



Motorcyclists are not very keen on new technologies (full report).

In 2019 we repeated the survey on ITS for motorcycles that was done in 2014 as part of the RIDERSCAN project. We wanted to see how riders think now of technological innovations and how their opinion would be changed with some of those techniques becoming more common.

Summary

A large majority of the riders that reacted to the survey is very experienced, both in years and in kilometres. The differences in age and experience do not show much in the answers: on all systems the answers are more or less the same, although less experienced and younger riders are slightly more positive to innovative systems. In general, riders are not too positive about most of the techniques. Especially when the systems interferes with the riding or gives information that is not seen as really necessary they are more often qualified as useless or even dangerous. Other systems from which riders don't expect very much are innovations in helmets and garments. Systems like Rear View Display and Helmet-mounted Display are often even considered as dangerous. Riders also do not seem to have much trust yet in airbag jackets and think of them as "maybe useful". On the other side, braking assistance systems (C-ABS, ABS for light motorcycles, Brake Assist) qualify high, as do post-crash systems like eCall and Emergency Lighting System. Also visibility enhancing systems like Adaptive Front Lights, Visibility Improving Helmet are seen as positive, although Continuous Strobe Lighting is often seen as dangerous.

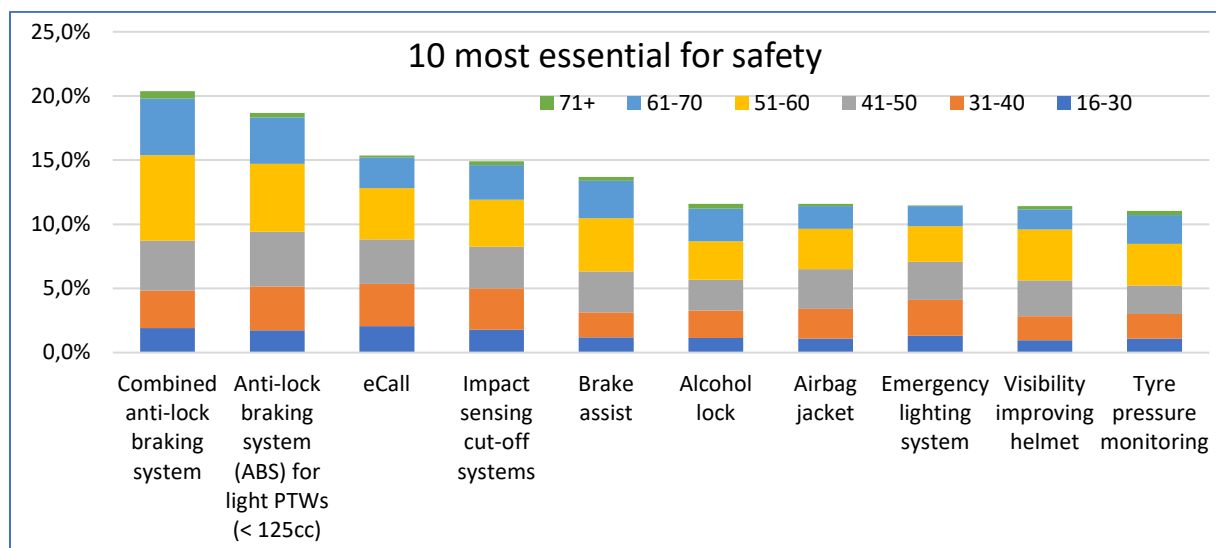


Figure 1 Top 10 most essential for safety systems by age

Compared to the ITS survey that was conducted in 2014 as part of the RIDERSCAN project, there are some but not too many changes. Seven of the systems that were considered the best safety systems in 2014 we see back in the top ten best safety systems in 2019. Post-crash systems seem to have risen in popularity: in 2014, only one of these systems (Impact sensing cut-off systems) made it to the top 10 of best safety systems, while in 2019 all three post-crash systems can be found in the top 10 best safety systems.

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The basics

First some basic information about the respondents. We received 2293 unique and usable responses to the 54 questions, which for such a large survey we consider a good feedback. Most of the respondents (93%) were male and over 50 years old (60%). As was to be expected in view of average age and the number of motorcycles owned, we deal here with a very experienced group: 77.8% has over 10 year experience with riding a motorcycle and 58.7% rides more than 7000 kilometres per year, 16.8% rides even more than 15000 kilometres per year. The age class 41-50 years is best represented, but also when this taken into account they ride the most kilometres per year. Only 10.8% of the respondents ride less than 3000 kilometres per year (see fig. 2).

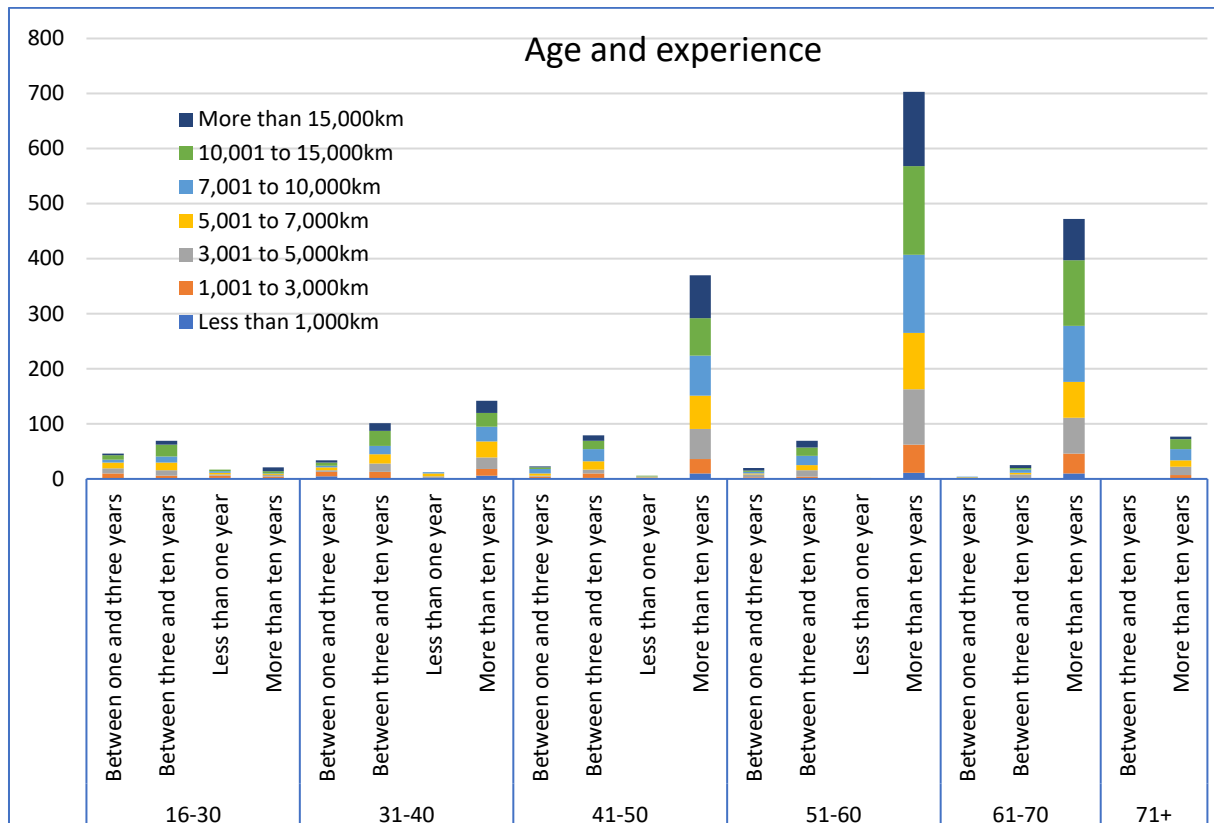


Figure 2 Age and experience

The most responses came from France (36.4%), followed by the UK (16.6%), Germany (10.5%) and Sweden (9.8%). Remarkable was the number of motorcycles that the respondents have: 48.3% has two or more motorcycles, 4.7% even more than five. The large majority (88.3%) also owns a car.

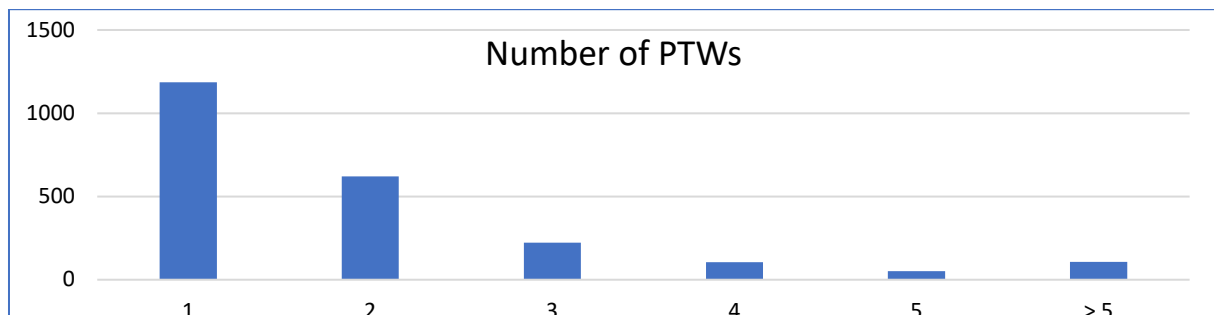


Figure 3 Number of PTWs per respondent.

Reservations

Most respondents showed great reservation on new techniques. Only 34.7% of them think that new technologies enable road use to be safer, greener and less congested. 19.2% says that we don't have a choice and 46.1% thinks that accidents happen because drivers are distracted by the technology. Compared to the former survey in 2014 as part of the RIDERSCAN project it shows that motorcyclists seem to have less confidence in technology and also see a negative aspect of more systems in and on cars and motorcycles.

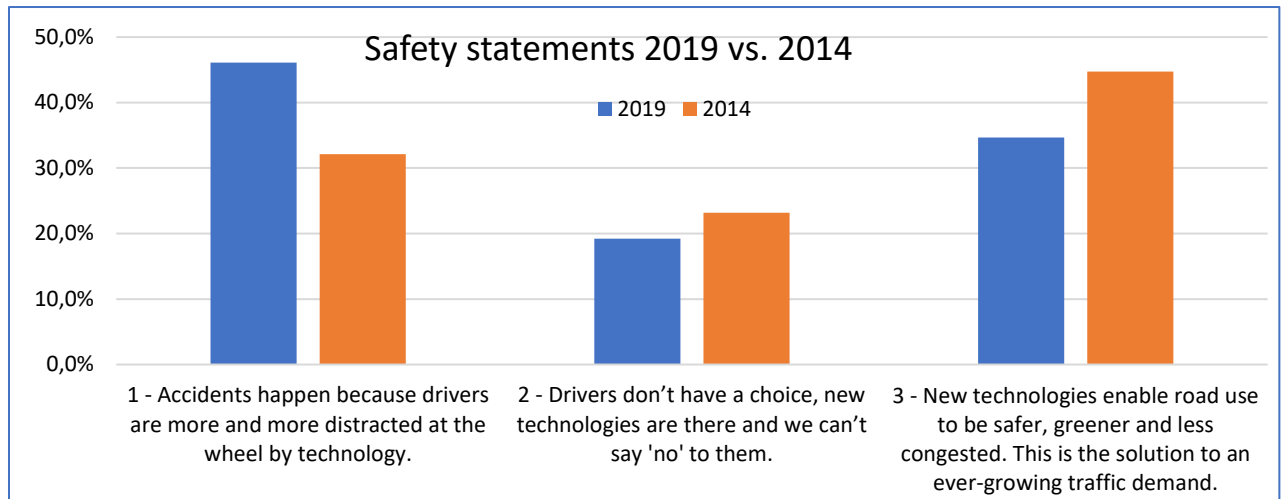


Figure 4 Safety statements on ITS for road safety

We see this picture more often in the survey. Riders don't seem to like new technologies or technology that they don't know yet, that gives information they do not strictly need or that communicates with the environment.

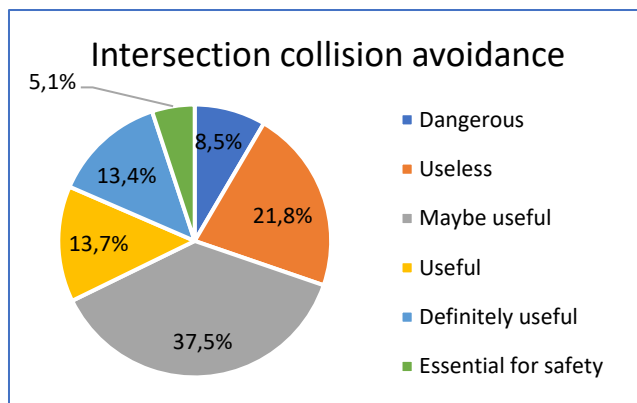


Figure 5 Intersection Collision Avoidance

Even a system that communicates with the infrastructure to avoid a collision (Intersection collision avoidance) is seen as useless (21.8%) or perhaps maybe useful (37.5%). In 2014 it even appeared in the top 10 of most dangerous systems. Motorcycle detection system (motorcycles transmit their speed and location to other vehicles, alerting other drivers when motorcycles are in close proximity) gets a similar judgement with 24.7% respondents seeing this as useless and 33.9% seeing this as maybe useful.

2019 compared to 2014

As Figure 4 already shows, motorcyclists seem to be less positive about safety systems then they were in 2014. We see this also in the scores of the separate systems as shown in figure 6: In 2019 the number of “dangerous” qualifications was 36.9% more than in 2014, “useless” raised with 8.1%, while “useful” decreased with 6.7%, “definitely useful” with 23.6% and “essential for safety” even with 52.6%.

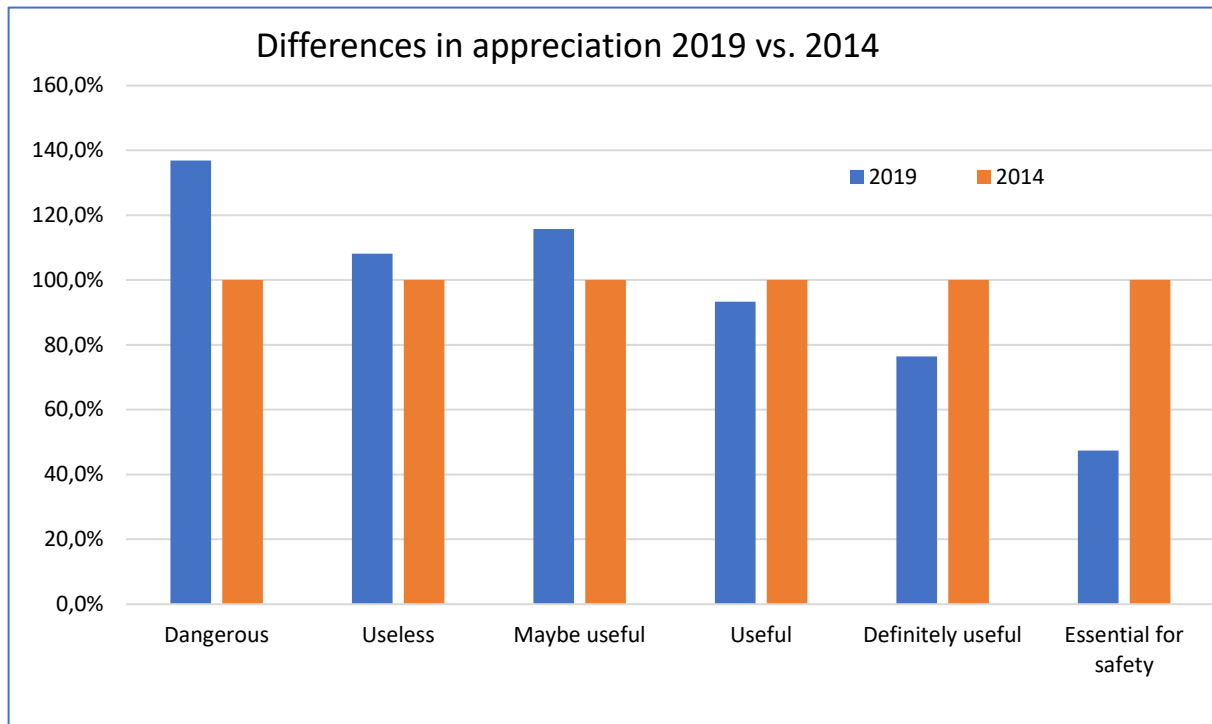


Figure 6 Differences in appreciation 2019 versus 2014 (2014 = 100)

Several explanations are possible: riders have grown to know the systems better and also their limitations, they are more aware of the distraction that in-car or on-motorcycle ITS can provide or they are afraid of an information overload. The answers to the questions about information systems suggest a fear of information overload. We are referring here to systems on Helmet reminder and interlock (detects the presence of a helmet and disables the ignition if the helmet is not properly fixed), Traffic signs recognition system (detects and informs the rider about traffic signs), Speed alert/warning (alerts the user when a pre-set speed limit is exceeded), Curve speed warning (a function able to warn the rider that he/she is negotiating a bend with an excessive speed for its curvature. Information or warnings regarding the speed or geometry of a curve ahead is delivered by an on-board unit and GPS system), Intersection collision avoidance (vehicles approaching an intersection communicate their speed and direction with roadside beacons, which alert other vehicles of their position), etc.

Although there are some differences, both the top 10 of best safety systems as well as the top 10 of most dangerous systems do also have similarities. In both the top 10 seven systems that were already mentioned in 2014 return in 2019, be it in different order. In the top 10 of the best safety systems in 2014 only one post-crash system (Impact sensing cut-off system) was present, even while in that time the discussion about eCall was already going on and this system was about to be adopted for cars and vans in April 2015 ([Regulation \(EU\) 2015/758](#) of 29 April 2015 concerning type-approval

requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC). In 2019 we see three post-crash systems in the top 10 best safety systems: next to the Impact sensing cut-off systems we see eCall and Emergency lighting system (illuminates the vehicle after a crash has occurred). Adaptive front lighting (improve the illumination of the vehicles path on curves by altering the direction of light beam), Vehicle diagnostics (and Vision enhancement (provides a high contrast image of the road and road environment during low luminance or poor visibility conditions) have disappeared from the top 10.

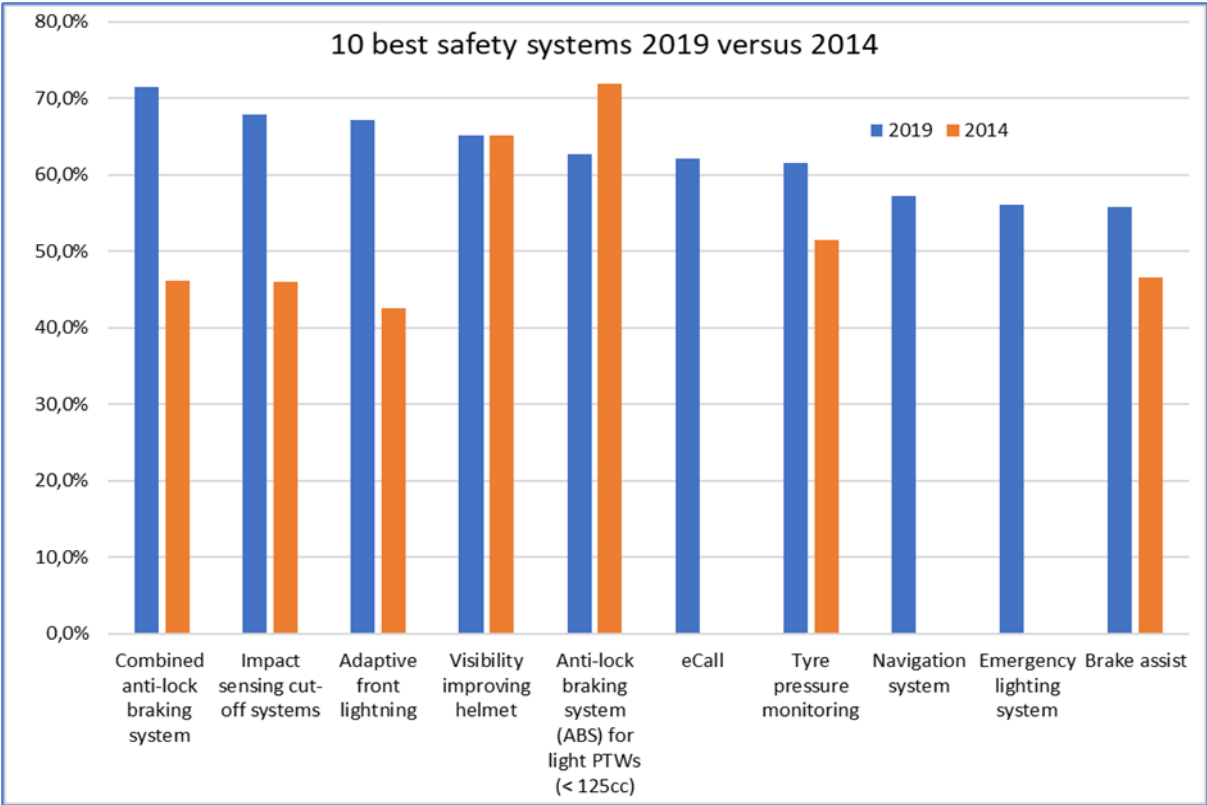


Figure 7 10 best safety systems 2019 vs. 2014

In the top 10 of the most dangerous systems we also see seven systems that were already in the top 10 of most dangerous systems in 2014. Remarkable is that the worst scoring system in 2019 (Autonomous emergency braking) was not in the “most dangerous” top 10 in 2014 at all. Other new systems are ISA (intelligent speed assistance) and Linked braking systems (number 20 on the list of most dangerous systems in 2014). Gone from the most dangerous top 10 are Curve speed warning, Drowsiness relieving system (monitors the user's behaviour and/or physiology and intervenes if the user is fatigued or inattentive), and Intersection collision avoidance (vehicles approaching an intersection communicate their speed and direction with roadside beacons, which alert other vehicles of their position). Again we see higher scores in 2019 compared to 2014. This shows that respondents are more outspoken in their rejection of several systems that they consider dangerous for road safety. Both in 2014 and in 2019 three of the systems in the top 10 are systems that (can) interfere in speed and takes part of the control from the rider.

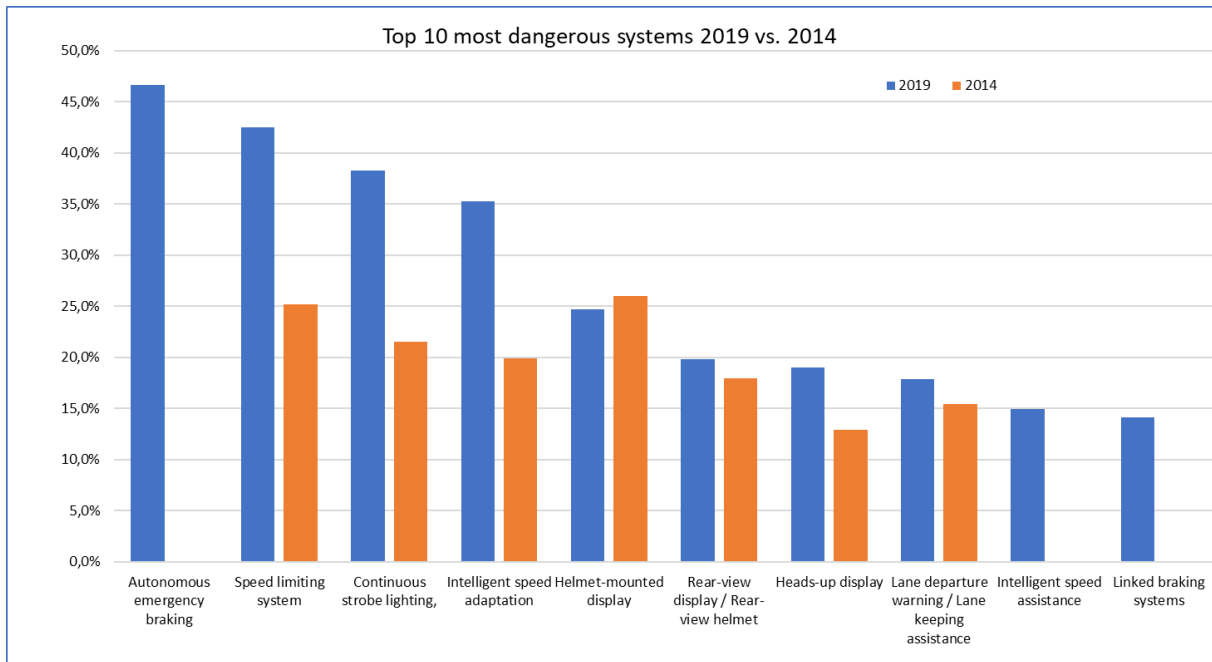


Figure 8 The 10 most dangerous systems 2019 vs. 2014

We not only looked at the systems that riders consider most dangerous, but also the systems that they rated either dangerous or useless get a more general negative approach. Then we see that many systems that may not be rated dangerous, still are seen as negative. Here we see that some systems are seen as very dangerous, but not so much as useless (e.g. Autonomous emergency braking), while others are not seen as very dangerous, but they score low because they are very much seen as useless (e.g. Helmet reminder and interlock, Traffic signs recognition system, Speed alert/warning).

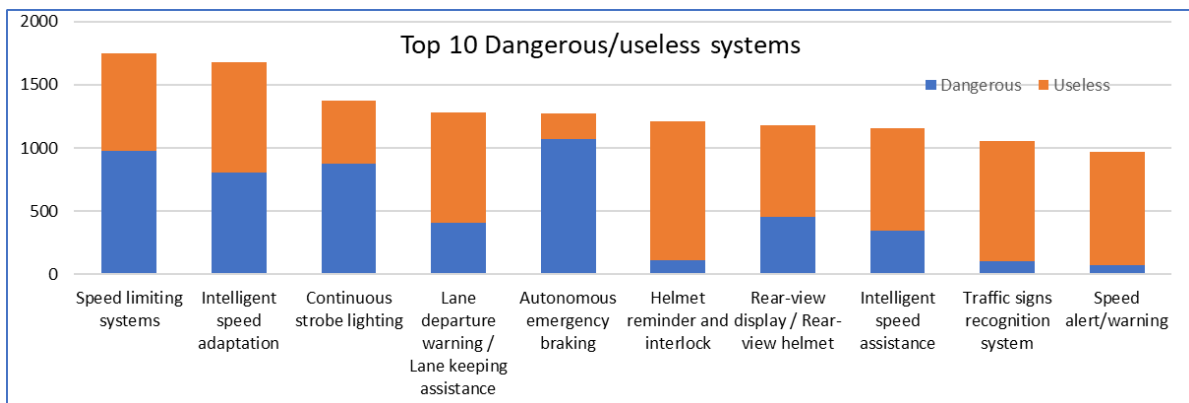


Figure 9 Top 10 dangerous and useless systems

When we look at the influence of age to the acceptance of systems we see not a really great difference between the age classes as figure 10 shows us.

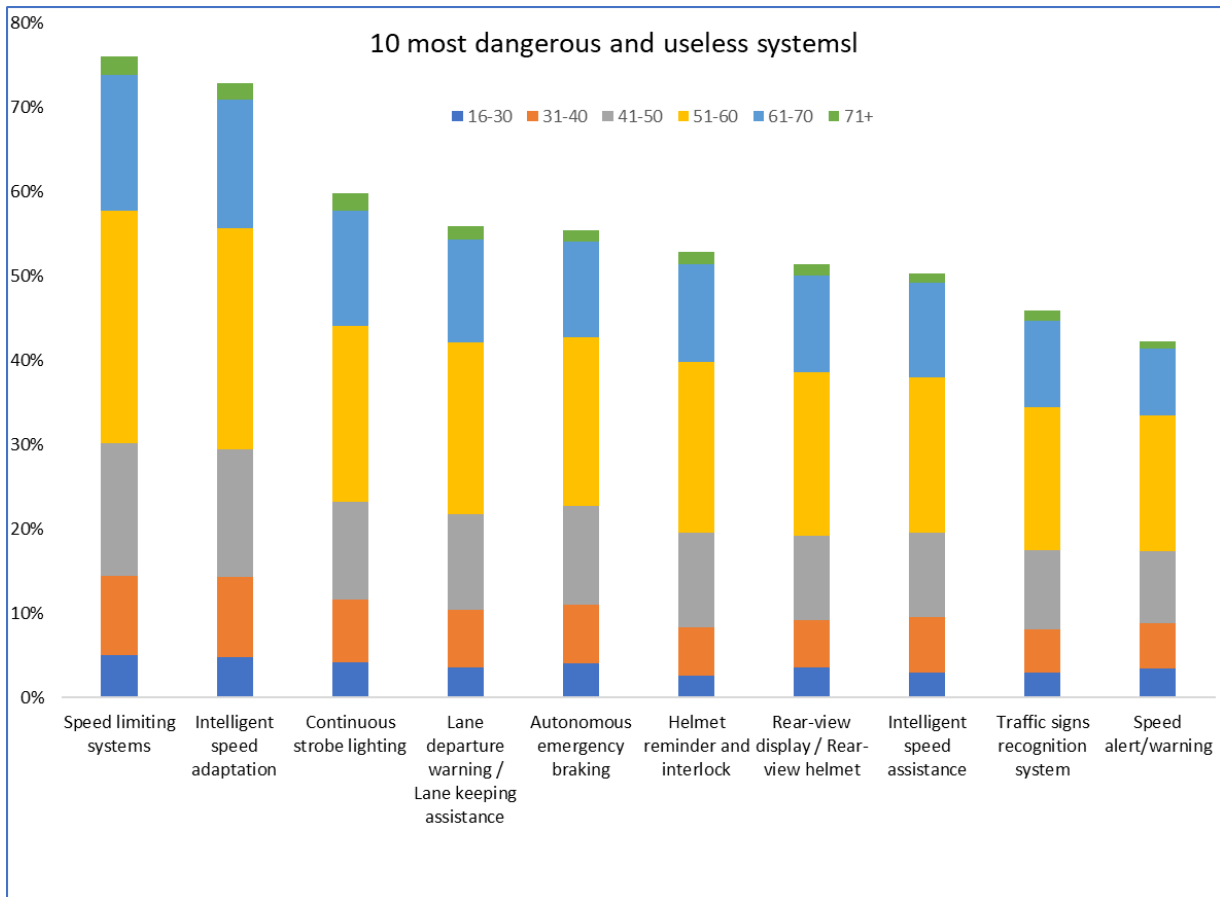


Figure 10 The 10 most dangerous and useless systems

Speed interfering systems

Very negative are the respondents about autonomous emergency braking (considered dangerous by 46.7%), intelligent speed adaptation (interferes with speed, considered dangerous by 35.2%), adaptive speed assistance (alerts the rider without interference, considered dangerous (15.0%) to useless (35.4%) or maybe useful (31.7%) at best). Restrictive techniques are altogether not very popular: a system that blocks the motorcycle when the rider does not wear a properly fixed helmet is considered useless (48.2%) or even dangerous (4.8%) by a majority of the riders and 37.1% consider alcohol locks useless. On the other hand, 11.6% of the respondents think that alcohol locks are essential for safety.

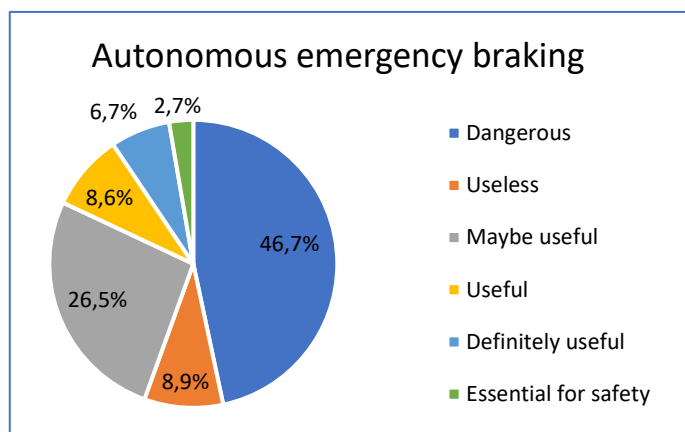


Figure 11 Autonomous Emergency Braking

Not connected rider support systems

In general, systems that do what the rider can do for himself too are not very popular. Only 44.7% of the riders think that traffic warnings are useful, definitely useful or essential for safety. For traffic signs recognition systems (22.8%) these figures are even lower. Tyre pressure monitoring systems

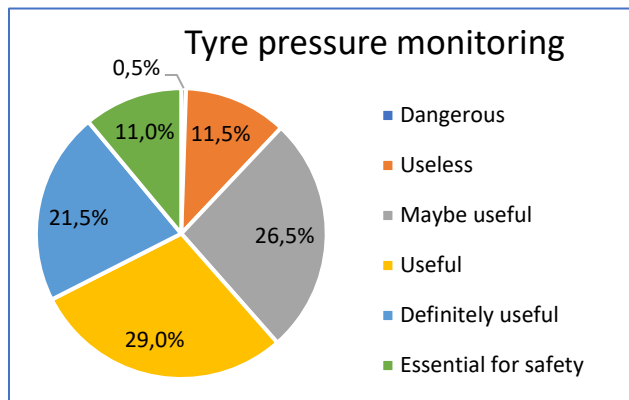


Figure 12 Tyre pressure monitoring system

(TPMS), that is already mandatory for cars, on the other side are seen as useful (29.0%) to definitely useful (21.5%) or even essential (11.0%). Also blind spot assistance system is seen as a positive function. 54.3% of the riders consider this useful to essential. Other systems the respondents believe in is combined anti-lock braking system: 71.5% think this is useful to essential for safety, and anti-lock braking system (ABS) for light PTWs (< 125cc): 62.8% think this is useful to essential for safety.

Connectivity

Many of the systems work with connectivity, either with infrastructure of other vehicles. Motorcyclists do not seem to rate these systems very highly. Systems as Intersection collision avoidance, Motorcycle detection system, Road surface condition monitoring, Black spot warning, Speed alert/warning, Blind spot assistance system, Weather warnings, Traffic warnings are not rated very highly, but they are also not seen as dangerous. In many cases they are rated useless or "maybe useful".

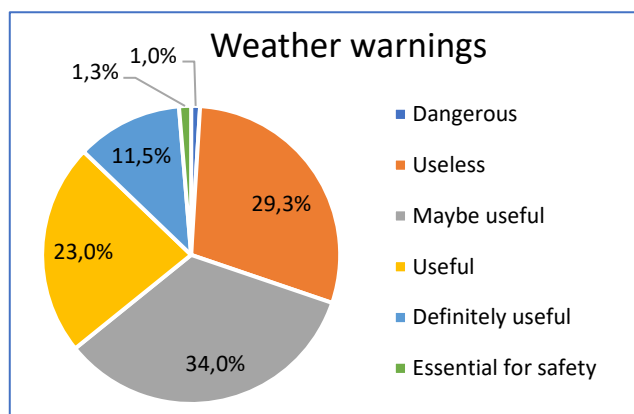


Figure 13 Weather warnings

Light

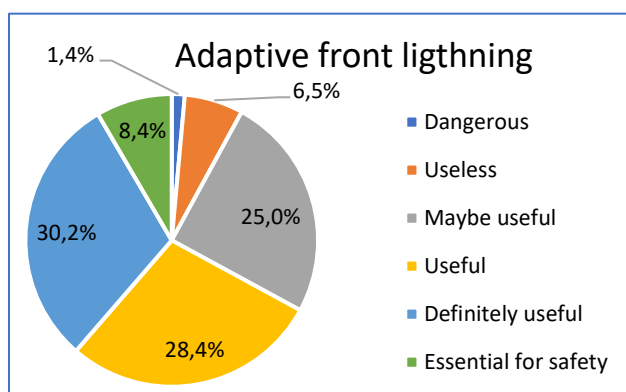


Figure 144 Adaptive front lightning

Some questions were about lightning. Adaptive front light is considered useful (28.4%) to definitely useful (30.2%), 8.4% consider it even essential for safety, so here we see that 67.1% is in favour of the use of this technique. A completely different opinion we see with the use of continuous strobe lighting. After autonomous emergency braking this scores the highest number of respondents who consider this dangerous (38.2%). 21.7% thought it was just useless. Only 17.7% have a positive view on this feature.

Personal protective gear

When we look at personal protective gear (PPE), we also see that the riders don't expect too much of new techniques. Motorcyclists do not expect much from rear-view display or rear-view helmets. It is considered dangerous by 19.8% and useless by 31.7%. Just 16.8% see it as a contribution to road

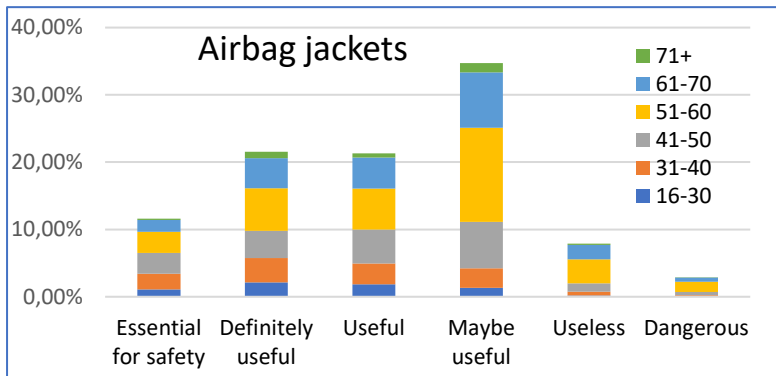


Figure 15 Airbag jackets

safety. Vision enhancement (provides a high contrast image of the road and road environment during low luminance or poor visibility conditions) just gets a lukewarm response with 41.1% of the respondents who think it may be useful. Probably most people don't have an idea of how this would like in real life. Systems that block the motorcycle when the rider does not wear a properly

fixed helmet is considered useless (48.2%) or even dangerous (4.8%) by a majority of the riders. The respondents seem to have more faith in airbag jackets. Although here also a large proportion (34.7%) think that they just may be useful, a majority of 54.5% think that airbag jackets are useful (21.3%), definitely useful (21.5%) or essential for safety (11.6%). Figure 14 shows that younger riders seem to value airbag jackets higher than older riders.

Post-crash

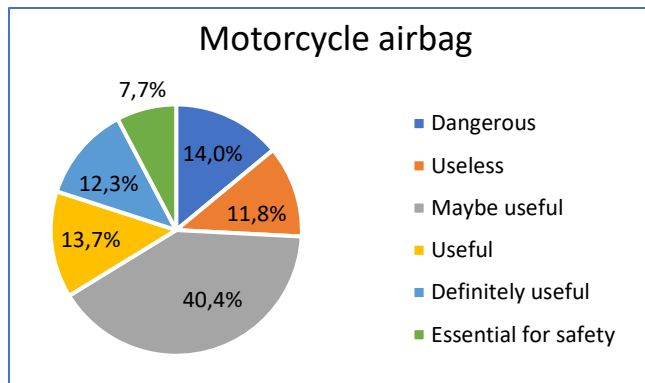


Figure 16 Motorcycle airbag

Some techniques are focussed on the situation after a crash. Our respondents think moderately positive of them. Our riders don't have much confidence in motorcycle airbags. 40.4% thinks that they may be useful, but 14.0% see them as dangerous and 11.8% as useless. eCall is considered useful by 21.7%, definitely useful by 25.0% and essential for safety by 15.4%, after ABS for light motorcycles (18.7%) and combined anti-lock braking system (20.4%) the highest score. In total 62.1% are positive

about eCall, with 30.4% who think it may be useful. Emergency lightning system (Illuminates the vehicle after a crash has occurred) was also seen as a positive contribution to safety with 56.1% positive answers, although here again we see a large number of respondents that think it just may be useful (34.1%). Impact sensing cut-off systems (disables electrical and/or fuel systems post-crash) are also considered a good technique with 67.9% positive reactions.

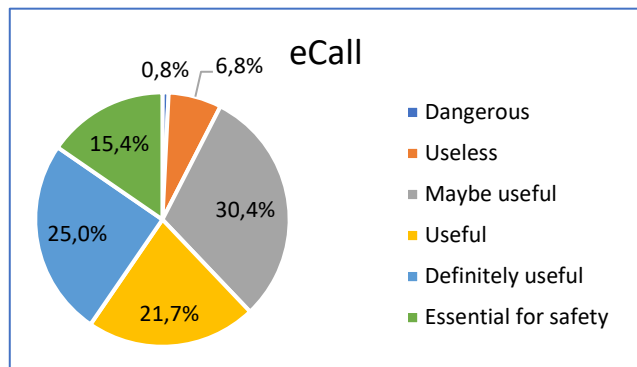


Figure 17 eCall

Freedom of choice

To end, although some systems or functions are seen by a part of the respondents as essential for safety, these respondents still want to have a choice: 69.1% think the systems they identified as essential should only be available as an option, while 30.9% of them think these systems should be standard on all new motorcycles. In 2014 these figures were respectively 63.8% and 36.2%

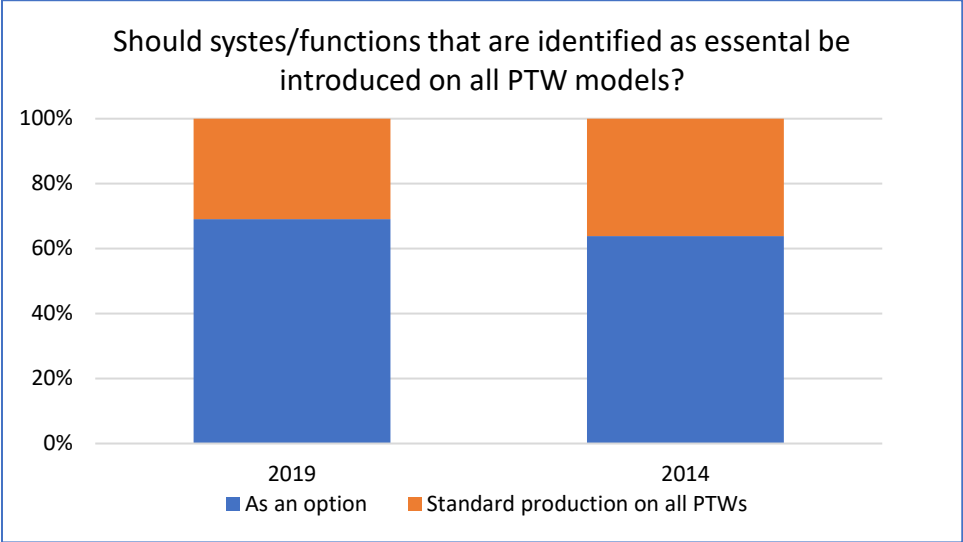


Figure 18 Essential systems standard on PTWs or not

Glossary

- Black spot warning > A system able to warn the rider that he is riding in a place with a high risk of crashing or where a high number of crashes have occurred, aka a black spot.
- Curve speed warning > A function able to warn the rider that he/she is negotiating a bend with an excessive speed for its curvature. Information or warnings regarding the speed or geometry of a curve ahead is delivered by a on-board unit and GPS system.
- Forward collision warning > Alerts the user when an object or vehicle has been detected ahead on the road that is slower than the user's vehicle.
- Object detection system > Detects and alerts the user to objects on the road (animals, pedestrians, etc.).
- Heads-up display > Projects a display of vehicle information onto the windshield.
- Helmet-mounted display > Projects a display of vehicle information onto the visor of the helmet, minimizing the need for riders to take his/her eyes off the road.
- Navigation system > Delivers information regarding vehicles position and intended route via a GPS or satellite system and on-board unit.
- Road surface condition monitoring > Monitors the road surface ahead and alerts the user of abnormalities, material or fluids on the road surface.
- Speed alert/warning > Alert the user when a pre-set speed limit is exceeded.
- Traffic warnings > A system that informs the rider about traffic conditions.
- Weather warnings > A system that informs the rider about weather conditions on the road he/she is riding or he/she has planned to travel on.
- Traffic signs recognition system > Detects and informs the rider about traffic signs.
- Tyre pressure monitoring > Monitors the temperature and pressure of the tyres and alerts the user to potential problems.
- Vehicle diagnostics > A function that can diagnose mechanical factors of the PTW electronically and warns the driver of vehicle system problems.
- Adaptive front lightning > Improve the illumination of the vehicles path on curves by altering the direction of light beam.
- Blind spot assistance system > A system that can support the rider in situations when the rider has no visibility to a vehicle that is driving/approaching slightly from behind (mainly).
- Continuous strobe lighting > Provide a continuous flashing headlight which illuminates the vehicle to other road users.
- Brakeless decelerator indicator > Activates rear brake lights when the accelerator is rapidly released.
- Rear-view display / Rear-view helmet > Displays real-time images of the road environment directly behind the vehicle.
- Visibility improving helmet > Prevents fogging of the motorcycle helmet visor through heating or dehumidifying systems.
- Vision enhancement > Provides a high contrast image of the road and road environment during low luminance or poor visibility conditions.
- Combined anti-lock braking system > Provides smooth and even braking pressure to all wheels and prevents the wheels from locking.
- Brake assist > Applies maximum braking pressure in emergency stops.
- Linked braking systems > Applies braking pressure to both wheels even when only one brake is engaged by the user.

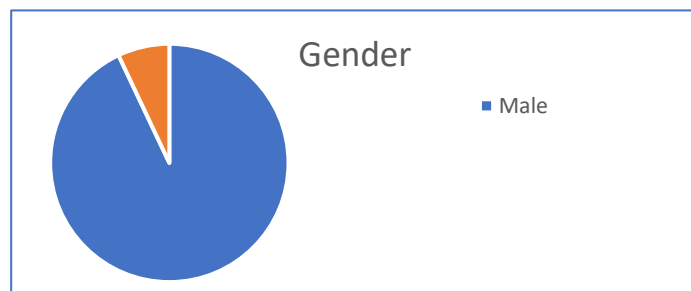
- Autonomous emergency braking > A system that monitors the traffic conditions ahead and automatically brakes the vehicle if the rider fails to respond to an emergency situation.
- Anti-lock braking system (ABS) for light PTWs (< 125cc) > Just like the already mandatory ABS on new PTWs over 125 cc, ABS for light PTWs can prevent the wheels from locking with heavy braking.
- Automatic stability control > Prevents the rear wheel from spinning uncontrolled and lift-off detection of the front wheel.
- Alcohol lock > Disables the vehicle's ignition if alcohol is detected in the breath of the user.
- Electronic licensing > Disables the ignition unless an authorised user is identified.
- Driver vigilance monitoring > Monitors the user's behaviour and/or physiology and provides alerts if the user is fatigued or inattentive.
- Drowsiness relieving system > Monitors the user's behaviour and/or physiology and intervenes if the user is fatigued or inattentive.
- Helmet reminder and interlock > Detects the presence of a helmet and disables the ignition if the helmet is not properly fixed.
- Airbag jacket > Airbags within the jacket inflate when the rider is thrown from the vehicle.
- Motorcycle airbag > Deploys upon detection of a crash that exceeds a predetermined intensity level and prevents the rider being thrown from the vehicle in front-impact crashes.
- eCall > Automatically informs emergency services of vehicle's location in the event of a crash.
- Emergency lighting system > Illuminates the vehicle after a crash has occurred.
- Impact sensing cut-off systems > Disables electrical and/or fuel systems post-crash.
- Intersection collision avoidance > Vehicles approaching an intersection communicate their speed and direction with roadside beacons, which alert other vehicles of their position.
- Motorcycle detection system > Motorcycles transmit their speed and location to other vehicles, alerting other drivers when motorcycles are in close proximity.
- Lane departure warning / Lane keeping assistance > Monitors the vehicle's lateral position, and either alerts or intervenes when the vehicle deviates from the lane.
- Adaptive cruise control > A system that can automatically keep a constant distance, selected by the rider, from the preceding vehicle and can also keep a constant speed.
- Intelligent speed assistance > Alerts the rider when the posted speed limit is exceeded, for example by increased resistance of the throttle. The system is overridable and can be switched off. The system uses roadside beacons and/or GPS systems to determine the speed.
- Intelligent speed adaptation > Limits the speed of the vehicle to the posted speed limit, using roadside beacons and/or GPS systems to determine the speed. The system is non-overridable, but can be switched off.
- Speed limiting systems > Alert the user and inhibit further acceleration when the pre-set speed limit of the vehicle is exceeded.

Graphics

results in %

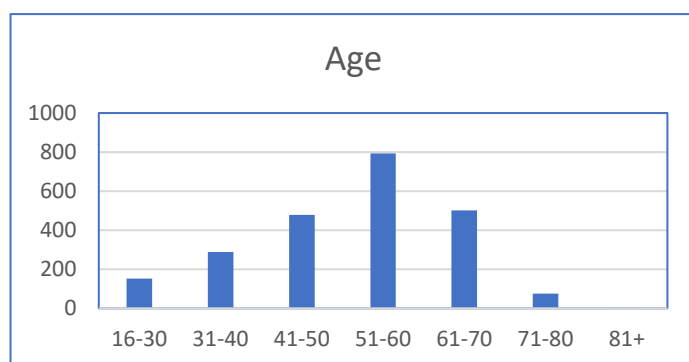
1 - Gender

Male	2132	93%
Female	161	7%



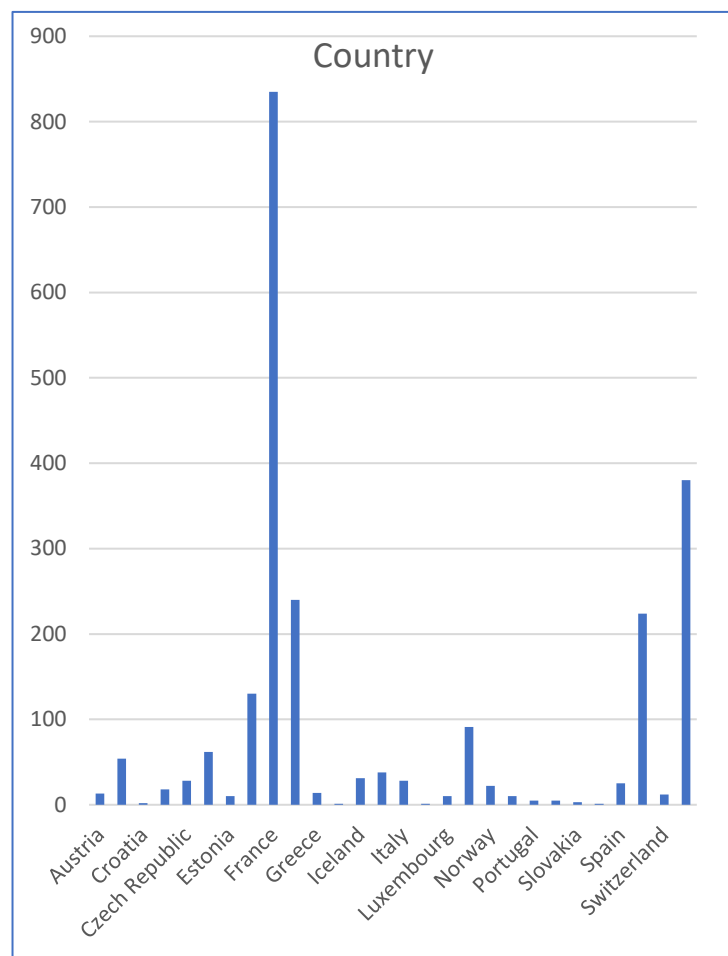
2 - Age

16-30	153	6,7%
31-40	289	12,6%
41-50	478	20,8%
51-60	794	34,6%
61-70	501	21,8%
71-80	75	3,3%
81+	3	0,1%



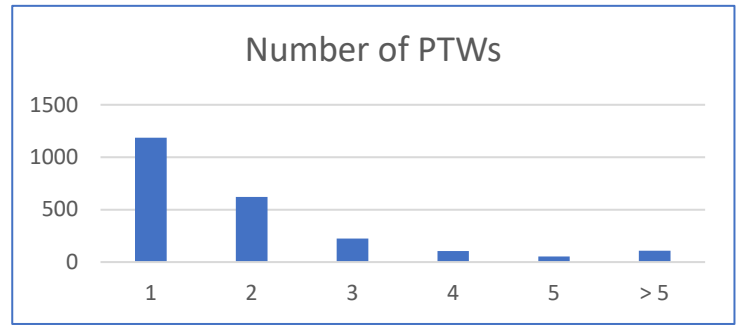
3 - Country

Austria	13	0,6%
Belgium	54	2,4%
Croatia	2	0,1%
Cyprus	18	0,8%
Czech Republic	28	1,2%
Denmark	62	2,7%
Estonia	10	0,4%
Finland (Suomi)	130	5,7%
France	835	36,4%
Germany	240	10,5%
Greece	14	0,6%
Hungary	1	0,0%
Iceland	31	1,4%
Ireland	38	1,7%
Italy	28	1,2%
Lithuania	1	0,0%
Luxembourg	10	0,4%
Netherlands	91	4,0%
Norway	22	1,0%
Poland	10	0,4%
Portugal	5	0,2%
Romania	5	0,2%
Slovakia	3	0,1%
Slovenia	1	0,0%
Spain	25	1,1%
Sweden	224	9,8%
Switzerland	12	0,5%
United Kingdom	380	16,6%



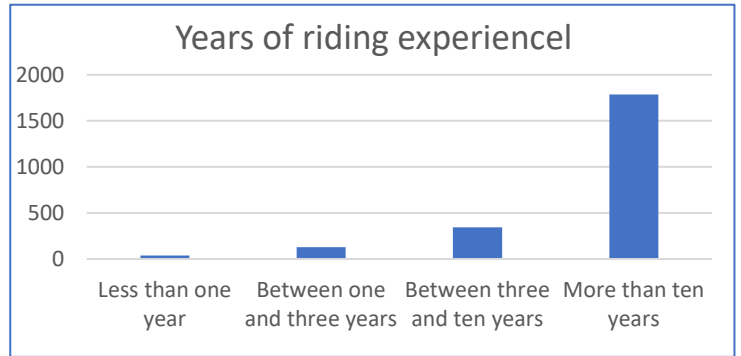
4 - How many Powered Two-Wheelers (PTWs) do you own?

1	1186	51,7%
2	620	27,0%
3	223	9,7%
4	105	4,6%
5	52	2,3%
> 5	107	4,7%



5 - Do you own an electrical Powered Two-Wheeler?

Yes	62	2,7%
No	2231	97,3%

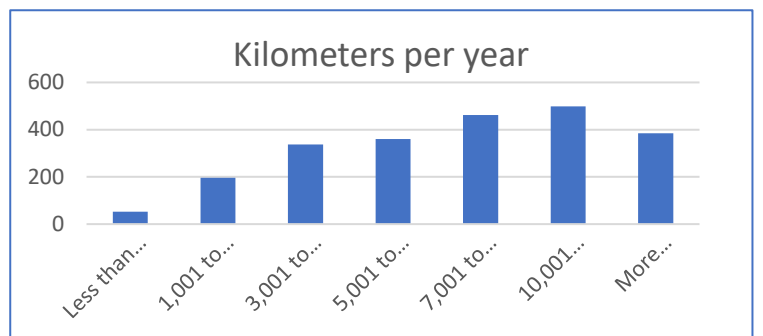


6 - How many years of riding experience do you have?

Less than one year	37	1,6%
Between one and three years	127	5,5%
Between three and ten years	344	15,0%
More than ten years	1785	77,8%

7 - How many kilometers/miles do you ride per year? (all PTWs included)

Less than 1,000km	53	2,3%
1,001 to 3,000km	196	8,5%
3,001 to 5,000km	337	14,7%
5,001 to 7,000km	361	15,7%
7,001 to 10,000km	462	20,1%
10,001 to 15,000km	499	21,8%
More than 15,000km	385	16,8%



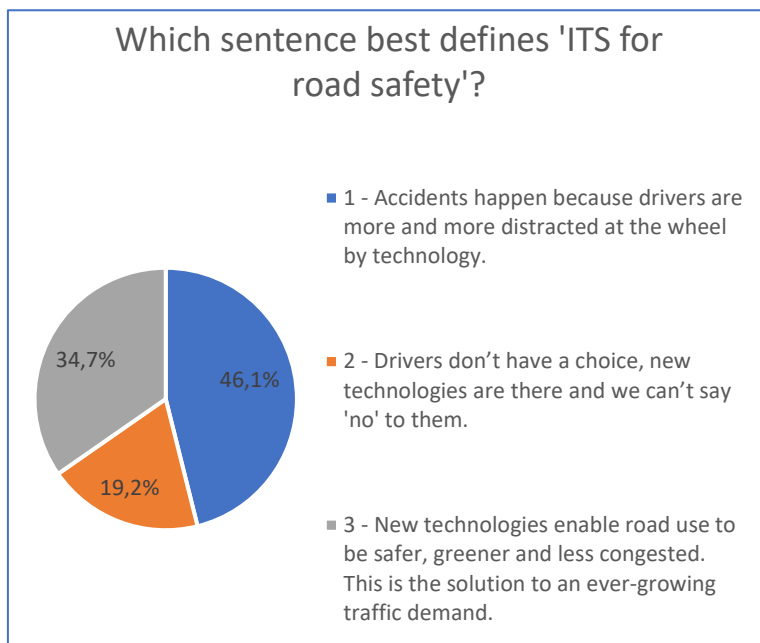
8 - Do you own a car?

Yes	2024	88,3%
No	269	11,7%

9 - Which sentence best defines 'ITS for road safety'?

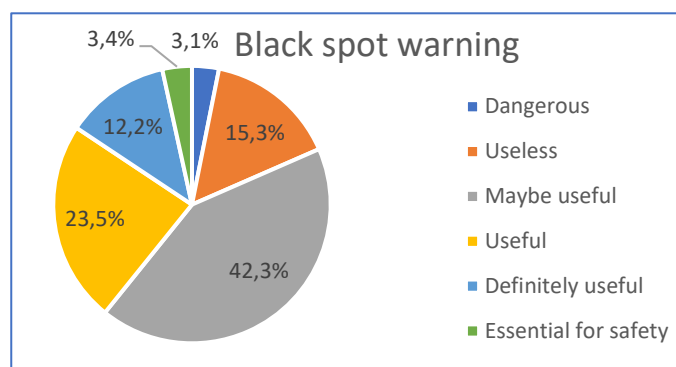
- 1 - Accidents happen because drivers are more and more distracted at the wheel by technology.
- 2 - Drivers don't have a choice, new technologies are there and we can't say 'no' to them.
- 3 - New technologies enable road use to be safer, greener and less congested. This is the solution to an ever-growing traffic demand.

1057	46,1%
441	19,2%
795	34,7%



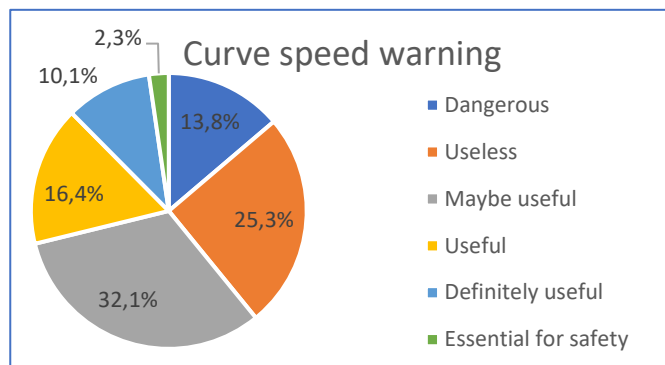
10 - Black spot warning > A system able to warn the rider that he is riding in a place with a high risk of crashing or where a high number of crashes have occurred, aka a black spot.

Dangerous	72	3,1%
Useless	351	15,3%
Maybe useful	971	42,3%
Useful	540	23,5%
Definitely useful	280	12,2%
Essential for safety	79	3,4%



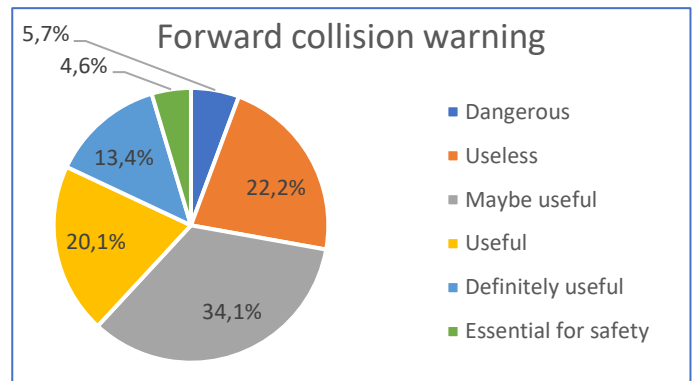
11 - Curve speed warning > A function able to warn the rider that he/she is negotiating a bend with an excessive speed for its curvature. Information or warnings regarding the speed or geometry of a curve ahead is delivered by a on-board unit and GPS system.

Dangerous	316	13,8%
Useless	581	25,3%
Maybe useful	735	32,1%
Useful	376	16,4%
Definitely useful	232	10,1%
Essential for safety	53	2,3%



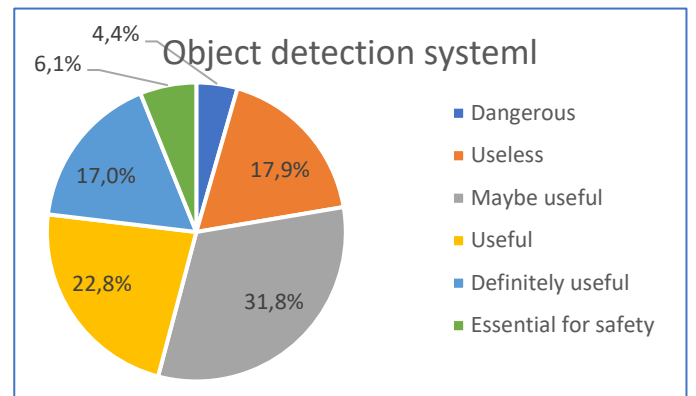
12 - Forward collision warning > Alerts the user when an object or vehicle has been detected ahead on the road that is slower than the user's vehicle.

Dangerous	130	5,7%
Useless	508	22,2%
Maybe useful	781	34,1%
Useful	461	20,1%
Definitely useful	307	13,4%
Essential for safety	106	4,6%



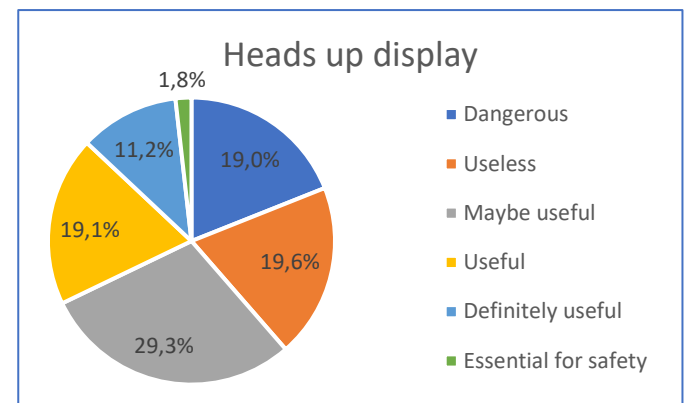
13 - Object detection system > Detects and alerts the user to objects on the road (animals, pedestrians, etc.).

Dangerous	102	4,4%
Useless	410	17,9%
Maybe useful	729	31,8%
Useful	522	22,8%
Definitely useful	390	17,0%
Essential for safety	140	6,1%



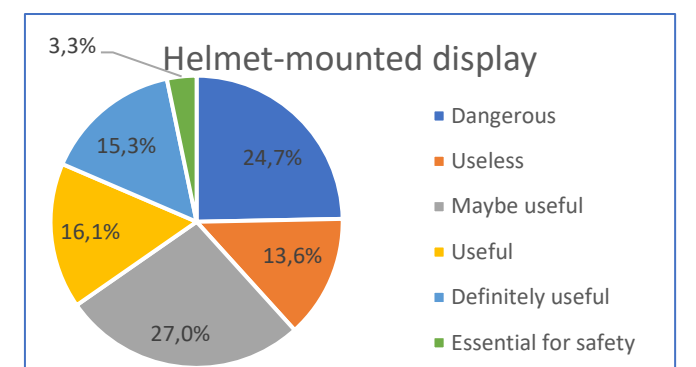
14 - Heads-up display > Projects a display of vehicle information onto the windshield.

Dangerous	435	19,0%
Useless	450	19,6%
Maybe useful	671	29,3%
Useful	439	19,1%
Definitely useful	257	11,2%
Essential for safety	41	1,8%



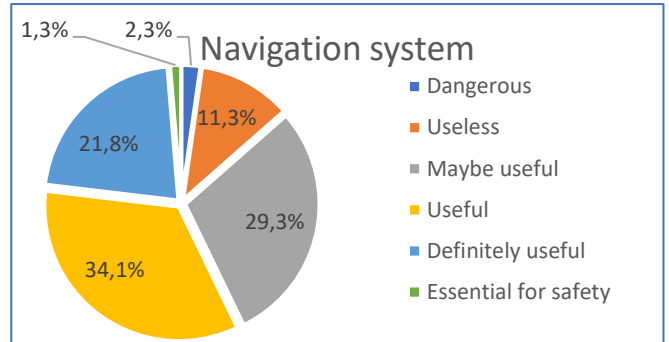
15 - Helmet-mounted display > Projects a display of vehicle information onto the visor of the helmet, minimizing the need for riders to take his/her eyes off the road.

Dangerous	566	24,7%
Useless	312	13,6%
Maybe useful	620	27,0%
Useful	370	16,1%
Definitely useful	350	15,3%
Essential for safety	75	3,3%



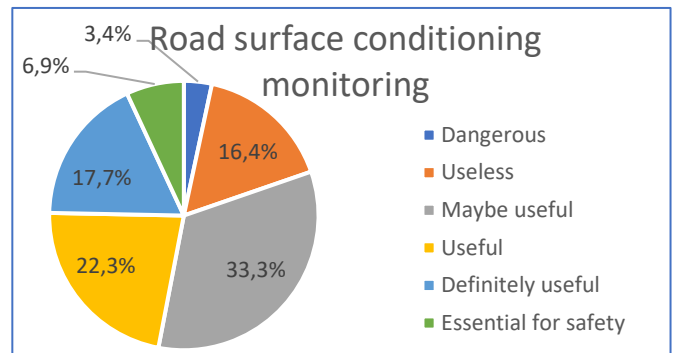
16 - Navigation system > Delivers information regarding vehicles position and intended route via a GPS or satellite system and on-board unit.

Dangerous	52	2,3%
Useless	258	11,3%
Maybe useful	672	29,3%
Useful	781	34,1%
Definitely useful	500	21,8%
Essential for safety	30	1,3%



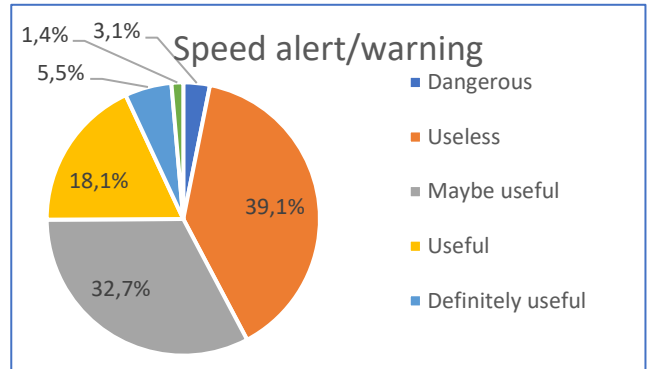
17 - Road surface condition monitoring > Monitors the road surface ahead and alerts the user of abnormalities, material or fluids on the road surface.

Dangerous	77	3,4%
Useless	375	16,4%
Maybe useful	764	33,3%
Useful	511	22,3%
Definitely useful	407	17,7%
Essential for safety	159	6,9%



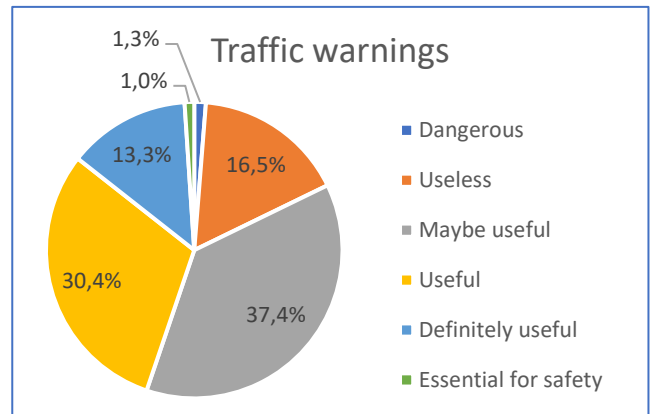
18 - Speed alert/warning > Alert the user when a pre-set speed limit is exceeded.

Dangerous	72	3,1%
Useless	897	39,1%
Maybe useful	749	32,7%
Useful	416	18,1%
Definitely useful	127	5,5%
Essential for safety	32	1,4%



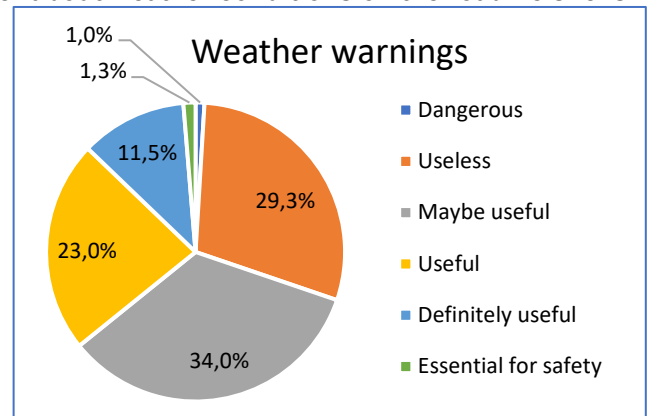
19 - Traffic warnings > A system that informs the rider about traffic conditions.

Dangerous	29	1,3%
Useless	379	16,5%
Maybe useful	858	37,4%
Useful	697	30,4%
Definitely useful	306	13,3%
Essential for safety	24	1,0%



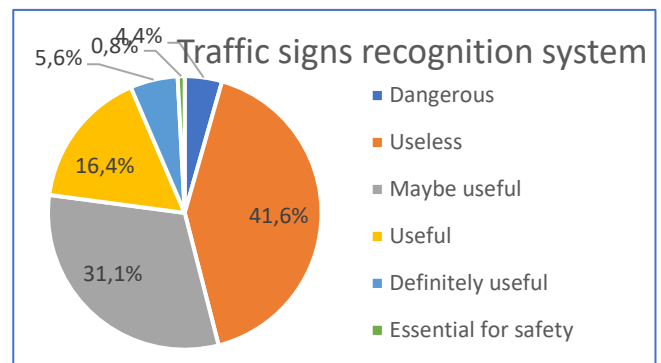
20 - Weather warnings > A system that informs the rider about weather conditions on the road he/she is riding or he/she has planned to travel on.

Dangerous	22	1,0%
Useless	671	29,3%
Maybe useful	779	34,0%
Useful	527	23,0%
Definitely useful	264	11,5%
Essential for safety	30	1,3%



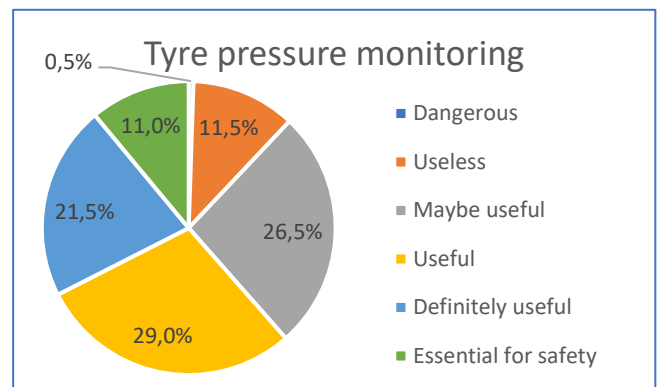
21 - Traffic signs recognition system > Detects and informs the rider about traffic signs.

Dangerous	101	4,4%
Useless	954	41,6%
Maybe useful	713	31,1%
Useful	377	16,4%
Definitely useful	129	5,6%
Essential for safety	19	0,8%



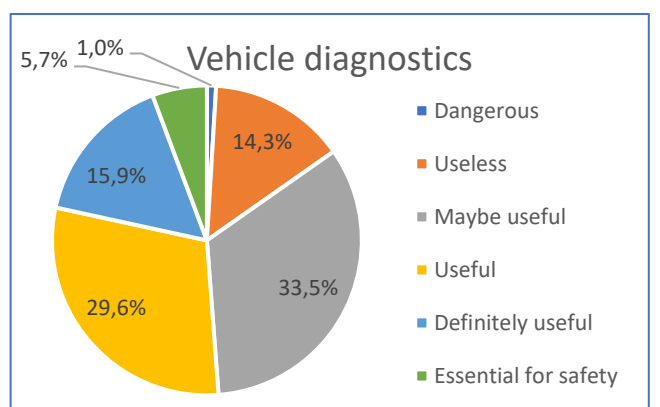
22 - Tyre pressure monitoring > Monitors the temperature and pressure of the tyres and alerts the user to potential problems.

Dangerous	12	0,5%
Useless	264	11,5%
Maybe useful	607	26,5%
Useful	665	29,0%
Definitely useful	492	21,5%
Essential for safety	253	11,0%



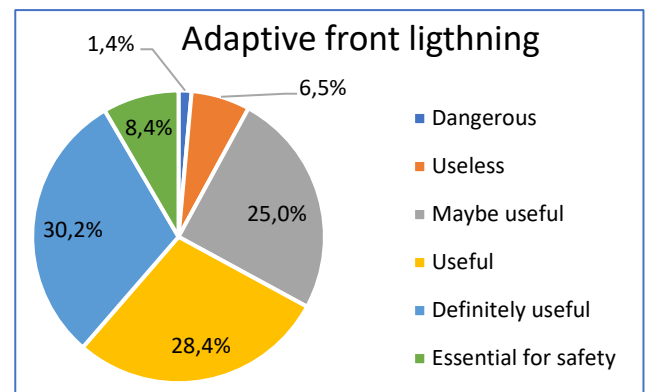
23 - Vehicle diagnostics > A function that can diagnose mechanical factors of the PTW electronically and warns the driver of vehicle system problems.

Dangerous	22	1,0%
Useless	328	14,3%
Maybe useful	769	33,5%
Useful	679	29,6%
Definitely useful	364	15,9%
Essential for safety	131	5,7%



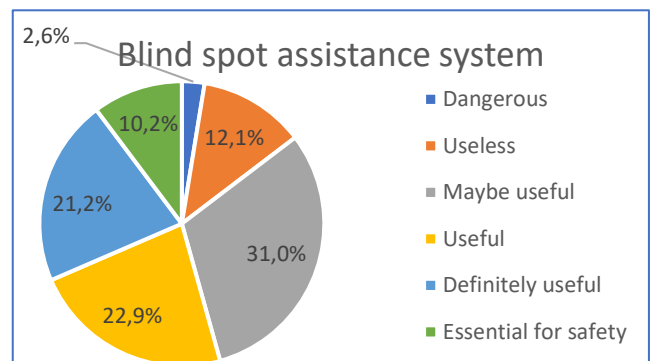
24 - Adaptive front lightning > Improve the illumination of the vehicles path on curves by altering the direction of light beam.

Dangerous	33	1,4%
Useless	149	6,5%
Maybe useful	573	25,0%
Useful	652	28,4%
Definitely useful	693	30,2%
Essential for safety	193	8,4%



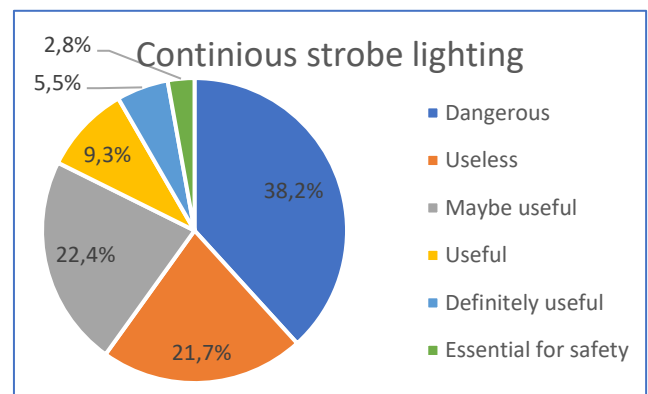
25 - Blind spot assistance system > A system that can support the rider in situations when the rider has no visibility to a vehicle that is driving/approaching slightly from behind (mainly).

Dangerous	59	2,6%
Useless	277	12,1%
Maybe useful	711	31,0%
Useful	524	22,9%
Definitely useful	487	21,2%
Essential for safety	235	10,2%



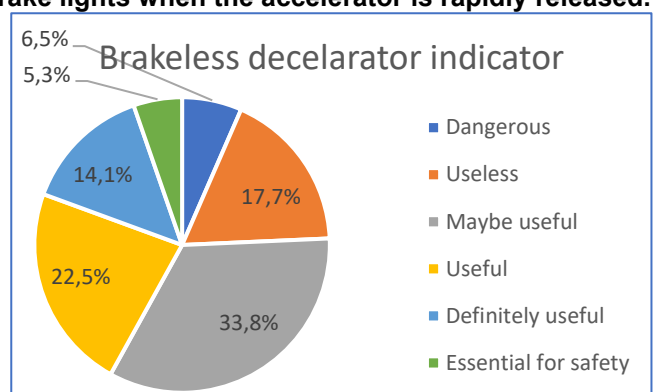
26 - Continuous strobe lighting > Provide a continuous flashing headlight which illuminates the vehicle to other road users.

Dangerous	877	38,2%
Useless	497	21,7%
Maybe useful	514	22,4%
Useful	214	9,3%
Definitely useful	126	5,5%
Essential for safety	65	2,8%



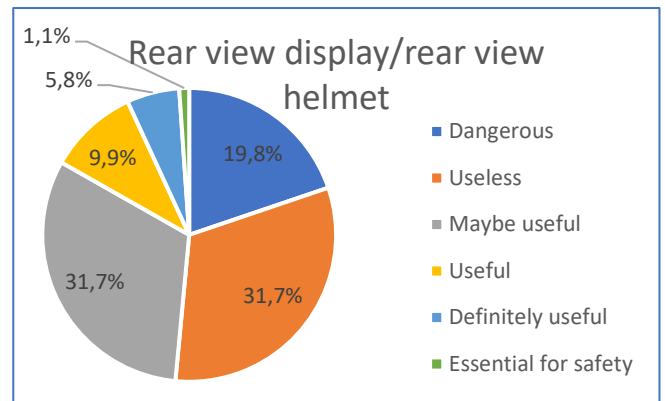
27 - Brakeless decelerator indicator > Activates rear brake lights when the accelerator is rapidly released.

Dangerous	150	6,5%
Useless	407	17,7%
Maybe useful	774	33,8%
Useful	517	22,5%
Definitely useful	323	14,1%
Essential for safety	122	5,3%



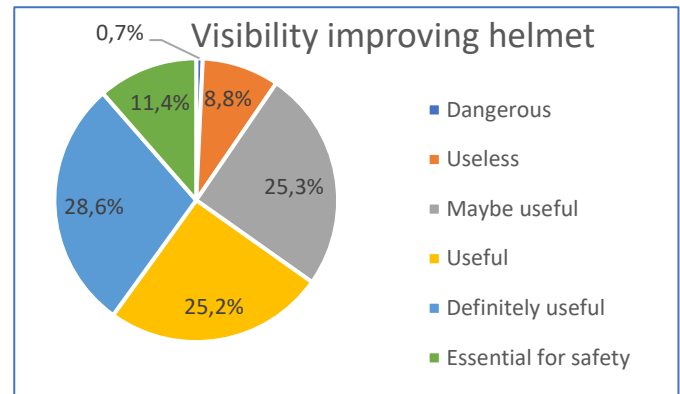
28 - Rear-view display / Rear-view helmet > Displays real-time images of the road environment directly behind the vehicle.

Dangerous	454	19,8%
Useless	727	31,7%
Maybe useful	727	31,7%
Useful	227	9,9%
Definitely useful	133	5,8%
Essential for safety	25	1,1%



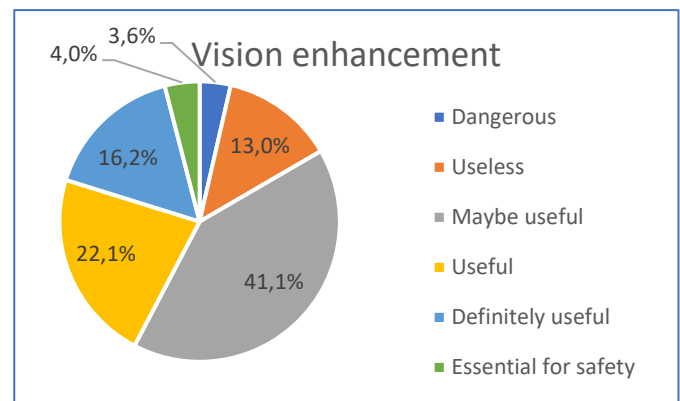
29 - Visibility improving helmet > Prevents fogging of the motorcycle helmet visor through heating or dehumidifying systems.

Dangerous	17	0,7%
Useless	202	8,8%
Maybe useful	579	25,3%
Useful	577	25,2%
Definitely useful	656	28,6%
Essential for safety	262	11,4%



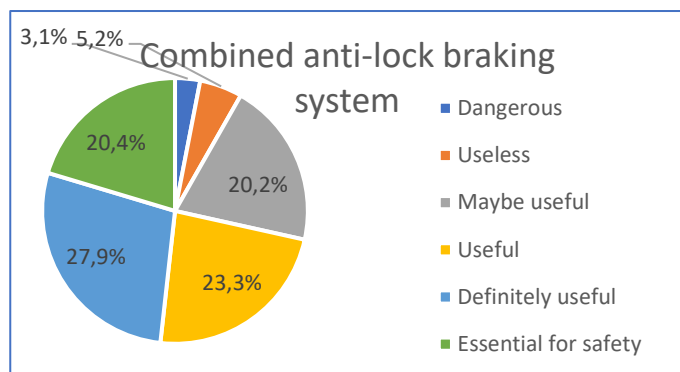
30 - Vision enhancement > Provides a high contrast image of the road and road environment during low luminance or poor visibility conditions.

Dangerous	82	3,6%
Useless	299	13,0%
Maybe useful	942	41,1%
Useful	507	22,1%
Definitely useful	371	16,2%
Essential for safety	92	4,0%



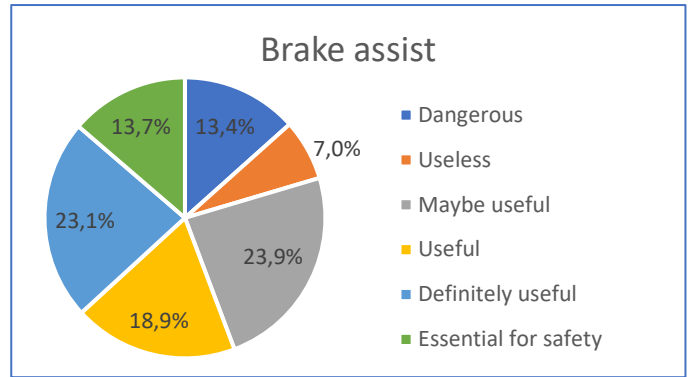
31 - Combined anti-lock braking system > Provides smooth and even braking pressure to all wheels and prevents the wheels from locking.

Dangerous	70	3,1%
Useless	119	5,2%
Maybe useful	464	20,2%
Useful	534	23,3%
Definitely useful	639	27,9%
Essential for safety	467	20,4%



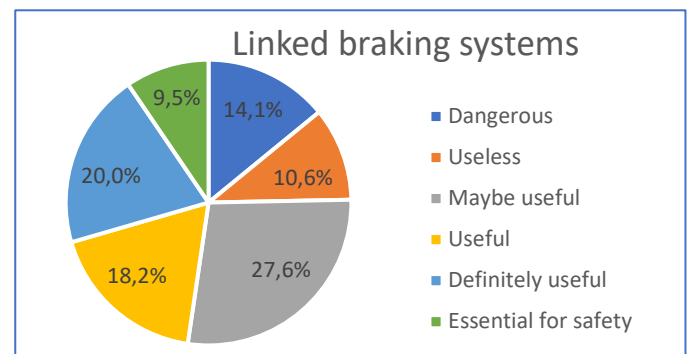
32 - Brake assist > Applies maximum braking pressure in emergency stops.

Dangerous	307	13,4%
Useless	161	7,0%
Maybe useful	547	23,9%
Useful	434	18,9%
Definitely useful	530	23,1%
Essential for safety	314	13,7%



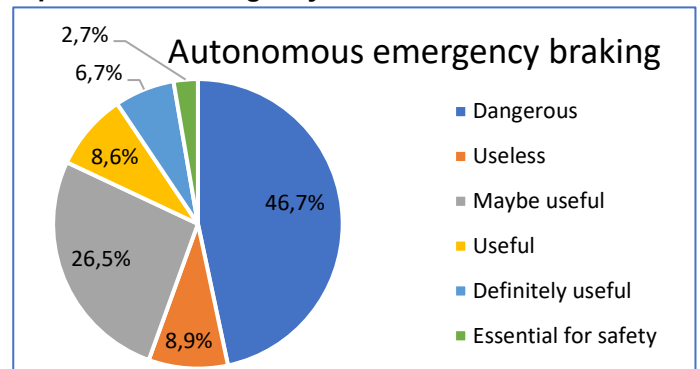
33 - Linked braking systems > Applies braking pressure to both wheels even when only one brake is engaged by the user.

Dangerous	323	14,1%
Useless	243	10,6%
Maybe useful	634	27,6%
Useful	417	18,2%
Definitely useful	458	20,0%
Essential for safety	218	9,5%



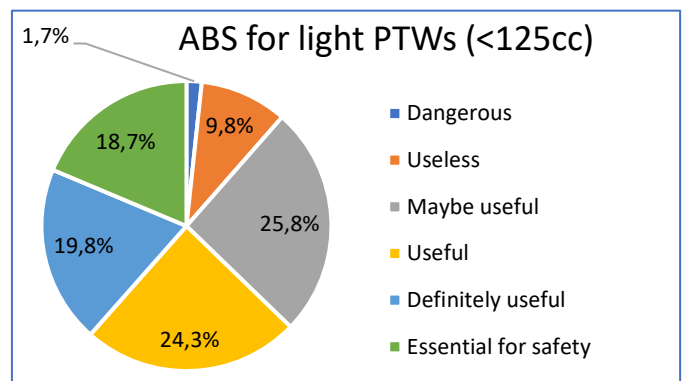
34 - Autonomous emergency braking > A system that monitors the traffic conditions ahead and automatically brakes the vehicle if the rider fails to respond to an emergency situation.

Dangerous	1070	46,7%
Useless	203	8,9%
Maybe useful	607	26,5%
Useful	197	8,6%
Definitely useful	154	6,7%
Essential for safety	62	2,7%



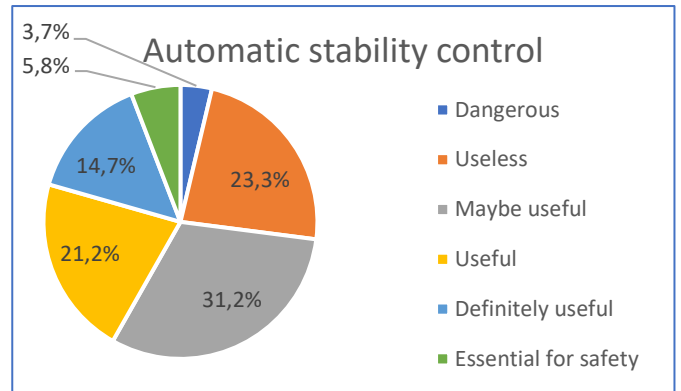
35 - Anti-lock braking system (ABS) for light PTWs (< 125cc) > Just like the already mandatory ABS on new PTWs over 125 cc, ABS for light PTWs can prevent the wheels from locking with heavy braking.

Dangerous	39	1,7%
Useless	224	9,8%
Maybe useful	591	25,8%
Useful	557	24,3%
Definitely useful	454	19,8%
Essential for safety	428	18,7%



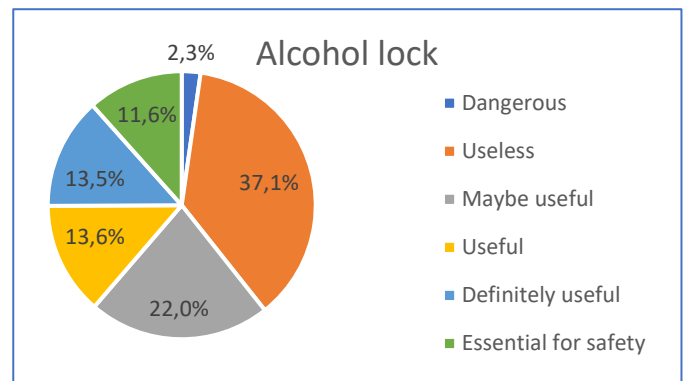
36 - Automatic stability control > Prevents the rear wheel from spinning uncontrolled and lift-off detection of the front wheel.

Dangerous	85	3,7%
Useless	535	23,3%
Maybe useful	715	31,2%
Useful	486	21,2%
Definitely useful	338	14,7%
Essential for safety	134	5,8%



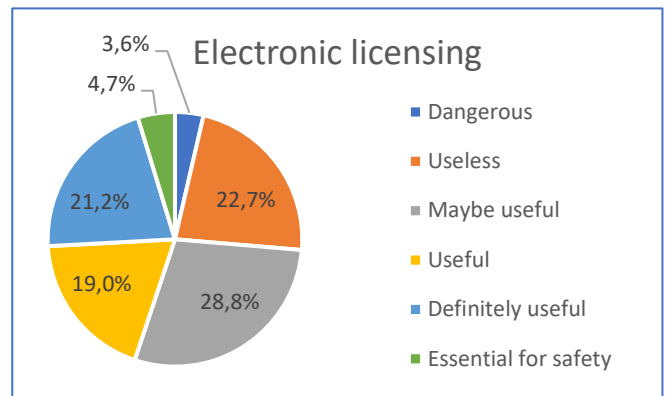
37 - Alcohol lock > Disables the vehicle's ignition if alcohol is detected in the breath of the user.

Dangerous	52	2,3%
Useless	850	37,1%
Maybe useful	504	22,0%
Useful	312	13,6%
Definitely useful	309	13,5%
Essential for safety	266	11,6%



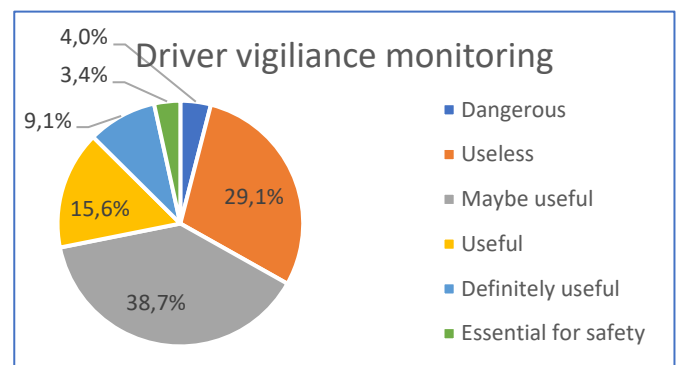
38 - Electronic licensing > Disables the ignition unless an authorised user is identified.

Dangerous	83	3,6%
Useless	521	22,7%
Maybe useful	660	28,8%
Useful	436	19,0%
Definitely useful	485	21,2%
Essential for safety	108	4,7%



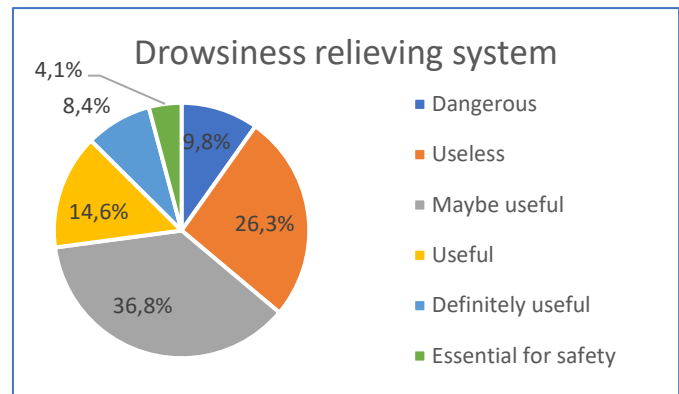
39 - Driver vigilance monitoring > Monitors the user's behavior and/or physiology and provides alerts if the user is fatigued or inattentive.

Dangerous	92	4,0%
Useless	668	29,1%
Maybe useful	888	38,7%
Useful	357	15,6%
Definitely useful	209	9,1%
Essential for safety	79	3,4%



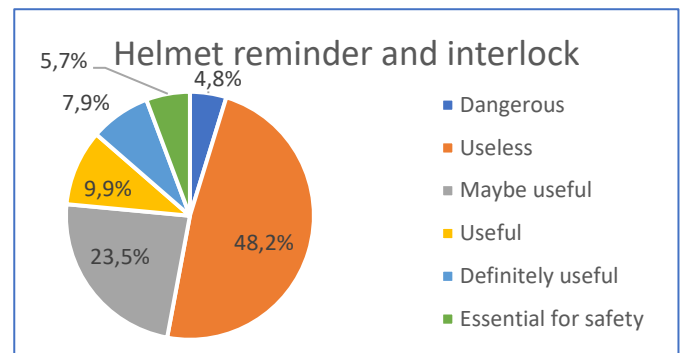
40 - Drowsiness relieving system > Monitors the user's behaviour and/or physiology and intervenes if the user is fatigued or inattentive.

Dangerous	225	9,8%
Useless	603	26,3%
Maybe useful	843	36,8%
Useful	334	14,6%
Definitely useful	193	8,4%
Essential for safety	95	4,1%



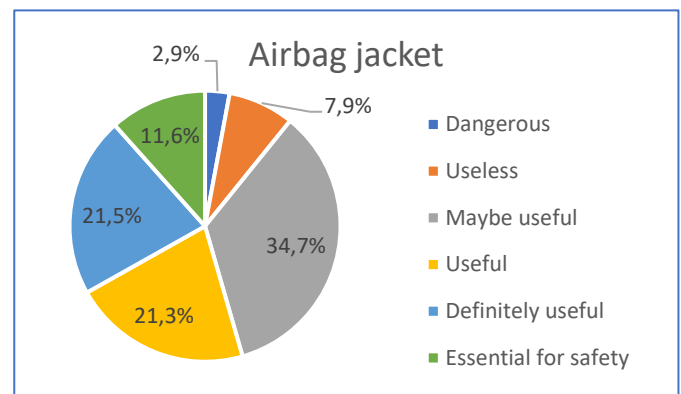
41 - Helmet reminder and interlock > Detects the presence of a helmet and disables the ignition if the helmet is not properly fixed.

Dangerous	109	4,8%
Useless	1105	48,2%
Maybe useful	540	23,5%
Useful	227	9,9%
Definitely useful	181	7,9%
Essential for safety	131	5,7%



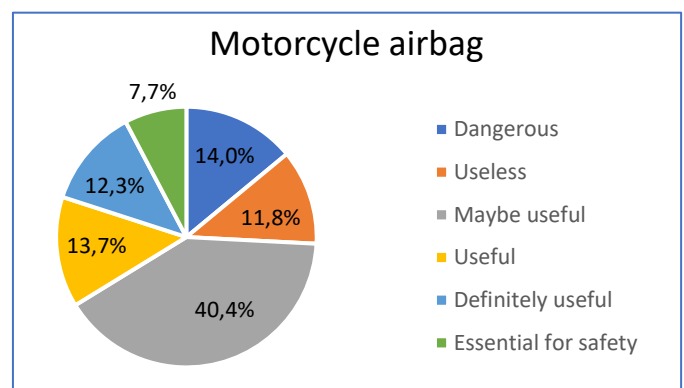
42 - Airbag jacket > Airbags within the jacket inflate when the rider is thrown from the vehicle.

Dangerous	67	2,9%
Useless	181	7,9%
Maybe useful	796	34,7%
Useful	489	21,3%
Definitely useful	494	21,5%
Essential for safety	266	11,6%



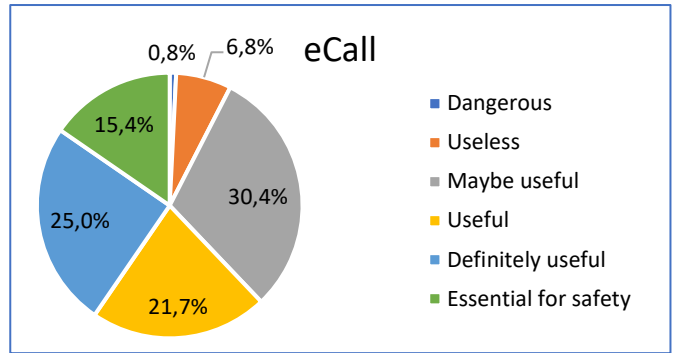
43 - Motorcycle airbag > Deploys upon detection of a crash that exceeds a predetermined intensity level and prevents the rider being thrown from the vehicle in front-impact crashes.

Dangerous	321	14,0%
Useless	271	11,8%
Maybe useful	927	40,4%
Useful	315	13,7%
Definitely useful	282	12,3%
Essential for safety	177	7,7%



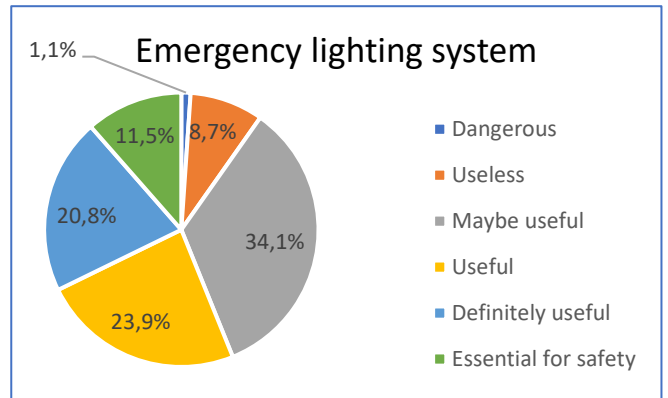
44 - eCall > Automatically informs emergency services of vehicle's location in the event of a crash.

Dangerous	18	0,8%
Useless	155	6,8%
Maybe useful	696	30,4%
Useful	497	21,7%
Definitely useful	574	25,0%
Essential for safety	353	15,4%



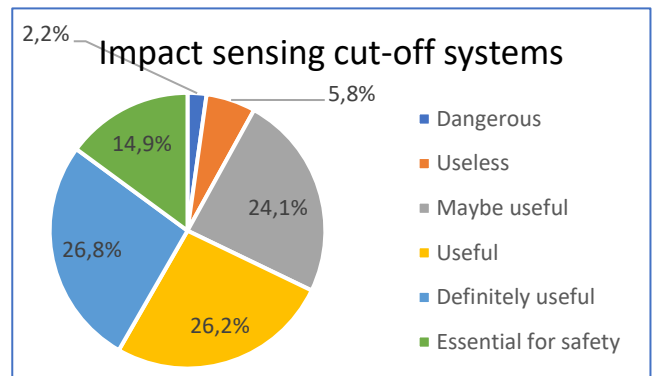
45 - Emergency lighting system > Illuminates the vehicle after a crash has occurred.

Dangerous	25	1,1%
Useless	199	8,7%
Maybe useful	782	34,1%
Useful	548	23,9%
Definitely useful	476	20,8%
Essential for safety	263	11,5%



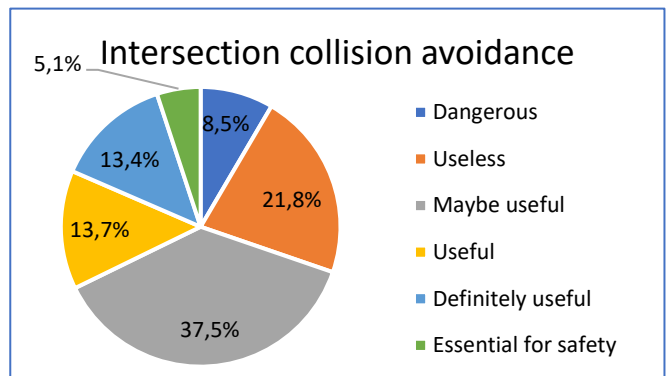
46 - Impact sensing cut-off systems > Disables electrical and/or fuel systems post-crash.

Dangerous	51	2,2%
Useless	133	5,8%
Maybe useful	553	24,1%
Useful	600	26,2%
Definitely useful	614	26,8%
Essential for safety	342	14,9%



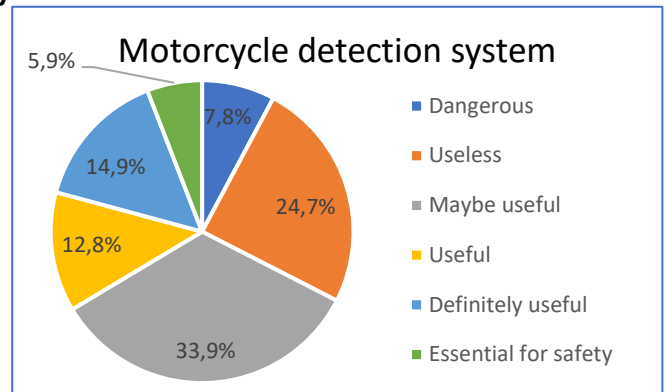
47 - Intersection collision avoidance > Vehicles approaching an intersection communicate their speed and direction with roadside beacons, which alert other vehicles of their position.

Dangerous	194	8,5%
Useless	500	21,8%
Maybe useful	860	37,5%
Useful	315	13,7%
Definitely useful	308	13,4%
Essential for safety	116	5,1%



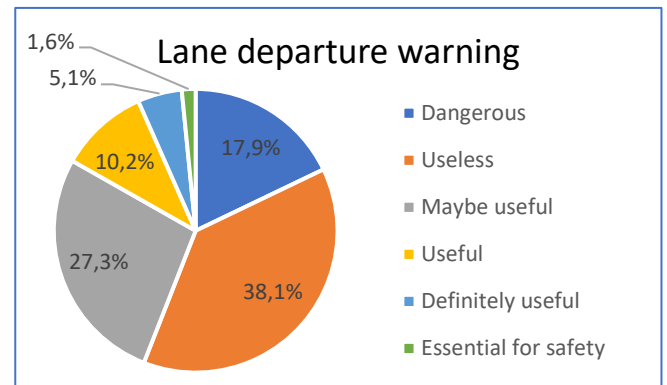
48 - Motorcycle detection system > Motorcycles transmit their speed and location to other vehicles, alerting other drivers when motorcycles are in close proximity.

Dangerous	179	7,8%
Useless	567	24,7%
Maybe useful	777	33,9%
Useful	293	12,8%
Definitely useful	342	14,9%
Essential for safety	135	5,9%



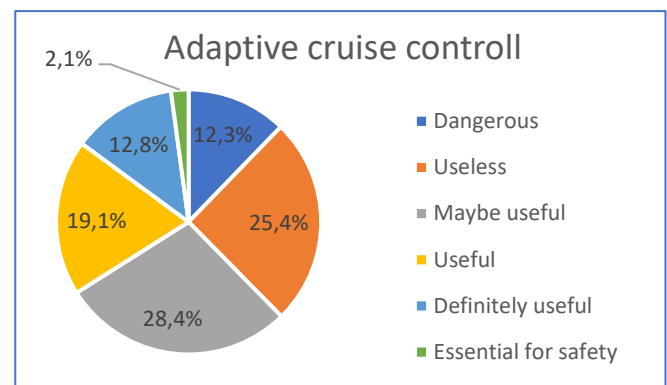
49 - Lane departure warning / Lane keeping assistance > Monitors the vehicle's lateral position, and either alerts or intervenes when the vehicle deviates from the lane.

Dangerous	410	17,9%
Useless	873	38,1%
Maybe useful	625	27,3%
Useful	233	10,2%
Definitely useful	116	5,1%
Essential for safety	36	1,6%



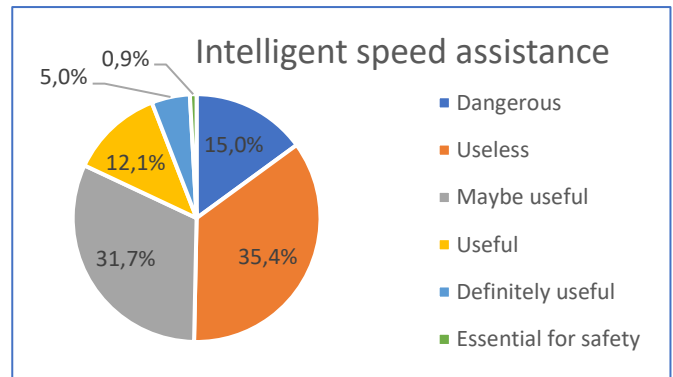
50 - Adaptive cruise control > A system that can automatically keep a constant distance, selected by the rider, from the preceding vehicle and can also keep a constant speed.

Dangerous	281	12,3%
Useless	582	25,4%
Maybe useful	651	28,4%
Useful	437	19,1%
Definitely useful	293	12,8%
Essential for safety	49	2,1%



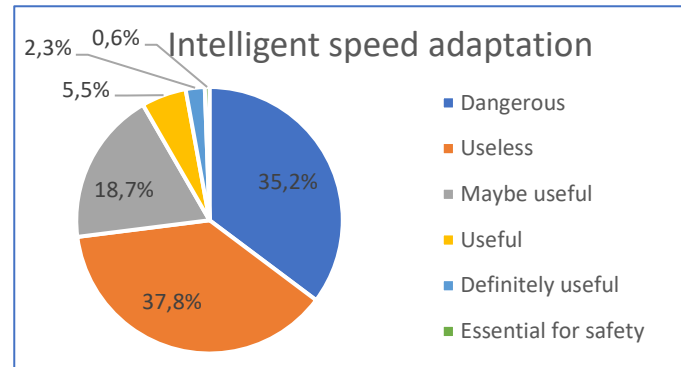
51 - Intelligent speed assistance > Alerts the rider when the posted speed limit is exceeded, for example by increased resistance of the throttle. The system is overrideable and can be switched off. The system uses roadside beacons and/or GPS systems to determine the speed.

Dangerous	343	15,0%
Useless	811	35,4%
Maybe useful	726	31,7%
Useful	278	12,1%
Definitely useful	115	5,0%
Essential for safety	20	0,9%



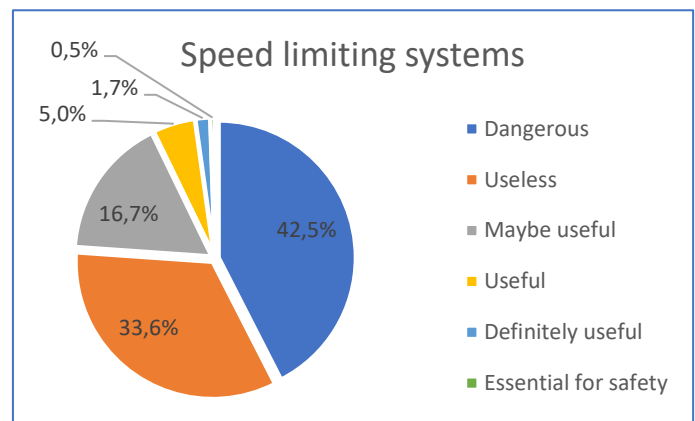
52 - Intelligent speed adaptation > Limits the speed of the vehicle to the posted speed limit, using roadside beacons and/or GPS systems to determine the speed. The system is non-overrideable, but can be switched off.

Dangerous	808	35,2%
Useless	866	37,8%
Maybe useful	428	18,7%
Useful	125	5,5%
Definitely useful	53	2,3%
Essential for safety	13	0,6%



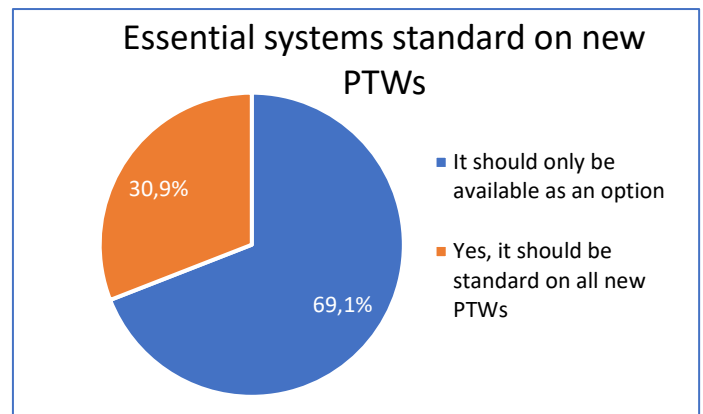
53 - Speed limiting systems > Alert the user and inhibit further acceleration when the pre-set speed limit of the vehicle is exceeded.

Dangerous	974	42,5%
Useless	771	33,6%
Maybe useful	383	16,7%
Useful	114	5,0%
Definitely useful	39	1,7%
Essential for safety	12	0,5%

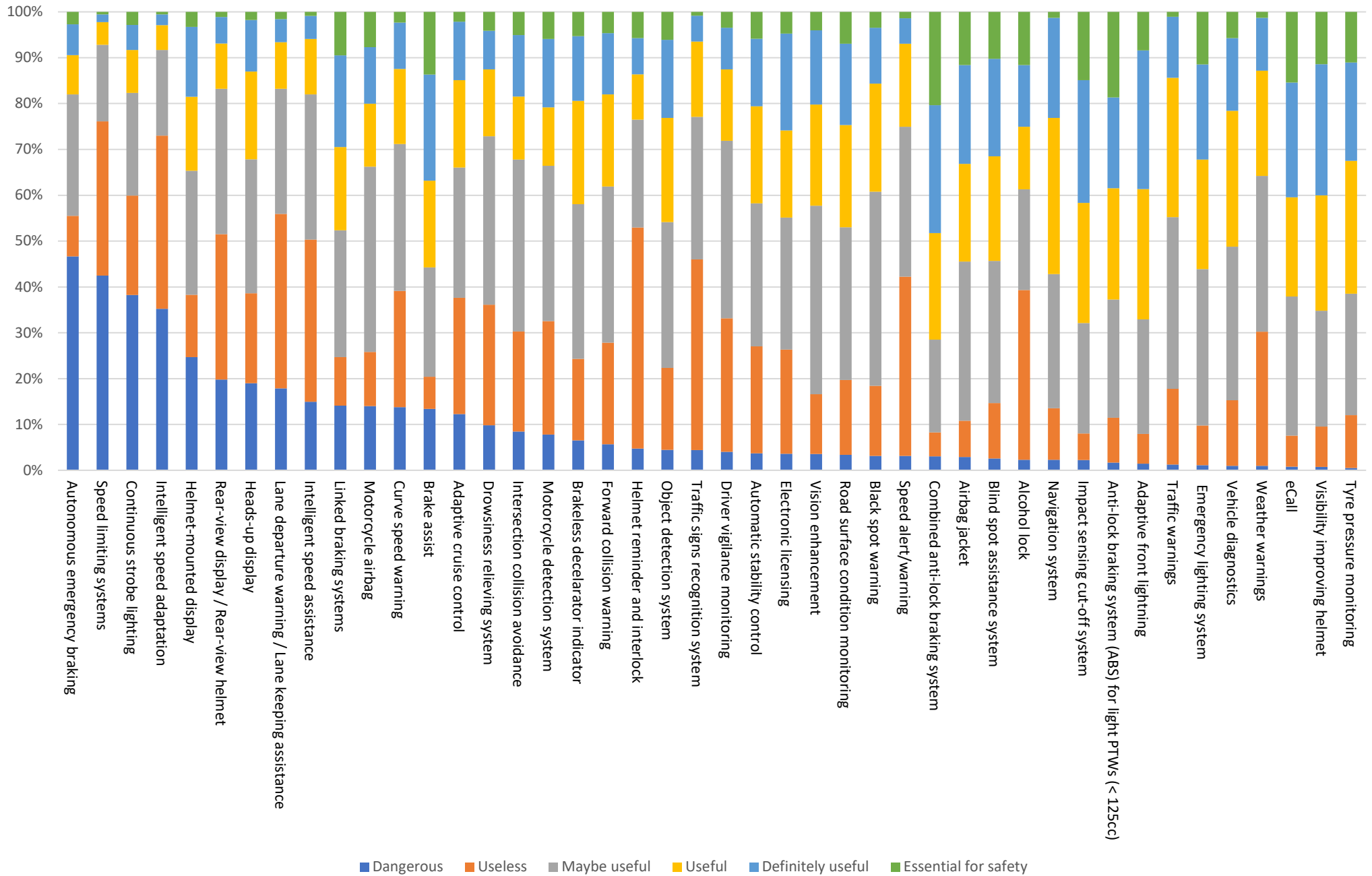


54 - Finally, do you think that the systems/functions that you identified as 'essential' should be introduced on all PTW models by the motorcycle industry?

It should only be available as an option	1584	69,1%
Yes, it should be standard on all new PTWs	709	30,9%



Overview systems 2019



Overview systems 2014

