Assessing requirements and concerns of potential users of automated driving services progressed by Internet of Things using a co-designer approach

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1. INTRODUCTION

- The mission of the AUTOPILOT project is to develop and test use cases of automated driving (AD) progressed by Internet of Things (IoT)

- The objective is to establish how IoT **enhance**, **enable** and **accelerate** AD

- Understanding **user requirements** and **concern** in early stage support user-centred development and uptake of new services and features

2. STUDY DESIGN

- International online survey with potential users conducted in 2018

- Three scenarios of services that include AD progressed by IoT

- Questions on expectations, requirements and concerns in different usage phases

3. STUDY SAMPLE

- Samples size
  Scenario A: n = 1.611
  Scenario B: n = 1.627
  Scenario C: n = 851

- Survey in **8 EU countries:** UK, Germany, Italy, Netherlands, Finland, Spain, France, Greece

- Representative share for the country population by age and gender (18-69 years old)

4. RESULTS

Expectations | **Required Information** | **Concerns**
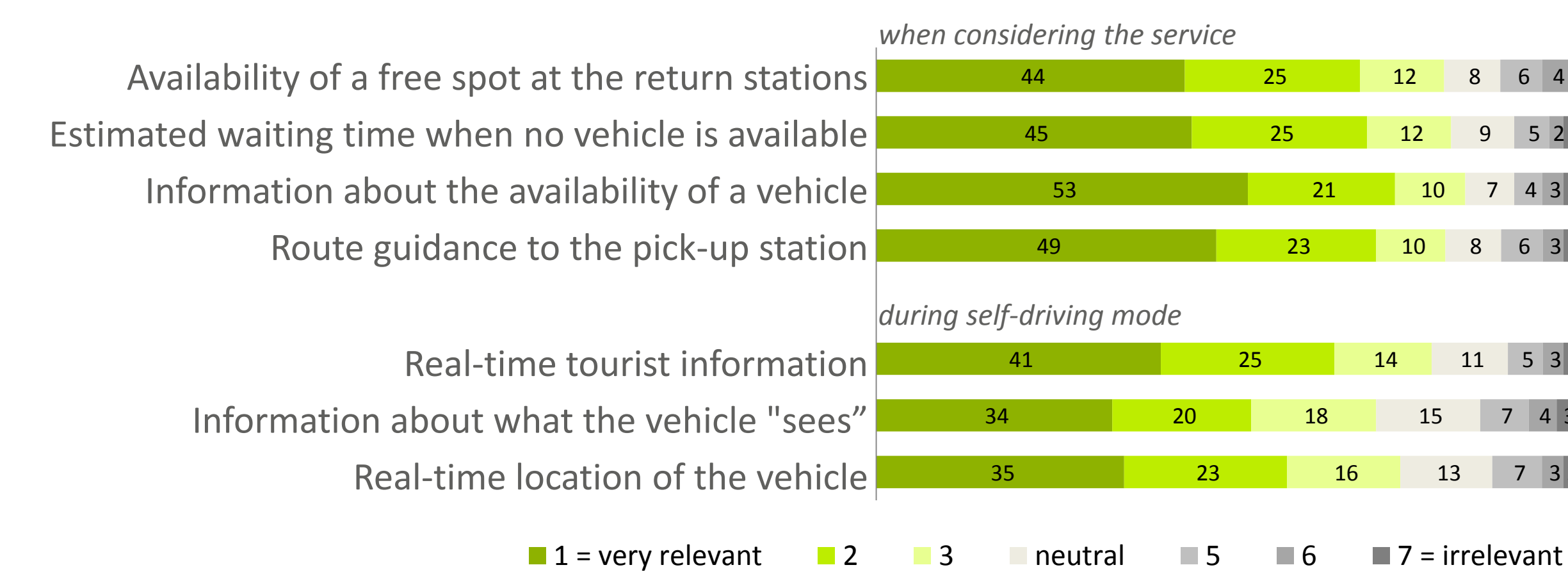
Scenario A: Touristic service
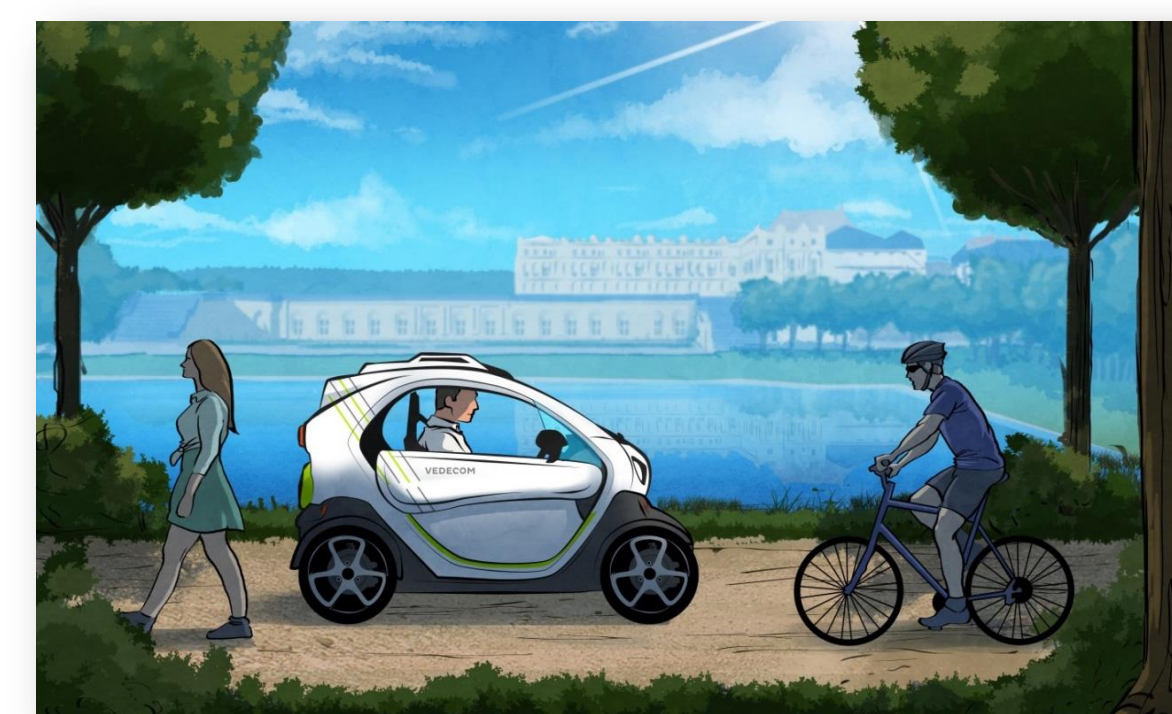
The AUTOPILOT app provides a carsharing service for tourists. In Versailles Gardens, the vehicle drives autonomously and the service provides tourist information when passing sights/ POIs.
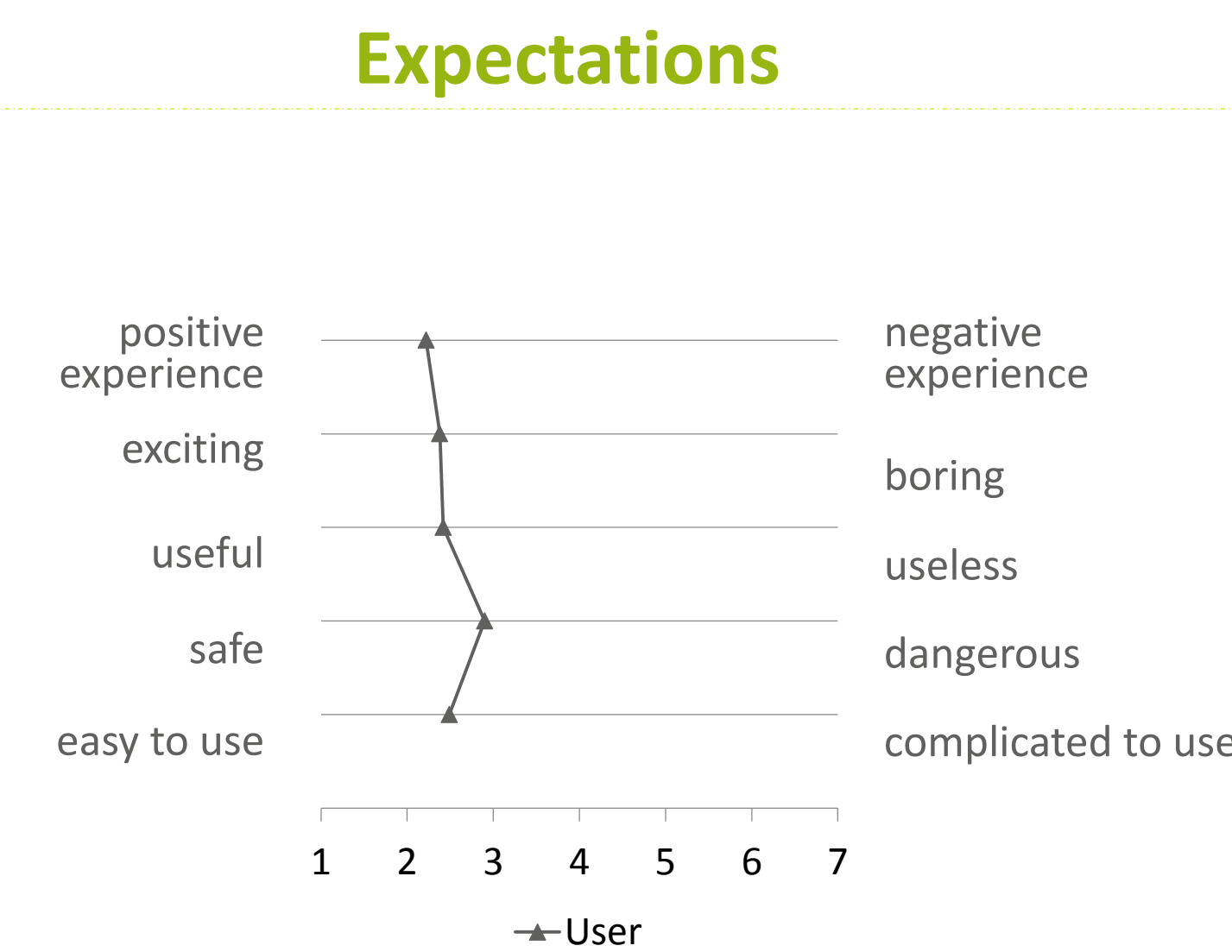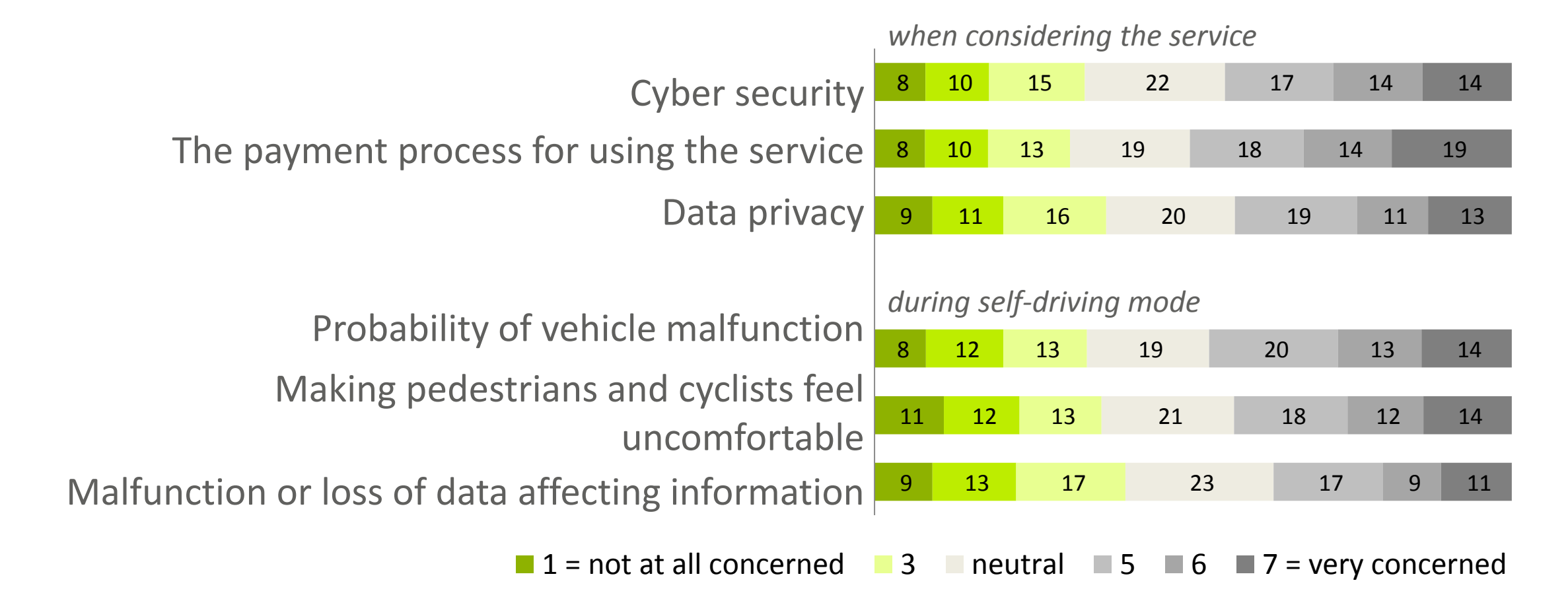
➢ Overall positive evaluation of the experience, but concerns about safety

➢ Various kinds of information which supports users planning their tour and improves the booking and the ease of using the service is required
➢ Real-time touristic information is also evaluated as important

➢ Users expressed security concerns related to the payment and to potential malfunction during the self-driving mode
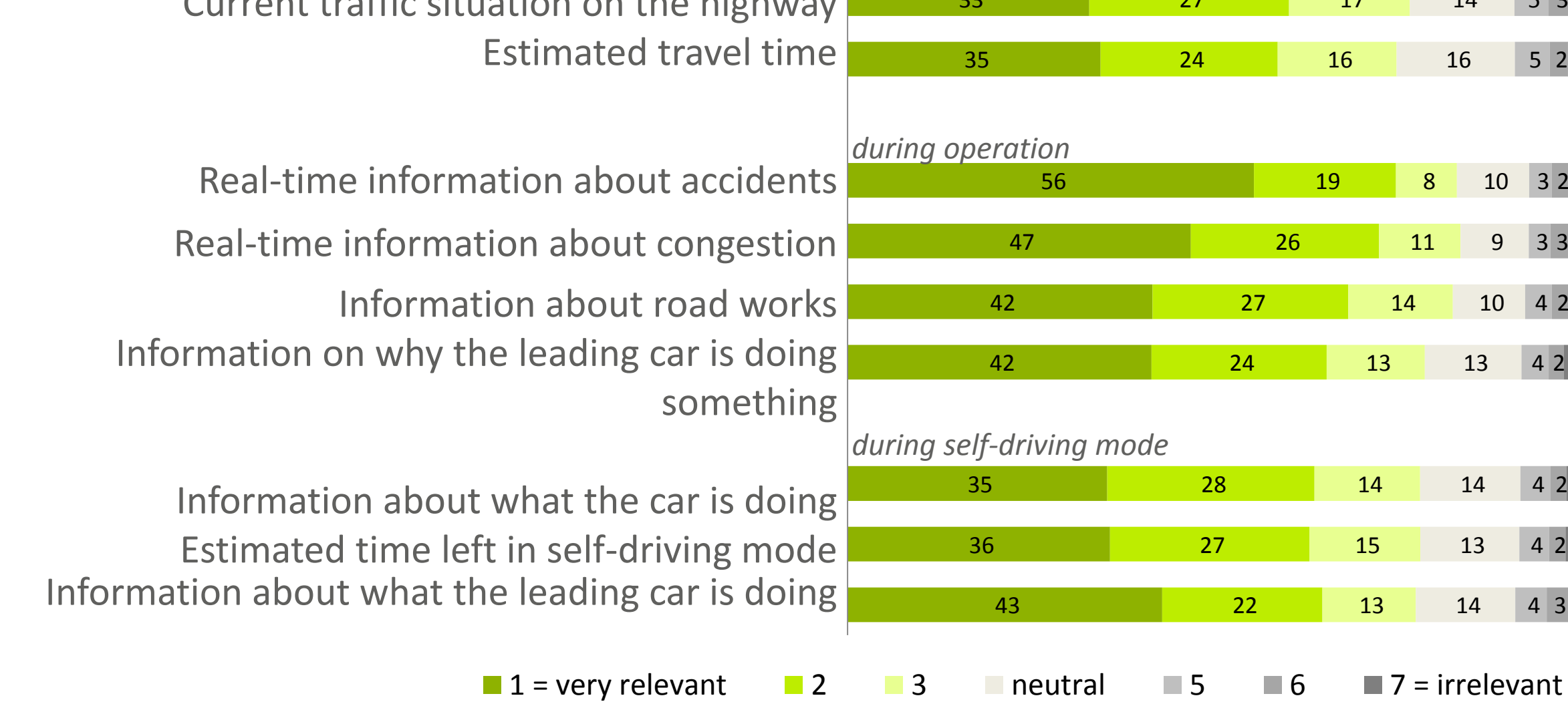
Scenario B: Platooning matching
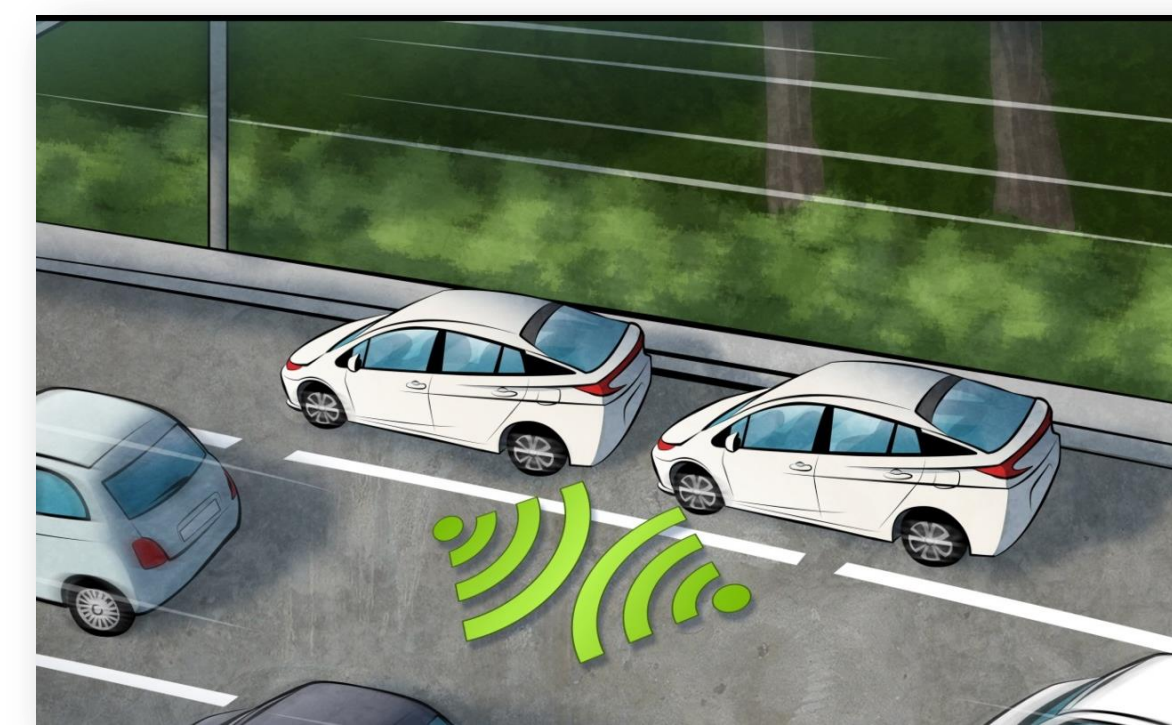
In the platoon matching function of the AUTOPILOT app, users can arrange to meet and join together in a platoon on the highway – one user is the platoon leader, the others are following. The following cars can drive autonomously.
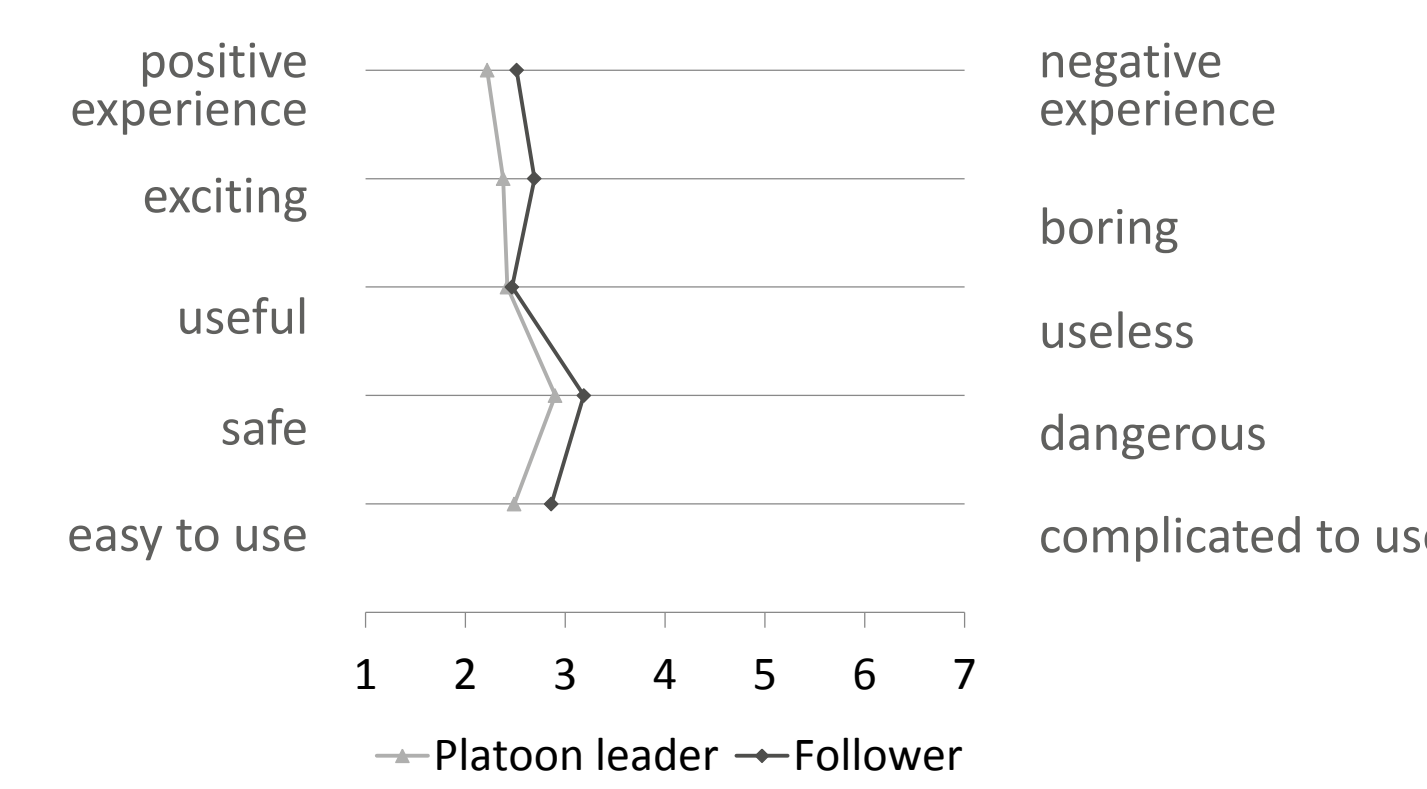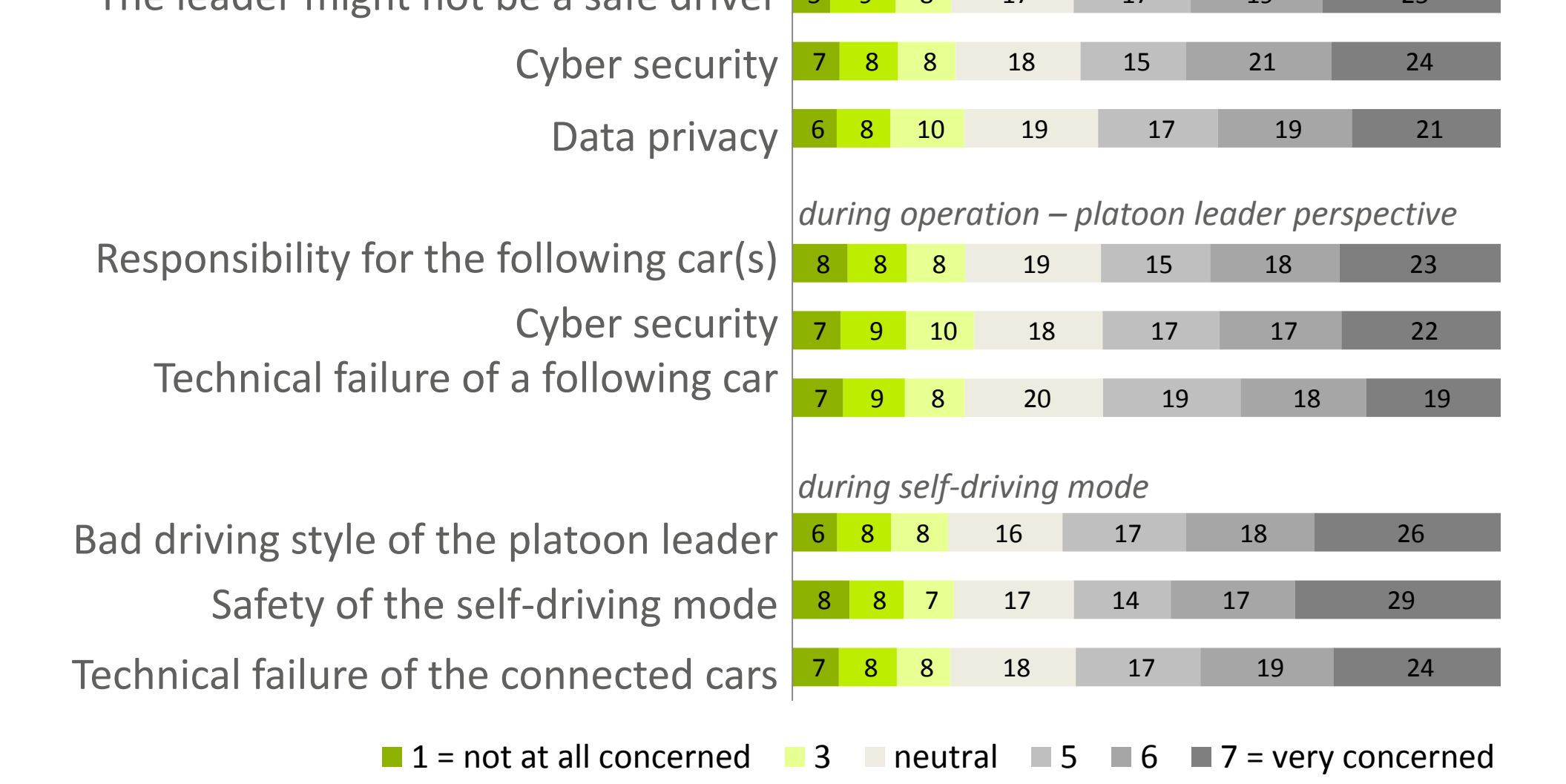
➢ Overall positive evaluation for both platoon leader and follower

➢ Traffic information is required when considering and using the service; in self-driving mode, operation monitoring functions are more relevant
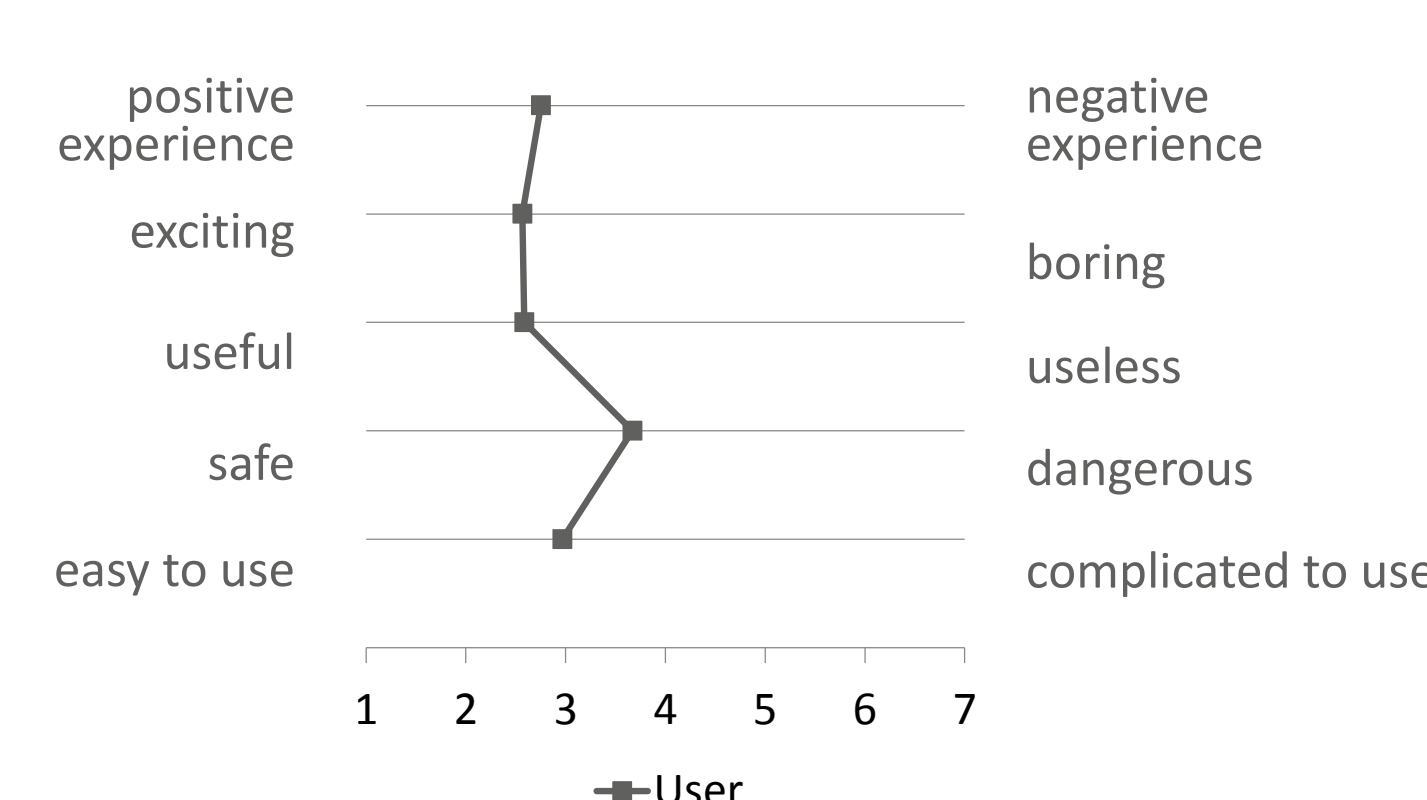
➢ Main concerns are related to both reliability of the system and the platoon leader

Scenario C: Automated valet parking

With the AVP function of the AUTOPILOT app, the user can drive to a drop-off point and send the car to park autonomously. The system provides information about free parking spots and navigates the car to the parking spot.
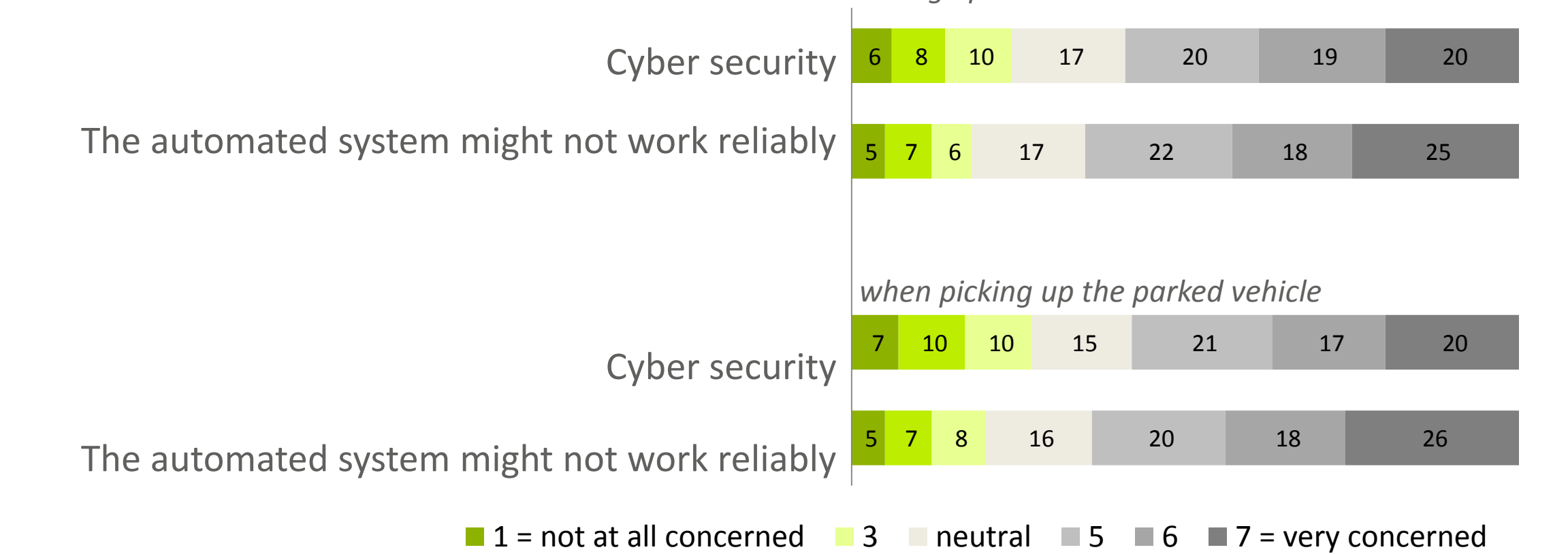
➢ Overall positive evaluation of the experience, but concerns about safety

➢ Real-time information that support the use of the service, but also monitoring options are required by the users

➢ Main concerns are related to both cyber security and reliability of the vehicle technology

5. CONCLUSIONS AND IMPLICATIONS

➢ Making the service **easy to use** and **customizable** plays an important role in ensuring user acceptance (i.e. willingness to use the service)
➢ IoT can **enable** using services with AD through easier trip planning by providing real-time traffic system information (performance factors)
➢ IoT can **accelerate** the adoption of AD services as trust in the system is increased by providing information about the vehicle operation (control options, base function)
➢ IoT can **enhance** the user experience by providing real-time information about POIs and enabling customization options (excitement factors)
➢ **Main concerns** are related to the technical safety /reliability as well as data privacy and security – ensuring these will be prerequisite for user acceptance of AD progressed by IoT

AUTOPILOT