

Research article

Is that what people want? An initial study on the intention to use self-driving taxis in the city of Zurich

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Fully autonomous Level-4 electric taxis, operating independently without a human driver, are no longer a novelty and are already operating on public roads in the USA and other countries. It is clear that the mobility sector is facing extensive changes, which also affects cities like Zurich. But to what extent will those transport concepts be adopted in cities in the future? Are Level-4 self-driving electric taxis welcome on its streets?

This study examined whether this revolution in passenger transport would find acceptance on the streets of Zurich. We explored in which cases, by whom, and for which routes autonomous taxis would be utilized. An online survey with 302 participants assessed the potential intent to use these taxis both during the day and night. The questionnaire was developed based on various theoretical models of technology acceptance and other traffic-related studies and was specifically adapted to the conditions in Zurich.

The results showed that factors such as safety and utility evaluations, social influences, and attitudes toward new technologies are significant predictors of usage intention in Zurich. The results also indicate that respondents are not yet fully prepared to hand over control, although the participants expressed an interest in this new technology and an intention to use it. Sociodemographic factors such as age, gender, or education level showed no consistent influence. Based on these findings, several practical implications were identified and subsequently developed, such as highlighting the relevance of safety and user-friendliness in self-driving taxis.

1. Theoretical Background

Automated vehicles have the potential to fundamentally transform road traffic. As a consequence of the considerable technological progress made in recent years, automated driving has undergone a substantial and rapid development (Hartwich et al., 2018). This development gave rise to the core technology of autonomous vehicles (Garidis et al., 2020), which are capable of fully assuming the tasks and skills of human drivers, independently transporting passengers from point A to point B (Both & Weber, 2013). However, it is not only technological innovation that is critical to the

future development of self-driving vehicles. Equally essential are social acceptance, the intention to use, and the integration of this new technology, as these factors are key to ensuring the continued success of technological advancement (Venkatesh et al., 2012). Current public debates are shaped by controversies surrounding safety, utility, and the impact on road traffic (Bazilinsky et al., 2015).

Nevertheless, it can be assumed that autonomous vehicles will become a common mode of transportation in the future, as automotive companies are actively

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pursuing their implementation in passenger transportation. Experts also predict that autonomous driving will lead to significant changes in society, the economy, and importantly, in individuals' lives (Garidis et al., 2020).

1.1 Autonomous Driving

To differentiate between the various levels of automation, the six classification levels established by the Society of Automotive Engineers (SAE) have become widely recognized. These levels are used to distinguish the capabilities of vehicles, ranging from Level 0 (no driving automation) to Level 5 (full driving automation) (Society of Automotive Engineers International, 2021). At Level 4, vehicles are capable of fully operating without a driver within a defined operational domain. If the vehicle operates exclusively within this domain, it no longer requires a steering wheel or foot pedals. The strict distinction from Level 5 lies in the defined operational domain. At the final stage of automation, vehicles are independently capable of handling all traffic situations, and passengers are simply occupants of the vehicle.

Highly automated Level 4 vehicles, operating driverless in cities, have become a reality. Since 2023, autonomous electric taxis, such as those operated by Waymo, have been deployed without additional safety drivers in cities like San Francisco (Waymo, n.d.).

In Switzerland, among other developments, a conditionally automated Level 3 bus was introduced at the end of April 2023. A pilot route was launched in the canton of Schaffhausen to test the technology. The bus is capable of independently performing all driving tasks, while a safety driver can intervene in unforeseen situations. Its routes must be pre-programmed. The project aims to bridge the gap between individual and public transportation (C. Nägeli, personal communication, November 28, 2023).

In late November 2024, the Canton of Zurich and the Swiss Federal Railways

(SBB), coordinated by the Swiss Transit Labs, initiated a pilot project for automated driving in public transport in the Furttal area. The project aims to enhance the transport offerings by deploying self-driving Nissan Ariya vehicles equipped with WeRide¹ technology, particularly in rural and suburban areas. These vehicles are designed not only to complement the existing public transport services but also to expand regional mobility in terms of time and space. The project partners view automation as an opportunity to sustainably shape the future of public transport and to develop cost-effective and flexible mobility solutions. Initially, up to four of these vehicles will be deployed, with plans to expand the fleet by 2026 to include minibuses that will operate either on fixed routes or on-demand, depending on the need (swisstransitlab—Furttal, n.d.).

In the following, the term autonomous taxis refers to Level-4 autonomous electric taxis, unless otherwise specified.

1.1.1 Advantages of Automated Driving

The automation of vehicles has the potential to enhance road safety (Hartwich et al., 2018). According to the Federal Statistical Office (BFS), in 2023, a total of 18,254 road traffic accidents with personal injury occurred on Swiss roads, with almost 20% of these caused in the canton of Zurich (BFS, 2024). In the most recent traffic accident statistics provided by the Traffic Department

of Zurich, a total of 1,282 accidents involving personal injury occurred in 2023. Approximately 82% of these accidents were attributed to the behavior of the drivers (Dienstabteilung Verkehr, 2024). Deublein (2020) even attributes about 95% of the causes of accidents to human errors, such as fatigue, inattention, or excessive speed. Half of these accidents could already be prevented today if all vehicles were equipped with modern driver assistance systems, reports the Swiss Council for Accident Prevention (BFU, 2020). It implies that automation can reduce human

¹WeRide is a global company specializing in autonomous driving technology, based in China.

error, thereby making automated vehicles safer than those operated by humans (Jabbari et al., 2022). This is due to the fact that critical traffic situations can be identified with greater precision and reliability. If necessary, vehicles can make corrections autonomously and respond more adequately than humans, not least because they do not get distracted. Consequently, driving comfort would increase, and there would be a relief as well as a reduction in stress for the occupants (Walter et al., 2015).

In addition to the expected positive impact on road safety, other advantages to self-driving vehicles are anticipated. Self-driving vehicles could provide improved accessibility for individuals with mobility impairments. For instance, for those who are excluded from mobility due to age or health reasons (Lemmer, 2019), as well as for individuals who do not possess a driver's license (Hörl et al., 2019). Vehicle automation also presents significant potential for fuel savings. When these vehicles are powered electrically, they can have a more positive environmental impact than conventional modes of transport, partly due to more efficient driving behaviors (Favarò et al., 2017). Additional expected benefits include improved traffic flow and more effective use of infrastructure (Fleischer et al., 2022). Furthermore, riding in a self-driving taxi eliminates the need for parking, which is often a concern in large cities. Therefore, there is an opportunity to alleviate parking shortages (Hörl et al., 2019).

1.1.2 Disadvantages of Automated Driving

In the course of technological development, also various challenges are to be considered. These include not only legal aspects and economic consequences but also concerns regarding software and information security of autonomous vehicles (Hógye-Nagy et al., 2023). For instance, respondents in an online survey across 109 countries on public opinion about automated driving conducted by Kyriakidis et al. (2015) were most concerned about software hacking or misuse of automated systems. In this context

it is feared that user data could be stolen, or the vehicle could be manipulated.

Another possible obstacle is a lack of trust in this new technology among people. Serious accidents and the reporting on such incidents might considerably influence public acceptance of autonomous vehicles (Othman, 2021). Since this technology has not yet been implemented in everyday traffic, people and their opinions are still heavily swayed by such influences. These perceptions in turn shape the trust in these technologies (Manchon et al., 2023). According to Zmud et al. (2016) the lack of trust and the perception of safety are cited as the main reasons for a depreciating attitude towards self-driving vehicles.

Furthermore, a challenge could be the interaction and communication among all the traffic participants. It will take time before a majority of vehicles in daily road traffic are highly automated. During this period, so-called mixed traffic is expected. Mixed traffic refers to the simultaneous movement of conventional and automated vehicles along with other road users such as pedestrians, public transportation, and cyclists (Deublein, 2020).

1.2 Characteristics of the Transportation System in Zurich

Switzerland has experienced continuous growth in resident population. This trend is similarly observed in the canton of Zurich, which is the most populous canton in Switzerland (BFS, 2022).

This increase has led to a steady rise in transportation demand in the city of Zurich (Tiefbau- und Entsorgungsdepartement, n.d.). Data from the Mobility and Transport Microcensus Switzerland reveal that in 2021, residents of the Greater Zurich area traveled an average of approximately 13 km per day by car. Public transport usage averaged around 8 km per day, which exceeded the overall average for Switzerland (Bundesamt für Raumentwicklung ARE & BFS, 2023). Zurich operates a highly efficient public transport system by international standards, thereby

resulting in elevated user expectations with respect to service reliability (Thibault & Bayen, 2023). According to the annual report of the Zurich Public Transport Services (VBZ, 2023), approximately 297.68 million passengers had been transported in 2023.

According to the Mobility and Transport Microcensus 2021, residents of Zurich used ride services such as taxis or ride-hailing services like Uber for an individual average of about 18 km or 29 minutes annually (ARE & BFS, 2023). Uber itself has a strong presence in the city of Zurich, and its usage is above the national average for Switzerland (BFS, 2023c). Although traditional taxis still operate on the streets of Zurich, their number of employees is decreasing (BFS, 2023a). According to current statistics from 2023, ride-sharing systems are most frequently used by individuals aged 18 to 24 and in urban areas (BFS, 2023b).

Whether the introduction of self-driving taxis on urban streets would lead to an increase or decrease in individual traffic volume remains highly uncertain (Hörl et al., 2019). However, as public space in the city of Zurich is a very limited resource, the shift to smaller modes of transportation, such as self-driving taxis, could further strain this resource (Hackenfort, 2023).

1.3 Intention to Use of New Technologies

Based on the study by Benleulmi & Ramdani (2022), the intention to use as a predictor variable is employed in recognized theoretical models to anticipate actual use of several technologies. It's also an important concept (Panagiotopoulos & Dimitrakopoulos, 2018), particularly given that self-driving taxis are not yet accessible to the public in the city of Zurich.

1.3.1 Definition of Intention to Use

According to Ajzen (1991), the term "intention to use" is used to describe an individual's willingness to engage in a specific behavior. This intention is a critical determinant of whether the behavior in question is ultimately carried out. It encapsulates the motivating

factors that shape behavior, providing insight into the level of effort an individual is willing to invest and their inclination to engage in a particular action. The likelihood of a given behavior being carried out depends on the strength of the intention to perform it.

1.3.2 Intention to Use Explained Based on Theoretical Models

Why individuals use or do not use a new technology has been examined in various theoretical models (Venkatesh et al., 2003). According to Ajzen's Theory of Planned Behavior (TPB) (1991), behavioral intention is influenced by three key factors: *attitudes toward the behavior*, *subjective norm*, and *perceived behavioral control*. Similarly, Davis (1989) original Technology Acceptance Model (TAM) (1989) posits that *perceived usefulness* and *perceived ease of use* influence *attitude toward using*, which in turn influences the *behavioral intention*. Additionally, *perceived usefulness* has a direct effect on *behavioral intention* (Davis, 1989).

The TPB and the TAM are two of eight theoretical models that are subsumed under the Unified Theory of Acceptance and Use of Technology (UTAUT) (2003). It is one of the most comprehensive technology acceptance models, which seeks to explain human behavior in the context of the acceptance and utilization of novel technologies. UTAUT integrates these concepts, suggesting that intention to use is influenced by *performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions*. Additionally, *gender*, *age*, *experience*, and *voluntariness of use* are identified as moderator variables (Venkatesh et al., 2003). As the UTAUT model concentrated on technology acceptance within a professional and organizational context, the subsequent iteration, UTAUT 2 (Venkatesh et al., 2012), facilitated a more comprehensive understanding of technology acceptance and utilization within the private sector. In addition to the four principal constructs, the UTAUT 2 incorporates three supplementary elements: *hedonic motivation*, *price value*, and *habit*. Furthermore, the moderating effects,

with the exception of *voluntariness of use*, have been incorporated into the UTAUT 2 (Venkatesh et al., 2012).

These theories examine the various constructs that influence behavioral intention and actual use (Korkmaz et al., 2021). The TAM (Davis, 1989), along with its various adaptations, as well as the UTAUT (Venkatesh et al., 2003) and UTAUT 2 model (Venkatesh et al., 2012), has been widely used in recent years to better understand the factors influencing the intention to use self-driving vehicles (Benleulmi & Ramdani, 2022).

1.4 Current Status of Research / Relevance

Benleulmi & Ramdani (2022) report that there is no consensus on the specific motivations for the factor 'intention to use', noting a broad spectrum of contradictory results. Their study identifies several factors that influence the intention to use autonomous vehicles, including affective factors like trust, instrumental factors like performance expectancy and hedonic motivation, and symbolic factors such as personal innovativeness and social influence (Benleulmi & Ramdani, 2022).

The confidence and safety with which individuals approach new technologies in road traffic and automated vehicles are important factors in shaping their opinions and intentions regarding their use (Bazilinskyy et al., 2015). Jabbari et al. (2022) demonstrated that the perception of safety has a substantial influence on the acceptance of autonomous vehicles. Additionally, a survey conducted by Garidis et al. (2020) on user acceptance of autonomous driving in Germany found that safety was identified as a pivotal factor, either as a facilitator or an obstacle.

Personal innovativeness influences perceptions of usefulness and user-friendliness (Nastjuk et al., 2020). Agarwal & Prasad (1998) noted that individuals with higher innovative behavior are more likely to have favorable attitudes towards technologies and adopt them earlier. Similarly, Benleulmi

& Ramdani (2022) found a correlation between an individual's innovativeness and their intention to use automated vehicles.

Social influence refers to the degree to which a person believes that important people around them expect them to use a new system. Observing the use of new technology in social contexts increases the likelihood of adoption (Venkatesh & Davis, 2000). Madigan et al. (2017) found empirical evidence of this factor's relevance in adopting new technologies through a survey of participants in Greece who tested an autonomous minibus. Similarly, a study by Nordhoff et al. (2020) with 9,118 participants across eight European countries confirmed that social influences are crucial for behavioral intention. The actions of others, particularly when technology is new, greatly impact our decisions (Graf-Vlachy et al. (2018)).

The impact of sociodemographic variables like gender, age, and educational attainment on the intention to use self-driving vehicles has been extensively studied. Madigan et al. (2017) and Zmud et al. (2016) argue that gender and age are not significant factors, whereas Hulse et al. (2018) and Charness et al. (2018) found that men and younger adults are more favorable towards these technologies. A survey by Schoettle & Sivak (2014) across the USA, the UK, and Australia showed mixed opinions, with safety concerns being prominent, especially among women. Additionally, individuals with higher education levels generally expect autonomous vehicles to reduce accidents and are thus more inclined to use them. These findings align with Othman (2021), who noted that higher education correlates with a more favorable view of autonomous vehicles. However, the scientific consensus on these impacts remains unclear.

It is incontestable that technological development is progressing at an accelerated rate and is consequently gaining increasing attention and relevance (Hörl et al., 2019). Therefore, it is imperative that research in this area be conducted. As the Swiss Federal Council asserts intelligent mobility

represents a megatrend (Bundesamt für Strassen, 2018). It is essential that Switzerland adopts a strategic approach to prepare for this transition (Wicki & Bernauer, 2018).

Zurich represents a rare high performance mobility environment in which autonomous services would compete with one of the world's most efficient public transport systems (Thibault & Bayen, 2023). This allows us to examine acceptance mechanisms under conditions where traditional drivers of adoption, such as poor alternatives or limited accessibility, are largely absent. Moreover, Zurich's socio-economic profile, characterized by high purchasing power, reduces financial barriers commonly present in other study settings (Statista, 2025). This enables us to isolate acceptance factors that extend beyond classical cost benefit considerations and remain underrepresented in the existing literature. Finally, Zurich's status as a highly regulated and innovation-oriented test environment provides an internationally relevant benchmark (Ogorodnikova, 2023). Insights derived from such a mature urban mobility system therefore offer clear theoretical and empirical contributions.

1.5 Objective of the Study and Research Question

The objective of this study is to examine the potential use of self-driving taxis in the city of Zurich, including the identification of user groups and the routes they would take. Furthermore, we are interested in whether there are any differences in the intention to use them during the day or at night. The findings will be used to explore and record an initial picture of the disposition in the city of Zurich, which will then be used to draw up initial implications. No hypotheses were formulated for this kind of exploratory research (Häder, 2019).

The following research question is investigated in this study: Under what conditions would self-driving taxis be used in the city of Zurich, and what factors influence the intention to use them?

2. Method

In this quantitative study, we employed a non-experimental cross-sectional design, using an online survey with a multifactorial approach. This method is particularly suitable for surveying a large number of individuals and gaining an initial understanding of the topic (Häder, 2019).

2.1 Operationalization of Variables

The items from the self-developed questionnaire were derived from the existing literature on the UTAUT 2 model (Venkatesh et al., 2012). The individual questions were deduced from the factors of *performance expectancy*, *effort expectancy*, *facilitating conditions*, *social influence* and *hedonic motivation*. *Price value* and *habit* were not included in the survey due to the unavailability of data on these factors, which could not be surveyed because respondents had no prior experience with this new technology.

In her meta-study, Keszei (2020) proposes the inclusion of additional new variables in future research on automated vehicles that extend beyond the conventional models, such as the UTAUT 2. To this end, we have devised a novel questionnaire, augmented with questions drawn from other traffic studies, which should facilitate the capture of any intention to utilize self-driving taxis, particularly in Zurich.

The questionnaire was developed based on the findings of several studies, including the Questionnaire on the Acceptance of Automated Driving (QAAD; Weigl et al. (2021)), the research conducted by Nordhoff et al. (2018), and the study by Günthner & Proff (2021). Additionally, questions from the survey conducted by Schoettle & Sivak (2014) were incorporated. Appendix Table A-1 provides a detailed overview of the source of each question, along with a rationale for their selection.

All original studies and questionnaires were translated into German using DeepL (2023) and subsequently discussed with the assistance of a native German speaker with

a C2 level of English. To ensure a broad and diverse sample, the questionnaire was designed to minimize technical jargon.

In order to facilitate the comparability of the variables and to enhance the precision of the responses, two distinct types of scale were selected for the survey. The majority of items were rated on a seven-point Likert scale. The scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*) and was adapted from the UTAUT model (Venkatesh et al., 2003). The items pertaining to the topic of benefits and challenges, conducted by Schoettle & Sivak (2014), were measured on a four-point Likert scale, ranging from "very unlikely" (1) to "very likely" (4). The sociodemographic data were recorded using nominal and ordinal scales.

All questions were required to be answered, and no questions could be omitted. However, respondents were permitted to select "don't know" as an answer option for each item. This was done to prevent participants from randomly selecting an option if they did not have an answer to the question. To guarantee that respondents carefully read, understood and completed the online survey, a control variable was incorporated into the questionnaire as an attention control. To ensure consistency in responses, one question was posed twice. The response differential between the control variables was examined for the purposes of data cleaning. Answers with a high discrepancy were excluded from the study. This approach is recommended to identify careless responders (Meade & Craig, 2012).

In the introductory text to the survey, respondents were informed about the data protection and anonymity measures that would be in place. Furthermore, it was indicated that the questionnaire would require approximately 15 to 20 minutes to complete. To proceed, respondents were required to indicate their consent to participate in the study. The questionnaire was introduced by two brief informational videos concerning Level 4 autonomous vehicles. One video was created by the authors and depicts the potential ordering process and

the arrival of the self-driving taxi. To provide respondents with the most realistic picture possible, additional scenes from a YouTube video of a real trip through Los Angeles in a Waymo taxi were incorporated into the survey (Electrek.co, 2023). The second video, produced by Cruise, another company that developed self-driving vehicles, showcases sample rides with different individuals (Cruise, 2022).

To ensure the questionnaire's quality and suitability, a two-week pretesting phase was conducted with ten people. In consideration of the feedback, three questions (No. 8, 13, and 48) were excluded.

The detailed reasons for exclusion can be found in the questionnaire in Table A-1 of the appendix. The data collection process was completed in approximately two months and utilized the online survey software Unipark (2019). The mean processing time was 13 minutes.

The questionnaire was divided into thematic areas to facilitate a more coherent and accessible format for the respondents.

2.1.1 Questionnaire Component

Table 1 presents the thematic areas, along with sample items and their respective numbers.

To illustrate the potential operational area of self-driving taxis, a map of Zurich was shown in the intention to use questions. The participants were informed that the self-driving taxis are subject to operational limitations within a specified area of Zurich. In addition, in question 19, a series of illustrative routes within Zurich were presented, accompanied by the actual distances and associated fares. These were calculated in accordance with existing fare structures in the USA.

2.2 Sample Collection and Statistical Methods

The objective was to gather a sample that was as diverse as possible, in order to approximate the characteristics of the general population.

Table 1. Thematic area of the questionnaire

Item No.	Thematic area	Example-Item
1 - 5	Attitudes toward new technologies	<ul style="list-style-type: none"> - If I heard about a new technology, I would look for ways to experiment with it (Agarwal & Prasad, 1998). - I am interested in self-driving taxis (Weigl et al., 2021).
6 & 7	Zurich's transportation system	<ul style="list-style-type: none"> - I believe that self-driving taxis are compatible with all aspects of today's Zurich transportation system (Venkatesh et al., 2012).
9 - 14	General opinion about self-driving taxis	<ul style="list-style-type: none"> - I would trust a self-driving taxi (Weigl et al., 2021). - I can imagine that self-driving taxis will become a useful means of transportation (Venkatesh et al., 2012).
15 - 17	Benefits and challenges of self-driving taxis	<ul style="list-style-type: none"> - How likely do you consider the following benefits of self-driving electric taxis? (Schoettle & Sivak, 2014) - How concerned are you about the following challenges associated with self-driving electric taxis? (Schoettle & Sivak, 2014)
18 - 36	Intention to use	<ul style="list-style-type: none"> - I would use a self-driving taxi for family/personal errands (Jabbari et al., 2022). In this topic area, the dependent variables were as follows: - If self-driving taxis were permanently available in Zurich, I plan to use them (Venkatesh et al., 2012). - I would use a self-driving taxi during the day. - I would use a self-driving taxi at night.
37 - 40	Social influences	<ul style="list-style-type: none"> - I would use a self-driving taxi if people in my social environment also use it (Nordhoff et al., 2018).
41 - 49	Sociodemographic data	<ul style="list-style-type: none"> - What gender do you identify with? - How old are you in years?

Note. Questions no 8, 13 and 48 were removed after pretesting. Detailed information can be found in appendix Table A-1

The recruitment process was conducted in multiple stages and across different locations in Zurich, both online and offline. Various age groups were approached on the street, in different local neighborhoods, and at universities. Additionally, 43 associations and organizations were contacted to reach further participants.

The data were analyzed using IBM SPSS Statistics version 29.0.2.0. An exploratory factor analysis was performed for each questionnaire component. The identified factors are described in the results. Three independent, hierarchical regression analyses were conducted to predict the respective dependent variables (DV): The first DV was the intention to use self-driving taxis if they would be permanently available. This is intended to assess general usage. (Chapter 3.4.1). The differences of the usages in the day or night time were examined with the second and third DV. The second DV was the intention to use them during the day (Chapter 3.4.2), and the third DV was the intention to use

them at night (Chapter 3.4.3). The contribution of several predictors to explaining the DV was examined in stages. To ensure that only participants who had already formed an opinion about self-driving cars were included in the analysis, the “Don’t know” response option was treated as a missing value. This resulted in case-wise exclusion in the regression analyses. Consequently, the sample size varied depending on the model.

3. Results

3.1 Statistic Data Cleaning and Processing

The analysis procedure entailed the following steps: (i) the creation of multiple response sets (question No. 19, 20, 23), (ii) the recoding of negatively formulated variables (question No. 3, 16), and (iii) the determination of the discrepancy between the control variables (question No. 5 and 28).

A total of 302 participants completed the questionnaire in its entirety. Due to the

examination of the careless responders, 7 participants were excluded from the sample. Individuals exhibiting a discrepancy of greater than three points were immediately excluded from the study. For participants with a differential of two or three points, additional evaluation criteria were applied. The response time of the participants was then analyzed, as well as their overall response patterns. Through this screening process, an additional 23 participants were excluded. As a result, the final sample comprised 272 participants ($N = 272$). The objective of this cleaning process was to enhance the quality of the data (Ward & Meade, 2023).

3.2 Descriptive Statistics

3.2.1 Descriptive Sample Description

Of the 272 participants, 46.70% ($n = 127$) were female, and 53.30% ($n = 145$) were male. The participants ranged in age from 16 to 89 years, with an average age of approximately 44 years ($M = 43.90$, $SD = 15.37$). The percentage of participants whose highest level of education corresponded to a university degree was 60.30% ($n = 164$).

3.2.2 Descriptive Presentation of the Results

A majority of participants regularly inform themselves about new technological innovations and they look for ways to experiment with them (see Table 2). They also have no difficulty relinquishing control to a machine. Moreover, participants showed a slightly above-average interest in self-driving taxis. When asked whether participants would trust such a vehicle, the mean response was also slightly above the midpoint. However, the question of whether they would feel safe in such a vehicle received a more critical assessment. There was agreement among respondents regarding the question of whether they could envision self-driving taxis as a useful means of transportation. The willingness to try a self-driving taxi during a test drive was very high. The highest level of agreement was observed for the question

of whether participants would accept the use of such vehicles in their environment, even if they would not use them personally. And there was also an agreement to use this kind of vehicle, when the social environment uses it.

Regarding the participants' views on the trip length, 41.18% stated that they would use it for medium distances, defined as between 3 km and 5 km (see Table 3). Similarly, 40.44% could imagine using such a vehicle for longer distances of 7 km or more, whereas only 20.96% would consider it for short distances (under 3 km). Also 35.66% of the participants responded with "I would not use it". Regarding trip duration, the preference for medium travel times, defined as between 15 and 30 minutes, was most common with 49.72% selecting this option over the others. Meanwhile, 29.04% of respondents indicated that they would not use a self-driving taxi. More than half of the respondents indicated that they would replace a traditional taxi (52.21%), followed by Uber (44.12%) and public transport (31.99%). A quarter (25.37%) would replace their private car with a self-driving taxi.

3.3 Factor Analysis

To summarize and reduce the number of variables, thematically similar items were averaged, and an exploratory factor analysis was performed for each content construct. The suitability of the variables for a factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett test. The KMO values varied between medium ($KMO = .66$) to good ($KMO = .87$). The Bartlett test indicated that the variables were correlated ($p < .001$). Based on the results of the statistical tests mentioned, the variables were considered suitable for the factor analyses. The maximum likelihood extraction and varimax rotation were applied (Costello & Osborne, 2005). Based on the data structure, six factors were identified. Subsequently it was reevaluated whether the items were conceptually coherent and shared a common meaning. The explained variances

Table 2. Descriptive statistics main results

Item	n	Mean	SD
(1) inform myself about new technologies	271	4.68	1.88
(2) experiment with new technologies	271	4.01	1.77
(3) no difficulty relinquish control to a machine	266	4.03	1.81
(4) interested in self-driving taxis	267	4.18	2.01
(9) trust in self-driving taxis	267	4.17	1.87
(10) feel safe in a self-driving taxi	267	3.99	1.89
(11) imagine usefulness of a self-driving taxi	264	4.96	1.80
(24) try a test ride	267	5.76	1.85
(38) use it when social environment also uses it	262	4.00	2.09
(40) acceptance of use by others	263	5.98	1.60

Note. Sample size (n) varies due to participants selecting "Don't know". Items were rated on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with an additional "Don't know" option.

Table 3. Descriptive statistics usage

Item	Response option	% of cases	n
(19) trip length	short (less than 3 km)	20.96%	57
	middle (3–5 km)	41.18%	112
	long (7 km or more)	40.44%	110
	no use	35.66%	97
(20) trip duration	short (less than 15 min)	32.72%	89
	middle (15–30 min)	49.63%	135
	long (above 30 min)	27.57%	75
	no use	29.04%	79
(23) replace	private car	25.37%	69
	public transport	31.99%	87
	Uber	44.12%	120
	traditional taxi	52.21%	142

Note. Multiple responses were possible for each item; therefore, percentages may exceed 100%. Sample size (n) refers to the number of participants who selected the option.

are presented in Table B-1 to B-6 and the results of the factor analyses in Table B-7 to B-12 in the appendix. The factors are described below:

1. *Attitudes toward new technologies.* This factor describes an open-mindedness and willingness to experiment with new technologies. The explained variance of this factor was 45.86% and included four items, e.g.: "If I heard about a new technology, I would look for ways to experiment with it."
2. *Safety and trust.* This factor reports on trust in self-driving taxis and perceived safety. The explained variance of this factor was 53.70%. It comprised eight items, e.g.: "I would trust a self-driving taxi."
3. *Usefulness.* This factor reflects the perceived ease of use and willingness to use. It explained 62.99% of the variance and contained four items, e.g.: "I believe that self-driving taxis will be very user-friendly and easy to use."
4. *Attitudes toward mobility in Zurich.* This factor contains the opinions about the transportation system of Zurich. The explained variance was 36.69% and the factor consisted of six items, e.g.: "I believe that self-driving taxis are compatible with all aspects of today's Zurich transportation system."
5. *Environmental and traffic efficiency.* This factor includes assessments about self-driving taxis in an environmental and transportation context. The factor had four items and explained 45.62% of

the variance, e.g.: "How likely do you consider the benefit of lower vehicle emissions?"

6. *Social influences*. This factor measures the influence of recommendations and acceptance in the social environment. It explained 53.73% of the variance and consisted of four items, e.g.: "People who are important to me think that I should use a self-driving tax."

3.4 Hierarchical Regression

To examine the association between the factors and the three dependent variables (DV), a hierarchical regression analysis was conducted for each variable: starting with the intention to use if the self-driving taxis were permanently available, followed by the intention to use during the day and concluding at night.

An assumption for a regression analysis is normality. This was verified with histograms. To assess potential multicollinearities, Pearson correlations were examined. Values exceeding the threshold of $r = .70$, as suggested in the literature, indicate strong collinearity (Backhaus et al., 2023). The factor *usefulness* correlated strongly with *safety and trust* ($r = .72, p < .001$) and *attitudes toward mobility in Zurich* ($r = .75, p < .001$). Therefore, *safety and trust* and *attitudes toward mobility in Zurich* were removed. The remaining factor *usefulness* provides a reliable result due to the high correlation across all three. Consequently, it was renamed to *safety and utility evaluation*. Likewise, the variable measuring if respondents find self-driving taxis useful in Zurich correlated strongly with the variable measuring whether they would recommend them to their social environment ($r = .70, p < .001$). For this reason, the recommendation item was removed.

The hierarchical regression was performed with the four factors *environmental and traffic efficiency*, *safety and utility evaluation*, *attitude toward new technologies*, *social influences* and the sociodemographic variables *gender*, *age* and *educational level*. The data were

all measured on an interval scale, except for *gender*, which was coded as a binary variable (1 = female, 2 = male) and *educational level*, which was included with three dummy variables. Overall, the analyses included five hierarchical models. These, along with their arrangement, are shown in Table 4.

3.4.1 Regression Model with Intention to Use if Self-driving Taxis were Permanently Available

The independent variables accounted for 56.90% of the variance in intention to use ($R^2_{adj} = .57$).

According to Cohen (1988), this constitutes a high level of explained variance. The highest change in R^2 occurred in Model 2 after the addition of the *safety and utility evaluation* ($R^2_{adj} = .37$). By adding this factor, an additional 25.70% of the variance was explained. This shows the high influence of this factor. Another relevant change in adjusted R^2 was observed in Model 4 with the inclusion of the factor *social influences* ($R^2_{adj} = .57$). This resulted in an increase of 11.80% of the variance in intention to use. The model summary for Model 1 to 5 is presented in Table 5.

The most important predictors in Model 5 were *social influences* and *attitudes toward new technologies* (see Table 6). The strongest factor was *social influences* ($\beta = .44, t(174) = 6.68, p < .001$). The *attitudes toward new technologies* followed ($\beta = .25, t(174) = 3.97, p < .001$). Likewise, *safety and utility evaluation* is an essential and significant predictor ($\beta = .20, t(174) = 2.86, p = .005$). No relation was found between the permanent intention to use and the sociodemographic variables. Model 5 is statistically significant ($F(8, 174) = 30.98, p < .001$). The ANOVA and the coefficients in Table of Model 1 to 4 can be found in appendix Table C-1 and Table C-2.

3.4.2 Regression Model with Intention to Use During the Day

All independent variables together explained 31.10% of the variance in the intention to

Table 4. Arrangement of the predictors and model number

Model	Predictors
1	Environmental and traffic efficiency
2	Safety and utility evaluation
3	Attitude toward new technologies
4	Social influences
5	Gender, age, vocational education and basic education

Table 5. Model summary Model 1 to 5

Model	R	R ²	R ² _{adj}	Std. Error of the Estimate	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.35	.12	.12	2.01	.12	25.15	1	181	<.001
2	.62	.38	.37	1.70	.26	74.59	1	180	<.001
3	.68	.46	.45	1.59	.08	27.29	1	179	<.001
4	.76	.58	.57	1.41	.12	49.89	1	178	<.001
5	.77	.59	.57	1.41	.01	.87	4	174	.481

Note. Dependent variable: If self-driving taxis were permanently available in Zurich, I plan to use them.

Table 6. Coefficients Model 5

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
5	(Constant)	4.17	.14		29.81	<.001
	Environmental and traffic efficiency	.18	.13	.08	1.42	.158
	Safety and utility evaluation	.43	.15	.20	2.86	.005
	Attitude toward new technologies	.57	.14	.25	3.97	<.001
	Social influences	1.10	.16	.44	6.68	<.001
	How old are you in years?	-.08	.12	-.03	-.67	.505
	What gender do you identify with?	.19	.13	.09	1.51	.133
	vocational education	.18	.24	.04	.73	.467
	basic education	.40	.50	.04	.80	.427

Note. Dependent variable: If self-driving taxis were permanently available in Zurich, I plan to use them.

use during the day ($R^2_{adj} = .31$). According to Cohen (1988), this represents a strong explained variance. The highest change in R^2 was observed in Model 2 with the addition of the factor *safety and utility evaluation* ($R^2_{adj} = .22$, R^2 Change = .14). This was followed by the second most important factor *environmental and traffic efficiency* in Model 1, which also contributed to the explained variance ($R^2_{adj} = .08$). With a marginal difference, the factor *social influences* accounted for an additional 7.10% of the variance ($R^2_{adj} = .32$, R^2 Change = .07). This result showed that, similar to the permanent intention to use if self-driving taxis were available in Zurich, the evaluation of *safety and utility evaluation* contributed the most to the explanation. The model summary is provided in Table 7.

The coefficients Model 5 are presented in Table 8. The strongest predictor was *social influences* ($\beta = .35$, $t(172) = 4.19$, $p < .001$). The predictive value of *attitudes toward new technologies* was also significant ($\beta = .19$, $t(172) = 2.35$, $p = .020$). The remaining factors did not significantly contribute to predicting the intention to use during the day. Overall, Model 5 is statistically significant ($F(8, 172) = 11.14$, $p < .001$). The Table of the coefficients Model 1 to 4, as well as the ANOVA, are shown in appendix Table C-3 and Table C-4.

3.4.3 Regression Model with Intention to Use During the Night

Together the independent variables explained 41.90% of the variance ($R^2_{adj} = .42$), which constitutes a strong explanation of variance,

Table 7. Model summary Model 1 to 5

Model	R	R ²	R ² _{adj}	Std. Error of the Estimate	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.29	.09	.08	2.13	.09	16.70	1	179	<.001
2	.48	.23	.22	1.97	.14	32.87	1	178	<.001
3	.52	.27	.25	1.92	.04	9.54	1	177	.002
4	.58	.34	.32	1.83	.07	18.79	1	176	<.001
5	.58	.34	.31	1.85	.00	.22	4	172	.930

Note. Dependent variable: I would use a self-driving taxi during the day.

Table 8. Coefficients Model 5

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
5	(Constant)	3.81	.14		27.31	<.001
	Environmental and traffic efficiency	.19	.17	.08	1.09	.275
	Safety and utility evaluation	.36	.20	.16	1.80	.073
	Attitude toward new technologies	.45	.19	.19	2.35	.020
	Social influences	.92	.22	.35	4.19	<.001
	How old are you in years?	.13	.16	.05	.82	.414
	What gender do you identify with?	.00	.17	.00	.02	.987
	vocational education	.03	.15	.01	.17	.864
	basic education	.08	.15	.03	.53	.595

Note. Dependent variable: I would use a self-driving taxi during the day.

according to Cohen (1988). Thus, the intention to use at night was explained nearly 11% more effectively by the factors compared to the intention to use during the day. The most influential factor was *safety and utility evaluation* ($R^2_{adj} = .34$, R^2 Change = .28). This finding indicates that the evaluation of safety and usefulness has the greatest impact on the intention to use a self-driving taxi at night. The rating of *environmental and traffic efficiency* accounted for 7.10% of the variance and was the second most relevant factor ($R^2_{adj} = .07$). This was followed by *social influences* ($R^2_{adj} = .42$, R^2 Change = .06). The values of the model summary are presented in Table 9.

In Model 5 (see Table 10) the factor *safety and utility evaluation* was the strongest predictor ($\beta = .34$, $t(174) = 4.17$, $p < .001$). The factor *social influences* similarly showed a significant and high influence ($\beta = .30$, $t(174) = 3.95$, $p < .001$). Age emerged as a significant negative predictor of the intention to use during the night ($\beta = -.12$, $t(174) = -1.98$, $p = .049$). Model 5 is statistically significant ($F(8, 174) = 17.42$, $p < .001$). The ANOVA can be found in Table C-5 in the appendix.

Likewise, Table C-6 with the results of the coefficients of Model 1 to 4.

4. Discussion

4.1 Interpretation of the Results

Although the respondents have not yet had any personal experience with self-driving taxis and seem to be generally very satisfied with the current means of transportation available in Zurich, a high level of interest could be revealed. In general, they keep up with new technologies and seek ways to experiment with them. Moreover, they are comfortable relinquishing control to a machine. The very high level of agreement on testing a self-driving taxi further highlights the participants' openness to innovative technologies.

Furthermore, the participants generally perceive taxis as very useful. Potential benefits of self-driving vehicles such as optimized traffic flow, improved accessibility to transportation, reduced fuel consumption and increased road safety, seem to be established already (Panagiotopoulos &

Table 9. Model summary Model 1 to 5

Model	R	R ²	R ² _{adj}	Std. Error of the Estimate	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.27	.07	.07	1.98	.07	13.74	1	181	<.001
2	.59	.35	.34	1.66	.28	76.97	1	180	<.001
3	.61	.37	.36	1.63	.02	6.33	1	179	.013
4	.66	.43	.42	1.56	.06	18.94	1	178	<.001
5	.67	.44	.42	1.56	.01	1.02	4	174	.399

Note. Dependent variable: I would use a self-driving taxi at night.

Table 10. Coefficients Model 5

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
5	(Constant)	4.86	.12		41.51	<.001
	Environmental and traffic efficiency	-.03	.14	-.02	-.23	.815
	Safety and utility evaluation	.70	.17	.34	4.17	<.001
	Attitude toward new technologies	.29	.16	.14	1.84	.067
	Social influences	.72	.18	.30	3.95	<.001
	How old are you in years?	-.27	.13	-.12	-1.98	.049
	What gender do you identify with?	.10	.14	.05	.72	.470
	vocational education	.02	.13	.01	.14	.892
	basic education	-.05	.13	-.02	-.36	.719

Note. Dependent variable: I would use a self-driving taxi at night.

Dimitrakopoulos, 2018). The findings indicate that the intention to use self-driving taxis increases from medium travel distances onward. Moreover, nearly half of the respondents would choose such a taxi for medium travel times between 15 to 30 minutes. The perception of safety was answered more critically than trust in self-driving taxis. By way of contrast, this finding differs from the survey conducted by Schoettle & Sivak (2014), in which respondents expressed a high level of concern. This may be due to a better understanding among individuals that automation has made road traffic safer. Nowadays cars equipped with automatic parking aids, automatic braking systems or lanekeeping assistants are no longer a rarity. This indicates that individuals have become accustomed to this elevated level of automation in daily traffic and have developed a greater trust in this technology through their experiences.

The regression analysis indicates, in summary, that the intention to use self-driving taxis, if they were permanently available in Zurich can be attributed to the factors *safety and utility evaluation*, *social influences* and

attitude toward new technologies. For the intention to use them during the day, only *social influences* and *attitude toward new technologies* have an impact, whereas during the night, *age* also has a significant effect. These results align with the statements of Benleulmi & Ramdani (2022), who suggested that affective motives (trust) and symbolic motives (innovativeness and social influence) contribute to the intention to use.

Whether participants would trust a self-driving taxi on Zurich's roads and their sense of safety are important influences on the intention to use. The perceived safety in road traffic is also a crucial element. This indicates whether the vehicles are capable of responding adequately in unforeseen circumstances and how they interact with other road users. The compatibility of the vehicles within Zurich's transport network is also an important aspect. A user-friendly operation should be a priority and a key focus.

As also illustrated by Nordhoff et al. (2020) *social influence* is a fundamental determinant of intention to use. It can be assumed that individuals often align their behavior

and attitudes with those of their social environment, particularly when a technology is new and there is a lack of experience with it. As Venkatesh & Davis (2000) have also observed, individuals are more likely to accept and use a technology when they perceive that it is already being used by others in their social circle. The opinions of family members, friends, and colleagues toward self-driving taxis therefore play a decisive role in the evaluation and use of this technology.

Furthermore, *attitudes toward new technologies* is also an important factor in predicting the intention to use. The higher a person's interest in new technologies, the more open they are. Therefore, they are more likely to try out and adopt this innovation in Zurich. These findings align with those of Benleulmi & Ramdani (2022), which confirm a relation between an individual's level of innovativeness and their behavioral intention to use an automated vehicle.

The results demonstrate that neither *gender*, *age*, nor *educational level* constitute an additional explanation for the intention to use self-driving taxis, if the taxis were permanently available in Zurich. These findings are consistent with Madigan et al. (2017) and Zmud et al. (2016). They also assert that personal and psychological factors, such as the perception of safety or attitudes toward the use of technology, are more accurate predictors than sociodemographic characteristics. By way of contrast, the studies by Hulse et al. (2018) and Charness et al. (2018), identified the influence of sociodemographic variables on attitudes toward self-driving vehicles. Due to differing methodological approaches, it should be noted that the results may not be entirely comparable. Nevertheless, the primary conclusion that can be drawn from the regression analysis is that self-driving taxis are of interest to the overall sample, regardless of *gender*, *age* or *educational level*.

There are differences in the results between the intention to use during the day and at night. During the day the factor *attitudes toward new technologies* influences the

intention to use, while at night, it has no effect. Here, instead, *safety and utility evaluation* emerge as the most important factor. This result leads to the conclusion that at night a sense of safety is of greater importance. During these hours, people tend to be more safety-conscious and exhibit an increased awareness of risks.

Moreover, during the night *age* becomes an important influencing factor. With increasing age, the likelihood of using a self-driving taxi at night decreases. It can be assumed that younger people participate more actively in Zurich's nightlife and are out more often during the night. This may also highlight the increased concept of safety during nighttime.

4.2 Implication

In this study an initial questionnaire on the intention to use self-driving taxis in the city of Zurich was conducted. Based on the results, the factors *safety and utility evaluation*, *social influences* and *attitude toward new technologies* emerge as decisive predictors. In contrast, *gender*, *age* and *level of education* do not play a crucial role.

It is important for authorities and manufacturers to provide transparent reports on safety aspects. Safety in self-driving taxis encompasses not only the subjective feeling but also measurable actions that enhance road safety. The participants also value the usefulness and user-friendliness of such vehicles. This emphasizes that, for example, the effectiveness of self-driving taxis should be shown. Furthermore, it means that these vehicles need to be as practical and suitable for everyday use as possible. This includes a simple ordering process and a comfortable ride until the vehicle is left. In fact, using a self-driving taxi should not require any special technical skills.

The survey revealed that younger people have a need for additional means of transportation at night. This finding is less surprising, as public transportation generally operates less often during the nighttime. According to VBZ (2023), the demand during

these hours is increasing. Self-driving taxis could provide a solution here and serve as an additional mode of transportation.

As the introduction of self-driving taxis in the USA has shown, they are tried out and used once they are available in the cities. This aligns with our survey results, which revealed that more than half of the participants would like to try out a test ride. Although many respondents are very satisfied with public transport, they consider self-driving taxis an exciting alternative in Zurich's road traffic. Similarly, Hörl et al. (2019) demonstrated in their study that a fleet of self-driving taxis in the city of Zurich could be a beneficial addition to the current transport network.

4.3 Limitations and Future Research

4.3.1 Limitations

A large part of the empirical research on automated vehicles, which forms the basis of the UTAUT (Venkatesh et al., 2003) and the UTAUT 2 (Venkatesh et al., 2012) models, focuses mainly on the actual utilization of these technologies (Keszey, 2020). As self-driving taxis are not yet commercially available in Zurich, it is not possible to ascertain their actual use. Accordingly, this study primarily concentrates on the intention to use as an outcome variable. For this reason, a new questionnaire was designed that includes questions from UTAUT and UTAUT 2, but was also supplemented with questions from other transportation studies.

Given that these vehicles are not yet accessible to the public in Zurich, our findings reflect the participants' perceptions. According to Nordhoff et al. (2018) this can lead to biases in the responses. To counteract this effect, two informational videos about real existing self-driving taxi technology were provided at the beginning of the questionnaire. However, the participants' current knowledge about this technology was not assessed, which can be considered a limitation. As no pricing models for self-driving taxis currently exist in Zurich, the fare examples used in the questionnaire were

based on U.S. price structures. This may limit the relevance of the findings to the Swiss context. There were also constraints regarding the response scales. Using the seven-point Likert scale, respondents had the option to give a neutral answer. According to Simms et al. (2019), this is often used when individuals are uncertain about their response. Moreover, the response scale was unified. However, since different questions were adopted from various studies, the validity and reliability of the measurement results require closer examination. Adjustments to scales can disrupt their psychometric properties (Simms et al., 2019).

As the recruitment was conducted partly on social media, there is a possibility that the sample is not representative of Zurich. For example, the sample was homogeneous in terms of education. People with a lower level of education were under-represented, as 60% of the participants had a university degree. In addition, the sample included only a few elderly individuals or those with disabilities. This may be due to the survey being conducted online and this target group tends to be less familiar with technology. On the other hand, prior informational events would have been necessary in retirement homes and residences to introduce the topic effectively. Consequently, the findings should be interpreted as indicative of attitudes among an urban, relatively well-educated population in Zurich.

4.3.2 Future Research

We consider older people an interesting target group for future research. Self-driving taxis could provide them with better accessibility in urban traffic. Therefore, this group should be given greater attention in future studies and explored qualitative as well. We also recommend the inclusion of individuals with disabilities. This is because autonomous vehicles could ensure access to the transportation system, which has been highlighted as a positive aspect in many studies. According to the literature review by Othman (2021), only a few studies have

addressed whether this group would accept it at all.

Although the variance explained by our hierarchical analyses is substantial, it remains evident that additional factors influence the intention to use self-driving taxis. For example, the perceived security and usability of the entire process may play an important role. Furthermore, the cost considerations and the availability of the taxis may also be a key. Future research should focus on other models and factors that may affect the intention to use autonomous taxis.

While the general acceptance of automated vehicles has been extensively researched, there are only a few studies that specifically address the intention to use self-driving taxis.

4.4 Conclusion

The objective of this study was to capture an initial impression of attitudes toward self-driving taxis in Zurich. Overall, it can be concluded that openness and curiosity about this technology exists. Most respondents are willing to take a test ride. If taxis were available, they would primarily be used for medium and longer distances and for medium travel times. Most individuals would currently replace a normal taxi or Uber with a self-driving taxi. During the night the willingness to use increased, especially among younger people and the factor *safety and utility evaluation* is more relevant.

An essential element in the success or failure of autonomous transportation is societal acceptance. The adoption of a concept like those practiced in the USA or in other countries will depend on how safe people perceive self-driving taxis, their opinions about their social environment, and their attitude towards new technologies. An important finding from this study, however, is that gender, age and educational level had no influence on the intention to use self-driving taxis.

The mobility sector is undergoing extensive developments, and the city of Zurich is no exception. The impact on urban life and the environment is expected to be remarkable,

whether in terms of shifts in societal mobility behavior or individual transportation (Hackenfort, 2023). The implementation of autonomous vehicles requires seamless integration across all platforms, including public transport such as trams and buses, rail services like Uber or regular taxis, and micromobility solutions such as e-scooters or bicycles. Self-driving taxis could be perceived as either an optimal

complement to or a competitor of the existing offerings, depending on their way of integration in the mobility system of the respective cities.

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CRedit contribution

Lea Häberli: Conceptualization, Formal Analysis, Investigation, Methodology, Writing—Original Draft. **Sabrina Hofer:** Conceptualization, Formal Analysis, Investigation, Methodology, Writing—Original Draft. **Markus Hackenfort:** Conceptualization, Formal Analysis, Investigation, Methodology, Supervision, Writing—review & editing.

Data availability

The data are available on request to the authors.

Declaration of competing interests

The authors report no competing interests.

Declaration of generative AI use in writing

During the preparation of this work the authors used:

[DeepL \(2023\)](#). *DeepL Translator* (Version DeepL Pro).

<https://www.deepl.com/translator>

- Translation of studies
- Translation of text passages

[Neuroflash \(2023\)](#). *Neuroflash* (Free Version).

<https://neuroflash.com/de/>

- Image creation

[OpenAI. \(2024\)](#). *ChatGPT* (Version 4.0).

<https://chatgpt.com>

- Source of inspiration
- For summarizing literature
- To assist in understanding content
- For improving phrasing and language
- Translation of text passages

The output was reviewed and revised by the authors who take full responsibility for the content of the publication.

Ethics statement

At the time of its preparation, the study did not fall within the legal framework of the Human Research Act.

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Appendix A

Table A-1. Questionnaire

No	Question	Referencing Scientific Studies	Justification	Subject Area in the Questionnaire
1	I regularly inform myself about new technological innovations.	- QAAD: Weigl et al. (2021) - Günthner & Proff (2021)	- Innovation partially still unknown - Günthner & Proff (2021) supplement the TAP in their study with "personal Innovation capability"	Attitudes toward new technologies
2	If I heard about a new technology, I would look for ways to experiment with it.	- Agarwal & Prasad (1998) - Günthner & Proff (2021)	Openness to a new technologies	Attitudes toward new technologies
3	I do not have any difficulty relinquishing control to a machine.	- Zmud et al. (2016) - Nordhoff et al. (2018)	- Would people enter a taxi without a human driver? - Trust in technology vs. enjoyment of control	Attitudes toward new technologies
4	I am interested in self-driving taxis.	QAAD: Weigl et al. (2021)	- Is the technology known? - Is there interest in self-driving taxis?	Attitudes toward new technologies
5	I believe that self-driving taxis will be very userfriendly and easy to use.	- UTAUT2: Venkatesh et al. (2012) - QAAD: Weigl et al. (2021)	- Effort Expectancy - Control question -> Question No. 28	Attitudes toward new technologies
6	I am satisfied with the transportation options available to me in the city of Zurich.	Nordhoff et al. (2018)	- City of Zurich: evaluate whether participants are currently satisfied with the available options - Domain-specific attitude: Usefulness	Zurich's transportation system
7	I believe that self-driving taxis are compatible with all aspects of today's Zurich transportation system.	UTAUT2: Venkatesh et al. (2012)	Facilitating Conditions	Zurich's transportation system
8	Removed after pretesting: I would expect to have the necessary knowledge to use a driverless taxi.	UTAUT2: Venkatesh et al. (2012)	Led to misunderstandings regarding the type of knowledge required (including legal aspects and insurance coverage in case of accidents)	Deleted
9	I would trust a self-driving taxi.	- QAAD: Weigl et al. (2021) - Nordhoff et al. (2018)	- Assesst trust in technology - Not necessarily as a passenger, but also in road traffic - Personality-related attitude	General opinion about self-driving taxis
10	I would feel safe in a self-driving taxi.	QAAD: Weigl et al. (2021)	Is a sense of safety provided?	General opinion about self-driving taxis
11	I can imagine that self-driving taxis will become a useful means of transportation	UTAUT2: Venkatesh et al. (2012)	Performance Expectancy: A strong predictor of intention	General opinion about self-driving taxis
12	Using a self-driving taxi would be fun.	UTAUT2: Venkatesh et al. (2012)	Hedonic Motivation: Enjoyment plays an important role in usage	General opinion about self-driving taxis
13	Removed after pretesting: I find the idea of self-driving taxis concerning.	Charness et al. (2018)	Similar to Question No. 16	Deleted
14	I believe that self-driving vehicles can be safer than those driven by humans.	QAAD: Weigl et al. (2021)	Direct comparison between vehicle and human to assess trust	General opinion about self-driving taxis
15	How likely do you consider the following benefits of self-driving electric taxis?	Schoettle & Sivak (2014)	Answer options were partially adopted or adjusted to fit the research question of this study	Benefits and challenges of self-driving taxis
15a	Increased road safety		Answer option for Question 15	
15b	Less traffic and congestion		Answer option for Question 15	
15c	Shorter travel times		Answer option for Question 15	
15d	Reduced vehicle emissions		Answer option for Question 15	
15e	Stress-free driving		Answer option for Question 15	

16	How concerned are you about the following challenges associated with self-driving electric taxis?	Schoettle & Sivak (2014)	Answer options were partially adopted or adjusted to fit the research question of this study	Benefits and challenges of self-driving taxis
16a	Safety implications of vehicle or system failure		Answer option for Question 16	
16b	Self-driving vehicles not responding adequately in unexpected situations		Answer option for Question 16	
16c	Personal data protection (location and destination tracking)		Answer option for Question 16	
16d	Interaction with other road users		Answer option for Question 16	
16e	Increased traffic volume in the city of Zurich		Answer option for Question 16	
16f	Loss of jobs		Answer option for Question 16	
17	What is the main reason why you would not use a self-driving taxi in your daily life?	Zmud et al. (2016)	Possible main reason for not using a self-driving taxi	Benefits and challenges of self-driving taxis
17a	Loss of jobs		Answer option for Question 16	
17b	Lack of trust in the technology		Answer option for Question 17	
17c	I support a car-free Zurich		Answer option for Question 17	
17d	I imagine it to be too complicated/time-consuming		Answer option for Question 17	
17e	Lack of interest		Answer option for Question 17	
17f	No need		Answer option for Question 17	
17g	Other, please specify		Possible main reason for not using a self-driving taxi	
17h	There is no reason why I would not use a self-driving taxi.		Answer option for Question 17	
18	I think it would be useful to make self-driving taxis available in the city of Zurich (marked area).	Specific to the city of Zurich	Is perceived usefulness present in Zurich?	Intention to use
19	For what trip length would you use a self-driving taxi?	Specific to the city of Zurich	- Participants' expectations/need - Example routes in Zurich with real distances - Fares based on Waymo in the USA	Intention to use
19a	Less than 3 km (Altstadt to Wipkingen) CHF 9.30		Answer option for Question 19	
19b	Between 3 km and 5 km (Altstadt to Altstetten) CHF 12.40		Answer option for Question 19	
19c	From 7 km (Wollishofen to Altstetten) CHF 16.90		Answer option for Question 19	
19d	I would not use it.		Answer option for Question 19	
20	For what trip duration would you use a self-driving taxi?	Specific to the city of Zurich	Participants' expectations/need	Intention to use
20a	Less than 15 minutes		Answer option for Question 20	
20b	Between 10 and 30 minutes		Answer option for Question 20	
20c	From 30 minutes		Answer option for Question 20	
20d	I would not use it		Answer option for Question 20	
21	At what level of time savings on a route would you choose a self-driving taxi over other modes of transportation?	Specific to the city of Zurich	- Participants' expectations/need - 100% = individual total travel time for a route - Answer option: Slider	Intention to use
21a	0%		Answer option for Question 21	
21b	25%		Answer option for Question 21	
21c	50%		Answer option for Question 21	
21d	75%		Answer option for Question 21	
21e	100%		Answer option for Question 21	
22	How often do you estimate you would use a self-driving taxi per year?	UTAUT2: Venkatesh et al. (2012)	- Frequency of use - Answer options were partially adopted or adjusted to fit the research question of this study	Intention to use

22a	Daily/almost daily		Answer option for Question 22	
22b	Every weekday		Answer option for Question 22	
22c	Only on weekends		Answer option for Question 22	
22d	A few days per week		Answer option for Question 22	
22e	A few days per month		Answer option for Question 22	
22f	Annually (less frequently than monthly)		Answer option for Question 22	
22g	I would not use it.		Answer option for Question 22	
23	Which mode of transportation that you currently use would you most likely replace with the use of a selfdriving taxi in the future?	Specific to the city of Zurich	- Is there a willingness to replace modes of transportation? - Multiple selection possible	Intention to use
23a	Public transportation		Answer option for Question 23	
23b	Private car		Answer option for Question 23	
23c	Uber		Answer option for Question 23	
23d	Traditional taxi		Answer option for Question 23	
23e	Car Sharing (e.g., Mobility)		Answer option for Question 23	
23f	Motorcycle (including scooter)		Answer option for Question 23	
23g	Bicycle		Answer option for Question 23	
23h	Walking		Answer option for Question 23	
23i	Scooter		Answer option for Question 23	
23j	other		Answer option for Question 23	
23k	None		Answer option for Question 23	
24	I would try a test ride with a self-driving taxi.	Madigan et al. (2017)	- A test ride is not the same as regular use - Willingness to try? - Intention to use	Intention to use
25	If self-driving taxis were permanently available in Zurich, I plan to use them.	UTAUT2: Venkatesh et al. (2012)	- DV 1 - Behavioral Intention	Intention to use
26	I would use a self-driving taxi during the day.	Own	- DV 2 - Behavioral Intention	Intention to use
27	I would use a self-driving taxi at night.	Own	- DV 3 - Behavioral Intention	Intention to use
28	I believe that a self-driving taxi will be user-friendly.	- UTAUT2: Venkatesh et al. (2012) - QAAD: Weigl et al. (2021)	- Effort Expectancy - Control Question -> Question No. 28	Intention to use
29	I would use a self-driving taxi in the city of Zurich because it would be more convenient than my current mode of transportation.	Nordhoff et al. (2018)	- Success of driverless vehicles if there is a willingness to replace current modes of transportation - Usefulness	Intention to use
30	I would use a self-driving taxi for business trips (work purpose).	Jabbari et al. (2022)	Specific use in the city of Zurich	Intention to use
31	I would use a self-driving taxi for picking up and dropping off individuals (e.g., my children).	Jabbari et al. (2022)	Specific use in the city of Zurich	Intention to use
32	I would use a self-driving taxi for family/personal errands.	Jabbari et al. (2022)	Specific use in the city of Zurich	Intention to use
33	I would use a self-driving taxi for social and recreational activities (e.g., tennis club).	Jabbari et al. (2022)	Specific use in the city of Zurich	Intention to use
34	I would use a self-driving vehicle for a fixed route, e.g., between Stadelhofen and Hauptbahnhof.	Specific to the city of Zurich	Representatives of the city: Under what operational conditions would they be willing to use a shuttle service?	Intention to use
35	I would use a self-driving vehicle shared with unfamiliar individuals.	Specific to the city of Zurich	Representatives of the city: Under what operational conditions would they be willing to use a shuttle service?	Intention to use
36	I would use a self-driving vehicle shared with unfamiliar individuals and for a fixed route.	Specific to the city of Zurich	Representatives of the city: Under what operational conditions would they be willing to use a shuttle service?	Intention to use

37	I would recommend to those in my social environment to use a self-driving taxi.	Own	Recommendation: Confidence in the product	Social influences
38	I would use a self-driving taxi if people in my social environment also used it.	Nordhoff et al. (2018)	Social influence: If others use it, I will try it as well	Social influences
39	People who are important to me think that I should use a self-driving taxi.	UTAUT2: Venkatesh et al. (2012)	Social influences	Social influences
40	I would accept the use of self-driving taxis by others in my social environment, even if I would not use them myself.	Fleischer et al. (2022)	- Non-user acceptance - Acceptance of use by others, even if not using it personally?	Social influences
41	What gender do you identify with?	Own	Sociodemographic Question	Sociodemographic data
41a	Female		Answer option for Question 41	
41b	Male		Answer option for Question 41	
41c	Diverse		Answer option for Question 41	
42	How old are you in years? (e.g., 45)	Own	Sociodemographic Question	Sociodemographic data
43	What is your highest level of completed education?	Own	- Sociodemographic Question - Madigan et al. (2017) : Education is often associated with different usage patterns and access to modes of transportation	Sociodemographic data
43a	University (Higher Education)		Answer option for Question 43	
43b	University of Applied Sciences		Answer option for Question 43	
43c	Vocational School (Professional Training)		Answer option for Question 43	
43d	Apprenticeship		Answer option for Question 43	
43e	High School (Gymnasium)		Answer option for Question 43	
43f	Mandatory Schooling		Answer option for Question 43	
43g	None		Answer option for Question 43	
44	What is your marital status?	Own	Sociodemographic Question	Sociodemographic data
44a	Single		Answer option for Question 43	
44b	Married		Answer option for Question 43	
44c	Widowed		Answer option for Question 43	
44d	Divorced		Answer option for Question 43	
44e	In a registered partnership		Answer option for Question 43	
44f	Prefer not to answer		Answer option for Question 43	
45	Do you have children?	Lee et al. (2020)	- Improving mobility for children? - Parents are an interesting target group.	Sociodemographic data
45a	Yes		Answer option for Question 45	
45b	No		Answer option for Question 45	
45c	Prefer not to answer		Answer option for Question 45	
46	Do you have a mobility impairment (e.g., a walking disability)?	Lemmer (2019)	Usefulness for individuals with mobility impairments to improve access to transportation for this target group	Sociodemographic data
46a	Yes		Answer option for Question 46	
46b	No		Answer option for Question 46	
46c	Prefer not to answer		Answer option for Question 46	
47	Do you possess a driver's license of class B or higher?	Own	Is the intention to use influenced by whether someone is able to drive themselves or not?	Sociodemographic data
47a	Yes		Answer option for Question 47	
47b	No		Answer option for Question 47	

48	Removed after pretesting: How much money is available to you or your household per month after deducting fixed expenses? I have no personal income Less than CHF 1'000 CHF 1'001 – CHF 3'000 CHF 3'001 – CHF 5'000 CHF 5'001 – CHF 8'000 CHF 8'001 – CHF 10'000 More than CHF 10'000 Prefer not to answer		The question was deemed inappropriate.	Deleted
49	How often do you travel within the city of Zurich using the following modes of transportation?	Own	- Determine a potential comparison with the current traffic situation - Multiple selection possible	Sociodemographic data
49a	Public transportation		Answer options: daily/almost daily	
49b	Walking		Only on weekends	
49c	By bicycle or scooter		A few days per week	
49d	With your own vehicle (car, motorcycle, etc.)		A few day per month	
49e	With Uber, Taxi or similar services		Annually (less frequently than monthly) Never	

Appendix B: Factor Analysis

Table B-1. Explained Variance, Attitude toward new technologies

Factor	Initial Eigenvalues			Sum of squared factor loadings for extraction		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.20	55.02	55.02	1.83	45.86	45.86
2	.93	23.15	78.17			
3	.62	15.60	93.77			
4	.25	6.23	100.00			

Note. Extraction method: Maximum Likelihood.

Table B-2. Explained Variance, Safety and trust

Factor	Initial Eigenvalues			Sum of squared factor loadings for extraction		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.80	60.02	60.02	4.30	53.70	53.70
2	.87	10.94	70.96			
3	.64	8.00	78.96			
4	.54	6.71	85.67			
5	.44	5.45	91.12			
6	.38	4.70	95.82			
7	.24	2.94	98.76			
8	.10	1.24	100.00			

Note. Extraction method: Maximum Likelihood.

Table B-3. Explained Variance, Usefulness

Factor	Initial Eigenvalues			Sum of squared factor loadings for extraction		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.89	72.13	72.13	2.52	62.99	62.99
2	.62	15.50	87.62			
3	.36	8.93	96.55			
4	.14	3.45	100.00			

Note. Extraction method: Maximum Likelihood.

Table B-4. Explained Variance, Attitude toward mobility in Zurich

Factor	Initial Eigenvalues			Sum of squared factor loadings for extraction		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.68	44.70	44.70	2.20	36.69	36.69
2	.94	15.73	60.44			
3	.93	15.56	75.99			
4	.66	10.94	86.93			
5	.45	7.51	94.44			
6	.33	5.56	100.00			

Note. Extraction method: Maximum Likelihood.

Table B-5. Explained Variance, Enviromental and traffic efficiency

Factor	Initial Eigenvalues			Sum of squared factor loadings for extraction		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.27	56.64	56.64	1.82	45.62	45.62
2	.75	18.69	75.33			
3	.67	16.73	92.06			
4	.32	7.94	100.00			

Note. Extraction method: Maximum Likelihood.

Table B-6. Explained Variance, Social influences

Factor	Initial Eigenvalues			Sum of squared factor loadings for extraction		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.56	63.97	63.97	2.15	53.73	53.73
2	.71	17.81	81.77			
3	.42	10.55	92.32			
4	.31	7.68	100.00			

Note. Extraction method: Maximum Likelihood.

Table B-7. Factor matrix, Attitude toward new technologies

	Factor
	1
I regularly inform myself about new technological innovations	.801
If I heard about a new technology, I would look for ways to experiment with it.	.929
I am intereting in self-driving taxis	.532
N6_Jobs_recoded	.214

Note. Extraction method: Maximum Likelihood. 1 factor extracted. 5 iterations were required.

Table B-8. Factor matrix, Safety and trust

	Factor
	2
I do not have any difficulty relinquishing control to a machine.	.569
I would trust a self-driving taxi.	.936
I would feel safe in a self-driving taxi.	.924
I believe that self-driving vehicles can be safer than those driven by humans.	.737
Increased road safety	.701
Safety implications of vehicle or system failure	-.666
Self-driving vehicles not responding adequately in unexpected situations	-.634
Interaction with other road users	-.602

Note. Extraction method: Maximum Likelihood. 1 factor extracted. 5 iterations were required.

Table B-9. Factor matrix, Usefulness

	Factor
	3
Using a self-driving taxi would be fun	.685
I believe that self-driving taxis will be very user-friendly and easy to use.	.916
I believe that self-driving taxis will be very user-friendly and easy to use.	.932
I would try a test ride with a self-driving taxi.	.585

Note. Extraction method: Maximum Likelihood. 1 factor extracted. 5 iterations were required.

Table B-10. Factor matrix, Attitude toward mobility in Zurich

	Factor
	4
I believe that self-driving taxis are compatible with all aspects of today's Zurich transportation system.	.596
I am satisfied with the transportation options available to me in the city of Zurich.	-.266
I think it would be useful to make self-driving taxis available in the city of Zurich (marked area).	.854
N5_ Increased traffic volume_recoded	.250
I would use a self-driving taxi in the city of Zurich because it would be more convenient than my current mode of transportation.	.643
I can imagine that self-driving taxis will become a useful means of transportation	.755

Note. Extraction method: Maximum Likelihood. 1 factor extracted. 4 iterations were required.

Table B-11. Factor matrix, Environmental and traffic efficiency

	Factor
	5
Less traffic and congestion	.700
Shorter travel times	.931
Reduced vehicle emissions	.524
Stress-free driving	.442

Note. Extraction method: Maximum Likelihood. 1 factor extracted. 12 iterations were required.

Table B-12. Factor matrix, Social influences

	Factor
	6
I would accept the use of self-driving taxis by others in my social environment, even if I would not use them myself.	.485
People who are important to me think that I should use a self-driving taxi	.820
I would use a self-driving taxi if people in my social environment also used it.	.728
I would recommend to those in my social environment to use a self-driving taxi.	.843

Note. Extraction method: Maximum Likelihood. 1 factor extracted. 4 iterations were required.

Appendix C: Regression

Table C-1. ANOVA^a first DV, Item No. 25 “If self-driving taxis were permanently available in Zurich, I plan to use them.”

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	101.93	1	101.93	25.15	<.001 ^b
	Unstandardized Residuals	733.68	181	4.05		
	Total	835.62	182			
2	Regression	316.88	2	158.44	54.98	<.001 ^c
	Unstandardized Residuals	518.73	180	2.88		
	Total	835.62	182			
3	Regression	385.50	3	128.50	51.10	<.001 ^d
	Unstandardized Residuals	450.12	179	2.51		
	Total	835.62	182			
4	Regression	484.04	4	121.01	61.27	<.001 ^e
	Unstandardized Residuals	351.57	178	1.98		
	Total	835.62	182			
5	Regression	490.97	8	61.37	30.98	<.001 ^f
	Unstandardized Residuals	344.65	174	1.98		
	Total	835.62	182			

Note. a. Dependent variable: If self-driving taxis were permanently available in Zurich, I plan to use them.

b. Predictors: (Constant), Environmental and traffic efficiency

c. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation

d. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation, Attitude toward new technologies

e. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation, Attitude toward new technologies, Social influences

f. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation, Attitude toward new technologies, Social influences, DBasic education, Age, DVocational education, Gender

Table C-2. Coefficients Model 1 to 4, “If self-driving taxis were permanently available in Zurich, I plan to use them.”

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std.-Error	Beta	t	Sig.
1	(Constant)	4.31	.15		28.93	<.001
	Environmental and traffic efficiency	.80	.16	.35	5.01	<.001
2	(Constant)	4.37	.13		34.75	<.001
	Environmental and traffic efficiency	.22	.15	.10	1.46	.146
	Safety and utility evaluation	1.25	.14	.57	8.64	<.001
3	(Constant)	4.33	.12		36.74	<.001
	Environmental and traffic efficiency	.28	.14	.12	2.00	.046
	Safety and utility evaluation	.94	.15	.43	6.36	<.001
4	Attitude toward new technologies	.71	.14	.32	5.22	<.001
	(Constant)	4.25	.11		40.46	<.001
	Environmental and traffic efficiency	.16	.13	.07	1.29	.200
	Safety and utility evaluation	.42	.15	.19	2.81	.005
4	Attitude toward new technologies	.65	.12	.29	5.40	<.001
	Social influences	1.11	.16	.44	7.06	<.001

Note. Dependent variable: If self-driving taxis were permanently available in Zurich, I plan to use them.

Table C-3. ANOVA^a second DV Item No. 26, “I would use a self-driving taxi during the day.”

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	75.96	1	75.96	16.70	<.001 ^b
	Unstandardized Residuals	814.31	179	4.55		
	Total	890.27	180			
2	Regression	202.90	2	101.45	26.27	<.001 ^c
	Unstandardized Residuals	687.37	178	3.86		
	Total	890.27	180			
3	Regression	238.05	3	79.35	21.53	<.001 ^d
	Unstandardized Residuals	652.22	177	3.68		
	Total	890.27	180			
4	Regression	300.96	4	75.24	22.47	<.001 ^e
	Unstandardized Residuals	589.30	176	3.35		
	Total	890.27	180			
5	Regression	303.90	8	37.99	11.14	<.001 ^f
	Unstandardized Residuals	586.37	172	3.41		
	Total	890.27	180			

Note. a. Dependent variable: I would use a self-driving taxi during the day.

b. Predictors: (Constant), Environmental and traffic efficiency

c. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation

d. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation, Attitude toward new technologies

e. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation, Attitude toward new technologies, Social influences

f. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation, Attitude toward new technologies, Social influences, DBasic education, Age, DVocational education, Gender

Table C-4. Coefficients Model 1 to 4, “I would use a self-driving taxi during the day.”

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std.-Error	Beta		
1	(Constant)	3.82	.16		24.06	<.001
	Environmental and traffic efficiency	.69	.17	.29	4.09	<.001
2	(Constant)	3.89	.15		26.48	<.001
	Environmental and traffic efficiency	.24	.18	.10	1.36	.175
	Safety and utility evaluation	.97	.17	.42	5.73	<.001
3	(Constant)	3.85	.14		26.82	<.001
	Environmental and traffic efficiency	.28	.17	.12	1.64	.103
	Safety and utility evaluation	.75	.18	.33	4.16	<.001
	Attitude toward new technologies	.51	.17	.22	3.09	.002
4	(Constant)	3.80	.14		27.58	<.001
	Environmental and traffic efficiency	.19	.17	.08	1.12	.263
	Safety and utility evaluation	.34	.20	.15	1.73	.086
	Attitude toward new technologies	.46	.16	.20	2.91	.004
	Social influences	.90	.21	.34	4.33	<.001

Note. Dependent variable: I would use a self-driving taxi during the day.

Table C-5. ANOVA^a third DV, Item No. 27 “I would use a self-driving taxi at night.”

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.66	1	53.66	13.74	<.001 ^b
	Unstandardized Residuals	706.94	181	3.91		
	Total	760.60	182			
2	Regression	265.42	2	132.71	48.24	<.001 ^c
	Unstandardized Residuals	495.18	180	2.75		
	Total	760.60	182			
3	Regression	282.33	3	94.11	35.22	<.001 ^d
	Unstandardized Residuals	478.27	179	2.67		
	Total	760.60	182			
4	Regression	328.32	4	82.08	33.80	<.001 ^e
	Unstandardized Residuals	432.28	178	2.43		
	Total	760.60	182			
5	Regression	338.22	8	42.28	17.42	<.001 ^f
	Unstandardized Residuals	422.38	174	2.43		
	Total	760.60	182			

Note. a Dependent variable: I would use a self-driving taxi at night.

b. Predictors: (Constant), Environmental and traffic efficiency

c. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation

d. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation, Attitude toward new technologies

e. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation, Attitude toward new technologies, Social influences

f. Predictors: (Constant), Environmental and traffic efficiency, Safety and utility evaluation, Attitude toward new technologies, Social influences, DBasic education, Age, DVocational education, Gender

Table C-6. Coefficients Model 1 to 4, “I would use a self-driving taxi at night.”

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std.-Error	Beta		
1	(Constant)	4.88	.15		33.36	<.001
	Environmental and traffic efficiency	.58	.16	.27		
2	(Constant)	4.95	.12		40.23	<.001
	Environmental and traffic efficiency	.00	.15	.00		
	Safety and utility evaluation	1.24	.14	.59		
3	(Constant)	4.93	.12		40.55	<.001
	Environmental and traffic efficiency	.03	.15	.01		
	Safety and utility evaluation	1.09	.15	.52		
	Attitude toward new technologies	.35	.14	.16		
4	(Constant)	4.87	.12		41.78	<.001
	Environmental and traffic efficiency	-.05	.14	-.02		
	Safety and utility evaluation	.73	.17	.35		
	Attitude toward new technologies	.31	.13	.14		
	Social influences	.76	.18	.32		

Note. Dependent variable: I would use a self-driving taxi at night.