# SWOV Fact sheet

## Road safety and trade and industry

**Summary**
Trade and industry mostly experience the negative consequences of crashes, but sometimes the consequences are positive. The negative consequences of road traffic crashes include loss of personnel and damage to vehicles. Some other industries, such as damage repair companies, on the other hand, derive income from road crashes.

Trade and industry can also be of importance for road safety. Particularly the transport sector, the car industry and insurers take several initiatives which for example focus on safety culture in the transport sector, improving vehicle safety and on rewarding safe driving. However, there are various possibilities for a further contribution to road safety, for these three sectors as well as, for example, for smaller companies with vans.

**Background and content**
In addition to personal and social consequences, road crashes also have consequences for businesses. Trade and industry can make a contribution towards road safety improvement. Road safety policy therefore pays explicit attention to the role of trade and industry (VenW, 2009). This fact sheet discusses the relation between trade and industry and road safety, especially in the Netherlands. The fact sheet will first look at the consequences of road crashes for trade and industry, and will also discuss the way in which trade and industry contributes and can contribute towards road safety improvement. In this fact sheet trade and industry refers to all enterprises in the primary (agriculture), the secondary (industry), and the tertiary sector (services), that is, for-profit enterprises. The quaternary sector, which is formed by the non-commercial services (e.g. government services), is not included in trade and industry.

**What consequences do road crashes have for trade and industry?**
Businesses not only experience negative consequences, but also encounter positive effects of road crashes.

*Negative consequences:*
- Businesses may be confronted with temporary or permanent loss of personnel as a result of road crashes. A (temporary) drop in production and sales leads to additional costs. Furthermore, companies need to spend extra money on recruiting and training replacements.
- This is also the case in the transportation sector (freight and passenger transport, including courier services), with the understanding that the employees have a considerably greater exposure to traffic risks and therefore have a greater risk of being absent due to a road crash. The same goes for other companies whose employees travel much in their profession, e.g. sales reps. The transportation sector and other businesses with professional drivers are also liable for the consequences of road crashes for others, meaning non-employees who sustain (fatal) injury in a road crash caused by a professional driver.
- Road crashes lead to property damage to vehicles and load. This results in considerable costs for the transportation sector and all other companies that have their own vehicles.
- The transportation sector and other companies with professional drivers also experience indirect damage caused by road crashes: the costs due to traffic jams as a result of crashes. These costs are caused by travel time losses and the use of extra fuel.
- Finally, being involved in a crash can damage the company image.

*Positive effects:*
- Some companies, especially those in car repair and maintenance and salvage companies, benefit from crashes or would even not exist without crashes. Car demolition companies, car dealers, road

construction companies (emergency road repairs) and the legal sector (e.g. personal injury lawyers) derive part of their revenue from road crashes.
- In addition, there are sectors that focus on the prevention of road traffic crashes and/or the reduction of injury and hence indirectly benefit from traffic crashes. These are, for example, manufacturers and sellers of products for road safety improvement such as products focusing on infrastructure (e.g. guardrails, public lighting), enforcement (e.g. cameras), intelligent vehicle technology, child restraint seats, and protective clothing. The automotive sector, contractors, garages (maintenance, periodic vehicle testing), consultancy and research companies and advertising companies (information campaigns) all focus on the prevention of road crashes and therefore benefit from road crashes.
- Finally, some of the work in the medical sector and in several government sectors (e.g. judicial authorities, ministries, local authorities) is directly related to road traffic crashes. These authorities, however, belong to the quaternary sector and are therefore beyond the scope of this fact sheet.

Insurers experience both negative and positive consequences. On the one hand road crashes are unfavourable for the insurance companies, because they have to pay out compensation. On the other hand, however, insurers on-charge the damage to the insured through premiums, on which the insurers realize a certain profit margin. The long term profit margin is estimated to be about 5% of the income from insurance premiums (Goudappel Coffeng, 2013).

The fact that road crashes generate income for specific branches does not mean that road traffic crashes are 'good for the economy' (Wijnen, 2008). From macro-economic perspective, road crashes lead to loss of prosperity because the resources (labour and materials) that are used by companies and governments to repair the damage could also have been applied in a different manner. In the long run this would have generated more prosperity. Fewer road crashes also means that consumers, businesses and governments need to spend less money on repairing the damage. They can spend that money in a different way, thus increasing prosperity.

**What are the efforts made by trade and industry to improve road safety?**

As was illustrated above, the major part of trade and industry benefits from road safety improvement. In addition to the reduction of costs there are various other motives for companies to actively contribute towards road safety improvement. Examples are complying with legislation (e.g. driving and resting times), image strategy and/or corporate social responsibility (Lepercq, 2011). This fact sheet will discuss the activities and developments in trade and industry that focus on road safety improvement, particularly those within the three most relevant sectors: transportation, automotive industry and insurers.

*Transportation sector*

The transportation sector pays attention to road safety for reasons of social interest as well as for the benefit of the sector. Examples of the latter are improvement of the company image and improving delivery reliability (TLN, 2002). The social involvement of the sector is reflected in, among other things, involvement in the creation of the *Road Safety Strategic Plan* 2008-2020 and earlier in the National Traffic and Transport Plan (see TLN, 2002). Improving the safety culture is frequently discussed here (see Goldenbeld et al., to be published, for a literature survey). A good safety culture is present if all layers of the company consider safety to be of great importance and include it in all actions and decisions. A study in 2000-2001 that investigated the situation in five transport enterprises (Gort et al., 2002) found that improving the safety culture had no priority in these companies. However, the transportation sector undertook various activities to improve the safety culture. One example being the (recently terminated) 'Head for Safety' programme: a network of transport companies that pay explicit attention to road safety, for instance with information meetings and registration of damages (Aarse, 2011). The *Safety Scan* is an example of an instrument that was developed jointly by road transport organizations and the Dutch Ministry of Transport. This computer application is aimed at selecting road safety measures and the prevention of fatigue among drivers (see also SWOV Fact sheet *Fatigue in traffic, causes and effects*). Another example of an initiative from the transport sector is 'Safe on the road ': a programme for elementary schools focusing on the blind spot issue in which professional drivers act as teachers.

Cost-benefit analyses of measures such as damage prevention programmes, board computers, driving proficiency tests and reward systems for damage free driving that are targeted at trucks and transport companies, indicate that most of the measures are profitable from the business perspective

(Langeveld & Schoon, 2004; Rienstra, Rietveld & Lindeijer, 2000). The benefits of less vehicle damages in many cases outweigh the costs of the measure, particularly for larger companies. If the social benefits, e.g. reduction of medical costs, human costs, and production losses are also included, the profitability is of course even higher.

*Automotive industry*
Over the years, vehicle safety has increased considerably; this is also a merit of the automotive industry. To improve vehicle safety, car manufacturers use crash studies, laboratory tests and new testing methods, and they also participate in European research projects. The automotive industry is encouraged to invest in vehicle safety by, for example, the Euro NCAP programme. This programme tests collision safety of passenger cars and awards a safety score (1 to 5 stars) to the vehicles. This has resulted in car manufacturers producing passenger cars that are usually safer than is required by law (see SWOV Fact sheet *Euro NCAP, a safety instrument*). Some car manufacturers specifically focus their corporate image and marketing on road safety.

Furthermore, the automotive industry, together with governments, knowledge institutes and interest groups, plays an important role in the development and implementation of intelligent transport systems (see SWOV Fact sheet Intelligent *Transport Systems (ITS) and road safety*). For some of the systems, for example intelligent speed assistance, market implementation is the most obvious method (Morsink et al., 2008). In other cases a system is first brought onto the market by industry itself and is then supported or even made compulsory by governments (e.g. ESC, see SWOV Fact sheet *Electronic Stability Control (ESC)*). For other systems, such as the alcolock, government policy is critical for development and implementation.

*Insurers*
Commissioned by SWOV, Goudappel Coffeng (2013), investigated the (possible) contribution towards road safety that is made by insurers. The study indicates that some insurers in the Netherlands take measures to improve road safety or look into the possibilities to do so. In part they are motivated by competitive advantage, but also by a sense of social responsibility. Three types of measures can be distinguished.

Firstly, there are preventive measures such as training activities, (financial) support for preventive measures by third parties (e.g. campaigns) or, for example, offering free car maintenance.

The second type of measures is designed to encourage safer driving. Above all, these measures consist of premium differentiation, for example on the basis of mileage (‘pay as you drive’) or speed (‘pay as you speed’). Insurers make use of new technology such as navigation systems and apps, which allow recording driving behaviour and providing feedback to the insured. So far these are mainly experiments that are carried out by insurers, sometimes in cooperation with leasing companies. An example is an experiment in which the premium for young novice drivers was determined on the basis of the number of speeding offences, the mileage, and on whether or not they had driven during weekend nights. This measure was found to have a significant effect on the number of speeding offences (Bolderdijk et al., 2011).

The third type are post-crash measures, such as (being involved in the development of) systems to report and register crashes. Some insurers offer premium discounts if the vehicle is equipped with e-call. Goudappel Coffeng (2013) indicates that influencing behaviour is probably effective, although this has not yet been demonstrated. The effectiveness of preventive measures is thought to be limited or cannot be established. Post-crash measures, particularly e-call, are found to have positive effects (Christoph, 2010).

*Other sectors*
Sometimes companies in various other sectors also spend explicit attention to road safety. Examples are leasing companies, postal operators, oil companies, waste management companies and the pharmaceutical and food industries. These companies have an interest in road safety because some of their staff participate in traffic on a professional basis. Examples of measures taken by companies are:
- monitoring driving behaviour with a black box or gps system, and providing feedback and discussion of that behaviour and of areas for improvement; This is sometimes linked to environmental objectives (economical driving);

- providing training programmes for employees;
- discouraging or prohibiting the use of mobile phones in the car;
- planning routes (partly) based on the safety of different routes.

Furthermore, there are examples of companies that focus on the commuter safety of their employees, for example, by housing them close to their (temporary) job location, to arrange bus transportation, to discourage the use of mobile phones while driving, and/or by providing information about safe behaviour. However, it is not known on what scale this kind of policy is pursued by companies.

Finally, there are companies that from the point of view of corporate social responsibility are involved in broader initiatives to improve road safety. This includes, for example, financial support of international and/or national road safety programmes and organisations, such as the ' Decade of Action ' of the United Nations, which is supported by (mainly large, global) companies from different sectors.

**What else can companies do?**
The transport sector has several opportunities to improve safety culture. Although the safety culture seems to be guaranteed by activities of trade associations at macro-level (entire sector) (Wegman & Aarts, 2005), there is actually only a limited safety culture (OvV, 2012; Poppink, 2005). Several measures can be taken, also by the transport sector, with a view to improving road safety of trucks and delivery vans (OvV, 2012; Wegman & Aarts, 2005). Data recorded by board computers, crash recorders (‘black box’) and gps systems as part of a safety culture, for example, can be used more frequently and be put to better use. New technology may offer new possibilities, such as the use of apps. The (time) pressure that is imposed to drivers is also a concern for the transport sector. Not only transport companies but also the shippers (the companies whose cargo is transported) play a role, as they can for instance require safety standards of transport companies. Transport companies, in their turn, could distinguish themselves by certification, as is done in bus transport. Countering distraction and continuing education (e.g. focused on dealing with fatigue) deserve more attention according to the Dutch Safety Board (OvV, 2012).

Venema & Bakhuys-Roozeboom (2011) indicate that employers (both inside and outside the transport sector) can improve road safety of their employees by 'fleet management', in which attention is paid to the vehicles and the employees (road users) as well as to the way the transport is organized. They mention various measures that employers could take in that framework, such as the provision of safe company cars or lease vehicles and offering an eye test.

In its document *Insurers and safety: a matter of course!* the Dutch Association of Insurers (2012) describes its vision of the (possible) ways in which insurers can contribute towards safety in several areas. In this publication the insurers indicate that they can and want to play a role in improving road safety, for example through offering ‘Safety Deals' in which various public and private parties work together and, among other things, formulate joint safety objectives. Goudappel Coffeng (2013) indicates that insurers can especially use behavioural influence (such as rewarding safe driving) to make a further contribution towards road safety. Insurers should thereto strengthen their cooperation with car manufacturers, the ICT sector or, for example, manufacturers of navigation systems, to make better use of the technological possibilities for monitoring driving behaviour. Furthermore, Goudappel Coffeng recommends performing more research into the effectiveness of measures that insurers can take.

A specific group are the companies that use vans, such as couriers, builders, painting contractors, white goods suppliers, et cetera. They are often small businesses for whom road safety is of little concern and that have limited resources to invest in road safety. Although the willingness to invest in road safety is expected to be greater as a company is larger, it may also be worthwhile for these small companies to pay attention to road safety from the viewpoint of cost savings (damages and perhaps fuel) and image strategy. Companies can take road safety into account when purchasing and equipping vehicles, they can provide systems that ensure that the driver is distracted as little as possible (navigation system, handsfree phone), and they can offer trainings targeted at drivers (Davidse & Van Duijvenvoorde, 2012). In addition, a programme like ‘Head for Safety’ (see above), which specifically focuses on larger companies, could be made suitable for smaller companies that use delivery vans. Starren et al. (2009) indicate that it is important for this group to obtain insight in the consequences a road crash may have for the company. Among others they recommend to include

road safety in the quality labels and certification systems that already exist for this category of companies, and to make driving behaviour part of the appraisal and reward systems for drivers.

Also at European level, there is attention for the role of businesses in improving road safety. The European project PRAISE (Preventing Road Accidents and Injuries for the Safety of Employees) looks into the possibilities to improve road safety for employees and makes an inventory of measures that for example employers can take in various fields, such as vehicle technology, speed behaviour, distraction and education (ETSC, 2012). This includes not only analysing road safety risks in their company and drawing up an action plan, but also measures such as applying ITS, attention to fitness to drive in job application procedures, training of staff, and attention for vehicle safety when buying vehicles. Companies that were interviewed in the framework of this project report different economic benefits of explicit attention for road safety. One example is corporate policy aimed at combating speed violations by employees. This has led to fewer crashes and therefore less loss of vehicles, and to less fuel consumption and lower maintenance costs. Some companies also indicate that their road safety policy has led to lower insurance premiums and is important for their reputation.

**Conclusion**

Companies have to deal with road safety in a variety of ways. They need to face especially the negative (financial) consequences of road traffic crashes, such as loss of personnel and damage to vehicles. On the other hand, there are also some industries that derive income from traffic accidents, such as damage repair companies. Dutch trade and industry takes various initiatives to improve road safety, for example, initiatives focusing on safety culture (transport sector), on vehicle safety (automotive industry) and on rewarding safe driving (insurers). For these sectors, but also, for example, for companies that use vans, there are various possibilities to make a further contribution to road safety. For example, more companies in the transport sector and other sectors could take more measures within the framework of safety culture. These measures could, for example, focus on analysis of driving behaviour, reducing time pressure and purchasing safe vehicles. They can not only improve road safety, but also cut costs by, for example, reduction of vehicle damage and fuel savings. For insurers technological developments offer opportunities to influence driving behaviour, for example with premium differentiation, and thus to improve road safety and reduce damages.

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