AVAS ZOÉ SURVEY
JULY_AUGUST 2016
- **Current AVAS on ZOE (pure electric vehicle)**
  - Fitted 100% since starting of sales in 2013
  - In compliance with the UN-ECE R138-00
    - 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](soundcloud.com/renaultze)

  ![Glam](soundcloud.com/renaultze)

  ![Sport](soundcloud.com/renaultze)

  **At 10km/h steady:**

  ![Basic](soundcloud.com/renaultze)

  ![Glam](soundcloud.com/renaultze)

  ![Sport](soundcloud.com/renaultze)

  Renault for Zoe → questionnaire : [Questionnaire](soundcloud.com/renaultze)
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)*

**DE+FR**
- Business: 13%
- Personal: 87%

**DE**
- Business: 5%
- Personal: 95%

**FR**
- Business: 21%
- Personal: 79%
Covered Distance (Q2)

Average distance (km) = 4000 km (DE 5400km / FR 2600km)
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 experience that pedestrians or cyclists did not detect the presence of your car?
Connaissance de Z.E Voice (Q5)

- Your vehicle is equipped with a device called “ZE.Voice” which emits a sound outside the vehicle to warn the pedestrians and the cyclists passing vehicle in certain driving conditions. Did you know?
**How do you have information? (Q6, if Z.E Voice known, several answers possible)**

<table>
<thead>
<tr>
<th>Option</th>
<th>DE+FR</th>
<th>DE</th>
<th>FR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Someone informed you</td>
<td>69%</td>
<td>58%</td>
<td>81%</td>
</tr>
<tr>
<td>2. You read if (owner manual, Internet, …)</td>
<td>33%</td>
<td>42%</td>
<td>24%</td>
</tr>
<tr>
<td>3. You did realized/ You heard while driving</td>
<td>30%</td>
<td>42%</td>
<td>17%</td>
</tr>
</tbody>
</table>
**NEED OF Z.E Voice (AVAS) (Q7)**

- **This device emit a sound only for low speeds (less then 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% jusqu’à 40 ou 45 ; 10% jusqu’à 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 equipped with a pause switch of the « ZE Voice » device.
Do you know? Do you use it?

Global Use Rate: 37 % (DE 50% - FR 24 %)
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 DO YOU USE THE PAUSE SWITCH? (Q13, if used) (Q14, if annoying)

DE+FR
- feel annoyed: 41%
- I don't want to disturb my environment: 29%
- both: 14%
- other: 15%

DE
- feel annoyed: 39%
- I don't want to disturb my environment: 29%
- both: 17%
- other: 16%

FR
- feel annoyed: 47%
- I don't want to disturb my environment: 31%
- both: 5%
- other: 17%

Other
- not useful: 7%
- too loud: 7%
- EV = silence: 6%
- other: 5%
- unpleasant: 55%
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
- People who rarely use the pause switch are people concerned about their environment
AVAS STATUS INDICATOR: Knowledge/ Utility/ Visibility (Q15/16 if pause switch used)

<table>
<thead>
<tr>
<th>Noticed light</th>
<th>If noticed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Useful</td>
</tr>
<tr>
<td><strong>DE+FR</strong></td>
<td>77%</td>
</tr>
<tr>
<td><strong>DE</strong></td>
<td>83%</td>
</tr>
<tr>
<td><strong>FR</strong></td>
<td>64%</td>
</tr>
</tbody>
</table>

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

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

**DE+FR**
- Don't use: 64%
- Deactivation preferred: 17%
- Pause switch preferred: 19%

**DE**
- Don't use: 52%
- Deactivation preferred: 25%
- Pause switch preferred: 23%

**FR**
- Deactivation preferred: 8%
- Pause switch preferred: 15%
- Don't use: 77%
PAUSE / DEACTIVATION SWITCH:
Frequency of use of 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.

![Graph showing preference between Deactivation and Pause switches for different use frequencies.](image-url)
ATTENUATION instead of PAUSE SWITCH (Q18, if Pause switch used)

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

DE+FR

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don't know</td>
<td>6%</td>
</tr>
<tr>
<td>Yes</td>
<td>22%</td>
</tr>
<tr>
<td>No</td>
<td>72%</td>
</tr>
</tbody>
</table>

DE

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don't know</td>
<td>9%</td>
</tr>
<tr>
<td>Yes</td>
<td>11%</td>
</tr>
<tr>
<td>No</td>
<td>80%</td>
</tr>
</tbody>
</table>

FR

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don't know</td>
<td>0%</td>
</tr>
<tr>
<td>Yes</td>
<td>44%</td>
</tr>
<tr>
<td>No</td>
<td>56%</td>
</tr>
</tbody>
</table>

Significant difference!!
STATIONARY SOUND (Q19/20)

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

Do you experienced problems with pedestrians while you were stationary but willing to start to move?
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?
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?

Do you already have change the type of sound?

DE+FR

- No 42%
- Yes, once for all 42%
- Yes, frequently 16%

- No 34%
- Yes, once for all 47%
- Yes, frequently 19%

- No 55%
- Yes, once for all 34%
- Yes, frequently 11%
SELECTABLE SOUND (Q24, if frequently change, several answers possible)

- *Why do you frequently 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