Appendices for the paper:

Integration of shared transport at a public transport stop: the intention to use means of transport in a multimodal transport system

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Master Thesis – Civil Engineering and Management – University of Twente
December 10, 2021

Content overview:

Summary - English

The current growth in mobility in urban areas combined with the climate crisis has led to developments towards sustainable transport. To address mobility issues like increasing congestion, air pollution, noise pollution and an increased stress on traffic safety, alternatives to private car use and ownerships are proposed (European Commission, 2019). For the Netherlands, the reduction in private vehicle use and ownership would reduce the need for parking which is a mean to address the increasing challenges of spatial development in dense urban areas (CROW, 2021). A multimodal transport system that offers both public and shared means of transport in an integrated system is proposed as sustainable alternative to private vehicles usage (European Commission, 2019). Various studies have tried to understand the potential of such integrated systems by studying modal shifts for shared means of transport. However, the various implementations of shared transport make it difficult to determine whether it complements existing public transport or if it is considered as alternative to the public transport by their users. Overall, recent studies are more focussed on user characteristics of shared mobility systems, and less on the users who would intent to use shared mobility when integrated with public transport. In addition, the integration of multiple modalities has grown in attention in recent times due to the digitalisation in transport that enables for a digital integration that supports the planning and paying of a trip with multiple modalities. However, recent studies note a possible social exclusion of people who have low digital skills due to this digitalisation in transport services (Durand & Zijlstra, 2020). Hence, this research will determine the intention to use shared mobility and public transport when offered in an integrated transport system for various user segments differentiated by people's level of digital skills and other user- and transport characteristics and determine how this intention compares to the current use of these means of transport.

To investigate this, the research used a case study surrounding the public transport stop Leyenburg in The Hague. For this analysis a scenario was developed that transfers the current public transport stop into a mobility hub that physically offers the shared modalities of shared car, shared bicycle, and shared motor scooter together with the existing bus and tram offerings. A survey (N=710) was conducted in which current users of the stop, people living in the stop's vicinity, and people travelling to the hospital (HagaZiekenhuis) nearby were asked about their current travel behaviours, digital skills, and their intentions to use the different types of transport at the hub if such a hub would become reality.

What is the intention to use shared and public transport at a hub and how does this compare to the existing transport usage?

The variables that affect the intention to use shared and public transport are determined using an ordinal logistic regression analysis. Descriptive statistics and correlation analyses are used to clarify the relations and describe the intention to use the two types of transport in general. Of the respondents, 15.7% intent to use the shared motor scooter, 15.0% intent to use the shared bicycle, and 10.8% intent to use the shared car. In terms of size, the group that intents to use shared transport differs not a lot from the group that has used a mean of shared transport at least once in the past year. However, from the people intending to use any form of shared transport, the majority had not used it in the past year. A smaller group of people has shared transport experience but does not intent to use it in the circumstances of the case study. For the intention to use the bus or tram, 64.8% of the respondents intent to use it, which is higher than the 57.2% of the respondents who are using it for their specific trip in the case study, indicating a potential growth of the number of users.

Which user- and transport characteristics are related to the intention to use shared and public transport?

Overall, the intention to use shared transport and the intention to use public transport are influenced by a different set of the variables included in the study. People that currently use the car not frequently, less than once a week, and use public transport frequently have a higher intention to use the bus or tram in the future. In addition, the intention is higher for trips that are performed less often in a year and the intention is lower for the people travelling to or from the HagaZiekenhuis. The intention to use shared transport when it is integrated with the bus or tram at an existing public transport stop is higher for people that are younger, have a high level of education and a high level of digital skills. In addition, having prior experience with shared transport in the past year and currently using multiple means of transportation during the trip are positively affecting the intention to use shared transport. The characteristics that influence the intention to combine the use of shared transport and the bus or tram are similar to these latter characteristics for the intention to use shared transport. Only education is not found to predict the intention to combine the different modalities. The strengths of the relationships differ, with only the number of means of transport that are currently used during a trip having a stronger effect. The other relationships are weaker for the intention to combine the modalities compared to the intention to use shared transport. Finally, one of the included transport barriers is seen to affect the intention to combine shared transport with the bus or tram. Only for the people that do not find it important at all to have multiple ways of paying for public or shared transport, the intention to combine the two types of transport in a single trip is significantly lower than it is for the people that find this very important.

Summary – Dutch

Mede door de groeiende mobiliteit in stedelijke gebieden en de klimaatcrisis is het verduurzamen van vervoer momenteel een belangrijke ontwikkeling. Alternatieven voor privaat auto gebruik en bezit zijn voorgesteld om mobiliteitsproblemen zoals een toename van files, luchtvervuiling, geluidsoverlast en een mogelijke afname van verkeersveiligheid aan te pakken (European Commission, 2019). In Nederland, een afname van het gebruik en bezit van private voertuigen zorgt dat er minder parkeerplekken nodig zijn. Dit kan als middel gebruikt worden om de toenemende uitdagingen voor de ruimtelijke ontwikkeling in verstedelijkte gebieden te verminderen (CROW, 2021). Als duurzaam alternatief voor het private voertuiggebruik wordt een multimodaal transport syteem voorgesteld dat zowel openbaar als deelmodaliteiten aanbiedt in een geïntegreerd systeem (European Commission, 2019). Verscheidene onderzoeken hebben geprobeerd de potentie van zo'n geïntegreerd systeem te begrijpen door te onderzoeken welke vervoermiddelen vervangen worden als iemand deelmobiliteit gaat gebruiken. Echter maken de verschillende toepassingen van deelmobiliteit het moeilijk om te bepalen of deelmobiliteit het openbaar vervoer complimenteert of dat het door gebruikers als alternatief voor het openbaar vervoer wordt beschouwd. In het algemeen leggen recente studies de focus meer bij de eigenschappen van deelmobiliteitgebruikers en wordt er nog in mindere mate gekeken naar de gebruikers die deelmobiliteit zouden willen gebruiken wanneer het is geintegreerd met het openbaar vervoer. Daarnaast is de integratie van meerdere modaliteiten recentelijk gegroeid door de digitalisering in transport. Deze digitale integratie ondersteunt het plannen en betalen van een reis met meerdere vervoermiddelen. Echter kan de digitalisering in vervoerdiensten mogelijk ook zorgen voor een sociale uitsluiting van reizigers met lage digitale vaardigheden (Durand & Zijlstra, 2020). Daarom onderzoekt deze studie wat de intentie is van potentiele gebruikers om deelvervoer en openbaar vervoer te gebruiken in een multimodaal transport syteem en hoe dit zich verhoudt tot het huidige gebruik van de vervoermiddelen. Ook wordt onderzocht hoe deze intentie wordt beïnvloed door iemand's digitale vaardigheden en andere gebruikers- en vervoer eigenschappen.

Het onderzoek gebruikt een casestudie omtrent de openbaar vervoer halte Leyenburg in Den Haag. Een toekomstig scenario is ontwikkeld waarin de huidige halte is omgebouwd tot mobiliteitshub dat de deelauto, deelfiets en deelscooter samen aanbiedt met het bestaande bus en tram aanbod. Een enquête (N=710) is gehouden waarin de huidige gebruikers van de halte, buurtbewoners, en mensen die van of naar het HagaZiekenhuis reizen zijn gevraagd naar hun huidige reisgedrag, digitale vaardigheden en hun intenties om de verschilende modaliteiten van de hub te gebruiken als deze werkelijkheid zou worden.

Wat is de intentie om deel- en openbaar vervoer op een hub te gebruiken en hoe verhoudt zich dit tot het huidige gebruik van deze vervoermiddelen?

Een ordinale logistieke regressie analyse is gebruikt om te bepalen welke variabelen de intention om gebruik te maken van deel- en openbaar vervoer beinvloeden. Correlaties en andere statistieke informatie zijn gebruikt om de relaties te verduidelijken en de intentie om gebruik te maken van de twee soorten vervoer te beschrijven. Van alle respondenten heeft 15,7% de intentie om de deelscooter te gebruiken, 15,0% de intentie om de deelfiets te gebruiken en 10,8% de intentie om de deelauto te gebruiken. De groep die de intentie heeft om tenminste één type deelvervoer te gebruiken is niet veel groter dan de groep die het afgelopen jaar minstens één keer deelvervoer heeft gebruikt. Echter, van de mensen die aangeven de intentie te hebben om één van de deelvervoermiddelen te gebruiken heeft de meerderheid geen deelvervoer gebruikt in het afgelopen jaar. Er is een kleinere groep die wel ervaring heeft met deelvervoer, maar niet de intentie heeft deze te gaan gebruiken in het geval van de casestudie. Wat betreft de bus of de tram, zijn er meer mensen die de intentie hebben om deze vervoermiddelen te gebruiken dan dat er mensen zijn die de bus of de tram momenteel tijdens hun rit gebruiken. Dit wijst op een mogelijke groei in het aantal gebruikers van deze openbaar vervoermiddelen.

Welke gebruikers- en vervoer eigenschappen beïnvloeden de intentie om deel- en openbaar vervoer te gebruiken?

De variabelen die volgens de analyse de intentie om deelvervoer te gebruiken beïnvloeden zijn compleet andere variabelen dan degene die de intentie om de bus of tram te gebruiken beïnvloeden. Mensen die momenteel niet vaak, minder dan één keer per week, de auto gebruiken, maar wel vaak het openbaar vervoer hebben een hogere intentie om de bus of tram te gaan gebruiken. Daarnaast is de intentie hoger voor reizen die minder vaak in een jaar gemaakt worden en lager voor reizen van of naar het HagaZiekenhuis. De intentie om deelvervoer te gebruiken wanneer het geïntegreerd is met de bus en tram op een halte is hoger voor mensen die jonger, hoger opgeleid en digitaal vaardiger zijn. Daarnaast heeft het eerder gebruik hebben gemaakt van deelvervoer en meerdere vervoermiddelen tijdens de huidige reis gebruiken een positief effect op de intentie om deelvervoer te gebruiken. De eigenschappen die de intentie om het gebruik van deelvervoer en de bus of tram te combineren komen grotendeels overeen met de hiervoor genoemde eigenschappen voor het deelvervoer. Alleen het opleidingsniveau voorspelt niet de intentie om de verschillende modaliteiten te combineren tijdens een reis. De omvang van de beschreven relaties verschillen. Alleen het gebruikte aantal vervoermiddelen tijdens de huidige reis heeft een sterkere invloed. De andere relaties waren zwakker voor de intentie van gecombineerd gebruik van deelvervoer en de bus of tram ten opzichte van de intentie om deelvervoer te gebruiken. Tot slot, één barrière tot het gebruik van vervoer lijkt een relatie te hebben tot de intentie om de bus of tram samen met deelvervoer te gebruiken. Alleen voor mensen die het volledig onbelangrijk vinden om over meerdere betaalmogelijkheden voor deel- of openbaar vervoer te beschikken is de intentie om deelvervoer en de bus of tram samen te gebruiken significant lager dan voor mensen die dit erg belangrijk vinden.

2A – Sources for the UTAUT constructs and variables

Table 2A-1 – Collection of sources for the variables included in the theoretical framework that have been used by previous studies related to technology acceptance, behavioural intention, and use behaviour. The "*" indicates that the topic of the study is related to the transport domain. The "**" indicates that the topic of the study is related to the public or shared transport domain.

Variable	Sources
Performance Expectancy	(Venkatesh, Thong, & Xu, 2012), (Jahanshahi, Tabibi, & van Wee, 2020)**, (Madigan, et al., 2016)**, (Ye, Zheng, & Yi, 2020)**, (Kettles & Van Belle, 2019)*, (Bernhard, Oberfeld, Hoffmann, Weismüller, & Hecht, 2020)**, (Kaye, Lewis, Forward, & Delhomme, 2020)*
Effort Expectancy	(Venkatesh, Thong, & Xu, 2012), (Jahanshahi, Tabibi, & van Wee, 2020)**, (Madigan, et al., 2016)**, (Ye, Zheng, & Yi, 2020)**, (Kettles & Van Belle, 2019)*, (Bernhard, Oberfeld, Hoffmann, Weismüller, & Hecht, 2020)**, (Kaye, Lewis, Forward, & Delhomme, 2020)*
Facilitating Conditions	(Venkatesh, Thong, & Xu, 2012), (Jahanshahi, Tabibi, & van Wee, 2020)**, (Ye, Zheng, & Yi, 2020)**, (Kaye, Lewis, Forward, & Delhomme, 2020)*
Social Influence	(Venkatesh, Thong, & Xu, 2012), (Jahanshahi, Tabibi, & van Wee, 2020)**, (Madigan, et al., 2016)**, (Ye, Zheng, & Yi, 2020)**, (Kettles & Van Belle, 2019)*
Price Value	(Venkatesh, Thong, & Xu, 2012), (Jahanshahi, Tabibi, & van Wee, 2020)**,
Perceived Safety	(Jahanshahi, Tabibi, & van Wee, 2020)**, (Kettles & Van Belle, 2019)*, (Bernhard, Oberfeld, Hoffmann, Weismüller, & Hecht, 2020)**, (Ferguson, 2016)**
Age	(Venkatesh, Thong, & Xu, 2012), (Jahanshahi, Tabibi, & van Wee, 2020)**, (Madigan, et al., 2016)**, (Ye, Zheng, & Yi, 2020)**, (Kettles & Van Belle, 2019)*, (Bernhard, Oberfeld, Hoffmann, Weismüller, & Hecht, 2020)**, (Kaye, Lewis, Forward, & Delhomme, 2020)*
Income	(Jahanshahi, Tabibi, & van Wee, 2020)**
Education	(Jahanshahi, Tabibi, & van Wee, 2020)**, (Ye, Zheng, & Yi, 2020)**
Gender	(Venkatesh, Thong, & Xu, 2012), (Madigan, et al., 2016)**, (Ye, Zheng, & Yi, 2020)**, (Kettles & Van Belle, 2019)*, (Bernhard, Oberfeld, Hoffmann, Weismüller, & Hecht, 2020)**, (Kaye, Lewis, Forward, & Delhomme, 2020)*
Travel behaviour	(Madigan, et al., 2016)**, (Ferguson, 2016)**, (Kaye, Lewis, Forward, & Delhomme, 2020)*

3A - Flyer


Denk mee over de toekomst van halte Leyenburg
HUB
Vul de enquête in
Scan de QR-code
Vul nu de enquête in!
Samen de bereikbaarheid verbeteren.
Vul de enquête in vóór 30 juli 2021 en maak kans op één van de 5 cadeaubonnen met €20 shoptegoed.
Scan de QR-code of ga naar http://bit.ly/VervoerLeyenburg
Fill in the survey before the 30th of July 2021 and have the opportunity to win one of five gift cards worth €20 each. Scan the QR-code or go to http: http://bit.ly/VervoerLeyenburg
UNIVERSITY OF TWENTE.
HTM | kom verder!

3B - Questionnaire English

Dear resident of The Hague / user of public transport / visitor of HagaZiekenhuis,

This research concerns the use of **tram or bus and shared means of transport** at one location, like a shared bike, which is a bike that you rent temporarily. We would like to know how we can make sure that the use of such transport is easy for its users.

By completing the survey you can win **one of five gift cards worth €20 each**. The survey will take no longer than 10 minutes. All data will be processed **anonymously**.

Thank you very much!

On behalf of HTM and the University of Twente, Johan Horjus (j.s.horjus@student.utwente.nl / HTM: 0900-4864636 (usual cost))

Part 1

Below will be a couple of questions regarding your use of different means of transport. Among these will be some **means of shared transport**, such as a shared car, shared bicycle and shared motor scooter. These shared means of transport can often be found near traffic junctions, like a bus station, and **you can use them temporarily**.

1. How often have you used the means of transport listed below **in the past year**?

	4 or more days a week	1 to 3 days a week	1 to 3 days a month	6 to 11 days per year	1 to 5 days per year	Never
Car	○	○	○	○	○	○
Train	○	○	○	○	○	○
Bus/tram/metro	○	○	○	○	○	○
Bicycle/e-bike	○	○	○	○	○	○
Moped/motor scooter	○	○	○	○	○	○
Walking	○	○	○	○	○	○
Shared car (e.g. Greenwheels, MyWheels)	○	○	○	○	○	○
Shared bicycle (e.g. HTM bicycle, OV- bicycle)	○	○	○	○	○	○
Shared motor scooter (e.g. Felyx, Go Sharing, Check)	○	○	○	○	○	○

Digital skills

Using a shared means of transport often requires a smartphone with an internet connection and a dedicated app (application). That is why the following questions will be about your experience with the execution of activities on your smartphone.

2. How often have you used a smartphone which can connect to the internet (through WiFi and/or 3G/4G) **in the past year**?

○ Daily
○ 4 to 6 days a week
○ 1 to 3 days a week
○ 1 to 3 days a month
○ Less than 1 day a month
○ Never

If "*Never*" -> **go to Part 2.**

3. For which activities do you use your smartphone most often? *(multiple answers possible)*

☐ Making calls or sending texts
☐ Listening to music using apps such as Spotify
☐ Sending/receiving messages using apps such as Whatsapp or Facebook Messenger
☐ Watching videos, films or series using apps such as Youtube or Netflix
☐ Viewing social media using apps such as Facebook, Instagram or Twitter
☐ Keeping up with the news using apps like NOS or NU.nl

4. Please indicate how often you have performed the following activities **in the past year.**	Very often	Often	Sometimes	Rarely	Never
Using an app on your smartphone to plan a trip by your own means of transport, like the car or bicycle (e.g. Google Maps)	○	○	○	○	○
Using an app on your smartphone to plan a trip by public transport (e.g. the apps of HTM, 9292 or NS)	○	○	○	○	○
Using an app on your smartphone to transfer money to someone	○	○	○	○	○
Tapping to pay in a shop and/or supermarket using your smartphone	○	○	○	○	○
Using an app on your smartphone to reserve a means of transport as you do with, for example, a shared car or the HTM-bicycle	○	○	○	○	○

Part 2

5. The questions below are about the importance you assign to certain aspects before or during a trip.	Very important	Important	Fairly important	Slightly important	Not important
How important is it to you to reach your destination as quickly as possible?	○	○	○	○	○
How important is it to you to transfer as little as possible during your trip?	○	○	○	○	○
How important is it to you to be able to pay for your trip by bus, tram, shared car, shared bicycle or shared motor scooter in more than one way?	○	○	○	○	○
How important is it to you that the means of transport is easy to use?	○	○	○	○	○
How important do you consider proper facilities, such as a bus shelter, bicycle parking space, and/or benches, at a stop or station to be?	○	○	○	○	○
How important are travel costs to your choice of a specific means of transport?	○	○	○	○	○
How important is it to you that travelling with a means of transport makes you feel safe?	○	○	○	○	○
How important is the opinion of others to you in your decision to use a means of transport?	○	○	○	○	○

Part 3 – Taking a trip from or to stop Leyenburg and its surroundings.

The following questions will concern travelling to and from the area surrounding stop Leyenburg. This is the stop next to het Hagaziekenhuis (the Haga hospital) in The Hague. The stop and this area are indicated in the image on the next page.

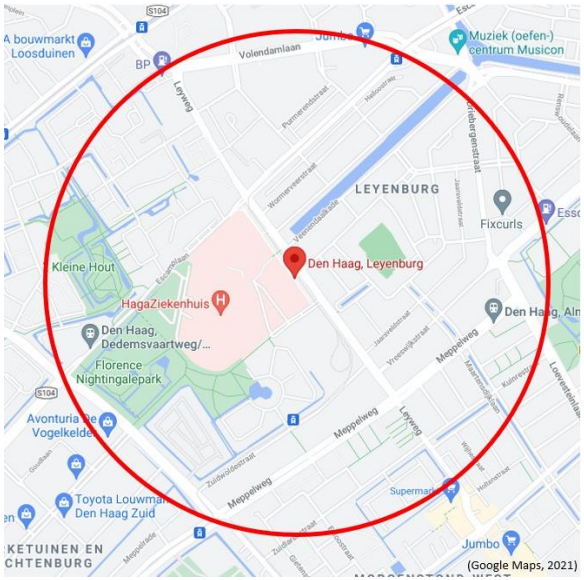
6. How often have you travelled to, from or via the area surrounding stop Leyenburg (the area indicated by the red circle in the image on the next page) **with your own means of transport, public transport and/or a shared means of transport in the past year**?

If "*Never*" -> **go to Part 4.**

○ 4 or more days a week ○ 1 to 3 days a week ○ 1 to 3 days a month ○ 6 to 11 days a year ○ 1 to 5 days a year ○ Never

7. How often have you used the HagaShuttle (the self-driving minibus) since its opening in 2019? This minibus used to drive between stop Leyenburg and the main entrance of the HagaZiekenhuis (Haga hospital).

○ More than 5 times ○ 3 to 5 times ○ 1 to 2 times ○ Never



Consider the trip <u>to, from or via the area surrounding stop Leyenburg</u> which you have made <u>most often in the past year</u>. The following questions will be about this trip.

8. How often have you made this trip **in the past year**?

○ 4 or more days a week ○ 1 to 3 days a week ○ 1 to 3 days a month ○ 6 to 11 days a year ○ 1 to 5 days a year

9. Which of the following means of transport did you use the last time you made this trip? *(mark all that apply)*

☐ Car ☐ Bus/tram/metro ☐ Moped/motor scooter ☐ Shared car ☐ Shared motor scooter

☐ Train ☐ Bicycle/e-bike ☐ Walking ☐ Shared bicycle/OV-Bicycle ☐ Other, please specify: _____

10. Where did this trip take place?

○ Just within The Hague ○ Both within and outside of The Hague

11. Was the HagaZiekenhuis (Haga hospital) a starting point or destination of this trip?

○ Yes ○ No

If 'Yes' -> **Read the situation and question below**

If 'No' -> **Read the situation and question below**

Suppose that the shared car, shared bicycle and shared motor scooter will be offered **together** at **a permanent location near your home address** from now on. These means of transport will be **available permanently** near public means of transport like the bus or tram.

Using an **app on your smartphone** you can unlock shared cars, shared bicycles and shared motor scooters. The payment for these means of transport can also be done in this app, so that the fees will be paid automatically once you stop using the means of transport. You can **leave the means of transport at any place** when you are done travelling.

12**. Please answer the following statements in case you travel to the HagaZiekenhuis (Haga hospital) <u>again</u> and <u>your trip starts at your home address</u> where shared means of transport are nearby <u>as described above</u>.**

Suppose that the shared car, shared bicycle and shared motor scooter will be offered at **a permanent location at the stop Leyenburg**. These means of transport will be **available permanently** alongside bus and tram.

Using an **app on your smartphone** you can unlock shared cars, shared bicycles and shared motor scooters. The payment for these means of transport can also be done in this app, so that the fees will be paid automatically once you stop using the means of transport. You can **leave the means of transport at any place** when you are done travelling.

12. **Please answer the following statements assuming you would <u>remake your trip</u> in the situation where shared means of transport are available at the stop Leyenburg <u>as described above</u>.**
This still concerns the trip to, from or via the area surrounding Leyenburg which you have made most often in the past year.

Please indicate to what extent you agree with the following statements.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I want to use the **bus or tram** as (one of) the means of transport during this trip	○	○	○	○	○
I want to use a **shared bicycle** as (one of) the means of transport during this trip	○	○	○	○	○
I want to use a **shared car** as (one of) the means of transport during this trip	○	○	○	○	○
I want to use a **shared motor scooter** as (one of) the means of transport during this trip	○	○	○	○	○
I want to combine the use of a shared bicycle, shared car or shared motor scooter with the use of bus or tram during this trip	○	○	○	○	○
I want to use the **HagaShuttle** (self-driving minibus from stop Leyenburg to the main entrance of the HagaZiekenhuis) during this trip. Only provide an answer here if you are answering these statements for a trip to the HagaZiekenhuis.	○	○	○	○	○

Part 4 – Personal information

13. What is your postal code? *(e.g. 1234AB)*

_____

14. What is your gender?

○ Male
○ Female
○ Other

15. What is your age? *(in numbers)*

_____

16. In what country were you born?

○ In the Netherlands
○ In another country

17. What is the highest degree of education you have completed?

○ No education
○ Primary education, VMBO/MAVO, MBO-1
○ HAVO/VWO, MBO-2, MBO-3, MBO4
○ Higher education or University degree
○ Other, please specify: _____

18. What is the gross annual income of your household?

○ Less than €25,000
○ €25,000 - €45,000
○ More than €45,000
○ I do not know / I prefer not to say

19. What is the current composition of your household?

○ Single person
○ Single parent family
○ Living together, without children
○ Living together, with children
○ Other, please specify:_____

20. Please mark all that apply to you.

☐ I travel in a wheelchair/scooter
☐ I need help getting in and out a bus, train, or car
☐ I am physically incapable of cycling
☐ I am physically incapable of walking longer than 5 minutes
☐ None

Do you wish to enter the giveaway of **5 €20 gift cards**? Please leave your name and e-mail address down below. In case you do not own an e-mail address, providing an address, postal code and city is also possible.
These details will only be used for sending the gift cards and will be deleted afterwards. They will not be used for the research itself.

Name: _____ E-mail address (*or address, postal code and city*): _____

Do you have any remarks on this subject or this survey? Please leave them here: _____

_____

This is the end of the survey. Thank you for your time. If you have any questions or remarks regarding this survey, do not hesitate to get in touch via the email address: j.s.horjus@student.utwente.nl or via the phone number of HTM: 0900-4864636 (usual cost).

3C - Questionnaire Dutch

Beste inwoner van Den Haag / OV-reiziger / bezoeker van het HagaZiekenhuis,

Dit onderzoek gaat over het aanbieden van de **tram/bus en deelvervoer** (zoals een deelfiets, dit is een fiets die je tijdelijk huurt) op één en dezelfde locatie. Wij willen graag weten hoe we er voor kunnen zorgen dat dit vervoer makkelijk in gebruik is voor u.

Door het volledig invullen van de enquête maakt u kans op één van de 5 cadeaubonnen **met shoptegoed ter waarde van €20,-**. Het invullen van de enquête duurt maximaal 10 minuten. De gegevens zullen **anoniem** worden verwerkt.

Hartelijk bedankt!

Namens HTM en de Universiteit Twente, Johan Horjus (j.s.horjus@student.utwente.nl / HTM: 0900-4864636 (gebruikelijke belkosten))

Deel 1

Hieronder vragen we naar uw gebruik van verschillende vervoermiddelen. Hier staan ook **vormen van deelvervoer** tussen, namelijk de deelauto, deelfiets en deelscooter. Dit zijn vervoermiddelen die meestal dicht bij vervoerknooppunten, zoals stations, worden aangeboden en die u **tijdelijk kunt gebruiken**.

1. Hoe vaak maakte u **het afgelopen jaar** gebruik van de onderstaande vervoermiddelen?

	4 of meer dagen per week	1 tot 3 dagen per week	1 tot 3 dagen per maand	6 tot 11 dagen per jaar	1 tot 5 dagen per jaar	Nooit
Auto	○	○	○	○	○	○
Trein	○	○	○	○	○	○
Bus/tram/metro	○	○	○	○	○	○
Fiets/e-bike	○	○	○	○	○	○
Brommer/scooter	○	○	○	○	○	○
Lopen	○	○	○	○	○	○
Deelauto (zoals: Greenwheels, MyWheels)	○	○	○	○	○	○
Deelfiets (zoals: HTM fiets, OV-fiets)	○	○	○	○	○	○
Deelscooter (zoals: Felyx, Go Sharing, Check)	○	○	○	○	○	○

Digitale vaardigheden

Voor het gebruik van deelvervoer is meestal een mobiele telefoon met internet nodig met daarbij een aparte app (applicatie). Daarom volgen er nu een paar vragen over uw ervaring met het uitvoeren van bepaalde activiteiten op uw mobiele telefoon.

2. Hoe vaak maakte u **het afgelopen jaar** gebruik van een mobiele telefoon die verbinding kan maken met het internet (via WiFi en/of 3G/4G)?

- ○ Dagelijks
- ○ 4 tot 6 dagen per week
- ○ 1 tot 3 dagen per week
- ○ 1 tot 3 dagen per maand
- ○ Minder dan 1 dag per maand
- ○ Nooit

Als "*Nooit*" -> **ga naar Deel 2.**

3. Waar gebruikt u uw mobiele telefoon vooral voor? *(meerdere antwoorden mogelijk)*

- ☐ Bellen en/of sms'en
- ☐ Berichten versturen/ontvangen via apps zoals Whatsapp en Facebook Messenger
- ☐ Sociale media bekijken via apps zoals Facebook, Instagram en Twitter
- ☐ Muziek luisteren via apps zoals Spotify
- ☐ Video's, films of series kijken via apps zoals Youtube en Netflix
- ☐ Het nieuws volgens via apps zoals NOS of NU.nl

4. Geef voor de onderstaande stellingen aan hoe vaak u deze **het afgelopen jaar** heeft uitgevoerd.	Erg vaak	Vaak	Soms	Zelden	Nooit
Een app op uw mobiele telefoon gebruiken om een reis met uw eigen vervoer, zoals de auto of de fiets, te plannen (zoals Google Maps)	○	○	○	○	○
Een app op uw mobiele telefoon gebruiken om een reis met het openbaar vervoer te plannen (zoals de apps van HTM, 9292 of NS)	○	○	○	○	○
Een app op uw mobiele telefoon gebruiken om geld naar iemand over te maken	○	○	○	○	○
Contactloos betalen met uw mobiele telefoon in een winkel en/of supermarkt	○	○	○	○	○
Een app op uw mobiele telefoon gebruiken om een vervoermiddel te reserveren en te betalen (zoals bij een deelauto of de HTM-fiets)	○	○	○	○	○

Deel 2

5. De vragen hieronder gaan over hoe belangrijk u bepaalde dingen vindt voor of tijdens het reizen met een vervoermiddel.	Erg belangrijk	Belangrijk	Redelijk belangrijk	Een beetje belangrijk	Niet belangrijk
Hoe belangrijk is het voor u om uw bestemming zo snel mogelijk te bereiken als u reist?	○	○	○	○	○
Hoe belangrijk is het voor u dat u weinig hoeft over te stappen of te wisselen van vervoermiddel tijdens uw reis?	○	○	○	○	○
Hoe belangrijk is het voor u dat er meer dan één manier is om te betalen voor een reis met een bus, tram, deelauto, deelfiets of deelscooter als u hier mee reist?	○	○	○	○	○
Hoe belangrijk vindt u het dat een vervoermiddel makkelijk te gebruiken is als u er mee reist?	○	○	○	○	○
Hoe belangrijk vindt u het dat er goede voorzieningen (zoals bushokjes, fietsenstallingen en/of bankjes) op een halte aanwezig zijn als u reist met het openbaar vervoer?	○	○	○	○	○
Hoe belangrijk zijn de reiskosten bij uw keuze voor een bepaald vervoermiddel?	○	○	○	○	○
Hoe belangrijk is het voor u dat het reizen met een vervoermiddel u een veilig gevoel geeft?	○	○	○	○	○
Hoe belangrijk is de mening van mensen in uw omgeving bij uw beslissing om een vervoermiddel te gebruiken?	○	○	○	○	○

Deel 3 - Reizen van of naar halte Leyenburg en omgeving.

De volgende vragen gaan over het reizen van of naar de omgeving rond de halte Leyenburg. Dit is de halte naast het HagaZiekenhuis in Den Haag. De halte en dit gebied staan aangegeven op de afbeelding bovenaan de volgende pagina.

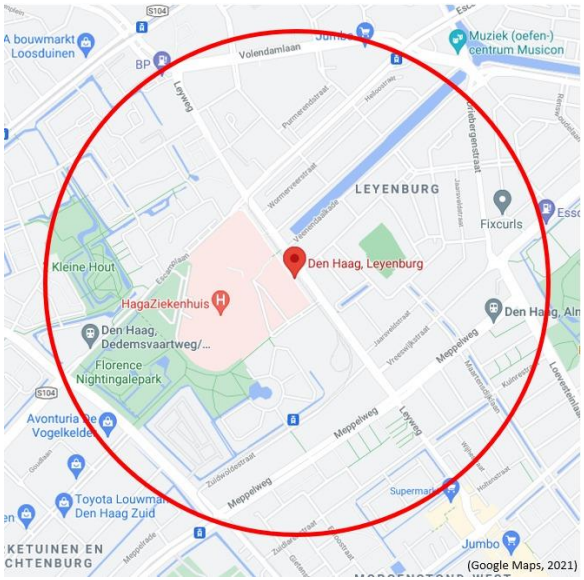
6. Hoe vaak reisde u **het afgelopen jaar** met uw **eigen vervoer, het OV en/of deelvervoer** van, naar of via de omgeving rond de halte Leyenburg (het gebied binnen de rode cirkel op de afbeelding op de volgende pagina)?

○ 4 of meer dagen per week ○ 1 tot 3 dagen per week ○ 1 tot 3 dagen per maand ○ 6 tot 11 dagen per jaar ○ 1 tot 5 dagen per jaar ○ Nooit

Als "*Nooit*" -> **ga naar Deel 4.**

7. Hoe vaak heeft u gebruik gemaakt van de HagaShuttle (de zelfrijdende minibus) sinds de opening in 2019? Deze reed vanaf de halte Leyenburg naar de hoofdingang van het HagaZiekenhuis en weer terug.

○ Vaker dan 5 keer ○ 3 tot 5 keer ○ 1 tot 2 keer ○ Nog nooit



Denk aan de reis die u het <u>afgelopen jaar het vaakst</u> hebt gemaakt <u>van, naar of via de omgeving rond de halte Leyenburg</u>. De volgende vragen gaan over deze reis.

8. Hoe vaak heeft u deze reis **het afgelopen jaar** gemaakt?

○ 4 of meer dagen per week ○ 1 tot 3 dagen per week ○ 1 tot 3 dagen per maand ○ 6 tot 11 dagen per jaar ○ 1 tot 5 dagen per jaar

9. Welk(e) vervoermiddel(en) gebruikte u de laatste keer dat u deze reis maakte?
(kruis zoveel aan als er van toepassing zijn)

☐ Auto ☐ Bus/tram/metro ☐ Brommer/scooter ☐ Deelauto ☐ Deelscooter
☐ Trein ☐ Fiets/e-bike ☐ Lopen ☐ Deelfiets/OV-fiets ☐ Anders, namelijk: _____

10. Waar vond deze reis plaats?

○ Alleen binnen Den Haag ○ Zowel binnen als buiten Den Haag

11. Was het HagaZiekenhuis uw startpunt/bestemming van deze reis?

○ Ja ○ Nee

Als 'Ja' -> **Lees de situatie en vraag hieronder**

Als 'Nee' -> **Lees de situatie en vraag hieronder**

Stel dat de deelauto, deelfiets en deelscooter vanaf nu **bij elkaar** worden aangeboden **op een vaste locatie in de omgeving van uw woonadres**. Deze vervoermiddelen zullen hier dan **altijd beschikbaar** zijn in de buurt van openbaar vervoer zoals de bus of de tram.

Door gebruik te maken van **een app op uw mobiele telefoon** kunt u een deelauto, deelfiets of deelscooter ontgrendelen. De betaling voor het vervoermiddel regelt u ook via de app zodat de gemaakte kosten automatisch verrekend worden nadat u stopt het vervoermiddel te gebruiken. U kunt **het vervoermiddel overal achterlaten** als u klaar bent met reizen.

12**. Beantwoord de volgende stellingen voor het geval dat <u>u opnieuw reist</u> naar het HagaZiekenhuis en <u>de reis begint op uw woonadres</u> waar deelvervoer op een vaste locatie wordt aangeboden <u>zoals hierboven benoemd</u>.**

Stel dat de deelauto, deelfiets en deelscooter vanaf nu op **een vaste locatie op de halte Leyenburg** worden aangeboden. Deze vervoermiddelen zullen hier dan **altijd beschikbaar** zijn samen met de bus en de tram.

Door gebruik te maken van **een app op uw mobiele telefoon** kunt u een deelauto, deelfiets of deelscooter ontgrendelen. De betaling voor het vervoermiddel regelt u ook via de app zodat de gemaakte kosten automatisch verrekend worden nadat u stopt het vervoermiddel te gebruiken. U kunt **het vervoermiddel overal achterlaten** als u klaar bent met reizen.

12. **Beantwoord de volgende stellingen voor het geval dat u <u>uw reis opnieuw</u> zou gaan maken in de situatie dat deelvervoer op de halte Leyenburg beschikbaar komt <u>zoals hierboven benoemd</u>.**
Het gaat hier nog steeds om uw vaakst gemaakte reis van, naar of via de omgeving Leyenburg in het afgelopen jaar.

Geef voor de onderstaande stellingen aan in hoeverre u het er mee eens bent.

	Zeer mee eens	Mee eens	Neutraal	Mee oneens	Zeer mee oneens
Ik wil de **bus of tram** gaan gebruiken tijdens deze reis als (één van de) vervoermiddel(en)	○	○	○	○	○
Ik wil de **deelfiets** gaan gebruiken tijdens deze reis als (één van de) vervoermiddel(en)	○	○	○	○	○
Ik wil de **deelauto** gaan gebruiken tijdens deze reis als (één van de) vervoermiddel(en)	○	○	○	○	○
Ik wil de **deelscooter** gaan gebruiken tijdens deze reis als (één van de) vervoermiddel(en)	○	○	○	○	○
Ik wil het gebruik van een deelfiets, deelauto of deelscooter gaan combineren met de bus of de tram tijdens deze reis	○	○	○	○	○
Ik wil de **HagaShuttle** (zelfrijdende minibus van halte Leyenburg naar ingang HagaZiekenhuis) gaan gebruiken tijdens deze reis. Alleen beantwoorden als u de stellingen beantwoordt voor een reis naar het HagaZiekenhuis.	○	○	○	○	○

Deel 4 – Persoonlijke informatie

13. Wat is uw postcode? *(bijvoorbeeld: 1234AB)*

_____

14. Wat is uw geslacht?

○ Man
○ Vrouw
○ Overig

15. Wat is uw leeftijd? *(een getal in hele jaren)*

_____

16. In welk land bent u geboren?

○ In Nederland
○ In een ander land dan Nederland

17. Wat is uw hoogst voltooide onderwijsopleiding?

○ Geen opleiding
○ Basis onderwijs, VMBO/MAVO, MBO-1
○ HAVO/VWO, MBO-2, MBO-3, MBO4
○ HBO, WO
○ Anders, namelijk:

_____

18. Wat is het bruto jaarinkomen van uw huishouden?

○ Minder dan €25.000
○ €25.000 - €45.000
○ Meer dan €45.000
○ Weet ik niet / wil ik niet zeggen

19. Wat is de samenstelling van uw huishouden?

○ Eén persoon
○ Eenoudergezin
○ Samenwonend zonder kind(eren)
○ Samenwonend met kind(eren)
○ Anders, namelijk:_____

20. Wat is bij u van toepassing? *(kruis aan als van toepassing)*

☐ Ik reis in een rolstoel/scootmobiel
☐ Ik heb hulp nodig om in of uit een bus, trein, of auto te stappen
☐ Ik ben fysiek niet in staat te fietsen
☐ Ik ben fysiek niet in staat lange stukken (langer dan 5 minuten) te wandelen
☐ Geen van allen

Wilt u kans maken op **één van de 5 cadeaubonnen met shoptegoed ter waarde van €20,-**? Vul dan hieronder uw naam en e-mailadres in. Mocht u geen e-mailadres hebben dan voldoet een adres, postcode en plaatsnaam ook. *Deze gegevens zullen alleen gebruikt worden voor het verloten en versturen van de cadeaubonnen en zullen hierna verwijderd worden. Ze worden niet gebruikt voor het onderzoek.*

Naam: _____ E-mailadres (*of adresgegevens)*: _____

Wilt u nog iets kwijt over dit onderwerp of de enquête? Vul het dan hier in: _____

_____

Dit is het einde van de enquête. Bedankt voor de tijd die u heeft genomen om aan deze enquête deel te nemen. Als u nog vragen of opmerkingen heeft over deze enquête, neem gerust contact op via het e-mailadres: j.s.horjus@student.utwente.nl of via het telefoonnummer van HTM: 0900-4864636 (gebruikelijke belkosten).

3D – Ordinal logistic regression – statistical definitions and equations

In general, logistic regression is a model for predicting categorical outcomes from categorical and continuous predictors (Field, 2018). Ordinal logistic regression can be used when dealing with an ordinal dependent variable with more than two categories, which is the case for the *intention to use* variables in this research. In this research, it will be used to determine which predictors, i.e. independent variables, are able to significantly predict the ordinal dependent variable and what the effect of a change in this predictor is on the outcome of the dependent variable.

Logistic regression uses the principles of the linear model by expressing the non-linear relationship of a predictor with a categorical outcome variable in a linear way (Field, 2018). The latter is achieved by means of logarithmic transformation. In logistics regression, the probability of Y occurring, P(Y) is predicted from known (log-transformed) values of X, the predictor variables. With several predictors the equation of the model becomes (Field, 2018):

$$P(Y) = \frac{1}{1+e^{-(b_0+b_1X_{1i}+b_2X_{2i}+\cdots+b_nX_{ni})}} \quad (1)$$

With b_0 representing the value of the outcome when the predictors are zero, b_n quantify the relationship between each predictor and outcome, X represent the value of each predictor variable.

In general, the method of maximum-likelihood estimation is used in logistic regression. This means that the estimates of the b-values, one for each predictor, resulting from the analysis will be ones that result in values of Y closest to the observed values, given the values of the predictors variables (Field, 2018). The Wald statistic (z^2) in SPSS Statistics can be used to determine the significance of the predictor's contribution to the prediction of the outcome (Field, 2018). However, when the b-value is large, the z-statistics is underestimated, increasing the probability of rejecting the significance of a predictor, while, in reality, it is making a significant contribution to the model (Field, 2018). Hence, the likelihood ratio statistic, and its change, as will be introduced below, can also be used to assess the significance of a predictor's contribution to the model more accurately. Using SPSS statistics, these values will also be obtained for each predictor and are used to control for the possible inaccuracies with the Wald statistic and significance that are provided by default in the ordinal regression analysis from SPSS.

Finally, the odds ratio will be listed among the results of the ordinal logistics regression analysis in SPSS Statistics. This ratio, referred to as exp(B), is crucial for the interpretation of logistic regression as it is similar to the b-value but without the need for a logarithmic transformation (Field, 2018). With categorical predictor variables, the odds ratio represents the change in odds caused by a unit change in the predictor variable. If it is greater than 1, it indicates that as the predictor increases with one step, the odds of the outcome occurring increase. The other way around, if the value is less than 1, it implies that as the predictor increases, the odds of the outcome occurring decrease.

Assessment of model-fit

The fit of the model in logistics regression is done using the log-likelihood, see equation 2. It compares the observed values of the outcome and the values predicted by the model. The larger

the values of the log-likelihood statistics, the more unexplained observations there are and the lower the quality of the fit of the model is (Field, 2018).

$$\log - \text{likelihood} = \sum_{i=1}^{N} \left[\Upsilon_i \ln\left(P(\Upsilon_i)\right) + (1 - \Upsilon_i) \ln\left(1 - P(\Upsilon_i)\right) \right] \quad (2)$$

Together with the log-likelihood, the deviance is used to compare models, such as comparing a model with all its predictors to a baseline model that includes no predictors. The deviance, also referred to as -2LL, is given by:

$$\text{deviance } (-2\text{LL}) = -2 * \log - \text{likelihood} \quad (3)$$

The comparison of a model with its baseline model is often expressed as the difference between both deviance statistics, which is referred to as the likelihood ratio (χ^2) (see equation 4).

$$\chi^2 = (-2LL_{baseline}) - (-2LL_{new}) = 2LL_{new} - 2LL_{baseline} \quad (4)$$

Finally, the logistic regression's analogue of R^2 measures is proposed, similar as in linear models, to assess the model fit in logistic regression. This study will use the values R^2 statistics that are suited to logistic regression. Each of the R^2 statistics are conceptually similar and they provide an indication of the substantive significance of the model, even if their computation differs (Field, 2018). Two of the reported R^2 statistics by SPSS statistics are Cox and Snell's (1989) measure (R_{CS}^2) and Nagelkerke's (1991) measure (R_N^2). For each of these R^2 statistics, the values can vary between 0, indicating that the predictors are useless at predicting the outcome variable, and 1, indicating that the model predicts the outcome variable perfectly (Field, 2018).

3E – Correlations among independent variables of model

Table 3E-1 – The Kendall's thau correlation coefficients for the ordinal independent variables – part 1

		Car user	PT user	Shared transport experience	Digital skill	TB - PE	TB - Ways of paying	TB - Ease of use	TB - Facilities PT
Car user	τ	1.000	-,305**	-,103*	-,089*	-0.024	0.050	-0.038	-0.058
	Sig. (2-tailed)		0.000	0.025	0.031	0.543	0.215	0.379	0.171
	N	510	502	477	508	509	499	501	500
PT user	τ	-,305**	1.000	,117*	,098*	0.063	0.008	0.037	,101*
	Sig. (2-tailed)	0.000		0.011	0.016	0.105	0.849	0.383	0.016
	N	502	528	478	525	526	517	517	517
Shared transport experience	τ	-,103*	,117*	1.000	,179**	0.064	,118**	,133**	-0.065
	Sig. (2-tailed)	0.025	0.011		0.000	0.119	0.004	0.003	0.140
	N	477	478	478	476	477	473	473	473
Digital skill	τ	-,089*	,098*	,179**	1.000	,169**	,075*	,148**	-0.017
	Sig. (2-tailed)	0.031	0.016	0.000		0.000	0.040	0.000	0.665
	N	508	525	476	535	533	524	525	524
TB - Performance expectancy	τ	-0.024	0.063	0.064	,169**	1.000	,205**	,317**	,172**
	Sig. (2-tailed)	0.543	0.105	0.119	0.000		0.000	0.000	0.000
	N	509	526	477	533	536	526	527	527
TB - Ways of paying	τ	0.050	0.008	,118**	,075*	,205**	1.000	,290**	,206**
	Sig. (2-tailed)	0.215	0.849	0.004	0.040	0.000		0.000	0.000
	N	499	517	473	524	526	526	523	523
TB - Ease of use	τ	-0.038	0.037	,133**	,148**	,317**	,290**	1.000	,346**
	Sig. (2-tailed)	0.379	0.383	0.003	0.000	0.000	0.000		0.000
	N	501	517	473	525	527	523	527	524
TB - Facilities PT	τ	-0.058	,101*	-0.065	-0.017	,172**	,206**	,346**	1.000
	Sig. (2-tailed)	0.171	0.016	0.140	0.665	0.000	0.000	0.000	
	N	500	517	473	524	527	523	524	527
TB - Travel cost	τ	0.045	0.038	0.028	,078*	,233**	,217**	,228**	,234**
	Sig. (2-tailed)	0.277	0.344	0.500	0.036	0.000	0.000	0.000	0.000
	N	502	519	475	525	528	524	525	526
TB - Feeling safe	τ	-0.003	0.053	-0.082	0.051	,164**	,133**	,286**	,309**
	Sig. (2-tailed)	0.947	0.209	0.065	0.198	0.000	0.000	0.000	0.000
	N	501	519	475	524	527	524	524	525
TB - Opinion of others	τ	0.017	0.047	-0.027	0.030	0.064	,136**	0.050	,122**
	Sig. (2-tailed)	0.680	0.254	0.522	0.424	0.079	0.000	0.201	0.002
	N	501	519	475	525	527	525	524	524
Frequency of trip	τ	0.040	,127**	,109*	,092*	,092**	0.067	,131**	0.006
	Sig. (2-tailed)	0.325	0.002	0.010	0.014	0.010	0.065	0.001	0.879
	N	507	526	476	531	532	522	523	523
Nr. of means of transport during trip	τ	0.038	0.016	,102*	,114**	0.044	0.046	-0.002	0.004
	Sig. (2-tailed)	0.364	0.698	0.019	0.003	0.229	0.214	0.952	0.917
	N	508	526	477	533	534	525	526	526
Age class	τ	,087*	-,145**	-,261**	-,333**	-,187**	-,124**	-,095*	,103**

	Sig. (2-tailed)	0.031	0.000	0.000	0.000	0.000	0.000	0.012	0.006
	N	485	501	457	506	507	499	501	501
Education	τ	0.051	-,151**	,159**	,193**	0.073	0.002	0.015	-,163**
	Sig. (2-tailed)	0.240	0.000	0.000	0.000	0.050	0.954	0.711	0.000
	N	497	513	465	519	520	511	512	512
Physical ability	τ	-0.011	,113**	-0.080	-,135**	0.040	0.018	0.033	,109**
	Sig. (2-tailed)	0.809	0.009	0.079	0.001	0.297	0.645	0.438	0.009
	N	510	528	478	535	536	526	527	527

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3E-2 – The Kendall's thau correlation coefficients for the ordinal independent variables – part 2.

		TB - Travel cost	TB - Feeling safe	TB - Opinion of others	Frequency of trip	Nr. of means of transport during trip	Age class	Education	Physical ability
Car user	τ	0.045	-0.003	0.017	0.040	0.038	,087*	0.051	-0.011
	Sig. (2-tailed)	0.277	0.947	0.680	0.325	0.364	0.031	0.240	0.809
	N	502	501	501	507	508	485	497	510
PT user	τ	0.038	0.053	0.047	,127**	0.016	-,145**	-,151**	,113**
	Sig. (2-tailed)	0.344	0.209	0.254	0.002	0.698	0.000	0.000	0.009
	N	519	519	519	526	526	501	513	528
Shared transport experience	τ	0.028	-0.082	-0.027	,109*	,102*	-,261**	,159**	-0.080
	Sig. (2-tailed)	0.500	0.065	0.522	0.010	0.019	0.000	0.000	0.079
	N	475	475	475	476	477	457	465	478
Digital skill	τ	,078*	0.051	0.030	,092*	,114**	-,333**	,193**	-,135**
	Sig. (2-tailed)	0.036	0.198	0.424	0.014	0.003	0.000	0.000	0.001
	N	525	524	525	531	533	506	519	535
TB - Performance expectancy	τ	,233**	,164**	0.064	,092**	0.044	-,187**	0.073	0.040
	Sig. (2-tailed)	0.000	0.000	0.079	0.010	0.229	0.000	0.050	0.297
	N	528	527	527	532	534	507	520	536
TB - Ways of paying	τ	,217**	,133**	,136**	0.067	0.046	-,124**	0.002	0.018
	Sig. (2-tailed)	0.000	0.000	0.000	0.065	0.214	0.000	0.954	0.645
	N	524	524	525	522	525	499	511	526
TB - Ease of use	τ	,228**	,286**	0.050	,131**	-0.002	-,095*	0.015	0.033
	Sig. (2-tailed)	0.000	0.000	0.201	0.001	0.952	0.012	0.711	0.438
	N	525	524	524	523	526	501	512	527
TB - Facilities PT	τ	,234**	,309**	,122**	0.006	0.004	,103**	-,163**	,109**
	Sig. (2-tailed)	0.000	0.000	0.002	0.879	0.917	0.006	0.000	0.009
	N	526	525	524	523	526	501	512	527
TB - Travel cost	τ	1.000	,284**	,166**	,079*	0.053	-0.051	-0.062	-0.030
	Sig. (2-tailed)		0.000	0.000	0.032	0.162	0.157	0.109	0.459
	N	528	527	526	525	527	503	514	528
TB - Feeling safe	τ	,284**	1.000	,127**	0.073	0.007	0.027	-,121**	0.048
	Sig. (2-tailed)	0.000		0.001	0.061	0.861	0.474	0.003	0.257

	N	527	527	526	524	526	502	513	527
TB - Opinion of others	τ	,166**	,127**	1.000	-0.001	-0.004	-0.044	-,179**	0.041
	Sig. (2-tailed)	0.000	0.001		0.988	0.909	0.231	0.000	0.312
	N	526	526	527	524	526	501	513	527
Frequency of trip	τ	,079*	0.073	-0.001	1.000	,117**	-,127**	,076*	-0.066
	Sig. (2-tailed)	0.032	0.061	0.988		0.002	0.000	0.048	0.096
	N	525	524	524	534	532	507	519	534
Nr. of means of transport during trip	τ	0.053	0.007	-0.004	,117**	1.000	-0.032	0.003	-0.036
	Sig. (2-tailed)	0.162	0.861	0.909	0.002		0.389	0.941	0.376
	N	527	526	526	532	536	508	520	536
Age class	τ	-0.051	0.027	-0.044	-,127**	-0.032	1.000	-,100**	,159**
	Sig. (2-tailed)	0.157	0.474	0.231	0.000	0.389		0.008	0.000
	N	503	502	501	507	508	509	506	509
Education	τ	-0.062	-,121**	-,179**	,076*	0.003	-,100**	1.000	-,154**
	Sig. (2-tailed)	0.109	0.003	0.000	0.048	0.941	0.008		0.000
	N	514	513	513	519	520	506	522	522
Physical ability	τ	-0.030	0.048	0.041	-0.066	-0.036	,159**	-,154**	1.000
	Sig. (2-tailed)	0.459	0.257	0.312	0.096	0.376	0.000	0.000	
	N	528	527	527	534	536	509	522	538

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3E-3 – Cramer's V values for the correlation among the nominal independent variables.

Cramer's V

		Location of trip	Trip origin/destination	Gender	Household class	Country of birth
Location of trip	Correlation Coefficient	1	0.03	0.051	0.086	0.009
	Sig.		0.48	0.245	0.293	0.844
	N		537	520	505	510
Trip origin/destination	Correlation Coefficient	0.03	1	0.061	0.079	0.043
	Sig. (2-tailed)	0.48		0.166	0.367	0.331
	N	537		521	506	511
Gender	Correlation Coefficient	0.051	0.061	1	0.13	0.072
	Sig. (2-tailed)	0.245	0.166		0.038*	0.103
	N	520	521		501	506
Household class	Correlation Coefficient	0.086	0.079	0.13	1	0.036
	Sig. (2-tailed)	0.293	0.367	0.038*		0.887
	N	505	506	501		500
Country of birth	Correlation Coefficient	0.009	0.043	0.072	0.036	1
	Sig. (2-tailed)	0.844	0.331	0.103	0.887	
	N	510	511	506	500	

**. Correlation is significant at the 0.01 level .

*. Correlation is significant at the 0.05 level.

3F – Principal Component Analysis with transport barriers PE and EE

A principal component analysis (PCA) was conducted on the two times two items that should contribute to the theoretical constructs of Performance Expectancy (PE) and Effort Expectancy (EE) respectively. Using strictly the Kaiser's criterion of only selecting factors with eigenvalues above 1, just one factor is retained. However, when including the second factor, that has an eigenvalue of 0.92, with oblique rotation (direct oblimin) the first two items are loaded onto factor 1 and the second two on factor 2. This might be supported by looking at the scree plot, however, this is a bit ambiguous as it shows inflections indicating to keep both one and two factors. In addition, the second inflection is relatively minor. This distribution would correspond with the theoretical constructs design of the four items, where items 1 and 2 relate to the construct of PE and 3 and 4 to the construct of EE. Table 3F-1 shows the factor loadings.

Table 3F-1 – results of PCA on 4 items that were designed to load onto two factors PE and EE. N=520.

	Factor loading	
Item	Performance Expectancy (PE)	Effort Expectancy (EE)
1 - How important is it to you to reach your destination as quickly as possible?	0.87	
2 - How important is it to you to transfer as little as possible during your trip?	0.82	
3 - How important is it to you to be able to pay for your trip by bus, tram, shared car, shared bicycle or shared motor scooter in more than one way?		0.91
4 - How important is it to you that the means of transport is easy to use?		0.68
eigenvalues	1.89	0.92
% of variance	47.19	23.03
Cronbach's alpha (α)	0.64	0.43

4A – Comparison of public transport users from sample with HTM's bus and tram users

Table 4A-1 - Age distribution among this study's sample of public transport (PT) (bus, tram, and metro) users and the studies of Goudappel Coffeng (2020a) (2020b) based on the OV-Klantenbarometer of Q2 in 2019 for the HTM bus users and tram users (includes both HTM and RandstadRail trams). For this study's sample of PT users, all people are included that have indicated to have used the bus, tram, or metro at least once in the past year.

	PT users of sample	Bus users (HTM)	Tram users (RandstadRail and HTM)
	%	%	%
Age	N=479	N=561	N=3339
≤18		12%	7%
18-27	16.8%	34%	35%
28-40	20.0%	19%	22%
41-64	40.7%	23%	27%
≥65	22.5%	12%	10%

4B – Comparison of respondents from the digital questionnaire and the paper questionnaire

Table 4B-1 – Comparison of age and digital skill between the respondents of the paper questionnaire and the digital questionnaire.

	Response medium	
	Digital	Paper
	%	%
Age	N=497	N=44
18 -24 years	10.7%	0.0%
25-34 years	18.7%	0.0%
35-44 years	13.5%	4.5%
45-54 years	16.9%	2.3%
55-64 years	19.9%	18.2%
65-74 years	16.9%	25.0%
≥ 75 years	3.4%	50.0%
Digital skill	N=515	N=42
Level 0	6.0%	33.3%
Level 1	24.7%	54.8%
Level 2	25.0%	7.1%
Level 3	44.3%	4.8%

4C – Ordinal logistic regression analysis for digital skills

An ordinal logistic regression analysis is run with digital skills as the dependent variables (N=524). As independent variables, the socio-demographic variables of age, gender, education, type of household, and country of birth are included. Based on the Tables 4C-1 and 4C-2, the model fit is proven, with Table 4C-3 showing the R^2 measures to be on the smaller side but still with a relatively sized prediction ability for the model. However, Table 4C-4 shows that the assumption of proportional odds could not be met for this set of variables, with $p<.05$. Hence, using an ordinal regression analysis was not justified in this case and thus the further results cannot be trusted on their accuracy. Nevertheless, for transparency, the full output of the analysis is shown below.

Table 4C-1 – Model fitting information for analysis with dependent variable: Digital skill.

	-2LL	Chi-Square	Sig.
Intercept only	756.312		
Final	635.874	120.438	0.000

Table 4C-2 – Results of the Goodness of fit Pearson and deviance statistics. Dependent variable: Digital skill.

	Chi-Square	Sig.
Pearson	390.823	0.787
Deviance	393.492	0.759

Table 4C-3 – Pseudo R^2 results. Dependent variable: Digital skill.

	Pseudo R-Square
Cox and Snell	0.205
Nagelkerke	0.224
McFadden	0.092

Table 4C-4 – Test of Parallel Lines output. Dependent variable: Digital skill.

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	635.874			
General	593.273	42.601	24	0.011

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

If the assumption of proportional odds was met, the results from Tables 4C-5 and 4C-6 could be used to conclude that the variables of age and education have an influence on someone's level of digital skill. From the odds ratios, people that are younger and higher educated are more likely to possess the highest level of digital skill. In addition, people from a two-parent household are more likely to have the highest level of digital skills, than people from other household types.

Table 4C-5 – Parameter estimates output of ordinal logistic regression. Dependent variable: Digital skill. N = 524.

	b	Std. Error	Wald	Sig.	Exp(B)	95% CI for odds ratio Lower	Upper
Threshold							
Digital skill = level 0	-2.674	0.613	19.025	0.000	0.069	0.021	0.229
Digital skill = level 1	-0.539	0.597	0.816	0.366	0.583	0.181	1.879
Digital skill = level 2	0.643	0.597	1.158	0.282	1.901	0.590	6.131
Location							
Gender = male	0.130	0.173	0.561	0.454	1.138	0.812	1.596
Gender = female	0a				1		
Age class = 18-25	2.293	0.361	40.378	0.000	9.903	4.958	19.780
Age class = 25-34	2.272	0.291	60.773	0.000	9.695	5.453	17.237
Age class = 35-44	1.489	0.309	23.266	0.000	4.434	2.413	8.146
Age class = 45-54	1.314	0.286	21.070	0.000	3.720	2.092	6.615
Age class = 55-64	1.008	0.254	15.776	0.000	2.741	1.660	4.525
Age class = 65 and older	0a				1		
Education = low	-0.630	0.253	6.215	0.013	0.532	0.328	0.864
Education = middle	-0.456	0.186	5.978	0.014	0.634	0.437	0.919
Education = high	0a				1		
(Household class = single parent) = No	-0.002	0.358	0.000	0.995	0.998	0.497	2.004
(Household class = single parent) = Yes	0a				1		
(Household class = two person without child(ren)) = No	-0.183	0.205	0.796	0.372	0.833	0.556	1.248
(Household class = two person without child(ren)) = Yes	0a				1		
(Household class = two-parent) = No	-0.510	0.229	4.938	0.026	0.601	0.383	0.943
(Household class = two-parent) = Yes	0a				1		
Country of birth = The Netherlands	-0.321	0.273	1.376	0.241	0.726	0.418	1.259
Country of birth = other	0a				1		

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Table 4C-6 – Test of Model Effects result with Chi-Square likelihood ratios for each independent variable. Dependent variable: Digital Skill. N=524.

Source	Type III Likelihood Ratio Chi-Square	df	Sig.
Gender	0.565	1	0.452
Age class	82.271	5	0.000
Education	9.135	2	0.010
Household class = single parent	0.000	1	0.995
Household class = two person without child(ren)	0.786	1	0.375
Household class = two-parent	4.954	1	0.026
Country of birth	1.320	1	0.251

Dependent Variable: Intent to use at least one of the three shared means of transport

4D – Correlations between potential user characteristics and the intention to use shared transport variables

Table 4D-1 – Kendall's thau correlation results for a selection of variables (potential user characteristics) and the intention to use shared transport variables.

		Intention to use shared bicycle	Intention to use shared car	Intention to use shared motor scooter	Intention to use shared transport
Car user	Correlation Coefficient	0.000	,105*	,091*	0.029
	Sig. (2-tailed)	0.999	0.016	0.034	0.499
	N	502	498	499	503
PT user	Correlation Coefficient	0.083	0.038	,134**	,094*
	Sig. (2-tailed)	0.052	0.372	0.002	0.025
	N	513	510	510	515
Experience with shared transport	Correlation Coefficient	,159**	,122**	,276**	,335**
	Sig. (2-tailed)	0.000	0.006	0.000	0.000
	N	473	470	471	474
Nr. of means of transport during trip	Correlation Coefficient	,088*	0.028	0.072	,094*
	Sig. (2-tailed)	0.028	0.485	0.074	0.017
	N	522	518	518	524
Age class	Correlation Coefficient	-,145**	-,121**	-,294**	-,308**
	Sig. (2-tailed)	0.000	0.002	0.000	0.000
	N	498	494	494	499
Education	Correlation Coefficient	0.044	0.035	0.008	,121**
	Sig. (2-tailed)	0.279	0.395	0.850	0.003
	N	509	506	506	511

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is signficiant at the 0.05 level (2-tailed).

4E – Results of collinearity statistics among all independent variables

Table 4E-1 – Results of the collinearity statistics of tolerance and VIF among all independent variables used for the ordinal logistic regression analyses for the complete model dataset of N=538 cases.

	Dependent Variable: Intent to use shared transport		Dependent Variable: Intent to use bus or tram		Dependent Variable: Intent to combine use of shared transport with bus or tram	
	Collinearity Statistics		Collinearity Statistics		Collinearity Statistics	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
Car user	0.811	1.233	0.812	1.232	0.811	1.233
PT user	0.788	1.270	0.793	1.261	0.790	1.266
Experience with shared transport	0.816	1.226	0.811	1.233	0.817	1.225
Digital skill	0.786	1.273	0.780	1.283	0.789	1.268
TB - Performance expectancy	0.782	1.279	0.781	1.280	0.779	1.284
TB - Ways of paying	0.765	1.307	0.766	1.306	0.765	1.307
TB - Ease of use	0.676	1.480	0.678	1.475	0.670	1.492
TB - Facilities PT	0.733	1.365	0.732	1.366	0.734	1.363
TB - Travel cost	0.786	1.272	0.790	1.266	0.786	1.272
TB - Feeling safe	0.773	1.294	0.771	1.296	0.774	1.292
TB - Opinion of others	0.839	1.192	0.840	1.190	0.840	1.190
Frequency of trip	0.842	1.188	0.843	1.186	0.842	1.188
Nr. of means of transport during trip	0.909	1.100	0.912	1.096	0.911	1.098
Location of trip	0.912	1.097	0.914	1.094	0.914	1.094
Trip origin/destination	0.911	1.098	0.911	1.097	0.912	1.096
Gender	0.906	1.104	0.910	1.099	0.907	1.102
Age class	0.646	1.547	0.639	1.566	0.649	1.542
Education	0.823	1.215	0.821	1.218	0.816	1.226
Household class = single parent	0.818	1.222	0.819	1.221	0.818	1.222
Household class = two person without child(ren)	0.709	1.411	0.708	1.413	0.710	1.408
Household class = two-parent	0.686	1.459	0.687	1.456	0.686	1.457
Country of birth	0.906	1.104	0.902	1.108	0.919	1.088
Physical ability	0.900	1.111	0.905	1.104	0.910	1.099

4F – Ordinal logistics regression output - Dependent variable: intention to use shared transport

The model fit statistics and proportional odds assumption

The three tables below (Tables 4F-1 – 4F-3) describe the fit of the model with one predictor variable (Model 1) and the model with all independent variables (Model 2). For both models N=423. Both models describe a significant improvement compared to the intercept only model, see Table 4F-1. For model 2, χ^2 = 167.717, p <.001 describing the improvement. Table 4F-2 shows the results of the Pearson and deviance statistics, which test whether the predicted values from the model differ significantly from the observed value (Field, 2018). A non-significant result of these statistics (p>.05) is another indicator that the model is a good fit. Unfortunately, for model 2, the Pearson and deviance statistics have contrasting results. This might indicate that this model could be improved to create a better fit with the observations.

Finally, the R^2 measures in Table 4F-3, show relatively decent sized effects for model 2 to confirm the model's prediction ability. In addition, a significant increase for these values is seen from the model with one predictor variable, digital skills, to the model with all 21 independent variables, highlighting the value of the including these.

From Table 4F-5, the test of parallel lines of SPSS statistics results in p>0.05, indicating that the assumption of proportional odds is met for this analysis.

Table 4F-1 – Model fitting information for analysis with dependent variable: Intention to use shared transport.

		-2LL	Chi-Square	Sig.
Model 1	Intercept only	83.130		
	Final	35.335	47.795	0.000
Model 2	Intercept only	885.568		
	Final	717.850	167.717	0.000

Table 4F-2 – Results of the Goodness of fit Pearson and deviance statistics. Dependent variable: Intention to use shared transport.

	Model 1		Model 2	
	Chi-Square	Sig.	Chi-Square	Sig.
Pearson	1.144	0.766	900.341	0.007
Deviance	1.187	0.756	717.850	0.980

Table 4F-3 – Pseudo R^2 results. Dependent variable: Intention to use shared transport.

	Model 1	Model 2
Cox and Snell	0.107	0.327
Nagelkerke	0.122	0.373
McFadden	0.054	0.189

Table 4F-4 – Complete parameter estimates output of ordinal logistic regression. Dependent variable: Intention to use shared transport. N = 423.

						95% CI for odds ratio	
	b	Std. Error	Wald	Sig.	Exp(B)	Lower	Upper
Threshold							
[Intention to use shared transport = disagree]	-3.718	1.363	7.440	0.006	0.024	0.002	0.347
[Intention to use shared transport = neutral]	-2.349	1.356	3.003	0.083	0.095	0.007	1.341
Location							
Digital skill = level 0	-1.593	0.621	6.571	0.010	0.203	0.062	0.664
Digital skill = level 1	-0.879	0.301	8.516	0.004	0.415	0.228	0.755
Digital skill = level 2	-0.409	0.270	2.292	0.130	0.664	0.390	1.131
Digital skill = level 3	0a				1		
Car user = non-frequent	-0.168	0.234	0.515	0.473	0.845	0.533	1.341
Car user = frequent	0a				1		
PT user = non-frequent	-0.054	0.241	0.051	0.822	0.947	0.590	1.522
PT user = frequent	0a				1		
Experience with shared transport = No	-1.393	0.277	25.201	0.000	0.25	0.143	0.432
Experience with shared transport = Yes	0a				1		
TB - Performance expectancy	-0.062	0.082	0.579	0.447	0.940	0.798	1.106
TB - Ways of paying = not important	-1.028	0.404	6.487	0.011	0.358	0.162	0.791
TB - Ways of paying = a bit important	-0.748	0.412	3.294	0.070	0.473	0.209	1.071
TB - Ways of paying = fairly important	-0.477	0.386	1.528	0.216	0.621	0.292	1.317
TB - Ways of paying = important	-0.382	0.348	1.202	0.273	0.683	0.345	1.351
TB - Ways of paying = very important	0a				1		
TB - Ease of use = not - fairly important	0.457	0.445	1.053	0.305	1.579	0.663	3.761
TB - Ease of use = important	0.088	0.261	0.113	0.737	1.092	0.653	1.824
TB - Ease of use = very important	0a				1		
TB - Facilities PT = not - fairly important	-0.418	0.329	1.616	0.204	0.658	0.345	1.256
TB - Facilities PT = important	-0.280	0.264	1.124	0.289	0.756	0.448	1.274
TB - Facilities PT = very important	0a				1		
TB - Travel cost = not important	0.289	0.665	0.189	0.664	1.335	0.363	4.914
TB - Travel cost = a bit important	-0.287	0.435	0.437	0.508	0.750	0.324	1.737
TB - Travel cost = fairly important	-0.055	0.337	0.026	0.871	0.947	0.485	1.848
TB - Travel cost = important	-0.039	0.274	0.021	0.886	0.962	0.565	1.637
TB - Travel cost = very important	0a				1		
TB - Feeling Safe = not - fairly important	-0.066	0.390	0.028	0.867	0.937	0.436	2.012
TB - Feeling Safe = important	-0.090	0.268	0.112	0.738	0.914	0.542	1.543
TB - Feeling Safe = very important	0a				1		
TB - Opinion of others = not important	-0.906	0.607	2.229	0.135	0.404	0.133	1.229
TB - Opinion of others = a bit important	-0.464	0.648	0.512	0.474	0.629	0.190	2.081
TB - Opinion of others = fairly important	-0.045	0.655	0.005	0.945	0.956	0.285	3.202
TB - Opinion of others = important	-0.374	0.716	0.273	0.601	0.688	0.183	2.580
TB - Opinion of others = very important	0a				1		
Frequency of trip = 1 to 5 days a year	0.537	0.422	1.624	0.202	1.712	0.744	3.935
Frequency of trip = 6 to 11 days a year	-0.386	0.491	0.618	0.432	0.680	0.265	1.745

Frequency of trip = 1 to 3 days a month	-0.775	0.381	4.133	0.042	0.460	0.215	0.988
Frequency of trip = 1 to 3 days a week	-0.064	0.259	0.061	0.805	0.938	0.566	1.556
Frequency of trip = 4 or more days a week	0a				1		
Nr. of means of transport during trip = 1	-0.498	0.269	3.427	0.064	0.608	0.355	1.040
Nr. of means of transport during trip = 2	-0.842	0.324	6.768	0.009	0.431	0.228	0.813
Nr. of means of transport during trip = 3 or more	0a				1		
Location of trip = only within The Hague	0.017	0.221	0.006	0.940	1.017	0.657	1.574
Location of trip = Both within and outside The Hague	0a				1		
Trip origin/destination = HagaZiekenhuis	0.406	0.223	3.313	0.069	1.501	0.966	2.333
Trip origin/destination = other	0a				1		
Gender = male	-0.023	0.234	0.010	0.922	0.977	0.620	1.540
Gender = female	0a				1		
Age class = 18-25	2.267	0.514	19.459	0.000	9.649	3.441	27.056
Age class = 25-34	1.433	0.431	11.071	0.001	4.192	1.786	9.838
Age class = 35-44	0.898	0.450	3.986	0.046	2.454	0.995	6.052
Age class = 45-54	0.781	0.439	3.156	0.076	2.183	0.908	5.245
Age class = 55-64	1.019	0.404	6.371	0.012	2.770	1.238	6.198
Age class = 65 and older	0a				1		
Education = low	-1.246	0.428	8.473	0.004	0.288	0.125	0.664
Education = middle	-0.261	0.244	1.150	0.284	0.770	0.480	1.236
Education = high	0a				1		
(Household class = single parent) = No	0.178	0.428	0.173	0.678	1.195	0.509	2.801
(Household class = single parent) = Yes	0a				1		
(Household class = two person without child(ren)) = No	-0.294	0.275	1.141	0.286	0.745	0.434	1.279
(Household class = two person without child(ren)) = Yes	0a				1		
(Household class = two-parent) = No	-0.019	0.293	0.004	0.947	0.981	0.548	1.754
(Household class = two-parent) = Yes	0a				1		
Country of birth = The Netherlands	0.169	0.366	0.214	0.643	1.185	0.596	2.355
Country of birth = other	0a				1		
Physical ability = no limitations	-0.724	0.476	2.314	0.128	0.485	0.196	1.197
Physical ability = at least one limitation	0a				1		

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Table 4F-5 – Test of parallel lines results. Dependent variable: Intention to use shared transport. N=423.

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	717.850			
General	704,146[b]	13,704[c]	46	1.000

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.
b. The log-likelihood value cannot be further increased after maximum number of step-halving.
c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Table 4F-6 – Test of Model Effects result with Chi-Square likelihood ratios for each independent variable. Dependent variable: Intention to use shared transport. N=423.

Source	Type III Likelihood Ratio Chi-Square	df	Sig.
Car user	0.509	1	0.475
PT user	0.050	1	0.822
Experience with shared transport	25.342	1	0.000
Digital skill	14.294	3	0.003
TB - Ways of paying	7.434	4	0.115
TB - Ease of use	1.059	2	0.589
TB - Facilities PT	1.917	2	0.383
TB - Travel cost	0.718	4	0.949
TB - Feeling safe	0.119	2	0.942
TB - Opinion of others	9.123	4	0.058
Frequency of trip	7.330	4	0.119
Nr. of means of transport during trip	6.961	2	0.031
Location of trip	0.006	1	0.940
Trip origin/destination	3.277	1	0.070
Gender	0.010	1	0.922
Age class	23.488	5	0.000
Education	9.234	2	0.010
Household class = single parent	0.168	1	0.682
Household class = two person without child(ren)	1.141	1	0.286
Household class = two-parent	0.004	1	0.948
Country of birth	0.234	1	0.628
Physical ability	2.438	1	0.118
TB - Performance expectancy	0.562	1	0.453

Dependent Variable: Intent to use at least one of the three shared means of transport

4G – Ordinal logistics regression output - Dependent variable: intention to use the bus or tram

The model fit statistics and proportional odds assumption

For this second analysis, the results of the variables used to assess the model's fit are listed in Tables 4G-1 – 4G-3. For this analysis N = 424. First, $\chi = 143.889$ with $p<.001$, indicating an improvement over the intercept only model. Additionally, the Pearson and deviance statistics in Table 4G-2 both report a significance of $p>0.05$, indicating a good model fit. The R^2 values in Table 4G-3 indicate moderate sized effects, with Nagelkerke's R^2 being quite similar as in the analysis for the intention to use shared transportation, discussed before. This also shows that the prediction ability of model 2, with all 21 independent variables is better than that of the model with only digital skills as independent variable.

Table 4G-1 – Model fitting information for analysis with dependent variable: Intention to use the bus or tram.

		-2LL	Chi-Square	Sig.
Model 1	Intercept only	55.721		
	Final	34.633	21.088	0.000
Model 2	Intercept only	758.584		
	Final	614.695	143.889	0.000

Table 4G-2 – Results of the Goodness of fit Pearson and deviance statistics. Dependent variable: Intention to use the bus or tram.

	Model 1		Model 2	
	Chi-Square	Sig.	Chi-Square	Sig.
Pearson	0.408	0.939	826.649	0.250
Deviance	0.397	0.941	614.695	1.000

Table 4G-3 – Pseudo R^2 results. Dependent variable: Intention to use the bus or tram.

	Model 1	Model 2
Cox and Snell	0.049	0.288
Nagelkerke	0.058	0.346
McFadden	0.028	0.190

Finally, the test of parallel lines of SPSS statistics results in p=.784 (see Table 4G-5) indicating that the assumption of proportional odds is met for this analysis.

Table 4G-4 – Complete parameter estimates output of ordinal logistic regression. Dependent variable: Intention to use the bus or tram. N =424.

						95% CI for odds ratio	
	b	Std. Error	Wald	Sig.	Exp(B)	Lower	Upper
Threshold							
[Intention to use bus or tram = disagree]	-2.650	1.645	2.595	0.107	0.071	0.003	1.808
[Intention to use bus or tram = neutral]	-1.598	1.641	0.948	0.330	0.202	0.008	5.138
Location							
Digital skill = level 0	-0.353	0.595	0.353	0.552	0.702	0.225	2.193
Digital skill = level 1	-0.837	0.320	6.826	0.009	0.433	0.230	0.815
Digital skill = level 2	-0.410	0.312	1.721	0.190	0.664	0.359	1.229
Digital skill = level 3	0a				1		
Car user = non-frequent	0.560	0.266	4.427	0.035	1.750	1.031	2.971
Car user = frequent	0a				1		
PT user = non-frequent	-1.799	0.293	37.574	0.000	0.166	0.092	0.296
PT user = frequent	0a				1		
Experience with shared transport = No	-0.194	0.327	0.351	0.553	0.82	0.430	1.579
Experience with shared transport = Yes	0a				1		
TB - Performance expectancy	-0.002	0.092	0.000	0.985	0.998	0.834	1.195
TB - Ways of paying = not important	0.177	0.472	0.141	0.708	1.194	0.478	2.981
TB - Ways of paying = a bit important	-0.222	0.466	0.227	0.634	0.801	0.324	1.981
TB - Ways of paying = fairly important	-0.161	0.432	0.138	0.710	0.852	0.365	1.985
TB - Ways of paying = important	-0.486	0.402	1.459	0.227	0.615	0.282	1.339
TB - Ways of paying = very important	0a				1		
TB - Ease of use = not - fairly important	-0.557	0.470	1.406	0.236	0.573	0.228	1.440
TB - Ease of use = important	-0.188	0.286	0.431	0.512	0.829	0.468	1.467
TB - Ease of use = very important	0a				1		
TB - Facilities PT = not - fairly important	-0.127	0.363	0.123	0.726	0.880	0.430	1.801
TB - Facilities PT = important	-0.622	0.283	4.829	0.028	0.537	0.306	0.941
TB - Facilities PT = very important	0a				1		
TB - Travel cost = not important	-1.065	0.739	2.075	0.150	0.345	0.079	1.498
TB - Travel cost = a bit important	-0.422	0.458	0.853	0.356	0.655	0.266	1.613
TB - Travel cost = fairly important	-0.021	0.385	0.003	0.957	0.979	0.459	2.089
TB - Travel cost = important	-0.165	0.301	0.300	0.584	0.848	0.468	1.539
TB - Travel cost = very important	0a				1		
TB - Feeling Safe = not - fairly important	0.844	0.483	3.052	0.081	2.325	0.886	6.103
TB - Feeling Safe = important	0.024	0.289	0.007	0.934	1.024	0.583	1.800
TB - Feeling Safe = very important	0a				1		
TB - Opinion of others = not important	-0.339	0.926	0.134	0.714	0.712	0.122	4.167
TB - Opinion of others = a bit important	0.043	0.960	0.002	0.965	1.044	0.168	6.491
TB - Opinion of others = fairly important	0.008	0.966	0.000	0.993	1.008	0.159	6.411
TB - Opinion of others = important	-0.734	1.004	0.534	0.465	0.480	0.070	3.290
TB - Opinion of others = very important	0a				1		
Frequency of trip = 1 to 5 days a year	1.588	0.494	10.334	0.001	4.893	1.909	12.546
Frequency of trip = 6 to 11 days a year	1.675	0.551	9.255	0.002	5.339	1.851	15.400

Frequency of trip = 1 to 3 days a month	1.082	0.410	6.976	0.008	2.951	1.301	6.695
Frequency of trip = 1 to 3 days a week	0.632	0.291	4.728	0.030	1.881	1.059	3.344
Frequency of trip = 4 or more days a week	0a				1		
Nr. of means of transport during trip = 1	-0.464	0.298	2.427	0.119	0.629	0.348	1.137
Nr. of means of transport during trip = 2	-0.167	0.359	0.217	0.641	0.846	0.418	1.713
Nr. of means of transport during trip = 3 or more	0a				1		
Location of trip = only within The Hague	-0.344	0.247	1.936	0.164	0.709	0.437	1.151
Location of trip = Both within and outside The Hague	0a				1		
Trip origin/destination = HagaZiekenhuis	-0.648	0.252	6.613	0.010	0.523	0.319	0.858
Trip origin/destination = other	0a				1		
Gender = male	-0.060	0.254	0.056	0.813	0.941	0.571	1.554
Gender = female	0a				1		
Age class = 18-25	-0.285	0.576	0.245	0.621	0.752	0.243	2.330
Age class = 25-34	-0.254	0.467	0.296	0.586	0.776	0.309	1.950
Age class = 35-44	-0.086	0.494	0.030	0.861	0.917	0.345	2.441
Age class = 45-54	-0.526	0.449	1.374	0.241	0.591	0.245	1.427
Age class = 55-64	-0.669	0.402	2.776	0.096	0.512	0.234	1.120
Age class = 65 and older	0a				1		
Education = low	0.708	0.447	2.504	0.114	2.030	0.839	4.912
Education = middle	0.305	0.278	1.205	0.272	1.356	0.785	2.343
Education = high	0a				1		
(Household class = single parent) = No	0.501	0.482	1.080	0.299	1.651	0.636	4.282
(Household class = single parent) = Yes	0a				1		
(Household class = two person without child(ren)) = No	0.312	0.304	1.053	0.305	1.367	0.749	2.495
(Household class = two person without child(ren)) = Yes	0a				1		
(Household class = two-parent) = No	0.522	0.322	2.627	0.105	1.686	0.893	3.182
(Household class = two-parent) = Yes	0a				1		
Country of birth = The Netherlands	0.095	0.406	0.054	0.816	1.099	0.506	2.386
Country of birth = other	0a				1		
Physical ability = no limitations	0.525	0.523	1.006	0.316	1.691	0.593	4.823
Physical ability = at least one limitation	0a				1		

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Table 4G-5 – Test of parallel lines results. Dependent variable: Intention to use the bus or tram. N =424.

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	614.695			
General	576,417[b]	38,279[c]	46	0.784

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.
c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Table 4G-6 – Test of Model Effects result with Chi-Square likelihood ratios for each independent variable. Dependent variable: Intention to use the bus or tram. N =424.

Source	Type III Likelihood Ratio Chi-Square	df	Sig.
Car user	4.331	1	0.037
PT user	40.600	1	0.000
Experience with shared transport	0.344	1	0.558
Digital skill	6.998	3	0.072
TB - Ways of paying	3.795	4	0.435
TB - Ease of use	1.405	2	0.495
TB - Facilities PT	5.252	2	0.072
TB - Travel cost	2.765	4	0.598
TB - Feeling safe	3.326	2	0.190
TB - Opinion of others	3.384	4	0.496
Frequency of trip	20.726	4	0.000
Nr. of means of transport during trip	2.657	2	0.265
Location of trip	1.959	1	0.162
Trip origin/destination	6.706	1	0.010
Gender	0.056	1	0.814
Age class	4.266	5	0.512
Education	2.921	2	0.232
Household class = single parent	1.037	1	0.308
Household class = two person without child(ren)	1.036	1	0.309
Household class = two-parent	2.608	1	0.106
Country of birth	0.057	1	0.811
Physical ability	0.936	1	0.333
TB - Performance expectancy	0.000	1	0.985

Dependent Variable: Intent to use the bus or tram.

4H – Ordinal logistics regression output - Dependent variable: intention to combine the use of shared transport with the bus or tram

The model fit statistics and proportional odds assumption

The Tables 4H-1 – 4H-3, show the results related to the fit of the model. For this analysis, 421 cases (N) are considered. For the complete model, χ^2=112.18 with p<0.001 indicating that the model is an improvement over the intercept only model, without any predictors. In addition, the Pearson and deviance statistics prove the fit of the model with the observed value, see Table 4H-2 where p>0.05. Finally, the R^2 results indicate a relatively decent prediction ability for the model with all independent variables (model 2). Comparing the R^2 results for the two models shows the increase in the model's ability to predict the dependent variable as the 21 independent variables are included compared to the single variable of digital skills.

Table 4H-1 – Model fitting information for analysis with dependent variable: Intention to combine the use of shared transport with the bus or tram.

		-2LL	Chi-Square	Sig.
Model 1	Intercept only	63.032		
	Final	33.878	29.154	0.000
Model 2	Intercept only	783.183		
	Final	671.003	112.180	0.000

Table 4H-2 – Results of the Goodness of fit Pearson and deviance statistics. Dependent variable: Intention to combine the use of shared transport with the bus or tram.

	Model 1		Model 2	
	Chi-Square	Sig.	Chi-Square	Sig.
Pearson	1.396	0.706	829.626	0.185
Deviance	1.382	0.710	671.003	0.999

Table 4H-3 – Pseudo R^2 results. Dependent variable: Intention to combine the use of shared transport with the bus or tram.

	Model 1	Model 2
Cox and Snell	0.067	0.234
Nagelkerke	0.079	0.277
McFadden	0.037	0.143

Finally, Table 4H-5 shows the results for the test of parallel lines of SPSS statistics. Here, an insignificance with p=.236 indicates that the assumption of proportional odds is met for this analysis.

Table 4H-4 – Complete parameter estimates output of ordinal logistic regression. Dependent variable: Intention to combine the use of shared transport with the bus or tram. N = 421.

						95% CI for odds ratio	
	b	Std. Error	Wald	Sig.	Exp(B)	Lower	Upper
Threshold							
[Intention to combine shared transport & bus/tram = disagree]	-2.685	1.399	3.685	0.055	0.068	0.005	1.018
[Intention to combine shared transport & bus/tram = neutral]	-1.290	1.393	0.858	0.354	0.275	0.019	4.059
Location							
Digital skill = level 0	-1.339	0.691	3.757	0.053	0.262	0.068	1.015
Digital skill = level 1	-0.711	0.324	4.820	0.028	0.491	0.258	0.935
Digital skill = level 2	-0.622	0.286	4.712	0.030	0.537	0.308	0.937
Digital skill = level 3	0a				1		
Car user = non-frequent	-0.209	0.241	0.753	0.386	0.811	0.506	1.301
Car user = frequent	0a				1		
PT user = non-frequent	-0.113	0.252	0.200	0.654	0.893	0.543	1.469
PT user = frequent	0a				1		
Experience with shared transport = No	-1.062	0.270	15.527	0.000	0.346	0.203	0.589
Experience with shared transport = Yes	0a				1		
TB - Performance expectancy	-0.053	0.087	0.370	0.543	0.949	0.802	1.122
TB - Ways of paying = not important	-1.310	0.430	9.267	0.002	0.270	0.114	0.642
TB - Ways of paying = a bit important	-0.508	0.417	1.484	0.223	0.602	0.261	1.385
TB - Ways of paying = fairly important	-0.417	0.389	1.149	0.284	0.659	0.308	1.410
TB - Ways of paying = important	-0.293	0.343	0.730	0.393	0.746	0.376	1.482
TB - Ways of paying = very important	0a				1		
TB - Ease of use = not - fairly important	-0.077	0.493	0.024	0.876	0.926	0.356	2.412
TB - Ease of use = important	-0.189	0.269	0.493	0.482	0.828	0.488	1.405
TB - Ease of use = very important	0a				1		
TB - Facilities PT = not - fairly important	-0.342	0.347	0.975	0.324	0.710	0.356	1.416
TB - Facilities PT = important	-0.314	0.272	1.333	0.248	0.731	0.429	1.245
TB - Facilities PT = very important	0a				1		
TB - Travel cost = not important	0.588	0.669	0.772	0.380	1.800	0.447	7.252
TB - Travel cost = a bit important	0.090	0.461	0.038	0.845	1.094	0.445	2.694
TB - Travel cost = fairly important	0.107	0.344	0.097	0.756	1.113	0.568	2.179
TB - Travel cost = important	-0.165	0.286	0.331	0.565	0.848	0.482	1.491
TB - Travel cost = very important	0a				1		
TB - Feeling Safe = not - fairly important	-0.218	0.405	0.290	0.591	0.804	0.356	1.818
TB - Feeling Safe = important	0.152	0.277	0.302	0.583	1.165	0.682	1.988
TB - Feeling Safe = very important	0a				1		
TB - Opinion of others = not important	-1.242	0.595	4.349	0.037	0.289	0.091	0.921
TB - Opinion of others = a bit important	-0.973	0.636	2.341	0.126	0.378	0.110	1.305
TB - Opinion of others = fairly important	-1.185	0.648	3.345	0.067	0.306	0.087	1.075
TB - Opinion of others = important	-0.782	0.701	1.245	0.265	0.457	0.116	1.808
TB - Opinion of others = very important	0a				1		
Frequency of trip = 1 to 5 days a year	0.804	0.445	3.268	0.071	2.235	0.950	5.256

Frequency of trip = 6 to 11 days a year	0.017	0.511	0.001	0.974	1.017	0.369	2.803
Frequency of trip = 1 to 3 days a month	-0.293	0.399	0.540	0.463	0.746	0.334	1.665
Frequency of trip = 1 to 3 days a week	0.292	0.268	1.193	0.275	1.339	0.791	2.269
Frequency of trip = 4 or more days a week	0a				1		
Nr. of means of transport during trip = 1	-0.676	0.274	6.088	0.014	0.509	0.296	0.875
Nr. of means of transport during trip = 2	-0.998	0.339	8.652	0.003	0.369	0.189	0.718
Nr. of means of transport during trip = 3 or more	0a				1		
Location of trip = only within The Hague	0.328	0.233	1.984	0.159	1.388	0.878	2.194
Location of trip = Both within and outside The Hague	0a				1		
Trip origin/destination = HagaZiekenhuis	0.327	0.229	2.049	0.152	1.387	0.879	2.191
Trip origin/destination = other	0a				1		
Gender = male	-0.126	0.241	0.274	0.601	0.881	0.551	1.410
Gender = female	0a				1		
Age class = 18-25	1.615	0.528	9.375	0.002	5.030	1.774	14.264
Age class = 25-34	0.843	0.467	3.254	0.071	2.323	0.945	5.709
Age class = 35-44	0.607	0.489	1.537	0.215	1.834	0.705	4.775
Age class = 45-54	0.432	0.476	0.824	0.364	1.540	0.614	3.865
Age class = 55-64	0.759	0.445	2.907	0.088	2.136	0.907	5.028
Age class = 65 and older	0a				1		
Education = low	-0.514	0.434	1.405	0.236	0.598	0.253	1.410
Education = middle	-0.266	0.257	1.079	0.299	0.766	0.463	1.269
Education = high	0a				1		
(Household class = single parent) = No	-0.253	0.434	0.338	0.561	0.777	0.329	1.835
(Household class = single parent) = Yes	0a				1		
(Household class = two person without child(ren)) = No	0.389	0.290	1.802	0.179	1.476	0.839	2.596
(Household class = two person without child(ren)) = Yes	0a				1		
(Household class = two-parent) = No	0.314	0.301	1.084	0.298	1.369	0.760	2.465
(Household class = two-parent) = Yes	0a				1		
Country of birth = The Netherlands	-0.093	0.364	0.065	0.798	0.911	0.453	1.831
Country of birth = other	0a				1		
Physical ability = no limitations	-0.135	0.503	0.072	0.789	0.874	0.332	2.298
Physical ability = at least one limitation	0a				1		

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Table 4H-5 – Test of parallel lines results. Dependent variable: Intention to combine the use of shared transport with the bus or tram. N = 421.

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	671.003			
General	618,491[b]	52,511[c]	46	0.236

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.
b. The log-likelihood value cannot be further increased after maximum number of step-halving.
c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Table 4H-6 – Test of Model Effects result with Chi-Square likelihood ratios for each independent variable. Dependent variable: Intention to combine the use of shared transport with the bus or tram. N = 421.

Source	Type III Likelihood Ratio Chi-Square	df	Sig.
Car user	0.754	1	0.385
PT user	0.197	1	0.657
Experience with shared transport	15.359	1	0.000
Digital skill	10.252	3	0.017
TB - Ways of paying	10.276	4	0.036
TB - Ease of use	0.502	2	0.778
TB - Facilities PT	1.623	2	0.444
TB - Travel cost	1.533	4	0.821
TB - Feeling safe	0.786	2	0.675
TB - Opinion of others	5.416	4	0.247
Frequency of trip	5.301	4	0.258
Nr. of means of transport during trip	9.572	2	0.008
Location of trip	1.983	1	0.159
Trip origin/destination	1.978	1	0.160
Gender	0.278	1	0.598
Age class	11.687	5	0.039
Education	1.940	2	0.379
Household class = single parent	0.330	1	0.566
Household class = two person without child(ren)	1.835	1	0.176
Household class = two-parent	1.099	1	0.295
Country of birth	0.068	1	0.794
Physical ability	0.074	1	0.786
TB - Performance expectancy	0.377	1	0.539

Dependent Variable: Intent to combine the use of shared transport with the bus or tram.

References

Bernhard, C., Oberfeld, D., Hoffmann, C., Weismüller, D., & Hecht, H. (2020). User acceptance of automated public transport. Valence of an autonomous minibus experience. *Transportation Research Part F, 70*, 109-123. doi:10.1016/j.trf.2020.02.008

Cox, D. R., & Snell, D. J. (1989). *The analysis of binary data (2nd ed.).* London: Chapman & Hall.

CROW. (2021). *Wat is het effect van deelauto's op autobezit? Onderzoek naar de invloed van de woonomgeving en het type deelautosysteem op de bereidheid om de privéauto weg te doen.* Ede: CROW. Retrieved from https://www.crow.nl/getmedia/89daa542-5f87-48e2-848d-99dcdd2b3cee/K-D108-Wat-is-het-effect-van-deelauto%E2%80%99s-op-autobezit.pdf.aspx?ext=.pdf

Durand, A., & Zijlstra, T. (2020). *The impact of digitalisation on the access to transport services: a literature review.* The Netherlands Institute for Transport Policy Analysis (KiM). The Hague: Ministry of Infrastructure and Water Management. Retrieved from https://english.kimnet.nl/publications/publications/2020/06/29/the-impact-of-digitalisation-on-the-access-to-transport-services-a-literature-review

European Commission. (2019). *The European Green Deal. Communication from the commission to the European parliament, the European council, the council, the European economic and social committee and the committee of the regions.* Brussels: European Commission. Retrieved from https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF

Ferguson, C. (2016). Managing and motivating sustainable travel behaviour change. In S. Biermann, D. Olaru, & V. Paul, *Planning boomtown and beyond* (pp. 592-615). Crawley, Australia: UWA Publishing. Retrieved from https://resources.patrec.org/publications/books/boomtown2017/Chapter24-Ferguson.pdf

Field, A. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th ed.). Los Angeles | London | New Delhi | Singapore | Washington DC | Melbourne: SAGE.

Goudappel Coffeng. (2020a). *Rapportage OV-Klantenbarometer Metropool Regio Rotterdam Den Haag. Resultaten vierde kwartaal 2019.* Deventer: Goudappel Coffeng.

Goudappel Coffeng. (2020b). *Rapportage OV-Klantenbarometer HTM (bus). Resultaten vierde kwartaal 2019.* Deventer: Goudappel Coffeng.

Jahanshahi, D., Tabibi, Z., & van Wee, B. (2020). Factors influencing the acceptance and use of a bicycle sharing system: Applying an extended Unified Theory of Acceptance and Use of Technology (UTAUT). *Case Studies on Transport Policy, 8*, 1212-1223. doi:10.1016/j.cstp.2020.08.002

Kaye, S.-A., Lewis, I., Forward, S., & Delhomme, P. (2020). A priori acceptance of highly automated cars in Australia, France, and Sweden: A theoretically-informed investigation guided by the TPB and UTAUT. *Accident Analysis and Prevention, 137*, 105441. doi:10.1016/j.aap.2020.105441

Kettles, N., & Van Belle, J.-P. (2019). Investigation into the Antecedents of Autonomous Car Acceptance using an Enhanced UTAUT Model. *International Conference on Advances in Big Data, Computing and Data Communication Systems.* Winterton, South Africa: IEEE. doi:10.1109/ICABCD.2019.8851011

Madigan, R., Louw, T., Dziennus, M., Graindorge, T., Ortega, E., Graindorge, M., & Merat, N. (2016). Acceptance of Automted Road Transport Systems (ARTS): an adaptation of the UTAUT model. *Transportation Research Procedia, 14*, 2217-2226. doi:10.1016/j.trpro.2016.05.237

Nagelkerke, N. J. (1991). A note on a general definition of the coefficient of determination. *Biometrika, 78*, 691-692. doi:10.1093/biomet/78.3.691

Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly, 36*(1), 157-178. doi:10.2307/41410412

Ye, J., Zheng, J., & Yi, F. (2020). A study on users' willingness to accept mobility as a service based on UTAUT model. *Technological Forecasting & Social Change, 157*, 120066. doi:10.1016/j.techfore.2020.120066