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GINEVRA

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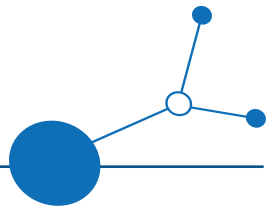
Joint solution 2: Technology Demonstrators



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Contents

Executive Summary

This deliverable describes the GINEVRA "Technology Demonstrator," an early-stage prototype developed through pilot programs to validate the operational and social feasibility of autonomous shuttle technology in small- to medium-sized European cities. The Technology Demonstrator is defined as an instrument to test innovations at different stages of development. It focused on SAE Level 4 driving automation, in which vehicles operate autonomously within specific domains, to determine whether such technology could effectively serve as a future mode of collective public transportation. In addition to providing technical proof of concept, the project prioritized responsible governance and direct citizen engagement to bridge the gap between theoretical innovation and practical urban mobility.

Implementation took place across three distinct European cities between October 2025 and April 2026 using a Navya Arma Evo autonomous shuttle.

- **Varaždin, Croatia:** Conducted at Varaždin Airport, this pilot focused on institutional learning and governance capacity. Approximately 195 participants, including emergency services and organizations for the elderly, tested the shuttle to increase local awareness and collect feedback in a controlled environment.
- **Cesena, Italy:** This demonstration was integrated into a popular vintage book fair at Cesena Fiera and engaged 129 spontaneous visitors. The primary objective was to evaluate whether firsthand experience would modify the public's approach to disruptive technology, transforming users from passive subjects into active "co-designers."
- **Bad Schönborn, Germany:** Despite facing significant national regulatory hurdles that prevented public road usage, the municipality successfully pivoted to a private demonstration site. This site attracted 685 active participants, representing the largest turnout of the three pilots.

Key Findings from the User Evaluation

A comprehensive survey of participants revealed a consistently positive impact on public perception. Most participants were tech-savvy and open-minded before the test drives, though few had prior experience with autonomous vehicles. Post-ride data showed that two-thirds of respondents reported a positive change in their opinion of autonomous vehicles. Notably, "sense of safety" during the ride received the highest scores across all Likert scale criteria, suggesting that direct experience is the most effective tool for mitigating abstract safety concerns.

Additionally, the research shows that, for most citizens, the practical benefits of the service, such as easily reaching a destination, are more important than the vehicle's autonomous nature. While shared autonomous mobility options, such as on-demand minibuses, were highly favoured, participants emphasized that these services must be integrated into everyday mobility patterns to be valuable.

Lessons Learnd and Strategic Recommendations

The "Technology Demonstrator" yielded several critical lessons for the future deployment of disruptive mobility solutions:

- **Governance and Bureaucracy:** The German experience underscored the importance of initiating regulatory coordination at an early stage to navigate intricate national legislative frameworks.
- **Operational Environments:** Controlled or private environments were found to be essential for initial deployments in medium-sized cities to build institutional confidence and manage safety risks effectively.
- **Communication Strategy:** Although traditional print media remains relevant, the project revealed that modern social media channels and word-of-mouth communication within close-knit communities are far more effective for engaging citizens.
- **Human-Centric Innovation:** The pilots proved that responsible innovation requires managing the psychological and social impacts on the community through transparency and active listening. This ensures that technology is perceived as a collective value rather than a technological imposition.

In conclusion, the GINEVRA Technology Demonstrator confirms that public acceptance is high when citizens are given the opportunity to experience the technology firsthand, even though it is still evolving. To ensure long-term integration, local authorities must adopt flexible governance models and continue involving diverse societal groups in co-designing future transportation services.

1. Introduction

This final report describes the solution developed in the GINEVRA technology demonstrator. It was developed from pilot actions, primarily from the pilot with autonomous vehicles running on site, where citizens and stakeholders were invited to test the new technology.

A technology demonstrator is defined as an early prototype or an incomplete version of a future product or service. It is a tool used to validate new technologies or innovations at different stages of development, and it has several important characteristics and roles.

- **Proof of Concept:** A Technology Demonstrator validates the operational or physical construction of a complex theoretical idea to determine its feasibility in the real world. In the context of GINEVRA, the autonomous vehicle (AV) is tested as a potential future means of providing everyday mobility in the form of collective transportation services, such as public transportation.
- **Focus on key features:** A technology demonstrator highlights the key features of an innovation or potential product/service and often skips secondary aspects, such as design, marketability, and durability. In the context of GINEVRA, the autonomous vehicle used as a technology demonstrator is not state of the art, but it has the features to be tested. It is an automatically driven vehicle on a predefined route (SAE Level 4 driving automation) that will be used as a public transportation vehicle.
- **Alignment with audience:** A technology demonstrator is used to pitch ideas in the early stages of development to investors, stakeholders, users, and industrial partners to receive feedback for development. In the context of GINEVRA, acceptance of technology among users and development of understanding among local stakeholders to enable responsible governance are primary subjects.

As the Technology Demonstrator, GINEVRA hired an autonomous vehicle that is operated by an experienced enterprise to implement locally. The enterprise, SURAAA[1], works closely with the Original Equipment Manufacturer (OEM) (autonomous vehicle manufacturer) and therefore the project receives first-hand technical support while it concentrates on the aspects to be tested. The Technology Demonstrator was implemented in three places as summarized below:

- **Varazdin, Croatia on 21-23 October 2025**: further detailed in Section 2
- **Cesena, Italy on 14-16 November 2025:** further detailed in Section 3
- **Bad Schönborn, Germany on 15-20 April 2026:** further detailed in Section 4

In all three locations, citizens and stakeholders were invited to test an autonomous vehicle imitating a small-scale public transportation service. The Technology Demonstrator vehicle is the Navya Arma Evo, which operates as an SAE Level 4 vehicle (autonomous driving within a specific ODD, or Operational Design Domain).

In line with the project's goals, the GINEVRA Technological Demonstrator was set up with the following additional operational features:

[1] Smart Urban Region Austria Alps Adriatic: https://www.suraaa.at/

- All partners implementing this technological demonstrator (hereafter, "demo partners") must assess national regulations associated with autonomous driving and contact the relevant national authorities as necessary.
- All Demo Partners have assigned one local expert on autonomous driving each to enable communication with the national authority and other stakeholders.
- All Demo Partners developed their own demo plan, which was jointly reviewed during a project meeting. This plan was communicated to the technology provider, who then revised it with the Demo Partners to enable the Technology Demonstrator to operate realistically.
- Demo partners that finished earlier than the others delivered their insights and lessons learned to the partners implementing the Technology Demonstrator later.
- All Demo Partners were requested to communicate with local emergency services to enable a smooth emergency response.
- Logistical aspects were planned jointly by the technology provider and the demo partners.
- To enable smooth communication among the partners and monitor progress, a Demo Realization Taskforce was set up for each demo location. The taskforce included the lead partner (CISE), the work package leader (TU Wien), the technology provider (SURAAA), each demo partner, and local experts assigned by the demo partner.
- In all three locations, a survey was conducted with the visitors and invited stakeholders. The results of the survey are presented in Section 5.
- In Bad Schönborn, where the demo duration was set longer and more capacity was provided, focus group interviews were conducted with an invited group of residents. The results are summarized in Section 6.
- In the following sections, the setup of the three demo sites is described in detail (Sections 2-4). This is followed by the survey results (Section 5) and the summary of the focus group interview summary (Section 6).

2. City of Varaždin

2.1. Demo Overview

Demo Title: GINEVRA Autonomous Shuttle Demonstration – City of Varaždin

Location: Varaždin Airport area, City of Varaždin, Croatia

Date and Duration: 21–23 October 2025

Partner: City of Varaždin (Demo Partner)

Supported by the University partner acting as scientific consultant within the GINEVRA project consortium.

Main objectives

The Varaždin pilot aimed to demonstrate how small and medium-sized cities can responsibly introduce emerging mobility technologies by combining technological experimentation with stakeholder engagement and institutional learning.

Specific objectives included:

- Demonstration of an autonomous electric shuttle in a real operational environment,
- Strengthening governance capacity for autonomous mobility deployment,
- Increasing citizen awareness and acceptance,
- Collecting user feedback through structured surveys,
- Contributing knowledge to the transnational GINEVRA learning process.

Participants / audience

Approximately 195 stakeholders and citizens participated in the demonstration activities, organized into approximately 25 operational groups corresponding to shuttle capacity.

Participants included:

- Citizens
- Students and pupils
- Academia representatives
- Public authorities and decision makers
- Civil servants
- Organizations representing elderly citizens
- Organizations representing people with disabilities
- Business representatives
- Emergency services
- Media representatives

- GINEVRA project partners

2.2. Preparation & Logistics

2.2.1. Procurement

The demonstration was implemented in cooperation with the technology provider SURAAA, responsible for delivering and operating the autonomous shuttle vehicle.

The City of Varaždin coordinated organizational preparation, stakeholder engagement, and local logistics, while academic partners supported methodological preparation and evaluation activities.

Preparatory steps included:

- Contractual coordination with technology provider,
- Organizational planning meetings,
- Coordination with project partners,
- Preparation of engagement methodology and survey instruments.

All the materials need for the pilot activities were planned and prepared in advance.

The pilot required:

- Autonomous electric shuttle vehicle,
- Remote monitoring system,
- Passenger boarding infrastructure,
- Safety barriers and signage,
- Communication and branding materials,
- Co-creation activity equipment,
- Survey and evaluation tools.

External professional consultancy regarding sustainable transportation and new transportation technologies.

2.2.2. Route Planning

The demonstration route was established within the Varaždin Airport area, selected due to:

- Controlled traffic conditions
- Operational safety
- Sufficient space for stakeholder interaction
- Suitability for autonomous navigation calibration

Although in a controlled environment, route was carefully planned to ensure they provide optimal survey results.

Coordination with local authorities, site owners

Close cooperation was established with:

- City administration departments
- Police authorities
- Emergency services
- Local stakeholders
- International project partners

Emergency services participated in preparation activities to ensure institutional readiness.

Risk assessment

Risk assessment was also carried out to be prepared to mitigate all the potentially inadequate situations.

Risk mitigation measures included:

- Controlled access to the testing area
- Passenger briefing procedures
- Safety operator supervision
- Emergency response planning
- Contingency planning for technical or weather-related issues

2.2.3. Site Setup

Technical preparation included:

- Route mapping and calibration
- Installation of signage and safety infrastructure
- Verification of GNSS localization conditions
- Preparation of boarding areas
- Setup of monitoring systems

The shuttle operated as a fully electric autonomous vehicle equipped with LiDAR sensors, GNSS positioning, and remote monitoring functionality, supervised by trained safety personnel.

Contingency procedures were prepared to address operational interruptions.

2.3. Safety Training

Safety requirements and responsible parties

Safety preparation represented a central element of the pilot implementation.

Activities included:

- Briefing sessions for organizers and facilitators

- Technical familiarization of emergency services
- Explanation of emergency shutdown procedures
- Passenger safety instructions before each ride

Emergency responders received dedicated information regarding:

- Vehicle emergency access
- Battery shutdown procedures
- Evacuation protocols
- Onboard safety equipment

These activities strengthened local institutional capacity for future autonomous mobility deployment.

2.4. Public Relations and Media Commuinications

A comprehensive communication strategy ensured strong public visibility.

Communication activities included:

- Publication of public invitations
- Press conference and media demonstration rides
- Coordination with regional and national media
- Social media dissemination
- Placement of project branding and informational materials

The demonstration generated extensive media coverage highlighting Varaždin as a forward-looking city actively testing innovative mobility solutions.

Communication materials included banners, informational materials, and visibility elements ensuring compliance with Interreg communication requirements.

2.5. Public Demonstration

Event program

Participants attended organized sessions consisting of:

- Introduction and safety briefing
- Autonomous shuttle ride
- Living Lab engagement activities
- Survey completion

Participants were organized into structured groups aligned with vehicle capacity.

Audience interaction

The pilot applied Living Lab methodology including:

- Customer Journey mapping to capture user impressions
- Remote Monitoring demonstrations explaining operational supervision
- Future of Mobility discussions enabling public reflection on innovation impact

Participants actively interacted with technical experts, project partners, and city representatives.

Irregularities

Minor operational adjustments were required during early sessions related to participant flow management and additional explanation of autonomous technology concepts. No safety incidents occurred.

2.6. Key Lesson Learnt

Operational insights

- Controlled environments are essential for first deployments in medium-sized cities
- Institutional preparation significantly improves operational confidence
- Structured group organization ensures safe and efficient demonstrations

Successful demonstrations of PT rides were carried out due to careful planning and preparation.

User feedback

Survey responses indicated:

- Increased trust after direct experience
- Strong curiosity toward autonomous mobility
- Positive perception of safety and comfort
- Recognition of accessibility benefits

Most users of the autonomous vehicle gave positive feedback on their experience. No negative responses on a large scale were present.

Recommendations for future demonstrations

- Combine technological testing with stakeholder engagement
- Involve diverse societal groups early
- Provide clear communication about safety systems
- Integrate autonomous mobility testing into sustainable urban mobility planning

Responsible innovation learning

The Varaždin pilot confirmed that responsible innovation requires simultaneous technological experimentation, citizen participation, and governance preparation. The pilot strengthened local capacity for managing emerging mobility technologies.

3. Municipality of Cesena

3.1. Demo Overview

Demo title: GINEVRA Cesena Demo Days - Autonomous Shuttle Public Demonstration

Location: Cesena Fiera

Date and duration: 14.–16. November 2025
(a three-day event including a press launch on the 14th and public demonstrations on the 15th and 16th)

Partner: LP CISE - Centre for Innovation and Economic Development, PP02 Municipality of Cesena

Main objectives:

- To analyze the level of the public's approach to innovation.
- To test the innovation practically through the pilot demonstration, allowing citizens to experience autonomous mobility firsthand alongside the "Once Upon a Time..." vintage book fair.
- To analyze whether firsthand experience modified the public's approach to this innovation. To measure the impact on public perception effectively, questionnaires were implemented both before boarding and upon exiting the shuttle.
- To help the local government understand how to govern procedures and processes related to the implementation of disruptive innovation. The autonomous vehicle served as a practical case study to showcase what steps local governments need to take into account when implementing innovative strategies, ultimately helping to understand and improve local policies for mobility and responsible innovation.

Participants /audience

The core audience consisted primarily of visitors attending the "Once Upon a Time..." vintage book fair. These citizens were engaged directly at the entrance of the fair and invited to book a ride on the driverless shuttle. In total, 129 public participants tested the vehicle over the two days of public demonstrations (62 on November 15th and 67 on November 16th). Additionally, the audience included local media and municipal councilors (such as the Councilor for Youth and Diversity Policies and the Councilor for Environmental Sustainability), who attended the dedicated press launch on November 14th.

3.2. Preparation & Logistics

3.2.1. Procurement

Materials, equipment, or hardware required

The setup required a comprehensive list of materials combining rentals, purchases, and partner-supplied equipment. Key items and their relative costs included:

- **General route materials**: 100 low barriers (spaced every 2 meters), vertical and horizontal signs, free-standing pedestrian crossing signs, self-supporting STOP signs, and traffic lights. Route marking involved adhesive tapes for the asphalt, pedestrian crossing stickers, 2 green roundabouts and 2 flower beds. Additionally, the Municipality of Cesena supplied "work in progress" cones/barriers.
- **Road surface material and signage:** adhesive tape for the asphalt (based on 500 meters of supply) and its application along the route. Additional adhesive tape was used to mark obstacles. Signage included 20 A3 laminated "No crossing - Autonomous vehicle in transit" signs attached with cable ties, 1 free-standing pedestrian crossing sign, 1 No Entry sign for the Via Dismano gate, and 2 self-supporting STOP signs.

- **Marquees and furniture:** the setup included 2 tables, 8 chairs, and 2 benches. The gazebos comprised 1 marquee to be used as info point and allow passengers to fill in questionnaires, and 1 larger marquee to shelter the bus during the night.
- **Multimedia:** 65" television with stand and audio system, including installation, dismantling and preparation of electrical connections at the information point in the marquee.
- **Communication materials:** 3,000 flyers were printed out, along with 2 flag banners, 2 roll-ups, flyer dispensers, and banners with magnets placed inside the vehicle welcoming passengers on board.
- **Staff:** 2 hostesses responsible for distributing flyers within the fair and assisting at the information point with completing questionnaires, and 1 person responsible for supervising the gate and demo area.

Procurement timeline and responsible partners

The procurement process for setting up and managing the demo area took approximately four and a half months and was structured in several technical coordination phases. Initially, the activity focused on researching and verifying the availability of the site, followed by the formal design of the layout and the identification of reception areas. A crucial phase was the operational inspection carried out jointly with the shuttle service providers to validate the technical feasibility of the route within the area.

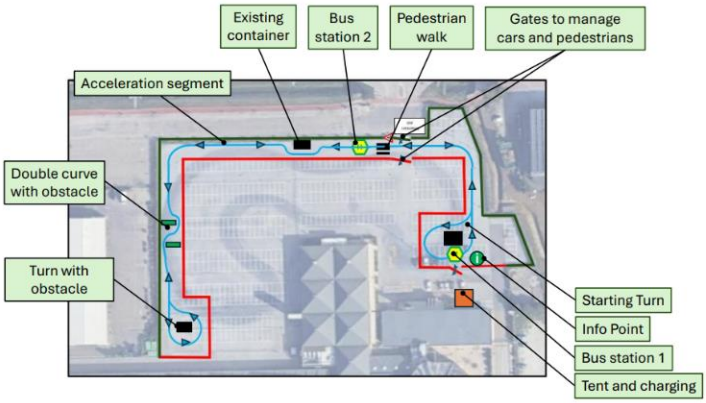
Subsequently, the dialogue shifted to the precise definition of the services required, through a series of meetings with the area manager.

The latter acted as the sole interlocutor for the provision of an integrated ‘turnkey’ service, ensuring not only the availability of the area, but also the entire logistics management, staff recruitment, and procurement of all necessary materials.

The strategic coordination of this phase was managed by the Lead Partner (CISE) together with the Municipality of Cesena (PP2), which then directly finalized the purchase of the integrated services package.

3.2.2. Route Planning

Demo route and area:



The demonstration took place in the private parking lot of Cesena Fiera. Initially, the demonstration was planned to take place in the Hippodrome parking lot (Piazzale Dario Ambrosini). Road verifications and preliminary checks had already been completed; however, a section of the proposed route would have crossed a public road. This overlap with public traffic excessively complicated the regulatory and logistical procedures. Consequently, the plan was modified, and the project opted for a completely private area at Cesena Fiera to ensure a smoother, safer, and more feasible implementation.

Coordination with local authorities, site owners

The route planning was directly agreed upon with the site owners (Cesena Fiera). Thanks to the collaborative work of the Mobility Office of the Municipality of Cesena, the route was traced in detail and subsequently approved by the shuttle providers. On August 5th 2025, a joint on-site inspection was carried out by the technical providers, the Lead Partner (CISE), and the Municipality of Cesena. This meeting was crucial to discuss logistic details and physically inspect the parking lot where the demonstration would take place. Crucially, because the demonstration was hosted entirely within a private area, there was no need for further coordination or permits from other public authorities.

Risk assessment

A significant part of the risk assessment was preemptively addressed by the decision to move the demonstration to a fully private and controlled environment, eliminating the severe risks associated with mixing autonomous vehicles with public road traffic. To professionally oversee the risk assessment and safety framework, an external expert (inBlenda s.r.l.) was hired. Their legal and technical assistance included verifying compliance with the Italian Highway Code ("Codice della Strada") and specific legislative decrees (D.Lgs. 209/2005 and D.Lgs. 184/2023) to guarantee full regulatory compliance of the demonstration and the vehicle's insurance coverage. Furthermore, they provided operational coordination with CISE and the Municipality of Cesena to verify the correct setup of the demo area, with particular attention to safety measures, such as procedures, emergency management, staff training, and insurance requirements. The experts drafted a comprehensive Emergency Management Operational Plan. This plan aimed to mitigate risks connected to the autonomous shuttle's interaction with pedestrians and other elements (such as cars parked in the parking lot), having a document which made clear the roles (such as

the on-board Safety Operator, the Monitoring Room Coordinator, and the Demo Coordinator) and immediate reaction protocols for potential emergencies like critical malfunctions, pedestrian/vehicle intrusions, or adverse weather conditions. To ensure rigorous on-site monitoring, the plan was equipped with practical annexes: a Daily Operational Checklist, an Event Log, and a Staff Name List. To further mitigate physical risks on-site, the route was strictly delineated using 100 barriers, self-supporting STOP signs, free-standing pedestrian crossing signs, and 20 specific "No crossing - Autonomous vehicle in transit" warning signs.

Communication with national authorities

The demonstration for the GINEVRA project was hosted at the Cesena Fiera exhibition center, an area defined as a privately owned and controlled site. In the early planning stages, the external expert inBlenda s.r.l. drafted a formal institutional communication for the Municipality of Cesena to be sent to the General Directorate for Motor Vehicles. This was intended to maintain maximum transparency with national regulatory bodies. However, upon confirming that the shuttle would operate exclusively within the private perimeter of the fairgrounds—away from standard public traffic—it was concluded that formal national authorization was not legally required for this specific demonstrative context. Consequently, the letter remained a prepared internal draft and was not officially dispatched.

Short description about taskforce

The governance team responsible for the pilot was created within the GINEVRA project by the WP3 Leader (TU Wien). Its primary purpose was to coordinate the overall progress of the pilot activities. The Taskforce saw the active and constant participation of the LP CISE, the Municipality of Cesena, and the external safety and regulatory expert from inBlenda s.r.l. The technical providers (SURAAA) frequently attended meetings to coordinate operational activities and provide technical guidance.

3.2.3. Site Setup

On-Site inspection by the technical provider (SURAAA and OEM)

On-site inspection by the technical provider (SURAAA) A crucial technical on-site inspection was carried out on August 5th by the technical providers (SURAAA), the Lead Partner (CISE), and the Municipality of Cesena. This inspection was essential to physically evaluate the private parking area at Cesena Fiera, verify the road surface, discuss technical and logistical requirements, and finalize the definitive track layout.

Preparation of on-site infrastructure

The infrastructure was meticulously prepared to simulate a realistic urban environment while maintaining strict safety standards:

- **Safety barriers and signage:** the restricted area and the route were delineated using 100 barriers spaced every 2 meters. To ensure safety, 20 A3 "No crossing - Autonomous vehicle in transit" signs were attached to the barriers, complemented by 2 self-supporting STOP signs, and 1 free-standing pedestrian crossing sign. The route and the crosswalk were also marked on the ground using specific adhesive tape for asphalt.

- **Obstacles:** to test the shuttle's sensors and lane-changing capabilities, specific obstacles were positioned. These included an existing container to simulate a construction site, and "green obstacles" designed to simulate vegetation interference, consisting of 2 green roundabouts and 2 flower beds.
- **Passenger Infrastructure:** a bus station was set up to simulate a real one, featuring a bench and post. An Info Point gazebo was also equipped with tables, chairs, and a 60/65" TV screen with speakers for the pre-ride briefings. A Registration Point gazebo was positioned at the entrance of the Fair to engage possible participants.
- **Power supply:** A specific 8x4x3.2m night shelter tent was set up for the shuttle, positioned close to an electric column charging point compatible with the IEC 61851 Mode 3 - Type 2 standard. Electrical connections were also established for the multimedia systems, supported by a dedicated electrical operator.

Set-up by the technical provider

SURAAA was exclusively responsible for the technical setup and operation of the vehicle. The technical team arrived on-site on Monday evening preceding the demo days. Over the following days, they executed the precise track alignment and mapping. They ensured that the outline of each object and the entire route were correctly tracked and marked with temporary ground markings. They configured the shuttle's systems for the Cesena site, leveraging the vehicle's 2D and 3D LiDAR sensors, stereo cameras, odometry, and GNSS to continuously scan the environment in 3D, guaranteeing precise localization and real-time obstacle detection.

Contingency planning

A comprehensive Emergency Management Operational Plan was enforced to handle unforeseen events efficiently. The Daily Operational Checklist required the Monitoring Room Coordinator to verify weather conditions immediately before opening; in case of adverse weather, the service would be interrupted and the shuttle returned to the shelter. In the event of a technical issue or malfunction, the onboard Safety Operator was required to activate the emergency stop, conduct a technical verification, and immediately contact the monitoring room. All anomalies had to be meticulously recorded in a specific "Event Log".

3.3. Safety Training

Safety requirements and responsible parties

Comprehensive operational and safety documentation was prepared to guarantee maximum security. This included an Emergency Management Operational Plan (equipped with a Daily Operational Checklist, an Event Log, and a Staff Name List) and a Simplified Emergency Handbook adapted from SURAAA/NAVYA guidelines. PDCP GmbH (SURAAA) was primarily responsible for the technical safety of the vehicle. To ensure clear identification, personalized badges were provided for GINEVRA staff, the SURAAA team, and service personnel.

Informed Consent Forms were strictly mandatory before boarding the shuttle.
By signing, participants explicitly acknowledged their voluntary involvement, their awareness of the demonstration's experimental nature, and agreed to the usage of their images and video recordings for project documentation and communication.

Training sessions

A specific safety and operational training session was conducted on Friday morning, just before the official press launch. Starting at 8:30 a.m., NAVYA and SURAAA provided a comprehensive emergency training briefing for GINEVRA representatives and a designated safety officer (certified in level 3 first aid and fire safety). The topics covered during this session included shuttle operation procedures, emergency door access protocols, bonnet lifting techniques, and general familiarization with the vehicle's safety systems.

Emergency procedures

The Emergency Management Operational Plan defined immediate reaction protocols for critical scenarios. In the event of a critical error or shuttle blockage, the Safety Operator was instructed to execute an emergency stop and contact the monitoring room. In the case of an unauthorized intrusion by a pedestrian or vehicle on the route, staff were trained to issue acoustic warnings and temporarily secure the area, while the shuttle's sensors would trigger an automatic brake.

Following any emergency intervention, anomaly, or malfunction, the Demo Coordinator and the Monitoring Room Coordinator were required to confer, agree on any follow-up actions, and meticulously record the incident in the official Event Log. This log documented the date, time, detailed description of the event, involved parties, actions taken, and final outcomes.

3.4. Public Relations and Media Communications

Press release draft and approval timeline

The Municipality of Cesena sent a press release to the local media entitled “Cesena launches the first trial of the European GINEVRA project - at the Cesena Exhibition Center, visitors will be able to board the driverless shuttle” (draft press release in the original language attached).

The news was also published on the institutional web site of the municipality of Cesena and on its social media networks.[2]

On November 14th, a presentation of the project was made in the presence of the media and local institutions, who were able to experience and document the first test run. A press review of local media selected by the Municipality of Cesena in attached in the original language.

Media list and invitations

- Corriere Romagna
- Il Resto del Carlino
- CesenaToday
- Corriere Cesenate
- Tr24 (Teleromagna)

[2] https://www.comune.cesena.fc.it/vivere-il-comune/eventi/progetto-ginevra-sperimentazione-veicolo-a-guida-autonoma/

Visual and communication materials and branding placement

To promote the demo, 3,000 flyers were distributed across strategic urban hubs, including the University and the Municipality of Cesena. These physical efforts were complemented by a digital campaign, with partners publishing news on their official institutional websites and participants sharing updates through their personal LinkedIn profiles.

On-site, the visual identity was maintained through two roll-up displays and two flag banners, which served to clearly identify the information and registration points. The shuttle itself featured the official GINEVRA logo on the exterior, while the interior was enhanced with magnetic “Welcome on Board” banners to increase visibility for passengers. This consistent branding extended to every touchpoint of the demo; the GINEVRA logo featured staff badges, passenger tickets used for questionnaire tracking, and even the safety signage affixed to the perimeter barriers.

On-site partner visibility and outreach activities

Outreach during the demo days was facilitated by two dedicated hostesses who handled leafleting and managed the internal fair engagement at the Registration Point.

Press conference

The official press conference, held on Thursday, November 14, at 10:30 a.m., focused on the concrete transition from theory to practice in the field of sustainable and autonomous mobility. The key messages highlighted how a medium-sized city can successfully approach disruptive innovation, thanks in part to the opportunities offered by the Interreg Europe project, which made it possible to bring this experiment to Cesena. During the meeting, it was reiterated that technological innovation, to be truly integrated into the urban fabric, must be governed in a responsible and participatory manner. Since technology is more difficult to accept the more ‘disruptive’ it is, the direct involvement of citizens becomes an essential phase of co-participation. The aim of the initiative was to allow citizens to experience the future first-hand, to see whether direct experience could transform any fear of the unknown into a conscious and positive perception.

These visions were presented by Giorgia Macrelli (Councilor for Youth Policies, University, and Research) and Andrea Bertani (Councilor for Environmental Sustainability and Transparency). Andrea Castiglioni (President and Legal Representative of CISE - Center for Innovation and Economic Development) and Giulia Bubbolini (COO of CISE and project manager of GINEVRA) spoke about the details of the GINEVRA project.

Overview of media coverage (screenshot as attachments)

The press launch generated strong media coverage and significant community interest. Prominent local newspapers featured the event on their front pages and dedicated sections.

Notable articles included *"Tutti a bordo senza autista"* and *"Cesena sperimenta il bus senza autista"* published by il Resto del Carlino, as well as *"Il futuro della mobilità: A Cesena il minibus a guida autonoma"* published by Corriere Romagna.

3.5. Public Demonstration

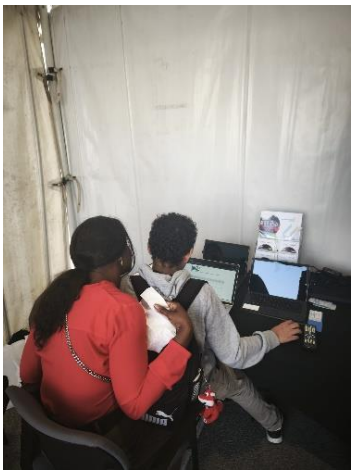
Event program

The public demonstrations took place on November 15th and 16th. The daily operations were split into two sessions: a morning session from 10:00 a.m. to 1:00 p.m. and an afternoon session from 2:00 p.m. to 4:30 p.m., with a one-hour pause for the staff's lunch break. Departures were scheduled every 30 minutes throughout the day, accommodating a maximum of 8 passengers plus 1 Safety Operator per trip.

Roles and responsibilities during the demo

The operations were actively managed by a dedicated team with clearly defined affiliations. The onboard Safety Operator was provided by the provider SURAAA, and was directly responsible for monitoring the vehicle, executing manual stops if necessary, and assisting passengers. On the ground, the Demo Coordinator and the Monitoring Room Coordinator were representatives from the GINEVRA project team, overseeing the overall flow, daily safety verifications, and external communications. To ensure maximum safety, an external designated safety officer—certified in level 3 first aid and fire safety—was specifically hired to be on-site. This same person was also responsible for supervising the gate and managing pedestrian/vehicle interferences. Finally, the operational assistants at the Info and Registration Point were a mix of GINEVRA staff and hired external service, who managed participant registrations and survey collection.

Audience interaction



To ensure both participant safety and the collection of high-quality research data, audience participation followed a structured, three-step process, with all rides coordinated through an internal booking system.

The engagement began with a mandatory pre-ride phase, where participants were required to complete an initial questionnaire and sign an Informed Consent Form before boarding. By signing, passengers formally acknowledged the experimental nature of the demonstration, accepted all safety protocols, and provided consent for the use of their image and video — a requirement implemented to streamline media management. This process was completed by a total of 129 individuals, with 62 participants attending on November 15th and 67 on November 16th. Following this preparation, passengers boarded the autonomous shuttle to experience the technology firsthand along its designated route. The cycle concluded immediately upon exiting, as participants were required to scan a QR code to complete a final follow-up questionnaire.

To ensure inclusivity, a laptop and dedicated support staff were made available for participants who experienced difficulties scanning the QR codes or using their own smartphones.

Additional activities

No supplementary engagement activities or side events were conducted during the pilot phase.

Irregularities

No significant operational irregularities occurred. A very small number of participants declined to fill out the post-ride surveys, but the overall completion rates remained exceptionally high, successfully providing valuable data for the project evaluation.

3.6. Key Lesson Learnt

Operational insights

Always maintain physical backups of digital materials. Providing paper questionnaires ensures continuous data collection if QR systems fail or if users are less tech-savvy.

Separating pre-ride and post-ride survey zones significantly reduces congestion and streamlines the participant transition.

Providing refreshments during peak hours improves both attendance rates and participant comfort.

User feedback

Some participants reported that the entire process (pre-ride survey, demo, and post-ride survey) took too long. This suggests that, for future trials, the length of the questionnaires should be optimized or the bureaucratic procedures streamlined so as not to discourage users.

Recommendations for future demonstrations

Integrating demos into existing events allows you to capture a spontaneous audience without having to engage them in advance. However, to mitigate uncertainty about participation rates, it is advisable to adopt a hybrid model that includes time slots reserved for invited or pre-booked participants.

To better manage waiting times and reduce the perceived length of the process, it is recommended to create entertainment situations or dynamic information areas that keep citizens interested before boarding.

Responsible innovation learning

The demo showed that responsible innovation cannot be limited to verifying technical benefits but must also manage the psychological and social impact on citizens. Without active listening and genuine co-participation, there is a risk that such disruptive technologies will not be accepted by the community. Analyzing initial reactions and fears has made it possible to transform users from passive subjects to potential “co-designers” of the future.

The Cesena experience highlights how local authorities must adopt flexible governance models and invest in digital culture at the same time. It is not enough to provide a service; it is essential to give citizens the critical tools to understand how new solutions work and how data is managed. Only through this path of transparency and participation can innovation be perceived as a collective value and not as a technological imposition from above.

4. Bad Schönborn

4.1. Demo Overview

Demo title: "Fahrt in die Zukunft" ("Drive into the future")

Location: Parking area of abandoned rehabilitation clinic (ehem. Pflegeklinik), Kraichgaustr. 17, OT Bad Mingolsheim, 76669 Bad Schönborn

Date and duration: Prep: 07.-13. April 2026,
Public demo: 14.-20. April 2026

Partner: Project SURAAA, Pörtschach/Klagenfurt, Austria, TU Wien and KIT

Main objectives

To give citizens and stakeholders an opportunity to experience innovative technology first-hand while assessing their acceptance and awareness and researching the necessary governance aspects of implementing disruptive technologies in a small central European municipality.

Participants /audience

A total of 685 active participants and ca. 50 passers-by each day (more than 100 on Saturday and Sunday) who were confronted with the topic, but did not participate ("audience")

4.2. Preparation & Logistics

4.2.1. Procurement

Procurement timeline and responsible partners

May/June 2025
The vehicle procurement was mandated by the public tender in Period 5 of our project. Project SURAAA secured this tender and was from then on (early Summer 2025) our direct contact for all vehicle-related issues. The taskforce was implemented after the in-person meeting in Cesena and consisted of Bad Schönborn, TU Wien, KIT, external expert Constantin Pitzen, Project SURAAA (representing also the OEM and TÜV Nord) and occasionally the LP.

Summer 2025
A novella of a German law governing the permission for road-usage by autonomous vehicles proved to be the biggest challenge, having shifted the responsibility from the state authorities to the national level (Kraftfahrtbundesamt [KBA]). Working closely with SURAAA, TU Wien, KIT, external expert C. Pitzen and the TÜV Nord, we began the process for permission. The planned period for the AV demo on public roads is early November 2025.

A visit by the SURAAA team enables us to further hone the planned route, abandoning some POIs and shifting to the main road due to street widths, parking situation and right-of-way regulations.

August 2025
Confident, that we will be granted the permission for the demo in November, we obtain permission from local police, the municipal traffic and ordonnance departments, the regional

traffic authority (for now using the intra-municipal county road K3275 “Rochusstraße”) and the Public Transit Authority (Verkehrsdezernat Landratsamt Karlsruhe) and the Public Traffic Provider KVV (allowing us to use their route [Bus Nr. 132] and two of the four planned bus stops – while providing concurring free service for a maximum of 12 days).

After receiving permission from the LP and the JS we make first purchases to furnish the planned bus stops and booked rooms for the technicians. We also operated renting a tent garage to fit the AV, renting special bus stop signs and setting up pavilions along the route to accommodate guests and provide information to passengers.

September 2025

Still confident that we are on track with the public road demo, we start dissemination planning and convene an public event for October 16th. SURAAA assures sending promotional material, KIT will be one of the main speakers and there will be the possibility to sign-up for rides in the AV. The location (Kraichgauhalle in Bad Langenbrücken is reserved and we start drafting speeches and pamphlets.

Late September/Early October 2025

The OEM says that the vehicle will only be available in late November 2025 – so rooms and rental items are rebooked, and the dissemination plan is shifted.

On October 9 2025, the project steering committee votes to extend the project until July 2026

Then the KBA refuses to grant a simple road-use permit, demanding instead a full vehicle-type homologation or advising using another vehicle, adding that to their knowledge “such approvable vehicles don’t exist in Germany at the moment”. The cost for the vehicle type homologation could cost us up to 89.250 Euros and require up to several months. With the end of the project looming over us and the budget (although wisely calculated in 2022 to allow for some fees for the KBA) there is no way to accommodate these demands in our project’s time and financial framework. Efforts by our knowledge partners, TÜV Nord, the external expert to find precedence examples that would justify an exemption prove fruitless, as do the efforts to obtain lobby with members of the KBA advisory board. Even the state minister of traffic and transportation – contacted by our mayor – sees his hands bound. This marked the end of the efforts to drive on public roads in Bad Schönborn.

The kick-off event on October 16th is cancelled, as are all bookings and rental inquiries for material.

November 2025

As a last resort to save what’s left of the demo, we start researching for private grounds. Most areas are too small or don’t have the necessary infrastructure (no power on-site). Three feasible sites are finally focused on:

1. Supermarket parking-lot in Bad Langenbrücken
2. Open, graveled site in industrial sector of Bad Langenbrücken
3. Parking lot of abandoned rehabilitation clinic in spa-area of Bad Mingolsheim

With the third one being our favorite, we are faced with the challenge of finding out, who is responsible for the vacant area and the extremely slow communication with the property management.

December 2025

On the last day of the in-person meeting in Karlsruhe, we receive the good news, that we can use site number 3 (clinic). Enthused, we immediately started into the process of preparing to a demo on this site. However, the property managers want a rental contract and the security that they will be exempt of all liabilities. Furthermore – and different from our initial planning - we cannot access the (condemned) building and must supply the entire infrastructure from power to water, from heating to WIFI ourselves.

January 2026

The winter break is filled with telephone calls and research on things like road signs and traffic lights (which we wouldn't have needed on public roads), WIFI-on-site, water, electricity, mobile toilets etc. We are also hampered by massive road construction on the road leading to the test site and by the fact that we will not be able to clear open questions until the beginning of February. We also confirm that we will be running for a week, seeing how all rental contracts (for IT-Equipment, toilets etc. is always on a monthly or weekly basis.

February 2026

With two meetings with SURAAA and the facility manager as well as our traffic and ordonnance department at the beginning of February, we couldsolve most questions, including the final dates of the demo. The first responder safety training on Tuesday, April 14th, will be the start into the test drive week.

We spend February with the preliminary registration, fixing plans with SURAAA and working off the points on the material and to-do-lists. We also restart the dissemination plan and begin e-mailing and inviting stakeholders, special interest groups and setting up preregistration for the public.

As much road equipment (signs, traffic lights etc.) was not available through regular channels within a three-to-five-month period, we spent much time calling companies that might be able to provide these.
Project SURAAA was wonderful providing detailed lists and collaborating on alternative equipment.

March 2026

We now focused on the customer experience and how we could use the surroundings efficiently to provide the utmost positive experience – knowing full well, that enthused riders will be our best propagators.

We were able to find local and regional companies to provide for things like tents, IT-infrastructure and amenities. Some was provided by the municipality itself (furniture in the tents etc.). Plans were made to coordinate the initial setting up for the Tuesday after Easter.

With the preregistration open (online-formula) we started contacting the registered passengers and fixing up time slots for their rides. With every article that was published, it seemed more people of all ages were signing up to ride the AV. Also, we received the first answers to the personalized invitations and started to fill up the timeslot for the special interest groups.

After conferring with Sebastian Kohl from the TU Wien on the surveys, we integrated that information into the customer journey, finding it necessary to make little colored tickets and getting clipboards to ensure comfort when filling out the survey.

We also finalized the catering – making sure that all passengers would receive water (in plastic recyclable bottles with bottle-deposit to ensure recycling) and locally baked pretzels. For special stakeholders, we also provided snacks, coffee and standing tables to be able to engage them in conversations.

April 7th through April 13th

The arrival of the SURAAA-Team and the shuttle marked the beginning of the final phase. From this day on, we also had night security and had cordoned off the testing site with a 2 m fence (a prerequisite for the security service). This fence – a completely transparent large mesh construction fence (135 m in total) was rented and setup by our municipal work squad. It permitted passers-by to follow the entire event, while preventing pedestrians from entering the active AV demo site. We also fixed specially made branded EU-project banners on this fence, high enough to be well visible but low enough to permit people to look over them.

In the day, the OEM's technician and the lidar-mapping unit arrived. The route mapping began that afternoon and continued over the next days. Also, once the mapping was well advanced our municipal work squad started the ground marking process together with the SURAAA team and placed the traffic signs and lights as requested. Some adjustments were made (i.e. exact position of both pedestrian crossings, placement of the second "bus stop". The pavilions for the bus stops and catering were also placed, as were the two main tents for the customer journey.

With test rides and final walk-through being completed, the evening of the 13th of April was the first highlight as the youth fire brigade arrived to wash the vehicle. Only moments earlier, a rupture had disrupted the water supply to the testing site, so that the young firemen and firewomen ordered a fire brigade vehicle with a tank so that they could wash the shuttle. That having been accomplished they were of course treated to free ride and some food for their efforts. The photo booth was set up and adjusted to make great branded pictures.

April 14th and 15th

With a shining, clean AV shuttle we proceeded to finalize the customer journey through the area, adjusting as necessary, on Tuesday and instructing all personnel.

The afternoon and early evening saw the first-responder training and a "sneak preview" for the municipal counsellors.

We started on Wednesday, April 15th at 9 a.m. with the Media event welcoming journalists and our former State Minister of the Interior as well as other celebrities.

During the municipal lunch break, the project team and all workers who had helped to implement the shuttle, were able to ride the vehicle and experience the fruits of their labor. As of the afternoon, we started with the public and welcomed the first KIT focus group. We started the groups every half hour, sometimes – if there were a lot of walk-ins – with additional short-ride groups in-between. All pre-registered guests got the full tour.

April 16th through April 20th

On Thursday, we started with school classes from 2nd to 9th grade. The SURAAA-Team welcomed each class with an age-adapted presentation and activities. Of course, the rides (always 7 students and one chaperone) were the highlights and the students in particular were amused by the X-Box-Controller that the safety operator used to manually drive the vehicle.

We enjoyed the brief peer visit from Gábor Kerékgyártó on-site and had our first group of clinic patients, who were very impressed by the accessibility of the shuttle. Because of the fantastic weather, we had several Walk-Ins per day.

As on Wednesday, Thursday was also a "long day" with the last groups starting at 17.30 p. m. Friday started with more 2nd classes and a group of volunteers who also served as photo models for SURAAA. There was also one other clinic group

The weekend days started at 10 o'clock instead of 8.30 a.m. This allowed for some briefings and adjustments. It was also good timing, allowing the Sunday morning rainstorm to pass before the first guests arrived. The weekends were special due to the high number of Walk-Ins.

On Monday we again had four school classes – as usual allowing one hour per class. The final focus group of the KIT included elderly people and drivers from our volunteer bus project. Other focus groups had been young women and professionals.

During the week we had a small leak in the gear oil but were able to find the necessary oil to fill up. We also found O-rings necessary for another problem. But we only had one technical mishap, when the ramp didn't operate properly, the passengers needing to de-board and the Av having to be re-settled. All passengers – including the following group – waited patiently and were still full of praise after their rides.

April 21st and beyond

This was the de-briefing and dismantling day. Fences were taken down; the AV was picked up by a trailer and returned to Austria. The big potted plants (used as obstacles) and the "construction site", the bus stops and the road signs and traffic lights were returned and the tents dismantled and the garages vacated. The SURAAA-Team left for Austria and the Bad Schönborn crew worked well into the late afternoon, to vacate the area and gave back the key to the facility manager.

Materials, equipment, or hardware required

For materials, equipment, or hardware required cf. the material-list from SURAAA, the tent plan (although we added a catering tent where we also showed short films about Bad Schönborn and SURAAA, offered water and apple juice as well as pretzels and fair-trade chocolates) and the UX-Plan. Two garages served as "offices", pantry and security shelter for the night watchman.

4.2.2. Route Planning

The first planned route – in 2023 – was a ca. 4,8 km circular route connecting the thermal spa and the train station while also servicing POIs and social hubs (market square, town hall, shops, churches etc.) and a residential sector that has no public transportation.

It was subsequently refined to a loop connecting the thermal spa with the train station and the center of town. This route was then deemed not feasible by SURAAA due to narrow road widths with oncoming traffic.

SURAAA then proposed a route using the main county road ("Rochusstraße") to connect the thermal spa and the train station but not passing through the center of town. This route was approved by all authorities on the local and regional levels.

Abgeänderte analysierte Route

H_1	Haltestelle Bahnhof Kronau	AH_1	Alternativhaltestelle Mingolsheim Thermarium
H_2	Haltestelle Mingolsheim Volksbank	AH_2	Alternativhaltestelle Mingolsheim Thermarium
H_3	Haltestelle Kirche	AH_3	Alternativhaltestelle Mingolsheim Rochus-Klinik
H_4	Haltestelle Thermarium		
H_5	Haltestelle Klinikum		
H_6	Haltestelle Mingolsheim Volksbank (Richtung Bahnhof)		
	Route		

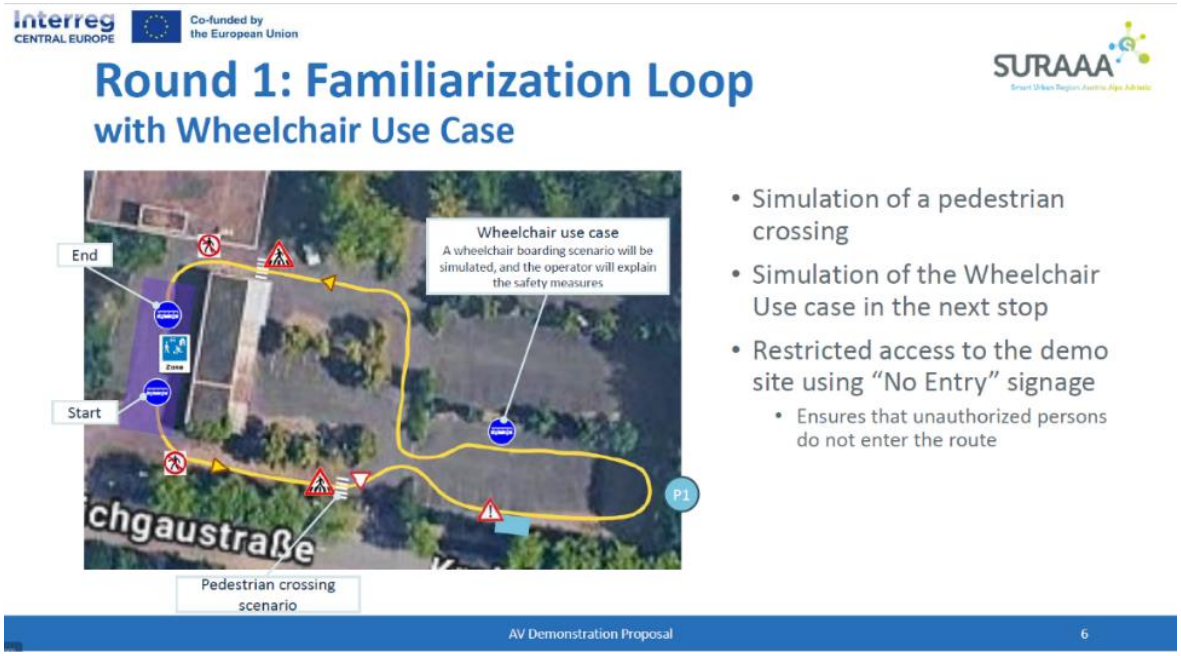
As it became clear that we would not be driving on public roads we had to find a location. We considered the parking lot (asphalt) of a supermarket in Langenbrücken, an unused lot (gravel surface) in the industrial area "Im Sand" in Langenbrücken and the parking lot (asphalt) of an abandoned rehabilitation clinic in Mingolsheim. After visiting all sites, scrutinizing the prerequisites, matrixing the pros and cons and speaking with the owners or caretakers, we reported back to the task force and especially SURAAA encouraged us to follow-up on the clinic site (highly fragmented, approx. 3.500 m²). The supermarket had by then already dropped out of the decision process due to lack of usable space and the absence of electricity.

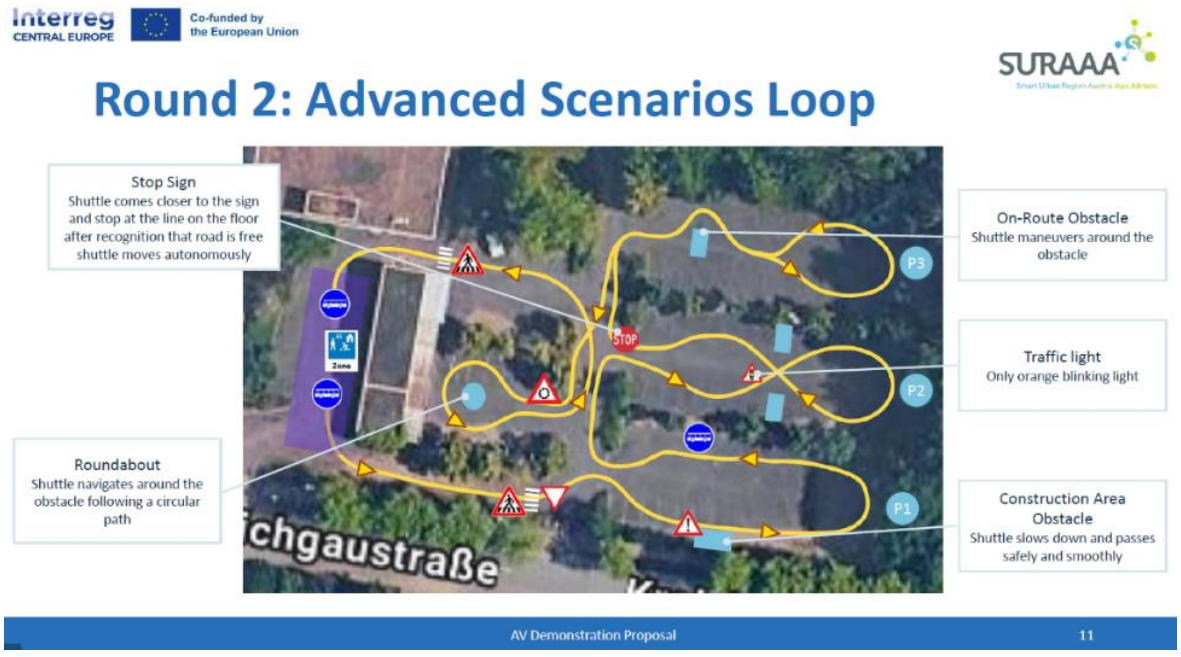
During the on-site visit on February 5 2026, SURAAA presented us with the following 3-loop-proposal which we then implemented. They formed the basis of the material list and possible user experience plans. As time was running out – we had only seven weeks left before the AV would arrive – we did much of the planning on the fly, literally coming in under the wire.

Thrown back by public and religious holidays, we were still able to turn it around because the entire municipality team – from Bauhof to facility managers and colleagues in the PR department – rallied to make it happen.

It was difficult in part to get the necessary traffic signs and lights at “short notice” – those items usually being booked as much as six months in advance. When the AV arrived on April 6, we had all the necessary signage and an additional traffic light.

The three loops that each passenger would experience during the AV demo rides:





The property managers were contacted, and a rental contract was drafted. There were issues with the insurance and the liability sections, but these were resolved in due time.

Coordination with local authorities, site owners

For coordination with local authorities cf. 4.2.14.2.1 above, section “August 2025”.

The current site owners were not disclosed. The abandoned clinic building has apparently changed ownership several times since it was given up in 2019. We were not allowed to enter the building and had to provide the entire infrastructure externally ourselves. We had contact with the real estate management company (situated in Frankfurt) and their local liaison, the on-site facility manager Mr. Alfonso Iacono. Three employees of the real estate management company were present at the kick-off ceremony.

Risk assessment

Risk assessment was a major and quite time-consuming matter, done under high timely constraints and pressure. On two dates, we were on-site to discuss possible safety risks, but besides some minor clipping of trees and shrubs, whose branches and leaves were growing into the path of the AV, there was no major concern.

Our municipal construction department and the work crew (Bauamt and Bauhof) worked to make the asphalt lot useable again, including metal brushing the entire demo surface to remove moss and other weeds.

As we did not have access to drinking water, we had to bring in bottled water. The running water supply from the clinic was just enough to flush the toilets in our mobile WC-wagon. This supply ruptured in the evening of the 13th of April, leaving the youth fire brigade, which was there to clean the AV, no option but to order a firefighter vehicle with water tank on-site. The water supply for the hygienic facilities was restored the next morning.

We were able to get electricity from the clinic building but had to adjust in order to be able to charge the AV at night (1-phase electricity).

As the clinic area is located next to fields, security – especially at night to prevent vandalism and thefts – was critical. This was also one of the major financial burdens. To save costs, we opted to cordon off the entire area with 2-m-high-mesh fences, thus making it possible to reduce the night watch to a single security officer.

The insurance company took some time to work with the liability clause of the area rental contract with the property managers and the rental agreement was signed just a few days before the demo.

We also had issues with the wording of the liability and GDPR-wording for minors (school children). All issues were resolved just in time.

Communication with national authorities

For communication with national authorities, experts, etc. cf. 4.2.1 above. Project SURAAA, several knowledgeable members of the task force and our external expert had direct contact with the national authorities.

Short description about taskforce

For a description about the Taskforce etc. please cf. 4.2.1 above.

4.2.3. Site Setup

On-Site inspection by the technical provider (SURAAA and OEM)

The on-site inspection by the technical provider (SURAAA representing the OEM) took place on February 5th. Before then, we photo-documented the entire area and used Google Street view etc. for the task force discussions and planning.

Preparation of on-site infrastructure

For comprehensive info about preparation of on-site infrastructure (obstacles, signage, safety barriers, power supply) please cf. 4.2.2 above.

Set-up by the technical provider

The set-up by the technical provider (Project SURAAA and OEM Navya) began on April 6th. That was also the day that the shuttle and the MMS (Lidar mapping system) were delivered on-site. We had provided for a WIFI-hotspot with 100 GB for the two weeks.

Contingency planning

Contingency planning (weather, technical issues) was a big matter. Knowing that April weather can be quite volatile in southwestern Germany, we rented tents and two of the service buildings garages (as office and pantry/depot for supplies and materials). We also rented gas heaters, which were necessary on most mornings. Thankfully the actual demo driving times were free of rain and quite sunny, however the surface markings in the week before were postponed or carried out with additional work (such as flame drying the ground before applying the marking tape) since the rain hampered the road-marking works considerably.

We were able to get all necessary spare and replacement parts from a local vehicle supplier or handymen's store. This included O-rings, gear oil and minor spare parts necessary to get the AV running after minor technical issues arose.

4.3. Safety Training

SURAAA presented the training, which lasted approximately 90 minutes including two tours on the safety route.

The training session included a brief introduction to the project by Eileen Gatzke, a short history of autonomous driving by SURAAA project lead Olga Ismailov and the technical session led by safety operator Gerald Nauerschnig and Navya's technician Tanguy Bleton.

Nine first responders were present. They discussed the emergency procedures for a wide variety of incidences and showed the technical safety features. A ride in the AV was also part of the training.

4.4. Public Relations and Media Commuinications

Press release draft and approval timeline

Please confer the "Pressenachweis" addendum.

The timeline was relative – we started inviting the media and dissemination as soon as we had the go for the final dates, which came after the OEM confirmed them in February.

Media list and invitations

The following media were invited and most responded, publishing articles or attending in person.

Print:

- Badische Neuesten Nachrichten / Bruchsaler Rundschal
- Rhein-Neckar-Zeitung
- Bad Schönborner Woche
- Bad Schönborn aktuell

Radio:

- Die neue Welle
- Radio Regenbogen
- SWR
- Antenne Bergstraße

TV:

- SWR
- Kraichgau TV
- Baden TV
- Rhein-Neckar-Fernsehen

Cross-media:

- Hügelhelden
- SWR online
- Landfunker

Visual and communication materials and branding placement

A special media page was created to provide all additional information, names list, teaser videos, statements etc. We also branded the inside of the AV with special magnetic signs displaying the logo - cf. attachments.

Communication materials (banners, flyers, website, social media) were all branded - cf. attachments

Branding placement and partner logos were also visible on the roll-up at the bus station inside as well as on the fence for the many passers-by outside. We also had pamphlets and flags (i.e. from SURAAA). Since some items were denied in the proposed budget, we couldn't brand as much as we had initially planned (i.e. promotional flags, bus-shaped sweets etc.)

Press conference

The press conference took place at 9 a.m. on Wednesday, April 15th and conveyed the key messages that the EU-Interreg CE project GINEVRA made this demonstration for our citizens possible and that we are extremely proud of the fact that our population warmly accepts this new technology, as shown by the impressive preregistration. For a complete and detailed agenda and names, please cf. Section 4.3.1 of D3.1.2. It was also our Kick-off-Event as prominent users were invited to attend at 10 o'clock.

Overview of media coverage

For the overview of the media coverage, please cf. the attachments.

4.5. Public Demonstration

Event program

For the event program and timing see the ride schedule and participation record in the attachments.

Roles and responsibilities during the demo

Roles and responsibilities during the demo were as follows:

- Bad Schönborn – greeting, reception, registration and overseeing all survey-related activities (including clip-board-transfer between tents), infrastructural support, technical support, furnishings, catering, dissemination, documentation
- Project SURAAA – introductory presentation, answers to technical questions, provision and servicing of AV, safety operator and support en route (pedestrian crossing, wheelchair assistant), collecting verbal feedback from guests, conducting school activities
- OEM (Navya) – preparation, mapping of route, technical vehicle assistance (until Wednesday)
- TU Wien – survey creation and evaluation
- KIT – focus group interviews

Audience interaction

The school classes received age-adjusted special interactive programs from SURAA. We also used some of these elements (coloring an AV and designing their own personal AV) to keep the kids happy while the parents filled out the surveys.

All visitors loved our wheelchair-riding bear “Henry” and often cuddled him as he boarded and deboarded the AV, bringing closer the message that the mobility of the future must be accessible.

The photo box captured each group after disembarking the bus. The pictures were printed out and handed to each guest as a souvenir. Of course, the photos were branded with the logos of GINEVRA, SURAAA and Bad Schönborn.

Using the surveys we evoked feedback in written form, but this also gave room to ask verbally and find out how satisfied the passengers were with the ride. We tried to engage the passengers by offering free pretzels and soft drinks (for special stakeholders we also had coffee and snacks)

We also ran short videos about Bad Schönborn and SURAAA in the catering tent so that people could watch them while eating and drinking. This also brought comments about the AV.

Additional activities

We were able to permit free visitor parking on the parking lot of the thermal spa across the road, but for that we did have to get the vehicle information and give feedback each evening to the thermal spa since the camera-based license-plate-detection-system required that we delete those vehicles, that had parked there for the AV demo.

We held a daily raffle to all people who came for the AV demonstration and participated. Their passenger tickets could be used to enter a small raffle, and we gave away prizes such as spa entries, concert tickets and books about Bad Schönborn's history.

Irregularities

Irregularities were limited to the first couple of days with the road before the demo site being closed to traffic due to construction. As this was known in advance, we had communicated this i.e. with all ride confirmations invitations for example for the media.

4.6. Key Lesson Learnt

Operational insights

The AV functioned well with just one minor technical fault late one afternoon. Two delayed groups (the first having to exit the vehicle after boarding) due to a stuck ramp. This was repaired with a reset and the group reboarded. The following group stayed at the additional delay time and took their ride without complaining.

User feedback

Please cf. to the evaluation of the survey by TU Wien

Recommendations for future demonstrations and responsible innovation learning

- Start very early and be prepared for German bureaucracy and legislative changes.
- The constant shifting of the demo dates and the uncertainty led to the cancellation of the planned kick-off event (October 16 2025). We found that we were able to reach the citizens and stakeholders using alternative means.
- Classical dissemination wanes. The time and effort invested in print articles should be well calculated.
- Modern social media channels more than make up for the diminishing print channel. Place most effort here.
- Word of mouth works in a closely knit community. Although effective, it is too time intensive to be truly efficient.

5. Descripitve Analysis of the GINEVRA passenger survey

5.1. Methodology

5.1.1. Study design and data collection

As part of the EU GINEVRA project and the test runs of an autonomous shuttle bus investigated within this project, the survey discussed below was carried out at three locations in Europe: firstly, over two test days at Varaždin Airport (Croatia) from 22 to 23 October 2025, then over two test days at the Cesena Exhibition Centre (Italy) from 15 to 16 November 2025; and finally over six test days in Bad Schönborn (Germany) at a private car park from 15 to 20 April 2026. The aim of the survey is to measure the attitudes of (first-time) users before and after

experience with an autonomous vehicle (AV) and subsequently to investigate whether they would accept AVs as a means of transport in public transport. The questionnaire comprises a total of 26 questions and was designed by the Vienna University of Technology (TU Wien) in collaboration with the Karlsruhe Institute of Technology (KIT). It consists of a pre-ride section (Q1–Q18) and a post-ride section (Q19–Q26).

An autonomous shuttle bus manufactured by Navya was used for this purpose; it was provided by the company SURAAA and is already operating as a regular bus service on public roads in Klagenfurt. A safety instructor was on board for every ride, monitoring the vehicle and accompanying the passengers. This meant that participants were not alone in the shuttle and were also provided with real-time information. A maximum of eight passengers were allowed to experience the 650m route in Cesena, the 900m route in Varaždin and the approximately 450m route in Bad Schönborn at any one time. It should be emphasized that all test rides took place on private land – none of the three locations was integrated into the public road network. When interpreting the results, it is therefore essential to bear in mind that the demonstration rides did not take place under real-world conditions, but under conditions approximating laboratory conditions.

At all test sites, the procedure followed the same pattern: registration, briefing and pre-survey, shuttle ride, and a final post-survey. However, the recruitment of participants and the organization differed significantly depending on the location. In Cesena, only spontaneous visitors took part – the event took place alongside the *Ancient Book Fair* in its cordoned-off car park, which attracted a broad and diverse group of visitors. The survey was conducted digitally via LimeSurvey using a QR code, with the option of Italian or English. In Varaždin, different target groups were deliberately invited on the two days: Day 1 was aimed at school classes, students, older people and those with reduced mobility; on Day 2, institutional groups such as university partners, business representatives, representatives of professional associations and emergency services were specifically invited. The survey was conducted in Croatian or English using paper questionnaires. In Bad Schönborn, a hybrid approach was planned, combining pre-registered participants with spontaneous attendance. In addition to the public, participants included school classes, representatives of the local council and emergency services. The survey was also conducted on paper, in German or English. Native-speaking contact people were available at all locations. The survey was carried out by the respective local project teams and TU Wien.

5.1.2. Data preparation and statistical analysis

To merge the pre- and post-ride responses from the same participant into a single dataset, different matching procedures were used depending on the location. In Varaždin and Bad Schönborn, a folded A3 paper questionnaire was used, which combined both parts of the survey on four A4 pages and was numbered from 1 to 8 per group, corresponding to the maximum number of passengers per ride. As each person was given a card with their passenger number at the start and continued to complete the same questionnaire after the ride, the matching was achieved directly via the numbering.

In Cesena, the matching was carried out digitally via LimeSurvey: two QR codes were provided for each passenger number – one for the pre-ride section and one for the post-ride section – with links containing source information including the passenger number and survey time, so that the

two sections could be merged in the Excel export in combination with the time of completion. It should be noted that this digital method is only recommended to a limited extent for future projects, as it requires a precisely planned ride schedule and attentive staff, and the effort involved is significantly greater than with the paper-based method.

As the survey in Cesena was completed online, the data could be exported directly from *LimeSurvey*. In contrast, the paper questionnaires from Varaždin and Bad Schönborn first had to be digitized using a standardized data entry form in *LimeSurvey*. The three data sets were merged and cleaned in *Microsoft Excel* before being imported into *IBM SPSS Statistics* and analyzed descriptively.

Attitude questions Q13–Q18 and Q20–Q24 were collected using a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). In addition, the *'don't know'* option (= 0) was provided, which was excluded from the calculation of the descriptive statistics. Transport use (Q12) was measured on a five-point ordinal scale (1 = *(almost) never*, 2 = less than once a month, 3 = 1–3 days per month, 4 = 1–3 days per week, 5 = *(almost) daily*). As the time intervals between the categories are not uniform, the scale is, strictly speaking, ordinal – descriptive statistics are nevertheless reported, as this approach is common in mobility research.

In the main body of the report, all frequency distributions are presented graphically in the form of bar charts – each showing absolute and relative frequencies. The complete frequency tables for all questions (Tables A1–A26), showing absolute and relative frequencies per response category, broken down by location and for the total sample, are included in the appendix. Missing values and 'don't know' responses, which were excluded from the calculations, are also shown there. In addition, the appendix contains a summary table with all descriptive statistics for the Likert and ordinal scales (Q12–Q18 and Q20–Q24). In addition to the mean (*M*) and standard deviation (*SD*), this table also shows the median (*Md*), minimum (*Min*) and maximum (*Max*).

5.1.3. Data quality and limitations

Questions 25 and 26 are scenario-based questions in which participants were asked to consciously choose one scenario – the one they considered most appropriate. Unfortunately, in Bad Schönborn (paper questionnaire), a not inconsiderable proportion of participants (35.9%) selected multiple answers to question 25, despite the requirement to select only one. As multiple responses would not allow for a meaningful comparison of results, either between the sites involved in this project or with other studies, these cases were excluded from the analysis. For the sake of completeness, they are listed in the appendix (Table A25, values: -8 = *mix*) and explain the significantly smaller sample size for this question.

None of the three samples were random samples. Participation was voluntary, which tends to overrepresent people who are tech-savvy, curious or open to innovation; consequently, generalizing the results to the general population should be avoided. Furthermore, the recruitment strategies differ considerably between the study locations – ranging from purely spontaneous participation in Cesena, through targeted group recruitment in Varaždin, to a hybrid approach in Bad Schönborn. It should also be noted, as described above, that the demo set-ups used here cannot be compared with driving experiences on public roads. All this severely limits the comparability across locations as well as the scope for drawing generalized conclusions and must be considered in any further interpretation.

5.2. Descriptive Analysis

The following chapter presents the results of the survey in a descriptive manner. The analysis is divided into three sections: socio-demographic characteristics and mobility behavior of the respondents (Chapter 5.2.1), attitudes and prior experiences before the ride (Chapter 5.2.2), and experiences and evaluations after the ride (Chapter 5.2.3). The results are presented separately for each location and illustrated using bar charts showing absolute and relative values. The complete frequency tables, showing absolute and relative frequencies per response category for each location and for the entire sample (*n*), are provided in the Appendix (Tables A1–A26). Missing values and 'don't know' responses are also shown in the Appendix, as they have been omitted from the graphical representations where they do not add any substantive value. The case numbers in the figures may therefore differ from those in the tables in the Appendix.

5.2.1. Sociodemographic characteristics and mobility behaviour

The socio-demographic characteristics of the respondents and their mobility behavior are described below. The survey collected data on age, gender, educational attainment, employment status, household size, driving license ownership, access to a car, residential location, previous experience with autonomous vehicles, the participants' financial situation and their everyday use of transport.

5.2.1.1. Age

Question 1: How old are you?

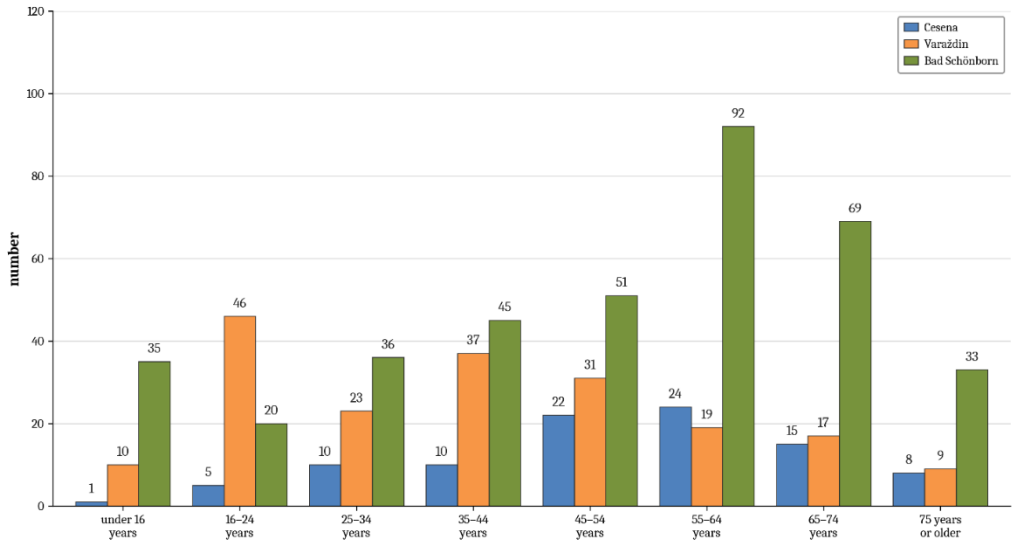


Fig.1 : Age distribution by location, absolute frequencies (Cesena: n=95, Varaždin: n=192, Bad Schönborn: n=381)

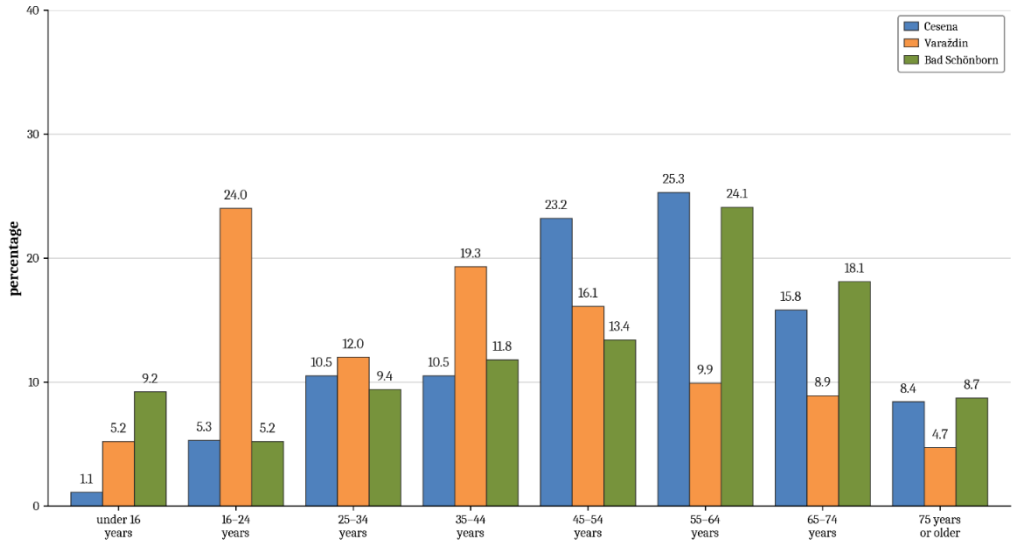


Fig.2 : Age distribution by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=192, Bad Schönborn: n=381)

The age distribution differs significantly between the three locations. In Varaždin, younger age groups predominate those aged 16 to 24 make up the largest proportion with 46 people (24.0%), followed by those aged 35 to 44 (37 people, 19.3%). The picture is quite the opposite for the other two test runs, with a more even distribution across the age groups, including a higher proportion of older participants. In Bad Schönborn, for example, the highest proportion is accounted for by those aged 55 to 64 (92 people, 24.1%), followed by those aged 65 to 74 (69 people, 18.1%). Cesena falls somewhere in between: the 45–54 age group (22 people, 23.2%) and the 55–64 age group (24 people, 25.3%) are the most strongly represented there.

Overall, the sample in Varaždin is significantly younger than at the other two survey locations. This is likely to be attributable, amongst other things, to the recruitment strategy. Whilst in Cesena participation took place exclusively on a spontaneous, on-site basis, in Bad Schönborn the *walk-ins* were supplemented by a large proportion of pre-registered participants without any specific age selection. In contrast to these two survey locations, predefined groups were specifically included in Varaždin, including school classes and students, which explains the significantly lower average age there.

5.2.1.2. Gender

Question 2: What is your gender?

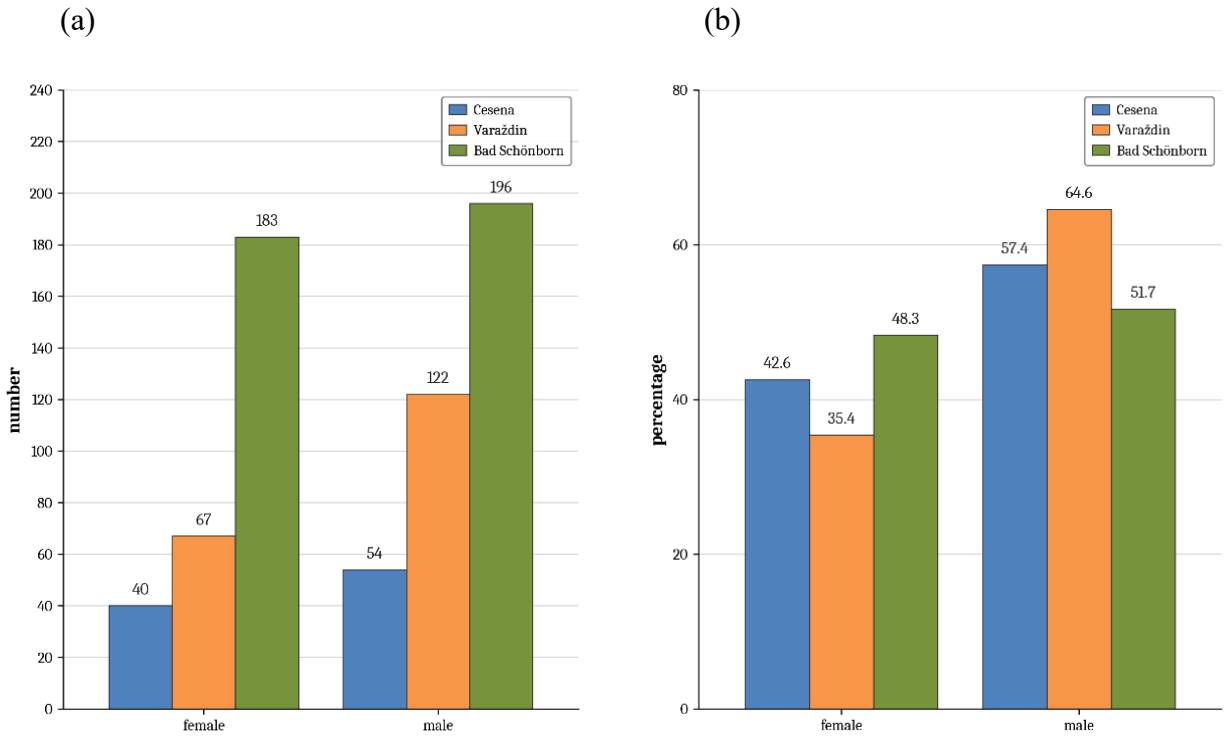


Fig.3 : Gender distribution by location, (a) absolute frequencies; (b) relative frequencies (%). (Cesena: n = 94, Varaždin: n = 189, Bad Schönborn: n = 379)

The gender distribution shows a higher proportion of male participants at all three study sites. This difference is most pronounced in Varaždin. There, 122 men (64.6%) and 67 women (35.4%) took part. In Cesena, too, the proportion of men, at 57.4% (54 people), is higher than that of women (40 people, 42.6%). In Bad Schönborn, by contrast, the distribution is almost even – 196 men (51.7%) compared with 183 women (48.3%). A striking feature of the entire sample is that none of the respondents identified as non-binary.

Across all three locations, the sample is therefore slightly skewed towards males, with the gender imbalance being most pronounced in Varaždin. This could also be attributed to the different recruitment methods: spontaneous participants and unsolicited pre-registrations lead to a more even gender distribution, as observed in Cesena and Bad Schönborn. In Varaždin, by contrast, pre-defined groups were invited, which apparently had a higher proportion of men. It is noteworthy that, despite the targeted group recruitment – which in principle would have allowed for a more balanced composition – a balanced gender ratio was not achieved. The slight over-representation of male respondents must be considered both when comparing the three locations and in the further interpretation of the entire sample.

5.2.1.3. Highest level of education

Question 3: Please indicate your highest level of education:

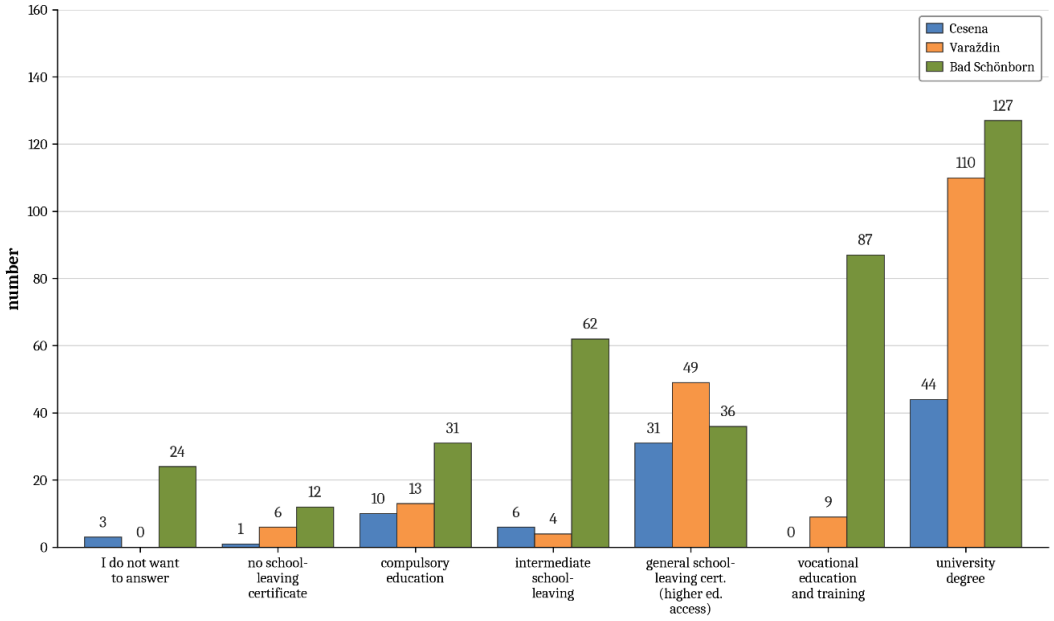


Fig.4 : Highest level of education by location, absolute frequencies (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=379)

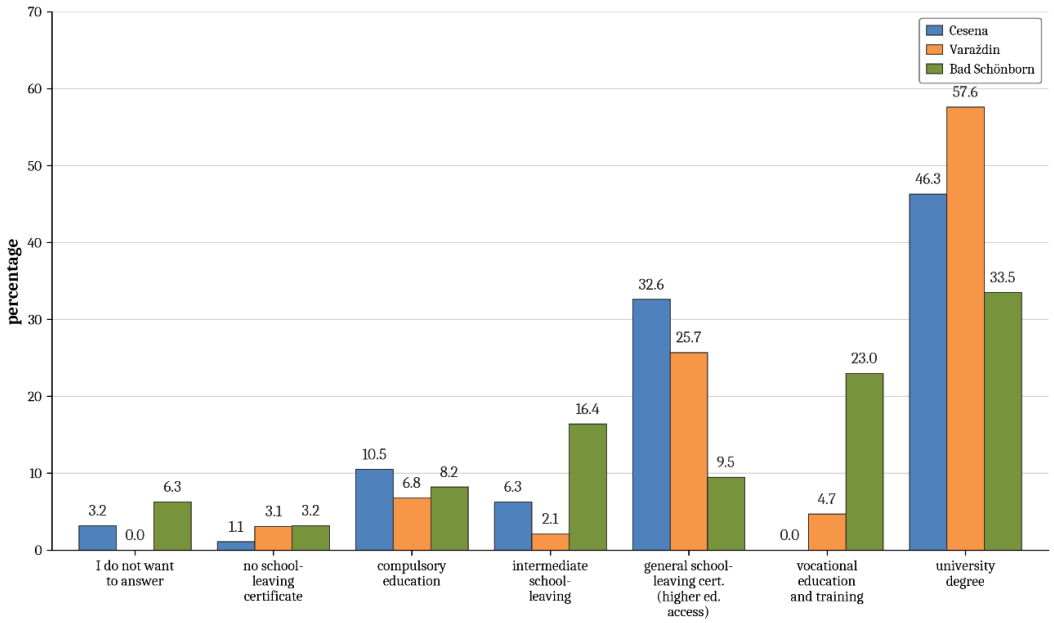


Fig.5 : Highest level of education by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=379)

When examining the highest level of education attained, an overall high level of education is evident in all three study locations. In Varaždin, the proportion of participants with a university degree is highest, at 110 people (57.6%), followed by 49 people (25.7%) with a general university entrance qualification. The same applies to Cesena, where a university degree is also the most

common qualification, with 44 people (46.3%), and where a general university entrance qualification is also strongly represented, with 31 people (32.6%). In Bad Schönborn, a university degree is the most common qualification, with 127 people (33.5%); however, vocational training is the second most common, with 87 people (23.0%).

In summary, it can be said that the sample exhibits a relatively high level of education – an effect that can occur with voluntary participation in academic studies and which should be considered when interpreting the results.

5.2.1.4. Employment situation

Question 4: Which employment situation describes your situation the best?

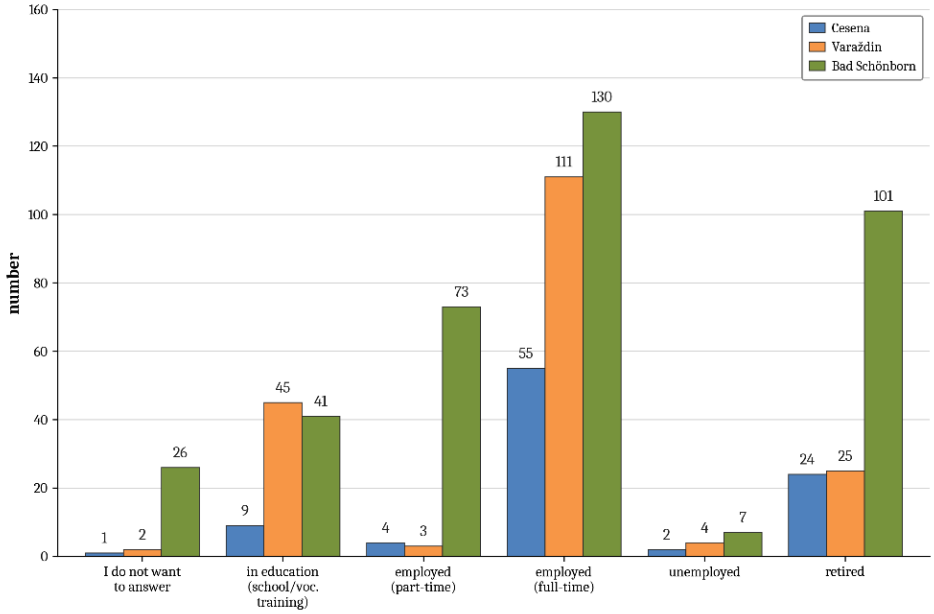


Fig.6 : Employment status by location, absolute frequencies (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=378)

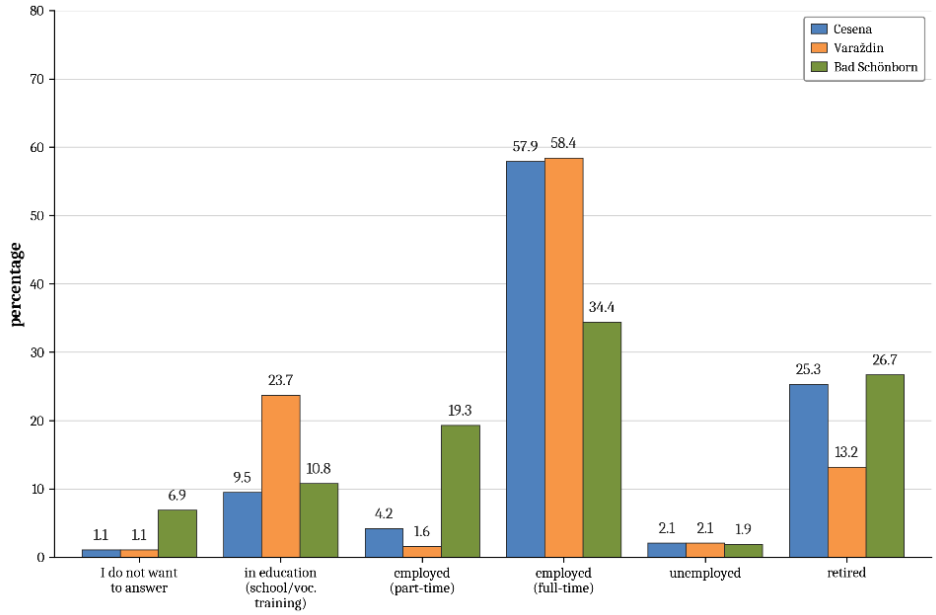


Fig.7 : Employment status by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=378)

The employment situation shows that in both Cesena and Varaždin, full-time employment clearly dominates, accounting for over half of the respondents. In Cesena, 55 people (57.9%) are in full-time employment, whilst a quarter of the participants state that they are retired (24 people, 25.3%). In Varaždin, the proportion of full-time workers is at a similar level, at 111 people (58.4%). What is striking there is the high proportion of people in education or training, at 45 people (23.7%), whilst the proportion of pensioners, at 13.2%, is significantly lower than in the other two survey locations. In Bad Schönborn, the distribution is broader: around one third of respondents are in full-time employment (130 people, 34.4%), whilst 101 people (26.7%) are retired and 73 people (19.3%) work part-time.

Overall, Cesena and Varaždin are characterized more by full-time employment, whilst the survey in Bad Schönborn shows a broader distribution with a significantly higher proportion of pensioners and part-time workers.

5.2.1.5. Mobility restrictions in everyday life

Question 5: Do you have one or more limitations that affect your mobility in everyday life?

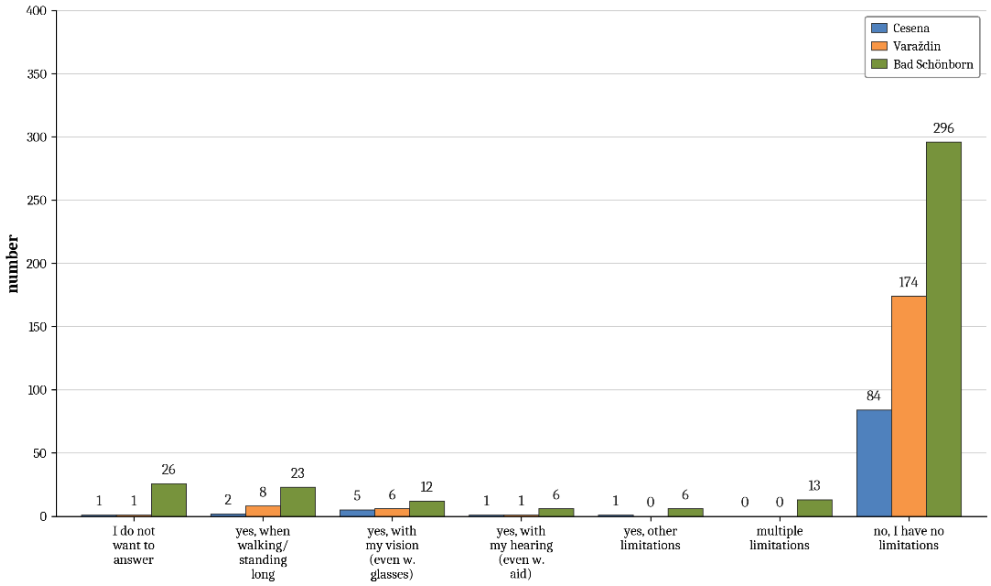


Fig.8 : Mobility restrictions in everyday life by location, absolute frequencies (Cesena: n=94, Varaždin: n=192, Bad Schönborn: n=382)

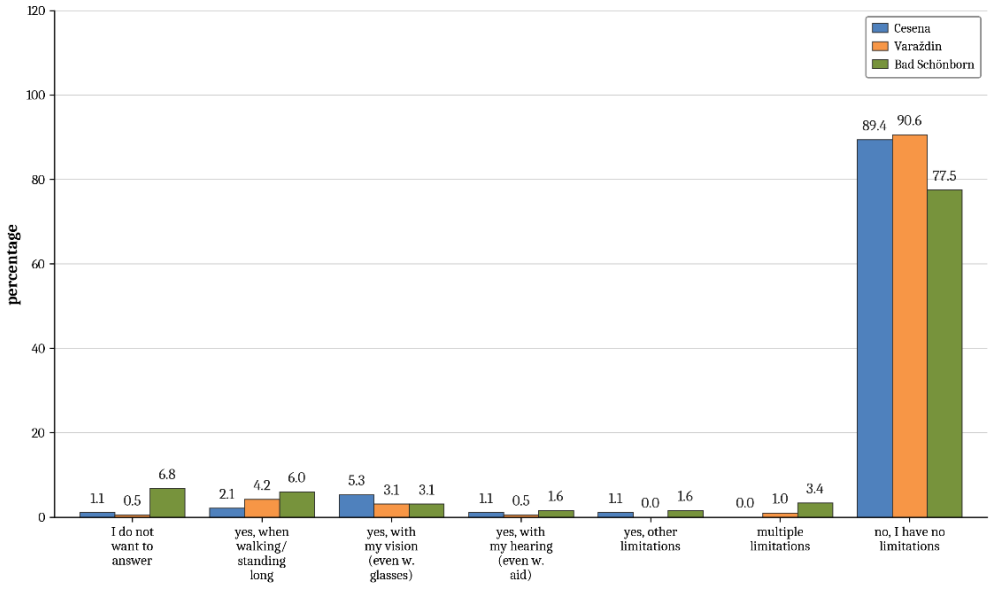


Fig.9 : Mobility limitations in everyday life by location, relative frequencies [%] (Cesena: n=94, Varaždin: n=192, Bad Schönborn: n=382)

Most of the participants state that they have no limitations affecting their mobility in everyday life. In Cesena, this applies to 84 people (89.4%). In Varaždin, the proportion is at a comparable level, at 174 people (90.6%). In Bad Schönborn, the group without mobility limitations is also by far the largest, comprising 296 people (77.5%); however, this proportion is lower than in the other two study locations. Consequently, individual limitations occur slightly more frequently in Bad Schönborn. For instance, 23 people (6.0%) report difficulties with walking or standing for

long periods. A further 13 (3.4%) mention multiple limitations. All in all, mobility limitations are relatively rare in all three samples but occur comparatively more frequently in Bad Schönborn.

5.2.1.6. Household size

Question 6: How many people (including yourself) live in your household?

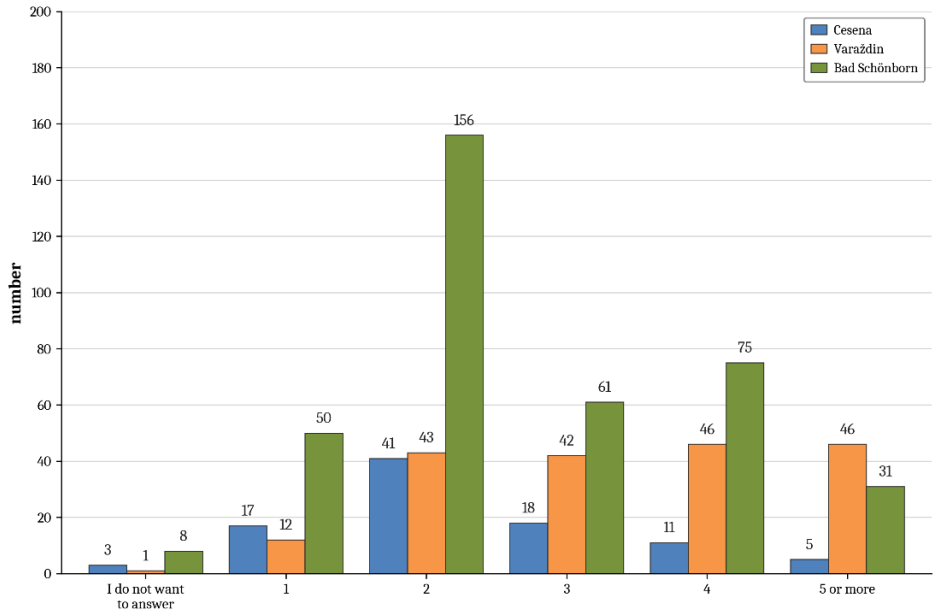


Fig.10 : Household size by location, absolute frequencies (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=381)

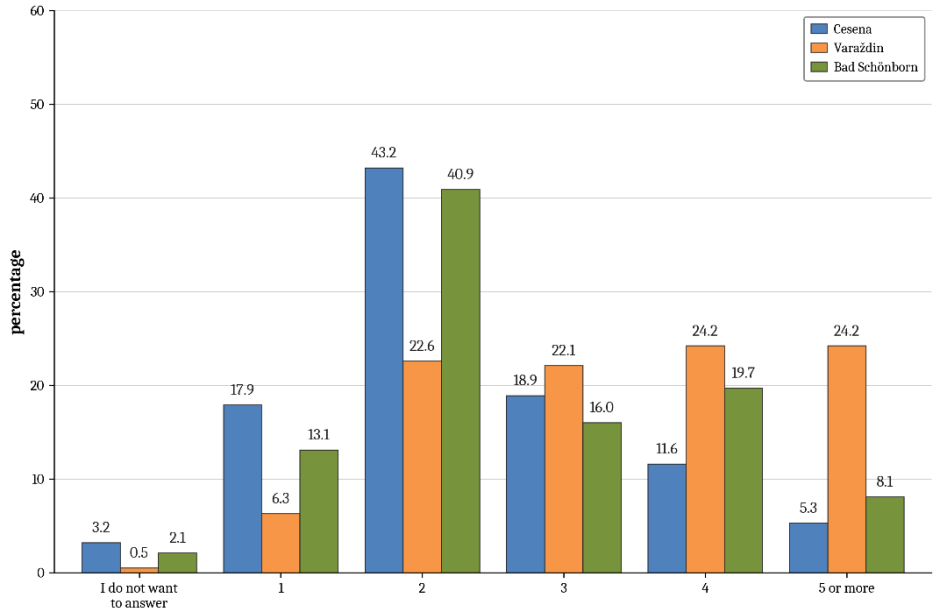


Fig.11 : Household size by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=381)

There are noticeable differences in household sizes between the locations. In Cesena, the largest proportion of respondents – 41 people (43.2%) – live in two-person households. In Bad Schönborn, too, two-person households are by far the most common household type, comprising 156 people (40.9%). In Varaždin, on the other hand, there is a greater proportion of larger

households. Four-person households and households with five or more people each comprise 46 people (24.2%). Three-person households, at 42 people (22.1%), are almost as common as the two-person households that dominate in Cesena and Bad Schönborn – where they number 43 people (22.6%).

Accordingly, Cesena and Bad Schönborn tend to be characterized by smaller household structures among the survey participants, whilst larger households are more common in Varaždin. If household sizes tend to decrease with age, these figures are consistent with the age distributions of the participants at the three study locations.

5.2.1.7. Driving licence ownership

Question 7: Which driving license(s) do you hold?

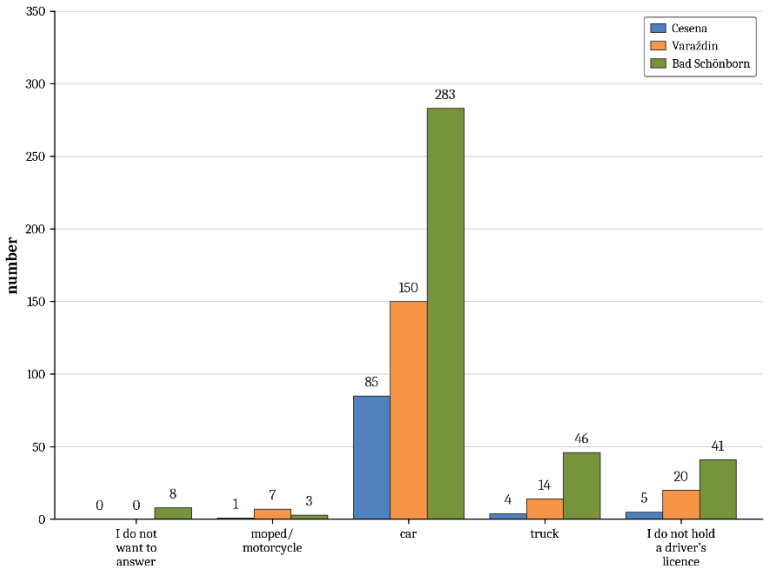


Fig.12 : Driving license ownership by location, absolute frequencies (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=381)

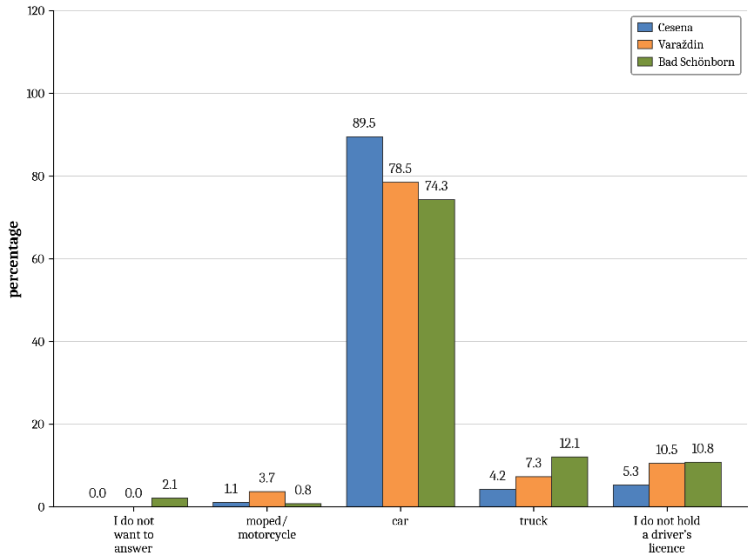


Fig.13 : Driving license ownership by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=381)

Among all respondents, the vast majority hold a driving license. In Cesena, 85 people (89.5%) hold a car driving license; in Varaždin, this figure stands at 150 people (78.9%); and in Bad Schönborn, at 283 people (74.3%). By contrast, other categories of driving license, such as those for motorbikes, mopeds or lorries, are significantly less common. In Bad Schönborn, the proportion of lorry driving licenses is the highest when comparing the three study locations (46 people, 12.1%).

Overall, it is evident that most respondents have driving experience. This is relevant to the assessment of autonomous vehicles in that it enables participants to make a direct comparison with conventional driving.

5.2.1.8. Availability of a car in the household

Question 8: Do you have access to a car belonging to your household for your own use?

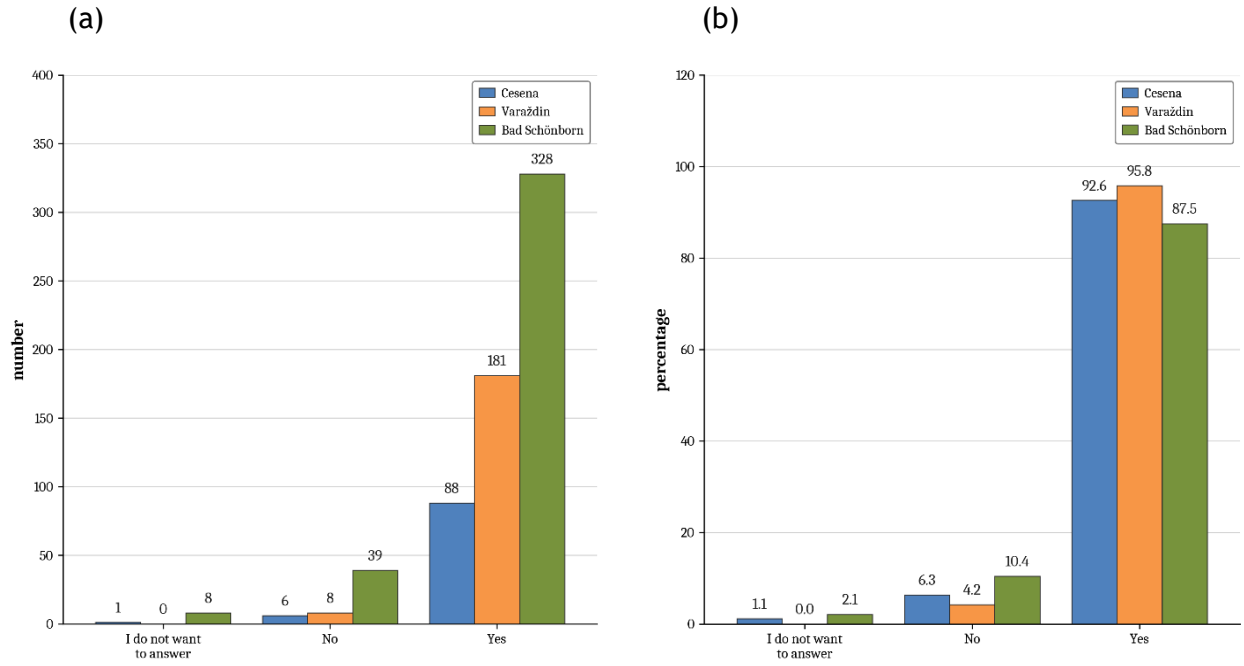


Fig.14 : Car availability in households by location, (a) absolute frequencies; (b) relative frequencies (%). (Cesena: n=95, Varaždin: n=189, Bad Schönborn: n=375)

The availability of a household car is very high amongst respondents across all locations. In Varaždin, 181 people (95.8%) state that they have access to a household car. In Cesena, this proportion is similarly high at 88 people (92.6%), as it is in Bad Schönborn, where 328 people (87.5%) have access to a car. By contrast, a lack of access to a car is rarely mentioned. In Cesena, this applies to 6 people (6.3%), in Varaždin to 8 people (4.2%) and in Bad Schönborn to 39 people (10.4%). Overall, the sample is therefore strongly car-oriented, with Varaždin having the highest proportion of people with access to a car.

5.2.1.9. Neighbourhood

Question 9: How would you assess the location of your flat/house?

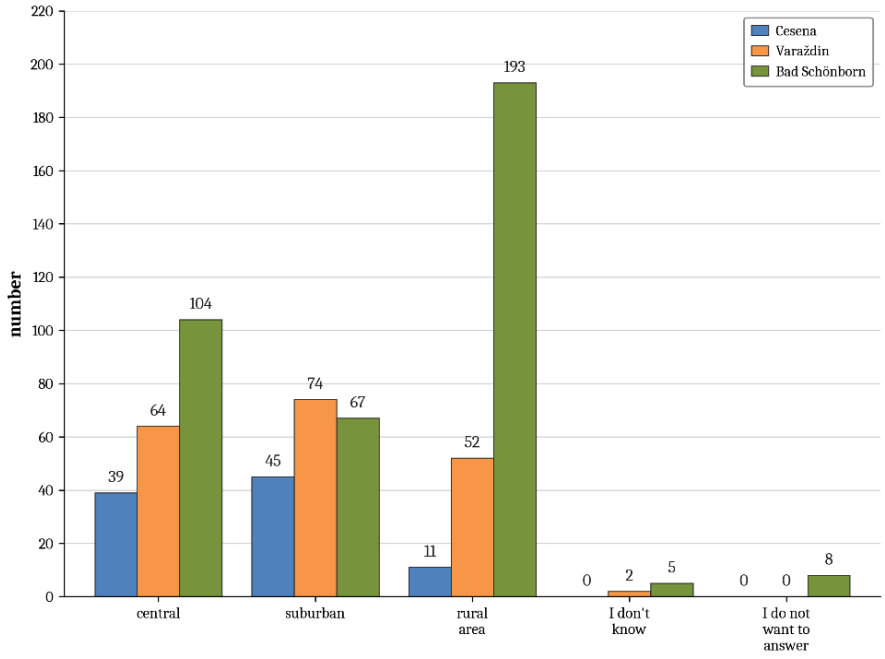


Fig.15 : Residential location by site, absolute frequencies (Cesena: n=95, Varaždin: n=192, Bad Schönborn: n=377)

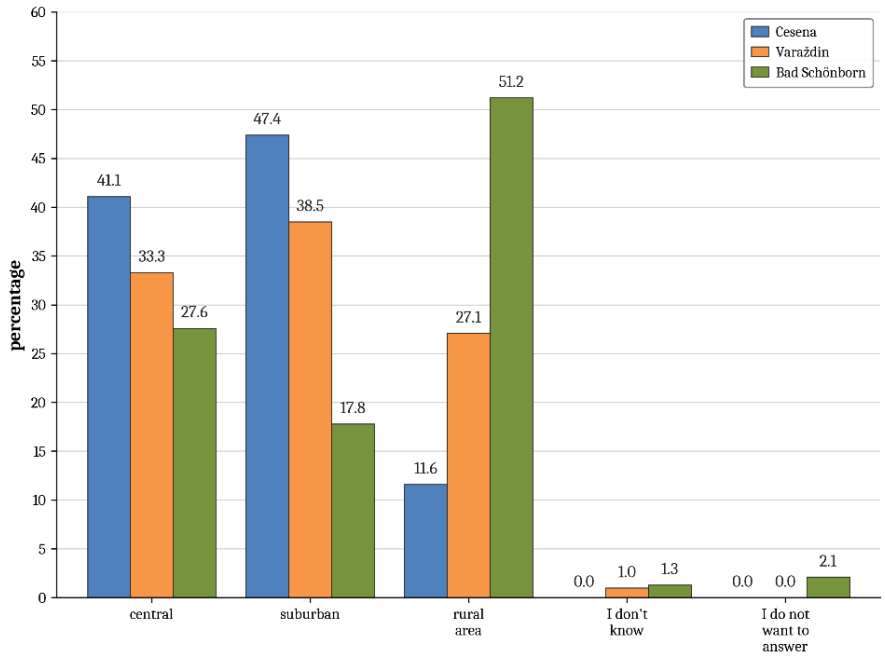


Fig.16 : Residential location by area, relative frequencies [%] (Cesena: n=95, Varaždin: n=192, Bad Schönborn: n=377)

About the participants' place of residence, a clear difference can be observed between the three groups: in Cesena, almost half of the participants state that they live on the outskirts of the town (45 people, 47.4%). Almost as many participants state that they live in the town center

(39 people, 41.1%). Only 11 people (11.6%) live in rural areas, which sets Cesena apart from the other two locations. Varaždin shows the most balanced distribution of the three locations: 74 people (38.5%) live in the suburbs, 64 people (33.3%) in the city center, and 52 people (27.1%) in rural areas. With more than half of the people in Bad Schönborn living in rural areas (193 people, 51.2%), this is clearly the dominant residential location there. Of those living on the outskirts, 104 people (27.6%) reported living there, whilst 67 people (17.8%) reported living in central areas.

These different residential areas are significant in terms of attitudes towards autonomous vehicles, as the mobility behavior of people in rural areas differs significantly from that in inner-city areas.

5.2.1.10. Previous experience with autonomous vehicles

Question 10: Have you ever travelled in an autonomous vehicle (e.g. an autonomous shuttle, robot taxi, autonomous underground train, tram or similar)?

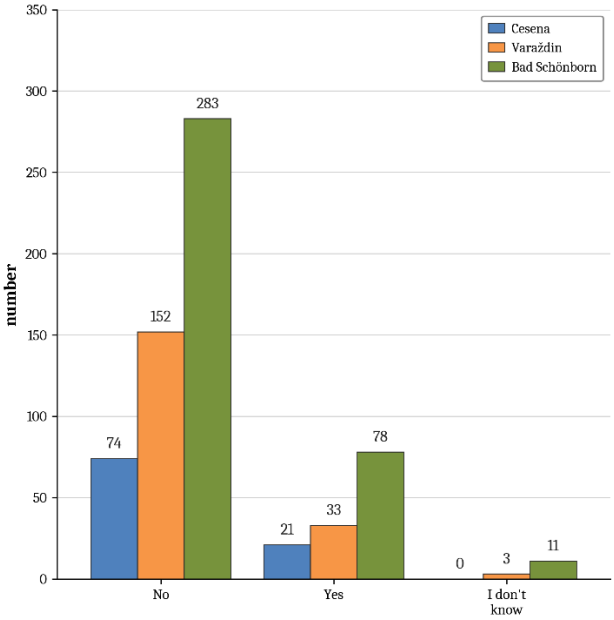


Fig.17 : Previous experience with autonomous vehicles by location, absolute frequencies (Cesena: n=95, Varaždin: n=188, Bad Schönborn: n=372)

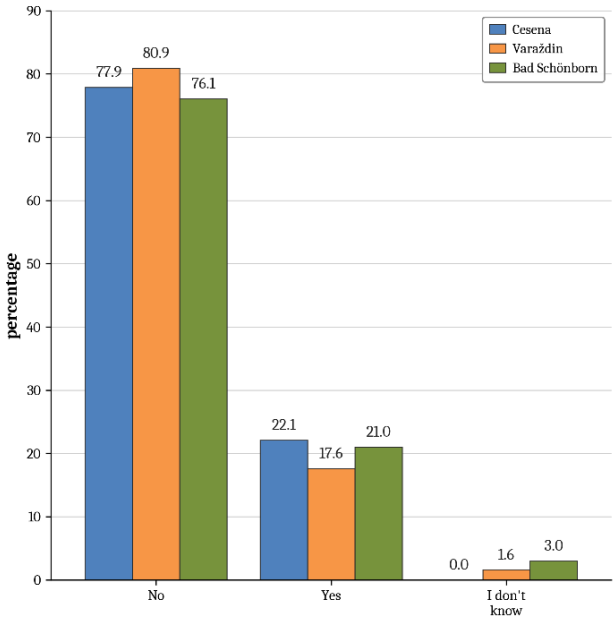


Fig.18 : Previous experience with autonomous vehicles by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=188, Bad Schönborn: n=372)

In all three study locations, the vast majority stated that they had no previous experience of autonomous vehicles prior to the test drive. In Cesena, 74 people (77.9%) stated that they had not previously travelled in an autonomous vehicle. In Varaždin, this applies to 152 people (80.9%) and in Bad Schönborn to 283 people (76.1%). Across all samples, just under one in five people reported having had previous experience with autonomous vehicles. The test drive therefore represents a new experience for most participants, which allows the subsequent analysis to focus on acceptance among first-time users.

5.2.1.11. Financial situation

Question 11: Which of the following statements describes your financial situation the best?

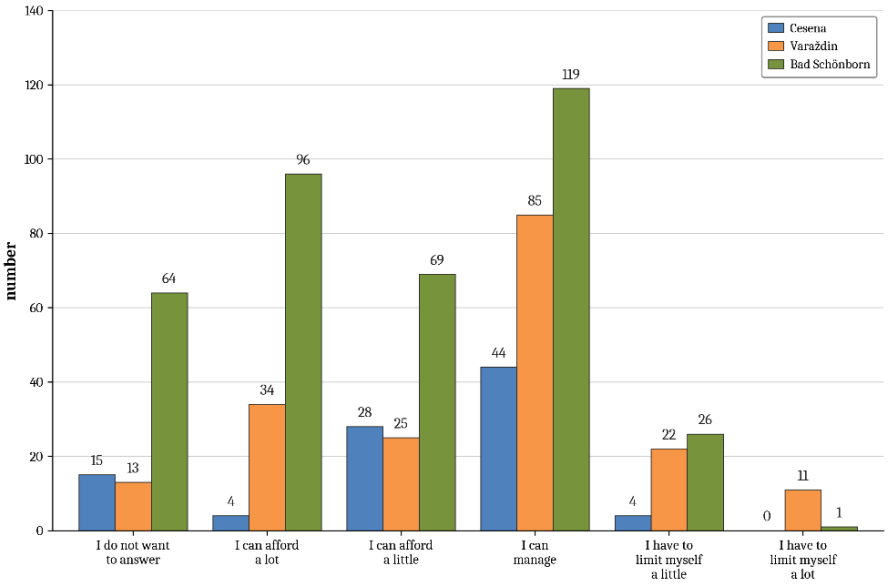


Fig.19 : Financial situation by location, absolute frequencies (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=375)

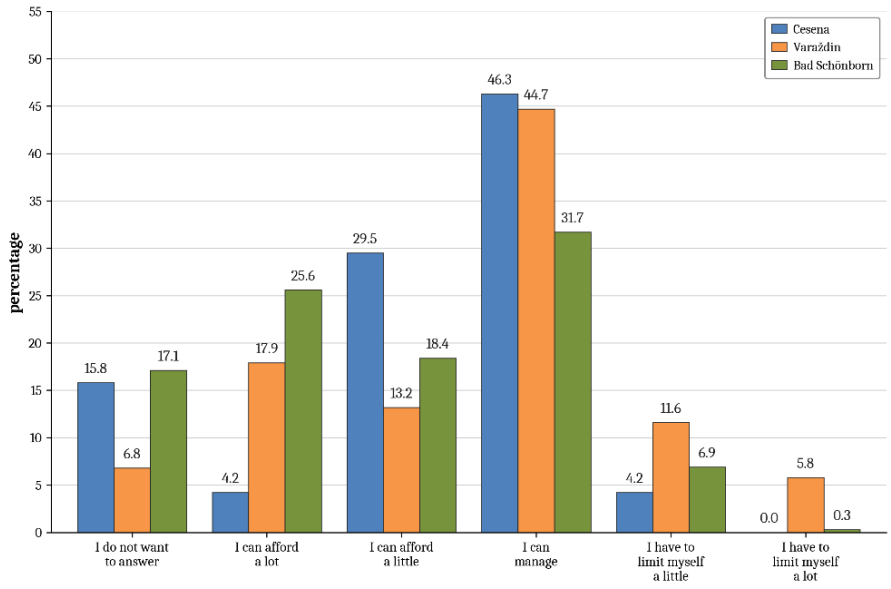


Fig.20 : Financial situation by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=375)

Assessments of the financial situation are largely similar across all three study locations. In Cesena, the largest group, comprising 44 people (46.3%), states that they are managing financially. A further 28 people (29.5%) consider that they can afford a little. In Varaždin, too, the 'I'm managing' category is the most common, with 85 people (44.7%). In addition, 34 people (17.9%) state that they can afford quite a lot. In Bad Schönborn, the 'I'm managing' category is also the most common, with 119 people (31.7%). What is also striking here is the high proportion

of people who can afford quite a lot, at 96 people (25.6%). Financial constraints are mentioned by only a few people in all three locations.

In summary, the distribution suggests that most respondents assess their financial situation as adequate to comfortable. The relatively high proportion of 'No answer' responses compared with other questions (Cesena: 15 people, 15.8% – Bad Schönborn: 64 people, 16.8%) could suggest that some respondents find questions about their financial situation uncomfortable and perhaps too personal.

5.2.1.12. Use of transport

Question 12: Please indicate how often you usually use the following means of transport.

For transport use, rather than absolute and relative frequencies in bar charts, mean values for frequency of use are presented in the form of a line chart (scale 1–5; 1 = *(almost) never*, 5 = *(almost) daily*). The scale is treated as quasi-metric (see Chapter 5.1), with higher values corresponding to more frequent use.

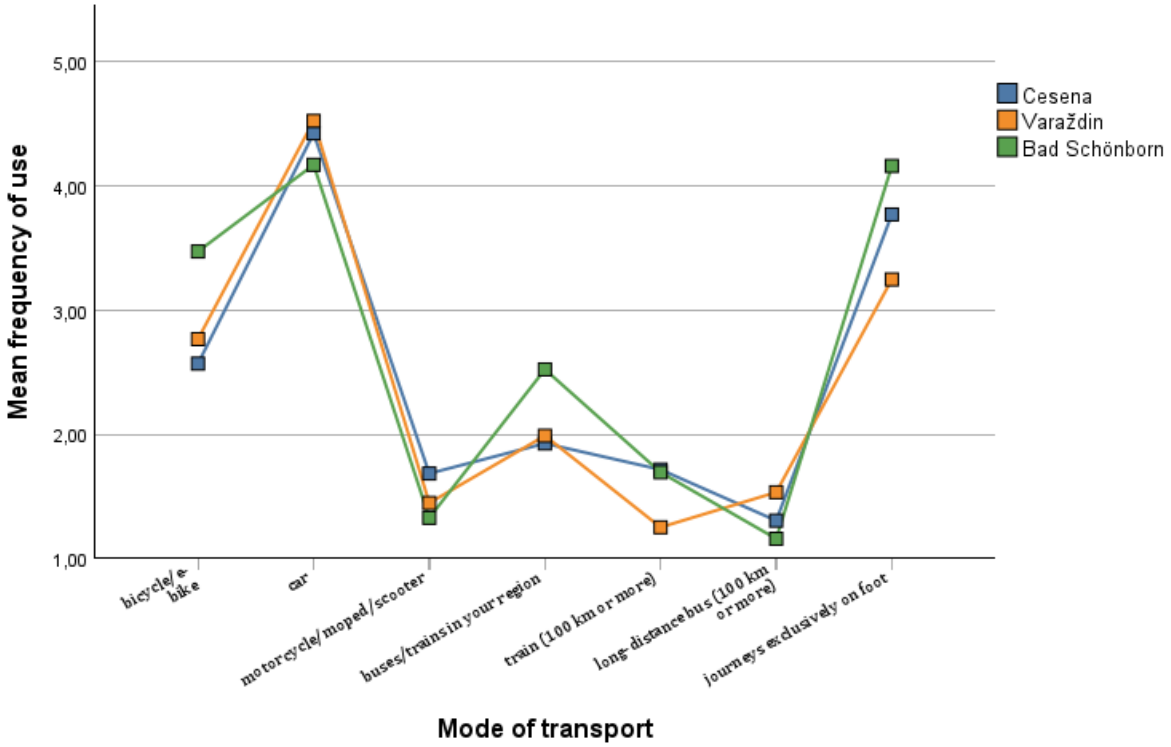


Fig.21 : Average frequency of use of modes of transport by location (Cesena: n=95, Varaždin: n=188, Bad Schönborn: n=357)

Table 1: Average frequency of use of modes of transport by location

	Cesena			Varaždin			Bad Schönborn			Total		
Mode of transport	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**	**n**
Bicycle / E-bike	2.57	1.58	95	2.77	1.39	179	3.47	1.35	340	3.13	1.45	614
Car	4.42	1.07	95	4.52	1.01	188	4.16	1.11	357	4.31	1.09	640
Motorcycle / Moped / Scooter	1.68	1.29	95	1.45	0.92	170	1.33	0.86	290	1.43	0.97	555
Buses / trams in our own area	1.93	1.26	95	1.99	1.16	168	2.52	1.33	320	2.27	1.30	583
Train for longer rides (100 km+)	1.72	0.94	95	1.25	0.59	175	1.69	0.77	320	1.57	0.78	590
Long-distance coach (100 km+)	1.31	0.76	95	1.53	0.74	180	1.16	0.43	301	1.30	0.62	576
Rides made exclusively on foot	3.77	1.49	95	3.25	1.51	175	4.16	1.16	340	3.84	1.38	610

Note: Scale 1–5 (1 = *almost never*, 2 = *less than once a month*, 3 = *1–3 days per month*, 4 = *1–3 days per week*, 5 = *almost daily*). As the time intervals between the categories are not uniform, the scale is classified as ordinal; nevertheless, *the mean (M)* and *standard deviation (SD)* are also reported for descriptive comparisons between sites. Responses of –9 (*missing*) were excluded from the calculation and are shown in full in the frequency tables in the appendix (Tables A12a–A12g). *n* = number of valid responses per mode of transport and location.

By a wide margin, the car is the most frequently used mode of transport at all three survey locations. Across all locations, the mean values are high (*M* = 4.42 in Cesena, *M* = 4.52 in Varaždin and *M* = 4.17 in Bad Schönborn) and reflect a strong car-oriented mindset within the sample. This finding is consistent with both the high rate of driving license ownership (see Q7) and the almost universal availability of cars in the households of the sample (see Q8).

In addition, rides made exclusively on foot achieve high mean values, with Bad Schönborn recording the highest figure (*M* = 4.16). For the most rural of the three locations (see Q9), this appears to be a rather atypical pattern of mobility behavior, though it is likely attributable to short everyday rides in the immediate neighborhood. Cesena (*M* = 3.77) and Varaždin (*M* = 3.25) lag slightly behind in terms of the proportion of rides made on foot. Cycling is also most common in Bad Schönborn (*M* = 3.47), whereas Cesena (*M* = 2.57) and Varaždin (*M* = 2.77) show significantly lower figures.

It is striking that public transport is used only to a moderate extent, with Bad Schönborn (*M* = 2.52) showing slightly higher figures than Cesena (*M* = 1.93) and Varaždin (*M* = 1.99). Depending on the location, the lowest usage figures (*M* = 1.20 – 1.72) are recorded for buses and trains on longer rides (100 km+) as well as for motorbikes, mopeds and scooters – across all locations, these are rarely mentioned by respondents as a means of transport.

The results paint a clear picture of mobility patterns: the respondents' everyday mobility is characterized everywhere by a heavy reliance on private cars and walking for shorter distances. These are supplemented by cycling and, to some extent, by local buses and trains. Long-distance public transport and motorized two-wheelers play a very minor role – a context that is relevant to the assessment and acceptance of autonomous shuttles as a complementary mobility option. Complete frequency tables are set out in the appendix (Tables A12a–A12g, only in the German version of this document).

5.2.1.13. Conclusion – Sociodemographic characteristics and mobility behaviour

The socio-demographic characteristics and mobility patterns of the sample reveal a clear profile, which should be considered when interpreting the following results. The survey shows that, despite the groups having been recruited in part through targeted methods, men are over-represented in the sample. The level of education is predominantly high across all locations, which is typical of voluntary participation in scientific studies and must be considered when generalizing the results. Furthermore, the age distribution varies considerably between the locations – whilst Varaždin is characterized by a high proportion of younger participants, Cesena and Bad Schönborn show a broader distribution with a greater proportion in the age groups aged 45 and over. About mobility behavior, it can be said that the sample is heavily car-oriented – high rates of driving license ownership and almost universal access to cars characterize all three survey locations equally. This orientation is also evident from the respondents' choice of transport, with the car being cited as the most common mode of transport. The locations also differ in terms of residential areas: Cesena is predominantly urban, Varaždin shows the most balanced distribution, and Bad Schönborn is dominated by rural residential areas – a context that is relevant for the assessment of autonomous shuttles as a complementary mobility option. It is also striking that most respondents had no previous experience with autonomous vehicles prior to the test drive – a circumstance that allows for a focus on the attitudes and experiences of first-time users and provides the framework for the following chapters as well as further research.

5.2.2. Attitudes and prior experiences before the test drive

The following questions (Q13–Q18) on attitudes and prior experiences were collected using a 7-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5 = somewhat agree, 6 = agree, 7 = strongly agree). In addition, option 0 = 'don't know' was available; this was excluded from the calculation of the mean (M) and standard deviation (SD). The table below provides an overview of M, SD and n for all six items, broken down by study site; complete descriptive statistics (median, min, max) can be found in the Appendix (Table A27). These statistics are referred to again in the descriptive texts below the respective graphs.

Table 2: Descriptive statistics for Likert scale items F13-F18 by location

	Cesena			Varaždin			Bad Schönborn			Total		
Question	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**	**n**
Q13: Familiarity with autonomous driving	4.76	1.86	83	4.69	1.88	174	4.26	1.96	328	4.46	1.94	585
Q14: Attitude towards new technologies	6.13	1.16	93	5.73	1.43	189	5.71	1.44	373	5.77	1.41	655
Q15: Safety concerns regarding AV	4.23	1.72	79	4.07	1.62	180	3.36	1.82	362	3.68	1.79	621
Q16: Data protection concerns	4.18	2.02	73	3.94	1.78	174	3.24	1.92	328	3.57	1.92	575
Q17: Welcome to autonomous shuttles	5.80	1.43	93	5.16	1.61	187	5.71	1.54	369	5.56	1.57	649
Q18: Contribution to sustainable mobility	5.88	1.58	93	5.35	1.49	189	5.82	1.48	363	5.69	1.51	645

Note: Likert scale 1–7 (1 = *strongly disagree*, 7 = *strongly agree*). Responses of –8 (*don't know*) and –9 (*missing*) were excluded from the calculation.

5.2.2.1. Familiarity with the concept of autonomous driving

Question 13: I am familiar with the concept of autonomous driving.

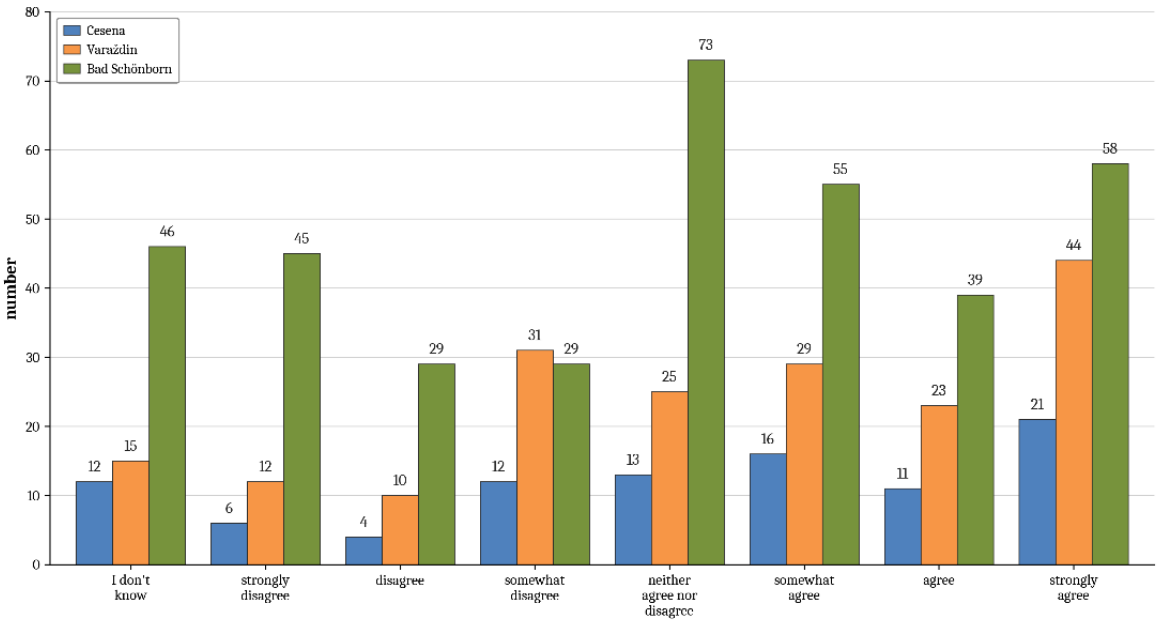


Fig.22 : Familiarity with the concept of autonomous driving by location, absolute frequencies (Cesena: n=95, Varaždin: n=189, Bad Schönborn: n=374)

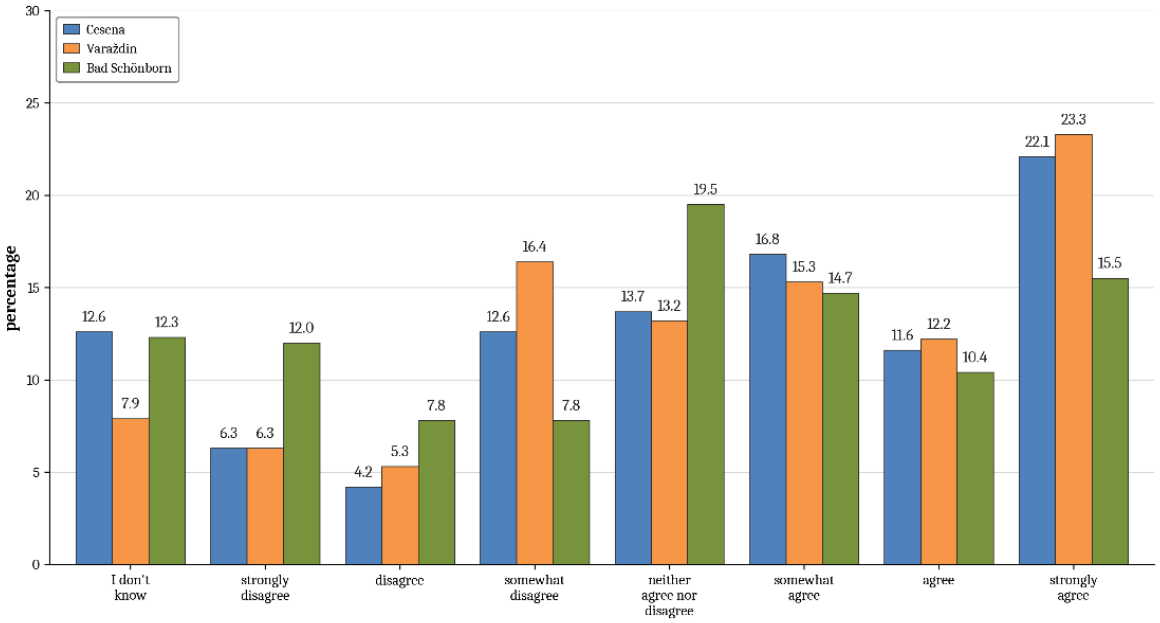


Fig.23 : Familiarity with the concept of autonomous driving by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=189, Bad Schönborn: n=374)

Familiarity with the concept of autonomous driving varies between locations, and the responses span the entire scale, although a slight tendency towards higher levels of agreement can be seen in Cesena and Varaždin. In Cesena, the highest level of agreement – 21 people (22.1%) – is the most common individual category, whilst in Varaždin the figure is 44 people (23.3%). At the same time, the remaining responses at both sites are widely distributed across the various response options. On average, Cesena (*M* = 4.76; *SD* = 1.86) and Varaždin (*M* = 4.69; *SD* = 1.88) lie slightly above the midpoint of the scale at 4.00, which corresponds to a generally positive assessment. Bad Schönborn falls just below this at *M* = 4.26 (*SD* = 1.96), although the high standard deviation at all three locations reflects the broad distribution of responses. In Bad Schönborn, the neutral category was most frequently selected by 73 (19.5%). There, 58 people (15.5%) reported a high level of familiarity, whilst 45 people (12.0%) disagreed completely. In all three study locations, there is also a significant proportion of participants who have little or no understanding of the concept. The proportion of *'don't* know' responses – 12.6% in Cesena and 12.0% in Bad Schönborn – is high compared with other questions, suggesting that some of the respondents were perhaps unable or unwilling to assess the concept. Despite a slight trend, it is therefore not possible to speak of a uniformly high level of familiarity.

5.2.2.2. Attitudes towards new technologies

Question 14: My attitude towards new technologies is generally positive.

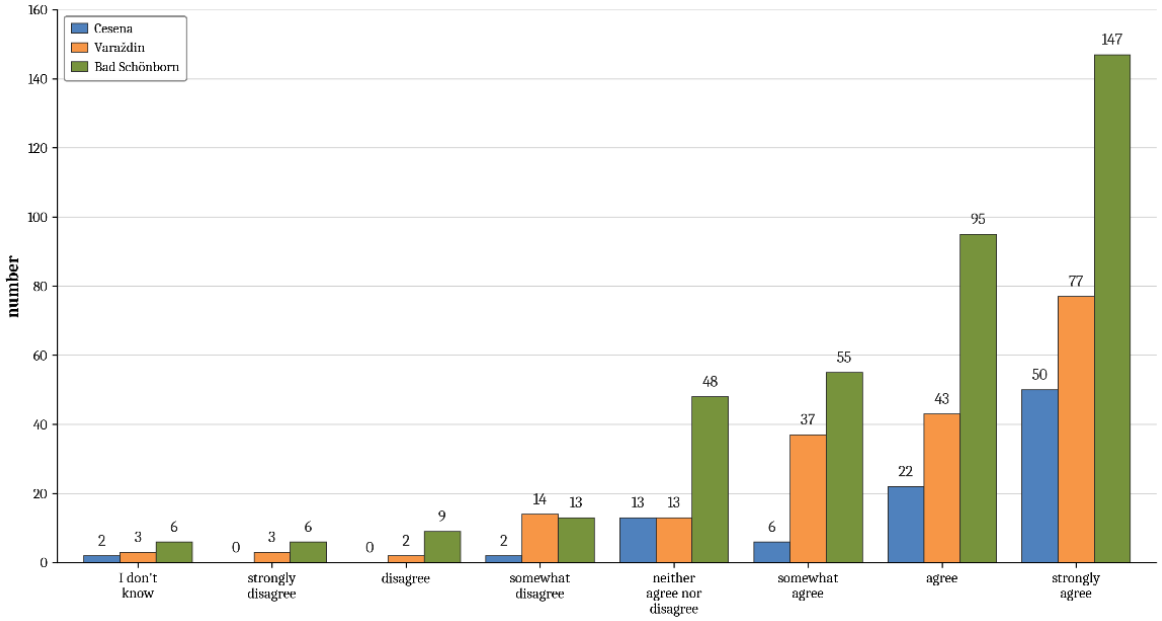


Fig.24 : Attitudes towards new technologies by location, absolute frequencies (Cesena: n=95, Varaždin: n=192, Bad Schönborn: n=379)

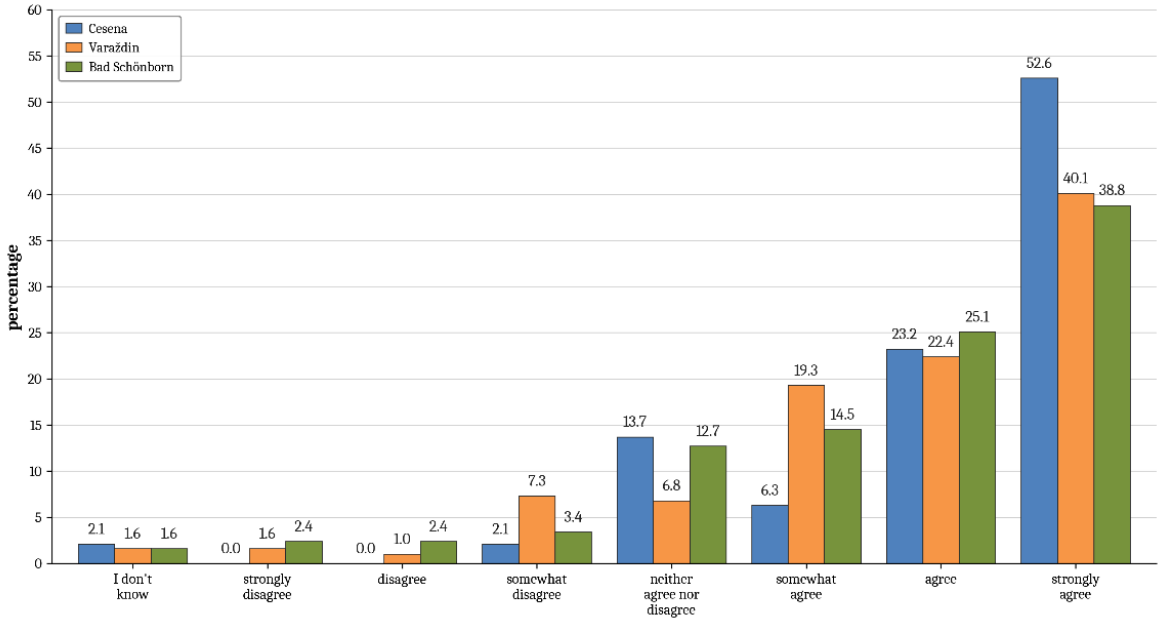


Fig.25 : Attitudes towards new technologies by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=192, Bad Schönborn: n=379)

A clear picture of the prevailing sentiment is emerging here: attitudes towards new technologies are predominantly positive across the entire sample. This is also reflected in the statistical measures: Cesena has the highest mean value at *M* = 6.13 (*SD* = 1.16), followed by Varaždin (*M* =

5.73; *SD* = 1.43) and Bad Schönborn (*M* = 5.71; *SD* = 1.44). All three locations are thus well above the midpoint of the scale – the low standard deviation in Cesena suggests a particularly homogeneous assessment. There, 50 people (52.6%) fully agree with this statement; in Varaždin, this figure stands at 77 people (40.1%); and in Bad Schönborn, at 147 people (38.8%). Furthermore, in all three study locations, a high proportion of respondents fall into the *'agree'* and *'somewhat agree'* categories. Negative response categories, by contrast, are rarely selected. Overall, the results suggest a sample that is generally open to technology.

5.2.2.3. Safety concerns regarding autonomous vehicles

Question 15: I have concerns regarding the safety of an autonomous vehicle.

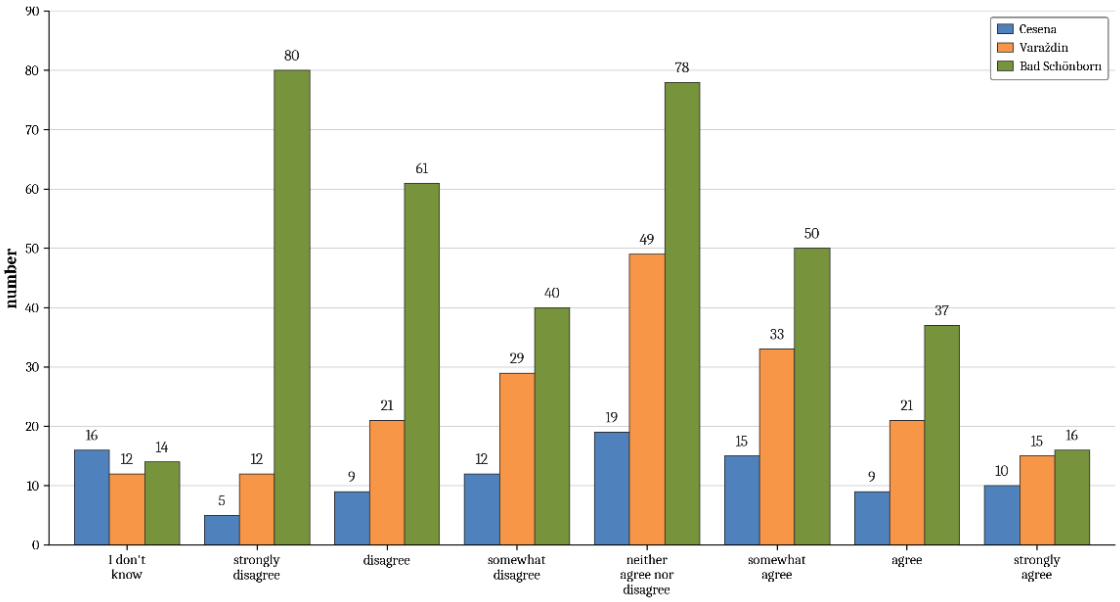


Fig.26 : Safety concerns regarding autonomous vehicles by location, absolute frequencies (Cesena: n=95, Varaždin: n=192, Bad Schönborn: n=376)

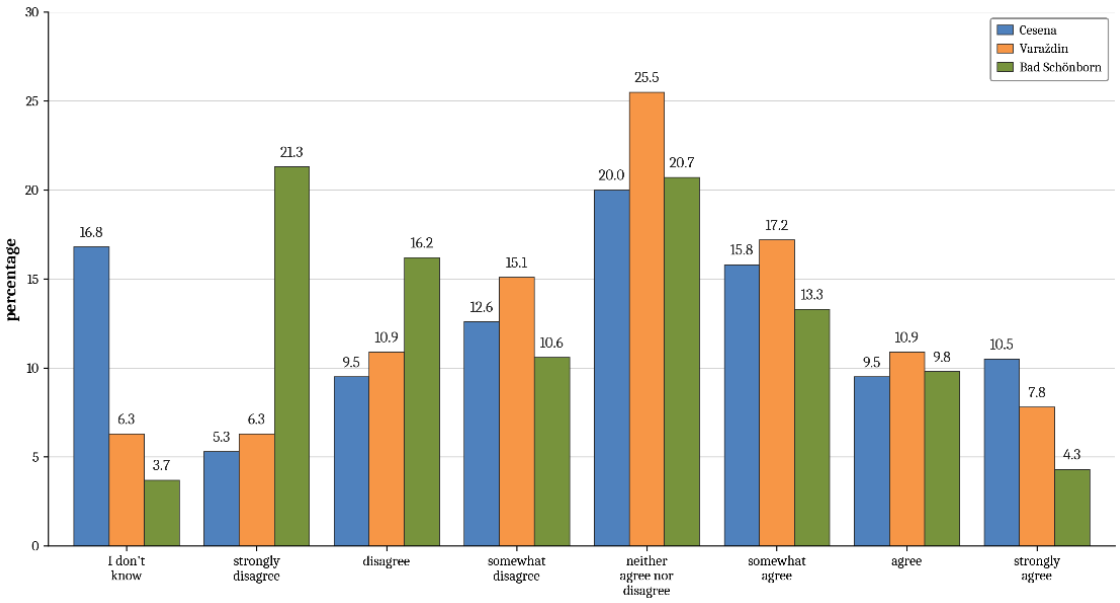


Fig.27 : Safety concerns regarding autonomous vehicles by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=192, Bad Schönborn: n=376)

The picture regarding safety concerns is mixed. In Cesena, the 'neutral' response is the most common, with 19 people (20.0%); at the same time, 16 people (16.8%) state that they are un e to assess the question. In Varaždin, there is a symmetrical distribution centered on the neutral midpoint; the neutral category is the most common response, with 49 people (25.5%). On average, respondents in Cesena (*M* = 4.23) and Varaždin (*M* = 4.07) show a slight tendency towards concern, though no clear majority shares this view. Bad Schönborn, with *M* = 3.36, lies below the midpoint of the scale, which is consistent with the highest proportion of strong disagreement recorded there. It is striking, for instance, that in Bad Schönborn, 80 people (21.3%) completely disagree with the statement and thus do not express any pronounced safety concerns. Nevertheless, categories indicating agreement – that is, confirmation of safety concerns – are present in all three locations surveyed.

However, safety concerns do not clearly dominate; rather, there is a broad distribution between agreement, disagreement and neutral assessments, suggesting that many respondents do not take a clear stance. This is plausible for a topic such as vehicle safety, as personal risk perception depends heavily on previous experience and the level of information available. This applies particularly to a sample such as the present one, which includes a high proportion of first-time users who lack concrete experience. The extent to which safety concerns are linked to other items, such as previous experience with autonomous vehicles (Q10) or familiarity with the concept of autonomous driving (Q13), cannot be assessed on the basis of the descriptive analysis alone and requires further inferential statistical analysis.

5.2.2.4. Data protection concerns

Question 16: I am worried about data protection when using such services.

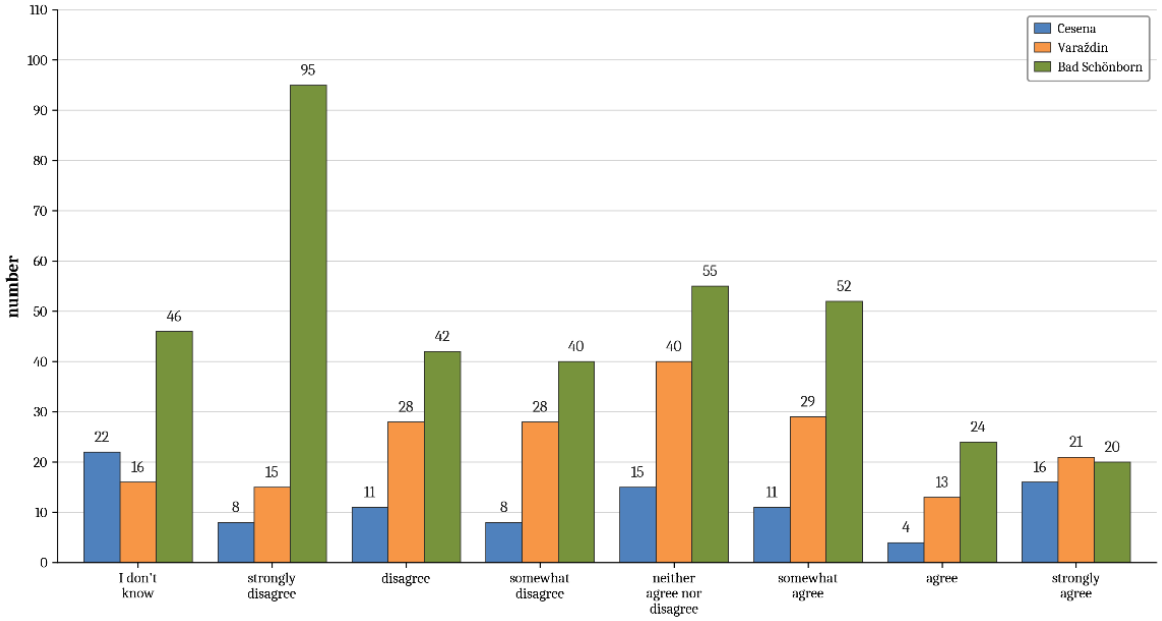


Fig.28 : Data protection concerns by location, absolute frequencies (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=374)

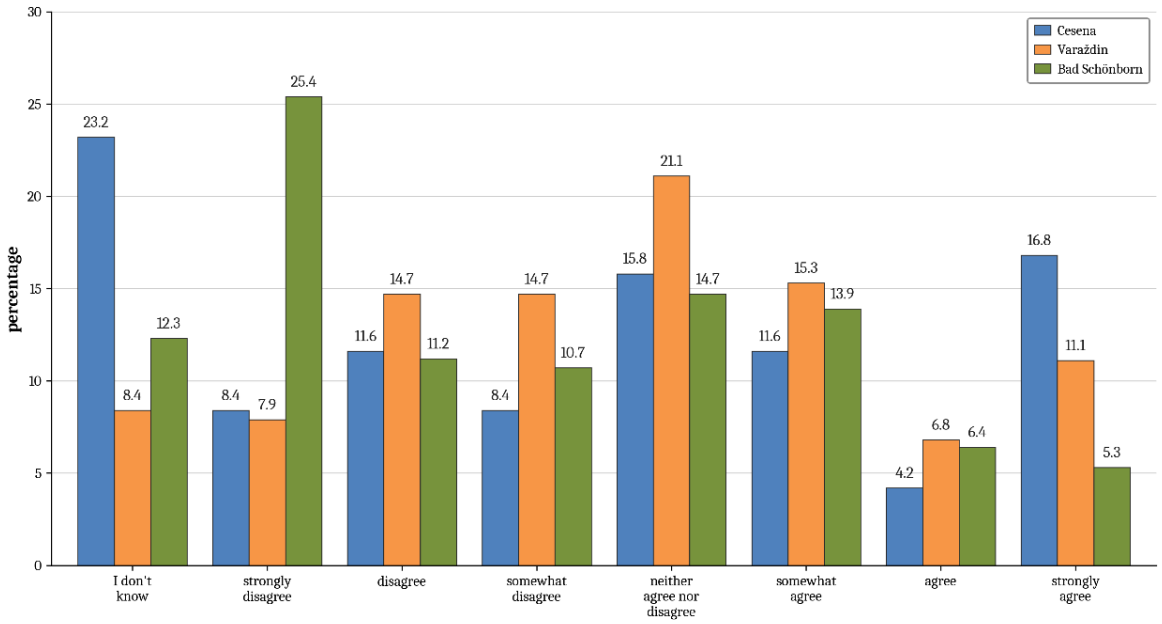


Fig.29 : Data protection concerns by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=374)

The picture regarding data protection concerns is very mixed. What is striking, first, is the high proportion of 'Don't know' responses, particularly in Cesena, where 22 people (23.2%) gave this answer – a figure significantly higher than for the other questions. This suggests that data protection issues are more difficult for some of the respondents to grasp. In Bad Schönborn, by

contrast, a quarter of respondents (95 people, 25.4%) stated that they did not agree with the statement at all, meaning they had no data protection concerns whatsoever — a significantly higher proportion than in Cesena (8 people, 8.4%) and Varaždin (15 people, 7.9%). Cesena shows the highest proportion of strong agreement, i.e. pronounced data protection concerns, with 16 people (16.8%). Concerns are therefore highly location-dependent and less uniform than for other items – there is a broad distribution across the entire scale. The mean scores reflect this ambivalence: Cesena (*M* = 4.18) and Varaždin (*M* = 3.94) are close to the midpoint of the scale, whilst Bad Schönborn lies below it at *M* = 3.24. What is striking are the consistently high standard deviations (*SD* between 1.78 and 2.02), which show that attitudes towards data protection issues are particularly heterogeneous at all three locations – more so than for most other questions.

5.2.2.5. Support for autonomous shuttles in one's own local area

Question 17: I would welcome the use of autonomous shuttles in my area.

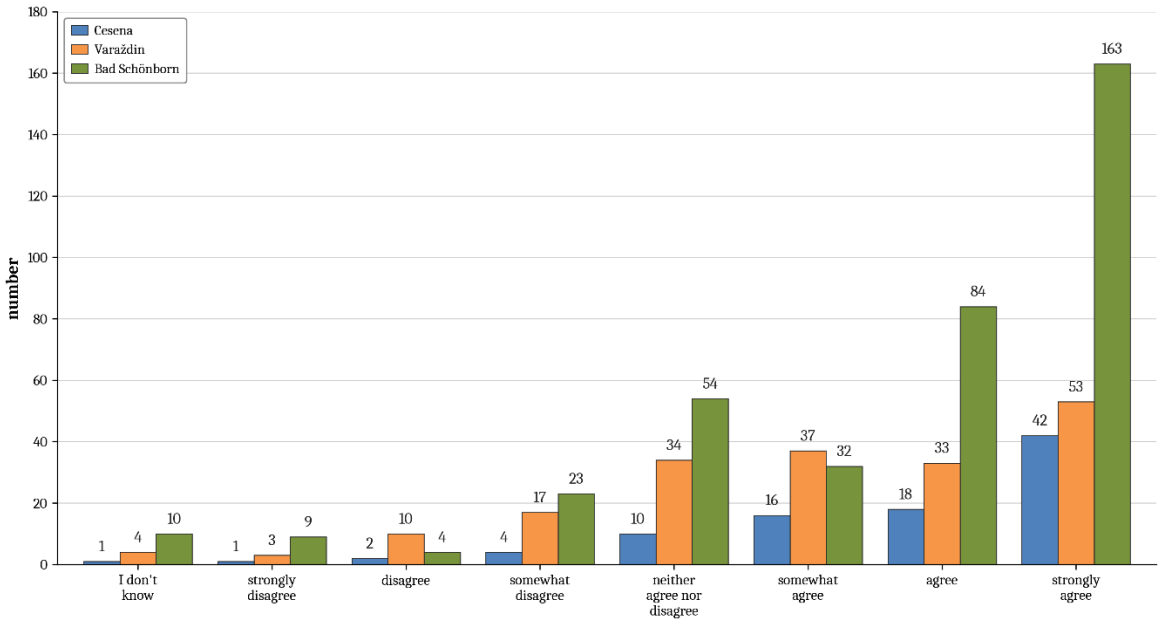


Fig.30 : Attitudes towards autonomous shuttles in one's own neighbourhood by location, absolute frequencies (Cesena: n=94, Varaždin: n=191, Bad Schönborn: n=379)

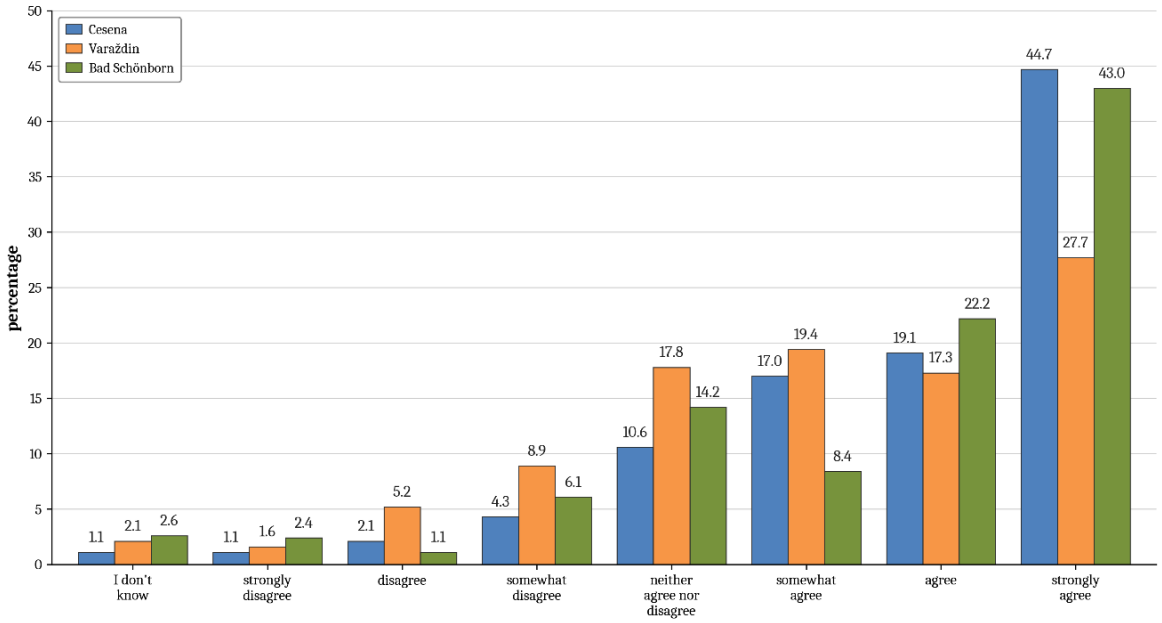


Fig.31 : Support for autonomous shuttles in one's local area by location, relative frequencies [%] (Cesena: n=94, Varaždin: n=191, Bad Schönborn: n=379)

Most respondents welcome the future use of shuttles similar to those used in the test runs in their own local area. In Cesena, 42 people (44.7%) strongly agree with the statement; in Bad Schönborn, the figure is 163 people (42.7%). Varaždin is slightly below this, with 53 people (27.7%), but also shows a clear preponderance of positive responses. Cesena (M = 5.80; SD = 1.43) and Bad Schönborn (M = 5.71; SD = 1.54) are slightly higher than Varaždin (M = 5.16; SD = 1.61), which also exhibits the widest variation. Negative responses are few and far between in all three study locations. This indicates a clear openness to the use of autonomous shuttles in their own residential or living environment even before the ride begins.

5.2.2.6. The contribution of autonomous vehicles to sustainable mobility

Question 18: I believe that autonomous vehicles can contribute to sustainable mobility.

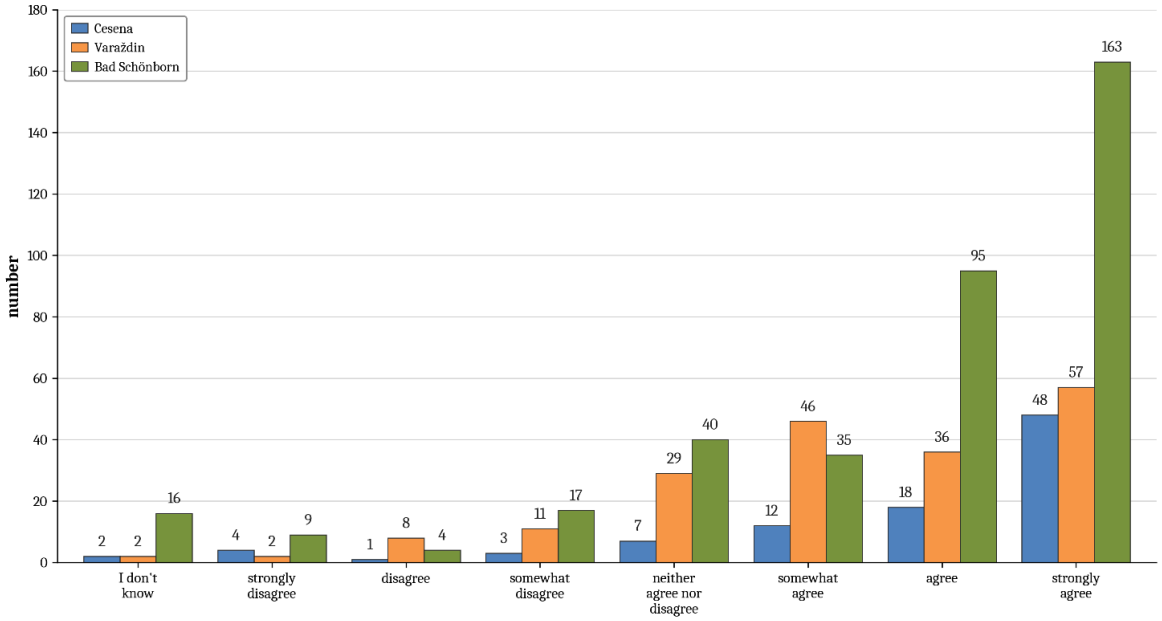


Fig.32 : Contribution of autonomous vehicles to sustainable mobility by location, absolute frequencies (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=379)

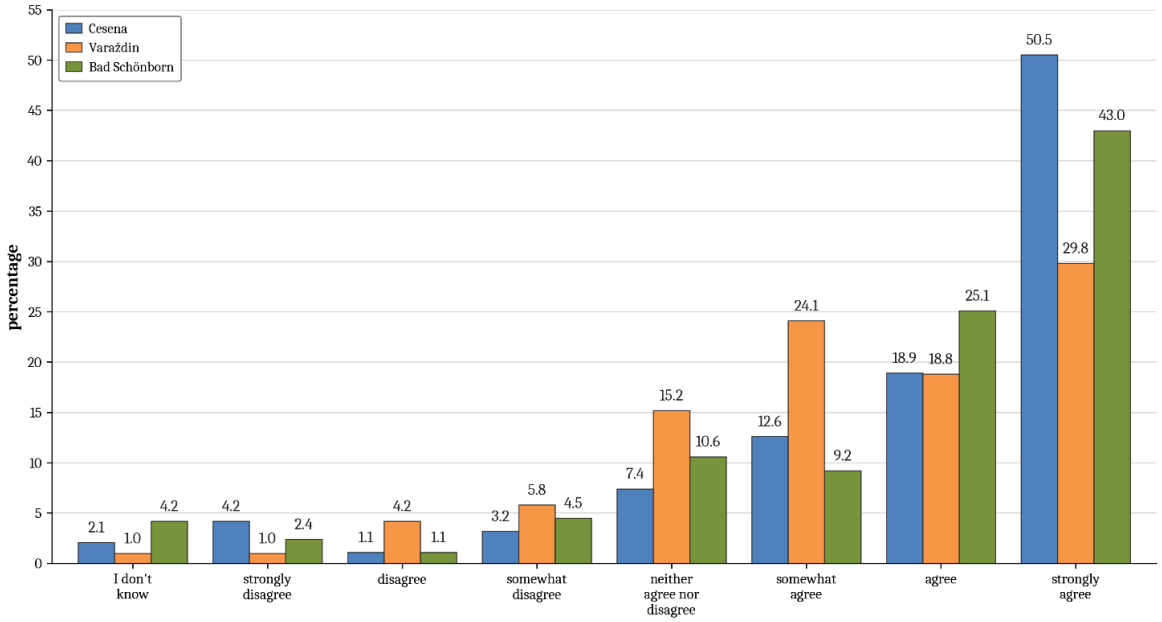


Fig.33 : Contribution of autonomous vehicles to sustainable mobility by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=379)

An overwhelming majority of respondents believe that autonomous vehicles can contribute to sustainable mobility. In Cesena, 48 people (50.5%) fully agree with this statement; in Bad Schönborn, 163 people (43.0%); and in Varaždin, 57 people (29.8%). The combined proportion of

respondents selecting the top three points on the scale is well over 60% at all three locations. Cesena has the highest mean score (*M* = 5.88; *SD* = 1.58), Bad Schönborn is similarly high (*M* = 5.82; *SD* = 1.48), whilst Varaždin lags slightly behind with *M* = 5.35. All three locations are thus clearly in the 'agree' range of the scale. What is striking is the marked difference between Cesena and Varaždin in the strongest 'agree' category, although both locations present a positive picture overall. Negative responses are rare across all locations, standing at 11.0% in Varaždin, 8.5% in Cesena and 8.0% in Bad Schönborn.

5.2.2.7. Conclusion – before the test drive

The present results show that, prior to the test drive, respondents are generally open to autonomous driving. Their attitude towards new technologies is clearly positive at all three locations. Similarly, the willingness to welcome autonomous shuttles in their own local area, as well as the conviction that autonomous vehicles can contribute to sustainable mobility, is high across all locations. Although safety and data protection concerns do exist, they do not dominate – the mean scores are close to the midpoint of the scale, suggesting an ambivalent but not negative attitude. It should be borne in mind that a significant proportion of respondents can be classified as first-time users who lack concrete experience – which explains, at least in part, their unclear stance on safety issues. This conclusion is also reflected in the moderate and varied distribution of responses regarding familiarity with the concept of autonomous driving.

In summary, it can be stated that, prior to the ride, the sample represented a tech-savvy, generally open-minded group – with isolated reservations that did not, however, outweigh the overall positive trend. It thus provides a favorable starting point for the acceptance of autonomous shuttles.

5.2.3. Experiences and evaluations after the ride

The following questions were asked immediately after the test drive had finished and are divided into categorical questions and those that were again assessed using the 7-point Likert scale (Q20–Q24). The statistics for the Likert-scale questions were calculated in the same way as described in section 2.2 and are shown in the summary table below.

Table 3: Descriptive statistics for the Likert scale items Q20-Q24 by location

Question	Cesena			Varaždin			Bad Schönborn			Total		
	M	SD	n	M	SD	n	M	SD	n	M	SD	n
Q20: Sense of safety whilst driving	6.30	1.12	93	6.28	1.17	191	6.57	0.89	376	6.45	1.02	660
Q21: Driving performance and physical comfort	5.24	1.41	94	5.53	1.50	191	5.92	1.25	380	5.71	1.37	665
Q22: Appropriateness of speed	4.98	1.64	94	5.54	1.67	190	5.54	1.55	382	5.46	1.61	666
Q23: Willingness to pay for shuttle services	5.61	1.58	93	4.97	1.86	181	5.71	1.55	373	5.49	1.67	647
Q24: Perceived potential for future use	5.96	1.38	95	5.56	1.56	187	6.10	1.37	379	5.92	1.44	660

Note: Likert scale 1–7 (1 = *strongly disagree*, 7 = *strongly agree*). Responses of –8 (*don't know*) and –9 (*missing*) were excluded from the calculation.

5.2.3.1. Change of opinion following the ride

Question 19: Has today's journey changed your opinion of autonomous vehicles?

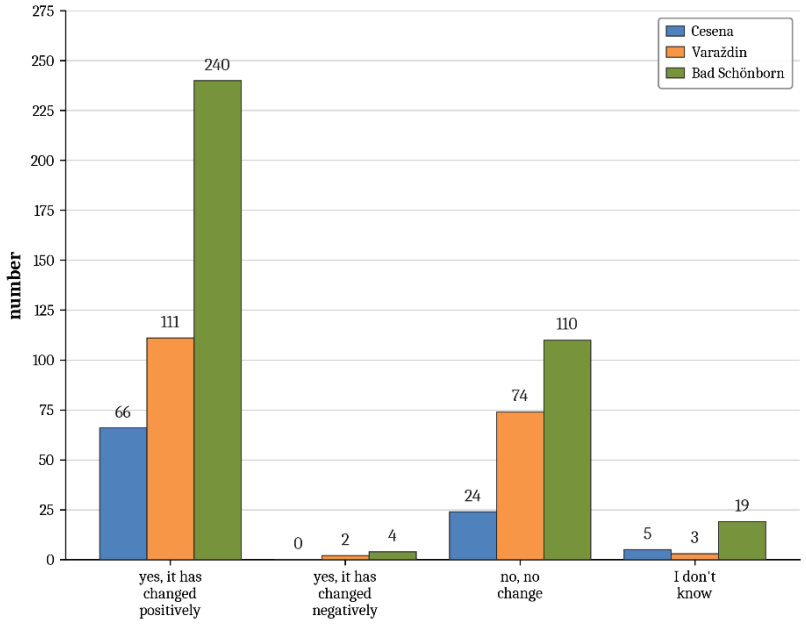


Fig.34 : Change in opinion following the test drive by location, absolute frequencies (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=373)

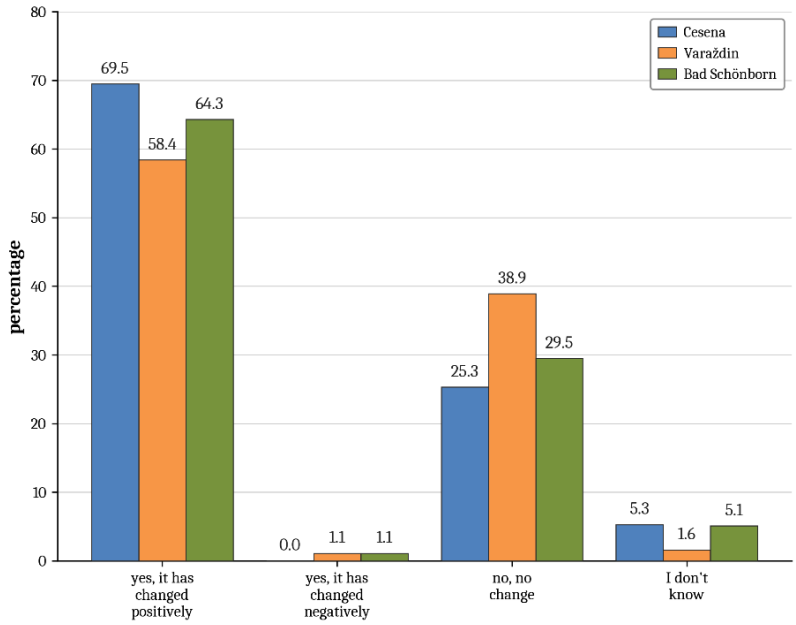


Fig.35 : Change in opinion following the test drive by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=190, Bad Schönborn: n=373)

Most of the respondents state that the test drive had a positive influence on their opinion of autonomous vehicles. This is most evident in Cesena, where 66 people (69.5%) reported this. In Bad Schönborn, a positive change in opinion was reported by 240 people (64.3%) and in Varaždin by 111 people (58.4%) – across all three locations, around two-thirds of the sample agreed. No change in opinion was reported most frequently in Varaždin by 74 people (38.9%), in Bad Schönborn by 110 people (29.5%) and in Cesena by 24 people (25.3%). It is noteworthy that a negative change in opinion occurs only sporadically. The result suggests that direct experience with the autonomous shuttle has a clearly positive effect on the respondents' attitudes, regardless of location.

5.2.3.2. Sense of safety during the ride

Question 20: I felt safe during the ride.

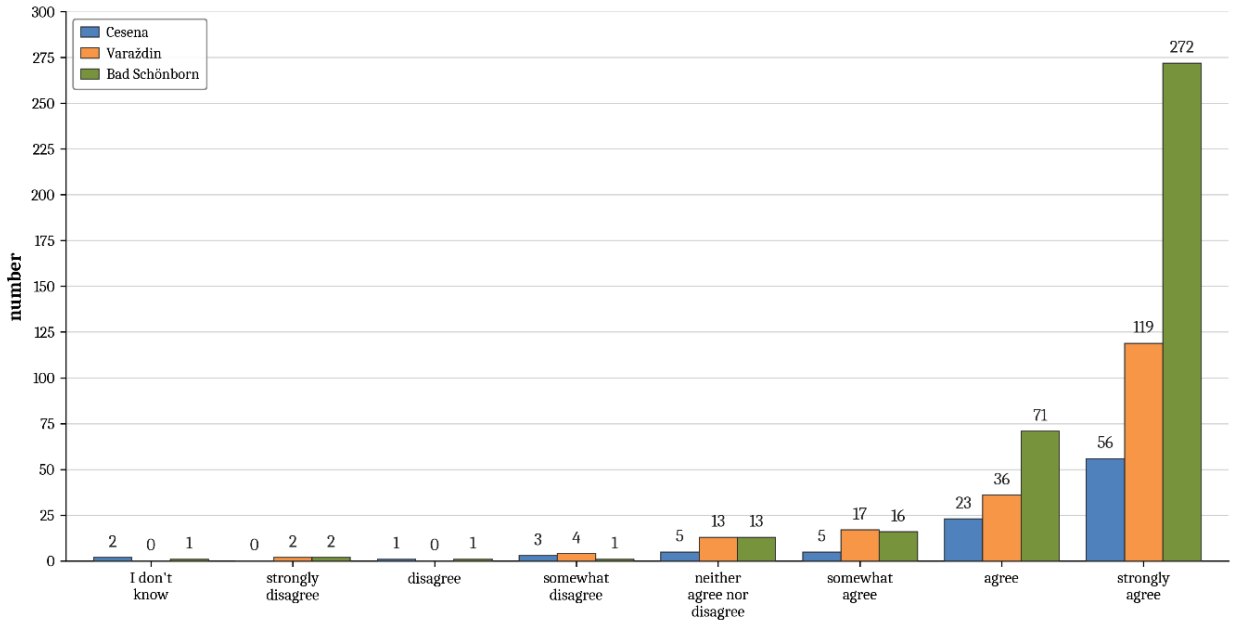


Fig.36 : Sense of safety during the ride by location, absolute frequencies (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=376)

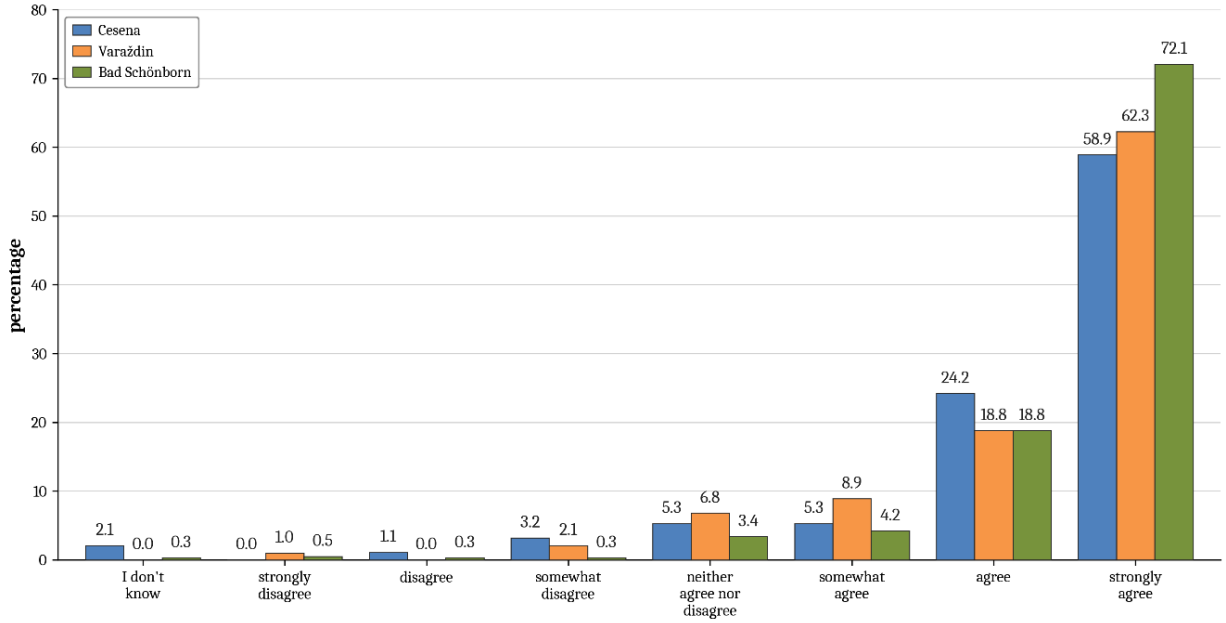


Fig.37 : Sense of safety during the ride by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=376)

The results show that respondents at all three locations felt very safe. In Cesena, 56 people (58.9%) fully agree with the statement that they felt safe whilst driving; in Varaždin, the figure is 119 people (62.3%); and in Bad Schönborn, as many as 272 people (72.1%). Furthermore, in all

three locations, a significant proportion of respondents fell into the *'agree'* category, whilst negative responses were few and far between. Bad Schönborn (*M* = 6.57; *SD* = 0.89) shows the highest value alongside the lowest standard deviation – an indication of a particularly consistent perception. Cesena (*M* = 6.30; *SD* = 1.12) and Varaždin (*M* = 6.28; *SD* = 1.17) are similarly high.

Overall, the ride is perceived as safe by most participants. Firstly, this finding highlights the importance of concrete experiences in forming judgements – abstract safety concerns prior to the ride apparently give way to a positive assessment once an actual experience has been gained. Secondly, the result reflects the respondents' fundamental openness towards autonomous vehicles, which was already evident before the test drive (see Q14, Q17) and was confirmed and reinforced by the test drive. The following figure illustrates the relationship between initial safety concerns (see Q15) and the sense of safety during the ride for each location (see Fig. 38 ff): the majority of respondents – including those with initial concerns – felt safe during the ride.

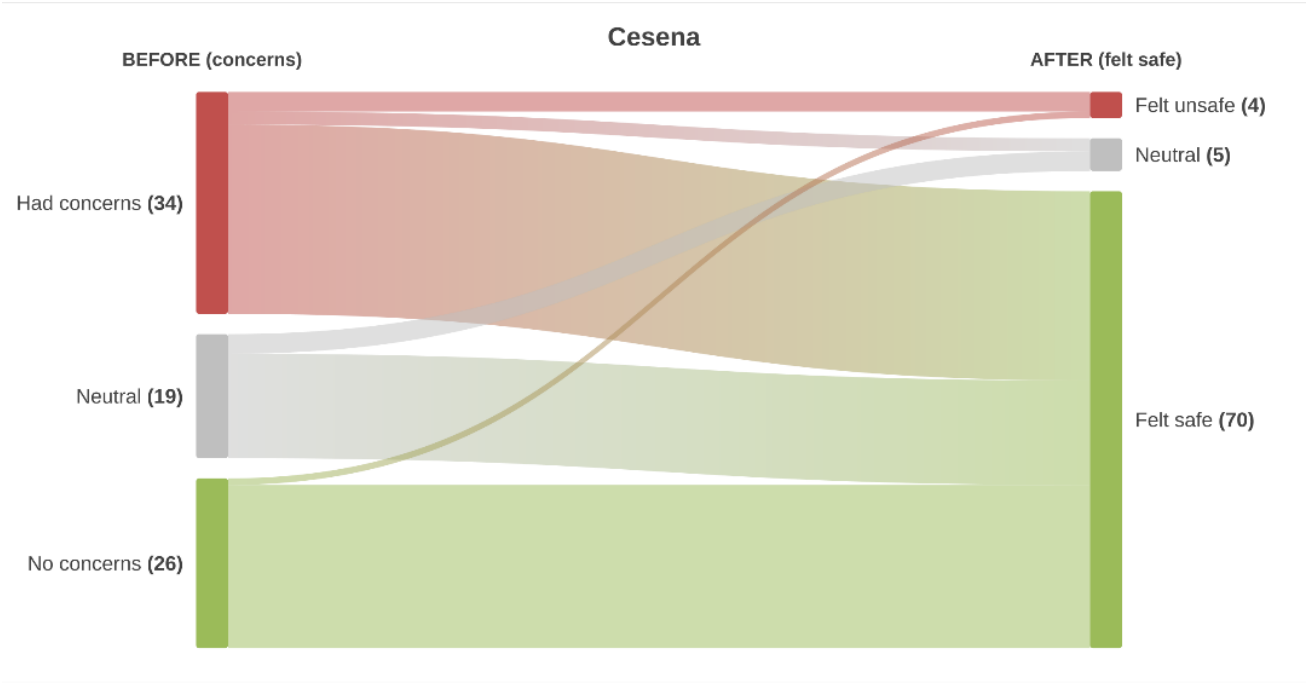


Fig.38 : Safety concerns before the ride (Q15) and sense of safety during the ride (Q20) in Cesena (n = 79). 7-point scale grouped into three categories (rejection 1–3 / neutral 4 / agreement 5–7).

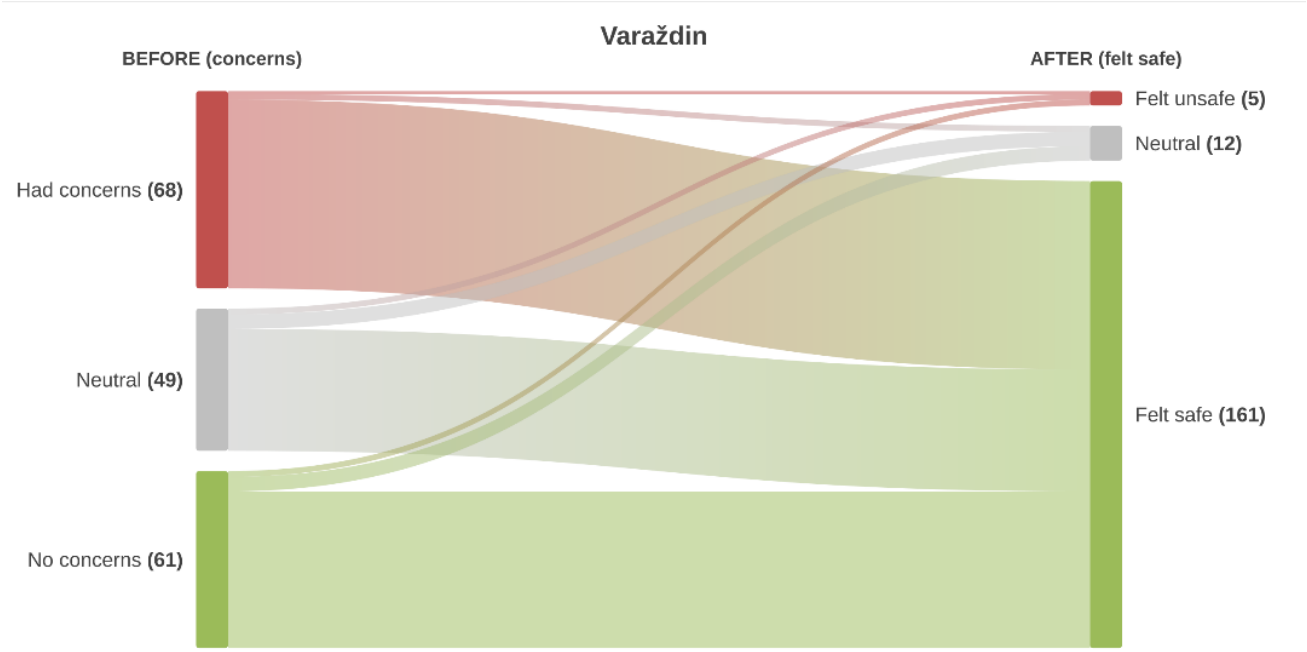


Fig.39 : Safety concerns before the ride (Q15) and sense of safety during the ride (Q20) in Varaždin (n = 178). 7-point scale grouped into three categories (disagreement 1-3 / neutral 4 / agreement 5-7).

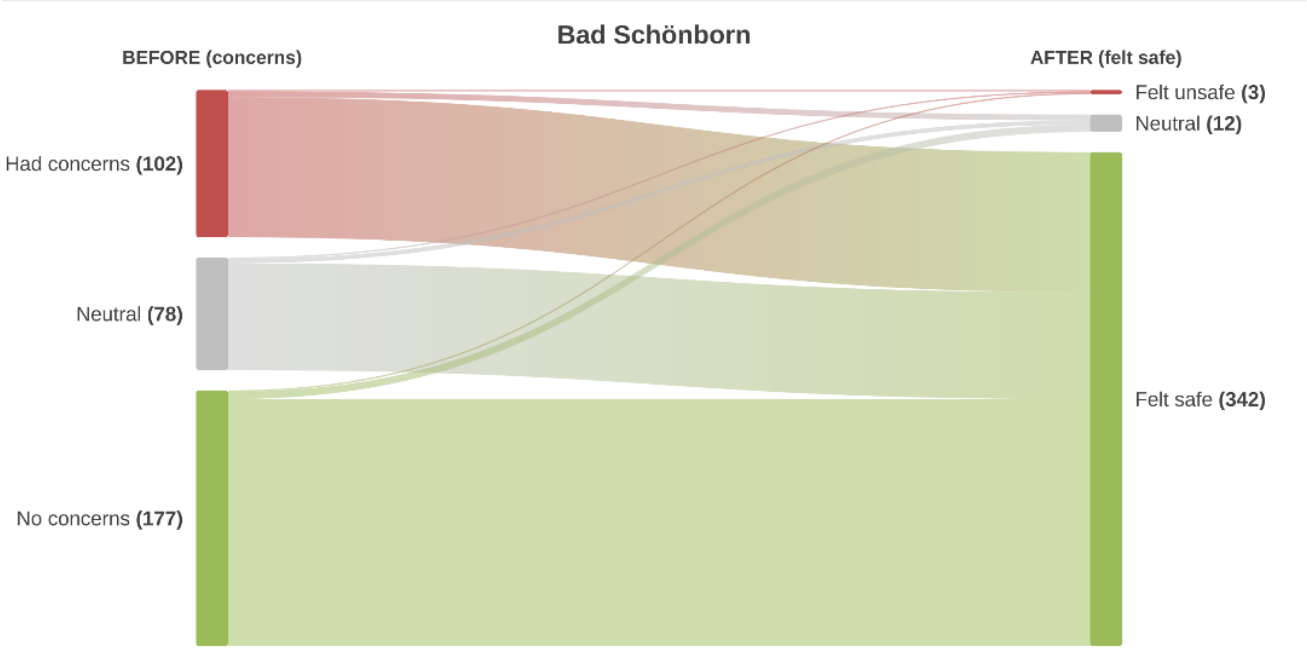


Fig.40 : Safety concerns before the ride (Q15) and sense of safety during the ride (Q20) in Bad Schönborn (n = 357). 7-point scale grouped into three categories (disagreement 1-3 / neutral 4 / agreement 5-7).

5.2.3.3. Ride behaviour and physical comfort

Question 21: I found the shuttle's handling (braking, speed, lane control) pleasant and felt physically comfortable.

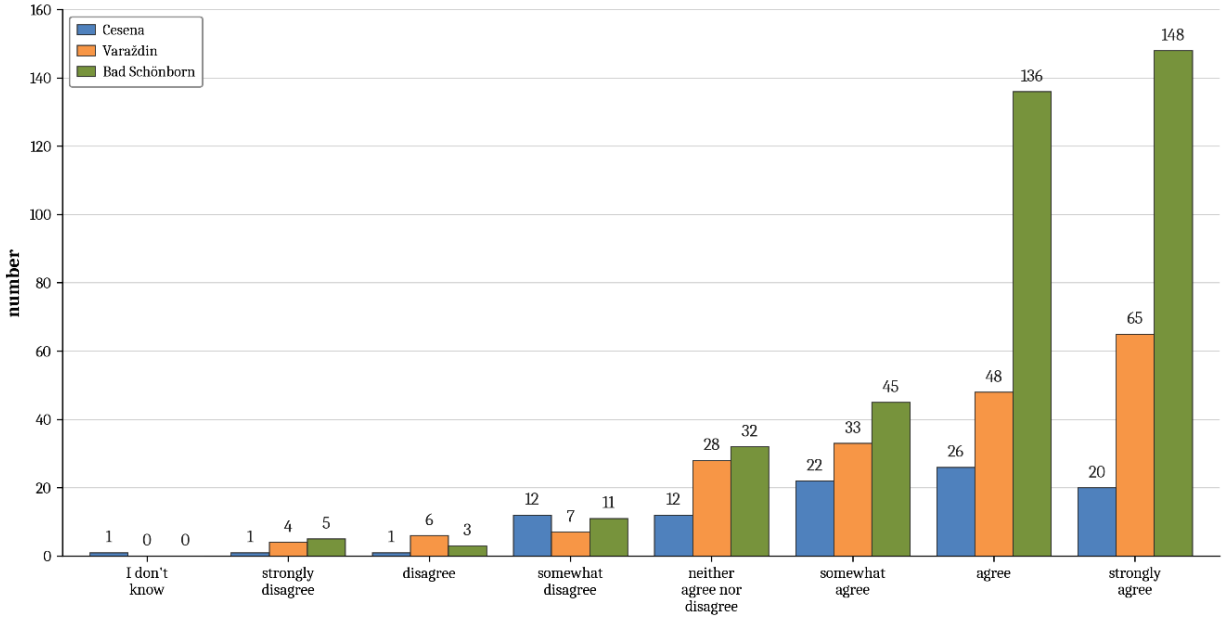


Fig.41 : Ride comfort and physical comfort by location, absolute frequencies (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=380)

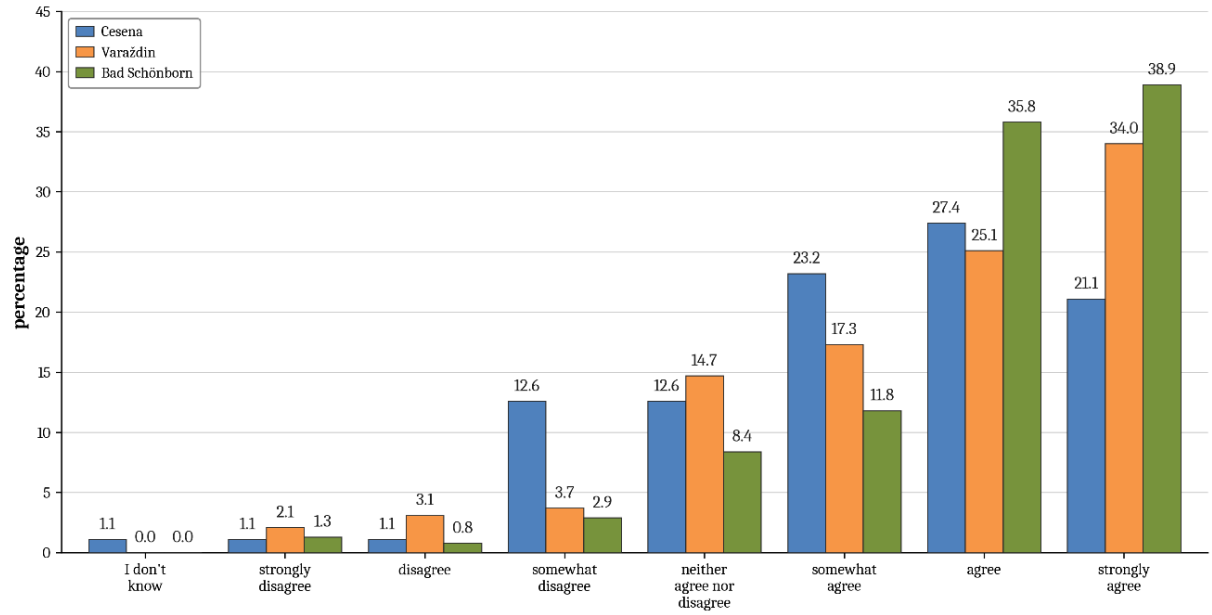


Fig.42 : Ride behavior and physical comfort by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=380)

Although somewhat more subdued than the general sense of safety, participants' physical well-being was rated as predominantly positive because of the shuttle's ride comfort (Cesena: *M* =

5.25; *SD* = 1.41; Varaždin: *M* = 5.53; *SD* = 1.50; Bad Schönborn: *M* = 5.92; *SD* = 1.25). In Bad Schönborn, 148 people (38.9%) strongly agree and a further 136 people (35.8%) agree, making the rating there particularly positive. In Varaždin, too, the highest level of agreement is the most common, with 65 people (34.0%), followed by the second-highest rating category (48 people, 25.1%). Cesena stands out in that 12.6% of respondents tend not to agree – a proportion that is significantly lower in Varaždin (3.6%) and Bad Schönborn (2.9%). In Cesena, on the other hand, 26 people (27.4%) agree with the statement, and 20 people (21.1%) even agree wholeheartedly. Although critical assessments are present in all three locations studied, they are significantly fewer in number compared with the categories expressing agreement.

In conclusion, it can be stated that the driving experience was perceived by the majority as pleasant and physically comfortable, although Cesena – as is also the case with the assessment of speed below (see Chapter 5.2.3.4) – is somewhat more critical than the other two locations.

5.2.3.4. Appropriateness of speed

Question 22: The vehicle's speed was reasonable.

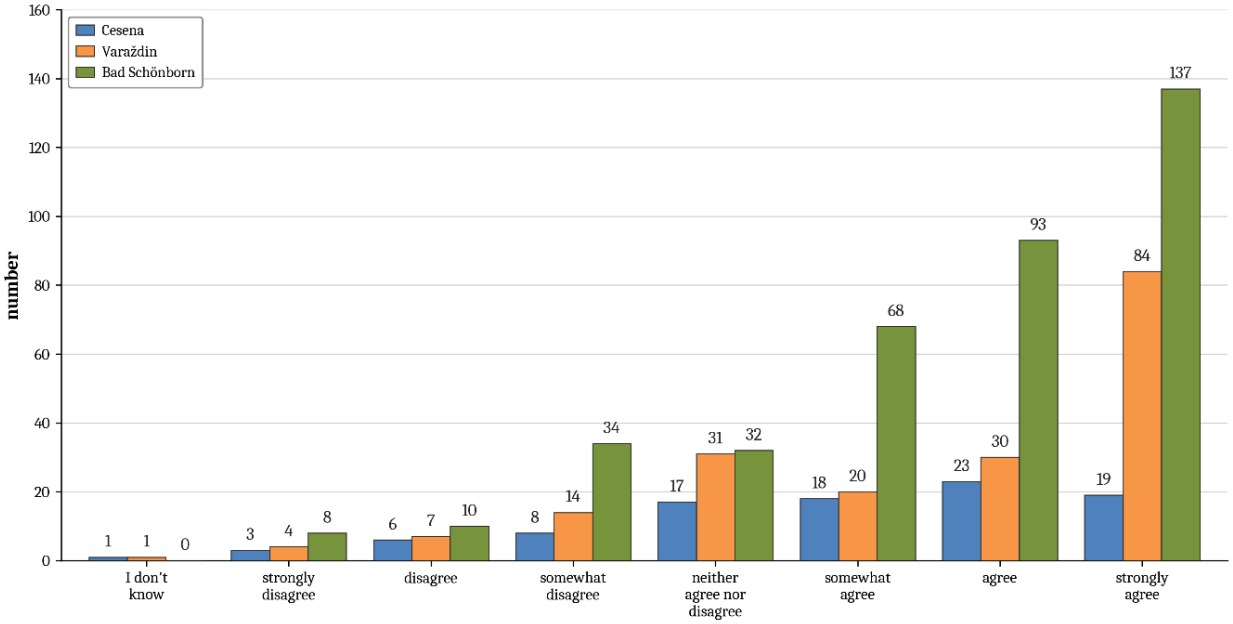


Fig.43 : Appropriateness of speed by location, absolute frequencies (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=382)

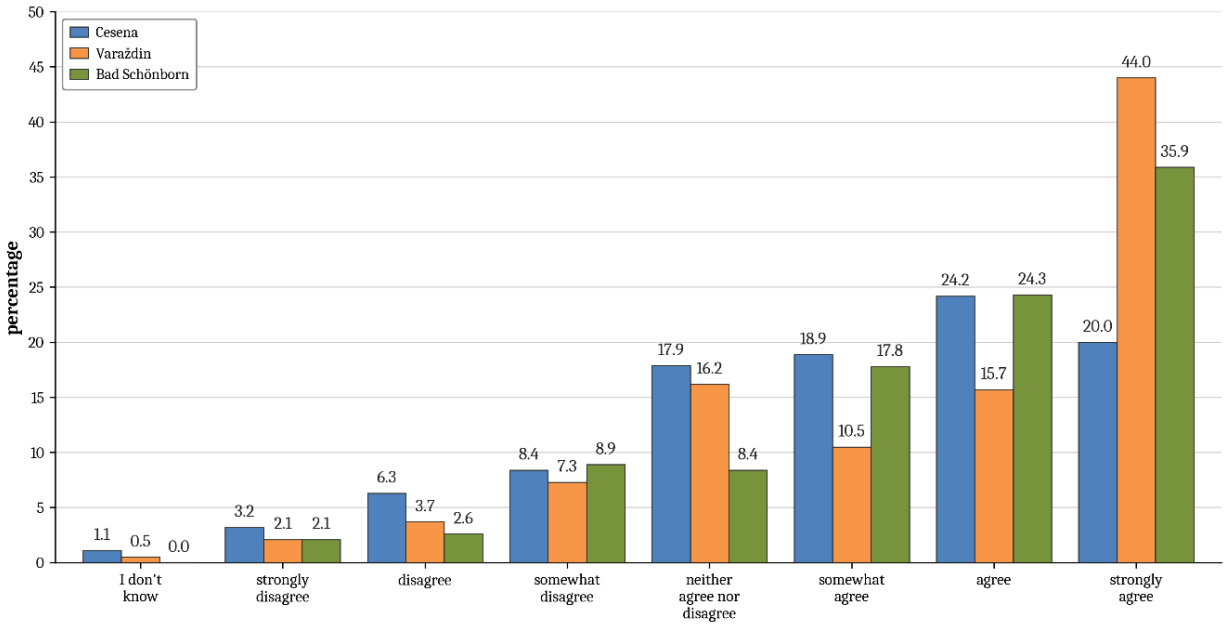


Fig.44 : Appropriateness of speed by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=191, Bad Schönborn: n=382)

As regards the speed of the shuttle, most passengers consider it to be appropriate. The highest level of agreement was found among respondents in Varaždin, where 84 people (44.0%) fully agreed with the statement that the speed was appropriate. In Bad Schönborn, 137 people (35.9%) and a further 93 people (24.3%) agree. In Cesena, the distribution is somewhat broader. There, 19 people (20.0%) strongly agree, 23 people (24.2%) agree and 18 people (18.9%) tend to agree. At the same time, neutral or disagreeing responses are slightly more common in Cesena. The majority view of vehicle speed is positive, although the level of agreement is higher in Varaždin and Bad Schönborn than in Cesena. Varaždin (M = 5.54) and Bad Schönborn (M = 5.54) are neck and neck, whilst Cesena, with M = 4.98, is the only location to remain below the 5.00 mark – a finding that reflects the Cesena sample's slightly more critical attitude towards the shuttle's speed.

5.2.3.5. Willingness to pay for shuttle use

Question 23: I am willing to pay for the use of such a shuttle.

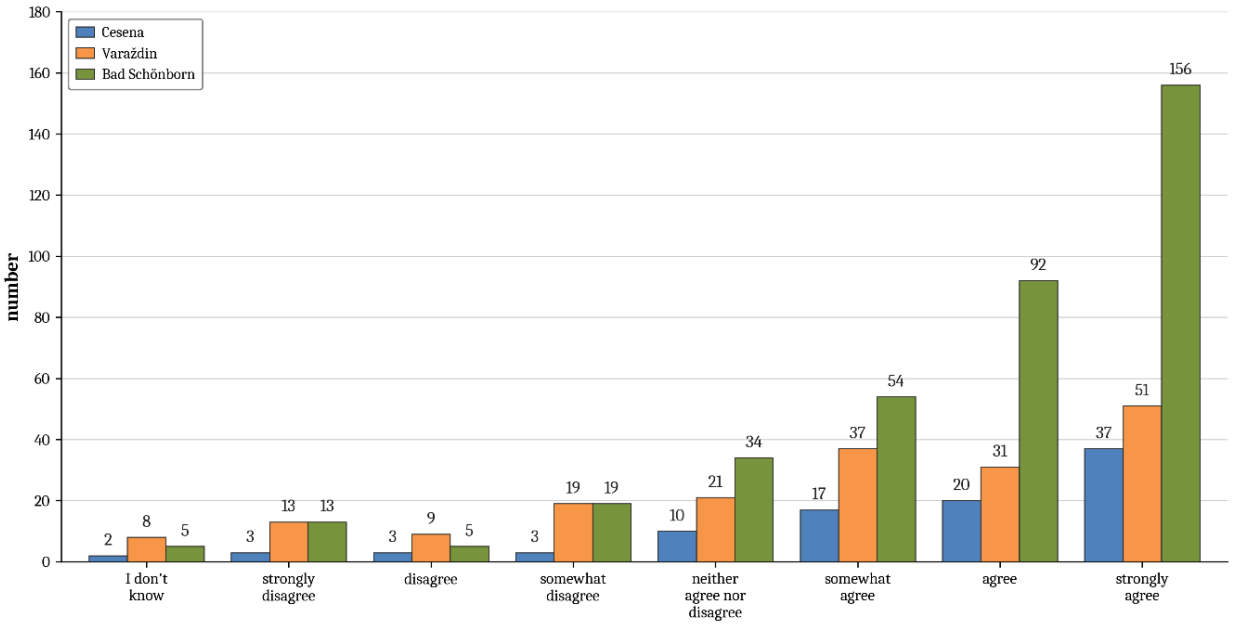


Fig.45 : Willingness to pay for shuttle use by location, absolute frequencies (Cesena: n=95, Varaždin: n=189, Bad Schönborn: n=378)

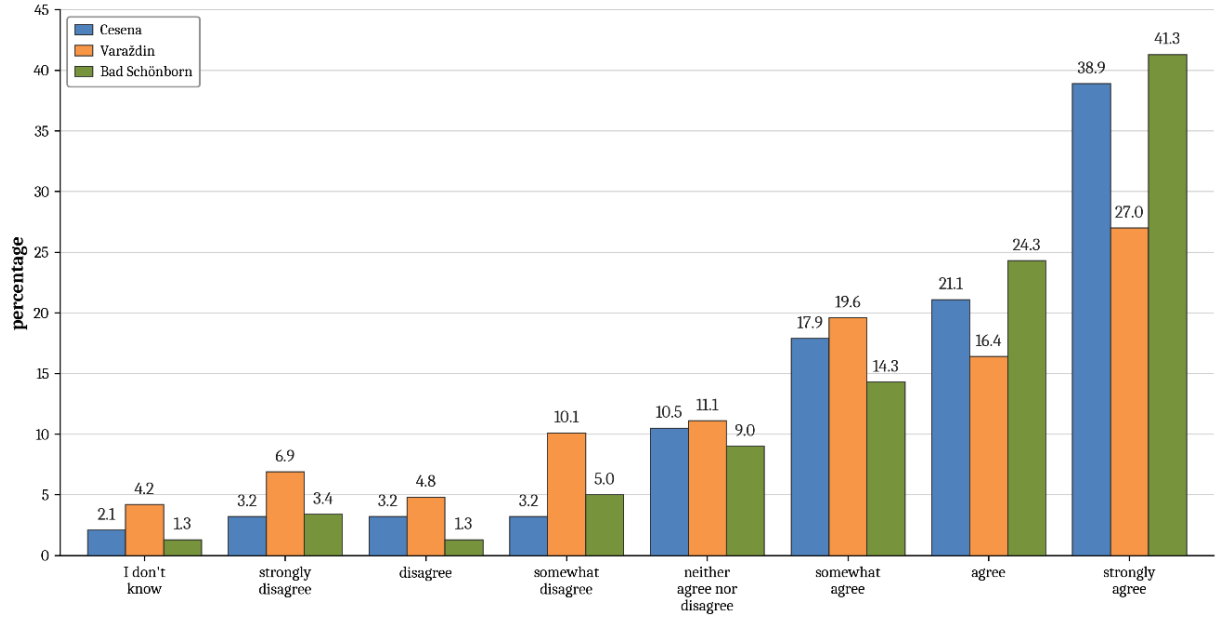


Fig.46 : Willingness to pay for shuttle services by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=189, Bad Schönborn: n=378)

There is a willingness to pay for the use of such a shuttle in all three locations surveyed, although the level of willingness varies. In Cesena, 37 people (38.9%) agree wholeheartedly, with a further 20 people (21.1%) agreeing to some extent. In Varaždin, the level of strong agreement is significantly lower, at 51 people (27.0%). At the same time, a greater number of responses

there fall into the 'neutral' and 'disagree' categories. In Bad Schönborn, 156 people (41.3%) 'strongly agree' with the statement, whilst a further 92 people (24.3%) 'agree'. The difference between the locations is also evident in the mean values: Bad Schönborn (*M* = 5.71; *SD* = 1.55) and Cesena (*M* = 5.61; *SD* = 1.58) are close to one another and clearly above Varaždin (*M* = 4.97; *SD* = 1.86). A general willingness to pay can be observed across the board, although it is more pronounced in Bad Schönborn and Cesena than in Varaždin.

5.2.3.6. Perceived likelihood of future use

Question 24: After the journey, I can imagine using the shuttle as a means of transport.

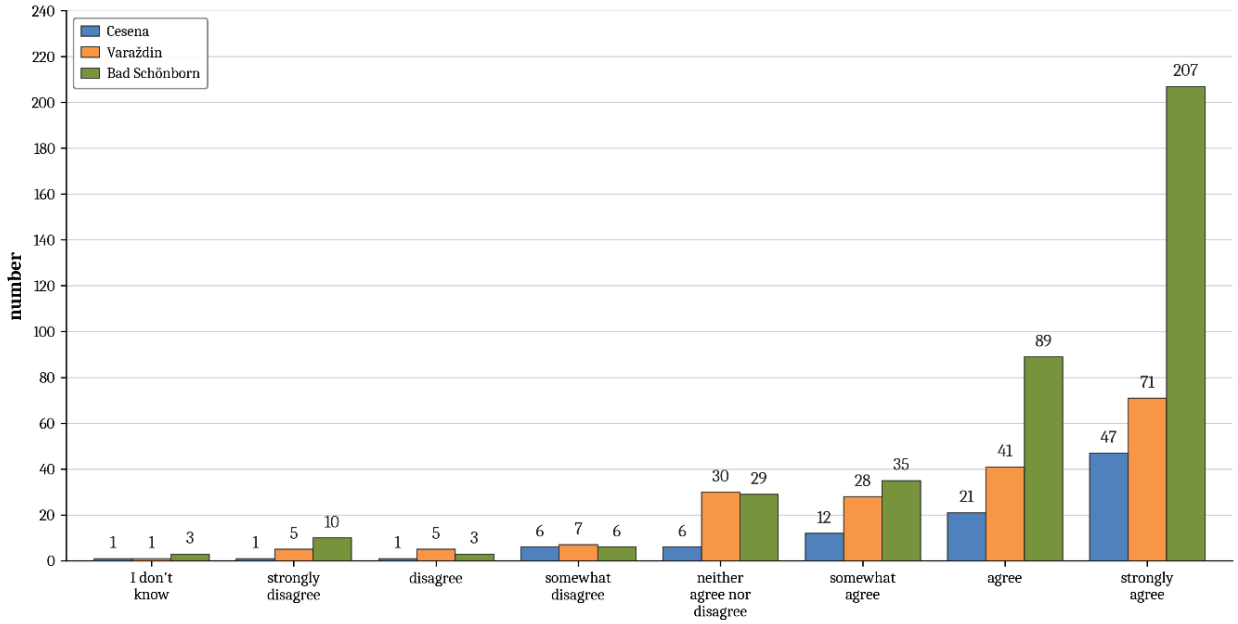


Fig.47 : Likelihood of future use as a means of transport by location, absolute frequencies (Cesena: n=95, Varaždin: n=188, Bad Schönborn: n=382)

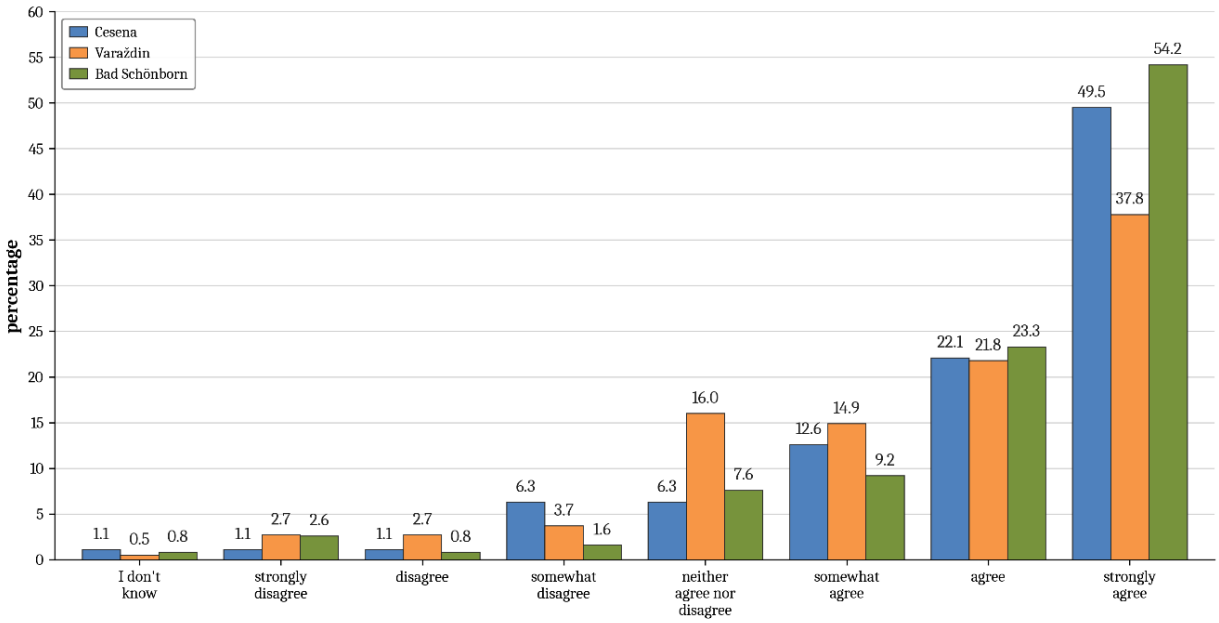


Fig.48 : Likelihood of future use as a means of transport by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=188, Bad Schönborn: n=382)

After the ride, most respondents can envisage using the shuttle as a means of transport in future. In Cesena, 47 people (49.5%), in Varaždin 71 people (37.8%) and in Bad Schönborn 207 people (54.2%) fully agree with this statement. Furthermore, in all three study locations, a large proportion of respondents fell into the other two categories: 'agree' and 'somewhat agree'. Negative responses are few and far between. The test drive appears to reinforce a general willingness to use autonomous shuttles – a finding also confirmed by the high mean value of the overall sample (M = 5.91; SD = 1.44; n = 660).

5.2.3.7. Most suitable autonomous mobility option for everyday life

Question 25: When you think of autonomous vehicles, which of the following options would be most suitable for your everyday life?

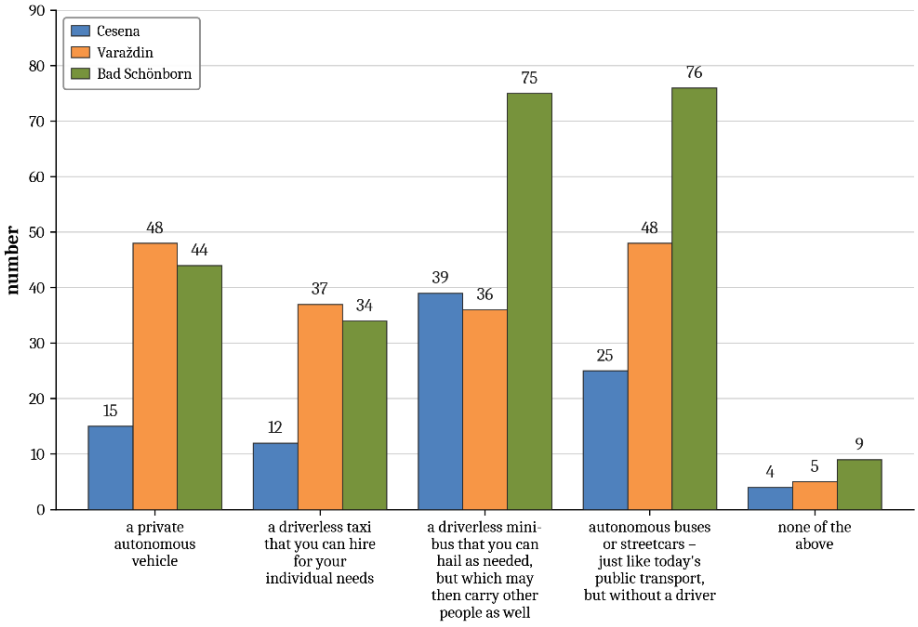


Fig.49 : Most suitable autonomous mobility option for everyday life by location, absolute frequencies (Cesena: n=95, Varaždin: n=174, Bad Schönborn: n=238)

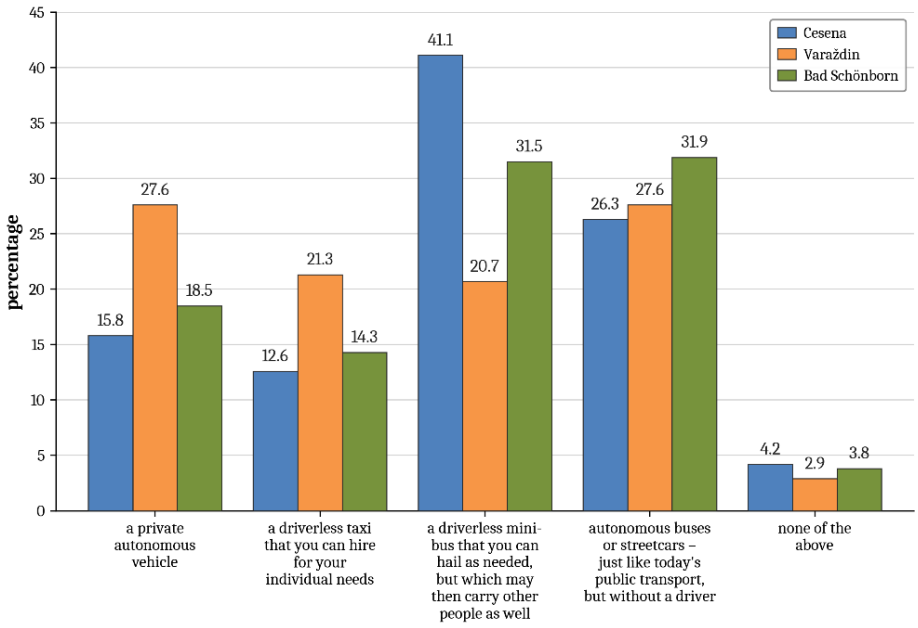


Fig.50 : Most suitable autonomous mobility option for everyday life by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=174, Bad Schönborn: n=238)

When asked about the most suitable autonomous mobility option for everyday life, different preferences emerged across the study locations. In Cesena, the most frequently cited option was an on-demand driverless minibus that can be booked as required and, if necessary, carry

additional passengers – 39 people (41.1%) chose this option. In Varaždin, the responses are distributed most evenly across all categories: Both the private autonomous vehicle and autonomous buses or streetcars were each mentioned by 48 people (27.6%), the driverless minibus on demand by 36 people (20.7%) and the driverless taxi service by 37 people (21.3%) – no clear preference is apparent there. In Bad Schönborn, autonomous buses or streetcars, with 76 people (31.9%), are just ahead of the on-demand driverless minibus, with 75 people (31.5%). The response option *'None of the above'* was rarely selected in any of the three locations surveyed. Shared autonomous mobility services are highly relevant across all locations and are significantly more favored in Cesena and Bad Schönborn than purely individual solutions.

5.2.3.8. Reaction to a new local bus route with autonomous shuttles

Question 26: Now that a transport company in your area is offering a new local bus route on which autonomous mini-buses are used. Which of the following statements is most likely to apply to you?

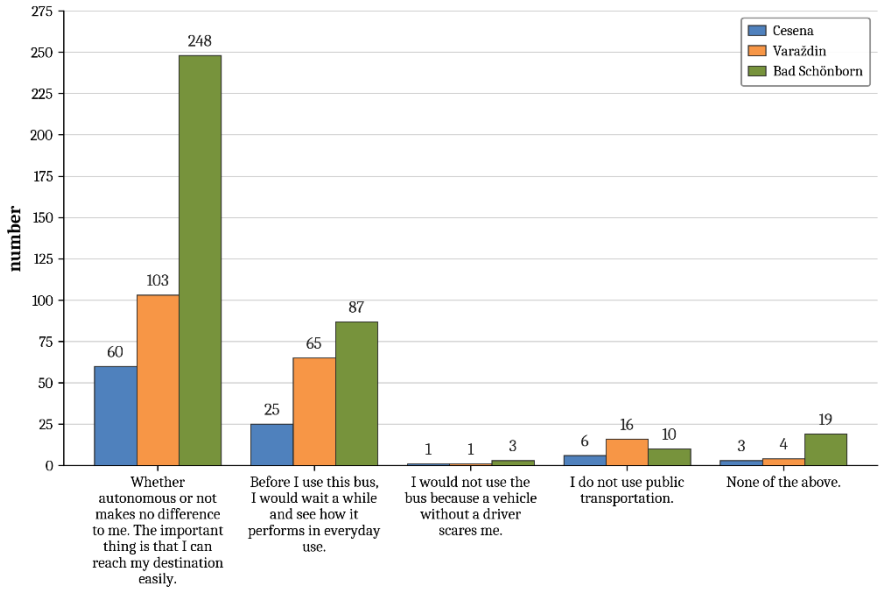


Fig.51 : Reaction to a new autonomous bus route by location, absolute frequencies (Cesena: n=95, Varaždin: n=189, Bad Schönborn: n=367)

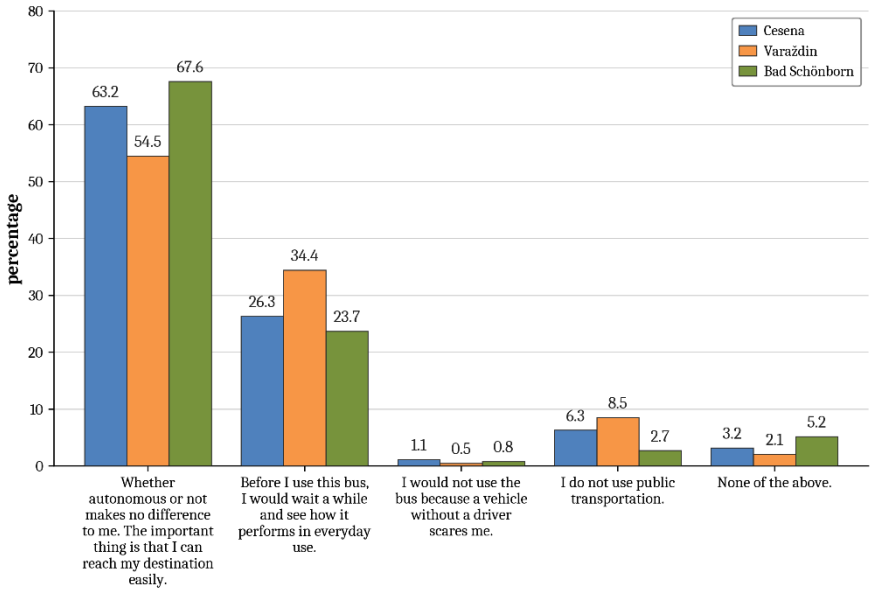


Fig.52 : Reactions to a new autonomous bus route by location, relative frequencies [%] (Cesena: n=95, Varaždin: n=189, Bad Schönborn: n=367)

When presented with a new local bus route using autonomous minibuses, most respondents focus not on the autonomous driving function itself, but on the practical benefits for managing everyday rides. In Cesena, 60 people (63.2%) state that it makes no difference to them whether the bus is autonomous or not, if they can reach their destination easily. In Bad Schönborn, this proportion is highest at 248 people (67.6%), whilst in Varaždin it is slightly lower at 103 people (54.5%) – there, a wait-and-see attitude is also most prevalent: 65 people (34.4%) would first observe how the bus performs in everyday use before using it. In Cesena and Bad Schönborn, this proportion is lower, at 25 people (26.3%) and 87 people (23.7%) respectively. By contrast, the statement that a driverless bus is frightening is chosen only very rarely – across all locations, this proportion is below 2%. Similarly, only a few state that they do not use public transport in general or do not choose any of the options mentioned. The acceptance of an autonomous minibus therefore depends heavily on its practical benefits and suitability for everyday use – fundamental rejection plays only a minor role.

5.2.3.9. Conclusion – after the ride

Overall, the results following the test drive paint a consistently positive picture: respondents feel safe, rate the vehicle's handling and speed positively, and can well imagine using the service in the future. It is particularly worth noting that around two-thirds of participants state that the test drive has positively influenced their opinion of AV – there are virtually no negative effects. It is also worth highlighting that the sense of safety during the ride achieved the highest score of all the Likert-scale questions and was very high across all locations – a finding that underlines the importance of actual experiences in forming judgements regarding safety concerns (prior to the ride). Driving behavior and speed were also rated positively by the majority, although Cesena was slightly more critical on both questions than the other two locations. The results also show that there is a general willingness to pay among respondents; however, this is less pronounced in Varaždin, which could be attributed to the younger and more financially diverse nature of the sample there. Across all samples, the likelihood of future use of a similar shuttle is also high, with collective mobility services preferred over private autonomous

vehicles. When asked about a new autonomous bus route, most respondents considered the practical benefits of such a route to be more important than the technology of the vehicle itself.

In conclusion, it can be stated that practical experience with the autonomous shuttle has a positive effect on attitudes and willingness to use the service – a finding that supports the continued promotion of test rides as a measure to foster acceptance.

6. Overview Focus Group Interviews

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ONLINE DISSIMINATION EVENT
22/06/2026

Results from the focus groups carried out in Bad Schönborn

Meeting name ONLINE DISSIMINATION EVENT	Name Jens Schippl, Maike Puhe,
Date 22/06/2026	Organisation **KIT-ITAS**

Background and approach

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Governance of innovation needs public support

Innovation is not just about developing new technologies, but (increasingly) also about how innovations fit into society and how they are accepted by society

"Fit into society" and "accepted by society" are closely linked

KIT/ITAS: Participatory survey in Bad Schönborn - two step approach

Step 1: Winter 24/25

Survey in Bad Schönborn (N = 1378)
- on mobility needs and activity patterns of citizens
- Understand what citizens are doing in Bad Schönborn and what they do elsewhere
- understand the mobility needs and gaps that could be filled by AV-Services

Step 2: April 26 (AV-pilot)

4 focus group discussions
- Group composition based on survey results
- Attitudes to and willingness to use AV services
- Attitudes, reasons

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Survey results in a nutshell

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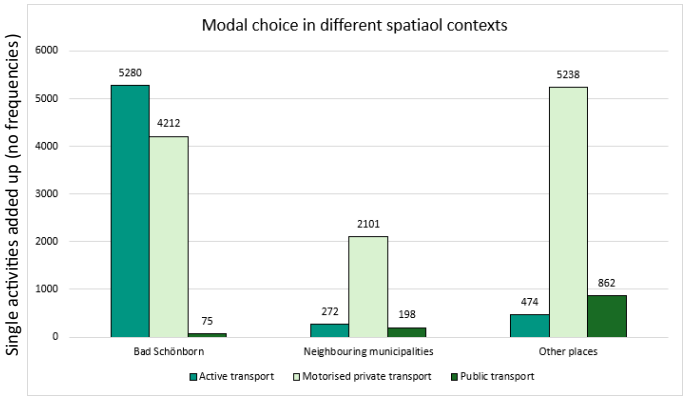
- Many activities are carried out in BS (Commuting not included)
- Car is most important mode of transport
- In Bad Schönborn, active travel plays a considerable role (bike and walking)
- Public transport is rarely used



General findings from focus groups (I)

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Organisation

- Firstly, participants took a ride in the AV-Bus
- Then the focus groups discussion took place

4 focus groups (based on survey results)

1. 6 persons who have a lot of **activities** in Bad S.
2. 3 persons with many **accompanying trips** (children)
3. 4 **younger women**
4. 7 **older people** and drivers of the citizens bus in Bad Schönborn (organised by an association)

Key-findings:

- High level of trust in the technology, little skepticism— test drives usually did not lead to "surprises" for users
- Overall, mostly positive expectations regarding AVs: innovative, enabling mobility, and enhancing safety
- There was a lively discussion about the design of an AV service in Bad Schönborn (incl. two neighboring towns)

*"And yes, sure, of course, I felt safe. That wasn't a problem at all. And I would **feel safe** even if I weren't just on this campus".*

General findings from focus groups (II)

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Key findings (continued):

- Most participants immediately thought of a service for the (still) elderly and those with limited mobility
- Personal use: mostly in specific situations, e.g., in case of rain or injury (also as a substitute for active travel)
- Some could also envision using it on a regular basis
- Several participants would be willing to pay higher costs for a door-to-door service than for public transit
- Different opinions: on-demand (flexibility) or schedule-based with a stop (easier for older adults)
- Security was an issue in several groups (young women > shultles only for women)
- Participants are (very) happy to live in Bad Schönborn – nearly everything available shopping, leisure, errands

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Specific results from the four focus groups in Bad Schönborn

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Focus groups I – highly active Person (slide I)

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Driving experience with AV-pilot:·

- Overall, great confidence in autonomous driving technology in terms of safety, both as a passenger and as other road users
- The test drive was not particularly surprising

FG I: A_m_3: Yeah, well, I would actually—I'm a cyclist too, even though I'm here by car. A vehicle like that gives me much, much more confidence that it will detect blind spots better and won't run me over.

FG I:A_w_1: Well, I'd probably use it in the winter when I'm not riding my bike.

Personal Interest in using AV-Services

Some people could imagine using it regularly (mostly in specific situations). However, opinions and situations vary to some extent:

- Short trips in bad weather
- As a way to relieve the burden of driving on longer trips—though one person fundamentally rejects driver-assistance systems
- Going out and drinking alcohol
- When independent travel (including by bicycle) is no longer possible in old age ("when health no longer permits").
- Some show a clear willingness to pay a higher price compared to public transportation if the service quality is appropriate

FG I:But if there were an added benefit—such as having the service pick me up at my home—then I would be willing to pay a higher price.

Focus groups I – highly active Person (slide II)

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Benefits for Other Groups

- On the one hand: the idea of "rethinking" mobility—reorganizing the system with shared vehicles; on the other hand: stops and schedules are easier for older adults to understand
- Some skepticism regarding safety concerns (women/children alone in the vehicle) and vandalism. Who is allowed to board (only pre-registered users)?
- AV-service is definitely beneficial for older adults and those with limited mobility.
  - Various use cases were discussed. In particular, visits for medical care or therapy, as well as shopping trips.
  - It was emphasized that the bus can also serve a social function when older adults meet there and ride together (possibly including group outings)
  - It was also emphasized that this group (the elderly) must be able to afford the ride (costs)

FG I "Because right now with my mom—the doctor told her she should stop driving at 90—and this bus service would be a way for her to maintain social contacts."

Mobility System and further expectations·

- Detailed discussion on how public transportation routes in Bad Schönborn (and neighboring municipalities) could be designed: connecting key locations such as supermarkets, doctors' offices, hospitals, train stations, etc.
- Expectations vary: hope for innovation and new options, especially for older adults, but also doubts about whether this will catch on in Germany
- Some expect that AVs will eventually reduce the use of private vehicles

FG I: "Well, I'd like to see these kinds of research projects move into a real-world testing phase as soon as possible, rather than just having things done here and there"

Focus groups II – accompanying trips (slide I)

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Driving experience with AV-pilot:·

- Participants felt very safe; there was some slight disappointment, however, because automation had not progressed further and safety drivers were on board.
- The test shuttle's speed was perceived as quite slow; there was discussion, however, as to whether a lower speed might actually be suitable for older people.
- Barrier-free access was deemed insufficient (entry too high, ramp too steep).

Issues with mobility in BS:

- Traffic volume in BS is sometimes high, with stop-and-go traffic and traffic jams; there is a lack of parking spaces when dropping off or picking up children,
- Bike paths are too unsafe for children to ride on their own

AV in the mobility system / Children's Escort Routes

- AV shuttle in Bad Schönborn and neighboring municipalities (Kronau, Östringen) is generally useful
- Potential use as a replacement for or supplement to the community bus in Bad Schönborn
- Different opinions on transporting children via AV:
  - Public transit is not relevant for children because they are either too young or already get around on their own
  - Public transit could serve as a substitute for the "parent taxi"; perhaps equip the bus with a call button for emergencies (in addition to video surveillance)
- A shuttle would be safer than unsafe bike paths.
- Transporting children would be more pleasant if a shuttle were monitored remotely.

FG II: If that were clearly defined in some way and it were also an attractive alternative for teenagers and children, and they simply said, "No problem, I'll just take the bus—it passes by here anyway and goes exactly where I want to go." Yes. I think that would also bring more relaxation and peace to everyday family life.

FG II: If I imagine some friends there, who have girls, for example, they'd say, "We wouldn't do that, yeah, because—well, because I don't know who's sitting next to my daughter and hitting on her from the side."

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Focus groups II – accompanying trips (slide II)

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Personal interest in using the service:·

One person finds an AV service unattractive because it is too inflexible

Others express interest in using the service; reasons are:

- Flexibility as an important advantage that can make the service attractive (flexible door-to-door service).
- It could be appealing for shopping if one has the option to transport purchases, but also for locations that are difficult to reach, such as a barbecue hut in the woods or a lake
- No parking problems when dropping off or picking up children
- No parking problems when dropping off or picking up children
- An advantage over active transport is that it can be used in "all kinds of weather"
- Shared use involving minor detours would be acceptable—but such detours must not extend the travel time too much, otherwise the car becomes more attractive again, or it would be faster to walk

FG II: And in my everyday life, flexibility is everything. …I'd ride a bus like that, not because it's autonomous or whatever—I don't care about that at all—but because it's flexible.

FG II: But I personally don't think so, because I already do absolutely everything I want to do here, whether I'm driving an autonomous vehicle or not..

FG II: But that means this service has to be attractive enough to actually outperform other options. You really need to take a close look at what the local needs are—ideally through surveys, just like you did

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Focus groups III - younger women (slide I)

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Driving experience with AV-pilot·

- Generally felt safe during the test drive·
- Some doubts as to whether the vehicle would respond correctly at higher speeds in real-world traffic and in more complex situations
- The step-in height could be lower

Living in Bad Schönborn·

- A high level of overall satisfaction with Bad Schönborn as a place to live and the opportunities it offers

AV-Services in the mobility system

- Flexibility as a key advantage of the AV service
- Participants also noted that the AV-services would be an important mobility option for older people with limited mobility.
- Booking and access for older adults should be possible not only via the app but also by phone (similar to the community bus)
- The expectation was expressed that automated driving could generally car dependency, especially in more rural regions where there is currently little public transportation
- One person expects that traffic rules and infrastructure will need to be adapted to AV

FG III: "I liked it, too—I felt safe as well. It's actually kind of like riding a streetcar, I thought. I thought the brakes were a little jerky. That's when you get this weird feeling."

FG III: I think it would be useful if the route included stops at places other than those on the regular line. Or shopping areas, for example

Focus groups III - younger women (slide II)

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Personal Interest in using AV-Services

- There is interest in personal use; flexible access and on-demand service would be important
- Purpose of use: partly for commuting, partly for going out in the evening (drinking alcohol), for shopping, for running errands; leisure activities and short hikes are also mentioned
- Change in modal choice is likely for some purposes, especially going out for a drink in the evening—often AV as a substitute for public transit, walking, or cycling, especially in bad weather
- Willingness to pay a higher price compared to public transportation is relatively low, but does exist in certain situations (exclusive use)—though it should be cheaper than a taxi
- Shared use is conceivable in principle, but the travel time should not become too long due to "detours,"
- Participants are uneasy about riding the bus alone with strangers in the evening—especially when it stops right outside their front door and it becomes obvious where they live—so the idea of a women-only bus was discussed (as well as a children's bus)
- It was also mentioned that the service could be used for bringing/picking up children

FG III: "I think that every morning when I have to go to work, I'd say I always take the bus. I always hop on—it takes me to work, there aren't any parking spots there anyway, so I don't have to waste time looking for a spot; it's just perfect. And then I can read a book on the way.

FG III: But even now, for example, when I think about it, there's always kids' gym class on Fridays. And then I'd say, "Hey, come on, I'll book the bus for a certain time," and if it's winter, for example–in the summer we usually ride our bikes—but then I don't need to take the car either.

FG III: And another thought that popped into my head: when you take a AV service to get home—especially as a woman at night or on the weekend—it's actually better to be alone in the car than to have some weird, drunk guy sitting there with you, watching exactly where you get out and where you live..

Focus groups IV – Older persons (slide I)

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Driving experience with AV-pilot·

- Everyone made it very clear that they felt completely safe during the test drive
- Some feel there is a need for more space to store groceries, luggage, etc.

FG IV: "And yes, sure, of course, I felt safe. That wasn't a problem at all. And I would feel safe even if I weren't just on this campus"

Living and mobility in Bad Schönborn

- It is generally perceived as a very attractive place to live, with a vibrant community life and good access to amenities (retail stores, doctors)
- In terms of traffic, the main concern is the federal highway (traffic volume, safety,);
- Some complain that some streets are too narrow

FG IV: "Yeah, well, I can get everything here; I hardly ever go to Globus or anywhere else to shop, because I can get everything I need right here."

AV-Services in the mobility system / for other groups

- AV-services could be a good complement to existing public transit
- Community bus drivers emphasize their role as contact persons and support for older passengers, who often have limited mobility
- A scheduled AV-service would have the advantage of making it clear when and where the bus runs. That builds trust. Furthermore, participants don't really trust "automated" pickup arrangements.
- Access via an app has been the subject of much discussion. Is this reasonable or practical for elderly people?
- Parents with children were also mentioned as a potential target group who might then be able to avoid the need for a second car · Costs must not be significantly higher than those of existing public transportation; otherwise, the service will not be used.
- Safety: Other road users who don't know how to interact with an AV could pose a safety risk
- Security: Camera surveillance is essential to address risks such as vandalism or annoyance

Focus groups IV – Older persons (slide II)

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Personal Interest in using AV-Services

- Currently, most participants do not have a significant need for AV services; in the future, when they are older and perhaps have limited mobility, AV could become very important
- Current interest in using the service tends to be related to specific situations; for example, some would like to use the bus for certain routes, in bad weather, or when it gets dark early in the evening.
- Several people would prefer a flexible door-to-door service, while others would prefer a fixed route with a fixed schedule
- AV would substitute car trips, but also cycling and walking

Further expectations·

- Generally very positive attitudes toward AV as innovation
- Some call for greater funding so that the technology can become operational
- One person can imagine that, at some point, it will be taken for granted that AI will help manage the mobility system

FG IV: "I don't need it right now, yeah, because I'm still mobile enough—as long as I can get around on my own, I'll do that—biking, walking, or something like that. Yeah, but if I look ahead now—what will it be like in ten or 15 years—and I'm not as mobile anymore, definitely not when it comes to going shopping, then yes, it's important."

FG IV "Yes, well, I drive or ride my bike, you know, as long as I can still do that, right? But when you get older and can't do that anymore, then you need someone to do it for you."

FG IV Yes, to the train station, or to the medical center, or to the Thermarium, if you're going to the spa or the gym. (.) That would be helpful"