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Report on the findings of the BRAVE population survey.

Deliverable 2.3 from the EU-H2020-project BRAVE – BRidging the gaps for the adoption of Automated VEhicles.

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BRAVE

BRidging gaps for the adoption of Automated VEhicles

No 723021

D2.3 Report on the findings of the population survey

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Abstract

The foreseeable advent of conditionally automated cars (CAC) at SAE Level 3 opens up a multitude of questions that have to be addressed for a safe adoption of the new vehicle technology. To explore the opinions of other road users affected and especially of the vulnerable road users – pedestrians, cyclists and motorcyclists – on CACs, a population survey of road users was conducted in the EU member states France, Germany, Slovenia, Spain and Sweden as well as in Australia and in the USA within the EU-funded project BRAVE. On the basis of 6,608 survey data sets, the study provides reliable findings on acceptance and trust in CACs from a road user' perspective, on the use of external human-machine interfaces (HMI) as well as on ethical and legal considerations. The road users' acceptance of CACs appears to be rather positive in principle but varies between the road user groups. At the same time, doubts in trust in CACs from the perspective of the studied groups of road users are identified. Different opinions on ethical and legal issues arise which vary also according to the respondents' country of residence.

Executive summary

The technical development of the automation of cars is well advanced. The foreseeable advent of conditionally automated cars (CAC) at SAE Level 3, opens up a multitude of political and social questions that have to be addressed to ensure a safe adoption of this new vehicle technology. To explore the opinions of other road users affected and especially of the vulnerable road users (VRU) – pedestrians, cyclists and motorcyclists – on CACs, a population survey of road users was conducted in the EU member states France, Germany, Slovenia, Spain and Sweden as well as in Australia and in the USA within the framework of the EU-funded multidisciplinary project BRAVE.

The survey was carried out from December 2019 to February 2020 by employing an online survey. Respondents were recruited via online access panels and their selection was regulated by quotas for biological sex, age and region. In each of the seven countries participating in BRAVE, 1,000 respondents answered the questionnaire that dealt with a priori acceptance of and trust in CACs by the road users, as well as their communication with the CAC and questions on ethical and legal issues. After data cleaning, 6,608 respondents remained in the dataset for further statistical analyses.

The findings on the general a priori acceptance of CACs indicate a rather positive attitude of the respondents. With a relative majority, the respondents expect CACs to increase road safety as well as to be useful, easy to use and easy to communicate with. Nevertheless, a certain scepticism of the respondents can be detected when assessing the own intention to use such a car or the future interaction of the road users with CACs on the roads. The index of general acceptance of CACs reveals differing acceptance between the respondents' countries of residence, a lower general acceptance of CACs for females compared to males as well as for respondents aged 55 and older compared to their younger counterparts. The general trust in CACs is also rated as rather positive by the road users surveyed. Almost half of the respondents express that CACs will be dependable, will act reliably and that they will overall trust in CACs. The level of general trust in CACs differs between the gender of the respondents, their age, their country of residence and their main transportation mode.

A special focus of this study is on the acceptance of and trust in CACs from the perspective of the certain road user groups. To depict them, a fictitious interaction with a CAC in road traffic was described in the questionnaire that was specifically adapted to each road user group. In such a situation, respondents state that they would feel mostly neutral or safe. However, noticeable differences between the road user groups can be identified, with car drivers and pedestrians perceiving their subjective feelings as less safe than two-wheelers on a bike or a motorcycle.

The respondents' answers on trust in a CAC to act reliably in such a situation reveal similar findings, again with differences among the road user groups. Contradictory to the trust in CACs stated before is the preference of road users whom the respondents would trust more – a human driver, the CAC in automated mode or both equally. Here, more than half of the respondents would trust a human driver more. Varying preferences between the road user groups show that the two-wheelers have higher preferences for a CAC than car drivers and pedestrians.

In the context of the fictitious traffic situation, respondents anticipate an easy communication with CACs and improved road safety. However, the road users expect emerging problems for the other road users. Further analyses of the index for the road user group specific acceptance reveal differences in the subgroups of the main transportation mode, country, gender and age. Here as well as in several other parts of the study, road users from Spain and Slovenia report higher acceptance of CACs. The same is true for males (higher acceptance than females) and younger respondents (more than older and oldest survey participants).

In a multivariate linear regression analysis on the index for road user group specific acceptance of CACs, most of the described bivariate relationships could be confirmed – controlling for variables covering individual socio-demographics and mobility behaviour. With regard to the road user groups, the multivariate analysis shows that the acceptance of pedestrians, cyclists and riders of powered two-wheelers (PTW) – the VRUs – is lower than that of car drivers. The strongest predictors for road user group specific acceptance are personal innovativeness and general trust in CACs and thus point to the considerable importance of a predisposing attitude in the formation of acceptance.

Out of eleven listed benefits, the four most expected benefits of CACs relate to safer driving behaviour: sufficient distances to other road users, better emergency braking reaction times, stricter adherence to traffic rules and more predictable driving. Two-wheelers, whether on bicycles or motorcycles, more than pedestrians

and car drivers expect the introduction of CACs to have an increased positive impact on themselves as road users. Males emphasise expected benefits of CACs more strongly than their female counterparts.

The three concerns most strongly stressed are those relating to the reliable functionality of the CAC including the possibility of system failures, hacker attacks or the take-over situation of a CAC. The unresolved question of liability in the case of a crash and the technical ability to detect the behaviour of other road users are emphasised as further possible problems. Pedestrians and car drivers are often more strongly concerned than cyclists and PTW-riders. In addition, it is females who express concerns more strongly than males.

Another issue accompanying the introduction of the CACs is its communication with other road users via external human-machine interfaces (HMI). Regarding the indication whether a CAC is in automated mode, a large majority of the respondents pleads for such a signal. The respondents also see the need for the CAC to indicate at a pedestrian crossing that it has recognised the pedestrian and gives right of way. The three most preferred options of indication are a flashing light signal, a prolonged deceleration phase or a continuous light signal.

An ethical dimension of the introduction of CACs becomes apparent in the need to program the behaviour of the CAC in the case of an unavoidable crash. In the assessment of the ethical principles guiding the programming of the CAC, an inconsistency becomes observable: a vast majority of the respondents agree with an (utilitarian) approach which states that in the event of a crash the automated car should behave to minimize the overall number of fatalities. At the same time, most respondents prefer to sit in a car that protects the passengers against all other road users. Additionally and in comparison to other questions in the survey, it is noticeable that respondents in the statements on ethical principles more often avoid a clear positioning. Further, findings reveal the preference of the respondents that the regulations in the event of a crash should be preset and mandatory for all CACs. Against the background of significant differences between the respondents' countries, the findings regarding the ethical considerations overall suggest that it will be challenging to find internationally uniform and universal guidelines for the behaviour of CACs in the case of an unavoidable crash.

The population survey additionally gives insight into opinions of the respondents on legal issues that come across with the introduction of CACs. The respondents tend to see the liability in case of a crash with the CAC in automated mode with the person behind the steering wheel, subsequently the manufacturer. Another issue raised in the questionnaire refers to access to the data that is collected in large quantities by the automated car. A majority of the respondents would allow the car owner and the police to access the stored data. Only about one out of ten respondents would not grant access to the data stored in the CAC to anybody. Once more, differences between the respondents' countries of residence become apparent and indicate possible difficulties for transnational solutions. Furthermore, respondents plead for a special training before drivers are allowed to sit behind the wheel of a CAC at SAE Level 3 for the first time – with females being even more in support of a special training.

On a reliable data basis the BRAVE population survey shows a rather positive acceptance of and trust in CACs from the perspective of the road users. However, in the fictitious traffic situations, some doubts become apparent. Both in terms of trust and acceptance differences between the individual groups of road users as well as between gender, age and respondents' country of residence are evident. The expected improvement in road safety appears to be a central benefit of CACs for the road users to which user-friendly external HMIs for the communication with other road users can also contribute. At the same time, road users expect problems between the CACs and other road users and express concerns about the technical functioning of the CACs and their IT security. Findings of the survey, additionally, give useful insights for the design of HMI for the use in CACs. Further, various opinions on ethical and legal issues arise from the survey which mostly differ between the respondents' country of residence.

In its characteristic as a cross-sectional study, the BRAVE population survey can be used as a starting point for a future regular monitoring of the attitudes of the population of EU member states towards highly automated or autonomous driving.

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Keywords	Automated driving, conditionally automated cars, acceptance, trust, public opinion, vulnerable road users, road safety, ethical aspects, legal aspects, population survey

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Abbreviations

ACASA:	Automobil Club Assistencia SA
ADAS:	Advanced Driver Assistance System
AMZS:	Avto Moto Zveza Slovenije
AUS:	Australia
BRAVE:	BRidging gaps for the adoption of Automated Vehicles
CAC(s):	conditionally automated car(s)
CAWI:	Computer Assisted Web Interview
DEU:	Germany
e.g.:	exempli grata/for instance
EU:	European Union
ESP:	Spain
et al.:	et alii/and others
FRA:	France
GRAIL:	GReen Assistant Interfacing Light
H2020:	Horizon 2020
i.e.:	id est/that is to say
HMI:	Human-machine interface
IfeS:	Institut für empirische Soziologie an der Friedrich-Alexander-Universität Erlangen-Nürnberg
ISSP:	International Social Survey Programme
PTW(s):	powered two-wheeler(s)
Q:	question
ref.:	reference
resp.:	respectively
SAE:	Society of Automotive Engineers
SPSS:	Statistical Package for the Social Sciences
SVN:	Slovenia
SWE:	Sweden
TAM:	Technology Acceptance Model
UN:	United Nations
USA:	United States of America
UTAUT:	Unified Theory of Acceptance and Use of Technology
VRU(s):	vulnerable road user(s)
VTI:	Statens Väg- Och Transportforskningsinstitut

1 Introduction

The technical development of the automation of cars is well advanced. Already today, semi-automated vehicles on SAE Level 2 with so-called Advanced Driver Assistance Systems (ADAS) are on the roads worldwide. At the same time, the technical advancements make it clear that the next level of vehicle automation might soon be reached. This next step would be the introduction of vehicles with conditional automation on SAE Level 3. With SAE Level 3, the limit that drivers always must be active drivers during the journey is exceeded: In certain driving situations, the machine is the executing and responsible system and the human driver is the fallback system.[1] However, the introduction of conditionally automated cars (CAC) is not only expected to improve road safety, efficiency and comfort, but it also opens up a multitude of political and social questions. Consequently, automated cars bring new technical but also non-technical challenges that have to be addressed to ensure the safe adoption of these new vehicle technologies.

In order to meet these challenges, the multidisciplinary BRAVE project was launched as part of the Horizon 2020 (H2020) European Union (EU) research programme. BRAVE intends to support the introduction of automated driving by assuring the acceptance of all relevant users, other road users affected and organised stakeholders. For this purpose, a survey of stakeholders and a survey of road users were implemented within the BRAVE project. While the survey of stakeholders is the subject of Deliverable D2.2, this report presents the results of the population survey of road users aged 18 years and older in the seven countries of the project partners – in the European countries of France, Germany, Slovenia, Spain and Sweden as well as in Australia and in the USA. The aim of this international population survey is to explore the opinions of all kinds of road users – and especially of pedestrians, cyclists and motorcyclists as so-called vulnerable road users (VRU) – on CACs. Therefore, the a priori acceptance and trust of the road users is considered in the questionnaire, as well as the communication with the CAC and questions regarding ethical and legal issues.

The work presented in this Deliverable takes its starting point in the "Literature review on the acceptance and road safety, ethical, legal, social and economic implications of automated vehicles" (BRAVE Deliverable D2.1, Johnsen et al., 2018) and in the research on gender issues in the acceptance of automated vehicles (internal BRAVE Deliverable D2.2, Ixmeier, Johnsen, & Funk, 2017). In addition, focus group discussions were conducted to further explore opinions of road users on CACs (Kraetsch, Schrauth, Johnsen, & Funk, 2019). This preparatory work resulted in the development of the questionnaire for the population survey, the results of which are presented in this report.

Chapter 2 of this Deliverable provides a focused and updated overview of the research literature matching the topics of the survey. Here, the research desiderata, which are dealt with in this report, are derived and presented. Chapter 3 refers to the exploratory focus group discussions. There, the implementation and the findings of these group discussions are presented. In chapter 4, the study design as well as the methodological procedure in data collection and data analysis are outlined. In chapter 5, first results of the BRAVE population survey are presented. In this chapter, the characteristics of the survey sample are then described in detail. Chapter 6 subsequently provides information on the acceptance and trust of the surveyed road users in CACs. Results on the general acceptance and trust as well as on the road user group specific acceptance and trust in CACs are reported. Findings on technical solutions for the external communication of CACs with other road users are included in chapter 7. Chapter 8 then refers further to the ethical and legal questions raised in the context of the introduction of CACs. The report concludes with a summary of the results in chapter 9 and a conclusion in chapter 10.

References are documented in the reference section. Attached to this Deliverable are the guidelines for the focus group discussions in Annex A, the questionnaire of the population survey in Annex B, and the documentation of the frequencies as well as the differentiation of the frequencies according to the categories of the respondents' country of residence, their biological sex, age group, and main mode of transportation in Annex C.

[1] See SAE Standard J3016 for more details.

2 Review on research on acceptance and trust in vehicle automation technology[2]

The research conducted so far in the BRAVE project has brought up many topics that are affected by the introduction of conditionally automated vehicles (Johnsen et al., 2018). These topics cover socio-economic, ethical and legal aspects as well as the acceptance of the new vehicle technology by individuals. A problem that is common to all topics is that from the current point of view the consequences of the introduction of automated vehicles can only be estimated. Thus, studies on acceptance or trust in automated cars can only capture an a priori acceptance, without knowing the exact functionality of conditionally automated vehicles – which are still in development.[3]

The acceptance of automated cars has been addressed by a growing number of research studies (Becker & Axhausen, 2017, for a review until 2017; Nordhoff, Kyriakidis, van Arem, & Happee, 2019). Studies that rely on a theoretical basis most often refer to psychological models which identify factors influencing the acceptance of new technologies and to understand individual user behaviour. Next to other models, the technology acceptance model (TAM; Davis, Bagozzi, & Warshaw, 1989) and its further development the Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh, Morris, Davis, & Davis, 2003) has been widely applied in research on the acceptance of automated vehicles (Madigan, Louw, Wilbrink, Schieben, & Merat, 2017; Kaye, Lewis, Forward & Delhomme, 2020).

In acceptance studies, often the intention to use such an automated car or the willingness to purchase it – respectively the willingness to pay an additional amount for this technology – are used to determine the acceptance (Adell, Várhelyi, & Nilsson, 2014). Findings from research studies that use the expressed attitude or behavioural intention as the research object altogether show rather positive attitudes and expectations towards the new automated vehicle technologies – especially if respondents are young or male or live in urbanized areas (Payre, Cestac, & Delhomme, 2014; Kyriakidis, Happee, & de Winter, 2015; Bansal, Kockelman, & Singh, 2016; Cunningham, Ledger, & Regan, 2018). Examples of positive expectations, which increase acceptance, are cost reduction (insurance premium, fuel savings) (Schoettle & Sivak 2014; Piao et al., 2016), time savings (Gladbach & Richter, 2016; Šinko, 2016), and improved road safety (Observatorio Cetelem Auto, 2016). But serious concerns on the automated technology has also been raised and include various aspects of road safety and data security of automated vehicles (Schoettle & Sivak, 2014; Kyriakidis et al., 2015; König & Neumayr, 2017; Wintersberger, Azmat, & Kummer 2019). The willingness to buy an automated car with SAE Level 3 technology is noticeably less pronounced than the willingness to buy a more automated car with SAE Level 4 or 5 technology (Kyriakidis et al., 2015; Bansal et al., 2016; Cunningham et al., 2018).

Apart from this, trust in automated vehicles is receiving increasing attention in research into the acceptance of automated vehicles. Trust is regarded as an important factor for the acceptance of automated technology (Lee & See, 2004; Hoff & Bashir, 2015) and has therefore been included in empirical studies where it has proven its relevance (Choi & Ji, 2015; Kaur & Rampersad, 2018; Zhang et al., 2019). Trust is recorded as an individual attitude and understood as a prerequisite for the development of behavioural intentions and actual behaviour as well as an experience-based variable (Hoff & Bashir, 2015). In the research on the acceptance of automated vehicles, "initial trust" (Zhang et al., 2019, p. 210) is therefore being used at the present time, since no (previous) experience is possible.

With regard to acceptance research to date, however, it must be concluded that the majority of research studies have focused on the view of potential users. The perspective of other road users such as pedestrians, cyclists or riders of powered two-wheelers (PTWs) that are directly affected and must interact with automated cars in road traffic have relatively rarely been taken into account. These 'bystanders' (Scholtz, 2003) of the automated vehicle technology have so far received little consideration (Saleh, Hossny, & Nahavandi, 2017) although they will hardly have any alternatives to the interaction with automated vehicles. For that reason, they have a justified interest in expressing their expected benefits and concerns about automated vehicles from their point

[2] Although the research in BRAVE explicitly focuses on automation on SAE Level 3, in the following chapter the term "automated" is used for both SAE Levels 3 to 5 without detailing the specific level

[3] For a discussion on terms of acceptability and acceptance see Adell, Várhelyi, & Nilsson, 2014.

of view (Grunwald, 2005). These opinions must be included in the process of the technological development to promote the suitability for everyday use and the societal acceptance of the new vehicle technology.

The BRAVE population survey, hence, focuses on the acceptance and the trust in automated cars on SAE Level 3 from the perspective of VRUs and drivers of conventional cars. It is thereby the aim to examine whether the different road user groups have different levels of acceptance and trust in such CACs.

Other topics that have to be tackled to gain acceptance from individuals and society as a whole refer, among others, to ethical and legal implications of automated cars. Even if it may not seem obvious at first glance, a car in an automated driving mode must 'make decisions' that potentially have an impact on the lives of the occupants or other road users – and thus become ethical (Lin, 2015). Here, two topics are particularly at stake: (1) how should an automated car behave in the event of a crash and (2) should there be mandatory settings or should personal ethics settings be allowed to define the behaviour of the automated vehicle. A number of scientific articles have been published discussing ethical approaches and principles that are best suited to design a crash-algorithms (e.g. Lin, 2015; Nyholm & Smids, 2016; Johnsen et al., 2018; Wolkenstein, 2018). However, clear recommendations are not yet apparent. Furthermore, only a few studies (surveys, simulator studies) on ethical preferences of citizens or road users have been conducted so far with varying results: Some studies conclude, that most respondents agree with an (utilitarian) approach: in the event of a crash the automated car should minimize the overall number of fatalities. At the same time, study participants prefer to sit in a car that protects the passengers first (Bonnefon, Shariff, & Rahwan, 2016). Though, other studies suggest that participants do not want to protect their lives against other road users at any price (Pugnetti & Schläpfer, 2018; Faulhaber et al., 2018). Also, the question who decides which ethical principles should apply for the automated car is largely discussed (Millar, 2015; Gogoll & Müller, 2016; Contissa, Lagioia, & Sartor, 2017).

As well as the ethical issues, legal topics certainly have a major impact on the acceptance of automated cars. Studies on the acceptance of autonomous cars and on attitudes towards autonomous cars show that two legal topics are of particular interest (Schoettle & Sivak, 2014, p. 14; Automobil Club Verkehr, 2015, p. 11; Piao et al., 2016, p. 2175; Gladbach & Richter, 2016, p. 16; Kyriakidis et al., 2015, p. 133): the liability in case of a crash and the protection of data collected by the automated car. These issues are not yet clearly answered and the public uncertainty about the legal situation regarding liability in case of a crash in the automated driving mode as well as regarding the protection of gathered data may affect societal acceptance: "Wide acceptance by customers and society cannot be expected as long as it is unclear to whom responsibility and liability will be ascribed" (Bienzeisler et al., 2017, p. 82).

Within the BRAVE population survey the above mentioned ethical and legal questions are asked to the respondents with the aim to give a hint about how the preferences among citizens in the EU as well as in Australia and the USA look alike.

3 Exploratory focus group discussions

3.1 Implementation

The methodology of focus group discussion is an explorative method that is well suited to capture the range of possible assessments of a given issue. Therefore, focus group discussions are well suited to explore attitudinal patterns on the topics acceptance and trust of the road users in CACs and to prepare the quantitative population survey in BRAVE.

The focus group discussions were held in four European countries (Germany, Slovenia, Spain and Sweden). The recruitment of the participants and the focus group discussions were carried out in the individual countries by the BRAVE-consortium partners based there: In Sweden by VTI, in Spain by ACASA, in Slovenia by AMZS and in Germany by IfeS.

The guideline for the focus group discussions was compiled in English by IfeS in joint discussion with VTI (see below subsection 3.3 for the topics). It was sent to the project partners, who then had the guide translated into the respective national languages. In order to ensure that no mistakes were made during the translation process, these 'native language' guidelines were translated back into English. The recommendation to the different project teams who should conduct the focus group discussions was to ask the questions exactly as they were formulated in the guideline to ensure the greatest possible comparability.

Before the start of each discussion, the participants were informed about their rights and then signed a consent form. The focus group discussions were electronically recorded and then paraphrased and translated into English by the respective project partners and sent to IfeS. IfeS was responsible for the analysis of the focus group discussions within the project network. The paraphrased focus group discussions were read into MAXQDA – a software for the analysis of qualitative interviews – where they were coded and then analysed.

3.2 Composition and number of focus groups

When the focus group discussions were designed, it was not only decided that they should take place in different countries, but also that there should be different group compositions. The most important criterion to differentiate the focus groups was age, i.e. the majority of the focus groups should only consist of people of a certain age group (without any further prerequisites). Three age groups were defined: Young people (up to age 29), middle-aged people (age 30 to 59) and older people (age 60 and older). In addition, it was also determined that there should be separate discussion rounds according to gender (i.e. groups of females and males only) and discussion rounds with motorcyclists. The focus group discussions were scheduled to last about 90 minutes.

A total of 14 focus group discussions were held between May 2018 and July 2018. Five discussions were held in Spain, three each in Sweden, Germany and Slovenia. In the end, the composition of the 14 focus group discussions was as shown in Table 1.

The number of participants per group was supposed to be between six and twelve people; in fact, the average number of participants was seven, ranging from three to ten people. A total of 97 people took part in the focus group discussions. Among them were 41 females and 56 males (proportion of females = 42%).

Table 1: Composition and number of the focus groups

Composition of the focus groups (Country)	Number of focus groups
Young people (DEU, SVN, SWE)	3
Middle aged people (DEU, ESP, SWE)	3
Elder persons (DEU, ESP, SVN, SWE)	4
Cyclists (ESP, SVN)	2
Only females (ESP)	1
Only males (ESP)	1
	Total: 14

3.3 Topics of the focus group discussions

The main component of the focus group discussion was (see Annex A for the guidelines) that the respondents were asked to imagine encountering a car in an automated driving mode from the perspective of various road users (pedestrians, cyclists, drivers of conventional cars, 'drivers' or 'passengers' of an automated car, in the focus groups with motorcyclists from the perspective of a motorcyclist). The answers to the respective perspectives were then sorted by positive feelings, negative and unspecific feelings during paraphrasing.

In addition, general questions were also asked about:

- Expected benefits from the widespread introduction of automated cars
- Concerns about the widespread introduction of automated cars
- Opinion about whether automated cars will be widely used in the country of the respondents

3.4 Brief summary of the results of the focus group discussions

On the one hand, most interviewees are positive about the introduction of automated cars, also the VRUs. Positive assessments emphasize that – in contrast to humans – an automated car will adhere to the traffic rules and be permanently vigilant as the technology cannot be inattentive or distracted. For example, cyclists expect an increase in their individual road safety, as blind spots in automated vehicles will be abolished by the built-in sensor technology and an automated car is expected to maintain the minimum safety distance when overtaking. On the other hand, many participants are concerned about technical failures of the automated system: Technology may not work reliably and, for example, thus may fail to detect pedestrians or cyclists. Likewise, the automated vehicle may not be able to handle each traffic situation.

Overall, the focus group discussions reveal that despite a general acceptance the discussion participants often lacked trust in the reliability of the technology of automated vehicles. They also disclose an ambivalence in the subjective assessment of users regarding their individual road safety that ranges from 'machines are better drivers' to the discomfort of being at the mercy of a machine (Kraetsch et al., 2019). With that, the focus group discussions provide important insights on the importance of trust for the acceptance of CACs, which are also used for the development of the questionnaire for the online population survey.

4 Methodology and data processing

4.1 Study design

4.1.1 Applied methods

Within the BRAVE project, a population study in seven countries was conducted. The selection of the participating countries corresponds to the origin of the BRAVE project partners: Australia, France, Germany, Slovenia, Spain, Sweden and the USA. In each of the participating countries, 1,000 people were interviewed. The survey was conducted via computer assisted web interviews (CAWI). The recruitment of the participants for the online survey was carried out through an online access panel. The access panel of Lightspeed/KANTAR was used for this. With this panel, the survey could be conducted simultaneously in all seven countries.

The recruitment of the survey participants was based on quotas for gender, age and region for the specific country. Applied age categories for the quota were: 18 to 34 years, 35 to 45 years, and more than 45 years. The quota for regions refers to national federal states, respectively national defined regions or territories – depending on the national structure of the referring country. The three quotas are based on an international representative population survey conducted by TNS KANTAR and refer to the national population of online users aged 18 years and older.

The use of online access panels in the social sciences is widely discussed as it bears advantages but also considerable limitations (Couper, 2017). Online access panels combine the advantages of self-administered web surveys with a fast and flexible recruitment of survey participants. These strengths are opposed by limitations in the response behaviour of panel participants and the generalizability of the survey data to the overall population. The unfavourable response behaviour, which may be based on a focus on incentives or the professionalization of the participants, is addressed by checks for the length of interviews and the identification of indifferent response behaviour such as “straightlining” (see section 4.4.3). The matter of representativity of the data is a more severe issue that is, among others, originating from the divergence of the population of a country and the population of internet users in the country on the one hand and from the recruitment strategies – active recruitment vs. passive self-selection of the panel owner – on the other hand. With the growing number of internet users, online access panels increasingly represent the actual structure of the entire population. However, in the strict statistical sense survey data from online access panels principally lack a generalizability to the whole population of a country, although it can be considered as representative for the internet users in one country.

4.1.2 Considerations on the representativity of BRAVE population survey data

By using a non-probabilistic online access panel, the basic population is no longer the entire population aged 18 years or older. The population refers to internet users aged 18 and older. The quotas for the survey sample are based on a representative reference study and refer to internet users over 18 years of age.

However, the penetration of the internet has progressed so that no population groups are systematically excluded by this recruitment method. Nevertheless, compared with a probabilistic recruitment method, biases that are characteristic for the internet usage occur, as can be seen in Table 2. There, the age distribution for the seven countries as a whole is compared between estimated population statistics from the United Nations (UN) for the year 2020 (United Nations, 2019) and for the BRAVE sample on the basis of the age categories used in the quota. The calculated differences show that the groups of 20 to 34 year old and 35 to 44 year old respondents are disproportionately represented in the survey.[4]

[4] As in the UN population statistics, the gender ratio in the BRAVE sample is about 50% females to 50% males.

Table 2: Comparison of age distribution between UN population statistics and BRAVE population survey

Age (in years)	UN Data (2020)	BRAVE population survey (2019/2020)	Difference
20-34	25%	33%	+8
35-44	17%	23%	+6
45-54	17%	14%	-3
55+	41%	30%	-11

Further comparisons are available for the variables used from the International Social Survey Programme (ISSP).[5] The ISSP uses probabilistic recruitment methods (GESIS Leibniz Institute for the Social Science, 2019). Therefore, the comparison of the results of the BRAVE population survey with the results of the ISSP in the respective seven countries appears to be helpful for the assessment of the BRAVE sample. Table 3 compares the highest level of education attained between the ISSP and BRAVE population survey data across all seven countries. The BRAVE sample shows a higher proportion of higher educational qualifications.

Table 3: Comparison of highest educational level between ISSP and BRAVE population survey

Highest educational level	ISSP (2017)	BRAVE population survey (2019/2020)	Difference
No formal education	2%	0%	-2
Elementary	6%	1%	-5
Lower secondary	22%	15%	-7
Upper secondary	20%	28%	+8
Post-secondary, non-tertiary	14%	12%	-2
Lower level tertiary, first stage	21%	28%	+7
Upper level tertiary	16%	17%	+1

ISSP (2017): own calculations; data retrieved from https://zacat.gesis.org/webview/, accessed at 25.03.2020

Two further variables from the ISSP can be used to assess the survey data: the socio-economic self-assessment (see Table 4 and Q27 in Annex B) and the place of living (see Table 5 and Q24 in Annex B). The delta between the two groups shows a somewhat higher self-placement on the social scale of the BRAVE sample. In the assessment of the settlement structure at the place of residence, it is noticeable that the respondents in the BRAVE random sample tend to live in urbanised or urban regions.

[5] For more details see section 4.3.5.

Table 4: Comparison of self-rated social positioning between ISSP and BRAVE population survey

Self-rated social position	ISSP (2017)	BRAVE population survey (2019/2020)	Difference
01 (Lowest, Bottom)	2%	1%	-1
02	2%	1%	-1
03	5%	3%	-2
04	8%	6%	-2
05	25%	23%	-2
06	24%	23%	-1
07	19%	23%	+4
08	11%	13%	+2
09	2%	4%	+2
10 (Highest, Top)	2%	4%	+2

ISSP (2017): own calculations; data retrieved from https://zacat.gesis.org/webview/, accessed at 25.03.2020

Table 5: Comparison of the place of living between ISSP and BRAVE population survey

Place of living	ISSP (2017)	BRAVE population survey (2019/2020)	Difference
A farm or home in the country	6%	4%	-2
A country village	27%	15%	-12
A town or small city	24%	32%	+8
The suburbs or outskirts of a big city	22%	23%	+1
A big city	21%	26%	+5

ISSP (2017): own calculations; data retrieved from https://zacat.gesis.org/webview/, accessed at 25.03.2020

The comparisons reveal that the recruitment of the survey participants via online access panels approximately reflects the population in the seven countries, but is not identical with it. The sample in the BRAVE population survey is younger on average, tends to live in an urban or urbanised environment and is in terms of its socio-economic status more strongly located in the middle and upper social strata.

4.2 Online population survey questionnaire

The questionnaire for the online population survey was developed according to a previous literature research (Johnsen et al., 2018) and the precedent qualitative research with focus group discussions in four countries – Germany, Slovenia, Spain and Sweden (Kraetsch et al., 2019). In the questionnaire specially developed for the population survey, various topics of automated driving were addressed. In the introduction of the questionnaire the concept of SAE Levels and the specifications of the SAE Level 3 which refers to CACs are outlined. One larger part of the questionnaire covered the topics of trust in and acceptance of CACs. A second topic referred to ethical and legal considerations that might emerge with the introduction of CACs on the roads. External human-machine interfaces (HMI) and the communication of the CAC with other road users was another issue that was briefly surveyed with the questionnaire. Next to these content-related questions, the questionnaire

also collected information on the mobility behaviour of the respondents and on their socio-demographic data. The contents of the questionnaire were discussed with the other project partners to ensure that the questions were correctly adapted to, for instance, issues of the technological development.

The questionnaire was developed in English language. The final version of the questionnaire was then translated back into German, the native language of the questionnaire developers. The German translation was compared with the original English version and revisions in the English version were made where necessary. This check was followed by a professional proofreading of the English version (British English). This proofread version was the template used to translate the questionnaire into the other languages – French, Spanish, Swedish and Slovenian. The different translations of the questionnaires were then finally reviewed by native speakers. The questionnaire for the US was professionally proofread and adapted to the US-English. For Australia, the British English-version of the questionnaire was used.

The different language versions of the questionnaire were provided to Lightspeed/KANTAR for programming the questionnaire. The functioning of the programmed online questionnaire in the different languages including filter questions was checked by BRAVE consortium members. A final pre-test on the functioning and the comprehensibility of the online questionnaire was successfully conducted among test persons not involved in the BRAVE project.

4.3 Operationalisation

There are two content-related areas in this study where the operationalisation of the social phenomena to measure in the questionnaire required more in-depth work. First, the measurement of the relevant psychological dimensions of acceptance of and trust in CACs – both from a non-user perspective – as well as the personal innovativeness and the ethical considerations needed to be in line with previous research. Second, variables on socio-demographic information on e.g. highest educational degree had to be thoroughly selected to account for important national differences.

4.3.1 Measuring acceptance of conditionally automated cars from a non-user perspective

A fundamental problem in measuring the acceptance of or the trust in CACs is their not market-ready stage of development and the resulting lack of approval for road traffic. It is therefore not possible to measure the acceptance of CACs on the basis of objective criteria, observable behaviour or subjective experiences. Other possible measures are to operationalize acceptance via the willingness to buy such a car or the attitudes towards automated cars (Adell et al., 2014). Additionally, most research has been done to examine the acceptance of potential users of CACs. Research on a non-user acceptance of CACs is not sufficiently prevalent to assess methods that reliably measure acceptance from other road users.

The approach to measure the acceptance of CACs from the perspective of non-users is hence based on the findings of psychologically oriented user-centered research (Johnsen et al., 2018). Existing research on user acceptance has already identified dimensions that provide explanatory power for predicting user acceptance, such as the perceived usefulness of conditionally automated vehicles (Ghazizadeh, Peng, Lee, & Boyle, 2012; Choi & Ji, 2015; Zhang et al., 2019). These research findings were also used for the conception of the scale for an attitude-based measurement of the acceptance of CACs. The items listed in Table 6 were specially re-formulated or modified for other road users according to the prevailing intention of the BRAVE population survey. Reverse formulations were used to keep the attention of the survey participants. To answer each of the statements, a five-point Likert scale was used ranging from “Strongly disagree”, “Disagree”, “Neither disagree nor agree”, to “Agree”, and “Strongly agree”.

Table 6: List of items to measure general acceptance from a non-user perspective

Item	Reference
As a road user, I think conditionally automated cars will be easy to communicate with.	Elaboration based on: Ghazizadeh et al. (2012)
I think conditionally automated cars will not be easy to use.	Elaboration based on: Ghazizadeh et al. (2012)
I think that conditionally automated cars will make roads safer.	Elaboration based on: Ghazizadeh et al. (2012)
I think I will not use conditionally automated cars when available.	Elaboration based on: Gold, Körber, Hohenberger, Lechner and Bengler (2015)
I think that conditionally automated cars will be useful.	Elaboration based on: Kaur and Rampersad (2018)
I think that conditionally automated cars will cause problems for other road users.	Idea based on: Ghazizadeh, Lee and Boyle (2012)

The six items are used to calculate an index for the general acceptance of CACs. The index is created by adding the values of the single items and then dividing them by the number of items. The resulting value of the index can be interpreted from 1 to 5 analogously to the Likert scale used for the single items. To ensure sufficient reliability, Cronbach's alpha was determined to check the internal consistency of the scale. The reliability analysis results in the value Cronbach's alpha = 0.83. According to Hair, Black, Babin, Anderson, and Tatham (2014), a Cronbach's alpha of 0.83 is fairly above the acceptable minimum of 0.70 which legitimates further use of the index.

The three items depicting a road user perspective are used a second time in the questionnaire to measure a road user group specific acceptance preceded by the description of a hypothetical traffic situation with a CAC involved (see section 6.3 for more details). These are the three re-used and adapted items:

- As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], I think conditionally automated cars will be easy to communicate with.
- As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], I think that conditionally automated cars will cause problems for me and other road users.
- As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], I think that conditionally automated cars will make roads safer.

The Cronbach's alpha for these three items is 0.77 and allows for the further use in an index.

4.3.2 Measuring trust in conditionally automated cars

The measurement of trust in CACs was carried out with an already existing scale. The scale used by Choi and Ji (2015) that consists of three items and has proven its reliability (Zhang et al., 2019) was applied in the BRAVE population survey. The formulation of the items has been adapted to the use in the BRAVE questionnaire which refers to CACs.

For further use in statistical analyses, the three items were summarised in an additive index following the same procedure as for the general acceptance index. The reliability analysis yields a Cronbach's alpha of 0.89 which indicates a sufficient reliability for the trust-index. The description of the items is given in section 6.2.

4.3.3 Measuring personal innovativeness

The personal innovativeness has been identified as a confounder for trust and acceptance of automation vehicle technology. It has thus been integrated in the BRAVE population survey especially for the use as a control

variable in multivariate analysis. The innovativeness is used to describe the personal interest to try out and use new technical devices. For the measurement of the personal innovativeness, an already existing measurement instrument was used (Agarwal & Prasad, 1998). This scale has also been used in other empirical research (Deb et al., 2017). For the BRAVE questionnaire, three of the items were selected and slightly modified to fit the research subject.

Analogous to the previous scales, a personal innovativeness-index was composed after data preparation. The reliability analysis for the three items results in a satisfying value of 0.75 for Cronbach's alpha which allows for further use of the index. A detailed overview of the items regarding personal innovativeness is provided in section 5.3.

4.3.4 Measuring ethical principles for the programming of conditionally automated cars

Items used for the depiction of ethical principles in the programming of CACs are based on the work of Karnouskos (2018). There, ethical frameworks giving directions for the programming in the car's decision-making process – in particular in the scope of unavoidable crashes – are investigated. From the statements used in Karnouskos (2018), five items have been selected for the application in the BRAVE-questionnaire. Minor reformulations were made to adapt the statements to the context of CACs. Results are provided in section 8.1.1.

4.3.5 Measuring internationally comparable information on socio-demographics

In an international study, structural differences between countries, e.g. in education, must be taken into account. Accordingly, the survey instruments must be able to reflect national circumstances and at the same time they must be internationally comparable. The ISSP contains such standardised questions for an international survey (GESIS Leibniz Institute for the Social Science, 2019). Thus, questions on the highest education level, the settlement structure at the place of living, and the top-bottom self-placement in the societal order were taken from the ISSP.

A major challenge in this context is the comparable collection of the highest educational level of the respondents. Here too, the ISSP offers a tested routine that was also applied to the BRAVE population survey. In each country, the country-specific highest educational levels were collected and combined into one variable according to a given procedure.[6] The resulting variable represents the respondents' highest educational attainment at the level of no formal, elementary, secondary or tertiary education in a total of seven categories.

4.4 Process of data collection and processing

4.4.1 Data collection

The field phase of the survey started on 17th December 2019 with a soft launch of the survey in the respective countries. The full launch then took place on 19th December 2019. The survey was finished on the 6th of January 2020 with 1,000 completed interviews in each of the seven countries. A first revision of the data quality in January 2020 resulted in the requirement of an additional collection of interviews. As the major problem for data quality, a very short duration of the interviews was identified. Thus, in the second phase of the data collection, a minimum threshold was set for the length of the interviews. With the new threshold, an online interview had to last at least six minutes in order to be accepted as a complete interview. Initial data analyses showed that such a length of processing the online questionnaire was essential for a plausible response behaviour.

From 4th February to 10th February 2020 another 1,507 interviews taking at least six minutes were collected to compensate for the previously excluded cases with insufficient data quality due to short interview durations

[6] Details are provided online: https://zacat.gesis.org/webview/index/en/ZACAT/ZACAT.c.-ZACAT/ISSP.d.58/by-Year.d.69/International-Social-Survey-Programme-Social-Networks-and-Social-Resources-ISSP-2017/fStudy/ZA6980, accessed at 17.03.2020.

and “straightliners” (for the definition of straightliners see subsequent section 4.4.3). The final data set contains 7,000 respondents, with 1,000 respondents in each participating country.

4.4.2 Data preparation

After data collection, work on the data preparation was performed. The data preparation and also the data analysis later on are carried out using the statistics software IBM SPSS Statistics 25.

The working steps for the data preparation included the naming of variables, the recoding of values, the definition of missing values and the labelling of variables and values. When recoding the values, the values of the Likert scales were arranged so that higher values are accompanied by higher agreement with the statement. Furthermore, the Likert scales for negative formulated statements were reversed. The codebook of the survey data documents the final result of the data preparation (Schrauth, Maier, Funk, & Kraetsch, 2020).

In a total of five questions (see Annex B Q6, Q14, Q16, Q18, Q19), the respondents were given open-ended answer options in the response category "Other, namely". The entries there were reviewed whether they could be added to one of the other categories or whether frequent occurrence of answers with the same content could be found. The open-ended answers are only mentioned in the respective sections of the report if a noteworthy accumulation of open-ended answers was identified in this process.

4.4.3 Data cleaning

To ensure the data quality, four criterions are checked in the phase of the data preparation (see Table 7). The first criterion is the length of the interview which has already been addressed in the phase of the data collection. The revision of the survey data received in January 2020 revealed a major problem with so called “speedsters” – respondents filling out the questionnaire too fast. With the elimination of respondents of the length of an interview lower than six minutes and the new restriction for the additional phase of the data collection, no more speedsters, defined for this survey as an interview duration lower than six minutes, had to be erased.

The second criterion for examining data quality is the phenomenon of “straightlining” (Meesmann, Torfs, & Van den Berghe, 2019, p. 16). Straightlining may be defined as a strategic behaviour of respondents who give the same answer on all items of a question. In the BRAVE questionnaire there are seven questions with several items using a Likert scale that could be used for the identification of straightliners.

Two different types of straightlining can be distinguished. First, a respondent giving the same response on all items of a question is named a “full straightliner". Applied to the seven relevant questions, “full straightlining” was defined as follows:[7]

- Q2: ‚General trust‘ (same response in 3 of 3 items)
- Q3: ‚General acceptance‘ (same response in 6 of 6 items)
- Q4: ‚Personal innovativeness‘ (same response in 3 of 3 items)
- Q10: ‚Specific acceptance‘ (same response in 3 of 3 items)
- Q11: ‚Expected benefits‘ (same response in 11 of 11 items)
- Q12: ‚Concerns‘ (same response in 11 of 11 items)
- Q15: ‚Ethical statements‘ (same response in 5 of 5 items)

Second, a participant giving the same response in at least eighty percent of the items of a question qualifies as an “almost straightliner”. By definition, “almost straightlining” could only be identified for questions that consist of at least 5 items. Applied to the questions corresponding to this criterion, “almost straightlining” was defined as follows:

- Q3: ‚General acceptance‘ (same response in at least 5 of 6 statements)

[7] For the enumerated questions see Annex B.

- Q11: ‚Expected benefits'(same response in at least 9 or 10 of 11 statements)
- Q12: ‚Concerns' (same response in at least 9 or 10 of 11 statements)
- Q15: ‚Ethical statements' (same response in at least 4 of 5 statements)

In consequence of applying these criterions, 3.7% of "almost" (n = 262) and 1.8% (n = 125) of "full straightliners" were identified and permanently deleted from the survey data.

A third criterion to evaluate the data quality is the accumulation of missing values. Since most of the questions in the population survey, besides socio-demographics and a filtering question, were not mandatory questions, respondents were able – and were allowed – to skip individual questions. However, two respondents were identified having answered less than two thirds of the questionnaire. Due to the lack of information, these two cases were excluded from further analysis.

A fourth criterion that helped to assess data quality were text entries in questions with open answers. One respondent could be identified by making implausible or unrelated answers and has been deleted.

The check for the four criterions identified n = 392 cases that have not met the defined demands for the data quality and have been deleted from the survey data. After data cleaning, the sample consists of n = 6,608 respondents.

Table 7: Applied criteria for data cleaning

Criteria	n	%
Length of interview („speedster")	0	0
Straightlining	389	5.6
Thereof: Almost straightlining	262	3.7
Thereof: Full straightlining	127	1.8
Accumulation of missing values	2	0.0
Implausible/unrelated answers	1	0.0
Remaining cases of n = 7,000	**6,608**	**94.4**

4.5 Procedure for statistical data analysis

Reporting will be largely based on uni- and bivariate data analysis. This, at first, includes the analysis of the relative shares of the frequency distribution and the measures of the central tendency (mean, median) (Döring & Bortz, 2016, pp. 297-298). Secondly, the frequency distributions of the variables covering behaviours and attitudes are differentiated in subgroup analyses using so-called independent variables. The respondents' country, biological sex, age and main transportation mode are selected as independent variables for the statistical analyses. Finally, the survey results presented are checked for their statistical significance using the methods of inferential statistics (Döring & Bortz, 2016, pp. 627-628). The significance level p = 0.05 is used for the statistical tests of the bivariate relationships.

In the present report, the country of the respondents and their main mode of transportation are primarily used for the in-depth analyses. Significant results of the other bivariate analyses are mentioned in the report text and can be viewed in the corresponding tabulation volume (see Annex C). There, the bivariate frequency distributions of the subgroup analyses are listed entirely.

5 Characteristics of the sample

5.1 Socio-demographics

After data cleaning, the final sample covers 6,608 respondents (see Table 8). Their valid answers are distributed almost equally among the participating countries. More than 900 respondents per country are included in the final survey data.

Table 8: Socio-demographic characteristics of the sample

Criteria	n	%
Country	6,608	100.0
France	910	13.8
Germany	948	14.3
Slovenia	962	14.6
Spain	947	14.3
Sweden	965	14.6
Australia	940	14.2
United States	936	14.2
Gender	6,608	100.0
Female	3,308	50.1
Male	3,295	49.9
Divers	5	0.1
Age group	6,608	100.0
Up to 34 years	2,262	34.2
35 to 44 years	1,486	22.5
45 to 54 years	911	13.8
55 years and more	1,949	29.5
Highest level of education	6,598	100.0
No formal education, elementary or lower secondary education	1,046	15.9
Upper secondary or post-secondary education	2,662	39.7
Lower tertiary or upper tertiary education	2,930	44.4
Place of living	6,608	100.0
A Farm or home in the country	287	4.3
A country village	1,003	15.2
A town or small city	2,079	31.5
The suburbs or outskirts of a big city	1,507	22.8
A big city	1,732	26.2

The respondents are almost equally divided between females (50.1%) and males (49.9%). Only 0.1% of the respondents indicate their biological sex to be divers. Due to the very small number of cases, diverse persons will not be considered in later gender-specific analyses. With regard to age, the majority of the respondents (56.7%) is younger than 45 years. 29.5% of the survey participants are older than 55 years. According to the highest educational level, 15.9% of the respondents document no formal education or an educational degree up to the lower secondary level that does not allow entry to university. In contrast, 39.7% obtain the upper secondary or post-secondary level. Most of the respondents in the sample possess a lower tertiary or upper tertiary education level (44.4%). Due to implausible information in the country-specific basic variables regarding education, the number of respondents regarding the highest education level differs from 6,608 (see section 4.3.5 for the operationalization). Regarding the place of living, most respondents live in an urban environment (80.5%). Apart from that, 19.5% of the respondents live in the countryside.

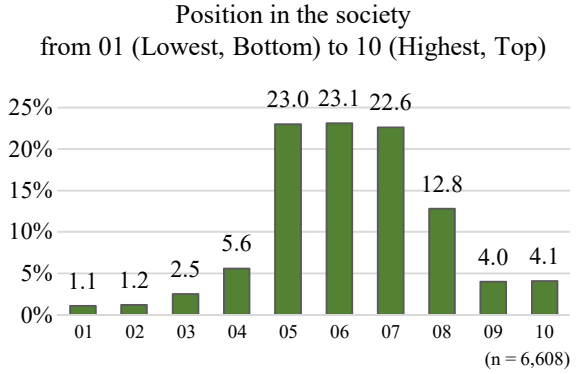

Figure 1: Position in the society

The respondents were asked where they would place themselves in society on a scale from top (10) to bottom (01). The results are represented in Figure 1. The most frequently mentioned positions are the middle ones 05 (23.0%), 06 (23.1%) and 07 (22.6%). Apart from this, however, the respondents tend to place themselves rather higher than lower in the societal order, which leads to a left-skewed distribution.

5.2 Mobility behaviour

In this section, the variables that are related to the mobility behaviour of the respondents are examined in more detail (see Table 9). Firstly, the average number of trips per day on a normal day from Monday to Friday, is of interest. The majority of respondents report between two and four trips on average per day (59.6%). 17.8% of the respondents state to make five to eight trips per day. The least frequently mentioned was less than two (12.9%) or more than eight (9.7%) trips per day.[8]

Secondly, the mode of transportation used most often for everyday private mobility within the last six months was characterized. Almost two thirds of the respondents in the sample primarily most often drove a car (65.5%). Approximately every fourth respondent was travelling on foot (24.0%). Moreover, the sample includes 6.2% cyclists and 2.5% riders of PTWs, trikes or quads. The use of public transport per se was omitted in the survey. Respondents using public transport were instead asked to consider the way to or from public transport for the indication of their main transportation mode. In the further course of the data analysis, the predominant mode of locomotion as pedestrian, cyclist, PTW-rider or car driver represents an important characteristic for distinguishing the answers of the overall sample (so-called independent variable).

87.0% of the respondents hold a driving licence for cars or PTWs. Of these people, the largest proportion drives their vehicle daily (45.4%) or several times a week (26.7%). Less frequently, these respondents use their vehicle only several times a month (11.9%), rarely (10.1%) or never (5.8%; see Annex C, Table C81).

[8] In the data preparation entries over 20 trips per day were excluded.

Table 9: Transport-related characteristics of the sample

Criteria	n	%
Number of trips per day	6,294	100.0
0-1 trips	814	12.9
2 trips	1,895	30.1
3-4 trips	1,855	29.5
5-8 trips	1,122	17.8
9 trips or more	608	9.7
Main mode of transportation	6,608	100.0
Pedestrian	1,583	24.0
Cyclist (Bicycle, E-Bike)	412	6.2
Rider (Powered two-wheeler, trike or quad)	162	2.5
Driver (Car)	4,330	65.5
Other	121	1.8
Driving licence	6,608	100.0
Yes	5,750	87.0
No	858	13.0

5.3 Innovativeness and experience with Advanced Driver Assistance Systems

In order to be able to identify and control possible influencing variables for the analysis of the acceptance of CACs, questions regarding the personal innovativeness of the respondents were also posed. The personal innovativeness reflects the general interest in testing and using new technologies, which is also supposed to be a confounder for acceptance of automated vehicles. Adapted from Agarwal and Prasad (1998) and Deb et al. (2017), this construct comprised the following three items:

- Among my peers, I am usually the first to try out new technologies.
- In general, I am hesitant to try out new technologies.
- I like to experiment with new technologies.

The respondents' assessments of the three items are presented in Figure 2 and in Annex C, Tables C11-C13. For further analysis, an index of personal innovativeness was composed (see section 4.3.3). The mean value of the summative index calculated from the three innovativeness items is $\overline{x} = 3.22$ on a scale ranging of 1 "I strongly disagree" to 5 "I strongly agree". Analyses of the differences between the subgroups reveal statistically significantly varying levels of the respondents' innovativeness between the countries, the gender, the age and the main mode of transportation.

The findings on the personal innovativeness towards testing and using new technologies could be influenced to a positive extent by the survey sample, which is on average younger and more likely to live in an urbanized environment (see section 4.1.2).

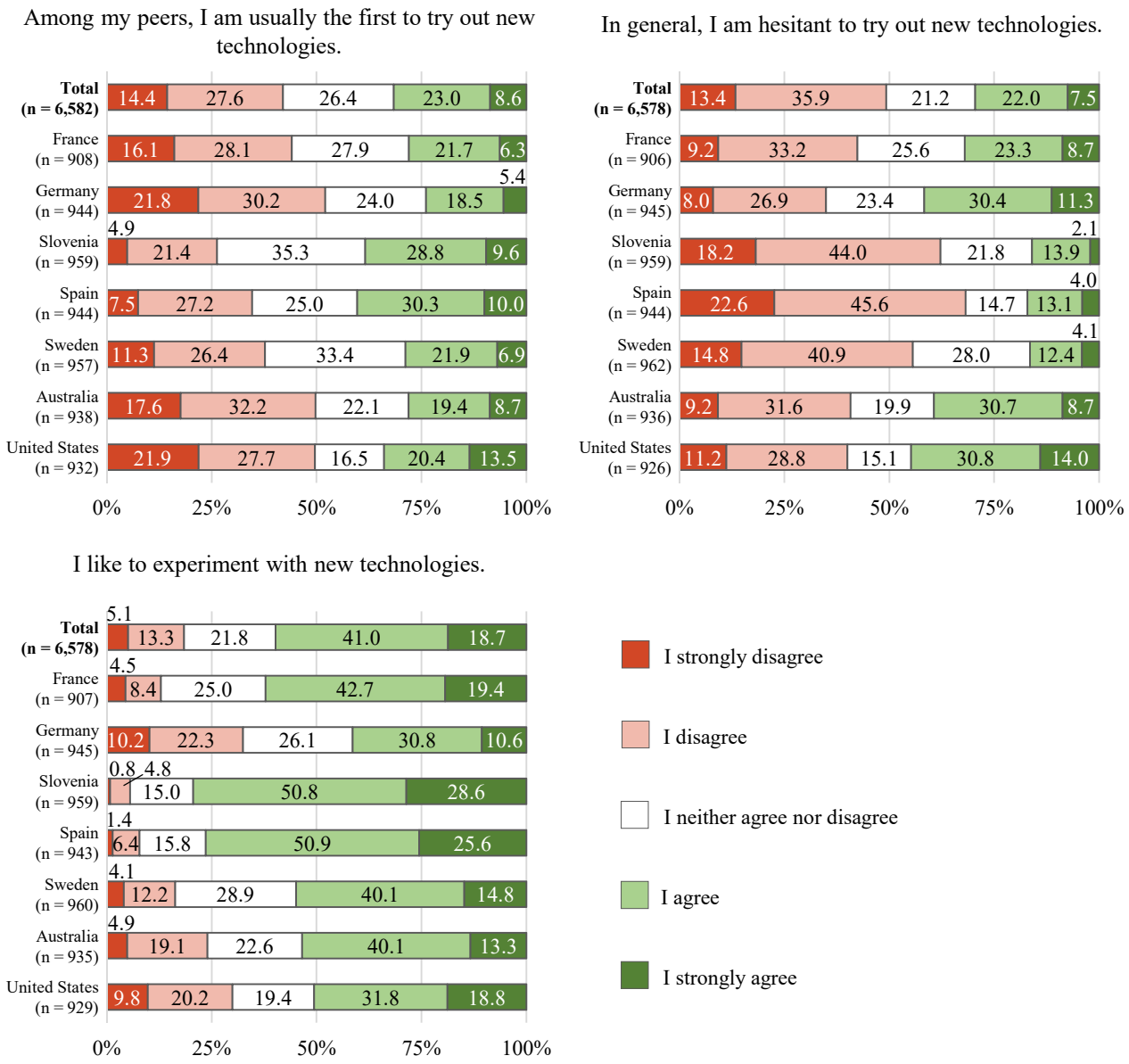

Figure 2: Personal innovativeness – by country

Regardless of the frequency, 62.9% of all respondents have already experienced ADAS features like Emergency Brake Assist, Adaptive Cruise Control, Lane Departure Warning, or Blind Spot Detection (see Figure 3). The frequently observed experience with ADAS features may be on the one hand due to the prevalence of ADAS in newer vehicles, but on the other hand also to the socio-demopraphic characteristics of the sample of respondents.

Considering the different countries, significant differences are evident. In Slovenia (26.6%) and France (26.0%), the proportion of respondents who have often experienced ADAS is the highest among all participating countries. Also, the proportion of respondents who have never experienced ADAS is the lowest in these two countries (Slovenia: 16.6%; France: 26.7%). In contrast, in Germany more than half of the respondents (54.2%) stated, that they have never experienced ADAS in a car.

With regard to other characteristics of the respondents, significant differences in the experience with ADAS are also apparent (see Annex C, Table C1). Firstly, more female respondents (40.2%) than male respondents (33.9%) lack experiences with ADAS. Secondly, the oldest respondents aged 55 years and more (56.2%) are those who most frequently never experienced ADAS (Up to 34 years: 24.3%, 35 to 44 years: 33.9%; 45 to 54 years: 32.9%). Thirdly, when analysing the answers by main mode of transportation, pedestrians (44.1%) show

up to be the most inexperienced group of respondents using ADAS in a car (cyclists: 29.4%, PTW-riders: 24.7%; car drivers: 35.2%).

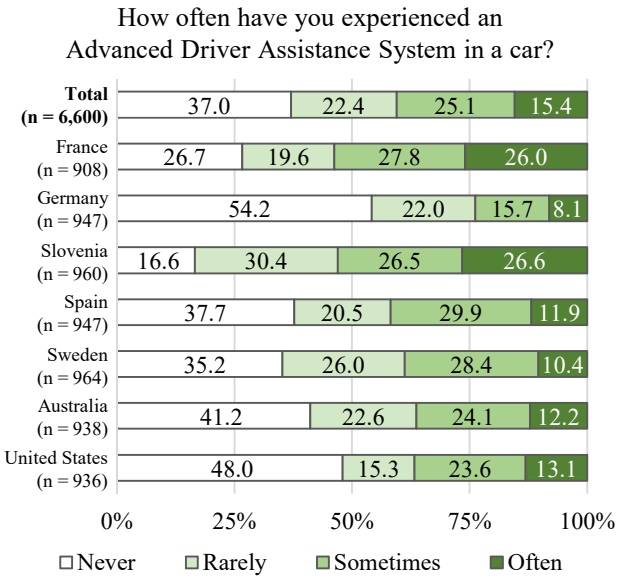

Figure 3: Experience with Advanced Driver Assistance Systems – by country

6 Acceptance and trust in conditionally automated cars

6.1 General acceptance of conditionally automated cars

Six statements were used in the beginning of the questionnaire to ask respondents for the general acceptance of CACs. Three of these items represent a dedicated perspective from a road user:

- As a road user, I think conditionally automated cars will be easy to communicate with.
- I think conditionally automated cars will make roads safer.
- I think conditionally automated cars will cause problems for other road users.

Another three items collect more basic attitudes of the road user towards CACs from a more general perspective:

- I think that conditionally automated cars will be useful.
- I think I will not use conditionally automated cars when available.
- I think conditionally automated cars will not be easy to use.

For each item, respondents were asked to state their (dis-)agreement on a five-point Likert scale.

The results for each item are displayed in Figure 4 which presents the findings for the respondents as a whole and for the individual countries separately. Ranked according to the share of agreement, i.e. the sum of "I strongly agree" and "I agree", the statement "I think that conditionally automated cars will be useful" receives the greatest agreement across all countries. An agreement of almost two thirds of the respondents 64.0% is opposed by 23.8% undecided respondents and 12.2% of participants who deny the usefulness of a CAC.

The statement with the second highest agreement of 48.0% ascribes improved road safety to the CAC. The statement that CACs would make the roads safer is rejected by 24.1% of all respondents, while further 27.9% are not clearly positioned.

Furthermore, 45.9% of the respondents do not consider it a significant problem to be able to communicate with the car as an external road user. However, almost one third of the respondents (31.4%) are not sure whether to agree or disagree with the statement in this question. This share represents the highest percentage of undecided respondents among the six items on general acceptance. 22.6% of the respondents suggest that communication with CACs won’t be easy when interacting on the roads in the future.

The fourth item in the ranking of agreement expresses a negative expectation regarding CACs in road traffic. Here, 41.0% of the respondents agree with the statement that CACs will cause problems for the respondent himself and other road users. A comparably large group as in the statement dealt with in the previous paragraph does not express a clear agreement or disagreement (31.1%). 27.9% of the road users surveyed do not believe that the introduction of CACs will cause major problems in road traffic.

The negatively formulated item "I think I will not use conditionally automated cars when available" received the second lowest level of agreement from the respondents (39.0%). That is, almost four out of ten respondents do not consider the use of a CAC when it will be available. Conversely, 33.2% document by their rejecting answer that they would use such a car in principle. That is, only one third of the respondents clearly state at the time of the survey that they want to use such a CAC in the future. 27.8% of the respondents avoid a clear positioning.

The lowest rate of approval is given to the negatively formulated statement "I think conditionally automated cars will not be easy to use" (32.7%). The rejection of this item corresponds to an agreement in the sense of a positive opinion towards the CACs and is equal to 40.2%. In addition, 27.1% of the respondents are unsure whether the CAC will be easy to use.

The answers of the respondents differ statistically significantly for each statement between the seven participating countries. Respondents in Slovenia and Spain consistently express a more positive opinion of CACs. On the contrary, the respondents from Germany, France, and the USA express in most items the least support in the sense of endorsing CACs.

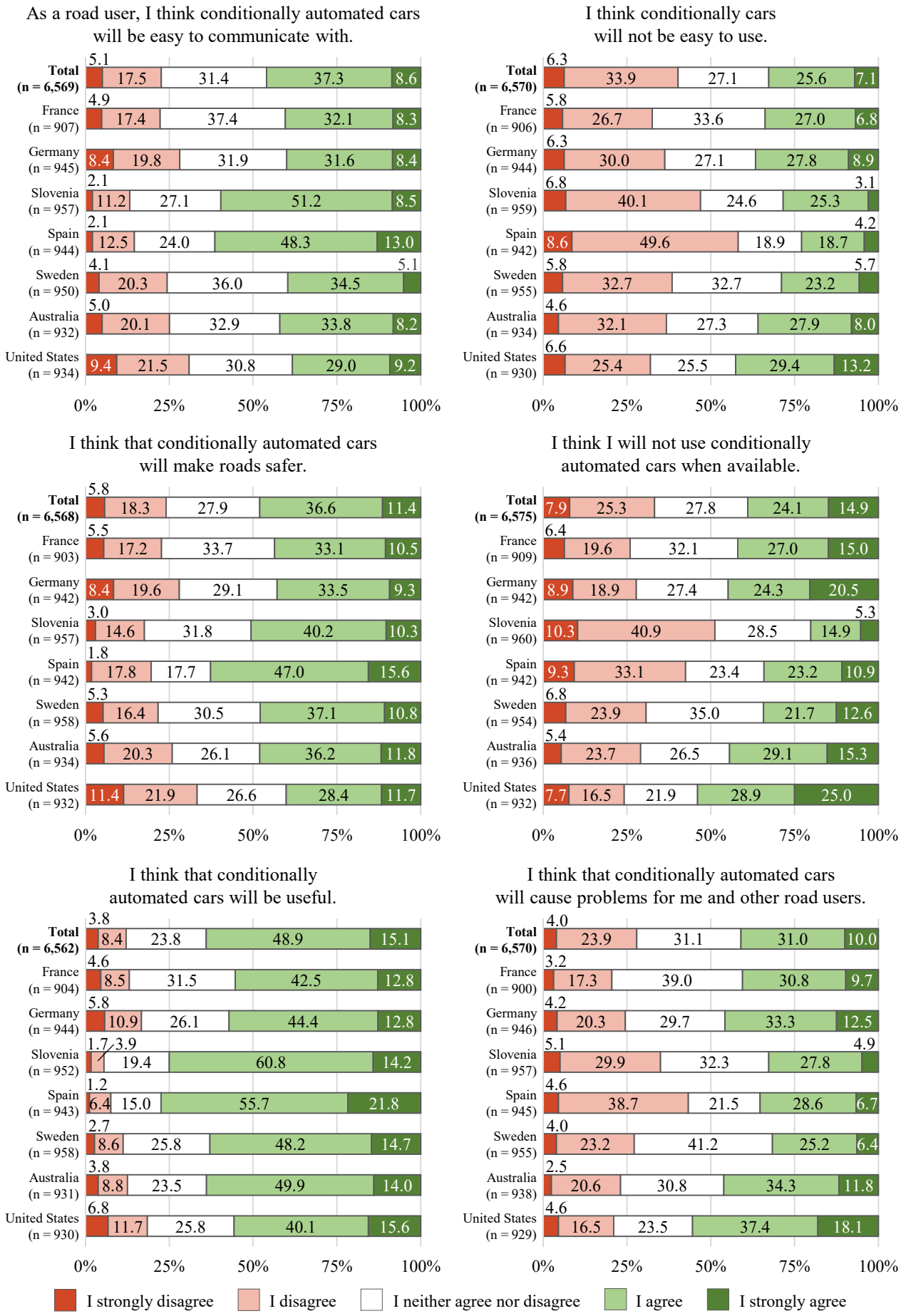

Figure 4: General acceptance of conditionally automated cars – by country

For the set of independent variables, country, gender, age and the main mode of transportation, significant differences are investigated with the help of the index of general acceptance introduced in section 4.3.1. With this index, differences can be contrasted more clearly. In total, the general acceptance index has a mean of $\bar{x}$ = 3.16. Differentiated by the participating countries, the reported means in Table 10 are statistically significantly different and underpin the already mentioned findings. Spanish respondents document the highest average general acceptance ($\bar{x}$ = 3.43), followed by Slovenian ($\bar{x}$ = 3.40) and Swedish respondents ($\bar{x}$ = 3.18). The differences between the genders, which can be seen on the basis of the mean value, also prove to be statistically significant in the bivariate analysis. Male respondents ($\bar{x}$ = 3.25) have a more positive a priori acceptance of CACs than females ($\bar{x}$ = 3.07). With regard to age, the results point to a decreasing acceptance of CACs with age. These variations are also statistically significant. The differences in the general acceptance between cyclists and PTW-riders on the one side and car drivers and pedestrians on the other side do not prove to be statistically significant.

Table 10: Index of general acceptance differentiated – by set of independent variables

Variables	n	$\bar{x}$
Total	6,442	3.16
Country		
France	888	3.08
Germany	929	3.03
Slovenia	939	3.40
Spain	929	3.43
Sweden	934	3.18
Australia	911	3.09
United States	912	2.90
Gender		
Female	3,235	3.07
Male	3,202	3.25
Age group		
Up to 34 years	2,226	3.28
35 to 44 years	1,456	3.25
45 to 54 years	890	3.23
55 years and more	1,867	2.91
Main mode of transportation		
Pedestrians	1,552	3.14
Cyclists	399	3.22
PTW-riders	155	3.21
Car drivers	4,216	3.16

6.2 General trust in conditionally automated cars

In the research literature, trust has been identified as a crucial prerequisite for the emergence of acceptance in automated cars (Kaur & Rampersad, 2018; Zhang et al., 2019). Therefore, a measure for general trust in CACs

has been included in the questionnaire (see section 4.3.2; Choi & Ji, 2015). Again, the standardized answers for the respective scale covering three single items range from "I strongly agree" to "I strongly disagree" on a five-point Likert scale.

On the statement whether CACs are dependable, about half of the respondents (49.2%) express a strong or simple agreement. 31.1% do not give a clear preference in this regard, whereas 19.7% express themselves clearly and reject the statement.

A similar distribution of responses can be observed for the second statement "Conditionally automated cars will act reliably" in Figure 5. Again, almost half of the respondents (48.8%) are confident and agree with the statement. On the other hand, one fifth of the respondents (20.1%) express the opposite opinion. Three out of ten respondents (31.1%) abstain from making a clear statement.

The summary statement "Overall, I will trust conditionally automated cars" again receives approval from the relative majority of the respondents (47.2%) – but also rejection from 28.0% of the respondents. In contrast to the other two items, the number of undecideds in the category of those who do not express a distinct opinion is smaller (24.8%).

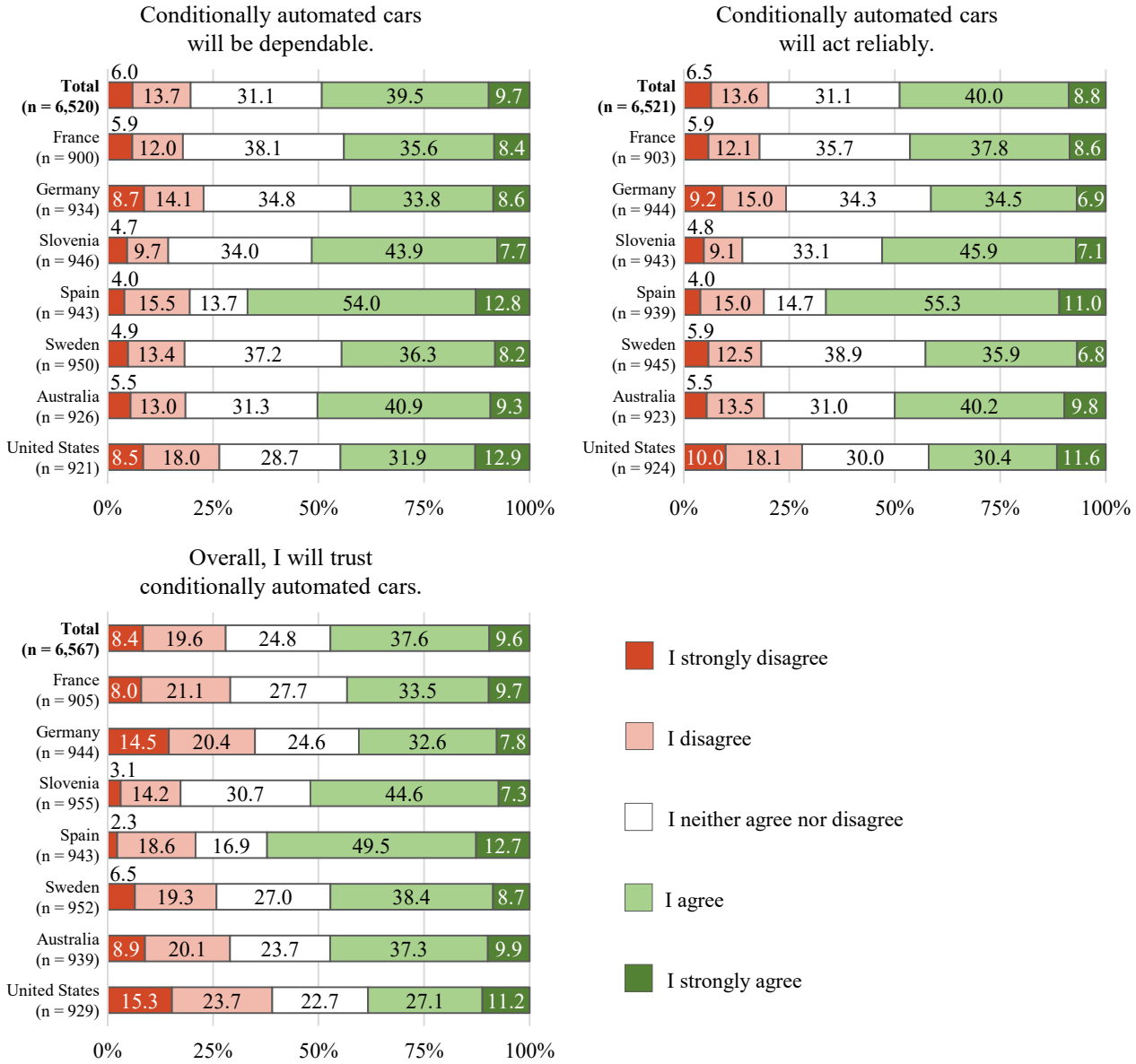

Figure 5: General trust in conditionally automated cars – by country

The index for general trust (see section 4.3.2) is also used here for the bivariate subgroup analysis. In statistical analysis, the differences in all independent variables turn out to be significant (see Table 11). Respondents from Spain ($\bar{x}$ = 3.54) show the highest initial trust in CACs. On the contrary, the lowest trust is documented by respondents from Germany ($\bar{x}$ = 3.11). Regarding the respondents' gender it is again the males ($\bar{x}$ = 3.41) who express more positive attitudes towards conditionally automated cars then females ($\bar{x}$ = 3.16). At the same time, with regard to age, respondents in the youngest age category express the highest general trust ($\bar{x}$ = 3.48). This trust is continuously decreasing in the higher age categories. As with general acceptance, cyclists ($\bar{x}$ = 3.47) and PTW-riders ($\bar{x}$ = 3.63) show a more positive attitude than pedestrians ($\bar{x}$ = 3.28) and car drivers ($\bar{x}$ = 3.28) – here the differences are statistically evident.

Table 11: Index of general trust differentiated – by set of independent variables

Variables	n	$\bar{x}$
Total	6,399	3.29
Country		
France	890	3.25
Germany	926	3.11
Slovenia	920	3.41
Spain	931	3.54
Sweden	919	3.27
Australia	909	3.30
United States	904	3.12
Gender		
Female	3,205	3.16
Male	3,189	3.41
Age group		
Up to 34 years	2,207	3.48
35 to 44 years	1,443	3.41
45 to 54 years	887	3.26
55 years and more	1,862	2.98
Main mode of transportation		
Pedestrians	1,540	3.28
Cyclists	396	3.47
PTW-riders	155	3.63
Car drivers	4,195	3.28

6.3 Road user group specific acceptance and trust

In the focus group discussions (see chapter 3) it became clear that road users, in their opinions, oscillate between generalised trust in CACs and scepticism towards CACs in certain road traffic situations (Kraetsch et al., 2019). Hence, besides questions on general trust and acceptance, respondents in the questionnaire were confronted with a certain traffic situation that varied for the different types of the main transportation mode, including going on foot. The respondents were given the traffic situation that corresponded to their previously

indicated main transportation mode. The distinct traffic situations were described in a text form as presented in Table 12. All of these fictitious traffic situations have in common that they contain a crossing situation in which the respondent – as pedestrian, cyclist, PTW-rider or car driver – would have right of way over the CAC. To cross the path of the CAC, the respondent would have to place trust in the CAC.[9]

Table 12: Specified traffic situations for the different road users

Pedestrian	You are walking in an urban area and want to cross the road at a pedestrian crossing without traffic lights. At the same time, a conditionally automated car (SAE Level 3) approaches the pedestrian crossing. The car is driving in automated mode.
Cyclist	You are riding a bicycle in an urban area and approach a junction without road signs or traffic lights. From the left, a conditionally automated car (SAE Level 3) approaches. The car is driving in automated mode. You have right of way in this situation.
PTW-rider	You are riding a powered two-wheeler in an urban area and approach a junction without road signs or traffic lights. From the left, a conditionally automated car (SAE Level 3) approaches. The car is driving in automated mode. You have the right of way in this situation.
Car driver	You are driving a non-automated car in an urban area and approach a junction without road signs or traffic lights. From the left, a conditionally automated car (SAE Level 3) approaches. The car is driving in automated mode. You have the right of way in this situation.

Following these descriptions on the road user-specific traffic situation, respondents were then asked to document their subjective feeling about their personal road safety in this hypothetical situation, as well as their trust in and their acceptance of the CAC.

6.3.1 Subjective feeling about personal road safety

The first question following the preceding description of the traffic scenery was aimed at the subjective feeling in such a – currently still hypothetical – situation. In view of such a traffic situation, 8.1% of the respondents would feel very safe and 32.2% would feel safe (see Figure 6). This part of the respondents is contrasted by 29.8% who would feel unsafe or even very unsafe. A share of 29.9% would expect a neutral reaction on their part.

In their subjective perception of their safety, the respondents differ significantly according to the country they live in (see Figure 6). Based on the sum of the percentages for feeling (very) safe, respondents from Spain (54.6%) and Slovenia (44.6%) express the least concerns about such a traffic situation. Respondents from Germany (33.2%) and Sweden (32.8%), on the other hand, show the greatest scepticism about their personal road safety in such a traffic situation.

The response behaviour also differs significantly according to the main mode of transportation (see Figure 6). PTW-riders (51.6%) include the highest share of respondents who would feel safe in such a described traffic situation with an approaching conditionally automated car in automated mode. Car drivers (41.9%), cyclists (40.9%) and pedestrians (34.7%) document a somewhat lower level of certainty in such a traffic situation.

[9] The use of the public transport is omitted because users are not involved in the road traffic situation. Instead respondents should consider the way to or from public transport for the indication of their main transportation mode.

The analyses of the subgroups for gender and age yield further significant results. Males feel safer than females in such a traffic situation as well as younger respondents feel safer than older respondents (see Annex C, Table C16).

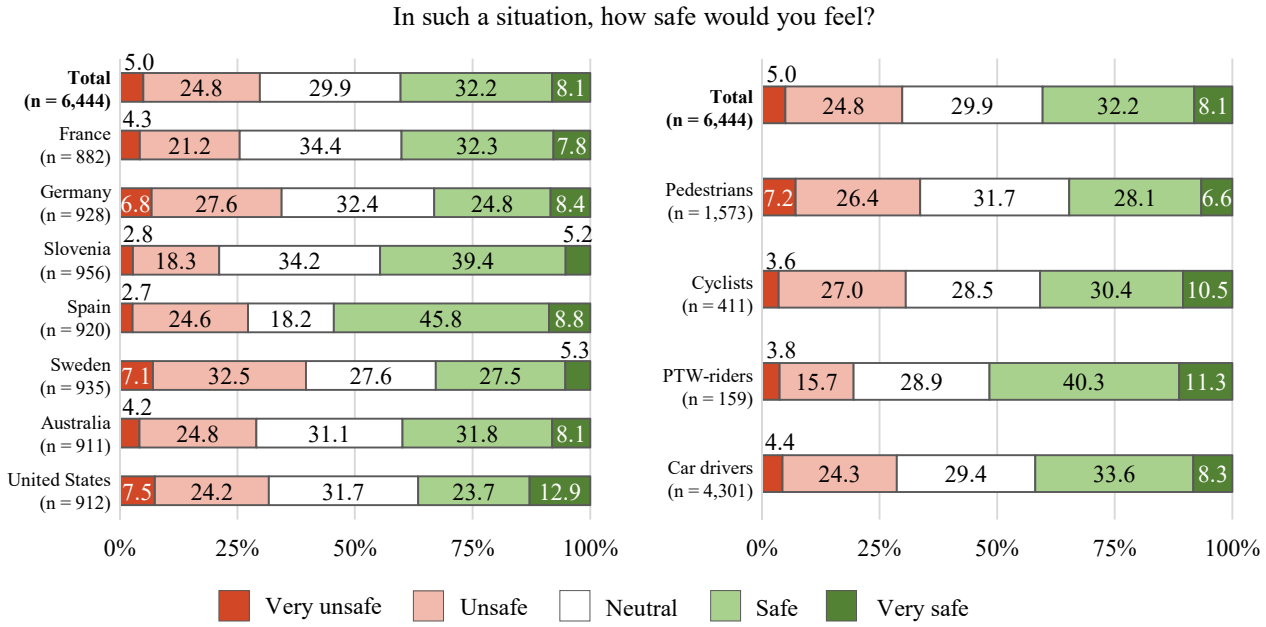

Figure 6: Subjective feeling about personal road safety – by country and main mode of transportation

6.3.2 Trust in the reliability of a conditionally automated car

The second question referring to that hypothetical traffic situation depicts the respondents' trust in the reliable action of the CAC. If the percentages for "I would strongly trust" and "I would trust" are added together, there is again a small relative majority of respondents (42.7%) who would trust in reliable action by the CAC – that is, granting right of way (see Figure 7). 29.7% of the respondents would not trust the CAC to act in accordance with the traffic rules. A roughly equal number of respondents (28.1%) were undecided in their assessment of the situation.

A very similar question on the respondents' trust in the CAC to act reliably was posed in the beginning of the questionnaire within the scale for general trust (see section 6.2). The similar wording enables a comparison of the general assessment and the assessment in the context of the fictitious traffic situation. It appears that respondents express less trust in the CAC in the specified traffic situation. In the general statement, 48.8% of the road users surveyed express trust in the reliability of CACs and 20.1% distrust (see Figure 5). In the fictitious traffic situation, a smaller percentage of 42.7% of the respondents would trust the CAC to act reliably and 28.1% would distrust the CAC to act reliably (see Figure 7).

The level of trust that respondents would place in the CAC in the given traffic situation varies significantly between the countries involved. Again, respondents from Spain (56.6%) and Slovenia (47.6%) place the highest share of trust on the CAC (see Figure 7). Whereas, again, respondents from Germany (39.8%) and Sweden (36.9%) indicate the highest mistrust on the reliability of CACs.

Again, the differentiation of the answers according to the respondent's main transportation mode points to statistically significant differences. More than half of the PTW-riders (52.3%) report that they would trust the CAC in such a situation (see Figure 7). But also the responses of cyclists (46.2%) and car drivers (43.3%) indicate that these groups of road users would have a pronounced trust in the CAC. With 39.4%, pedestrians comparably report the lowest level of trust in the reliable behaviour of the CAC. Statistical analyses differentiating the findings by gender and age result in two more statistically significant variations – with males having higher trust than females and younger respondents trusting more in a reliable action of the CAC than older respondents (see Annex C, Table C17).

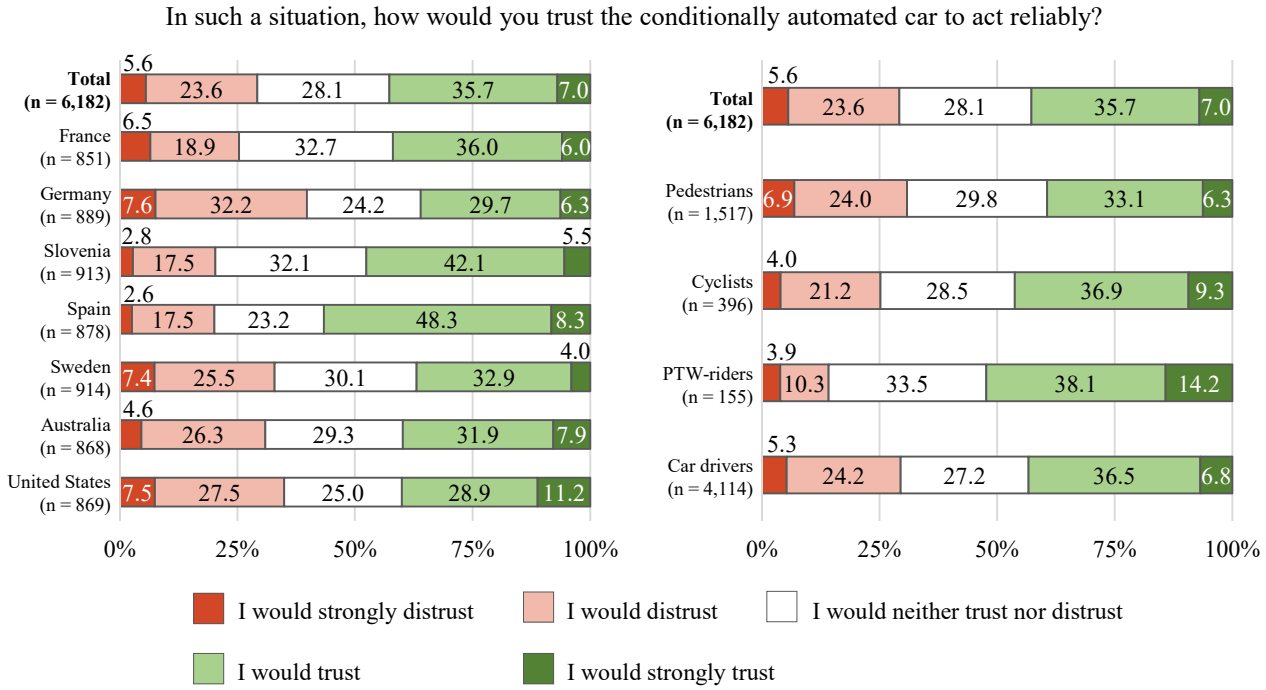

Figure 7: Specific trust in the conditionally automated car – by country and main mode of transportation

6.3.3 Preference of a human driver vs. a conditionally automated car

Facing such a traffic situation, respondents additionally were asked whom they would trust more – the human driver, the CAC in automated mode or both equally. For slightly more than half of the respondents (52.4%), the answer seems clear: In a traffic situation like the one described, they would trust a human driver more (see Figure 8). Only 16.1% of the respondents would trust a CAC in automated mode more than a human driver in such a situation. 31.5% of the respondents would trust the human driver and the CAC in automated mode equally. Consequently, as things stand today, almost half of all road users would classify a CAC in automatic mode as less trustworthy than a human driver – despite all expectations of improvements in road safety with the introduction of CAC.

As can be seen in Figure 8, respondents from the USA (63.5%) and Germany (57.3%) show particularly high preferences for a human driver. But also among respondents from Australia (53.9%) and France (52.2%), more than half of the respondents would trust a human driver more. In Sweden (48.2%), Slovenia (48.8%) and Spain (43.0%) the preference for the human driver falls below 50% but remains extremely high, though. These differences between the countries are statistically significant.

Likewise, differences between the users of the main transportation modes are significant. The highest share of trust solely on the human driver is identified among car drivers (54.5%) and pedestrians (49.1%; see Figure 8). Cyclists (46.2%) and PTW-riders s (43.3%) show less trust for the human driver. On the contrary, PTW-riders (25.5%) and cyclists (23.7%) would more often place trust only on the CAC in automated mode. In roughly equal parts, users of the various modes of transportation would trust the human driver and the CAC in automatic mode equally.

The response behaviour also differs statistically significantly according to gender and age. Females show a greater preference for the human driver as does the group of respondents over 55 years of age. The younger age categories have about the same preference (see Annex C, Table C18).

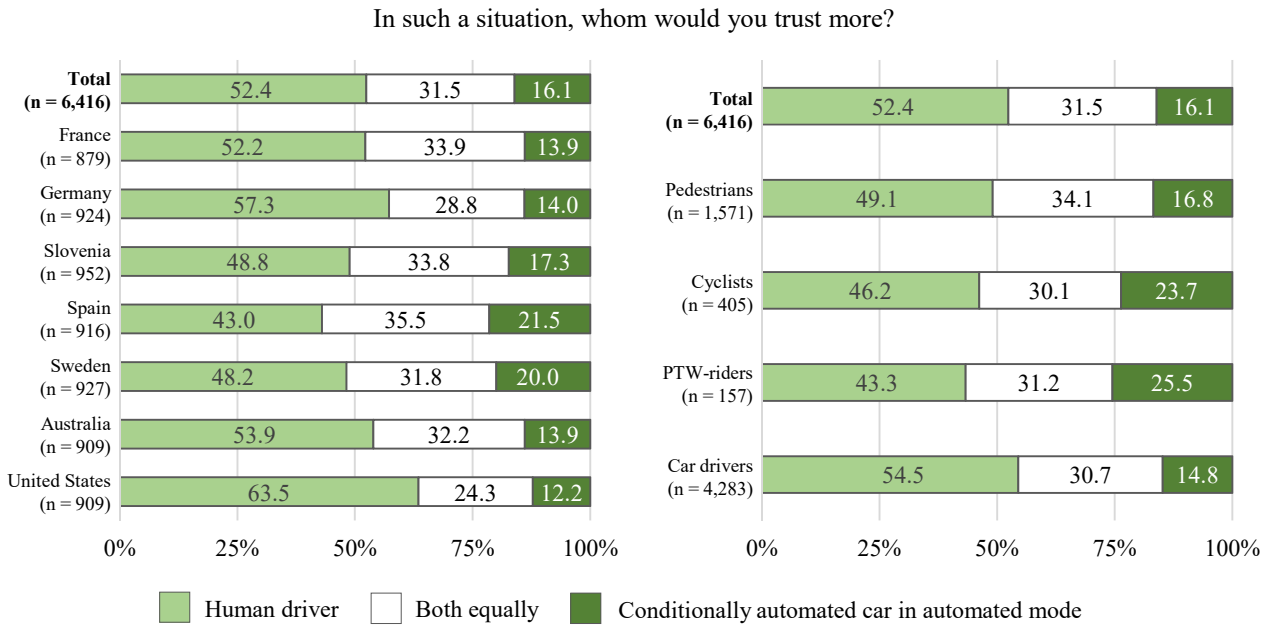

Figure 8: Specific trust in human driver vs. conditionally automated car – by country and main mode of transportation

6.3.4 Acceptance of conditionally automated cars

Three items that had been used for the measurement of the general acceptance of CACs were repeated in the context of their specific acceptance. In the online questionnaire they had been programmed to automatically adopt to the respective main transportation mode of the respondent:

- As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], I think conditionally automated cars will be easy to communicate with.
- As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], I think that conditionally automated cars will cause problems for me and other road users.
- As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], I think that conditionally automated cars will make roads safer.

Figure 9 presents an overview of the distribution of responses regarding these three statements. The first statement referring to an easy communication with CACs receives approval from 44.9% of the respondents. Another 28.8% do not take a clear position, while 26.3% reject this statement.

Looking at the significant country differences, Spain (59.8%) and Slovenia (59.3%) standing out with a high degree of agreement on an easy communication, while in Germany (33.4%) and the US (32.9%) respondents show the largest share of disagreement. The differences between users of the distinct main transportation modes are also statistically significant. Here, PTW-riders (52.5%) and car drivers (48.2%) show the strongest consent in an easy communication with CACs. Pedestrians and cyclists on the other hand expect more difficulties for future communication with CACs: 32.4% of the pedestrians surveyed emphasize that communication with a CAC will not be easy. Cyclists (31.7%) also stand out in their opinion that communication with CACs will not be easy.

The second statement assessing specific acceptance from the perspective of other road users refers to emerging problems for the other road users due to CACs. Four out of ten respondents (40.0%) agree that CACs will cause problems for themselves and the other road users. Additional 30.3% of the respondents neither agree nor disagree. Another 29.8% of the road users surveyed disagree with the statement and expect no problems caused by the introduction of CACs in road traffic.

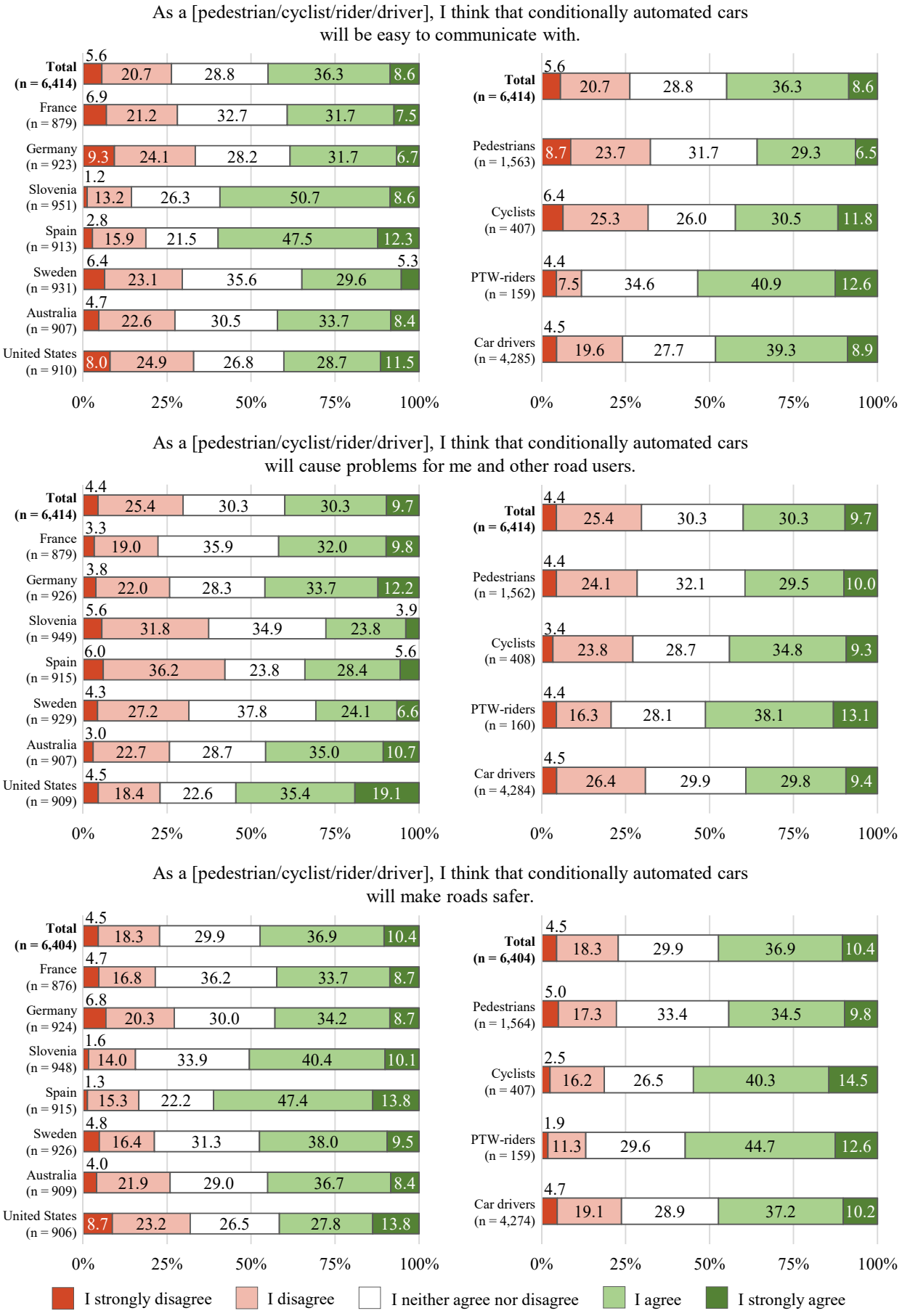

Figure 9: Specific acceptance of conditionally automated cars – by country and main mode of transportation

Differentiated by the countries, road users from USA (54.5%), Germany (45.9%) and Australia (45.7%) most often expect rising problems in road traffic due to CACs. Country differences are statistically significant, as do the differences between the main transportation modes: The highest level of agreement with the statement that CACs will cause problems for themselves and other road users can be found among PTW-riders (51.2%), with cyclists (44.1%) following thereafter. Pedestrians (39.5%) and car drivers (39.2%) are more or less equal compared to the total sample in their approval that CACs will cause problems.

The third item gains the greatest level of approval. 47.3% of respondents agree with the statement that roads will become safer with the introduction of CACs. About three out of ten respondents (29.9%) neither agree nor disagree with this statement and 22.8% of the respondents reject the expected benefit expressed in this item.

The level of support for the item in the separate countries varies statistically significantly in the way that is already known: Respondents from Spain (61.2%) most often expect positive effects of CACs on road safety. In Slovenia (50.5%), Sweden (47.5%) and Australia (45.1%), respondents also frequently assess the safety effectiveness of CACs as positive. In contrast, a comparatively smaller percentage of respondents in Germany (42.9%), France (42.4%) and the USA (41.6%) expect an improvement in road safety from the introduction of CACs.

The data analysis differentiated by the users of the main transportation modes also yields statistically significant differences. PTW-riders (57.3%) show the highest share of an expected increase of road safety due to CACs. Similar positive effects are hoped for by a majority of cyclists (54.8%). The expected improvement in road safety is comparatively smaller among car drivers (47.4%) and pedestrians (44.3%).

For the depiction of differences in the subgroups of gender and age, the index of the specific acceptance (see section 4.3.1) is used. On average the specific acceptance is $\overline{x} = 3.12$ on a scale ranging from 1 to 5. The findings from the bivariate analyses presented in Table 13 confirm already introduced results referring to the separate countries. Regarding gender, male road users ($\overline{x} = 3.23$) show a larger specific a priori acceptance than the female road users ($\overline{x} = 3.01$). According to age, the oldest age group covering respondents aged 55 and older ($\overline{x} = 2.84$) mainly differs from the three younger age groups. PTW-riders show the highest value of the road user specific acceptance of CACs ($\overline{x} = 3.22$). Whereas car drivers ($\overline{x} = 3.15$) and cyclists ($\overline{x} = 3.14$) are almost equal in their attitudes, pedestrians show the lowest rate of acceptance ($\overline{x} = 3.04$) measured by the average value.

Table 13: Index of road user specific acceptance differentiated – by set of independent variables

Variables	n	$\bar{x}$
Total	6,344	3.12
Country		
France	870	3.04
Germany	917	2.97
Slovenia	937	3.36
Spain	904	3.39
Sweden	916	3.12
Australia	901	3.05
United States	899	2.93
Gender		
Female	3,144	3.01
Male	3,198	3.23
Age group		
Up to 34 years	2,192	3.26
35 to 44 years	1,449	3.23
45 to 54 years	875	3.19
55 years and more	1,828	2.84
Main mode of transportation		
Pedestrians	1,544	3.04
Cyclists	401	3.14
PTW-riders	158	3.22
Car drivers	4,241	3.15

6.3.5 Multivariate analysis of road user group specific acceptance

In this section, the index of the road user specific acceptance of CACs will serve as dependent variable in a multivariate regression analysis. In regression analyses, the isolated statistical relations of the dependent variable with one or multiple independent variables can be investigated. Due to the metric scale and the approximate normal distribution of the dependent variable, a linear regression is applied and carried out.

Table 14 presents the results of the linear regression analysis that included 5,840 respondents. Ten variables were integrated in the regression analysis, covering variables of the socio-demographics, the mobility behaviour, the place of living, and predisposed attitudes as the personal innovativeness and the index of general trust in CACs. Overall, the independent variables in the statistical regression model explain 54.5% of the variance of the dependent variable (Adjusted $R^2 = 0.545$).

For the genders, the regression model proves a statistically significant negative relation. That means, that in contrast to male respondents, female road users have a lower specific acceptance of CACs.

Regarding age, a curvilinear relation between the age of the respondents and the dependent variable can be concluded from the statistically significant standardized coefficients for “Age in years” and “Age in years^2”.

Table 14: Linear regression analysis on the index of road users' specific acceptance

Variables	Standardized Coefficients	S.E.	p
Female (ref.: male)	-0.028	0.016	**
Age in years	0.128	0.003	*
Age in years^2	-0.125	0.000	*
Country (ref.: France)			
Germany	0.031	0.029	*
Slovenia	0.066	0.030	***
Spain	0.050	0.030	***
Sweden	0.033	0.029	**
Australia	0.008	0.030	
United States	-0.007	0.030	
Main mode of transportation (ref.: Car drivers)			
Pedestrians	-0.061	0.021	***
Cyclists	-0.045	0.034	***
PTW-riders	-0.040	0.051	***
Place of living			
Town	0.014	0.023	
Suburb	-0.004	0.025	
City	-0.003	0.025	
Education (ref.: low level of education)			
Middle level of education	0.002	0.024	
High level of education	-0.009	0.023	
Personal innovativeness	0.179	0.010	***
General trust	0.629	0.009	***
Count	5,840		
Adjusted R^2	0.545		

Further control variables: trips per day, frequency of car or PTW use;
*Level of significance: $p < 0.05$: *, $p < 0.01$: ** and $p < 0.001$: ****

The positive coefficient for age in years indicates that acceptance rises with increasing age under control of all other predictors. The negative coefficient for the squared age in years, however, points to a U-shaped course of the correlation.

As already suggested by the bivariate analyses, the country the respondents come from has also a statistically significant influence on the criterion variable in the multivariate analysis. In contrast to France, respondents from Spain and Slovenia in particular indicate a significantly higher acceptance of CACs. Respondents from Sweden and Germany also differ positively from respondents in France, whereas respondents from Australia and the USA do not differ significantly from the reference category France.

The respondents' place of living and their highest level of education which corresponds to the categories presented in Table 8 have no significant influence on the road users' specific acceptance.

The regression results reveal another interesting result concerning the chosen main mode of transportation. In contrast to drivers of conventional cars, the other road user groups – the VRUs – show a lower acceptance of CACs.

Compared to the standardized coefficients of the other variables, the general trust in CACs shows the relatively strongest positive and statistical significant relation with the specific acceptance. This finding is consistent with the existing research literature, which records trust as an essential predisposition in determining user acceptance (Ghazizadeh et al., 2012; Zhang et al., 2019). As the second psychological characteristic, the personal innovativeness also shows a statistically significant and positive relation with the specific acceptance of CACs. With higher trust but also with a higher personal innovativeness, the specific acceptance of CACs increases.

6.4 Expected benefits and concerns about conditionally automated cars

6.4.1 Expected benefits

Respondents were presented a list of eleven possible benefits that could be expected as a result of the introduction of CACs. For each possible benefit, respondents should indicate to which extent they share the benefit, using the categories "Not at all" (1), "Hardly" (2), "Moderately" (3), "Largely" (4) and "Totally" (5). The questions again were adopted to the different main transportation modes. The results are presented in descending order of the mean value ($\overline{x}$) in Table 15 for all respondents and by their main mode of transportation.

The respondents see the greatest advantages of CACs in automated mode in the keeping of a sufficient distance to other road users ($\overline{x}$ = 3.60), the quicker reaction in the event of emergency braking ($\overline{x}$ = 3.48), the strict adherence to traffic rules ($\overline{x}$ = 3.42) and the more predictably driving ($\overline{x}$ = 3.32). However, there are no significant differences in the response behaviour between the different road user groups.

Other items directly related to road safety were related to the aspects "Conditionally automated cars reduce road crashes" ($\overline{x}$ = 3.10), "With conditionally automated cars the other road users are safer" ($\overline{x}$ = 3.09) and "Conditionally automated cars do not have blind spots" ($\overline{x}$ = 2.82). Especially cyclists and riders of powered two-wheelers, as VRUs that share the roadway with cars, consider them as a greater advantage than pedestrians and driver of conventional cars.

In addition, statements on economic and ecological benefits expected from the introduction of CACs were also assessed. These included the reduction of emissions ($\overline{x}$ = 2.95), the decrease of travel time due to increased traffic flow ($\overline{x}$ = 2.94), lower costs for fuel, gas or electricity ($\overline{x}$ = 2.88) and a reduction of insurance premiums as a result to fewer road crashes ($\overline{x}$ = 2.80). As with the statements on road safety, the statements on economic and ecological benefits are throughout rated significantly more as an advantage by cyclists and PTW-riders.

In summary, findings suggest that two-wheelers – whether they travel by muscle power or motorized – expect the more positive effects for themselves from the introduction of CACs than pedestrians or car drivers.

Besides differences regarding the main mode of transportation, also significant differences in the responses by the country of residence, the gender and the age of the respondents can be observed (see Annex C, Tables C22-C32). In summary, the following conclusions can be drawn:

- Taking all of the items into account, respondents from Spain, Sweden and Slovenia regard the introduction of CACs as most beneficial. Across all eleven statements, these countries are most often among the three countries with the highest approval (Spain: among the top three in eleven statements; Sweden: among the top three in nine statements; Slovenia: among the top three in seven statements). By contrast, the assessment of the possible benefits of the introduction of CACs is lowest among respondents from Germany, France and the USA. These countries are most often among the three countries with the lowest approval over all eleven statements (Germany: among the bottom three in 6 statements, France: among the bottom three in 10 statements, USA: among the bottom three in 10 statements).

Table 15: Expected benefits – by main mode of transportation

As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], to what extent do you share the following expected benefits from a conditionally automated car in automated driving mode?		Total	Main mode of transportation				
			Pedes-trians	Cyclists	PTW-riders	Car drivers	Others
Conditionally automated cars keep sufficient distance to other road users.	$\bar{x}$	3.60	3.57	3.55	3.47	3.62	3.61
	n	6,587	1,578	410	161	4,319	119
In the event of emergency braking, conditionally automated cars react more quickly.	$\bar{x}$	3.48	3.46	3.47	3.42	3.50	3.38
	n	6,592	1,579	410	162	4,321	120
Conditionally automated cars strictly comply with the traffic rules.	$\bar{x}$	3.42	3.42	3.39	3.36	3.42	3.39
	n	6,586	1,577	409	160	4,320	120
Conditionally automated cars drive more predictably.	$\bar{x}$	3.32	3.35	3.32	3.33	3.31	3.17
	n	6,588	1,575	410	162	4,321	120
Conditionally automated cars reduce road crashes.	$\bar{x}$	3.10	3.08	3.22	3.19	3.09	2.88
	n	6,587	1,577	410	161	4,319	120
With conditionally automated cars the other road users are safer.	$\bar{x}$	3.09	3.07	3.19	3.24	3.09	2.82
	n	6,584	1,576	409	161	4,318	120
Conditionally automated cars cause fewer emissions.	$\bar{x}$	2.95	2.97	3.06	3.17	2.93	2.90
	n	6,587	1,579	408	159	4,321	120
Conditionally automated cars increase the traffic flow and thereby decrease travel times.	$\bar{x}$	2.94	2.95	3.18	3.00	2.92	2.72
	n	6,579	1,575	408	161	4,316	119
Conditionally automated cars lead to lower costs for fuel, gas or electricity.	$\bar{x}$	2.88	2.92	3.00	3.14	2.84	2.80
	n	6,583	1,574	410	162	4,318	119
Conditionally automated cars do not have blind spots.	$\bar{x}$	2.82	2.85	2.93	2.98	2.80	2.57
	n	6,584	1,575	411	161	4,318	119
Due to fewer crashes, the advent of conditionally automated cars reduces insurance premiums.	$\bar{x}$	2.80	2.78	2.99	3.00	2.79	2.51
	n	6,585	1,576	410	160	4,320	119

The grey cell markings indicate significant differences between the subgroups at the significance level p = 0.05.

- There are also significant differences according to the gender of the respondents. Males consistently assess the benefits of CACs more positively than females.
- According to the age of the respondents, it can be observed that the youngest respondents aged up to 34 years assess the possible benefits of CACs often more strongly than the other age groups. In contrast, respondents aged 55 years or more see the introduction of CACs the least beneficial.

6.4.2 Concerns

Similar to the expected benefits associated with the introduction of CACs, a list of potential concerns was also presented to the respondents. Again, respondents should indicate to which extent they share each concern,

using the categories "Not at all" (1), "Hardly" (2), “Moderately” (3), “Largely” (4) and "Totally" (5). Table 16 illustrates the results in descending order of the mean value ($\bar{x}$) over all respondents and by their transportation mode.

The two main concerns of the respondents regarding the introduction of CACs are of a technical nature, in particular “Conditionally automated cars might have programming errors or system failures” ($\bar{x}$ = 3.58) and “Conditionally automated cars might be hacked and remotely controlled” ($\bar{x}$ = 3.52). The third highest assessed concern relates to the reaction time when transferring control back from the CAC in automatic mode to the driver ($\bar{x}$ = 3.50).

Table 16: Concerns – by main mode of transportation

As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], to what extent do you share the following concerns about a conditionally automated car in automated driving mode?		Total	Main mode of transportation				
			Pedes-trians	Cyclists	Riders	Drivers	Others
Conditionally automated cars might have programming errors or system failures.	$\bar{x}$	3.58	3.61	3.48	3.24	3.59	3.67
	n	6,592	1,579	410	162	4,320	121
Conditionally automated cars might be hacked and remotely controlled.	$\bar{x}$	3.52	3.56	3.45	3.22	3.52	3.59
	n	6,585	1,579	406	160	4,319	121
Drivers might not react in time when they are requested to take control.	$\bar{x}$	3.50	3.53	3.45	3.34	3.50	3.55
	n	6,584	1,576	408	161	4,318	121
In the case of a crash with conditionally automated cars, it might be unclear who is legally liable.	$\bar{x}$	3.46	3.51	3.38	3.25	3.45	3.65
	n	6,588	1,580	410	162	4,316	120
Conditionally automated cars might not correctly predict the behaviour of other road users.	$\bar{x}$	3.45	3.47	3.33	3.32	3.45	3.55
	n	6,584	1,579	408	161	4,315	121
Conditionally automated cars might not react to unforeseen traffic situations.	$\bar{x}$	3.33	3.37	3.29	3.25	3.32	3.42
	n	6,588	1,580	407	162	4,319	120
Other road users might have problems in coordinating with conditionally automated cars.	$\bar{x}$	3.31	3.33	3.36	3.21	3.30	3.46
	n	6,584	1,575	407	160	4,321	121
Traffic situations might be too complex for conditionally automated cars.	$\bar{x}$	3.28	3.29	3.22	3.17	3.28	3.42
	n	6,591	1,579	410	161	4,320	121
The behaviour of conditionally auto-mated cars might be difficult to assess.	$\bar{x}$	3.20	3.20	3.19	3.25	3.20	3.34
	n	6,585	1,579	410	160	4,316	120
Conditionally automated cars might collect private data from other road users.	$\bar{x}$	3.19	3.19	3.20	3.21	3.20	3.00
	n	6,580	1,576	407	160	4,317	120
Conditionally automated cars might not detect other road users correctly.	$\bar{x}$	3.18	3.17	3.13	3.13	3.19	3.17
	n	6,591	1,580	409	162	4,319	121

The grey cell markings indicate significant differences between the subgroups at the significance level p = 0.05.

The introduction of CACs also raises concerns regarding legal implications. On the one hand, this is expressed in statement “In the case of a crash with conditionally automated cars, it might be unclear who is legally liable”,

which is rated on average as a concern with $\overline{x} = 3.46$. And on the other hand in the statement "Conditionally automated cars might collect private data from other road users", with an average approval of $\overline{x} = 3.19$.

With regard to the capabilities of CACs, the possibility of an incorrect prediction of the behaviour of other road users reaches the highest average value of $\overline{x} = 3.45$. This is followed by the possibly incorrect reaction to unforeseen traffic situations with an average value of $\overline{x} = 3.33$. The statements "Traffic situations might be too complex for conditionally automated cars" ($\overline{x} = 3.28$) and "Conditionally automated cars might not detect other road users correctly" ($\overline{x} = 3.18$) are less assessed as a concern.

Consequences that arise for other road users, such as the coordination with CACs ($\overline{x} = 3.31$) and the assessment of CACs' behaviour ($\overline{x} = 3.20$), are considered to be of modest concern.

Throughout all statements with significant differences, pedestrians and car drivers express greater concerns than cyclists and PTW-riders. Obviously, concerns are most pronounced with potential users of CACs (car drivers) and the most vulnerable group (pedestrians).

Again, besides differences regarding the main mode of transportation, there are also significant differences in the responses by the country of residence, the gender and the age of the respondents (see Annex C, Tables C33-C43). In summary, the following conclusions can be drawn:

- Taking into account the country of residence, it can be seen that respondents from Germany, the USA and Australia are most concerned about the introduction of CACs (Germany: among the top three in 11 statements; USA: among the top three in 9 statements; Australia: among the top three in 6 statements). In contrast, respondents from Slovenia, Spain and Sweden express the least concerns (Slovenia: among the bottom three in 10 statements; Spain: among the bottom three in 10 statements; Sweden: among the bottom three in 7 statements).
- With regard to gender, the concerns of females significantly outweigh those of males in ten of the eleven statements.
- In addition, respondents aged 35 to 54 years voice less concerns about CACs than respondents up to 34 years and respondents with an age of 55 years and more.

7 External HMI for communication with road users

7.1 Indication of automated mode

Respondents were asked whether the driving of a CAC in automated mode should be indicated to other road users (see Figure 10). A large majority of 82.6% of the respondents state that the indication of the automated mode should be implemented. The respective proportions differ significantly between the participating countries. Of all countries, respondents in Australia (86.7%) and Sweden (85.6%) most often request the indication of the automated mode. By contrast, slightly more respondents in Germany (22.3%) and Slovenia (22.0%) think that a special indication of the automated driving mode is not necessary.

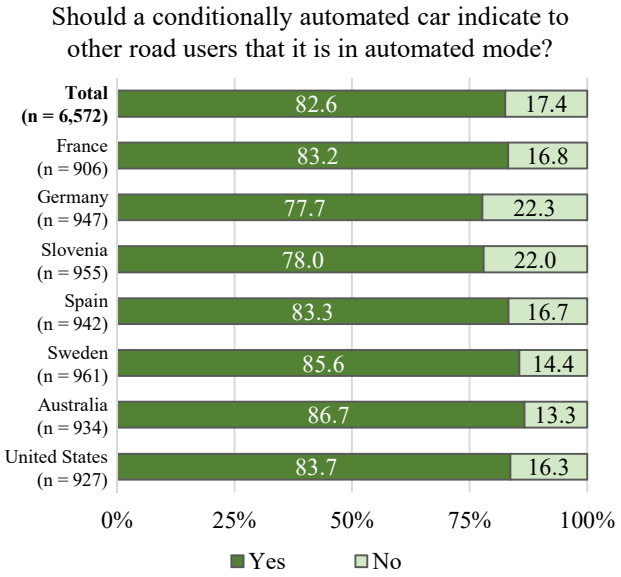

Figure 10: Indication of automated mode – by country

There are also significant differences regarding the desired display of the automated driving mode according to the main mode of transportation (see Annex C, Table C44). Especially pedestrians (85.0%) expect that the CAC should signalize the automated driving mode. With regard to the different age groups, it becomes significant that respondents aged 55 and older (85.5%) as well as respondents younger than 35 years (82.5%) more often agree to an indication of the automated mode. According to the gender of the respondents, however, no significant differences in their response behaviour appear (see Annex C, Table C44).

7.2 External HMI for pedestrians

In the BRAVE project, technical solutions for communication with other road users are developed. The GRAIL system[10] specifically addresses the use case of the communication of a CAC with pedestrians at a pedestrian crossing. To give advice for an appropriate design of such a system, the respondents were asked how an external HMI for the communication with pedestrians should look alike. For this purpose, respondents were asked to imagine being a pedestrian that intends to cross a pedestrian crossing without traffic lights. They were then asked how an approaching CAC should indicate that it has detected the pedestrian.

Initially, almost all respondents are basically in favour of a signalling of a CAC in that specific case at the pedestrian crossing (91.7%; see Table 17). Respondents from Germany express most frequently (12.5%) that no signals by the CAC are necessary to indicate that a pedestrian is detected. Respondents from Slovenia share this opinion least often (6.7%).

[10] For more details see https://www.youtube.com/watch?v=pfDrxVbVcto, last access at 02.04.2020.

The respondents can imagine different possibilities of how the signalling should take place. Overall, signalling by flashing lights at the car (35.8%) and a prolonged deceleration phase (29.5%) were mentioned most frequently. This tendency is also evident in most of the participating countries. Only in France, respondents prefer continuously glowing light signals at the car (35.5%) instead of flashing light signals (25.0%). Continuously glowing light signals in turn are the least favoured option by respondents in Slovenia (8.0%). In the USA, audio signals (26.8%) are mentioned second most frequently rather than the prolonged deceleration phase (25.1%).

Table 17: Signalling at a pedestrian crossing – by country (Multiple response question)

Imagine crossing a road at a pedestrian crossing without traffic lights: How should an approaching conditionally automated car indicate that it has detected you and give way?	Percent of respondents answering 'Yes'							
	Total	Country						
		FRA	DEU	SVN	ESP	SWE	AUS	USA
With flashing light signals at the car	35.8	25.0	34.2	37.8	35.8	35.0	41.3	41.4
By a prolonged deceleration phase	29.5	27.1	23.1	38.9	29.7	38.1	24.2	25.1
By projecting a signal onto the road	21.8	24.6	19.0	24.7	26.1	14.9	20.4	23.0
With continuously glowing light signals at the car	20.2	35.5	17.8	8.0	17.5	13.6	25.1	25.2
With audio signals	19.8	26.4	13.4	14.7	19.4	15.3	23.2	26.8
With text displays	11.4	14.0	9.0	14.2	4.6	10.6	14.2	13.3
Others, namely:	1.4	1.0	1.2	0.3	2.3	1.3	1.4	2.4
No signals necessary	8.3	7.0	12.5	6.7	8.0	8.0	9.1	7.1
Number of respondents	**6,596**	**908**	**947**	**960**	**943**	**965**	**938**	**935**

9,783 answers from 6,596 respondents (1.5 responses per respondent on average)

The grey cell markings indicate significant differences between the subgroups at the significance level p = 0.05.

When examining the alternative "flashing light signals at the car" more closely, significant differences in response behaviour become noticeable regarding the age and the gender of the respondents. Firstly, older respondents aged between 45 and 54 (36.6%) as well as 55 years and older (39.3%) prefer flashing light signals as an indication for the detection of a pedestrian more frequently than younger respondents aged up to 34 (34.8%) or between age 35 and 44 (32.4%). Secondly, regarding the gender of the respondents, the only identifiable difference is that males (37.2%) prefer flashing light signals slightly more than females (34.4%). In contrast, the response behaviour across the selectable signalling modes does not differ significantly between the main modes of transportation.

The consent to the response option "prolonged deceleration phase" also differs between the age groups and the gender of the respondents. While more than three out of ten respondents up to the age of 54 express their support for the prolonged deceleration phase, this is only the case for 25.5% of the respondents with an age of 55 years and more (up to 34 years: 31.6%; 35 to 44 years: 30.6%; 45 to 54 years: 31.2%). Regarding gender, it can be seen that the prolonged deceleration phase is a useful option for 53.7% of female and 46.3% of male respondents. Again, the responses do not differ between the four modes of transportation.

In conclusion, the different possible signalling options selected by the respondents indicate that a combination of different variants appears to be useful. This also emerges from a closer look at other variants of signalling, which respondents were able to explain in more detail using a text response frame. Among the open text answers, the combination of acoustic and visual signals was frequently mentioned (12.7%), which would also be beneficial to road users with sight or hearing problems, like blind and deaf people. As a result, it would be reasonable to combine flashing light signals at the car, a prolonged deceleration phase and audio signals for the adoption of CACs.

8 Ethical and legal considerations for the introduction of conditionally automated cars

As ethical and legal issues can affect the acceptance of a new technology, the population survey asked several questions about ethical and legal aspects of automated driving. The respondents' answers to ethical and legal statements are presented in this chapter.

8.1 Ethical considerations on behaviour of the conditionally automated car in an unavoidable crash

8.1.1 Assessment of ethical principles

Five statements were used to ask the respondents about ethical aspects:

- The conditionally automated car should always decide to minimise loss of life for all parties involved.
- The conditionally automated car should minimise negative impacts first on its passengers and then, if possible, on others.
- Life is sacred. Therefore, it is wrong for the conditionally automated car to decide to kill one person willingly, even if this saves the rest.
- There is no universal right or wrong, hence the conditionally automated car should take a decision that is moral in the specific society.
- The conditionally automated car should take a decision that is considered moral by its owner (and not necessarily by others).

Regarding the approval to the five ethical statements, it appears that "The conditionally automated car should always decide to minimise loss of life for all parties involved" receives the most approval (see Figure 11): Over 81% of the respondents agree with this statement, only less than 5% disagree. There are significant differences between countries with participants from Slovenia agree the most (87.7%) and respondents from Sweden the least (77.2%). Subgroup analyses of the age groups (the older the respondents are, the more they agree) and the main mode of transportation (car drivers and pedestrians do agree more than cyclists and those more than PTW-riders) are likewise statistically significant (see Annex C, Table C53).

The statement "The conditionally automated car should minimise negative impacts first on its passengers and then, if possible, on others" shows an approval rate of close to 53%, 16.0% of the respondents disagree and 31.2% select "neither agree nor disagree". Here, significant country-specific differences are also evident (see Figure 11). The respondents from Spain, Australia and the USA agree to 60% and more (Spain: 64.4%, Australia: 62.5%, USA: 59.9%), those from the other countries to less than 50%, with participants from Sweden (42.0 %) and Slovenia (42.6%) showing the lowest agreement. Finally, significant differences also occur for age groups (respondents being 55 years and older agree more than respondents up to age 34, whose approval is in turn higher than that of respondents aged 35 up to 44; respondents aged 45 to 54 agree the least) and for main transportation mode (PTW-riders agree the most, followed by car drivers, pedestrians and cyclists; see Annex C, Table C54).

Of all five statements, "Life is sacred. Therefore, it is wrong for the conditionally automated car to decide to kill one person willingly, even if this saves the rest" receives the second highest approval with 58.5%, 12.5% of the respondents disagree and 28.9% select "neither agree nor disagree". There are significant differences in the categories of the four differentiating variables country, gender, age and main mode of transport. But, while the differences between countries are large (approval differs between 46.1% in Sweden and 68.3% in France), the differences in the agreement between the genders (females: 60,1%, males: 57.0%), the age groups (range between 57.7% (respondents aged up to 34) and 60.3% (respondents aged 45 up to 54)) and main mode of transportation (range between 56.1% (cyclists) and 59.0% (car drivers)) are fairly small (see Annex C, Table C55).

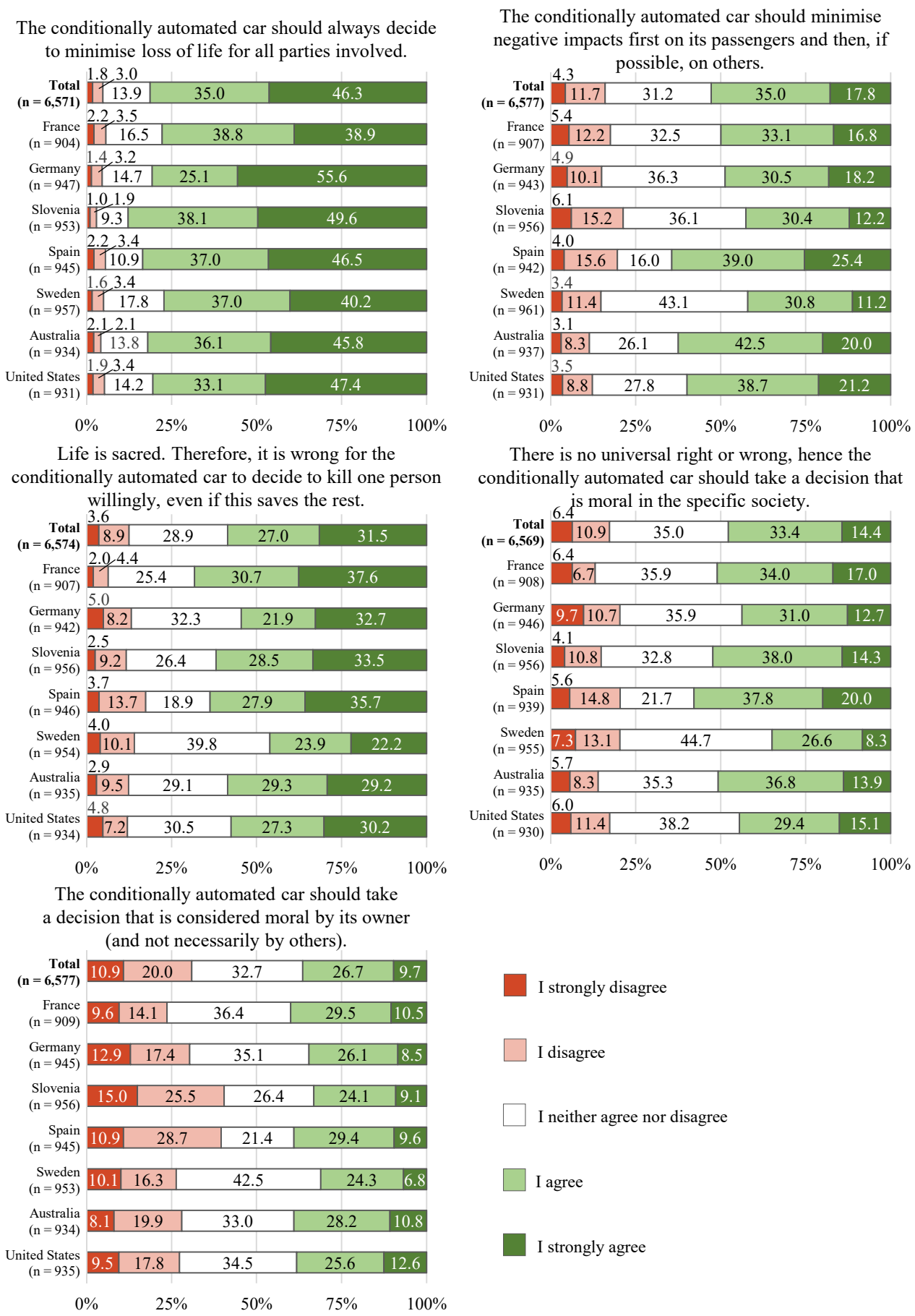

Figure 11: Overview on ethical principles – by country

The statement “There is no universal right or wrong, hence the conditionally automated car should take a decision that is moral in the specific society” receives the second lowest approval with 47.8%, 17.3% of the respondents disagree and more than a third (35.0%) is undecided(“neither agree nor disagree”) (see Figure 11). There are significant differences in the responses in the categories of all four independent variables country, gender, age and main mode of transportation. Considering the country of the respondents, the approval varies between 36.9% (Sweden) and 57.8% (Spain). Males agree more often than females (49.6% to 45.7%), cyclists and PTW-riders on the one side more than pedestrians and car drivers on the other side (54.3% resp. 53.5% compared to 45.6% resp. 45.9%). Regarding age, the approval differs between 45.9% (respondents aged 55 and older) and 53.1% (respondents aged 45 to 54; see Annex C, Table C56).

Regarding the five statements presented in the questionnaire, the statement “The conditionally automated car should take a decision that is considered moral by its owner (and not necessarily by others)” receives the least support (see Figure 11): Only 36.4% of the respondents agree, 30.9% disagree and 32.7% choose “neither agree nor disagree”. The answering patterns show significant differences between countries, age groups and modes of transportation: respondents from France (40.0%), Spain and Australia (both 39.0%) show the highest approval, the ones from Sweden the lowest (31.1%). The older the respondents, the less approval they show. Regarding the main transportation mode, the approval rate among pedestrians, cyclists and car drivers is low and relatively similar (between 34.0% and 37.1%), and it is significantly higher among PTW-riders (53.8%; see Annex C, Table C57).

Two results are worth mentioning: Firstly, significant differences in age, country and main mode of transportation can be found across all five ethical statements. Differences in gender can only be found in two statements. Secondly, if one compares the answers to the five statements, there is only one statement to which the overwhelming majority agrees: “The conditionally automated car should always decide to minimise loss of life for all parties involved”. For all other statements only relative majorities or even a rejection is found. Furthermore the mostly agreed item also shows the lowest proportion of respondents who stay undecided: compared to the other statements (28.9% up to 35.0%) there are significantly fewer respondents (13.9%) who do not decide on whether or not they agree with the statement (see Figure 11). But even here differences between countries occur: With the exception of the statement “The conditionally automated car should always decide to minimise loss of life for all parties involved” respondents from Sweden cannot or do not wish to decide most often and select the answer category “neither nor” (percentages between 39.8% and 44.7%).

The generally high percentages (between 28.9% and 35.0%) of “neither nor” answers to four of the five ethical statements (exception: ”The conditionally automated car should always decide to minimise loss of life for all parties involved”) indicate, that many respondents have not yet formed an opinion on certain ethical questions or feel overwhelmed to take a clear position on them.

Finally, it should be noted that, in principle, there is an inconsistency regarding the question of how CACs should behave in the event of a crash: More than 80% of the respondents agree with the statement “The conditionally automated car should always decide to minimise loss of life for all parties involved”, but also more than 50% state that the automated car should first protect its passengers. Obviously, there are crash situations where the two statements contradict each other and cannot be followed concurrently. This picture of a certain inconsistency with regard to ethical issues surrounding automated driving is also found in other empirical studies: most respondents agree with a (utilitarian) approach which states that in the event of a crash the automated car should minimize the overall number of fatalities. But at the same time, they want to sit in a car that protects the passengers against all other road users (Bonnefon et al., 2016).

8.1.2 Responsibilities for determining ethical guidelines

One question in the population survey was about who should set the guidelines for the behaviour of CACs in an unavoidable crash situation. The respondents had the opportunity to select their ‘favourites’ from a list of institutions and organisations; multiple answers were possible (see Table 18). More or less equally often the car manufacturer (41.8% of the respondents), government regulators (39.7%) and research facilities (38.2%) are named. Ethics councils (30.9%), the public (27.2%), insurance industry (22.8%) and representatives of car drivers (20.5%) are selected much less, religious representatives clearly receive the lowest approval (3.5%).

Table 18: Setting the ethical guidelines – by country (Multiple response question)

As mentioned before, conditionally automated cars must be programmed how to behave in an unavoidable crash situation. In general, who should set the guidelines for the behaviour of a conditionally automated car in such a situation?	Percent of respondents answering 'Yes'							
	Total	Country						
		FRA	DEU	SVN	ESP	SWE	AUS	USA
Car manufacturer	41.8	41.2	35.0	44.9	34.8	42.2	49.4	44.8
Government regulators	39.7	32.5	37.0	26.4	45.9	33.0	62.3	41.3
Research facilities	38.2	25.3	35.2	50.5	41.0	35.9	40.6	38.2
Ethics council	30.9	35.1	26.7	35.7	31.2	32.4	32.8	22.6
Public	27.2	27.0	27.8	28.9	16.5	27.4	30.3	32.7
Insurance industry	22.8	31.4	17.3	12.4	17.1	25.6	26.2	30.0
Representatives of car drivers, like automobile clubs	20.5	19.0	25.5	21.1	18.4	13.3	26.9	19.1
Religious representatives	3.5	2.2	5.5	1.5	1.7	2.9	4.7	6.0
Others, namely:	2.7	2.2	4.2	1.7	2.4	3.4	1.8	3.0
Number of respondents	**6,584**	**905**	**944**	**957**	**946**	**961**	**938**	**933**

14,961 answers from 6,584 respondents (2.3 responses per respondent on average)

The grey cell markings indicate significant differences between the subgroups at the significance level p = 0.05.

There are significant differences regarding all the possible answers between the participating countries. For example, 31.4% of the participants from France mention the insurance industry, but only 12.4% of those from Slovenia. Or 25.5% of the respondents from Germany quote representatives of car drivers, but only 13.3% of those from Sweden.

The differentiation of the answers according to the age of the respondent is statistically significant across all response possibilities. Most approval to the suggestions "insurance industry", "car manufacturer", "government regulators", "representatives of car drivers" and "others" is expressed by the oldest respondents (55 years and older), whereas most approval to "public", "ethics council" and "religious representatives" is expressed by the youngest respondents up to age 34 (see Annex C, Tables C58-C66).

With regard to the main mode of transportation, there are no significant differences regarding the possible answers "insurance industry", "representatives of car drivers" and "others". "Public", "ethics council" and "government regulators" encounter the greatest approval among pedestrians, "car manufacturers" among drivers, "research facilities" among cyclists, and "religious representatives" among PTW-riders. Considering gender, significant differences of approval can be found towards "insurance industry", "car manufacturer", "others" (higher approval by females), "government regulators" and "religious representatives" (higher approval by males; see Annex C, Tables C58-C66).

8.1.3 Decision-making authority on the behaviour of the car

Hence, besides questions on ethical standpoints, the respondents were asked "Who should have the ultimate decision about how the conditionally automated car behaves in the event of a crash?" The questionnaire offered two answer possibilities: "The regulations in the event of a crash should be preset and mandatory for all conditionally automated cars" or "The preset regulations of conditionally automated cars in the event of a crash should be modifiable by the car drivers". Almost three quarters of all respondents (72.0%) are in favour of a

mandatory regulation, 20.7% prefer the possibility of a modification by the car driver and 7.4% gave no answer (see Figure 12).[11]

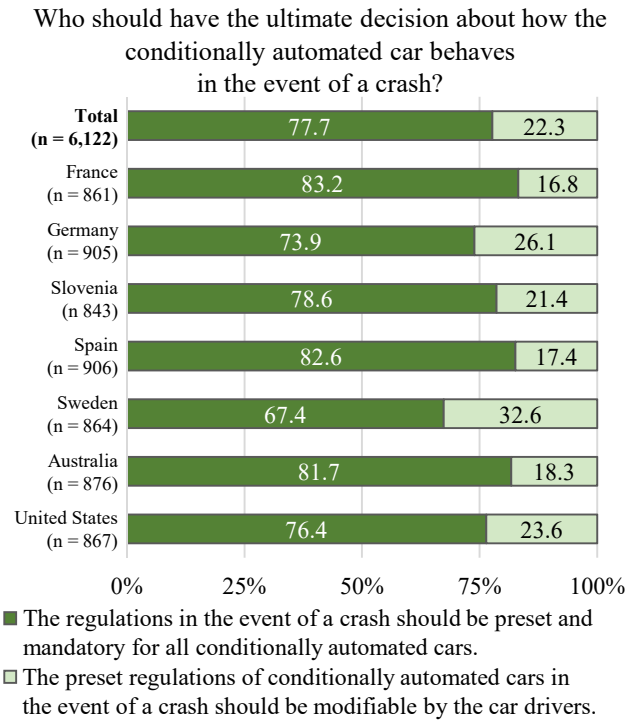

Figure 12: Who should have the ultimate decision – by country

The differentiation of the answers according to the respondent's country points to statistically significant differences (see Figure 12). For Europe, the extremes can be identified in Sweden and France: Nearly one third of the Swedish respondents (32.6%) prefer a modifiable setting compared to only 16.8% of the French respondents. The differences according to the respondent's main transportation mode are statistically significant, too: pedestrians, cyclists and car drivers answer almost equally (77.5% to 77.9% agreement for a mandatory setting), while the approval was lower among the PTW-riders (69.0%; see Annex C, Table C67). The differences between females and males as well as between age groups are not significant. The very high proportion of "no answer" (7.4%) compared to all other questions of the population survey indicates that there is a considerable number of respondents for whom this question was too complex to answer at this point or who did not (yet) want to decide.

It is also worth mentioning that the low level of approval (22.3%) for the statement asking for individually modifiable regulations of CACs in the event of a crash is in line with the approval rate to the statement "The conditionally automated car should take a decision that is considered moral by its owner (and not necessarily by others)" (see section 8.1), only 36.4% agree with this statement.

[11] Respondents indicating "no answer" are considered as non-valid cases that are not included in the further analysis. Therefore, the percentages in the diagram (Figure 12) do not refer to all answers, but to the 92.6% of the respondents who chose one of the two answers.

8.2 Legal considerations for the introduction of conditionally automated cars

8.2.1 Liability in the event of a crash

In the event of any crashes caused by a CAC in the automated driving mode, the question of liability arises. One possibility would be to assign the respective responsibility to the car manufacturer who is responsible for the production and programming of the CAC. Another possibility would be to make the car owner liable for her/his CAC. It would also be imaginable to attribute liability to the person behind the steering wheel, since this person has not taken control in time to possibly prevent a crash. The respondents' perceptions in this regard are illustrated in Figure 13.

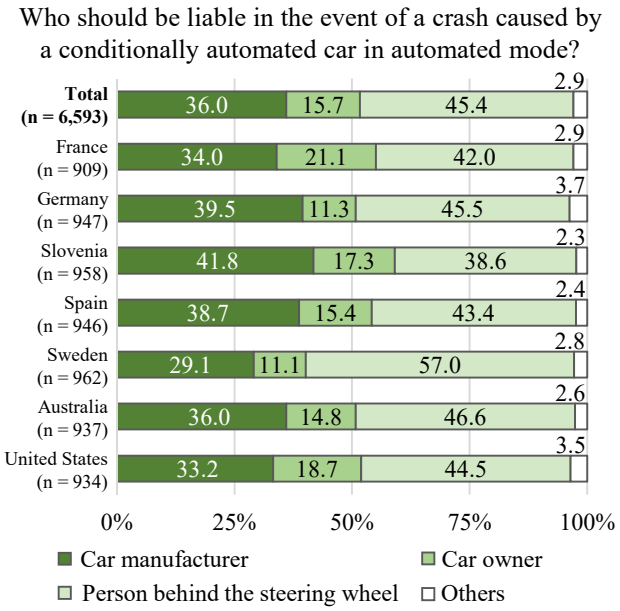

Figure 13: Liability in the event of a crash – by country

In the event of a crash, almost half of the respondents would attribute the responsibility to the person behind the steering wheel (45.4%). This means that the respondents do not release the "driver" / passenger of a CAC from responsibility even in automated driving mode. 36.0% of the respondents consider that the car manufacturer should be liable in the event of a crash caused by a CAC. The respondents see the liability for the accident least of all with the car owner (15.7%). Among the 190 respondents who select the answer category "Others", 25.3% state that the decision on liability should depend on the specific crash situation and should therefore be decided in each case individually.

However, there are significant differences between the respondents' country of residence (see Annex C, Table C68). In most countries, the share of respondents who see the liability in the person behind the steering wheel outweighs the proportion who see it with the car manufacturer. Especially in Sweden, the majority of respondents (57.0%) shares this opinion. The only country where more respondents believe that the liability should lie with the car manufacturer is Slovenia (41.8%). The perception that the person behind the steering wheel should be liable in the event of a crash is also higher among females than males and increases with the age of the respondents (see Annex C, Table C68). When considering the main mode of transportation, only PTW-riders mention the liability by the car manufacturer more often than the liability of the person behind the steering wheel. Furthermore, PTW-riders choose the answer option "car owner" more frequently than any other group of respondents (25.0%).

8.2.2 Access to stored data

While driving, a CAC collects a great amount of data. These can include data relating to the car itself, such as the speed or the GPS coordinates. Another type of data can be related to the environment of the car, e.g. other road users that have been scanned for detection. As a consequence, the question arises whether certain persons or institutions should be granted access to the data collected. The opinion of the respondents on this issue is presented in Table 19.

Table 19: Access to collected and stored data – by country (Multiple response question)

While driving, a conditionally automated car collects a great amount of data (e.g. location, speed, driving history) and stores some of it. Who should have access to this data?	Percent of respondents answering 'Yes'							
	Total	Country						
		FRA	DEU	SVN	ESP	SWE	AUS	USA
Car owner	65.0	63.7	57.1	71.7	68.4	60.5	67.0	67.6
Police	52.2	58.1	48.9	48.9	52.4	58.0	57.8	41.5
Insurance company	36.2	42.5	24.1	22.8	30.7	46.2	44.8	42.9
Car manufacturer	28.2	30.9	16.5	26.3	22.3	35.1	34.7	31.8
Others, namely:	0.8	1.3	0.2	0.4	0.8	1.5	0.9	0.7
Nobody	9.3	7.4	17.4	6.9	5.8	8.7	8.3	10.7
Number of respondents	**6,600**	**909**	**948**	**961**	**946**	**965**	**936**	**935**

12,661 answers from 6,600 respondents (1.9 responses per respondent on average)

The grey cell markings indicate significant differences between the subgroups at the significance level p = 0.05.

Overall, the person to whom the majority of respondents would provide access to data is the owner of the car (65.0%). The second most frequently mentioned answer option is the police (52.2%). Approximately every third respondent would grant access to insurance companies (36.2%) and less than three out of ten respondents mention the car manufacturer (28.2%). In contrast, only 9.3% of the respondents believe that the collected data should not be accessible to anyone.

Although the percentages of data access granted to the parties introduced significantly vary between the countries participating in the population survey, car owners and the police are cited most frequently in most countries. The only exception is the USA, where respondents are slightly more likely to provide insurance companies (42.9%) access to the data compared to the police (41.5%). It is also striking that respondents in Germany express significantly more often that the data should not be made accessible to anyone (17.4%).

Considering the socio-demographic variables, significant differences are also evident in the assessment of data access (see Annex C, Table C69). With increasing age, respondents are more frequently willing to grant access to the police. Pedestrians also support granting access to the police more often than other road users. Regarding the access to data by car owners, females are slightly more willing to do so than males. However, among the road user groups, the majority of PTW-riders would not grant data access to car owners.

In a next step, it would need to be clarified in advance of the introduction of CACs whether certain persons or institutions should generally be granted access to the data, or whether this would require certain criteria to be met, such as the existence of a crash or a judicial decision. The latter was mentioned by 20 respondents.

8.2.3 Special training for drivers of conditionally automated cars

The tasks of drivers of CACs differ to some extent from those of drivers of conventional cars. Especially the transfer from the automated mode back to the driver is a challenge that drivers of conventional cars do not

have to deal with so far. For this reason, respondents were asked whether drivers of CACs should receive special training. The responses provide a clear and definite picture (see Figure 14). 87.7% of the respondents considered that drivers should be specially trained for driving a CAC. This request is prominent in all the participating countries and ranges from 85.2% in Sweden to 89.9% in Australia.

Taking into account the gender of the respondents, it can be observed that females (91.0%) are significantly more in favour of a special training for CAC-drivers than males (84.3%, see Annex C, Table C75). Moreover, the preference for a special training increases significantly with the age of the respondents. While the proportion of supporters of a special training among respondents under age 35 is 84.6%, this proportion is 91.7% among respondents aged 55 or more. Considering the main mode of transportation, it can be stated that the proportion of people in favour of a special training is lowest among PTW-riders (74.7%). Among pedestrians (87.7%), cyclists (85.6%) and car drivers (88.1%), the preference for a special training is approximately equally prevalent.

There are various possibilities for a special training. For example, it could take place in the form of an accompanied test drive when buying the car, as a training or simulator video, or as a special course in a driving school. At present, it remains to be discussed how exactly the special training should be organised.

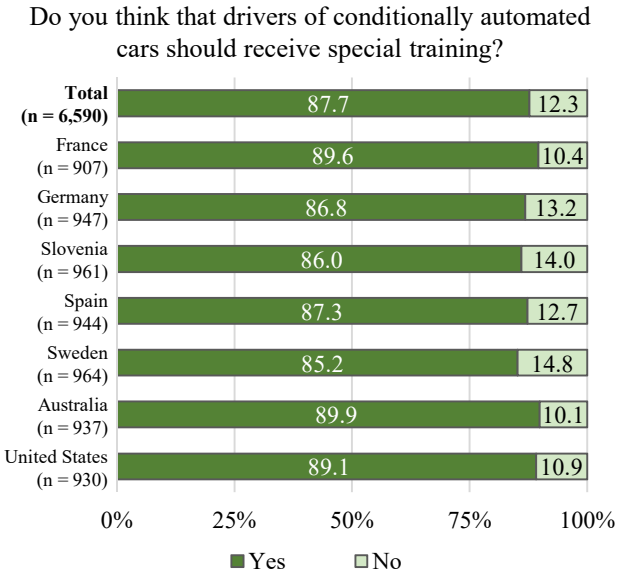

Figure 14: Special training for drivers of conditionally automated cars – by country

9 Summary

Through the ongoing development of automated vehicle technology, it is foreseeable that the introduction of CACs at SAE Level 3 might become real in the near future. The advent of CACs does not only require the solution of technical challenges. It also opens up a multitude of political and social questions that have to be addressed to ensure a safe adoption of this new vehicle technology.

The multidisciplinary BRAVE project funded by the EU research programme Horizon 2020 intends to path the way for a successful introduction of CACs by assuring the acceptance of all relevant stakeholders, especially other road users affected. For that reason, a population survey of road users aged 18 years and older was conducted to explore the opinions of all road users and especially of the VRUs – pedestrians, cyclists and motorcyclists – on CACs. This survey was conducted in the seven countries of the project partners – in the EU member states France, Germany, Slovenia, Spain and Sweden as well as in Australia and in the USA.

Methods and sample

The questionnaire used in the survey was multi-topic and covered a priori acceptance of and trust in CACs from a non-user perspective as well as the external communication of a CAC with other road users and questions on ethical and legal issues. The elaboration of the content of the questionnaire was based on an extensive interdisciplinary literature review and the implementation of focus group discussions, both carried out in the beginning of the BRAVE project.

The international survey was carried out with the use of an online survey (CAWI) from December 2019 to February 2020. Respondents were recruited via online access panels and their selection was regulated by quotas for biological sex, age and region. In each of the seven countries, 1,000 respondents answered the questionnaire. The selected method for the recruitment required the use of appropriate measures to identify so-called “straightliners” and “speedsters” while answering the questionnaire. At the end of the data cleaning process, 6,608 respondents remain in the dataset for further analysis. Available comparisons between the sample in the BRAVE population survey and official population statistics from the UN or results of the probabilistic population survey ISSP show that the surveyed population approximately reflects the population in the seven countries. Respondents in the BRAVE population survey are younger on average, tend to live in an urban or urbanised environment and are – in terms of its socio-economic status – more strongly located in the middle and upper social strata. Further, data on the mobility behaviour of the respondents reveal the modal split of the used main transportation modes: 65.5% of the respondents mainly use the car, 24.0% walk, 6.2% ride a bicycle, 2.5% ride a motorcycle (PTW) and 1.8% report another main mode of transport.[12, 13]

General acceptance and trust

The findings on the general a priori acceptance measured by six statements in section 6.1 provide a first impression of the respondents’ opinions on the new vehicle technology. The highest agreement was given to the expected usefulness of CACs (64.0%).[14] Road users also expect an increase in road safety (48.0%). Communication with a CAC (45.9%) and its ease of use (40.2%) are also assessed quite positively. In assessing whether to use a CAC when available and whether CACs will cause problems for other road users, a disagreeing attitude exceeds the agreeing vote. The summative index of general acceptance, used for the subgroup analyses, reveals a rather varying acceptance between the different countries with Spain and Slovenia having the highest index score. Further, the subgroup analysis demonstrates a lower general acceptance of

[12] Public transport is omitted, respondents should consider the way to or from public transport for the indication of their main transportation mode.

[13] Further variables on the characteristics of the sample have been collected in the population survey, such as the place of living, the use of cars or PTWs as well as the experience with ADAS and the personal innovativeness (see chapter 5). These variables were only marginally used in this report, but are available for further subsequent studies, especially with multivariate analyses.

[14] Here and in the following: Sum of shares for “I strongly agree” and “I agree” of the respective item, respectively the sum of shares for “I strongly disagree” and “I disagree”.

CACs for females compared to males as well as for the respondents aged 55 and older compared to their younger counterparts. Similar findings regarding gender and age are well-known in the existing research literature. Statistical analysis of differences between the respondents' main transportation mode does not yield a significant result.

These findings demonstrate a basic acceptance of CACs among the respondents. Nevertheless, a certain scepticism about its suitability for everyday use in road traffic and for one's own mobility can be detected. Both results are confirmed in the research literature, which shows both the fundamental acceptance and scepticism towards the practical usage and the suitability of CACs.

Referring to the general initial trust in CACs, a rather positive picture is drawn from the respondents' answers (see section 6.2). Almost half of the respondents believe that CACs will be dependable, will act reliably and that they will trust in CACs. The general trust index shows similar differences between socio-demographic subgroups as observed for the general acceptance: With Spain and Slovenia again showing the highest scores as well as males and respondents younger than 44 years. Respondents who mainly use a PTW or a bicycle during the week report higher trust in CACs than pedestrians and car drivers.

Road user group specific trust

The questionnaire described a fictitious traffic situation to the respondents in which they had to imagine an interaction with a CAC according to their stated main transportation mode. Pedestrians hypothetically met the CAC at a pedestrian path, for cyclists, PTW-riders and car drivers the fictive scenario was a crossroads situation. In this situation, respondents had right of way and they would have to trust the CAC in automated mode to grant right of way.

As stated in section 6.3.1, in such a situation, 40.3% respondents report to feel safe or very safe – with 29.8% stating to feel unsafe or very unsafe. PTW-riders document the highest share of feeling very safe or safe (51.6%) followed by car drivers (41.9%) and cyclists (40.9%). With only 34.7% who would feel safe or very safe, pedestrians express the greatest uncertainty in their traffic situation. The distinct road user groups differ statistically significantly in their response behaviour – as do the respondents' countries, the genders and the age groups.

Similar findings can be observed in section 6.3.2 where respondents' answers on trust in a CAC to act reliably is reported. There again, pedestrians state the lowest share of trust in CACs with 39.4%. The highest share is stated by the PTW-riders (52.3%), whereas cyclists (46.2%) and car drivers (43.3%) are almost equal off. The so far known answer patterns of subgroup analyses are also confirmed here: Males confirm a higher level of trust, just as the younger ones do in comparison to older respondents. The comparison of the countries also supports previous findings with respondents from Spain and Slovenia expressing the highest level of trust.

Slightly contradictory are the results reported in the subsequent section 6.3.3. Here, respondents document whom they would trust more in the respective traffic situation. More than half of the respondents (52.4%) say, that in such a situation, they would trust a human driver more. Only 16.1% would trust the CAC more and 31.5% would trust both equally. Differentiated by the main transportation mode, car drivers and pedestrians put more trust in the human driver than cyclists and PTW-riders. Vice versa, cyclists (23.7%) and PTW-riders (25.5%) more often trust the CAC in automated mode. These findings suggest a preference of two-wheelers for CACs that might be caused by previous experiences and conflicts with human car drivers. Moreover, in view of the findings on road user group specific trust, pedestrians apparently report the least confidence in CACs in the context of the fictitious traffic situation.

Road user group specific acceptance

In the context of the fictitious traffic situation and from their point of view as a pedestrian, cyclist, PTW-rider or car driver, three acceptance items dedicated to the road user perspective were repeated. In this context, 44.9% of respondents indicate with their agreement that they expect an easy communication with CACs (see section 6.3.4). PTW-riders and car drivers show the strongest consent in an easy communication with CACs. Pedestrians and cyclists expect more difficulties for future communication with CACs. The second statement referring to emerging problems for the other road users due to CACs was agreed on by four out of ten respondents. The highest level of agreement with this statement can be found among PTW-riders and cyclists.

Pedestrians and car drivers do expect less problems. Third, 47.3% of the respondents anticipate an improved road safety from their point of view. The majority of PTW-riders and of cyclists expect more road safety with CACs. The expected improvement is only slightly less pronounced among car drivers and pedestrians.

Differences in the subgroups of country, gender and age were analysed with a calculated index consisting of the three items depicting road user group specific acceptance. Respondents from Spain and Slovenia show the highest means on this index whereas road users surveyed in Germany and the USA show the lowest means. As before, males as well as younger respondents report higher acceptance of CACs from their specific point of view as road users.

Many of the described bivariate relationships could be confirmed in a multivariate linear regression analysis that is described in section 6.3.5. The index for road user group specific acceptance serves as the dependent variable. Findings reveal that females show a lower acceptance of CACs, as do older respondents. Also in this context, respondents from Spain, Slovenia and Sweden turn out to be the largest proponents of CACs. With regard to the road user groups, the multivariate analysis shows that the acceptance of pedestrians, cyclists and PTW-riders is lower than that of car drivers under control of the other variables. However, the greatest predictors of acceptance are personal innovativeness and general trust in CACs and thus point to the considerable importance of a predisposing attitude in the formation of acceptance.

Expected benefits and concerns

The foreseeable introduction of CACs is linked to expectations and concerns on the part of road users, as can be seen in previous studies. In this BRAVE population survey, therefore, the aim is to look at expectations and concerns from the perspective of different kinds of road users. As outlined in section 6.4.1, the four most expected benefits of CACs relate to safer driving behaviour: sufficient distances to other road users, better emergency braking reaction times, stricter adherence to traffic rules and more predictable driving. The assessed benefits clearly indicate an expected improvement in road safety and less conflicts and crashes on the road. Issues of environmental sustainability or improved traffic flow are given a lower priority. With regard to the individual groups of road users, it can be concluded that two-wheelers in particular, whether on bicycles or motorcycles, expect the introduction of CACs to have an increased positive impact on themselves as road users.

At the same time, the potential introduction of the CACs raises concerns, which have also been questioned with a special focus on road users. The three concerns most strongly emphasised are those relating to the reliable functionality of the CAC, which are documented in section 6.4.2. These include the possibility of system failures, hacker attacks or the take-over situation of a CAC. The unresolved question of liability in the case of a crash and the technical ability to detect the behaviour of other road users are emphasised as further possible problems – concerns that have already been mentioned frequently in the research literature. If the opinions of road users statistically differ, it is mainly pedestrians and car drivers who see the concerns as more serious. In addition, it is increasingly females who express concerns more strongly than males. Whereas it is the males who emphasise the expected benefits of the CACs more strongly than their female counterparts.

Communication with external HMI

Chapter 7 compiles the questions that deal with external HMI for communication with other road users. Regarding the indication whether a CAC is in automated mode, the respondents find a clear answer: 82.6% are in favour of such a signal. Noticeable differences between countries are less pronounced and in all countries more than three quarters of the respondents support such an indication. Pedestrians and respondents in the lowest and highest age categories support such a measure in particular.

To support the technical development of an external HMI communicating with pedestrians, respondents were invited to state their preference how the signalling should look alike. From the findings it can initially be concluded that more than nine out of ten respondents would prefer a signalling. The three most chosen options of indicating that the CAC is giving way are a flashing light signal (35.8%), a prolonged deceleration phase (29.5%) or a continuous light signal (21.8%). The preferred solutions, however, differ slightly from country to country which might complicate the choice of one uniform signalling for a worldwide use. To overcome impairments, a combination of different variants, such as visual and acoustic signals, appears to be useful.

Ethical considerations in the event of a crash

The ethical dimension of the introduction of CACs becomes apparent in the need to program the behaviour of the CAC in the case of an unavoidable crash. The rationale for such a decision could be based on ethical principles, of which five were presented to the respondents in the BRAVE population survey and which are discussed in more detail in section 8.1.1. The clearest approval (81.3%) is given to the statement that in the event of a crash, the number of fatalities of all the people involved in the crash should be reduced. On the contrary, there is an equally clear agreement with the two statements that first the passengers of the CAC should be protected (52.8%) and that no person should be killed willingly (58.5%). All statements reveal noticeable differences between the respondents' country of residence.

Further, about half of the respondents agree with the statement that the decision of the CAC should be moral by the specific society. In addition, more than a third of the respondents support the principle that in the event of a crash the behaviour of the CAC should be in accordance with the moral of the car owner. Again, statistically significant differences between the respondents' countries can be observed in both statements.

In the consideration of all five statements, an inconsistency can be observed which can also be found in other empirical studies: most respondents agree with an (utilitarian) approach which states that in the event of a crash the automated car should behave to minimize the overall number of fatalities. But at the same time, respondents tend to prefer to sit in a car that protects the passengers against all other road users. In addition, it is equally noticeable that respondents in the statements on ethical principles more often avoid a clear answer in comparison to other questions and apparently refuse a definite positioning.

Comparing the answers to the five ethical statements, it can be seen that partially contradictory statements receive high approval rates in each case. From that, it can also be concluded that it will be difficult to find internationally uniform and universal guidelines for programming CACs for such a case.

The sceptical attitude towards the statement that the CAC should behave according to the moral attitude of the vehicle owner becomes additionally apparent in a further question in section 8.1.3. There, more than three quarters of the respondents express the preference that the regulations in the event of a crash should be preset and mandatory for all CACs. Thus, the respondents oppose an individual modification of the respective regulations. Different attitudes of the respondents in the individual countries are also visible here, but hardly influence the clarity of this result. The lowest approval for such preset and mandatory regulations is documented for Sweden (67.4%).

In section 8.1, additionally, the question of who should participate in the formulation of such ethical guidelines for a CAC is examined. The respondents mainly advocate car manufacturers (41.8%), government regulators (39.7%) and research facilities (38.2%). Differences in the response behaviour become visible according to the respondents' country of residence and their age.

Legal considerations

In section 8.2.1 several questions about legal considerations that arise with the introduction of CACs are dealt with. One question is about the liability in case of a crash with the CAC in automated mode. In such a case, the respondents do not show a definite standpoint. In the case of a crash, they see mainly the person behind the steering wheel of the CAC in automated mode (45.4%) and the manufacturer of the CAC (36.0%) as being liable. These preferences are changing depending on the respondents' country of residence, whereby in Sweden most respondents see the driver of the CAC in automated mode as being liable and respondents from Slovenia more likely see the manufacturer in this role.

Another question, presented in section 8.2.2, refers to access to the data – e.g. recordings of the surroundings or GPS coordinates – that is collected in large quantities by the automated car while driving. A majority of respondents would allow the car owner and the police to access the stored data. A much lower share of respondents would allow access to insurance companies and manufacturers. Only about one out of ten respondents would not grant access to the data stored in the CAC to anybody. Once more, differences between the respondents' countries of residence become apparent and make it clear that transnational solutions could become difficult.

Lastly, in section 8.2.3 the question for a separate training for driving a CAC is answered. Almost nine out of ten respondents answer this question quite uniformly and plead for a special training before drivers are allowed to sit behind the wheel of a CAC at SAE level 3 for the first time – with females being even more in support of a special training.

10 Conclusions

The BRAVE population survey provides a reliable data basis that reflects the opinions of road users on the introduction of CACs in five EU member states as well as in Australia and the USA. In the statistical analyses varying differences in the attitudes, expectations and concerns of road users with regard to the introduction of conditionally automated vehicles (SAE Level 3) between the countries could be identified.

The initial trust in CACs is identified in the research literature as well as in the data analysis conducted in this report as an important prerequisite for acceptance of CAC. The available survey data shows that general trust in CACs appears to be fairly high. However, in the fictitious traffic situations, which nevertheless refer to the specific main modes of transportation used by the respondents, some doubts become apparent, which differ between the individual groups of road users.

Likewise, the findings on the acceptance of CACs, which in this study is being systematically collected for the first time from the perspective of different road user groups, indicates a rather positive attitude towards their introduction. However, behavioural intention of the road users to use a CAC is rather low. The acceptance of CACs is accompanied by high expectations of road users on the improvement of road safety to which user-friendly external HMIs for the communication with other road users will also contribute, e.g. by indicating pedestrians that the CAC has detected her/him. Such an improvement in road safety apparently is a central benefit of CACs for the road users. At the same time, road users expect that there might be problems between the CACs and other road users and express concerns about the technical functioning of the CACs and their IT security.

Both in terms of trust and acceptance differences between females and males, between countries of residence, age groups and the differentiated road user groups become evident. In terms of road user group specific acceptance of CACs, VRUs differ from car drivers and indicate a lower level of acceptance. Nevertheless, the CACs seem to meet with a fundamentally positive basic acceptance among road users on their introduction, although this acceptance is not yet widespread and not free of doubts in all parts of the population in the seven countries surveyed.

One issue that could contribute to the existing doubts are the unresolved questions in determining a morally acceptable behaviour of the CAC in case of an unavoidable crash. Here, the opinions of the respondents do not give a clear answer, as they are in favour of a utilitarian principle, but at the same time speak out for the protection of the passengers and against the intentional killing of road users. The considerable differences between countries also illustrate that, on the one hand, it will be difficult to find a uniform and universal guideline and, on the other hand, that for this very reason answers must be sought at a supranational level.

As in ethical issues, there are still open topics in the legal area. In the survey of road users, opinions on liability, data protection and driver training with CACs could be obtained. This should indicate to decision-makers what perceptions prevail among road users in the seven countries participating in the BRAVE population survey. Again, differences between the countries indicate that cross-national consultations are necessary to ensure uniform legal frameworks.

The findings of the BRAVE population survey represent a cross-section of the current opinions on CACs. It is equally important to observe how acceptance develops over the next few years – and especially when the first CACs are on the streets. Moreover, a successful introduction of CACs might promote the acceptance of automated cars with a higher level of automation (SAE Level 4 or SAE Level 5). The BRAVE population survey can, thus, be used as a starting point for a future regular monitoring of the attitudes of the population of EU member states towards highly automated or autonomous driving.

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Annex A Guidelines for the focus group discussions

BRAVE: Focus group guide (without motorcyclists)

BRidging the gaps for the adoption of Automated VEhicles

Legend
Parts to read quietly as instructions are in normal font.
Parts to read aloud to the participants are in bold font.
☞ This sign indicates the questions to be asked.
Questions that are meant for the case that there is hardly any answer to the general question are in italic fond. They will therefore only be read out to stimulate discussion if the response to the general question was not satisfactory.

The interviewer should note:

Group composition (please mark the group composition by encircling): Young/ middle aged/ older aged/ males/ females

Number of attendees: _____

Repartition of gender: _____

BRAVE is a research project with 11 partners from seven countries (only if they ask: TREE, ACASA, UAH in Spain, VTI in Sweden, UTAC, MOV'EO in France, IfeS, FHG in Germany, AMZS in Slovenia, PATH in US, USYD in Australia). It is funded by the European Commission and its main objective is to improve safety and market adoption of automated vehicles, by considering the needs and requirements of the users, other road users concerned (drivers and vulnerable road users (VRUs) such as pedestrians cyclists) and relevant stakeholders (i.e. policy makers, standardisation bodies, certifiers, insurance companies, driving schools). Do you have any questions about this?

This focus group discussion will help us construct a questionnaire for a survey of road users (car drivers, powered two-wheelers, pedestrians, cyclists) on automated driving. We treat your answers strictly confidential. Neither in the questionnaire nor in any report will your identity be disclosed, nor will your answers be traceable. Your participation is completely voluntary and you only answer the questions you are comfortable with. You may discontinue the discussion at any time without giving a reason.

As you know, the discussion is recorded. No one except the scientists involved in the project will have access to the recordings which will be deleted after analysis. We will turn on the recording device now.

At the beginning, the moderator introduces her-/himself and her/his assistant and says a few words about the format group discussion.

> **My name is [XYZ] and I am the moderator of today's group discussion and this is my assistant [XYZ]. In the following we will discuss automated driving (automated cars), to stimulate the discussion we will set out a few topics. It is important for us that you express all your thoughts and opinions in the discussion. That's why you should take the time for your answers. You are also welcome to discuss with each other. However, dealing with each other should be polite and respectful, so for example please do not interrupt other participants. In order to have a casual and relaxed discussion, don't disclose personal information like names about other participants of the discussion when you talk to others about the discussion later on.**

Before the first question is asked, the moderator initiates an introduction round.

> **Before we come to the actual discussion, it would be nice if each participant introduces himself/herself by name and tells us how often he/she drives a car and what the most common means of transport is.**

After the introduction round, the moderator asks the first question without having explained that there are different forms of automated cars by definition. It is about getting the spontaneous thoughts and associations of the participants about what they understand by automated driving.

☞ **1. If you think about automated driving, what do you spontaneously have in mind?**

Before questions 2 to 6 are asked, the moderator will read the following description of SAE Level 3 cars.

> **More and more cars are able to drive automatically in certain specific situations. But the driver has to remain vigilant at all times in order to take control over the car, to brake, accelerate and/or steer when necessary.**

If the participants should ask for clarifications or examples, the moderator can make the following addition:

> *An automated driving mode would work like this: You start the car, enter a destination and drive off. From a certain moment the car begins to signalise you that it can drive automated. You confirm that and hand over control to the car. No matter whether on the highway, on the country road or in the city, for certain specific traffic situations the car can perform all driving movements independently (by respecting all traffic rules) without any human intervention. However, you must be prepared and able to take over the control of the car at any time, because the automated system mode is not yet able to cope with all traffic situations and circumstances (for example, if road markings on the highway or country road are missing).*
>
> **Now we would like to ask you to put yourself in different perspectives/roles you can have as a road user. We kindly ask you to discuss the following questions from this respective point of view.**

☞ **2. How would you feel if you, as a PEDESTRIAN, encountered such an automated car?**

Would you trust a car in an automated driving mode as much as a human driver?

Would you like the car to indicate whether it is currently in an automated driving mode?

☞ **3. How would you feel if you, as a BICYCLIST, encountered such an automated car?**

Would you trust a car in an automated driving mode as much as a human driver?

Would you like the car to indicate whether it is currently in an automated driving mode?

☞ **4. Now please take the perspective of a person who is sitting behind the steering wheel of an automated car. How would you feel if you, as the 'DRIVER', were driven by such an automated car?**

Would you trust an automated driving mode as much as driving by yourself?

☞ **5. Now please take the perspective of a person sitting in the passenger seat or in the back seat. How would you feel if you, as a PASSENGER, were driven by such an automated car?**

Would you trust a car in an automated driving mode as much as a human driver?

☞ **6. How would you feel if you, as a DRIVER of a conventional (non-automated) car, had to share the road with such automated cars?**

Would you trust a car in an automated driving mode as much as a human driver?

Would you like the car to indicate whether it is currently in an automated driving mode?

After the previous part of the question was about the feelings of the respondents when they encounter an automated car, the next questions are about general assessments**.**

> **The questions we would now like you to answer are more general about automated cars – as described at the beginning of the discussion –, and refer to your personal attitudes, expectations and opinions. You can answer them spontaneously and contribute with your personal point of view.**

☞ **7. What BENEFITS do you personally expect from the widespread introduction of automated cars?**

What about road safety from your perspective?

Would your personal mobility behaviour change?

☞ **8. Do you have CONCERNS about the widespread introduction of automated cars, both for yourself and society in general?**

What is your view of the fact that a car/computer makes decisions instead of humans (for example, how the car reacts in a crash situation)?

How's about liability?

While interacting with other cars an automated car provides a lot of data. How's about privacy and data security?

Will the widespread introduction of automated cars change society?

☞ **9. Do you believe that automated cars will be WIDELY USED here in our country? Please explain your opinion!**

At the end, the co-moderator or moderator summarizes the main topics of the discussion. The summary should be very brief: No more than one or two bullet points per question.

> **We are now at the end of our discussion and I will briefly summarize the most important results of the discussion: …**

After the summary, the questions as to whether the interviewees would use such a car and how they liked the discussion are to close the discussion. These questions should only be asked if the discussion is still in its time frame.

> **After the discussion, can you imagine for yourself to use such an automated car? Why?** (Please count the number of approvals.)
>
> **How did you like the discussion? Is there anything you would like to contribute to the topic that we have not asked?**
>
> **Thank you very much for taking the time to participate in this discussion!**

Annex B Questionnaire of the population survey

The automation of cars is constantly increasing. This development is often presented in six stages, the so-called SAE Levels (SAE = Society of Automotive Engineers).

The first three levels are SAE Level 0, SAE Level 1, and SAE Level 2. SAE Level 0 does not entail any assistance systems. Cars at SAE Level 1 or SAE Level 2 contain supportive assistance systems such as the Anti-lock Braking System, Adaptive Cruise Control, or Lane Departure Warning. While using these assistance systems, the driver is fully responsible for driving the car.

This changes in SAE Level 3: At this level cars are – technically speaking – conditionally automated and drive independently in certain situations, e.g. on motorways or city roads. If a conditionally automated car is in the automated mode, the driver can take his hands off the steering wheel and feet off the pedals. However, even in these situations the driver must be vigilant in order to take corrective action or to take over the steering wheel if the car so requests. This SAE Level 3 is currently under development and will be the next level of automation for cars on the road.

In the later SAE Levels (SAE Level 4 and SAE Level 5) the car increasingly takes over all driving tasks. In the highest level of automation (SAE Level 5), the car drives independently without the need for a driver.

In this study we investigate the acceptance of conditionally automated cars at SAE Level 3. That is the car might drive automated in certain situations with the driver being ready to correct or take over again. Please relate all your answers in the following survey to conditionally automated cars with SAE Level 3.

As mentioned before, current cars already use Advanced Driver Assistance Systems at SAE Level 1 or SAE Level 2.

Question No. 1	**How often have you experienced (as a driver or passenger) an Advanced Driver Assistance System, like Emergency Brake Assist, Adaptive Cruise Control, Lane Departure Warning, or Blind Spot Detection, in a car?** [PLEASE TICK ONE BOX ONLY]	
v01	*1*	Never
	2	Rarely
	3	Sometimes
	4	Often
Missing	*-99*	No answer

We now switch to conditionally automated cars on SAE Level 3.

Question No. 2	**We now switch to conditionally automated cars on SAE Level 3. To what extent do you agree with the following statements?** [PLEASE TICK ONE BOX ON EACH LINE]					
		I strongly agree	I agree	I neither agree nor disagree	I disagree	I strongly disagree
v0201	Conditionally automated cars will be dependable.	*5*	*4*	*3*	*2*	*1*
v0202	Conditionally automated cars will act reliably.	*5*	*4*	*3*	*2*	*1*
v0203	Overall, I will trust conditionally automated cars.	*5*	*4*	*3*	*2*	*1*
Missing	No answer	*-99*				

Question No. 3	**In general, to what extent do you agree with the following statements on conditionally automated cars?** [PLEASE TICK ONE BOX ON EACH LINE]					
		I strongly agree	I agree	I neither agree nor disagree	I disagree	I strongly disagree
v0301	As a road user, I think conditionally automated cars will be easy to communicate with.	*5*	*4*	*3*	*2*	*1*
v0302	I think conditionally automated cars will not be easy to use.	*5*	*4*	*3*	*2*	*1*
v0303	I think that conditionally automated cars will make roads safer.	*5*	*4*	*3*	*2*	*1*
v0304	I think I will not use conditionally automated cars when available.	*5*	*4*	*3*	*2*	*1*
v0305	I think that conditionally automated cars will be useful.	*5*	*4*	*3*	*2*	*1*
v0306	I think that conditionally automated cars will cause problems for other road users.	*5*	*4*	*3*	*2*	*1*
Missing	No answer	*-99*				

Question No. 4	**How would you describe your personal innovativeness regarding new technologies?** [PLEASE TICK ONE BOX ON EACH LINE]					
		I strongly agree	I agree	I neither agree nor disagree	I disagree	I strongly disagree
v0401	Among my peers, I am usually the first to try out new technologies.	*5*	*4*	*3*	*2*	*1*
v0402	In general, I am hesitant to try out new technologies.	*5*	*4*	*3*	*2*	*1*
v0403	I like to experiment with new technologies.	*5*	*4*	*3*	*2*	*1*
Missing	No answer	*-99*				

Next, we briefly want to ask you about aspects of your mobility behaviour.

Question No. 5	**When you think of a normal day from Monday to Friday: how many trips do you make per day on foot or using any other mean of transport?** [PLEASE ENTER THE NUMBER]	
v05	*Average number of trips per day: _____*	
Missing	No answer	*-99*

Question No. 6	**When you think of the last six months: What is the mode of transportation that you used most often for everyday private mobility?** [PLEASE TICK ONE BOX ONLY]	
v06	*1*	Pedestrian (includes way to or from public transport)
	2	Bicycle, E-Bike (includes way to or from public transport)
	3	Rider of a powered two-wheeler, also trike or quad (includes way to or from public transport)
	4	Driver in a car (includes way to or from public transport)
	5	Other, namely: _____ *(variable for text responses: t06)*

S T A R T O F F I L T E R (by Question 6)

Please imagine the following traffic situation:

PEDESTRIAN [if Question 6 = 1]: You are walking in an urban area and want to cross the road at a pedestrian crossing without traffic lights. At the same time, a conditionally automated car (SAE Level 3) approaches the pedestrian crossing. The car is driving in automated mode.

CYCLIST [if Question 6 = 2]: You are riding a bicycle on the road in an urban area and approach a junction without road signs or traffic lights. From the left, a conditionally automated car (SAE Level 3) approaches. The car is driving in automated mode. You have the right of way in this situation.

RIDER of POWERED TWO-WHEELERS [if Question 6 = 3]: You are riding a powered two-wheeler in an urban area and approach a junction without road signs or traffic lights. From the left, a conditionally automated car (SAE Level 3) approaches. The car is driving in automated mode. You have right of way in this situation.

DRIVER [if Question 6 = 4]: You are driving a non-automated car in an urban area and approach a junction without road signs or traffic lights. From the left, a conditionally automated car (SAE Level 3) approaches. The car is driving in automated mode. You have the right of way in this situation.

RESPONDENTS with Question 6 = 5: Skip filter and proceed with neutralised Question 11

Question No. 7	**In such a situation, how safe would you feel?** [PLEASE TICK ONE BOX ONLY]	
v07	*5*	Very safe
	4	Safe
	3	Neutral
	2	Unsafe
	1	Very unsafe
Missing	*-88*	Not applicable
	-99	No answer

Question No. 8	**In such a situation, how would you trust the conditionally automated car to act reliably?** [PLEASE TICK ONE BOX ONLY]	
v08	*5*	I would strongly trust
	4	I would trust
	3	I would neither trust nor distrust
	2	I would distrust
	1	I would strongly distrust
Missing	*-88*	Not applicable
	-99	No answer

Question No. 9	**In such a situation, whom would you trust more?** [PLEASE TICK ONE BOX ONLY]	
v09	*1*	Human driver
	2	Conditionally automated car in automated mode
	3	Both equally
Missing	*-88*	Not applicable
	-99	No answer

The following questions relate to your attitudes as a [pedestrian/cyclist/rider of a powered two-wheeler/driver] towards conditionally automated cars.

Question No. 10	**To what extent do you agree with the following statements?** [PLEASE TICK ONE BOX ON EACH LINE]					
		I strongly agree	I agree	I neither agree nor disagree	I disagree	I strongly disagree
v1001	As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], I think conditionally automated cars will be easy to communicate with.	*5*	*4*	*3*	*2*	*1*
v1002	As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], I think that conditionally automated cars will cause problems for me and other road users.	*5*	*4*	*3*	*2*	*1*
v1003	As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], I think that conditionally automated cars will make roads safer.	*5*	*4*	*3*	*2*	*1*
Missing	Not applicable	*-88*				
	No answer	*-99*				

Question No. 11	**As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], to what extent do you share the following expected benefits from a conditionally automated car in automated driving mode?** [PLEASE TICK ONE BOX ON EACH LINE] *RESPONDENTS IF Question 6 = 5:* *To what extent do you share the following expected benefits from a conditionally automated car in automated driving mode?* *[PLEASE TICK ONE BOX ON EACH LINE]*

		Not at all	Hardly	Moderately	Largely	Totally
v1101	Conditionally automated cars do not have blind spots.	*1*	*2*	*3*	4	5
v1102	Conditionally automated cars strictly comply with the traffic rules.	*1*	*2*	*3*	4	5
v1103	Conditionally automated cars keep sufficient distance to other road users.	*1*	*2*	*3*	4	5
v1104	Conditionally automated cars drive more predictably.	*1*	*2*	*3*	4	5
v1105	In the event of emergency braking, conditionally automated cars react more quickly.	*1*	*2*	*3*	4	5
v1106	With conditionally automated cars the other road users are safer.	*1*	*2*	*3*	4	5
v1107	Conditionally automated cars reduce road crashes.	*1*	*2*	*3*	4	5
v1108	Due to fewer crashes, the advent of conditionally automated cars reduces insurance premiums.	*1*	*2*	*3*	4	5
v1109	Conditionally automated cars increase the traffic flow and thereby decrease travel times.	*1*	*2*	*3*	4	5
v1110	Conditionally automated cars cause fewer emissions.	*1*	*2*	*3*	4	5
v1111	Conditionally automated cars lead to lower costs for fuel, gas or electricity.	*1*	*2*	*3*	4	5
Missing	No answer	*-99*				

Question No. 12	**As a [pedestrian/cyclist/rider of a powered two-wheeler/driver], to what extent do you share the following concerns about a conditionally automated car in automated driving mode?** [PLEASE TICK ONE BOX ON EACH LINE] *RESPONDENTS IF Question 6 = 5:* *To what extent do you share the following concerns about a conditionally automated car in automated driving mode?* *[PLEASE TICK ONE BOX ON EACH LINE]*

		Not at all	Hardly	Moderately	Largely	Totally
v1201	Conditionally automated cars might have programming errors or system failures.	*1*	*2*	*3*	4	5
v1202	Conditionally automated cars might be hacked and remotely controlled.	*1*	*2*	*3*	4	5
v1203	Traffic situations might be too complex for conditionally automated cars.	*1*	*2*	*3*	4	5
v1204	Conditionally automated cars might not detect other road users correctly.	*1*	*2*	*3*	4	5
v1205	Conditionally automated cars might not react to unforeseen traffic situations.	*1*	*2*	*3*	4	5
v1206	Conditionally automated cars might not correctly predict the behaviour of other road users.	*1*	*2*	*3*	4	5
v1207	Other road users might have problems in coordinating with conditionally automated cars.	*1*	*2*	*3*	4	5
v1208	The behaviour of conditionally automated cars might be difficult to assess.	*1*	*2*	*3*	4	5
v1209	Drivers might not react in time when they are requested to take control.	*1*	*2*	*3*	4	5
v1210	In the case of a crash with conditionally automated cars, it might be unclear who is legally liable.	*1*	*2*	*3*	4	5
v1211	Conditionally automated cars might collect private data from other road users.	*1*	*2*	*3*	4	5
Missing	No answer	*-99*				

E N D O F F I L T E R (by Question 6)

The next questions are about features and basic settings of conditionally automated cars that are currently under development, respective discussion.

Question No. 13	**Should a conditionally automated car indicate to other road users that it is in automated mode?** [PLEASE TICK ONE BOX ONLY]	
v13	*1*	Yes
	0	No
Missing	*-99*	No answer

Question No. 14	**Imagine crossing a road at a pedestrian crossing without traffic lights: How should an approaching conditionally automated car indicate that it has detected you and give way?** [PLEASE TICK ALL BOXES THAT APPLY]		
		Yes	No
v1401	With continuously glowing light signals at the car	*1*	*0*
v1402	With flashing light signals at the car	*1*	*0*
v1403	With audio signals	*1*	*0*
v1404	With text displays	*1*	*0*
v1405	By projecting a signal onto the road	*1*	*0*
v1406	By a prolonged deceleration phase	*1*	*0*
v1407	Other namely: _____ *(variable for text responses: t1407)*	*1*	*0*
v1408	No signals necessary	*1*	*0*

Even if a conditionally automated car is in automated mode, unavoidable crashes might occur. In such a situation, the programming must determine how the conditionally automated car will behave.

If other road users are involved in such a crash situation, one could consider whether there are any that should be more protected than others. Such programming decisions are difficult and require the consideration of ethical principles. Therefore, we would like to ask you to state your opinion on the following ethical statements.

Question No. 15	**To what extent do you agree with the following statements?** [PLEASE TICK ONE BOX ON EACH LINE]					
		I strongly agree	I agree	I neither agree nor disagree	I disagree	I strongly disagree
v1501	The conditionally automated car should always decide to minimise loss of life for all parties involved.	*5*	*4*	*3*	*2*	*1*
v1502	The conditionally automated car should minimise negative impacts first on its passengers and then, if possible, on others.	*5*	*4*	*3*	*2*	*1*
v1503	Life is sacred. Therefore, it is wrong for the conditionally automated car to decide to kill one person willingly, even if this saves the rest.	*5*	*4*	*3*	*2*	*1*
v1504	There is no universal right or wrong, hence the conditionally automated car should take a decision that is moral in the specific society.	*5*	*4*	*3*	*2*	*1*
v1505	The conditionally automated car should take a decision that is considered moral by its owner (and not necessarily by others).	*5*	*4*	*3*	*2*	*1*
Missing	No answer	*-99*				

Question No. 16	**As mentioned before, conditionally automated cars must be programmed how to behave in an unavoidable crash situation. In general, who should set the guidelines for the behaviour of a conditionally automated car in such a situation?** [PLEASE TICK ALL BOXES THAT APPLY]		
		Yes	No
v1601	Insurance industry	*1*	*0*
v1602	Public	*1*	*0*
v1603	Car manufacturer	*1*	*0*
v1604	Ethics council	*1*	*0*
v1605	Government regulators	*1*	*0*
v1606	Research facilities	*1*	*0*
v1607	Religious representatives	*1*	*0*
v1608	Representatives of car drivers, like automobile clubs	*1*	*0*
v1609	Others, namely: _____ *(variable for text responses: t1609)*	*1*	*0*

Question No. 17	**Who should have the ultimate decision about how the conditionally automated car behaves in the event of a crash?** [PLEASE TICK ONE BOX ONLY]	
v17	*1*	The regulations in the event of a crash should be preset and mandatory for all conditionally automated cars.
	2	The preset regulations of conditionally automated cars in the event of a crash should be modifiable by the car drivers.
Missing	*-99*	No answer

Question No. 18	**Who should be liable in the event of a crash caused by a conditionally automated car in automated mode?** [PLEASE TICK ONE BOX ONLY]	
v18	*1*	Car manufacturer
	2	Car owner
	3	Person behind the steering wheel
	4	Others, namely: _____ *(variable for text responses: t18)*
Missing	*-99*	No answer

Question No. 19	**While driving, a conditionally automated car collects a great amount of data (e.g. location, speed, driving history) and stores some of it. Who should have access to this data?** [PLEASE TICK ALL BOXES THAT APPLY]		
		Yes	No
v1901	Car manufacturer	*1*	*0*
v1902	Insurance company	*1*	*0*
v1903	Police	*1*	*0*
v1904	Car owner	*1*	*0*
v1905	Others, namely: _____ *(variable for text responses: t1905)*	*1*	*0*
v1906	Nobody	*1*	*0*

Question No. 20	**Do you think that drivers of conditionally automated cars should receive special training?** [PLEASE TICK ONE BOX ONLY]	
v20	*1*	Yes
	0	No
Missing	*-99*	No answer

At the end of the survey we would like to ask you for some information about yourself:

Question No. 21	**Are you …?** [PLEASE TICK ONE BOX ONLY]	
v21	*1*	Female
	2	Male
	3	Divers

Question No. 22	**When were you born?** [PLEASE SELECT THE YEAR OF YOUR BIRTH]
v22	*Year 1920 up to year 2002*

Question No. 23 (AUS)		**What is the highest year of schooling you have completed?** [PLEASE TICK ONE BOX ONLY]
v2301_aus	*1*	Did not go to school
	2	Completed pre-primary school
	3	Completed primary school
	4	Year 10 or equivalent
	5	Year 11 or equivalent
	6	Year 12 or equivalent
Missing	*-77*	Other country
		And what is the highest educational qualification you have completed outside of school? [PLEASE TICK ONE BOX ONLY]
v2302_aus	*1*	No post-school qualification
	2	Certificate I
	3	Certificate II
	4	Certificate III
	5	Certificate IV
	6	Diploma
	7	Advanced Diploma or Associate Degree
	8	Bachelor Degree
	9	Graduate Certificate
	10	Graduate Diploma
	11	Masters' Degree
	12	Doctorate by coursework
	13	Doctorate by research
Missing	*-77*	Other country

Question No. 23 (DEU)	**Welchen <u>höchsten</u> allgemeinbildenden Schulabschluss bzw. beruflichen Ausbildungsabschluss haben Sie?** [BITTE NUR <u>EIN</u> KÄSTCHEN ANKREUZEN]	
v23_deu	*1*	Keine formale Bildung
	2	Noch Schüler, weniger als sieben Schuljahre
	3	Noch Schüler, sieben oder mehr Schuljahre
	4	Schule beendet ohne Abschluss
	5	Volks- / Hauptschulabschluss bzw. Polytechnische Oberschule mit Abschluss 8. oder 9. Klasse
	6	Mittlere Reife, Realschulabschluss bzw. Polytechnische Oberschule mit Abschluss 10. Klasse
	7	Fachhochschulreife (Abschluss einer Fachoberschule etc.)
	8	Hochschulreife (Abitur bzw. Erweiterte Oberschule mit Abschluss 12. Klasse)
	9	Beruflicher Ausbildungsabschluss, darunter auch beruflich-betriebliche Anlernzeit mit Abschlusszeugnis, Teilfacharbeiterabschluss, abgeschlossene Lehre, Berufliches Praktikum, Volontariat, Berufsfachschulabschluss, Fachschulabschluss
	10	Meister-, Techniker- oder gleichwertiger Fachschulabschluss
	11	(Fach-)Hochschulabschluss: Bachelor
	12	(Fach-)Hochschulabschluss: Master, Diplom, Magister, Staatsexamen oder Lehramtsprüfung
	13	Promotion
Missing	*-77*	Other country

Question No. 23 (FRA)	**Quel niveau d'études <u>le plus élevé</u> avez-vous atteint?** [VEUILLEZ COCHER <u>UNE SEULE</u> CASE]	
v23_fra	*1*	Aucun
	2	Ecole primaire, certificat d'études primaires
	3	Collège (de la 6ème à la 3ème)
	4	Enseignement professionnel (CAP, CAPA, BEP, BEPA, formations sociales ou médicales) sans baccalauréat
	5	Enseignement général des lycées (de la seconde à la terminale) sans le baccalauréat
	6	Baccalauréat professionnel, Brevet Professionnel (BEI, BEC, …) ou équivalent de niveau Bac
	7	Baccalauréat technologique, Baccalauréat général
	8	Enseignement technique ou technologique après le baccalauréat (BTS, DUT, formations sociales ou médicales)
	9	Premier cycle universitaire (DEUG, DEUST ou licence, L1, L2 ou L3)
	10	Deuxième ou troisième cycle universitaire (ou équivalent à bac + 3 et au-delà)
Missing	*-77*	Other country

Question No. 23 (SWE)	**Vilken är din nuvarande högsta utbildning?** [KRYSSA I ENDAST EN RUTA]	
v23_swe	*1*	Ej avslutad folkskola eller grundskola
	2	Folkskola
	3	Grundskola/enhetsskola
	4	Realskola/flickskola
	5	Fackskola (1963-1970)
	6	2-årig gymnasielinje, 2-årig yrkesskola
	7	3- eller 4-årig gymnasielinje (före 1995)
	8	Yrkesinriktat gymnasieprogram (efter 1992)
	9	Teoretiskt inriktat gymnasieprogram (efter 1992) t ex samhällsvetarprogrammet eller naturvetarprogrammet)
	10	Universitet/högskola utan examen
	11	Universitet/högskola, kortare än 3 år, med examen
	12	Universitet/högskola, 3 år eller längre, med examen
	13	Forskarutbildning
Missing	*-77*	Other country

Question No. 23 (SVN)	**Navedite zadnjo šolo, ki ste jo končali, redno ali izredno** [PROSIMO, IZBERITE LE EN ODGOVOR]	
v23_svn	*1*	Brez šolske izobrazbe (0 do največ 3 razrede osemletke ali do največ 5 razredov devetletke).
	2	Nepopolna osnovnošolska izobrazba (nedokončana oš z več kot 3 razrede osemletke ali več kot 5 razredov devetletke)
	3	Osnovnošolska izobrazba (ima spričevalo o končani oš)
	4	Nižja ali srednja poklicna izobrazba (2-3 letni poklicni program, certifikat o npk)
	5	Srednja strokovna izobrazba (srednja tehniška šola, trajanje 4 leta, matura)
	6	Srednja splošna izobrazba (gimnazija, matura)
	7	Višja strokovna izobrazba, višješolska izobrazba (predhodna višja šola, 2 leti+diploma)
	8	Visokošolska strokovna izobrazba (nekdanji vs - 3 leta, 1. bolonjska stopnja)
	9	Visokošolska univerzitetna izobrazba (4 - lahko tudi 6 let + diploma)
	10	Bolonjski magisterij
	11	Specializacija (približno 1 leto)
	12	Nagisterij
	13	Doktorat
Missing	*-77*	Other country

Question No. 23 (ESP)	**¿Cuáles son los estudios de más alto nivel que Ud. ha finalizado (obteniendo la titulación oficial correspondiente)?** [POR FAVOR, MARQUE SÓLO UNA CASILLA]	
v23_esp	*1*	No ha ido nunca a la escuela (sin estudios)
	2	Menos de 5 años de escuela (estudios primarios sin completar)
	3	Antigua Educación Primaria (Certificado de estudios primarios)
	4	Hasta 5º de EGB
	5	Educación primaria (LOGSE)
	6	Grado Elemental en Música y Danza
	7	Bachillerato Elemental
	8	EGB
	9	ESO
	10	Bachillerato Superior, BUP
	11	PREU, COU
	12	Bachillerato (LOGSE)
	13	F.P. de Iniciación
	14	Programas de Garantía Social, Programas de Cualificación Profesional Inicial (PCPI)
	15	F.P. Oficialía
	16	F.P. de 1er Grado (FP1)
	17	C.F. de Grado Medio (Técnico Medio)
	18	C.F. de Grado Medio en Artes Plásticas y Diseño
	19	Grado Medio enMúsica y Danza
	20	F.P. Maestría
	21	F.P. de 2º Grado (FPII)
	22	C.F. de Grado Superior (Técnico Superior)
	23	C.F. de Grado Superior en Escuelas de Arte
	24	Peritaje, antiguas escuelas de Enfermería, de Magisterio y de Asistente Social
	25	Diplomado/a, Grado (Bolonia), Ingeniero/a o Arquitecto/a técnico/a, 3 años de licenciatura, Título Superior en Diseño
	26	Licenciado/a, Máster (Bolonia), Ingeniero/a Superior, Arquitecto/a, Título Superior en Música, Danza o Arte Dramático
	27	Doctorado
Missing	*-77*	Other country

Question No. 23 (USA)	**What is the highest grade in elementary school or high school that you finished and got credit for?** [PLEASE TICK ONE BOX ONLY]	
v2301_usa	*1*	No formal school
	2	1st grade
	3	2nd grade
	4	3rd grade
	5	4th grade
	6	5th grade
	7	6th grade
	8	7th grade
	9	8th grade
	10	9th grade
	11	10th grade
	12	11th grade
	13	12th grade
Missing	*-77*	Other country
	If finished 9th – 12th grade: **Did you ever get a high school diploma or a GED certificate?** [PLEASE TICK ONE BOX ONLY]	
v2302_usa	*1*	Yes
	0	No
Missing	*-77*	Other country
	-88	Not applicable
	Did you ever complete one or more years of college for credit - not including schooling such as business college, technical or vocational school? [PLEASE TICK ONE BOX ONLY]	
v2303_usa	*1*	Yes
	0	No
Missing	*-77*	Other country
	If Yes: **How many years did you complete?** [PLEASE TICK ONE BOX ONLY]	
v2304_usa	*1*	1 year
	2	2 years
	3	3 years
	4	4 years
	5	5 years
	6	6 years
	7	7 years
	8	8 or more years
Missing	*-77*	Other country
	-88	Not applicable

	Do you have any college degrees? [PLEASE TICK ONE BOX ONLY]	
v2305_usa	*1*	Yes
	0	No
Missing	*-77*	Other country
	If Yes: **What degree or degrees?** [PLEASE TICK ONE BOX ONLY]	
v2306_usa	*1*	Associate/Junior College
	2	Bachelor's
	3	Graduate
Missing	*-77*	Other country
	-88	Not applicable

Question No. 24	**Which category in this list applies best to the place where you are living?** [PLEASE TICK ONE BOX ONLY]	
v24	*5*	A big city
	4	The suburbs or outskirts of a big city
	3	A town or a small city
	2	A country village
	1	A farm or home in the country

Question No. 25	**Do you hold a driving licence for cars or powered two-wheelers?** [PLEASE TICK ONE BOX ONLY]	
v25	*1*	Yes
	0	No

Question No. 26	*[FILTER: Only if [1] Yes in No. 25]* **How often do you drive a car or ride a powered two-wheeler?** [PLEASE TICK ONE BOX ONLY]	
v26	*1*	Never
	2	Rarely
	3	Several times a month
	4	Several times a week
	5	Daily
Missing	*-88*	Not applicable

Question No. 27	**In our society, there are groups which tend to be towards the top and groups which tend to be towards the bottom. Below is a scale that runs from the top (10) to the bottom (01). Where would you put yourself on this scale?** [PLEASE TICK ONE BOX ONLY]	
v27	*10*	10 (Highest, Top)
	9	09
	8	08
	7	07
	6	06
	5	05
	4	04
	3	03
	2	02
	1	01 (Lowest, Bottom)

Annex C Tabulation volume

Table C1: How often have you experienced (as a driver or passenger) an Advanced Driver Assistance System, like Emergency Brake Assist, Adaptive Cruise Control, Lane Departure Warning, or Blind Spot Detection, in a car? [*v01*]

	Number of respondents	Never	Rarely	Sometimes	Often
Total					
	6,600	37.0	22.4	25.1	15.4
Country					
Europe	4,726	34.1	23.8	25.6	16.5
France	908	26.7	19.6	27.8	26.0
Germany	947	54.2	22.0	15.7	8.1
Slovenia	960	16.6	30.4	26.5	26.6
Spain	947	37.7	20.5	29.9	11.9
Sweden	964	35.2	26.0	28.4	10.4
Australia	938	41.2	22.6	24.1	12.2
USA	936	48.0	15.3	23.6	13.1
Gender					
Female	3,307	40.2	22.5	24.6	12.7
Male	3,288	33.9	22.3	25.7	18.2
Age (in years)					
Up to 34	2,260	24.3	26.3	32.2	17.2
35 to 44	1,482	33.9	21.8	27.6	16.7
45 to 54	911	32.9	23.3	26.3	17.5
55 and more	1,947	56.2	17.9	14.5	11.5
Mode of transportation					
Pedestrians	1,580	44.1	23.6	23.0	9.4
Cyclists	412	29.4	28.6	31.8	10.2
PTW-riders	162	24.7	37.0	29.6	8.6
Car drivers	4,325	35.2	20.8	25.4	18.6

Table C2: Conditionally automated cars will be dependable. [*v0201*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,520	6.0	13.7	31.1	39.5	9.7
Country						
Europe	4,673	5.6	12.9	31.5	40.8	9.2
France	900	5.9	12.0	38.1	35.6	8.4
Germany	934	8.7	14.1	34.8	33.8	8.6
Slovenia	946	4.7	9.7	34.0	43.9	7.7
Spain	943	4.0	15.5	13.7	54.0	12.8
Sweden	950	4.9	13.4	37.2	36.3	8.2
Australia	926	5.5	13.0	31.3	40.9	9.3
USA	921	8.5	18.0	28.7	31.9	12.9
Gender						
Female	3,262	6.2	15.8	34.9	36.2	6.9
Male	3,253	5.8	11.6	27.2	42.9	12.5
Age (in years)						
Up to 34	2,239	3.7	10.6	28.6	44.5	12.7
35 to 44	1,470	5.1	11.8	30.0	41.4	11.8
45 to 54	904	6.6	13.9	28.3	42.3	8.8
55 and more	1,907	9.2	18.6	36.1	31.0	5.0
Mode of transportation						
Pedestrians	1,562	5.9	12.9	34.0	37.9	9.3
Cyclists	404	5.0	8.4	29.5	44.3	12.9
PTW-riders	158	5.1	7.0	23.4	49.4	15.2
Car drivers	4,277	6.1	14.5	30.3	39.5	9.6

Table C3: Conditionally automated cars will act reliably. [*v0202*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,521	6.5	13.6	31.1	40.0	8.8
Country						
Europe	4,674	6.0	12.8	31.3	41.9	8.1
France	903	5.9	12.1	35.7	37.8	8.6
Germany	944	9.2	15.0	34.3	34.5	6.9
Slovenia	943	4.8	9.1	33.1	45.9	7.1
Spain	939	4.0	15.0	14.7	55.3	11.0
Sweden	945	5.9	12.5	38.9	35.9	6.8
Australia	923	5.5	13.5	31.0	40.2	9.8
USA	924	10.0	18.1	30.0	30.4	11.6
Gender						
Female	3,271	6.9	15.4	35.1	36.2	6.3
Male	3,245	6.0	11.7	27.0	43.9	11.3
Age (in years)						
Up to 34	2,242	3.4	12.0	28.1	45.5	11.0
35 to 44	1,469	5.4	10.8	30.4	41.9	11.6
45 to 54	899	8.0	13.8	28.9	41.9	7.3
55 and more	1,911	10.2	17.6	36.1	31.3	4.8
Mode of transportation						
Pedestrians	1,565	6.1	12.6	33.1	39.9	8.4
Cyclists	410	5.1	11.7	26.8	44.6	11.7
PTW-riders	160	6.3	5.6	22.5	50.6	15.0
Car drivers	4,269	6.7	14.3	30.8	39.6	8.6

Table C4: Overall, I will trust conditionally automated cars. [*v0203*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,567	8.4	19.6	24.8	37.6	9.6
Country						
Europe	4,699	6.9	18.7	25.4	39.8	9.3
France	905	8.0	21.1	27.7	33.5	9.7
Germany	944	14.5	20.4	24.6	32.6	7.8
Slovenia	955	3.1	14.2	30.7	44.6	7.3
Spain	943	2.3	18.6	16.9	49.5	12.7
Sweden	952	6.5	19.3	27.0	38.4	8.7
Australia	939	8.9	20.1	23.7	37.3	9.9
USA	929	15.3	23.7	22.7	27.1	11.2
Gender						
Female	3,284	9.2	22.7	27.0	34.7	6.4
Male	3,278	7.5	16.5	22.5	40.6	12.8
Age (in years)						
Up to 34	2,249	4.7	15.9	24.0	42.7	12.7
35 to 44	1,476	6.3	17.3	25.3	38.7	12.5
45 to 54	906	7.4	21.0	23.1	41.2	7.4
55 and more	1,936	14.7	25.1	26.0	29.3	4.9
Mode of transportation						
Pedestrians	1,577	7.7	19.5	26.3	37.2	9.3
Cyclists	404	6.2	15.6	23.3	40.3	14.6
PTW-riders	161	3.7	9.3	21.1	54.0	11.8
Car drivers	4,306	8.8	20.2	24.4	37.3	9.3

Table C5: As a road user, I think conditionally automated cars will be easy to communicate with. [*v0301*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,569	5.1	17.5	31.4	37.3	8.6
Country						
Europe	4,703	4.3	16.2	31.2	39.6	8.6
France	907	4.9	17.4	37.4	32.1	8.3
Germany	945	8.4	19.8	31.9	31.6	8.4
Slovenia	957	2.1	11.2	27.1	51.2	8.5
Spain	944	2.1	12.5	24.0	48.3	13.0
Sweden	950	4.1	20.3	36.0	34.5	5.1
Australia	932	5.0	20.1	32.9	33.8	8.2
USA	934	9.4	21.5	30.8	29.0	9.2
Gender						
Female	3,288	5.6	20.1	33.9	34.3	6.1
Male	3,276	4.7	14.9	28.8	40.4	11.2
Age (in years)						
Up to 34	2,252	3.1	15.0	29.8	41.3	10.7
35 to 44	1,479	3.7	15.4	30.3	40.3	10.3
45 to 54	907	4.9	15.0	28.7	42.9	8.6
55 and more	1,931	8.8	23.3	35.4	27.7	4.9
Mode of transportation						
Pedestrians	1,573	5.6	16.1	32.9	37.1	8.3
Cyclists	410	3.2	16.1	28.5	40.7	11.5
PTW-riders	161	2.5	11.8	27.3	38.5	19.9
Car drivers	4,305	5.2	18.2	31.0	37.3	8.3

Table C6: I think conditionally automated cars will not be easy to use. [*v0302*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,570	6.3	33.9	27.1	25.6	7.1
Country						
Europe	4,706	6.7	35.9	27.3	24.4	5.7
France	906	5.8	26.7	33.6	27.0	6.8
Germany	944	6.3	30.0	27.1	27.8	8.9
Slovenia	959	6.8	40.1	24.6	25.3	3.1
Spain	942	8.6	49.6	18.9	18.7	4.2
Sweden	955	5.8	32.7	32.7	23.2	5.7
Australia	934	4.6	32.1	27.3	27.9	8.0
USA	930	6.6	25.4	25.5	29.4	13.2
Gender						
Female	3,292	4.8	32.3	29.4	26.9	6.7
Male	3,273	7.9	35.5	24.7	24.4	7.6
Age (in years)						
Up to 34	2,258	6.8	36.0	26.0	24.4	6.9
35 to 44	1,479	7.4	36.2	26.2	24.2	6.0
45 to 54	908	6.2	37.9	25.8	24.2	5.9
55 and more	1,925	5.1	27.7	29.7	28.7	8.8
Mode of transportation						
Pedestrians	1,576	5.3	33.8	28.4	25.5	7.0
Cyclists	409	7.8	29.3	27.9	24.7	10.3
PTW-riders	159	5.0	30.2	24.5	30.8	9.4
Car drivers	4,305	6.6	34.5	26.5	25.6	6.8

Table C7: I think that conditionally automated cars will make roads safer. [*v0303*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,568	5.8	18.3	27.9	36.6	11.4
Country						
Europe	4,702	4.8	17.1	28.5	38.2	11.3
France	903	5.5	17.2	33.7	33.1	10.5
Germany	942	8.4	19.6	29.1	33.5	9.3
Slovenia	957	3.0	14.6	31.8	40.2	10.3
Spain	942	1.8	17.8	17.7	47.0	15.6
Sweden	958	5.3	16.4	30.5	37.1	10.8
Australia	934	5.6	20.3	26.1	36.2	11.8
USA	932	11.4	21.9	26.6	28.4	11.7
Gender						
Female	3,295	6.3	21.6	31.9	33.0	7.3
Male	3,268	5.4	14.8	24.0	40.1	15.7
Age (in years)						
Up to 34	2,256	3.5	13.9	28.0	40.2	14.5
35 to 44	1,478	4.3	16.8	26.4	38.6	13.9
45 to 54	907	5.7	20.2	24.8	39.0	10.3
55 and more	1,927	9.9	23.6	30.4	29.6	6.6
Mode of transportation						
Pedestrians	1,575	6.2	18.2	30.0	34.3	11.4
Cyclists	411	4.1	13.6	23.8	41.4	17.0
PTW-riders	160	2.5	15.0	26.9	41.9	13.8
Car drivers	4,301	5.9	18.8	27.4	36.9	11.0

Table C8: I think I will not use conditionally automated cars when available. [*v0304*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,575	7.9	25.3	27.8	24.1	14.9
Country						
Europe	4,707	8.4	27.4	29.3	22.2	12.8
France	909	6.4	19.6	32.1	27.0	15.0
Germany	942	8.9	18.9	27.4	24.3	20.5
Slovenia	960	10.3	40.9	28.5	14.9	5.3
Spain	942	9.3	33.1	23.4	23.2	10.9
Sweden	954	6.8	23.9	35.0	21.7	12.6
Australia	936	5.4	23.7	26.5	29.1	15.3
USA	932	7.7	16.5	21.9	28.9	25.0
Gender						
Female	3,291	6.4	23.4	30.5	24.2	15.5
Male	3,279	9.4	27.3	25.1	24.0	14.2
Age (in years)						
Up to 34	2,255	8.0	27.0	28.7	25.4	10.9
35 to 44	1,480	9.1	28.0	27.0	23.0	12.8
45 to 54	909	9.5	30.4	30.3	18.4	11.6
55 and more	1,931	6.0	19.0	26.3	26.0	22.7
Mode of transportation						
Pedestrians	1,576	6.9	22.7	30.2	24.7	15.5
Cyclists	408	7.4	24.3	27.9	25.7	14.7
PTW-riders	161	6.8	18.6	26.7	33.5	14.3
Car drivers	4,309	8.4	26.8	27.0	23.4	14.4

Table C9: I think that conditionally automated cars will be useful. [*v0305*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,562	3.8	8.4	23.8	48.9	15.1
Country						
Europe	4,707	3.2	7.6	23.5	50.4	15.3
France	904	4.6	8.5	31.5	42.5	12.8
Germany	944	5.8	10.9	26.1	44.4	12.8
Slovenia	952	1.7	3.9	19.4	60.8	14.2
Spain	943	1.2	6.4	15.0	55.7	21.8
Sweden	958	2.7	8.6	25.8	48.2	14.7
Australia	931	3.8	8.8	23.5	49.9	14.0
USA	930	6.8	11.7	25.8	40.1	15.6
Gender						
Female	3,289	3.9	9.2	26.8	48.5	11.6
Male	3,268	3.7	7.5	20.8	49.2	18.8
Age (in years)						
Up to 34	2,253	2.0	6.2	19.1	53.4	19.4
35 to 44	1,482	3.0	6.4	23.5	49.6	17.5
45 to 54	903	3.8	8.1	22.7	52.3	13.2
55 and more	1,924	6.5	12.6	30.1	41.4	9.4
Mode of transportation						
Pedestrians	1,576	3.9	6.2	24.6	50.1	15.2
Cyclists	408	3.2	9.6	18.4	52.7	16.2
PTW-riders	160	2.5	5.0	21.3	51.9	19.4
Car drivers	4,298	3.8	9.2	23.8	48.2	15.0

Table C10: I think that conditionally automated cars will cause problems for other road users. [*v0306*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,570	4.0	23.9	31.1	31.0	10.0
Country						
Europe	4,703	4.2	26.0	32.7	29.1	8.0
France	900	3.2	17.3	39.0	30.8	9.7
Germany	946	4.2	20.3	29.7	33.3	12.5
Slovenia	957	5.1	29.9	32.3	27.8	4.9
Spain	945	4.6	38.7	21.5	28.6	6.7
Sweden	955	4.0	23.2	41.2	25.2	6.4
Australia	938	2.5	20.6	30.8	34.3	11.8
USA	929	4.6	16.5	23.5	37.4	18.1
Gender						
Female	3,291	2.9	22.2	33.5	32.2	9.3
Male	3,274	5.2	25.6	28.7	29.8	10.7
Age (in years)						
Up to 34	2,253	3.8	26.3	31.6	30.1	8.2
35 to 44	1,481	5.3	24.2	31.7	29.5	9.3
45 to 54	903	4.1	28.3	29.3	29.8	8.4
55 and more	1,933	3.3	18.7	30.9	33.8	13.3
Mode of transportation						
Pedestrians	1,575	4.1	22.2	34.0	30.7	9.1
Cyclists	406	3.7	23.4	32.3	28.8	11.8
PTW-riders	162	4.9	17.9	29.0	35.8	12.3
Car drivers	4,306	4.1	24.8	30.1	31.2	9.9

Table C11: Among my peers, I am usually the first to try out new technologies. [*v0401*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,582	14.4	27.6	26.4	23.0	8.6
Country						
Europe	4,712	12.3	26.6	29.2	24.3	7.6
France	908	16.1	28.1	27.9	21.7	6.3
Germany	944	21.8	30.2	24.0	18.5	5.4
Slovenia	959	4.9	21.4	35.3	28.8	9.6
Spain	944	7.5	27.2	25.0	30.3	10.0
Sweden	957	11.3	26.4	33.4	21.9	6.9
Australia	938	17.6	32.2	22.1	19.4	8.7
USA	932	21.9	27.7	16.5	20.4	13.5
Gender						
Female	3,296	17.3	31.9	26.2	19.3	5.4
Male	3,281	11.5	23.3	26.6	26.8	11.9
Age (in years)						
Up to 34	2,256	7.2	22.5	26.3	30.9	13.0
35 to 44	1,483	9.6	25.2	27.2	26.9	11.1
45 to 54	910	11.3	27.1	29.9	24.9	6.7
55 and more	1,933	27.9	35.5	24.1	10.0	2.5
Mode of transportation						
Pedestrians	1,577	16.6	29.5	27.5	19.2	7.2
Cyclists	410	10.7	23.2	26.6	28.5	11.0
PTW-riders	160	2.5	15.6	32.5	34.4	15.0
Car drivers	4,315	14.0	27.6	25.8	23.7	8.8

Table C12: In general, I am hesitant to try out new technologies. [*v0402*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,578	13.4	35.9	21.2	22.0	7.5
Country						
Europe	4,716	14.6	38.2	22.7	18.5	6.0
France	906	9.2	33.2	25.6	23.3	8.7
Germany	945	8.0	26.9	23.4	30.4	11.3
Slovenia	959	18.2	44.0	21.8	13.9	2.1
Spain	944	22.6	45.6	14.7	13.1	4.0
Sweden	962	14.8	40.9	28.0	12.4	4.1
Australia	936	9.2	31.6	19.9	30.7	8.7
USA	926	11.2	28.8	15.1	30.8	14.0
Gender						
Female	3,290	10.5	36.0	22.2	24.4	6.9
Male	3,283	16.2	35.8	20.3	19.6	8.1
Age (in years)						
Up to 34	2,254	16.0	37.2	19.7	19.8	7.3
35 to 44	1,483	16.7	36.7	19.2	20.7	6.7
45 to 54	907	14.4	44.2	20.8	15.8	4.7
55 and more	1,934	7.2	30.0	24.8	28.4	9.6
Mode of transportation						
Pedestrians	1,576	12.1	35.5	23.2	20.9	8.3
Cyclists	409	12.2	27.9	24.7	27.1	8.1
PTW-riders	161	12.4	32.3	21.1	24.8	9.3
Car drivers	4,311	13.8	37.2	20.2	21.9	6.9

Table C13: I like to experiment with new technologies. [*v0403*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,578	5.1	13.3	21.8	41.0	18.7
Country						
Europe	4,714	4.2	10.8	22.1	43.1	19.8
France	907	4.5	8.4	25.0	42.7	19.4
Germany	945	10.2	22.3	26.1	30.8	10.6
Slovenia	959	0.8	4.8	15.0	50.8	28.6
Spain	943	1.4	6.4	15.8	50.9	25.6
Sweden	960	4.1	12.2	28.9	40.1	14.8
Australia	935	4.9	19.1	22.6	40.1	13.3
USA	929	9.8	20.2	19.4	31.8	18.8
Gender						
Female	3,295	6.0	15.9	25.0	40.0	13.1
Male	3,278	4.1	10.8	18.6	42.2	24.4
Age (in years)						
Up to 34	2,253	2.0	8.3	17.5	46.1	26.1
35 to 44	1,478	2.9	10.6	20.6	43.0	23.0
45 to 54	909	4.0	9.9	20.5	47.1	18.6
55 and more	1,938	10.9	22.9	28.4	30.9	7.0
Mode of transportation						
Pedestrians	1,577	5.3	12.9	24.4	42.1	15.3
Cyclists	408	3.2	14.0	21.3	37.3	24.3
PTW-riders	161	1.9	3.1	17.4	47.8	29.8
Car drivers	4,311	5.1	13.7	21.0	41.0	19.2

Table C14: When you think of a normal day from Monday to Friday: How many trips do you make per day on foot or using any other mean of transport? [*v05_cat* / use of metric variable *v05* for median]

	Number of respondents	0-1 trips	2 trips	3-4 trips	5-8 trips	9 trips or more	Median
Total							
	6,294	12.9	30.1	29.5	17.8	9.7	3.0
Country							
Europe	4,504	9.1	29.6	31.4	19.1	10.8	4.0
France	894	13.5	41.7	26.0	11.2	7.6	2.0
Germany	918	9.0	22.8	31.2	25.3	11.8	4.0
Slovenia	876	3.5	15.8	34.9	29.2	16.6	4.0
Spain	913	8.0	31.2	34.5	18.4	7.9	4.0
Sweden	903	11.3	36.3	30.6	11.4	10.4	3.0
Australia	905	18.1	34.5	25.7	14.4	7.3	2.0
USA	885	27.1	28.2	23.4	15.0	6.2	2.0
Gender							
Female	3,170	14.0	30.9	29.5	17.1	8.5	3.0
Male	3,119	11.8	29.4	29.4	18.5	10.9	4.0
Age (in years)							
Up to 34	2,120	7.3	27.5	33.3	20.3	11.6	4.0
35 to 44	1,419	8.9	27.6	32.1	20.7	10.6	4.0
45 to 54	865	8.8	27.6	30.4	21.2	12.0	4.0
55 and more	1,890	24.1	36.1	22.7	11.4	5.7	2.0
Mode of transportation							
Pedestrians	1,523	11.4	31.6	29.7	16.3	11.1	3.0
Cyclists	375	9.9	28.0	30.1	21.1	10.9	4.0
PTW-riders	148	11.5	27.7	33.8	16.9	10.1	4.0
Car drivers	4,133	13.3	29.7	29.6	18.3	9.1	4.0

**Table C15: When you think of the last six months:
What is the mode of transportation that you used most often for everyday private mobility? [*v06*]**

	Number of respondents	Pedes-trians	Cyclists	PTW-rider	Car driver	Other
Total						
	6,608	24.0	6.2	2.5	65.5	1.8
Country						
Europe	4,732	27.8	7.2	2.8	60.4	1.7
France	910	24.9	4.2	2.3	67.0	1.5
Germany	948	31.4	10.1	1.4	55.7	1.4
Slovenia	962	17.9	5.3	2.3	74.1	0.4
Spain	947	33.8	2.6	4.5	56.5	2.5
Sweden	965	31.1	13.4	3.6	49.1	2.8
Australia	940	17.4	4.0	1.7	74.4	2.4
USA	936	10.9	3.7	1.3	82.4	1.7
Gender						
Female	3,308	25.8	4.5	1.8	65.5	2.4
Male	3,295	22.1	8.0	3.1	65.6	1.3
Age (in years)						
Up to 34	2,262	26.1	8.4	3.0	60.9	1.6
35 to 44	1,486	21.9	5.8	3.0	68.4	0.9
45 to 54	911	22.5	5.4	2.7	67.8	1.5
55 and more	1,949	23.7	4.5	1.3	67.6	2.9

Table C16: In such a situation, how safe would you feel? [*v07*]

	Number of respondents	Very unsafe	Unsafe	Neutral	Safe	Very safe
Total						
	6,444	5.0	24.8	29.9	32.2	8.1
Country						
Europe	4,621	4.7	24.8	29.3	34.0	7.1
France	882	4.3	21.2	34.4	32.3	7.8
Germany	928	6.8	27.6	32.4	24.8	8.4
Slovenia	956	2.8	18.3	34.2	39.4	5.2
Spain	920	2.7	24.6	18.2	45.8	8.8
Sweden	935	7.1	32.5	27.6	27.5	5.3
Australia	911	4.2	24.8	31.1	31.8	8.1
USA	912	7.5	24.2	31.7	23.7	12.9
Gender						
Female	3,196	5.3	29.6	30.9	28.8	5.5
Male	3,243	4.8	20.0	29.0	35.6	10.6
Age (in years)						
Up to 34	2,217	2.6	18.9	31.7	36.4	10.4
35 to 44	1,467	3.7	19.6	32.0	35.1	9.5
45 to 54	894	6.0	24.3	25.8	36.4	7.5
55 and more	1,866	8.5	36.1	28.1	22.9	4.4
Mode of transportation						
Pedestrians	1,573	7.2	26.4	31.7	28.1	6.6
Cyclists	411	3.6	27.0	28.5	30.4	10.5
PTW-riders	159	3.8	15.7	28.9	40.3	11.3
Car drivers	4,301	4.4	24.3	29.4	33.6	8.3

Table C17: In such a situation, how would you trust the conditionally automated car to act reliably? [*v08*]

	Number of respondents	Strongly distrust	Distrust	Neither trust nor distrust	Trust	Strongly trust
Total						
	6,182	5.6	23.6	28.1	35.7	7.0
Country						
Europe	4,445	5.4	22.4	28.5	37.8	6.0
France	851	6.5	18.9	32.7	36.0	6.0
Germany	889	7.6	32.2	24.2	29.7	6.3
Slovenia	913	2.8	17.5	32.1	42.1	5.5
Spain	878	2.6	17.5	23.2	48.3	8.3
Sweden	914	7.4	25.5	30.1	32.9	4.0
Australia	868	4.6	26.3	29.3	31.9	7.9
USA	869	7.5	27.5	25.0	28.9	11.2
Gender						
Female	3,082	5.6	27.9	30.1	32.0	4.4
Male	3,095	5.5	19.4	26.1	39.4	9.6
Age (in years)						
Up to 34	2,155	3.0	19.6	26.2	41.7	9.6
35 to 44	1,404	5.0	18.8	29.5	38.0	8.7
45 to 54	864	6.4	20.5	26.6	40.3	6.3
55 and more	1,759	8.9	33.9	30.0	24.3	2.9
Mode of transportation						
Pedestrians	1,517	6.9	24.0	29.8	33.1	6.3
Cyclists	396	4.0	21.2	28.5	36.9	9.3
PTW-riders	155	3.9	10.3	33.5	38.1	14.2
Car drivers	4,114	5.3	24.2	27.2	36.5	6.8

Table C18: I such a situation, whom would you trust more? [*v09*]

	Number of respondents	Human driver	Conditionally automated car in automated mode	Both equally
Total				
	6,416	52.4	16.1	31.5
Country				
Europe	4,598	49.9	17.4	32.8
France	879	52.2	13.9	33.9
Germany	924	57.3	14.0	28.8
Slovenia	952	48.8	17.3	33.8
Spain	916	43.0	21.5	35.5
Sweden	927	48.2	20.0	31.8
Australia	909	53.9	13.9	32.2
USA	909	63.5	12.2	24.3
Gender				
Female	3,180	55.5	12.6	31.9
Male	3,231	49.3	19.7	31.0
Age (in years)				
Up to 34	2,206	49.0	18.3	32.6
35 to 44	1,456	49.9	17.0	33.1
45 to 54	894	46.8	18.8	34.5
55 and more	1,860	61.0	11.6	27.4
Mode of transportation				
Pedestrians	1,571	49.1	16.8	34.1
Cyclists	405	46.2	23.7	30.1
PTW-riders	157	43.3	25.5	31.2
Car drivers	4,283	54.5	14.8	30.7

Table C19: As a [pedestrian/cyclist/rider of a PTW/driver], I think conditionally automated cars will be easy to communicate with. [*v1001*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,414	5.6	20.7	28.8	36.3	8.6
Country						
Europe	4,597	5.3	19.4	28.8	38.4	8.1
France	879	6.9	21.2	32.7	31.7	7.5
Germany	923	9.3	24.1	28.2	31.7	6.7
Slovenia	951	1.2	13.2	26.3	50.7	8.6
Spain	913	2.8	15.9	21.5	47.5	12.3
Sweden	931	6.4	23.1	35.6	29.6	5.3
Australia	907	4.7	22.6	30.5	33.7	8.4
USA	910	8.0	24.9	26.8	28.7	11.5
Gender						
Female	3,181	6.2	23.5	31.8	32.8	5.7
Male	3,228	5.0	17.8	25.8	39.8	11.5
Age (in years)						
Up to 34	2,208	3.6	17.6	26.3	40.1	12.5
35 to 44	1,460	3.8	17.7	28.1	40.4	10.0
45 to 54	889	5.6	18.1	27.0	41.7	7.5
55 and more	1,857	9.5	27.9	33.1	26.1	3.4
Mode of transportation						
Pedestrians	1,563	8.7	23.7	31.7	29.3	6.5
Cyclists	407	6.4	25.3	26.0	30.5	11.8
PTW-riders	159	4.4	7.5	34.6	40.9	12.6
Car drivers	4,285	4.5	19.6	27.7	39.3	8.9

Table C20: As a [pedestrian/cyclist/rider of a PTW/driver], I think that conditionally automated cars will cause problems for me and other road users. [*v1002*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,414	4.4	25.4	30.3	30.3	9.7
Country						
Europe	4,598	4.6	27.3	32.1	28.3	7.6
France	879	3.3	19.0	35.9	32.0	9.8
Germany	926	3.8	22.0	28.3	33.7	12.2
Slovenia	949	5.6	31.8	34.9	23.8	3.9
Spain	915	6.0	36.2	23.8	28.4	5.6
Sweden	929	4.3	27.2	37.8	24.1	6.6
Australia	907	3.0	22.7	28.7	35.0	10.7
USA	909	4.5	18.4	22.6	35.4	19.1
Gender						
Female	3,182	3.2	23.5	33.9	30.6	8.8
Male	3,227	5.5	27.3	26.7	29.9	10.5
Age (in years)						
Up to 34	2,208	4.3	27.5	31.0	27.5	9.7
35 to 44	1,461	6.0	26.4	30.6	29.4	7.7
45 to 54	887	4.7	30.0	30.7	27.6	7.0
55 and more	1,858	3.0	20.0	29.1	35.6	12.4
Mode of transportation						
Pedestrians	1,562	4.4	24.1	32.1	29.5	10.0
Cyclists	408	3.4	23.8	28.7	34.8	9.3
PTW-riders	160	4.4	16.3	28.1	38.1	13.1
Car drivers	4,284	4.5	26.4	29.9	29.8	9.4

Table C21: As a [pedestrian/cyclist/rider of a PTW/driver], I think that conditionally automated cars will make roads safer. [*v1003*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,404	4.5	18.3	29.9	36.9	10.4
Country						
Europe	4,589	3.8	16.6	30.7	38.8	10.2
France	876	4.7	16.8	36.2	33.7	8.7
Germany	924	6.8	20.3	30.0	34.2	8.7
Slovenia	948	1.6	14.0	33.9	40.4	10.1
Spain	915	1.3	15.3	22.2	47.4	13.8
Sweden	926	4.8	16.4	31.3	38.0	9.5
Australia	909	4.0	21.9	29.0	36.7	8.4
USA	906	8.7	23.2	26.5	27.8	13.8
Gender						
Female	3,177	5.0	22.1	33.8	32.6	6.5
Male	3,222	4.1	14.4	26.0	41.2	14.3
Age (in years)						
Up to 34	2,212	2.1	15.3	28.8	40.3	13.5
35 to 44	1,459	3.6	16.6	28.4	38.5	12.9
45 to 54	887	4.8	16.2	29.3	39.8	9.8
55 and more	1,846	8.0	24.1	32.6	30.3	5.0
Mode of transportation						
Pedestrians	1,564	5.0	17.3	33.4	34.5	9.8
Cyclists	407	2.5	16.2	26.5	40.3	14.5
PTW-riders	159	1.9	11.3	29.6	44.7	12.6
Car drivers	4,274	4.7	19.1	28.9	37.2	10.2

Table C22: Conditionally automated cars do not have blind spots. [*v1101*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,584	14.6	23.5	34.4	20.0	7.5
Country						
Europe	4,719	13.8	23.1	35.0	21.0	7.1
France	909	17.7	20.2	37.3	16.6	8.1
Germany	944	23.0	19.8	27.4	24.0	5.7
Slovenia	960	7.5	34.4	33.6	19.8	4.7
Spain	944	8.8	17.4	43.4	21.7	8.7
Sweden	962	12.3	23.3	33.4	22.6	8.5
Australia	933	13.5	25.1	33.9	19.0	8.6
USA	932	20.0	24.2	31.5	16.2	8.0
Gender						
Female	3,294	15.0	26.0	36.9	16.6	5.4
Male	3,285	14.3	21.0	31.8	23.4	9.5
Age (in years)						
Up to 34	2,254	14.2	23.5	34.9	19.3	8.1
35 to 44	1,482	14.4	22.9	34.9	20.4	7.4
45 to 54	909	11.9	21.6	36.2	23.2	7.2
55 and more	1,939	16.6	25.0	32.4	19.1	6.9
Mode of transportation						
Pedestrians	1,575	14.5	22.2	35.1	20.3	7.9
Cyclists	411	11.9	24.1	31.1	24.6	8.3
PTW-riders	161	9.9	24.8	31.1	25.5	8.7
Car drivers	4,318	15.1	23.6	34.6	19.5	7.2

Table C23: Conditionally automated cars strictly comply with the traffic rules. [*v1102*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,586	4.9	12.3	33.5	34.9	14.5
Country						
Europe	4,718	4.3	12.1	31.8	37.1	14.7
France	908	4.7	11.3	31.7	34.4	17.8
Germany	946	6.6	13.5	26.7	40.1	13.1
Slovenia	959	2.4	14.8	37.7	35.3	9.7
Spain	943	2.2	6.2	33.4	39.4	18.8
Sweden	962	5.4	14.3	29.5	36.3	14.4
Australia	940	5.7	9.7	37.7	32.8	14.1
USA	928	7.0	16.4	37.5	25.8	13.4
Gender						
Female	3,297	5.0	13.5	37.8	32.2	11.6
Male	3,284	4.8	11.2	29.0	37.7	17.3
Age (in years)						
Up to 34	2,255	3.8	11.4	35.1	34.5	15.2
35 to 44	1,481	4.8	12.1	33.8	34.2	15.1
45 to 54	910	4.0	10.5	30.2	40.1	15.2
55 and more	1,940	6.6	14.4	32.9	33.4	12.7
Mode of transportation						
Pedestrians	1,577	4.8	12.7	32.2	35.8	14.5
Cyclists	409	4.9	14.2	32.8	33.5	14.7
PTW-riders	160	5.6	15.0	35.0	26.9	17.5
Car drivers	4,320	4.9	11.9	33.9	34.9	14.4

Table C24: Conditionally automated cars keep sufficient distance to other road users. [*v1103*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,587	3.0	8.2	31.2	40.6	16.9
Country						
Europe	4,719	2.6	7.5	28.2	44.2	17.5
France	909	2.9	9.2	31.1	38.7	18.0
Germany	947	3.6	7.4	23.1	46.9	19.0
Slovenia	959	1.3	5.7	29.7	49.2	14.1
Spain	944	1.6	6.4	30.6	41.3	20.1
Sweden	960	3.5	9.1	26.6	44.5	16.4
Australia	936	3.6	8.0	35.3	35.7	17.4
USA	932	4.8	11.7	42.4	27.6	13.5
Gender						
Female	3,298	3.4	8.9	34.7	39.5	13.5
Male	3,284	2.7	7.5	27.7	41.8	20.4
Age (in years)						
Up to 34	2,258	2.6	8.2	31.4	40.9	16.9
35 to 44	1,481	3.0	7.0	32.0	40.4	17.6
45 to 54	909	2.5	6.3	27.6	44.2	19.4
55 and more	1,939	3.8	10.0	32.0	38.8	15.4
Mode of transportation						
Pedestrians	1,578	3.5	8.1	31.9	40.6	15.8
Cyclists	410	2.7	11.5	29.8	40.0	16.1
PTW-riders	161	5.0	9.9	31.7	39.8	13.7
Car drivers	4,319	2.9	7.8	31.1	40.7	17.6

Table C25: Conditionally automated cars drive more predictably. [*v1104*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,588	5.5	14.0	35.2	34.0	11.3
Country						
Europe	4,719	4.7	12.9	34.7	36.3	11.5
France	910	6.5	15.8	35.6	29.5	12.6
Germany	947	7.2	16.1	30.5	36.0	10.2
Slovenia	957	1.9	12.5	39.8	36.8	9.0
Spain	942	2.1	7.3	35.7	39.8	15.1
Sweden	963	5.7	12.7	32.0	39.0	10.6
Australia	938	5.8	14.2	36.0	32.6	11.4
USA	931	9.5	19.7	36.6	24.1	10.2
Gender						
Female	3,295	5.5	15.4	39.0	31.7	8.5
Male	3,288	5.5	12.7	31.4	36.3	14.1
Age (in years)						
Up to 34	2,257	4.1	12.6	34.1	36.8	12.4
35 to 44	1,483	4.9	13.1	34.5	35.6	11.9
45 to 54	907	5.0	11.0	36.7	34.6	12.7
55 and more	1,941	7.9	17.7	36.2	29.4	8.9
Mode of transportation						
Pedestrians	1,575	5.0	13.7	34.6	34.7	12.0
Cyclists	410	4.9	16.3	32.9	33.7	12.2
PTW-riders	162	4.3	17.9	30.9	34.6	12.3
Car drivers	4,321	5.7	13.7	35.9	33.6	11.1

Table C26: In the event of emergency braking, conditionally automated cars react more quickly. [*v1105*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,592	4.2	12.0	32.0	35.1	16.7
Country						
Europe	4,721	3.6	11.5	30.5	37.3	17.1
France	909	5.3	14.7	33.0	32.3	14.6
Germany	945	4.2	12.8	24.9	38.8	19.3
Slovenia	960	2.0	10.8	34.1	40.7	12.4
Spain	947	3.2	8.4	34.5	34.3	19.5
Sweden	960	3.5	10.9	26.3	39.9	19.4
Australia	939	4.3	12.0	36.0	30.9	16.8
USA	932	7.0	14.7	35.2	28.2	14.9
Gender						
Female	3,301	4.5	13.9	36.0	33.1	12.5
Male	3,286	3.9	10.1	28.0	37.1	20.9
Age (in years)						
Up to 34	2,257	3.4	12.1	31.2	35.4	18.0
35 to 44	1,483	4.2	11.3	32.0	34.4	18.0
45 to 54	909	3.7	9.6	33.6	36.1	17.1
55 and more	1,943	5.3	13.7	32.0	34.8	14.1
Mode of transportation						
Pedestrians	1,579	4.3	12.0	33.2	34.6	15.9
Cyclists	410	4.1	12.9	32.4	32.4	18.0
PTW-riders	162	4.9	15.4	29.6	32.7	17.3
Car drivers	4,321	4.1	11.7	31.7	35.4	17.1

Table C27: With conditionally automated cars the other road users are safer. [*v1106*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,584	7.4	18.9	39.9	25.2	8.6
Country						
Europe	4,717	6.7	17.7	39.9	27.2	8.5
France	909	10.7	19.9	38.8	21.2	9.4
Germany	947	8.1	21.3	35.9	26.9	7.7
Slovenia	959	3.5	17.1	44.2	27.0	8.1
Spain	940	3.4	12.4	42.0	31.7	10.4
Sweden	962	8.0	17.6	38.6	29.1	6.8
Australia	937	6.8	19.5	42.6	22.0	9.1
USA	930	11.1	24.7	37.3	18.0	8.9
Gender						
Female	3,293	8.1	21.3	43.5	21.0	6.1
Male	3,286	6.6	16.5	36.3	29.4	11.2
Age (in years)						
Up to 34	2,256	5.0	15.3	42.3	26.8	10.6
35 to 44	1,479	6.4	16.8	38.9	27.9	9.9
45 to 54	906	6.7	18.1	39.4	27.3	8.5
55 and more	1,943	11.1	25.1	38.2	20.2	5.4
Mode of transportation						
Pedestrians	1,576	7.0	19.0	42.4	23.4	8.1
Cyclists	409	6.8	17.1	36.9	28.9	10.3
PTW-riders	161	4.3	18.0	35.4	34.2	8.1
Car drivers	4,318	7.4	19.0	39.7	25.2	8.7

Table C28: Conditionally automated cars reduce road crashes. [*v1107*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,587	7.2	20.0	37.6	26.7	8.6
Country						
Europe	4,716	6.6	18.5	37.8	28.7	8.4
France	908	12.2	20.5	36.0	23.2	8.0
Germany	946	7.9	22.1	32.0	30.4	7.5
Slovenia	958	3.0	17.7	43.1	28.4	7.7
Spain	943	3.9	14.1	42.0	29.6	10.4
Sweden	961	6.3	18.0	36.0	31.5	8.1
Australia	939	6.8	21.9	38.0	24.2	9.1
USA	932	10.1	25.6	36.2	19.0	9.1
Gender						
Female	3,298	7.5	22.6	41.8	22.2	5.9
Male	3,284	6.8	17.3	33.5	31.2	11.2
Age (in years)						
Up to 34	2,255	4.9	16.0	39.3	29.5	10.2
35 to 44	1,480	6.1	17.9	38.0	27.5	10.4
45 to 54	909	6.4	18.9	37.2	29.5	8.0
55 and more	1,943	10.9	26.7	35.6	21.5	5.5
Mode of transportation						
Pedestrians	1,577	7.3	19.3	39.6	25.6	8.2
Cyclists	410	5.1	19.5	35.4	28.3	11.7
PTW-riders	161	6.2	17.4	37.9	28.6	9.9
Car drivers	4,319	7.2	20.2	37.3	26.8	8.5

Table C29: Due to fewer crashes, the advent of conditionally automated cars reduces insurance premiums. [*v1108*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,585	13.9	24.7	35.4	19.2	6.7
Country						
Europe	4,715	13.8	25.1	35.8	19.2	6.1
France	909	19.1	23.1	36.5	14.7	6.5
Germany	947	13.3	28.0	34.1	19.9	4.8
Slovenia	958	10.1	30.7	35.8	18.0	5.4
Spain	942	14.8	19.5	38.7	19.3	7.6
Sweden	959	12.0	24.2	33.8	23.9	6.2
Australia	939	13.8	21.7	36.6	20.7	7.1
USA	931	14.7	25.5	32.1	18.0	9.7
Gender						
Female	3,290	13.1	26.5	38.0	17.1	5.3
Male	3,290	14.8	22.9	32.8	21.4	8.2
Age (in years)						
Up to 34	2,254	8.4	19.3	38.2	24.4	9.6
35 to 44	1,480	11.0	23.0	37.7	20.4	7.9
45 to 54	907	16.6	26.4	33.6	18.0	5.4
55 and more	1,944	21.3	31.4	31.1	12.9	3.2
Mode of transportation						
Pedestrians	1,576	14.6	22.9	39.0	17.3	6.2
Cyclists	410	7.8	25.9	34.1	24.1	8.0
PTW-riders	160	11.9	22.5	30.0	25.0	10.6
Car drivers	4,320	14.1	25.4	34.5	19.4	6.7

Table C30: Conditionally automated cars increase the traffic flow and thereby decrease travel times. [*v1109*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,579	9.0	24.1	37.8	21.9	7.1
Country						
Europe	4,713	8.1	23.2	38.4	23.6	6.7
France	909	13.1	24.0	37.2	19.0	6.7
Germany	946	9.7	25.6	34.9	24.0	5.8
Slovenia	960	3.5	24.5	39.0	26.4	6.7
Spain	939	6.5	19.7	41.0	25.8	7.0
Sweden	959	8.1	22.2	39.7	22.5	7.4
Australia	935	10.6	24.6	36.5	21.0	7.4
USA	931	11.9	28.2	36.4	14.4	9.0
Gender						
Female	3,296	9.8	26.9	39.1	18.9	5.3
Male	3,278	8.3	21.3	36.5	24.9	9.0
Age (in years)						
Up to 34	2,255	5.7	21.6	37.3	25.8	9.8
35 to 44	1,482	8.4	20.7	38.4	23.8	8.8
45 to 54	904	8.8	23.3	38.8	23.3	5.6
55 and more	1,938	13.5	30.0	37.6	15.3	3.6
Mode of transportation						
Pedestrians	1,575	8.6	23.3	39.9	21.2	7.0
Cyclists	408	7.4	18.9	34.1	27.9	11.8
PTW-riders	161	9.3	23.6	33.5	24.8	8.7
Car drivers	4,316	9.2	24.7	37.7	21.6	6.7

Table C31: Conditionally automated cars cause fewer emissions. [*v1110*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,587	11.3	20.7	37.4	22.7	7.9
Country						
Europe	4,717	10.4	19.8	37.6	24.5	7.8
France	903	16.7	21.7	36.3	18.1	7.2
Germany	946	15.8	27.4	32.6	19.2	5.1
Slovenia	961	3.9	17.3	43.8	27.9	7.2
Spain	945	6.8	12.6	38.5	30.3	11.9
Sweden	962	9.1	20.1	36.8	26.5	7.5
Australia	938	12.7	22.1	37.0	20.5	7.8
USA	932	14.9	23.8	36.4	16.0	8.9
Gender						
Female	3,299	10.8	20.9	40.6	21.6	6.1
Male	3,283	11.9	20.5	34.1	23.8	9.8
Age (in years)						
Up to 34	2,255	8.3	18.3	38.2	24.9	10.4
35 to 44	1,481	9.0	18.6	38.6	24.7	9.0
45 to 54	909	11.9	19.4	35.2	26.1	7.5
55 and more	1,942	16.4	25.7	36.5	17.0	4.4
Mode of transportation						
Pedestrians	1,579	11.2	18.6	39.9	22.4	7.9
Cyclists	408	8.3	21.8	34.8	26.0	9.1
PTW-riders	159	8.8	18.2	32.7	27.7	12.6
Car drivers	4,321	11.7	21.5	36.7	22.4	7.7

Table C32: Conditionally automated cars lead to lower costs for fuel, gas or electricity. [*v1111*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,583	12.2	22.6	37.2	21.3	6.7
Country						
Europe	4,714	11.2	21.5	38.7	22.3	6.4
France	908	15.9	24.0	37.3	17.1	5.7
Germany	946	15.5	30.1	31.7	18.3	4.3
Slovenia	956	3.9	17.6	44.2	27.6	6.7
Spain	943	7.8	14.4	42.3	26.6	8.8
Sweden	961	12.9	21.4	37.9	21.5	6.2
Australia	937	15.0	24.5	33.0	20.9	6.5
USA	932	14.4	26.6	33.7	16.8	8.5
Gender						
Female	3,292	11.7	22.9	39.9	20.2	5.3
Male	3,286	12.7	22.4	34.5	22.4	8.1
Age (in years)						
Up to 34	2,256	8.8	19.8	37.8	24.6	9.0
35 to 44	1,480	9.7	19.5	39.1	23.2	8.4
45 to 54	907	12.0	20.5	36.7	25.1	5.6
55 and more	1,940	18.0	29.3	35.3	14.2	3.1
Mode of transportation						
Pedestrians	1,574	11.7	21.7	36.8	22.3	7.5
Cyclists	410	8.0	23.2	38.0	22.7	8.0
PTW-riders	162	9.3	15.4	37.7	27.8	9.9
Car drivers	4,318	12.8	23.2	37.1	20.6	6.3

Table C33: Conditionally automated cars might have programming errors or system failures. [*v1201*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,592	2.0	10.9	34.9	31.1	21.1
Country						
Europe	4,720	2.0	10.4	34.9	31.8	20.9
France	908	2.6	11.8	32.6	28.4	24.6
Germany	947	1.9	10.1	28.3	33.4	26.3
Slovenia	960	1.5	5.2	37.6	39.0	16.8
Spain	943	2.3	12.3	42.7	26.7	15.9
Sweden	962	1.7	12.9	33.0	31.4	21.1
Australia	937	1.6	13.0	36.3	28.9	20.2
USA	935	2.7	11.0	33.6	29.8	22.9
Gender						
Female	3,300	1.4	8.5	32.8	34.1	23.2
Male	3,287	2.7	13.3	37.0	28.1	18.9
Age (in years)						
Up to 34	2,256	2.1	11.9	32.0	33.0	21.0
35 to 44	1,482	3.5	10.8	34.8	30.8	20.1
45 to 54	909	2.0	8.1	37.4	33.1	19.4
55 and more	1,945	0.9	11.1	37.0	28.3	22.7
Mode of transportation						
Pedestrians	1,579	1.9	9.9	35.4	30.9	21.8
Cyclists	410	2.0	14.9	34.9	30.0	18.3
PTW-riders	162	9.3	16.0	33.3	24.1	17.3
Car drivers	4,320	1.9	10.6	34.8	31.7	21.0

Table C34: Conditionally automated cars might be hacked and remotely controlled. [*v1202*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,585	3.3	13.3	32.7	29.7	21.0
Country						
Europe	4,716	3.1	13.0	33.0	30.3	20.6
France	909	5.0	13.2	29.3	30.8	21.8
Germany	947	2.4	10.0	27.1	31.7	28.7
Slovenia	959	2.1	12.7	38.6	32.1	14.5
Spain	941	3.8	12.9	37.5	27.7	18.1
Sweden	960	2.5	16.4	32.2	29.0	20.0
Australia	939	3.6	16.3	32.9	27.9	19.3
USA	930	3.5	11.8	31.4	28.7	24.5
Gender						
Female	3,297	2.6	11.4	32.4	31.4	22.2
Male	3,283	3.9	15.3	33.1	28.0	19.7
Age (in years)						
Up to 34	2,255	3.8	13.8	30.5	31.7	20.1
35 to 44	1,482	3.2	13.9	33.7	30.6	18.6
45 to 54	908	2.8	12.3	35.1	29.2	20.6
55 and more	1,940	2.9	12.8	33.5	26.9	23.9
Mode of transportation						
Pedestrians	1,579	3.1	12.4	32.0	30.3	22.2
Cyclists	406	3.4	18.0	28.1	31.0	19.5
PTW-riders	160	6.9	22.5	28.8	25.6	16.3
Car drivers	4,319	3.2	12.9	33.6	29.6	20.7

Table C35: Traffic situations might be too complex for conditionally automated cars. [*v1203*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,591	5.2	16.8	36.8	27.4	13.8
Country						
Europe	4,722	5.0	17.9	38.0	26.7	12.4
France	910	6.8	14.2	36.4	26.5	16.2
Germany	947	3.8	15.0	32.5	30.9	17.7
Slovenia	960	3.4	23.5	43.0	22.3	7.7
Spain	943	7.3	19.7	41.5	23.5	8.0
Sweden	962	3.7	16.7	36.5	30.4	12.7
Australia	936	5.4	16.5	34.9	28.8	14.3
USA	933	6.1	12.0	32.5	29.3	20.2
Gender						
Female	3,301	3.9	13.9	37.5	30.0	14.7
Male	3,285	6.5	19.8	36.0	24.7	12.9
Age (in years)						
Up to 34	2,255	4.9	17.3	37.6	27.1	12.9
35 to 44	1,480	6.3	18.0	36.4	27.1	12.2
45 to 54	909	5.5	20.5	36.5	24.6	12.9
55 and more	1,947	4.6	13.7	36.2	29.2	16.4
Mode of transportation						
Pedestrians	1,579	5.3	15.2	38.8	27.1	13.6
Cyclists	410	4.1	19.8	38.8	24.9	12.4
PTW-riders	161	5.6	14.3	44.7	28.0	7.5
Car drivers	4,320	5.4	17.2	35.7	27.6	14.1

Table C36: Conditionally automated cars might not detect other road users correctly. [*v1204*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,591	5.6	19.6	37.9	25.0	12.0
Country						
Europe	4,721	6.0	21.6	38.4	23.9	10.2
France	909	7.5	18.0	35.9	25.0	13.6
Germany	947	4.4	17.2	33.7	29.1	15.5
Slovenia	959	3.6	23.7	42.8	23.0	6.9
Spain	944	7.8	22.1	39.3	22.2	8.5
Sweden	962	6.5	26.5	40.1	20.2	6.7
Australia	938	4.2	17.1	38.0	26.2	14.6
USA	932	4.9	12.6	35.2	29.1	18.2
Gender						
Female	3,301	4.2	17.2	38.7	27.0	12.9
Male	3,285	7.0	22.1	36.9	23.0	11.0
Age (in years)						
Up to 34	2,252	5.4	18.5	37.2	26.2	12.7
35 to 44	1,484	5.8	21.5	37.1	24.6	11.1
45 to 54	911	6.7	21.8	38.7	23.1	9.7
55 and more	1,944	5.0	18.5	38.9	24.6	12.9
Mode of transportation						
Pedestrians	1,580	5.9	19.1	38.7	24.4	11.9
Cyclists	409	4.4	24.7	35.7	24.2	11.0
PTW-riders	162	5.6	20.4	41.4	21.0	11.7
Car drivers	4,319	5.6	19.3	37.8	25.4	12.0

Table C37: Conditionally automated cars might not react to unforeseen traffic situations. [*v1205*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,588	4.5	15.7	36.7	28.4	14.7
Country						
Europe	4,720	4.8	16.9	37.3	27.8	13.2
France	910	6.8	14.9	36.9	26.6	14.7
Germany	946	4.3	14.2	33.1	30.1	18.3
Slovenia	959	2.7	16.6	42.8	28.8	9.2
Spain	943	6.4	19.3	39.7	24.8	9.9
Sweden	962	4.0	19.5	33.9	28.8	13.8
Australia	935	3.3	15.0	36.7	28.8	16.3
USA	933	4.2	10.0	34.0	30.8	21.1
Gender						
Female	3,299	3.4	12.9	37.0	31.1	15.6
Male	3,284	5.7	18.4	36.4	25.6	13.8
Age (in years)						
Up to 34	2,252	3.9	15.5	35.4	30.5	14.8
35 to 44	1,483	5.5	16.3	38.5	26.3	13.5
45 to 54	908	4.4	16.5	39.2	26.9	13.0
55 and more	1,945	4.6	15.1	35.7	28.3	16.4
Mode of transportation						
Pedestrians	1,580	4.1	15.5	36.2	28.1	16.1
Cyclists	407	4.2	17.9	36.4	28.0	13.5
PTW-riders	162	4.9	20.4	34.0	25.9	14.8
Car drivers	4,319	4.7	15.3	37.3	28.5	14.2

Table C38: Conditionally automated cars might not correctly predict the behaviour of other road users. [*v1206*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,584	3.7	13.4	34.2	31.4	17.2
Country						
Europe	4,714	3.9	14.6	35.1	30.9	15.5
France	909	4.1	13.9	32.7	30.0	19.4
Germany	944	3.3	12.8	30.0	32.7	21.2
Slovenia	958	2.7	15.0	40.3	31.7	10.2
Spain	942	5.6	16.1	38.6	28.0	11.6
Sweden	961	4.0	14.9	33.8	31.7	15.6
Australia	937	2.7	13.2	33.3	31.6	19.2
USA	933	3.9	7.9	30.9	34.0	23.4
Gender						
Female	3,296	3.0	11.5	34.3	32.7	18.5
Male	3,283	4.5	15.4	34.2	30.1	15.8
Age (in years)						
Up to 34	2,252	3.6	13.9	34.1	31.3	17.0
35 to 44	1,483	4.4	14.6	34.7	30.5	15.7
45 to 54	908	3.6	14.1	37.6	28.6	16.1
55 and more	1,941	3.4	11.6	32.5	33.4	19.0
Mode of transportation						
Pedestrians	1,579	3.7	13.5	33.8	30.1	18.9
Cyclists	408	3.7	15.7	37.7	29.9	13.0
PTW-riders	161	6.8	13.7	34.8	29.8	14.9
Car drivers	4,315	3.7	13.1	34.2	32.1	16.9

Table C39: Other road users might have problems in coordinating with conditionally automated cars. [*v1207*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,584	4.4	14.6	39.1	29.6	12.4
Country						
Europe	4,715	4.6	15.1	40.2	28.9	11.2
France	909	5.6	12.9	38.4	30.3	12.9
Germany	946	3.1	11.2	33.6	33.3	18.8
Slovenia	959	3.0	18.6	46.0	25.9	6.6
Spain	940	7.1	17.9	43.5	23.6	7.9
Sweden	961	4.3	14.9	39.3	31.5	10.0
Australia	939	3.3	13.7	38.6	31.6	12.8
USA	930	4.3	12.7	34.1	30.8	18.2
Gender						
Female	3,296	3.4	12.9	39.9	30.9	12.9
Male	3,283	5.4	16.2	38.3	28.2	11.9
Age (in years)						
Up to 34	2,253	4.6	15.2	39.4	29.0	11.8
35 to 44	1,479	5.0	16.2	41.2	26.2	11.4
45 to 54	910	4.9	16.3	43.0	24.9	10.9
55 and more	1,942	3.3	11.8	35.3	34.9	14.7
Mode of transportation						
Pedestrians	1,575	4.3	14.5	39.2	28.1	13.8
Cyclists	407	3.2	15.0	38.3	29.7	13.8
PTW-riders	160	5.6	16.9	38.8	28.1	10.6
Car drivers	4,321	4.6	14.5	39.2	29.9	11.8

Table C40: The behaviour of conditionally automated cars might be difficult to assess. [*v1208*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,585	5.5	18.3	37.9	27.1	11.2
Country						
Europe	4,719	5.5	19.8	37.7	26.6	10.4
France	907	6.6	16.9	38.9	24.3	13.3
Germany	946	3.8	16.3	32.8	29.3	17.9
Slovenia	959	3.3	23.0	41.0	26.9	5.7
Spain	944	8.5	23.0	40.4	22.2	5.9
Sweden	963	5.5	19.5	35.7	29.9	9.3
Australia	937	5.8	15.7	38.4	29.0	11.1
USA	929	5.3	13.6	37.9	27.9	15.4
Gender						
Female	3,297	4.2	15.7	39.7	28.8	11.6
Male	3,283	6.9	21.0	36.1	25.3	10.8
Age (in years)						
Up to 34	2,253	5.3	19.1	38.5	26.5	10.6
35 to 44	1,480	6.8	19.5	38.7	24.6	10.3
45 to 54	909	7.2	19.1	39.5	24.0	10.2
55 and more	1,943	4.1	16.1	35.7	31.1	13.0
Mode of transportation						
Pedestrians	1,579	6.1	18.2	37.2	26.4	12.1
Cyclists	410	5.9	18.8	37.6	26.3	11.5
PTW-riders	160	5.6	16.9	36.9	28.1	12.5
Car drivers	4,316	5.4	18.4	38.0	27.4	10.8

Table C41: Drivers might not react in time when they are requested to take control. [*v1209*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,584	3.3	10.4	36.0	34.1	16.3
Country						
Europe	4,715	3.4	10.7	37.4	33.9	14.7
France	910	4.1	10.4	34.3	32.7	18.5
Germany	945	3.7	10.5	31.1	34.0	20.7
Slovenia	957	1.5	10.4	44.7	34.9	8.5
Spain	941	5.0	12.2	43.8	28.3	10.7
Sweden	962	2.7	9.8	33.2	39.3	15.1
Australia	938	2.2	10.2	35.4	34.1	18.0
USA	931	3.8	9.0	29.0	35.0	23.2
Gender						
Female	3,294	2.8	9.0	35.0	35.6	17.5
Male	3,285	3.7	11.8	36.9	32.5	15.1
Age (in years)						
Up to 34	2,251	3.6	11.2	34.3	35.1	15.9
35 to 44	1,478	4.1	10.9	38.2	31.9	15.0
45 to 54	910	3.3	10.7	41.6	30.0	14.4
55 and more	1,945	2.2	8.9	33.6	36.5	18.8
Mode of transportation						
Pedestrians	1,576	3.5	10.0	34.1	35.3	17.1
Cyclists	408	3.7	13.7	32.8	33.8	15.9
PTW-riders	161	5.0	15.5	34.8	29.8	14.9
Car drivers	4,318	3.1	10.0	37.1	33.8	16.0

Table C42: In the case of a crash with conditionally automated cars, it might be unclear who is legally liable. [*v1210*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,588	6.6	12.9	29.0	31.3	20.2
Country						
Europe	4,716	7.0	13.7	28.8	30.9	19.5
France	909	7.5	10.9	25.1	30.8	25.7
Germany	947	4.6	13.4	22.1	32.4	27.5
Slovenia	956	4.7	20.2	30.1	33.8	11.2
Spain	944	10.7	12.4	41.7	23.0	12.2
Sweden	960	7.5	11.7	24.9	34.6	21.4
Australia	939	5.3	11.5	27.5	34.5	21.2
USA	933	5.8	9.8	31.6	30.0	22.8
Gender						
Female	3,297	4.8	11.3	29.1	33.5	21.3
Male	3,286	8.4	14.4	29.0	29.1	19.1
Age (in years)						
Up to 34	2,252	5.2	12.5	29.9	32.8	19.6
35 to 44	1,481	7.8	14.5	31.5	28.6	17.6
45 to 54	910	6.8	14.6	32.2	27.6	18.8
55 and more	1,945	7.1	11.2	24.6	33.4	23.7
Mode of transportation						
Pedestrians	1,580	6.8	11.8	28.7	29.7	23.0
Cyclists	410	6.1	15.1	29.0	33.9	15.9
PTW-riders	162	6.8	16.7	33.3	30.9	12.3
Car drivers	4,316	6.7	12.9	28.9	31.8	19.7

Table C43: Conditionally automated cars might collect private data from other road users. [*v1211*]

	Number of respondents	Not at all	Hardly	Moderately	Largely	Totally
Total						
	6,580	7.8	17.6	35.4	26.0	13.3
Country						
Europe	4,712	7.9	17.8	35.4	26.7	12.3
France	910	9.2	12.7	37.6	26.4	14.1
Germany	947	4.9	17.0	29.3	28.7	20.2
Slovenia	956	6.9	23.8	35.7	26.2	7.4
Spain	939	7.7	11.5	39.3	29.3	12.2
Sweden	960	10.6	23.3	35.3	23.1	7.6
Australia	939	8.1	17.1	35.0	25.0	14.7
USA	929	6.9	17.1	35.7	23.3	17.0
Gender						
Female	3,297	7.6	19.2	36.5	24.5	12.1
Male	3,278	7.9	16.0	34.3	27.4	14.5
Age (in years)						
Up to 34	2,253	6.5	18.7	34.5	27.2	13.2
35 to 44	1,475	7.9	18.2	36.2	25.3	12.4
45 to 54	908	7.9	15.7	36.8	26.2	13.3
55 and more	1,944	9.0	16.7	35.2	25.1	14.0
Mode of transportation						
Pedestrians	1,576	7.9	17.4	36.4	24.3	14.0
Cyclists	407	7.4	20.9	28.7	30.7	12.3
PTW-riders	160	8.8	11.3	43.1	24.4	12.5
Car drivers	4,317	7.6	17.4	35.4	26.5	13.1

Table C44: Should a conditionally automated car indicate to other road users that it is in automated mode? [*v13*]

	Number of respondents	No	Yes
Total			
	6,572	17.4	82.6
Country			
Europe	4,711	18.4	81.6
France	906	16.8	83.2
Germany	947	22.3	77.7
Slovenia	955	22.0	78.0
Spain	942	16.7	83.3
Sweden	961	14.4	85.6
Australia	934	13.3	86.7
USA	927	16.3	83.7
Gender			
Female	3,289	17.0	83.0
Male	3,278	17.8	82.2
Age (in years)			
Up to 34	2,243	17.5	82.5
35 to 44	1,479	19.9	80.1
45 to 54	910	19.2	80.8
55 and more	1,940	14.5	85.5
Mode of transportation			
Pedestrians	1,574	15.0	85.0
Cyclists	411	18.2	81.8
PTW-riders	161	22.4	77.6
Car drivers	4,305	18.1	81.9

Table C45: Signalling – With continuously glowing light signals at the car [*v1401*]

	Number of respondents	No	Yes
Total			
	6,596	79.8	20.2
Country			
Europe	4,723	81.7	18.3
France	908	64.5	35.5
Germany	947	82.2	17.8
Slovenia	960	92.0	8.0
Spain	943	82.5	17.5
Sweden	965	86.4	13.6
Australia	938	74.9	25.1
USA	935	74.8	25.2
Gender			
Female	3,300	80.8	19.2
Male	3,291	78.8	21.2
Age (in years)			
Up to 34	2,257	77.3	22.7
35 to 44	1,485	78.0	22.0
45 to 54	908	83.7	16.3
55 and more	1,946	82.1	17.9
Mode of transportation			
Pedestrians	1,580	79.7	20.3
Cyclists	411	80.3	19.7
PTW-riders	162	73.5	26.5
Car drivers	4,322	79.9	20.1

Table C46: Signalling – With flashing light signals at the car [*v1402*]

	Number of respondents	No	Yes
Total			
	6,596	64.2	35.8
Country			
Europe	4,723	66.3	33.7
France	908	75.0	25.0
Germany	947	65.8	34.2
Slovenia	960	62.2	37.8
Spain	943	64.2	35.8
Sweden	965	65.0	35.0
Australia	938	58.7	41.3
USA	935	58.6	41.4
Gender			
Female	3,300	65.6	34.4
Male	3,291	62.8	37.2
Age (in years)			
Up to 34	2,257	65.2	34.8
35 to 44	1,485	67.6	32.4
45 to 54	908	63.4	36.6
55 and more	1,946	60.7	39.3
Mode of transportation			
Pedestrians	1,580	62.9	37.1
Cyclists	411	63.3	36.7
PTW-riders	162	64.8	35.2
Car drivers	4,322	64.7	35.3

Table C47: Signalling – With audio signals [*v1403*]

	Number of respondents	No	Yes
Total			
	6,596	80.2	19.8
Country			
Europe	4,723	82.2	17.8
France	908	73.6	26.4
Germany	947	86.6	13.4
Slovenia	960	85.3	14.7
Spain	943	80.6	19.4
Sweden	965	84.7	15.3
Australia	938	76.8	23.2
USA	935	73.2	26.8
Gender			
Female	3,300	80.4	19.6
Male	3,291	80.0	20.0
Age (in years)			
Up to 34	2,257	80.6	19.4
35 to 44	1,485	79.9	20.1
45 to 54	908	82.8	17.2
55 and more	1,946	78.6	21.4
Mode of transportation			
Pedestrians	1,580	80.8	19.2
Cyclists	411	80.5	19.5
PTW-riders	162	78.4	21.6
Car drivers	4,322	80.0	20.0

Table C48: Signalling – With text displays [*v1404*]

	Number of respondents	No	Yes
Total			
	6,596	88.6	11.4
Country			
Europe	4,723	89.6	10.4
France	908	86.0	14.0
Germany	947	91.0	9.0
Slovenia	960	85.8	14.2
Spain	943	95.4	4.6
Sweden	965	89.4	10.6
Australia	938	85.8	14.2
USA	935	86.7	13.3
Gender			
Female	3,300	89.6	10.4
Male	3,291	87.7	12.3
Age (in years)			
Up to 34	2,257	84.8	15.2
35 to 44	1,485	86.8	13.2
45 to 54	908	90.0	10.0
55 and more	1,946	93.9	6.1
Mode of transportation			
Pedestrians	1,580	88.4	11.6
Cyclists	411	82.2	17.8
PTW-riders	162	84.6	15.4
Car drivers	4,322	89.4	10.6

Table C49: Signalling – By projecting a signal onto the road [*v1405*]

	Number of respondents	No	Yes
Total			
	6,596	78.2	21.8
Country			
Europe	4,723	78.2	21.8
France	908	75.4	24.6
Germany	947	81.0	19.0
Slovenia	960	75.3	24.7
Spain	943	73.9	26.1
Sweden	965	85.1	14.9
Australia	938	79.6	20.4
USA	935	77.0	23.0
Gender			
Female	3,300	79.2	20.8
Male	3,291	77.3	22.7
Age (in years)			
Up to 34	2,257	76.5	23.5
35 to 44	1,485	77.7	22.3
45 to 54	908	76.0	24.0
55 and more	1,946	81.7	18.3
Mode of transportation			
Pedestrians	1,580	77.7	22.3
Cyclists	411	79.3	20.7
PTW-riders	162	76.5	23.5
Car drivers	4,322	78.3	21.7

Table C50: Signalling – By a prolonged deceleration phase [*v1406*]

	Number of respondents	No	Yes
Total			
	6,596	70.5	29.5
Country			
Europe	4,723	68.5	31.5
France	908	72.9	27.1
Germany	947	76.9	23.1
Slovenia	960	61.1	38.9
Spain	943	70.3	29.7
Sweden	965	61.9	38.1
Australia	938	75.8	24.2
USA	935	74.9	25.1
Gender			
Female	3,300	68.4	31.6
Male	3,291	72.7	27.3
Age (in years)			
Up to 34	2,257	68.4	31.6
35 to 44	1,485	69.4	30.6
45 to 54	908	68.8	31.2
55 and more	1,946	74.5	25.5
Mode of transportation			
Pedestrians	1,580	68.6	31.4
Cyclists	411	68.1	31.9
PTW-riders	162	77.2	22.8
Car drivers	4,322	71.0	29.0

Table C51: Signalling – Others, namely: [*v1407*]

	Number of respondents	No	Yes
Total			
	6,596	98.6	1.4
Country			
Europe	4,723	98.8	1.2
France	908	99.0	1.0
Germany	947	98.8	1.2
Slovenia	960	99.7	0.3
Spain	943	97.7	2.3
Sweden	965	98.7	1.3
Australia	938	98.6	1.4
USA	935	97.6	2.4
Gender			
Female	3,300	98.4	1.6
Male	3,291	98.8	1.2
Age (in years)			
Up to 34	2,257	99.0	1.0
35 to 44	1,485	98.5	1.5
45 to 54	908	98.3	1.7
55 and more	1,946	98.3	1.7
Mode of transportation			
Pedestrians	1,580	98.4	1.6
Cyclists	411	99.5	0.5
PTW-riders	162	99.4	0.6
Car drivers	4,322	98.6	1.4

Table C52: Signalling – No signals necessary [*v1408*]

	Number of respondents	No	Yes
Total			
	6,596	91.7	8.3
Country			
Europe	4,723	91.6	8.4
France	908	93.0	7.0
Germany	947	87.5	12.5
Slovenia	960	93.3	6.7
Spain	943	92.0	8.0
Sweden	965	92.0	8.0
Australia	938	90.9	9.1
USA	935	92.9	7.1
Gender			
Female	3,300	91.8	8.2
Male	3,291	91.5	8.5
Age (in years)			
Up to 34	2,257	94.2	5.8
35 to 44	1,485	91.6	8.4
45 to 54	908	90.5	9.5
55 and more	1,946	89.3	10.7
Mode of transportation			
Pedestrians	1,580	93.8	6.2
Cyclists	411	93.2	6.8
PTW-riders	162	93.2	6.8
Car drivers	4,322	90.8	9.2

Table C53: The conditionally automated car should always decide to minimise loss of life for all parties involved. [*v1501*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,571	1.8	3.0	13.9	35.0	46.3
Country						
Europe	4,706	1.7	3.1	13.8	35.2	46.2
France	904	2.2	3.5	16.5	38.8	38.9
Germany	947	1.4	3.2	14.7	25.1	55.6
Slovenia	953	1.0	1.9	9.3	38.1	49.6
Spain	945	2.2	3.4	10.9	37.0	46.5
Sweden	957	1.6	3.4	17.8	37.0	40.2
Australia	934	2.1	2.1	13.8	36.1	45.8
USA	931	1.9	3.4	14.2	33.1	47.4
Gender						
Female	3,288	1.8	2.8	14.4	35.5	45.6
Male	3,278	1.7	3.2	13.4	34.6	47.1
Age (in years)						
Up to 34	2,249	1.6	3.7	16.2	35.9	42.6
35 to 44	1,478	1.4	3.3	14.3	36.1	44.9
45 to 54	904	2.0	2.4	11.5	35.2	48.9
55 and more	1,940	2.2	2.2	12.0	33.1	50.5
Mode of transportation						
Pedestrians	1,580	2.0	2.7	13.7	35.0	46.6
Cyclists	409	1.7	5.1	16.1	35.2	41.8
PTW-riders	162	1.9	10.5	16.0	38.3	33.3
Car drivers	4,300	1.7	2.7	13.7	34.9	47.1

Table C54: The conditionally automated car should minimise negative impacts first on its passengers and then, if possible, on others. [*v1502*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,577	4.3	11.7	31.2	35.0	17.8
Country						
Europe	4,709	4.8	12.9	32.9	32.7	16.7
France	907	5.4	12.2	32.5	33.1	16.8
Germany	943	4.9	10.1	36.3	30.5	18.2
Slovenia	956	6.1	15.2	36.1	30.4	12.2
Spain	942	4.0	15.6	16.0	39.0	25.4
Sweden	961	3.4	11.4	43.1	30.8	11.2
Australia	937	3.1	8.3	26.1	42.5	20.0
USA	931	3.5	8.8	27.8	38.7	21.2
Gender						
Female	3,291	3.6	11.5	34.2	33.6	17.0
Male	3,281	5.0	11.8	28.1	36.3	18.7
Age (in years)						
Up to 34	2,247	3.5	11.1	31.6	35.5	18.2
35 to 44	1,481	4.0	13.3	32.1	34.6	16.0
45 to 54	907	6.5	14.0	31.0	32.1	16.4
55 and more	1,942	4.6	10.0	30.1	35.9	19.4
Mode of transportation						
Pedestrians	1,574	4.5	12.4	33.4	32.5	17.3
Cyclists	410	6.3	13.7	32.9	30.0	17.1
PTW-riders	161	4.3	7.5	28.6	39.1	20.5
Car drivers	4,311	4.1	11.4	30.3	36.2	17.9

Table C55: Life is sacred. Therefore, it is wrong for the conditionally automated car to decide to kill one person willingly, even if this saves the rest. [*v1503*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,574	3.6	8.9	28.9	27.0	31.5
Country						
Europe	4,705	3.4	9.2	28.6	26.5	32.3
France	907	2.0	4.4	25.4	30.7	37.6
Germany	942	5.0	8.2	32.3	21.9	32.7
Slovenia	956	2.5	9.2	26.4	28.5	33.5
Spain	946	3.7	13.7	18.9	27.9	35.7
Sweden	954	4.0	10.1	39.8	23.9	22.2
Australia	935	2.9	9.5	29.1	29.3	29.2
USA	934	4.8	7.2	30.5	27.3	30.2
Gender						
Female	3,294	2.8	7.9	29.2	27.3	32.8
Male	3,275	4.3	10.0	28.6	26.7	30.3
Age (in years)						
Up to 34	2,253	3.3	10.4	28.6	29.6	28.1
35 to 44	1,476	2.8	8.1	30.2	27.4	31.4
45 to 54	906	4.0	9.3	26.4	25.9	34.4
55 and more	1,939	4.2	7.7	29.5	24.2	34.3
Mode of transportation						
Pedestrians	1,582	3.6	8.3	29.6	26.5	31.9
Cyclists	410	4.9	11.0	28.0	32.9	23.2
PTW-riders	159	3.1	13.8	25.8	32.1	25.2
Car drivers	4,304	3.5	8.6	28.8	26.7	32.3

Table C56: There is no universal right or wrong, hence the conditionally automated car should take a decision that is moral in the specific society. [*v1504*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,569	6.4	10.9	35.0	33.4	14.4
Country						
Europe	4,704	6.6	11.2	34.2	33.5	14.4
France	908	6.4	6.7	35.9	34.0	17.0
Germany	946	9.7	10.7	35.9	31.0	12.7
Slovenia	956	4.1	10.8	32.8	38.0	14.3
Spain	939	5.6	14.8	21.7	37.8	20.0
Sweden	955	7.3	13.1	44.7	26.6	8.3
Australia	935	5.7	8.3	35.3	36.8	13.9
USA	930	6.0	11.4	38.2	29.4	15.1
Gender						
Female	3,293	6.7	10.6	37.0	32.4	13.3
Male	3,271	6.1	11.0	33.0	34.3	15.6
Age (in years)						
Up to 34	2,252	5.1	10.8	36.1	33.9	14.1
35 to 44	1,475	6.3	11.7	35.2	32.9	13.9
45 to 54	903	5.6	10.6	30.6	35.3	17.8
55 and more	1,939	8.4	10.3	35.5	32.2	13.7
Mode of transportation						
Pedestrians	1,575	7.6	10.0	36.8	32.1	13.5
Cyclists	409	4.2	11.7	29.8	35.0	19.3
PTW-riders	159	7.5	11.3	27.7	36.5	17.0
Car drivers	4,307	6.1	11.0	35.2	33.6	14.2

Table C57: The conditionally automated car should take a decision that is considered moral by its owner (and not necessarily by others) [*v1505*]

	Number of respondents	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Total						
	6,577	10.9	20.0	32.7	26.7	9.7
Country						
Europe	4,708	11.7	20.4	32.3	26.7	8.9
France	909	9.6	14.1	36.4	29.5	10.5
Germany	945	12.9	17.4	35.1	26.1	8.5
Slovenia	956	15.0	25.5	26.4	24.1	9.1
Spain	945	10.9	28.7	21.4	29.4	9.6
Sweden	953	10.1	16.3	42.5	24.3	6.8
Australia	934	8.1	19.9	33.0	28.2	10.8
USA	935	9.5	17.8	34.5	25.6	12.6
Gender						
Female	3,292	10.7	19.8	34.9	25.8	8.7
Male	3,280	11.0	20.2	30.5	27.7	10.6
Age (in years)						
Up to 34	2,253	10.2	20.1	32.3	26.3	11.1
35 to 44	1,479	11.0	19.6	31.4	27.5	10.5
45 to 54	907	13.0	23.4	28.6	26.5	8.6
55 and more	1,938	10.7	18.5	36.2	26.7	7.9
Mode of transportation						
Pedestrians	1,581	12.0	20.2	33.8	24.4	9.6
Cyclists	409	11.0	18.6	33.3	24.9	12.2
PTW-riders	160	6.9	13.8	25.6	38.8	15.0
Car drivers	4,307	10.6	20.2	32.4	27.4	9.4

Table C58: Setting of crash guidelines – Insurance industry [*v1601*]

	Number of respondents	No	Yes
Total			
	6,584	77.2	22.8
Country			
Europe	4,713	79.3	20.7
France	905	68.6	31.4
Germany	944	82.7	17.3
Slovenia	957	87.6	12.4
Spain	946	82.9	17.1
Sweden	961	74.4	25.6
Australia	938	73.8	26.2
USA	933	70.0	30.0
Gender			
Female	3,294	76.1	23.9
Male	3,285	78.4	21.6
Age (in years)			
Up to 34	2,256	78.2	21.8
35 to 44	1,481	81.5	18.5
45 to 54	908	79.8	20.2
55 and more	1,939	71.6	28.4
Mode of transportation			
Pedestrians	1,578	79.0	21.0
Cyclists	410	76.6	23.4
PTW-riders	161	77.0	23.0
Car drivers	4,315	76.5	23.5

Table C59: Setting of crash guidelines – Public [*v1602*]

	Number of respondents	No	Yes
Total			
	6,584	72.8	27.2
Country			
Europe	4,713	74.5	25.5
France	905	73.0	27.0
Germany	944	72.2	27.8
Slovenia	957	71.1	28.9
Spain	946	83.5	16.5
Sweden	961	72.6	27.4
Australia	938	69.7	30.3
USA	933	67.3	32.7
Gender			
Female	3,294	73.5	26.5
Male	3,285	72.1	27.9
Age (in years)			
Up to 34	2,256	66.6	33.4
35 to 44	1,481	74.7	25.3
45 to 54	908	76.9	23.1
55 and more	1,939	76.6	23.4
Mode of transportation			
Pedestrians	1,578	69.9	30.1
Cyclists	410	71.5	28.5
PTW-riders	161	70.8	29.2
Car drivers	4,315	74.0	26.0

Table C60: Setting of crash guidelines – Car manufacturer [*v1603*]

	Number of respondents	No	Yes
Total			
	6,584	58.2	41.8
Country			
Europe	4,713	60.4	39.6
France	905	58.8	41.2
Germany	944	65.0	35.0
Slovenia	957	55.1	44.9
Spain	946	65.2	34.8
Sweden	961	57.8	42.2
Australia	938	50.6	49.4
USA	933	55.2	44.8
Gender			
Female	3,294	56.9	43.1
Male	3,285	59.6	40.4
Age (in years)			
Up to 34	2,256	59.0	41.0
35 to 44	1,481	60.9	39.1
45 to 54	908	59.0	41.0
55 and more	1,939	55.0	45.0
Mode of transportation			
Pedestrians	1,578	62.4	37.6
Cyclists	410	64.6	35.4
PTW-riders	161	58.4	41.6
Car drivers	4,315	56.1	43.9

Table C61: Setting of crash guidelines – Ethics council [*v1604*]

	Number of respondents	No	Yes
Total			
	6,584	69.1	30.9
Country			
Europe	4,713	67.8	32.2
France	905	64.9	35.1
Germany	944	73.3	26.7
Slovenia	957	64.3	35.7
Spain	946	68.8	31.2
Sweden	961	67.6	32.4
Australia	938	67.2	32.8
USA	933	77.4	22.6
Gender			
Female	3,294	68.2	31.8
Male	3,285	70.0	30.0
Age (in years)			
Up to 34	2,256	67.6	32.4
35 to 44	1,481	69.1	30.9
45 to 54	908	67.7	32.3
55 and more	1,939	71.4	28.6
Mode of transportation			
Pedestrians	1,578	65.4	34.6
Cyclists	410	70.0	30.0
PTW-riders	161	80.7	19.3
Car drivers	4,315	69.7	30.3

Table C62: Setting of crash guidelines – Government regulators [*v1605*]

	Number of respondents	No	Yes
Total			
	6,584	60.3	39.7
Country			
Europe	4,713	65.1	34.9
France	905	67.5	32.5
Germany	944	63.0	37.0
Slovenia	957	73.6	26.4
Spain	946	54.1	45.9
Sweden	961	67.0	33.0
Australia	938	37.7	62.3
USA	933	58.7	41.3
Gender			
Female	3,294	63.8	36.2
Male	3,285	56.7	43.3
Age (in years)			
Up to 34	2,256	60.8	39.2
35 to 44	1,481	62.1	37.9
45 to 54	908	65.0	35.0
55 and more	1,939	56.1	43.9
Mode of transportation			
Pedestrians	1,578	58.7	41.3
Cyclists	410	61.5	38.5
PTW-riders	161	75.8	24.2
Car drivers	4,315	60.0	40.0

Table C63: Setting of crash guidelines – Research facilities [*v1606*]

	Number of respondents	No	Yes
Total			
	6,584	61.8	38.2
Country			
Europe	4,713	62.3	37.7
France	905	74.7	25.3
Germany	944	64.8	35.2
Slovenia	957	49.5	50.5
Spain	946	59.0	41.0
Sweden	961	64.1	35.9
Australia	938	59.4	40.6
USA	933	61.8	38.2
Gender			
Female	3,294	61.0	39.0
Male	3,285	62.7	37.3
Age (in years)			
Up to 34	2,256	60.8	39.2
35 to 44	1,481	61.3	38.7
45 to 54	908	59.1	40.9
55 and more	1,939	64.5	35.4
Mode of transportation			
Pedestrians	1,578	63.5	36.5
Cyclists	410	55.6	44.4
PTW-riders	161	72.7	27.3
Car drivers	4,315	61.2	38.8

Table C64: Setting of crash guidelines – Religious representatives [*v1607*]

	Number of respondents	No	Yes
Total			
	6,584	96.5	3.5
Country			
Europe	4,713	97.2	2.8
France	905	97.8	2.2
Germany	944	94.5	5.5
Slovenia	957	98.5	1.5
Spain	946	98.3	1.7
Sweden	961	97.1	2.9
Australia	938	95.3	4.7
USA	933	94.0	6.0
Gender			
Female	3,294	97.3	2.7
Male	3,285	95.7	4.3
Age (in years)			
Up to 34	2,256	94.9	5.1
35 to 44	1,481	96.0	4.0
45 to 54	908	98.6	1.4
55 and more	1,939	97.7	2.3
Mode of transportation			
Pedestrians	1,578	95.9	4.1
Cyclists	410	95.6	4.4
PTW-riders	161	88.8	11.2
Car drivers	4,315	97.1	2.9

Table C65: Setting of crash guidelines – Representatives of car drivers, like automobile clubs [*v1608*]

	Number of respondents	No	Yes
Total			
	6,584	79.5	20.5
Country			
Europe	4,713	80.5	19.5
France	905	81.0	19.0
Germany	944	74.5	25.5
Slovenia	957	78.9	21.1
Spain	946	81.6	18.4
Sweden	961	86.7	13.3
Australia	938	73.1	26.9
USA	933	80.9	19.1
Gender			
Female	3,294	78.8	21.2
Male	3,285	80.3	19.7
Age (in years)			
Up to 34	2,256	82.7	17.3
35 to 44	1,481	80.4	19.6
45 to 54	908	79.1	20.9
55 and more	1,939	75.5	24.5
Mode of transportation			
Pedestrians	1,578	80.4	19.6
Cyclists	410	82.0	18.0
PTW-riders	161	85.1	14.9
Car drivers	4,315	78.9	21.1

Table C66: Setting of crash guidelines – Others, namely: [*v1609*]

	Number of respondents	No	Yes
Total			
	6,584	97.3	2.7
Country			
Europe	4,713	97.2	2.8
France	905	97.8	2.2
Germany	944	95.8	4.2
Slovenia	957	98.3	1.7
Spain	946	97.6	2.4
Sweden	961	96.6	3.4
Australia	938	98.2	1.8
USA	933	97.0	3.0
Gender			
Female	3,294	96.9	3.1
Male	3,285	97.7	2.3
Age (in years)			
Up to 34	2,256	98.5	1.5
35 to 44	1,481	97.0	3.0
45 to 54	908	96.7	3.3
55 and more	1,939	96.4	3.6
Mode of transportation			
Pedestrians	1,578	96.8	3.2
Cyclists	410	98.0	2.0
PTW-riders	161	98.8	1.2
Car drivers	4,315	97.4	2.6

Table C67: Who should have the ultimate decision about how the conditionally automated car behaves in the event of a crash? [*v17*]

	Number of respondents	Preset and mandatory regulations	Modifiable regulations
Total			
	6,122	77.7	22.3
Country			
Europe	4,379	77.1	22.9
France	861	83.2	16.8
Germany	905	73.9	26.1
Slovenia	843	78.6	21.4
Spain	906	82.6	17.4
Sweden	864	67.4	32.6
Australia	876	81.7	18.3
USA	867	76.4	23.6
Gender			
Female	3,096	76.7	23.3
Male	3,021	78.6	21.4
Age (in years)			
Up to 34	2,158	76.6	23.4
35 to 44	1,396	77.2	22.8
45 to 54	827	79.6	20.4
55 and more	1,741	78.5	21.5
Mode of transportation			
Pedestrians	1,478	77.9	22.1
Cyclists	374	77.5	22.5
PTW-riders	142	69.0	31.0
Car drivers	4,018	77.7	22.3

Table C68: Who should be liable in the event of a crash caused by a conditionally automated car in automated mode? [*v18*]

	Number of respondents	Car manu-facturer	Car owner	Person behind the steering wheel	Others
Total					
	6,593	36.0	15.7	45.4	2.9
Country					
Europe	4,722	36.6	15.2	45.4	2.8
France	909	34.0	21.1	42.0	2.9
Germany	947	39.5	11.3	45.5	3.7
Slovenia	958	41.8	17.3	38.6	2.3
Spain	946	38.7	15.4	43.4	2.4
Sweden	962	29.1	11.1	57.0	2.8
Australia	937	36.0	14.8	46.6	2.6
USA	934	33.2	18.7	44.5	3.5
Gender					
Female	3,299	33.5	14.6	48.7	3.2
Male	3,289	38.6	16.7	42.2	2.6
Age (in years)					
Up to 34	2,257	39.1	16.6	40.9	3.4
35 to 44	1,481	37.5	16.8	43.2	2.5
45 to 54	908	38.4	14.9	44.5	2.2
55 and more	1,947	30.3	14.1	52.7	2.9
Mode of transportation					
Pedestrians	1,582	35.1	14.7	46.6	3.7
Cyclists	410	31.5	20.0	45.6	2.9
PTW-riders	160	39.4	25.0	35.0	0.6
Car drivers	4,320	36.8	15.4	45.2	2.6

Table C69: Data access – Car manufacturer [*v1901*]

	Number of respondents	No	Yes
Total			
	6,600	71.8	28.2
Country			
Europe	4,729	73.8	26.2
France	909	69.1	30.9
Germany	948	83.5	16.5
Slovenia	961	73.7	26.3
Spain	946	77.7	22.3
Sweden	965	64.9	35.1
Australia	936	65.3	34.7
USA	935	68.2	31.8
Gender			
Female	3,303	75.0	25.0
Male	3,292	68.7	31.3
Age (in years)			
Up to 34	2,259	69.9	30.1
35 to 44	1,482	71.1	28.9
45 to 54	910	74.8	25.2
55 and more	1,949	73.1	26.9
Mode of transportation			
Pedestrians	1,583	73.8	26.2
Cyclists	410	69.0	31.0
PTW-riders	161	69.6	30.4
Car drivers	4,325	71.0	29.0

Table C70: Data access – Insurance company [*v1902*]

	Number of respondents	No	Yes
Total			
	6,600	63.8	36.2
Country			
Europe	4,729	66.8	33.2
France	909	57.5	42.5
Germany	948	75.9	24.1
Slovenia	961	77.2	22.8
Spain	946	69.3	30.7
Sweden	965	53.8	46.2
Australia	936	55.2	44.8
USA	935	57.1	42.9
Gender			
Female	3,303	63.4	36.6
Male	3,292	64.3	35.7
Age (in years)			
Up to 34	2,259	64.8	35.2
35 to 44	1,482	66.7	33.3
45 to 54	910	68.1	31.9
55 and more	1,949	58.5	41.5
Mode of transportation			
Pedestrians	1,583	62.8	37.2
Cyclists	410	61.0	39.0
PTW-riders	161	62.1	37.9
Car drivers	4,325	64.6	35.4

Table C71: Data access – Police [*v1903*]

	Number of respondents	No	Yes
Total			
	6,600	47.8	52.2
Country			
Europe	4,729	46.8	53.2
France	909	41.9	58.1
Germany	948	51.1	48.9
Slovenia	961	51.1	48.9
Spain	946	47.6	52.4
Sweden	965	42.0	58.0
Australia	936	42.2	57.8
USA	935	58.5	41.5
Gender			
Female	3,303	47.6	52.4
Male	3,292	48.0	52.0
Age (in years)			
Up to 34	2,259	50.4	49.6
35 to 44	1,482	49.4	50.6
45 to 54	910	46.9	53.1
55 and more	1,949	43.9	56.1
Mode of transportation			
Pedestrians	1,583	44.0	56.0
Cyclists	410	50.2	49.8
PTW-riders	161	49.1	50.9
Car drivers	4,325	49.0	51.0

Table C72: Data access – Car owner [*v1904*]

	Number of respondents	No	Yes
Total			
	6,600	35.0	65.0
Country			
Europe	4,729	35.8	64.2
France	909	36.3	63.7
Germany	948	42.9	57.1
Slovenia	961	28.9	71.1
Spain	946	31.6	68.4
Sweden	965	39.5	60.5
Australia	936	33.0	67.0
USA	935	32.4	67.6
Gender			
Female	3,303	33.3	66.7
Male	3,292	36.6	63.4
Age (in years)			
Up to 34	2,259	35.1	64.9
35 to 44	1,482	36.4	63.6
45 to 54	910	34.6	65.4
55 and more	1,949	33.8	66.2
Mode of transportation			
Pedestrians	1,583	36.6	63.4
Cyclists	410	39.5	60.5
PTW-riders	161	54.0	46.0
Car drivers	4,325	33.1	66.9

Table C73: Data access – Others, namely: [*v1905*]

	Number of respondents	No	Yes
Total			
	6,600	99.2	0.8
Country			
Europe	4,729	99.2	0.8
France	909	98.7	1.3
Germany	948	99.8	0.2
Slovenia	961	99.6	0.4
Spain	946	99.2	0.8
Sweden	965	98.5	1.5
Australia	936	99.1	0.9
USA	935	99.3	0.7
Gender			
Female	3,303	99.4	0.6
Male	3,292	98.9	1.1
Age (in years)			
Up to 34	2,259	99.3	0.7
35 to 44	1,482	99.5	0.5
45 to 54	910	98.8	1.2
55 and more	1,949	98.9	1.1
Mode of transportation			
Pedestrians	1,583	99.1	0.9
Cyclists	410	99.3	0.7
PTW-riders	161	100.0	0.0
Car drivers	4,325	99.2	0.8

Table C74: Data access – Nobody [*v1906*]

	Number of respondents	No	Yes
Total			
	6,600	90.7	9.3
Country			
Europe	4,729	90.8	9.2
France	909	92.6	7.4
Germany	948	82.6	17.4
Slovenia	961	93.1	6.9
Spain	946	94.2	5.8
Sweden	965	91.3	8.7
Australia	936	91.7	8.3
USA	935	89.3	10.7
Gender			
Female	3,303	91.6	8.4
Male	3,292	89.8	10.2
Age (in years)			
Up to 34	2,259	91.9	8.1
35 to 44	1,482	91.6	8.4
45 to 54	910	90.7	9.3
55 and more	1,949	88.5	11.5
Mode of transportation			
Pedestrians	1,583	90.6	9.4
Cyclists	410	92.2	7.8
PTW-riders	161	90.7	9.3
Car drivers	4,325	90.7	9.3

Table C75: Do you think that drivers of conditionally automated cars should receive special training? [*v20*]

	Number of respondents	No	Yes
Total			
	6,590	12.3	87.7
Country			
Europe	4,723	13.1	86.9
France	907	10.4	89.6
Germany	947	13.2	86.8
Slovenia	961	14.0	86.0
Spain	944	12.7	87.3
Sweden	964	14.8	85.2
Australia	937	10.1	89.9
USA	930	10.9	89.1
Gender			
Female	3,299	9.0	91.0
Male	3,286	15.7	84.3
Age (in years)			
Up to 34	2,254	15.4	84.6
35 to 44	1,480	13.6	86.4
45 to 54	908	11.5	88.5
55 and more	1,948	8.3	91.7
Mode of transportation			
Pedestrians	1,581	12.3	87.7
Cyclists	410	14.4	85.6
PTW-riders	160	25.6	74.4
Car drivers	4,318	11.9	88.1

Table C76: Gender [*v21*]

	Number of respondents	Female	Male	Divers
Total				
	6,608	50.1	49.9	0.1
Country				
Europe	4,732	50.0	49.9	0.1
France	910	50.1	49.9	0.0
Germany	948	49.7	50.3	0.0
Slovenia	962	50.4	49.5	0.1
Spain	947	50.2	49.7	0.1
Sweden	965	49.8	50.1	0.1
Australia	940	49.4	50.6	0.0
USA	936	50.9	48.9	0.2
Age (in years)				
Up to 34	2,262	52.6	47.2	0.2
35 to 44	1,486	54.0	46.0	0.0
45 to 54	911	49.8	50.2	0.0
55 and more	1,949	44.2	55.7	0.1
Mode of transportation				
Pedestrians	1,583	53.9	45.9	0.2
Cyclists	412	36.4	63.6	0.0
PTW-riders	162	36.4	63.6	0.0
Car drivers	4,330	50.0	49.9	0.0

Table C77: When were you born? – Age categories [*age_4cat* / use of *age* for mean]

	Number of respondents	Up to 34 years	35 to 44 years	45 to 54 years	55 years and more	Mean
Total						
	6,608	34.2	22.5	13.8	29.5	44.8
Country						
Europe	4,732	33.4	23.3	18.1	25.2	43.7
France	910	33.8	20.7	13.6	31.9	45.2
Germany	948	30.8	18.8	9.6	40.8	47.7
Slovenia	962	37.2	30.6	29.5	2.7	38.2
Spain	947	29.0	26.0	25.1	19.9	43.2
Sweden	965	36.1	20.3	12.3	31.3	44.2
Australia	940	36.5	21.4	3.9	38.2	46.6
USA	936	36.1	19.6	1.9	42.4	48.9
Gender						
Female	3,308	36.0	24.2	13.7	26.1	43.4
Male	3,295	32.4	20.8	13.9	33.0	46.3
Age (in years)						
Up to 34						27.9
35 to 44						39.3
45 to 54						49.4
55 and more						66.6
Mode of transportation						
Pedestrians	1,583	37.3	20.6	13.0	29.1	43.7
Cyclists	412	45.9	20.9	11.9	21.4	40.4
PTW-riders	162	42.0	27.2	15.4	15.4	39.6
Car drivers	4,330	31.8	23.5	14.3	30.4	45.7

Table C78: Highest education level [*v23*]

	Number of respondents	1	2	3	4	5	6	7
Total								
	6,598	0.2	1.0	14.6	27.7	12.0	27.9	16.5
Country								
Europe	4,732	0.3	1.4	17.5	26.9	10.8	24.5	18.7
France	910	0.1	1.5	20.9	24.9	0.0	31.3	21.2
Germany	948	0.4	0.6	20.8	15.7	32.9	13.1	16.5
Slovenia	962	0.2	0.1	13.1	42.3	10.2	30.9	3.2
Spain	947	0.1	3.3	13.7	19.0	10.7	28.1	25.1
Sweden	965	0.5	1.2	19.1	31.9	0.0	19.4	27.9
Australia	940	0.0	0.4	11.9	15.5	17.7	45.7	8.7
USA	926	0.0	0.0	2.8	44.3	12.7	27.5	12.6
Gender								
Female	3,304	0.1	0.8	13.8	28.3	12.7	29.0	15.4
Male	3,289	0.3	1.3	15.5	27.1	11.4	26.9	17.6
Age (in years)								
Up to 34	2,257	0.2	0.7	9.4	32.2	9.5	31.0	16.9
35 to 44	1,481	0.3	0.5	11.3	24.2	13.2	30.6	20.0
45 to 54	911	0.1	1.4	19.4	28.5	12.0	23.5	15.0
55 and more	1,949	0.2	1.6	21.0	24.7	14.2	24.5	13.9
Mode of transportation								
Pedestrians	1,579	0.7	0.6	16.9	26.3	11.5	23.5	20.5
Cyclists	409	0.0	1.2	17.1	23.5	11.2	26.9	20.0
PTW-riders	162	0.0	3.1	16.7	24.1	8.6	29.0	18.5
Car drivers	4,327	0.0	1.1	13.4	28.6	12.5	29.7	14.6

1: No formal education

2: Primary school (elementary education)

3: Lower secondary (secondary completed that does not allow entry to university: end of obligatory school)

4: Upper secondary (programmes that allow entry to university)

5: Post-secondary, non-tertiary (other upper secondary programmes with a focus on the labour market or technical training)

6: Lower level tertiary, first stage (also technical schools at a tertiary level)

7: Upper level tertiary (Master Doctor)

Table C79: Which category in this list applies best to the place where you are living? [*v24*]

	Number of respondents	Farm or home in the country	Country village	Town or small city	Suburbs or outskirts of a big city	Big city
Total						
	6,608	4.3	15.2	31.5	22.8	26.2
Country						
Europe	4,732	3.6	19.3	34.2	14.7	28.2
France	910	4.3	25.7	32.7	18.4	18.9
Germany	948	1.1	21.9	36.7	11.5	28.8
Slovenia	962	5.3	27.2	32.1	10.6	24.7
Spain	947	0.8	6.3	33.8	15.7	43.3
Sweden	965	6.4	15.3	35.6	17.5	25.1
Australia	940	2.9	5.1	18.9	53.1	20.0
USA	936	9.6	4.6	30.1	33.3	22.3
Gender						
Female	3,308	4.6	15.6	32.3	22.6	24.8
Male	3,295	4.1	14.7	30.6	23.0	27.6
Age (in years)						
Up to 34	2,262	3.7	12.8	31.3	22.6	29.6
35 to 44	1,486	3.7	16.5	27.5	21.1	31.3
45 to 54	911	3.6	19.1	33.5	15.6	28.2
55 and more	1,949	6.0	15.1	33.8	27.8	17.4
Mode of transportation						
Pedestrians	1,583	1.3	9.5	31.1	18.9	39.2
Cyclists	412	2.2	10.0	36.9	13.6	37.4
PTW-riders	162	4.9	13.6	29.0	17.3	35.2
Car drivers	4,330	5.7	17.9	31.3	25.3	19.8

Table C80: Do you hold a driving licence for cars or powered two-wheelers? [*v25*]

	Number of respondents	No	Yes
Total			
	6,608	13.0	87.0
Country			
Europe	4,732	13.5	86.5
France	910	7.8	92.2
Germany	948	13.0	87.0
Slovenia	962	5.7	94.3
Spain	947	24.0	76.0
Sweden	965	17.1	82.9
Australia	940	10.7	89.3
USA	936	12.4	87.6
Gender			
Female	3,308	14.8	85.2
Male	3,295	11.1	88.9
Age (in years)			
Up to 34	2,262	16.4	83.6
35 to 44	1,486	12.5	87.5
45 to 54	911	13.2	86.8
55 and more	1,949	9.3	90.7
Mode of transportation			
Pedestrians	1,583	27.4	72.6
Cyclists	412	16.5	83.5
PTW-riders	162	14.8	85.2
Car drivers	4,330	6.3	93.7

Table C81: How often do you drive a car or ride a powered two-wheeler? [*v26*]

	Number of respondents	Never	Rarely	Several times a month	Several times a week	Daily
Total						
	5,570	5.8	10.1	11.9	26.7	45.4
Country						
Europe	4,091	6.2	11.2	12.4	24.6	45.7
France	839	5.7	7.4	11.2	27.9	47.8
Germany	825	6.8	12.8	11.3	32.6	36.5
Slovenia	907	0.9	4.9	6.6	15.1	72.5
Spain	720	15.0	17.1	20.0	18.8	29.2
Sweden	800	4.1	15.3	14.6	28.7	37.3
Australia	839	4.6	7.2	9.8	31.1	47.3
USA	820	5.0	8.0	11.7	33.2	42.1
Gender						
Female	2,818	6.1	10.3	13.1	27.8	42.8
Male	2,929	5.5	10.0	10.8	25.7	48.0
Age (in years)						
Up to 34	1,892	4.0	13.7	14.2	23.2	44.9
35 to 44	1,300	5.8	8.2	10.2	21.0	54.8
45 to 54	791	6.4	8.3	10.9	21.6	52.7
55 and more	1,767	7.4	8.5	11.3	37.1	35.7
Mode of transportation						
Pedestrians	1,150	10.8	22.1	27.5	29.2	10.4
Cyclists	344	6.1	27.3	25.3	31.4	9.9
PTW-riders	138	1.4	11.6	17.4	32.6	37.0
Car drivers	4,056	4.3	4.8	6.2	25.6	59.2

Table C82: In our society, there are groups which tend to be towards the top and groups which tend to be towards the bottom. Below is a scale that runs from the top (10) to the bottom (01). Where would you put yourself on this scale? [*v27*]

	Number of respondents	01	02	03	04	05	06	07	08	09	10	Mean
Total												
	6,608	1.1	1.2	2.5	5.6	23.0	23.1	22.6	12.8	4.0	4.1	6.3
Country												
Europe	4,732	0.8	1.1	2.2	5.6	23.8	24.0	22.9	12.1	3.8	3.6	6.2
France	910	0.7	0.7	1.6	5.5	29.3	22.6	24.0	10.3	3.1	2.2	6.1
Germany	948	1.3	2.0	3.6	8.5	23.5	29.9	19.0	8.4	2.5	1.3	5.8
Slovenia	962	0.8	0.8	1.1	2.8	18.3	20.1	22.1	18.3	7.8	7.8	6.8
Spain	947	0.3	0.3	1.3	3.9	25.8	25.4	24.4	11.7	2.9	4.0	6.3
Sweden	965	1.1	1.8	3.1	7.2	22.5	22.1	25.1	11.7	2.8	2.7	6.1
Australia	940	1.2	1.2	2.8	4.4	20.6	21.7	26.5	14.0	4.4	3.3	6.3
USA	936	2.1	1.5	4.3	7.3	20.9	19.7	17.2	15.1	4.8	7.2	6.3
Gender												
Female	3,308	1.2	1.3	2.8	5.9	25.8	24.4	22.0	10.7	3.2	2.8	6.1
Male	3,295	1.0	1.1	2.2	5.4	20.4	21.7	23.2	15.0	4.9	5.3	6.4
Age (in years)												
Up to 34	2,262	1.1	1.2	3.3	6.3	22.6	21.8	22.2	12.5	4.2	4.8	6.2
35 to 44	1,486	1.3	1.1	2.6	5.1	22.9	21.9	23.5	12.1	4.1	5.4	6.3
45 to 54	911	1.2	1.1	1.4	6.0	23.2	24.4	22.1	12.2	4.2	4.3	6.3
55 and more	1,949	0.8	1.3	2.2	5.1	23.3	24.9	22.6	14.0	3.7	2.2	6.2
Mode of transportation												
Pedestrians	1,583	1.7	1.6	3.9	8.4	27.3	23.3	19.3	8.0	3.2	3.2	5.9
Cyclists	412	0.7	0.5	2.2	6.8	22.1	21.1	23.3	15.8	4.6	2.9	6.3
PTW-riders	162	0.0	1.2	2.5	3.1	17.9	19.8	24.1	19.8	4.9	6.8	6.7
Car drivers	4,330	0.9	1.1	1.9	4.7	21.6	23.2	23.8	14.1	4.2	4.5	6.4

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