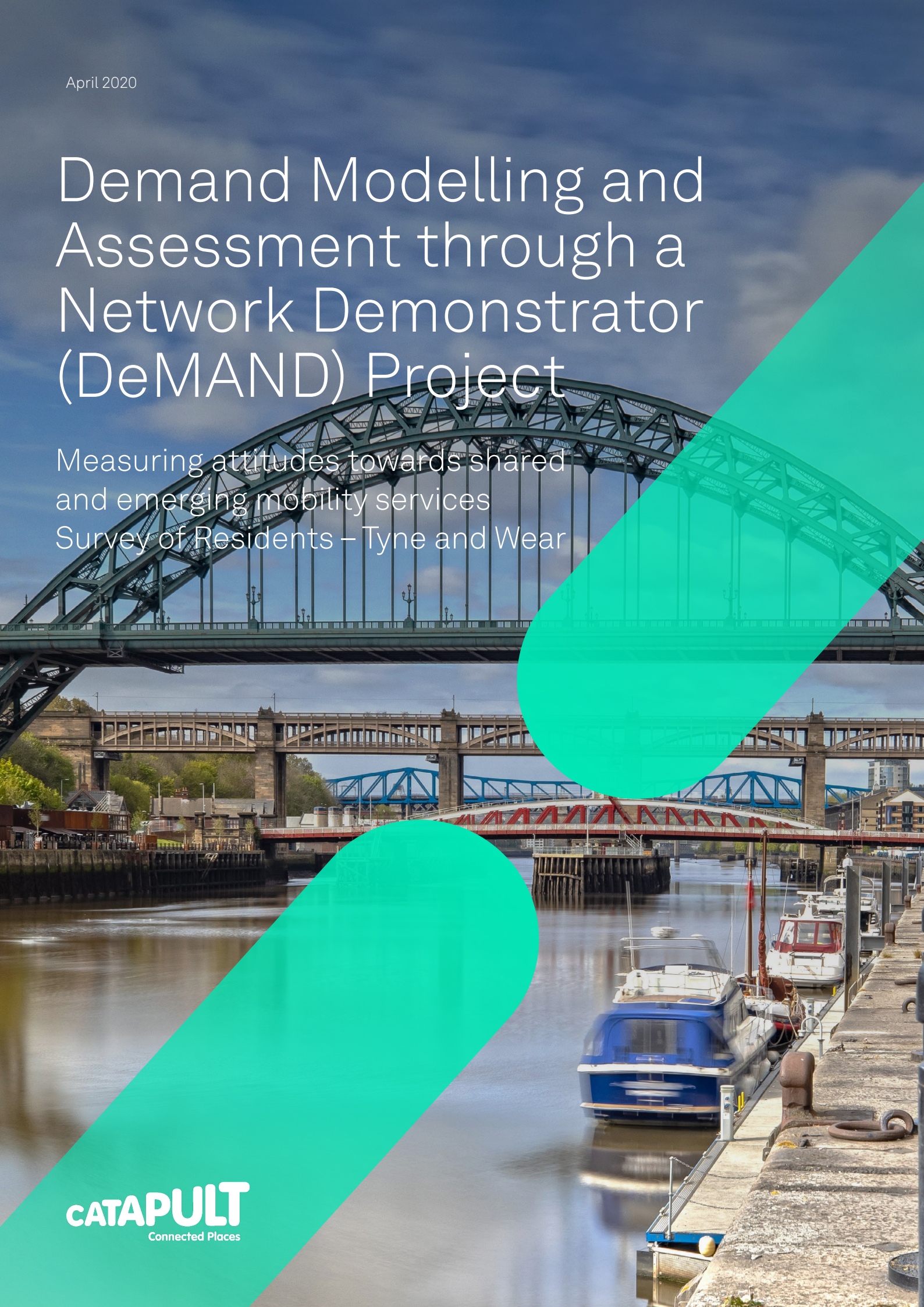
April 2020

Demand Modelling and Assessment through a Network Demonstrator (DeMAND) Project

Measuring attitudes towards shared and emerging mobility services
Survey of Residents – Tyne and Wear



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Contents

Notice

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Record of Changes

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Executive Summary

The “Demand Modelling and Assessment through a Network Demonstrator” (DeMAND) project is funded by the grant funding agreement between the Department for Transport and Connected Places Catapult (2019/2020). The DeMAND project focus on the development of a new methodology to assess the demand for the introduction of New Mobility Services (NMS) in urban areas. This will allow the decision makers to appraise Mobility as a Service (MaaS) schemes and emerging on-demand mobility services.

Drawing on learnings from previous work developed by the Transport Systems Catapult and others, the most appropriate methodology to build the prototype is that of a data-driven agent-based model which uses an activity-based approach. Tyne and Wear in the North East of England was chosen as a case study, to be able to test how shared modes (restricted to demand responsive transport on a first instance) are integrating with a multimodal public transport system.

As part of the preliminary work to build the agent-based model (ABM), an online questionnaire was developed to collect data from residents in Tyne and Wear (population 1.136 million in 2018).

This study reports on the evidence collected during the survey of residents and the attitudes towards shared and emerging mobility services.

A separate stated preference section was also included in the survey and results are available on the report titled ‘Utility Function Development for Shared Mobility Services through Discrete Choice Modelling’.

1.1 Summary of method

An online questionnaire was developed to gather insights from 1,500 residents in Tyne and Wear about four key areas:

- Current travel behaviour including detailed information on one recent trip
- Attitudes that potentially influence mobility behaviour and decisions
- Attitudes towards new mobility services; and socio-demographics

In addition, questions were asked that would allow respondents to be allocated to one of the Department for Transport’s (DfT) transport user segments[1].

Participants were selected from an online panel of UK residents. The survey responses were weighted to adjust back to a representative profile of adult residents of Tyne and Wear by age, gender and car and van ownership levels.

1 https://www.gov.uk/government/publications/climate-change-and-transport-choices-segmentation-update

1.2 Key findings

Sharing Transport

- The majority of people (66%) are unlikely to consider a shared transport mode, with 17% of respondents likely to consider it. Younger residents aged under 40 (26%) and those with household incomes of over £60K (25%) are most likely to consider shared transport
- The largest concern with regards to sharing transport was around sharing space with others and how that affects perceived comfort (68%), privacy (67%) and safety (62%)
- Respondents largely agreed that shared transport brings the potential for less congestion (67%), that it's better for the environment than driving (66%) and that it's cheaper than running a car yourself (66%)
- From the inclusions of 'golden questions' in the survey, the transport user segments from the Transport Choices Segmentation Study (2018) were appended to the survey data. Two segments were found to have higher propensity to share transport - 'Older less mobile car owners' (35%) and 'Town and rural heavy car use' (24%)

The Environment

- Despite recent media coverage and political standpoints, respondents seem largely indifferent with regards to environmental issues, with 36% stating they are neither interested or uninterested, and 39% responding as not actively thinking about nor ignoring their carbon footprint

Safety, risk and openness to change

- People consider public transport to be safer more so during the day (70%) than at night (39%)
- Forty percent agree that they are the type of person who is always looking for new ways to do things, though a larger proportion prefer sticking to the things they know (60%)
- Overall 34% are willing to take risks but this is correlated to age and level of education with those aged 20-40 more prepared to accept risk (41%) and those with a higher degree (49%) and first degree/ diploma (40%) also more accepting of risk
- Across all respondents, 29% have made a significant change to their transport choices in the past three months with younger people and those with higher levels of education more likely to have done so

Current journeys and transport usage

- Bus was the most frequently used mode of public transport in Tyne & Wear with 17% using it daily and 56% using it at least once per week
- Just over a quarter (28%) had used ride hailing services such as Uber in the past three months, with 7% using it at least once per week. Usage of ridesharing such as Uber Pool is lower with 15% accessing these services in the past three months
- From a given weekday in the previous week for a randomly selected trip from the respondents
- The most common reasons people travelled were to go shopping and to go to work
- A half (51%) of car journeys were of five miles or less with the mean journey distance approximately nine miles
- The mean cost of a journey was approximately £5 for those whose main mode of transport was any vehicle (not walking or cycling). This includes 16% who claim that their journey was free

2 Introduction

2.1 Background

The Demand Modelling and Assessment through a Network Demonstrator (DeMAND) project aims to identify a new methodology to assess the demand for the introduction of New Mobility Services and MaaS. Building on a foundation study developed during the "Business Case for New Mobility Services: Demand Modelling Tools" project (funded by the Department for Transport (DfT) in 18/19), the aim of the DeMAND project is to provide the DfT and decision makers with a tool to appraise Mobility as a Service (MaaS) schemes and emerging on-demand mobility services. Drawing on learnings from previous work developed by the Transport Systems Catapult and others, the prototype is a data-driven Agent Based Model which uses an Activity based approach.

The Agent Based Model requires insights into users' attitudes towards shared mobility services, and therefore this study developed a customer insight survey. In particular, the survey explored market needs and likely uptake of a shared, on-demand mobility service, which, by necessity, required exploration of self-reported drivers and barriers to behaviour change.

A literature review was developed to establish the main drives towards the uptake of shared mobility services in previous studies. Based on this knowledge, a questionnaire was created to capture current travel habits and the propensity in changes to these habits to include new mobility services and specifically to understand what mechanism can promote the use of shared mobility services.

A stated preference survey was also carried out to be able to model the travel behavior in the agent-based model and introduce utility functions for shared modes.

2.2 Key Findings from Literature Review

A literature review was carried out to support the development of a survey of transport users. Specifically, the literature review set out to answer the following research questions:

- **RQ1:** What learnings have previously been made with regards to (particularly, but not exclusively, UK) traveller uptake of shared transport services and traveller behaviour change that could aid the development of the WP2 survey? This includes (but is not restricted to):
  - Environmental impact on behaviour
  - Social impact on behaviour
  - Economic impact on behaviour
  - Individual impact on behaviour (e.g. personality traits)
  - Behavioural variation across different socio-demographics
- **RQ2:** What research methods have previously been used to understand or predict travel behaviour, in particular as it relates to the propensity to adopt flexible, on-demand mobility services that may also be shared?

  RQ2a: What are some common methodological problems relating to assessing travel behaviour change?

The key learnings from the review that influenced the design of the survey were:

- Cost and journey time remain the most influential factors on willingness to use shared transport
- Socio-demographic factors such as age, gender, and employment appear to explain some willingness to use shared transport, although findings differ considerably in research on demand responsive transport (DRT) compared to other forms of shared transport, such as dynamic ride sharing (DRS) or carpooling. Some studies show that low income households, those not in employment, and females are more likely to take up DRT services. This could though be explained by the fact that many DRT services only serve deprived areas, or that users must meet certain eligibility criteria
- When transport is shared with strangers, plenty of studies report that potential users worry about their personal safety and about ending up in a 'socially awkward' situation
- Some studies suggest that pro-environmental attitudes influence the intention to use shared transport, albeit not the actual use of shared transport. There is potentially a disparity between behavioural intention and actual behaviour that might not easily be captured by self-reported data, such as via surveys
- Prejudice against individuals from different class or ethnic backgrounds could constitute a delicate barrier to adoption
- Passengers are more likely to opt for Demand Responsive Transport (DRT) and Dynamic Ride Sharing (DRS) services when carrying out low time-pressure trips, such as for shopping, leisure or social purposes. This is linked to the perception that DRT and DRS is unreliable. Providing greater certainty in pick-up and arrival times could encourage more travellers to use shared transport for time-sensitive trips, such as commuting trips
- The lack of flexibility (for example to support multi-purpose trips) could constitute a considerable barrier to DRT and DRS uptake
- Time and budget allowing, a mixed-methods approach to demand prediction is recommended. Method triangulation helps counteract certain limitations with stated preference surveys (such as the stated vs actual preference problem)
- To get to an accurate understanding of travel behavior and future demand, researchers may want to pay extra attention to the selection of independent variables. For example, trip purpose may benefit from being broken down into more nuanced purpose categories (e.g. Commute, Leisure, shopping, Education). It may also be beneficial to put more emphasis on the influence of factors such as past travel experience and life stage, than on standard demographic factors, when predicting travel behavior and demand

veys achieved.

3 Methodology

3.1 Design

A survey of adult residents of the Tyne and Wear region was required in order to provide the necessary data for the subsequent modelling phases and to understand current mobility behaviour choices and rationale for likely future preferences and willingness to pay for these.

To achieve this, the survey was designed to collect:

- Socio demographic information
- Current travel choices and patterns and preferred mode of travel
- Attitudes towards shared mobility
- Attitudes that influence current mobility choices and behaviours
- A stated preference section where respondents would compare and choose from different journey scenarios with associated price. This willingness to pay information is to feed into an economic model of future on-demand shared transport services. Of specific interest is likely take up and willingness to pay for a shared demand responsive transport (DRT) service *(see separate document "Stated Preference Survey Design Report" for full details).*

Within the available timescales and budget, and in order to gather responses from a large enough sample of residents for the stated preference section to be effective, an online self-completion methodology was selected.

Participants selected from an online panel of UK residents in Tyne and Wear were sent an email invitation to the survey on 7th October 2019 and 1,500 completed surveys were achieved by the survey close date of 16th October 2019.

3.2 Sample

The survey was conducted amongst a sample of respondents (aged 16+) in the five local authority areas of Tyne and Wear (Gateshead, Newcastle, North Tyneside, South Tyneside and Sunderland), sourced through an online panel provider.

Due to the small geographical area that the survey was conducted in, the survey was distributed to all available respondents from an online panel (supplied by Savanta) in the appropriate location to maximise the total completions achieved. In order to account for this, the survey responses were weighted to adjust back to a representative profile of adult residents of Tyne and Wear. Results were weighted to age and gender profiles for the region (taken from 2018 population estimates from the ONS Mid-Year Estimates) and for car and van ownership levels (ONS, 2011).

Fig 3.2.1 – Table of achieved surveys versus weighted profile

		Achieved	Weighted
Gender	Female	58%	52%
	Male	42%	48%
Age	16-29	22%	24%
	30-39	27%	16%
	40-49	23%	14%
	50-59	16%	16%
	60+	13%	30%
Vehicle Ownership	None	27%	36%
	One	44%	40%
	Two+	29%	24%

3.3 Questionnaire

The questions were developed by CPC to gather data from residents about four key areas: current trip behaviour including detailed information on one recent trip; attitudes that potentially influence mobility behaviour and decisions; attitudes towards new mobility services; and socio-demographics. The specific attitudinal questions included were informed by the finding from the literature review (see Section 2.2). In addition, questions were asked that would allow respondents to be allocated to one of DfT's transport user segments. There is also, as indicated above, a separate stated preference section.

A pilot study was conducted prior to main fieldwork on 2nd October 2019 with 50 completed surveys achieved. This confirmed that respondents were able to accurately answer the survey questions, that the stated preference model and approach was not too onerous for respondents. Hence, the profile of collected data was as expected and would support the required analyses to generate utility functions for shared mobility services through discrete choice modelling.

Throughout the report, where findings for sub-groups of respondents are detailed, these are all statistically significant from the overall sample result.

4

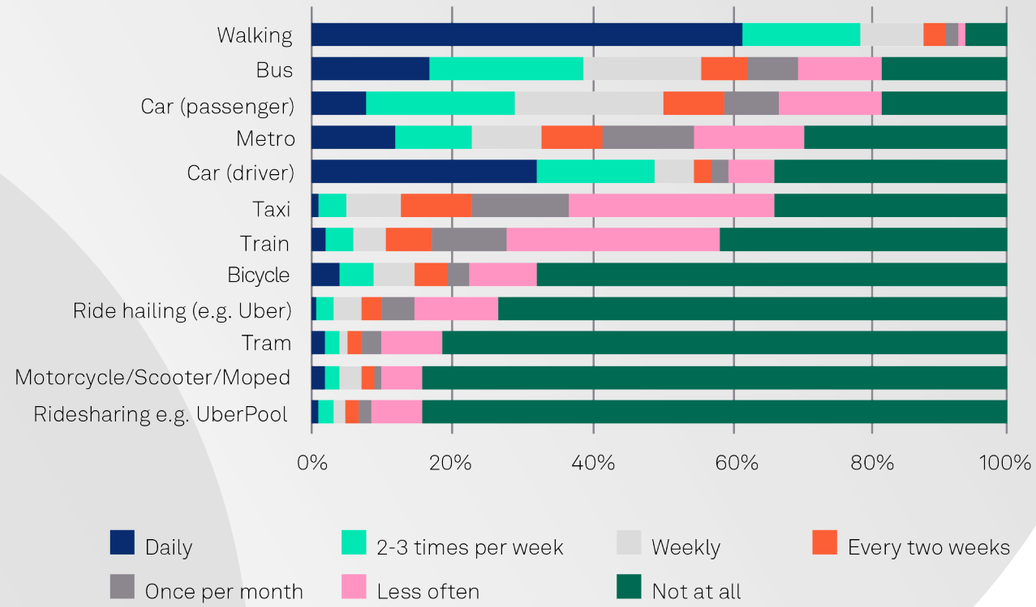
Results & Discussions

This section provides insights in peoples current travel habits and attitude towards changing them. Whilst it is easier to define the most used mode of transport in the last three months, respondents were asked to provide details of a recent journey completed in the previous week. This provided background and qualitative insights on residents habits and attitude during the development of the model, specifically during the generation of the synthetic population.

4.1

Respondents were asked which modes of transport they had used at all in the past three months. The modes most commonly used at least once in that time were walking (94%), bus (82%), passenger in a car (82%), metro (71%) and car driver (67%). However, a third (32%) of car drivers use their vehicle daily and 17% use it more than once per week making it the most frequently used mode after walking.

Fig. 4.1.1 – Modes of transport used



Daily car driving was most common amongst those with the highest household incomes, social grade AB households (50%), those aged 40-49 (48%), those with children in the household (45%) and men (38%). Daily car driving was also a more evident amongst residents of Sunderland (39%) and lower for those in Gateshead (24%) and Newcastle (27%).

Bus was the most frequently used mode of public transport in Tyne & Wear with 17% using it daily and 56% using it at least once per week. Disabled residents and those without access to a vehicle at home were unsurprisingly more frequent users of the bus. Those with lower household annual income (less than £30k) were more likely to use the bus weekly (65%) although they were not more likely to use it daily (18%).

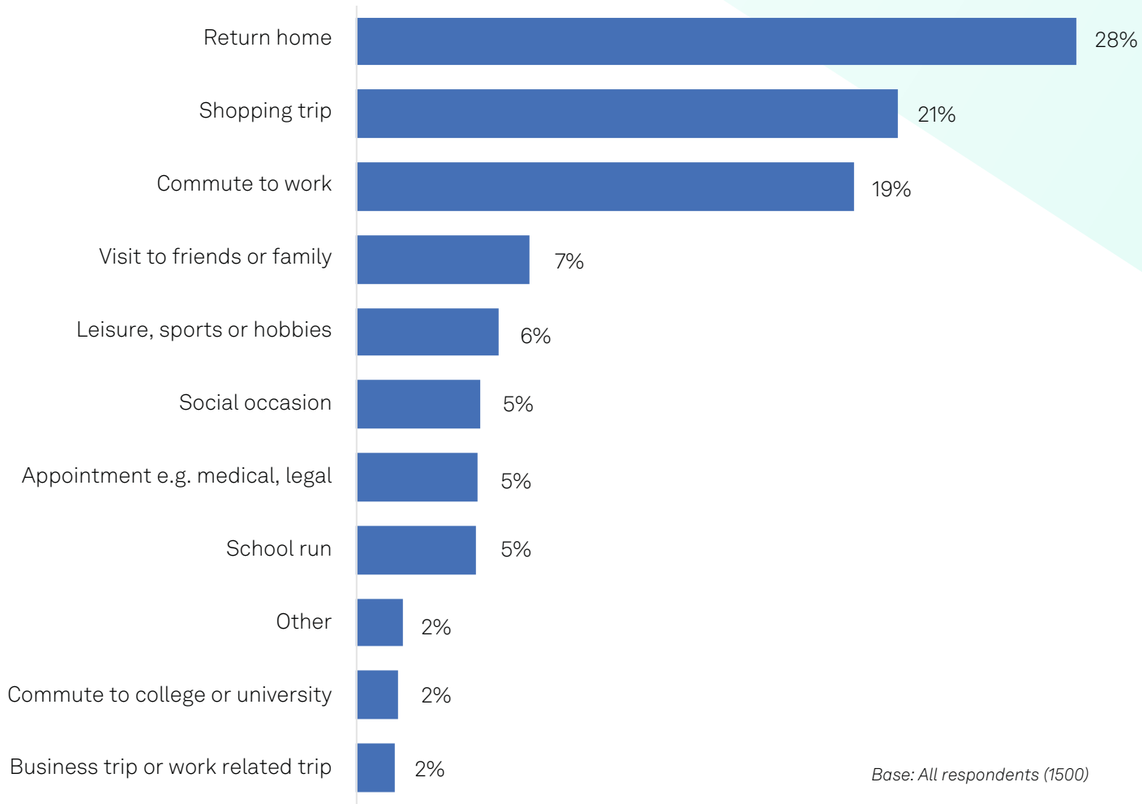
Just over a quarter (28%) had used ride hailing services such as Uber at all in the past three months, with 7% using it at least once per week. Usage of ridesharing such as Uber Pool is lower with 15% accessing these services at all in the past three months.

4.2 Journey purpose

From the previous week, the most common day for undertaking at least one trip was Monday (71%) with the propensity to travel reducing across the week, lowest for Saturday (52%) and Sunday (38%). Thursday and Friday (both 64%) saw the fewest people taking at least one trip from weekdays.

Respondents were then asked about one weekday in the previous seven days that they had taken a journey. Overall 2.7 trips were taken on average on these days with little difference in the mean trips taken by day varying between 2.8 on Monday to 2.5 on Wednesday. Respondents were also asked about the different types of trip they had taken on that one weekday and one of these activities was then selected at random for more detailed information to be collected. This is reported in section 4.3. The activity undertaken for these trips is shown below in figure 4.2.1.

Fig. 4.2.1 – Weekday trip activity on a randomly selected journey from previous week



Base: All respondents (1500)

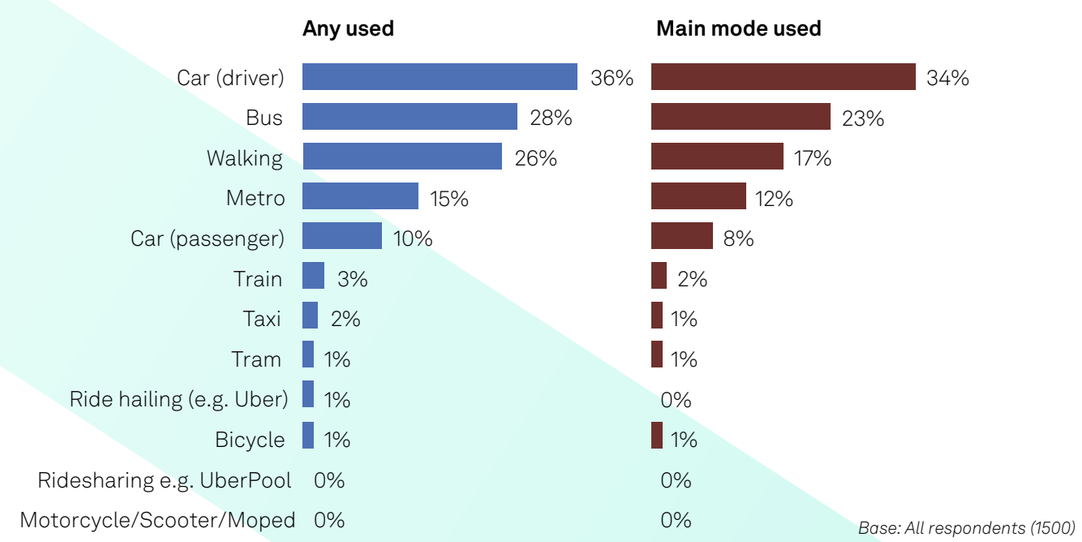
Other than the return home trip, the most common reasons people travelled were to go shopping and to go to work.

4.3 Journey characteristics

4.3.1 Mode availability and choice

For the specific journey from the previous week, Fig 4.3.1 shows all the modes used to complete that journey and the main mode i.e. the one that was used for the greatest distance. Men were more likely to drive as their main mode than women (42% vs. 26%) whilst women were more likely to use the bus (27% vs. 19% for men) or be a passenger in the car (12% vs 5%). Household annual income also clearly correlated with car driving, with 48% of those with income in excess of £30k driving compared to 24% with a lower household income. Those aged 50+ were more frequent users of the bus whilst the 20-29 age group were less likely than others to drive (22%) but were most likely to use the metro (18%).

Fig. 4.3.1 – All modes used and main mode

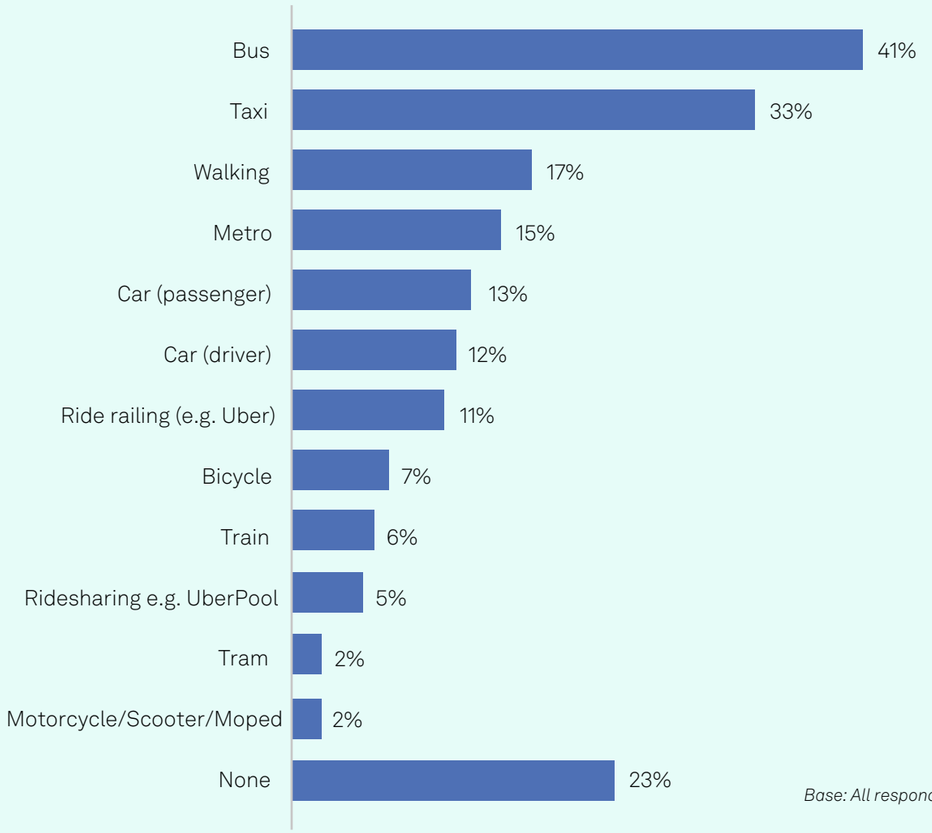


Base: All respondents (1500)

Looking at specific common journeys, 38% of commuters drove to work with a further 22% on the bus and 20% going via metro. Driving was more prevalent for shopping trips (41%) although 24% did go shopping on the bus and 14% walked. The school run was most commonly walked (41%) compared to 32% driving.

The modes that residents were aware of that they could have travelled by but chose not to are shown below with bus the most frequently rejected.

Fig 4.3.2 – Modes available but not chosen



Base: All respondents (1500)

Over half (53%) of those who chose to drive themselves could have travelled by bus but chose not to and 19% of car drivers could have travelled by metro but declined to do so. Similarly, 57% of car passengers could have taken the bus and 31% of passengers could have driven themselves but chose to share a lift instead.

Although many car drivers turned down public transport alternatives, those who travelled by public transport were much less likely to have the option of travelling by car with 11% of bus users and 16% of metro riders having access to a car to drive.

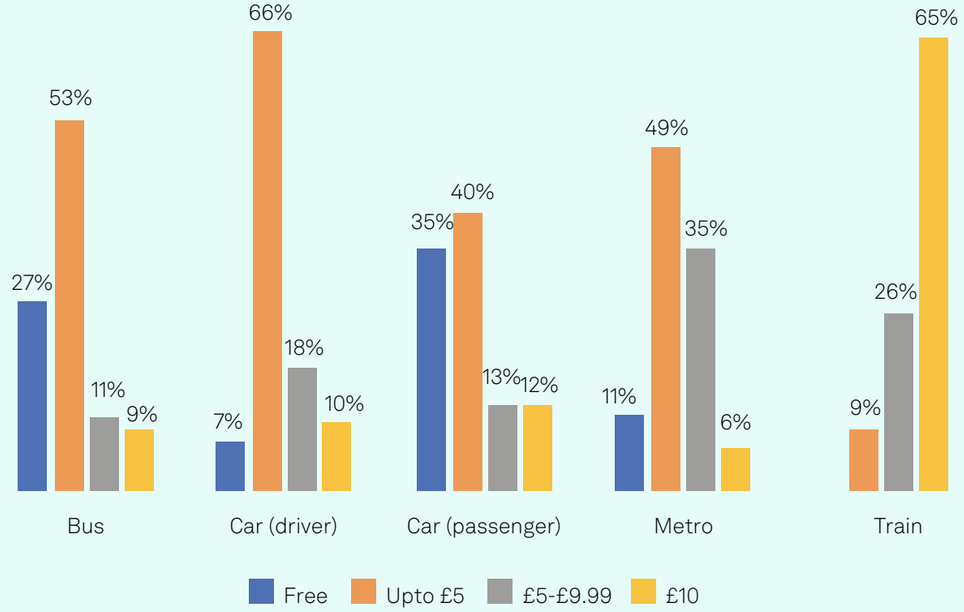
4.3.2 Distance, duration and cost

A half (51%) of car journeys were of five miles or less with the mean journey distance approximately nine miles. Drivers living in South Tyneside were more likely (68%) to carry out a short journey (five miles or less). Those on higher incomes were more likely to undertake a longer drive as were male drivers.

The mean cost of a journey was approximately £5 (£4.70) for those whose main mode of transport was any vehicle (not walking or cycling). This includes 16% who claim that their journey was free. The average cost for specific modes was highest for train journeys (£18).

Car drivers and passengers were also asked if they paid for car parking at their destination. One in ten (11%) said that they did with the majority (64%) paying less than £5. Disabled drivers were significantly more likely to pay for parking (22%).

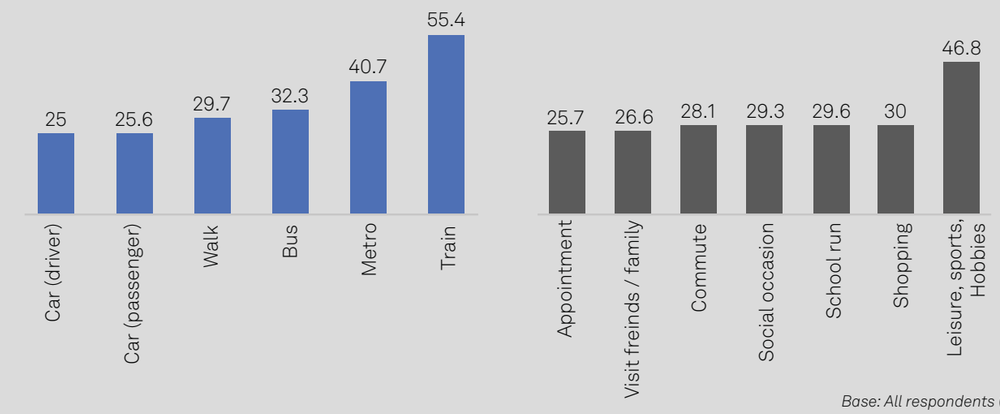
Fig 4.3.3 – Reported cost of journeys



Base: All who used paid-for transport (1229)

The mean trip duration by main mode travelled by is shown below. As perhaps expected, train journeys are the longest duration, although metro journeys took longer than bus and car journeys.

Fig 4.3.4 – Mean duration of journeys (minutes)



Base: All respondents (1500)

The mean length of a leisure trip was significantly higher than other activities due to a relatively high number of leisure trips reported as being in excess of ninety minutes - these perhaps being one-off trips or special occasions.

Those who travelled by public transport were asked how they reached the station or stop from their home. Walking was the predominant solution for bus (95%) and metro (92%) users. Over half (59%) of train users also walked to the station although others did cycle, drive or take a taxi. 89% of those who walked to public transport reported that their walk took 10 minutes or less.

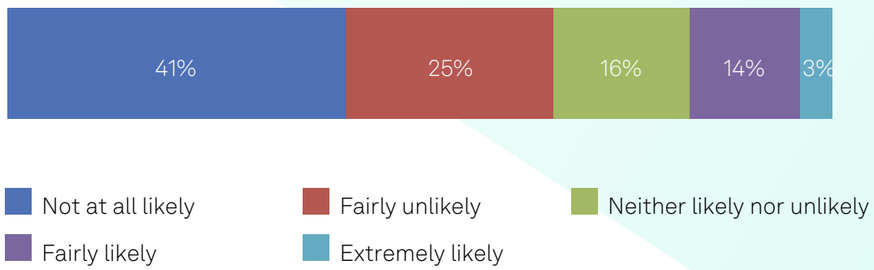
When getting from public transport to their destination again the majority (91%) walked with the duration of walk being 10 minutes or less for most (85%).

4.4 Attitudes towards shared transport

4.4.1 Sharing transport

Overall one in six (17%) of respondents would be likely to consider using a shared transport mode. Two fifths (41%) say they would be 'not at all likely' to do so.

Fig. 4.4.1 – Likelihood to consider using a shared transport mode

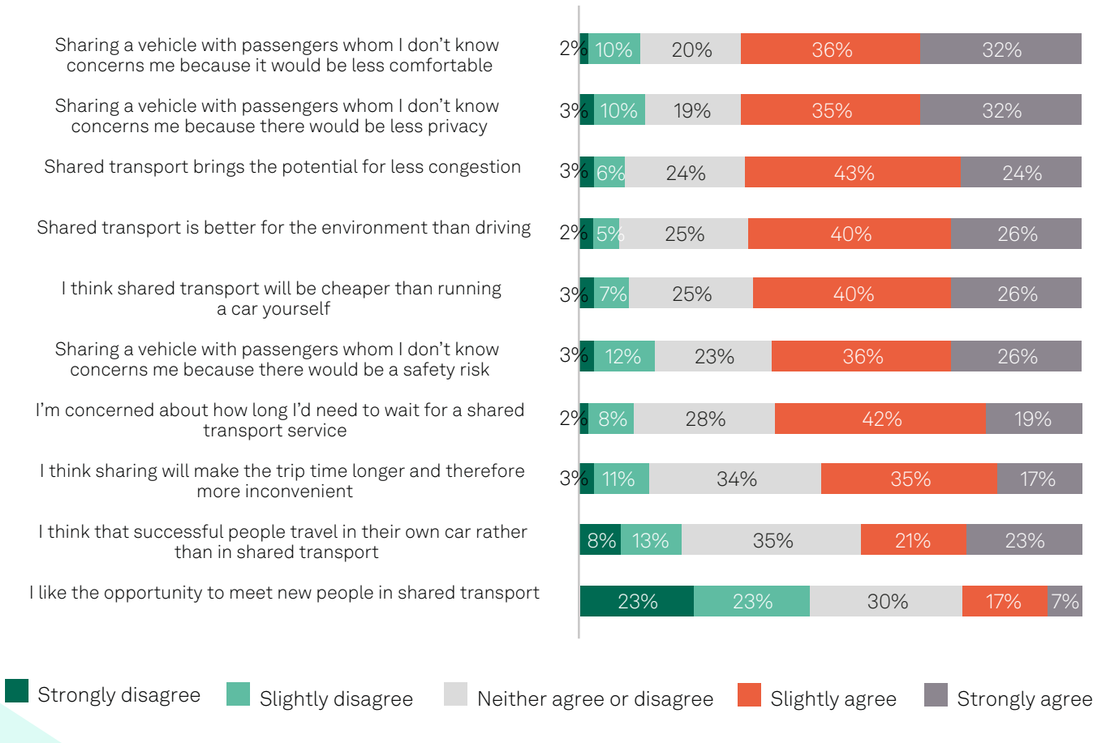


Base: All respondents (1500)

Younger residents aged under 40 are more likely to consider shared transport (26%) compared to those aged 40+ (12%). Those with higher incomes are more likely to consider shared transport. For those earning annual household income of under £30k, only 14% were likely to consider shared transport. However, 25% of people with household incomes of over £60k are likely to consider shared transport.

When asked specifically about car sharing to work, a higher proportion (23%) agreed they would like to do this, suggesting that for the journey to work some people may see more value in sharing than as a general transport choice. The appeal of car sharing to work is greater for those in social grades ABC1C2 (27% in agreement) than for those in social grade DE (18%). Those earning less than £30k per annum agreed with this less (17%) than those in higher income brackets of £30k to £89k (33%). Those with children in the household agree with this more (35%) than those without (16%), and respondents with a disability agree with this more (32%) than those without (21%).

Fig 4.4.2 – Attitudes to sharing



Base: All respondents (1500)

With the statement

‘I’m concerned about how long I’d need to wait for a shared transport service’

and for the statement

‘sharing will make the trip time longer and therefore more inconvenient’,

those households in social grade AB, which tend to be higher income, were significantly more concerned with these issues that could impact on the duration of their journeys. For the latter statement, location appears to have an impact as those based in Gateshead agree less than all other locations. Those with access to a vehicle (60%) were more likely to agree than those without (44%), perhaps as they are currently accustomed to the convenience of their own vehicle.

With the statement ‘

Sharing a vehicle with passengers whom I don’t know concerns me because it would be less comfortable’,

females were more likely (73%) to agree with this than males (62%). Those with children in the household were more likely to agree with this (73%) than those without (65%).

When considering the statement

‘Sharing a vehicle with passengers whom I don’t know concerns me because there would be less privacy’,

females agree with this more (72%) than males (63%). Those earning a household income of under £30k agreed less (65%) than the higher income brackets (72%). Those with children agreed with this more (72%) than those without (65%).

For the statement

‘Sharing a vehicle with passengers whom I don’t know concerns me because there would be a safety risk’,

more females agreed with this (67%) than males (56%). Those with children in the household agreed with this more (71%) than those without (56%). Location appears to have an impact as those based in Sunderland agreed with this more (69%) than all other areas.

When considering the statement

‘I think that successful people travel in their own car rather than in shared transport’,

the highest agreement with regards to income were for those earning £30k per annum to £59k (50%). Geography may impact this perception as those based in North Tyneside agreed with this less than those based in Gateshead, Sunderland or Newcastle upon Tyne.

For the statement

‘I like the opportunity to meet new people in shared transport’,

males agreed with this more (28%) than females (22%). Those with a Higher Degree agreed with this more than everyone (37%). Those with children in the household agreed with this more (32%) than those without (21%).

When considering the statement

‘shared transport brings the potential for less congestion’,

females are more likely to agree with this (71%) than males (63%). People with a household income of less than £30k agreed with this less (63%) than those in higher income brackets of £30k to £89k (73%). Disabled respondents were less likely to agree (58% vs 69% non-disabled). Location impacted response, as those based in North Tyneside were more likely to agree with this (75%) than those living in other locations. Those with two or more vehicles agreed with this more (77%) than those with no or one vehicle (64%).

With the statement

‘Shared transport is better for the environment than driving’,

females were more likely to agree with this (72%) than males (61%). Residents of South Tyneside were least likely to agree with this (57%) whilst North Tyneside residents were most likely to agree (75%). Those with more than two vehicles were more likely to agree with this (79%) than those with one (62%) or no (64%) vehicles.

For the statement

‘I think shared transport will be cheaper than running a car yourself’,

females (70%) agree with this statement more than males (62%). Those earning under £30k agree with this statement less (63%) than those earning over £30k (75%). Those with children in the household are more likely to agree (70%) than those without (64%).

Department for Transport uses a UK traveller segmentation derived for the” Climate Change and Transport Choices- Segmentation update” (2014) which has nine segments (see Appendix for profiles). In order to better promote future sharing of transport, a more in depth understanding of the propensity for types of traveller to share, and the motivations or barriers around these choices is vital. Therefore, these nine segments were appended to the survey data and analysis shows the following key findings.

As reported above, overall 17% of respondents would be likely to consider using a shared transport mode. This is higher for two segments, ‘Older less mobile car owners’ (35%) and ‘Town and rural heavy car use’ (24%).

Older less mobile car owners

This segment (who represent 9% of the UK population) tends to have mobility difficulties which heavily influences their transport behaviours and as such they are heavily reliant on the car. Looking at their responses to other questions related to sharing transport, this group are largely in line with the whole population (see Fig 4.4.2) except that they are most likely to enjoy the opportunity to meet new people in shared transport (35%). The majority do think that sharing will be cheaper than running a car (67%) but this is no different to the response from other segments. They are a more inclined segment with 54% claiming they think about their carbon footprint and what they can do to reduce it (compared to 43% overall).

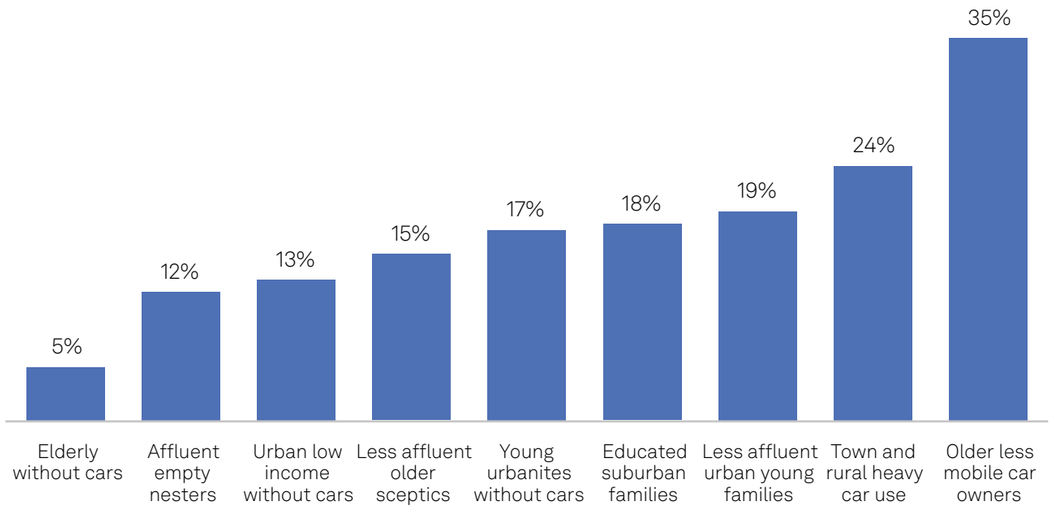
The main driver for their higher propensity to share transport in the future, is that they are far more likely to share transport already. When asked about their mode usage in the past three months, this segment was most likely at least once per week to be a passenger in a car (69%), get a taxi (33%), use ride hailing service (23%) or use a ride sharing service (23%).

Town and rural heavy car use

This segment representing 13% of UK population, are heavy car users but also most likely to live in rural areas. Amongst Tyne & Wear residents, this segment are the most regular car drivers with 64% driving daily. They have much lower reported usage of taxis, ride hailing and ridesharing services than older less mobile car owners.

Their desire to share transport may be due to three factors where they are more likely than average to agree: shared transport is better for the environment (79%); shared transport has potential to reduce congestion (79%); and shared transport will be cheaper than running a car (73%). However, they do have some concerns over the increased journey time (65%) and the wait time for shared transport (76%).

Fig 4.4.3 – NTS segments likelihood to share transport

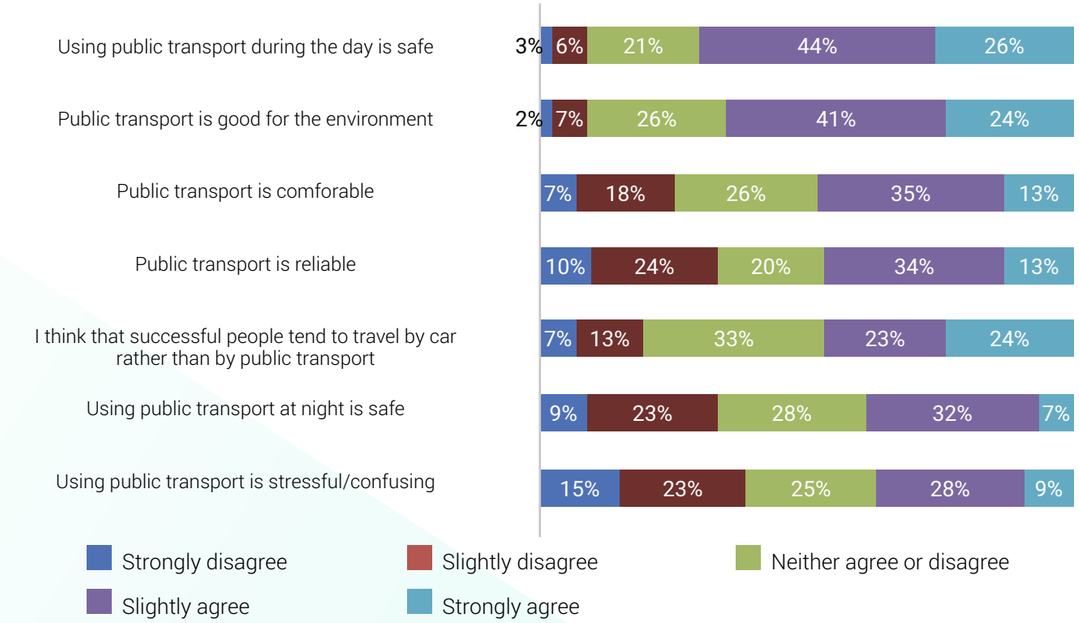


Base: All respondents with NTS segment assigned (1472)

4.4.2 Public transport

Over half of respondents agree that using public transport during the day is safe (70%) and that public transport is good for the environment (65%). Generally, across the statements those groups who are more likely to use public transport (such as those with no access to a vehicle and older residents) are more positive about it.

Fig 4.4.4 - Attitudes towards public transport



Base: All respondents (1500)

For whether they

'think that successful people tend to travel by car rather than by public transport',

those in social grade AB are least likely to agree with this (37%) whereas social grade DE are most likely (57%) (please see Appendix 7.1 for the list of social grades).

When thinking of the statement

'public transport is reliable',

males agree with this more (50%) than females (44%). Those aged 70 and above agree with this more than all other age groups and those in social grade DE agree with this most. Those with a disability agree with this more (53%) than those without (45%), and those in South Tyneside agree with this more than all other local authorities. Those who use public transport at least once per week (in the previous three months) were more likely to regard it as reliable (58%) than those who did not use it as regularly (24%).

For the statement

‘using public transport is stressful/confusing’,

older respondents aged 60 and above were less likely to agree with this (24%) than younger age groups. Those in segment AB agree with this more than all other segments. Respondents with children in the household agree with this more (46%) than those without (32%), and those with a disability agree with this more (50%) than those without (34%). Those who use public transport at least once per week (in the previous 3 months) were less stressed or confused by it (30%) than those who did not use it as regularly (50%).

When thinking about whether

‘public transport during the day is safe’,

females agree with this more (74%) than males (67%), but disabled respondents were less in agreement (63%) than non-disabled (72%). Those who use public transport at least once per week (in the previous three months) were more likely to regard it as safe during the day (78%) than those who did not use it as regularly (55%).

4.4.3 Personal characteristics

With the statement

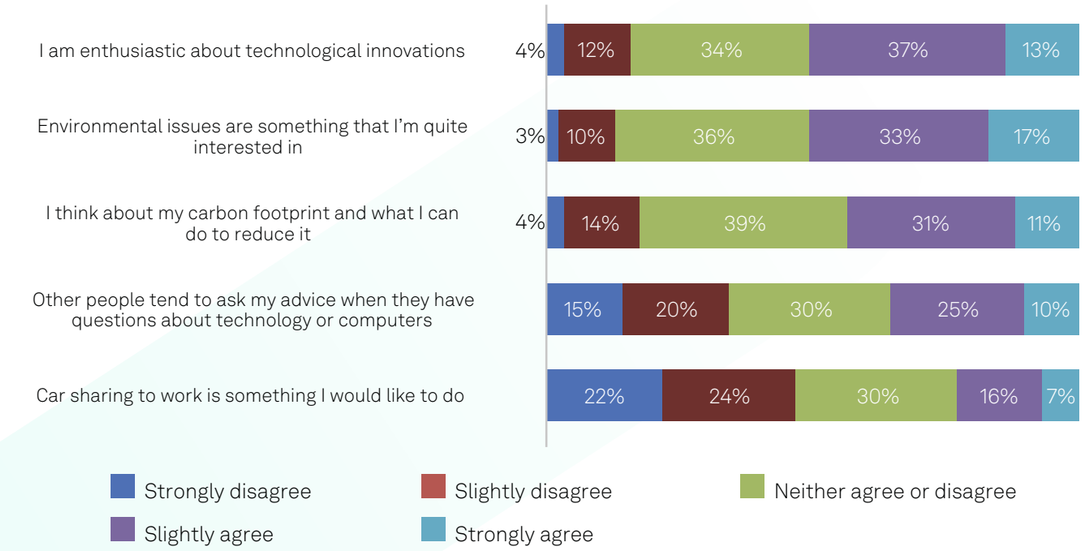
‘I think about my carbon footprint and what I can do to reduce it’,

the youngest (38%, aged 16-20) and older respondents (32%, aged 60+) are least likely to agree with this compared to 42% overall. Lower income households were less concerned with their carbon footprint (37% agree) and those with children in the household agreed with this more (48%) than those without (39%). Location impacted response, as those who live in Gateshead agreed with this statement less (30%) than all other areas (agreement ranged from 40% to 50%). Those with access to a vehicle agreed with this more (49%) than those without (35%), and percentage agreement increases the more vehicles the respondent has. When considering the statement

‘Environmental issues are something that I’m quite interested in’,

a similar profile as for the carbon footprint statement is evident.

Fig 4.4.5 – Agreement with attitudinal statements



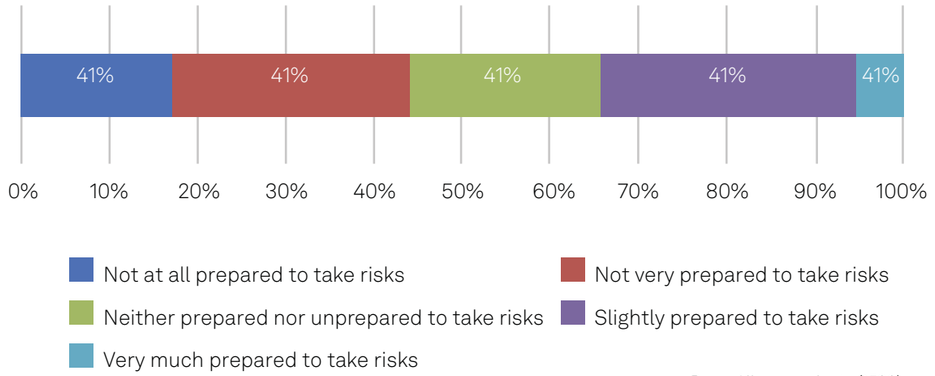
Base: All respondents (1500)

4.4.4 Risk aversion

Overall, males reported as being more prepared to take risks (38%) than females (30%). Those with children in the household were more likely to take risks (42%) than those without (30%) although this will link to the age range 20-40 being least risk averse. Those with access to a vehicle are more likely to take risks (39%) than those without (29%).

As may be expected, older residents are less prepared to take risks and openness to risk is also correlated to education level. A quarter (26%) of those with no qualification and 28% of those whose highest qualification is GCSE are willing to take risks; those with a higher degree (49%) and first degree/diploma (40%) are more likely to.

Fig 4.4.6 – Preparedness to take risks

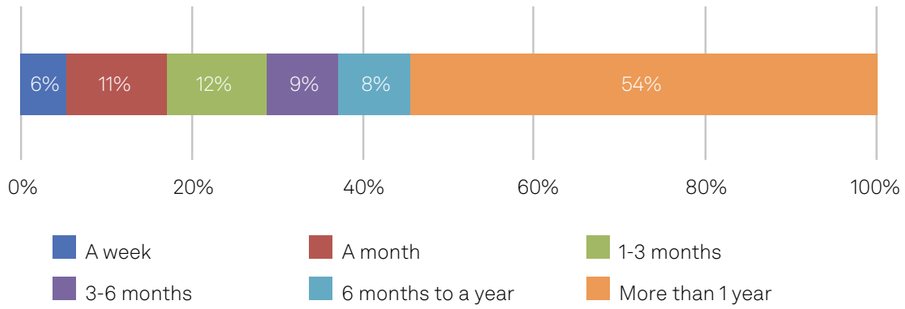


Base: All respondents (1500)

4.4.5 Openness to new experiences

Across all respondents, 29% have made a significant change to their transport choices in the past three months. Similarly, to preparedness to take risks, younger people aged under 30 (56%) and those with a first or higher degree level of education (37%) are more likely to have tried a different mode or made a change to their transport behaviour recently.

Fig 4.4.7 – Time since tried new mode or made significant change to everyday transport choices



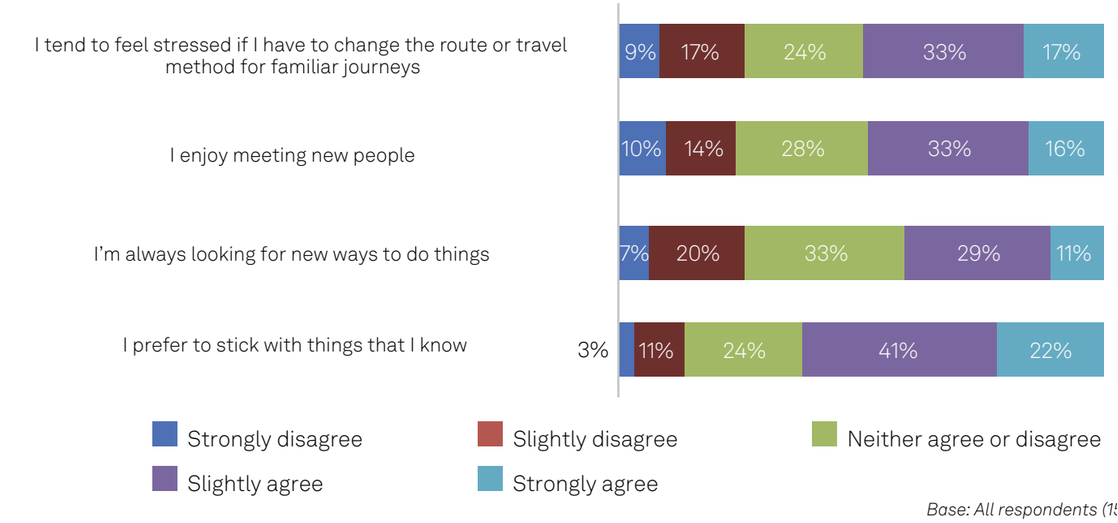
Base: All respondents (1500)

Half (50%) of respondent agree they feel stressed if they have to change their route or travel method. This is higher for those aged 30-49 (60%) and those with children (56%).

49% agree they enjoy meeting new people although those under the age of 30 are less inclined to agree with this (41%).

Two fifths (41%) agree that they are the type of person who is always looking for new ways to do things. This is consistent across age bands except for the over 60s (32%). There are also marked differences in this sentiment by social grade with AB (49%) and C1 (50%) more in agreement than C2 (37%) and DE (29%) households.

Fig 4.4.8 – Openness to new experience and change



Base: All respondents (1

4.5 Car ownership and usage

Two thirds (66%) of respondents currently hold a valid British driving licence and three quarters (77%) of these individuals currently have access to a vehicle. More males (78%) than females (55%) reported to have a full driving licence. Those with children in the household are more likely to have a driving licence (74%) than those without (61%).

At a household level, 63% have access to a car, 7% to a van, and 10% to a motorbike, moped or scooter. 63% of households own or have continuous use of one vehicle with 37% having use of two or more vehicles. Unsurprisingly, households containing more than one adult or with children are more likely to have access to two or more vehicles. There is also a clear correlation between annual household income and number of vehicles. 18% of households with income of less than £30k have 2+ vehicles, rising to 62% for households with income in excess of £60k.

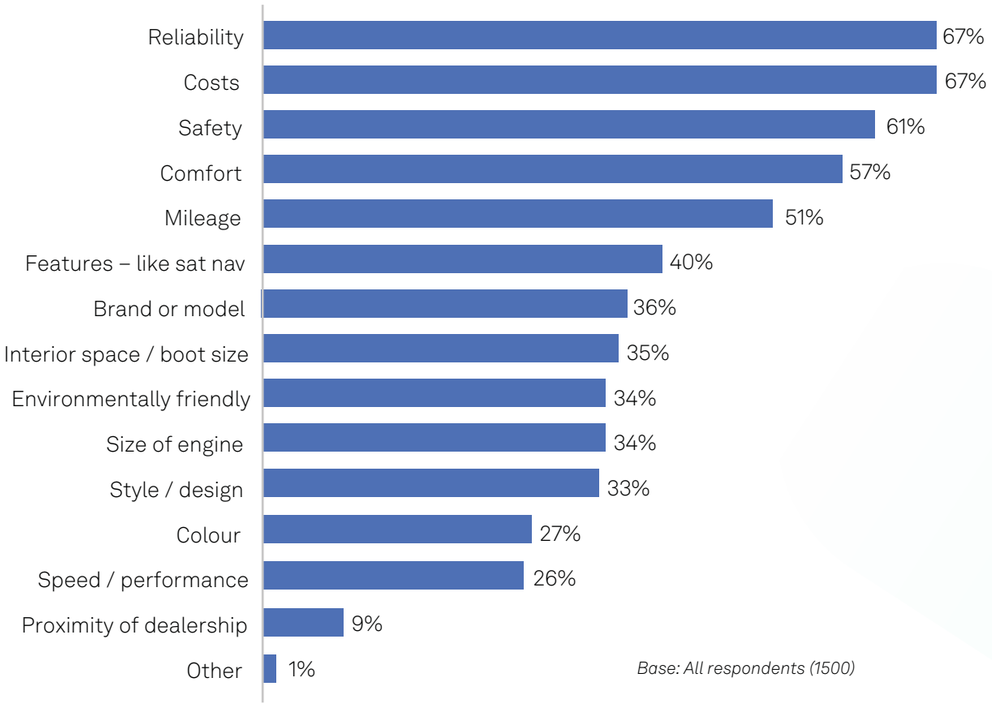
Of those who own or have continuous access to a car or van, 9% have an electric or hybrid vehicle although this level of penetration is higher for younger drivers aged under 40 (17%), disabled residents (20%) and those with children (12%).

Over a quarter (28%) of vehicle owners have financed their purchase on a PCP or lease deal. Those aged 30-39 (44%), higher income earners (46%) and those with children (36%) are most likely to have such a deal.

Overall, 6% are members of a car sharing club with those with children in the household more likely to be a member (11%) than those without (3%) and disabled respondents more likely to be a member (21%) than non-disabled (2%).

When purchasing a car or van, for those who are involved in the decision, the most important considerations were costs, safety, comfort and mileage.

Fig 4.5.1 – Car/ van purchase



Base: All respondents (1500)

4.6 Journey Planning

Google maps is the most frequently used source of journey planning information before setting off (54%) and during the journey (29%) although the same proportion check a sat nav during the journey. Prior to departure, Google maps is used across all age groups with 52% of those aged 60+ using it, not significantly lower than for the under 30s (55%). However, usage of google maps during the journey is significantly higher for younger users aged under 40 (40% vs 22% for older drivers).49% agree they enjoy meeting new people although those under the age of 30 are less inclined to agree with this (41%).

Two fifths (41%) agree that they are the type of person who is always looking for new ways to do things. This is consistent across age bands except for the over 60s (32%). There are also marked differences in this sentiment by social grade with AB (49%) and C1 (50%) more in agreement than C2 (37%) and DE (29%) households.

Fig 4.6.1 – Sources of journey planning information

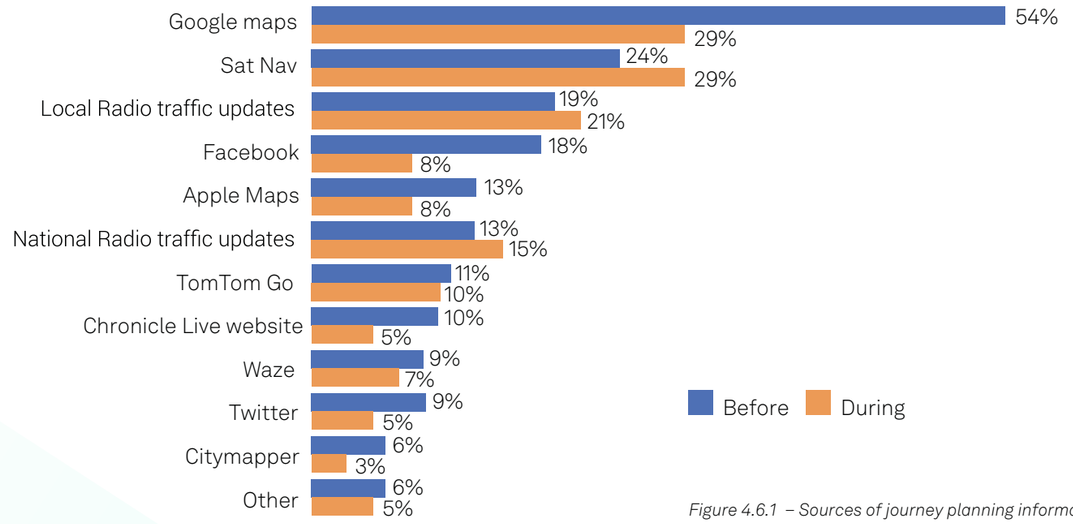
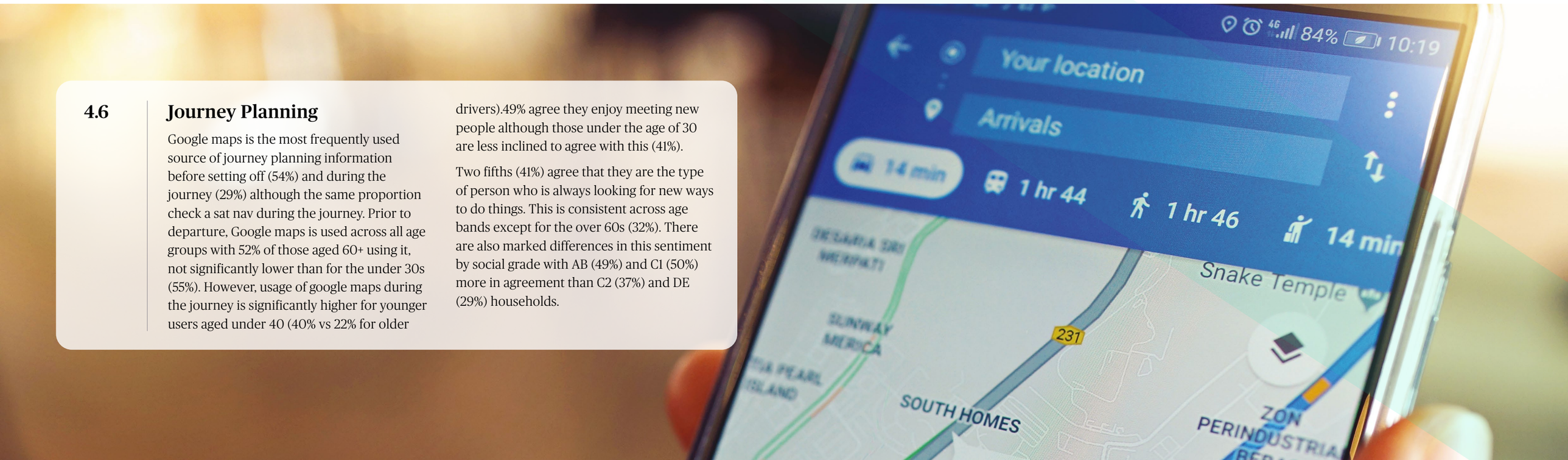
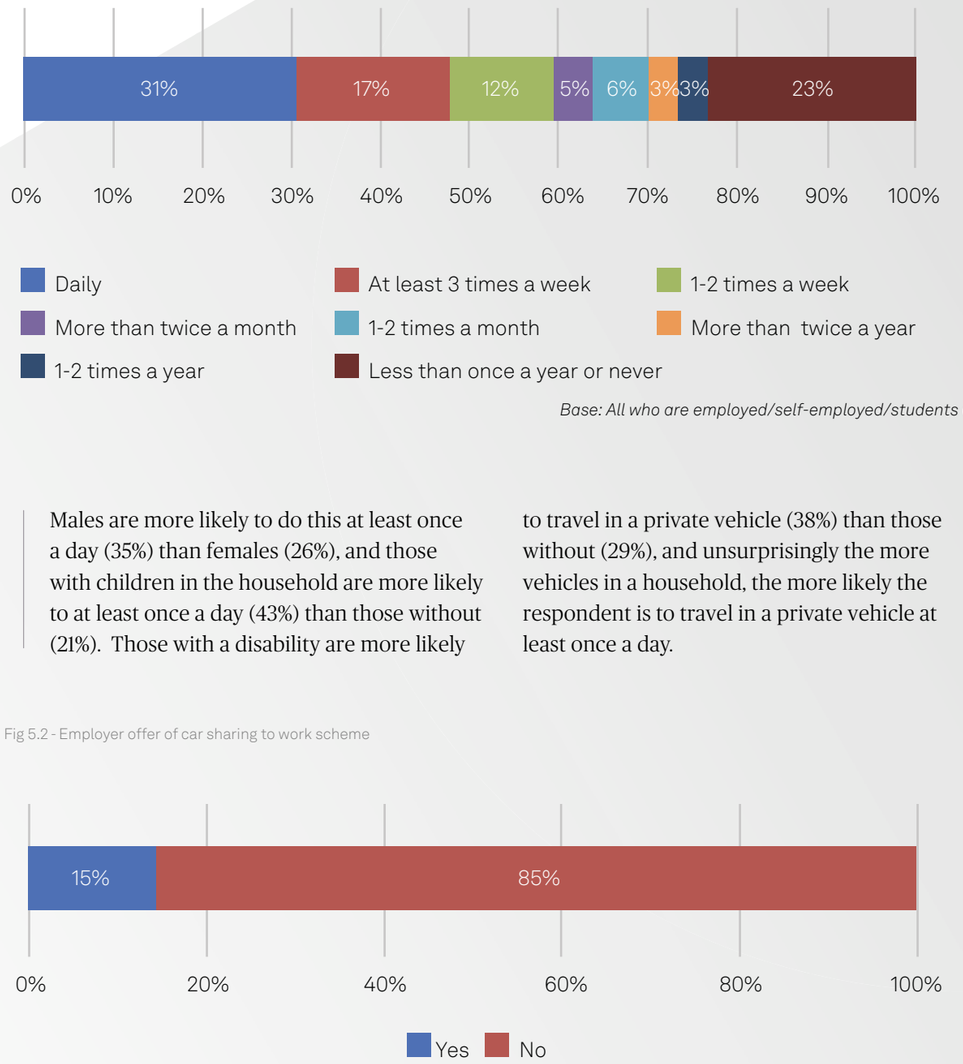


Figure 4.6.1 – Sources of journey planning informatic



5 Demographics and Classification

Fig 5.1 - Frequency of travel by private car or van to or from work/school



Base: All who are employed/self-employed/students (1500)

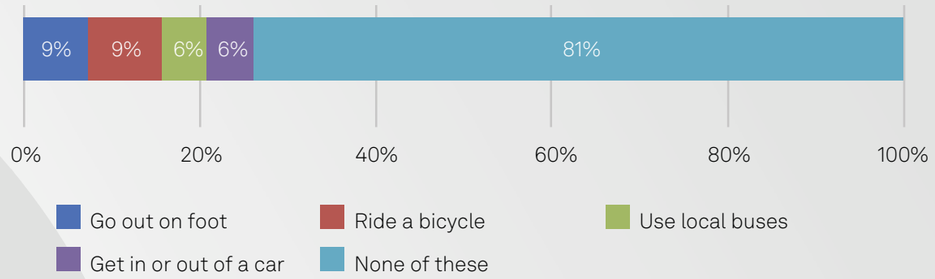
Males are more likely to do this at least once a day (35%) than females (26%), and those with children in the household are more likely to at least once a day (43%) than those without (21%). Those with a disability are more likely to travel in a private vehicle (38%) than those without (29%), and unsurprisingly the more vehicles in a household, the more likely the respondent is to travel in a private vehicle at least once a day.

Fig 5.2 - Employer offer of car sharing to work scheme

Base: All who are employed/self-employed/students (873)

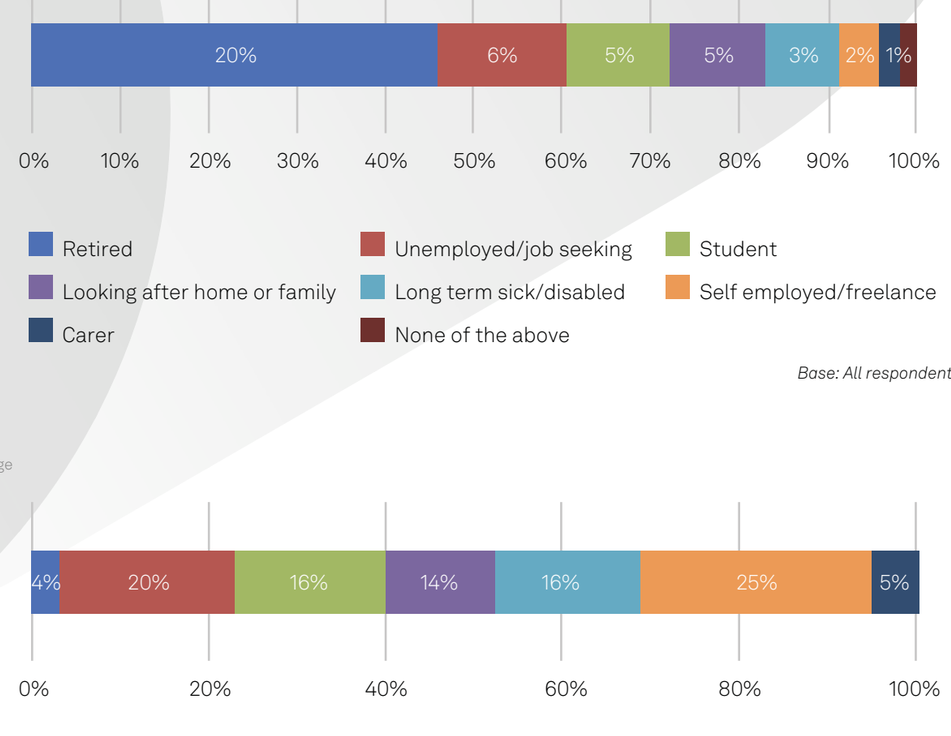
Those in social grade DE are less likely to have an employer who offers a car sharing scheme than all other grades. Those with children in the household are more likely to have this (19%) than those without (11%), and those with a disability are more likely to have this (33%) than those without (10%).

Fig 5.3 – Activities limited by disability or other long-standing health problems



Base: All respondents (1500)

Fig 5.4 - Employment status

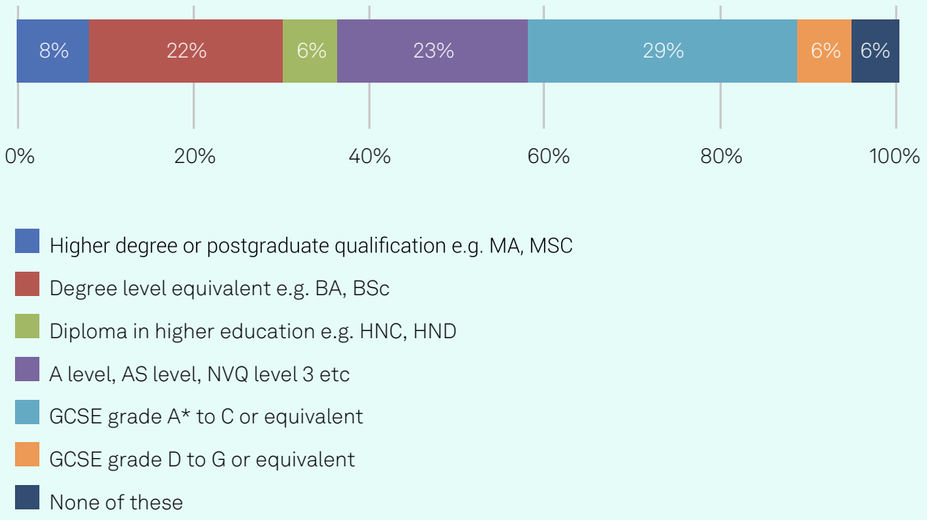


Base: All respondents (1500)

Fig 5.5 - Age range

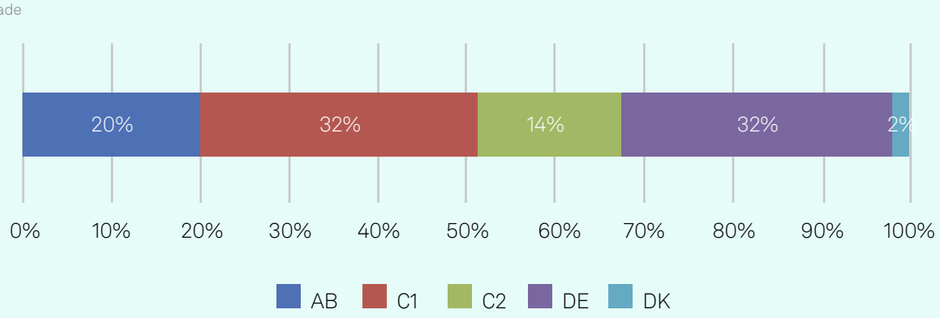
Base: All respondents (1500)

Fig 5.6 - Highest achieved level of education



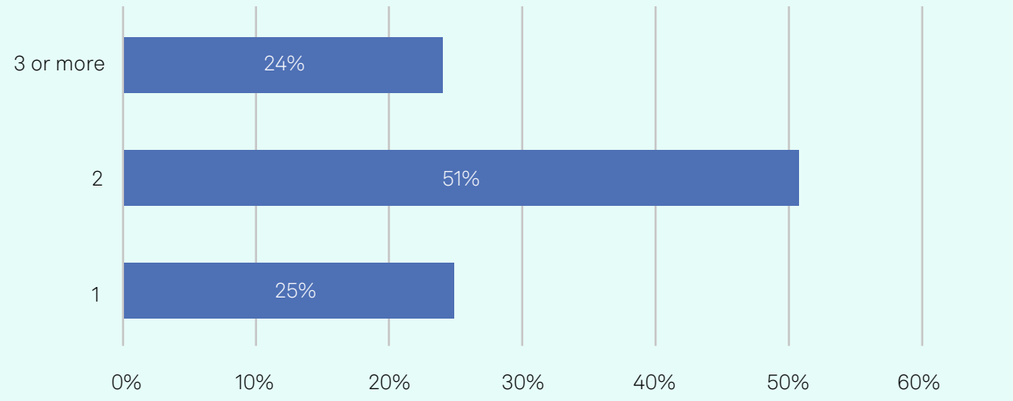
Base: All respondents (1500)

Fig 5.7 – Social grade



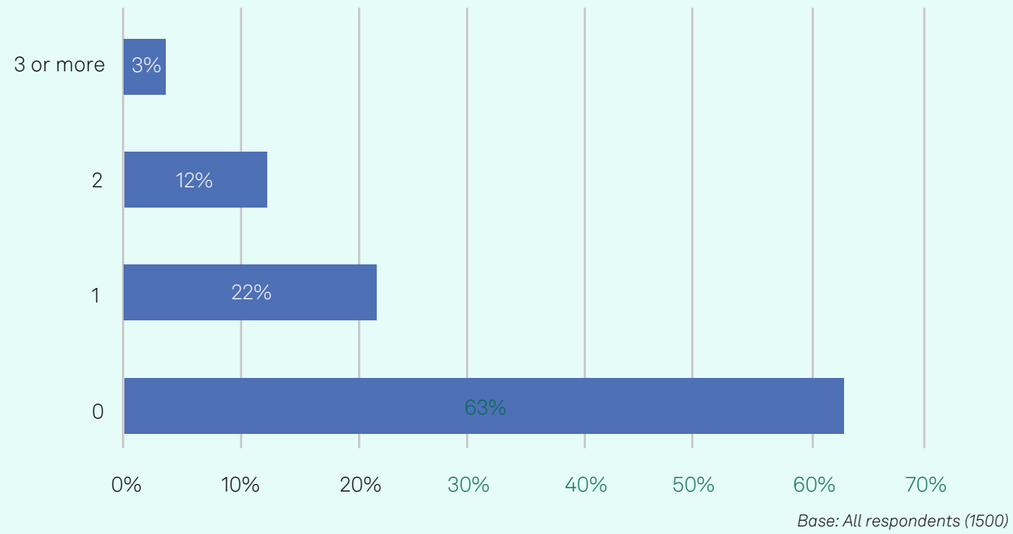
Base: All respondents (1500)

Fig 5.8 - Number of adults (aged 16+) in household



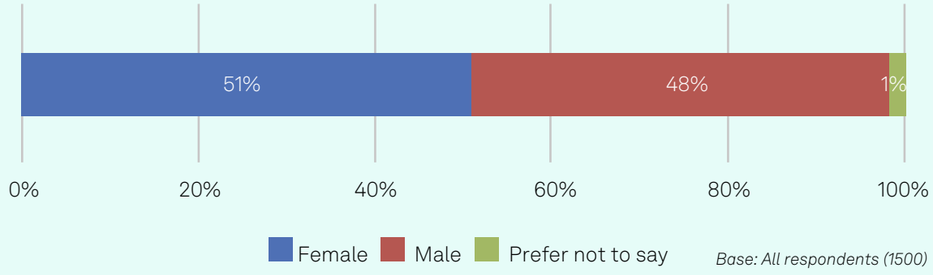
Base: All respondents (1500)

Fig 5.9 - Number of children (aged below 16) in household



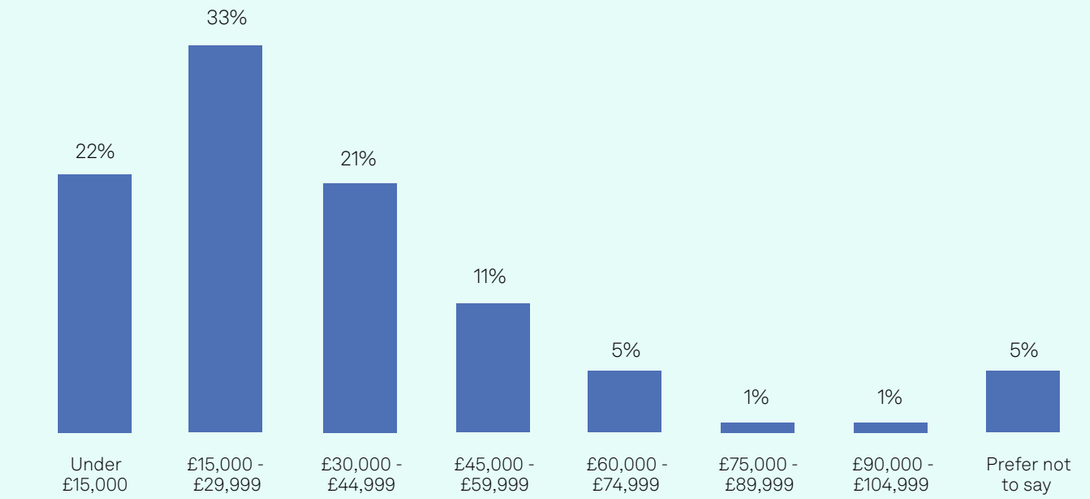
Base: All respondents (1500)

Fig 5.10 - Gender



Base: All respondents (1500)

Fig 5.11 - Household income per annum (gross before tax)



Base: All respondents (1500)

6 Conclusions

The “Demand Modelling and Assessment through a Network Demonstrator” (DeMAND) project developed a new methodology to assess the demand for the introduction of New Mobility Services (NMS) in urban areas. This will allow the decision makers to appraise Mobility as a Service (MaaS) schemes and emerging on-demand mobility services.

As part of this study, this report gathers the evidence on attitudes of people towards sharing to better understand the uptake of New Mobility Services and how the Mobility as a Service schemes will be affected by this propensity.

The DeMAND agent-based model, prototype built for the Tyne and Wear in the North East of England, is appraising the introduction of Demand Responsive Transport (DRT) services in integration with multimodal public transport system.

This is a region with a good provision of public transport with a pervasive network of bus services and the Tyne &Wear Metro, the only underground outside London in England. Despite a decline in the public transport usage nationally, Tyne and Wear had a 2.4% increase in bus journeys and a 0.1% increase in journeys made by Metro in 2019. It’s the 4th region nationally with highest bus use per head of population (the highest in the North of England).

As part of the preliminary work to build the DeMAND agent-based model, the online questionnaire was developed to collect data from residents in Tyne and Wear to understand their interest towards on demand shared mobility services. Residents have not yet experienced any DRT or other forms of shared transport when the survey was launched in October 2019.

The survey of residents found that 66% or respondents will not be keen to use shared transport, mainly because of concerns linked to perceived comfort (68%), privacy (67%) and safety (62%). However, respondents largely agreed that shared mobility brings the potential for less congestion (67%), that it’s better for the environment than driving (66%) and that it’s cheaper than running a car yourself (66%).

Specifically, two groups of people have higher propensity for shared mobility. Adopting the same segmentation from the Segmentation Update (Climate Change and Transport choices, 2014), these segments of population are:

- ‘Older less mobile car owners’ (35%)
- ‘Town and rural heavy car use’ (24%).

Those two segments represent the 22% of population nationally.

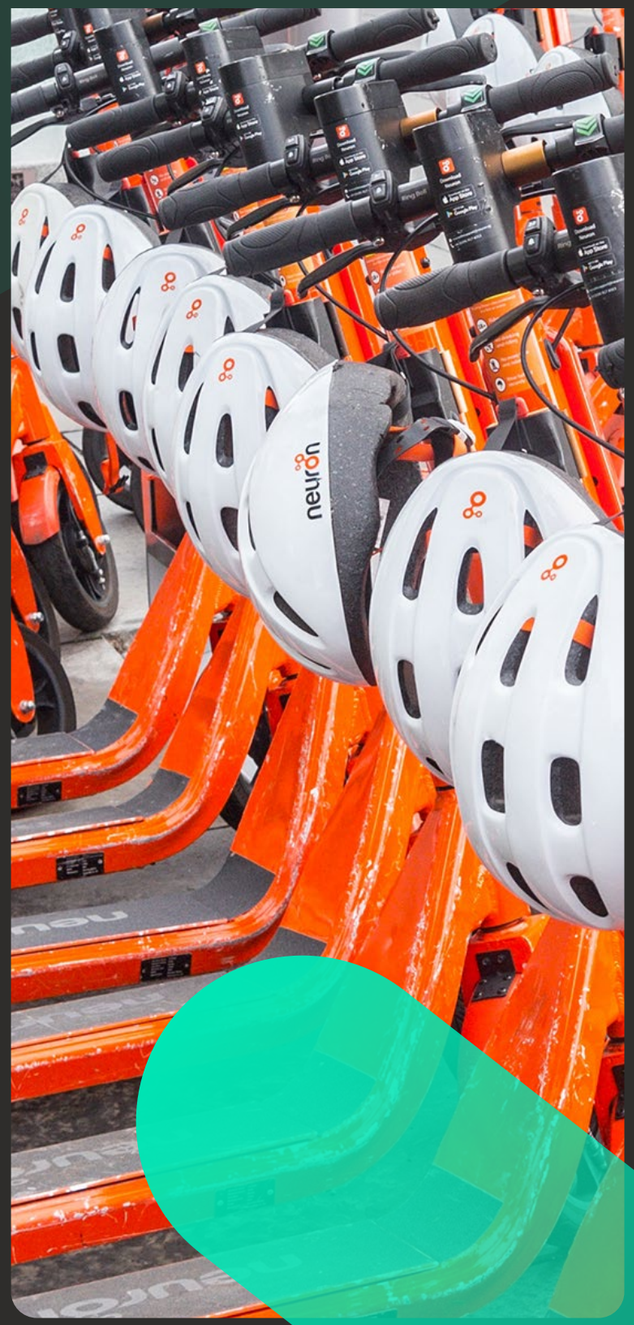
The ‘Older less mobile car owners’ is highly likely that are already using the public transport and will look at shared mobility as an integrated service with PT that will allow them to move around more freely, if configured as a first/last mile service.

The ‘Town and rural heavy car use’ are either one car household or mature adult that would stay mobile for longer without the need to have a car of their own.

Insights from this study will add value for Nexus, the Passenger Transport Executive for Tyne and Wear, and the North East Combined Authority (NECA) to support their initiatives on the introduction of New Mobility services, target early adopters and adjust the level of service to their preference.

Moreover, DfT and other stakeholders to increase the knowledge base around public opinion of shared mobility services and the factors that influence opinion of these services.

Following this study, results from the survey and the separate stated preference section fed into the development of transport mode-specific utility functions and travel behaviour models for the Tyne and Wear area. The Stated Preference (SP) experiments and random utility modelling results development is described in the report titled ‘Utility Function Development for Shared Mobility Services through Discrete Choice Modelling’.



7 Appendices

Appendix A: Social grades

AB Professional/senior managerial and middle managers/executives

C1 Junior managers/non-manual

C2 Skilled manual

D Semi-skilled/unskilled manual and unemployed/state dependents

Appendix B: Survey questionnaire

A copy of the online survey is also available for future reference.

The transcript below was used as an input to create the visuals for the on line field work.

Thank you for agreeing to take part in this questionnaire.

This survey is being carried out on behalf of Nexus and Connected Places Catapult; an organisation that works to accelerate smarter living and travelling in and between the places of tomorrow. Your answers here will be valuable in helping us better understand how people may respond to the potential introduction of a new type of transport in the North East.

The questionnaire will take approximately 15 minutes to complete and is conducted in accordance with the Market Research Society Code of Conduct. You will not be contacted as a result of taking part.

Do not use the forward and back buttons on your browser.

Please click the '>>' button below to start the survey.

Survey Questionnaire

Which of the following regions do you live in?

- ☐ North East England
- ☐ Yorkshire and Humber
- ☐ West Midlands
- ☐ London & Greater London
- ☐ South West England
- ☐ Wales
- ☐ I do not live in the United Kingdom
- ☐ North West England
- ☐ East Midlands
- ☐ East Anglia
- ☐ South East England
- ☐ Scotland
- ☐ Northern Ireland

Which county do you live in?

- ☐ Tyne and Wear
- ☐ Northumberland
- ☐ County Durham
- ☐ Other

How frequently have you used the following modes of transport in the past 3 months?

	Daily	2-3 times per week	Weekly	Every two weeks	Once per month	Less often	Not at all
Car	☐	☐	☐	☐	☐	☐	☐
Passenger in Car	☐	☐	☐	☐	☐	☐	☐
Train	☐	☐	☐	☐	☐	☐	☐
Tram	☐	☐	☐	☐	☐	☐	☐
Bus	☐	☐	☐	☐	☐	☐	☐
Metro	☐	☐	☐	☐	☐	☐	☐
Taxi	☐	☐	☐	☐	☐	☐	☐
Ride hailing (e.g. Uber)	☐	☐	☐	☐	☐	☐	☐
Ridesharing (e.g. UberPool)	☐	☐	☐	☐	☐	☐	☐
Walking	☐	☐	☐	☐	☐	☐	☐
Motorcycle/Scooter/Moped	☐	☐	☐	☐	☐	☐	☐
Bicycle	☐	☐	☐	☐	☐	☐	☐

Thinking about a day last week, could you indicate which types of journeys you made in order.

Please do not include journeys where you only walked less than 10 minutes to get from your origin to your final destination.

For example, if you went to work then went to a shop and then went home that would be three journeys (commute to work, shopping trip, return home)

Thinking about last week, which days did you make at least one journey? Please do not include journeys where you only walked less than 10 minutes to get from your origin to your final destination. *(8 maximum responses)*

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday
- ☐ Friday
- ☐ Saturday
- ☐ Sunday
- ☐ None of the above

Did your first trip on RandomDay start from your home?

- ☐ Yes
- ☐ No

In your own words please describe where it started from?

How many journeys did you make last RandomDay?

Reminder: Please do not include activities where you only walked less than 10 minutes to get from your origin to your final destination.

For example, if you went to work then went to a shop and then went home that would be three journeys (commute to work, shopping trip, return home)

Thinking about all the trips you did on RandomDay, please select the purpose of your 1st trip.

- ☐ Shopping trip
- ☐ Visit to friends or family (at their place of residence)
- ☐ Commute to work
- ☐ Business trip or work related trip
- ☐ Commute to college or university
- ☐ School run
- ☐ Social occasion (meeting with friends or family in a public place)
- ☐ Leisure, sports or hobbies
- ☐ Appointment e.g. medical, legal etc.
- ☐ Return home
- ☐ Other

Thinking about all the trips you did on RandomDay, please select the purpose of your 2nd trip.

- ☐ Shopping trip
- ☐ Visit to friends or family (at their place of residence)
- ☐ Commute to work
- ☐ Business trip or work related trip
- ☐ Commute to college or university
- ☐ School run
- ☐ Social occasion (meeting with friends or family in a public place)
- ☐ Leisure, sports or hobbies
- ☐ Appointment e.g. medical, legal etc.
- ☐ Return home
- ☐ Other

Thinking about all the trips you did on RandomDay, please select the purpose of your 3rd trip.

- ☐ Shopping trip
- ☐ Visit to friends or family (at their place of residence)
- ☐ Commute to work
- ☐ Business trip or work related trip
- ☐ Commute to college or university
- ☐ School run
- ☐ Social occasion (meeting with friends or family in a public place)
- ☐ Leisure, sports or hobbies
- ☐ Appointment e.g. medical, legal etc.
- ☐ Return home
- ☐ Other

Thinking about all the trips you did on RandomDay, please select the purpose of your 4th trip.

- ☐ Shopping trip
- ☐ Visit to friends or family (at their place of residence)
- ☐ Commute to work
- ☐ Business trip or work related trip
- ☐ Commute to college or university
- ☐ School run
- ☐ Social occasion (meeting with friends or family in a public place)
- ☐ Leisure, sports or hobbies
- ☐ Appointment e.g. medical, legal etc.
- ☐ Return home
- ☐ Other

Thinking about all the trips you did on RandomDay, please select the purpose of your 5th trip.

- ☐ Shopping trip
- ☐ Visit to friends or family (at their place of residence)
- ☐ Commute to work
- ☐ Business trip or work related trip
- ☐ Commute to college or university
- ☐ School run
- ☐ Social occasion (meeting with friends or family in a public place)
- ☐ Leisure, sports or hobbies
- ☐ Appointment e.g. medical, legal etc.
- ☐ Return home
- ☐ Other

Thinking about all the trips you did on RandomDay, please select the purpose of your 6th trip.

- ☐ Shopping trip
- ☐ Visit to friends or family (at their place of residence)
- ☐ Commute to work
- ☐ Business trip or work related trip
- ☐ Commute to college or university
- ☐ School run
- ☐ Social occasion (meeting with friends or family in a public place)
- ☐ Leisure, sports or hobbies
- ☐ Appointment e.g. medical, legal etc.
- ☐ Return home
- ☐ Other

Thinking about all the trips you did on RandomDay, please select the purpose of your 7th trip.

- ☐ Shopping trip
- ☐ Visit to friends or family (at their place of residence)
- ☐ Commute to work
- ☐ Business trip or work related trip
- ☐ Commute to college or university
- ☐ School run
- ☐ Social occasion (meeting with friends or family in a public place)
- ☐ Leisure, sports or hobbies
- ☐ Appointment e.g. medical, legal etc.
- ☐ Return home
- ☐ Other

Thinking about all the trips you did on RandomDay, please select the purpose of your 8th trip.

- ☐ Shopping trip
- ☐ Commute to work
- ☐ Commute to college or university
- ☐ Social occasion (meeting with friends or family in a public place)
- ☐ Leisure, sports or hobbies
- ☐ Return home
- ☐ Visit to friends or family (at their place of residence)
- ☐ Business trip or work related trip
- ☐ School run
- ☐ Appointment e.g. medical, legal etc.
- ☐ Other

Thinking about a trip from RandomDay...which form of transport did you use? *(12 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Which form of transport did you use for the main part of this journey (the longest distance)?

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Approximately how long was the distance driven, in miles? *If you're not sure, please give your best guess.*

Which forms of transport were available to you but you chose not to use? Available transports are those that are easy for you to access and that you can afford. *(13 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ None
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

What was the cost of the journey? *If you're not sure, please give your best guess. Please include the costs of petrol/parking if applicable.*

How long did the whole journey take in minutes? *If you're not sure, please give your best guess.*

How did you get to the station/stop? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you in minutes to travel to the station/stop? *If you're not sure, please give your best guess.*

How did you get from the station/stop to your final destination? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you (minutes)? *If you're not sure, please give your best guess.*

Did you pay for car parking at your destination?

- ☐ Yes
- ☐ No

How much did you pay?

How long did it take to travel? *If you're not sure, please give your best guess.*

Did you make any of this journey with children or a dependant adult i.e. someone who relies on you to assist them in their travel?

- ☐ Yes – child/children
- ☐ Yes – dependent adult
- ☐ No

Did you have to carry any heavy or bulky items on this journey?

- ☐ Yes
- ☐ No

Thinking about another trip. What forms of transport did you use? *(12 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Which form of transport did you use for the main part of this journey (the longest distance)?

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Approximately how long was the distance driven, in miles? *If you're not sure, please give your best guess.*

Which forms of transport were available to you but you chose not to use? Available transports are those that are easy for you to access and that you can afford. *(13 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ None
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

What was the cost of the journey? *If you're not sure, please give your best guess. Please include the costs of petrol/parking if applicable.*

How long did the whole journey take in minutes? *If you're not sure, please give your best guess.*

How did you get to the Q5 station/stop? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you in minutes to the station/stop? *If you're not sure, please give your best guess.*

How did you get from the station/stop to your final destination? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you (minutes)? *If you're not sure, please give your best guess.*

Did you pay for car parking at your destination?

- ☐ Yes
- ☐ No

How much did you pay?

How long did it take to travel? *If you're not sure, please give your best guess.*

Did you make any of this journey with children or a dependant adult i.e. someone who relies on you to assist them in their travel?

- ☐ Yes – child/children
- ☐ Yes – dependent adult
- ☐ No

Did you have to carry any heavy or bulky items on this journey?

- ☐ Yes
- ☐ No

Thinking about the trip, which forms of transport did you use? *(12 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Which form of transport did you use for the main part of this journey (the longest distance)?

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Approximately how long was the distance driven, in miles? *If you're not sure, please give your best guess.*

Which forms of transport were available to you but you chose not to use? Available transports are those that are easy for you to access and that you can afford. *(13 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ None
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

What was the cost of the journey? *If you're not sure, please give your best guess. Please include the costs of petrol/parking if applicable.*

How long did the whole journey take in minutes? *If you're not sure, please give your best guess.*

How did you get to the Q5 station/stop? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you in minutes to the station/stop? *If you're not sure, please give your best guess.*

How did you get from the station/stop to your final destination? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you (minutes)? *If you're not sure, please give your best guess.*

Did you pay for car parking at your destination?

- ☐ Yes
- ☐ No

How much did you pay?

How long did it take to walk/cycle? *If you're not sure, please give your best guess.*

Did you make any of this journey with children or a dependant adult i.e. someone who relies on you to assist them in their travel?

- ☐ Yes – child/children
- ☐ Yes – dependent adult
- ☐ No

Did you have to carry any heavy or bulky items on this journey?

- ☐ Yes
- ☐ No

Which forms of transport did you use? *(12 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Which form of transport did you use for the main part of this journey (the longest distance)?

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Approximately how long was the distance driven, in miles? *If you're not sure, please give your best guess.*

Which forms of transport were available to you but you chose not to use? Available transports are those that are easy for you to access and that you can afford. *(13 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ None
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

What was the cost of the journey? *If you're not sure, please give your best guess. Please include the costs of petrol/ parking if applicable.*

How long did the whole journey take in minutes? *If you're not sure, please give your best guess.*

How did you get to the station/stop? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you in minutes to walk or cycle to the station/stop? *If you're not sure, please give your best guess.*

How did you get from the station/stop to your final destination? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

If <> 1, 2, do not ask 'Q13'

How long did it take you (minutes)? *If you're not sure, please give your best guess.*

Did you pay for car parking at your destination?

- ☐ Yes
- ☐ No

How much did you pay?

How long did it take to walk/cycle? *If you're not sure, please give your best guess.*

Did you make any of this journey with children or a dependant adult i.e. someone who relies on you to assist them in their travel?

- ☐ Yes – child/children
- ☐ Yes – dependent adult
- ☐ No

Did you have to carry any heavy or bulky items on this journey?

- ☐ Yes
- ☐ No

Thinking about the trip, which forms of transport did you use? *(12 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Which form of transport did you use for the main part of this journey (the longest distance)?

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Approximately how long was the distance driven, in miles? *If you're not sure, please give your best guess.*

Which forms of transport were available to you but you chose not to use? Available transports are those that are easy for you to access and that you can afford. *(13 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ None
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

What was the cost of the journey? *If you're not sure, please give your best guess. Please include the costs of petrol/parking if applicable. (must be superior to 0)*

How long did the whole journey take in minutes? *If you're not sure, please give your best guess.*

How did you get to the station/stop? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you in minutes to travel to the station/stop? *If you're not sure, please give your best guess.*

How did you get from the station/stop to your final destination? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you (minutes)? *If you're not sure, please give your best guess.*

Did you pay for car parking at your destination?

- ☐ Yes
- ☐ No

How much did you pay?

How long did it take to travel? *If you're not sure, please give your best guess.*

Did you make any of this journey with children or a dependant adult i.e. someone who relies on you to assist them in their travel?

- ☐ Yes – child/children
- ☐ Yes – dependent adult
- ☐ No

Did you have to carry any heavy or bulky items on this journey?

- ☐ Yes
- ☐ No

Thinking about the trip, which forms of transport did you use? *(12 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Which form of transport did you use for the main part of this journey (the longest distance)?

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Approximately how long was the distance driven, in miles? *If you're not sure, please give your best guess.*

Which forms of transport were available to you but you chose not to use? Available transports are those that are easy for you to access and that you can afford. *(13 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ None
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

What was the cost of the journey? *If you're not sure, please give your best guess. Please include the costs of petrol/parking if applicable.*

How long did the whole journey take in minutes? *If you're not sure, please give your best guess.*

How did you get to the station/stop? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you in minutes to walk/cycle to the station/stop? *If you're not sure, please give your best guess.*

How did you get from the station/stop to your final destination? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you (minutes)? *If you're not sure, please give your best guess.*

Did you pay for car parking at your destination?

- ☐ Yes
- ☐ No

How much did you pay?

How long did it take to walk/cycle? *If you're not sure, please give your best guess.*

Did you make any of this journey with children or a dependant adult i.e. someone who relies on you to assist them in their travel?

- ☐ Yes – child/children
- ☐ Yes – dependent adult
- ☐ No

Did you have to carry any heavy or bulky items on this journey?

- ☐ Yes
- ☐ No

Thinking about trip from last RandomDay... Which forms of transport did you use? *(12 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Which form of transport did you use for the main part of this journey (the longest distance)?

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Approximately how long was the distance driven, in miles? *If you're not sure, please give your best guess.*

Which forms of transport were available to you but you chose not to use? Available transports are those that are easy for you to access and that you can afford. *(13 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ None
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

What was the cost of the journey? *If you're not sure, please give your best guess. Please include the costs of petrol/parking if applicable. (must be superior to 0)*

How long did the whole journey take in minutes? *If you're not sure, please give your best guess.*

How did you get to the station/stop? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you in minutes to walk/cycle to the station/stop? *If you're not sure, please give your best guess.*

How did you get from the station/stop to your final destination? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you (minutes)? *If you're not sure, please give your best guess.*

Did you pay for car parking at your destination?

- ☐ Yes
- ☐ No

How much did you pay?

How long did it take to walk/cycle? *If you're not sure, please give your best guess.*

Did you make any of this journey with children or a dependant adult i.e. someone who relies on you to assist them in their travel?

- ☐ Yes – child/children
- ☐ Yes – dependent adult
- ☐ No

Did you have to carry any heavy or bulky items on this journey?

- ☐ Yes
- ☐ No

Thinking about trip from last RandomDay... Which forms of transport did you use? *(12 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Which form of transport did you use for the main part of this journey (the longest distance)?

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

Approximately how long was the distance driven, in miles? *If you're not sure, please give your best guess.*

Which forms of transport were available to you but you chose not to use? Available transports are those that are easy for you to access and that you can afford. *(13 maximum responses)*

- ☐ Car
- ☐ Train
- ☐ Bus
- ☐ Taxi
- ☐ Ridesharing (e.g. UberPool)
- ☐ Motorcycle/Scooter/Moped
- ☐ None
- ☐ Passenger in car
- ☐ Tram
- ☐ Metro
- ☐ Ride hailing (e.g. Uber)
- ☐ Walking
- ☐ Bicycle

What was the cost of the journey? *If you're not sure, please give your best guess. Please include the costs of petrol/parking if applicable. (must be superior to 0)*

How long did the whole journey take in minutes? *If you're not sure, please give your best guess.*

How did you get to the station/stop? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you in minutes to the station/stop? *If you're not sure, please give your best guess.*

How did you get from the station/stop to your final destination? *(6 maximum responses)*

- ☐ Walk
- ☐ Car – driver
- ☐ Taxi
- ☐ Cycle
- ☐ Car – passenger
- ☐ Other

How long did it take you (minutes)? *If you're not sure, please give your best guess.*

Did you pay for car parking at your destination?

- ☐ Yes
- ☐ No

How much did you pay?

How long did it take? *If you're not sure, please give your best guess.*

Did you make any of this journey with children or a dependant adult i.e. someone who relies on you to assist them in their travel?

- ☐ Yes – child/children
- ☐ Yes – dependent adult
- ☐ No

Did you have to carry any heavy or bulky items on this journey?

- ☐ Yes
- ☐ No

This section of the survey should be interesting and fun. We are going to show you eight possible future scenarios regarding the travel options in your area.

Please imagine a situation where you need to travel a short distance (around 3 miles), to reach your work/education place, and to get to a destination for non-work/non-educational purposes (e.g., leisure, shopping, personal business).

Imagine there are four different modes of transport that you may use:

- Car (or passenger of a car)
- Public transport (i.e. bus / metro)
- Shared transport (an on-demand service that allows you to split the cost of your ride with one or more companions headed to a similar direction as you – .e. Uber Pool)
- Active travel (i.e. bike / scooter).

You are going to be presented with eight scenarios, each proposing four alternative modes of transport characterised by several attributes:

- Walking time (the time spent walking to reach your destination or pick-up location)
- Waiting time (the time spent waiting at the pick up location before your transport arrives)
- Time in Transport (the time spent travelling, including parking and/or allowing passengers to embark and disembark)
- Cost (including fuel and parking if applicable)
- Route type (Active travel only: this is to study the impact of vehicle traffic free routes – i.e. whether a bicycle/scooter is sharing its route with motorised vehicles on a normal road, or has a dedicated lane)

Please compare the factors within each scenario and choose your preferred mode of transport for work/education-related travel and choose your preferred mode of transport for leisure-related travel (i.e. shopping, hobbies).

If you are using a mobile phone, please turn your screen to be horizontal for this section.

	Car	Public Transport	Shared Transport	Active Travel	Car	Public Transport	Shared Transport	Active Travel
Block 1 – Scenario 1	☐	☐	☐	☐	☐	☐	☐	☐
Block 1 – Scenario 2	☐	☐	☐	☐	☐	☐	☐	☐
Block 1 – Scenario 3	☐	☐	☐	☐	☐	☐	☐	☐
Block 1 – Scenario 4	☐	☐	☐	☐	☐	☐	☐	☐
Block 1 – Scenario 5	☐	☐	☐	☐	☐	☐	☐	☐
Block 1 – Scenario 6	☐	☐	☐	☐	☐	☐	☐	☐
Block 1 – Scenario 7	☐	☐	☐	☐	☐	☐	☐	☐
Block 1 – Scenario 8	☐	☐	☐	☐	☐	☐	☐	☐
Block 2 – Scenario 1	☐	☐	☐	☐	☐	☐	☐	☐
Block 2 – Scenario 2	☐	☐	☐	☐	☐	☐	☐	☐
Block 2 – Scenario 3	☐	☐	☐	☐	☐	☐	☐	☐
Block 2 – Scenario 4	☐	☐	☐	☐	☐	☐	☐	☐
Block 2 – Scenario 5	☐	☐	☐	☐	☐	☐	☐	☐
Block 2 – Scenario 6	☐	☐	☐	☐	☐	☐	☐	☐
Block 2 – Scenario 7	☐	☐	☐	☐	☐	☐	☐	☐
Block 2 – Scenario 8	☐	☐	☐	☐	☐	☐	☐	☐
Block 3 – Scenario 1	☐	☐	☐	☐	☐	☐	☐	☐
Block 3 – Scenario 2	☐	☐	☐	☐	☐	☐	☐	☐
Block 3 – Scenario 3	☐	☐	☐	☐	☐	☐	☐	☐
Block 3 – Scenario 4	☐	☐	☐	☐	☐	☐	☐	☐
Block 3 – Scenario 5	☐	☐	☐	☐	☐	☐	☐	☐
Block 3 – Scenario 6	☐	☐	☐	☐	☐	☐	☐	☐
Block 3 – Scenario 7	☐	☐	☐	☐	☐	☐	☐	☐
Block 3 – Scenario 8	☐	☐	☐	☐	☐	☐	☐	☐
Block 4 – Scenario 1	☐	☐	☐	☐	☐	☐	☐	☐
Block 4 – Scenario 2	☐	☐	☐	☐	☐	☐	☐	☐
Block 4 – Scenario 3	☐	☐	☐	☐	☐	☐	☐	☐
Block 4 – Scenario 4	☐	☐	☐	☐	☐	☐	☐	☐
Block 4 – Scenario 5	☐	☐	☐	☐	☐	☐	☐	☐
Block 4 – Scenario 6	☐	☐	☐	☐	☐	☐	☐	☐
Block 4 – Scenario 7	☐	☐	☐	☐	☐	☐	☐	☐
Block 4 – Scenario 8	☐	☐	☐	☐	☐	☐	☐	☐

The next few questions are about sharing transport – this is when you can use cars, bikes or minibuses 'on demand'.

So you can take a journey when you need to and share the lift with other people. An example is Uber Pool, where you can share an Uber with strangers going in the same direction in order to reduce both your fares.

How likely are you to consider using a shared transport mode?

Shared transport modes are when you can use cars, bikes or minibuses 'on demand' whilst sharing the lift with other people.

e.g. Uber Pool, where you can share an Uber with strangers going in the same direction in order to reduce both your fares.

- ☐ Not at all likely
- ☐ Neither likely nor unlikely
- ☐ Extremely likely
- ☐ Fairly unlikely
- ☐ Fairly likely

Please rate the following statements on a scale of strongly disagree to strongly agree.

	Strongly disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Strongly agree
I think shared transport will be cheaper than running a car yourself	☐	☐	☐	☐	☐
Shared transport is better for the environment than driving	☐	☐	☐	☐	☐
Shared transport brings the potential for less congestion	☐	☐	☐	☐	☐
I like the opportunity to meet new people in shared transport	☐	☐	☐	☐	☐
I think that successful people travel in their own car rather than in shared transport	☐	☐	☐	☐	☐
Sharing a vehicle with passengers whom I don't know concerns me because there would be a safety risk	☐	☐	☐	☐	☐
Sharing a vehicle with passengers whom I don't know concerns me because there would be less privacy	☐	☐	☐	☐	☐
Sharing a vehicle with passengers whom I don't know concerns me because it would be less comfortable	☐	☐	☐	☐	☐
I think sharing will make the trip time longer and therefore more inconvenient	☐	☐	☐	☐	☐
I'm concerned about how long I'd need to wait for a shared transport service	☐	☐	☐	☐	☐

How long has it been since you tried a new mode of transport, or made a significant change in your everyday transport choices e.g. changed route or time of day?

- ☐ A week
- ☐ 1-3 months
- ☐ 6 months to a year
- ☐ A month
- ☐ 3-6 months
- ☐ More than 1 year

Are you in general a person who takes risks or do you try to avoid risks?

- ☐ Not at all prepared to take risks
- ☐ Neither prepared nor unprepared to take risks
- ☐ Very much prepared to take risks
- ☐ Not very prepared to take risks
- ☐ Slightly prepared to take risks

Please rate the following statements on a scale of strongly disagree to strongly agree:

	Strongly disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Strongly agree
I prefer to stick with things that I know	☐	☐	☐	☐	☐
I'm always looking for new ways to do things	☐	☐	☐	☐	☐
I enjoy meeting new people	☐	☐	☐	☐	☐
I tend to feel stressed if I have to change the route or travel method for familiar journeys	☐	☐	☐	☐	☐

Please rate the following statements on a scale of strongly disagree to strongly agree:

	Strongly disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Strongly agree
Using public transport during the day is safe	☐	☐	☐	☐	☐
Using public transport at night is safe	☐	☐	☐	☐	☐
Using public transport is stressful/ confusing	☐	☐	☐	☐	☐
Public transport is comfortable	☐	☐	☐	☐	☐
Public transport is reliable	☐	☐	☐	☐	☐
Public transport is good for the environment	☐	☐	☐	☐	☐
I think that successful people tend to travel by car rather than by public transport	☐	☐	☐	☐	☐
Car sharing to work is something I would like to do	☐	☐	☐	☐	☐
Environmental issues are something that I'm quite interested in	☐	☐	☐	☐	☐
I think about my carbon footprint and what I can do to reduce it	☐	☐	☐	☐	☐
I am enthusiastic about technological innovations	☐	☐	☐	☐	☐
Other people tend to ask my advice when they have questions about technology or computers	☐	☐	☐	☐	☐

Do you hold a full driving licence valid in Great Britain to drive either a car, or a motorcycle, scooter or moped?

☐ Yes ☐ No

Do you, or any members of your household, at present own or have continuous use of any motor vehicle?

	You	Other household member	Neither
Car	☐	☐	☐
Van	☐	☐	☐
Motorbike, scooter, moped	☐	☐	☐

How many vehicles does your household own or have continuous use of at present?

Are any of these vehicles electric or hybrid?

☐ Yes ☐ No

Have you financed any of the vehicles you personally drive on a PCP or lease deal?

☐ Yes ☐ No

How many years approximately are left on this arrangement? *Please include all vehicles (3 maximum responses)*

☐ 2+ years ☐ 1-2 years ☐ Less than 1 year

Looking at this list, which of these things are important to you when buying a car or van? *(17 maximum responses)*

☐ Comfort
☐ Size of engine
☐ Brand or model
☐ Reliability
☐ Speed / performance
☐ Colour
☐ Mileage
☐ Proximity of dealership to me
☐ Don't know
☐ Costs – purchase/running/resale value/tax/insurance
☐ Environmentally friendly / low carbon emissions
☐ Interior space / boot size
☐ Safety
☐ Style / design
☐ Features – things like sat nav; music system; power steering; electric windows etc
☐ Other
☐ I don't have any say in which car or van to buy

Are you a member of a car sharing club? (*A car club allows access to locally parked cars that can be used on demand. Examples include ZipCar, Co-wheels, and Drivenow)*

☐ Yes ☐ No

Which of the following do you tend to use to gain information about your journeys either before you leave or during the journey?

	Before journey	During journey
https://www.chroniclelive.co.uk/all-about/traffic-travel	☐	☐
Google maps	☐	☐
Waze	☐	☐
Citymapper	☐	☐
Apple Maps	☐	☐
TomTom Go	☐	☐
Local Radio traffic updates	☐	☐
National Radio traffic updates	☐	☐
Facebook	☐	☐
Twitter	☐	☐
Vehicle's own sat nav	☐	☐

Other (please specify)

Which other information sources do you use to gain information about your journeys?

Do you or anyone in your household make orders over the phone, by post or on the internet for items to be delivered to your home or workplace?

This would be items such as food shopping, clothes, books, items for the house or garden, DIY, health goods, toiletries or holidays.

☐ At least once a week
☐ Once or twice a month
☐ Never
☐ More than twice a month
☐ Less often than once a month

How many times have you left the UK by plane to fly to another country outside the UK in the last 12 months?

☐ None ☐ Once ☐ 2+ times

Do you have any disability or other long standing health problem that makes it difficult for you to...
(5 maximum responses)

- ☐ Go out on foot
- ☐ Use local buses
- ☐ None of these
- ☐ Ride a bicycle
- ☐ Get in or out of a car

What is your employment status?

- ☐ Employed
- ☐ Retired
- ☐ Carer
- ☐ Long term sick/disabled
- ☐ None of the above
- ☐ Self employed/freelance
- ☐ Student
- ☐ Looking after home or family
- ☐ Unemployed/job seeking

How frequently do you travel by private car or van to or from work/school/college?

- ☐ At least once a day
- ☐ Once or twice a week
- ☐ Once or twice a month
- ☐ Once or twice a year
- ☐ Less than once a day, but at least 3 times a week
- ☐ Less than that but more than twice a month
- ☐ Less than that but more than twice a year
- ☐ Less than that or never

Does your employer offer any car sharing/journey to work scheme?

- ☐ Yes
- ☐ No

Please select your age range.

- ☐ 16-20
- ☐ 30-39
- ☐ 50-59
- ☐ 70+
- ☐ 21-29
- ☐ 40-49
- ☐ 60-69

What is your highest level of education?

- ☐ Higher degree or postgraduate qualifications (e.g. M.A., MSc., M.Ed, Ph.D. etc)
- ☐ First degree level qualification Degree, or degree level equivalent (e.g. BA; BSc,) including foundation degrees; such as PGCE
- ☐ Diploma in higher education; HNC; HND; Nursing or Teaching qualification (excluding PGCE)
- ☐ A level; AS level; NVQ level 3; GNVQ Advanced; or equivalent
- ☐ GCSE grade A* - C; O level; CSE grade 1; NVQ level 2; GNVQ intermediate; or equivalent
- ☐ GCSE grade D – G; CSE below grade 1; NVQ level 1; GNVQ Foundation level; or equivalent
- ☐ None of these

Please indicate to which occupational group the main income earner in your household belongs, or which group fits best.

- ☐ Semi or unskilled manual worker(e.g. Manual workers, all apprentices to be skilled trades, Caretaker, Park keeper, non-HGV driver, shop assistant)
- ☐ Skilled manual worker (e.g. Skilled Bricklayer, Carpenter, Plumber, Painter, Bus/Ambulance Driver, HGV driver, AA patrolman, pub/bar worker, etc)
- ☐ Supervisory or clerical/ junior managerial/ professional/ administrative (e.g. Office worker, Student Doctor, Foreman with 25+ employees, salesperson, etc)
- ☐ Intermediate managerial/ professional/ administrative(e.g. Newly qualified (under 3 years) doctor, Solicitor, Board director small organisation, middle manager in large organisation, principal officer in civil service/local government)
- ☐ Higher managerial/ professional/ administrative(e.g. Established doctor, Solicitor, Board Director in a large organisation (200+ employees), top level civil servant/public service employee)
- ☐ Student
- ☐ Casual worker – not in permanent employment
- ☐ Housewife/Homemaker
- ☐ Retired and on state pension (If retired but not on state pension, please indicate the occupation just before retirement)
- ☐ Unemployed or not working due to long-term sickness
- ☐ Full-time carer of other household member
- ☐ Other
- ☐ Don't know
- ☐ Prefer not to say

Please state the number of adults (those aged 16+) in your household (including yourself).

Please state the number of children (those aged below 16) in your household.

We now wish to collect information concerning your gender, household income and where you live to help us understand your travel choices.

If you do not wish to answer any of these questions, please select Prefer not to say

Please state your gender

- ☐ Male
- ☐ Female
- ☐ Transgender female
- ☐ Transgender male
- ☐ Non-binary
- ☐ Two-spirited
- ☐ Another gender not listed above
- ☐ Prefer not to say

Please select your household income bracket (gross income before tax).

- ☐ Under £15,000
- ☐ Between £15,000 and £29,999
- ☐ Between £30,000 and £44,999
- ☐ Between £45,000 and £59,999
- ☐ Between £60,000 and £74,999
- ☐ Between £75,000 and £89,999
- ☐ Between £90,000 and £104,999
- ☐ Over £105,000
- ☐ Prefer not to say

Please provide your home postcode without the last 2 letters e.g. NE1 2

Do you have any final comments about your feelings about this interview that you would like to share?

If there were any technical issues or anything else you would like to feedback about this survey, please let us know by commenting here.

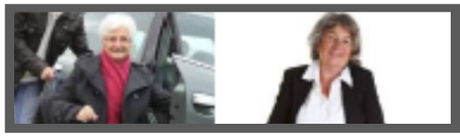
This interview was conducted by me with the respondent under the Code of Conduct laid down by the Market Research Society and according to the instructions I was given.

- ☐ Yes
- ☐ No

Appendix C: DfT Transport User Segments

Segment Snapshots

Car owning segments (at least one vehicle in household)



1 Older, less mobile car owners (9% of population)
- Older, all have mobility difficulties
- Transport behaviour shaped by lack of mobility
- Travel less than all other car owning segments
- Heavily reliant on the car to get around

2 Less afffluent urban young families (21% of population)
- Lower travel needs, desire to own larger/faster car but behaviour constrained by relatively low income
- Relatively less reliant on the car than other car owning groups
- Less well educated, more ambivalent about climate change

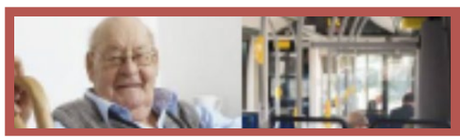
3 Less affluent older sceptics (12% of population)
- Older, very few have mobility difficulties; less affluent
- Lower travel needs, related to lower incomes and life-stage
- Low level of education, more sceptical about climate change

4 Affluent empty nesters (9% of population)
- Older, largely retired, affluent, well educated
- Average levels of car travel; drive less than younger affluent segments
- Mostly likely segment to buy cars brand new
- Pro-environmental but more sceptical about climate change specifically

5 Educated suburban families (17% of population)
- Working age, higher income, well educated, many have children
- Travel and drive a lot; most likely segment to travel by plane
- Positive about cycling, but distances and safety are barriers
- Concerned about climate change but have high travel needs

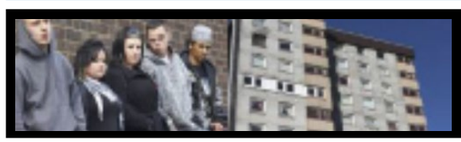
6 Town and rural heavy car use (13% of population)
- Working age, higher income but less well educated
- Most 'rural' segment, but also living in urban areas
- Highest levels of car ownership and car travel, own largest cars
- Speed/performance and style/design important in car buying

*Non-**c**ar owning segments (no vehicle in household)*



7 Elderly without cars (6% of population)
- Oldest segment, high level of mobility difficulties
- Very low travel needs, do not travel long distances
- Reliant on lifts from others and public transport to get around

8 Young urbanites without cars (7% of population)
- Younger, well educated, big city-dwellers (many in London)
- Heavily reliant on walking and public transport to get around
- Transport behaviour results from location and life-stage, may change



9 Urban low income without cars (5% of population)
- Younger, low income, low education, high levels of unemployment
- Low travel needs, reliant on walking and public transport
- Aspire to car ownership but cannot afford a car

Appendix D: References

Alonso-Gonzalez, M., van Oort, N., Cats, O. & S. Hoogendoorn. 2017. *Urban Demand Responsive Transport in the Mobility as a Service ecosystem: its role and potential market share.* Presented at Thredbo 15 Conference, Stockholm, Sweden, 2017.

Bamberg, S., Hunecke, M. & A. Blobaum. 2007. *Social context, personal norms and the use of public transportation: Two field studies.* Journal of Environmental Psychology, 27(2007).

Beirao, G. & J. A. Sarsfield Cabral. 2007. U*nderstanding attitudes towards public transport and private car: A qualitative study.* Transport Policy, 14(2007).

Böcker, L. & T. Meelen. 2017. *Sharing for people, planet or profit? Analysing motivations for intended sharing economy participation.* Environmental Innovation and Societal Transitions, 23(2017).

Chowdhury, S. & A. Ceder. 2016. *Users' willingness to ride an integrated public transport service: A Literature review.* Transport Policy, 48(2016).

Clark, B., Chatterjee, K. & S. Melia. 2016. *Changes to commute mode: The role of life events, spatial context and environmental attitude.* Transportation Research Part A, 89(2016).

Delhomme, P. & A. Gheorghiu. 2016. *Comparing French carpoolers and non-carpoolers: Which factors contribute the most to carpooling?* Transportation Research Part D, 42(2016).

Golightly, D., Houghton, R., Hughes, N. & S. Sharples. 2019. *Human Factors in Exclusive and Shared Use in the UK Transport System.* Foresight, Government Office for Science.

Gunay, B, Akgol, K., Andreasson, I. & S. Terzi. 2016. *Estimation of Modal Shift Potential for a New Form of Dial-A-Ride Service.* Journal of Public Transportation, 19(2).

Hannes, E., Janssens, D. & G. Wets. 2009. *Does Space Matter? Travel Mode Scripts in Daily Activity Travel.* Environment and Behavior, 41(1).

Jain, S. Ronald, N., Thompson R. & S. Winter. 2017. *Predicting susceptibility to use demand responsive transport using demographic and trip characteristics of the population.* Travel Behaviour and Society, 6(2017).

Kantar Public & Department for Transport. 2019. T*ransport and Technology: Public Attitudes Tracker.* Wave 3 summary report. March 2019.

Kim, C. & O. Parent. 2016. *Modeling individual travel behaviors based on intra-household interactions.* Regional Science and Urban Economics, 57 (2016).

Lanzini, P. & S. Khan. 2017. *Shedding light on the psychological and behavioural determinants of travel mode choice: A meta-analysis.* Transportation Research Part F, 48(2017).

Limtanakool, N., Dijst, M. & T. Schwanen. 2006. *The influence of socioeconomic characteristics, land use and travel time considerations on mode choice for medium-and longer-distance trips.* Journal of Transport Geography, 14(2006).

Liu, Y., Chen, J., Wu, W. & J. Ye. 2019. *Typical Combined Travel Mode Choice Utility Model in Multimodal Transportation Network.* Sustainability, 2019(11).

Middleton, S. & J. Zhao. 2019. *Discriminatory attitudes between ridesharing passengers.* Transportation, 2019.

Nelson, J. D. & T. Phonphitakchai. 2012. *An evaluation of the user characteristics of an open access DRT service.* Research in Transportation Economics, 34(2012).

Neoh, J., Chipulu, M., Marshall, A. & A. Tewkesbury. 2018. *How commuters' motivations to drive relate to propensity to carpool: Evidence from United Kingdom and the United States.* Transportation Research Part A, 110(2018).

Nguyen, N., Miwa, T. & T. Morikawa. 2018. *Switching to Public Transport Modes for Commuting Trips: Considering Latent Motivations in Ho Chi Minh City.* Asian Transport Studies, 5(1).

Picornell, M., Ruiz, T., Lenormand, M., Ramasco, J., Dubernet T. & E. Frias-Martinez. 2015. *Exploring the potential of phone call data to characterise the relationship between social network and travel behaviour.* Transportation, 42(2015).

Ryan, J. & A. Wretstrand. 2019. *What's mode got to do with it? Exploring the links between public transport and car access and opportunities for everyday activities among older people.* Travel Behaviour and Society, 14(2019).

Ryley, T., Stanley, P., Enoch, M., Zanni, A., & M. Quddus. 2014. *Investigating the contribution of Demand Responsive Transport to a sustainable local public transport system.* Research in Transportation Economics, 48(2014).

Sarriera, J., Alvarez, G., Blynn, K., Alesbury, A., Scully, T. & J. Zhao. 2017. *To Share or Not To Share: Investigating the Social Aspects of Dynamic Ridesharing.* Transportation Research Record: Journal of the Transportation Research Board, 2605(1).

Transport Systems Catapult (2015). *Traveller Needs and UK Capability Study.* Downloaded from: *https://ts.catapult.org.uk/wp-content/uploads/2016/04/Traveller-Needs-Study-1.pdf*

Wang, C., Quddus, M., Enoch, M., Ryley, T. & L. Davison. 2015. *Exploring the propensity to travel by demand responsive transport in the rural area of Lincolnshire in England.* Case Studies on Transport Policy, 3(2015).

Wang, Y., Wang, S., Wang, J., Wei, J. & C. Wang. 2018. *An empirical study of consumers' intention to use ride-sharing services: using an extended technology acceptance model.* Transportation, 2018.

Yang, L., Choudhury, C., Ben-Akiva, M., Abreu, J. & D. Carvalho. 2009. *Stated preference survey for new smart transport modes and services: Design, pilot study and new revision.* MIT Portugal, Transportation systems, Working paper series.

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