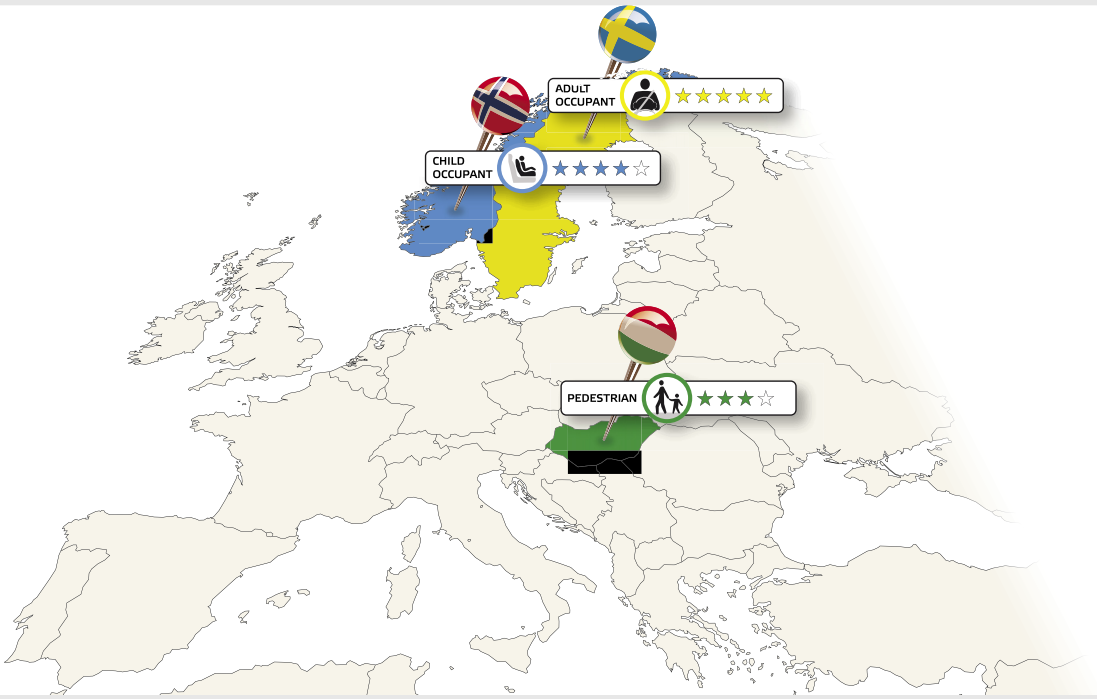
Boost the market for safer cars across the EU

This new ranking looks at safety of new passenger cars sold in 2008 in the 30 countries covered by PIN. Each year until the recent economic downturn, around 15 million new passenger cars have been sold in Europe, 14.35 million in 2008. These new cars made up 6% of the 250 million cars registered in EU member states.

Vehicle passive safety has improved considerably over the past decade because of increased minimum standards laid down by EU type approval regulations and car manufacturers' efforts to meet consumer demands for safer cars. When the European New Car Assessment Programme (Euro NCAP) started to test the crash performance of cars ten years ago, the average car was awarded 2 stars for occupant protection. In 2008, 90% of the new cars tested under Euro NCAP protocol were awarded either 4 or 5 stars, 5 being the maximum for occupant protection.

Improved passive safety has helped to prevent some **10,600** car occupant deaths over the past 10 years and some **5,500** since 2001. Yet European citizens do not benefit equally from improvements in passive safety as huge differences persist between countries in the market penetration of safe cars. **Sweden**, **Ireland** and **Norway** are the countries with the highest proportion of cars awarded 5 stars for occupant protection among new cars sold in 2008. **Hungary**, **Portugal** and **Spain** are the countries with the highest proportion of cars awarded 3-stars for pedestrian protection, 5 being the maximum, closely followed by **Israel** and **Greece**, while **Sweden** surprisingly finds itself in the second to last position. Unfortunately, in Europe, improvements in pedestrian protection have progressed more slowly than for occupant protection.



Government bodies, local authorities and companies, alongside consumers, have a role to play to support the market for safe cars by including safety in their vehicle purchase and leasing policies, among other measures. Current concerns over climate change have led several Member States to adopt measures to promote environmentally-friendly cars. Unfortunately a similar approach promoting safe cars is limited to very few countries. Policymakers are challenged to look for policy options that would bring about synergies and help to achieve simultaneously two key EU commitments: reducing road deaths and CO2 emissions from road transport.

ETSC
European Transport Safety Council

1. Adult occupant protection

Sweden, **Ireland** and **Norway** are the countries with the highest proportion of cars awarded 5 stars for occupant protection among new cars sold in 2008 (Fig. 1a). In these three countries, more than 60% of the new cars sold in 2008 had been awarded 5 stars for occupant protection by Euro NCAP. If we look at 4 and 5-star cars taken together, **Portugal**, **Norway** and **Sweden** take the lead, with over 90% of the new cars sold awarded either 4 or 5 stars for occupant protection.

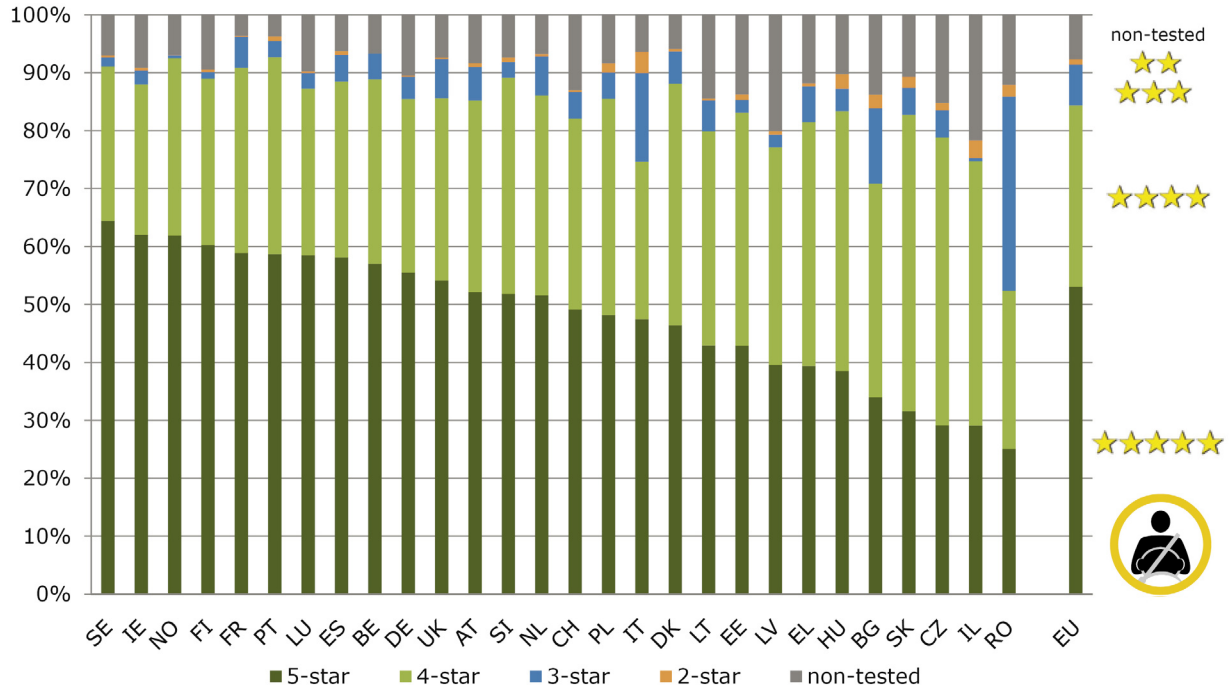


Fig.1a: Occupant protection of new passenger cars sold in 2008.
(Proportion of cars awarded 5, 4, 3 and 2 stars and proportion of non-tested passenger cars, ranked by the number of cars awarded 5 stars. None of the cars tested in 2008 was awarded 1 star only).

Note: Cyprus and Malta are excluded from Fig. 1a as the proportion of non-tested cars represented more than 50% of the new cars sold in 2008.

On average in the EU, **53%** of the new cars sold were 5-star cars, **31%** 4 stars, **7%** 3 stars and still 1% only 2 stars. Safety levels are appreciably lower in the new Member States (EU-10+2) than in the older ones (EU-15), with the notable exception of **Slovenia**. In **Romania**, **Italy**, and **Bulgaria**, the share of 3-star cars is higher than in the rest of the EU.

"We are pleased about the position of Ireland in this ranking. We are working with the Society of the Irish Motor Industry (SIMI) to promote Euro NCAP as a key consideration for people when changing their cars."

Michael Rowland, Road Safety Autority, Ireland

"Sweden considers vehicle safety to be one of the most important strategic tools to improve traffic safety. SRA has introduced new methods to stimulate the market and has acted as an informed customer when purchasing and renting vehicles. In doing so, we have set an example on how a serious body should act in a modern society - by demanding the highest level of safety. The Swedish Government today puts demands on all governmental bodies to do the same".

Claes Tingvall, Euro NCAP Chairman, SRA

"It is not surprising to see Sweden at the first place in Fig. 1. This rightly reflects SRA's and other Swedish actors' tireless commitment to Euro NCAP and the long-standing tradition of safety of Swedish car makers Volvo and Saab."

Michiel van Ratingen, Euro NCAP Secretary General

©ETSC 2009

The indicator

There is no overall indicator of what is a safe car. Since 1997, however, the European New Car Assessment Programme (Euro NCAP) provides an objective assessment of the protection provided by a car in case of a crash for the occupants of the vehicle and pedestrians outside the vehicle. Euro NCAP introduced in 2002 additional point bonus under its occupant protection score for cars equipped with seat belt reminders.

This Flash uses as main indicators of the penetration rates of safe cars among new cars sold two indicators that have equal importance: the penetration of cars awarded 5, 4, 3 or 2 stars for occupant protection and the penetration of cars awarded 3, 2 and 1 star for pedestrian protection. Two additional indicators are used: the penetration of cars awarded 4, 3 or 2 stars for child occupant protection and the penetration rates of seat belt reminders. New cars sold in the first nine months of 2008 are considered.

Data concerning the number of passenger cars sold by models and by countries come from a German consultancy R.L. Polk Marketing Systems GmbH and date from February 2009. The information on Euro NCAP scores and star ratings for particular models was provided by Euro NCAP. Data analysis was performed with the assistance of Johan Strandroth and Anders Lie (SRA). The dataset is available in the PIN Flash 13 Background tables on www.etsc.be/PIN-publications.php. Estimation of the number of deaths prevented thanks to the improvement in occupant protection is described in the PIN Flash 13 Methodological Note available on the same webpage, as well as other background information.

European New Car Assessment Programme (Euro NCAP)

Euro NCAP tests around 30 car models each year. 250 car models have been crash tested to date. Euro NCAP test results were available for 90% of the new cars sold in 2008. Details of the tests used and the results are available on Euro NCAP's web site www.euroncap.com. It should be noted that most car models are available in different variants that may have different safety equipment. Euro NCAP typically tests the best selling variant (identified by the car manufacturer). For example, the Volkswagen Polo is sold in Europe in hatchback, saloon, coupé and estate variants. Euro NCAP tested the 5-door hatchback variant in 2002. For the purpose of this report, those results are assumed to apply to most other variants as well.

In 2009, Euro NCAP introduced a new overall rating that will challenge vehicle manufacturers to make all-round safer cars (see Interview with Michiel van Ratingen p. 14). In April 2009, 6 car models had been tested under the "2009 protocol" and scores of 7 other models tested under the "pre-2009 protocol" had been converted into the new format. It would however not have been possible to use this new protocol for a pan-European comparison. Results are therefore based on the "pre-2009 protocol".

Another way to measure the penetration of safe cars for occupant protection is to look at the average occupant protection scores across the fleet of new cars sold in 2008 by country (Fig. 1b). Tab. 1 summarises the correspondence between scores and stars for occupant protection.

Fig. 1b gives a slightly different picture than Fig. 1a. Fig. 1a shows the results for occupant protection based on the simplified star award system. Fig. 1b uses the scores in points and shows their percentage of the maximum.

In **Norway**, the average score of new cars sold in 2008 was **32.8** - equivalent to **93%** of the maximum of 35 points for occupant protection. In **Ireland**, **Finland** and **Sweden**, new cars received **92%** of the maximum number of points. In the EU, the new cars sold in 2008 received on average **88%** of the total points for occupant protection.

Occupant stars	★	★★	★★★	★★★★	★★★★★
Score in points	1-8	9-16	17-24	25-32	33-37
Percentage score (out of 35)	3-23%	26-46%	49-69%	71-91%	94-100%

Tab. 1: Scores and corresponding stars for occupant protection under Euro NCAP's "Pre-2009 protocol".

©ETSC 2009

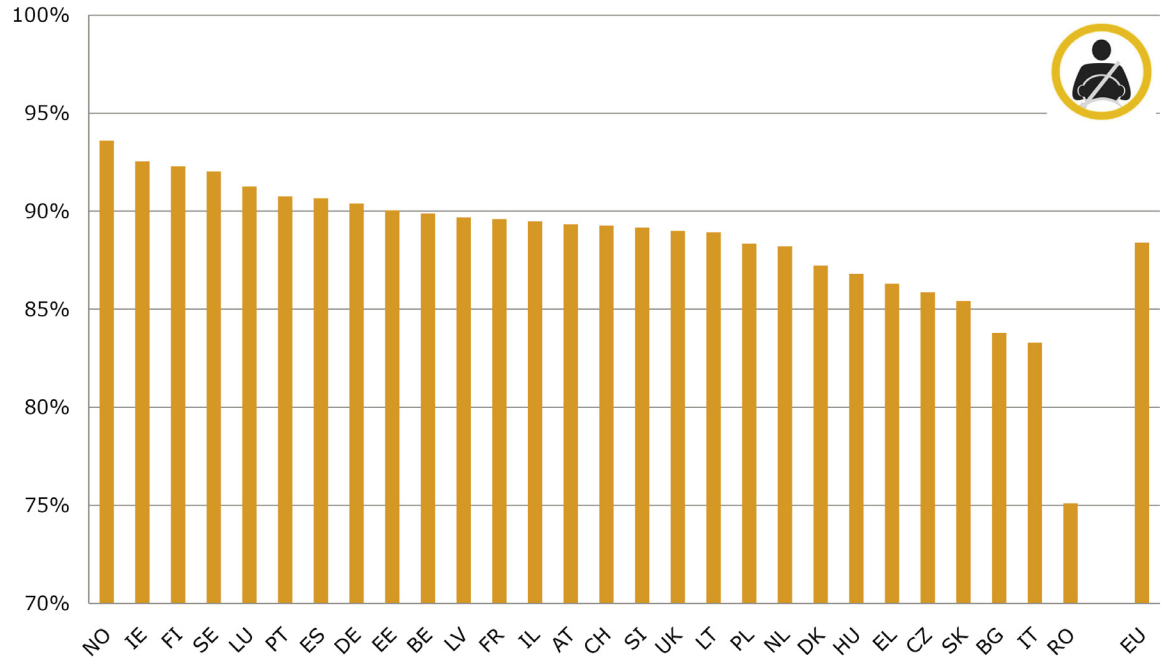


Fig. 1b: Average percentage score of occupant protection for new passenger cars sold in 2008.

Note 1: Cyprus and Malta are excluded from Fig. 1b as non-tested cars represented more than 50% of the new cars sold there in 2008.
Note 2: Fig. 1b does not take into account the different proportions of non-tested cars (the average is of the scores for tested cars).

Norway, **Ireland, Finland** and **Sweden** keep the good position they had in Fig.1a, while **Italy** is in the second to last position in Fig. 1b. This can be partly explained by the fact that Italy had larger proportions of 3-star and 2-star cars, and a bigger proportion of its cars awarded 5 stars received the minimum points needed (33), while in **Norway** they had a comfortable margin. **Estonia**, **Israel** and **Latvia** are better placed than in Fig 1a because of their relatively high proportions of untested cars. The positions of other countries in the two rankings are broadly similar.

2. Pedestrian protection

The safety of car occupants is only a part of the story, as some 10,000 pedestrians die each year on European roads after being hit by a vehicle, and many more sustain life-long lasting injuries.

Hungary, **Portugal** and **Spain** are the countries with the highest proportion of new cars awarded 3-stars for pedestrian protection, 5 being the maximum, closely followed by **Israel** and **Greece** (Fig. 2a). If we look at 3-star and 2-star cars taken together, **Slovakia** and **Denmark** take the lead, with over **70%** of the new cars sold in 2008 awarded either 2 or 3 stars for pedestrian protection. **Sweden** is surprisingly in the second to last position in this ranking, though 5th in terms of 3-star and 2-star cars taken together.

The positions of countries in Fig. 2a are very different than in Fig. 1a on occupant protection. There are several reasons for this, in particular, different consumers' demands for car categories. Consumers in Southern, Central and Eastern European countries buy smaller cars, providing good pedestrian protection, but less good occupant protection. Consumers in **Nordic countries**, **Germany** or **Switzerland** tend to buy larger cars mainly from national brands, which perform poorly on pedestrian protection but give good occupant protection (See Fig. 5 and Fig. 6). But there is also often a discrepency between the individual model performance on occupant and pedestrian protection.

©ETSC 2009

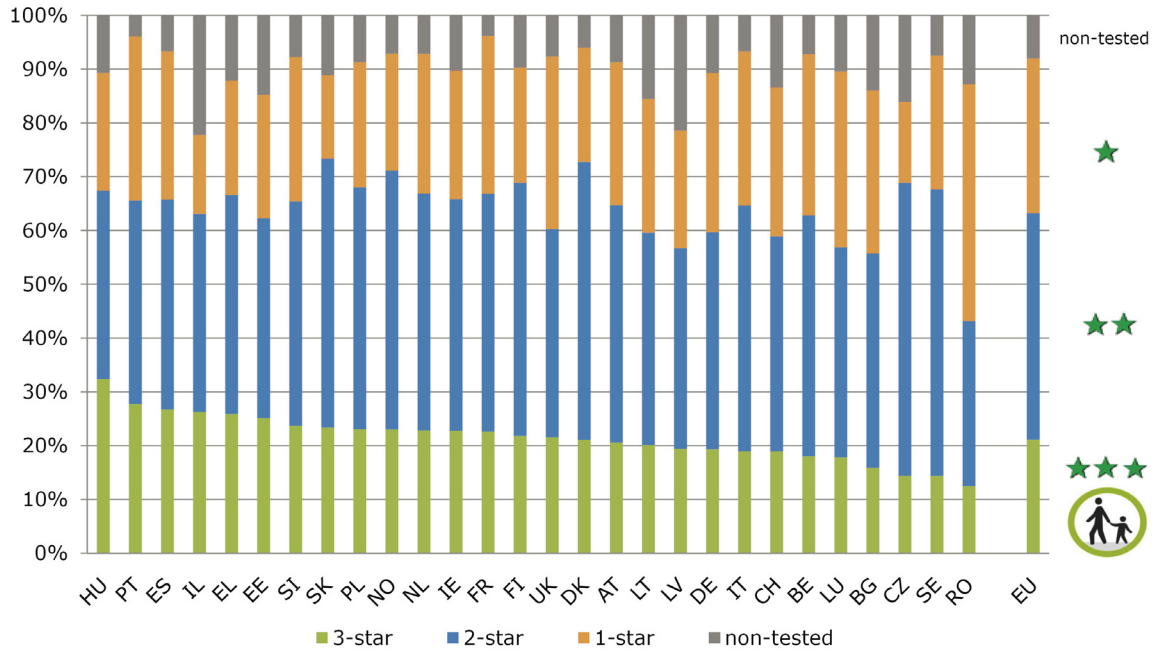


Fig. 2a: Pedestrian protection of new passenger cars sold in 2008.
(Proportion of cars awarded 3, 2 and 1 star and proportion of non-tested passenger cars, ranked by the number of cars awarded 3 stars).

Note: Cyprus and Malta excluded because of their high proportions of non-tested new cars.

Improvements in pedestrian protection have been provided more slowly than for occupant protection. Ten years after the introduction of the Euro NCAP pedestrian protection rating, still only **21%** of the new cars sold in the EU were 3-star, **42%** were 2-star and **29%** only 1-star cars. The new 2009 protocol will challenge car makers by increasing the emphasis on all-round safety performance and demanding higher levels of achievement in pedestrian protection.

Fig. 2a shows the results for pedestrian protection based on the simplified star award system. Fig. 2b uses the scores in points. Tab. 2 summarises the correspondence between scores and stars for pedestrian protection.

Pedestrian stars	★	★★	★★★	★★★★	★★★★★
Score	1-8	9-16	17-24	25-32	33-36
Percentage scores (out of 36)	3-22%	25-44%	47-67%	69-89%	92-100%

Tab. 2: Scores and corresponding stars for pedestrian protection under the Euro NCAP's "Pre-2009 protocol".

In **Israel**, the average score of new cars sold in 2008 was **15.2** - equivalent to **42%** of the maximum of 36 points for pedestrian protection. In **Slovakia** and **Hungary**, new cars received on average **40%** of the maximum number of points. Israel is better placed than in Fig 2a because of its relatively high proportion of untested cars; **Portugal** is worse placed because of its relative low proportion. Countries such as **Norway** and **Finland** with higher proportion of 3-star and 2-star cars taken together are better placed in Fig 2b as well. In the EU, the new cars sold in 2008 received on average only **36%** of the maximum number of points for pedestrian protection.

©ETSC 2009

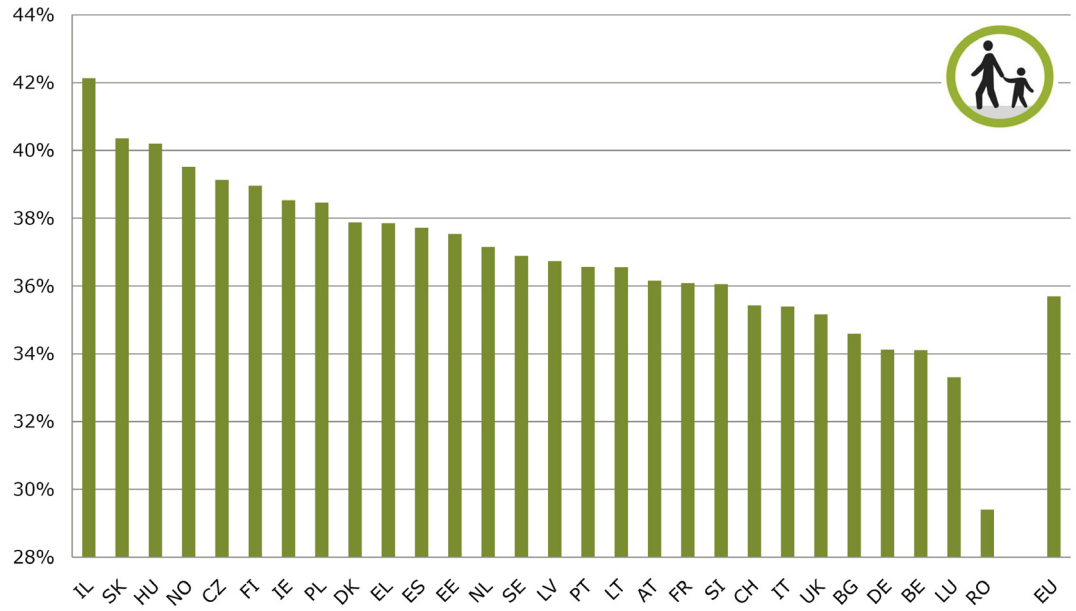


Fig. 2b: Average percentage score of pedestrian protection for new passenger cars sold in 2008.

Note: Cyprus and Malta excluded due to high proportion of non-tested new cars.

3. Child protection

Around 40% of children (0-16) killed in road accidents are killed when travelling in cars. Since 2004, Euro NCAP assesses how well the car and the manufacturer's recommended child restraints protect young children in cars in the event of a crash. **Norway**, **Finland**, **Ireland** and **Sweden** are the countries with the highest proportion of cars awarded 4 stars for child protection among new cars sold in 2008 (Fig. 3). On average in the EU, **44%** of the new cars sold in 2008 were 4-star cars, **27%** 3-star and only **2%** 2-star. In general, cars that offer good occupant protection to adults also offer good protection to children in cars.

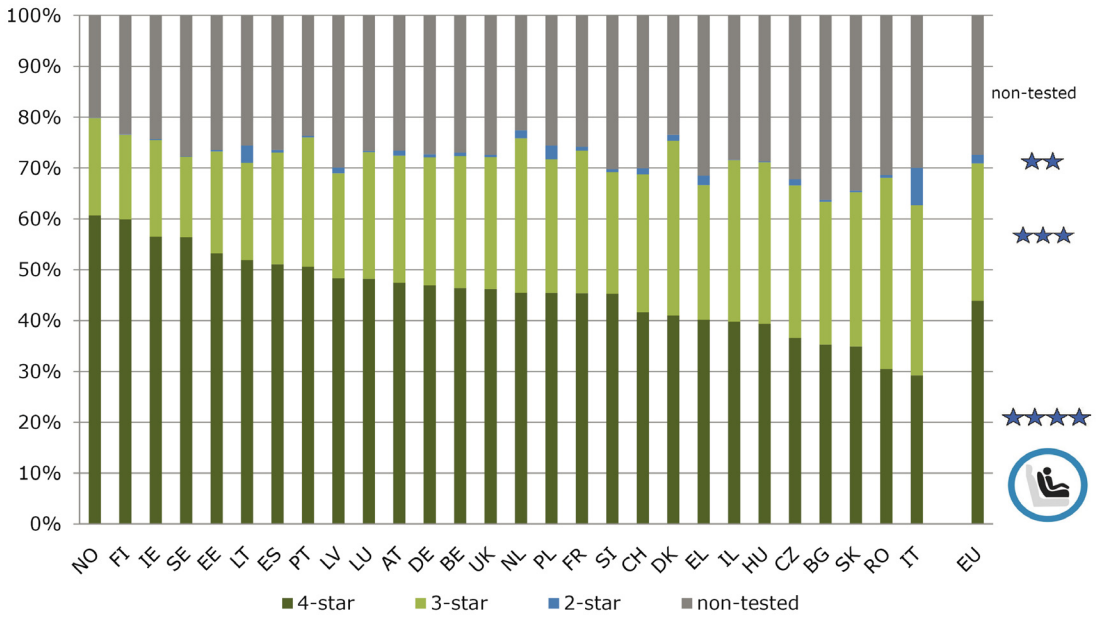


Fig. 3: Child protection of new passenger cars sold in 2008.
(Proportion of cars awarded 4, 3 and 2 stars and proportion of non-tested passenger cars, ranked by the number of cars awarded 4 stars. None of the cars tested in 2008 was awarded 1 star only).

Note: Child protection scores are not available for 27% of new cars sold. Differences in this percentage between countries can influence the ranking.

©ETSC 2009

4. Seat belt reminders

In the event of a crash, the seat belt remains the single most important passive safety feature in vehicles. Yet, despite the legal obligation to wear a seat belt, wearing rates still vary greatly across Europe especially between front and rear seats and between urban and rural areas. Wearing seat belts saved some 14,000 car occupants from dying in road crashes in the EU-27 in 2007. An additional 4,700 deaths could have been prevented if all car occupants in crashes had been belted, which represents an 11% reduction of road deaths in the EU-27[1].

All Euro NCAP crash tests for occupant safety are based on the assumption that the driver and passengers are wearing seat belts. Euro NCAP introduced in 2002 additional bonus points under its occupant protection score for cars equipped with seat belt reminders. One additional bonus point is given to cars equipped with a seat belt reminder (SBR) as a standard on the driver's seat, two points to cars equipped with SBRs on front seats and three points to cars equipped with SBRs as standard on all seats[2]. Those points can make the crucial difference between 4 and 5 stars under the "pre-2009" rating.

In **Israel** and **Estonia**, **19%** of the new cars are equipped with SBRs on all seats (Fig. 4), closely followed by **France**, **Finland** and **Norway** (**18%**), compared to **13%** for the EU.

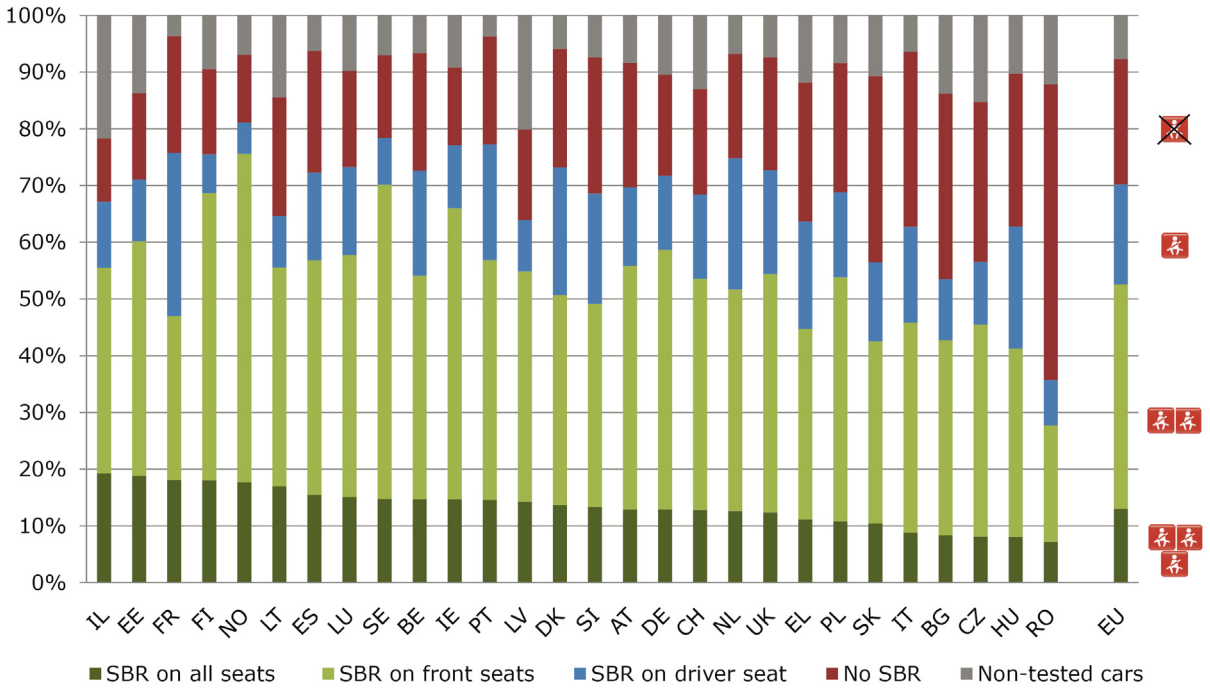


Fig. 4: Seat belt reminders in new passenger cars sold in 2008.
(Proportion of cars awarded 3, 2, 1 and 0 point and proportion of non-tested passenger cars, ranked by the number of cars awarded 3 points for seat belt reminders).

The penetration of seat belt reminders on drivers' seats has increased in EU-27 since 2005. In 2005, some **56%** of cars were equipped with a SBR for the driver's seat[3]; in 2008, it was **70%**. Still, big differences persist between particular types of vehicles (see Fig. 6). Whereas **97%** of the Executive Cars sold in 2008 were equipped with a SBR for the driver's seat, only **83%** of the Multi Purpose Vehicles (MPVs) and **68%** of the Superminis were.

(1) Vis, M.A. and Eksler, V. (Eds.) (2008) Road Safety Performance Indicators: Updated Country Comparisons. Deliverable D3.11a of the EU FP6 project SafetyNet, http://www.erso.eu/safetynet/fixed/WP3/sn_wp3_d3p11a_spi_updated_country_comparisons_final.pdf

(2) To fulfil Euro NCAP criteria, seat belt reminders must use a combination of visual and sound signals. See ETSC (2007), 1st PIN Report, Raising Compliance with Road Safety Law, Chapter 5.

(3) ETSC (2007), 1st PIN Report, Raising Compliance with Road Safety Law, Chapter 5.

©ETSC 2009

5. Car occupant deaths prevented over the past decade

Vehicle passive safety has improved considerably over the past decade. When Euro NCAP started to test the crash performance of cars ten years ago, the average car was awarded 2 stars for occupant protection. **90%** of the new cars sold in 2008 tested under Euro NCAP's "pre-2009 protocol" were awarded either 4 or 5 stars.

Tingvall and Lie estimated that an increase in occupant protection from 4 to 5 stars reduces the risk of fatal injury by 12%[4]. Based on the hypothesis that the new cars represent 7% of the total car fleet and are involved in the same proportion of road crashes[5], one can determine the number of car occupant deaths prevented thanks to improvements in vehicle passive safety.

Improvement in occupant protection has helped to prevent some **10,640** adult car occupant deaths over the past decade and **5,470** since 2001 in the EU-27.

Similarly ESC has helped to prevent some **7,200** car occupant deaths over the past decade and **2,500** since 2001[6].

Background

No specific studies have been carried out to identify the causes of the differences in safety levels of average new cars sold in different countries, but they are likely to follow from a combination of factors. These include differences in national market characteristics such as purchasing power, tax levels, availability of models, or cultural and mobility patterns.

Fig. 5 shows big differences between countries in consumers' preferences for particular car categories. Grouping of new cars into specific categories helps towards some understanding of the national market differences. More particularly, the proportion of Supermini vehicles among all new cars partly explains the relatively good occupant protection scores of Nordic countries and less good performance of some Central European countries. It also explains in reverse the bad pedestrian protection performance of cars sold in Nordic countries and the good performance for certain Eastern European countries.

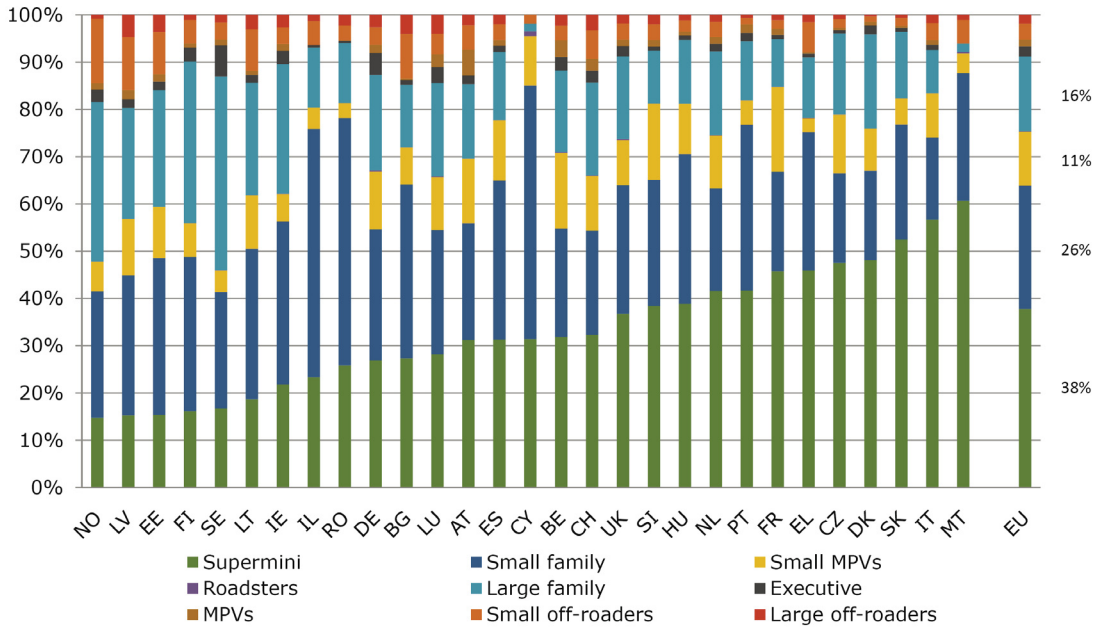


Fig. 5: The percentage share of vehicles according to Euro NCAP vehicle category among the new cars sold in 2008, in reverse order of the proportion of Superminis.

[4] Lie A. and Tingvall C. (2002), How Do Euro NCAP Results Correlate with Real-Life Injury Risks? A Paired Comparison Study of Car-to-Car Crashes in Traffic Injury Prevention, 3:288–293.
[5] Given their relatively higher usage rate but compensated by the lower accident risk of their users.
[6] PIN Flash 13 Methodological Note available at www.etsc.be/PIN-publications.php.

©ETSC 2009

Euro NCAP car classification categories

Euro NCAP uses ten passenger car categories[7]

- Superminis (subcompacts, city cars), e.g. Ford Fiesta
- Small family cars (compact cars), e.g. VW Golf
- Large family cars (mid-size cars, compact executive cars), e.g. Audi A4
- Executive cars (full-size cars), e.g. Mercedes E-class
- Roadsters sports (roadster), e.g. Audi TT
- Small off-roaders (mini-, compact Sport Utility Vehicle (SUV)), e.g. Toyota RAV4
- Large off-roaders (mid-, full- size SUV), e.g. Range Rover
- Small Multi Purpose Vehicles (MPVs) (compact minivans), e.g. Renault Scenic
- Large MPVs (minivans), e.g. Ford Galaxy
- Pick-ups (pick-up trucks), e.g. Nissan Navara (not included in the analysis of this Flash).

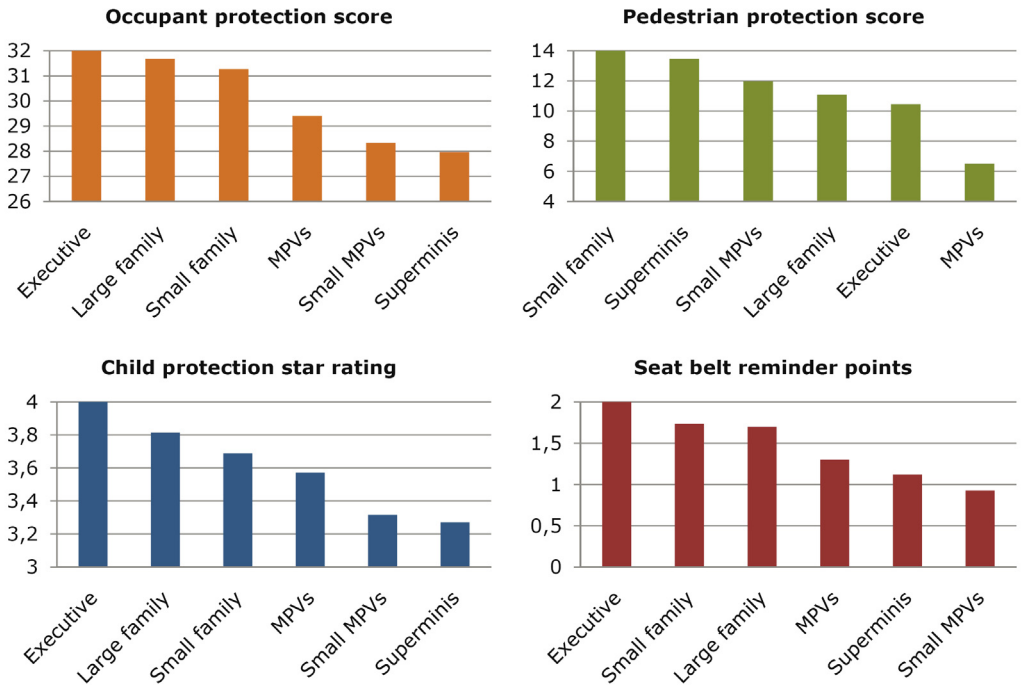


Fig. 6: Average EU-27 scores, stars or points for particular Euro NCAP car classification categories of vehicles sold in 2008 and tested under Euro NCAP "pre-2009 protocol".

The question of car crash compatibility

Euro NCAP's frontal impact test simulates a car crashing into another of similar mass and structure[8]. In real life, when two cars collide the heavier vehicle has an advantage over the lighter one. Moreover, generally speaking, vehicles with higher structures tend to fare better in accidents than those with lower structures but they are more dangerous to vulnerable road users. Ratings are comparable only between cars of similar mass and with broadly similar structures. Within each of those categories as mentioned above, cars which are within 150kg of one another are considered comparable.

[7] http://documents.vsect.chalmers.se/CPL/exjobb2007/ex2007-043.pdf
[8] http://www.euroncap.com/Content-Web-Page/0f3bec79-828b-4e0c-8030-9fa8314ff342/comparable-cars.aspx

©ETSC 2009

But the new cars represent only the tip of the iceberg. More than half of all registered vehicles are older than 7 years. The renewal rate is a possible measure of the rate at which the new vehicles affect the make up of the fleet (Fig.7). In 2007 it varied from around 10% in **Belgium**, **Ireland** and **Cyprus** to less than 2% in **Poland**, **Bulgaria** and **Latvia**. Renewal rates are lower in Central and Eastern European countries in part because of higher imports of second-hand cars from Western neighbours. Second hand cars are less safe because they are older and may pose additional hazards as they might have been involved in a crash. The car might have been improperly repaired or simply not restored to the original safety specification for cost reasons. For example, airbags might have deployed but not been replaced before the car was sold again.

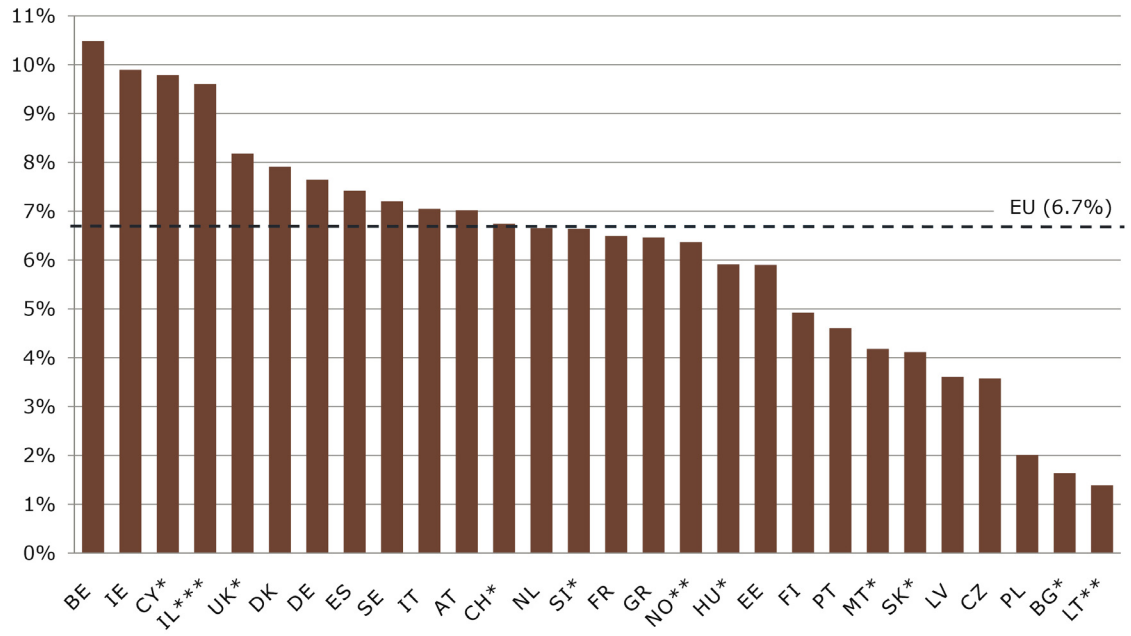


Fig. 7: Annual renewal rate of passenger cars in 2007 (percentage of new cars among all registered passenger cars).

*Source: ANFAC (Spanish Automobile Association) (2009), Total registrations: Report on motor vehicles in use in Europe 2007. Except for: * Estimation based on EUROSTAT data for 1994-2004, ** UNECE 2004 data, *** National data.*

According to the European car manufacturers association (ACEA), the average age of cars is 8 years in the EU-15 and up to 14 years in Central and Eastern European Countries (CEEC). It is however in the CEEC that safer cars could make the greatest difference. The situation in CEEC is particularly unfortunate as the older car fleet combined with the high proportion of imported second-hand cars is holding back an improvement in road safety.

"Statistics reported by our investigation teams show that the frequency of dying in cars increases dramatically with the age of the vehicle. The average age of cars in Finland is about 10 years. Older cars are overrepresented in road accidents, especially among young drivers. Governments need to provide incentives for consumers to purchase new cars with safety equipments."

Esa Räty, VALT, Finland

©ETSC 2009

6. What national governments can do

Even though vehicle standards are set at an international level, national governments can influence the consumer's choice of vehicle. They can provide incentives, for example in the form of tax breaks, to purchase safer cars. Governments can also play a role in promoting safety as a criterion for consumers to consider by running consumer awareness campaigns.

In Europe, a large proportion of new cars are purchased by non-private customers. All non-private customers, such as governmental bodies, local authorities and companies can play an important role by including specific requirements on minimum safety levels in their vehicle purchase and leasing policies. In doing so, public authorities and companies contribute to the market penetration of safer cars by supporting the demand for such cars and for safety technologies, which hopefully in turn will help lowering the price of safety technologies.

Governments should also set strict safety requirements for scrappage schemes.

Sweden takes the lead on occupant protection but fails to impress on pedestrian protection

As part of its travel policy, the Swedish Road Administration has set up strict requirements for cars used on official business. Requirements are regularly updated and will continue to be in order to raise the standards on energy efficiency, vehicle emissions and safety[9]. Cars rented for less than 6 months must meet specific requirements such as:

- Be awarded 5 stars for occupant protection by Euro NCAP
- Be equipped with Electronic Stability Control (ESC)
- Be equipped with a seatbelt reminder on the driver seat that meets Euro NCAP requirements

Cars rented for more than 6 months must also meet additional requirements such as:

- Be awarded at least 2 stars for pedestrian protection by Euro NCAP
- Be equipped with an alcohol ignition interlock
- Be equipped with an informative or supportive Intelligent Speed Assistance system

"We are working hard at SRA to increase the market penetration of safe cars. We are pleased to see the results of this long-term commitment with Sweden being the country with the highest proportion of cars awarded 5 stars for occupant protection. At the same time, we are worried about our situation regarding pedestrian protection. We hope that we can soon adopt an overall system that promotes the purchase of cars that are both environmentally-friendly and safe".

Anders Lie, Swedish Road Administration

Those requirements are also used by other public bodies and private companies. A brand new national law requires all government bodies to buy or rent only 5-star Euro NCAP cars for occupant protection ("government specification" as it is the case for environment standards). Rental companies, such as Hertz, Avis and Europcar, are upgrading their whole fleet to offer 'SRA recommended cars' to all their customers.

New Euro NCAP test results are promoted in press events in Stockholm by SRA leaders.

"What pleases me is Volvo's 2020 target, that no one will be killed or seriously injured by, or in, a Volvo by model year 2020. I see this as a societal shift that a private company has placed the life and health of its customers and those affected by the use of its cars as key. I am also really happy with the new ISO 39001 management standard for traffic safety, for those organisations that wish to eliminate health losses as a result of traffic accidents at work".

Claes Tingvall, Swedish Road Administration

"The application of SRA's strict environmental and safety criteria for their car fleet was a real challenge for Hertz, as its major car rental supplier. Today, more than 60% of our vehicle fleet consist of "green cars", all following 5-star occupant protection standards. In the near future, a part of the Hertz fleet will also be equipped with alcolocks".

Ylva Ekmark, Sales Director, Hertz Sweden

[9] http://www.vv.se/Andra-sprak/English-engelska/Facts-about-the-Swedish-Road-Administration-/Policy-documents/Travel-policy/.

©ETSC 2009

What role for insurance companies: the example of Folksam

Folksam is one of the largest insurance companies in Sweden and a driving force for road safety. Since 1984, Folksam published regular reports on "How safe is your car?". The latest one from November 2007 presents roadworthiness results of 172 car models as well as environmental rating[10]. To be listed as 'safe', cars should prove safe in Folksam's results from real-life accidents or have at least 5 stars Euro NCAP for occupant protection, approved whiplash protection and ESC.

The safety level of a car can make the crucial difference between life and death in the event of a crash. Today it is fortunately possible to find safe cars that also have a small environment impact. This applies to all size categories apart from SUVs".

Anders Kullgren, Folksam, Sweden

Towards intelligent all-round car taxation in the EU?

Taxation should reflect new climate change challenges and address road safety. At the moment this is unfortunately not the case, and schemes to promote the purchase of environmentally friendly cars might have unforeseen adverse impact on safety and vice-versa.

Denmark has one of the highest levels of car registration tax in Europe. However, safety equipments such as airbags and ABS are not subject to taxation. Vehicles with three and more airbags also receive a tax rebate. As a result, Denmark is one of the countries with the highest rate of new cars with double airbags. A tax deduction on Electronic Stability Control (ESC) was also introduced in 2003. The percentage of new cars equipped with ESC rose from 30% in 2003 to 90% in 2008. Denmark is the country in Europe with the highest proportion of cars fitted with ESC as standard[11].

"I am convinced that the Danish tax system has played a strong role in influencing consumers to purchase cars equipped with safety technologies".

Jesper Solund, Danish Road Safety Council

The power of consumer organisations: the example of the "Citizen car"

The French League Against Road Violence (LCVR) and the French magazine called "60 millions of consumers" regularly publish rankings of cars sold on the French market according to their 'citizenship' based on four criteria:

- Protection of car occupants (based on Euro NCAP test results for occupant protection)
- Protection of vulnerable road users outside the vehicle (based on Euro NCAP test results for pedestrian protection)
- Protection of occupants in other cars (based on the level of "aggressiveness" of the vehicle characterised by its mass and maximum speed)
- Respect for the environment (based on the average CO2 emissions in urban area)

"Our goal is to help car buyers make a responsible choice. Cars buyers and users must demand vehicles that protect both themselves and others. Their safety must not come at the expense of that of others or the protection of the planet. We want to bring about a change in the current cars offered on the market through demand for more community-friendly cars."

Chantal Perrichon, League Against Road Violence, France

www.voiturecitoyenne.fr

7. What the EU is doing and could do

To build on the EU's reputation as the home of the safest vehicles now and in the future, the EU has a crucial role to play by raising EU common minimum standards and prioritise proven life-saving technologies. All cars produced in the EU or imported to the EU have first to meet EU common minimum standards laid down by EU type approval regulations. Those regulations cover general safety of vehicles, nameplates, availability of seat belts and heard restraints, tyres, pedestrian protection, side and frontal impact protection, Daytime Running Light (DRL) amongst others[12].

(10) Folksam (Nov. 2007), How safe is your car?, http://www.folksam.se/english/reports.
(11) Euro NCAP ESC Fitment Rating: http://www.euroncap.com/esc.aspx.
(12) http://ec.europa.eu/enterprise/automotive/index_en.htm.

©ETSC 2009

Proposal for a regulation on type-vehicle approval

The European Union is currently negotiating a new regulation on type-approval requirements for the general safety of motor vehicles[13]. The proposal is addressing the recommendations of the CARS21 High-Level Group[14]. If adopted, all new cars will have to be equipped with Electronic Stability Control (ESC) systems by 2014. The introduction of ESC is estimated to save around 2,000-2,500 lives per year. The proposal also sets a minimum standard on wet grip of tyres and the introduction of tyre-pressure monitoring systems. It is also hoped that the proposal will ensure that priority is given to the other technologies and systems that bring about the greatest life saving potential, namely seat belt reminders, alcolocks and speed management systems.

New regulation on pedestrian protection

This brand new regulation lays down type approval requirements with respect to the protection of pedestrians and other vulnerable road users. It provides for the mandatory installation of Brake Assist Systems on new vehicles in an attempt to compensate for the relaxation of certain parameters on passive safety performance tests[15].

Towards Intelligent Transport Systems

The European Commission has recently published a proposal for an Action Plan and accompanying Directive on the deployment of Intelligent Transport Systems. As in the case of the vehicle safety regulation, SBR, alcolocks and speed management devices should be fast-tracked for deployment[16].

The European vehicle industry faces a time of crisis. Beating off the international competition will be a challenge but developing its safety credentials and profiling itself as the producers of the world's safest vehicles can play a crucial role.

ETSC recommendations

To national authorities and the EU:

- Revise legislation on advertisement of cars requiring inclusion of CO2 emission level to require also the inclusion of the Euro NCAP test results when they are available ("Stars on cars!").
- Regularly monitor developments in passive and active safety technologies for market penetration and/or eventual legislation.
- Fund accident studies to compare the injuries posed by car models with good and bad bonnet leading edges identified in Euro NCAP tests.
- Adopt the ITS Directive promoting technologies and systems that bring about the greatest life saving potential.
- Ensure that robust in-vehicle safety technologies are mandated in new legislation (as it is the case for ESC). This would prevent that such safety technologies are sold as standard in one EU country and not as an option in another.
- Set strict safety requirements (5 star Euro NCAP cars) for the purchase of new cars under scrappage schemes.
- Provide tax incentives for safe cars (5 star Euro NCAP cars).

To Euro NCAP:

- Extend its membership to countries and organisations from Central and Eastern Europe (CEE) to raise awareness among CEEC customers.
- Mobilise media, Euro NCAP member organisations, fleet buyers, rental car companies, insurers and consumer groups to reach out to more consumers in an attempt to close the vehicle safety gap between EU countries.

(13) http://ec.europa.eu/enterprise/automotive/safety/new_package.htm.
(14) http://ec.europa.eu/enterprise/automotive/pagesbackground/competitiveness/cars21.htm.
(15) Regulation (EC) No 78/2009 of 14 January 2009, Ref.: OJ L 035, 04.02.2009.
(16) http://ec.europa.eu/transport/its/road/action_plan_en.htm.

©ETSC 2009

The Euro NCAP experience

The European New Car Assessment Programme (Euro NCAP) has been the main driver in encouraging consumers in Europe to buy safe cars. ETSC has talked with Michiel Van Ratingen, Euro NCAP Secretary General, about the new Euro NCAP 2009 protocol. This represents nothing less than a revolution for many.

ETSC: How did Euro NCAP start?

Euro NCAP was originally developed by the Transport Research Laboratory for the UK Department of Transport. Current members include the Catalonian region of Spain, France, Germany, the Netherlands, Sweden and the UK. Consumer groups in Europe are represented by International Consumer Research and Testing. Motoring Clubs are represented by members of the FIA Foundation and ADAC, the major German Automobile Club. British Insurers are represented by Thatcham. The European Commission is an observing member of Euro NCAP's board and provides additional support. We encourage other countries and organisations to join.

"The Euro NCAP has become a world reference for vehicle safety, and is on the move to pick up more aspects of integrated safety. Euro NCAP has demonstrated that the market is reacting strongly to information about safety and the supply from the car manufacturers, in a fashion that can never be achieved by regulation. On the other hand, regulation needs to keep up with the fast improvement created by the marketplace in order to make sure that no one falls behind."

Claes Tingvall, SRA, Euro NCAP Chairman

ETSC: Who are you reaching out to with Euro NCAP?

Since 1997 the Euro NCAP has provided consumers with a realistic and independent assessment of the safety performance of some of the most popular cars sold in Europe. It has also provided an incentive to manufacturers to improve passive safety of cars. We work in close cooperation with the media, Euro NCAP member organisations, fleet buyers, rental car companies and insurers to reach out to consumers.

ETSC: What do you think about the different rankings? Were you surprised by the position of some countries?

This is a unique set of data that clearly highlights the extent of the difference between EU countries. The data are encouraging for some, yet disappointing for others. Overall, it however demonstrates that the mission for safer cars has not run its course on all aspects, not even for the best amongst the countries

ETSC: We can see big differences in the safety level of new cars sold in Western countries and in CEEC. What can you do to encourage consumers in CEEC to buy safer cars? What can other actors do?

In 2007 Euro NCAP has changed its car selection process, from best selling variant to "lowest safety specification", a stepwise process that will take until 2012. By doing this, the rating given to the cars will better reflect the variants mostly on sale in CEEC. We hope that by following this course we will promote standard fitment of safety equipment across the EU 27 and address the differences observed in safety levels. We would also encourage new members specially from this region to support our mission.

ETSC: What can governments do to promote the purchase of safer cars?

Governments could run awareness campaigns informing European consumers of the benefits of buying safer cars for their family and for vulnerable road users. Governments should also provide incentives to consumers to purchase 5-star Euro NCAP cars. When choosing a new car, consumers should have in mind that their decision about which model to choose can make the crucial difference between life and death in the event of a crash.

©ETSC 2009

Like in the case of Sweden, government bodies could set the example and adopt strict requirements for cars used on official business. They could for instance only buy or rent 5-star Euro NCAP cars to ensure safety for their employees and support the market for safety.

ETSC: What will the Euro NCAP new 2009 rating system bring to safety?

Until 2009, Euro NCAP made three separate ratings available for each vehicle. From now on, Euro NCAP will publish a new overall rating for every vehicle that will cover Adult Occupant Protection, Child Occupant Protection, Pedestrian Protection and a new area of assessment: Safety Assist.

Under the new testing regime, vehicles are awarded a single overall score from one to five stars. This will make it easier for car buyers to chose the 'stand-out' safest vehicles. Car buyers interested in a particular area of assessment such as adult protection or child protection will still be able to compare different vehicles as the individual scores that make up the overall rating will also be available on Euro NCAP's website.

The assessment incorporates all previous aspects and includes the recently introduced Rear Impact (Whiplash) tests. In addition, the availability of ESC and speed limitation devices is considered. The overall rating is based on the car's performance in each of the four main areas and the scores are weighted with respect to each other. Over the next three years, stricter requirements will be introduced increasing the emphasis on all-round safety performance and demanding higher levels of achievement in each area.

Of the six cars tested until February 2009 under the new 2009 Protocol, four achieved Euro NCAP's maximum award of 5 stars: the Mazda 6, Mitsubishi Lancer, Toyota Avensis and Toyota iQ. The Citroen C3 Picasso and the Subaru Impreza were awarded four stars. Following Euro NCAP's assessment, Mitsubishi and Subaru both committed to changing their ESC fitment policies for the Lancer and Impreza, as variants without optional ESC were offered in some countries.

> ESC, which is the most significant life-saving technology since the introduction of the seat belt, will make the crucial difference between 4 and 5 stars. It will be impossible for a carmaker to achieve 5 stars without the standard fitment of ESC in the majority of variants sold.

Toyota with the Avensis and iQ demonstrated that car size does not stand in the way of all-round safety. The Citroen C3 Picasso is the first of the tested cars that received points for its on-board speed limitation device.

Still, the test results clearly reveal potential for improvement. Most cars tested showed a weak performance in the side impact pole test. Furthermore, all cars tested, except the Subaru Impreza, still failed to impress on pedestrian protection.

We acknowledge that this new rating scheme is more challenging in some areas, but it does offer lead time to manufacturers in others. We call this 'smart pressure'. Euro NCAP is well aware that in times of economic crisis priorities are affected. But we want to make sure that safety remains a top priority.

> We will continue to set benchmarks higher and reward those manufacturers who make safety their ultimate goal.



Michiel van Ratingen is a Mechanical Engineer with extensive experience in the field of vehicle safety. He worked at TNO, as head of Automotive Safety, and later at First Technology Safety Systems. Since October 2007, Michiel is Euro NCAP Secretary General.

©ETSC 2009

European Transport Safety Council

PIN Panel

Austria (AT)	Klaus Machata, Road Safety Board (KfV)
Belgium (BE)	Patric Derweduwen, Belgian Road Safety institute (IBSR/ BIVV)
Bulgaria (BG)	Valentin Pantchev, Ministry of Transport
Cyprus (CY)	George Morfakis, Ministry of Com munication
Czech R. (CZ)	Fric Jindrich, Transport Research Centre (CDV)
Denmark (DK)	Jesper Solund, Danish Road Safety Council
Estonia (EE)	Dago Antov, Stratum Consultancy
Finland (FI)	Esa Raty, Finnish Motor Insurers' Centre (VALT)
France (FR)	Jean Chapelon, National Intermin isterial Road Safety Observatory
Germany (DE)	Jacqueline Lacroix, German Road Safety Council (DVR)
Greece (EL)	George Yannis, Technical University of Athens
Hungary (HU)	Peter Holló, Institute for Transport Sciences (KTI)
Ireland (IE)	Michael Rowland, Road Safety Au thority
Israel (IL)	Shalom Hakkert, Technion
Italy (IT)	Luciana Iorio, Pietro Marturano, Ministry of Transport
Latvia (LV)	Aldis Lama, Ministry of Transport
Lithuania (LT)	Vidmantas Pumputis, Ministry of Transport
Luxembourg (LU)	Guy Heintz, Ministry of Transport
Malta (MT)	Maria Attard,
Netherlands (NL)	Peter M. Mak, Transport Research Centre
Norway (NO)	Rune Elvik, Institute of Transport Economics (TOI)
Poland (PL)	Ilona Buttler, Motor Transport Institute (ITS)
Portugal (PT)	Joao Cardoso, National Laboratory of Civil Engineering (LNEC)
Romania (RO)	Cristian Constantinescu, Road Au thority
Slovakia (SK)	Stefan Pristas, Ministry of Transport
Slovenia (SI)	Tomaz Pavcic, Ministry of Transport
Spain (ES)	Pilar Zori, Ministry of Interior
Sweden (SE)	Anna Vadeby, National Road and Transport Research Institute (VTI)
Switzerland (CH)	Stefan Siegrist, Swiss Council for Accident Prevention (bfu)
U.K. (UK)	Lucy Rackliff, Loughborough Uni versity

PIN Steering Group

Richard Allsop, ETSC Board of Directors (Chairman)
Asa Ersson, Swedish Road Administration (SRA)
Astrid Linder, National Road and Transport Research Institute (VTI)
Maria-Teresa Sanz-Villegas, European Commission
Stephen Stacey, Toyota Motor Europe
Henk Stipdonk, Dutch Road Safety Research Institute (SWOV)
Pete Thomas, Loughborough University
Antonio Avenoso, ETSC

PIN Secretariat

Graziella Jost
PIN Programme Manager
graziella.jost@etsc.be

Marco Popolizio
PIN Programme Officer
marco.popolizio@etsc.be

Vojtech Eksler
PIN Programme Analyst
vojtech.eksler@etsc.be

For more information about ETSC's activities, and membership, please contact
ETSC
Avenue des Celtes 20
B-1040 Brussels
Tel. + 32 2 230 4106
Fax. +32 2 230 4215
E-mail: information@etsc.be
Internet: www.etsc.be

ETSC is grateful for the financial support provided for the Road Safety Performance Index (PIN) by Toyota Motor Europe and the Swedish Road Administration.

The contents of this publication are the sole responsibility of ETSC and do not necessarily reflect the views of sponsors or the organisations to which the PIN Panel and Steering Group members belong.

© ETSC 2009