



**HAL**  
open science

# Building a responsible future by anticipating long-term impacts of disruptive products

Robin Lecomte, Bernard Yannou, Guillaume Thibaud, Roland Cahen

## ► To cite this version:

Robin Lecomte, Bernard Yannou, Guillaume Thibaud, Roland Cahen. Building a responsible future by anticipating long-term impacts of disruptive products. ICED, Jul 2023, Bordeaux, France. hal-04205251

**HAL Id: hal-04205251**

**<https://hal.science/hal-04205251v1>**

Submitted on 12 Sep 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

# Building a Responsible Future

By anticipating long-term impacts of disruptive products

The case of Autonomous Vehicle



## AutoVision

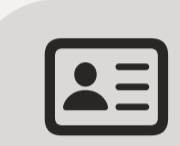
### What is the problem?

When dealing with disruptive products such as **autonomous vehicles**, designers and decision-makers face a challenge in predicting their long-term impact, unlike with traditional products. This can result in an "open-loop" design process that may have irreversible consequences for people, the environment, and society in the long run.

### Existing knowledge is available but dispersed



Scientific literature



Experts



Numeric simulations

### How to use this knowledge to help designers and decision-makers?

AutoVision is a digital platform anticipating the long-term socio-economic and environmental impacts of autonomous vehicles concepts thanks to existing knowledge. It was designed to help users imagine future autonomous vehicles (stimulation) and test the impacts of their proposals (simulation).

## Impact Guesser

The Impact Guesser mode enables the user to define a scenario for an autonomous vehicle and generates a weighted list of possible impacts.

### 1 Define a scenario

#### Mode of use

- Private
- Shared (car-sharing)
- Shared (ride-sharing)

#### Deployment

- Europe
- North-America
- Oceania
- Asia

#### Usages

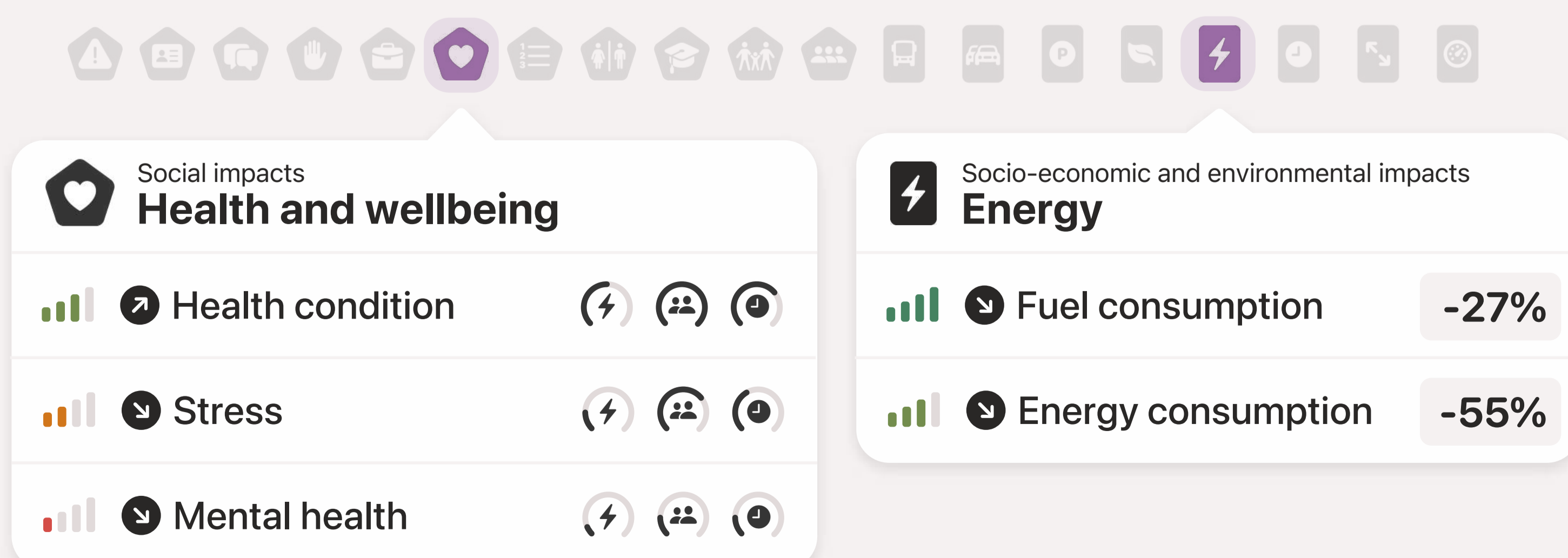
The passenger is doing sport

The vehicles is coming by itself

The passenger is working

The vehi up a pace

### 2 Get a list of possible impacts categorized into 19 themes



Level of confidence Intensity (low-high) Depth (few people-everyone) Occurrence (rare-systematic)

## Advisor

The Advisor mode allows the user to choose which impacts are most important to avoid or prioritize and provides a list of suggestions accordingly.

### 1 Define a strategy

#### Socio-economic and environmental impacts

- Total number of vehicles
- Average speed
- Travel time
- Parking space needed
- Fuel consumption

#### Social impacts

- Employment
- Mobility access
- Number of accidents
- Quality of family relationships
- Wellbeing

### 2 Get suggestions to define your AV concept

#### Mode of use

- To promote
- To avoid

- Shared (car-sharing)
- Shared (ride-sharing)

#### Usages

- To promote
- To avoid

- The vehicles is coming by itself
- Passengers are doing activities

#### Deployment

- To promote
- To avoid

- North America
- Asia

Level of confidence