

Proposal to start discussion of Acceleration Control for Pedal Error (ACPE)

14 GRVA
26-30th September 2022
Japan

Japan would like to propose to start discussion of making new UNR regarding Acceleration Control for Pedal Error (ACPE).

In this presentation, we explain the following contents;

1. What is ACPE?
2. Japanese situation of ACPE
3. Benefit for future traffic safety in the world
4. Plan for the discussion

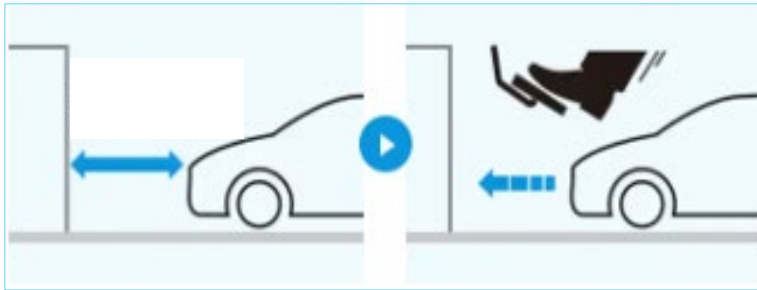
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1. What is ACPE?

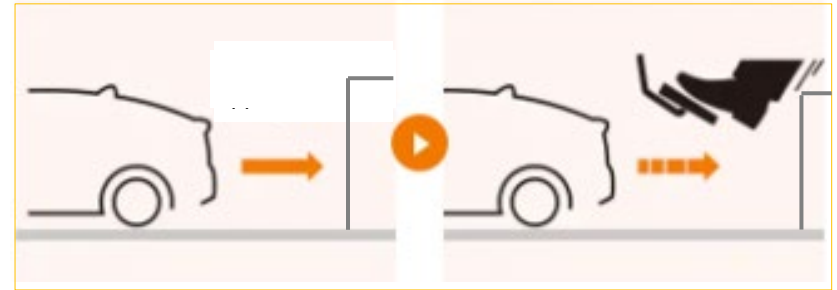
- ACPE stands for Acceleration Control for Pedal Error.
- Drivers sometimes mis-use acceleration pedal instead of brake pedals by mistake, in the case of unusual situation, such as collision cases, going back cases.
- Especially, elderly drivers tends to make a error more than young drivers.(See later slide)
- If the vehicle accelerate in such error situation, it may cause terrible accidents.

Examples of ACPE

Ex1 detecting object in front vehicle



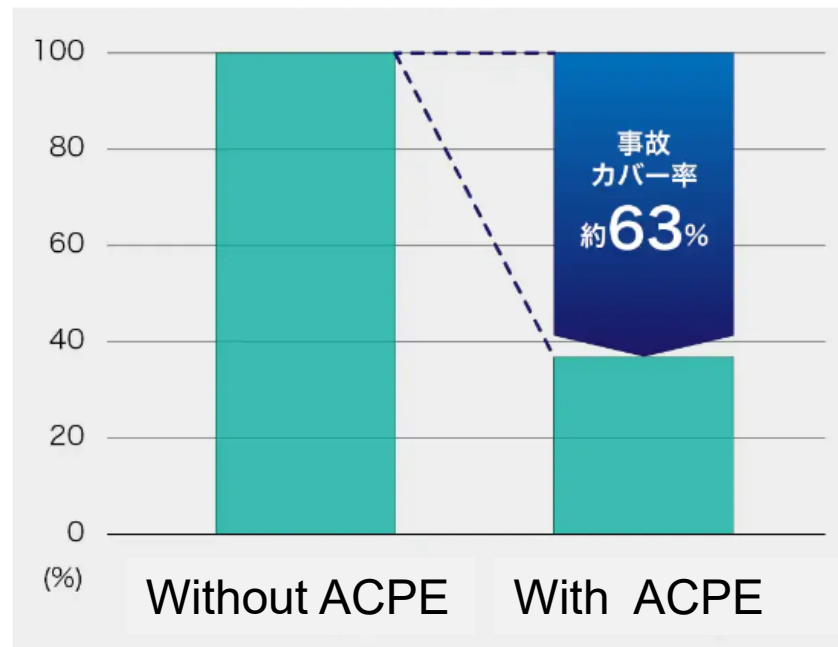
Ex2 detecting object backward of vehicle



Ex1 and 2) By detecting object, the system determines that the driver has stepped on the wrong pedal.

1. What is ACPE? (Effect by ACPE)

- ACPE can prevent accidents caused by error of pedals.
- In some analysis, ACPE has a big effect to be able to prevent **63%** of all relevant accidents.

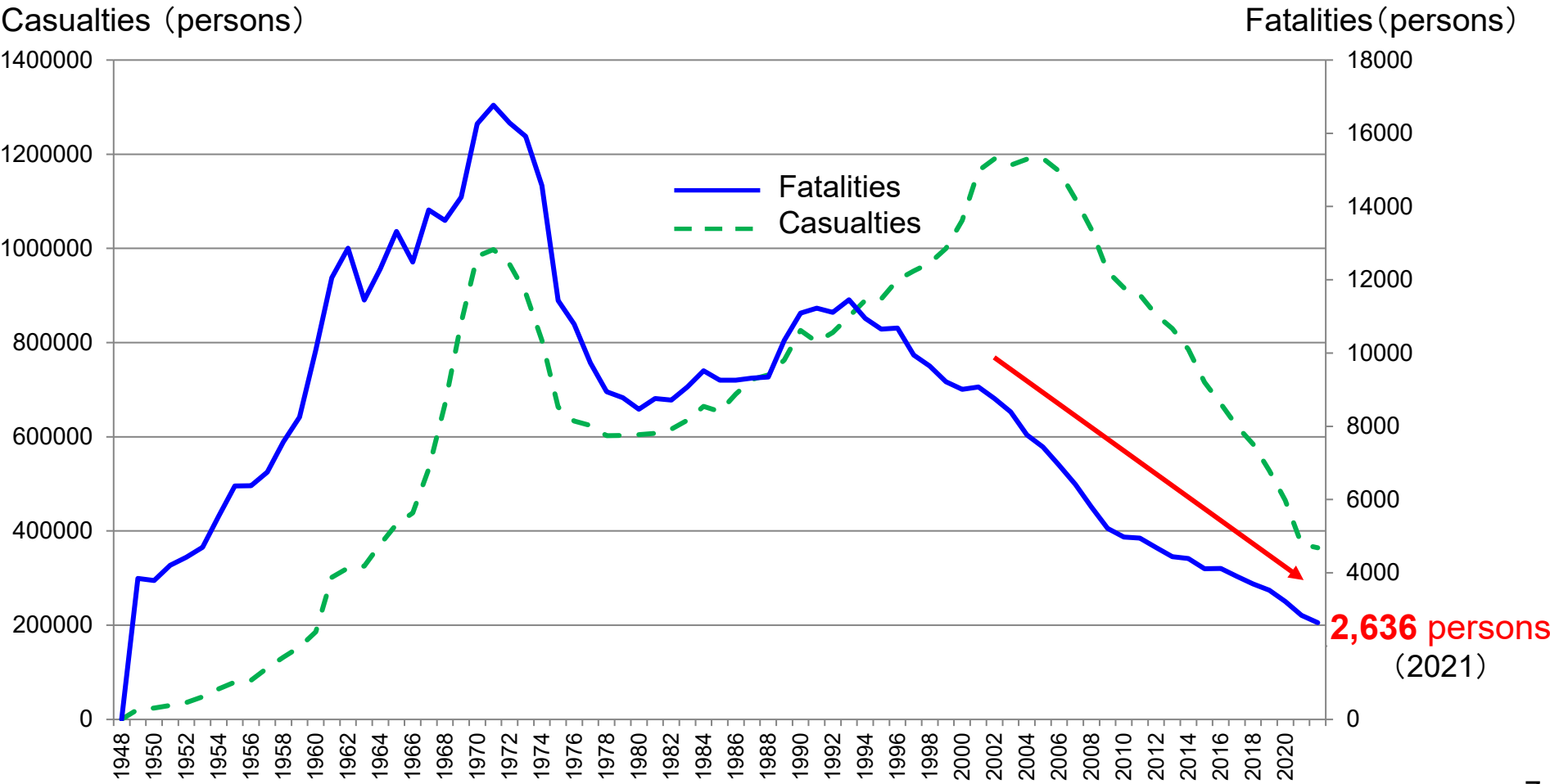


※The number of accidents in this survey:195

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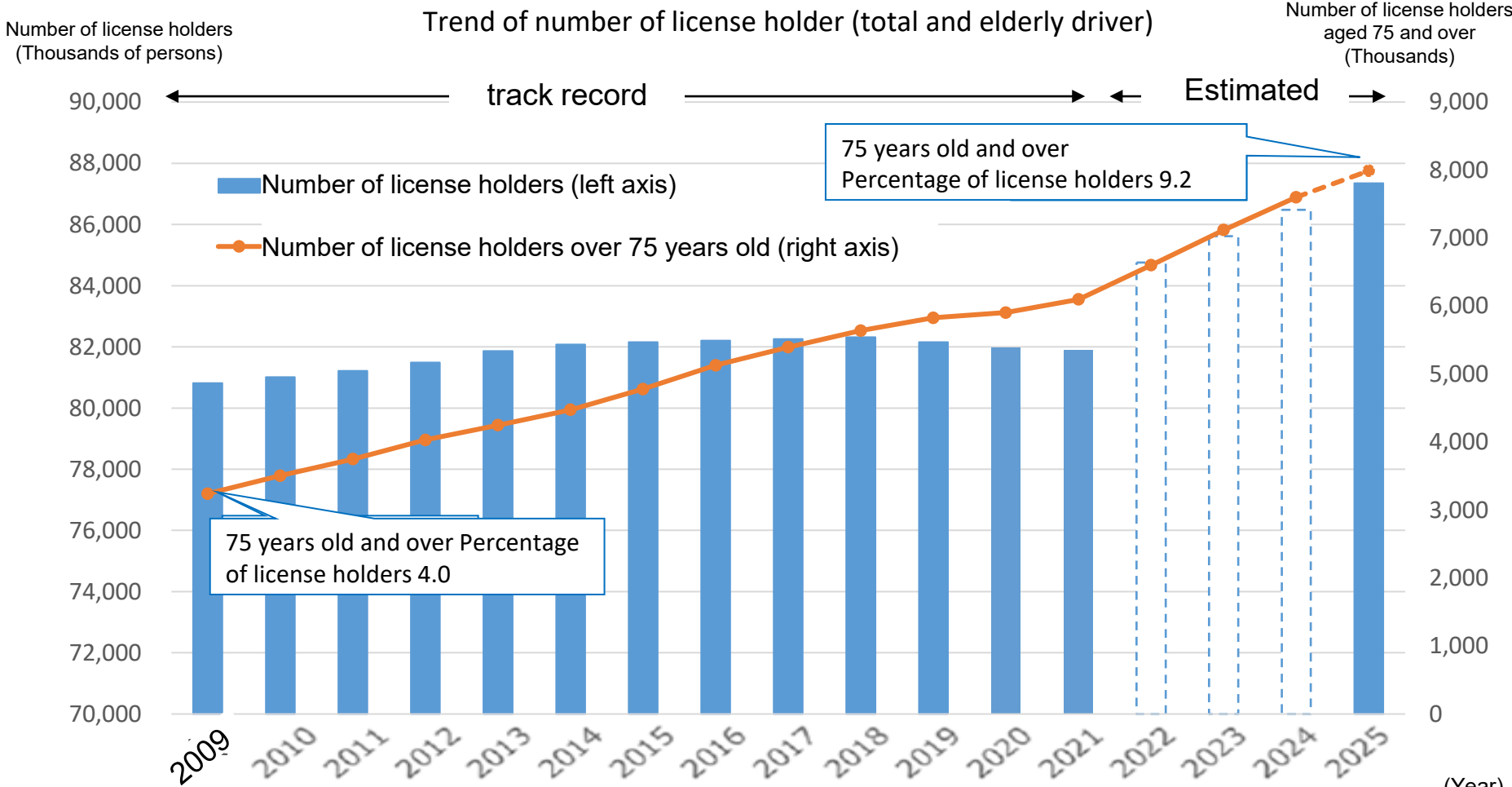
2. Japanese situation of ACPE (Background data of accidents in Japan)

- Number of fatalities in traffic accidents is decreasing in Japan.
- However, the number of elderly driver is increasing, we need to have some counter measurements to prevent the accident caused by elderly drivers.



2. Japanese situation (the number of elderly drivers)

● The number of license holders over 75 years old will continue to increase in Japan.



※Estimates of the number of license holders aged 75 and over in R2-6 are from the National Police Agency.
 Estimates of the number of driver's license holders in R7 are from the 15th Traffic Accident and Investigation Analysis Research Presentation in 2012 by the Traffic Accident Analysis Center.
 The number of license holders aged 75 and over in R7 and the number of license holders in R2 to R6 are estimated by the National Bureau of Motor Vehicles based on the above figures. Translated with www.DeepL.com/Translator (free version)

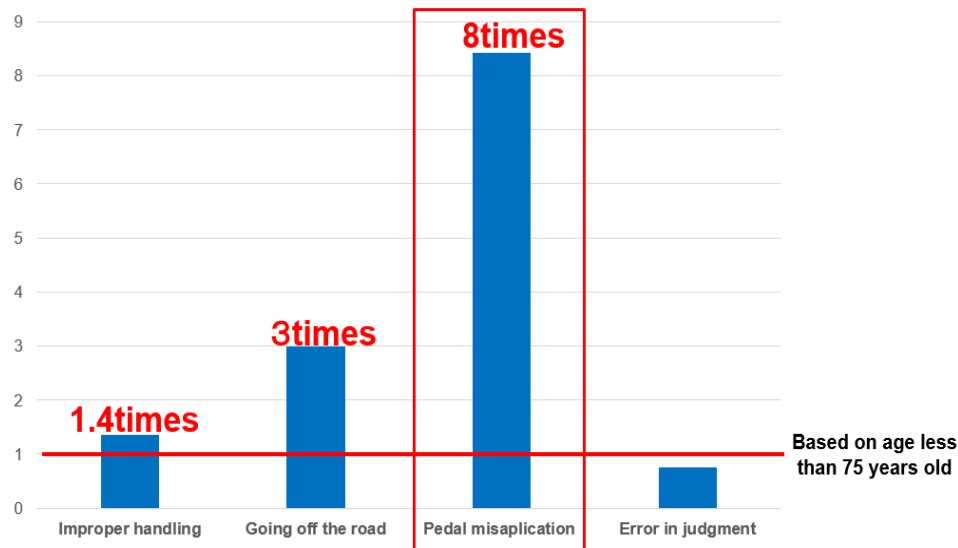
(Year) 8

2. Japanese situation (reason of pedal misapplication)

- When we see only fatal accidents, **47 fatal accidents** occurred in one year. And around **4,000 accidents** happened in total per year.
- Such accidents are expected to increase according to the increase of elderly drivers.
- Elderly drivers are more likely to pedal incorrectly and cause accidents than drivers of other generations (**8 times** of other generation).

Types of accidents which elderly drivers tend to cause comparing with other generation's driver

First-party fatal accident rate (when age under 75 is set as 1)



2. Japanese situation (an actual accident in Japan)

- A serious accident involving 2 fatalities and 8 injuries happened in central Tokyo in 3 years ago.
- This accident caused big social discussion for such accident.

2 dead, 8 injured after elderly driver plows (



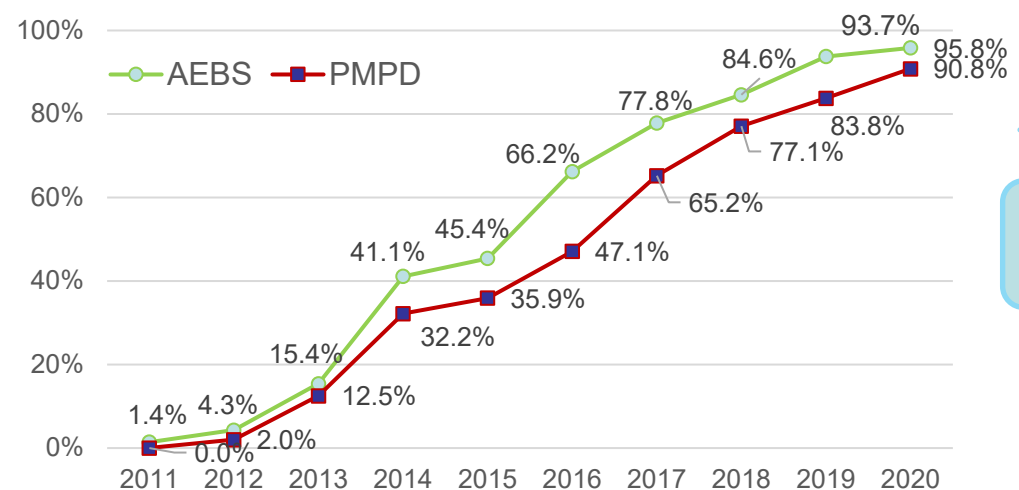
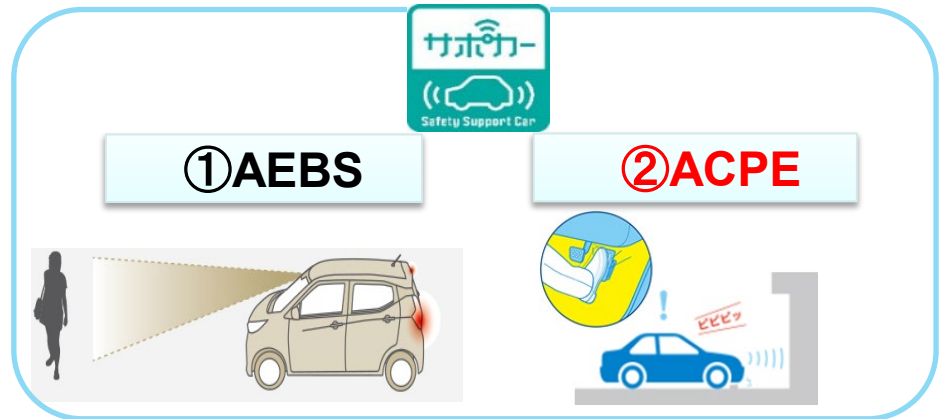
Two people are feared dead and eight others injured on Friday (April 19) after a car plowed into them at a busy intersection in Tokyo, police said.

The vehicle, driven by a man in his 80s, struck the pedestrians at a crosswalk and then hit

2. Japanese situation (promotion of ACPE)

- MLIT has promoted ACPE strongly after the serious accident, together with AEBS.
- The ratio of new vehicle with ACPE is increasing up to **over 90%** by a subsidiary and certification.
- MLIT has started NCAP as well.

1. Promotion of ACPE, “sapo-car campaign”



2. Certification and subsidiary

Purchase of Vehicles	①+②	①
registered vehicle	100,000 yen	60,000 yen



253 type approved

325 type approved

※PMPD=ACPE

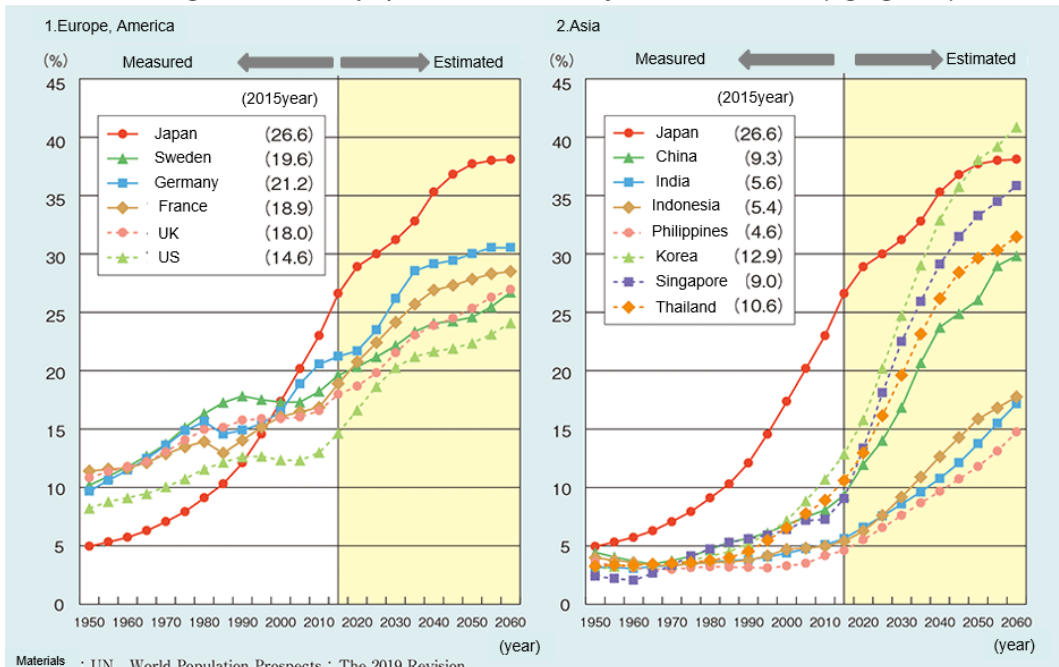
90% of new vehicles have ACPE in Japan. But levels of prevention are different

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3. Benefit for the future traffic in the world

- ACPE is beneficial, only for Japan or not?
- We do believe ACPE is clearly beneficial for the world including Europe.
- The reasons of this are;
 - Expectation of increasing total population of elderly people
 - Expectation of increase of other types of pedals
 - Increase of Automatic Transmission

Percentage of the total population that is 65 years old or older (aging rate)

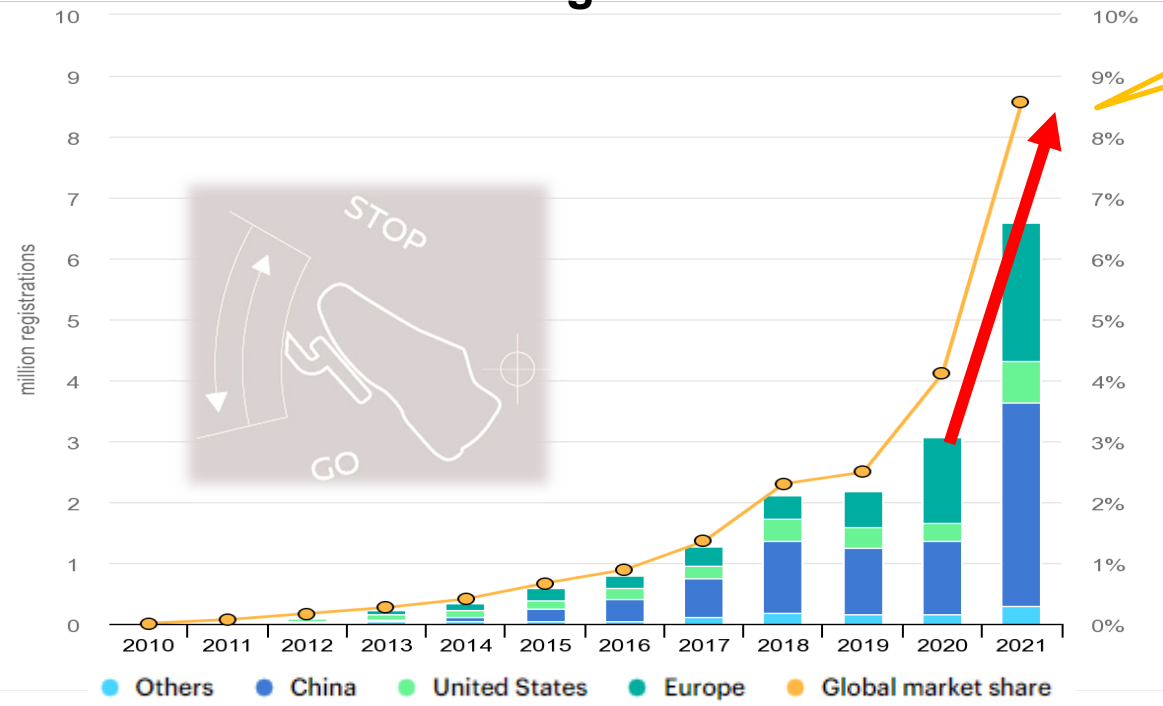


- This data shows that aging society will come soon in all over the world.
 - That means that the number of elderly driver will increase as Japan.

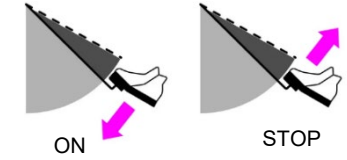
3. Benefit for the future traffic in the world (other types of pedals)

- In addition to elderly driver, Other types of pedals may have another potential risk of relevant accidents.
- EV dose not have a manual transmission, so automatic transmissions will increase. And other types of pedaling, such as one pedal system, may be another factor.
- The number of EV is expected to increase in near future.

EV sales in the global market



Sales volume will be approximately 6.6 million



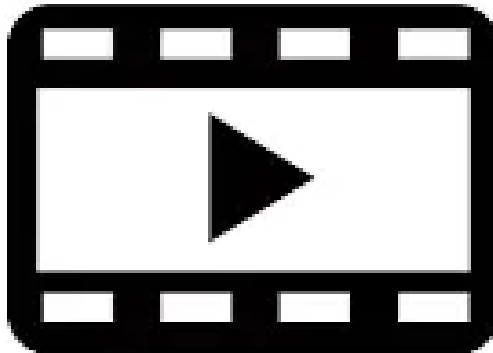
Percentage of new car registrations and sales of passenger cars with automatic transmissions in European countries

country	2001	2010	2019
UK	14	20	49
Germany	20	23	50
France	5	9	40
Italy	10	14	24
Switzerland	-	-	79
Netherland	13	18	52
Spain	4	13	25
Belgium	14	15	33
Sweden	10	30	79
Austria	15	14	36
EU	12	16	41

Japan is over 99%AT

Materials : ICCT

- In Sep 2020, a female driver, 39 years old, made a collision to a school gate with high speed, and caused 11 injuries including 7 kids, when she tried to pick up her kids. This accident seems to be caused by pedal error, in UK.
- We need to do an effort prevent to repeat such accident. ACPE is one of the important measures to prevent them.



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- Considering the situation explained in this presentation, Japan proposes the start of the discussion of ACPE.
- Tentative plan of this discussion is as follows.
- We hope GRVA members consider to this issue positively.

Idea of schedule (optimistic situation)

- Within 2022 kick off for TOR
- 2023/2 GRVA#15 adoption of TOR and starting IWG
- 2023/3 start IWG
- 2024/2 informal doc to GRVA
- 2024/5 formal doc to GRVA
- 2024/11 formal doc to WP29

Thank you for your attention.