ACCEPTANCE OF AUTOMATED VEHICLES IN A DEVELOPING REGION: THE CASE OF RIO GRANDE DO SUL, BRAZIL

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Automated vehicles emerge as a potentially effective solution to create new paradigms of safety and mobility.

Even though the expectation is positive, being a disruptive concept, different levels of automation must be implemented until the deployment of fully autonomous vehicles.

Understanding users’ acceptance of autonomous vehicles should impact the development of human-centric technology, infrastructure improvements, and related public policies to ensure a smooth transition to full automation.
OBJECTIVE

Identify the determinants of acceptance of autonomous vehicles for Brazilians, specifically for the residents in the state of Rio Grande do Sul

Area ≈ 282 000 km² (roughly the same as Italy)

Population ≈ 11.5 Mio (roughly the same as Belgium)
DATA COLLECTION

Questionnaire:

- Similar to the one applied in Portugal (AUTODRIVING Project)

Dissemination:

From 18/03 to 10/05/2021

- Mailing list DETRAN/RS
- Mailing partner institutions (NUITRAN, EPTC e PRF)
- Social media DETRAN/RS

45 questions in total

QUESTIONNAIRE STRUCTURE

1. Sociodemographic data
2. Mobility habits
3. Driving habits
4. Knowledge about automated vehicles
5. Perceived benefits and concerns
6. Design requirements
7. Intention to use
DATA DESCRIPTION

SAMPLE
n = 304

51% Females
49% Males
## ACCEPTANCE MODELLING

4 models, one for each response variable

5-point Likert scale, ranked from strongly disagree to strongly agree

Ordered logit model

<table>
<thead>
<tr>
<th>Response Variable</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the future, I plan to use a fully autonomous vehicle</td>
<td>USE</td>
</tr>
<tr>
<td>In the future, I prefer a fully autonomous vehicle over a vehicle without any kind of automation</td>
<td>CHOICE</td>
</tr>
<tr>
<td>In the future, I will feel comfortable that my family uses an autonomous vehicle</td>
<td>FAMILY</td>
</tr>
<tr>
<td>In the future, I plan to ride an autonomous bus</td>
<td>BUS</td>
</tr>
</tbody>
</table>

IBM SPSS Statistics 26
RESULTS: MODEL USE

6(+) 3(-)

Sociodemographics/Knowledge about automated vehicles  Driving habits

Mobility habits  Benefits/Concerns

Requirements/Use cases

Sociodemographics

Driving habits

Mobility habits

Benefits/Concerns
RESULTS: MODEL CHOICE

2 (+)

- Sociodemographics/Knowledge about automated vehicles
- Driving habits
- Requirements/use cases
- Mobility habits
- Benefits/Concerns

4 (-)

- Sociodemographics
- Driving habits
- Mobility habits
- Benefits/Concerns
RESULTS: MODEL FAMILY

9(+)

- Sociodemographics
- Mobility habits
- Benefits/Concerns
- Driving habits
- Between 3 and 4
- Requirements/Use cases

5(-)

- Sociodemographics
- Mobility habits
- Benefits/Concerns
- Driving habits
- Requirement ≤ 29
RESULTS: MODEL BUS

7(+) Knowledge about automated vehicles

Driving habits

Requirements/use cases

Sociodemographics

Mobility habits

Benefits/Concerns

4(-) Driving habits

Mobility habits

Benefits/Concerns
RESULTS: WRAP-UP

Model USE

Model CHOICE

Model FAMILY

Model BUS

Positive

Negative
LIMITATIONS/FUTURE DEVELOPMENTS

Vehicle automation is mostly a perceived concept, not an experienced one.

Sample bias caused by mailing distribution.

Relatively small sample and some under-representation of certain population groups (e.g., students).

Proceed to the application of specific modelling acceptance frameworks (e.g., TAM, UTAUT) and/or SEM (Portuguese questionnaire, new project about truck platooning).
Thank you!

This work was financially supported by: Project PTDC/ECI-TRA/28526/2017 - POCI-01-0145-FEDER-028526 - funded by FEDER funds through COMPETE2020 - Programa Operacional Competitividade e Internacionalização (POCI) and by national funds (PIDDAC) through FCT/MCTES.