



# AVAS ZOE SURVEY

## JULY-AUGUST 2016



DEA-TPA – T. SCHMITT  
DEA-TR – F. SILVANI

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## Electric vehicles, leader in Europe in 2017

RENAULT  
**Z.E.**



TWIZY



KANGOO Z.E.



ZOE



Nouveau Master Z.E.



Nouvelle SM3 Z.E.



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## FACT & FIGURES FOR RENAULT EV – MARCH 2018



### RENAULT Z.E.

- LEADER IN ELECTRIC VEHICLE SALES IN EUROPE IN 2017
- ALMOST ONE ELECTRIC VEHICLE IN EVERY FOUR SOLD IN EUROPE IS A RENAULT.
- OVER 150,000 GROUPE RENAULT ELECTRIC VEHICLES ARE ALREADY ON THE ROAD WORLDWIDE.

### ZOE - KANGOO

- ZOE WAS EUROPE'S BEST-SELLING ELECTRIC VEHICLE FOR THE THIRD CONSECUTIVE YEAR
- KANGOO Z.E. HAS BEEN EUROPE'S BEST-SELLING ELECTRIC LCV SINCE ITS LAUNCH IN 2010.

- **Current AVAS on ZOE (pure electric vehicle)**

- Fitted 100% since starting of sales in 2013
- In compliance with the UN-ECE R138-00 and 540/2014/EC
  - Sound emitted in forward and reversing mode
  - No stationary sound
  - Pause switch with information of the status of AVAS to the driver
  - Selectable sounds (listen next slide)



- **Sample of sounds designed by IRCAM (Institut de Recherche et Coordination Acoustique Musique) in Paris**
- **With acceleration and deceleration:**

*Basic*



*Glam*



*Sport*



<https://soundcloud.com/renaultze>

**At 10km/h steady:**



**Renault for Zoe → questionnaire :**



Questionnaire



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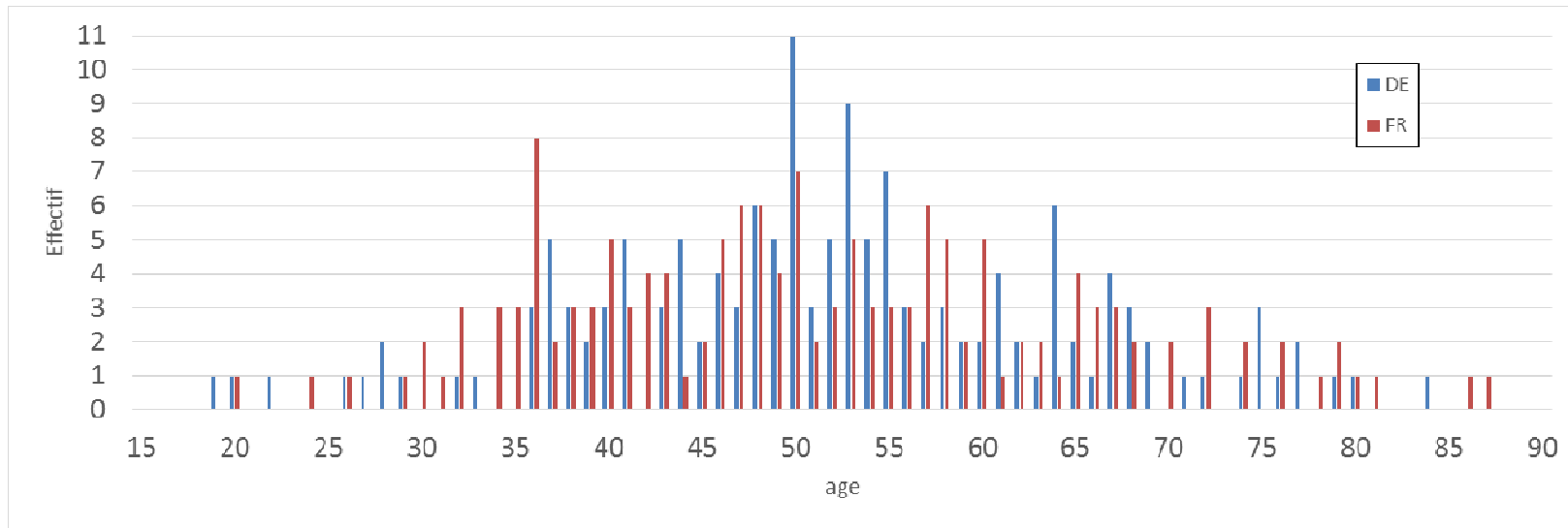
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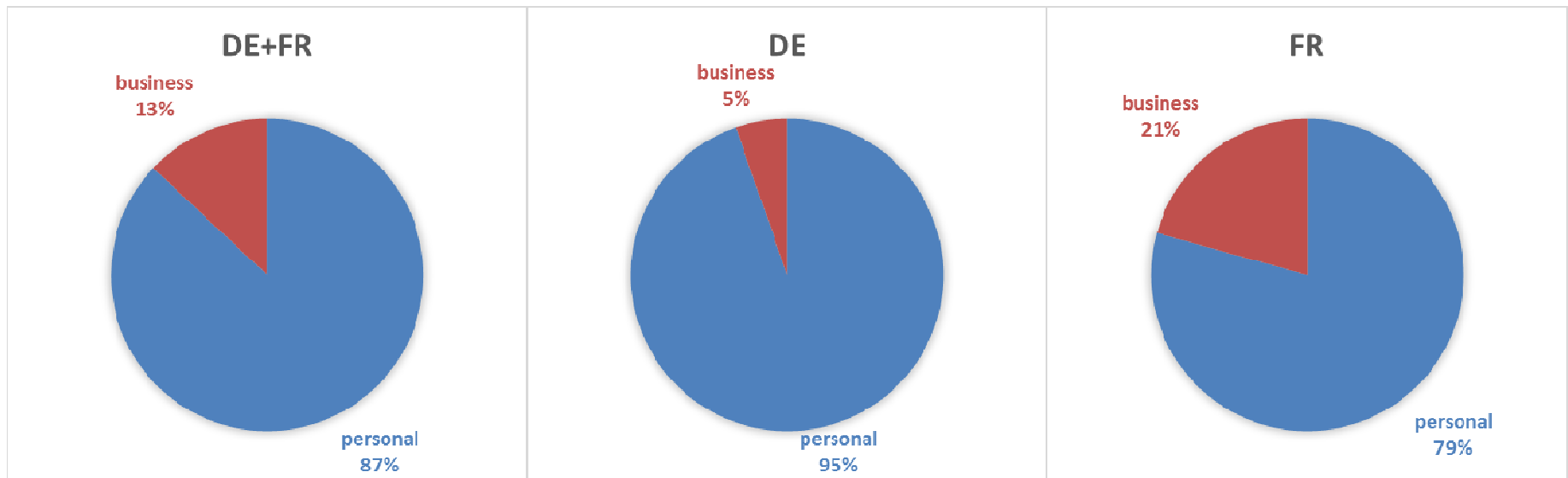
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## Sample

- 300 people – Renault ZOE customers
- 150 France, 150 Germany
- Age average 52 years (same in the 2 countries)
- 209 men, 91 ladies (Germany: 113 / 37 - France: 96 / 54 )



## Utilisation privé / professionnelle *Private / Professional use* (Q1)



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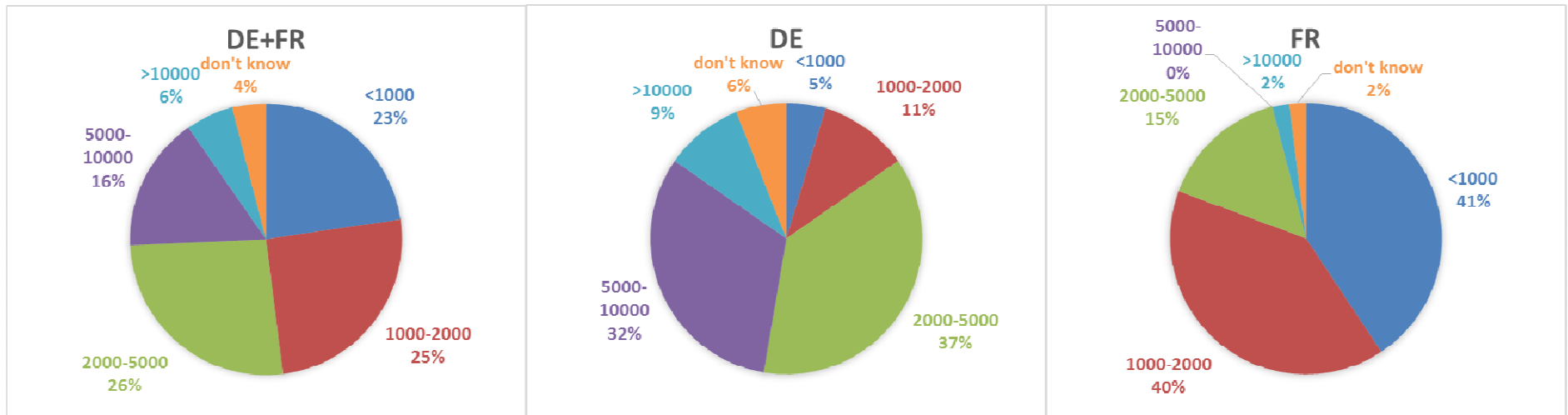
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## COVERED DISTANCE(Q2)



**Average distance (km) = 4000 km (DE 5400km / FR 2600km)**



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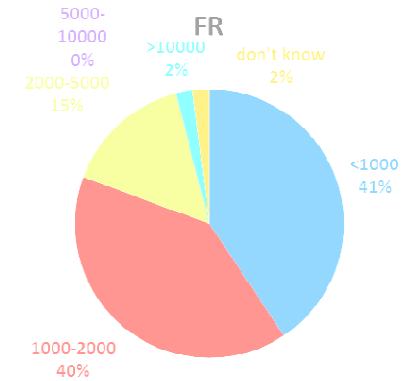
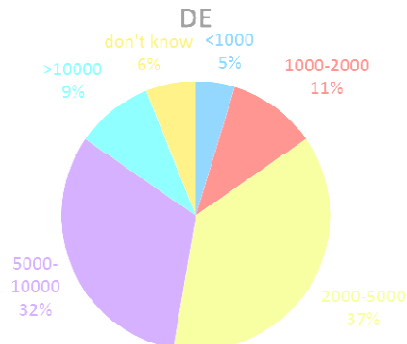
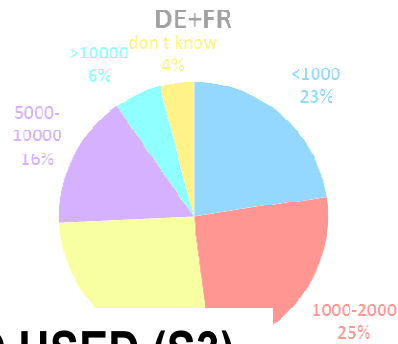
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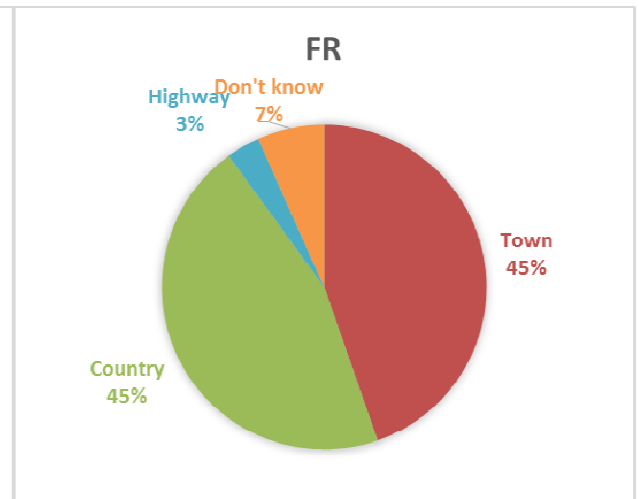
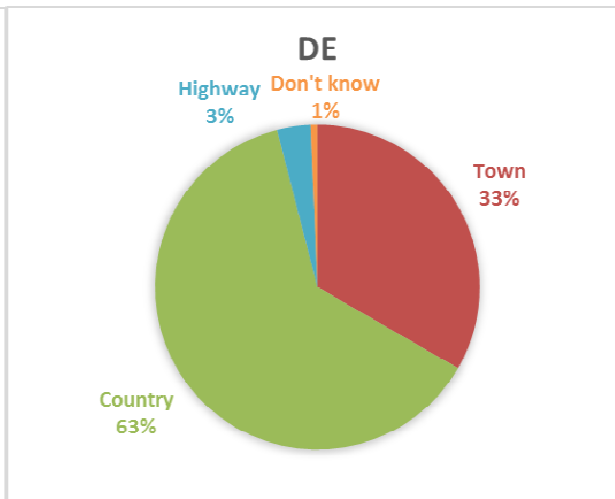
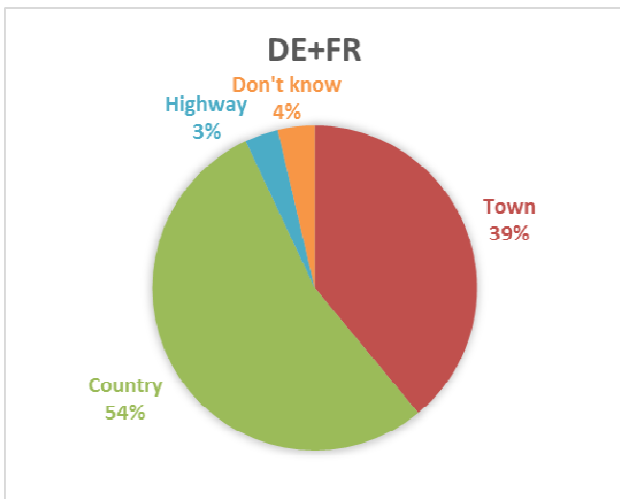
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# COVERED DISTANCE(Q2)



# TYPE OF ROAD USED (S3)



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## MOTIVATION TO BUY ZOE (Q3, several answers possible)

### DE+FR

- Environment (69%)
- Economic (37%)
- Autonomy (22%)
- Innovation (22%)
- Easy (18%)
- Quiet (12%)

### DE

- Environment (71%)
- Economic (28%)
- Innovation (27%)
- Autonomy (16%)
- Easy (11%)
- Quiet (7%)

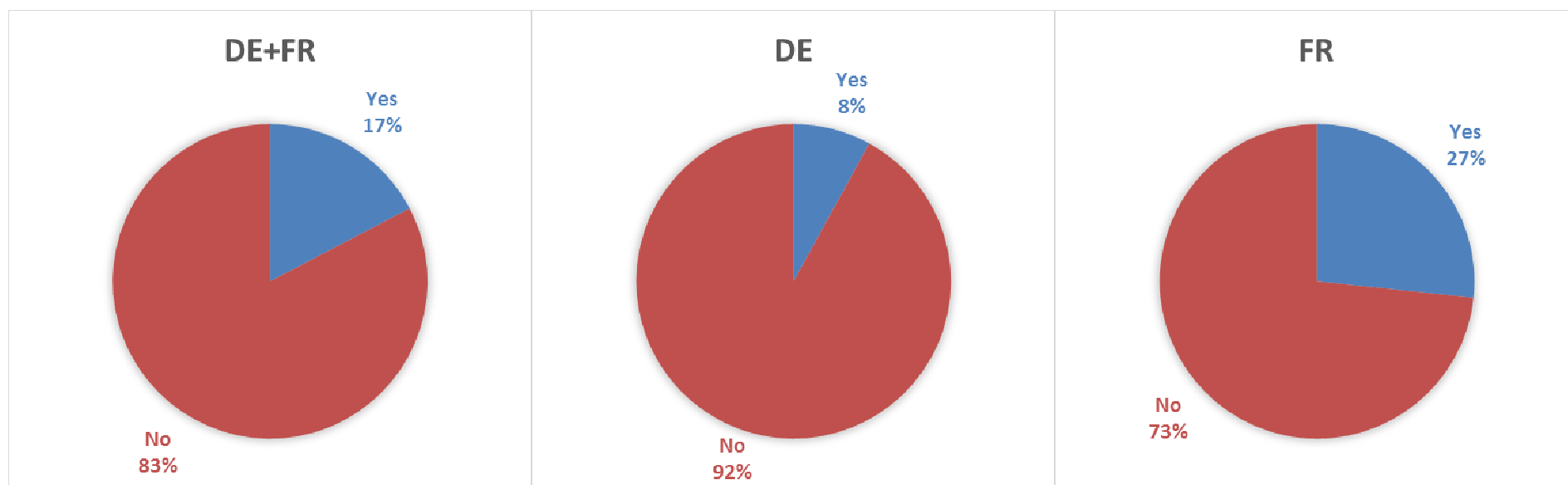
### FR

- Environment (67%)
- Economic (46%)
- Government aid (31%)
- Autonomy (29%)
- Easy (25%)
- Quiet (17%)
- Innovation (17%)
- Performance (16%)



## DANGEROUS SITUATIONS (Q4)

- *Did you ever have experience where pedestrians or cyclists did not detect the presence of your car ?*



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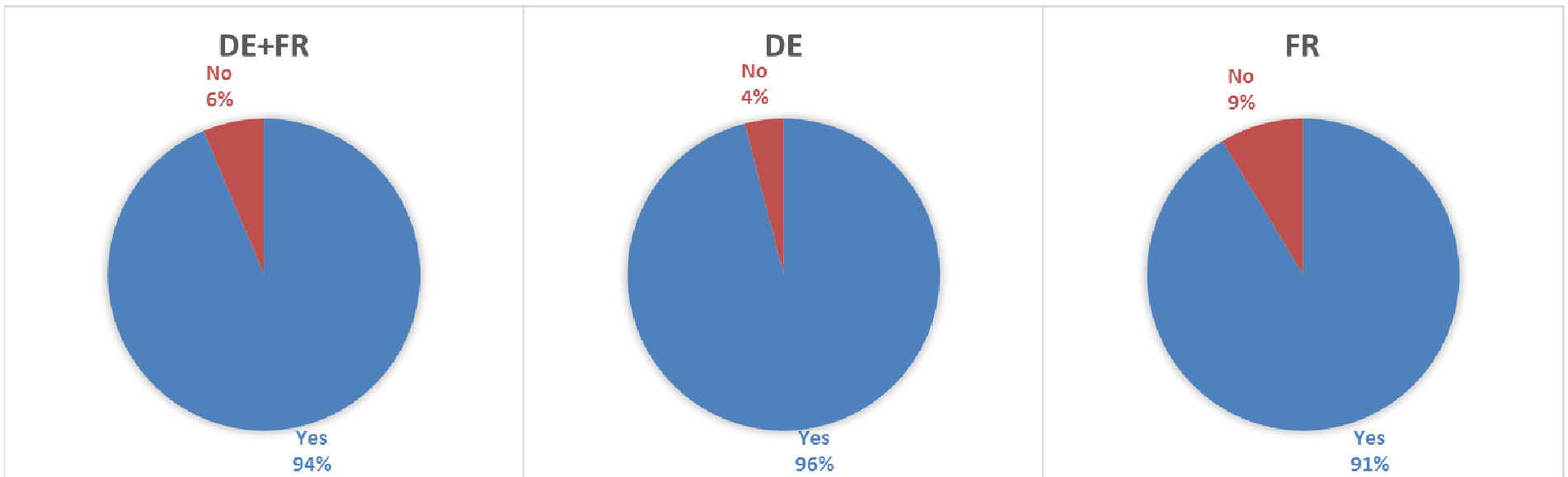
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## Connaissance de Z.E Voice (Q5)

- Your vehicle is equipped with a device called “ZE.Voice” which emits a sound outside the vehicle to alert the pedestrians and the cyclists passing vehicle in certain driving conditions. Did you know?*

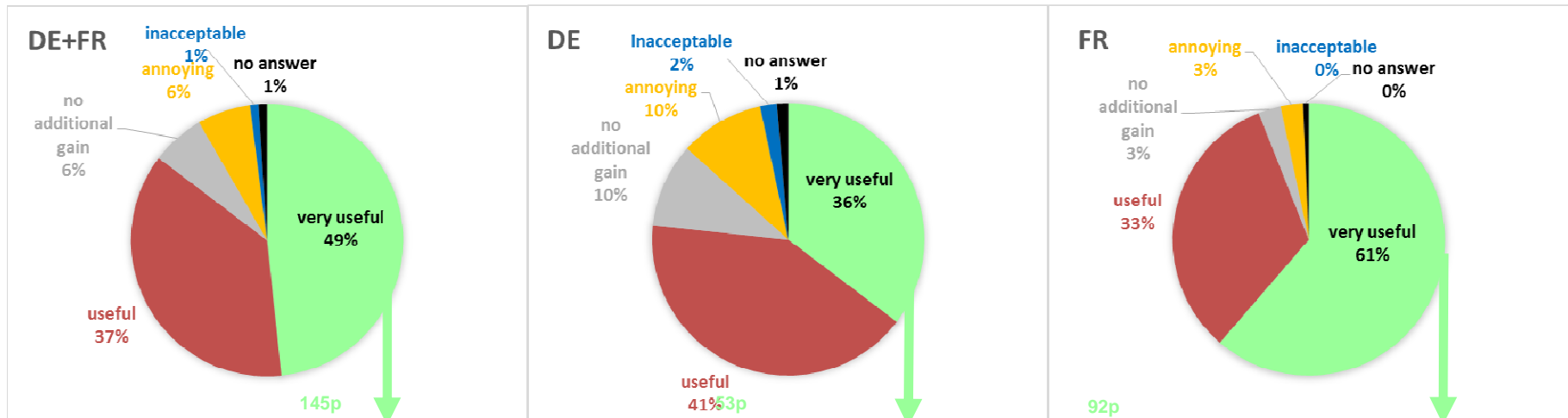


***How did you get information (AVAS fitted on Zoe)?***  
**(Q6, if Z.E Voice known, several answers possible)**

	DE+FR	DE	FR
1. Someone informed you	69%	58%	81%
2. You read if (owner manual, Internet, ...)	33%	42%	24%
3. You did realized/ You heard while driving	30%	42%	17%



## NEED OF Z.E Voice (AVAS) (Q7) → From your point of view, the addition of such a device is ...



- This device emits a sound only for low speeds (less than 35km/h). Do you think it is sufficient? (Q8)**  
**DE+FR : 72 % Oui (DE : 83 % - FR : 66 %)**  
 → up to what speed would you like that this sound is emitted?  
 80% support Up to 50 km/h (10% up to 40 or 45 km/h; 10% up to 60 km/h)
- Do you think that the sound is loud enough to alert pedestrians and cyclists? (Q9)**  
**DE+FR : 57 % Oui (DE 62%-FR 53%) / 30% No / 13% do not know/ no answer**



## PAUSE SWITCH: Knowledge (Q10) et Frequency of use (Q11)

*Your vehicle is equiped with a pause switch of the « ZE Voice » device.*

*Did you know? Did you use it?*



**Global Use Rate: 37 % (DE 50% - FR 24 %)**



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sometimes,  
0%  
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## WHEN DO YOU USE THE PAUSE SWITCH (Q12, several answers possible)

### DE+FR

- Residential area (47%)
- Daytime (30%)
- Night time (28%)
- Traffic jam (16%)
- Everytime (12%)

### DE

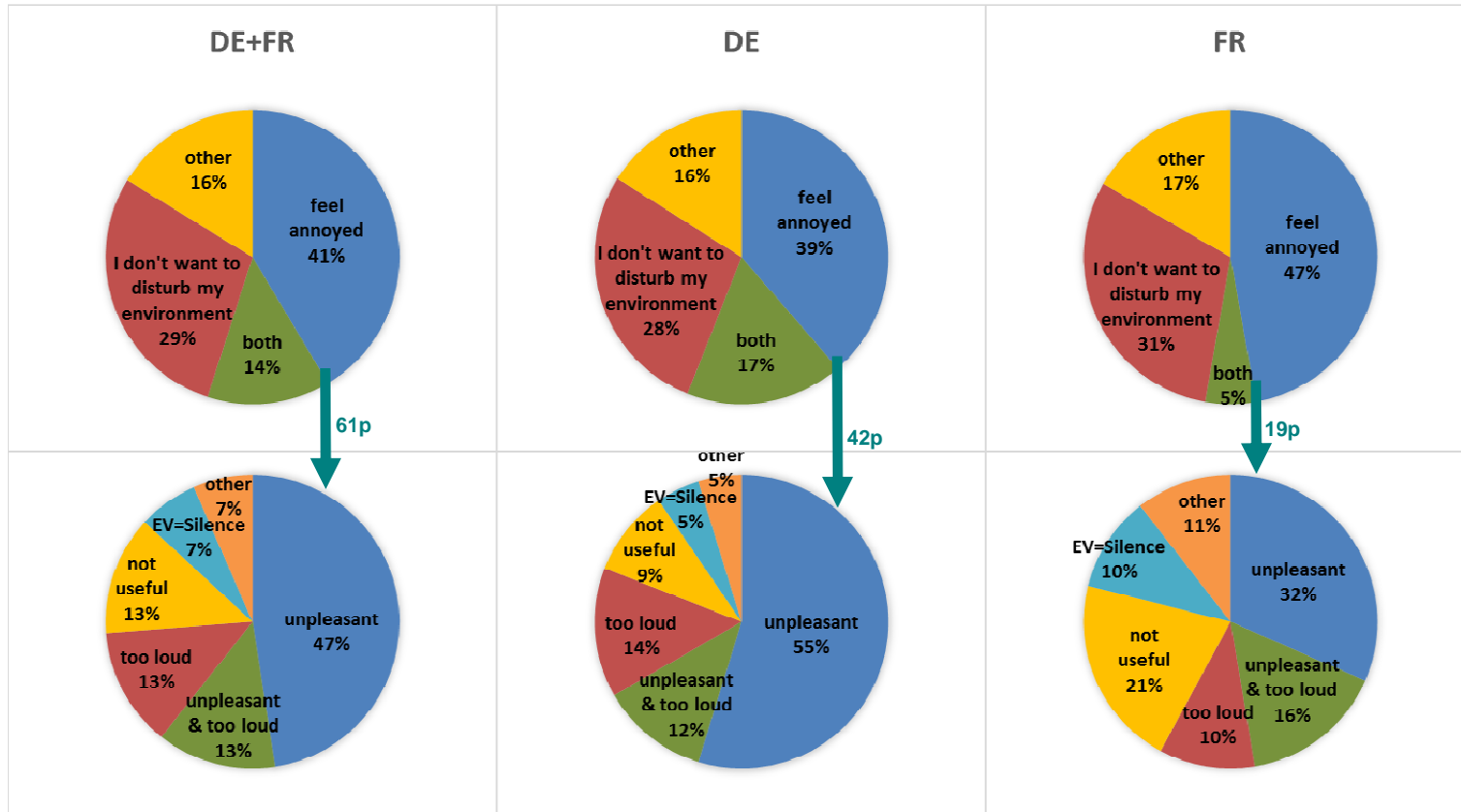
- Residential area (48%)
- Night time (23%)
- Traffic jam (15%)
- Everytime (15%)
- Daytime (13%)

### FR

- Daytime (62%)
- Residential area (46%)
- Night time (38%)
- Traffic jam (19%)
- Everytime (8%)



# WHY DID YOU USE THE PAUSE SWITCH? (Q13, if used) (Q14, if annoying)



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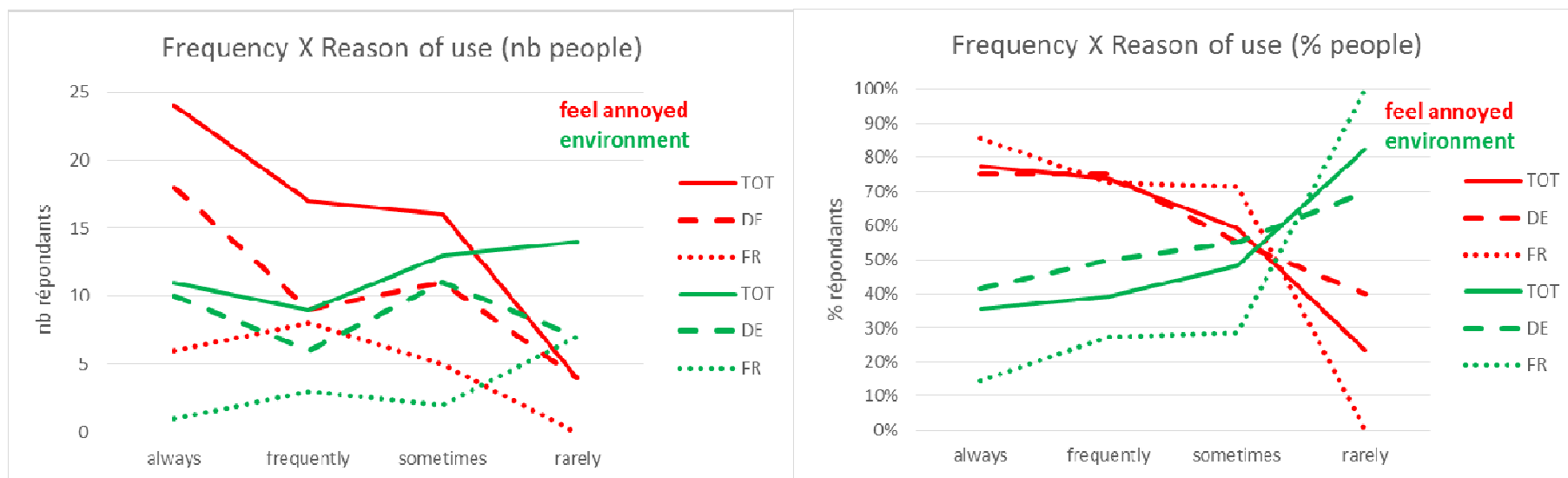
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# PAUSE SWITCH

## Frequency of use of the Pause switch (Q11) X Reason of use of the Pause switch (Q13)

- People who often use the pause switch are people annoyed by the sound and only 50% know they can change the type of sound
- People who rarely use the pause switch are people concerned about their environment



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## AVAS STATUS INDICATOR: Knowledge/ Utility/ Visibility (Q15/16 if pause switch used)

	Noticed light	If noticed	
		Useful	Enough Visible
DE+FR	77% 85p	74% 63p	33% 28p
DE	83% 62p	76% 47p	27% 17p
FR	64% 23p	70% 16p	48% 11p

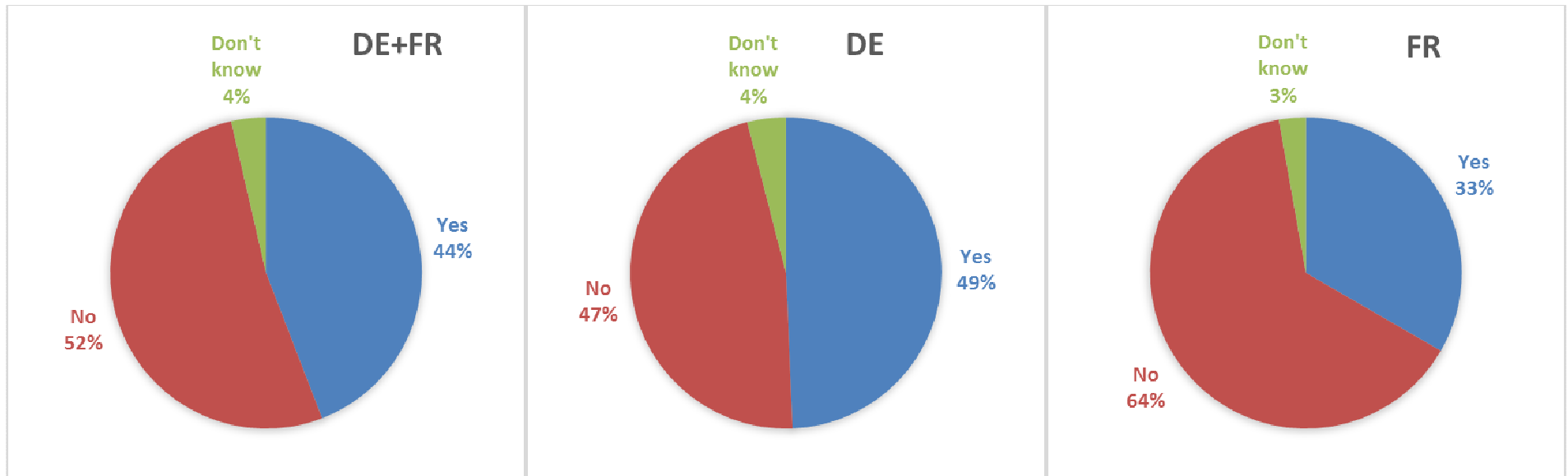
**People who consider the indicator not useful, do not look it**  
**1/3 of people considering the indicator useful, find it enough visible**



## PAUSE SWITCH / DEACTIVATION SWITCH (Q17, if pause switch used)

*The system is automatically reactivated after an engine stop.*

*Would you like no reactivation?*



**In total (for 300 people), 16% (DE 25% - FR 8%) would like to have a Deactivation switch instead of a Pause switch among the 37% (DE 50% - FR 24%) of people using currently the Pause switch**



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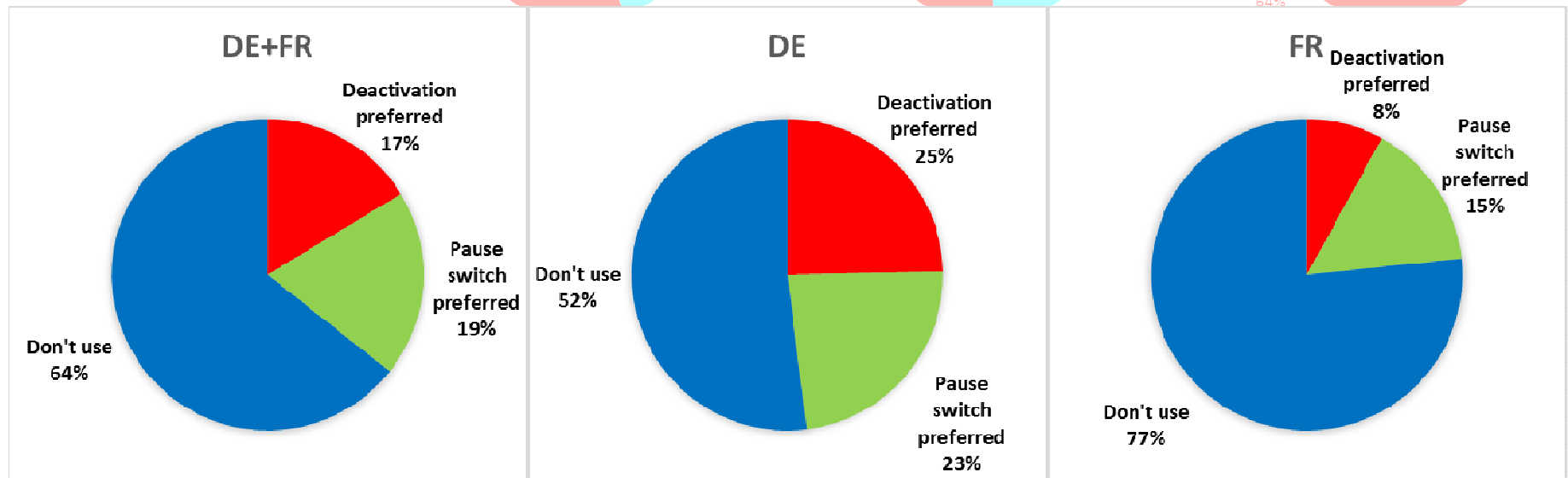
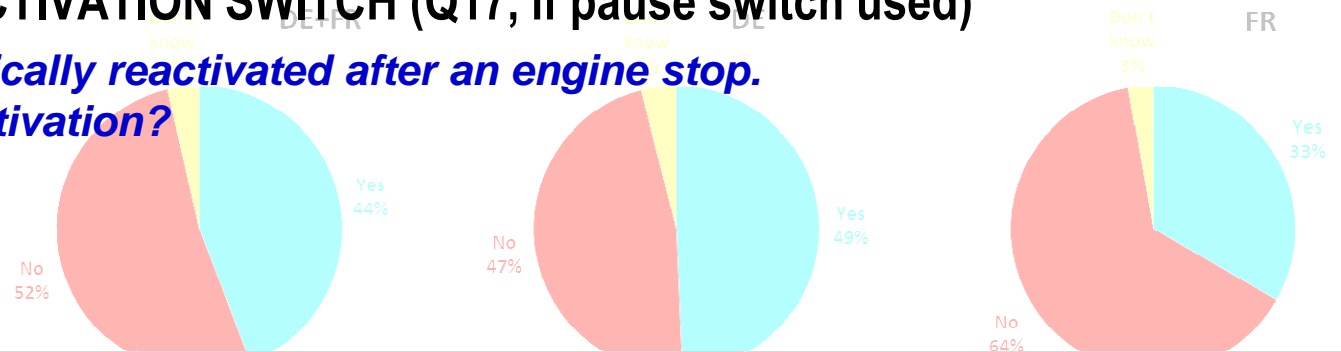
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# PAUSE SWITCH / DEACTIVATION SWITCH (Q17, if pause switch used)

*The system is automatically reactivated after an engine stop.  
Would you like no reactivation?*



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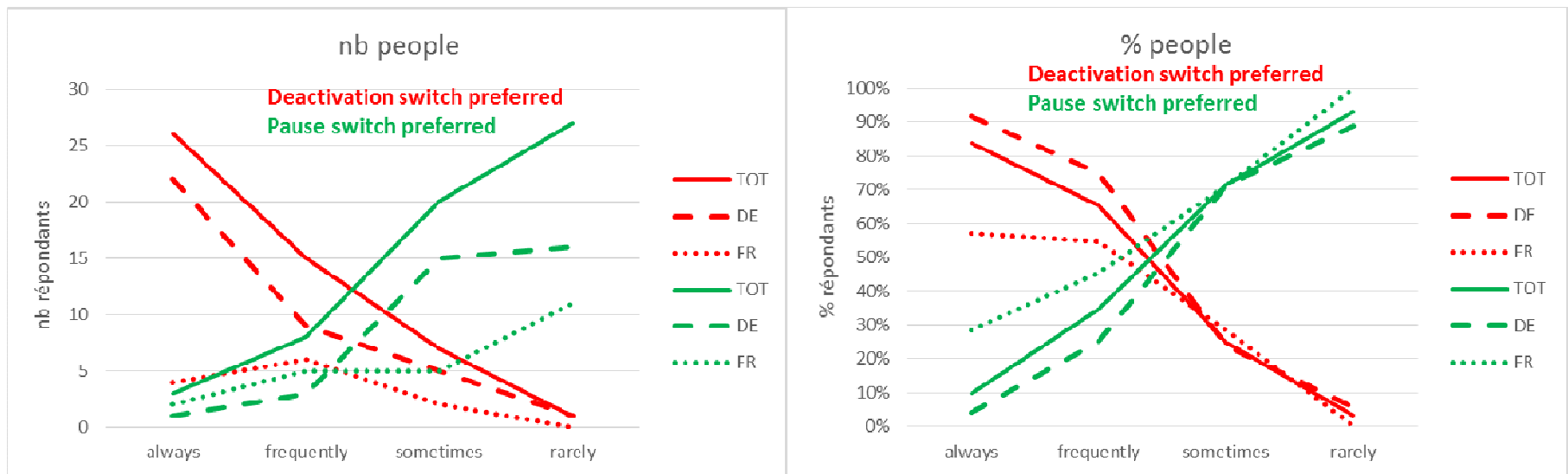
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## PAUSE / DEACTIVATION SWITCH:

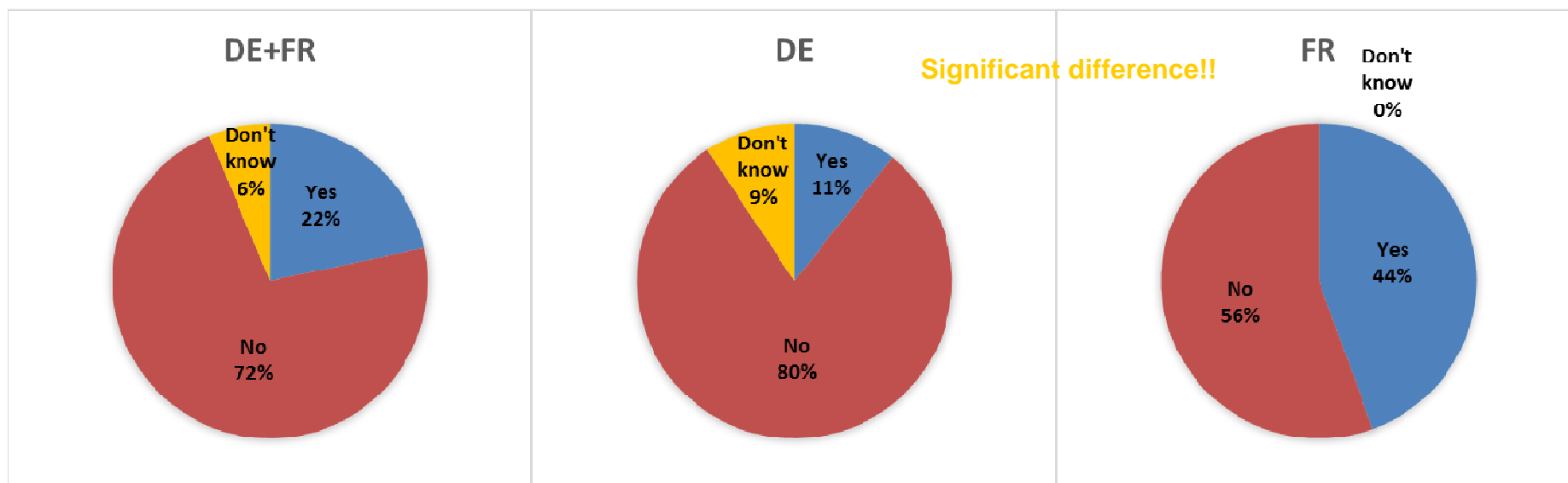
### Frequency of use of the the Pause switch (Q11) X Deactivation switch (Q17)

- The « Deactivation switch » is preferred for people using always or often the Pause switch
- The « Pause switch » with automatic reactivation after an engine stop is preferred by people using sometimes or rarely the Pause switch



## ATTENUATION instead of PAUSE SWITCH (Q18, if Pause switch used)

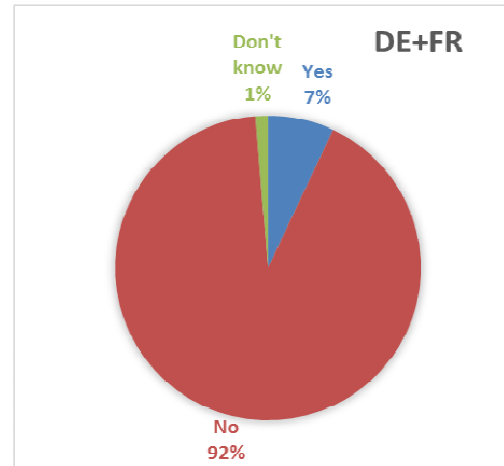
*Would you prefer an attenuation of the emitted sound rather than a complete deactivation?*



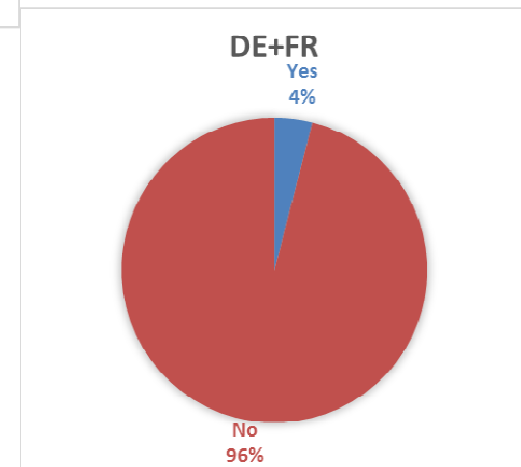


## STATIONARY SOUND (Q19/20)

*The sound emitted outside the vehicle is OFF when it is stationary, engine running (traffic light, stop, ...). Would you like to have a sound at standstill?*

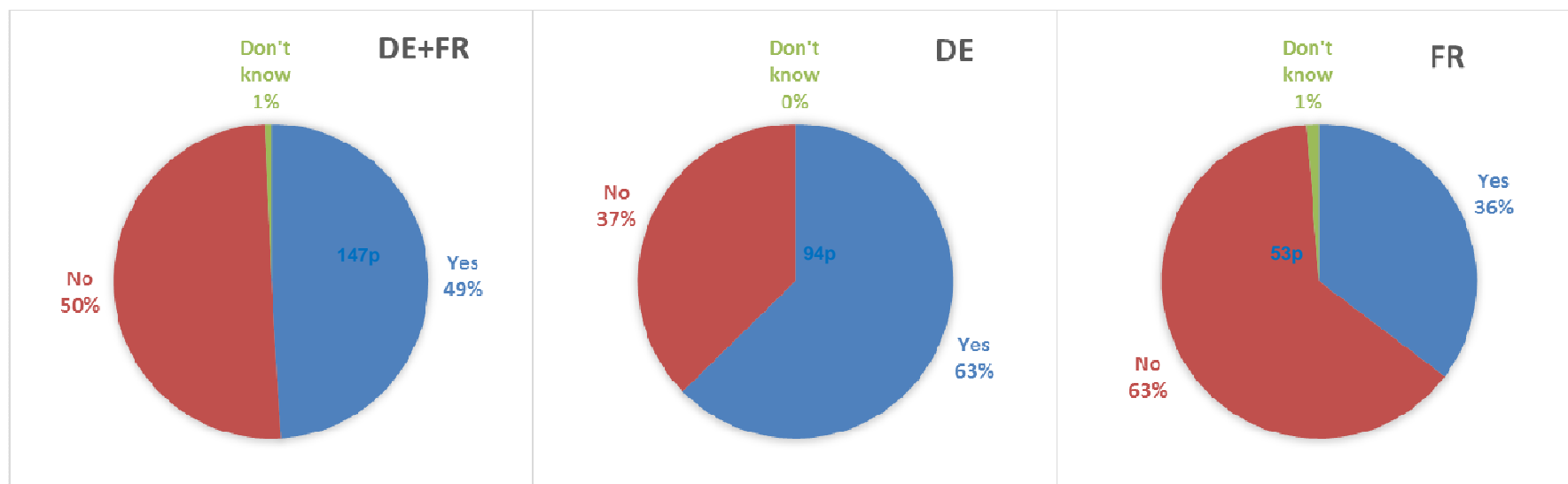


*Did you have problems with pedestrians while you were stationary but ready to start to move?*



## SELECTABLE SOUND (Q21/22/23)

*You can choose the type of sound between 3 types, selectable with a long pressure on the activation/deactivation button, do you know?*



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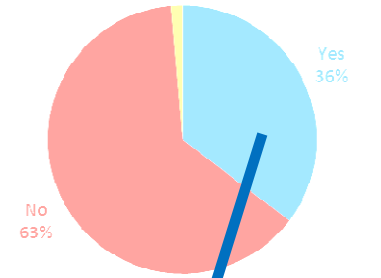
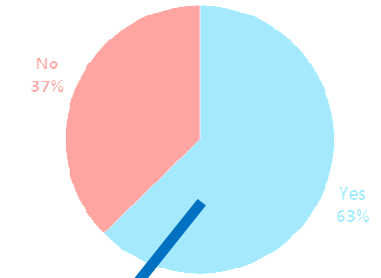
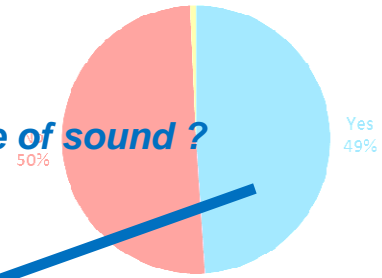
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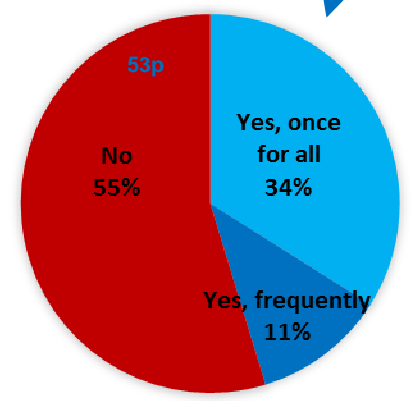
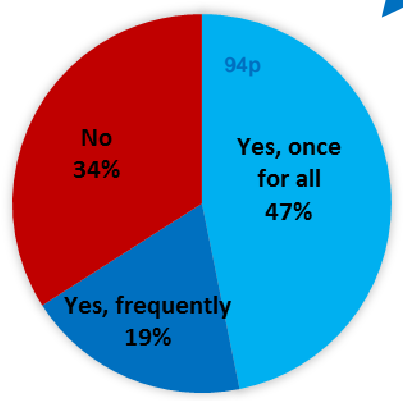
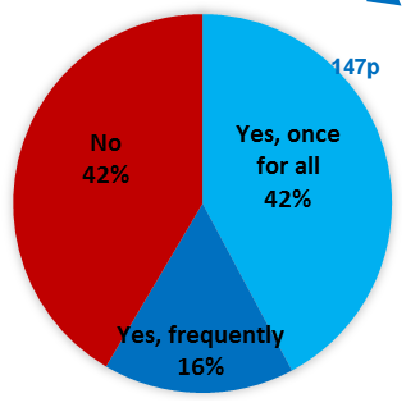
# SELECTABLE SOUND (Q21/22/23)

You have the choice between 3 types of sound, selectable with a long pressure on the activation/deactivation button, do you know?

Did you already change the type of sound ?



DE+FR



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## SELECTABLE SOUND (Q24, if frequently change, several answers possible)

- *Why did you often change the type of sound ?*

### DE+FR

- It is fun to change (50%) : DE 39% (7 people/ 12) ; FR 83% (5 people/ 6)
- According to the driver (17%)
- According to the mood (17%)



## SYNTHESIS

- **95% know that the ZOE is equipped with the AVAS « Z.E Voice »**
- **27% FR / 8% DE knew dangerous situations where pedestrians or cyclists did not hear their vehicle**
- **85% consider the AVAS useful and even necessary**
- **90% do not want stationary sound (95% do not meet problem)**
- **Pause switch:**
  - 70% do not use (25% do not know, 40% know but do not deactivate, 5% only to try)
  - 20% deactivate but not always, because the sound is annoying, but also not to disturb the environment
  - 10% always deactivate, especially because the sound is annoying (unpleasant)
  - Indicator: noticed by 77% of the pause switch users, among who 74% consider the indicator useful, but only 33% consider this indicator enough visible
  - 25% DE / 8 % FR prefer deactivation instead of pause switch
- **Selectable sound:**
  - 70 % do not use this possibility (50% do not know, 20% know but do not change)
  - 20% changed the sound once for all
  - 10% frequently change the sound, mostly for fun





THANK YOU



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