

CITIZENS' CONVERSATION ON DRIVERLESS VEHICLES IN GREATER MANCHESTER

EVENT REPORT

SATURDAY 19 OCTOBER 2019

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ACKNOWLEDGEMENTS

We would like to say thank you to Tom Cohen and Jack Stilgoe from University College London for their support of this work. Particular thanks goes to Tom Cohen for being instrumental in setting up this project in the first place.

INTRODUCTION

The Citizens' Conversation on Driverless Vehicles was run by Transport for Greater Manchester (TfGM), with support from public participation charity [Involve](#), to explore public perspectives on driverless vehicles. It was run for one day on Saturday 19 October 2019 at the Bright Building in Manchester Science Park.

What is a citizens' conversation?

A citizens' conversation is a type of deliberative public engagement event which allows members of the public to hear about important issues and explore the key questions raised by these issues. Participants deliberate with other members of the public in small table discussions supported by an impartial facilitator. Based on their deliberation, participants then make recommendations to the body that commissioned the Citizens' Conversation.

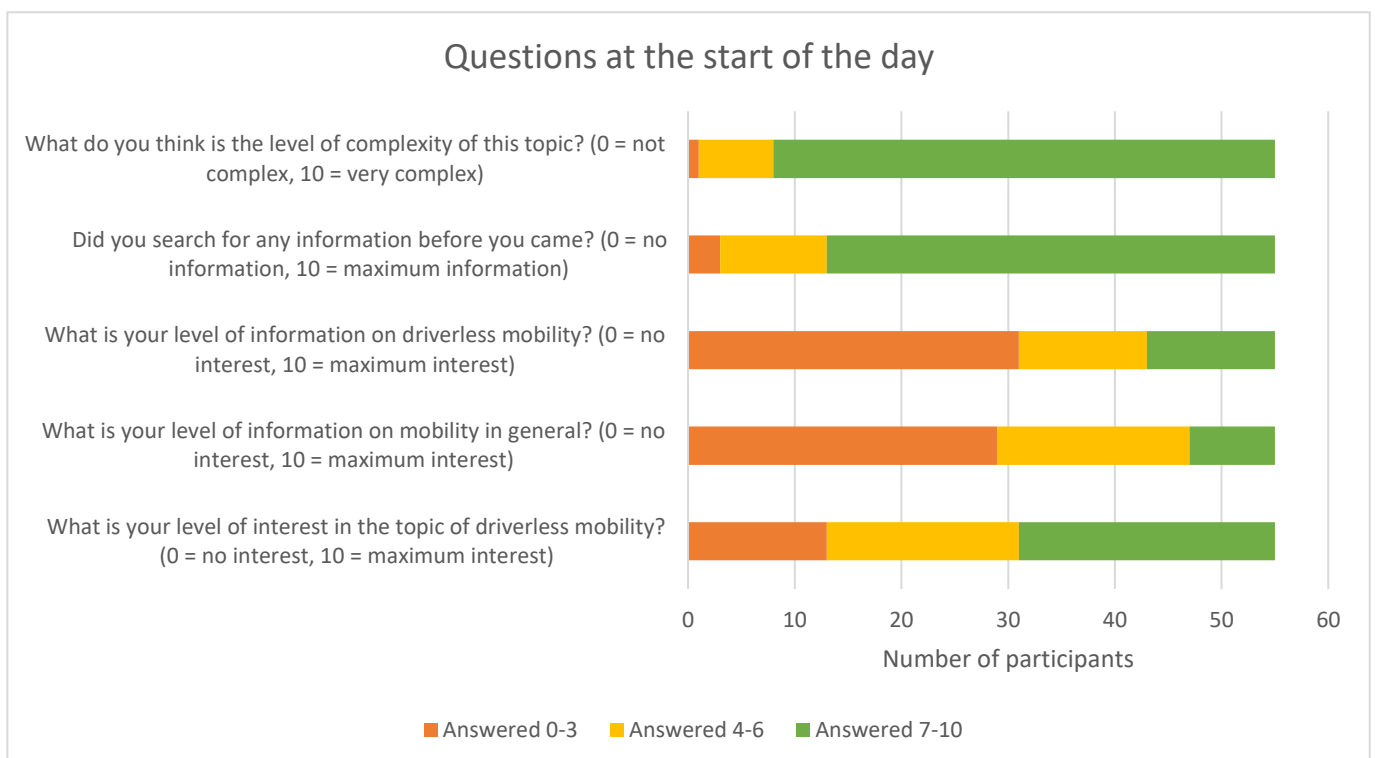
Why did TfGM run one on driverless vehicles?

TfGM wants to engage with the public on important issues. The development of driverless vehicles could have a profound effect on life in Greater Manchester, potentially having social, economic and environmental impacts. That is why TfGM want members of the public to have their say over this potential new technology.

This citizens' conversation was part of a global series of conversations coordinated by an organisation called [Missions Publiques](#). The series is exploring people's views on driverless vehicles across the world. The findings from each debate will be gathered together and these will then be shared with local, national and international decision-makers.

Who attended?

For this citizens' conversation 57 members of the Greater Manchester public, who were broadly representative of the population of the area, were selected to take part. This was done using a process called sortition. They were recruited to be broadly representative of the Greater Manchester public based on age, gender, ethnicity, geography, occupation and disability. The full recruitment data is available in the appendix.



Before starting Session 1 participants filled in a pre-event questionnaire which gave a first indication of their perspectives of driverless vehicles. The results of this can be seen in the charts above.

How did this citizens' conversation work?

Throughout the day participants heard about the possibilities, potential benefits and potential risks of introducing driverless vehicles. They deliberated on these issues in order to vote on their preferences and add further detail to explain their choices. The day was broken up into five sessions which explored a number of key issues:

- Session 1 – Your transportation routine today – might driverless vehicles affect it?
- Session 2 – Trust and confidence in automated systems
- Session 3 – Future Automated Transportation Scenarios
- Session 4 – Who is in charge?
- Session 5 – What are the priorities for Transport for Greater Manchester to pilot?

During these sessions, participants heard key information and perspectives from people with different views about driverless vehicles and explored different scenarios for implementation. They also considered who should be responsible for solving key issues raised by driverless vehicles and which decision-makers were most trusted to do so.

Participants discussed all of these issues on tables of 5-6 people and were asked to record their views individually by completing various voting forms which asked a wide range of questions. They were also asked to come to some conclusions as a table, potentially prompting greater compromise and challenging decisions. In this way they produced outputs that reflected their individual perspectives, and they reached conclusions by coming to an agreement with others on their table.

What does this report do?

This report outlines some of the key findings from the Citizens' Conversation. There was a significant amount of rich qualitative and quantitative data produced on the day by the 57 participants. This pulls out participants' key hopes and fears for driverless vehicles and explores the values underpinning them. 57 people is not a large enough sample to draw conclusions about what the whole of Greater Manchester thinks. The aim of this process was to explore the depth of opinions held through deliberation. Therefore, the outputs of this citizens' conversation are indicative of the variety of perspectives held and the reasons behind them.

How is this report structured?

This report is comprised of five main sections based on the five sessions which the day was broken up into. The tables and graphs show the outputs of some, but not all, of the questions which participants were asked throughout the day. In addition to voting, participants were also asked to further explain their views by providing full written answers during each session. The quotes used in this report have been selected to indicate the range of perspectives held and are not representative of the number of people who expressed them.

SESSION 1 – YOUR DAILY TRANSPORT ROUTINE TODAY – MIGHT DRIVERLESS VEHICLES AFFECT

Summary of Session 1

During the first session, participants described the various ways in which they travel currently. Participants started to become familiar and comfortable with what was, for some, an unfamiliar and potentially intimidating environment. They then started thinking about the different ways in which driverless vehicles might affect them. They also identified their hopes and fears for driverless vehicles. Safety was identified as a key issue, along with traffic, cost and pollution all being raised as issues to consider. While these were common topics mentioned by lots of people, the perspectives participants had on them varied significantly. This could suggest broad agreement on what most of the priority areas are, but disagreement on the impact that driverless vehicles might have on those priority areas.

IT?

Key questions to answer:

- How do you travel around on a daily basis?
- How might that be affected by the introduction of driverless vehicles?

General observations

During this session participants discussed their current transport routines, how they could be affected by driverless vehicles, what they thought were important issues to consider and then identified their hopes and fears around driverless vehicles.

Your transport routine today

Participants' experiences in this section are unsurprising. They reported that they travel widely both within and beyond Greater Manchester quite regularly. Given their range of backgrounds, locations and regular journeys, they do so using a wide range of transport methods including cars, taxis, trains, trams, walking and cycling. This established the importance of transport in participants' lives, and how major changes to transport might affect their lives.

The most common reasons given for journeys being enjoyable generally fell into the categories of comfort and convenience, with journeys being not too busy, quickly connecting people from where they were to where they wanted to go. Another positive of journeys was they sometimes offered opportunities to socialise. Some of the common reasons given for not enjoying recent journeys related to heavy traffic, routes being crowded and bad weather. These observations are unlikely to be different from the experiences of the wider population.

How might driverless vehicles affect your travel?

Around half of the participants began the day expressing optimism about potential benefits of driverless vehicles, with the other half of participants tending to be split between expecting that 'driverless vehicles would have no effect' and 'driverless vehicles would make worse'. Around half the participants expected that driverless vehicles would make transport more expensive. These answers show a fairly wide spread of opinions held at the start of the day on the impacts of driverless vehicles on people's travel routines. The one area which participants agreed on most was that driverless vehicles would improve the 'availability of my time to do things while travelling', with 80% choosing this answer.

Please pick the most important transportation issue to you.¹



What are the most important issues to consider on driverless vehicles?

When asked to consider how driverless vehicles might affect them, participants identified a wide range of issues to consider. The two most commonly identified issues were those of safety and traffic on the roads. The views expressed by participants answering this question were diverse. Some participants expect driverless vehicles to make travel safer or to reduce traffic, whilst others took the opposite view and were worried that driverless vehicles would make transport less safe and would cause more traffic. Other key issues identified included trust in technology, cost and who would bear that, urban/rural connections and questions around individual independence and ability to travel.

“Traffic congestion would ease off. Standardisation of driving may potentially reduce accidents and thus improve journey times”

“Hazards occurring from traffic accidents - will the automated vehicle notify the person and stop? Will the drivers need to suddenly take over? How avoidable are accidents?”

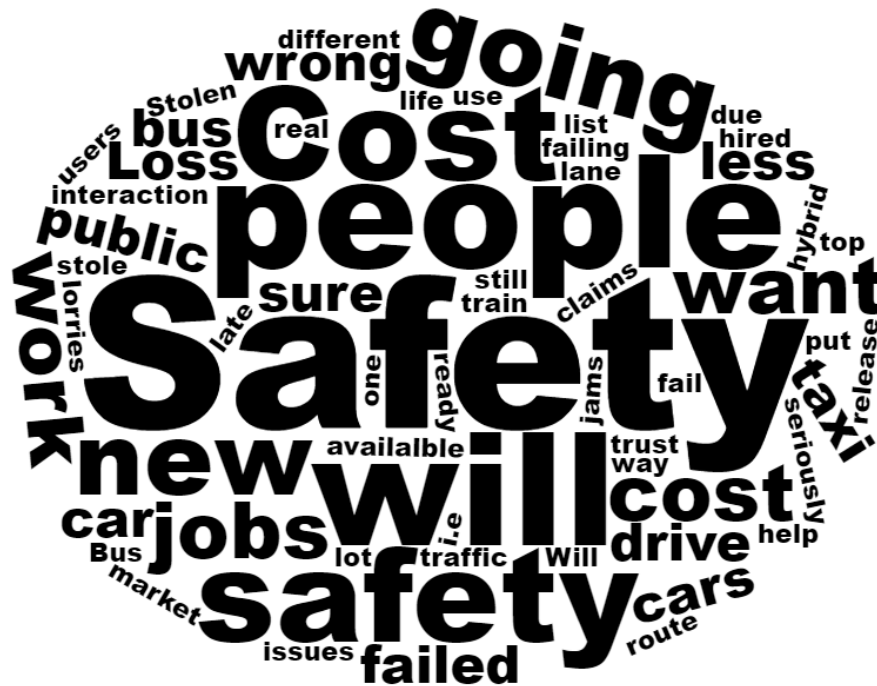
“Driverless vehicles would prevent accidents due to drug and drink driving. Having more time to relax during transport”

“Harm from accidents - technology has to be bulletproof. Not having control in emergency situations.”

The qualitative data suggests that even if lots of people identified safety or traffic as important issues, the impacts they expected driverless vehicles to have on these areas will

¹ The question participants were asked was for their three biggest hopes and concerns about driverless vehicles. The word clouds above display the most commonly used words when identifying their top hope and fear, but does not include every word used. The hopes and fears identified second and third by participants are not displayed, however TfGM has this data.

What is your biggest concern about driverless vehicles?



The word cloud above indicates that as well talking about safety when discussing their hopes for driverless vehicles, participants also raised it as a fear as well. Some of the other most commonly expressed hopes for driverless vehicles related to improving air quality by reducing CO₂ emissions and making transport more accessible to people with access requirements. Others also valued reducing journey times through a more efficient system that would allow passengers more time to relax or work whilst travelling. What this demonstrated is the range of perspectives participants were considering driverless vehicles from, and the different impacts they thought could be had on their lives.

SESSION 2 - TRUST AND CONFIDENCE IN AUTOMATED SYSTEMS

Summary of Session 2

During the second session, participants explored how comfortable they would be giving up control of a vehicle to an automated computer system and what conditions would be necessary for this. They did this by learning about the six levels of automation, as set by SAE, and considering what levels of vehicle automation they would be comfortable with. Most participants said they were comfortable with levels 2 and 3, but there was a wide spread of opinion on levels 4 and 5. Some saw higher levels of automation as increasing safety, whereas others regarded this as posing a greater safety risk.

Participants also discussed their preferences for scenarios in which driverless vehicles could be tested. The testing of them on local race tracks was the scenario which most people were comfortable with. Some participants thought testing in a controlled environment was the best way to ensure safety, whereas lots of others also suggested that more 'real life' testing on roads was the best way to ensure safety.

Finally, participants discussed the questions of what they were comfortable being done with data generated by their use of driverless vehicles. Most participants agreed that they wanted to control the use of their own data, particularly instead of private companies. There was, however, a much wider spread of opinion when asked if they were comfortable with their data being used if anonymised.

This session saw participants unpicking key questions around trust in levels of automation and use of personal data. Some of the perspectives uncovered are influenced by misunderstandings of the science or nature of the risk, others based on concerns about balancing different policy outcomes, for example. Policymakers will need to think carefully about the mix of communications and further engagement needed to support the public to engage effectively with the decisions ahead.

Key question to answer:

- Would you be willing to give up control of a vehicle to an automated computer system and under what conditions?

Observations

During this session, participants considered three key topics relating to trust and confidence in automated systems: levels of automation, testing of driverless vehicles, and use of passenger data.

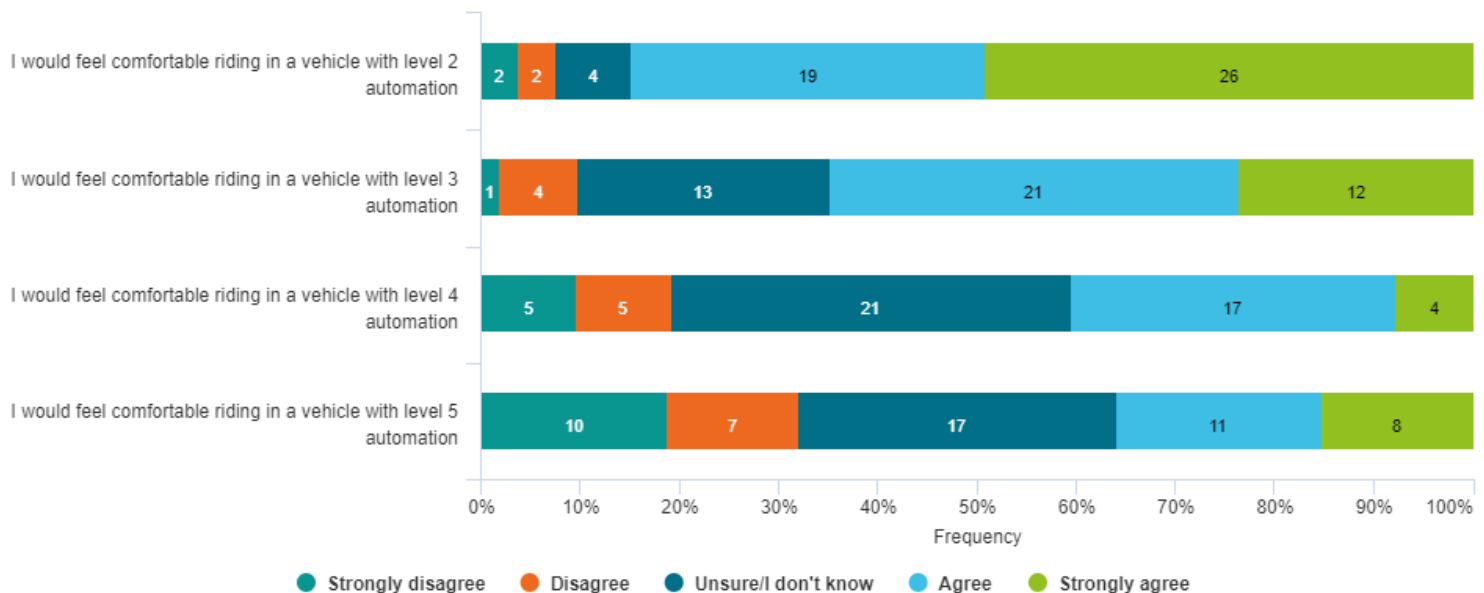
Levels of automation²

A strong majority of participants (45) said they were happy to use a vehicle which had level 2 automation, which many vehicles already have, such as steering and brake/acceleration support. A smaller majority (33) were comfortable with riding in a vehicle with level 3 automation, such as having a 'traffic jam chauffeur'. Fewer than half of participants (21) said they were comfortable in a vehicle with level 4 automation, such as a local driverless taxi. When asked to say if they agreed with the statement 'I would feel comfortable riding in a vehicle with level 5 automation', participant opinion was spread quite evenly from 'strongly

² The document which explained SAE levels to participants is in the appendix.

disagree' to 'strongly agree' (including 'Unsure / don't know'). Level 5 automation is similar to level 4 but the vehicle can drive anywhere in all conditions.³

Please rate your level of agreement with the following statements



When asked which level of automation would be their preference and why that was, participants offered a wide range of views on both their preferred level of automation and the reasoning for it.

“At present I wouldn't feel comfortable travelling in any level of driverless car. I would probably walk miles to avoid.”

“Level 2 - because technology is being used for safety but the driver still has ultimate control if anything goes wrong with the vehicle.”

“Level 3 - Driver still has responsibility if something goes wrong and can take over if necessary. Less likely to be reckless”

“Level 4 at most, as I can take over the car at any point I feel uneasy. Same with public transport.”

“Level 5 - automation removes human error and emotion.”

It seems participants disagreed over whether automation of vehicles would make them safer or less safe, particularly when considering higher levels of automation. A common theme for people who expressed preferences for lower levels of automation such as levels 2 and 3 was that they wanted a human driver to still be able to take over in emergencies. This was often linked to making things safer in the instance of problems with the technology or human error from other drivers.

³ The numbers on the graph refer to the total number of participants who selected this option. The percentages line along the bottom offers an indication of how large a percentage of the total votes. This is true for all other graphs displayed this way.

Some participants also factored in their expectations for how things might change in the future that might change their answer to this question:

“None. Not enough info yet.”

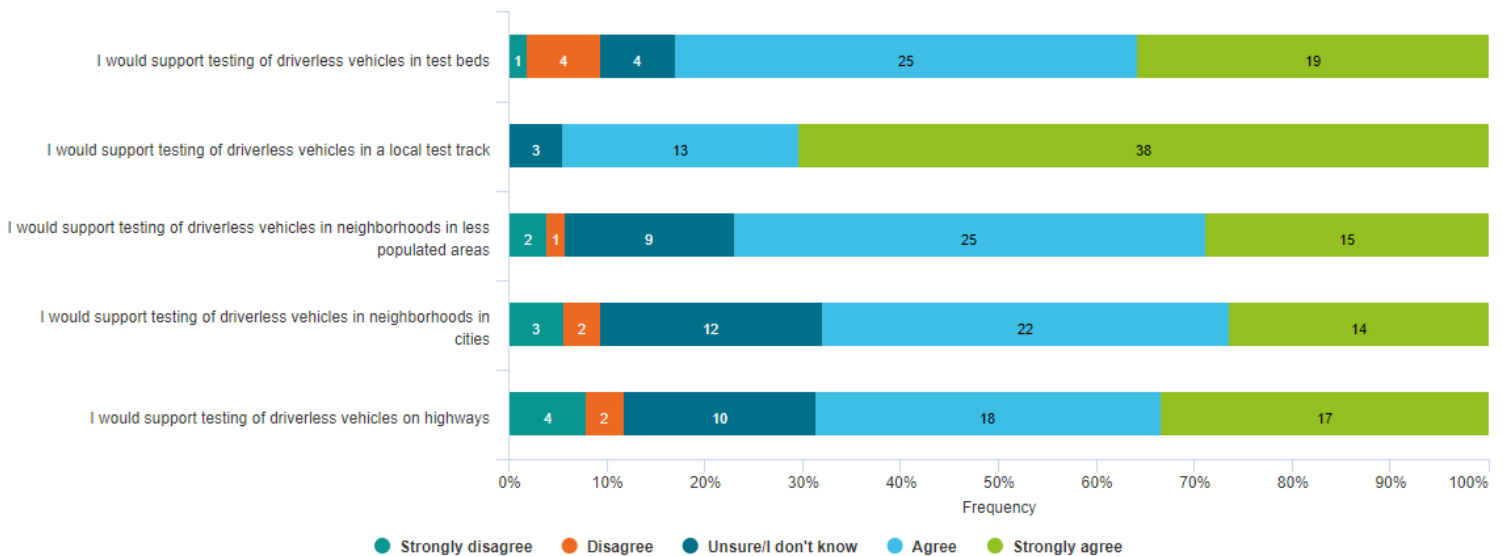
“Currently Level 3, but as technology matures up to Level 5”

“Currently up to level three, don't have enough safety info & technology info on going forward.”

Testing of driverless vehicles

When asked about how comfortable they were with five different scenarios in which driverless vehicles could be tested, participants were broadly supportive. Testing of driverless vehicles on a local race track was supported by the greatest number of participants (55). None said they didn't support testing on local race tracks and only a few participants said they were unsure. The other four options offered for testing (in testbeds, in less populated areas, in more populated areas and on highways) were mostly supported by participants, but with roughly a third of participants saying they did not support each option. Further analysis will need to be done to understand if this was the same participants voting against each option or different participants. Testing of driverless vehicles in testbeds was the least popular option.

Please rate your level of agreement with the following statements



When asked to explain why they would support the scenarios they had chosen, safety was unsurprisingly the key motivating factor for testing. However, participants differed in their perceptions of the risk posed by testing driverless vehicles in different scenarios. Some participants thought the controlled environment of a race track was a good place to run tests as they saw that as safest for the people involved. Other participants suggested that it was important to test driverless vehicles in less controlled environments such as less populated areas in order to prepare them for wider use. Some participants also favoured running tests in these different scenarios at different stages in order to minimise risk.

“I would support low risk areas for testing and only when the testing is seen to be great then do testing in other more higher risk areas.”

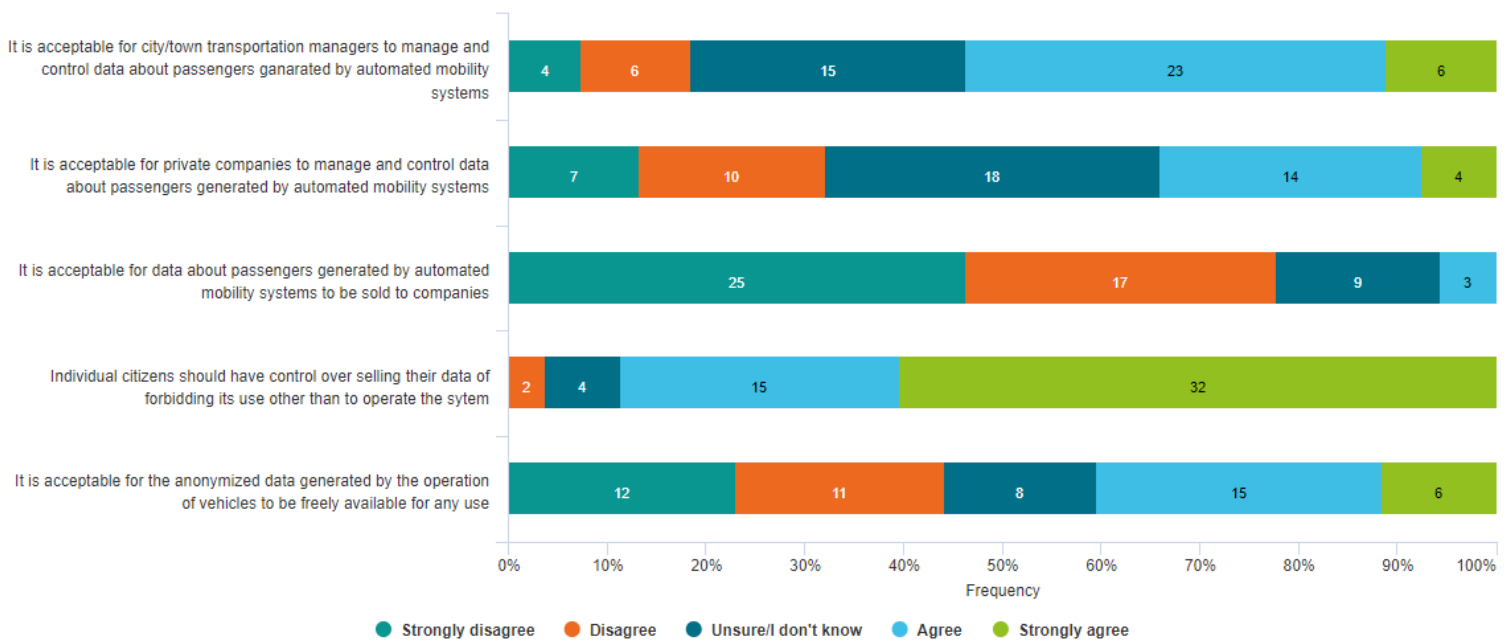
“It has to be done in order to progress. Innovation can't work without risk.”

“The vehicles do need to be tested in real life scenarios, I do think it’s important that all people know the trials are taking place to ensure that extra care is taken”

Using passenger data

Participants were asked how acceptable they thought it was for various different stakeholders to manage and control data about passengers which was generated by automated mobility systems. There was a wide spread of opinions on whether private companies and city/town transportation managers should be able to do this. A strong majority of participants (47) thought individual citizens should be able to control the use of their own data, and were not comfortable with that data being sold to private companies. When asked about the use of their data if it were anonymised however, there was a much more even spread of opinion on whether this was acceptable. This raises interesting policy challenges for TfGM about how public perspectives can fit with what the limits of the

Please rate your level of agreement with the following statements



technology currently available are.

“I must have control of my data unless anonymised. I do not see any acceptable level of data being available to government agencies unless controlled by law (i.e. requiring a legal process to access).”

“It is essential that data is available to continue to innovate and understand the benefits and disbenefits of the technology. Without data, it’s difficult to understand and continue to improve. However, great control is required.”

“I feel that the individual should have the choice of who to share data with and how that data is used. Anonymised usage data for the development of the systems can be useful to improve systems for example when the system is publicly owned but the use for advertising and private business should be by option. Also, more needs to be done to communicate how and who uses this information.”

The control, management, use and sale of personal data is a subject which lots of participants expressed quite detailed views on. It is likely that these perspectives are informed by other areas of their lives which are affected by the use of their personal data. As

these wider questions become increasingly pervasive in society, further understanding the variety of perspectives which are held could be very useful in informing future policymaking.

SESSION 3 – FUTURE AUTOMATED TRANSPORT SCENARIOS

Summary of Session 3

Driverless vehicles are still in development and they could be designed for use in a number of different ways, such as in public transport or as individually owned vehicles. How these systems are designed could have different impacts on different groups of people. Understanding these trade-offs is important for informing future policy. During the third session participants began to look at some of the ways in which driverless vehicles could be developed and used by exploring four different potential scenarios. They explored what could be the benefits and drawbacks of each option before then considering how these scenarios might specifically affect seven different stakeholders. On tables, they agreed and chose which one of the four scenarios was their most preferred option. They also individually voted on how desirable each of the scenarios were. They provided rich detail explaining their reasons why and adding any extra considerations they felt were important.

Key question to answer

- What model for developing driverless vehicles do citizens prefer and how do various trade-offs affect this preference?

Observations

During Session 3 participants were given four ‘scenario cards’ which outlined different potential transportation scenarios in which driverless vehicles could exist:

- 1) Improving the current system
- 2) Individual ownership
- 3) Ride share model
- 4) Public transportation model

Participants explored the positives and negatives of each scenario. They also discussed what they thought the impact of each scenario might be on the environment, the economy and jobs. On their tables, participants identified a wide range of potential benefits and problems that could be caused by driverless vehicles.

How would these stakeholders be affected by different scenarios?

Participants were also given seven stakeholder cards which described what might be perspectives held by different people in society who would be affected by the introduction of driverless vehicles:

- 1) Disability advocate
- 2) Elderly individual
- 3) Parent with young children
- 4) Rural community member
- 5) Transport operator
- 6) Environmentalist
- 7) Public transit commuter

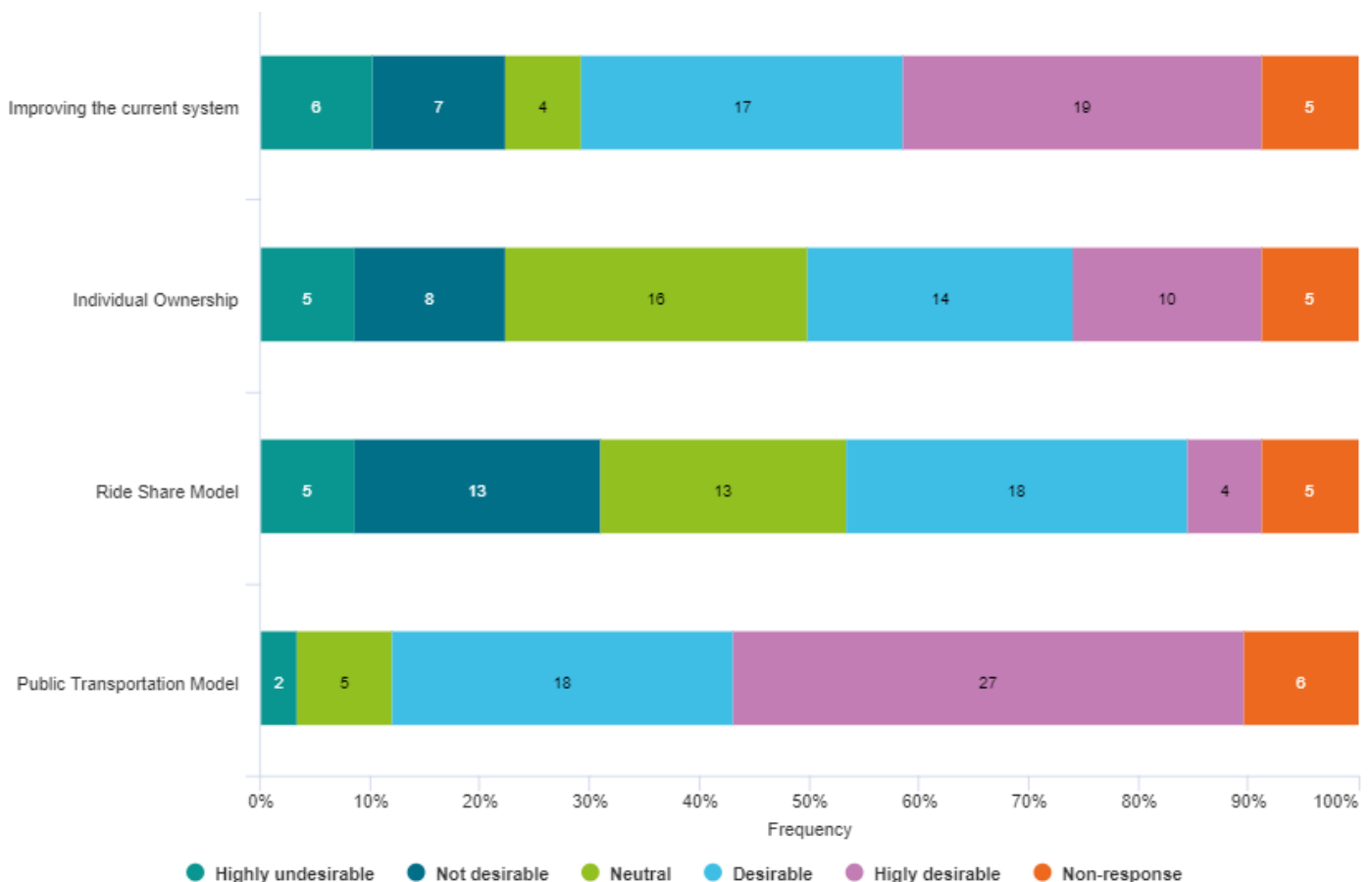
After exploring the scenarios, participants discussed how these different people might be positively or negatively impacted in each scenario. Having explored how different people

could be affected by different scenarios, participants then decided as a group on their table which was their preferred scenario of the four.

Driverless vehicle transportation scenario	Number of tables identifying the scenario as preferred option
Improving the current system	1
Individual ownership	1
Ride share model	2
Public transportation model	5
Ride share/ public transport combination	1 ⁴

Having reached agreement on their tables, participants were then asked to individually rate the desirability of the four transportation scenarios. Asking participants to come to an agreement on their tables on their preferred scenario gives an impression of what might be an acceptable outcome for most participants. After this asking the participants to individually vote on their preferences provides further detail on what participants would want.

How would you rate the desirability of the following transportation scenarios?



The public transportation model was the most popular option with a strong majority of participants (45) rating it as either 'Highly Desirable' or 'Desirable'. The other three scenarios

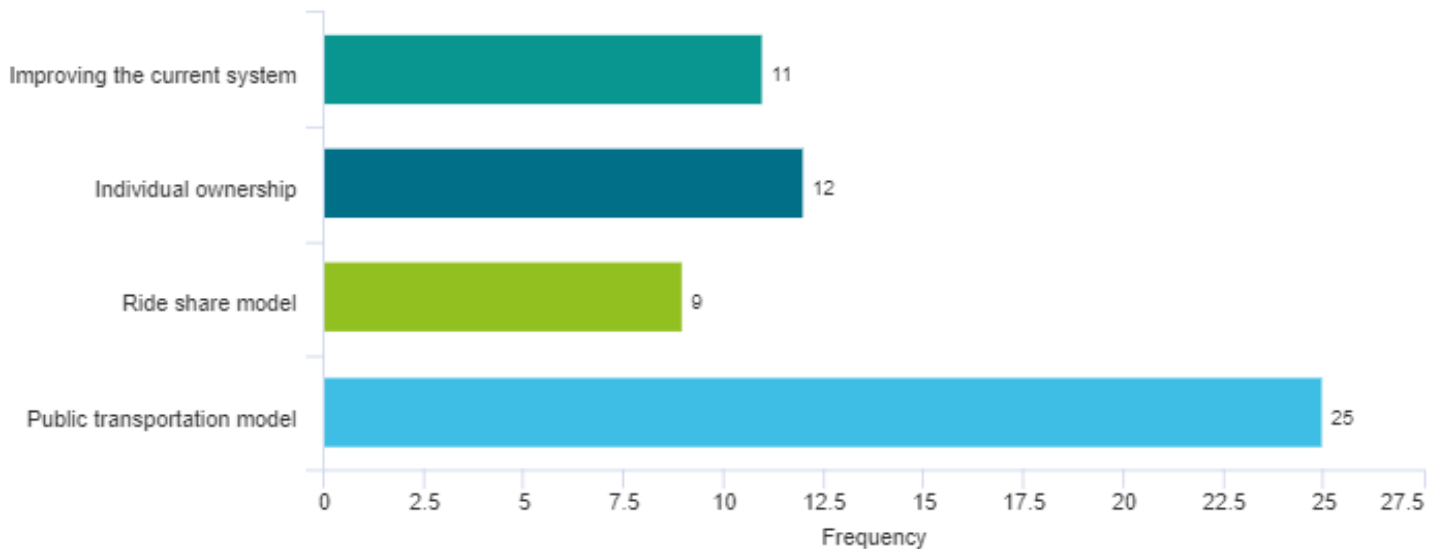
⁴ One table voted for a combination of the ride share model and public transportation model

were rated similarly to each other with roughly half of participants rating them as desirable or highly desirable.

“I like the public transportation model because it is inclusive of all people”

“More environmentally friendly, safer than people owning their own cars, more reliable and accessible”

Which of these models for driverless vehicles is your preferred scenario?



Despite being the most popular scenario, some participants who voted for it as most desirable also expressed some concerns about it:

“Public transport is more accessible and affordable [with driverless vehicles]. However, consideration of employment and[/]or redundancy is paramount. If unemployment was to rise, our economy would be affected and public funding would need to be used in other areas.”

“Public transport would be the best option, but if it failed to meet the needs, as now, people would resort to individual ownership and public transport would become neglected and inefficient.”

“Improve or implement driverless public transport before we go down the route of individual or shared driverless cars.”

Some participants who chose the public transportation model as the most desirable option expressed reasons for choosing it which often considered how it might interact with other models:

“In the short term it will need to be a mixture of all 4 whilst our technologies revolutionise and "catch up" so to speak but ideally there will be a mix of individual ownership and public transportation as there is with our current vehicles.”

“I would like the individual ownership model but feel it would be too expensive initially hence a public transportation model would be an achievable first step to full driverless models.”

“Public transport model combined with ride share as an integrated model is likely to bring the greatest benefits. The current system does need improving if public transport policy is about encouraging more people to use buses/rail. Individual ownership - there will always be those that want their own vehicle.”

Whilst the public transportation model received the most support when participants voted, it was not seen as a perfect solution. Many of the participants who voted for it as most desirable also worried that introducing driverless vehicles to public transport might have some negative consequences such as causing some people to lose their jobs. Others also thought that it might still need to be integrated with other models, such as ride-sharing, to meet all people’s transport needs. Finally, others suggested that the general standard of public transport, for example reliability and cleanliness, would need to improve for people to use driverless public transport vehicles, and otherwise they may be wasted. Therefore, while in general participants broadly agreed, they attached different conditions and often had diverse reasons for reaching similar conclusions. Policymakers will need to carry out more work to better understand, and attempt to explore, the potential for wider consensus about these underlying conditions and reasons, before being confident that there is significant public support for a driverless public transport model.

SESSION 4 – WHO IS IN CHARGE?

Summary of Session 4

The development of driverless vehicles currently involves governments, private industry, universities and more. During Session 4 participants were asked to consider what organisations should be involved in shaping the future of driverless vehicles and what that role should be. They explored how six different decision-makers could be involved going forward. They discussed how effective they thought each of those decision-makers would be in addressing each of the six key issues raised and the extent to which they trusted those decision-makers to address them. Participants came to agreements on their tables about which decision-makers they trusted to address each issue from their preferred scenarios from Session 3. Afterwards participants were able to vote individually on the trustworthiness and effectiveness of each decision-maker in addressing these issues.

Key question to answer:

- Who do you trust to govern this technology? What role should they play?

Observations

At the start of Session 4, participants were given cards which outlined who the key decision-makers might be and also given cards which highlighted six key issues to consider.

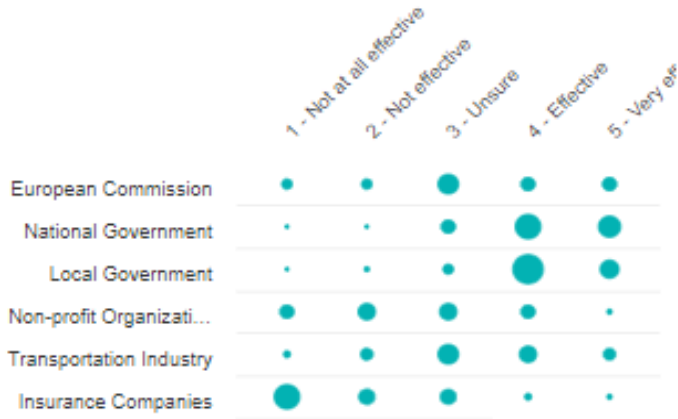
<i>Decision-makers</i>	<i>Issues to consider</i>
<ol style="list-style-type: none"> 1) European Commission 2) National Government 3) Local Government 4) Non-profit Organizations 5) Transportation Industry 6) Insurance Companies 	<ol style="list-style-type: none"> 1) Privacy Protection 2) Infrastructure 3) Justice/equity 4) Cybersecurity 5) Safety 6) Environment

During Session 4 participants discussed how effective each of the decision-makers would be at addressing each of the issues raised by their group's preferred scenario from Session 3.

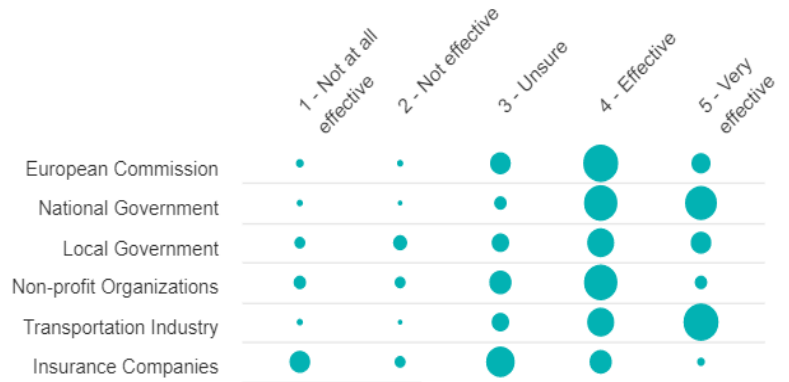
The most common outcome was for participants working at their tables to identify 'National Government' as the decision-maker which would be most effective in addressing the majority of the issues highlighted, particularly privacy protection, infrastructure and justice/equity. Most tables identified Local Government as one of the decision-makers who would be most effective in addressing the issue of infrastructure, environment and justice/equity. The Transportation Industry was seen by most tables as being important in

solving issues around infrastructure, cybersecurity and safety. Participants then voted on these questions individually producing similar results.

Infrastructure

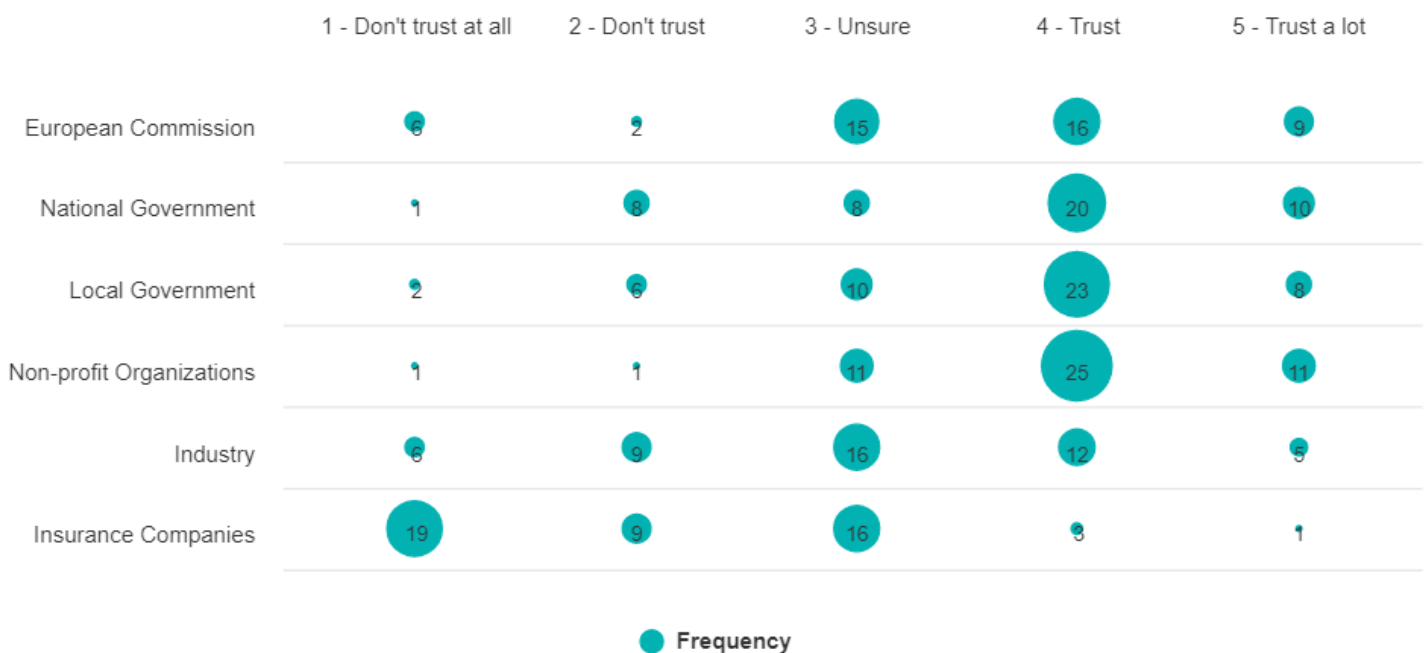


Safety



Participants were also asked how much they trusted each decision-maker to be able to address each of the issues. In general participants tended to trust local government, national government and non-profit organisations, and expressed less trust in industry and insurance companies to address these issues. It is noteworthy that relatively few participants said they trusted any of the decision-makers ‘a lot’. One example of this is participants voting on decision-makers addressing issues relating to the environment.

How much do you trust these decision-makers to address issues relating to the environment?



Participants were then asked what recommendations they would individually like to make to national government, local government and the auto industry.

Recommendations to national government

“Develop a new operating body - autonomous - in conjunction with NGO’s and industry”

“No negative environmental impact please. I don’t mind paying higher tax for this”

“Cost - avoid creation of a two-tier system where groups are marginalised such as disabled, lower socio-economic groups”

“Suitable policy which industry can follow, and which does not stifle innovation and development for UK PLC”

Recommendations to local government

“Have power to consult/local referendums on driverless vehicles in your area and put forward if gets local approval”

“Implement the required infrastructure enhancements to make this a success. Proactive maintenance is better than reactive maintenance”

“Local jobs going - what support/alternative employment is in place for those jobs that go? Further training initiatives”

Recommendations to the auto industry

“Make cars environmentally friendly, safe and try to implement the least necessary infrastructural change needed”

“Do not value overall profit above safety the safest company will win in the long run”

“Equality and accessibility should be included at the design stage this induces disability and passenger safety”

Having discussed the topic in detail throughout the day, the range of recommendations suggested that participants held different hopes, fears and priorities for what the future of driverless vehicles could look like in Greater Manchester. The depth of information offered in the qualitative data can be useful in developing policy which is informed by the detailed perspectives which were explored during this citizens’ conversation.

SESSION 5 – WHAT ARE THE PRIORITIES FOR TRANSPORT FOR GREATER MANCHESTER TO

Summary of Session 5

Session 5 was the final session of the Citizens' Conversation on Driverless Vehicles. During this session participants were asked to explore what role Greater Manchester and TfGM could play in the development of driverless vehicles.

Throughout the day participants discussed the potential benefits and risks of driverless vehicles, including different ways they could be developed and implemented. During Session 5 they built on what they had discussed throughout the day to then consider where they thought TfGM should be focussing its time, energy and funding when looking at piloting driverless vehicles. They explored five different use cases which TfGM could pilot and came to decisions on their tables around what order they would prioritise piloting each use case. Option C: Automated regional public transit was the most popular use case. Option A: first/last three miles for passengers and Option E: first/last mile for freight were also popular.

PILOT?

Key question to answer:

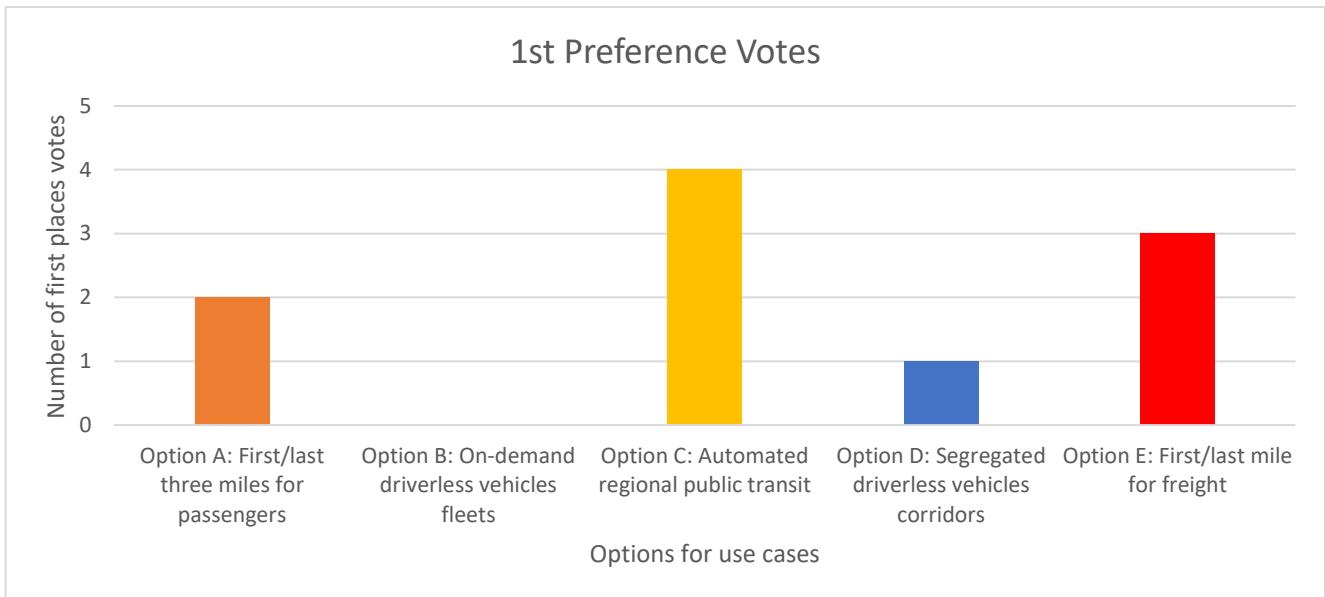
- Where should TfGM focus its time, energy and funding to pilot driverless vehicle systems?

Observations

Participants heard a short presentation from TfGM which outlined the opportunities for Greater Manchester to introduce driverless vehicles and explained the role which TfGM might play in this process. Participants then heard about five use cases in which driverless vehicles could be introduced. These test cases for use of driverless vehicles were:

- a) First / last three miles for passengers
- b) On-demand CAV (connected and automated vehicles) fleets
- c) Automated regional public transit
- d) Segregated CAV corridors
- e) First / last mile for freight

Participants were also presented with the choices which TfGM has to make around how passive or proactive a role it should take in the driverless vehicles sector. It was also highlighted that this might be affected by what model of driverless vehicles and mobility, which participants discussed during previous sessions, is adopted. On their tables, participants discussed the potential benefits and risks of each of the use cases, noting down any extra benefits or risks, so that they could then rank them. Tables ranked the five different use cases from 1-5 in order of preference for it being piloted by TfGM (1 = first preference and 5 = last preference). The ten tables of participants did not reach a strong consensus on which use case was their first preference, with options A, C, D and E all receiving votes. Option C was the most popular option receiving four tables' first preference vote, and Option E was the second most popular receiving three tables' first preference vote.



To gather a more in-depth insight into what priorities were on the tables, it is useful to look beyond the first preference votes and at the results of the tables ranking each use case from 1-5.

In order to better understand participants' priorities, the votes have been assigned values.

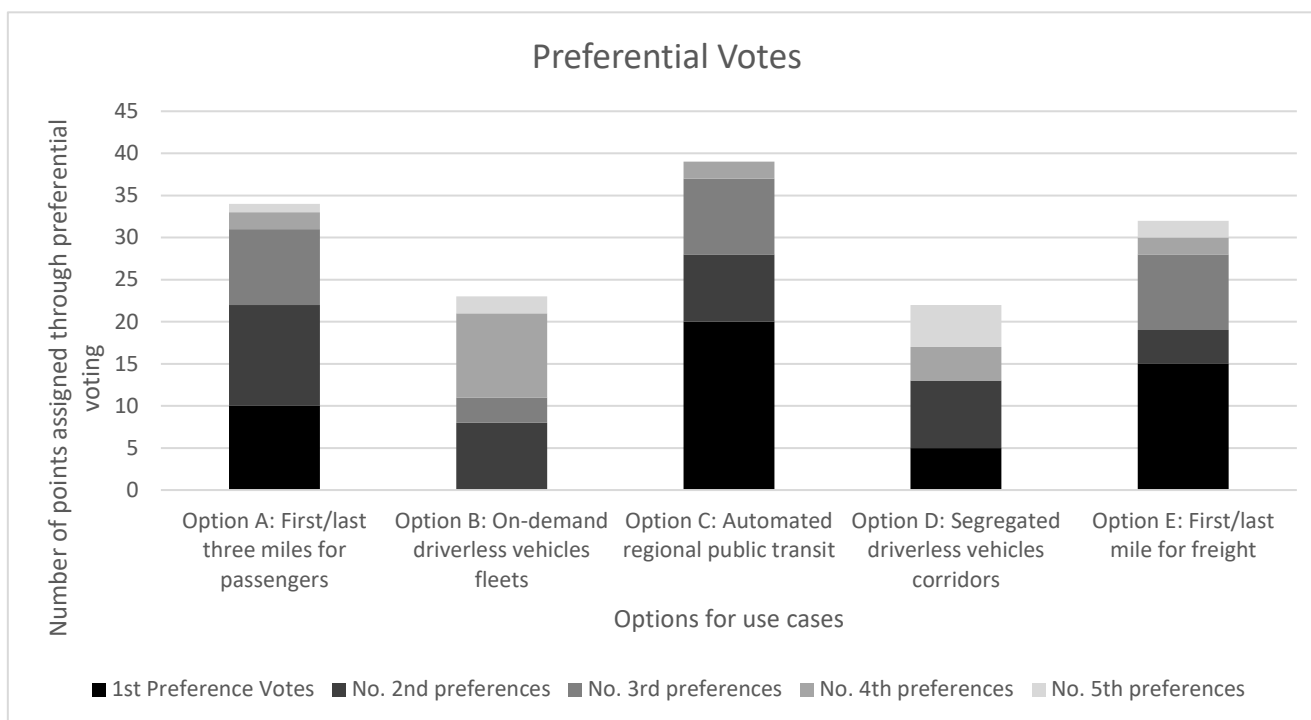
- 1st preference vote = 5 points
- 2nd preference vote = 4 points
- 3rd preference vote = 3 points
- 4th preference vote = 2 points
- 5th preference vote = 1 point

The graph below displays the combined preferential votes cast by the tables. It shows the order of participants' preference for TfGM piloting each test case. The different coloured sections of each bar represent the number of each preference votes an option received, when displayed as points. For example, the black sections of each options bar show the number of points won based on the number of first preference votes it received. Similarly, the lightest grey sections show the number of points each option won based on fifth preference votes received.

The minimum number of points an option could have is 10. This would happen if all ten tables voted for that option as their fifth preference, thus giving it 1 point (1 point multiplied by 10 tables). The maximum number of points an option could receive is 50. This would happen if each of the ten tables voted for that option as their first preference (5 points multiplied by 10 tables). The total number of points divided up between the options is 150. Displaying the data this way allows the points based on preferential votes to be 'stacked' on top of each other and demonstrate in more detail the preferences of participants.

The graph below shows that when all votes are accounted for, not just first place votes, that Option C: Automated regional public transit was participants' most popular use case for TfGM to pilot. Option C received 39 'points' based on the votes it received. As well as

receiving the most first preference votes, it also received some second and third preference votes. No table voted for Option C as their fifth option.



Option A: First/last three miles for passengers was a close second as it received a significant number of second and third place votes. Despite winning 1 more first place vote than Option A, Option E: First/last mile for freight was the third most popular option overall as it received fewer second place votes than Option A. Option B: On-demand driverless vehicles fleets and Option D: Segregated driverless vehicles corridors were less popular, receiving the majority of fourth and fifth place votes.

These outputs demonstrate a reasonable spread of opinion on which of the use cases participants wanted TfGM to pilot. The combined popularity of Option A and Option E suggests that participants generally saw driverless vehicles as being useful for the beginning and end of longer journeys for both people and freight.

Participants also agreed, on their tables, reasons for their ranking of the different options. Some reasons given for ranking Option C first related to cost and ease of integration:

“Cost effective. Take a lot of passengers on at once.”

“Integrated into our system already!”

Some of the reasons given for ranking Option A first related to convenience:

“Enables people to access public transport. Convenient”

Some of the reasons given for ranking Option E first related to ease of implementation and environmental benefits:

“Builds trust in data, possible to action at night, little public involvement”

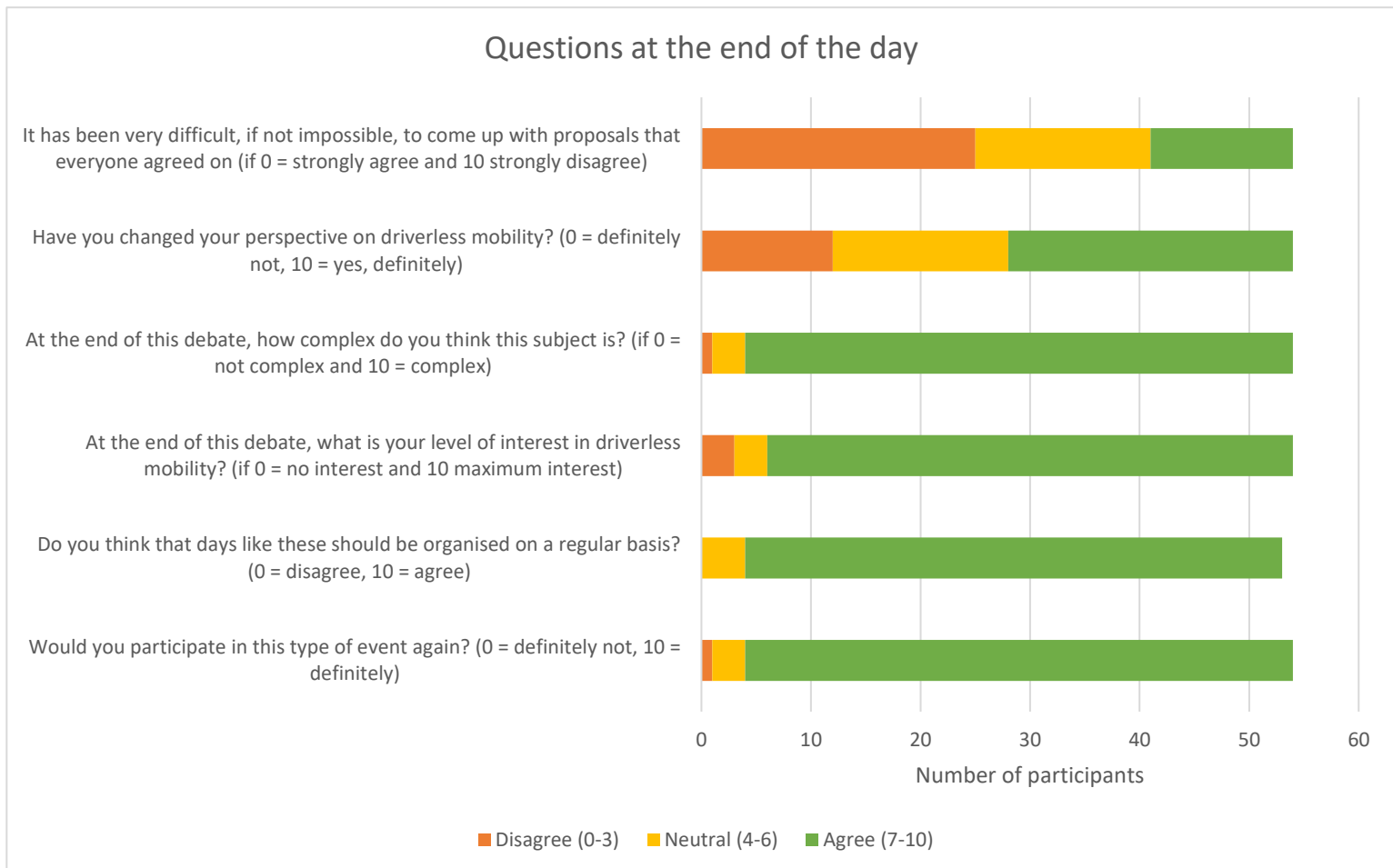
“Implementable, environmental benefits”

SUMMARY

The Citizens' Conversation on Driverless Vehicles was run by Transport for Greater Manchester, with support from Involve. The aim was to explore public perspectives on the development and implementation of driverless vehicles in Greater Manchester. This was as part of a 'World Wide Views' process coordinated by Missions Publiques which is exploring views on this topic in a number of cities around the world.

What did participants think of the Citizens' Conversation?

At the end of the Citizens' Conversation, participants filled out a questionnaire which asked about their experience of the day and their general views on the topic of driverless vehicles. A strong majority (roughly 90%) of participants had a positive experience of the day, found it interesting and would participate in a similar event again. Reflecting the complexity of the issue, some participants found it difficult to agree on proposals that everyone agreed with on their tables. This is an area which further deliberative public engagement could help develop solutions to.



What were the key themes?

This citizens' conversation produced a large amount of outputs which can be useful to TfGM. During Session 1 many participants highlighted safety as the key issue which was immediately important to them. They also expressed hopes for more environmentally friendly travel, and highlighted fears about the potential cost of driverless vehicles. Session 2 saw participants explore levels of automation and express a current preference for level two automation based on technology which is available now. Participants generally were

comfortable with the testing of driverless vehicles being conducted in a number of scenarios. They were clear that individuals should control how their data should be used and did not want it sold to private companies for profit.

During Session 3 a strong majority of participants (45) identified the public transport model as their preferred way of implementing driverless vehicles. In Session 4 participants generally said they tended to expect national and local government to play key roles in addressing issues around driverless vehicles and mostly trusted them to do so effectively. Finally, in Session 5 most participants expressed a preference for testing driverless vehicles in order to be used in automated regional public transit. TfGM testing using driverless vehicles in the final stages of journeys for people or freight was also popular.

The enthusiasm with which participants engaged with the topic helped to explore the variety of hopes, concerns and expectations that motivate their views on driverless vehicles. Participants seriously considered the variety of important factors when discussing the topic, suggesting they viewed policy on driverless vehicles as a technology which could have significant impacts on their lives. This level of engagement and expression of complex perspectives further supports the importance of TfGM engaging with the public on this topic and indicates the value of further engagement in the future.

Key nuances

Given driverless vehicles could have a major impact on society in a number of different areas such as on safety, environment and privacy, it is unsurprising that participants expressed a wide range of views on driverless vehicles. Certain outcomes, such as positively affecting the environment, saving money, reducing traffic and travel time, making it easier for people to travel and reducing accidents were all consistently identified as desirable. However, as this report has shown, participants did not always agree on whether driverless vehicles would be useful in achieving these outcomes. For example, during Session 1 a significant number of participants identified improved safety as one of their key hopes for driverless vehicles, whilst separately a significant number of participants also identified risks to safety as one of their key concerns.

Furthermore, where participants did agree that the introduction of driverless vehicles would lead to a desired outcome, there were often varied and nuanced perspectives in the different ways in which driverless vehicles could be developed and implemented to achieve that desired outcome. An example of this could be seen in Session 2 where some participants thought the safest way to test driverless vehicles was in quieter areas to avoid accidents during testing. In contrast other participants suggested that testing had to be done in 'real-life situations' in order for the automated systems to become reliably safe. This example demonstrates the detailed and diverse perspectives held by participants on this topic which were explored during the Citizens' Conversation.

How will this report be used?

This report has pulled out some of the key observations which can be made when analysing the quantitative and qualitative data produced during the Citizens' Conversation on Driverless Vehicles. The full data set is held by TfGM and can be further analysed and continually drawn upon in the future as TfGM continues to make policy in this area.