Study on the regulatory situation in the member states regarding brought-in (i.e. nomadic) devices and their use in vehicles

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Final Report

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Executive Summary

This report presents the overall results of a study on the regulatory situation in the Member States on mounting and using nomadic devices in motor vehicles. Nomadic devices comprise all portable electronic devices for information, entertainment, or communication that can be used outside of the vehicle and inside the vehicle by the driver whilst driving. Deriving from this context, the objectives of the study are to

- provide an overview of the regulatory and legislative situation in each EU member state;
- identify similarities and differences in regulatory frameworks applied in countries across Europe and group them into clusters (cluster analysis);
- estimate the safety effects of the use of nomadic devices and related legislation on road safety for particular Member States.

Following a definition and classification of nomadic devices as well as an introduction to regulatory options and rule compliance with regards to nomadic device related legislation, the study has been using two surveys as main working tools to enable a standardised procedure for data collection. The first survey has been focussing on gathering information on the regulatory and legislative situation in the 27 EU Member States (plus Iceland and Switzerland) looking at four different kinds of nomadic devices (Mobile phones, Personal Navigation Devices, music players, and TV/video players). The second survey - which has been conducted after the first and builds on its findings - has been investigating the safety impacts of nomadic device related legislation and the devices itself.

With regards to the regulatory and legislative situation in the 27 EU Member States and Switzerland and Iceland, the study shows that a diversity in the countries' legislative approaches exist. Concerning the scope of legislation (i.e. what devices are covered by legislation), the study revealed that almost all countries have a mix of both specific legislation (i.e. articles explicitly name a nomadic device, e.g. mobile phone) and general legislation in place (e.g. articles address the use of a nomadic device through the broader issue of e.g. driver distraction or dangerous driving, etc.). The most homogenous legislative approach are specific regulations addressing mobile phones: all countries except Sweden

have adopted specific regulations on mobile phones. With regards to Personal Navigation Devices (PNDs), music players and TV/video players, the picture is rather inhomogeneous: Some countries address the use of these devices through both specific and/or general regulations; however, in other countries there is no legislation applicable to the use of any devices other than mobile phones. 16 out of the countries address the use of PNDs, 13 states have articles in place that concern the use of music players, and 15 countries have legislation adopted that can be applicable to TV/video player use.

Also concerning the level of detail of applicable regulations (i.e. to what extent the use of a certain device is restricted), the results indicate that the picture in the countries is rather variable. Although all countries (except Sweden) require the use of hands-free equipment for mobile phone use when driving, some countries simply require a headset or wireless equipment (e.g. Bluetooth) while others additionally require the driver to fix the phone in a mounting. With regards to PND use, in some countries legislation concerns manual interaction of the driver with the device whilst driving; while in others the location and/or the way of mounting PNDs is addressed. Concerning music player use, legislation addresses in most countries the use of headphones whilst driving, however, in some cases both the use of headphones and manual interaction with the device is affected, whereas some countries only address manual interaction with the device when driving. With regards to TV/video players, the legislation concerns in most cases both manual interaction with TV/video players and watching TV/video whilst driving, however, in some countries either manual handling or watching is addressed.

Moreover, with regards to the sanction levels for nomadic device related traffic offences, the situation in the countries is also rather variable. Comparing monetary sanctions for a mobile phone offence, fine levels vary between 11 EUR in Lithuania to 200 EUR in Spain. Divided into three fine level groups (≤ 40 EUR, 41-80 EUR, > 80 EUR), 11 countries cover the first group with fines up to 40 EUR (Group 1). Nine countries comprise the group with fine levels between 41 and up to 80 EUR (Group 2), and eight countries have fine levels above 80 EUR (Group 3).

Finally, five clusters of countries with similar conditions in regulatory situations have been identified, taking into account the scope of legislation, the levels of detail and the sanction

levels. Out of each cluster group, one country has been chosen for the second survey to assess if and how drivers use nomadic devices whilst driving and how those interactions impact on their driving. Relating the results back to the regulations in place in the specific country enhances our knowledge as to the impact of that regulation, at least in terms of driver's perception and self-reported behaviour.

The second survey then aimed to establish how drivers interact with their Nomadic Devices, in terms of how often they use them whilst driving, how often they undertake some predefined high-risk behaviours and the effect of these on their driving behaviour. Alongside this, we were also interested in how drivers perceive the distraction caused by Nomadic Devices, their knowledge of national legislation and their perception of the likelihood of this legislation being enforced.

Mobile phones were by far the most commonly owned Nomadic Device, but the majority of drivers report that they never, or only rarely, use their phones while driving. Drivers believed mobile phones to be the most distracting Nomadic Device and that they were more likely to stopped for mobile phone offences. In general, drivers were knowledgeable about the legislation surrounding mobile phones and this is probably owing to high-profile safety campaigns. Higher mileage, younger drivers were more likely to text while driving and legislation has little impact, with drivers in the mostly highly regulated country texting as frequently as those in countries with no legislation.

Amongst those who owned PNDs, around 20% of drivers used them often and in terms of engaging in the higher risk activity (entering or changing destinations), a significant proportion of drivers admitted to doing this at least sometimes. Legislation regarding PNDs was relatively poorly understood by drivers, likely to be partly due to the fact that there were more items asking about PNDs than for other Nomadic Devices, reflecting the complexity of legislation (it covers mounting, position and additional functions). Higher mileage male drivers were more likely to own and use PNDs while driving, and those in the age group 25-34 were the mostly likely to engage in the high risk behaviour of entering or changing destinations. Country of residence impacts on drivers' propensity to engage in high-risk behaviour, but it seems that this does not correspond to the stringency of the

legislation, with drivers in the most and least stringent countries undertaking similar amounts.

Younger drivers were also more likely to own music players than their older counterparts, but the modelling was unable to identify which drivers used them while driving. It was possible, however, to demonstrate that the younger drivers were more likely to change their music selection while driving, and that drivers were willing to flout the legislation regarding music players, even in the highest regulated countries.

TV/DVD players were the least popular Nomadic Device, and were predominantly owned by those in the 35-49 age bracket. Most drivers do not admit to having the screen visible while driving, with those drivers who believe this to be most distracting being least likely to undertake it.

In summary the second survey is able to demonstrate that Nomadic Devices are owned by particular subgroups of drivers, who differentially engage in high-risk behaviours, exposing themselves and others to risk. Of particular interest there is a core of drivers who appear to be not only engaging in the higher-risk behaviours, such as texting while driving, who are young, or high-mileage. These drivers also admit to lower scores on the dimension of self-reported safety, such that they are also report travelling at short headways, poor overtaking and exceeding the speed limit. These drivers also report high levels of skill, which could be interpreted as over-confidence, particularly in young drivers.

Legislation appears to have little influence on driver's propensity to engage in high-risk behaviour. For example, drivers residing in countries with more stringent, specific legislation for PNDs and music players were more likely to engage in illegal interactions. The only exception was for texting while driving, and this may be due to the fact that mobile phone legislation is the most publicised and understood across the member states.

1 Introduction

Background

The consortium of IGES, University of Leeds and ETSC has been commissioned by the European Commission (DG INFSO) to carry out a study on the regulatory situation in the member states on mounting and using nomadic devices in motor vehicles. This Final Report provides an overview of the results achieved by the consortium.

Study purpose and objectives

The importance of a safe human machine interface (HMI) for in-vehicle information and communication systems has been stressed many times by the European Commission (EC). In May 2008, the EC adopted a Recommendation on safe and efficient in-vehicle information and communication systems. This revised “European Statement of Principles” (ESoP) on human-machine interface provides baseline requirements for the implementation of interactions between drivers and their vehicles. However, since the ESoP mainly focuses on originally fitted devices and does not sufficiently take into account interactions with nomadic devices, there have been ongoing discussions on whether an update of the ESoP would be appropriate and necessary. In addition, the Commission Communication on an "Action Plan for the Deployment of Intelligent Transport Systems in Europe" recommends the development of a regulatory framework on safe on-board human machine interfaces and the integration of nomadic devices, building on the ESoP.

In order to enable the European Commission to assess regulatory options and eventually propose such regulatory or supplementing action, it is crucial to first obtain knowledge on the current regulatory and legislative situation in the EU member states regarding mounting and use of nomadic devices in vehicles. Moreover, a sound and science-based understanding of the impact of nomadic devices and related regulations on road safety is needed.

Deriving from this context, the objectives of the study are to:

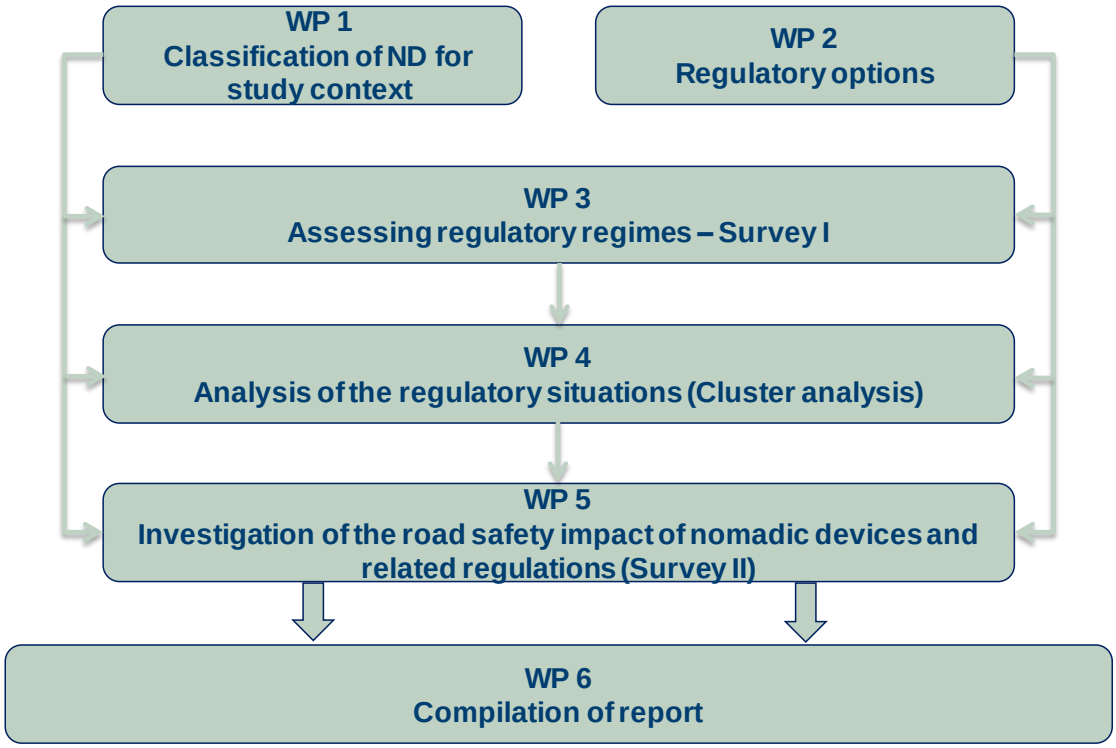
- provide an overview of the regulatory and legislative situation in the EU member states regarding mounting and using nomadic devices in vehicles;
- identify similarities and differences in regulatory frameworks applied in countries across Europe and group them into clusters (cluster analysis);

- estimate the safety effects of the use of nomadic devices and related legislation on road safety for particular member states.

Task description

Translated into concrete tasks, the study has been organised into different work packages (WPs), which build upon each other in a logical sequence to meet the above mentioned key objectives of the study. WPs 1 to 5 form the analytical basis for the compilation of the report in WP 6. Figure 1 shows the sequence of the different WPs:

Figure 1: Work packages of the study



2 Nomadic devices

2.1 Definition and classification

Following the eSafety human-machine interaction working group, nomadic devices can be defined as follows (eSafety Forum, 2005):

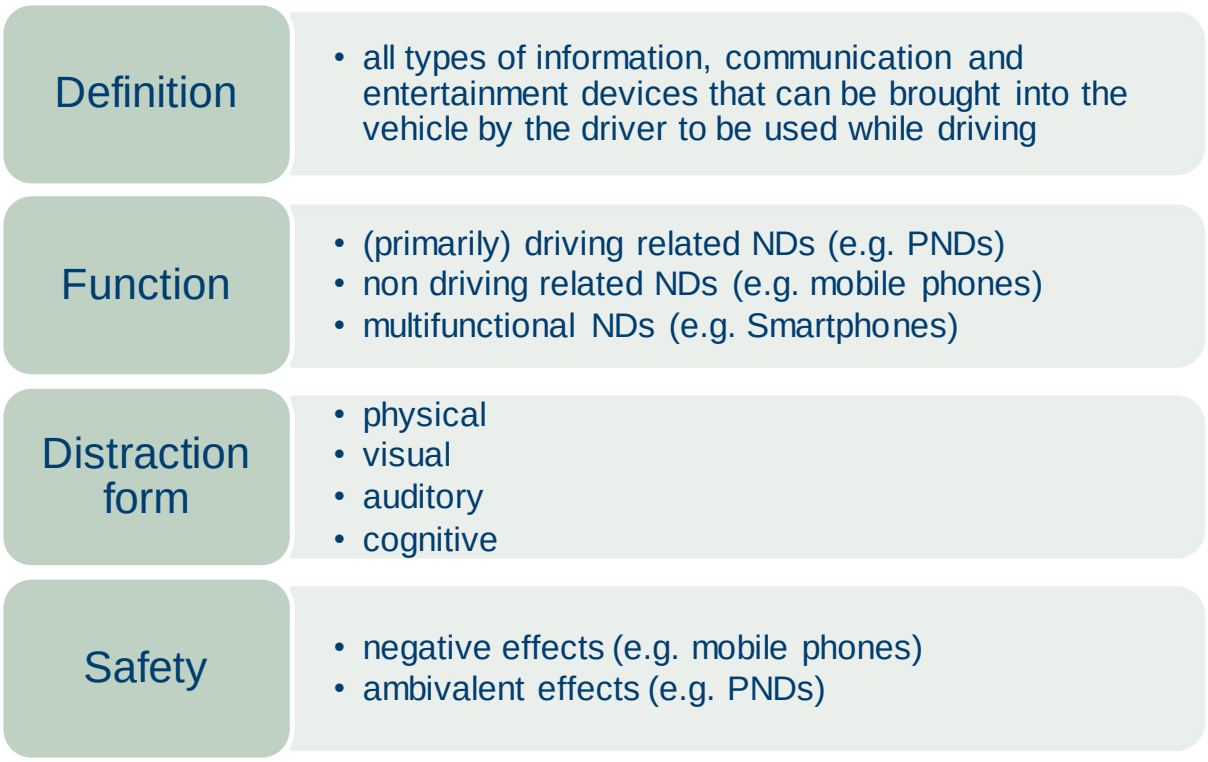
> *"A nomadic device is a device for information including entertainment, and/or communication that can be used outside of the vehicle and inside the vehicle by the driver while driving. It is not supplied or installed by the vehicle manufacturer."*

According to this definition, nomadic devices cover a wide range of electronic devices. Hence, current examples of nomadic devices include the following major categories:

- Mobile phones;
- Smart phones;
- Portable music players;
- Personal navigation devices (PND);
- Personal digital assistant (PDA);
- Portable TVs and DVD players;
- Laptop computers;
- Portable gaming devices.

Given the large range of different nomadic devices on the market and the growing diversity of functions, it seems advisable to first provide a classification of nomadic devices according to their main characteristics. The classification used for this study builds on findings from the German Federal Highway Research Institute (BASt) and Technical University Chemnitz within the HUMANIST project (BASt, 2006) but is complemented by other specifics. Figure 2 illustrates the nomadic device classification for the purposes of this study.

Figure 2: Classification of nomadic devices



According to BASt, nomadic devices can be categorised according to three particular factors: Functionality, Interface and Hardware. Six classes of nomadic devices can be distinguished:

- Personal Digital Assistants (PDAs) offer a variety of applications such as navigation, office software, calendars and internet functions. They usually have a larger display and are manipulated via touch screen. However, today the vast majority of all PDAs are Smartphones;
- PDA phones are comparable to PDAs but also offer mobile phone functions. Some devices are manipulated via QWERTY keyboards;
- Smartphones offer similar applications as PDAs combined with a mobile phone function. These devices are most commonly manipulated via touch screen, via QWERTY keyboard layout or via function keys. Display sizes may vary, offering rather large displays (e.g. iPhone) or rather smaller ones (e.g. Blackberry, Nokia E71). Email capability is a standard feature of these devices;
- Mobile phones usually offer a rather limited range of applications compared to Smartphones. They are most commonly manipulated via "thumb keyboards" or keyboards with a reduced number of keys (multiple keyboard configuration);
- Personal navigation devices (PNDs) are portable electronic devices that combine a positioning capability (such as GPS) and navigation functions. Some PNDs also offer

certain PDA or multimedia functions. Display sizes are relatively large and the devices are usually manipulated via touch screen;

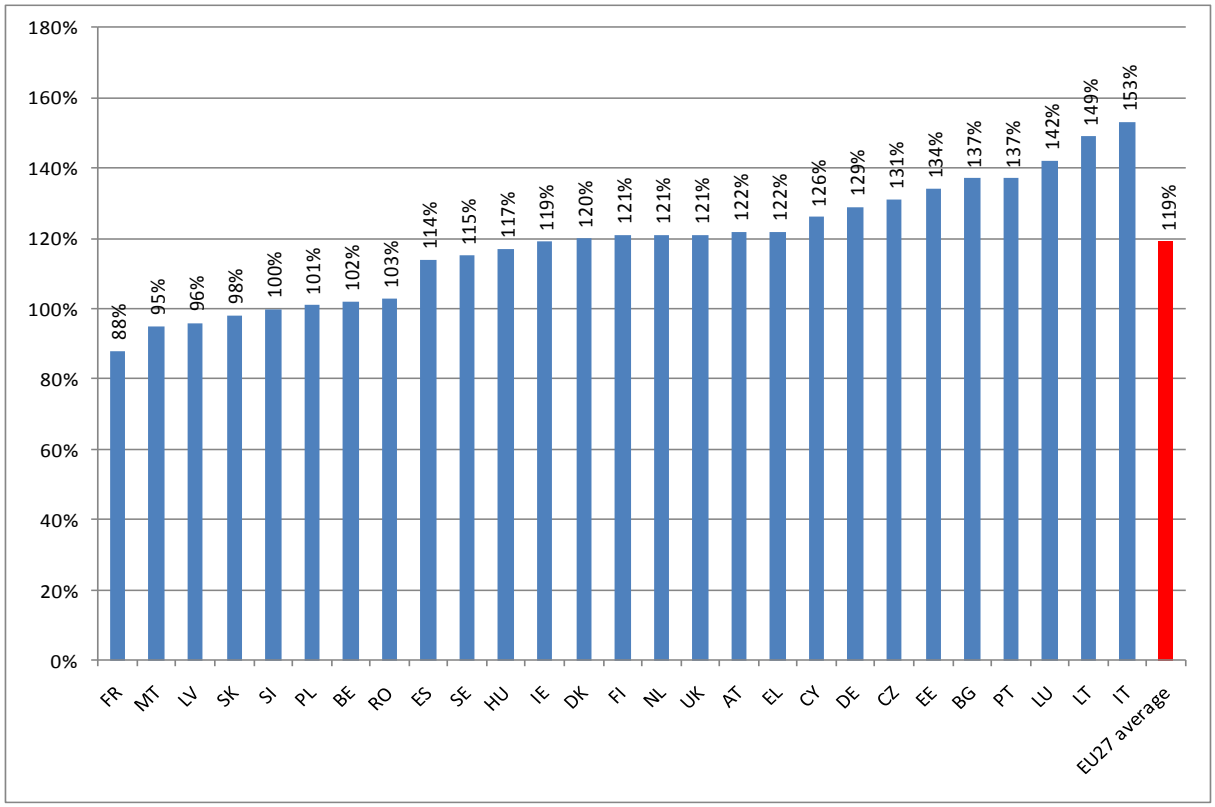
- Multimedia devices (e.g. as MP3 players, DVD and CD players) comprise products that allow to present music, videos or pictures. The HMI of these devices can vary considerably; some devices are manipulated via touch screen, others via keyboard or keyboards with a reduced number of keys (multiple keyboard configuration).

When looking at these classes it should however be noted that there is a smooth transition between categories. Particularly with the ongoing development of (multifunctional) nomadic devices it becomes difficult to clearly distinguish between categories.

Use of Nomadic Devices

With technological improvements and decreasing prices, nomadic devices have become increasingly popular in vehicles across Europe, offering a diversity of functions to the user, which were not specifically designed for use while driving (Humanist, 2009). Mobile phones are the most ubiquitous nomadic devices and are often used when driving (AIDE, 2008). In 2008, 119% of EU population subscribed to mobile phone services (EC, 2009a). Figure 3 shows the mobile phone penetration in the EU member states.

Figure 3: Mobile phone penetration per EU member state



As of October 2008. Source: EC, 2009a

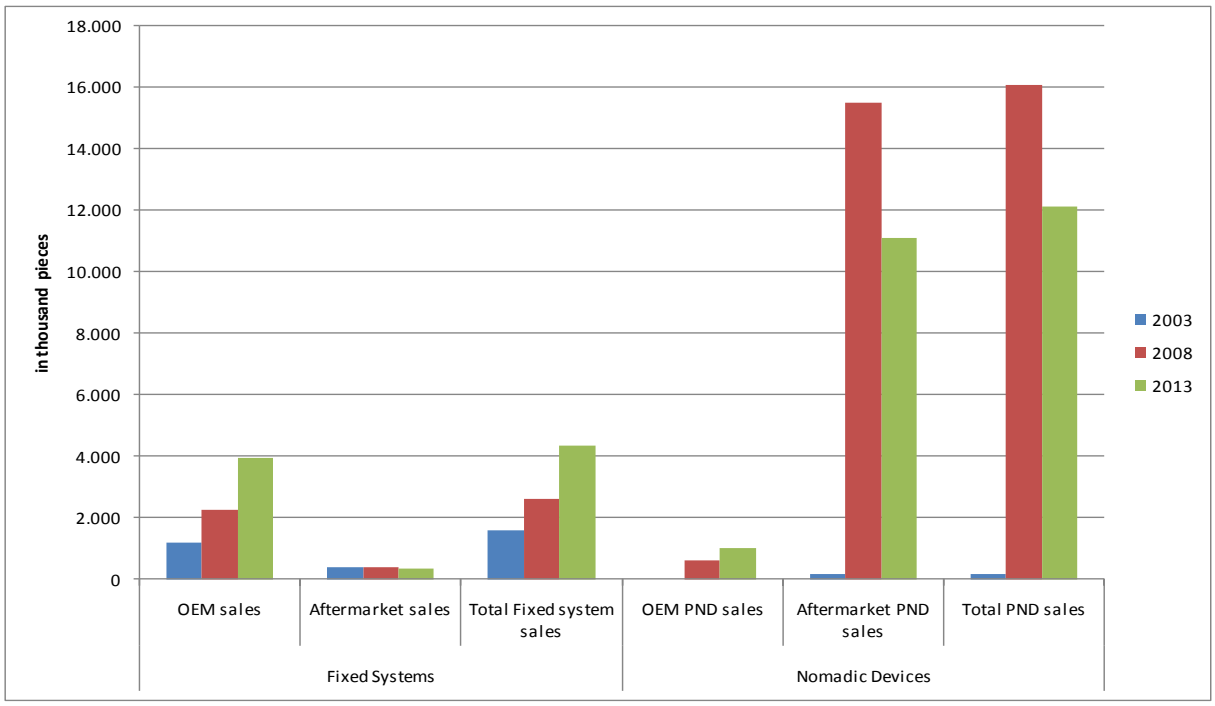
Although data about the precise number of mobile phone subscribers does exist, data regarding the number of drivers using their mobile phone while driving are not so precise (Dragutinovic & Twisk, 2005). However, there are three major sources for estimating these numbers, although it should be noted that each of these sources has certain limitations (ibid.):

- Self-reports about the use of mobile phones while driving
- Observational studies
- Police accident records

A substantial proportion of drivers report occasional use of mobile phones while driving. The vast majority of drivers (60 to 70%) report using their mobile phones when driving at least occasionally (Dragutinovic & Twisk, 2005). Also according to the SARTRE 3 study, in 2004 on European average 28 % of drivers use their mobile phone at least once per day when driving (SARTRE, 2004). More detailed results from observational studies and surveys on the mobile phone use whilst driving in selected EU states can be found in Chapter 4.2.5.

Moreover, PNDs are increasingly used while travelling. Already at present, PNDs and Smartphones are present in nearly every second vehicle (FESTA, 2008). In Europe, navigation sales showed a growth from 1.76 million sets in 2003 to 18.7 million sets in 2008 (eSafety Forum, 2009a). Figure 4 gives an overview on both fixed and nomadic devices navigation systems sales rates. Concerning nomadic device systems, it can be seen that particularly the aftermarket PND sales have seen an rapid growth between 2003 and 2008.

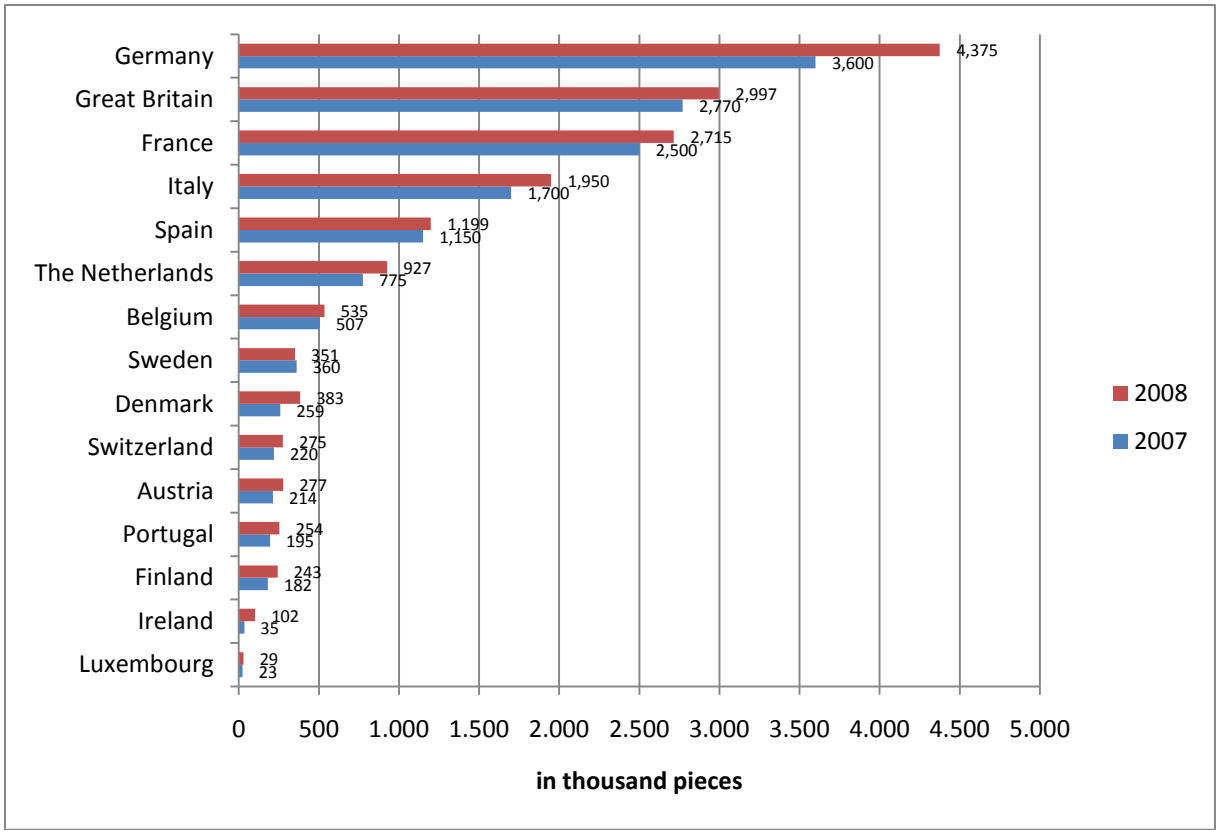
Figure 4: Fixed and Nomadic Devices Navigation System Sales



Source: eSafety Forum, 2009a

Figure 5 shows sales figures for different Western European countries for the years 2007-2008. While in 2007 14.5 million units of PNDs were sold in Western Europe, this number increased to 16.6 million units in 2008, a 15% year-to-year increase in sales.

Figure 5: Sales figures of PNDs for Western Europe



Source: eSafety Forum, 2009a

Furthermore, sales of personal music players have soared in recent years, in particular those of MP3 players. In the past years, estimated units sales ranged between 184-246 million for all portable audio devices and ranged between 124-165 million for MP3 players (EC, 2009b). Overall, in the EU, it is estimated that roughly 50 to 100 million people may be listening to portable music players on a daily basis (EC, 2009b). According to a survey recently done in the UK, 20% of drivers aged 17-24 reported that they would drive while listening to music through headphones (RAC, 2009). By September 2008, the most sold brand of a MP3 player is Apple's iPod (BRSI, 2009). According to Lee (2008), as of 2007, approximately 70% of all new cars will include the capability to connect to portable MP3 players (e.g. iPods).

Finally, audiovisual entertainment systems, such portable TV and video players, have recently emerged as one of the most popular new in-vehicle devices, either as fixed or nomadic systems (Bayly, Young & Regan, 2008). For instance in the US, rear seat TV/DVD systems are one of the best selling in-car devices on the market (RSC, 2006).

2.2 Nomadic devices and driver distraction

Types of distraction

In contrast to some originally fitted devices (e.g. In-Vehicle Information Systems), retrofitted nomadic devices are often not designed for use in vehicles due to e.g. small sizes of keyboard and displays (Gil-Castineira et al , 2009). The use of these devices while driving may increase driver distraction due to the additional workload to the (primary) driving task (e.g. Santos et al., 2005; Merat et al., 2005; Jamson & Merat, 2005). Drivers can be distracted by the use of nomadic devices while driving in several ways (Young et al, 2003; Breen, 2009):

- Physical distraction: The driver has to use one or both hands to manipulate the device (e.g. dialling a number on the mobile phone) instead of concentrating on the physical tasks required for driving (e.g. steering, changing gear, etc.);
- Visual distraction: There are three different forms of visual distraction. The first form occurs when the driver's visual field is blocked by objects (e.g. a PND mounted on the windscreen) that prevent him/her from detecting or recognising objects on the road. The second type of visual distraction is caused by the amount of time that the driver's eyes are on the nomadic device and off the road (e.g. looking at the PND display). The third type involves a loss of visual "attentiveness", often referred to as "looking at the road but failing to see". This interferes with the driver's ability to recognise hazards in the road environment;
- Auditory Distraction: This form of distraction occurs when drivers momentarily or continually focus their attention on sounds or auditory signals rather than on the road environment. This can occur when the driver listens to e.g. the radio or when holding a conversation with a passenger, but is most pronounced when using a mobile phone;
- Cognitive distraction: This form of distraction involves lapses in attention and judgment. It occurs when two mental tasks are performed at the same time. Cognitive distraction includes any thoughts that absorb the driver's attention where they are unable to navigate through the road network safely and their reaction time is reduced. Talking on a mobile phone while driving is one of the most well documented examples of cognitive distraction; however it can also occur when trying to manipulate nomadic devices (e.g. operating a PND) or when paying attention to information conveyed by the devices.

Potential safety effects

There is by now a very large literature on the negative safety consequences of driver distraction with much of the literature being focussed on the safety implications of mobile phone use. In a frequently-cited study, Redelmeier and Tibshirani (1997) used a case-crossover design to estimate the effect of mobile phone use on the risk of being involved in a substantial property-damage-only crash. Phone use by 699 drivers involved in such crashes within 10 minutes of the crash was compared a control period in the past. The conclusion was that phone use was associated with a fourfold increase in the risk of crash involvement. The study is open to the criticism that some of the phone calls made have been made after the crash — it is notoriously difficult to pinpoint crash time — but considerable effort was made in the study to minimise this bias.

A simulator study carried out by TRL (Burns et al., 2002) benchmarked use of a mobile phone while driving against impairment from alcohol. Twenty drivers participated on two occasions. On one occasion they consumed alcohol in a quantity to put them at the UK legal limit of 80mg per 100ml; on the other occasion they consumed a placebo. In the subsequent simulator drive, the participants encountered four types of driving — car following on a motorway, motorway driving with moderate traffic, driving on a curving rural road and driving on a dual carriageway with various warning signs and a set of traffic lights. On each occasion, they drove three times. On the non-alcohol occasion they drove once with no mobile phone use, once with a handheld mobile phone and once with a hands-free mobile phone. On the alcohol occasion they drove three times with no mobile phone use. The overall conclusion was that driving behaviour is impaired more during a phone conversation than by having a blood alcohol level at the UK legal limit. Speed control (adherence to a target speed) and response time to warnings was poorest when using handheld phone, but even with a hands-free phone performance was worse than in the alcohol-impaired conditions. Drivers also reported that it was easier to drive when alcohol-impaired that when using a phone.

Studies of real-world driving confirm that use of PNDs can have negative safety consequences. The U.S. 100 Car Study conducted by Virginia Tech (Dingus et al., 2006) found that distraction was a major safety issue. In this study, 100 highly instrumented cars were

driven in “naturalistic” circumstances for a year in Virginia. There was a particular focus on young drivers among the participants. Crashes (mostly damage-only), near-crashes and other incidents were identified and characterised by means of video analysis. Almost 80% of the crashes and 65% of near-crashes involved the driver looking away from the forward roadway just prior to the onset of conflict. Inattention, including secondary task distraction, was a contributory factor in 93% of the incidents with lead vehicles. It was also observed that the rate of inattention-related incidents decreased dramatically with age, thus indicating some of the problems of elderly drivers. Phone and PDA use was a major factor in the incidents.

A specific analysis of the role of driver inattention as a contributory factor to crashes and near-crashes was carried out as part of the 100 Car Study (Klauer et al., 2006). The extent of various types of inattention was identified both in the incident situations (the crashes and near-crashes) and in comparison baseline (non-incident) epochs. One of the types of inattention was engagement in secondary tasks, i.e. tasks not required for the primary task of driving. Complex secondary tasks (defined as tasks requiring multiple steps, multiple eye glances or multiple button presses) included dialling on a handheld device, locating reaching for and answering a handheld device, operating a PDA and viewing a PDA screen. Moderate secondary tasks (defined as those requiring up to two glances away from the roadway or up to two button presses) included talking on or listening to a handheld device. It was found that engaging in complex secondary tasks increased the risk of being involved in a crash or near-crash three-fold, and engaging in moderate secondary tasks doubled risk as compared with attentive driving. However, the *prevalence* and hence the population-attributable risk percentages for the two types of task were different. The population-attributable risk was here defined as the overall proportion of incidents that could be attributed to the various kinds of behaviour. A behaviour may be very risky but also quite rare and thus only be a factor is a relatively small proportion of incidents or crashes. By contrast, a behaviour may be only moderately risky but also be very frequent and hence a factor in a large share of incidents or crashes. Dialling on a handheld device was found to be quite dangerous, increasing risk by a factor of 2.8, while taking on or listening to a handheld device was not as dangerous with a risk factor of 1.3. However, because talking and listening was more

common, the two types of activity were equal in terms of population-attributable risk with each being associated with 3.6 percent of the crashes and near-crashes.

A more recent use of the naturalistic approach for evidence on distraction focussed on driving in trucks (Olsen et al., 2009). The driving studied occurred in the period 2004 through 2007. In this study, tasks were categorised as primary (required for vehicle control), secondary (driving-related, but not required for vehicle control) and tertiary (non-driving related). Driver distraction due to tertiary tasks was observed in 71 percent of crashes, 46 percent of near-crashes, and 60 percent of all events (as well as crashes and near-crashes, these included crash-relevant conflicts and unintentional lane deviations).

Texting was the most risky behaviour identified: it was calculated to increase risk of being involved in a safety-critical event by a factor of 23.2. Dialling on a mobile phone increased risk by a factor of 5.9, whereas talking on a or listening to a mobile phone had a negligible and non-significant effect on risk. Use of or reaching for other electronic devices such as a video camera or two-way radio increased risk by a factor of 6.7. Talking on or listening to a hands-free phone was observed to reduce risk with a factor of 0.4 as compared with baseline (non-distracted) driving.

Once again the results in terms of population-attributable risk were somewhat different. Texting, while highly risky, was not all that frequent, being associated with only 0.7% of all events, whereas dialling on a mobile phone was associated with 2.5% of the events and interaction with a dispatching device with 3.1% of the events. The authors point out that these results highlight the need to ensure that texting does not become more prevalent.

By combining estimates of increased risk from the use of mobile phones with observation data on the rate of usage of mobile phones by drivers, it is possible to calculate the overall number of injuries that can be attributed to mobile phone use while driving. Dragutinovic and Twisk (2005) carried out such a calculation for the Netherlands, albeit with only a rough estimate of actual usage. Based on information about usage rates in various countries, they estimated that, in 2004, mobile phones were being used by drivers for 3% of total Dutch driving time. The resulting conclusion was that 585 traffic injuries and deaths were

attributable to mobile phone use. This represented 8.3% of the total, and constituted 4.5 times the estimated number for 1995.

Overall, there is consensus about the negative impact of certain devices on road safety (e.g. handheld mobile phones). In contrast, some nomadic devices may have an ambivalent safety effect. When used properly, PNDs for instance can have a positive impact, since these devices can ease the task of driving and the routes followed are shorter, so that exposure to "danger" is reduced. However, they can have a negative impact if they are operated by the driver while driving or if the advantage of taking shorter routes is cancelled out if the shorter route follows roads with higher risk (e.g. distributor roads) (SWOV, 2009).

2.3 Conclusions

Taking into account the preliminary classification and the general increasing popularity of certain devices as well as the increasing popularity to use these devices while driving, the following nomadic devices are covered in the study:

- Personal Navigation Devices (PNDs);
- ("Classical") mobile phones and ("sophisticated") Smart phones (e.g. iPhone, Blackberry etc.);
- Music Players (e.g. iPod etc.);
- Portable TVs and video players.

Thus, the legislative and regulatory frameworks of the member states has been analysed with reference to these nomadic devices.

3 Regulatory options and rule compliance

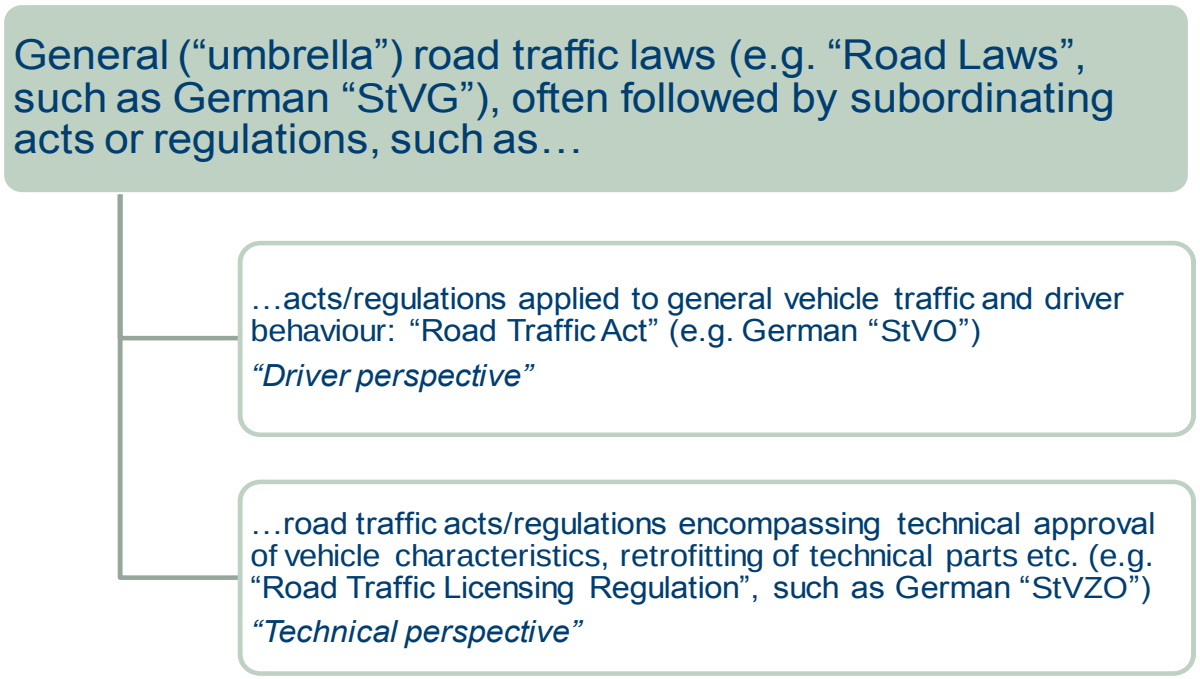
3.1 Legal frameworks in the member states

Research has revealed that a diversity of legislative approaches concerning using and mounting nomadic devices exists across the EU (eSafety Forum, 2009b; Vanlaar, 2005). This section will describe the potential different dimensions on how countries could design their regulatory and legislative frameworks concerning mounting and using nomadic devices.

Focus of legislation

Europe possesses a great diversity of national law and enforcement systems (GADGET, 1999). However, many Western and Southern European countries share similar historical conditions in the evolution of their modern democratic systems of law and social control. As a general rule, the responsibility for proposing and approving laws and rules is given to national governments, and so are tasks for developing framework laws into practical or technical legislations (TiS, 2004). As a rule, a "road act" (i.e. general "umbrella" road law) is issued at a national level, after which subordinating rules and acts deal with specific aspects of these laws (i.e. focus of legislation). Most commonly, part of these subordinating rules are "Road Traffic Acts" or "Road Traffic Regulations" applied to general vehicle traffic and driver behaviour (i.e. behavioural focus on the driver). Moreover, subordinating rules focussing on the technical approval of vehicles or retrofitting of technical parts (such as "Road Traffic Licensing Regulations" or "Technical Requirements Regulations") may apply and stipulate requirements for the use of nomadic devices. It should be noted however that these focuses of legislation may vary across Europe and a certain requirement (e.g. articles stipulating the field of view for mounting nomadic devices on the windscreen) may be found in different pieces of legislation in a country. Figure 6 shows this hierarchy and focuses of legislation.

Figure 6: Focuses of legislation



Specific vs. general regulations

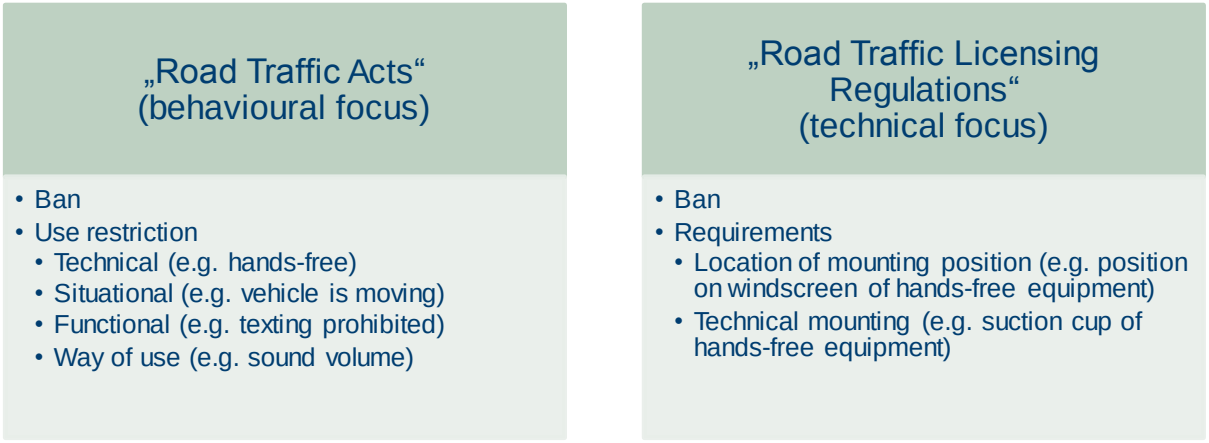
Taking into account these potential focuses of legislation for regulatory and legislative frameworks, it can be further distinguished whether these Acts/Regulations have rather specific or rather general articles that are applied on using and mounting nomadic devices (Regan, Lee & Young, 2008). With regard to mobile phone use and road traffic laws for instance, some countries have rather specific articles in their regulations. These specific articles name the device "mobile phone" and ban or restrict the use of it while driving. By contrast, in some other countries general rules apply on the use of mobile phones. These general articles address the use of mobile phones while driving through e.g. the broader issue of driver distraction, or careless or dangerous driving.

Type of intervention

Moreover, there may be different ways as to how a regulation could intervene on the use of a nomadic device. With regards to "Road Traffic Acts" (i.e. behavioural focus on the driver) and mobile phones, regulations may intervene by completely banning the use of mobile phones while driving, or by a technical use restriction (e.g. drivers are obliged to use hands-

free equipment), or by situational use restriction (e.g. when the vehicle is moving), or by a use restriction to the function (e.g. allowed to use a hands-free phone but not to write text messages) and finally by the way to use a device (e.g. sound volume of music players/headphones). Moreover, also regarding "Road Traffic Licensing Regulations" (i.e. technical focus on the vehicle) and the use of mobile phones, regulations may intervene by completely banning the device, or by certain requirements, such as the mounting position of hands-free equipment in the vehicle (e.g. only dashboard, or also windscreen) or the technical mounting (e.g. suction cups not allowed). Figure 7 illustrates possibilities of interventions for behavioural-related and technical-related regulations on the use of mobile phones.

Figure 7: Interventions of behavioural-related and technical-related regulations for mobile phones



Traffic law enforcement framework

With regards to the enforcement of traffic laws, there may be differences in the countries' sanction regimes. Offences related to the illegal use of nomadic devices may be treated under criminal or administrative law. Criminal and administrative laws differ in terms of sanction process and sanction type (GADGET, 1999).

The criminal or penal system usually follows three separate stages: detection, prosecution and sanctions. Each stage passes through the hands of a specific competent body such that the sanctioning of an offence is linked by the police, public prosecutor and judge interventions up to the sentencing. In criminal law, a large range of penalties can usually be

imposed, from the loss or restriction of liberty (prison penalty) or rights (driving licence), to financial penalties (day-fine, fine-unit, fines based on the offender's social status) or alternative solutions such as community work (day-unit). Provisions of legal procedure are used for controlling the validity of the detection and prosecution stages.

In administrative systems, the three sanction stages are combined into a single one. Traffic violators are not prosecuted and no judgement is made of the detected violation; it is directly administratively sanctioned. The administrative sanction cannot include loss of liberty but can apply the loss or restriction of rights (driving licence). It mostly uses financial penalties with fixed or unfixed amounts.

However, in almost every European country the legal system for processing traffic violations is usually a mix of criminal and administrative procedures (Goldenbeld et al., 2000). In brief, the European map of legal frames of traffic law is divided into three zones (Gadget, 1999):

- the first one, relating to the countries with an administrative law for most traffic offences (Germany, Italy, Netherlands, Spain),
- the second one, where traffic law still comes strictly under criminal law (Belgium, England and Wales),
- the third one, where the penal process has been superseded by the use of simplified procedures and sanctions (France, Switzerland).

Sanctions

Comparisons of fine levels for other types of traffic offences revealed that these levels vary considerably across Europe (ETSC, 2006). Although research has found that higher sanctions have a smaller impact on safety than the intensity of enforcement (SUNflower, 2002), it is important to assure that the sanction level reflects the accident risk of the offence. Moreover, when looking at fine levels, many countries have set up a penalty point system to single out and discourage repeat offenders. Although the systems vary widely, the aim is similar, namely that repeated illegal driving behaviour eventually leads to the suspension or loss of the driving license. The underlying rationale is that financial penalties often have a low deterrent effect for high income individuals. But all drivers attach high value to their freedom to drive and thus fear losing their driving license even for a short period of time.

Penalty point systems have proven to significantly reduce road accidents, especially when they are combined with other tools such as warning letters and license suspension (Elvik & Vaa, 2004).

Accident Investigation

Finally, there might be differences between the countries' practices regarding accident investigation and the identification of driver distraction due to improper nomadic device use. Analysis of road accidents can greatly contribute to knowledge of the real accident causation factors. Independent accident investigation is of the utmost importance here. But even police accident investigation can reveal relevant information, which could be used to infer the causation factors of road accidents. The reporting practices on misuse/use of nomadic devices in road accidents has therefore been assessed.

3.2 Traffic rules and compliance

Traffic laws and regulations which specify acceptable road user behaviour are an important element in the development of a safe road environment (Zaal, 1994). Traffic laws guarantee a certain amount of traffic safety by providing a framework that can be used to predict other drivers' behaviour (Akkermans & Orozova-Bekkevold, 2007). Non-compliance with traffic rules has been estimated to be the major contributory factor to road accidents and injuries (ETSC 1999). However, not all aberrant driving behaviour can be considered volitional. Reason et al. (1990) distinguished between different types of aberrant driving behaviour:

- Lapses: absent-minded behaviours with consequences mainly for the perpetrator, posing no threat to other road users.
- Misjudgements and failures of observation that may be hazardous to other road users.
- Violations: deliberate contraventions of safe driving practice.

With regard to road safety, violations are of particular importance. Parker (2001, p. 10) remarks that *"the crucial differentiator between violations, errors and lapses is that violations, not errors or lapses, go with crash involvement"*. These results highlight the importance of rule compliance for road safety. A very substantial safety benefit would be achieved if road users would comply with the basic traffic rules. Estimates vary, but it seems

reasonable to assume that the magnitude of potential crash savings would be of the order of 50 % (ETSC 1999).

With regard to conditions for traffic rule compliance, Noordzij (1976) identified five conditions that traffic laws must fulfil in order to ensure a high-quality legislation. The law should:

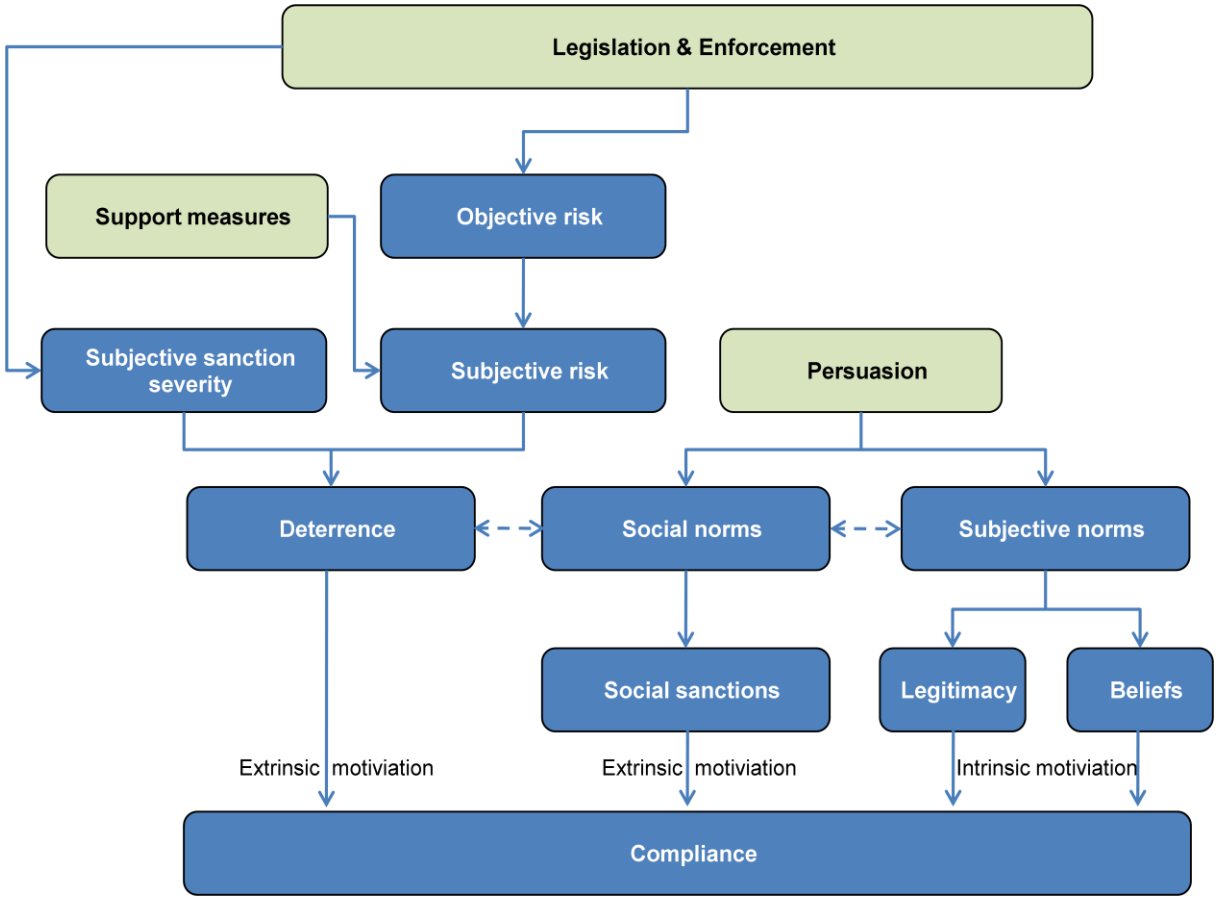
- Be easy to understand for all road users;
- Be easy to follow;
- Not be in contradiction or conflict with other laws;
- Not be in conflict with situational prerogatives;
- Make it easy to identify any violation of the law.

Moreover, traffic laws have to be known and accepted by road users. However, knowledge about traffic rules is a necessary but not sufficient condition for rule compliance (Schlag, 2009). Studies indicate that mere knowledge about traffic rules has only a limited effect on actual driver behaviour (Stern et al., 2006). This highlights the need for rule acceptance: road users have to understand the importance of the rule for their own road safety and that of others (Goldenbeld et al., 2000). A rule that is not accepted by road users can lead to resistance and may be costly and complex to enforce (Schlag, 2009).

As regards rule compliance, Tyler (1990) observed that there are two perspectives on obedience to laws: instrumental and normative. According to the instrumental perspective, people are motivated by gains, losses, rewards and punishments related to obeying or disobeying the law (Yagil, 2005). Hence, increasing the likelihood and severity of punishment is viewed as an effective way of increasing compliance. By contrast, the normative perspective explains compliance with the law as a function of values that reflect what people feel they ought to do and which possesses a strong motivational component independent of any specific environment (Yagil, 2005).

The following model (Figure 8) describes compliance with traffic rules, distinguishing between an extrinsic motivational approach that relies on negative, external factors (e.g. punishment, losses etc.) and an intrinsic motivational approach due to beliefs.

Figure 8: Compliance model



Sources: adapted from Schlag, 2009; Mäkinen & Zaidel, 2003

According to this model, legislation and enforcement first create an objective risk of detection for traffic offenders. The objective risk is the actual risk of detection, i.e. it reflects the real likelihood of detection caused by the actual level of traffic surveillance activities by e.g. the police. The objective risk has an impact on drivers' perceptions of possibilities of getting caught for traffic violations (i.e. the subjective risk). The subjective risk of detection is drivers' own more or less conscious and less explicit judgement of the possibility of getting caught for infringements. It results from the road user's perception of the intensity of enforcement-related activities. This subjective risk can be influenced by supportive measures, such as media or communication campaigns.

However, a great difference can exist between these two risk levels. According to Zaal (1994) in an optimal situation the subjective risk is the same or higher than the actual risk of detection (i.e. the objective risk). This is due to the fact that it is the road user's perception

of the possibility that a breach of the law will be detected which is most likely to influence driving behaviour (Riley, 1991). As a result, the primary focus of most traffic enforcement campaigns should be on increasing the subjective risk of being caught. It should however be noted that the effects of legislation can also directly influence behaviour just by making road users aware of the norms or the codes of correct behaviour (Mäkinen & Zaidel, 2003). These road users want to comply with the rules simply to behave as prescribed by law — compliance is a central element of their belief system.

The subjective risk of detection functions as a motivational psychological factor if personally aversive consequences are expected to follow upon detection (Mäkinen & Zaidel, 2003). Without the possibility of a negative outcome for a traffic offence (i.e. a sanction or punishment), there will be no deterrence due to the objective or subjective risk of detection. In other words, even when the objective and subjective risk of being caught is sufficiently high, this would mean nothing if actual punishment was virtually non-existent. However, when looking at these two influencing factors, according to Bjørnskau & Elvik (1992), the subjective risk of detection is of greater importance for rule compliance than the subjective sanction severity. As regards the subjective severity of sanctions, Schlag (2009) states that the subjective sanction severity follows a certain hierarchy: monetary fines – penalty points – temporarily driving ban – permanent licence revocation. Most commonly, monetary fines are accepted by drivers. Schlag (2009) refers to findings from Germany that show that many drivers commit speeding offences up to a certain speed threshold (i.e. ≤ 20 km/h over the limit). In case of detection, offences below this threshold are only punished with monetary fines and not by penalty points (i.e. speeding offences > 20 km/h).

Moreover, the link between detection of the offence and punishment has to be sufficiently clear in order to have any deterrent effect (Akkermans & Orozova-Bekkevold, 2007). This argument of immediacy of punishment has been described in studies regarding the psychology of learning. When too much time passes between violation and punishment, the link between both is extremely vague and no immediate effect can be expected because of a diminution in the subjective, perceived risk (Akkermans & Orozova-Bekkevold, 2007).

Besides this extrinsic motivational approach through deterrence social norms may also create an extrinsic motivation to obey the rules. Informal social norms may change — for instance due to public persuasion — and stipulate rule compliance (Schlag, 2009). Such changes in informal social norms stipulating rule compliance could be observed for drink driving in the past decades in Germany. Schlag (2009) argues that besides formal sanctions (monetary fines, penalty points etc.) informal social sanctions (e.g. social reprobation) can also influence rule compliance. For instance, negative reactions in a road user's social environment may increase the psychological costs of the infringement and thus lower the attractiveness of violating the rule (Schlag, 2009; Grasmick & Bursik, 1990).

By contrast, in the model's intrinsic motivational approach, rule compliance is achieved due to the belief of the road users in obeying the laws. The intrinsic perspective focuses on voluntary compliance with rules rather than compliance as a response to external rewards and punishments (Yagil, 2005). Voluntary compliance may result from the belief that the authorities have the legitimate right to dictate behaviour. Moreover, over the past decades, under the combined influences of new laws, police enforcement and public persuasion (media campaigns etc.), many drivers have come increasingly to accept the rule of "no drinking and driving" as a strict, personal norm (ERSO, 2008). This shows how at first rule compliance may be extrinsically motivated by the aim to avoid punishment. Later on, however, road users may actually change their personal belief about what is the right behaviour and internalise traffic rules.

4 Nomadic device related legislation in Europe

4.1 Objectives & Methods

The primary objective of this part of the study is to provide an overview of the existing regulatory frameworks across the 27 EU member states with respect to using and mounting nomadic devices in vehicles. The secondary objective is to identify similarities and differences between the member states' regulatory situations and group the members states into clusters. However, due to the low number of cases a statistical cluster analysis has not been feasible; hence, a qualitative cluster analysis is provided according to the characteristics of the typology.

Moreover, some other relevant aspects of the usage of nomadic devices are assessed at country level, covering issues such as police enforcement, sanction regimes, accident investigation or prevention campaigns.

With respect to the legislation in force, all relevant legal texts must be identified and assessed in order to provide a comprehensive understanding on how the usage of nomadic devices is regulated.

In order to meet the objectives of this part of the study, a literature review of existing studies was performed. Following this review, a survey aiming at assessing current regulatory regimes by evaluating their legislative, regulatory and enforcement frameworks on the basis of the findings of WP 1 and WP 2 was carried out. This survey was the core part of WP 3 and also aimed to take into account ongoing political and public debates in the member states on the use of nomadic devices in vehicles. The survey was conducted through standardised electronic questionnaires with forms and fields. The information obtained was further complemented via phone interviews with national respondents.

The survey used a three-step approach:

1. In a first step, a "pre-filtering" through a first concise questionnaire (Q1) was conducted. Taking into account the five types of nomadic device, this questionnaire looked at whether targeted legislation is in place and whether this legislation has a behavioural (i.e. driver) or technical (i.e. vehicle) focus. The additional aim was to identify the expert on legal questions to whom the second detailed questionnaire should be addressed;

2. In a second step, considering the results of Q1, a tailored (and shorter) questionnaire Q2 containing just the relevant in-depth questions for the respective country was sent to national experts at relevant ministries and other institutions;

3. In the third step, telephone or personal interview took place with the experts providing answers to the detailed questionnaire Q2.

The survey started with sending questionnaire Q1 to representatives from the countries, most commonly from the respective ministries responsible for legal questions related to road traffic. In most cases, those correspondents were civil servants at the Ministry of Transport and Ministry of Interior. Two persons were identified in each member states as the recipients of questionnaire Q1. Questionnaire Q1 was sent at first to one expert only, while the second expert was contacted as a substitute in case of non-reply, or other difficulties. Questionnaire Q1 provided a rough overview on the existence of regulations with respect to four groups of nomadic devices and identified a legal expert at ministerial level to whom the more detailed questionnaire Q2 would be addressed. The relevant parts of questionnaire Q2 were then sent to these identified experts. Moreover, a separate questionnaire addressing the enforcement framework and questions related to accident investigation was sent then out to a separate group of respondents, consisting mostly of traffic police officials and road safety practitioners. A list of contacts for the questionnaires as well as the three questionnaire forms are available in the annex.

4.2 Comparative analysis

In the following section the results of survey I are provided. It should however be noted that these results are not yet fully comprehensive and not yet fully approved by the respective national experts.

4.2.1 Scope of legislation

With regards to the scope of legislation (i.e. what devices are covered by legislation), the analysis indicates that all countries have a mix of both general and/or specific legislation that might be referred to using and mounting nomadic devices in vehicles. All countries have general legislation in place, addressing the driver or the driver's behaviour, e.g. fitness to drive, the responsibility of the driver to dedicate his/her full attention to the driving task or to avoid dangerous or careless driving. Moreover, some countries have also a rather technically-focused general legislation in place, referring to the vehicle or technical parts of it (e.g. condition of the vehicle must allow a sufficient field of view for the driver). These general requirements are most commonly contained in Road Traffic Acts and have been in place in member states for decades. However, according to the replies of the interviewees, in several member states this general legislation might apply only limited or partly to nomadic devices in vehicles and it often remains legally unclear if concrete requirements to using and mounting nomadic devices can be derived from these articles (e.g. Sweden). The following Table 1 shows an overview of the legislative scopes and device categories covered by legislation in the countries.

Table 1: Scope of legislation and device categories covered

Country	Mobile phones	PND	Music player	TV/video player
AT	Specific	n/a	n/a	General
BE	Specific	n/a	n/a	n/a
BG	Specific	n/a	n/a	n/a
CY	Specific	Specific	n/a	Specific
CZ	Specific	General	n/a	n/a
DE	Specific	General	General	General
DK	Specific	General	n/a	General
EE	Specific	n/a	General	General
EL	Specific	General	Specific	Specific
ES	Specific	Specific	Specific	Specific
FI	Specific	Specific	Specific	Specific
FR	Specific	General	General	Specific
HU	Specific	n/a	n/a	n/a
IE	Specific	n/a	n/a	n/a
IT	Specific	General	General	General
LT	Specific	n/a	n/a	n/a
LU	Specific	Specific	Specific	n/a
LV	Specific	n/a	n/a	n/a
MT	Specific	General	Specific	n/a
NL	Specific	General	n/a	General
PL	Specific	n/a	n/a	n/a
PT	Specific	General	Specific	General
RO	Specific	n/a	n/a	n/a
SE	n/a	n/a	n/a	n/a
SI	Specific	General	General	General
SK	Specific	General	General	General
UK	Specific	General	n/a	Specific
CH	Specific	General	General	General
IS	Specific	n/a	n/a	n/a

Mobile phone use and legislation

When looking at the four different device categories and relevant legislation, it becomes obvious that the most homogenous legislative approach are regulations addressing **mobile phones**. Out of the 27 EU member states, 26 countries have specific legislation on mobile phone use in place. The specific legislation explicitly mentions mobile phones and/or communication devices, and stipulates concrete requirements such as the use of hands-free equipment. Sweden is the only EU member state that doesn't have any legislation directly focusing on the use of phones and similar devices. In Sweden, requirements on the use of mobile phones while driving can be derived from a general caution requirement in Chapter 2, Section 1 and Chapter 3, Section 1 of the Road Traffic Ordinance. Chapter 2, Section 1 states that *"to avoid accidents, road users shall observe care and attention that the circumstances demand"*. Chapter 3, Section 1 addresses issues such as health, alertness, soberness and concentration of the driver. However, since there is no penalty clause in Chapter 2, Section 1, this means that a driver who doesn't observe the rules in this section is only punishable when the lack of care and attention is so severe that the action can be punished as negligence in traffic in accordance with Section 1 of the act on punishments for certain road traffic offences (e.g. reckless driving).

PND use and legislation

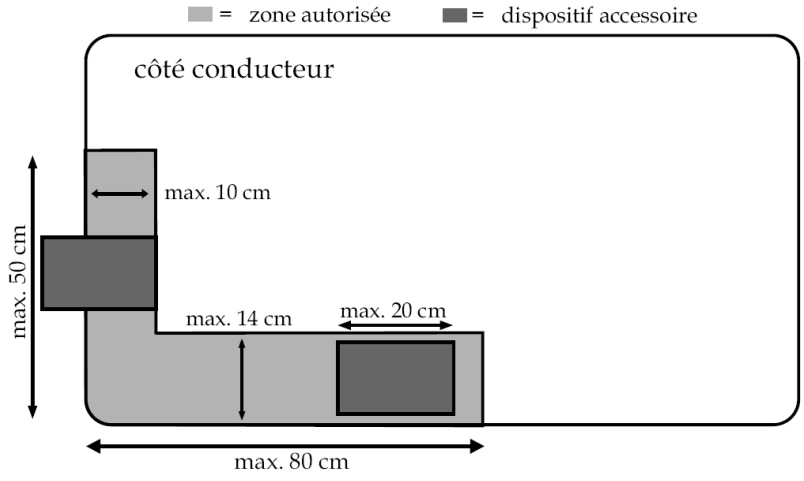
With regards to **PNDs**, 12 EU countries and Switzerland stated to have general legislation in place that might apply to some extent to mounting and using PNDs. These requirements can either be derived from general articles on driver behaviour (e.g. driving without due care and attention) or general articles on vehicle's condition (e.g. vehicle's front window/windscreen must allow a clear view).

As mentioned earlier, for some countries it is not fully clear to which extent these general articles apply to the use of PNDs. For instance in Sweden, the relevant general articles on driver behaviour do not stipulate a concrete prohibition for the driver to manually interact with a PND when driving, as long as no other road user or traffic is endangered or the driver doesn't behave recklessly. Other countries (e.g. France, Italy, Slovenia) have ruled from these general articles on driver behaviour that manual interaction with a PND is not allowed.

With regards to mounting PNDs, many countries have general articles in place stipulating that the vehicle windows/windscreen must allow a clear and undistorted view (e.g. such as in the Slovakian Road Traffic Act 8/2009 par.7, art. 1 (i): *"Drivers must assure before starting the journey and during the journey that no objects are placed in the view field that could obstruct their attention from safe driving"*). In some countries legal requirements have derived from these rather universal articles. For instance in Switzerland, the Zurich municipal police and the Federal Roads Office (ASTRA) have issued a guideline that PNDs may be mounted on the lower edge of the windscreen in order to be in line with the relevant articles 71 (4) and (5) of the of the Swiss ordinance on the technical demands for road traffic vehicle (Verordnung an die technischen Anforderungen an Strassenfahrzeuge).

Countries with rather specific legislation on PNDs comprise Spain and Luxembourg. In Luxembourg, article 46 (2a) of the road traffic act (introduced in April 2009) states that mounting any accessory devices such as PNDs is only allowed on the lower left side of the windscreen. The maximum allowed width of a PND is 20 cm. The article contains a clear guideline on where to mount a device, as shown in the Figure 9 below:

Figure 9: Allowed mounting of a PND according to the Luxembourgish Road Traffic Act



In Spain, the Road Safety Law (Ley de Seguridad Vial) introduced in 2009 contains a specific article 65.4.g on the use of PNDs. It is prohibited to operate the device when the vehicle is

moving and the device must be mounted where it can be easily seen by the driver without obstructing his field of view.

Music player use and legislation

With regards to **music player** use, six EU countries and Switzerland stated to have general legislation in place that might apply to manual handling of music players and/or the use of headphones. For instance, the Slovakian Road Traffic Act 8/2009, I par.4, art. 1 (c) states that the driver must fully concentrate on driving and carefully watch for the traffic situation. According to the Slovakian Ministry of Transport, a ban on handling music players while driving can be derived from this article. In other countries, these general articles stipulate that the driver's hearing must not be impaired while driving. In some countries, this has led in practice to the fact that headphone use is only allowed up to a certain sound volume.

With regards to specific legislation, six countries have adopted rather specific articles in their road traffic acts, precisely referring to sound devices or headphones. For instance in Greece, Article 13 of the Road Traffic Act explicitly states that it is prohibited to use headphones connected to portable radios, tape recorders and similar sound-devices. Also the Spanish Road Safety Law stipulates in Article 65.4 (f,g) that it is forbidden to use headsets or headphones connected to receivers or sound producing apparatuses.

TV and video player use and legislation

Concerning the use of **TVs and video players**, most commonly general legislation is applied. For instance in the Netherlands, according to the Ministry's of Justice response, watching TV/video while driving would incur a fine as a case of careless or dangerous driving according to Article 5 of the Road Traffic Act. In some countries however (e.g. Sweden), the use of these devices is not necessarily prohibited as long as the driver doesn't cause any danger.

Cyprus, Finland, France, Greece, Spain, and the UK stated to have rather specific legislation in place on using TVs and video players. In the UK, under Regulation 109 of the Road Vehicles (Construction and Use) Regulations 1986, it is an offence to drive a vehicle if the driver is in such a position as to be able to see, whether directly or by reflection, a television screen.

Similar rather targeted articles are in place in France. The Road Traffic Act Article R412-6-2 states that *"placing any functioning device with a screen, which does not provide driving or navigation assistance, in the view field of the driver of a moving vehicle is forbidden"*.

4.2.2 Level of detail

Also with regards to the level of detail of legislation (i.e. to what extent the use of a certain device is restricted), the results indicate that the picture in the member states is rather variable. Concerning mobile phone legislation (Table 2), all countries (except Sweden) require the use of hands-free equipment when driving (i.e. either as soon as the vehicle's engine is running or when the vehicle is moving). With regards to hands-free, most commonly a headset or wireless equipment (e.g. Bluetooth) is sufficient in the countries, as long as the driver doesn't hold the phone in his/her hands while driving. However, some countries additionally require that the phone must be fixed in a mounting (Greece, Italy, Luxembourg, Malta, Slovenia).

Furthermore, some countries (e.g. Luxembourg, Slovenia, and Greece) have rather highly intervening regulations in place that restrict using mobile phones or mounting mobile phone cradles in several ways. In these countries, for instance, the use of additional phone functions (e.g. texting) is prohibited.

In some countries, (e.g. Germany) hands-free devices must be used for using any function of a mobile phone (e.g. GPS). In Estonia, the use of hands-free is only mandatory when driving in built-up areas.

Table 2: Legislation on mobile phone use

Country	Legislation requires		Hand-held phone is prohibited if		Requirement to use		Hands-free required when using		Forbidden to use			Requirements concerning	
	complete ban	use of hands-free equipment	engine is running	vehicle is moving	headset/Bluetooth	additionally fixed phone	phone function	other function	texting function	all functions that involve continous handling	headphones	location of mounting	way of fixing
AT		X		X	X		X						
BE		X	X		X		X	X					
BG		X		X	X		X	X					
CY		X		X	X		X		X				
CZ		X		X	X		X	X					
DE		X	X		X		X	X	X				
DK		X	X		X		X	X					
EE		X		X	X		X						
EL		X		X		X	X	X	X				X
ES		X	X				X				X		
FI		X		X	X		X	X		X			
FR		X		X	X		X	X	X				
HU		X	X		X		X						
IE		X	X		X		X						
IT		X		X		X	X	X	X				
LT		X	X		X		X	X		X			
LU		X		X		X	X		X	X			X
LV		X		X	X		X		X				
MT		X		X		X	X						
NL		X		X	X		X	X					
PL		X		X	X		X	X					
PT		X		X	X		X	X	X	X			
RO		X		X	X		X						
SE													
SI		X		X		X	X	X	X	X			
SK		X		X	X		X	X					
UK		X	X		X		X	X					
CH		X		X	X		X	X	X				
IS		X	X		X		X						

With regards to legislation on PND, some of the responding countries indicated that manual interaction with device is prohibited when the vehicle is moving (Table 3). Moreover, France, Italy and the UK responded that it would be prohibited to use the media player function of the device. Finally, in some countries there derive requirements on the use of certain PND functions from specific bans on radar warning equipment: in Germany for instance, it is prohibited to use PND's "Points-of-interest" function (POIs) that indicates stationary speed cameras. The POI data/software must be deleted from the device's memory.

Concerning the mounting of PNDs, the majority of responding countries have either general or specific legislation in place that affects the location of mounting devices (e.g. field of view). Furthermore, Germany, Greece and Luxembourg have requirements on the way of fixing the devices.

Table 3: Legislation on PND use

Country	Legislation requires		Manual interaction prohibited if		Prohibited to use		Requirements concerning	
	complete ban	use restriction	engine is running	vehicle is moving	media player function	other functions	location of mounting	way of fixing
AT								
BE								
BG								
CY		X					X	
CZ		X					X	
DE		X				X	X	X
DK		X					X	
EE								
EL		X		X		X		X
ES		X		X		X	X	
FI		X		X			X	X
FR		X		X	X		X	
HU								
IE								
IT		X		X	X		X	
LT								
LU		X					X	X
LV								
MT		X					X	
NL		X					X	
PL								
PT		X		X				
RO								
SE								
SI		X		X				
SK		X		X			X	
UK		X			X			
CH		X		X			X	
IS								

highlighted: specific regulations

With regards to music player use, out of the countries that state to have use restrictions in place, in five of these countries the legislation is affecting the manual handling of the devices (Table 4). In these five countries (Finland, Italy, Slovenia, Slovakia, Switzerland), manual interaction with music players is considered to be not allowed for the driver when the vehicle is moving. Moreover, nine countries have legislation that concerns the use of headphones while driving. In seven of these countries, headphone use is not allowed, whereas two countries have limitations of the sound volume in place that affects the use of headphones. The regulations of Italy and Slovenia intervene rather severe, they affect both the manual handling of music players and the use of headphones.

Table 4: Legislation on music player use

Country	Legislation requires		Legislation concerns		Interface must be used	Manual interaction prohibited		Headphone use not allowed	limited sound volume	Requirements concerning	
	complete ban	use restriction	manual handling	use of headphones		engine is running	vehicle is moving			location music player	way of fixing
AT											
BE											
BG											
CY											
CZ											
DE		X		X					X		
DK											
EE		X		X				X			
EL		X		X				X			
ES		X		X				X			
FI		X	X				X				
FR											
HU											
IE											
IT		X	X	X	X		X	X			
LT											
LU		X		X				X			
LV											
MT		X		X				X			
NL											
PL											
PT		X		X				X			
RO											
SE											
SI		X	X	X			X		X		
SK		X	X				X				
UK											
CH		X	X				X				
IS											

highlighted: specific regulations

Finally, out of the countries that state to have either general or specific legislation in place affecting TV/video players, Estonia, Finland, Greece, Italy, Portugal, Slovenia, and Spain are intervening rather severe on their use (Table 5). In these countries, both the manual handling and watching TV/video is addressed. For the driver, both manual interaction and watching TV/video are prohibited when the vehicle is moving. If TV/video players are used by passengers, there are requirements that the device's display must not be visible to the driver (e.g. Italy, Spain; Portugal).

Table 5: Legislation on TV/Video player use

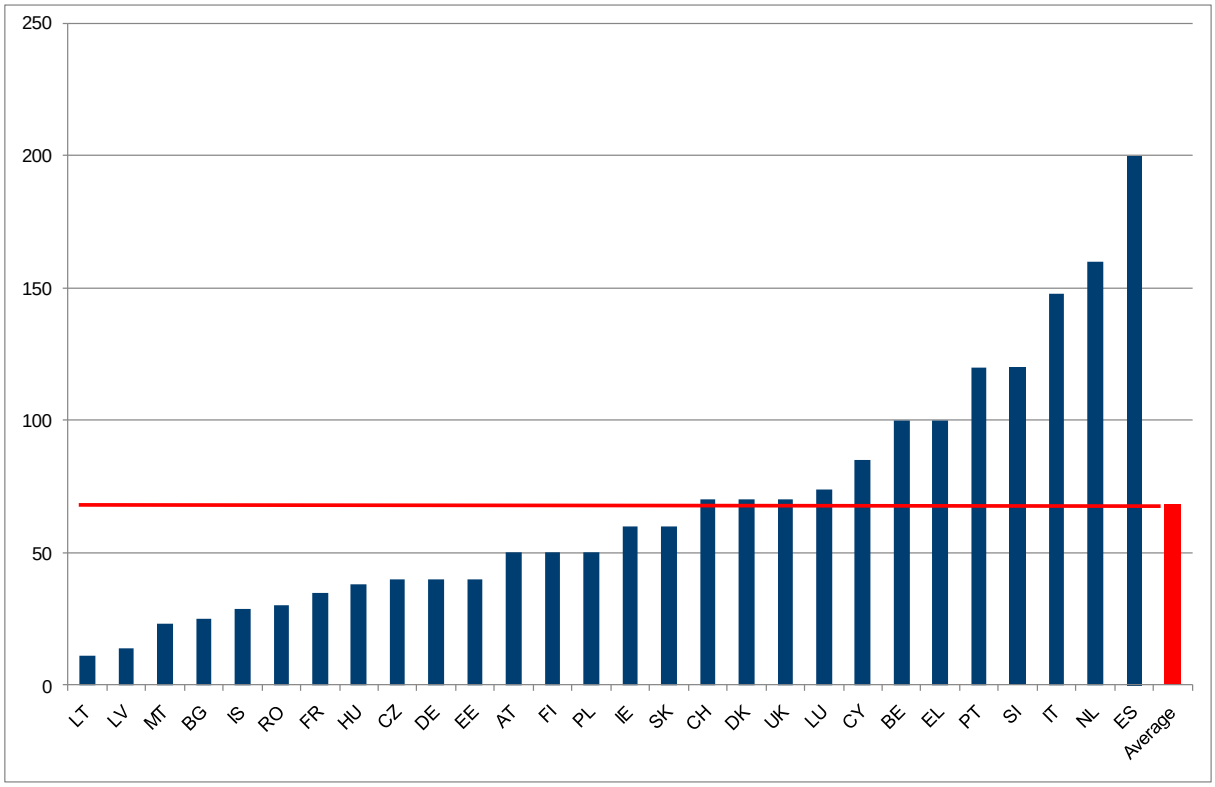
Country	Legislation requires		Legislation concerns		Interface must be used	Manual interaction prohibited		Forbidden for driver to watch while		Concerning passengers		Requirements concerning		
	complete ban	use restriction	manual handling	watching TV/video		engine is running	vehicle is moving	engine is running	vehicle is moving	only rear seat	display not visible to driver	location of mounting	way of fixing	device inoperable if it can be seen from the drivers seat
AT		X		X					X					
BE														
BG														
CY		X		X										X
CZ														
DE		X		X					X					
DK		X		X								X		X
EE		X	X	X			X		X					
EL		X	X	X			X		X					
ES		X	X	X			X		X		X			
FI		X	X	X			X		X					
FR		X		X					X					
HU														
IE														
IT		X	X	X	X		X		X		X			
LT														
LU														
LV														
MT														
NL		X										X		
PL														
PT		X	X	X			X		X		X			
RO														
SE														
SI		X	X	X			X		X					
SK		X	X											
UK		X		X				X			X			
CH		X	X				X					X		
IS														

highlighted: specific regulations

4.2.3 Sanctions

With regards to the monetary sanction levels, substantial differences between the countries can be found (Figure 10).

Figure 10: Monetary fines for a mobile phone offence in Europe (in EUR)



Sweden is not shown because hand-held phone use is not prohibited

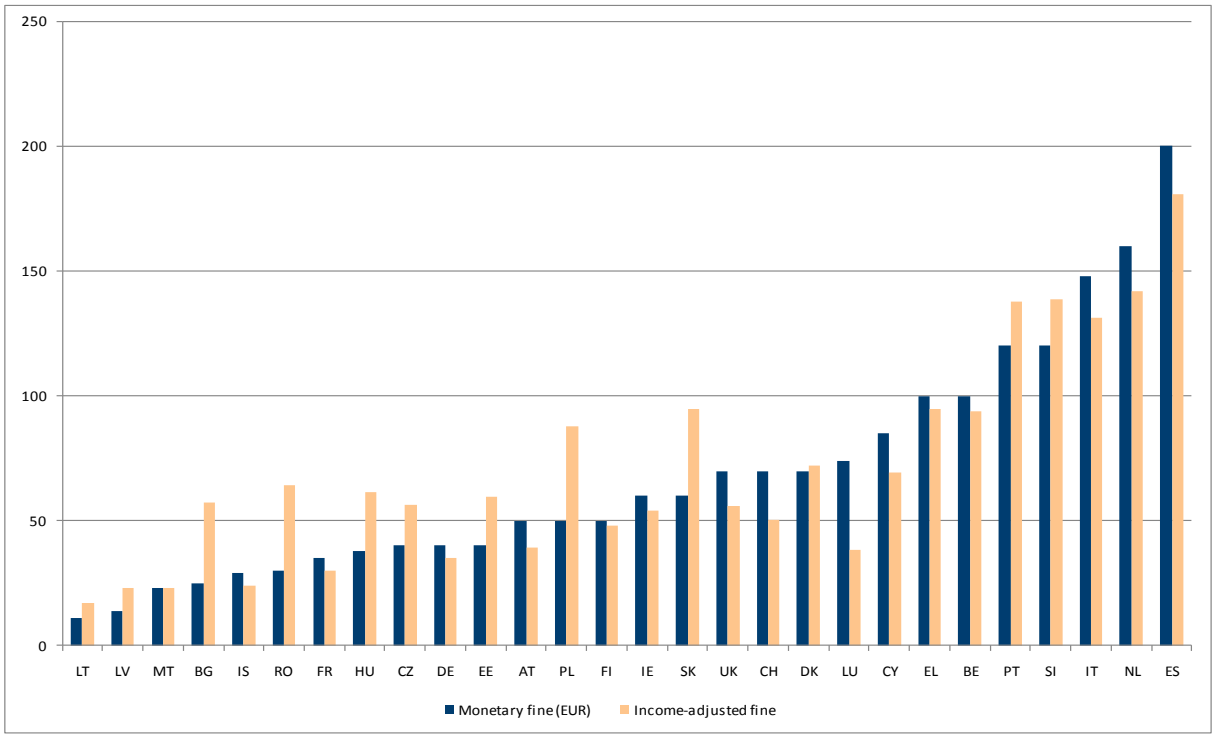
The average monetary fine for a mobile phone offence in the EU27 plus Switzerland and Iceland is 68 EUR. However, the fine level varies from 11 EUR in Lithuania to 200 EUR in Spain. Divided into three fine level groups (≤ 40 EUR, 41-80 EUR, > 80 EUR), 11 countries[1] cover the first group with fines up to 40 EUR (Group 1). Nine countries[2] comprise the group with fine levels between 41 and up to 80 EUR (Group 2). Eight countries[3] have fine levels above 80 EUR (Group 3).

However, a comparison of monetary fine levels that simply takes into account the absolute levels of fines may be misleading. Differences between the countries in income levels and

[1] LT, LV, MT, BG, IS, RO, FR, HU, CZ, DE and EE
[2] AT, FI, IE, SK, CH, UK, PL, DK, and LU
[3] CY, EL, BE, PT, SI, IT, ES and NL

purchasing power make it difficult to compare an absolute monetary fine of a certain value across the 27 EU Member States: for instance, a monetary fine of a value of 50 EUR would mean something different to an average driver from e.g. Bulgaria than to a driver in e.g. Luxembourg. Thus, it is less the absolute level but rather the ratio of fine and capacity to pay that should be used for comparing fine levels of the different countries. To get at least a first impression of this possible distortion, we calculated for every country the quotient from monetary fine and a country's per capita consumption expenditure. The latter, per capita consumption expenditure (for 2006), was used as a proxy for capacity to pay.[4] After that we multiplied these ratios with the average per capita consumption expenditure in the EU 27 (simply to present absolute values instead of ratios). Figure 11 shows these values that can be interpreted as monetary fines with standardised capacity to pay. When looking at these fine levels, it can be seen that adjusted fine levels in some Central and Eastern European countries are actually higher than the absolute fines.

Figure 11: Income-adjusted monetary fine levels for a mobile phone offence in Europe (in EUR)

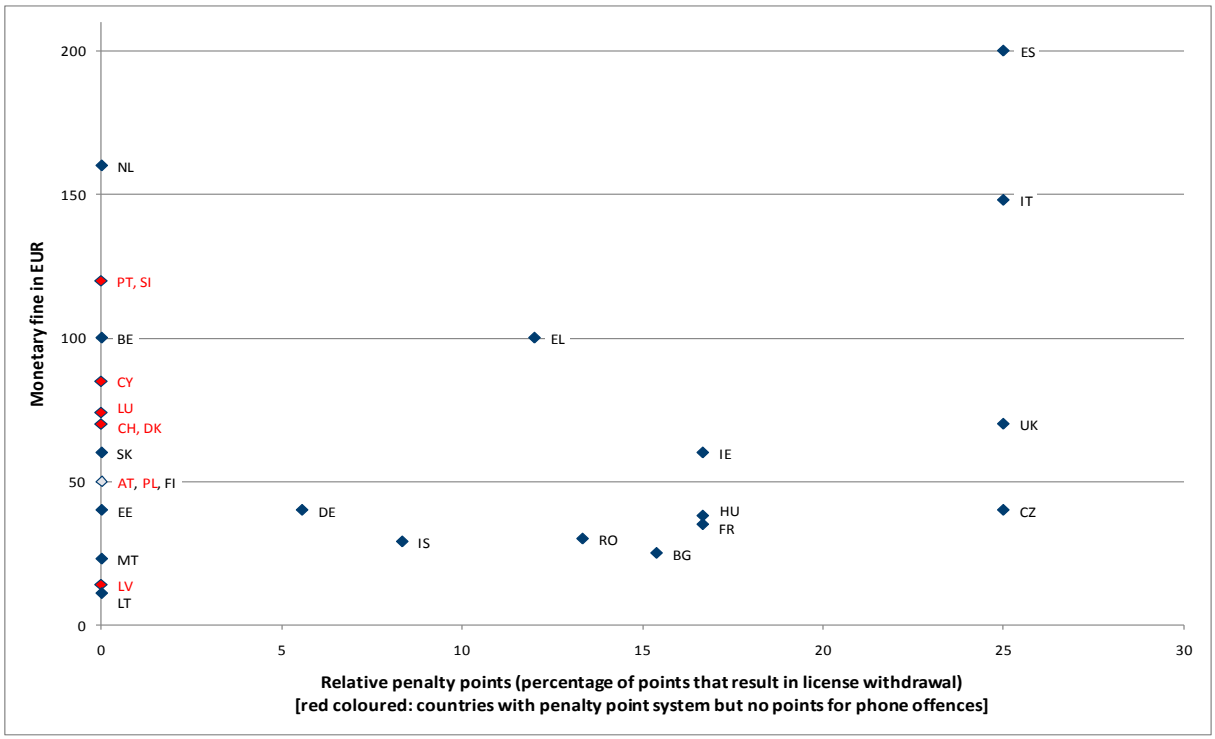


Sweden is not shown because hand-held phone use is not prohibited

[4] Other indicators for the concept of capacity to pay could be used as well, e.g. average household income.

Finally, Figure 12 shows the fine levels of countries taking into account both monetary fines and penalty points.

Figure 12: Levels of monetary fines and penalty points



Sweden is not shown because hand-held phone use is not prohibited

Although having general penalty point systems in place, several countries[5] don't sanction mobile phone offences with penalty points. However, when looking at those countries[6] having a penalty point system introduced that covers also mobile phone offences, it can be seen that the relative points for a mobile phone offence (i.e. percentage of points until licence withdrawal) vary between 6 per cent in Germany and 25 per cent in the Czech Republic, Italy and the UK. Moreover, many of those countries without general penalty point system have rather high monetary fine levels in place (BE, PT, SI, NL).

[5] AT, CH, CY, DK, LU, LV, PL, PT, SI

[6] BG, CZ, DE, EL, ES, FR, HU, IE, IS, IT, RO, UK

4.2.4 Qualitative clustering

In the following, we briefly explain the clustering that has been used in the study. The general idea of establishing clusters of countries is to identify homogenous groups of countries, i.e. the difference between countries within a group should be smaller than the difference between groups, in order to classify countries in a simple way and to explain behaviour differences (of drivers) by different legislative frameworks.

In this study, we have not used statistical methods for clustering, mainly for three reasons:

- Since we have only 29 observations, we have a small number problem;
- Legal rules can not simply be treated as variables and values - several interpretative steps are necessary and these steps involve inevitably subjective judgements. To combine this with a – seemingly – precise statistical method would only create some kind of spurious precision;
- The substantial differences between the legal frameworks results inevitably in a kind of distortion, as long as one tries to take two main aspects of the framework ("What kind of behaviour is restricted?" and "In what way is behaviour restricted?") into account, since several countries have no rules for some nomadic devices.

Method

We used a qualitative clustering that takes into account the categories "Scope", "Level of detail" and "Sanction levels" shown in Table 6 to Table 8. At the end of each Table 6-8, a ranking of countries is shown for the respective category (highlighted in light orange).

Scope: Countries that have adopted specific legislation covering all four device classes were ranked "Highest". On the contrary, countries that have only general legislation in place that applies only limited the four device classes, were ranked "Lowest".

Level of detail: With regards to mobile phone legislation, countries having legislation in place that intervenes substantially on the use of mobile phones by stipulating comprehensive use requirements were ranked "High". On the contrary, countries having hardly any requirements in place on the use of mobile phones, were ranked "Low". Mobile phone related legislation has been chosen due to best data availability for all countries (i.e.

mobile phone legislation is adopted in almost all countries). As an alternative, the average number of requirements per nomadic device covered by legislation could be used.

Sanction level: With regards to the monetary sanctions for a mobile phone offence, countries of fine level group 3 (i.e. above 80 EUR) were ranked "High". On the contrary, countries of fine level group 1 (i.e. up to 40 EUR) were ranked "Low". Monetary sanctions for mobile phone offences have been chosen due to best data availability and comparability between countries.

Finally, these three rankings were merged into a single table that classifies the countries into different groups (see Table 9).

Many countries can be subsumed according to the assigned values of each category. This is e.g. the case if countries have identical values in the categories (e.g. "Medium, Medium, Medium") or have a deviation in only one value of the categories (e.g. „Highest, Medium, Medium“).

However, with regards to subsuming different combination of values (e.g. "Highest, Medium, Low"), points are assigned to each value of a category[7]. Table 9 shows the clustering of countries, according to the sum of the assigned points multiplied by the category weight ("Scope"= factor 2, "Level of detail"= factor 1, "Sanction level"= factor 1).

Finally, a sensitivity analyses was carried out. The first analysis taking into account changes in the category weight shows that only Belgium and the Netherlands depend on the category weight. If "Scope" is weighted higher (i.e. by the factor 2) according to our preference, both countries fall in group IV. If all categories would be weighted the same, both member states would fall in group III. The second analysis looked at possible shifting between groups due to changes in sanction levels. If income-adjusted monetary sanction levels are used and all categories would be weighted by factor 1, Poland would be the only country that would shift from group IV to group III.

[7] Assigned points, depending on number of values:
"Scope": lowest=1, low=2, medium=3, high=4, highest=5;
"Level of detail" and "Sanction level": low=1, medium=2, high=3

Hence, with regards to the country selection for Survey II, the following five countries are taken into account:

- Group I: Italy
- Group II: Spain
- Group III: UK
- Group IV: Poland
- Group V: Sweden

Results

Table 6: Scope of legislation

Country	Mobile phones	PND	Music player	TV/video player	Ranking scope
SE					Lowest
BE	Specific				Low
BG	Specific				Low
HU	Specific				Low
IE	Specific				Low
IS	Specific				Low
LT	Specific				Low
LV	Specific				Low
PL	Specific				Low
RO	Specific				Low
AT	Specific			General	Medium
CY	Specific	Specific		Specific	Medium
CZ	Specific	General			Medium
DK	Specific	General		General	Medium
EE	Specific		General	General	Medium
LU	Specific	Specific	Specific		Medium
MT	Specific	General	Specific		Medium
NL	Specific	General		General	Medium
UK	Specific	General		Specific	Medium
CH	Specific	General	General	General	High
DE	Specific	General	General	General	High
EL	Specific	General	Specific	Specific	High
FR	Specific	General	General	Specific	High
IT	Specific	General	General	General	High
PT	Specific	General	Specific	General	High
SI	Specific	General	General	General	High
SK	Specific	General	General	General	High
ES	Specific	Specific	Specific	Specific	Highest
FI	Specific	Specific	Specific	Specific	Highest

Table 7: Level of detail

	Legislation requires		hand-held phone is prohibited if		Requirement to use		Hands-free required when using		Forbidden to use			Requirements concerning			
	complete ban	use of hands-free equipment	engine is running	vehicle is moving	headset/Bluetooth	additionally fixed phone	phone function	other function	texting function	all functions that involve continous handling	headphones	location of mounting	way of fixing	SUM	Ranking Level of Detail
SE															Low
AT		1		1	1		1							4	Medium
EE		1		1	1		1							4	Medium
RO		1		1	1		1							4	Medium
BG		1		1	1		1	1						5	Medium
CY		1		1	1		1		1					5	Medium
CZ		1		1	1		1	1						5	Medium
ES		1	2				1				1			5	Medium
HU		1	2		1		1							5	Medium
IE		1	2		1		1							5	Medium
IS		1	2		1		1							5	Medium
LV		1		1	1		1		1					5	Medium
MT		1		1		2	1							5	Medium
NL		1		1	1		1	1						5	Medium
PL		1		1	1		1	1						5	Medium
SK		1		1	1		1	1						5	Medium
BE		1	2		1		1	1						6	Medium
CH		1		1	1		1	1	1					6	Medium
DK		1	2		1		1	1						6	Medium
FI		1		1	1		1	1		1				6	Medium
FR		1		1	1		1	1	1					6	Medium
UK		1	2		1		1	1						6	Medium
DE		1	2		1		1	1	1					7	High
IT		1		1		2	1	1	1					7	High
LT		1	2		1		1	1		1				7	High
PT		1		1	1		1	1	1	1				7	High
EL		1		1		2	1	1	1				1	8	High
LU		1		1		2	1		1	1			1	8	High
SI		1		1		2	1	1	1	1				8	High

1-3 = low, 4-6 = medium, 7-8 = high

Table 8: Sanction levels

	Penalty point system (2=yes)	Max allowed points	Points for phone offence	Monetary fine (EUR)	Percentage Penalty Points	Ranking Monetary Sanction
SE	1					Low
BG	2	39	6	25	15	Low
CZ	2	12	3	40	25	Low
DE	2	18	1	40	6	Low
EE	1			40		Low
FR	2	12	2	35	17	Low
HU	2	18	3	38	17	Low
IS	2	12	1	29	8	Low
LT	1			11		Low
LV	2	16		14	0	Low
MT	1			23		Low
RO	2	15	2	30	13	Low
AT	2	3		50	0	Medium
CH	2			70		Medium
DK	2	3		70		Medium
FI	1			50		Medium
IE	2	12	2	60	17	Medium
LU	2	-12		74	0	Medium
PL	2			50		Medium
SK	1			60		Medium
UK	2	12	3	70	25	Medium
BE	1			100		High
CY	2	12		85		High
EL	2	25	3	100	12	High
ES	2	12	3	200	25	High
IT	2	20	5	148	25	High
NL	1			160		High
PT	2			120		High
SI	2	18		120	0	High

Monetary sanction: low (≤ 40 EUR), medium (41-80 EUR), high (>80 EUR)

Table 9: Clustering

	Ranking scope	Ranking Level of Detail	Ranking Monetary Sanction	Cluster
EL	High	High	High	I
IT	High	High	High	
PT	High	High	High	
SI	High	High	High	
ES	Highest	Medium	High	II
FI	Highest	Medium	Medium	
DE	High	High	Low	
CH	High	Medium	Medium	
SK	High	Medium	Medium	
FR	High	Medium	Low	
LU	Medium	High	Medium	
CY	Medium	Medium	High	
NL	Medium	Medium	High	
AT	Medium	Medium	Medium	III
DK	Medium	Medium	Medium	
UK	Medium	Medium	Medium	
CZ	Medium	Medium	Low	
EE	Medium	Medium	Low	
MT	Medium	Medium	Low	
BE	Low	Medium	High	
LT	Low	High	Low	IV
IE	Low	Medium	Medium	
PL	Low	Medium	Medium	
BG	Low	Medium	Low	
HU	Low	Medium	Low	
IS	Low	Medium	Low	
LV	Low	Medium	Low	
RO	Low	Medium	Low	
SE	Lowest	Low	Low	V

4.2.5 Enforcement, Accident Investigation, and mobile phone use whilst driving

Enforcement

Traffic law enforcement influences driving behavior through two processes: general deterrence and specific deterrence. General deterrence can be described as the impact of the threat of legal punishment on the public at large. Specific deterrence can be seen as the impact of actual legal punishment on those who have been apprehended (Zaal, 1994). General deterrence includes the intensity of Police checks (the likelihood to be checked for complying with the legislation on non-distracted driving) and the severity of sanction (amount of fines, penalty points, or other sanctions). The specific deterrence is then determined by actual experiences with detection, prosecution, and punishment of offenders, and by the way the sanctions are imposed.

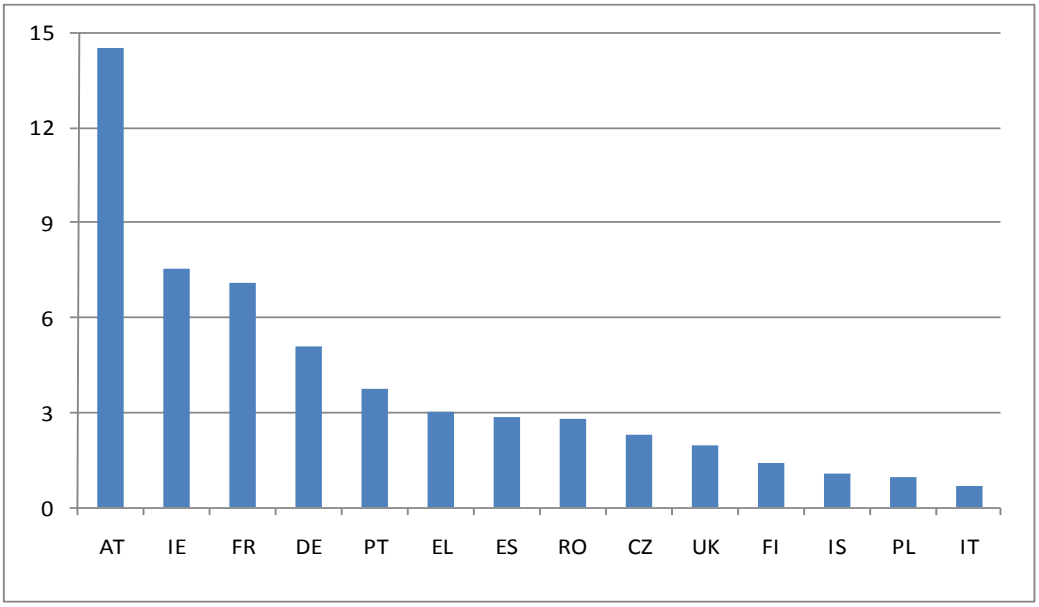
The enforcement of nomadic device related legislation could be technically more difficult compared to some other traditional offences. Visual or sound distraction is practically impossible to assess from outside the vehicle, while the miniaturisation of devices makes it difficult to visually detect if the device was used inside the moving car. The use of nomadic devices behind the wheel is nowadays exclusively subject to non-automated enforcement by police officers in vehicles, on motorbikes, or on the roadside. Being stopped after committing an offence, the violator receives immediate feedback and the police officer has the opportunity to explain why they are enforcing relevant legislation. If violators are stopped at a clearly visible spot, other drivers can see that the police are around and as such it increases the subjective risk of apprehension.

In countries that apply a penalty point system, penalty points are assigned for the violations in addition to a monetary fine. For example, in the United Kingdom from 27 February 2007, motorists who are caught using a hand-held mobile phone while driving will have three penalty points added to their license in addition to the fine of £60. This increase was introduced to try to stem the increase in drivers ignoring the law. Countries with no penalty point system are nowadays Belgium, Estonia, Finland, Netherlands, Portugal, Slovakia and Sweden. However, a special penalty point system exists in the Netherlands for novice drivers.

Legislation on the use of nomadic devices is enforced by national police forces in Member States with different intensity. In about half of countries, targeted checks are applied, meaning that the Police dedicate the full attention to the improper use of nomadic devices, typically of the mobile phone. This could take a form of a Mobile Phone Day of Action run in the UK, or specialised motorbike Police enforcement units operating in Austria. The broadest scope of checks in respect to the use of nomadic devices causing distraction is currently Spain. This is thanks to its most comprehensive legislation covering several different devices. In some countries such as Poland, or Portugal, Police report to perform both targeted and general checks of driving population. However, in about one third of countries, no specific targeted checks are performed (e.g. EL, IE, IT).

The numbers of offences in respect to the use of nomadic devices registered by police forces vary considerably between countries, but in certain jurisdictions, they outnumbered in recent years some other traditional offences such as non use of seat belts or impaired driving. Given the high level of nomadic devices use in road traffic, the level of enforcement must be low given the number of reported offences registered in particular countries. In 2009, there were between 1 and 15 registered offences per 1,000 population in different EU countries (Figure 13). Assuming that about 60% of EU population holds a driving licence, the ratio would rise to 1 to 24 per 1,000 licensed drivers. All these figures point not only to great disparities, but also to low levels of enforcement in general.

Figure 13: Mobile phone offences per thousand population in 2009 (for FR: 2008)



An offence related to nomadic device is at least 15 times less common than a speeding offence, and about twice less common than drink driving offence according to the number of attributed fines for these types of offences in different EU countries (ETSC, 2010). Yet the driving while intoxicated by alcohol over the legal blood alcohol limit (BAC) is less widespread than using the mobile phone while driving (1-2% against 2-4%) (ETSC, 2009). Table 10 shows a comparison of mobile phone offences with other offences in respect to their relative presence in road traffic and typical fine levels.

Table 10: Mobile phone offences compared to other offences

Offence	Proportion of drivers	Typical fine level
Not wearing a seat belt	12%	50€
Drunk driving	1.5%	150€
Speeding	40%	50€
Red light	1%	50€
Mobile phone	2-4%	68€

Sources: own calculations, ETSC (2010)

There is no correlation between the level of the monetary fine for nomadic device offences and the number of imposed fines per population. One can thus refute a common populist argument that the intensity of enforcement of this type of offences is driven by financial interest of public administration, and not by a keen common interest of policy makers.

Usually, mobile phone offences falls under administrative law in the Member States. However, the use of hand-held mobile phones while driving is treated as a criminal offence in Belgium, Finland, Ireland and the UK. It could also be treated under the criminal law in Cyprus, Denmark and in the Netherlands.

Accident investigation

The use of nomadic devices, or distracted driving, are reported in police accident investigation forms in a majority of member states, but the level of detail and presumed underreporting make the data unreliable and incomparable between countries. The elementary problem is the impossibility to verify whether the driver was using (improperly) a nomadic device at the crash event. Table 11 shows an overview for the countries selected for Survey II.

Table 11: Accident investigation forms and mobile phone use

ES	Part of the investigation but not comprehensively registered in the accident database
IT	Yes.
PL	No
SE	Police officers might report on this, if they think that distraction due to mobile phone use or nomadic devices was the accident cause. This is rather seldom.
UK	Yes

However, there is hardly any data available on accidents caused by improper device use. In Italy, 15% of accidents are caused by driver distraction (in general) according to accident statistics. However, the breakdown per device or type of distraction is not available.

In France, where the distracted driving has received a great attention in recent years, driver distraction was reported in 10% of fatal accidents, but the attribute was not filled in for 78% of cases. Thus, it is impossible to determine how many driver among those 78% could have been distracted by the use of a nomadic device and yet non-recorded.

In the UK, "distraction in vehicle" was reported as a contributory factor of 3% of fatal accidents in 2008. In 16 fatal crashes (1%), "Driver using mobile phone" was reported to be a contributory factor in accident.

Use of mobile phones whilst driving: Observational studies and Surveys

Observational studies and surveys carried out by independent observers from the roadside indicate that the improper use of nomadic devices behind the wheel is widespread on European roads and varies between 2-4%.

The National Road Safety Observatory in **France** regularly undertakes measurement of the use of hand held mobile phones in road traffic. Observations are made from the roadside at 60 observation points and during 4 months. Measurements done in 2008 and 2009 shows that about 2% of drivers use their hand-held mobile phone while driving.

In the **Czech Republic** the Transport Research Center (CDV) performed an annual survey on the use of hand-held mobile phones while driving in 2009 with following results: 2.03% found using a mobile phone while driving – among 106.000 drivers observed on all road types.

In **Slovakia**, the VUD, Ltd, as a contractor of the Ministry of Transport, Posts and Communications performed an annual survey on the use of hand-held mobile phones while driving. On the sample of 12,786 drivers, the misuse of mobile phones was detected for 4.19% of drivers. In 2009, it was 3.29% on the sample of 21,930 drivers.

In **Belgium**, a survey by an independent market research agency (Dedicated Research, Brussels) was carried out in 2009 on behalf of the Belgian Road Safety Institute in the framework of the 2009 mobile phone campaign. The online survey among a representative sample (n=687) of the Belgian car driver population measured attitudes (risk perception) and self-reported behaviour regarding mobile phone use, both before and after the campaign (two measurements). Altogether 51% of recipients declared not to use their phones to make or receive calls while driving; 35% to not use their phone at all (no text messages). On average, mobile phones are used 4 times a day while driving: 0.9 outgoing calls, 1.6 incoming calls and 1.4 text messages. 28% of car drivers stated to own a hands-free kit. However, having a hands-free kit does not necessarily mean that it is actually used (15% of drivers who own a hands-free kit reported to never use it). Most drivers limit mobile phone used while

driving, only 6% make or receive phone calls at any time and in no matter what conditions, even if they do not have a hands-free kit.

In **Austria**, a survey (n=1000) by the Austrian Road Safety Board (KfV) found out that although 78% of drivers stated to occasionally use a mobile phone while driving, only 48 % of these drivers actually own hands-free equipment (KfV, 2010). Moreover, 12% of drivers owning hands-free equipment, are actually not making use of this equipment for making phone calls whilst driving. Concerning texting (SMS), 32% of drivers stated to occasionally read text messages whilst driving, while 14% of drivers admitted to also write text messages occasionally while being behind the wheel.

In 2003, **Finland** introduced a new law that prohibits handheld mobile phone use while driving a motor vehicle. Following the introduction, Rajalin et al. (2005) assessed the impact of the law on phone usage and self-reported safety during the first few months after introduction of the law and 16 months later to determine whether the initial level of compliance with the law had been sustained. Data were collected by before (spring 2002) and after legislation took effect (spring 2003 and 2004). A representative sample of drivers who owned a cell phone (n = 836 to 966) was interviewed each time. On-road observations were also collected in four cities for 2003 and 2004.

According to the authors, just after the introduction of the law, 97% of drivers were aware of the new hands free legislation. In sharp contrast to the pre-law rate of 16%, 43% reported not using the phone while driving immediately after the law and 41% one year later. The occasional users especially reduced their use of phones while driving. The law was correlated to reductions in self-reported handheld use of cell phones while driving, from 55.6% pre-law to 15.2% immediately after introduction. In spite of this change, however, the hands free legislation did not reduce self-reported involvement of Finnish drivers in phone-related hazards. Handheld usage was still lower in 2004 than pre-law (20.0%), but the 32% increase from 2003 was significant. Observational data collected in Finland in 2003 and 2004 showed an even higher upward trend in handheld use (87% increase, from 3.1% to 5.8%; pre-law data were not available). Rajalin et al. (2005) conclude that the effect of the law on phone use substantially declined within one year.

4.3 Excursus: International overview (Australia, Canada, Japan, U.S.)

This excursus provides an overview on nomadic devices related legislation in some overseas jurisdictions. In particular, this following section shows the results of a literature search on the regulatory situations on using nomadic devices in vehicles in Australia, Canada, Japan, and the U.S.

Comparable to the situation in most of the EU countries, the overseas countries have both general and specific legislation adopted that is related to driver distraction and/or nomadic devices. Concerning nomadic devices, mobile phones are most commonly addressed by legislation. Some countries, however, have also introduced specific regulations on other devices (e.g. TVs, music players).

Australia

In Australia, there exist general and specific laws relating to driver distraction. According to Regan, Lee & Young (2008), the Australian police have discretion under their own State and Territory legislation to reprimand drivers who they think are driving "carelessly" or "dangerously", which includes careless or dangerous driving that arises from driver distraction. This general legislation, and in particular the careless driving provision, tends to be used in circumstances where a driver has been distracted and an accident occurs. Under this legislation, the charge is heard and determined by a court.

There also exist more specific laws relating to driver distraction in Australia. With regards to mobile phone use, the Australian Road Rules (ARR) 300 states that *"the driver of a vehicle (except an emergency vehicle or police vehicle) must not use a mobile phone while the vehicle is moving, or is stationary but not parked"*. Hands-free mobile phones are exempt, either if they are mounted in the vehicle or remotely operated by means of a device (whether connected to the phone by means of a wire or otherwise). It is prohibited to press a key on the phone, or otherwise manipulate the body or screen of the phone, if the phone is not secured in a mounting affixed to the vehicle.

The rule defines that a "phone call" does not include a text message, video message, email or similar communication; whereas "use" in relation to a mobile phone, includes the following:

- holding the phone to, or near, the ear (whether or not engaged in a phone call);
- creating, sending or looking at a text or video message on the phone;
- turning the phone on or off;
- operating any other function of the phone.

A failure to obey this rule can result in a loss of demerit points (3 points in Victoria and New South Wales, and 1 point in Western Australia), and a monetary fine of $141 in Victoria (app. 100 EUR), $225 in New South Wales (app. 160 EUR), and $100 in Western Australia (app. 70 EUR).

With regards to other nomadic devices, ARR 299 states that *"a driver must not drive a motor vehicle that has a television receiver or visual display unit in or on the vehicle operating while the vehicle is moving, or is stationary but not parked, if any part of the image on the screen (a) is visible to the driver from the normal driving position; or (b) is likely to distract another driver"*. This rule does not apply if the visual display unit is, or is part of, a driver's aid (e.g. closed-circuit television security cameras, dispatch system, navigational or intelligent highway and vehicle system equipment, rear-view screens, ticket-issuing machines, or a vehicle monitoring device).

Canada

Harbluk et al. (2010) provide a detailed and comprehensive overview on the current legislative situation in Canada; hence, the following section mainly refers to their findings.

In Canada, road safety is a shared responsibility of the federal and provincial/territorial governments. Thus, legislation that can be applied to distracted driving is found in both the Criminal Code of Canada and the respective provincial/territorial highway traffic/safety acts. The Criminal Code of Canada contains only general legislation under the charge of dangerous driving. If convicted of dangerous driving, a person can serve a maximum of five years in prison. The penalty increases to a maximum term of 10 years if someone is injured, or 14 years if someone is killed.

All Canadian provinces and territories have also a similar general law that can be used to address distracted driving. Referred to as careless or imprudent driving, the general legislation varies by province and often prohibits driving without due care or attention. Being convicted of this charge does not result in a criminal record, but it is instead an administrative punishment administered by the province. Sanctions for these charges vary by jurisdiction but can include fines, demerit points, and licence suspensions.

Several Canadian provinces have explicit legislation dealing with specific driver distractions. Early distracted driving laws were directed towards televisions in the vehicles, prohibiting either a working television in the vehicle, or a working television visible to the driver. However, as the popularity of mobile phones and additional telematics devices increased, provinces began to introduce additional legislation addressing these new technologies, starting with Newfoundland and Labrador in 2003. As of May 2010, seven Canadian provinces have legislation prohibiting handheld mobile phone use while driving (Newfoundland and Labrador, Quebec, Nova Scotia, Ontario, British Columbia, Saskatchewan, and Prince Edward Island). In addition, Manitoba has passed a bill banning hand-held cell phone use while driving, although the bill not has yet been proclaimed. Also Alberta has introduced new anti-distraction legislation. Moreover, also municipalities may impose by-laws with respect to vehicle and pedestrian traffic on municipal roads, as specified under provincial highway or motor vehicle acts (Wilson, 2005).

Harbluk et al. (2010) highlight that legislation dealing with texting, other telematics (such as navigation systems), and hands-free systems, is more diverse. Stemming perhaps from the fact that early legislation focusing on new technology and distracted driving was written before the ubiquitous use of texting and other technologies, the legislation of Newfoundland and Labrador, and Quebec focuses on mobile phone use. While Newfoundland and Labrador's legislation specifies hand-held mobile phones, Quebec's legislation prohibits the use of *"a hand-held device that includes a telephone function"*. Such legislation covers texting as well because there are currently no devices that allow for texting in a vehicle without an included telephone function. In addition, Nova Scotia's legislation, which came in force the same time as Quebec's in April 2008, focuses solely on hand-held mobile phone use and texting. However, the popularity of other vehicle telematics that cause distraction is increasing.

Legislation that has been passed within the last year has attempted to include distractions beyond mobile phones and texting reflecting a broader technological scope. For example, Manitoba prohibits any hand-held electronic device, while Ontario prohibits any hand-held electronic communication or entertainment devices. The most recent legislation, which came into place in British Columbia and Saskatchewan in 2010, also uses generic equipment wording in the legislation. In addition, these provinces ban the use of the electronic equipment completely for drivers in their graduated licensing programs. Consequently, new drivers cannot use any electronic communications equipment while driving, including mobile phones equipped with hands-free equipment The legislation recently introduced in Alberta takes an even more comprehensive view of distraction, prohibiting the use of hand-held electronic equipment and communication devices, and activities such as reading, writing.

Japan

Besides general legislation that requires drivers to behave carefully and watch out for other road users, the government introduced in 1999 a regulation prohibiting drivers from using wireless communication devices for conversation, or fixing their eyes on image display devices while the vehicle is in motion (Cabinet Office, 2005). The included Article 71 of the Road Traffic Act stipulated that a vehicle driver must not use a mobile telephone, car phone or other radio communication device while driving a vehicle (including moped), except while the vehicle is stopped. This applied to mobile phones or other instruments when drivers cannot receive or make calls without holding the device in their hands. However, although a penalty clause was included (imprisonment up to 3 months or monetary fines up to 50,000 Yen [app. 440 EUR]), offenders could only be fined by the police when causing danger to other road users.

Immediately after the law went into force in November 1999, there was a sharp decline in accidents resulting from the use of mobile phones or other distracting devices. The number of accidents involving mobile phone use was reduced by 52 %, the number of people injured in such accidents was reduced by 53 % and in the number of people killed in mobile phone accidents went down by 20% following the introduction of the law (Breen, 2009).

However, the deterrent effect of the legislation eventually began to erode in the following years, and the number of accidents related to distracting devices increased again in 2003 to a level nearly double that of the year 2000 (Cabinet Office, 2005).

As a consequence, the government introduced major revisions to the mobile phone law in 2004. In November 2004, the "Law to Partially Revise the Road Traffic Law (Law No. 90 of 2004)" was adopted, which included a new set of penalties for mobile phone use while driving. The revised law now stipulates a fine of up to 50,000 Yen for simply holding a wireless communication device to engage in conversation or holding an image display device and fixing one's eyes on the screen. Moreover, violations are now subject to the Traffic Infraction Notification System, in which infraction fees are levied at a rate of 7,000 Yen (app. 60 EUR) on large motor vehicle operators, 6,000 Yen (app. 52 EUR) on ordinary automobile/motorcycle operators, and 5,000 Yen (app. 44 EUR) on moped operators.

United States

In the U.S., there exist general and specific laws relating to driver distraction and the use of nomadic devices whilst driving (Hedlund, Simpson & Mayhew, 2005). With rare exceptions, traffic laws regulating driver behaviour fall under the authority of the states in the U.S. The most general laws related to distracted driving prohibit driving "without due care and attention", or similar phrases. In addition to these very general laws, some jurisdictions have chosen to address specific forms of distractions (e.g. the use of mobile phones, TVs etc.)

Concerning mobile phones, there are several different types of laws and regulations that address the use of mobile phones while driving (IIHS, 2010). A jurisdiction-wide ban on driving while talking on a hand-held mobile phone is in place in seven states (California, Connecticut, New Jersey, New York, Oregon, Utah, and Washington) and the District of Columbia. Utah has named the offence careless driving. Under the Utah law, no one commits an offence when speaking on a mobile phone unless they are also committing some other moving violation other than speeding. Moreover, local jurisdictions may or may not need specific state statutory authority to ban mobile phones. Localities that have enacted restrictions on mobile phone use include: Oahu (Hawaii); Chicago (Illinois); Brookline (Massachusetts); Detroit (Michigan); Santa Fe (New Mexico); Brooklyn, North Olmstead, and Walton Hills (Ohio); Conshohocken, Lebanon, and West Conshohocken (Pennsylvania); Waupaca County (Wisconsin); and Cheyenne (Wyoming).

Furthermore, there exist particular restrictions for young and novice drivers on using mobile phones in several states. In the U.S., bans on telephoning while driving — whether hands-held or hands free — are being increasingly introduced as part of graduated driver licensing arrangements. Currently, the use of all mobile phones by novice drivers is restricted in 25 states and the District of Columbia (IIHS, 2010). In most states, these mobile phone restrictions cover teenagers holding a learner's permit or intermediate license, although in some states the restrictions cover all drivers under the age of 18 or 19 (Breen, 2009).

Finally, the use of all mobile phones while driving a school bus is prohibited in 18 states and the District of Columbia.

As regards the use of other mobile phone functions, text messaging is banned for all drivers in 25 states and the District of Columbia. In addition, novice drivers are banned from texting in nine states (Alabama, Delaware, Indiana, Kansas, Maine, Mississippi, Missouri, Texas, and West Virginia) and school bus drivers are banned from text messaging in two states (Oklahoma and Texas).

With regards to the use of other nomadic devices, 37 states and the District of Columbia prohibit video monitors forward of the driver's seat or visible to the driver when driving (OR-FACE, 2007). Moreover, Connecticut, New Hampshire, and the District of Columbia prohibit all drivers from engaging in activities unrelated to the operation of the motor vehicle.

5 Road safety impact of nomadic devices and related legislation

5.1 Introduction

This chapter details the results of a survey undertaken to assess if and how drivers use nomadic devices whilst driving (using the classification determined for Survey I) and how those interactions impact on their driving. The cluster analysis carried out on the data from Survey I allowed the sampling of countries with a range of legislation. Relating the results back to the regulations in place in the specific member state will enhance our knowledge as to the impact of that regulation, at least in terms of drivers' perception and self-reported behavior.

5.2 Survey methodology

5.2.1 Survey items

We aimed to model the likelihood of drivers having and using NDs in their vehicle, by investigating how:

i. Age

ii. Gender

iii. Annual mileage

iv. Country (and thus regulation)

predict:

i. Propensity to own a Nomadic Device

ii. Propensity to use the Nomadic Device while driving

In the case of (ii), some interactions with the Nomadic Devices are more risky than others. We therefore addressed the following high-risk scenarios:

- Navigation System: destination entry or change
- Mobile phone: texting

- MP3 player: changing tracks/artists
- Portable TVs or DVD Players: having the screen visible

The survey items were presented as frequency or likelihood scales, apart from the section regarding their knowledge of legislation, which were forced choice (True/False) items. Following piloting, the survey was translated into Spanish, Italian, Polish and Swedish. The English version can be found in the annex (8.7).

Measures of self-image (safety and skill), perceived distraction and likelihood of being stopped by the police, were also included as predictors of drivers engaging in the high-risk scenarios (but not for "normal" interactions with the Nomadic Devices). A driver's evaluation of their skills could influence their propensity to engage in higher-risk behaviours, as found in previous studies of mobile phone use (Wilson et al., 2003; Eby & Vivoda, 2003). Those drivers reporting higher skills may be more inclined to undertake more complex interactions with their Nomadic Devices, and may also report different (lower) safety attitudes (Näätänen & Summala, 1974).

These two facets of self-image (skill and safety) were measured with a 10-item version of the driver skill index (Lajunen & Summala, 1995). Sum scores were used for skill and safety factors, see Table 12.

Table 12: 10-item version of self-image scale

Skill factor	Safety-motive factor
Performance in a critical situation	Keeping a sufficient following distance
Self-control while driving	Overtaking
Fluent lane changing in heavy traffic	Conforming to the speed limits
Tolerating other drivers' errors calmly	Fast reactions
Controlling the vehicle	Avoiding unnecessary risks

Lamble et al., (2000)

On each item, the respondents evaluated their strong and weak components of driving on an ordinal scale (1 = poor, 5=excellent).

5.2.2 Survey distribution

An online methodology was employed as being the most appropriate and cost effective choice, via a survey company with on-line panels in most Member States. An online panel is a pre-recruited group of individuals or households who have agreed to take part in online market research surveys. Panels are pre-screened, meaning that much is known about them, including demographics, their choice of media, and their employment situation.

Online panels, however, are not perfect and by their very nature they exclude non-users of the internet (termed Coverage Error) which could create bias in results because the profile of those who are online differs from drivers generally. Generally the demographic profile of internet users is strongly skewed towards the younger, the more affluent and the more educated. However, those people who carry the various nomadic devices are likely to have a good representation on the various European panels.

5.2.3 Respondents

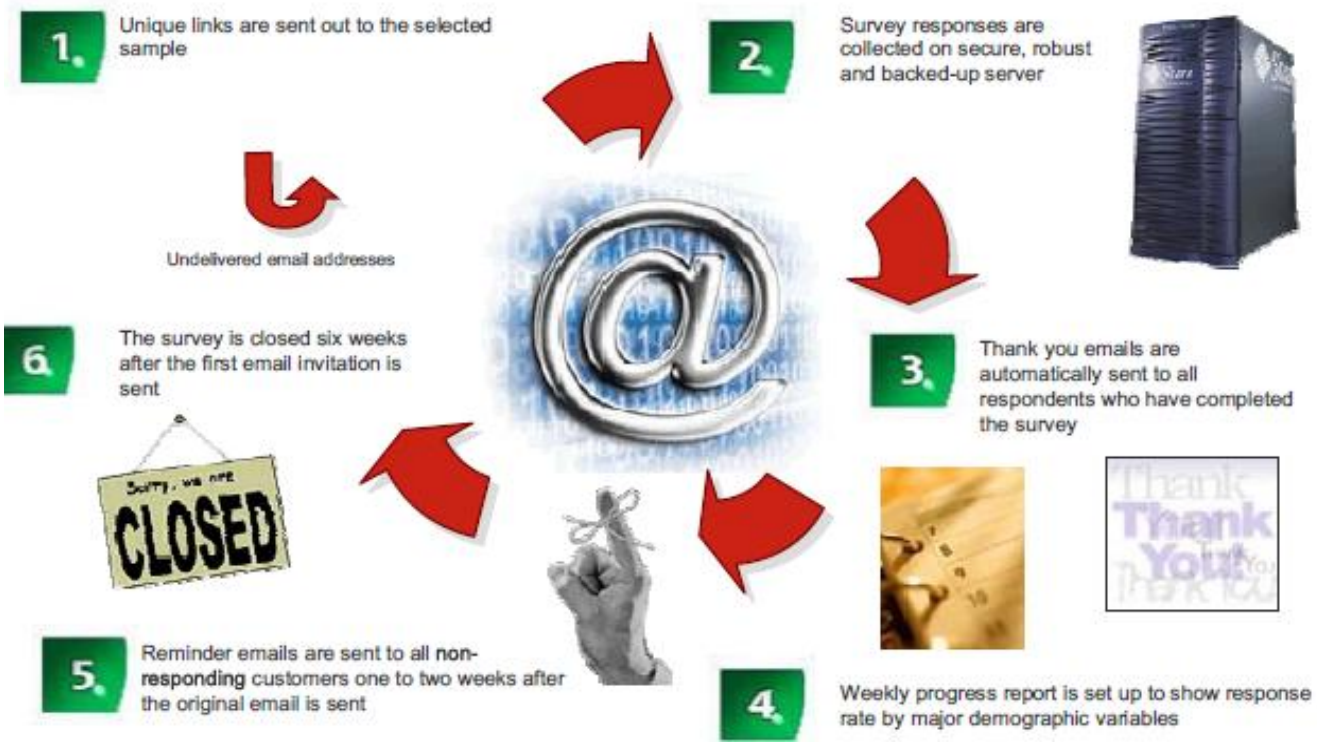
Participants were screened and only included if:

- They were currently car drivers
- They owned one or more of the following NDs:
    - Personal Navigation Devices (PNDs)
    - "classical" or "sophisticated" mobile phones (e.g. iPhone, Blackberry etc.)
    - Music Players (e.g. iPod etc.)
    - Portable TVs and DVD players

5.2.4 Procedure

The general procedure for inviting respondents is detailed below in Figure 14.

Figure 14: Procedure for recruitment via an on-line panel



5.2.5 Analyses

Forced entry logistic regression was carried out to determine which variables predict ownership of each of the Nomadic Devices. Logistic regression employs binomial probability theory, in which there are only two values to predict: that probability (p) is 1 rather than 0, i.e. the event/person belongs to one group rather than the other. Logistic regression forms a best fitting equation or function using the maximum likelihood method, which maximises the probability of classifying the observed data into the appropriate category given the regression coefficients.

Ordinal regression (a proportional-odds model) was carried out using age, gender, cluster membership, mileage to predict the frequency (Never-Often) of use of each Nomadic Device whilst driving. Ordinal regression is an extension of the standard logistic regression explained above. In this case the predictor is not binary, but has ordered categories (Never through to Often). Ordinal regression requires assuming that the effect of the predictor variables is the

same for each level of the dependent variable (in this case, the frequency scale). The test of parallel lines assumption, tests this assumption.

All analyses were carried out using SPSS version 16.0.2.

5.3 Results

5.3.1 Cluster Overview

Table 13 presents a general overview of the clusters in terms of the demographics of the sample and Nomadic Device ownership.

Table 13: Overview of clusters

	Italy	Spain	UK	Poland	Sweden
% male	60.84	66.11	61.26	62.38	59.60
Average km/year	16,174	17,400	15,298	15,933	13,239
Median age (yrs)	38	39	46	37	43

The clusters were similar in terms of gender spilt, with approximately 60% of each of the samples being male.

Mileage ranged between 13,200-17,400 km/year, with Sweden reporting the lowest, and Spain the highest mileage, (see Figure 15). The median age of the respondents was similar, with the majority of respondents in each cluster being in the 35-49 age bracket, (see Figure 16).

Figure 15: Km/year distribution of respondents

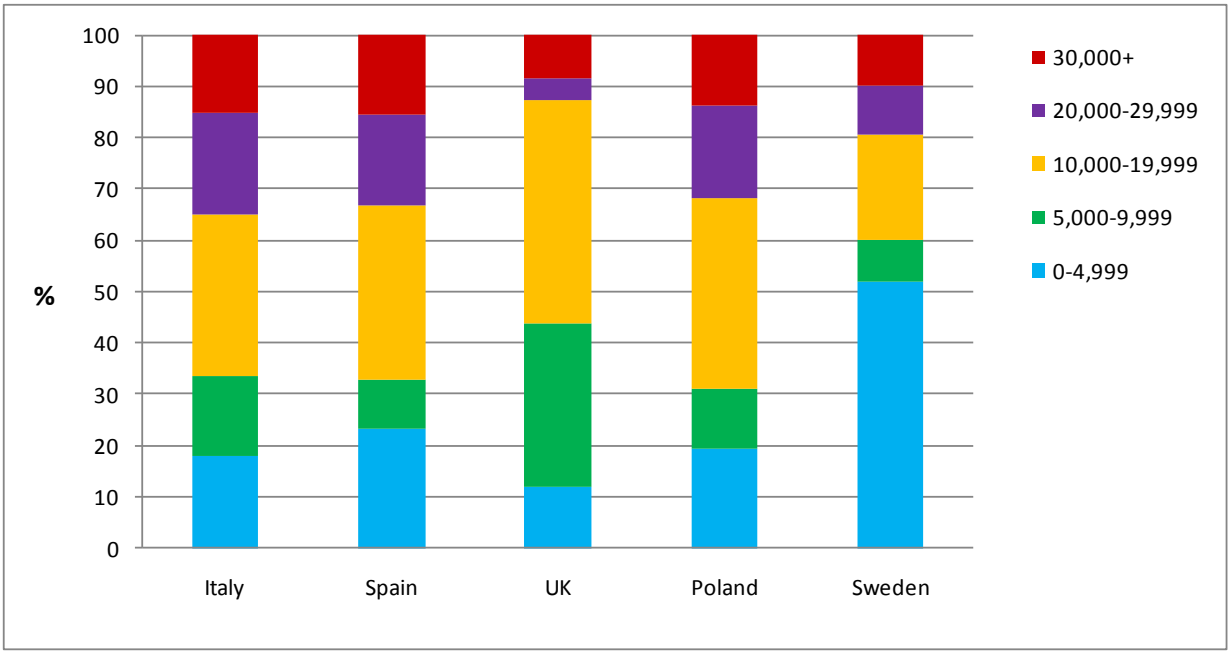
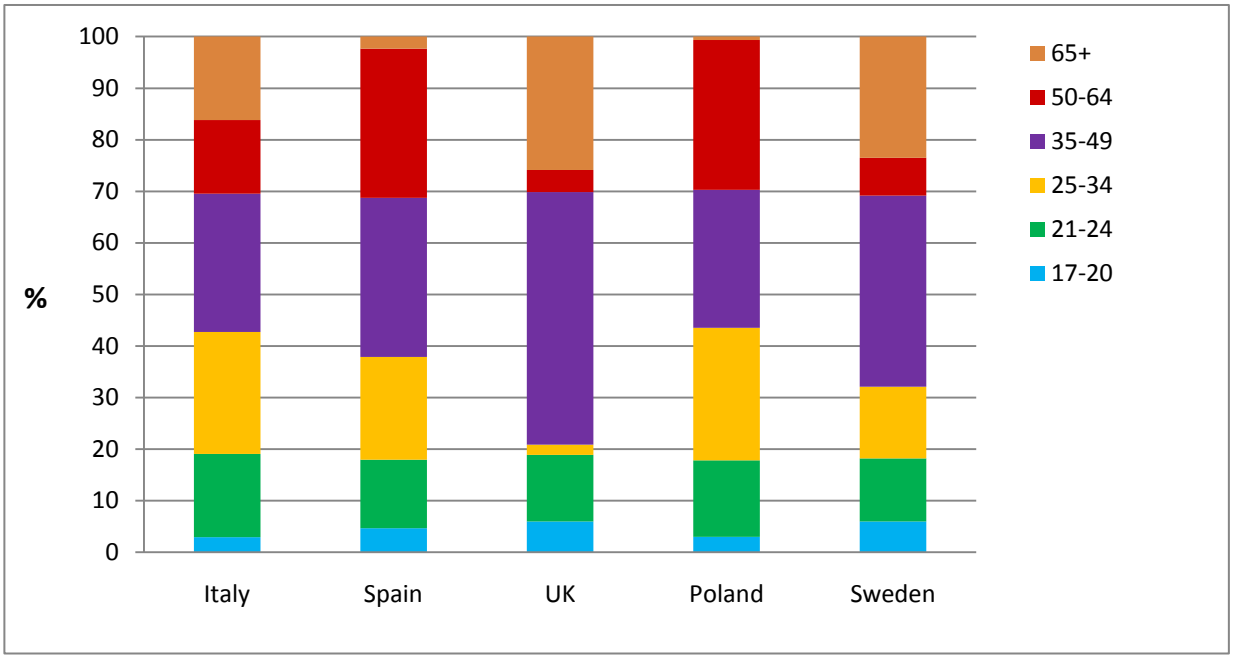


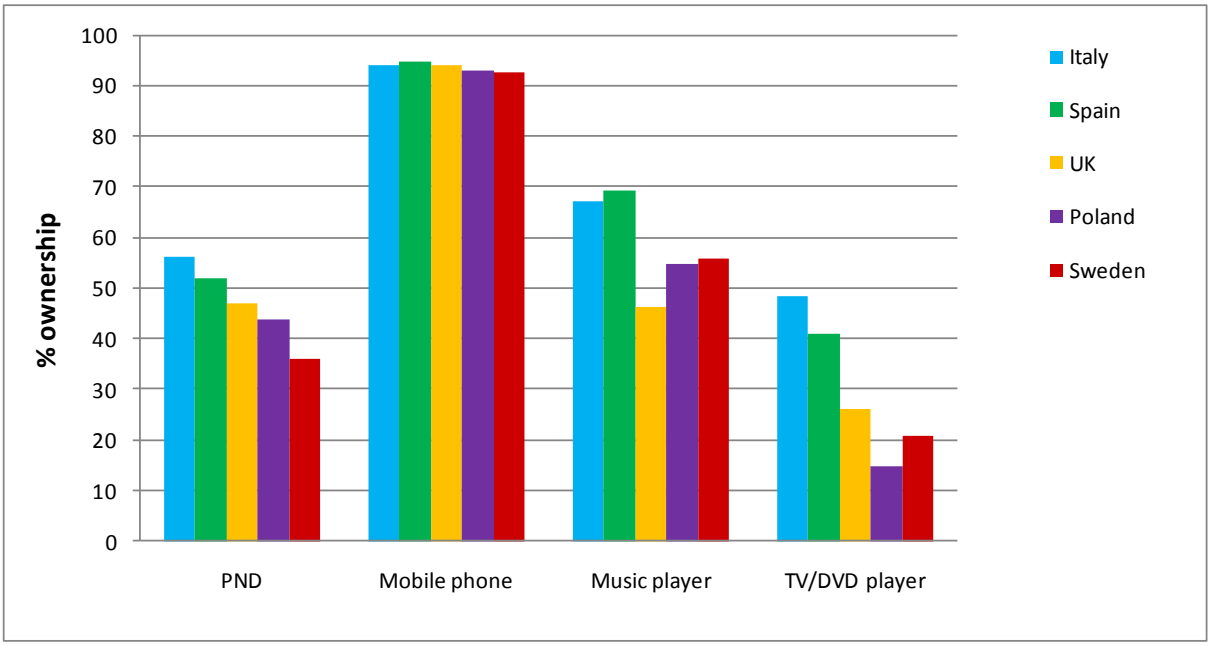
Figure 16: Age distribution of respondents



5.3.2 Nomadic device ownership and use

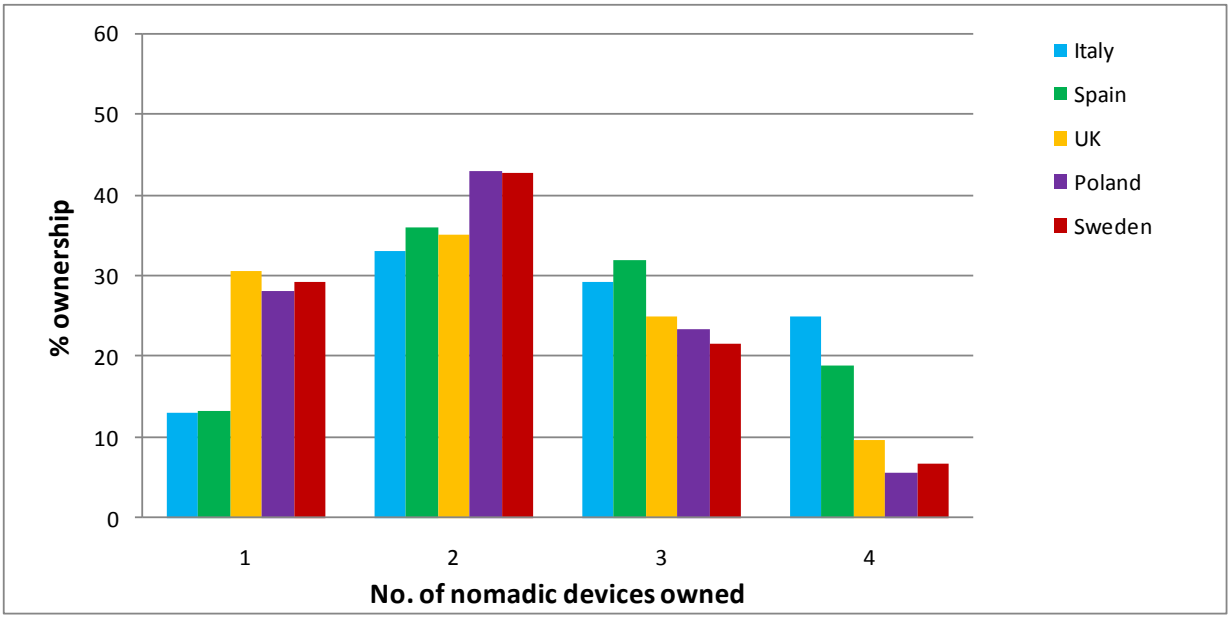
Figure 17 shows how ownership of the four Nomadic Devices varies across the countries. Ownership of mobile phones was consistently dominant (over 90% of the sample in each of the five countries) followed by PNDs and music players. TV/DVD players were the least frequently owned, particularly in Poland and Sweden.

Figure 17: Nomadic Device ownership by cluster



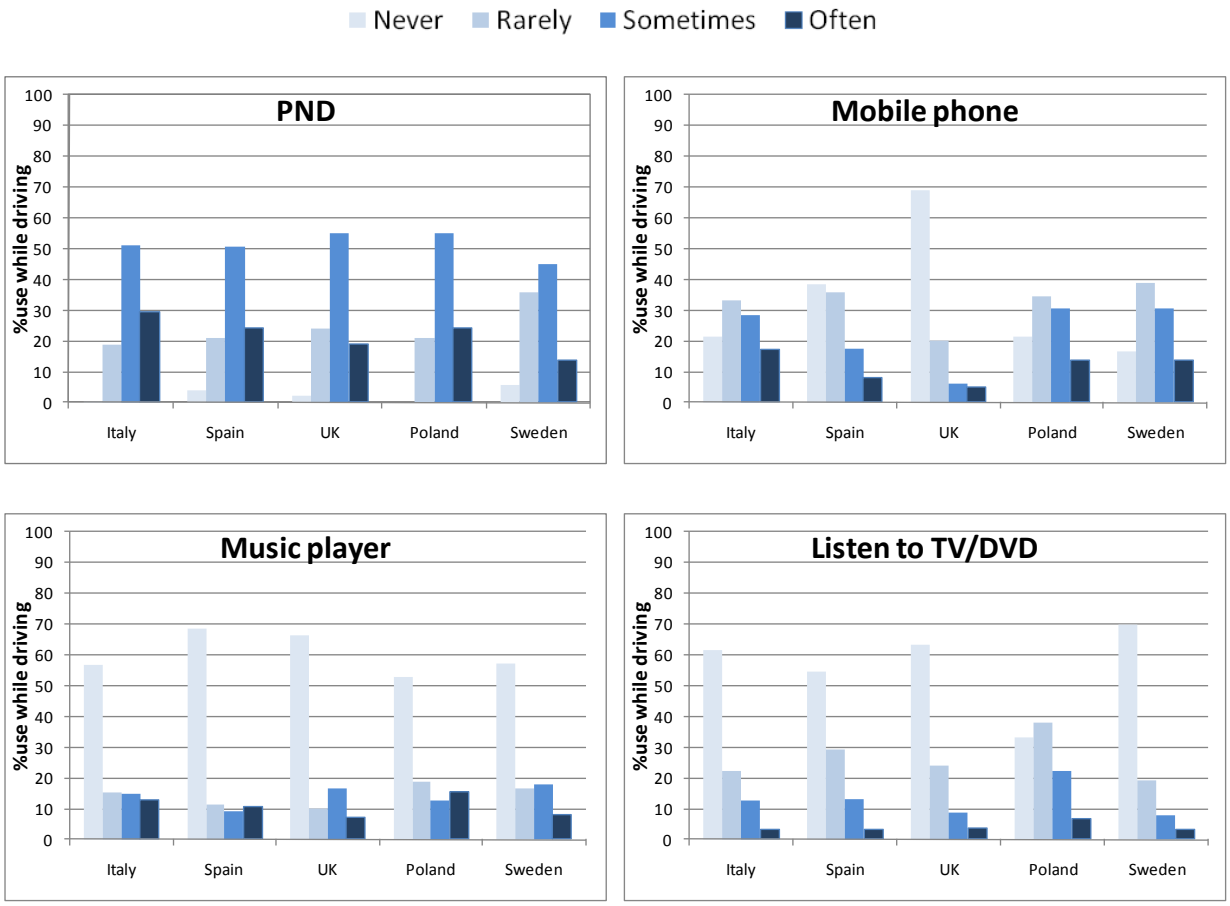
The total numbers of Nomadic Devices owned in each of the clusters are shown in Figure 18. The majority of respondents owned two Nomadic Devices, with Italy and Spain being more likely to own higher numbers.

Figure 18: Total number of Nomadic Devices owned



Respondents were asked to indicate how frequently they used each of the Nomadic Devices they owned, whilst driving. In the case of PNDs, they were asked how often they were on whilst driving, whereas for mobile phones they were asked how often they used them. For music and TV/DVD players, their frequency of listening to them was probed. The results are shown in Figure 19. PNDs, logically, are reported as being the most frequently used when driving, with approximately 50% of the sample in each of the countries occasionally using them and 20-30% using them often. Mobile phones (either hands-free or hands-held) were used less frequently with 20-30% of the samples in each of the countries using them occasionally and 20% using them rarely while driving. Seventy percent of drivers in the UK reported never using their phones whilst driving, and of those who do, 40% always use a hands-free kit (Figure 20).

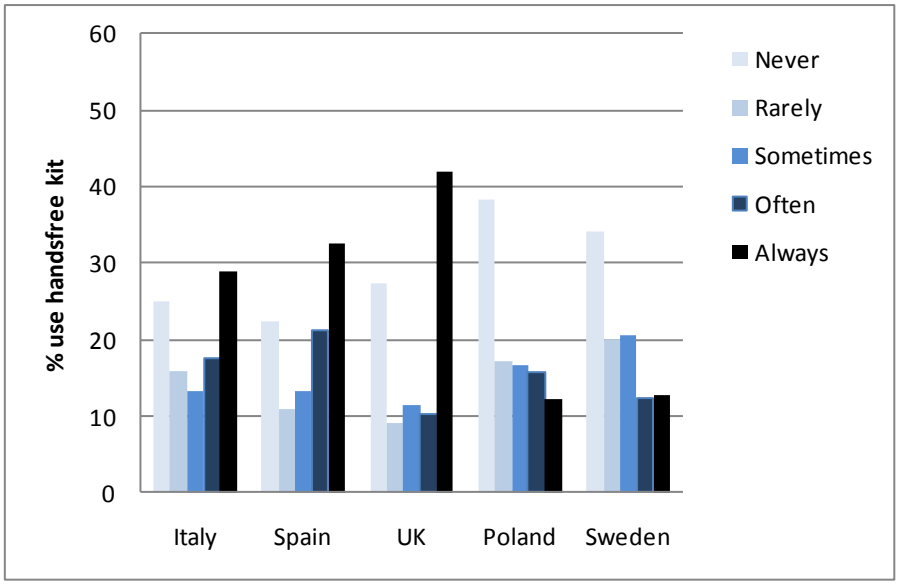
Figure 19: Use of Nomadic Devices whilst driving



Of those who own music players and TV/DVD players, the majority of drivers (around 60% in each of the clusters) claimed to never use them whilst driving, with 10% admitting to sometimes using them. A higher proportion of drivers used music players often, compared to TV/DVD players.

With regards to using additional kit for their Nomadic Devices, the proportion of drivers using a hands-free kit is shown in Figure 20. Drivers in Poland and Sweden were more likely to never use one, whilst those in Italy, Spain and the UK, were more likely to always use one.

Figure 20: Use of hands-free kit whilst driving

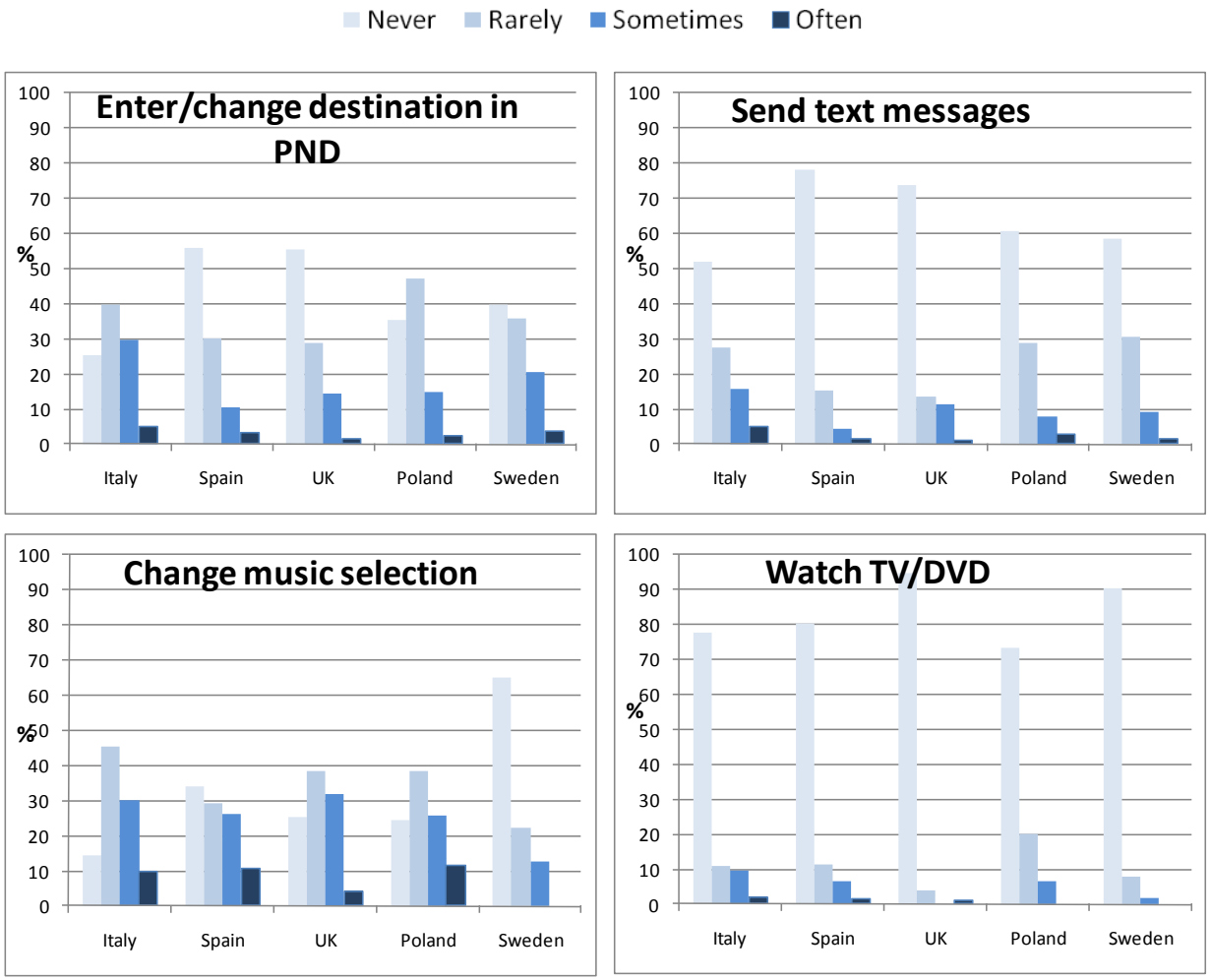


Respondents were asked to indicate how often they engaged in what could be considered as high-risk (and in some countries, illegal) interactions with their Nomadic Devices:

How often do you enter or change destinations on your navigation device whilst driving?
How often do you send text messages whilst driving?
How often do you change your selection of music on your music player whilst driving?
How often is your TV/DVD player on AND VISIBLE TO YOU whilst you are driving?

These questions were only posed to those drivers who had indicated they owned that particular Nomadic Device, (Figure 21). Between 10-30% of drivers reported that they sometimes enter or change destinations in their PND, and only 10% admitted to sometimes sending text messages. A higher proportion admitted to sometimes changing their music selection whilst driving, and 10% reporting they do it often. Watching a TV/DVD player was least reported, with an overwhelming majority reporting they never engaged in such activity. However, 10% of Italian drivers admitted doing this sometimes.

Figure 21: Frequency of high risk interaction with Nomadic Devices

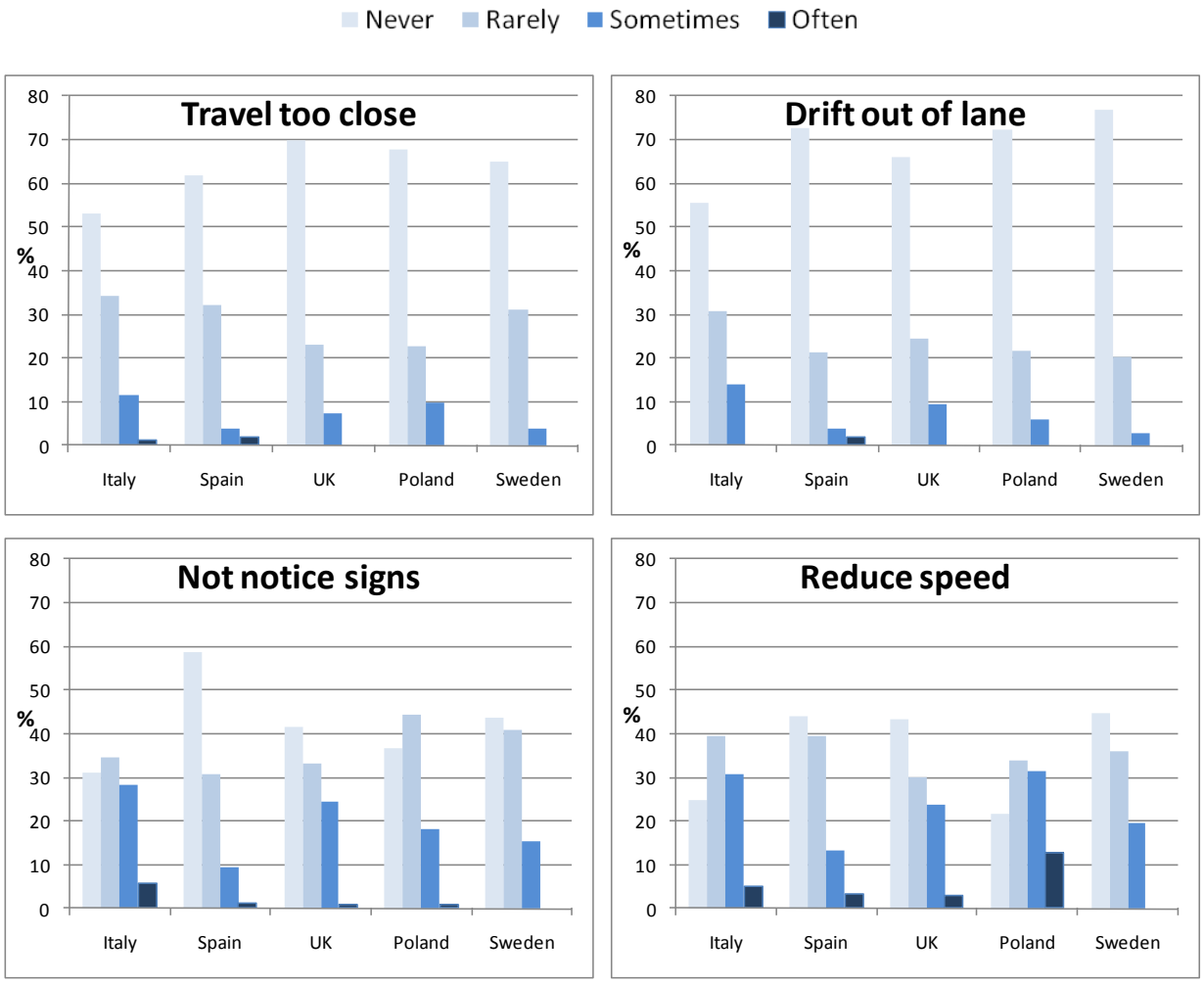


5.3.3 Safety-related behaviour changes

Drivers reported how their driving changed when using their Nomadic Devices, in terms of commonly used safety indicators, (Figure 22 - Figure 25).

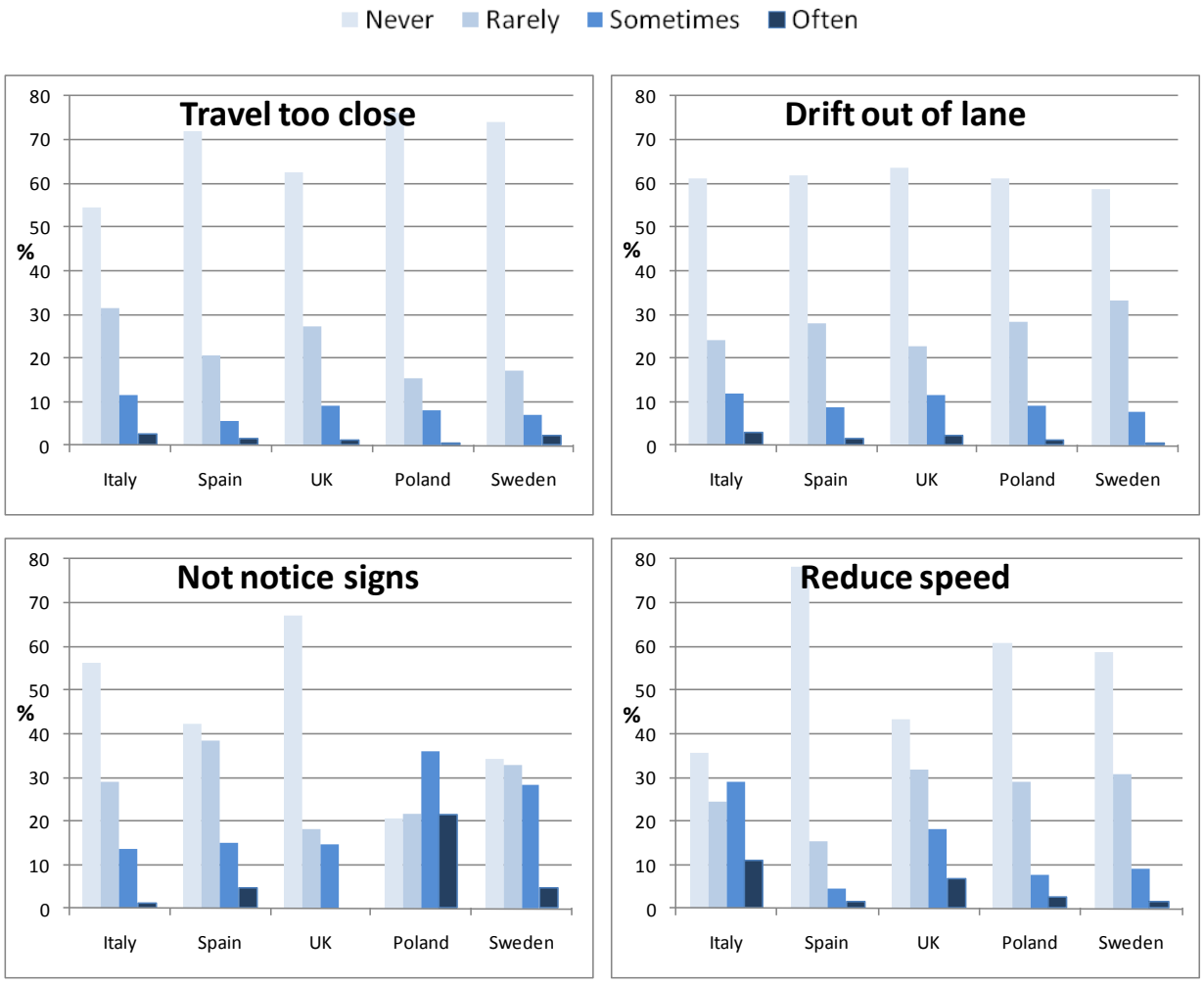
Around 10% in each country reported that when using a PND, they sometimes travelled too close to the car in front or drifted out of lane. Fewer drivers reported these behaviours in Spain and Sweden. Not noticing signs whilst using a PND and reducing their speed was reported by a higher number of drivers (20-30%), again with Spanish and Swedish drivers reporting it less.

Figure 22: Reported changes in behaviour when using a PND



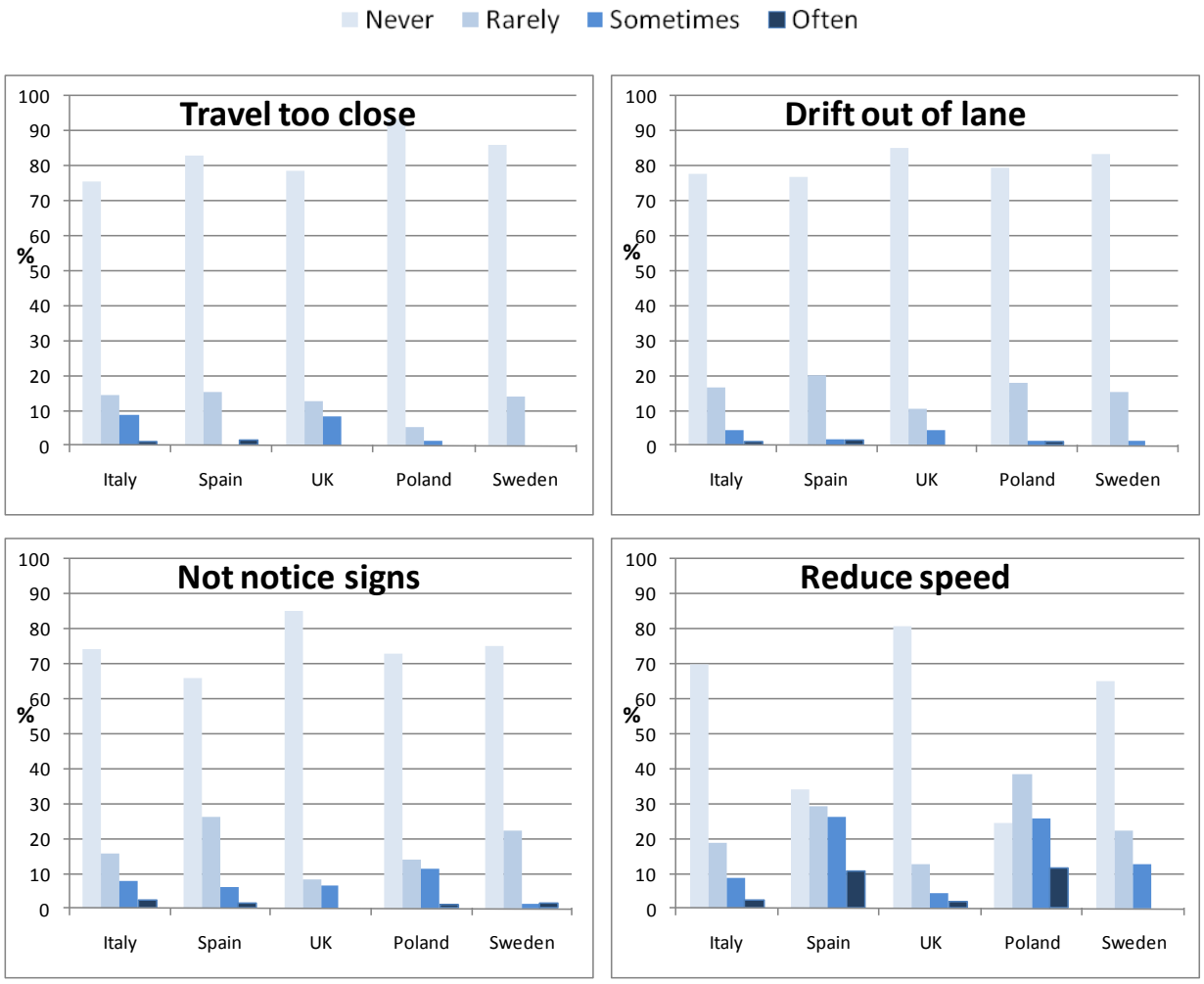
As for PNDs, around 10% of drivers reported sometimes travelling too close to a lead car or drifting out of lane, when using their mobile phone while driving. More commonly, however, drivers reported not noticing signs and drifting out of lane

Figure 23: Reported changes in behaviour when using a mobile phone



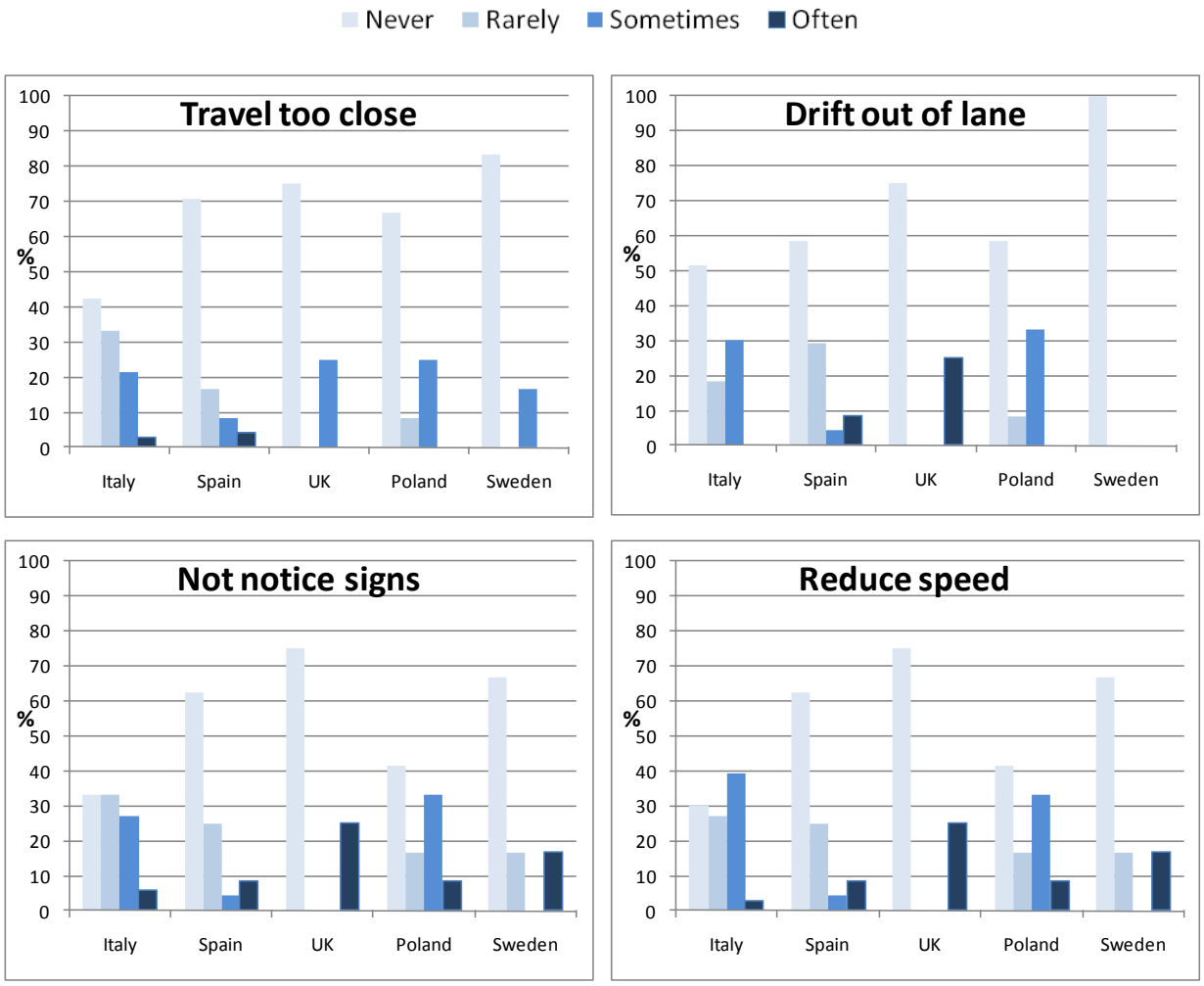
Overall, music players appear to offer much less distraction with only a small proportion of drivers reporting behavioural effects. Perhaps the exception here is on the measure of speed reduction, where particularly in Spain and Poland, drivers report this behaviour more often than other countries.

Figure 24: Reported changes in behaviour when using a music player



Bearing in mind the small proportion of drivers who admit to watching TVs and DVDs while driving, the results indicate that doing so results in a larger proportion of drivers admitting that they notice some behavioural effects. Drivers more frequently report all the behaviours happening as often, compared to the other Nomadic Devices.

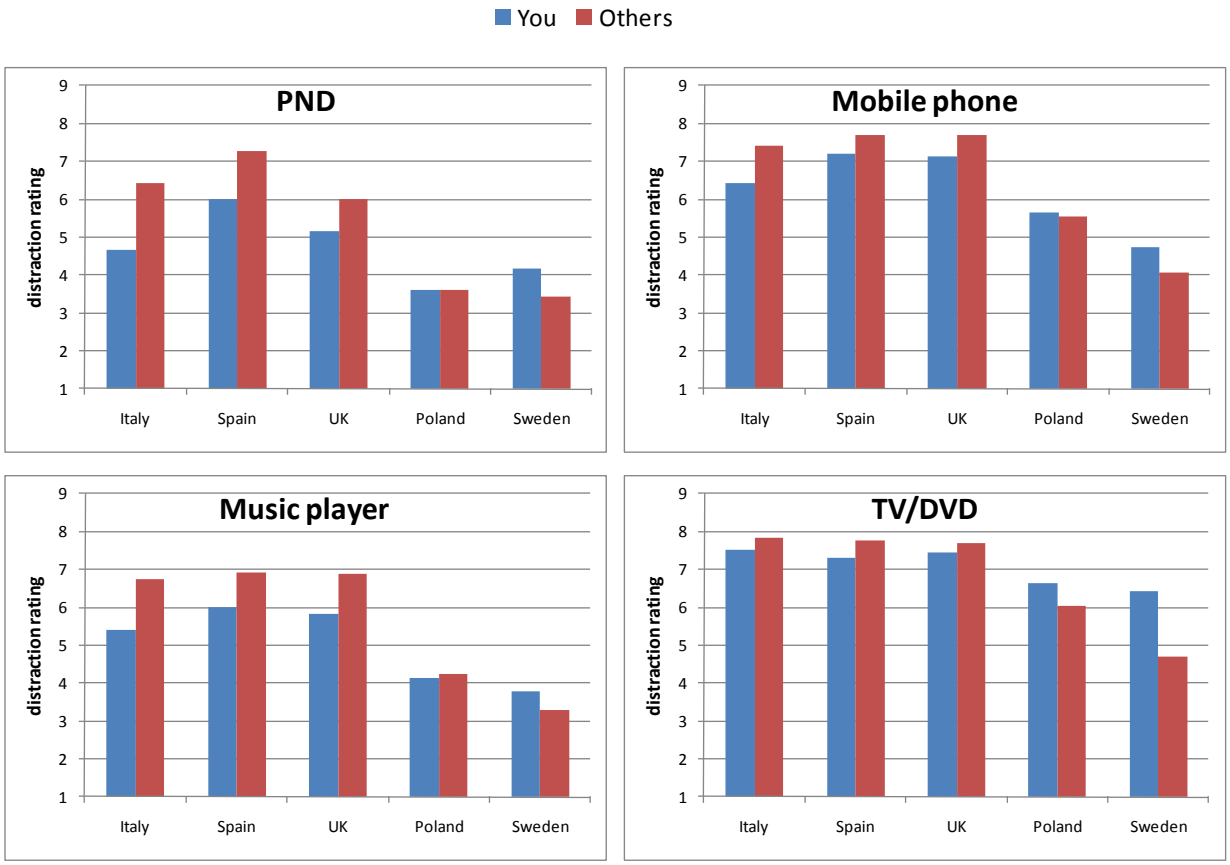
Figure 25: Reported changes in behaviour when watching a TV/DVD player



5.3.4 Perceived distraction

Drivers were asked to indicate how distracting they believed Nomadic Devices to be, for both themselves and others, using a scale of 1-9, where 9 represents the most distracting, (Figure 26). Overall, drivers were inclined to report that all Nomadic Devices were relatively distracting. Mobile phones and TV/DVDs were deemed the most distracting and, in general, Swedish and Polish drivers believed the Nomadic Devices to be less distracting than drivers in the other countries. In nearly all cases, drivers believed Nomadic Devices to be more distracting to other drivers, than to themselves.

Figure 26: Perceived distraction of Nomadic Devices

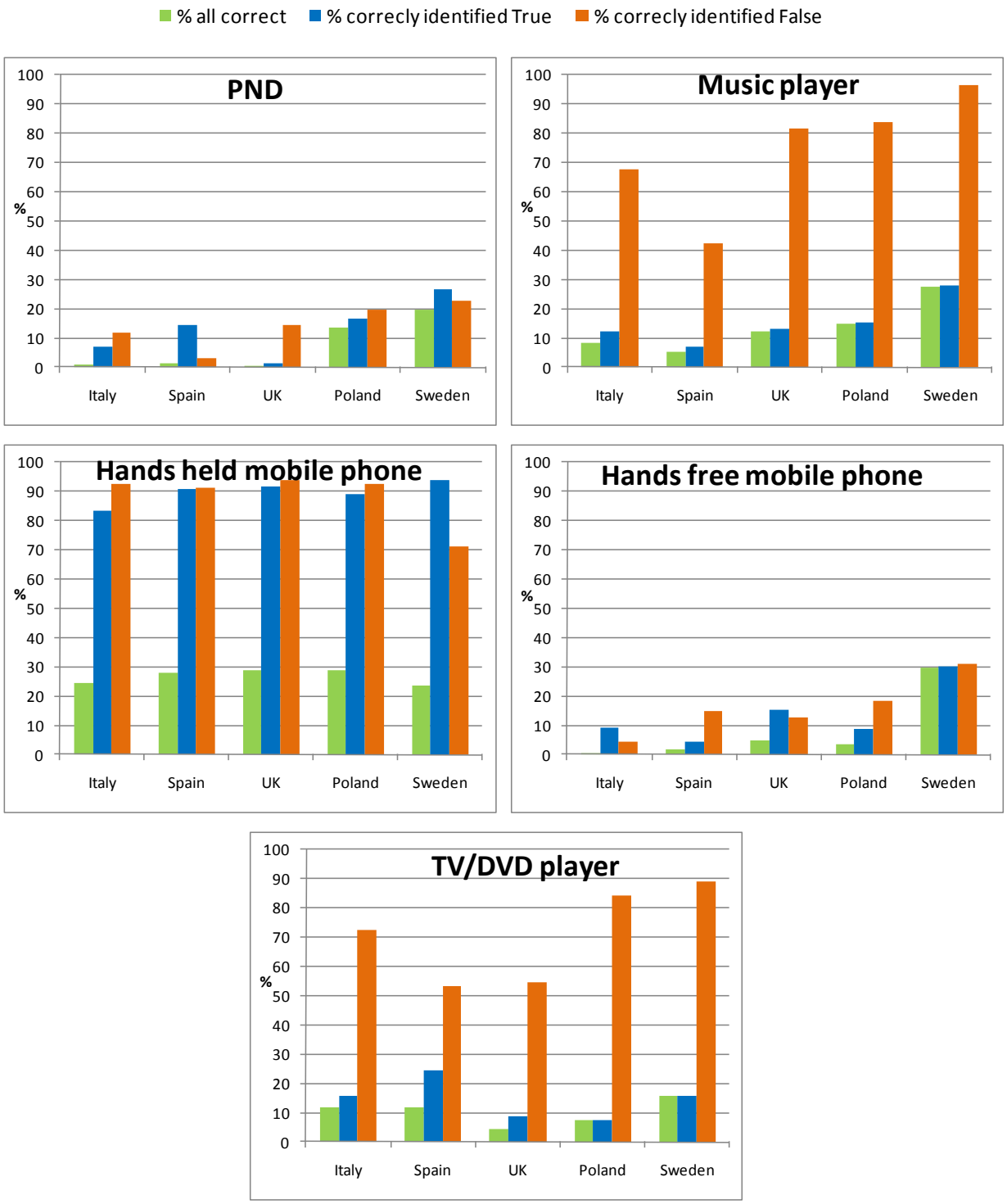


5.3.5 Legislation and enforcement

All respondents (regardless of whether or not they owned a particular ND) were provided with a number of statements relating to the legislation in their own country. They were asked to indicate whether the statements were true or false. The proportion of respondents who correctly answered all the statements was calculated, along with the proportion that correctly identified the true or false statements. First, the whole dataset was used, ignoring whether respondents owned a particular Nomadic Device or not, Figure 27.

Overall, it can be seen that respondents were not able to correctly identify all the legislation for each of the Nomadic Devices (the green bars), being the most knowledgeable about mobile phone legislation. For PNDs, Music player and hands-free mobile phones, Swedish drivers were more knowledgeable than the other drivers (reasonably so, as the legislation is relatively straight-forward).

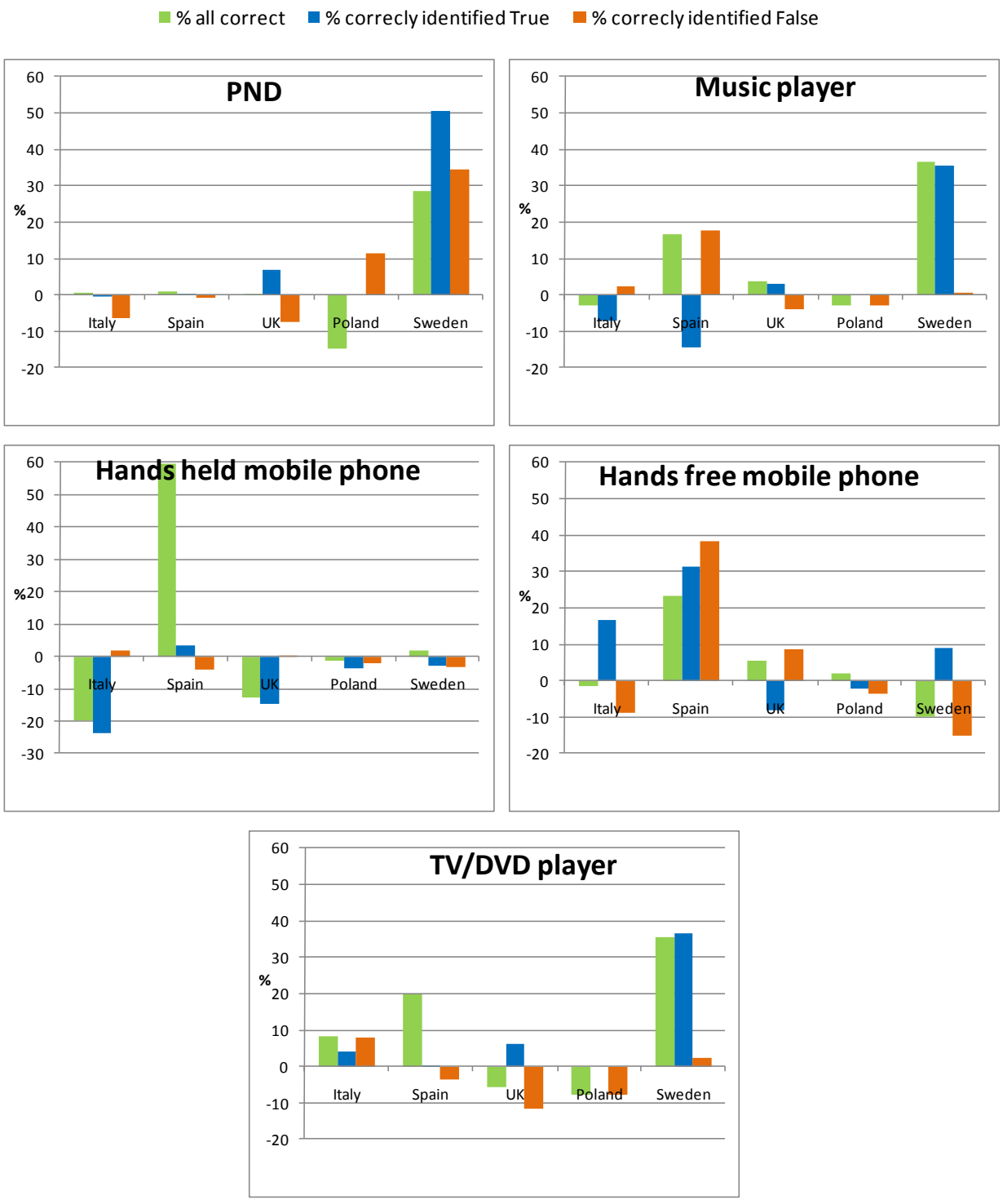
Figure 27: Knowledge of legislation



The data were then disaggregated to reflect ownership of devices, and a comparison was made between those who owned and did not own, in terms of their knowledge of the legislation. Figure 28 below shows the change in frequencies of correct answers, if respondents owned the Nomadic Device i.e. the effect of ownership on knowledge. If

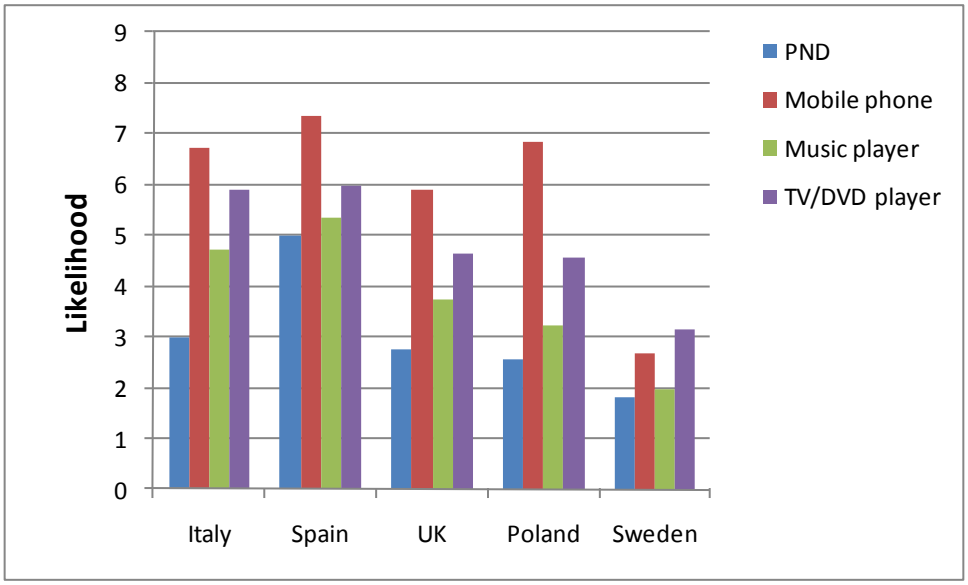
Swedish drivers owned a PND, music player or TV/DVD player, they were more aware of the legislation. Mobile phone-owning Spanish drivers were also more aware of the legislation, but in most other cases, the act of owning a Nomadic Device did not affect knowledge.

Figure 28: Effect of ownership on knowledge of legislation



Using a scale of 1-9, drivers were also asked how likely it was that they would be stopped by the police for using a Nomadic Device (Figure 29). Drivers in all countries believed they were more likely to be stopped for mobile phone offences than for other Nomadic Devices, with Swedish drivers perceiving the lowest levels of enforcement.

Figure 29: Likelihood of being stopped by police



5.3.6 Self image

Analysis showed high internal reliability in these data (Cronbach's α = 0.72 and 0.71 for skill and safety factors respectively). An overall score on each of the factors (skill and safety) was derived (Table 14).

Table 14: Average skill and safety scores

	Italy	Spain	UK	Poland	Sweden
Skill	3.8	3.8	3.9	3.6	4.0
Safety	3.9	4.0	3.9	3.8	4.0

Statistical testing revealed that respondents from Italy, Spain and the UK rated themselves as similar for both skill and safety. Those from Poland rated themselves as lower in skill and safety compared to the other countries, whilst Swedish drivers rated themselves as higher on the skill factor ($p<.001$).

5.3.7 Predicting ownership of Nomadic Devices

Logistic regression was carried out to determine which variables predict ownership of each of the Nomadic Devices, using age, gender and mileage as predictors. All were entered as categorical variables. Here, the full dataset was used (N=1,517).

Table 15: Ranking of severity of legislation for each PND

	PND	Mobile phone	Music player	TV/DVD player	Average
Italy	1	1	1	1	1
Spain	1	3	2	2	2
UK	2	2	3	3	2.5
Poland	3	3	3	4	3.25
Sweden	3	4	3	4	3.5

(1=most stringent)

Personal Navigation Devices

A test of the full model against the null (constant only) only model was statistically significant, indicating that the predictors reliably distinguished between those who do and those who do not own a PND (chi square = 79.43, p< .000, df= 12). Prediction success overall was 61% (64% for non-ownership and 57% for ownership). The Wald criterion demonstrated that gender, and mileage made significant contributions to the prediction (p<.00), see Table 16. The results indicate that males were 1.45 times (1/0.688) more likely to own a PND than females. In addition, increasing mileage increased the likelihood of owning one; compared to those who reported driving less than 5,000/year, those in the 5,000-10,000km bracket were 1.64 times more likely to own a PND and those in the highest bracket (>30,000km) were 2.84 times more likely to own one. Age was not a significant predictor in the model.

Table 16: Summary statistics for Logistic regression (owning PND)

	B	S.E.	Wald	df	Sig.	Odds ratio	95% C.I. for EXP(B) Lower	Upper
Age			11.597	5	.041			
21-24	.368	.287	1.640	1	.200	1.445	.823	2.538
25-34	.099	.283	.122	1	.727	1.104	.634	1.924
35-49	-.057	.267	.046	1	.831	.945	.560	1.594
50-64	-.109	.284	.147	1	.702	.897	.515	1.564
65+	-.271	.289	.883	1	.347	.762	.433	1.342
Gender(female)	-.373	.115	10.461	1	.001*	.688	.549	.863
Mileage			42.947	6	.000*			
5,000-9,999 km	.494	.165	8.994	1	.003*	1.639	1.187	2.263
10,000-14,999 km	.702	.161	18.946	1	.000*	2.018	1.471	2.768
15,000-19,999km	.915	.198	21.373	1	.000*	2.497	1.694	3.680
20,000-24,999km	.675	.209	10.484	1	.001*	1.964	1.305	2.956
25,000-29,999km	1.064	.274	15.023	1	.000*	2.897	1.692	4.960
30,000+km	1.043	.194	28.872	1	.000*	2.839	1.940	4.154
Constant	-.538	.266	4.096	1	.043	.584	-.538	.266

Mobile phones

This time, the model could not reliably distinguish between those who do and those who do not own a mobile phone (chi square = 10.05, p< .611, df= 12). This is probably due to the fact that mobile phones are so pervasive and there are no distinguishing ownership characteristics.

Music players

A test of the full model against a constant only model was statistically significant, indicating that the predictors reliably distinguished between those who do and those who do not own a music player (chi square = 121.95, p< .000, df= 12). Prediction success overall was 63% (38% for non-ownership and 81% for ownership). The Wald statistic demonstrated that age and mileage (marginally) made significant contributions to the prediction (p<.00), see Table 17. The results indicate that compared to the youngest drivers (aged 17-20 years), those in

the 35-49 age bracket were 0.52 times less likely to own a music player, decreasing to 0.27 times and 0.22 times less likely in the 50-64 and 65+ age categories, respectively. With regards to mileage, those in the middle mileage category (15,000-19,999km) were 1.83 times as likely to own one, compared to those drivers in the lowest mileage bracket.

Table 17: Summary statistics for Logistic regression (owning music player)

	B	S.E.	Wald	df	Sig.	Odds ratio	95% C.I. for EXP(B) Lower	Upper
Age			100.874	5	.000			
21-24	.324	.320	1.026	1	.311	1.383	.738	2.591
25-34	-.372	.306	1.477	1	.224	.690	.379	1.256
35-49	-.654	.288	5.156	1	.023*	.520	.296	.914
50-64	-1.293	.303	18.193	1	.000*	.274	.151	.497
65+	-1.507	.308	23.962	1	.000*	.222	.121	.405
Gender (female)	.030	.119	.066	1	.798	1.031	.816	1.302
Mileage			14.498	6	.025*			
5,000-9,999 km	-.170	.167	1.045	1	.307	.843	.608	1.169
10,000-14,999 km	.192	.164	1.356	1	.244	1.211	.877	1.672
15,000-19,999km	.606	.209	8.379	1	.004*	1.833	1.216	2.762
20,000-24,999km	.156	.214	.532	1	.466	1.169	.769	1.778
25,000-29,999km	.236	.276	.731	1	.392	1.266	.737	2.176
30,000+km	.262	.199	1.744	1	.187	1.300	.881	1.919
Constant	.908	.286	10.059	1	.002	2.480		

TV/DVD players

A test of the full model against a constant only model was statistically significant, indicating that the predictors reliably distinguished between those who do and those who do not own a TV/DVD player (chi square = 32.60, p< .011, df= 12). The Wald statistic demonstrated that gender, age (marginally) and mileage made significant contributions to the prediction, (see Table 18). The results indicate that compared to the youngest drivers (aged 17-20 years), those in the 35-49 age bracket are 2.15 times more likely to own a TV/DVD player.

Table 18: Summary statistics for Logistic regression (owning TV/DVD player)

	B	S.E.	Wald	df	Sig.	Odds ratio	95% C.I. for EXP(B) Lower	Upper
Age			10.686	5	.058			
21-24	.472	.357	1.754	1	.185	1.604	.797	3.226
25-34	.687	.349	3.880	1	.049*	1.989	1.003	3.941
35-49	.766	.335	5.239	1	.022*	2.151	1.116	4.144
50-64	.352	.353	.993	1	.319	1.422	.712	2.841
65+	.602	.355	2.877	1	.090	1.826	.911	3.663
Gender (female)	.286	.123	5.365	1	.021*	1.330	1.045	1.694
Mileage			16.758	6	.010*			
5,000-9,999 km	.192	.181	1.134	1	.287	1.212	.851	1.727
10,000-14,999 km	.357	.174	4.181	1	.041*	1.429	1.015	2.011
15,000-19,999km	.741	.206	12.910	1	.000*	2.098	1.400	3.143
20,000-24,999km	.387	.226	2.917	1	.088	1.472	.945	2.294
25,000-29,999km	.331	.296	1.251	1	.263	1.392	.779	2.488
30,000+km	.606	.204	8.859	1	.003	1.833	1.230	2.732
Constant	-1.856	.338	30.118	1	.000	.156		

5.3.8 Predicting use of Nomadic Devices while driving

Ordinal regression was undertaken using age, gender, country and mileage to predict the frequency (Never-Often) of use of each Nomadic Device whilst driving. Only those respondents who own the particular Nomadic Device were entered into the model.

Table 19 below shows the stringency of legislation for each of the Nomadic Devices in each of the five countries. Whilst Italy has the most stringent legislation overall (and for each individual Nomadic Device), we can see that Spain has similarly stringent legislation for PNDs, but lesser so for mobile phones. Sweden is ranked the lowest for all Nomadic Devices, and Poland only differs from Sweden in terms of its more stringent mobile phone legislation. Therefore, for the analysis undertaken below, the legislation of each of the individual Nomadic Devices was taken into consideration, using the grouping in Table 19. Thus whilst Italy was always placed in the most stringent category, for PNDs it was joined by Spain (with

similar legislation). Similarly, whilst Sweden was always in the least stringent category, it was joined by Poland for mobile phone and TV/DVD legislation.

Table 19: Cluster memberships

	PND	Mobile phone	Music player	TV/DVD player
Cluster 1	Italy, Spain	Italy	Italy	Italy
Cluster 2	UK	UK	Spain	Spain
Cluster 3	Poland, Sweden	Spain, Poland	UK, Poland, Sweden	UK
Cluster 4		Sweden		Poland, Sweden

Personal Navigation Devices

The obtained model indicated that including the predictors improved the fit (chi square = 50.92, p< .000, df=14, N=714) and the assumption of parallel lines was also met, indicating that the coefficients are equal for all four response categories (chi square = 31.04, p< .316, df= 32). The Wald statistic demonstrated that mileage and cluster membership made significant contributions to the prediction of which drivers used their PND while driving (p<.00), whilst age and gender did not, see Table 20.

Mileage has negative coefficients indicating that, compared to those drivers in the highest mileage category (30,000km+), those driving less than 20,000 km are approximately half as likely to be in a higher PND use while driving category. Those driving less than 5000km/year are a fifth as likely to do so. Cluster ownership has positive coefficients indicating that, compared to those residing in the least stringent countries (Poland and Sweden) those drivers residing in Ital and Spain (the most stringent countries, were 1.47 times as likely to admit to more frequent use of their PND while driving.

Table 20: Summary statistics for ordinal regression (use PND while driving)

		Estimate	Odds ratio	Std. Error	Wald	df	Sig.	95% C.I. Lower	95% C.I. Upper
Age	17-20	-.137	0.872	.411	.111	1	.739	-.942	.668
	21-24	-.406	0.666	.281	2.085	1	.149	-.958	.145
	25-34	-.212	0.809	.277	.587	1	.444	-.754	.330
	35-49	-.072	0.931	.246	.086	1	.770	-.553	.410
	50-64	.136	1.146	.281	.233	1	.630	-.416	.687
	65+	reference							
Gender	Male	.094	1.099	.164	.328	1	.567	-.228	.415
	Female	reference							
Mileage	<5,000km	-1.341	0.262	.266	25.458	1	.000*	-1.862	-.820
	5,000-9,999 km	-1.157	0.314	.278	17.272	1	.000*	-1.702	-.611
	10,000-14,999 km	-.841	0.431	.249	11.441	1	.001*	-1.328	-.354
	15,000-19,999km	-.732	0.481	.276	7.018	1	.008*	-1.273	-.190
	20,000-24,999km	-.534	0.586	.294	3.293	1	.070	-1.110	.043
	25,000-29,999km	-.515	0.598	.346	2.222	1	.136	-1.193	.162
	30,000+km	reference							
Country	Italy & Spain	.389	1.476	.166	5.511	1	.019*	.064	.714
	UK	.352	1.422	.223	2.499	1	.114	-.085	.789
	Poland & Sweden	reference							

Mobile phone

The obtained model indicated that including the predictors improved the fit (chi square = 389.84, p< .000, df=15, N=1422) and the assumption of parallel lines was also met, (chi square = 39.66, p< .112 df=30). The Wald statistics demonstrate that age, mileage and cluster membership are robust predictors of mobile phone use whilst driving, Table 21. Compared to drivers who are 65+, those in the age bracket 50-64yrs are 1.48 times more likely to use their mobile phone more often whilst driving. Those aged 25-34 are the most likely (3.21 times) to use their mobile phone while driving more frequently, compared to the oldest drivers.

Compared to the highest mileage drivers (30,000+km/year), those who travel less tend to use their mobile phones less while driving, with the lowest mileage category drivers (<5,000km) being a fifth as likely to do so. With regards to cluster membership, those drivers residing in Italy, Spain, Poland and the UK were less likely to use their phones often whilst driving, compared to Swedish drivers with UK drivers being the least likely (0.11 times as likely).

Table 21: Summary statistics for ordinal regression (use mobile phone while driving)

		Estimate	Odds ratio	Std. Error	Wald	df	Sig.	95% C.I. Lower	95% C.I. Upper
Age	17-20	.532	1.702	.288	3.419	1	.064	-.032	1.097
	21-24	1.069	2.912	.207	26.698	1	.000*	.664	1.475
	25-34	1.166	3.209	.201	33.750	1	.000*	.772	1.559
	35-49	1.026	2.790	.177	33.671	1	.000*	.679	1.372
	50-64	.393	1.481	.206	3.645	1	.056	-.010	.796
	65+	reference							
Gender	Male	.124	1.132	.110	1.272	1	.259	-.092	.340
	Female	reference							
Mileage	<5,000km	-1.598	0.202	.189	71.593	1	.000*	-1.969	-1.228
	5,000-9,999 km	-1.532	0.216	.205	55.791	1	.000*	-1.934	-1.130
	10,000-14,999 km	-1.074	0.342	.186	33.357	1	.000*	-1.439	-.710
	15,000-19,999km	-.763	0.466	.210	13.265	1	.000*	-1.174	-.352
	20,000-24,999km	-.776	0.460	.214	13.163	1	.000*	-1.195	-.357
	25,000-29,999km	-.326	0.722	.263	1.536	1	.215	-.841	.189
	30,000+km	reference							
Country	Italy	-.343	0.710	.161	4.535	1	.033*	-.659	-.027
	UK	-2.198	0.111	.188	136.035	1	.000*	-2.568	-1.829
	Spain & Poland	-.907	0.404	.149	37.003	1	.000*	-1.199	-.615
	Sweden	reference							

Music players

891 drivers were entered into this model. The obtained model indicated that including the predictors improved the fit (chi square = 31.25, p< .00, df=14). However none of the predictors were significant.

TV/DVD players

With regards to listening to the TV/DVD while driving, the obtained model indicated that including the predictors improved the fit (chi square = 32.15, p< .005, df=15, N=459) and the assumption of parallel lines was also met, (chi square = 21.67, p< .865, df=30). Only age was a significant predictor; compared to the oldest drivers (65+), those in the middle age categories were more likely to listen to the TV/DVD more often while driving, with those in the 35-49 age bracket being 4.77 times as likely to engage in such activity, Table 22.

Table 22: Summary statistics for ordinal regression (listen to TV/DVD while driving)

		Estimate	Odds ratio	Std. Error	Wald	df	Sig.	95% C.I. Lower	95% C.I. Upper
Age	17-20	1.038	2.824	.691	2.252	1	.133	-.318	2.393
	21-24	1.018	2.768	.440	5.364	1	.021*	.157	1.880
	25-34	1.221	3.391	.405	9.075	1	.003*	.427	2.016
	35-49	1.562	4.768	.375	17.329	1	.000*	.827	2.298
	50-64	1.252	3.497	.422	8.799	1	.003*	.425	2.080
	65+	reference							
Gender	Male	.058	1.060	.203	.082	1	.775	-.339	.455
	Female	reference							
Mileage	<5,000km	-.033	0.968	.337	.010	1	.922	-.694	.628
	5,000-9,999 km	-.090	0.914	.368	.060	1	.807	-.811	.631
	10,000-14,999 km	.148	1.160	.330	.201	1	.654	-.498	.794
	15,000-19,999km	.295	1.343	.355	.693	1	.405	-.400	.991
	20,000-24,999km	.457	1.579	.383	1.425	1	.233	-.293	1.207
	25,000-29,999km	.730	2.075	.479	2.322	1	.128	-.209	1.668
	30,000+km	reference							
Country	Italy	-.199	0.820	.256	.603	1	.438	-.701	.303
	Spain	-.203	0.816	.261	.603	1	.438	-.715	.309
	UK	-.323	0.724	.328	.968	1	.325	-.967	.321
	Sweden & Poland	reference							

5.3.9 High risk interactions with Nomadic Devices while driving

Ordinal regression was undertaken using age, gender, cluster membership, mileage to predict the frequency (Never-Often) of engaging in the high-risk interactions with each Nomadic Device whilst driving. Also included as predictors, were measures of self-image (skill and safety), perceived distraction of the Nomadic Device and perceived levels of enforcement.

Entering or changing destinations in a PND

Here, the obtained model indicated that including the predictors improved the fit (chi square = 123.96, p< .000, df=18, N=714) and the assumption of parallel lines was also met, (chi square = 21.67, p< .865, df=30). The significant predictors here are self-image (skill and safety), age and cluster membership, Table 23.

Table 23: Summary statistics for ordinal regression (enter destination in PND while driving)

		Estimate	Odds ratio	Std. Error	Wald	df	Sig.	95% C.I. Lower	95% C.I. Upper
Skill score		.277	1.319	.125	4.909	1	.027*	.032	.522
Safety score		-.588	0.555	.122	23.145	1	.000*	-.828	-.348
Distracting to you		.000	1.000	.025	.000	1	.991	-.048	.049
Likelihood of being stopped		-.020	0.980	.024	.681	1	.409	-.066	.027
Age	17-20	.781	2.184	.315	6.143	1	.013*	.163	1.398
	21-24	1.058	2.881	.241	19.271	1	.000*	.586	1.530
	25-34	1.186	3.274	.234	25.744	1	.000*	.728	1.644
	35-49	.782	2.186	.222	12.385	1	.000*	.346	1.217
	50-64	.151	1.163	.258	.344	1	.558	-.354	.657
	65+	reference							
Gender	Male	.058	1.060	.119	.237	1	.626	-.175	.291
	Female	reference							
Mileage	<5,000km	-.153	0.858	.184	.690	1	.406	-.512	.207
	5,000-9,999 km	-.094	0.910	.194	.237	1	.627	-.474	.286
	10,000-14,999 km	-.134	0.875	.171	.611	1	.434	-.470	.202
	15,000-19,999km	-.492	0.611	.203	5.890	1	.015*	-.890	-.095
	20,000-24,999km	.177	1.194	.193	.836	1	.360	-.202	.556
	25,000-29,999km	-.042	0.959	.237	.031	1	.860	-.506	.422
	30,000+km	reference							
Country	Italy & Spain	.094	1.099	.126	.559	1	.454	-.153	.342
	UK	-.434	0.648	.170	6.520	1	.011*	-.768	-.101
	Poland & Sweden	reference							

Those drivers who admit to a higher propensity to enter or change destinations in their PND while driving, were associated with a lower score on safety related behaviours and a higher score on the skill dimension. With regards to age, those in the younger age categories were more likely to enter destinations in their PND, peaking in the 25-34 age bracket. The odds of being in a higher frequency category for drivers in the age group 25-34 was 3.27 times the odds of drivers over 65 being in a higher frequency category.

Those drivers residing in the higher legislated countries (Italy and Spain) were just as likely to enter or change destinations as those in the lowest (Poland and Sweden). However, the UK drivers were different, in that they were less likely to undertake such an activity (0.43 times as likely).

Texting on a mobile phone

The model indicated that including the predictors improved the fit (chi square = 209.00, p< .000, df=19, N=1422) and the assumption of parallel lines was also met, (chi square = 33.11, p< .695, df=38).

The significant predictor variables here are self-image (skill and safety scores), age, mileage and cluster membership. Those drivers who are more likely to use the texting function on their mobile phone while driving, view themselves as being less safe drivers, but more highly skilled. With regards to age, the propensity to text increases dramatically in the lower age groups, with the odds of being in a higher frequency category for drivers in the age group 21-24 being 19 times the odds of drivers over 65 being in a higher frequency category (Table 24).

Texting was more likely for higher mileage drivers, with those driving less than 30,000km/year being approximately half as likely as texting while driving. Texting while driving was less likely to be undertaken by drivers residing in countries with stricter legislation. Compared to Swedish drivers, for example, UK drivers are one half as likely to be in a higher frequency bracket. However, the exception is Italian drivers (with the strictest legislation), who are just as likely to text as Swedish drivers.

Table 24: Summary statistics for ordinal regression (texting while driving)

		Estimate	Odds ratio	Std. Error	Wald	df	Sig.	95% C.I. Lower	95% C.I. Upper
Skill score		.315	1.370	.129	6.013	1	.014*	.063	.567
Safety score		-.601	0.548	.120	25.164	1	.000*	-.835	-.366
Distracting to you		-.021	0.979	.026	.691	1	.406	-.072	.029
Likelihood of being stopped		-.016	0.984	.027	.359	1	.549	-.069	.037
Age	17-20	2.686	14.673	.506	28.231	1	.000*	1.695	3.677
	21-24	2.938	18.878	.465	40.006	1	.000*	2.028	3.849
	25-34	2.707	14.984	.460	34.558	1	.000*	1.804	3.609
	35-49	2.341	10.392	.456	26.321	1	.000*	1.447	3.236
	50-64	1.507	4.513	.494	9.323	1	.002*	.540	2.475
	65+	reference							
Gender	Male	.008	1.008	.120	.004	1	.948	-.228	.244
	Female	reference							
Mileage	<5,000km	-.870	0.419	.182	22.782	1	.000*	-1.227	-.513
	5,000-9,999 km	-.447	0.640	.206	4.710	1	.030*	-.851	-.043
	10,000-14,999 km	-.643	0.526	.181	12.570	1	.000*	-.998	-.287
	15,000-19,999km	-.529	0.589	.200	6.984	1	.008*	-.921	-.137
	20,000-24,999km	-.581	0.559	.203	8.161	1	.004*	-.980	-.182
	25,000-29,999km	-.671	0.511	.265	6.429	1	.011*	-1.191	-.152
	30,000+km	reference							
Country	Italy	.077	1.080	.158	.235	1	.628	-.233	.386
	UK	-.776	0.460	.249	9.693	1	.002*	-1.264	-.287
	Spain & Poland	-.581	0.559	.159	13.333	1	.000*	-.893	-.269
	Sweden	reference							

Changing the music selection

The model indicated that including the predictors improved the fit (chi square = 51.88, p< .000, df=18, N=891) and the assumption of parallel lines was also met, (chi square = 24.90, p< .918, df=36).

Here again, age was a significant predictor, with the younger drivers being more likely to change their selection of music while driving. Drivers in the youngest age category (17-20)

were 5.18 times more likely to be engage in this behaviour than the eldest drivers. Cluster membership was also important, but with those in the more stringent counties being more likely to engage in such behaviour. In Italy, for example, drivers were twice as likely to change their music selection compared to Swedish, Polish and UK drivers.

Table 25: Summary statistics for ordinal regression (change music selection while driving)

		Estimate	Odds ratio	Std. Error	Wald	df	Sig.	95% C.I. Lower	95% C.I. Upper
Skill score		-.066	0.936	.151	.192	1	.662	-.362	.230
Safety score		-.231	0.794	.145	2.541	1	.111	-.515	.053
Distracting to you		-.003	0.997	.032	.009	1	.923	-.066	.060
Likelihood of being stopped		.000	1.000	.032	.000	1	.993	-.062	.062
Age	17-20	1.646	5.186	.414	15.804	1	.000*	.834	2.457
	21-24	1.169	3.219	.371	9.942	1	.002*	.442	1.895
	25-34	1.026	2.790	.365	7.913	1	.005*	.311	1.741
	35-49	1.088	2.968	.348	9.758	1	.002*	.405	1.770
	50-64	.982	2.670	.370	7.028	1	.008*	.256	1.707
	65+	reference							
Gender	Male	-.093	0.911	.144	.417	1	.519	-.376	.190
	Female	reference							
Mileage	<5,000km	-.322	0.725	.237	1.849	1	.174	-.785	.142
	5,000-9,999 km	-.135	0.874	.260	.269	1	.604	-.644	.374
	10,000-14,999 km	-.049	0.952	.232	.044	1	.834	-.503	.405
	15,000-19,999km	.341	1.406	.264	1.667	1	.197	-.177	.859
	20,000-24,999km	-.194	0.824	.284	.464	1	.496	-.751	.364
	25,000-29,999km	-.131	0.877	.383	.118	1	.732	-.882	.620
	30,000+km	reference							
Country	Italy	.736	2.088	.162	20.591	1	.000*	.418	1.054
	Spain	.247	1.280	.200	1.523	1	.217	-.145	.640
	UK, Poland, Sweden	reference							

Having the TV/DVD screen visible

The model indicated that including the predictors improved the fit (chi square = 33.51, p< .021, df=19, N=459). The only significant predictor here was whether drivers found them distracting. Those drivers who reported TV/DVD players as being distracting, were less likely to have the screen visible.

Table 26: Summary statistics for ordinal regression (tv/dvd screen visible while driving)

		Estimate	Odds ratio	Std. Error	Wald	df	Sig.	95% C.I. Lower	95% C.I. Upper
Skill score		.216	1.241	.268	.651	1	.420	-.309	.742
Safety score		-.231	0.794	.265	.759	1	.384	-.751	.289
Distracting to you		-.126	0.882	.054	5.415	1	.020*	-.232	-.020
Likelihood of being stopped		.094	1.099	.047	3.938	1	.047*	.001	.187
Age	17-20	.576	1.779	.720	.639	1	.424	-.835	1.986
	21-24	.647	1.910	.481	1.809	1	.179	-.296	1.590
	25-34	.633	1.883	.451	1.968	1	.161	-.251	1.518
	35-49	.079	1.082	.445	.032	1	.859	-.794	.952
	50-64	.523	1.687	.476	1.210	1	.271	-.409	1.455
	65+	reference							
Gender	Male	.344	1.411	.252	1.872	1	.171	-.149	.838
	Female	reference							
Mileage	<5,000km	.130	1.139	.377	.119	1	.731	-.610	.870
	5,000-9,999 km	.005	1.005	.451	.000	1	.991	-.878	.888
	10,000-14,999 km	.065	1.067	.396	.027	1	.870	-.711	.841
	15,000-19,999km	-.661	0.516	.485	1.857	1	.173	-1.611	.290
	20,000-24,999km	.103	1.108	.439	.054	1	.815	-.758	.964
	25,000-29,999km	-.243	0.784	.591	.169	1	.681	-1.401	.915
	30,000+km	reference							
Country	Italy	.361	1.435	.309	1.366	1	.242	-.244	.966
	Spain	.260	1.297	.370	.492	1	.483	-.466	.986
	UK	-1.043	0.352	.586	3.173	1	.075	-2.191	.105
	Sweden & Poland	reference							

5.4 Conclusions

This survey aimed to establish how a sample of drivers interact with their Nomadic Devices, in terms of how often they use them whilst driving, how often they undertake predefined high-risk behaviours and the effect of these on their driving behaviour. Alongside this, we were also interested in how drivers perceive the distraction caused by Nomadic Devices, their knowledge of national legislation and their perception of the likelihood of this legislation being enforced.

Five countries were chosen to represent the clusters identified in Section 4.2.4 and of interest was discovering if there were differences between the countries using the variables described above (alongside standard demographic variables). Both qualitative (frequency) and quantitative (regression) interpretations were carried out.

Mobile phones were by far the most commonly owned Nomadic Device, reflecting the EC statistics reported in 2.1. However, the majority of drivers in Spain and the UK report that they never, or only rarely, use their phones while driving (with 70% of UK drivers claiming never to use their mobile phone while driving). Italian, Polish and Swedish drivers were more likely to sometimes or often use their phones while driving, but the figures are still relatively low (particularly in comparison to the use of PNDs while driving). This may, in part, be due to the perceived distraction of mobile phones being relatively high (as high as TV/DVDs), or to the fact that drivers believed they were more likely to stopped for mobile phone offences, compared to other Nomadic Devices. In general, drivers were knowledgeable about the legislation surrounding mobile phones and this is probably owing to high-profile safety campaigns. The fact that drivers reported relatively few behavioural effects when using their mobile phones should be underestimated, but considered in the light that mobile phones are so pervasive, coupled with the fact that the higher mileage drivers are more likely to engage in such activity (and hence one assumes their exposure is greater). In addition, those drivers who typically more frequently text while driving are younger (and presumably less experienced), and have higher mileage. It appears that legislation has little impact, with drivers in the mostly highly regulated country texting as frequently as those in countries with no legislation.

PNDs and music players demonstrated similar ownership patterns across the countries, with the exception of Italy and Spain where ownership of the latter was higher. Amongst those who owned PNDs, around 20% of drivers used them often and in terms of engaging in the higher risk activity (entering or changing destinations), a significant proportion of drivers admitted to doing this at least sometimes. Thus visual distraction is likely to be the reason why drivers using PNDs admit to sometimes not noticing signs, coupled with a reduction in speed. Such findings have been reported in the literature (e.g. Törnros & Bolling, 2006). However whether these speed reductions are an intentional mechanism employed by the driver to reduce their workload or an unintentional lapse of control is not entirely clear. Legislation regarding PNDs was relatively poorly understood by drivers, with around 10% of drivers correctly identifying some statements, and very few getting all the answers correct. This is likely to be partly due to the fact that there were more items asking about PNDs than for other Nomadic Devices, reflecting the complexity of legislation (it covers mounting, position and additional functions). Higher mileage male drivers were more likely to own and use PNDs while driving, and those in the age group 25-34 were the mostly likely to engage in the high risk behaviour of entering or changing destinations. Compounding this, those drivers who admit to changing destinations rate themselves as lower in terms of safety behaviour, but higher in skill. Country of residence impacts on drivers' propensity to engage in high-risk behaviour, but it seems that this does not correspond to the stringency of the legislation, with drivers in the most and least stringent countries undertaking similar amounts. Only the UK drivers demonstrated a reduced tendency to engage in this activity.

Younger drivers were also more likely to own music players than their older counterparts, but the modelling was unable to identify which drivers used them while driving. It was possible, however, to demonstrate that the younger drivers were more likely to change their music selection while driving, and that drivers were willing to flout the legislation regarding music players, even in the highest regulated countries.

TV/DVD players were the least popular Nomadic Device, and were predominantly owned by those in the 35-49 age bracket, presumably as a means of family entertainment. It was also these drivers who listened to them more frequently whilst driving, but it appears that most drivers do not admit to having the screen visible while driving. In fact, this variable was the

only one linked to the measures of perceived distraction, with those drivers who believe this behaviour to be most distracting being least likely to undertake it.

6 Overall conclusions and recommendations[8]

1. The study revealed that a diversity in the countries' legislative approaches exist. Although all countries (except Sweden) have adopted specific regulations on mobile phones, with regards to other device classes (PNDs, music players and TV/video players), the picture is rather non-homogeneous: Some countries address the use of these devices through both specific and/or general regulations; however, in other countries there is no legislation applicable to the use of any devices other than mobile phones. Also concerning the level of detail of applicable regulations (i.e. to what extent the use of a certain device is restricted), the results indicate that the picture in the countries is rather variable; ranging from countries intervening highly in the use of the different devices to states that hardly stipulate any concrete requirements. In addition in many countries different regulations apply for the use of a specific device (e.g. for PNDs: ranging from regulations addressing the driver's field of view to regulations prohibiting additional PND functions). Results of a survey carried out in five countries support the assumption that this causes difficulties in knowledge of laws for drivers: the survey confirmed that many drivers are often not aware of the precise requirements with which they must comply when using a nomadic device whilst driving.

   Recommendations:

   - **A process should be implemented aiming at a more harmonised regulatory situation across the EU e.g.:**
     i. **improvement of the knowledge base (e.g. studies on driving with nomadic devices and safety implications)**
     ii. **identification of good-practice on nomadic device related legislation**
     iii. **establishment of guidelines that reflect knowledge and good-practice**
     iv. **a feed-back loop at EU level that provides information about regulation, distraction and its influence on road safety.**
   - **Media campaigns at the member state level to provide drivers with better understanding of existing laws.**
   - **Rules should be formulated precisely and without ambiguity.**

[8] The recommendations presented in this report do not necessarily represent the view of all member organisations of the European Transport Safety Council (ETSC)

- **Mounting PNDs: Developing a standard and imposing an obligation to use docking station (e.g. Navifix) would help drivers to comply with laws related to field of view.**

2. However, nomadic device legislation, on the whole, appears to have little influence on drivers' propensity to engage in high-risk behaviour. For example, drivers residing in countries with more stringent, specific legislation for PNDs and music players were more likely to engage in illegal interactions. The only exception was for texting while driving, and this may be due to the fact that mobile phone legislation is the most publicised and understood across the member states. Other research on the effectiveness of mobile phone legislation also confirmed that laws relating to driver distraction become less effective over time, and cited reduced publicity and low levels of enforcement as possible causes.

   Recommendations

   - **Member states should consider intensifying campaigning and enforcement related to laws on nomadic devices/driver distraction. Besides traditional police enforcement, developments in new technologies that make it possible to both improve and obviate the need for such enforcement should be pursued. For instance, new technologies that enable nomadic device use (or certain functions of it) to be restricted or locked out in circumstances when it is unsafe to use the device (e.g. beyond certain speeds, in certain locations, etc.) could provide solutions to driver distraction in the form of countermeasures.**
   - **Sanctions and penalties for offences against ND related laws should be comparable to those pertaining to other driving behaviours which carry similar increases in accident risk. Whilst interactions with NDs may only last for seconds, interactions may be frequent and over a prolonged period of time.**
   - **Countries should consider measures to address recidivist offenders (e.g. penalty point systems, rehabilitation courses, etc.)**
   - **There should be a discussion with equipment manufacturers and suppliers, including mobile phone network providers, about the possibility of building into equipment restrictions on inappropriate use. For example, it should be feasible to lock out or discourage texting while driving via some kind of speed sensing. Software to do this is already on the market, The software is able to determine on the basis of responses whether someone is driving or is a passenger in a moving vehicle.**

3. There is a core of drivers who appear to be engaging in the higher-risk behaviours, such as texting while driving, who are young, or high-mileage. These drivers also admit to lower scores on the dimension of self-reported safety, such that they are also report travelling at short headways, poor overtaking and exceeding the speed limit. These drivers also report high levels of skill, which could be interpreted as over-confidence, particularly in the case of the young drivers.

   Recommendations:

   - **Drivers understand that using nomadic devices increases risk but fail to fully incorporate this risk assessment into their driving. The issue of driver distraction should be better incorporated in driver training, education and licensing processes.**
   - **Research efforts should be made to understand the role and effect of engaging in high-risk activities (such as texting) while driving, for young drivers specifically. If current legislation is ineffective in reducing such behaviours, other policy-driven activities could be investigated (such as restrictions of the use of NDs while driving for certain age groups).**

4. Although there is evidence that driver distraction is a road safety problem, better data are needed to more accurately characterise and quantify the problem. There are grounds for believing that inappropriate usage is likely to increase in line with the growing capabilities of PNDs. The report showed that several EU countries do not carry out regular programmes to monitor the prevalence of mobile phone or other nomadic device use whilst driving. Furthermore, in many EU countries, there is currently a lack of data on the extent to which driver distraction due to the use of nomadic devices is a contributory factor in accidents. Even if data is recorded, differences in accident reporting and data collection make it difficult to compare data between EU countries.

   Recommendations:

   - **The EC should assess the possibility to develop guidelines on how the usage of mobile phones and similar devices in road traffic should be assessed. The methodology developed in the area of seat belt use within the 6th FP project SafetyNet could serve as a template for this.**
   - **A European target for reduction in the extent of distracted driving should be established and performance in achieving the target assessed.**
   - **With regards to accident investigation, methods should be developed to enable better assessment of the role of distraction in accidents, including a review of**

existing accident reporting systems. Accident data systems on nomadic device use should be improved, including type of device and the context in which it was being used when the crash occurred.

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8 Annex

8.1 Country Reports

Country name:	**AUSTRIA**	Country code:	**AT**

Information provided by:
Mr. Robert Reidinger, Ministry of Transport, Innovation and Technology

General legislation:
According to the ministry of transport, there is no general legislation in place in Austria that would explicitly prohibit any activity causing driver distraction or addressing careless driving. However, there are legal requirements from the Kraftfahrgesetz (KFG) and the Straßenverkehrsordnung (StVO) that apply limited to using nomadic devices in vehicles. Article 102 (2) of the KFG stipulates that the driver must have a sufficient field of view from the driver seat enabling him/her a safe steering of the vehicle. Moreover, article 58 (1) of the StVO states that drivers are only allowed to steer a vehicle if they are able to control the vehicle and if they are able to obey the traffic rules.
1) KFG, Art. 102 (2) 2) StVO, Art. 58 (1)

Specific legislation:
Article 102 (3) of the KFG stipulates that it is not allowed for the driver to use a phone without hands-free equipment. Furthermore, this article stipulates that the Federal Minister of Transport is in charge of working out specifics issues and details concerning the use hands-free equipment in subordinating regulations. This has been done through a regulation on hands-free equipment (Freisprecheinrichtungsverordnung), which is in place since 1999. (4)
3) KFG, Art. 102 (3) 4) Freisprecheinrichtungsverordnung, No. 152, 1999.

Mobile phone use:
Both the KFG (Art. 102 (3)) and the subordinating Freisprecheinrichtungsverordnung explicitly name mobile phones and restrict their use. According to the KFG and the FreisprecheinrichtungsV, the use of hands-free equipment is mandatory as soon as the vehicle is moving. With regards to hands-free equipment, non-stationary devices such as a headset (microphones and headphones) or Bluetooth are sufficient, although the FreisprecheinrichtungsV refers to both mounted hands-free devices and non-stationary devices. For both types of hands-free devices, the regulation stipulates that these devices must allow the driver to operate the phone with only one hand and that the driver's body posture for steering the vehicle must not influenced for operating the hands-free device. Furthermore, the regulation stipulates that the driver's field of view must not be obstructed by parts of the device (e.g. cables etc.).

PND use:
No requirements have evolved from the legislation.

Music player use:
No requirements have evolved from the legislation.

TV/video player use:
There are certain restrictions on using TV/video players while driving that can derived from KFG 102 (2) and (3). According to the ministry's response, watching TV or video while driving is prohibited for drivers when the vehicle is moving. However, every single case has to be considered individually.

Sanctions:
For a mobile phone offence, a monetary fine of 50 EUR applies (if the offender pays on the spot). This fine is increased to 72 EUR if the offender refuses to pay and the case is treated at law court. Mobile phone offences are currently not part of the penalty point system ("Vormerksystem"). However, the Austrian Road Safety Board (Kuratorium für Verkehrssicherheit) is calling for an introduction of phone offences in the Vormerksystem.

External links & any other information:
Kraftfahrgesetz: http://www.bmvit.gv.at/verkehr/strasse/recht/kfgesetz/index.html Straßenverkehrsordnung http://www.bmvit.gv.at/verkehr/strasse/recht/stvo/index.html Freisprecheinrichtungsverordnung http://www.bmvit.gv.at/verkehr/strasse/recht/kfgesetz/verordnungen/freisprech.html

Country name:	**BELGIUM**	Country code:	**BE**

Information provided by:
Ms. Anneliese Heeren, Ministry for Transport and Mobility

General legislation:
The Road Traffic Act stipulates that drivers must be fit to drive, have the required physical qualities and possess the knowledge and skills required for the driving task. The driver must be constantly able to perform all manoeuvres related to driving. (1) The general rules on technical conditions of vehicles state that the field of view of the driver must not be obstructed by any objects or postings. (2)
1) Arrêté royal du 1 décembre 1975 portant règlement général sur la police de la circulation routière et de l'usage de la voie publique (Road Traffic Act), Art. 8.3 2) Arrêté royal du 15 mars 1968 portant règlement général sur les conditions techniques auxquelles doivent répondre les véhicules automobiles et leurs remorques, leurs élements ainsi que les accessoires de sécurité (General rules on technical conditions of vehicles), Art. 57.1

Specific legislation:
Concerning mobile phones, the Road Traffic Act stipulates that it is not allowed for a driver to use a mobile phone unless the vehicle is stopped or parked. The use of a handheld mobile phone is also forbidden when the drivers stops at traffic lights. (3)
3) Arrêté royal du 1 décembre 1975 portant règlement général sur la police de la circulation routière et de l'usage de la voie publique, Art. 8.4 (introduced in 2000)

Mobile phone use:
The use of hands-free equipment is required when making phone calls or using other phone functions (e.g. GPS) as soon as the engine is running. With regards to hands-free, a headset/Bluetooth is sufficient.

PND use:
No requirements have evolved from the legislation.

Music player use:
No requirements have evolved from the legislation.

TV/video player use:
No requirements have evolved from the legislation.

Sanctions, Policy & Effectiveness:
For a mobile phone offence, a monetary fine of 100 EUR applies.

External Links & any other information:
Road Traffic Act: http://www.mobilit.fgov.be/data/route/regcir/RCRF.pdf. General rules on technical conditions of vehicles: http://www.code-de-la-route.be/wet.php?wet=22&node=art57 Mobile phone campaigns of the Belgian Road Safety Institute (BIVV): http://www.bivv.be/main/PublicatieMateriaal/Informatie/catalogDetail.shtml?detail=710874505&language=fr http://www.bivv.be/main/OnzeCampagnes/Archief/DetailCampaign.shtml?detail=887357440&language=fr Information about a monitoring on mobile phone use: http://www.bivv.be/main/OnzeCampagnes/Archief/DetailCampaign.shtml?detail=887357440&language=fr The monitoring was carried out in 2009 by an independent market research agency (Dedicated Research, Brussels) on order of the Belgian Road Safety Institute. It consisted of an online survey among a representative sample (N= 687) of the Belgian car driver population, measuring attitudes (risk perception) and self-reported behaviour regarding mobile phone use, both before and after the campaign (2 measurements). Main results of the monitoring: 51% of interviewees declared not to use their phone to make or receive calls while driving; 35% do not use their phone at all (no text messages). As an average, mobile phones are used 4 times a day while driving: 0.9 outgoing calls, 1.6 incoming calls and 1.4 text messages. 28% of car drivers have a hands-free kit. However, having a hands-free kit does not necessarily mean that it used (15% of drivers who have a hands-free kit never use it). Most drivers limit mobile phone use while driving, only 6% make or receive phone calls at any time and in no matter what conditions, even if they do not have a hands-free kit.

Country name:	**BULGARIA**	Country code:	**BG**

Information provided by:
Mr. Tihomir M. Todorov, Ministry of Interior

General legislation:
The Road Traffic Act stipulates that road users must not, by their behaviour, create danger and obstructions for traffic, and must not endanger life and health of people and cause damage to property. (1)
1) Road Traffic Act, Art. 5 (1)

Specific legislation:
It shall be prohibited for a driver of a motor vehicle to use a mobile phone while driving the vehicle except if there is device that allows the use of the phone without the participation of his/her hands. (2)
2) Road Traffic Act, Art. 104a

Mobile phone use:
The use of hands-free equipment is required when making phone calls or using other phone functions (e.g. GPS) when the vehicle is moving. Concerning hands-free, a headset/Bluetooth is sufficient.

PND use:
No requirements have evolved from the legislation.

Music player use:
No requirements have evolved from the legislation.

TV/video player use:
No requirements have evolved from the legislation.

Sanctions:
For mobile phone offences, a monetary fine of app. 25 EUR applies. Furthermore, six penalty points apply (out of total 39 points until licence withdrawal). If the driver is found responsible for causing an accident due to the mobile phone use, additional four penalty points apply.

External links & any other information:
Road Traffic Act (in English): http://www.mvr.bg/NR/rdonlyres/8714091D-3F2D-4C6E-9544-90BA1F8D2C9C/0/04_Law_Trafic_EN.pdf

Country name:	**CYPRUS**	Country code:	**CY**

Information provided by:
Mr. Joseph Miltiadous, Road Transport Department, Ministry of Communication and Works

General legislation:
The Motor Vehicle and Road Traffic Law stipulates that drivers of motor vehicles must not behave recklessly or dangerously when driving. (1)
1. Motor Vehicle and Road Traffic Law (Ο ΠΕΡΙ ΜΗΧΑΝΟΚΙΝΗΤΩΝ ΟΧΗΜΑΤΩΝ ΚΑΙ ΤΡΟΧΑΙΑΣ ΚΙΝΗΣΕΩΣ ΝΟΜΟΣ ΤΟΥ 1972 (Όπως τροποποιήθηκε μέχρι σήμερα)), Art 7

Specific legislation:
Article 20a of the Motor Vehicle and Road Traffic Law (referring to The Motor Vehicles and Road Traffic Regulations 1984, Regulation 58.5) stipulates that it is prohibited to use a mobile phone when this requires the use of the driver's hands. (2) Moreover, the Regulations concerning Vehicle Modifications stipulate in Article 5.2, that interior equipment (such as navigation systems, and entertainment systems such as DVD players) mounted in the vehicle • must not contain any dangerous roughness or sharp angle prominent able to increase the risk of serious injuries to the driver or passengers in case of contact or impact on them, • must not interfere in any way the field of vision of the driver, and • where entertainment systems with visual functions may be located within sight of the driver, this visual function must be disabled when the vehicle is moving (3)
2. Motor Vehicle and Road Traffic Law (Ο ΠΕΡΙ ΜΗΧΑΝΟΚΙΝΗΤΩΝ ΟΧΗΜΑΤΩΝ ΚΑΙ ΤΡΟΧΑΙΑΣ ΚΙΝΗΣΕΩΣ ΝΟΜΟΣ ΤΟΥ 1972 (Όπως τροποποιήθηκε μέχρι σήμερα)), Art. 20a 3. Regulations concerning Vehicle Modifications (ΕΓΧΕΙΡΙΔΙΟ ΑΛΛΑΓΩΝ / ΜΕΤΑΤΡΟΠΩΝ / ΠΡΟΣΑΡΜΟΓΩΝ ΓΙΑ ΟΧΗΜΑΤΑ ΚΑΤΗΓΟΡΙΑΣ), Art. 5.2

Mobile phone use
The use of mobile phones is prohibited when vehicle is in motion. Making a phone call is only allowed while using a hands-free set. Regarding hands-free, a headset/Bluetooth is sufficient. Texting is prohibited in any case.

PND use
With regards to mounting PNDs, devices must not obstruct the drivers field of view.

Music player use
The Regulations concerning Vehicle Modifications (Art. 5.2) might apply; however, no particular requirements concerning manual handling or headphones have evolved from the legislation.

TV/video player use
Visual functions of entertainment systems must not be visible to the driver when the vehicle is moving.

Sanctions:
The improper use of a mobile phone while driving will result in a monetary fine of 85 EUR. In addition, two penalty points are imposed on the driver's licence (out of 12 penalty points in total until licence withdrawal).

Links & Any other information:
Road Transport Department http://rtd.mcw.gov.cy/WebPhase1/gui/Common/LoginFrameGreek.jsp?lang=en

Country name:	**CZECH REPUBLIC**	Country code:	**CZ**

Information provided by:
Mr. Martin Pichl, Ministry of Transport. Ms. Darina Sedlářová, Ministry of Transport

General legislation:
The Road Traffic Act stipulates that every road user participating in traffic is required to behave in a thoughtful and disciplined manner in order to not threaten life, health or property of others or their own. Their behaviour must adapt to particular construction and technical conditions of the transport infrastructure, the situation in the road. (1) Road Traffic Act stipulates that drivers must dedicate their full attention to driving and observe the situation on the road. (2) Moreover, passengers are obliged to do not endanger by their behaviour road safety, in particular not to reduce the driver's ability to drive safely (3).
1) Zákon o provozu na pozemních komunikacích (Road Traffic Act), par. 4, Art. a 2) Zákon o provozu na pozemních komunikacích (Road Traffic Act), par. 5, Art. 1 (b) 3) Zákon o provozu na pozemních komunikacích (Road Traffic Act), par. 9, Art. 1 (c)

Specific legislation:
The Road Traffic Act stipulates that a driver must not hold in his/her hand a phoning device, or any other calling or voice-registering electronic device during the journey. (4)
4) Zákon o provozu na pozemních komunikacích (Road Traffic Act), par.7, Art. 1 (c)

Mobile phone use:
With regards to mobile phone use, hands-free equipment is mandatory when the vehicle is moving. There are no specific requirements on the hands-free equipment, i.e. a headset/Bluetooth is sufficient. Hands-free is required for making phone calls and/or using other phone functions (e.g. GPS).

PND use:
With regards to using PNDs, no particular requirements have evolved from the legislation. Concerning the mounting of PNDs, the device must be fixed in a way that it doesn't impair the driver's field of view.

Music player use:
No particular requirements have evolved from the legislation.

TV/video player use:
No particular requirements have evolved from the legislation.

Sanctions:
For a mobile phone offence, a monetary fine of 40EUR applies. In addition, three penalty points are imposed on the driver's licence (out of 12 penalty points until licence withdrawal). If the case goes to court, the monetary fine could increase up to 80 EUR.

External links & any other information:
Road Traffic Act: http://www.zakonycr.cz/seznamy/361-2000-Sb-zakon-o-provozu-na-pozemnich-komunikacich-a-o-zmenach-nekterych-zakonu.html In 2009, the Czech Transport Research Center (CDV) carried out a survey on the use of hand-held mobile phones while driving. The results were that 2.03% of drivers were found using a mobile phone while driving (out of 106,000 drivers observed on all road types).

Country name:	**DENMARK**	Country code:	**DK**

Information provided by:
Mr. Stig R. Hemdorff, Road Directorate, Ministry of Transport

General legislation:
The Road Traffic Act stipulates that road users must behave with consideration and diligence in order to avoid danger or injury or inconvenience to others, so that traffic is not unnecessarily hindered or disrupted. (1) The vehicle inspection regulation stipulates that the driver's forward and lateral field of view must not be obstructed by any objects. (2)
1) Færdselsloven (Road Traffic Act) Chapter 2, § 3 2) Detailforeskrifter for Køretøjer (Vehicle Inspection Regulation), Art. 10.03.002

Specific legislation:
The Road Traffic Act stipulates that it is prohibited to drivers of vehicles to make use of handheld mobile phones while driving. Moreover, the article states that the Ministry of Justice may after negotiations with the Transport Ministry lay down rules on the use of other telecommunications equipment and other devices while driving. (3)
3) Færdselsloven, Chapter 10, § 55a

Mobile phone use
The use of hands-free equipment is required as soon as the vehicle's engine is running. Hands-free (i.e. a headset or Bluetooth) must be used for making phone calls and for using other phone functions (e.g. GPS).

PND use
According to Detailforeskrifter for Køretøjer, Art. 10.03.00, devices must not obstruct the driver's field of view. However, no particular requirements have evolved from the regulation.

Music player use
No requirements have evolved from the legislation.

TV/video player use
According to Detailforeskrifter for Køretøjer, Art. 10.03.00, devices must not obstruct the driver's field of view. However, no particular requirements have evolved from the regulation. Moreover, according to the response from the Road Directorate, a device must be inoperable while driving if it can be seen from the driver's seat.

Sanctions:
A monetary fine of 70 EUR is applied for improper use of mobile phone while driving. No penalty points apply for a mobile phone offence. However, it is currently being discussed to extend the point system to mobile phone offences and to apply one point for an offence. The Danish point system foresees that three points within three years result in a licence suspension.

Any other information:
A report concerning distracted driving in general has been published in February 2010: http://www.transport.dtu.dk/upload/institutter/dtu%20transport/rapporter/distraktorrapport_10-02-2010.pdf Danish legislation: • Færdselsloven: https://www.retsinformation.dk/Forms/R0710.aspx?id=126302 • Detailforeskrifter for Køretøjer: http://www.fstyr.dk/koretojer/Regler%20om%20koeretoejer/~/media/Files/Regler/Detailforskrifter/DfK2007.ashx

Country name:	**ESTONIA**	Country code:	**EE**

Information provided by:
Mr. Eero Aarniste, Ministry of Economic Affairs and Communications

General legislation:
The Road Traffic Act stipulates that road users shall avoid any behaviour which may obstruct traffic, endanger people or cause damage to property. (1) While driving, drivers are prohibited from engaging in activities which may impede their ability to drive or their comprehension of the traffic environment. (2)
1) Liiklusseadus (Road Traffic Act), Art. 7 (5) 2) Liiklusseadus (Road Traffic Act), Art. 9 (2)

Specific legislation:
Concerning mobile phone use, the Road Traffic Act states that while driving in a built-up area, a driver may use a telephone only if he or she also uses hands-free equipment. (3)
3) Liiklusseadus (Road Traffic Act), Art. 9 (4)

Mobile phone use:
While driving in a built-up area, a driver may use a mobile phone only if he/she also uses hands-free equipment. Hand-held phone use is prohibited in built-up areas when the vehicle is moving. Concerning hands-free equipment, a headset/Bluetooth is sufficient.

Portable computer use:
According to the ministry, legal requirements have evolved from the general legislation, stipulating a ban on running certain application on portable computers in vehicles: Calling (Skype), chatting (Windows Live messenger), listening music (instead of MP3 player), watching DVD, make work and play game.

PND use:
No requirements have evolved from the legislation.

Music player use:
Concerning music player use, it is prohibited to use headphones/earphones.

TV/video player use:
According to the Ministry, both manual handling of TV/video players and watching TV/video is prohibited for drivers when the vehicle is moving.

Sanctions:
A monetary fine is applied for improper use of mobile phones 40 EUR. No penalty point system applies in the country.

External links & any other information:
Road Traffic Act (in English): http://www.legaltext.ee/et/andmebaas/document.asp?ptyyp=RT&q2=liiklusseadus&order=TA&tyyp=X&query=&display=1

Country name:	**FINLAND**	Country code:	**FI**

Information provided by:
Ms. Anu Laurell, Ministry of Transport and Communications

General legislation:
The Road Traffic Act (Tieliikennelaki) stipulates that general responsibilities of road users: Road user must follow the traffic rules and otherwise required by the circumstances of care and caution to avoid risk and damage. (1)
1) Tieliikennelaki (Road Traffic Act), Art. 3

Specific legislation:
The Road Traffic Act (Tieliikennelaki) stipulates that radio or television receivers, sound or other devices showing images, or communication devices must not be used by the driver whilst driving if they interfere with the driver's ability to control the vehicle, or otherwise interfere with the driver's concentration on traffic. Moreover, a driver of a motor vehicle driver must not use a mobile phone while driving if this involves holding the phone in his/her hands. (2)
2) Tieliikennelaki (Road Traffic Act), Art. 24 a

Mobile phone use
With regards to mobile phone use, hands-free equipment is required when the vehicle is moving. Concerning hands-free, a headset/Bluetooth is sufficient. Hands-free is required for making phone calls and/or using other phone functions (e.g. GPS). All functions that involve continuous handling (e.g. texting/SMS) are generally prohibited in any case.

PND use
With regards to PND use, manual interaction is not allowed for the driver when the vehicle is moving. With regards to mounting PNDs, the driver's field of view must not be obstructed, and the device must be fixed safely.

Music player use
With regards to music player use, manual interaction is not allowed for the driver when the vehicle is moving.

TV/Video devices use
With regards to TV/video player use, both manual handling of devices as well as watching TV/video is prohibited for drivers when the vehicle is moving.

Sanctions:
For a mobile phone offence, a monetary fine of 50 EUR applies. Mobile phone offences are not covered by the Finnish penalty point system.

Any other information:
Links to legislation in Finnish: http://www.finlex.fi/fi/laki/ajantasa/1981/19810267?search[type]=pika&search[pika]=Tieliikennelaki Information leaflet on PNDs http://www.mintc.fi/web/fi/julkaisu/view/1031937

Country name:	**FRANCE**	Country code:	**FR**

Information provided by:
Mr. Joel Valmain, Ministry of sustainable development, Interministerial Delegation for Road Safety

General legislation:
The Road Traffic Act stipulates that the driver must constantly be in both condition and position that enable him to perform comfortably and without delay all relevant manoeuvres. His/her possibility of movement and their view should not be reduced by the number or position of passengers, by transported objects, or by non transparent objects placed on the windscreen." (1)
1) Code de la route (Road Traffic Act), Art. R412-6 II

Specific legislation:
With regards to mobile phone use, the Road Traffic Act states that the usage of a hand-held phone by a driver of a vehicle in movement is forbidden. (2) Moreover, the Road Traffic Act stipulates that it is forbidden to place any functioning device with a screen - which does not provide driving or navigation assistance - in the field of view of a moving vehicle. (3)
2) Code de la route (Road Traffic Act), Art. R412-6-1 3) Code de la route (Road Traffic Act), Art. R412-6-2

Mobile phone use:
The use of a hand-held phone is prohibited as soon as the vehicle is moving. With regards to hands-free equipment, a headset/Bluetooth is sufficient. Hands-free is required when making phone calls and/or using other phone functions (e.g. GPS). Using the texting/SMS function is prohibited in any case when driving.

PND use:
Concerning PND use, drivers are not allowed to operate the device if they are not able to simultaneously and without delay perform driving related tasks when the vehicle is moving. Moreover, it is not allowed to use the media player function according to Art. R412-6-2 of the Road Traffic Act. When mounting PNDs, the driver must ensure that the device is not impairing his/her field of view.

Music player use:
No particular requirements have evolved from the general legislation.

TV/video player use:
With regards to TV/video player use, watching TV/video is prohibited for drivers when the vehicle is moving.

Sanctions:
For a mobile phone offence, a monetary fine of 35 EUR is applied and two penalty points are implied on the driver's licence (out of 12 points in total).

Links & any other information:
Code de la route: http://www.legifrance.gouv.fr/affichCode.do;jsessionid=0DBD4521F3F10138A44AD22E00822A62.tpdjo16v_1?idSectionTA=LEGISCTA000006177121&cidTexte=LEGITEXT000006074228&dateTexte=20100319 With regards to mobile phone use, the national road safety observatory regularly undergoes measurement of the use of hand held mobile phones in road traffic. The observation is made from roadside at 60 observation points and during 4 months. Measurements done in 2008 and 2009 shows that about 2% of drivers use their mobile phone while driving. There is ongoing discussion on how to address distraction due to improper use of mobile phones, but no specific time schedule is available at the moment.

Country name:	**GERMANY**	Country code:	**DE**

Information provided by:

Mr. Tom Michael Gasser, Federal Highway Research Institute (BASt)
Ms. Gudrun Scheuch, Federal Ministry of Transport, Building and Urban Development

General legislation:

The basic rules of the Straßenverkehrsordnung (StVO) stipulate that road users must behave in a way that no damage or danger is caused to other road users. (1)

Moreover, according to the StVO vehicle drivers are responsible to ensure that their view and hearing is not impaired by any devices. (2)

Furthermore, the StVO stipulates that load - including load securing equipment - must be stowed and secured in a way that avoids its shifting, falling over or down, rolling around, and avoidable noise, even in case of emergency braking or during evasive movements.(3)

The Straßenverkehrszulassungsordnung (StVZO) stipulates that the facilities to drive the vehicle must be easily and safely to operate. Moreover, the driver must ensure that he/she has adequate field of vision under all operating and weather conditions. (4)

1) Straßenverkehrsordnung (Road Traffic Regulations), Art. 1, par. 2
2) Straßenverkehrsordnung (Road Traffic Regulations), Art. 23, par. 1
3) Straßenverkehrsordnung (Road Traffic Regulations), Art. 22, par. 1
4) Straßenverkehrszulassungsordnung (Road Traffic Licensing Regulations), Art. 35b, par. 2

Specific legislation:

The StVO stipulates that vehicle drivers must not use a mobile phone or car phone if they have to hold or lift up the mobile phone or car phone's receiver. This does not apply if the vehicle is stationary or, in the case of motor vehicles, if the engine is switched off.(5)

Moreover, according to the StVO it is not allowed for drivers to use or to carry on-board any ready-to-operate technical devices that allow to indicate or to jam traffic checks (i.e. particularly speed checks). (6)

5) Straßenverkehrsordnung (Road Traffic Regulations), Art. 23, par. 1a
6) Straßenverkehrsordnung (Road Traffic Regulations), Art. 23, par. 1b

Mobile phone use:

With regards to mobile phone use, vehicle drivers must not hold a phone in their hands as soon as the vehicle's engine is running. Hence, the use of hands-free equipment is required; a headset/Bluetooth is generally being considered sufficient, as long as the driver doesn't hold the phone in his/her hands. Hands-free is required for making phone calls and using other phone functions (e.g. GPS). Texting (SMS) as well as using any function with relationsship to communication (e.g. internet) are prohibited in any case, since it is assumed that drivers must take at least one hand from the steering wheel to operate the device and accomplish the task.

PND use:

With regards to PND use, it is prohibited to use "Points-of-interest" functions (POIs) that indicate stationary speed cameras. The POI data/software must be deleted from the device's memory.

Concerning mounting PNDs, devices must be fixed without impairing the driver's field of view. Moreover, PNDs must be properly fixed to avoid the devices from falling over or falling down in the vehicle.

Music player use:

With regards to music player use, only limited sound volume of headphones/earphones is allowed.

TV/video player use:

Concerning TV/video player use, watching TV/video is prohibited for drivers when the vehicle is moving. However, it will be necessary to prove that the driver has actually been watching TV/video in order to reprimand him/her.

Sanctions:

For a mobile phone offence, a monetary fine of 40 EUR applies to vehicle drivers. In case of endangering other road users, this fine increases to 50 EUR; in case of damage to property to 60 EUR. In addition, one penalty point is imposed on the driver's licence (out of 18 points in total until licence withdrawal).

For improper mounting of a PND (field of view), a monetary fine of 25 EUR applies. Watching TV/video might be fined with a monetary fine of 10 EUR in case this is considered as an infringement of Art. 23, par. 1 of the StVO.

If a driver is found to be responsible for causing an accident due to improper use of a nomadic device (i.e. manual interaction with the device), gross negligence might be assumed. This might take effect on the contractual obligations of the insurance after an accident.

External links & any other information:

Legislation: Straßenverkehrsordnung & Straßenverkehrszulassungsordnung: http://www.gesetze-im-internet.de/Teilliste_S.html

Awareness campaigns: The German Road Safety Council (DVR) organises campaigns on careless driving and driver distraction (www.dvr.de).

Current legislative initiatives and political discussions: There are a number of ongoing research activities on possible further dangers combined with the secondary workload (that does not come with the primary driving task) undertaken in Germany. Scientifically reliable information on resulting dangers is considered a necessary precondition for legislative actions as these will always limit the constitutional right of personal freedom (which applies to drivers as to any other individual).

Furthermore, the 46th German Traffic Law Day (Verkehrsgerichtstag) 2008 recommended a European ban on the distribution of certain nomadic devices that cause driver distraction due to e.g. visual entertainment functions, or pose danger due to improper mountings on the windscreen, or contain functions to indicate traffic checks. Moreover, it recommended amendments in StVO Art. 23 aiming at prohibiting the use of such devices.

Country name:	**GREECE**	Country code:	**EL**

Information provided by:
Mr. Stratos Georgiopoulos, Legal Department, Ministry of Transport

General legislation:
The Road Traffic Act stipulates that drivers of vehicles must ensure they are able to control the vehicle at any time and that their body posture for steering the vehicle is not impaired.
1) Κώδικας Οδικής Κυκλοφορίας (Road Traffic Act), Art.13

Specific legislation:
Article 13 (2) of the Road Traffic Act then specifies that it is prohibited to use the headphones connected to portable radios, tape recorders and other similar audio device as well as television devices. Mobile phone use is permitted only when the phone is placed in a mounting for a free hearing, and when used with a wireless headset. (2)
2) Κώδικας Οδικής Κυκλοφορίας (Road Traffic Act), Art.13 (2)

Mobile phone use:
When using a mobile phone, hands-free equipment is required when the vehicle is moving. Concerning hands-free, a wireless headset/Bluetooth must be used and the phone must be fixed in a mounting. Hands-free is required for making phone calls and using other phone functions (e.g. GPS). Texting is prohibited in any case. The use of mobile phones for motorcyclists is completely banned.

PND use:
Concerning PND use, according to the Ministry's response it is prohibited to operate the device when the vehicle is moving. It is prohibited to use other device's function than the GPS function.

Music player use:
With regards to music players, the use of headphones is prohibited for drivers.

TV / Video:
According to the Ministry's response, both manual handling and watching TV/video is affected by legislation. Manual interaction with devices as well as watching TV/video is prohibited for the driver when the vehicle is moving.

Sanctions:
For improper use of a mobile phone, a monetary fine of 100 EUR is applied. In addition, three penalty points are imposed on the driver's licence (out of 25 points in total). Furthermore, the driving licence could be withdrawn for 30 days.

Links & any other information:
Road Traffic Act: http://www.yme.gr/imagebank/categories/KOK_pdf.pdf

Country name:	**HUNGARY**	Country code:	**HU**

Information provided by:
Mr. Gábor Miklos, Institute for Transport Sciences of the Ministry of Transport (KTI)

General legislation:
The Road Traffic Act stipulates that any person who participates in road transport is required to assure that his/her travel do not endanger other road users. No requirement on full attention to driving is explicitly given. (1)
1) KRESZ 1/1975. (II. 5.) KPM-BM együttes rendelet (Road Traffic Act), Art.3 (1) c

Specific legislation:
The Road Traffic Act stipulates that driver is not allowed to use hand-held mobile phones when driving. (2)
2) KRESZ 1/1975. (II. 5.) KPM-BM együttes rendelet, (Road Traffic Act), Art.3 (2)

Mobile phone use:
With regards to mobile phone use, hand-free equipment must be used as soon as the vehicle's engine is running. A headset/Bluetooth is sufficient. Hands-free must be used for making phone calls only.

PND use:
No particular requirements have evolved from the legislation.

Music player use*:*
No particular requirements have evolved from the legislation.

TV/video player use:
No particular requirements have evolved from the legislation.

Sanctions:
For improper use of mobile phone, a monetary fine applies (varying between 38 EUR in urban areas, 57 EUR on rural roads and 75 EUR on motorways). In addition, three penalty points are imposed on the driver's licence (out of 18 penalty points in total until licence withdrawal).

External links & any other information:
Road Traffic Act: http://net.jogtar.hu/jr/gen/hjegy_doc.cgi?docid=97500001.kpm The Institute for Transport Sciences of the Ministry of Transport (KTI) carried out an observational survey on mobile phone use on different locations in 2007. In total 4,960 vehicles were observed on motorways, in built up areas (Budapest), on main road outside built-up areas and on main roads in agglomeration of Budapest (outside built-up areas). In total, 5.0% of drivers used their mobile phones on motorways, 8.3 % of drivers used their phone in the city of Budapest, 8.2% on main roads outside built-up areas, 7.2 % on main road in agglomeration areas.

Country name:	**IRELAND**	Country code:	**IE**

Information provided by:
Mr. Michael Brosnan, Road Safety Administration

General legislation:
The Road Traffic Regulations stipulate that a person shall not drive a vehicle in a public place at any time when his power of control over the vehicle or his field of view is seriously diminished, either by reason of his position in or on the vehicle, by reason of anything permanently or temporarily carried by the vehicle, or by reason of the position or number of the passengers in or on the vehicle, or for any other reason. (1) Furthermore, a passenger in a vehicle in a public place shall not wilfully obstruct or impede the driver or, without reasonable cause, obstruct or interfere with the working of the vehicle or distract the driver's attention. (2)
1) Road Traffic Regulations, Statutory Instrument 190/1963, Art. 92 (1) 2) Road Traffic Regulations, Statutory Instrument 190/1963, Art. 92 (2)

Specific legislation:
The Road Traffic Regulations stipulate that the driver of a mechanically propelled vehicle that is in a public place shall not hold or have on or about their person, a mobile phone or other similar apparatus while in the said vehicle, except when it is parked. (3) The Road Traffic Act 2006 precisely states that the Transport Ministry may, to avoid the impairment or interference with the driving capacity or capabilities of drivers of vehicles, make regulations in relation to the restriction or prohibition of the use of also in-vehicle communication devices, information equipment, or entertainment equipment. "In-vehicle communication device" means a communication device designed or adapted to be attached to or integrated into a vehicle or which may be used in or on a vehicle and with which a person is capable of making or receiving a call or performing an interactive communication function and includes a two-way radio. "Interactive communication function" includes sending or receiving oral or written messages, sending or receiving facsimile documents, sending or receiving still or moving images, or providing access to the internet. (4)
3) Road Traffic Regulations, Statutory Instrument 93/2002, 4) Road Traffic Act 2006, Section 3 (1)

Mobile phone use:
Concerning mobile phone use, the use of hands-free equipment is mandatory as soon as the vehicle's engine is running. With regards to hands-free equipment, a headset/Bluetooth is sufficient, if there is no need for the user to hold the phone by hand.

PND use:
No particular requirements have evolved from the legislation.

Music player use:
No particular requirements have evolved from the legislation.

TV/video player use:
No particular requirements have evolved from the legislation.

Sanctions:
For a mobile phone offence, a monetary fine of 60 EUR and two penalty points (fixed charge) are applied (out of 12 penalty points in total until licence withdrawal). The monetary fine of 60 EUR is raised to 90 EUR if not paid within 28 days.

Links & any other information:
Road Traffic Act 2006, Section 3: http://www.irishstatutebook.ie/2006/en/act/pub/0023/sec0003.html#sec3 Road Traffic Regulations, Statutory Instrument 190/1963, Art. 92: http://www.irishstatutebook.ie/1963/en/si/0190.html Road Traffic Regulations, Statutory Instrument 93/2002: http://www.irishstatutebook.ie/2002/en/si/0093.html **Glossary of terms used in traffic Code:** "mobile and personal communications systems" means systems consisting of a mobile network infrastructure whether connected or not to public network termination points, to support the transmission and provision of radio telecommunications services to mobile users; "mobile phone" means any device which is being used directly by a person for the purpose of communication by way of mobile and personal communications systems; "other similar apparatus" means any device, other than a mobile phone, which is being used directly by a person for the purpose of communication by way of radio waves of any frequency, including but not limited to citizen band radio, short range hand held radio communication apparatus and private mobile radio apparatus; "parked" means parked in such a location and manner that an offence under the Road Traffic Acts is not committed thereby; S.I. No. 93/2002 — Road Traffic (Construction, Equipment and Use of Vehicles) (Amendment) (No. 2) Regulations, 2002 http://www.irishstatutebook.ie/2002/en/si/0093.html

Country name:	**ICELAND**	Country code:	**IS**

Information provided by:
Mr. Gunnar Geir Gunnarsson, Road Traffic Directorate

General legislation:
The Road Traffic Act stipulates that drivers should show respect and caution to avoid danger or damage or discomfort, and to not interfere or delay traffic unnecessarily. The driver shall also show understanding for all other road users (1). Moreover, a driver shall be physically and mentally fit to control the vehicle he/she is driving. Nobody may control or try to control a vehicle, if he/she, due to illness, decrepitude, strain/exhaustion, lack of sleep, consumption of alcohol or other stimulating or narcotic drugs, or by other causes, is in such a shape that he/she is not able to safely control the vehicle. (2) Furthermore the Regulation on construction and equipment of vehicles stipulates that it is forbidden to place any accessories on the dashboard or on the windscreen that could restrict driver's view. (3)
1) Umferðarlög (Road Traffic Act), Nr. 50/1987, Art. 4 2) Umferðarlög (Road Traffic Act), Nr. 50/1987, Art. 44 3) Reglugerð um gerð og búnað ökutækja (Regulation on construction and equipment of vehicles), Nr. 822/2004, Art. 9

Specific legislation:
The Road Traffic Regulations stipulates that it is prohibited for drivers to use mobile phones without hands-free equipment while driving a motor vehicle.
4) Umferðarlög (Road Traffic Act), Nr 50/1987, Art. 47a

Mobile phone use:
Concerning mobile phone use, the use of hands-free equipment is mandatory as soon as the vehicle's engine is running. With regards to hands-free equipment, a headset/Bluetooth is sufficient. Hands-free is required for making phone calls only.

PND use:
No particular requirements have evolved from the legislation.

Music player use:
No particular requirements have evolved from the legislation.

TV/video player use:
No particular requirements have evolved from the legislation.

Sanctions:
For a mobile phone offence, a monetary fine of 29 EUR applies. In addition, one penalty point is imposed on the driver's licence (out of 12 points[1] in total until licence withdrawal).

Links & any other information:
Road Traffic Act: http://www.us.is/Apps/WebObjects/US.woa/swdocument/392/Umfer%C3%B0arl%C3%B6g,+nr.+50_1987.pdf Regulation on construction and equipment of vehicles: http://us.is/Apps/WebObjects/US.woa/swdocument/1207/Regluger%C3%B0%20um%20ger%C3%B0%20og%20b%C3%BAna%C3%B0%20%C3%B6kut%C3%A6kja%20nr.822-2004.pdf

[1] 4/7 points in total for novice drivers

Country name:	**ITALY**	Country code:	**IT**

Information provided by:
Mr. Roberto Serino, Ministry of Transport and Infrastructure

General legislation:
The Road Traffic Code stipulates that the driver must always keep control of the vehicle and be able to perform all the manoeuvres required in safety, especially the timely arrest of the vehicle within the limits of his field of vision and before any foreseeable obstacles. (1) The Implementing Regulation stipulate that any written or illuminated adverts inside vehicles are prohibited that are directly or indirectly visible to the driver, or that could determine dazzling of the driver or that could confuse the driver with (other) visual and lightening devices of the vehicle. (2)
1) Nuovo Codice della Strada (Road Traffic Code) (DLs n. 285/1992), Art. 141 cc. 2 2) Regolamento di Esecuzione e di Attuazione (Implementing Regulation) (DPR n. 495/1992), Art. 57 c. 6

Specific legislation:
According to the Road Traffic Code it is forbidden for drivers to make use of any telephone equipments or headphones while driving, except for drivers of vehicles of armed forces and bodies referred to art. 139, paragraph 11, police and drivers of vehicles designated to exploiting road services (motorways included) or vehicles designated to transportation of persons for hire or reward. It is allowed to use devices equipped with headsets or speakerphones, provided that the driver has adequate hearing abilities in both ears, and that the device's operation do not require the use of the driver's hands. (3)
3) Nuovo Codice della Strada (Road Traffic Code) (DLs n. 285/1992), Art. 173 c. 2

Mobile phone use:
Hands-free equipment must be used when the vehicle is moving. With regards to hands-free, a headset/Bluetooth must be used and the phone must be additionally fixed in a mounting. Hands-free is required for making phone calls and/or using other mobile phone functions (e.g. GPS). It is in any case prohibited to use the texting (SMS) function.

PND use:
With regards to PND use, it is prohibited to operate the device when the vehicle is moving. Moreover, it is prohibited to use the media player function of a PND. Devices must be mounted without impairing the driver's field of view.

Music player use:
Concerning music player use, there are requirements on both the manual handling of devices and the use of headphones. According to the Ministry, an automobile interface must be used (e.g. connection to the vehicle's audio system) when using a music player; headphone use is not allowed. Moreover, it is prohibited to handle the device when the vehicle is moving. Headphone use is not allowed when driving.

TV/video player use:
Both manual handling and watching TV/video are restricted. It is prohibited for drivers to both handle devices and watch TV/video when the vehicle is moving. Front seat passengers and rear seat passengers are allowed to watch but the device's display must not be visible to the driver.

Sanctions:
Improper use of a mobile phone while driving results in a fine of 148 EUR and 5 penalty points (out of 20 penalty points in total until licence withdrawal). (4)
4) (DLs n. 285/1992) 173 c. 3bis

External links & any other information:
Road Traffic Code: http://www.mit.gov.it/mit/site.php?p=normativa&o=vd&id=1&id_cat=&id_dett=0 Implementing Regulation: http://www.mit.gov.it/mit/site.php?p=cm&o=vd&id=299

Country name:	**LATVIA**	Country code:	**LV**

Information provided by:
Mr. Aldis Lama, Traffic Safety Division, Ministry of Transport

General legislation:
The Road Traffic Regulations stipulates that road users have to behave in a way to not cause traffic or hazardous traffic violations and to not cause any damage. (1)
1) Ceļu satiksmes noteikumi (Road Traffic Regulations), Art. 10

Specific legislation:
The Road Traffic Regulations stipulates it is prohibited for drivers to use a mobile phone when driving unless they don't hold the device in their hands and they use hands-free equipment. (2)
2) Ceļu satiksmes noteikumi (Road Traffic Regulations), Art. 39 (9)

Mobile phone use:
With regards to mobile phone use, the use of hands-free equipment is mandatory when the vehicle is moving. A headset/Bluetooth is sufficient. Hands-free must be used for making phone calls only. It is prohibited in any case to write text messages (SMS) when driving.

PND use:
No particular requirements have evolved from the legislation.

Music player use:
No particular requirements have evolved from the legislation.

TV/video player use:
No particular requirements have evolved from the legislation.

Sanctions:
For a mobile phone offence, a monetary fine of 14 EUR applies. Mobile phone offences are not covered by the penalty point system.

Any other information:
Latvian road traffic act: http://www.csdd.lv/documents/normativiedokumenti/noteikumi/mk/csn.pdf

Country name:	**LITHUANIA**	Country code:	**LT**

Information provided by:
Mr. Vidmantas Pumputis, Ministry of Transport and Communications

General legislation:
The Road Traffic Regulations stipulates that drivers of vehicles on the road must always behave in a way that does not present a danger to other road users, and not to interfere with other traffic. (1)
1) Kelių eismo taisyklės (Road Traffic Regulations), Art. 28

Specific legislation:
Drivers of motor vehicles, tractors, and truck drivers are not allowed to use devices for mobile communications, if they use hands for their operation, except when the motorized vehicle is stationary and the engine is turned off. (2)
2) Kelių eismo taisyklės (Road Traffic Regulations), Art. 21

Mobile phone use:
With regards to mobile phone use, the use of hands-free equipment is mandatory as soon as the engine is running. A headset/Bluetooth is sufficient. Hands-free equipment is required for making phone calls and/or using other phone functions (e.g. GPS). It is prohibited to use any functions that involves continous handling of the phone.

PND use:
No particular requirements have evolved from the legislation.

Music player use:
No particular requirements have evolved from the legislation.

TV/video player use:
No particular requirements have evolved from the legislation.

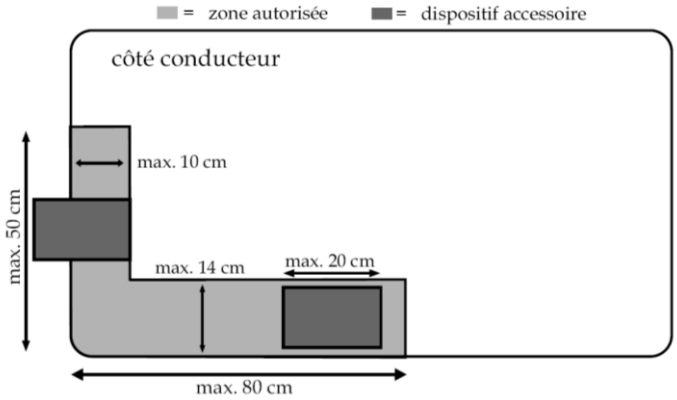
Sanctions:
For a mobile phone offence, a monetary fine of up to app. 11 EUR applies. (3) 3) Lietuvos Respublikos administracinių teisės pažeidimų kodeksas 124 (1) – Code of Administrative Offenses

Any other information:
Road Traffic Regulations: http://www3.lrs.lt/pls/inter/dokpaieska.dok_priedas?p_id=35719 Code of Administrative Offences: http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=373211 (in force since 25th of May, 2010). Road Traffic Safety Law: http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=369687 (in force since 10th of April, 2010, till 30th of June, 2010).

Country name:	**LUXEMBOURG**	Country code:	**LU**

Information provided by:
Mr. Marco Feltes, Ministry for Sustainable Development and Infrastructure

General legislation:
The Road Traffic Act stipulates that road users must behave responsibly and prudently in order to not constitute a nuisance or danger to traffic, or to cause harm or danger to people or to public or private property. (1) Moreover, any road vehicle must allow the driver a clear view to the front and to both-sides that enables him/her to drive the vehicle safely. (2)
1) Code de la route (Road Traffic Act), Art. 140 2) Code de la route (Road Traffic Act), Art. 46 (1)

Specific legislation:
The Road Traffic Act stipulates that it is not allowed to drive a vehicle carrying a device impeding a good perception of traffic noise. (3) Moreover, the Road Traffic Act stipulates that the driver's telephone must be fixed securely in the vehicle. Hands-free equipment must meet the following terms: it must allow the driver to start or to end conversation with only one hand, while the driver should not significantly change his/her driving position. (4) Furthermore, accessory devices, such as PNDs, can be mounted in the driver's forward field of view, provided that the side size of the device does not exceed 20 cm and that it is mounted stably on the dashboard, or on the driver's side of the windscreen in such a way that no part of the device exceeds the areas shown in the picture below. The distances are measured in parallel with the windscreen; in case of inclined windscreen, the distance of 14 cm is to be measured vertically from the dashboard. (5) 
3) Code de la route (Road Traffic Act), Art. 170bis (1) 4) Code de la route (Road Traffic Act), Art. 170bis (2) 5) Code de la route (Road Traffic Act), Art. 46 (2)

Mobile phone use:
With regards to mobile phone use, hands-free equipment must be used for making phone calls when the vehicle is moving. Texting and using any other function that involves continuous handling are prohibited. Concerning hands-free, a headset/Bluetooth must be used and the phone must be additionally fixed in a mounting.

PND use:
Concerning PND use, no particular requirements have evolved from the legislation. With regards to mounting PNDs, there are specific regulations in place stipulating requirement on both the location of mounting and the technical way of fixing devices.

Music player use:
With regards to music player use, the use of headphones is prohibited for drivers.

TV/video player use:
No particular requirements have evolved from the legislation.

Sanctions:
For improper use of mobile phones, a monetary fine of 74 EUR is applied. Mobile phone offences are not covered by the penalty point system. Manual interaction with a PND device while driving, its improper mounting results in a fine of 49 EUR. Watching a video screens applies a fine of 49 EUR. For none of these offenses penalty points are given.

Any other information:
Code de la route: http://www.legilux.public.lu/leg/textescoordonnes/codes/code_route/AGD_23_NOVEMBRE_1955.pdf

Country name:	**MALTA**	Country code:	**MT**

Information provided by:
Mr. David Sutton, Ministry of Transport

General legislation:
The Motor Vehicles Regulations stipulate that a person driving a vehicle shall be so seated as to have a complete control of the vehicle and a full view of the road and the traffic ahead the vehicle. (1) Moreover, no tint, film, other substance or material shall be applied to the windscreen of a motor vehicle. (2)
1) Motor Vehicles Regulations S.L. 65.11, Art. 68 2) Motor Vehicles Regulations S.L. 65.11, Art. 110 (3)

Specific legislation:
The Motor Vehicle Regulations stipulate that no person shall drive any motor vehicle whilst wearing or using on both ears earphones or headphones or any other device which may hinder or is likely to hinder that person from hearing properly. (3) Moreover, no person shall drive a motor vehicle on a road if that person is holding, and, or using a hand-held mobile phone telephone or any other similar hand-held device, other than a hand-free device or a two-way radio, while the motor vehicle is in motion. (4) Furthermore, no driver shall operate, or cause, or permit to be operated any radio, tape recorder, record player, or similar apparatus on or in any motor vehicle in a way that it may hinder or is likely to hinder that driver from hearing properly or which may cause annoyance to passengers in the vehicle or other people in any inhabited place. (5)
3) Motor Vehicles Regulations S.L. 65.11, Art. 115 (1) 4) Motor Vehicles Regulations S.L. 65.11, Art. 115 (2) 5) Motor Vehicles Regulations S.L. 65.11, Art. 116

Mobile phone use:
Concerning mobile phone use, hands-free equipment is mandatory when the vehicle is moving. With regards to hands-free, a headset/Bluetooth must be used and the phone must be additionally fixed in a mounting. Hands-free equipment is required for making phone calls only.

PND use:
With regards to mounting PNDs, drivers must ensure that they have full view of the road and traffic ahead.

Music player use:
Concerning music player use, it is prohibited to use headphones.

TV/video player use:
No particular requirements have evolved from the legislation.

Sanctions:
For improper use of a mobile phone, a monetary fine of approximately 23 EUR applies. There is no penalty point system in place in the country; however, a possible introduction is currently under discussion.

External links & any other information:
Motor Vehicle Regulation: http://www.doi.gov.mt/en/legalnotices/2007/default.asp

Country name:	**THE NETHERLANDS**	Country code:	**NL**

Information provided by:
Mr. W.H.J. Freijsen, Ministry of Justice Mr. Peter Mak, Ministry of Transport

General legislation:
The Road Traffic Act stipulates that road users must behave in such a way in road traffic as to not endanger other road users or to hinder other traffic. (1) Moreover, the Vehicle Regulations stipulate that it is prohibited to place unnecessary objects on the windscreen or the side windows that may obstruct the driver's view. (2)
1) Wegenverkeerswet 1994 (Road Traffic Act), Art. 5 2) Regeling voertuigen (Vehicle Regulations), Art. 5.2.42

Specific legislation:
The Regulations on Traffic and Road Signs stipulate that it is prohibited to use or to hold mobile phones when driving.
3) Reglement verkeersregels en verkeerstekens 1990 (Regulations on Traffic and Road Signs), §30, Art. 61a

Mobile phone use:
The use of hands-free equipment is required when the vehicle is moving. A headset/Bluetooth is sufficient, as long as the driver doesn't hold the phone in his/her hands. Hands-free equipment is required for making phone calls and/or using other mobile phone functions (e.g. GPS).

PND use:
A PND device must be fixed without impairing the driver's field of view. Concerning the use of PNDs, no particular requirements have evolved from the legislation. However, a penal settlement might apply in case of careless or dangerous driving resulting from the use of the device.

Music player use:
Concerning the use of music players, no particular requirements have evolved from the legislation. However, a penal settlement might apply in case of careless or dangerous driving resulting from the use of the device.

TV/video player use:

Concerning the use of TVs/video players, no particular requirements have evolved from the legislation. However, a penal settlement might apply in case of careless or dangerous driving resulting from the use of the device. With regards to mounting TV/video players, devices would need to be fixed without impairing the driver's field of view.

Sanctions:

For the improper use of a mobile phone, a monetary fine of 160 EUR applies. There is no penalty point system introduced in the Netherlands. If police considers the driving behaviour of a driver as being dangerous due to Nomadic Device Use, they may stop the driver for "dangerous driving". In this case, a monetary fine up to 250 EUR applies.

External links & any other information:

Regulations on Traffic and Road Signs:
http://www.st-ab.nl/wettennr04/0352-096_Reglement_verkeersregels_en_verkeerstekens_1990_%28RVV_1990%29.htm

Road Traffic Act:
http://wetten.overheid.nl/BWBR0006622/HoofdstukII/1/Artikel5/geldigheidsdatum_30-03-2010

Vehicle Regulations:
http://wetten.overheid.nl/BWBR0025798/Hoofdstuk5/Afdeling2/9/Artikel5242/geldigheidsdatum_30-03-2010

Country name:	**POLAND**	Country code:	**PL**

Information provided by:
Mr. Andrzej Bogdanowicz, Ministry of Infrastructure Ms. Magdalena Kędzierska, Ministry of Infrastructure

General legislation:
The Road Traffic Act stipulates a general caution requirement: "Any road traffic participant is required to maintain caution or - where the law requires it - special care to avoid any action which would lead to a safety hazard on the road, or in connection with the movement to distort peace or public order, and to expose anyone to harm." (1) Moreover, concerning the technical requirements for vehicles, the Road Traffic Act stipulates that an adequate field of view of the driver must be ensured. (2)
Road Traffic Act: 1) Ustawa z dnia 20 czerwca 1997 r. Prawo o ruchu drogowym (Dz. U. z 2005 r. Nr 108, poz. 908, z późn. zm.), art. 3 ust. 1 2) Ustawa z dnia 20 czerwca 1997 r. Prawo o ruchu drogowym (Dz. U. z 2005 r. Nr 108, poz. 908, z późn. zm.), art. 66 ust. 1 pkt 5

Specific legislation:
The Road Traffic Act stipulates that it is prohibited for drivers to use mobile phones when driving if the use requires holding the phone or a microphone in the driver's hand.
Road Traffic Act: 3) ustawa z dnia 20 czerwca 1997 r. Prawo o ruchu drogowym (Dz. U. z 2005 r. Nr 108, poz. 908, z późn. zm.), art. 45 ust. 2 pkt 1

Mobile phone use:
With regards to mobile phone use, the use of hands-free equipment is required when the vehicle is moving. Concerning hands-free equipment, a headset/Bluetooth is sufficient. Hands-free must be used for making phone calls and for using other phone functions (e.g. GPS).

PND use:
No requirements have evolved from the regulation.

Music player use:
No requirements have evolved from the legislation.

TV/video player use:
No requirements have evolved from the regulation..

Sanctions:
Improper use of mobile phone leads to a monetary fine of 50EUR.

Links & any other information:
http://isap.sejm.gov.pl/DetailsServlet?id=WDU20051080908

Country name:	**PORTUGAL**	Country code:	**PT**

Information provided by:
Ms. Maria Margarida Janeiro, National Road Safety Administration (ANSR)

General legislation:
The Road Code stipulates that people should refrain from acts that impede or tangled traffic or endanger the safety or convenience of road users. (1)
1) Codigo da Estrada (Road Code), Art. 3 (2)

Specific legislation:
The Road Code stipulates that it is prohibited for the driver to use while the vehicle is moving any equipment or device capable of impair driving, including headphones, sound and radiotelephone apparatus. However, it is allowed to use devices if these are equipped with a headset or microphone, or external speakers, if this use does not involve continuous handling. Moreover, it is prohibited to install and use any equipment, devices or products which could reveal the presence or disrupt the operation of instruments designed to detect or record traffic offences.
2) Codigo da Estrada (Road Code), Art. 84

Mobile phone use:
Concerning mobile phone use, the use of hands-free equipment is required when the vehicle is moving. A headset or Bluetooth is sufficient. Hands-free is required when making phone calls. Texting as well as the use of any function that requires continuous handling of the device are forbidden.

PND use:
With regards to PND use, it is prohibited to operate the device when the vehicle is moving. Moreover, the prohibition to use any equipment that could reveal the presence or disrupt the operation of instruments designed to detect or record traffic offences might apply to PNDs with stored locations of fixed speed cameras (e.g. "Points of Interest").

Music player use:
The use of music players is prohibited when the vehicle is moving. The use of headphones is not allowed in any case.

TV/video player use:
With regards to TV/video player use, both manual handling devices and watching TV/video are prohibited for the driver when the vehicle is moving. Front seat passengers and rear seat passengers are allowed to watch, but display must not be visible to the driver.

Sanctions:
For a mobile phone offence, a fine of at least 120 EUR applies. In addition, a driving ban between one and six months may apply. There is a penalty point system in place in Portugal that doesn't cover mobile phone offences. (3)
3) Codigo de Estrada, Art.84, No 4.

External links & any other information:
Road Traffic Act: http://www.ansr.pt/Default.aspx?tabid=256&language=pt-PT

Country name:	**ROMANIA**	Country code:	**RO**

Information provided by:
Mr. Marian Zane, General Inspectorate of the Romanian Police, Road Traffic Police

General legislation:
The Road Traffic Act stipulates that road users must behave in a way that they are not affecting the traffic flow and traffic safety, do not to endanger the life or physical integrity of persons and do not to harm public or private property. (1)
1) Ordonanța de urgență a Guvernului nr.195/2002 privind circulația pe drumurile publice (Road Traffic Act), Art.35 (1)

Specific legislation:
If is prohibited to drivers of vehicles to use mobile phones when they are driving, except these phones are equipped with hands-free. (2)
2) Ordonanța de urgență a Guvernului nr.195/2002 privind circulația pe drumurile publice (Road Traffic Act), Art.36 (3)

Mobile phone use:
With regards to mobile phone use, hands-free equipment is required when the vehicle is moving. A headset or Bluetooth is sufficient. Hands-free is required for making phone calls only.

PND use:
No particular requirements have evolved from the legislation.

Music player use:
No particular requirements have evolved from the legislation.

TV/video player use:
No particular requirements have evolved from the legislation.

Sanctions, Policy & Effectiveness:
For a mobile phone offence, a monetary fine of about 30 EUR applies. In addition, two penalty points are imposed on the driver's licence (out of 15 penalty points in total until licence withdrawal). (3)
3) OUG 195/2002 republicată privind circulația pe drumurile publice, actualizată - Art. 108 (1) a 2. (Road Traffic Act) (1)

Any other information:
Road Traffic Act: http://www.politiaromana.ro/dpr/OUG%20195%20din%202002%20-%20actualizata.pdf

Country name:	**SLOVAKIA**	Country code:	**SK**

Information provided by:
Mr. Karol Meliska, Ministry of Transport, Posts and Telecommunications

General legislation:
The Road Traffic Act stipulates that drivers must fully concentrate on driving and carefully watch for the traffic situation. (1) Moreover, drivers must assure before starting the journey and during the journey, that no objects are placed in the view field that could detour their attention from safe driving. (2) Furthermore, transported passengers must not through their behaviour endanger road safety, particularly to reduce the driver's ability to drive safety, to stay in places where they may endanger themselves and through throwing objects from the vehicle. (3)
1) Zákon o cestnej premávke a o zmene a doplnení niektorých zákonov (Road Traffic Act) 8/2009, I par.4, Art. 1 (c) 2) Zákon o cestnej premávke a o zmene a doplnení niektorých zákonov (Road Traffic Act) 8/2009, I par.4, Art. 1 (i) 3) Zákon o cestnej premávke a o zmene a doplnení niektorých zákonov (Road Traffic Act) 8/2009, III par.45, Art. 2

Specific legislation:
The Road Traffic Act stipulates that drivers must not use a phoning device when driving, except when using hands-free systems, or perform any other activity which is not directly related to driving. (4)
4) Zákon o cestnej premávke a o zmene a doplnení niektorých zákonov (Road Traffic Act) 8/2009, I par.4, Art. 2 (l)

Mobile phone use:
With regards to mobile phone use, hands-free equipment is required when the vehicle is moving. A headset/Bluetooth is sufficient. Hands-free is required when making phone calls and/or using other phone functions (e.g. GPS).

PND use:
It is prohibited for drivers to operate a PND device when the vehicle is moving. With regards to mounting PNDs, the device must not obstruct the driver's field of view.

Music player use:
It is prohibited for drivers to handle music players when the vehicle is moving.

TV/video player use:
It is prohibited for drivers to handle TV and video players when the vehicle is moving.

Sanctions:
For a mobile phone offence, a monetary fine of 60 EUR applies*, if the offender pays on the spot. In case of further prosecution, this fine could be raised up to 100 EUR. There is no penalty point system in place in Slovakia. *) According to the article 22, paragraph 3 of the offence act, it is possible to impose on the spot a sanction up to €60, while this could be raised up to €100 in case of further prosecution (art. 22, par.2 (e)).

External links & any other information:
Road Traffic Act: http://www.zbierka.sk/Default.aspx?sid=15&PredpisID=208782&FileName=zz2009-00008-0208782&Rocnik=2009&AspxAutoDetectCookieSupport=1 The Transport Research Institute VUD, as a contractor of the Ministry of Transport, performed annual survey on the use of hand-held mobile phones while driving. In 2008, the misuse of mobile phones was detected for 4.19% of drivers (Sample 12,786 drivers). In 2009, it was 3.29% in a sample of 21,930 drivers.

Country name:	**SLOVENIA**	Country code:	**SI**

Information provided by:
Ms. Tamara Pia Koprol, Ministry of Transport

General legislation:
The Road Traffic Act stipulates that road users' behaviour must not to obstruct or endanger other road traffic participants. Road users must avoid causing damage. (1)
1) Zakon o varnosti cestnega prometa (Road Traffic Act), Art. 24 (2)

Specific legislation:
The Road Traffic Act stipulates that drivers while driving may not use devices or equipment in a manner that would impair his auditory or visual perception or the ability to control vehicle (mask, headphones, phone, etc.). (2) Driver while driving should not listen to the radio or other audio devices with volume too high that would impair his normal auditory perception on the road. (3)
2) Zakon o varnosti cestnega prometa (Road Traffic Act), Art. 72 (1) 3) Zakon o varnosti cestnega prometa (Road Traffic Act), Art. 72 (2)

Mobile phone use:
With regards to mobile phone use, hands-free equipment is mandatory when the vehicle is moving. Concerning hands-free, a headset/Bluetooth must be used and the phone must be additionally fixed in a mounting. Hands-free is required for making phone calls and/or using other phone functions (e.g. GPS). In any case, texting (SMS) or using any function that involves continuous handling are prohibited when driving.

PND use:
It is prohibited to operate a PND when the vehicle is moving.

Music player use:
With regards to music player use, it is prohibited to handle devices when the vehicle is moving. On headphones, only limited sound volume is allowed.

TV/video player use:
Concerning TV/video player use, both watching TV/video and handling devices is prohibited for drivers when the vehicle is moving.

Sanctions:
For a mobile phone offence, a monetary fine of 120 EUR applies. The penalty point system in Slovenia doesn't cover mobile phone offences.

External links & any other information:
Road Traffic Act: http://www.uradni-list.si/1/objava.jsp?urlid=200483&stevilka=3690

Country name:	**SPAIN**	Country code:	**ES**

Information provided by:
Mr. Francisco de las Alas-Pumariño, Ministry of Transport

General legislation:
The Road Traffic Act stipulates that drivers must drive with due care and caution to avoid any damage or danger to themselves or others. It is strictly forbidden for drivers to drive negligently or recklessly. (1) Furthermore, the Road Traffic Act stipulates that drivers of vehicles must maintain their own freedom of movement, required field of vision and permanent attention to driving, to ensure their own safety, the passenger safety and the safety of other road users. Objects (and/or animals) placed in the vehicle must not interfere with the driver's ability to drive safely. (2)
Road Traffic Act: 1) Reglamento General de Circulación, Art. 3 (1) 2) Reglamento General de Circulación, Art. 18 (1)

Specific legislation:
According to the Road Traffic Act it is prohibited for drivers to use headphones or earphones connected to receivers or sound reproducing apparatus. Moreover, drivers must not use any media or communication systems when driving, except where the development of communication takes place without using their hands. Moreover, the Road Traffic Act prohibits the use of devices that can distract the driver, such as internet access screens, television screens and video players and DVD. Exception to this is the use of monitors of GPS devices. (3) Furthermore, the Road Traffic Act prohibits the use of devices that are designed to evade the monitoring of traffic police or to detect speed checks (radar warning devices). (4)
3) Reglamento General de Circulación, Art. 18 (2) 4) Reglamento General de Circulación, Art. 65 (4) g

Mobile phone use:
With regards to mobile phone use, the use of hands-free equipment is required as soon as the engine is running. Concerning hands-free equipment, the use of earphones is not allowed. (Art. 18 (2) of the Road Traffic Act).

PND use:
It is prohibited for drivers to operate a PND when the vehicle is moving. The use of additional entertainment or information functions is not allowed. Although Art. 65 (4) g might apply, according to the Ministry of Transport' response the use of PNDs with POIs which only warn the driver when approaching to a location of fixed speed cameras, previously stored by the driver in the PNDs memory, is legal. With regards to the mounting of PNDs, the device must be installed where it can be easily seen by the driver.

Music player use:
Concerning music player use, it is prohibited for drivers to use headphones or earphones.

TV/video player use:
With regards to TV/Video player use, both manual handling and watching TV/Video is affected by legislation. It is prohibited for drivers to handle TV/video players when the vehicle is moving. Watching TV/video is not allowed for drivers when the vehicle is in motion; however, passengers are allowed to watch but the display must not be visible to the driver.

Sanctions:
For a mobile phone offence and PND offence, a monetary fine of 200 EUR applies. Moreover, three penalty points are deducted from the driver's licence (out of 12 points in total until licence withdrawal).

Any other information:
Reglamento General de Circulación: http://www.dgt.es/was6/portal/contenidos/documentos/normas_legislacion/reglamento_trafico/reglamento_trafico063.pdf

Country name:	**SWEDEN**	Country code:	**SE**

Information provided by:
Mr. Klas Rehnberg, Swedish Transport Agency Ms. Jenny Norén, Swedish Transport Agency

General legislation:
The Road Traffic Ordinance stipulates that drivers are not allowed to drive if they are impaired by illness, fatigue, alcohol, other stimulants or substances, or if they - for other reasons - can not move the vehicle safely. (1) Moreover, the Road Traffic Ordinance sets out basic provisions for road users: To avoid road accidents, road users shall observe the care and attention that the circumstances demand. Road users shall show particular consideration towards children, the elderly, school road-crossing patrols and persons perceived to have a functional disability or an illness that impedes their progress in traffic. Road users shall act in such a way as not to impede or disturb other road users unduly. Road users shall show due regard for those who live or go about their business beside the road. Those travelling off-road shall ensure that their route, speed and mode of travel do not disturb people or animals unduly or damage land, plants or crops belonging to others. (2) Furthermore, the Vehicle Regulations stipulate that a vehicle may be used only if it is reliable safety condition and suitable for traffic. (3)
1) Trafikförordningen (Road Traffic Ordinance), Chapter 3, Art. 1 2) Trafikförordningen (Road Traffic Ordinance), Chapter 2, Art. 1 3) Fordonsförordning (Vehicle Regulations), Chapter 2, Art. 1

Specific legislation:
No specific legislation exists.

Mobile phone use:
No particular requirements have evolved from the legislation, i.e. hand-held phone use is not prohibited. Since there is no penalty clause in Chapter 2, Art. 1 of the Road Traffic Ordinance, drivers are only punishable when the lack of care and attention is so severe that the action can be punished as negligence in traffic in accordance with Section 1 of the Act on punishments for certain road traffic offences (Road Traffic Offence Act).

PND use:
No particular requirements have evolved from the legislation. Since there is no penalty clause in Chapter 2, Art. 1 of the Road Traffic Ordinance, drivers are only punishable when the lack of care and attention is so severe that the action can be punished as negligence in traffic in accordance with Section 1 of the Act on punishments for certain road traffic offences (Road Traffic Offence Act).

Music player use:
No particular requirements have evolved from the legislation. Since there is no penalty clause in Chapter 2, Art. 1 of the Road Traffic Ordinance, drivers are only punishable when the lack of care and attention is so severe that the action can be punished as negligence in traffic in accordance with Section 1 of the Act on punishments for certain road traffic offences (Road Traffic Offence Act).

TV/video player use:
No particular requirements have evolved from the legislation. Since there is no penalty clause in Chapter 2, Art. 1 of the Road Traffic Ordinance, drivers are only punishable when the lack of care and attention is so severe that the action can be punished as negligence in traffic in accordance with Section 1 of the Act on punishments for certain road traffic offences (Road Traffic Offence Act).

Sanctions:
No sanctions apply to hand-held mobile phone use.

Links & any other information:
Road Traffic Ordinance: http://www.notisum.se/rnp/sls/lag/19981276.HTM Vehicle Regulations http://www2.notisum.com/Pub/Doc.aspx?url=/rnp/sls/lag/20090211.htm

Country name:	**SWITZERLAND**	Country code:	**CH**

Information provided by:
Mr. Christoph Jahn, Federal Roads Office

General legislation:
The Road Traffic Law stipulates that the driver must always have control over his/her vehicle in order to fulfil his/her obligation to drive carefully. (1) Moreover, the Traffic Regulations stipulate that the driver must refrain from any activity which might interfere with the operation of the vehicle. (2). Furthermore, the Regulation on Technical Requirements for Road Vehicles require that the vehicle's windows must ensure a clear and undistorted field of view for the driver. It stipulates that the driver must be able to have an undistorted view the road ahead outside a 12.0m radius. (3)
1) Straßenverkehrsgesetz (Road Traffic Law), Art. 31 (1) 2) Verkehrsregelnverordnung (Traffic Regulations), Art. 3 (1) 3) Verordnung über die Technischen Anforderungen an Strassenfahrzeuge (Regulation on Technical Requirements for Road Vehicles), Art. 71 (4) and (5)

Specific legislation:
The Regulation on Traffic Offences (Ordnungsbussenverordnung), based on Art. 3 (1) of the Traffic Regulations, prohibits the use of hand-held mobile phones while driving. (4)
4) Ordnungsbussenverordnung (Regulation on Traffic Offences), Number 311

Mobile phone use:
The use of hands-free equipment is mandatory when the vehicle is moving. With regards to hands-free equipment, a headset/Bluetooth is sufficient. Hands-free is required for making phone calls only (based on the Regulation on Traffic Offences), however any other manual interaction with the mobile phone is prohibited according to the general legislation.

PND use:
With regards to mounting PNDs, according to an interpretation of the Federal Roads Office fixing a device on the lower edge of the windscreen can be tolerated. Concerning the use of PNDs when the vehicle is moving, any manual interaction with devices that lasts longer than just a moment would be prohibited.

Music player use:
Although no particular requirements concerning music players have evolved from the legislation, any manual interaction with devices that lasts longer than just a moment would be prohibited.

TV/video player use:
Although no particular requirements concerning TVs/video players have evolved from the legislation, any manual interaction with devices that lasts longer than just a moment would be prohibited. In practice a judge, interpreting the Verkehrsregelnverordnung, would not allow for the manual interaction with a TV whilst driving. Concerning mounting TVs/video players, devices must not obstruct the driver's field of view.

Sanctions:
For a mobile phone offence, a monetary fine of 70 EUR applies.

Links & any other information:
Road Traffic Law: http://www.admin.ch/ch/d/sr/741_01/index.html Traffic Regulations: http://www.admin.ch/ch/d/sr/c741_11.html Regulation on Technical Requirements for Road Vehicles: http://www.admin.ch/ch/d/sr/741_41/index.html Regulation on Traffic Offences: http://www.admin.ch/ch/d/sr/7/741.031.de.pdf

Country name:	**UNITED KINGDOM**	Country code:	**UK**

Information provided by:
Mr. Adrian Burrows, Department for Transport

General legislation:
The Road Vehicles (Construction & Use) Regulations stipulate that no person shall drive or cause or permit any other person to drive a motor vehicle on a road if he is in such a position that he cannot have proper control of the vehicle or have a full view of the road and traffic ahead. (1) Moreover, it is required that the driver while controlling the vehicle can at all times have a full view of the road and traffic ahead. (2)
1) The Road Vehicles (Construction & Use) Regulations 1986, Reg. 104 2) The Road Vehicles (Construction & Use) Regulations 1986, Reg. 30

Specific legislation:
The Road Vehicles (Construction & Use) Regulations specifically prohibit the use of hand-held phones or hand held devices which perform an interactive communication function by transmitting and receiving data while driving. (3) Under Regulation 109 of the Road Vehicles (Construction and Use) Regulations 1986 (4), it is an offence to drive a motor vehicle on a road if the driver is in such a position as to be able to see, whether directly or by reflection, a television screen showing anything other than information: (a) about the state of the vehicle or equipment; (b) about the location of the vehicle and the road on which it is located; (c) to assist the driver to see the road adjacent to the vehicle; (d) to assist the driver to reach his destination.
3) The Road Vehicles (Construction & Use) Regulations 1986, Reg. 110 4) The Road Vehicles (Construction and Use) Regulations 1986, Reg. 109, S.I. 1986/1078

Mobile phone use:
With regards to mobile phone use, hands-free equipment is mandatory when the vehicle is being driven, whether or not the engine is running. Concerning hands-free, a headset/Bluetooth must be used. Hands-free is required for making phone calls and/or using other phone functions (e.g. GPS).

PND use:
Concerning PND use, it is prohibited to use the device's media player function (e.g. video)

Music player use:
No particular requirements have evolved from the legislation.

TV/video player use:
Concerning TV/video player use, it is prohibited for drivers to watch TV/video when the vehicle is being driven, whether or not the engine is running. Front seat and rear seat passengers are allowed to watch but display must not be visible to the driver.

Sanctions:
For a mobile phone offence, a monetary fine of about 70 EUR applies. In addition, three penalty points are imposed on the driver's licence (out of 12 points in total until licence withdrawal).

External links & any other information:
Legal information: http://www.direct.gov.uk/en/travelandtransport/highwaycode/dg_069869

8.2 Country codes

Country Code	Country
AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	The Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

CH	Switzerland
IS	Iceland

8.3 Survey I: Questionnaire 2 recipients list

Country	Expert name	Institution
AT	Robert Reidinger	Ministry of Transport
BE	Anneliese Heeren	Ministry of Transport
BG	Tihomir Todorov	Ministry of Interior
CY	Andreas Nickiforou	Ministry of Communications & Works
CZ	Lubomír Kincl	Ministry of Transport
DE	Gudrun Scheuch	Ministry of Transport
DK	Stig R. Hemdorff	Ministry of Transport
EE	Eero Aarniste	Ministry of Transport
EL	Stratos Georgiopoulos	Ministry of Transport
ES	Francisco de las Alas-Pumariño	Ministry of Transport
FI	Anu Laurell	Ministry of Transport
FR	Jean Chapelon	Ministry of Transport
HU	Gabor Miklos	KTI Institute for Transport Research
IE	Michael Brosnan	Road Safety Administration
IT	Roberto Serino	Ministry of Transport
LT	Vidmantas Pumputis	Ministry of Transport
LU	Marco Feltes	Ministry of Transport
LV	Aldis Lama	Ministry of Transport
MT	David Sutton	Ministry of Transport
NL	Harm Labrie	Ministry of Justice
PL	Andrzej Bogdanowicz	Ministry of Transport
PT	Maria Margarida Janeiro	National Road Safety Administration
RO	Marian Zane	Road Traffic Police
SE	Jenny Norén	Swedish Transport Agency
SI	Ljubo Zajc	Ministry of Transport
SK	Karol Meliska	Ministry of Transport
UK	Adrian Burrows	Ministry of Transport
CH	Christoph Jahn	Federal Roads Office
IS	Gunnar Geir Gunnarsson	Road Traffic Directorate

8.4 Survey I: Enforcement questionnaire recipients list

AT	Thomas Fessl	KfV - Institute for Transport Research
CZ	Jindrich Fric	CDV - Transport Research Center
EL	George Yannis	NTUA - National technical university of Athens
ES	Pilar ZORI	DGT - Ministry of Transport
FI	Pasi Kemppainen	Ministry of Transport
FR	Jean Chapelon	Ministry of Transport
IE	Michael Brosnan	RSA - Road safety administration
IS	Gunnar Geir Gunnarsson	Road administration
IT	Giandomenico Protospata	Ministry of Transport
LT	Vidmantas Pumputis	Ministry of Transport
PT	Joao Cardoso	LNEC - Institute for Transport Research
RO	Marian Zane	Traffic Police
SK	Karol Meliska	Ministry of Transport
UK	Anil Bhagat	Ministry of Transport

8.5 Survey I: Questionnaire 1

Study on behalf of the European Commission on the regulatory situation in the Member States regarding brought-in (i.e. nomadic) devices and their use in vehicles

Questionnaire 1

The European Commission (EC) has commissioned the consortium of IGES, ITS and ETSC to carry out a study aiming at providing an overview on the regulatory situation in the member states on mounting and using nomadic devices in motor vehicles.

Data collection for the study will be undertaken by means of two questionnaires. The aim of this first questionnaire is to screen whether the national legislative framework of the member states contains any regulations/legislations in respect to the use of nomadic devices in road vehicles. A second and more detailed questionnaire will follow in a few weeks time and will be addressed to an appropriate person whose details are also gathered by this questionnaire.

Please return filled out questionnaire to
Mr. Vojtech Eksler
E-Mail: vojtech.eksler@etsc.eu
Fax: +32-(0)-2230 4215
Post: ETSC, Av. des Celtes 20, B-1040 Bruxelles, Belgium

Most commonly, there is general legislation in place in the member states that may apply for using and mounting nomadic devices in cars. This could be road traffic legislation on broader issues such as driver distraction, careless or dangerous driving, field of view, etc.

Besides, some member states have introduced specific legislation that concerns one or more particular nomadic devices and names them explicitly (e.g. mobile phones). This specific legislation may be driver-oriented and/or technical-oriented. Driver-oriented means that it is focusing on driver behaviour, e.g. the obligation to use hands-free sets while phoning or prohibiting the typing on a personal navigation device while driving. Technical-oriented legislation concerns for instance the mounting position of the device (e.g. dashboard or windscreen) or requirements on the functioning of the device, such as minimum screen size.

Which of these two options exists in your country?

	yes
General legislation	☐
Specific legislation	☐

In case there is specific legislation on nomadic devices in place in your country, this legislation in form of acts and/or regulations has a...

	...driver behaviour focus		...technical focus	
	yes	no	yes	no
Personal Navigation Devices	☐	☐	☐	☐
Mobile phones	☐	☐	☐	☐
Music players (mp3 etc.)	☐	☐	☐	☐
Portable TV/DVD	☐	☐	☐	☐
Smart phones ("iPhone" etc.)	☐	☐	☐	☐
any other (please specify)	☐	☐	☐	☐
any other (please specify)	☐	☐	☐	☐

If you consider that you are not the appropriate person to provide more details on the legislative framework to be assessed with the follow-up questionnaire, could you suggest the name of one or two persons in your country?

Name	Function	Contact/email

EXPLANATIONS

Context

Recent technological developments and consumer demand led to a situation where more and more so-called nomadic devices are brought into vehicles and used whilst travelling. Nomadic devices include all types of information and communication as well as entertainment devices (e.g. mobile phones, personal navigation devices, portable music players, portable TVs/DVDs and future multi-functional smart phones such as "iPhone" or "BlackBerry"). Their use during the journey might expose the passengers to additional safety risks caused by driver's distraction and additional secondary workload imposed on the driver beyond the primary driving task.

Methodology

The study will mainly distinguish between specific vs. general legislation and between the focus of legislation.

- Specific vs. general legislation
  - Specific legislation: Regulation or Articles have been specifically introduced for a certain type of nomadic devices (e.g. mobile phones). Hence, the regulation/article explicitly names the device (e.g. "mobile phone use is not allowed while driving") and restricts its use.
  - General legislation: General articles address the use of nomadic devices while driving through the broader issue of e.g. driver distraction, careless or dangerous driving. Certain nomadic devices are usually not specifically named.
- Focus of legislation: As a rule, following general "umbrella" road laws, most countries have introduced subordinating rules and acts that deal with specific issues of these laws (i.e. focus of legislation).
  - Behavioural focus: Most commonly Road Traffic Acts or Road Traffic Regulations are in force, focusing on general vehicle traffic and driver behaviour (i.e. behavioural focus on the driver),
  - Technical focus: "Road Traffic Licensing Regulations" or "Technical Requirements Regulations" are encompassing technical approval of vehicle characteristics or retrofitting of technical parts (i.e. technical focus).

8.6 Survey I: Questionnaire 2

Study on behalf of the European Commission on the regulatory situation in the Member States regarding brought-in (i.e. nomadic) devices and their use in vehicles

Questionnaire 2

The European Commission (EC) has commissioned the consortium of IGES, University of Leeds and ETSC to carry out a study on the regulatory situation in the member states on mounting and using nomadic devices in motor vehicles. Data collection for the study is undertaken by means of two questionnaires.

The aim of this Questionnaire 2 is to get in-depth information on the existing regulatory provisions that exist in each member state in respect to using and mounting nomadic devices in motor vehicle under 3.5 tons. It also looks at sanction regimes and covers some relevant policy issues.

We would like to kindly ask you to return the questionnaire at latest 15 March 2010. Thank you!

Please return filled out questionnaire to
Vojtech Eksler
E-Mail: vojtech.eksler@etsc.eu
Fax: +32-(0)-2230 4215
ETSC, Av. des Celtes 20, B-1040 Bruxelles, Belgium

EXPLANATIONS
How to fill out the questionnaire: This protected document enables the use of tick boxes (☐) and text areas ( ). For tick boxes, you can tick more than one option. A text area is a box in which you can type smaller or bigger amounts of text. The box will get bigger as you type. Please note: In case there are any peculiarities in the legislative situation in your country that are not covered by our questionnaire, you find a particular text area ("any other comments") at the end of each section. **Context:** Recent technological developments and consumer demand have led to a situation where more and more so-called nomadic devices (mobile phones, personal navigation devices, music players etc.) are brought into vehicles and used while travelling. Their use during the journey might impose additional safety risks caused by the driver's distraction and the additional secondary workload imposed on the driver beyond the primary driving task. **Methodology:** The study distinguishes between general and specific legislation: ○ Specific legislation: Regulation or Articles have been specifically introduced for a certain type of nomadic devices (e.g. mobile phones). Hence, the regulation/article explicitly names the device (e.g. "mobile phone use is not allowed while driving") and restricts its use. ○ General legislation: General articles address the use of nomadic devices while driving through the broader issue of e.g. driver distraction, careless or dangerous driving. Nomadic devices are usually not specifically named. The study further considers behavioural and technical focus of the legislation: ○ Behavioural focus: Most commonly Road Traffic Acts or Road Traffic Regulations are in force, focusing on general vehicle traffic and driver behaviour (i.e. behavioural focus on the driver) ○ Technical focus: "Road Traffic Licensing Regulations" or "Technical Requirements Regulations" are encompassing technical approval of vehicle characteristics or retrofitting of technical parts (i.e. technical focus).

Content

1. General legislation

1.1. General legislation relevant for nomadic devices

q01. **Which general behavioural related legislation - e.g. on driver distraction, careless driving etc. - applies to <u>using</u> nomadic devices in motor vehicles?** Please provide the name of the laws in the original language and the relevant articles.

Name	Article ID	Internet link (if possible)

q02. **Which general technically-related legislation, e.g. on field of view, applies to <u>mounting</u> nomadic devices in motor vehicles?** Please, provide the name of the laws in the original language and the relevant articles.

Name	Article ID	Internet link (if possible)

q03. **Have any legal requirements evolved from the general legislation in your country?**
In several countries, the appliance of general legislation by courts or enforcement authorities on the case of nomadic devices has resulted in legal requirements. E.g. in Switzerland, law courts have ruled, from general legislation focussing on driver behaviour, that manual interaction with personal navigation devices (PNDs) is not allowed when driving; and from general legislation focussing on technical aspects of vehicles (field of view) that mounting a PND is acceptable only on the upper or lower edges of the windscreen.
Have similar legal requirements evolved in your country for the following devices?

How	**Focus of legislation**	**Mobile phones**	**PND**	**Music players**	**TVs/ Video players**
Yes, by law courts	Behaviour	☐	☐	☐	☐
Yes, by the police	Behaviour	☐	☐	☐	☐
Yes, by others	Behaviour	☐	☐	☐	☐
Yes, by law courts	Technical	☐	☐	☐	☐
Yes, by the police	Technical	☐	☐	☐	☐
Yes, by others	Technical	☐	☐	☐	☐
No		☐	☐	☐	☐

Any additional comments:

1.2. General legislation and mobile phone use in vehicles

Behavioural focus on using device

q01. The legislation/requirements stipulate ...

- ☐ a complete ban of mobile phones (i.e. both hand-held and hands-free) **(→next section)**
- ☐ the use of hands-free equipment **(→q02)**

q02. When not using hands-free equipment, the use of hand-held phones is ...

- ☐ prohibited as soon as the engine is running
- ☐ prohibited when vehicle is moving

q03. With regards to hands-free, ...

- ☐ a headset (microphone & headphones) or Bluetooth must be used
- ☐ a headset or Bluetooth must be used and phone must be fixed in a mounting

q04. Hands-free is required when ...

- ☐ making phone calls
- ☐ making phone calls and using other mobile phone functions (e.g. GPS/navigation)

q05. Is the use of specific phone functions prohibited, even when using hands-free?

- ☐ yes, prohibited to use texting (SMS) function
- ☐ yes, prohibited to use other functions (please specify):

q06. Are there any specific provisions in place for young & novice drivers

- ☐ yes

q07. Are there any other requirements?

- ☐ yes:

Technical focus on mounting device

q08. Does the legislation/requirements stipulate ...

- ☐ the location of hands-free mountings in the vehicle (e.g. mounting position on the windscreen)?
- ☐ the technical way of fixing hands-free mountings (e.g. by removable suction cup or by permanently stationary installed mounting)?
- ☐ others:

q09. Are there any other requirements?

- ☐ yes:

Any additional comments:

1.3. General legislation and personal navigation device (PND) use in vehicles

Behavioural focus on using device:

q01. The legislation/requirements stipulate ...

- ☐ a complete ban on using PNDs **(→ next section)**
- ☐ certain restrictions on PND use **(→ q02)**

q02. Does the legislation/requirements restrict manual interaction with the PND in certain situations?

- ☐ yes, prohibited to operate the device as soon as the engine is running
- ☐ yes, prohibited to operate the device when vehicle is moving

q03. Does the legislation/requirements restrict the use of additional PND functions?

- ☐ yes, prohibited to use media player function
- ☐ yes, prohibited to use other functions

q04. Are there any specific provisions in place for young & novice drivers

- ☐ yes

q05. Are there any other requirements?

- ☐ yes:

Technical focus on mounting device:

q06. Does the legislation/requirements stipulate ...

- ☐ the location of mounting PNDs in the vehicle (e.g. mounting position on the windscreen)?
- ☐ the technical way of fixing PNDs mountings (e.g. by removable suction cup or by a permanently installed mounting)?
- ☐ others:

q07. Are there any other requirements?

- ☐ yes:

Any additional comments:

1.4. General legislation and music player use in vehicles

Behavioural focus on using device:

q01. The legislation/requirements stipulate ...

- ☐ a complete ban on using music players **(→ next section)**
- ☐ certain restrictions on music player use **(→ q02)**

q02. Does the legislation/requirements concern (multiple answers are possible)

- ☐ the manual handling of music players **(→ q03)**
- ☐ the use of headphones/earphones **(→ q05)**
- ☐ both manual handling and headphone use **(→ q03)**

q03. Does the legislation/requirements restrict manual handling of music players by technical means?

- ☐ yes, an automobile interface must be used (e.g. connection to the vehicle's audio system and steering wheel controls)

q04. Does the legislation/requirements restrict manual handling of music players in certain situations?

- ☐ yes, prohibited to handle the device as soon as the engine is running
- ☐ yes, prohibited to handle the device when the vehicle is moving

q05. Does the legislation/requirements restrict the use of music players headphones?

- ☐ yes, headphone use is not allowed
- ☐ yes, only limited sound volume of headphones allowed

q06. Are there any specific provisions in place for young & novice drivers

- ☐ yes

q07. Are there any other requirements?

- ☐ yes:

Technical focus on mounting device

q08. Does the legislation/requirements stipulate ...

- ☐ the location of music player mountings in the vehicle ?
- ☐ the technical way of fixing music player mountings (e.g. by removable suction cup or by permanently installed mounting)?
- ☐ others:

q09. Are there any other requirements?

- ☐ yes:

Any additional comments:

1.5. General legislation and TVs/video player use in vehicles

Behavioural focus on using device:

q01. The legislation/requirements stipulate ...

- ☐ a complete ban of using TVs/video players **(→ next section)**
- ☐ certain restrictions on the use of TVs/video players **(→ q02)**

q02. Does the legislation/requirements concern (multiple answers are possible)

- ☐ the manual handling of TVs/video players **(→ q03)**
- ☐ watching TV/video while driving **(→ q05)**
- ☐ both manual handling and watching TV/video **(→ q03)**

q03. Does the legislation/requirements restrict manual handling of TVs/video players by technical means?

- ☐ yes, an automobile interface must be used (e.g. connection to vehicle's in-car entertainment system)

q04. Does the legislation/requirements restrict manual handling of TVs/video players?

- ☐ yes, prohibited to handle the device as soon as the engine is running
- ☐ yes, prohibited to handle the device when vehicle is moving

q05. Does the legislation/requirements restrict watching TVs/video for drivers?

- ☐ yes, watching prohibited for drivers as soon as the engine is running
- ☐ yes, watching prohibited for drivers when vehicle is moving

q06. Does the legislation/requirements restrict watching TV/video for passengers while driving?

- ☐ yes, only rear seat passengers are allowed to watch
- ☐ yes, front seat passengers and rear seat passengers are allowed to watch, but display must not be visible to the driver

q07. Are there any specific provisions in place for young & novice drivers

- ☐ yes

q08. Are there any other requirements?

- ☐ yes:

Technical focus on mounting device:

q09. Does the legislation/requirements stipulate...

- ☐ the location of mounting TVs/video players in the vehicle?
- ☐ the technical way of fixing TV/video player mountings (e.g. by removable suction cup or by permanently installed mounting)?
- ☐ others

q10. Are there any other requirements?

- ☐ yes:

Any additional comments:

2. Specific legislation or regulation on mobile phone use in vehicles

q01. Which specific legislation or regulation applies to using mobile phones in vehicles (please provide the name of the laws and/or regulations in the original language and the articles, and specify whether it is technically or behaviourally related)?

Name	Article	Technical related	Behaviour related
		☐	☐
		☐	☐

q02. When was this specific legislation or regulation introduced?

Behavioural focus on using device:

q03. This specific legislation or regulation stipulates...

- ☐ a complete ban on mobile phone use (i.e. both hand-held and hands-free) **(→next section)**
- ☐ the use of hands-free equipment **(→q04)**

q04. When not using hands-free equipment, hand-held phone use is ...

- ☐ prohibited as soon as the engine is running
- ☐ prohibited when vehicle is moving

q05. With regards to hands-free, ...

- ☐ a headset (microphone & headphones) or Bluetooth must be used
- ☐ a headset or Bluetooth must be used and phone must be fixed in a mounting

q06. Hands-free is required when ...

- ☐ making phone calls
- ☐ making phone calls and/or using other mobile phone functions (e.g. GPS/navigation)

q07. Is the use of certain phone functions prohibited, even when using hands-free?

- ☐ yes, prohibited to use texting (SMS) function
- ☐ yes, prohibited to use other functions (please specify):

q08. Are there any specific provisions in place for young & novice drivers?

- ☐ yes

q09. Are there any other behaviourally related requirements from the specific legislation or regulation?

- ☐ yes:

Technical focus on mounting device:

q10. Does this specific legislation or regulation stipulate ...

- ☐ the location of hands-free mountings in the vehicle (e.g. mounting position on the windscreen)?
- ☐ the technical way of fixing hands-free mountings (e.g. by removable suction cup or by permanently stationary installed mounting)?
- ☐ others:

q11. Are there any other technically related requirements from the specific legislation or regulation?

- ☐ yes:

Any additional comments:

3. Specific legislation or regulation on personal navigation device (PND) use in vehicles

q01. Which specific legislation or regulation applies to using PNDs in vehicles (please provide the name of the laws in the original language and the articles, and specify whether it is technically or behaviourally related)?

Name	Article	Technical related	Behaviour related
		☐	☐
		☐	☐

q02. When was this specific legislation or regulation introduced?

Behavioural focus on using device:

q03. Does this specific legislation or regulation restrict manual interaction with the PND in certain situations?

- ☐ yes, prohibited to operate the device as soon as the engine is running
- ☐ yes, prohibited to operate the device when vehicle is moving

q04. Does this specific legislation or regulation restrict the use of additional PND functions?

- ☐ yes, prohibited to use media player function
- ☐ yes, prohibited to use other functions

q05. Are there any specific provisions in place for young & novice drivers

- ☐ yes

q06. Are there any other behaviourally related requirements?

- ☐ yes:

Technical focus on mounting device:

q07. Does this specific legislation or regulation stipulate ...

- ☐ the location of mounting PNDs in the vehicle (e.g. mounting position on the windscreen)?
- ☐ the technical way of fixing PNDs mountings (e.g. by removable suction cup or by permanently installed mounting)?
- ☐ others:

q08. Are there any other technically related requirements?

- ☐ yes:

Any additional comments:

4. Specific legislation or regulation on music player use in vehicles

q01. Which specific legislation or regulation applies to using music players in vehicles (please provide the name of the laws in original language and the articles, and specify whether it is technical or behavioural related)?

Name	Article	Technical related	Behaviour related
		☐	☐
		☐	☐

q02. When was this specific legislation or regulation introduced?

Behavioural focus on using device:

q03. Does this specific legislation or regulation concern (multiple answers are possible)

- ☐ the manual handling of music players **(→ q04)**
- ☐ the use of headphones/earphones **(→ q06)**
- ☐ both manual handling and headphone use **(→ q04)**

q04. Does this specific legislation or regulation restrict manual handling of music players by technical means?

- ☐ yes, automobile interface must be used (e.g. connection to vehicle's audio system and/or steering wheel controls)

q05. Does this specific legislation or regulation restrict manual handling of music players in certain situations?

- ☐ yes, prohibited to handle the device as soon as the engine is running

q06. Does this specific legislation or regulation restrict the use of music player's headphones?

- ☐ yes, headphone use is not allowed
- ☐ yes, only limited sound volume of headphones allowed

q07. Are there any specific provisions in place for young & novice drivers

- ☐ yes

q08. Are there any other behaviourally related requirements?

- ☐ yes:

Technical focus on mounting device:

q09. Does this specific legislation or regulation stipulate ...

- ☐ the location of music player mountings in the vehicle ?
- ☐ the technical way of fixing music player mountings (e.g. by removable suction cup or by permanently installed mounting)?
- ☐ others:

q10. Are there any other technically related requirements?

- ☐ yes:

Any additional comments:

5. Specific legislation or regulation on TV/video player use in vehicles

q01. Which specific legislation or regulation applies to using TVs/video players in vehicles (please provide the name of the laws in original language and the articles, and specify whether it is technical or behavioural related)?

Name	Article	Technical related	Behaviour related
		☐	☐
		☐	☐

q02. When was this specific legislation or regulation introduced?

Behaviour related legislation or regulation

q03. Does this specific legislation or regulation concern (multiple answers are possible)

- ☐ the manual handling of TVs/video players **(→ q04)**
- ☐ watching TV/video while driving **(→ q06)**
- ☐ both manual handling and watching TV/video **(→ q04)**

q04. Does this specific legislation or regulation restrict manual handling of TVs/video players by technical means?

- ☐ yes, automobile interface must be used (e.g. connection to vehicle's in-car entertainment system)

q05. Does this specific legislation or regulation restrict manual handling of TVs/video players?

- ☐ yes, prohibited to handle the device as soon as the engine is running
- ☐ yes, prohibited to handle the device when vehicle is moving

q06. Does this specific legislation or regulation restrict watching TVs/video for drivers?

- ☐ yes, watching prohibited for drivers as soon as the engine is running
- ☐ yes, watching prohibited for drivers when vehicle is moving
- ☐ yes, watching allowed for drivers when engine is running but vehicle is stationary (e.g. traffic jam)

q07. Does this specific legislation or regulation restrict watching TV/video for passengers while driving?

- ☐ yes, only rear seat passengers are allowed to watch
- ☐ yes, front seat passengers and rear seat passengers are allowed to watch, but display must not be visible to the driver

q08. Are there any specific provisions in place for young & novice drivers

- ☐ yes

q09. Are there any other behaviourally related requirements?

- ☐ yes:

Technical focus on mounting device:

q10. Does this specific legislation or regulation stipulate...

- ☐ the location of mounting TVs/video players in the vehicle?
- ☐ the technical way of fixing TV/video player mountings (e.g. by removable suction cup or by permanently stationary installed mounting)?
- ☐ others

q11. Are there any other technically related requirements?

- ☐ yes:

Any additional comments:

6. Current legislative initiatives

q01. Are any changes in nomadic device related legislation (general and/or specific) discussed for future? If so, why and what is the time schedule for it? ☐ yes:

7. Sanctions, Policy & Effectiveness

Sanction Regimes

q01. Are there any efforts/means in place in your country to single out repeat offenders (for any traffic offences)?

☐ no (q03)

☐ yes, penalty/demerit point system

q02. If so, how many points lead to a (temporarily) licence suspension?

points

q03. With regards to committing an offence without aggravating factors such as e.g. causing danger or an accident due to either

1) holding a mobile phone in the hand and making a call or
2) manual interaction with a PND while driving or
3) improper mounting of PND (field of view) or
4) watching TV/video while driving

what categories and levels of sanctions apply? What is the nature of the measures sanctioning these offences (penal sanctions and/or administrative sanctions)?

	Monetary fines (EUR)	**Penalty/demerit points**	**Other sanctions**	**Nature of sanction (penal/administrative)**
1) Mobile phone use	☐	☐	☐	
2) manual interaction with PND	☐	☐	☐	
3) improper mounting of PND	☐	☐	☐	
4) watching TV/video	☐	☐	☐	

q04. With regards to committing an offence and causing an accident with personal injury, due to either

1) holding a mobile phone in the hand and making a call or

2) manual interaction with a PND while driving or

3) improper mounting of PND (field of view) or

4) watching TV/video while driving

what categories and levels of sanctions apply? What is the nature of the measures sanctioning these offences (penal sanctions and/or administrative sanctions)?

	Monetary fines (EUR)	**Penalty/demerit points**	**Other sanctions**	**Nature of sanction (penal/administrative)**
1) Mobile phone use	☐	☐	☐	
2) manual interaction with PND	☐	☐	☐	
3) improper mounting of PND	☐	☐	☐	
4) watching TV/video	☐	☐	☐	

q05. If the driver is found to be responsible for causing the accident due to improper use of nomadic devices (i.e. regarding q04), please describe any further liability issues that evolve from this (e.g. impact on insurance claims etc.)

q06. Are alternative measures to sanctions possible (e.g. participation in awareness programmes)?

☐ yes:

Policy & Effectiveness

q07. Are awareness campaigns organised on using and mounting nomadic devices in vehicles? If so, by what body/bodies, through which communication means (e.g.: TV, bill boards along the road, brochures, etc.), with what regularity and at what scale? Is their effectiveness evaluated afterwards? With what result and consequences? Please provide, as far as possible, quantitative data over the past five years

☐ yes:

If not, do you plan to do so in future? ☐ yes:

q08. Is there any monitoring conducted concerning the use of nomadic devices in vehicles (e.g. mobile phone use)?

☐ no **(→ q10)**

☐ yes: **(→ q08)**

q09. If so, who is responsible for this and how is the monitoring being carried out?

q10. If so, please provide us some results of this monitoring

q11. Are any changes in legislation (general and/or specific) discussed for future? If so, why and what is the time schedule for it?

☐ yes:

q12. Are there any specific problems regarding using and mounting nomadic devices in vehicles that you would like to inform us about?

Any additional comments:

8.7 Survey I: Enforcement questionnaire

Study on behalf of the European Commission on the regulatory situation in the Member States regarding brought-in (i.e. nomadic) devices and their use in vehicles

Questionnaire on Police Enforcement & Accident Investigation

The European Commission (EC) has commissioned the consortium of IGES, University of Leeds and ETSC to carry out a study on the regulatory situation in the member states on mounting and using nomadic devices in motor vehicles.

In the context of this study we will also look at traffic law enforcement issues with regards to nomadic devices. The aim of this questionnaire is to get information on the police enforcement and accident investigation practices that exist in each member state in respect to using and mounting nomadic devices in motor vehicle under 3.5 tons.

We would like to kindly ask you to return the questionnaire at latest 26 March 2010. Thank you!

Please return filled out questionnaire to
Vojtech Eksler
E-Mail: vojtech.eksler@etsc.eu
Fax: +32-(0)-2230 4215
ETSC, Av. des Celtes 20, B-1040 Bruxelles, Belgium

EXPLANATIONS
How to fill out the questionnaire: This protected document enables the use of tick boxes (☐) and text areas ( ). For tick boxes, you can tick more than one option. A text area is a box in which you can type smaller or bigger amounts of text. The box will get bigger as you type. Please note: In case there are any peculiarities in the enforcement situation in your country that are not covered by our questionnaire, you find a particular text area ("any other comments") at the end. **Context:** Recent technological developments and consumer demand have led to a situation where more and more so-called nomadic devices (mobile phones, personal navigation devices, music players etc.) are brought into vehicles and used while travelling. Their use during the journey might impose additional safety risks caused by the driver's distraction and the additional secondary workload imposed on the driver beyond the primary driving task.

Police Enforcement & Accident Investigation

Police Enforcement

q01. Please provide the numbers of offences that were recorded in 2009 for:

- mobile phone offences
- offences related to improper use of Personal Navigation Devices (PNDs)

q02. Do you carry out targeted checks on nomadic device use or are only non-targeted checks (i.e. only in the context of other checks) conducted?

☐ yes, targeted checks are carried out

Accident Investigation

q03. Is driver distraction due to improper nomadic device use part of police reporting in accident investigation and is any national data available on accidents caused by improper nomadic device use?

☐ yes, for the following devices:

☐ no

q04. If so, in how many fatal accidents was driver distraction due to nomadic device use referred as the only cause?

q05. In how many as a factor next to other causes (e.g. speeding)?

Any additional comments/information:

8.8 Survey II: Questionnaire

Questionnaire Survey II

Thank you for volunteering to take part in this study. We would be grateful if you could take a few minutes to answer the following questions. The questions provide us with information about you and your driving.

1. **In which year did you obtain your full driving licence?**
   1) _____
   2) Do not have a driving licence - terminate interview

2. **On average, how many miles do you drive a year?**
   a. _____
   b. None - terminate interview

3. **Are you? (Tick one box only)**
   a. Male
   b. Female
4. **What is your age? (Tick one box only)**

   a. Under 17 – terminate interview
   b. 17-20
   c. 21-24
   d. 25-34
   e. 35-49
   f. 50-64
   g. 65+

5. **Which of the following do you currently own? (Tick all that apply)**
   a. Portable Navigation Device (e.g. TomTom)
   b. Mobile phone (including e.g. iPhone, Blackberry etc.)
   c. MP3 player (e.g. iPod etc.)
   d. Portable TV/DVD player
   e. None of the above - terminate interview

ASK IF OWN PORTABLE NAVIGATION DEVICE. REST GO TO Q10

6. How often is your Portable Navigation Device on whilst driving?

Never	Rarely	Sometimes	Often
1	**2**	**3**	**4**

ASK IF EVER USE PORTABLE NAVIGATION DEVICE WHEN DRIVING (SCORE 2-4 ON Q6). REST GO TO Q10

7. When using your Portable Navigation Device, how often has your driving been affected in the following ways:

	Never	Very Rarely	Sometimes	Often
Getting too close to the car in front	1	2	3	4
Drifting out of lane	1	2	3	4
Missing a traffic sign or exit	1	2	3	4
Unintentionally reducing your speed	1	2	3	4

8. With your particular navigation device, is destination entry or change allowed whilst your vehicle is moving?

Yes ☐

No ☐

Don't know ☐

9. How often do you enter or change destinations on your navigation device whilst driving?

Never	Rarely	Sometimes	Often
1	**2**	**3**	**4**

ASK IF OWN MOBILE PHONE. REST GO TO Q14

10. How often do you use your mobile phone whilst driving?

	Never	Rarely	Sometimes	Often
	1	**2**	**3**	**4**

ASK IF SCORE ON Q10= 2-4

11. How often do you use a hands free kit for your mobile phone whilst driving?

	Never	Rarely	Sometimes	Often	Always
	1	**2**	**3**	**4**	**5**

ASK IF EVER USE MOBILE PHONE WHEN DRIVING (SCORE 2-4 ON Q10). REST GO TO Q14

12. When using your mobile phone, how often has your driving been affected in the following ways:

	Never	Very Rarely	Sometimes	Often
Getting too close to the car in front	1	2	3	4
Drifting out of lane	1	2	3	4
Missing a traffic sign or exit	1	2	3	4
Unintentionally reducing your speed	1	2	3	4

13. How often do you send text messages whilst driving?

	Never	Rarely	Sometimes	Often
	1	**2**	**3**	**4**

ASK IF OWN MP3 PLAYER. REST GO TO Q18

14. How often do you listen to your MP3 Player whilst driving?

Never	Rarely	Sometimes	Often
1	**2**	**3**	**4**

ASK IF EVER USE MP3 PLAYER WHEN DRIVING (SCORE 2-4 ON Q14). REST GO TO Q18

15. When listening to your MP3 player, how often has your driving been affected in the following ways:

	Never	Very Rarely	Sometimes	Often
Getting too close to the car in front	1	2	3	4
Drifting out of lane	1	2	3	4
Missing a traffic sign or exit	1	2	3	4
Unintentionally reducing your speed	1	2	3	4

16. How often do you change your selection of music on your MP3 whilst driving?

Never	Rarely	Sometimes	Often
1	**2**	**3**	**4**

17. How often do you use an integrated MP3 adapter?

Never	Rarely	Sometimes	Often
1	**2**	**3**	**4**

ASK IF OWN PORTABLE TV/DVD PLAYER. REST GO TO Q22

18. How often is your TV/DVD player on in the rear, and loud enough for you to hear it?

Never	Rarely	Sometimes	Often
1	**2**	**3**	**4**

19. How often is your TV/DVD player on AND VISIBLE TO YOU whilst you are driving?

Never	Rarely	Sometimes	Often
1	**2**	**3**	**4**

ASK IF EVER LISTEN TO PORTABLE TV/DVD PLAYER WHEN DRIVING (SCORE 2-4 ON Q18). REST GO TO Q21

20. When your TV/DVD player is on in the rear, and loud enough for you to hear it, how often has your driving been affected in the following ways:

	Never	Rarely	Sometimes	Often
Getting too close to the car in front	1	2	3	4
Drifting out of lane	1	2	3	4
Missing a traffic sign or exit	1	2	3	4
Unintentionally reducing your speed	1	2	3	4

ASK IF EVER WATCH PORTABLE TV/DVD PLAYER WHEN DRIVING (SCORE 2-4 ON Q19). REST GO TO Q22

21. When your portable TV/DVD player is visible to you, how often has your driving been affected in the following ways:

	Never	Rarely	Sometimes	Often
Getting too close to the car in front	1	2	3	4
Drifting out of lane	1	2	3	4
Missing a traffic sign or exit	1	2	3	4
Unintentionally reducing your speed	1	2	3	4

22. In the UK, regarding the use of Portable Navigation Devices whilst driving, legislation states:

	True	False
Manual interaction (e.g. pressing buttons) is not allowed if vehicle is moving	☐	☐
Manual interaction (e.g. pressing buttons) is not allowed if engine is running	☐	☐
It is illegal to use media player functions (music or video) whilst driving	☐	☐
There are specific restrictions on young or novice drivers using them whilst driving	☐	☐
There is legislation that stipulates where it should be mounted (i.e. location)	☐	☐
There is legislation that stipulates how it should be mounted (i.e. type of fixing)	☐	☐

23. In the UK, regarding the use of <u>hands-held</u> Mobile phones whilst driving, legislation states:

	True	False
There is a complete ban on their use whilst driving	☐	☐
You can use one, as long as you concentrate on your driving too	☐	☐

24. In the UK, regarding the use of <u>hands-free</u> Mobile phones whilst driving, legislation states:

	True	False
There is a complete ban on their use whilst driving	☐	☐
There is a legal requirement to use a headset or Bluetooth device	☐	☐
There is a legal requirement to use a fixed mounting for your phone	☐	☐
It is forbidden to use the texting function	☐	☐

25. In the UK, regarding the use of MP3 players whilst driving, legislation states:

	True	False
There is a complete ban on their use whilst driving	☐	☐
Manual interaction (e.g. pressing buttons) is not allowed if vehicle is moving	☐	☐
The use of headphones/earphones is illegal	☐	☐

26. In the UK, regarding the use of portable TV/DVD players whilst driving, legislation states:

	True	False
Manual interaction (e.g. pressing buttons) is not allowed if vehicle is moving	☐	☐
It is illegal for the driver to watch it when the vehicle is moving	☐	☐
It is illegal for the driver to watch it when the engine is running	☐	☐
If passengers are watching it whilst the vehicle is moving, the display should not be visible to the driver	☐	☐

27. Please evaluate your own driving on the following scales

	Poor				Excellent
Performance in critical situations	1	2	3	4	5
Self-control while driving	1	2	3	4	5
Fluent lane changing in heavy traffic	1	2	3	4	5
Tolerate other drivers' errors calmly	1	2	3	4	5
Controlling the vehicle	1	2	3	4	5
Keeping a sufficient following distance	1	2	3	4	5
Overtaking	1	2	3	4	5
Conforming to the speed limits	1	2	3	4	5
Fast reactions	1	2	3	4	5
Avoiding unnecessary risks	1	2	3	4	5

28. How distracting do you consider the following devices to be, if YOU used them whilst driving?

	Not at all distracting								Extremely distracting
Portable Navigation System	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Mobile phone	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
MP3 player	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Portable TV/DVD	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

29. How distracting do you consider the following devices to be, if OTHER DRIVERS used them whilst driving?

	Not at all distracting								Extremely distracting
Portable Navigation System	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Mobile phone	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
MP3 player	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Portable TV/DVD	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

30. On a typical journey, how likely is it that drivers will be stopped by the police for inappropriately using the following devices?

	Extremely unlikely								**Extremely Likely**
Portable Navigation System	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Hands-held mobile phone	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
MP3 player	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Portable TV/DVD	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

31. In the past 3 years, have you been stopped by the police for inappropriately using the following devices?

Portable Navigation System	No ☐	Yes ☐	How many times ☐
Hands-held mobile phone	No ☐	Yes ☐	How many times ☐
MP3 player	No ☐	Yes ☐	How many times ☐
Portable TV/DVD	No ☐	Yes ☐	How many times ☐

Thank you for completing this questionnaire