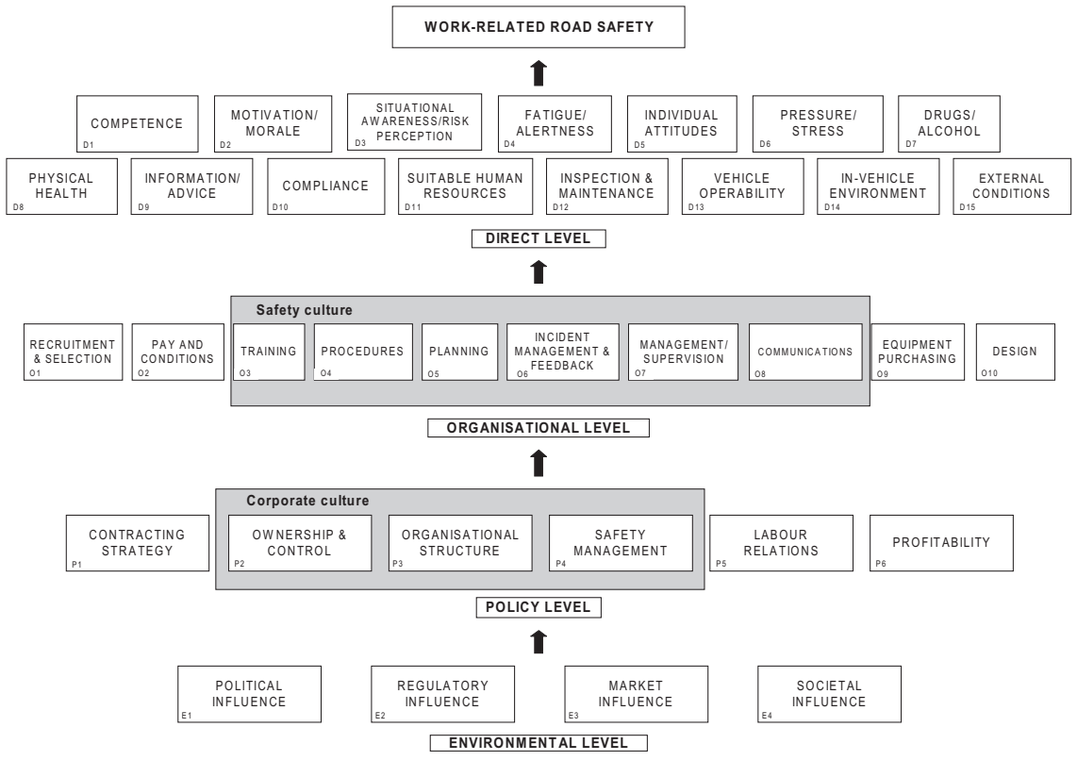
### *8.2.1 Overview*

Two IN workshops were necessary in order to cover the two main road user types involved in the survey — occupational car drivers and LGV drivers. The workshops served to gather together the important risk factors for both road user types and structure them in the form of an IN. Those with the greatest potential to reduce risk were identified, as well as the influences and specific measures needed to bring about change. The same approach towards extracting the required information was applied in both workshops.

### 8.2.2 Background: The IN

Figure 8.1 illustrates the typical composition of an IN, and the various levels of influence that can be identified. The diagram has been customised in this case to reflect the potential influences on the safety of work-related drivers.

**Figure 8.1: IN**




Within the diagram, there are four levels of influencing factors, reflecting the domains shown in Figure 8.1:

- **Direct Level**, which refers to unsafe acts and/or technical failures immediately related to the top event
- **Organisational Level**, which refers to the underlying organisational factors that affect the way work is carried out and have an impact on the occurrence of the top event
- **Policy Level**, which comprises the policy factors that determine the business structure and the organisational framework, whether stemming from the client or the 'head offices' of the individual companies etc.
- **Environmental Level**, which refers to the regulatory and wider external influences that determine organisational policies and practices.

The influencing factors shown within each level in Figure 8.1 were defined in the context of the risk to occupational drivers. This model was used as the basis for exploring the most important factors influencing the risks to occupational car drivers and LGV drivers and the risk control measures which are needed. The process used to obtain this information is described below.

### 8.2.3 *Methodology*

In order to achieve the workshop aims, participants worked through the following steps in the session:

#### Step 1 – Identifying key factors

The key factors which had been identified by the current study as influencing ORR were presented in the form of an IN (see Figure 8.1). The first task for the workshop group was to decide if they felt there was adequate coverage of the main factors impacting upon the group of drivers under consideration. To achieve this, participants were invited to add factors or combine them if they felt two or more factors related to the same underlying cause. The object of Step 1 was to finish with an agreed set of the most relevant factors for the group of drivers being looked at.

#### Step 2 – Factor weightings

The agreed factors at the Direct Level of the IN were then weighted in terms of their *relative* potential for reducing the risk to the road user type being discussed. In other words, out of the Direct Level factors considered to be relevant, the group had to decide which had the greatest potential to reduce risk compared to the others. Participants were encouraged to think about this exercise in terms of the following questions:

- Are any factors of a relatively poor standard and do they have a strong potential influence on the top event?
- Which factors at the Direct Level offer more room for improvement or can make more of a difference compared to the others?
- Assuming limited resources, which factors at the Direct Level should be concentrated upon?

The object of Step 2 was to identify which of the Direct Level factors offer the best chance of reducing the risk to the particular driver group under consideration.

#### Step 3 – Paths of influence and risk controls

The high potential Direct Level factors identified in Step 2 were taken in turn and a path of influence was traced back through the network. For example, taking

'Fatigue' as an example, the group's task was to identify which organisational factors they considered to be the most important in terms of reducing fatigue. For each of these organisational factors, higher level influences at the Policy and Environmental Levels were discussed in terms of bringing about change. The output from this step was a set of 'influence trees' for each of the high potential Direct Level factors.

As each tree of influence was developed, the group were asked to generate risk control measures which could be attached to each factor on the path of influence with a view to improving the Direct Level factor, thereby reducing risk. This final phase in each workshop completed the models of risk to occupational car drivers and LGV drivers showing the most important factors for reducing risk and paths of influence along with associated improvement measures. The consolidated findings will now be presented for each workshop in turn.

## 8.3 Occupational car driver workshop

### *8.3.1 Participants*

The participants in the occupational car driver workshop are shown in Table 8.1.

**Table 8.1: Participants in occupational car driver workshop**

| Organisation | Notes |
|---|---|
| Association of Car Fleet Operators (ACFO) | Director of ACFO and head of consultancy offering strategic support to organisations with car fleets. Wide range of direct experience with fleet operators |
| Company A | Car fleet manager |
| Department for Transport | Road Safety Division |
| MAC Driver Training | Managing Director, formally in police force. Training company involved with risk assessments and driver profiling |
| Central Motorways Police | Highways Agency Liaison Officer with background in patrol work |
| (Note: The IN workshop findings reflect the overall opinions of the whole group and therefore do not necessarily reflect the official viewpoint of any one, or all, of the organisations represented.) | |

### *8.3.2 Consolidating and weighting factors*

As the group reviewed the generic ORR IN model (see Figure 8.1) developed over the course of the current project, several refinements were put forward to reflect the underlying factors which the group felt were relevant to ORR for car drivers. In the first instance, a clear distinction was made between 'planning competence' and 'driving competence'. The competence to plan journeys was related to things such as reading maps, choosing the best route and setting out at the right time. Driving

competence, on the other hand, was used to describe the motor skills required to manoeuvre a vehicle.

The group considered fatigue, drugs and physical health, and they were of the opinion that these were all relevant. However, the feeling was that these factors all touched on the same underlying cause in terms of road accidents, namely that of impairment. As such, the individual factors were grouped together under the heading of 'impairment', which was defined as impairment due to fatigue, drugs/alcohol or the affects of poor health (e.g. eyesight).

On the topic of hardware issues, the group felt that mechanical fault was a rare contributor to accidents, given modern cars and testing regimes, in comparison to human error. However, issues such as inspection and maintenance may be relevant if someone uses their own car for business. In-vehicle suitability was also touched on, including the provision for hands-free mobile phone use. The specifications for choosing suitable vehicles were thought to be relevant. Overall, the group felt there were several issues to do with vehicle hardware which are likely to be relevant to ORR. The decision was made to combine 'inspection and maintenance', 'vehicle operability' and 'in-vehicle environment' into one factor named 'vehicle issues'.

Having reviewed the factors at the Direct Level and having discussed several of them, the group was able to decide swiftly which factors were, relatively, the most important direct influences on the risk to occupational car drivers. These were: 'driving competence', 'planning competence', 'impairment', 'vehicle issues' and 'pressure/stress'. All have been discussed above, with the exception of pressure/stress. The group felt this should be included primarily because time pressure was regarded as having a significant bearing on driving risk and also because pressure can be related to fatigue.

### *8.3.3 Paths of influence*

Having agreed a set of the most important Direct Level factors influencing ORR and which of these have the most potential to reduce the risk, the group's next task was to take each of these five high potential Direct Level factors and decide how best to bring about improvement. This was done by tracing a path of influence back through the network for each high potential Direct factor and generating risk controls with the power to create the influence. This led to the development of five different paths of influence – one for each key Direct factor. In order to see which key Organisational, Policy and Environmental Level influences are exerting the widest influence on ORR for car drivers, these paths of influence were consolidated. In this way it can be seen where effort and resources would be best spent in order to help reduce ORR. This is shown in Figure 8.2. The influences on the Direct factors have been classed as either high, high/medium or medium, depending on the number of factors which they influence at the next level. Each factor is marked with the higher level factors which they were judged to have influence upon.

**Figure 8.2: Consolidation of paths of influence on direct risks to occupational car drivers**

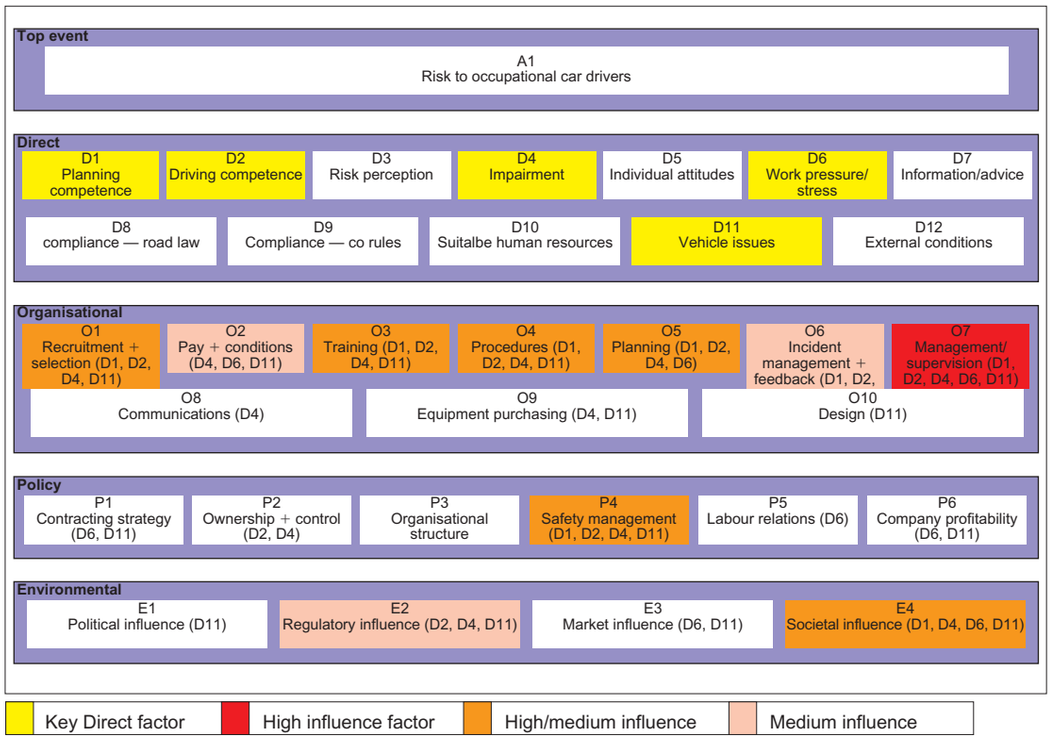



Figure 8.2 shows that the organisational factor 'management/supervision' exerted influence on all five of the key Direct Level factors, thus indicating that if improvement measures for this factor can be implemented, it could have a far reaching positive affect on the reduction of ORR for car drivers.

The organisational factors 'recruitment and selection', 'training' and 'procedures' were deemed to have an influence on four of the five key Direct factors ('planning competence' and 'driving competence', 'impairment' and 'vehicle issues'). The factor 'planning' was also deemed to have an influence on four key Direct factors, although it was thought to influence 'work pressure/stress' rather than 'vehicle issues'. The other factors judged to be significant at the Organisational Level were 'pay and conditions' (influence on impairment, pressure and vehicle issues) and 'incident management/feedback' (influence on competence and impairment).

The group rated 'safety management' as being the most critical influence at the Policy Level of the network. This was thought to have an important influence on all the Direct factors (through the organisational factors on the path) except for pressure/stress. In order to reduce pressure it was thought to be more important to build reasonable customer expectations into contracts and foster good labour relations. At the Environmental Level, the Regulator and 'societal influence' were deemed to be most important, including guidance/legislation from the Regulator to

encourage companies to address ORR and societal recognition of road risk in general filtering into work driving.

As the paths of influence were developed, participants were also asked to suggest risk control measures which could be used to bring about improvement to the factors on the paths. These have been combined with the measures for improving driver safety which were gathered in the driver interviews and are shown in Appendix A. In addition, the case studies in Chapter 9 are designed to illustrate how improvements to the factors on the paths of influence could be implemented.

## 8.4 LGV driver workshop

### *8.4.1 Participants*

The participants in the LGV driver workshop are shown in Table 8.2.

**Table 8.2: Participants in LGV driver workshop**

| Organisation | Notes |
|---|---|
| Company A | Logistics safety manager |
| Company A | Transport manager (HGV) |
| Company B | National training manager (Logistics). Responsible for training of UK tanker driver fleet |
| Health and Safety Executive (HSE) | HSE road safety policy |
| Freight Transport Association (FTA) | Health and safety manager, previously worked for Vehicle Inspectorate |
| (Note: The IN workshop findings reflect the overall opinions of the whole group and therefore do not necessarily reflect the official viewpoint of any one, or all, of the organisations represented.) | |

### *8.4.2 Consolidating and weighting factors*

The group were quickly in agreement that the factors represented by the generic ORR IN model (see Figure 8.1) provided adequate coverage of the important risks to LGV drivers. There was then a discussion on which of those at the Direct Level have the most potential to reduce risk. Competence was regarded as important and, as in the car driver workshop, the group felt a distinction should be made between competence in terms of driving skill and competence in terms of a driver's self-management. However, unlike in the car workshop, the group felt no need to split the competence factor, merely to bear in mind the different aspects of competence when it was being discussed.

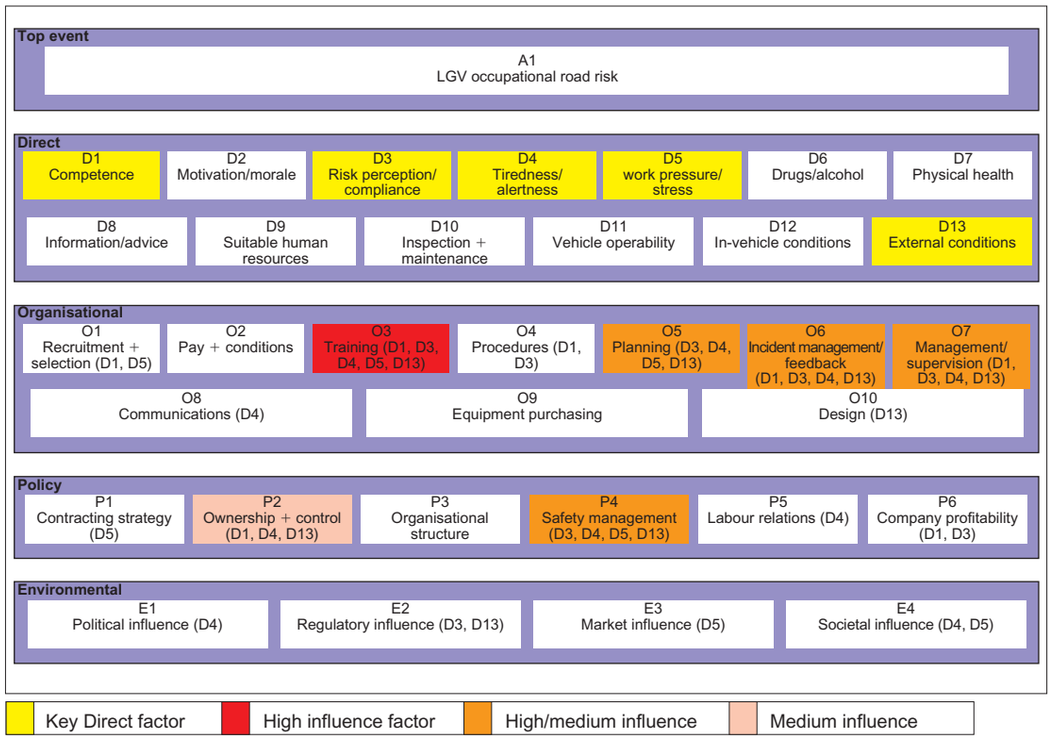
Risk perception was another Direct factor regarded as significant, mostly because of the way in which it is linked to compliance and pressure. This relates to the extent to which people appreciate driving risks to the point where they comply with driving safety rules and they do not place themselves under undue pressure when driving.

Pressure was identified as a factor which has to have a high influence on ORR to LGV drivers, given that there are more demands on drivers now with the existence of 24-hour operations and higher delivery expectations, e.g. 'just in time' deliveries. Greater pressure was related to higher levels of mental tiredness and so 'fatigue' was also selected as a significant Direct Level factor. Finally, 'external conditions' were thought to be highly relevant to LGV drivers, e.g. road design, other road users, the effects of weather and restrictions on loading/unloading.

### 8.4.3 *Paths of influence*

In summary, the LGV drivers workshop highlighted competence, risk perception/compliance, fatigue/alertness, work pressure/stress and external conditions as the Direct Level factors that have relatively high potential for reducing ORR for car drivers. As in the occupational car drivers workshop, paths of influence for each of these were traced back through the network. Again, there were a number of key Organisational, Policy and Environmental factors which were common to several paths of influence. These were consolidated and are shown in Figure 8.3. Again the factors have been colour coded in terms of influence and each factor is marked with the higher level factors which they were judged to have influence upon.

**Figure 8.3: Consolidation of paths of influence on direct risks to LGV drivers**



It can be seen from Figure 8.3 that the factor 'training' at the Organisational Level was judged to have an important influence on all the key Direct Level factors. This suggests that appropriate training in the right areas has a high potential to reduce ORR for LGV drivers. Incident management/feedback and management/supervision were also regarded as strong organisational influences, with high potential impacts on all the key Direct factors other than pressure/stress. Instead, appropriate planning was thought to have the potential to reduce pressure, as well as influence risk perception, tiredness and the effect of external conditions.

As was the case in the car workshop, safety management emerged as the key factor at the Policy Level, with influence on all the Direct factors (through the organisational factors on the paths) with the exception of competence. The factor 'ownership and control' was thought to be important in terms of enabling the development of a safety management system and in ensuring the commitment required to invest in training to raise the standard of driver competence.

All the factors at the Environmental Level were thought to carry influence without one emerging as more significant than the others. Examples of Environmental Level influences included the Government passing law on corporate manslaughter to include fatigue-related driving accidents, the Regulator disseminating information on external driving hazards, and demanding market and societal expectations in terms of deliveries and increasing pressure on drivers.

As explained previously, the risk control measures generated in the workshops have been combined with the measures for improving driver safety which were gathered in the driver interviews and are shown in Appendix A. In addition, the case studies in Chapter 9 are designed to illustrate how improvements to the factors on the paths of influence could be implemented.

## 8.5 Factors exerting the strongest influence on car and LGV ORR

In order to help consolidate the findings from this study in terms of the factors offering most potential to reduce ORR, it is necessary to consider the findings from the IN workshops against those from the driver interviews. The areas indicating room for improvement identified in the driver interviews relate to driving safety issues experienced at first hand which could directly reduce ORR. The workshops have allowed a range of stakeholders to examine the issues in a more structured manner and think about how improvements can be brought about. Table 8.3 shows the common areas of concern from the car and LGV driver interviews against the important factors identified in the corresponding IN workshop. Differences are likely to reflect the different contexts in which the two groups carry out driving work.

**Table 8.3: Consolidation of interview and workshop findings**

| Influencing factor | Common in car interviews | Important in car workshop | Common in LGV interviews | Important in LGV workshop |
|---|---|---|---|---|
| Planning | | ✓ | ✓ | ✓ |
| Incident management/feedback | ✓ | ✓ | | ✓ |
| Procedures | | ✓ | | |
| Fatigue | ✓ | ✓ | ✓ | ✓ |
| Management/supervision | | ✓ | ✓ | ✓ |
| Training | ✓ | ✓ | | ✓ |
| Communications | ✓ | | | |
| Pressure | ✓ | ✓ | | ✓ |

The areas of overlap between the two sets of findings shown in Table 8.3 can be thought of as having high potential for reducing ORR. For *occupational car drivers*, the factors with most evidence regarding their potential to reduce risk are:

- incident management/feedback
- fatigue
- training
- pressure
- communications.

For *LGV drivers,* the most significant factors for risk reduction are:

- planning
- fatigue
- management/supervision.

The risk control measures/approaches for reducing ORR generated in the interviews and workshops are shown in Appendix A in relation to the factors shown in Table 8.3. The case studies in Chapter 9 provide examples of how improvements might be made.

# 9 CASE STUDIES

## 9.1 Introduction

As well as assessing the relationship between safety culture, driver attitudes and accident liability, the current study has identified the important factors in ORR along with a range of associated influences and risk controls. In order to help illustrate how this information can be implemented, two case studies have been developed, one showing considerable room for improvement and one demonstrating best practice, both based on an amalgam of examples taken from all of the participating companies. The interviews with drivers, as well as discussions with managers and the general observations and documentation collected while conducting the surveys, have provided a rich source of information with which to construct these examples.

## 9.2 Room for improvement case study – Company X

### *9.2.1 Overview*

In some of the companies there were notable absences in driving safety management systems, while other companies had the systems in place but management and/or employees were not using them effectively. Interestingly, these companies were also often found to have less positive results in relation to some aspects of safety culture. This case study therefore aims to draw on evidence from a range of companies involved in the study in order to illustrate where there is often room for improving safety management systems to cover driving while at the same time improving on safety culture and helping reduce ORR. The aim is not to pass judgement on these companies, but to highlight absences and weaknesses in existing systems so that both they and other organisations can learn from the findings in a pragmatic and cost-effective way.

The findings from each company will be discussed within this case study under the fictional name of 'Company X'. Findings will be presented within each of the six key elements of organisational safety culture, i.e. training, procedures, planning, management/supervision, incident management and communications. In this way the case study will highlight how developing and improving on these elements of a driving safety management system will also help encourage an overall positive safety culture.

### *9.2.2 Background – Company X*

Company X is a medium-sized haulage company based in the South East of England, specialising in the collection and delivery of almost any non-hazardous goods. It has a small fleet of trucks that range from large 32 tonne articulated lorries to smaller transit vans for more lightweight freight. Four of the larger trucks are

owned and driven by self-employed drivers, and eight drivers employed by Company X drive the remaining vehicles.

Company X also employs a small number of office staff who work out of the head office. These include company management, a small sales team, the financial controller and administration support. This poses a further ORR as most of the management and sales team attend customer meetings across the country using their own cars.

### *9.2.3 Training*

#### HGV driver training

HGV drivers at Company X had largely undergone no further training than was necessary to obtain their HGV driving licence. Some of the drivers had received basic health and safety training along with the non-driving staff, but this would not have covered driving specific skills. This degree of training would not necessarily imbue positive attitudes about driving safety or driver professionalism nor would it, therefore, go far towards helping reduce ORR. Four of Company X's drivers were self-employed which caused further training issues in that Company X feel uncomfortable about imposing training on drivers. Some of the drivers themselves indicated that they did not feel overly positive about undergoing driver safety training because they felt there was nothing they needed to learn about driving.

#### Car driver training

Car drivers at Company X use their own personal cars for occasional business meetings across the UK. The car drivers do not work in a hazardous environment and are therefore not managed under a strict health and safety management framework. Driving is probably the most risky element of their job role. Although their journeys are relatively infrequent, they can be across vast distances, battling heavy city traffic in the morning and evening rush hour, and/or during the very early morning and late evening to complete a round trip in one day. Despite the associated risk, none of the car drivers has gone through any form of driver safety training. This is made worse as neither rules nor guidance are provided for the drivers.

The word 'training' can conjure images of big budget formal training programmes. However, at the lower end, training could simply mean sitting employees down and discussing driving dos and don'ts. This could be enough to successfully deliver simple, but strong, company messages about driving safety and professionalism, the risks driving presents and how they can be minimised.

### *9.2.4 Procedures and planning*

#### Procedures – all drivers

Closely linked in with Company X providing little in the way of driving specific training, it also provided very few driving rules or guidance. It was left to the drivers to follow the rules of the road as laid down by road traffic law and to consult a selection of posters in the drivers' mess area that had no focused driving message. Road traffic law is undoubtedly a fundamental part of driving safety, however it does not allow the organisation to communicate the importance it places on driving safety and company professionalism.

For its car drivers, Company X had no written driving procedures or guidance. Driving standards were left entirely to the drivers' discretion, which meant if there was an unforeseen event or circumstance encountered while on the road or as part of the job, the driver would not necessarily know the best course of action to take with regard to driving, personally or professionally. The lack of driving guidance also leaves employees potentially unaware of the considerable risk driving presents in comparison to other work activities. Issues such as length of driving time before stopping and booking into a hotel are also left to the employee's discretion. For more junior members of staff this would mean they are unlikely to stop, as they do not feel able to make decisions that ultimately affect the company's financial resources.

#### HGV planning

Unlike some larger companies, Company X does not have a dedicated route planning system that prepares a daily delivery schedule for drivers and a suggested route to take. Instead, planning the day's work is left up to the Transport Manager, also a driver, who often finds himself planning his own and other drivers' delivery schedules throughout the day as customers call in with orders. This results in a lot of the work being 'planned' on the move.

#### Car planning

Planning for a short or a long trip is left entirely to the employee. Although preparing for a car journey is obviously different to preparing for a day driving an HGV, good planning is still imperative to reduce journey stress and to ensure preparedness for unforeseen circumstances. Company X places no emphasis on the importance of good planning in order to have a safe and successful journey. Drivers tend to plan their route using an atlas or checking Internet sites that provide street maps, which is often done immediately prior to the journey.

### 9.2.5 *Incident management and feedback*

#### HGV incident reporting

Company X provided accident report forms for completion by all of its HGV drivers in the event of a road traffic accident. Employed drivers also talked about telling the transport manager about an accident in order to process any necessary insurance claim. However, it was doubtful as to how often the accident forms would actually be completed or, perhaps more importantly, whether the information was used by Company X. Even the most basic fleet accident data is hard for Company X to compile, since accident report forms are not easy to locate, are not always completed and the data from those that have been filled out is not stored electronically. Part of the problem appears to come from working with self-employed drivers who feel under no obligation to report incidents.

Company X does not have an official accident feedback system in place; instead drivers usually hear about other accidents through talking among themselves. Although this only tends to happen with the larger accidents/incidents, smaller ones and certainly the near misses would probably go unmentioned.

#### Car driver incident reporting

Road traffic accident reporting is even less likely among the company car drivers. Company X's safety policy, which covers statutory health and safety requirements, includes an instruction that employees should inform their supervisor of any incident or deficiency that has led, or may lead to, injury. It also states that, as a minimum, accidents must be recorded in the accident book. However, it does not state explicitly that this also applies to road traffic accidents. It is therefore left up to the employee's discretion as to whether they would report a driving accident while on company business, if it did not affect them successfully carrying out their duties.

This almost complete lack of an accident and near miss reporting system means valuable information about the nature of Company X's car driving incidents is being lost. It also means that employees have no chance of learning from colleagues' accidents as no information exists to be shared.

### 9.2.6 *Management/supervision*

#### HGV management/supervision

The larger vehicles owned by Company X have on-board computers that monitor speed, braking technique and fuel consumption, all of which go towards a set of monthly key performance indicators (KPIs) for each driver. These figures are then put up in the office reception for everybody to view. It is Company X's belief that this encourages friendly competition. The KPIs are openly motivated by management's desire to reduce overall fleet operating costs by reducing both fuel

consumption and vehicle wear and tear. The drivers are only too aware that if they miss their personal KPIs for the month, management will raise it with them. This makes drivers feel uncomfortable about the system and under pressure when driving. They also feel management do not show appreciation of driving pressures when reviewing KPI performance.

A different management issue comes from the self-employed owner drivers. As with the issue of both training and guidance, the self-employed drivers are largely self-managed. This makes extending Company X's supervision very difficult.

#### Car management/supervision

It appears that Company X management do not perceive car driving as a high-risk aspect of their employees' job role. This low perception of car driving risk is manifested in little or no car driver training, driving and journey planning guidance or incident reporting systems. Before car driving management systems such as these can be implemented, there has to be a realisation from senior management that driving is possibly the most risky part of their employees' jobs and this risk can be significantly minimised by adopting such safety systems.

### *9.2.7 Communications*

In the absence of structured systems designed to facilitate good communication between management and the workforce, it is unlikely that the desired exchange of safety information, guidance, best practice and ideas will occur. As the case study has so far outlined, Company X: lacks regular driver safety training for both sets of its drivers; provides little or no driving safety guidance; does not provide clear guidance regarding its accident and near miss reporting requirements; and gives little or no feedback to drivers about incidents. This means Company X are losing valuable safety information.

Company X management do not appear to be sending clear messages about the importance of safety. It is implied through management use of driving performance data gathered using on-board computers that good driving is important to minimise fleet operating costs, but its importance for maintaining safe driving standards and developing tailored driver training is not emphasised.

## 9.3 Best practice case study – Company Y

### *9.3.1 Overview*

The second case study draws on examples of best practice demonstrated by several of the participating companies in order that its teachings are both widely accessible and applicable across industry. This will also serve to address several of the MORR shortcomings identified in Company X. The examples of best practice are again

described within the six key elements of safety culture. Presenting the information in this way aims to help companies develop their own positive safety culture through focusing on the more tangible aspects of safety culture, and thus help companies to reduce ORR by following the examples of best practice. It is not intended that companies follow rigidly each of the examples given, but rather that they take the teachings which best apply to their organisation and apply them in a way to suit their bespoke needs. The findings will be discussed within this case study under the fictitious name of 'Company Y'.

### 9.3.2 Background – Company Y

Company Y operates in the manufacturing industry and the current study involved its UK based car and HGV drivers. The car drivers are primarily engaged in sales, marketing and general business activities throughout the South of England. The HGV drivers supply goods (sometimes hazardous) to customer sites across the country from storage depots across the North, South and Midlands. Despite clear differences in the nature, and relative importance of driving to the different job roles, both the car and HGV drivers operate under the same corporate identity and wider health and safety management structure, and largely under the same umbrella organisational safety culture.

### 9.3.3 Company Y safety culture

Company Y's philosophy is that everybody who works for the company is responsible for health, safety and the environment, and that this is critical for business success. This philosophy is reflected in health and safety notices, posters, reminders and newsletters displayed at every available opportunity. It is also reflected in the health and safety management systems, in this case those relating to driving safety.

### 9.3.4 Training

#### HGV driver training

Company Y conducts almost all of its training in-house through a network of driver coaches. These coaches are drivers who spend 30% of their work time concentrating on activities such as new driver assessments and training. Company Y feel this is important not only to provide a further developmental path for those drivers that want to develop their skills, but it also adds considerable weight to the credibility of their training programmes.

The driver coaches, along with the driver trainer, take on much of the responsibility for conducting the basic *training programme* set down by Company Y's national logistics health and safety management team. The main elements of the training programme are outlined below:

- pre-employment assessment
- company Y site induction
- initial on-the-job training
- initial on-the-job assessment
- new driver information day
- annual assessment/health check
- roll over and skid pan training
- refresher training.

Company Y are keen to encourage drivers to take pride in their driving professionalism and skills, and therefore provide them with full training profiles. A record of training courses completed, assessment results and other driver information is collated in this driver profile.

#### Car driver training

Company car drivers undergo training provided by external driver training organisations. They undergo training on joining the company and then every three years after, as well as when they are issued with a new company car. The training includes the basic elements of defensive driving, including manoeuvring and observation skills as well as the correct use of safety equipment, such as Anti-lock Braking System (ABS). As well as the driver training, new drivers also undergo basic health and safety training, which further enforces the strong health and safety message Company Y sends to its staff.

### *9.3.5 Procedures and planning*

#### HGV driver procedures and planning

The *driver handbook* is a small ring bound folder containing information, guidance and procedures for the driver to operate an HGV both safely and professionally. It is issued to all new drivers when they join Company Y and is regularly updated, as procedures need changing or updating. Chapters include information on quality control, the products being transported, handling emergency situations, health and safety at work, driver training and driving guidelines. In addition to this, it also provides guidance on issues such as sickness, medicals, mobile phone use, driver qualifications, the drivers' trade union and employees' personal responsibility with regard to drug abuse. It is introduced to the driver as part of his Company Y site induction. Recent DfT research (Murray, 2003) recommended an accident reporting system that included an at the scene 'bump card', a combined accident report and investigation form, a coding card and user manual (for further details see the Road Safety page at www.dft.gov.uk).

Consideration is given to how to plan HGV drivers' daily deliveries. However, many drivers feel the existing *route management system* puts pressure on them to make deliveries within strict and sometimes unrealistic time-frames that has a negative consequence on their stress levels while driving. This is recognised and consideration is being given to alternatives.

#### Car driver procedures and planning

Company Y car drivers do not currently have a driver handbook with driving rules and guidance, instead the company Intranet is used more readily to disseminate up-to-date safety rules and guidance for drivers. The nature of the Intranet allows examples of best practice to be easily shared with company car drivers who are constantly on the move, further demonstrating how widely Company Y's safety message is spread. By way of example, one page provides a pre-trip checklist which should be worked through before embarking on any journey for business.

### *9.3.6 Incident management and feedback*

#### HGV driver incident management

Company Y states in the driver handbook and during training courses that any accidents at company or customer sites must be entered in the customer's accident book and/or the company accident book before the end of the shift. The handbook also states that if the driver is involved in a road accident that causes damage to another person, vehicle, dog or livestock, or property on or near the highway he or she must stop. The accident must then be reported immediately to line management and if necessary the police. Company Y have an *accident report form* that must be filled out and is then fed into the main incident database. Regional accident statistics and feedback on specific accidents are communicated back to employees via posters, site noticeboards, safety alerts and newsletters.

Company Y also use *hazard alert cards* and *customer site improvement forms* in order to pick up and eliminate potential hazards. However, these are currently under-used in driving situations.

For major accidents or incidents, Company Y will conduct a *root cause analysis*. This involves systematically identifying the direct or immediate causes of an accident and the associated indirect or underlying causes which lie behind these. The entire spectrum of possible causes is considered from human to technical and at all levels from individual to policy. The information gathered from root cause analysis has recently been fed back to drivers via a small booklet containing key driving rules.

#### Car driver incident management

Accident and near miss reporting and feedback systems available to car drivers were less tailored than the systems for HGV drivers. Instead, car drivers were expected to adopt universal accident reporting systems for reporting driving related incidents.

Car drivers are asked to report all vehicle accidents either in the car park or on the road through the online accident reporting database. However, there are mixed opinions about feedback received on accidents. Some drivers feel they receive very little feedback. In general, the accident feedback system for car drivers is not as robust compared with the system for HGV drivers.

As with accident reporting, car drivers are able to use the general company near miss system to report on the road hazards, although this is not a dedicated driving near miss system and most car drivers do not use it. Some car drivers feel that near miss feedback would be useful if it provided a useful learning experience.

### *9.3.7 Management/supervision*

#### HGV driver management

The nature of the driver's job means constant human supervision is impossible. However, all of the HGVs are fitted with *on-board computers* that monitor aspects of driving behaviour, such as speeding, braking technique, fuel consumption and the time spent in cruise control. This information can be downloaded by managers from the vehicles at any time and fed back into the training system. The results are confidential and only accessible for health and safety management to analyse. Management predominantly use the information to identify driving weak spots, in order that drivers can be recommended for tailored training. The benefits can include cost savings through encouraging more fuel-efficient driving.

#### Car driver management

There are currently no initiatives implemented by Company Y for managing car drivers (like the in-cab monitoring for HGV drivers) while out on the road, although suitability and potential benefits are under review.

### *9.3.8 Communications*

#### General

'Communications' is not a single, tangible initiative that can be quantified and copied. Instead, effective communications are all about regularly engaging in open, honest, blame free, easy and effective two-way interaction between management and the workforce. Company Y initiatives, such as the driver training programmes, accident reporting and feedback systems and the driver coach network, all provide a

structure to encourage effective communications. Without these systems in place the opportunity for management and the workforce to easily engage in a two-way interaction may not arise, which could result in losing vital safety information.

Company Y is keen to communicate its strong health and safety message outside of the work environment. Many of its car and HGV drivers discussed the challenge they face with poor driving standards on the roads and the poor perception some members of the public have of commercial vehicles. In an attempt to start spreading the health and safety message out towards society, health and safety bulletins are vividly conveyed on large noticeboards at site exits reminding staff and site visitors to drive safely on their journey, whether they are working or going home.

### HGV driver communications

Each Company Y site holds a *safety committee* meeting every few months to discuss any safety issues and thus provides an opportunity for managers to update drivers and for drivers to raise any concerns they may have. The site manager, Company Y driver safety representatives and contract driver representatives are usually present for the meeting.

### Car driver communications

Many of the car drivers at Company Y are based at home and this makes regular face to face meetings more difficult. However, it makes the *company Intranet* even more critical for sharing information about driving safety and for disseminating the corporate health and safety message.

## 9.4 Key messages

These insights into both Company X and Company Y's current driving safety systems have revealed a number of key cultural and practical messages about organisational safety that can be adopted and applied at other companies. Some of the suggestions can be made without relying on sizeable resources but through adopting a different cultural approach, for example through improved communications and encouraging driver feedback. A summary of these key learnings is highlighted below:

- Driving safety systems for car drivers are still in their infancy compared with those in operation for larger, more obviously hazardous vehicles. However, in a lot of jobs, driving a car is probably the riskiest aspect of an employee's day. It is therefore critical that senior management, as well as employees themselves, appreciate the ORR associated with all vehicles and understand the potential benefits of managing the risks.

- In order that the system is effective, appoint someone to steer and have responsibility for the ORR management process to ensure that it does not lose momentum.
- Implicit and explicit messages sent by management about driving safety policies and practice play an important part in shaping the way employees think about and approach driving safety. Therefore, management could help reduce risk by sending messages on the individual benefits of driving safely. Managers should remember the reduced costs which will come from safer driving, such as from fuel savings.
- In a similar vein, it is up to senior management to underline the fact that all forms of driving, whether in a car or HGV, present a serious ORR, which can be minimised through safety systems such as training, driving guidance and incident reporting and feedback processes, or simply by improving communications and journey planning.
- Safety systems that facilitate incident reporting and feedback, training initiatives and driving safety guidance are not just driving safety initiatives in their own right, they also provide a clear structure through which management and the workforce can communicate. Effective communications about driving safety will help increase ORR awareness and thus help to inform the safe design of working practices.
- Involving the workforce in driving safety initiatives adds credence to the process and also helps to reduce any gap between management and the workforce.
- Accident and incident feedback should always be encouraged. It provides a valuable insight into the events leading up to an accident and therefore goes some way to preventing a similar cycle of events happening again. It is important to make clear that the feedback will not be used to discipline employees, but to understand more about the road risks they are vulnerable to, which will be used to improve the safety of their working systems.
- Employees must be convinced of the usability of the incident reporting process, understand the type and quantity of information they need to report, and they must also receive regular feedback in order that they participate actively in such an initiative.
- Providing employees with driving procedures and guidance should instil powerful company messages about safe and professional driving conduct.
- Driver training courses (from small internal courses to formal external courses) should form part of a continuous learning cycle, beginning with an assessment of driver training needs through to evaluating driving performance to inform future training needs.

- The sole reason for the driver performance appraisal should not be to highlight driver deficiencies, but to understand the nature of any deficiencies and how they relate back to, or could be addressed with, the current training system.
- Training should not just be an opportunity to teach driving skills, but should also instil corporate safety messages and driving professionalism.

# 10 CONCLUSIONS

## 10.1 Structure

The conclusions from the current work are framed around the study aims and the interpretation of these aims outlined in BOMEL's original tender for the work. This demonstrates how the findings provide the DfT with the insight into the safety culture influences required. The main aims of the study are shown below. These are accompanied by the additional research questions which needed to be addressed in order to fulfil the aims comprehensively.

- *What is the extent of the relationship between organisational culture, drivers' attitudes and accident liability?*
  - Where do organisational culture factors fit into the ORR profile and what are their relative importance?
  - What sort of companies manage ORR well and what are the characteristics of their culture?
- *What measures are available to reduce ORR, including those related to culture and attitudes?*
  - Which factors offer the most potential for reducing risk and what measures/approaches are needed?
  - What influence could the DfT use in order to help bring about change?

The conclusions from the current study are structured according to these aims and research questions. The findings are based on extensive survey work with car and HGV drivers from a representative sample of companies. Information has been gathered from a questionnaire on organisational safety culture, interviews on drivers' attitudes to safety and, where possible, accident rates have been calculated. This data has been triangulated in order to explore the relationship between culture, attitudes and accidents, and ultimately to recommend changes which could be made to reduce work-related road accidents.

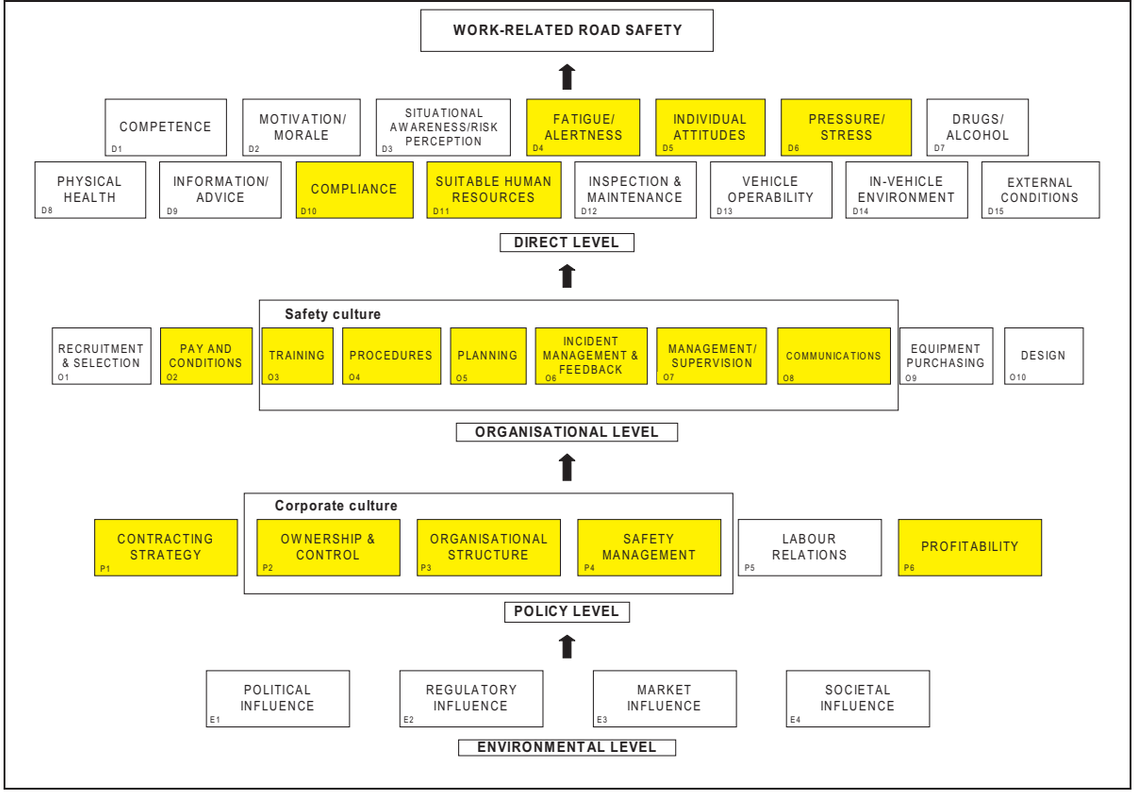
It is acknowledged that the results of this study only cover a small cross-section of the at-work driving population which limits their applicability to all people driving for work. However, care has been taken to include several different driver groups from different parts of the UK, including high mileage and occasional car drivers, those driving for large and small operators, and drivers of different types of HGV. Several of the messages generated by this work have come from across the driver groups and it is easy to see how they might be applicable to many driving for work situations. Therefore, although the limitations of the study population are acknowledged, the overall conclusions are felt to have much wider implications.

## 10.2 Relationship between culture, attitudes and accidents

### *10.2.1 Where do organisational culture factors fit into the ORR profile and what are their relative importance?*

In order to assess the relationship between culture and attitudes and to identify improvements which can reduce the likelihood of work-related road accidents, it was first necessary to build a model of ORR which highlighted the most relevant factors. This was constructed from consultation with key stakeholders and reference to a variety of recent publications, and was structured in the form of an Influence Network (IN). The most important factors are highlighted in Figure 10.1.

**Figure 10.1: Influence Network model of ORR**




The following conclusions relate to the factors identified as the most significant:

1. The most important factors having a Direct impact on ORR were identified as fatigue/alertness, individual attitudes, work pressure/stress, compliance and suitable human resources.

2. It emerged that six of the key Organisational factors identified are generally accepted as integral parts of safety culture, which shows its significance for ORR. These were training, procedures, planning, incident management/

feedback, management and communications. The other significant Organisational factor was identified as pay and conditions.

3. Similarly, the majority of factors at the Policy Level of influence were classed as being a part of company culture. These were ownership and control, organisational structure and safety management. The other significant factors were contracting arrangements and profitability.
4. At the Environmental Level, political, regulatory, market and societal influences were seen to be related to ORR in some way.
5. Taking a holistic approach, the IN model clearly shows the importance of attitudes and organisational culture factors in relation to ORR and their interrelation with other factors.

### *10.2.2 Conclusions on the relationship between culture and attitudes*

The following conclusions have been reached regarding the relationship between the organisational safety culture measured by questionnaire and driver attitudes from the interviews:

6. From the responses to the health and safety climate questionnaire, most companies exhibited many more positive aspects of safety culture compared to negative. It was also the case that the majority of companies had more drivers rated as having a positive attitude to driving safety compared to a negative attitude.
7. At the first level of analysis, positive organisational responses in terms of safety culture were related to the number of drivers with positive attitudes to safety in some companies but not in others. In four companies (A, B, E and F) there appeared to be a close relationship but this was weaker in the other three companies (C, D and G).
8. When safety culture and driver attitudes are assessed in terms of training, procedures, planning, incident reporting/feedback, management and communications, it can be seen that one of the companies (B) is strong in all these areas (also has a strong relationship between culture and attitudes), whereas two other companies (C and G) have considerable room for improvement in these areas (they have a weaker relationship between culture and attitudes).
9. Companies tend to be more developed in some areas of safety culture compared to others irrespective of the overall relationship between safety culture and driver attitudes.
10. Incident reporting/feedback, planning and communications on safety are the factors which appear to most lack application to driver safety, with training and procedures perhaps seen as more relevant.

11. The relationship between safety culture and driver attitudes should be thought of in terms of the strength of the association in specific areas of safety culture as opposed to whether or not it exists.

12. It is concluded that there is at least a moderate relationship between safety culture and driver attitudes, which is stronger in some companies and weaker in others.

13. The relationship between safety culture and driver attitudes appears to be sufficiently strong to suggest that improvements to a company's safety culture can be expected to influence driver attitudes. However, a positive safety culture and generic safety systems will not guarantee the management of ORR, unless driving safety is an explicit part.

14. Driving safety has rarely been a 'driver' for addressing safety culture but rather has been an add-on to existing safety systems. As such, work is needed to develop and advance the driving aspects even in the case of relatively mature systems. Nevertheless, it is evident that for companies where safety systems exist, there is a ready framework within which driver safety can be tackled efficiently and effectively. However, for many other companies in non-hazardous businesses, occupational driving may be the biggest risk its workers face and, therefore, with increasing recognition of the issue, this may stimulate these companies to tackle safety culture with an explicit focus on work-related driving.

### *10.2.3 Conclusions on the relationship between attitudes and accidents*

The following conclusions have been reached regarding the relationship between driver attitudes and accident liability (risk). These conclusions should be interpreted bearing in mind the limitations associated with comparing accident rates discussed in Section 6.3.

15. Accident data could only be obtained from the larger companies in the study (A, B and C) and even this data was limited. This is indicative of the fact that incident reporting/feedback is generally an area that needs improvement in the management of ORR (see conclusion 16). Two of the companies providing accident data could be said to have a positive safety culture, with the others being weaker.

16. The differences between accident rates separate the three companies into broad categories:
    - The lowest company accident rates correspond with the highest percentage of drivers with positive attitudes and lowest percentage of those with negative attitudes.
    - The middle accident rates are related to the next best company in terms of drivers with positive compared to negative attitudes.
    - The company with the highest accident rate also has the highest

percentage of drivers classed as having a negative attitude and the lowest percentage of positive drivers.

17. The data limitations taken into account, the findings support the hypothesis of a link between driver attitudes and accident liability.

18. The apparent relationship between a company's accident rate and the attitudes of their drivers is consistent with the organisational safety culture measured in each company, i.e. the company with the lowest accident/most positive drivers also had the most developed safety culture and vice versa.

### *10.2.4 What sort of companies manage ORR well and what are the characteristics of their culture?*

Cross-sector comparisons of the survey results provide some pointers as to the type of companies within the study scope which actively address the management of ORR.

19. Tanker drivers displayed the least negative attitude to rules/procedures probably because of the hazardous nature of the load they are carrying and the high level of safety awareness training employed by the company.

20. There was a general trend whereby safety measures applied to HGV drivers were not used for car drivers in the same company. This suggests that companies are more inclined to manage the safety of larger vehicles, which present more obvious hazards and deliver their commercial product, and perhaps underestimate the risks associated with car driving.

21. It is not necessarily the case that safety management systems will be better developed for fleets including LGVs compared with company cars. It might be assumed that the management of HGV safety will be more advanced because the hazards are more recognisable. However, the car drivers in Company B are subject to arguably a tighter driving management structure than some of the HGV drivers interviewed in the study and they have a more positive attitude to driving safety.

22. There was a general lack of safety management applied to driving in small companies.

23. It is not necessarily the case that large companies will be good at addressing driver safety. Of the three large companies in the current study, the management of driver safety in one of the companies was much less developed compared to the other two and shared many of the weaknesses that were also observed in the smaller companies.

24. Drivers in companies with a lack of safety management applied to driving tend to have more of an attitude that they know what they are doing and believe there is little need for safety management, whereas those operating under a safety

management system are more inclined to see the benefits of safety management and be seeking continuous improvements.

25. Overall, it appears that the larger companies running more hazardous operations are more likely to apply good safety management to ORR, although it appears that this is not always the case. This suggests that there are deeper and more complex motivators which influence companies towards the management of ORR, with societal influence and boardroom attitudes emerging as possibilities.

26. From the evidence available in the current study, the following features of safety culture appear to be related to the good management of ORR:
    - senior management buy-in
    - a comprehensive safety management system
    - willingness to learn from incidents
    - driving safety standards with associated procedures which are periodically reviewed
    - encouragement for employees to drive in a professional manner
    - frequent and clear communications on driving safety to those who need it
    - involvement of the workforce in driving safety initiatives
    - investment in driver training.

## 10.3 Measures/approaches to reduce ORR

### *10.3.1 Which factors offer the most potential for reducing risk and what measures/approaches are needed?*

In order to judge which factors offer the greatest potential for reducing ORR it is necessary to look at the areas commonly cited by drivers as requiring improvement and the factors which were regarded as important in the workshops. Some differences between the areas cited were expected due to the differences in driving context, and the style and focus of the two workshop groups.

27. When the findings from the driver interviews and the IN workshops are consolidated, it is concluded that the areas with most potential to reduce ORR for *LGV drivers* are:
    - planning
    - fatigue
    - management/supervision.

    Other factors which are likely to need consideration are competence, risk perception/compliance, pressure, external conditions, training, and incident management and feedback.

28. When the findings from the driver interviews and the IN workshops are consolidated, the areas with most potential to reduce ORR for *car drivers* are:
    - fatigue
    - pressure

- training
- incident management/feedback
- communications.

Other important factors have been identified as competence, recruitment and selection, procedures/planning and management/supervision.

29. The organisational factors regarded as the most important for reducing ORR are all important components of organisational safety culture, which reinforces the potential influence that culture can have on work-related driving safety.

30. The drivers involved in this study have provided a wide variety of suggestions for improving driver safety and for reducing the risk of work-related road accidents. In addition to this, the IN workshops have provided additional risk control options. A list of the risk reduction measures/approaches identified from this study are shown in Appendix A against the factors classed as having the most potential to reduce the risk of accidents for HGV and occupational car drivers.

### *10.3.2 What influence could the DfT use in order to help bring about change?*

The following conclusions relate broadly to areas of company practice which the DfT may be able to influence or to direct actions which they might take.

31. There may be an opportunity to work with and use companies displaying good practice as a platform for raising industry standards in general.

32. There is a need to get better dynamic information out to drivers (e.g. reason for delay using motorway information boards to reduce the stress of uncertainty for drivers).

33. Small companies should be encouraged by demonstrating how safety can save money.

34. Initiatives are needed to increase the value placed on drivers, thereby improving the professional image of driving for work. In general, society needs to have more understanding and appreciation for drivers of large vehicles.

35. Throughout the survey and workshops, an appropriate safety management system (SMS) was consistently seen to be important for controlling the risks to occupational drivers. Furthermore, senior managers taking ownership and control over driver safety was regarded as necessary to enable such an SMS.

36. There is a need to raise awareness in society that car travel can be a part of work and that companies have responsibilities in this area. Also that more time should be taken to think about driving in terms of factors such as fatigue, whether it be a private or work journey.

37. Vehicle specifications and the general use of cars could be built into contractual arrangements. Also, realistic customer expectations in contracts would help to reduce the pressure on drivers.

38. Regulator bodies can help through legislation, such as that pertaining to the use of mobile phones while driving. It was felt that such legislation has more impact than individual company initiatives.

# 11 RECOMMENDATIONS

The following recommendations have been generated from the results of the current study. These recommendations should be of relevance to anyone with a part to play in reducing ORR. Where appropriate, the recommendations are addressed to particular stakeholders, e.g. companies or the DfT.

1. The DfT, companies and other stakeholders should consider aspects of safety culture when addressing work-related road safety issues, in particular, training, procedures, planning, incident management/feedback, management/supervision and safety communications.
2. Companies should be aware that by improving safety culture they can improve the safety attitudes of drivers remote from the fixed workplace and that this, in turn, is likely to influence road accident involvement.
3. Companies should consider improving incident reporting and feedback as a way to learn from driving incidents, and these systems should be tailored specifically for use with on-road incidents.
4. Companies should acknowledge that car driving carries risks as well as driving larger vehicles and that there may considerable learnings from managing LGVs which can be applied to improve car driving safety.
5. There should be emphasis on persuading smaller companies of the significance of ORR and the benefits to be gained from addressing the issues, while at the same time appreciating that large companies may share some of the weaknesses shown by smaller firms.
6. Although a range of factors may need to be assessed depending on individual companies, for LGV drivers, fatigue, planning and management/supervision should warrant consideration as should fatigue, pressure, training, incident management and communications for car drivers.
7. In terms of assessing ORR, companies should look at how component parts of culture (e.g. training, procedures, planning, incident management) apply to driving safety. They should assess their own areas of weakness and strength and develop improvement measures as appropriate.
8. Drivers should be consulted on problem areas and solutions to ensure that driving risk management is likely to be effective. Employee representative bodies should be used to help bring about influence.
9. In terms of how to improve safety culture and deciding which approaches to risk control might be suitable, the case studies in Chapter 9, the IN paths of influence described in Sections 8.3 and 8.4, and the risk control measures/approaches listed in Appendix A of this report should be used as guidance.

10. The DfT could think about the following areas as offering potential to encourage companies to address ORR:
    - Using good practice companies as a platform for raising industry standards in general.
    - Initiatives to increase the value of driver professionalism (e.g. accreditation of company driver training and award schemes, raising the public profile of professional drivers).
    - Campaigns to increase public awareness of ORR.
    - Continued emphasis on the financial benefits of managing ORR.
    - Consideration of legislation that will help to reduce ORR.
    - Clear messages to companies that a positive safety culture can benefit driver attitudes and accident levels.
    - Dissemination of this report to industry to help demonstrate how cultural changes can be made to help manage work-related road safety.

11. The following areas should be considered for further investigation:
    - An evaluation of the best way to measure organisational safety culture in the ORR context (e.g. whether or not a questionnaire approach is appropriate and, if so, how it should be designed, what it should contain and how it should be disseminated).
    - Further study of the work vehicle groups not covered in this project, e.g. maintenance van drivers, delivery drivers, bus and coach drivers, and wider coverage of small haulage companies.
    - An evaluation of driver safety training to gauge the relative merits of skill and attitude-based training and to measure training outcomes.
    - Investigation into appropriate accident/near miss management systems tailored for on-road incidents. In particular, these should be designed to collect information on the human contributions to work-related road accidents. Particular emphasis should also be placed on the feasibility of collecting reliable near miss data and the efficacy of such data in terms of learning from road incidents and effecting improvement.
    - There should be further investigation of what motivates companies towards developing management systems and culture, the way these relate to address ORR, and how to develop and disseminate key messages which come from this work.
    - The research approach resulted in the collection and development of a rich dataset, not all of which was explicitly used to address the original research question. This therefore provides a ready made occupational driving database available for further analysis and evaluation. Further work could potentially include interrogating the data to add to the occupational driving risk profile and correlating accident liability (risk) with the likelihood of violating.

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# APPENDIX A – RISK CONTROL MEASURES/APPROACHES

**Note: This appendix contains a collection of general approaches and specific measures that may need to be considered when managing the safety of those driving as part of their job. These have been collected throughout the study but come primarily from the interviews with company drivers (84) and the two Influence Network workshops involving a variety of different stakeholders. These suggestions therefore do not necessarily represent DfT advice on occupational road risk control measures.**

Table A1: **LGV risk control measures/approaches**

| Recruitment/training | Communications | Pressure |
|---|---|---|
| Advanced driver training<br>Training should include:<br>• driving operations<br>• defensive driving<br>• hazard awareness<br>• access/egress<br>• risk assessment<br>• product knowledge<br>• general dos and don'ts<br>Driver assessment during recruitment<br>Assess competency of agency drivers<br>Use in-cab computer to feedback into training, e.g. if someone applies brakes too often<br>Self-management training — 'am I fit to drive?' | If there is a driving issue, management to talk to employees individually, not send information through the grapevine<br>Dissemination of information on external hazards, e.g. weather, roadworks, cyclists etc.<br>Communication of risk should include:<br>• tailgating<br>• inappropriate use of speed<br>• not taking breaks<br>• not wearing seat belts | Leave enough time to load up the vehicles before leaving<br>Can alter pressure by being up front/honest with the customer<br>Take into account peak traffic, roadworks, breaks etc. in route schedules |

**Table A2: LGV risk control measures/approaches**

| Planning | Fatigue | Management/supervision |
|---|---|---|
| Improve sequencing and multi-drops<br>Identify optimal routes<br>Build breaks into schedule<br>Build peak traffic times into schedule<br>When possible, plan days in advance<br>Allow time in yard for safety checks<br>Balance driver hours for even workload<br>Office-based planners to appreciate local routes and peak traffic times, and accordingly build these into schedules<br>Particularly try to avoid busy routes at the beginning of a shift<br>Management to be a little more flexible with timings<br>Schedules to allow a small time delay – just 15 minutes delay time allowed for each load would help reduce pressure<br>Move away from strict timed routing<br>Company should balance the number of jobs each person gets<br>Monitor and plan for annual leave to stop driver shortages<br>Compress the workload and reduce the number of working hours through improved planning<br>Reduce the number of hours worked<br>Better planning – try to structure driving more | Make the Monday night shift (first night shift in rotation) shorter to help with sudden change in sleep pattern<br>Schedule long journeys first, then shorter journeys at the end of a shift when more tired<br>Take frequent breaks<br>Refreshment every few hours<br>Stretch legs and get fresh air<br>Ensure plenty of rest when big driving job is coming up<br>Pace yourself<br>Communicate best practice on avoiding fatigue<br>Focus on:<br>• short-term measures<br>• myths of fatigue<br>• individual sleep needs | Ensure a duty manager is on until all vehicles are back in the yard at the end of the night<br>More supervision, regular safety checks and audits<br>Needs to be more give and take – accept self-employed drivers as part of the company<br>Introduce enforced breaks<br>Reduce the number of 'on-duty' hours<br>Clearly define the tasks each employee has responsibility for<br>Employ someone to manage customer orders and coordination of the vehicles<br>Emphasis should not be on what went wrong but what could be done differently<br>More feedback on road accidents and possible causes<br>Clearer definition of driving near miss<br>No pressure quota on near miss reporting<br>Near miss quality over quantity |

| Table A3: **Car risk control measures/approaches** | | |
|---|---|---|
| **Fatigue** | **Pressure** | **Recruitment/training** |
| More support – talk about the issue with managers/colleagues<br>Guidance on breaks<br>Encourage stay overs<br>Share driving where possible<br>Inform customers of driving policy<br>More dictatorial on stay overs<br>Take into account travelling as part of meeting organisation<br>Rotate meeting locations – not same people travelling all the time | Driving management course<br>Consider possible increased pressure on drivers working within the M25<br>Raise awareness of the effects of pressure<br>Management to demonstrate an understanding of pressures<br>Tighter meeting agendas<br>Flexible meeting locations<br>Teleconferencing<br>Courses on personal planning/ organisation<br>Checklist for setting up meetings – who and where from, arrange meeting backwards<br>Re-route calls to office when driving<br>Intranet site to help with planning<br>Formal assessment – is trip necessary?<br>Advanced safety awareness, e.g. STOP system for driving<br>Rules/guidance on maximum driving time, breaks, stayovers etc.<br>No driving in personal time<br>Provision of hands-free kits<br>Build into journey time for checking car, delays etc.<br>Avoid someone else planning your journey<br>Avoid performance-related pay<br>Company benchmark on level of work which is acceptable/ unacceptable<br>Monitor pressure on individual basis | Get defensive driving – same kind of training as HGVs, hazard awareness etc.<br>People driving high mileage get regular retraining<br>Induction training on vans<br>Induction training for new car<br>Focus on main risks and unsafe behaviours<br>Training on: emergency situations, maintenance, adverse conditions, motorway driving, the Highway Code<br>Seminars on driving safety<br>Increase regularity of training and refresher courses<br>Advanced driver test<br>Qualifying period for less experienced drivers<br>HR department to check driving history<br>Driving checks in terms and conditions<br>Guidance for HR personnel on what to look for<br>Driver risk assessment carried out on new employees, e.g. hazard perception test<br>Familiarisation with vehicle sessions<br>Training to be part of audit trail<br>Advanced driver training for managers |

**Table A4: Car risk control measures/approaches**

| Communications | Incident management | Procedures/planning |
|---|---|---|
| Use videoconferencing facilities to save people travelling | Have accident feedback for car drivers | Formal risk assessment – reassessment based on accident tracking |
| Make it clear to new and younger employees that late is better than unsafe | Further investigation into company car drivers that have experienced lots of accidents — why and how? Provide extra training | Clearly set out insurance policy, accident procedure etc. – something printed to guide driver/ give to third party |
| Communicate to company car drivers about hazards on road – 3-4 times per year – newsletter | Let people know about the costs of accidents | Guidelines on who can and cannot drive my car, general conditions of usage |
| Basic company car safety information on website | Encourage reporting without blame | Specific driver guidelines around trip times, lengths etc. – like HGV trip sheets |
| Management need to be more approachable to talk about safety – must act on good suggestions | Dedicated web page/bulletin for driving | Dos and don'ts |
| Appoint safety officer – safety inductions covering driving | Definitive booklet for driving safety | Strict mobile phone policy in line with the law |
| Use e-mail to get messages across | Statistics on mobile phone dangers | Ask for formal journey plan for new routes – similar to flight plan for pilot |
| Encourage employees to get to a meeting safely, not necessarily on time | Travel news through e-mail, text messages etc. | Match drivers to journeys |
| | Reporting system designed to provide wider understanding, especially near misses information | Gather feedback on route suitability |
| | Better dissemination of accidents/ near misses | Procedures relating to company policy on drive time, alcohol, drugs, eye checks etc. |
| | Regular information on trends/ issues | Information on factors that can lead to impairment |
| | Information pack for emergency situations, road worthiness, driving standards etc. | |
| | Guidance on accident reporting | |
| | Consideration of formal reporting system to raise awareness/ improve safety | |

# APPENDIX B – TOOLKIT FOR ASSESSING AND MANAGING OCCUPATIONAL ROAD RISK

## Purpose of the toolkit

This toolkit has been designed to help assess and manage the risks to those who drive as part of their work. It identifies key risks for occupational drivers, such as fatigue, pressure and failure to comply with road traffic law. For each of these, the most important factors are shown along with measures to reduce the risks. Key messages are also shown to help implement change. The toolkit can be used by anyone with responsibility for at-work driving, from drivers or supervisors to senior managers and directors.

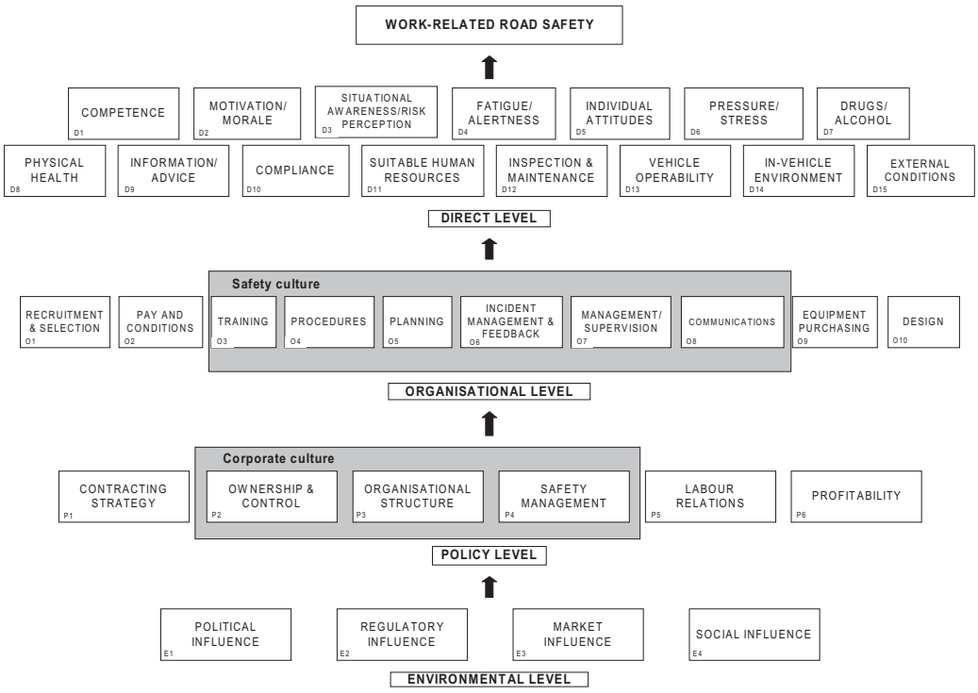
## Basis of the toolkit

In 2003, the Department for Transport commissioned a detailed study to look at whether attitudes within a company (the organisational culture) can influence occupational road risk and if this can reduce the risks. The study involved seven organisations of various sizes and types that were engaged in different business driving activities from haulage to sales. The investigation was undertaken through driver interviews, company wide surveys and industry workshops. A model was developed to show the wide range of factors which are relevant to work-related road safety and the different levels from which these factors may exert influence, from Direct or Organisational influences to more remote Policy or Environmental impacts (see Figure B1). The study identified a set of key risk factors for at-work drivers, the influences on these factors and action to help reduce those risks. This toolkit presents a summary of this information to help companies manage ORR.

The study looked primarily at car and lorry drivers, but the toolkit would be useful for managing any driver.

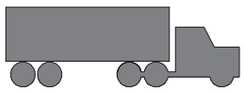
Starting at the Environmental Level, Figure B1 shows how various factors gradually have an increasing level of influence on the way people drive while at work. The toolkit takes you through these stages to help you identify the risks and consider possible measures for reducing those risks.

**Figure B1: IN showing range of influencing factors on work-related road safety**



## How to use the toolkit

The user of the tool should first decide which vehicle type they are interested in; either cars or LGVs.



It is then possible to view the Direct risk factors which have been identified through research as presenting particular risks to the chosen group.


Each key Direct risk factor has an associated set of influencing factors at different levels of intervention ranging from Organisational factors such as Planning...

**PLANNING**

- Identify optimal routes
- Build peak traffic times into schedules
- Allow for delays in schedules
- Leave sufficient time for loading/ unloading

... through Policy factors like 'contracting strategy'...

**CONTRACTING STRATEGY**

- Think about reasonable workloads
- Avoid unreasonable customer expectations

...and even Environmental influences such as those from society or the market.

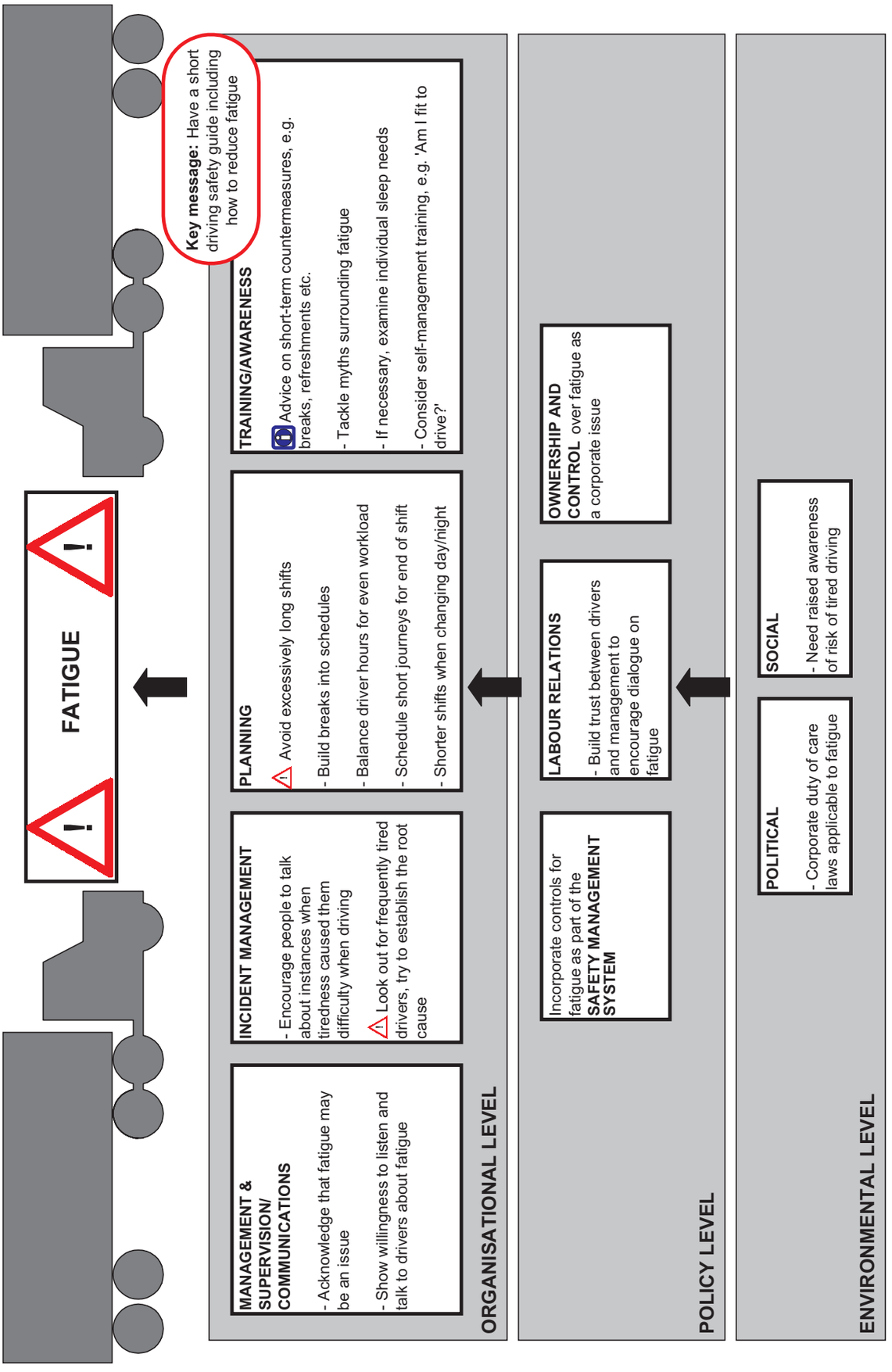
*As illustrated, each influencing factor has an associated set of risk control measures or approaches.*

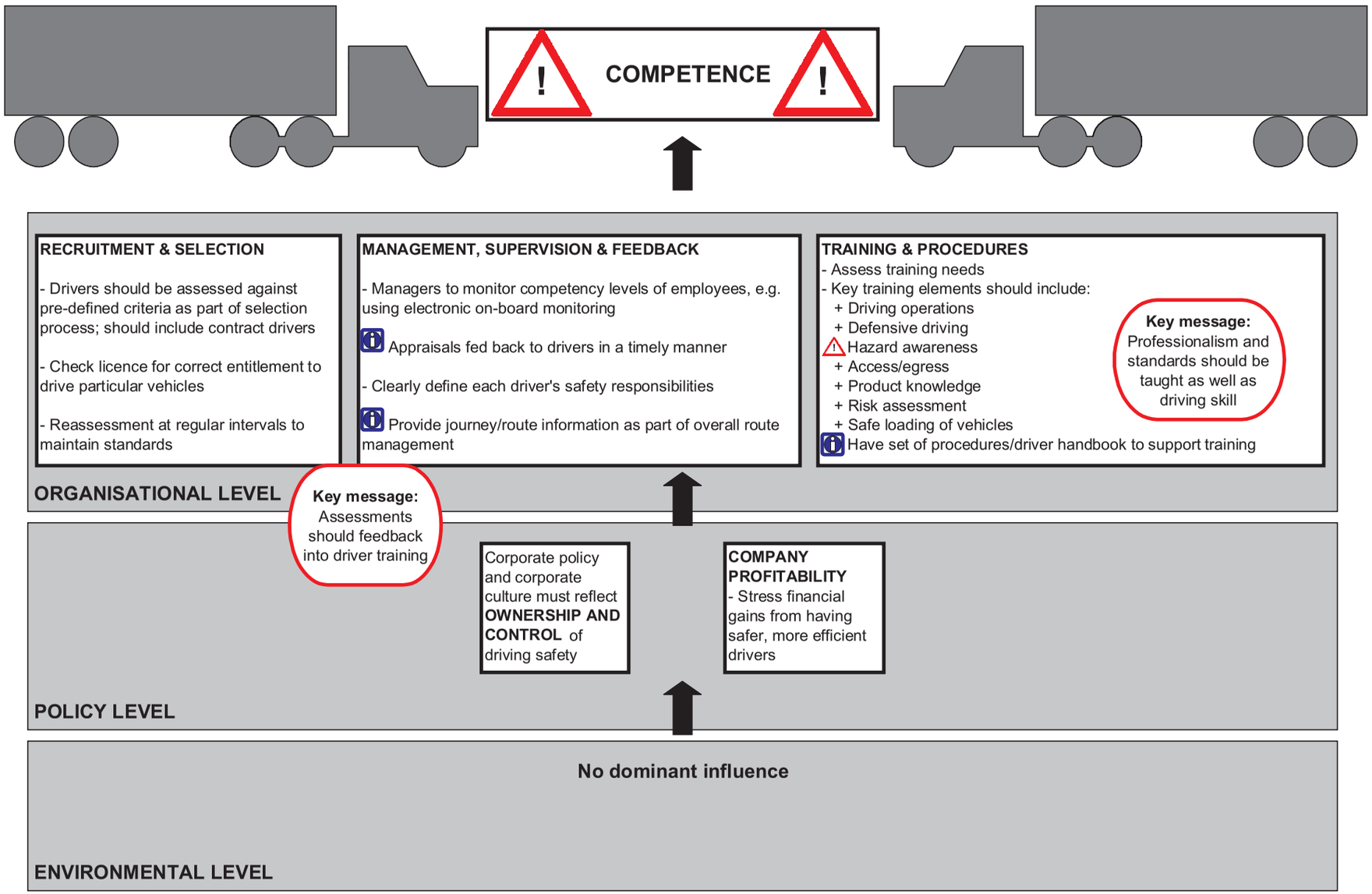
**SOCIAL/MARKET**

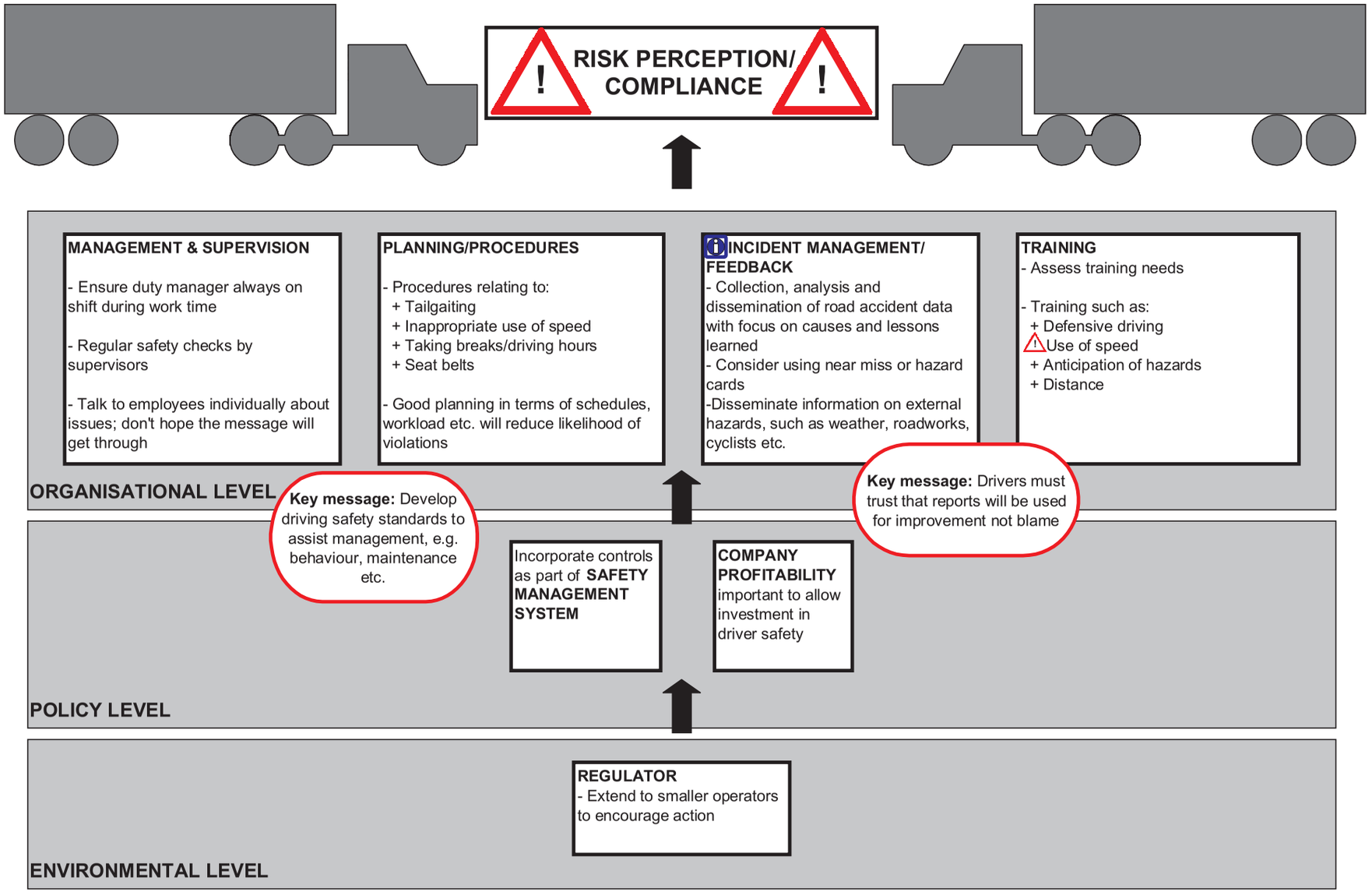
- Encourage more realistic public expectations to ease pressure on retailers and therefore hauliers

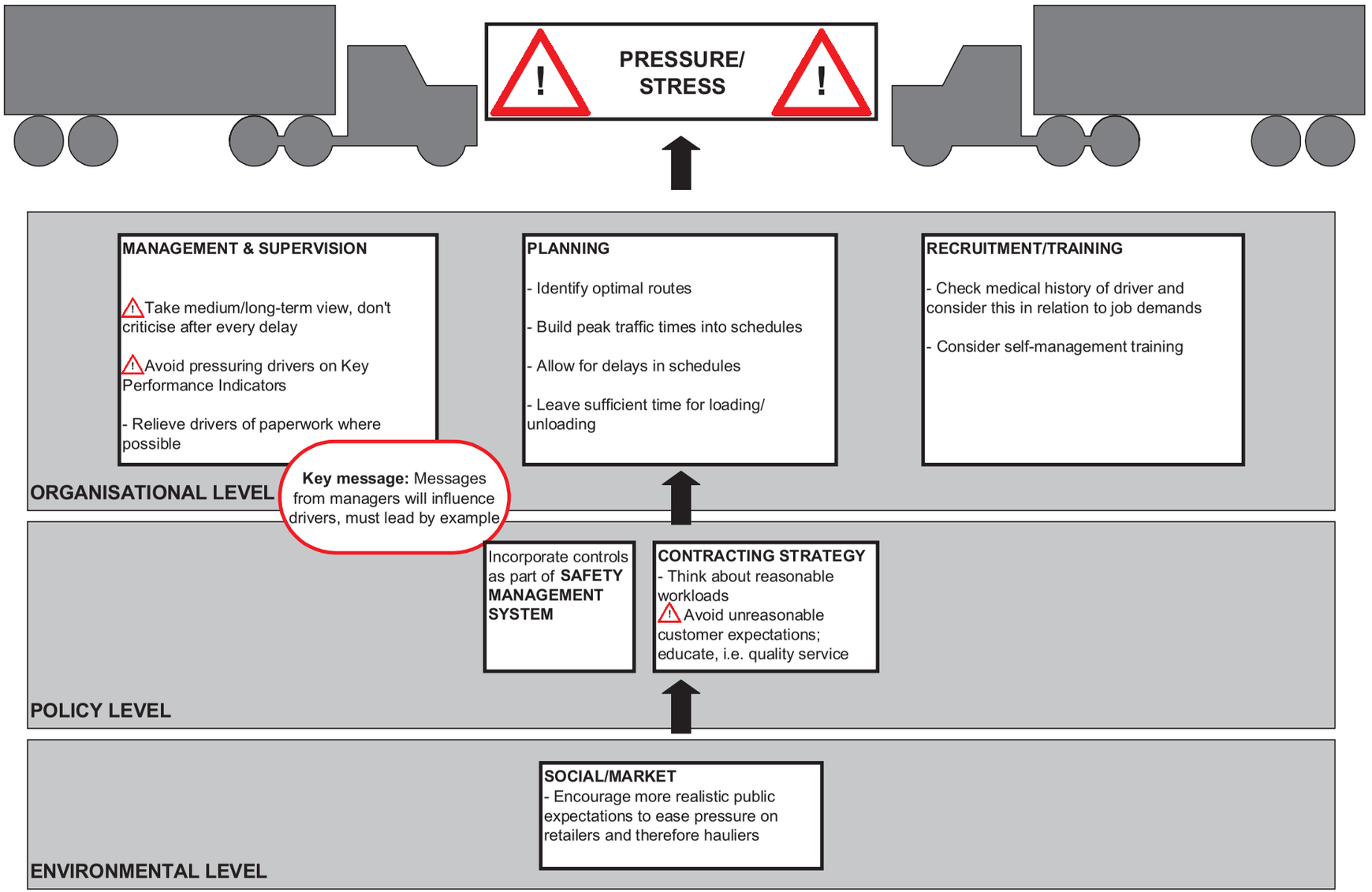
Please note that the risk factors and suggestions for improvement contained in the toolkit are not intended to be exhaustive since it is recognised that a wide range of factors may be relevant depending on different company/driver circumstances. However, the toolkit illustrates *probable* sources of risk and should provide a good starting point for improving the safety of those driving as part of their job.

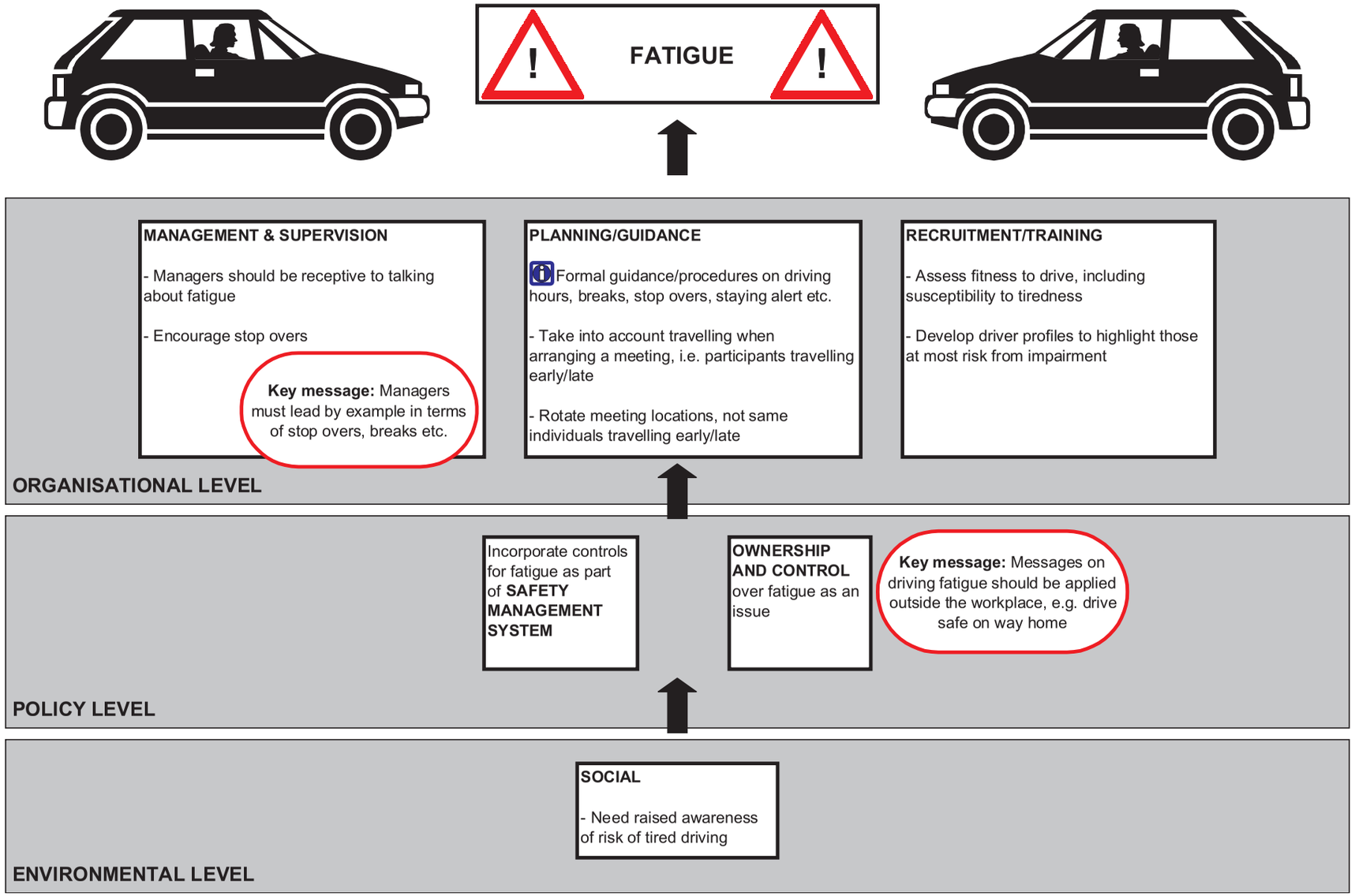
Throughout the toolkit the reader is advised to incorporate particular risk controls into a 'safety management system'. In this context a safety management system is the organisational arrangements established for managing the safety of employees while driving for work.

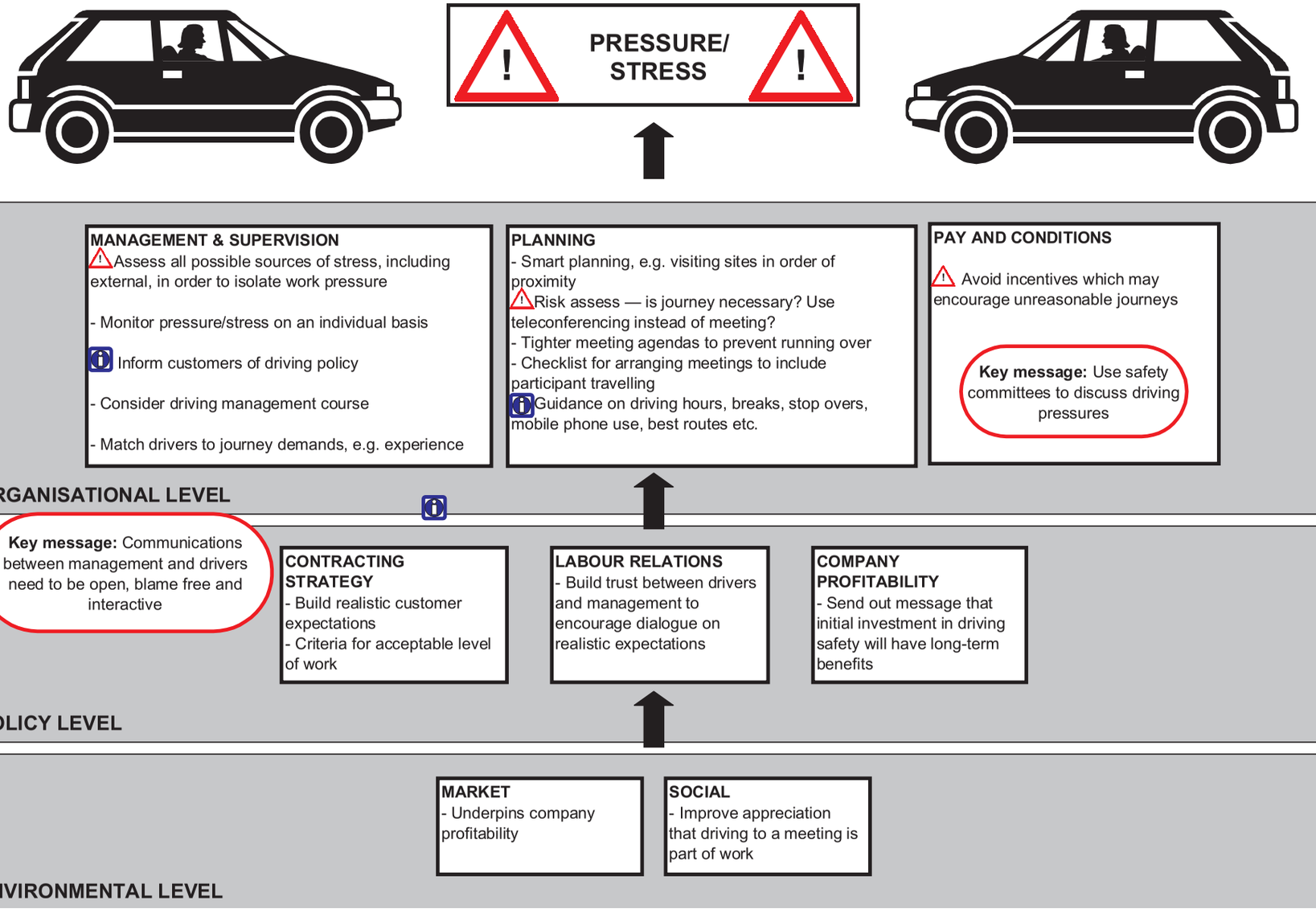

FATIGUE
Key message: Have a short driving safety guide including how to reduce fatigue
ORGANISATIONAL LEVEL
MANAGEMENT & SUPERVISION/ COMMUNICATIONS
- Acknowledge that fatigue may be an issue
- Show willingness to listen and talk to drivers about fatigue
INCIDENT MANAGEMENT
- Encourage people to talk about instances when tiredness caused them difficulty when driving
Look out for frequently tired drivers, try to establish the root cause
PLANNING
Avoid excessively long shifts
- Build breaks into schedules
- Balance driver hours for even workload
- Schedule short journeys for end of shift
- Shorter shifts when changing day/night
TRAINING/AWARENESS
Advice on short-term countermeasures, e.g. breaks, refreshments etc.
- Tackle myths surrounding fatigue
- If necessary, examine individual sleep needs
- Consider self-management training, e.g. 'Am I fit to drive?'
POLICY LEVEL
Incorporate controls for fatigue as part of the SAFETY MANAGEMENT SYSTEM
LABOUR RELATIONS
- Build trust between drivers and management to encourage dialogue on fatigue
OWNERSHIP AND CONTROL over fatigue as a corporate issue
ENVIRONMENTAL LEVEL
POLITICAL
- Corporate duty of care laws applicable to fatigue
SOCIAL
- Need raised awareness of risk of tired driving

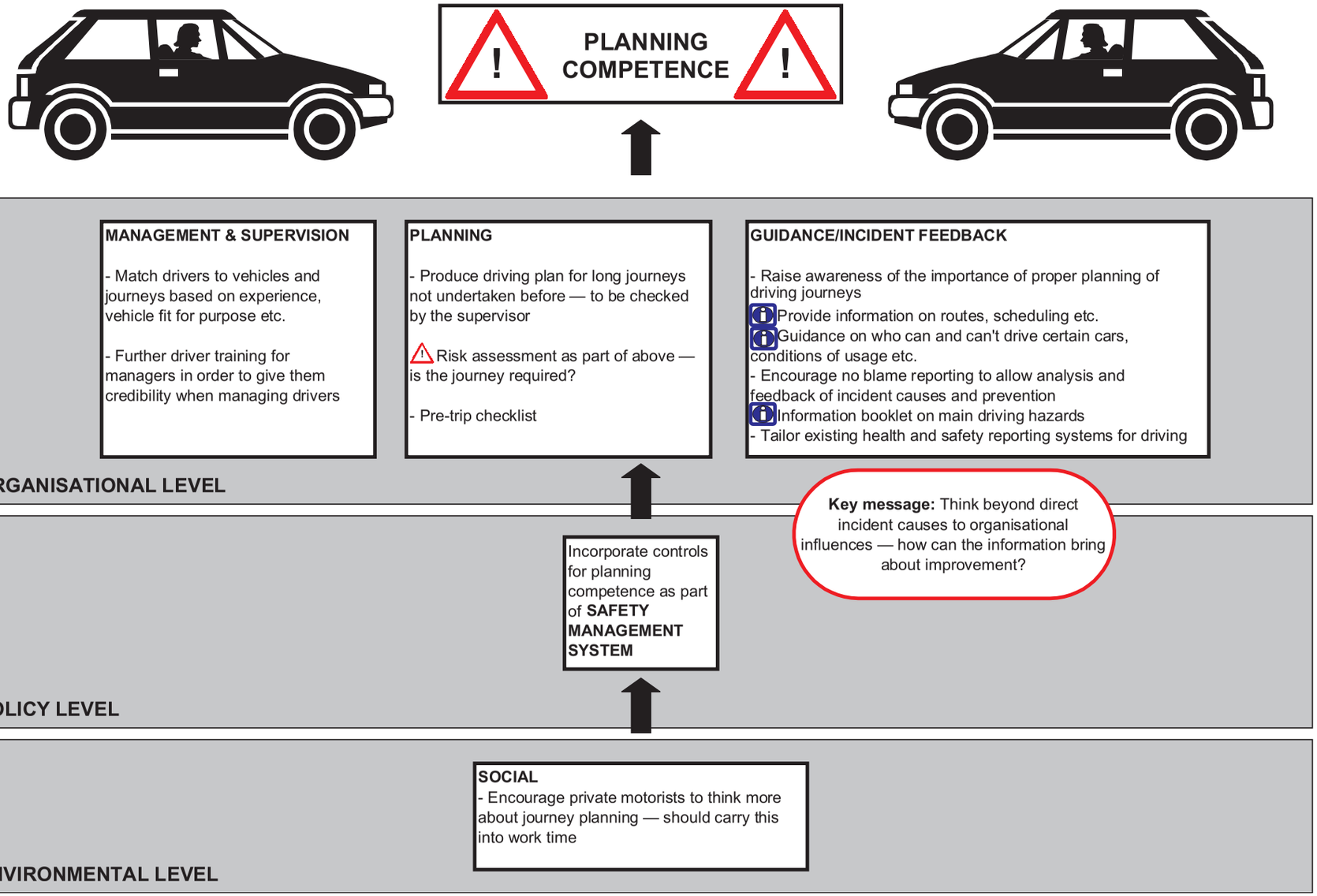

COMPETENCE
RECRUITMENT & SELECTION
- Drivers should be assessed against pre-defined criteria as part of selection process; should include contract drivers
- Check licence for correct entitlement to drive particular vehicles
- Reassessment at regular intervals to maintain standards
MANAGEMENT, SUPERVISION & FEEDBACK
- Managers to monitor competency levels of employees, e.g. using electronic on-board monitoring
Appraisals fed back to drivers in a timely manner
- Clearly define each driver's safety responsibilities
Provide journey/route information as part of overall route management
TRAINING & PROCEDURES
- Assess training needs
- Key training elements should include:
+ Driving operations
+ Defensive driving
Hazard awareness
+ Access/egress
+ Product knowledge
+ Risk assessment
+ Safe loading of vehicles
Have set of procedures/driver handbook to support training
Key message: Professionalism and standards should be taught as well as driving skill
ORGANISATIONAL LEVEL
Key message: Assessments should feedback into driver training
Corporate policy and corporate culture must reflect OWNERSHIP AND CONTROL of driving safety
COMPANY PROFITABILITY
- Stress financial gains from having safer, more efficient drivers
POLICY LEVEL
No dominant influence
ENVIRONMENTAL LEVEL

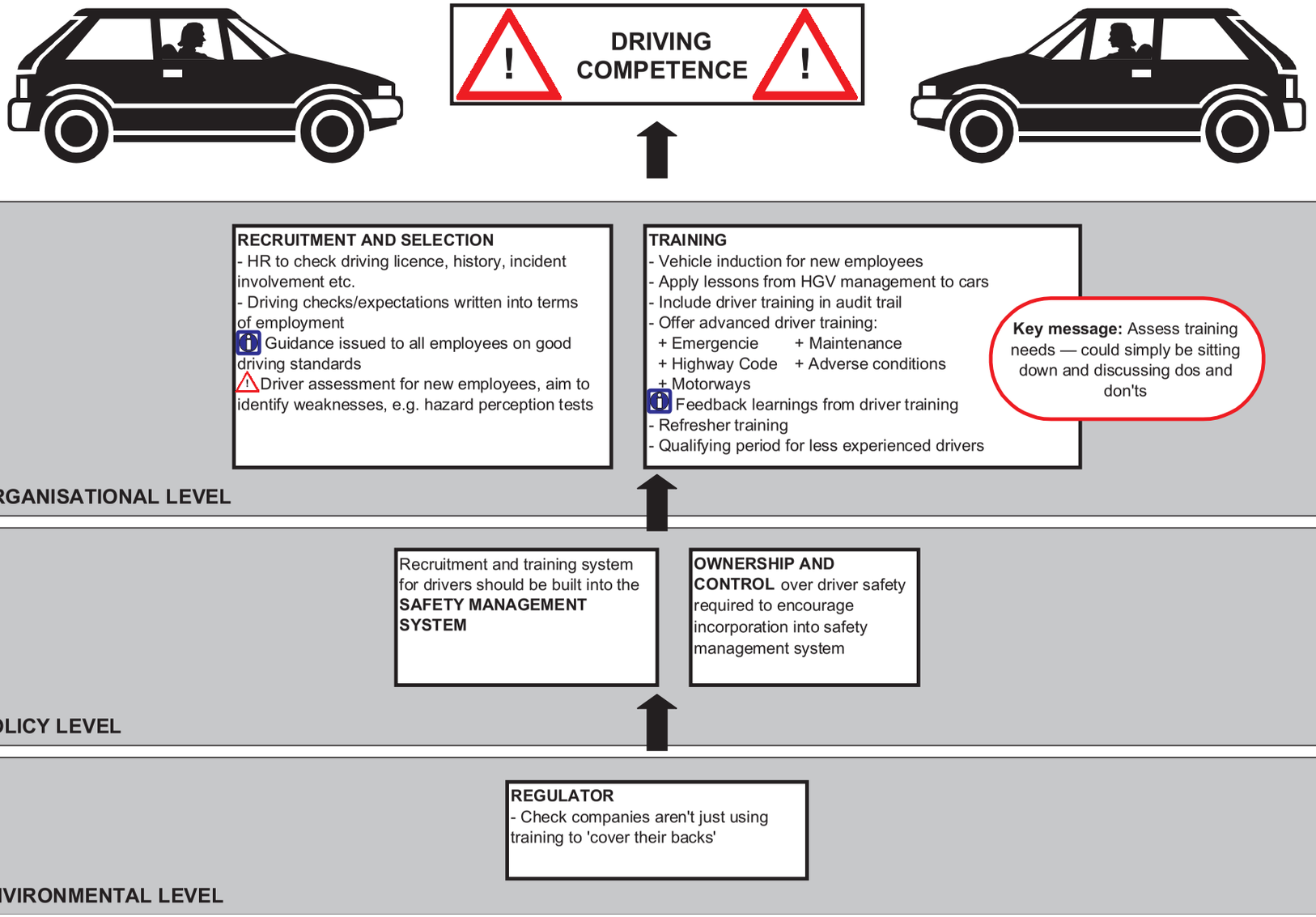

RISK PERCEPTION/ COMPLIANCE
MANAGEMENT & SUPERVISION
- Ensure duty manager always on shift during work time
- Regular safety checks by supervisors
- Talk to employees individually about issues; don't hope the message will get through
PLANNING/PROCEDURES
- Procedures relating to:
+ Tailgaiting
+ Inappropriate use of speed
+ Taking breaks/driving hours
+ Seat belts
- Good planning in terms of schedules, workload etc. will reduce likelihood of violations
INCIDENT MANAGEMENT/ FEEDBACK
- Collection, analysis and dissemination of road accident data with focus on causes and lessons learned
- Consider using near miss or hazard cards
-Disseminate information on external hazards, such as weather, roadworks, cyclists etc.
TRAINING
- Assess training needs
- Training such as:
+ Defensive driving
Use of speed
+ Anticipation of hazards
+ Distance
ORGANISATIONAL LEVEL
Key message: Develop driving safety standards to assist management, e.g. behaviour, maintenance etc.
Key message: Drivers must trust that reports will be used for improvement not blame
Incorporate controls as part of SAFETY MANAGEMENT SYSTEM
COMPANY PROFITABILITY important to allow investment in driver safety
POLICY LEVEL
REGULATOR
- Extend to smaller operators to encourage action
ENVIRONMENTAL LEVEL


PRESSURE/
STRESS
MANAGEMENT & SUPERVISION
Take medium/long-term view, don't criticise after every delay
Avoid pressuring drivers on Key Performance Indicators
- Relieve drivers of paperwork where possible
PLANNING
- Identify optimal routes
- Build peak traffic times into schedules
- Allow for delays in schedules
- Leave sufficient time for loading/ unloading
RECRUITMENT/TRAINING
- Check medical history of driver and consider this in relation to job demands
- Consider self-management training
Key message: Messages from managers will influence drivers, must lead by example
ORGANISATIONAL LEVEL
Incorporate controls as part of SAFETY MANAGEMENT SYSTEM
CONTRACTING STRATEGY
- Think about reasonable workloads
Avoid unreasonable customer expectations; educate, i.e. quality service
POLICY LEVEL
SOCIAL/MARKET
- Encourage more realistic public expectations to ease pressure on retailers and therefore hauliers
ENVIRONMENTAL LEVEL


FATIGUE
MANAGEMENT & SUPERVISION
- Managers should be receptive to talking about fatigue
- Encourage stop overs
Key message: Managers must lead by example in terms of stop overs, breaks etc.
PLANNING/GUIDANCE
Formal guidance/procedures on driving hours, breaks, stop overs, staying alert etc.
- Take into account travelling when arranging a meeting, i.e. participants travelling early/late
- Rotate meeting locations, not same individuals travelling early/late
RECRUITMENT/TRAINING
- Assess fitness to drive, including susceptibility to tiredness
- Develop driver profiles to highlight those at most risk from impairment
ORGANISATIONAL LEVEL
Incorporate controls for fatigue as part of SAFETY MANAGEMENT SYSTEM
OWNERSHIP AND CONTROL over fatigue as an issue
Key message: Messages on driving fatigue should be applied outside the workplace, e.g. drive safe on way home
POLICY LEVEL
SOCIAL
- Need raised awareness of risk of tired driving
ENVIRONMENTAL LEVEL


PRESSURE/
STRESS
MANAGEMENT & SUPERVISION
Assess all possible sources of stress, including external, in order to isolate work pressure
- Monitor pressure/stress on an individual basis
Inform customers of driving policy
- Consider driving management course
- Match drivers to journey demands, e.g. experience
PLANNING
- Smart planning, e.g. visiting sites in order of proximity
Risk assess — is journey necessary? Use teleconferencing instead of meeting?
- Tighter meeting agendas to prevent running over
- Checklist for arranging meetings to include participant travelling
Guidance on driving hours, breaks, stop overs, mobile phone use, best routes etc.
PAY AND CONDITIONS
Avoid incentives which may encourage unreasonable journeys
Key message: Use safety committees to discuss driving pressures
ORGANISATIONAL LEVEL
Key message: Communications between management and drivers need to be open, blame free and interactive
CONTRACTING STRATEGY
- Build realistic customer expectations
- Criteria for acceptable level of work
LABOUR RELATIONS
- Build trust between drivers and management to encourage dialogue on realistic expectations
COMPANY PROFITABILITY
- Send out message that initial investment in driving safety will have long-term benefits
POLICY LEVEL
MARKET
- Underpins company profitability
SOCIAL
- Improve appreciation that driving to a meeting is part of work
ENVIRONMENTAL LEVEL


PLANNING COMPETENCE
MANAGEMENT & SUPERVISION
- Match drivers to vehicles and journeys based on experience, vehicle fit for purpose etc.
- Further driver training for managers in order to give them credibility when managing drivers
PLANNING
- Produce driving plan for long journeys not undertaken before — to be checked by the supervisor
Risk assessment as part of above — is the journey required?
- Pre-trip checklist
GUIDANCE/INCIDENT FEEDBACK
- Raise awareness of the importance of proper planning of driving journeys
Provide information on routes, scheduling etc.
Guidance on who can and can't drive certain cars, conditions of usage etc.
- Encourage no blame reporting to allow analysis and feedback of incident causes and prevention
Information booklet on main driving hazards
- Tailor existing health and safety reporting systems for driving
ORGANISATIONAL LEVEL
Key message: Think beyond direct incident causes to organisational influences — how can the information bring about improvement?
Incorporate controls for planning competence as part of SAFETY MANAGEMENT SYSTEM
POLICY LEVEL
SOCIAL
- Encourage private motorists to think more about journey planning — should carry this into work time
ENVIRONMENTAL LEVEL


DRIVING COMPETENCE
RECRUITMENT AND SELECTION
- HR to check driving licence, history, incident involvement etc.
- Driving checks/expectations written into terms of employment
Guidance issued to all employees on good driving standards
Driver assessment for new employees, aim to identify weaknesses, e.g. hazard perception tests
TRAINING
- Vehicle induction for new employees
- Apply lessons from HGV management to cars
- Include driver training in audit trail
- Offer advanced driver training:
+ Emergencie + Maintenance
+ Highway Code + Adverse conditions
+ Motorways
Feedback learnings from driver training
- Refresher training
- Qualifying period for less experienced drivers
Key message: Assess training needs — could simply be sitting down and discussing dos and don'ts
ORGANISATIONAL LEVEL
Recruitment and training system for drivers should be built into the SAFETY MANAGEMENT SYSTEM
OWNERSHIP AND CONTROL over driver safety required to encourage incorporation into safety management system
POLICY LEVEL
REGULATOR
- Check companies aren't just using training to 'cover their backs'
ENVIRONMENTAL LEVEL