

#### **Fourth focus group, held on 06-11-2017**

##### **Replaced names of the participants:**

Maarten

Monique

Niek

Nora

Norbert

Moderator

##### **Notes:**

The replaced names correspond to the names used in the paper.

Other anonymised information is marked with [], e.g., [city in South Holland], [omitted description of the company], [30-39 years old], throughout the transcript. Settlements with less than 100'000 inhabitants are named 'towns'; with more than 100'000 inhabitants – 'cities'.

Indication [gap] means that the discussion could not be transcribed from the audio recording. Usually the reason for this is cross-talk: participants talking at the same time. Sometimes, some words of a participant are not audible or are unclear.

## Introduce yourself briefly!

Moderator: Perhaps start off with a short introduction? If you can just tell what kind of work you do. Very briefly. And you can also tell something about your hobbies. Or about your family. Whatever you want. Can I start with you, Maarten?

Maarten: I am Maarten, [20-29 years old]. I am a software developer at [company name]. [omitted description of the company] I live in [a city in South Holland], single. I have an apartment that I bought. I lived my whole life in [a city in South Holland]. Hobbies, actually the standard ICT things: gaming, watching movies, watching series. I taught myself something about wood working, I recently built a table, that kind of things.

Moderator: Okay

Maarten: That is in short..

Moderator: Fine

Monique: I am Monique, [40-49 years old], 3 children, live together, I am [European, not Dutch]. I have been living in the Netherlands for [more than 20] years. I am a freelancer, I actually work with women. We enrich the lives of women. It is about image coaching and skin care advice. From January on I am going to expand my business, so because of my own activities I am more on the road than at home.

Moderator: Okay

Monique: That's it. And I have a son who plays soccer. We live in [a city in South Holland] but he plays soccer in [a town in North Holland]. So, a lot on the road, also in weekends.

Moderator: Yes.

Monique: I think I am only at home for eating and sleeping.

Moderator: Ok, Niek?

Niek: I am [30-39 years old], I live in [a city in South Holland]. I started with a second degree [omitted the description of the degree]. I have done a HBO<sup>1</sup> in [omitted degree name] before this. So I'm a teacher at [name of institution] in [city in South Holland]. Teacher of economics. So I am quickly taking a course: what regular students normally do in 4 years, I now do in 1 year. In daily life, I play indoor soccer [one evening a week]. That is it actually, just in short.

Moderator: Ok

Nora: I am Nora, [40-49 years old], I live in [city in South Holland]. I am married and I have a daughter which is [15-19 years old], an adolescent. My hobbies are: going to the movies, going to the cinema. I have a season pass of [a soccer team] together with my daughter, so we go to every home game. I also like to participate in research, which I regularly do.

Moderator: Ok

Norbert: My name is Norbert, I work for the institution [name of the institution] in [a city in South Holland]. Living in [another city in South Holland].

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<sup>1</sup> One level below university in the Dutch education system: Hoger Beroeps Onderwijs

[omitted details about the institute]

Moderator: Okay, I'm Niek Mouter, I work here as a university lecturer at TU Delft. I am part of the section transport and organization and I help Baiba with this research. Now, we are going to take a look at the introduction video. In this video we explain briefly what the aim of the research is and what we are going to discuss with you.

[introduction film]

Moderator: Is it clear to you? So we have to assume that in the future everything will be taken care of with respect to these AVs, that it is completely safe, and that there are no more problems with legal liability et cetera. Furthermore, we must assume that many things are the same. So for example: there are still cyclists and bicycles, maybe there is even something like public transport, how that looks exactly, we do not know, but for the rest, the future looks quite the same. Yes? The first is actually about the present. For the first question I will make a round, just like for the second question.

Q1: How do you travel normally?

- Train / car / ...?

- How long does your trip take?

- What do you do when you're on the road?

Moderator: I want to know how your regular journey looks like. May be by public transport, may be by car. The trip that you often make. Tell me if that trip is by train or car. How long it takes. And thirdly, what you do on the way. Can I start with you, Norbert?

Norbert: I travel a bit by subway, then a bit by train, then a bit with the Randstad rail and then I am at my destination. My journey lasts from door to door, forty-five minutes to an hour. In the morning I read the newspaper, nothing else actually. In the afternoon, every now and then the newspaper, usually my phone or I do nothing, listen to music. Yes that is it.

Moderator: Do you take that newspaper with you?

Norbert: Well, I just have a paper version. I read that one in the morning, then I have read everything, no that is exaggerated, yes then I sometimes take it with me or not, depends on if it seems interesting to me. Sometimes I take it back home and sometimes not.

Moderator: Reading the newspaper, do you see that as relaxation or work?

Norbert: Yes, it is for my work, I must of course stay updated about news. But I also find it very relaxing. It is a very nice ritual, very relaxed.

Moderator: Okay

Nora: I hardly ever travel by public transport, usually by car. We are lucky, we have two cars and a motorcycle. So, I always drive in my own car. From my home to my work, if there is no traffic jam, it takes fifteen minutes. If there is a traffic jam, you will be stuck for a long time. The [motorway], I was in a traffic jam last Friday, it took me one hour.

Moderator: So, it is pretty uncertain.

Nora: Yes, accidents happen on the same spots. Yes, then you get stuck. Then you can do nothing but wait quietly. I never look at my mobile phone on the road. I do not do that. So I just focus on the road. So I'm not busy with other things when I am on my way, yes, paying attention and driving a car.

Moderator: Music on?

Nora: Music, yes. 100% NL<sup>2</sup> and then sing along.

Moderator: Okay, Niek.

Niek: I travel by car, but I planned to go by train from next week. So from [part of a city in South Holland], because I live nearby the city center, I take the train and then it is very easy to get to [another city in South Holland]. Because now, I it takes me about half an hour by car, if something happens – a traffic jam or something else.

Moderator: This can of course also happen with the train.

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<sup>2</sup> Dutch radio station

Niek: Yes, but a bit less often. You are faster, certainly from one station to another.

Moderator: Okay, so that's something what you've really decided recently.

Niek: Yes, from this week. I also use the bicycle.

Moderator: Okay

Niek: Bike really for short distances. So to school.

Moderator: So, now for commuting the car but that is going to be PT.

Niek: Yes, that's right.

Moderator: And what do you do in the car now?

Niek: What do I do in the car?

Moderator: Yes.

Niek: I listen to music, but not always. Sometimes I do not feel like listening to music, then I just turn off the radio.

Moderator: And by train? Do you ever travel by train?

Niek: Yes, very occasionally. Not very often, but from next week I will of course do that more often, then it is a lot of checking my mobile. Do not listen to music, I do not like that. Just watch the news or browse on the internet.

Moderator: Yes, Monique.

Monique: I do almost everything by car, I sometimes cycle, just small groceries in my neighborhood. I only go by train when I go to the city center of [a city in South Holland] or [a city in North Holland] or somewhere in (the province of) Groningen. But, the rest I do by car. I travel about an hour a day for my work, sometimes longer. If it is shorter, I call hands free and listen to music. If it is a longer trip, like next Friday I have to go to [a city in Brabant], then I do self-study. Then I switch between my music and study.

Moderator: Okay

Monique: On the way to my destination, one and a half hours, and on the way back home, one and a half hours, so 3 hours is still a lot of time to do nothing. [gap]

Moderator: Okay and what kind of self-study CD do you listen to?

Monique: Well, it depends, for my work, for that it is about image coaching and some motivational things, about storytelling and how to present yourself. First impressions, what is important? Also for men, in the past it was really a women thing. You really want to make a good impression.

Moderator: So you follow courses?

Monique: Yes, that's it.

Moderator: Clear, Maarten?

Maarten: For me it is also mainly commuting trips. I try to cycle as much as possible, if the weather allows it, I ride my bike. It is 12,5 km, so about 45 minutes. But at the moment it's raining, that's just too long, so then I'll pick the car. If then everything is going ok, then I am about 25, 30 minutes on

the road. But I must take exactly the road that goes to the [motorway], so sometimes that whole road is jammed, then it can take me three quarters to an hour. The times that I go by car the weather is most of the times bad, so often accidents happen.

Moderator: Yes and also more traffic.

Maarten: Yes it is usually busy.

Moderator: And in the car, what do you do?

Maarten: I usually listen to the radio. Sometimes I also want to listen to a podcast. On the bike it is actually the same, also a podcast or audio book. [gap]

Moderator: By car is faster, but you still choose to go by bike?

Maarten: Yes, it is actually a bit of exercise too. Going by bike takes me more or less the same amount of time, this way I do some exercise as well. It is a win-win in that respect, I have my exercise moment and I do not have to pay for gasoline. So it also saves money.

Moderator: Clear, then question 2.

## Q2: Are you satisfied with how you use your time while traveling or would you like to use this time differently?

Moderator: I just asked to you about how you use your time, at this moment. Now, the question is, are you satisfied with the time you use while traveling. Or would you prefer to use your time differently? And you can, for example, use these options as source of inspiration. So, how do I use my travel time currently, and the question is: are you satisfied with that? Or would you rather use it differently, and how?

Norbert: No, I really like it this way. Especially in the morning. In the afternoon I am usually fatigued, so I care less. But then I also like what I do, whatever I do. Often I do nothing, I'm tired too. No, I would not know how that could be more pleasant. I like it as it is at this moment.

Nora: For me, travel time is normal. It's in my system. I do not see how I can change that, I have to go to work anyway. Whether there is a traffic jam or not, I have to go there anyway. I'm just going there and I'm not worried about it. If I am late, then I put my phone on speaker and then I call my work, like: sorry I am in a traffic jam, I will arrive later. So I am just satisfied with my travel time, the distance is not that far.

Moderator: Fine, Niek?

Niek: I would like to have time for relaxation if, for example, I am in a traffic jam. I used to work at a school in [city in South Holland], then I always had to take [motorway], that was always a drama, past the [congested locations], then you're in a traffic jam. At such moments it would be ideal if you had time for yourself: relaxation and not having to sit behind the wheel to pull up or brake, et cetera. But for short distances I do not really need relaxation. I just like to start the day quietly, I don't want to prepare anything in the morning, preparation for a lecture or something like that.

Moderator: And relaxation is the ability to use your mobile phone, for example?

Niek: Well, not a mobile phone when I'm driving, of course.

Moderator: But imagine that it could be in an AV.

Niek: Oh yes. Certainly yes. Perfect.

Moderator: Okay

Monique: Well, I am satisfied one day, then I get everything done. The other day I am not satisfied, because I do not have a permanent working place. I travel everywhere, for me, every day is different. Every day is a surprise. It depends on the time, one time you can do a lot, for example learning. But very often when my travel time is interrupted, you will not get into that flow. If you know that you have to go to work every day for 20 minutes or half an hour, then you have some time for yourself. But for me that is different every time. If I know that I have to be in the car for an hour, then I can also plan something, then I will do this and that. So that really changes. But I try to get done as much as I possibly can in the car. But I only make hands-free calls if there is no real traffic jam. Here the road was also closed down, then I say: I will you call later. I do not know where to go, I have to take a look. So you will not do that either.

Moderator: So in general, you are satisfied with your day?

Monique: Yes now. But if it was an electric vehicle, I would do everything differently. More efficient working.

Moderator: Okay

Maarten: For me, travel time is really loss of my time. I think car driving is not really relaxed, especially when it is busy, then I notice that I do need a lot of focus to look at the road. The same holds for cycling, it is not like: I do it for relaxation. It is more that you have to do it to get to work. But to really say that I find it relaxing, or that I think I spent that time useful: no. I would certainly spend my time more efficiently if that would be possible.

Moderator: And how would you do that?

Maarten: Yes, it is like, I cannot really say how I would use that time. I just noticed in the car, you are always very limited in the things you can do. So the moment you have your hands free, and you do not have to concentrate, then you are a lot more free. I do not immediately see what things I could do, look at my phone, but that is of course not very useful. So for that matter, it is not like: I can now spend my time much more useful. But now it feels as completely lost time.

Moderator: Perhaps more relaxation?

Maarten: Yes, imagine sitting in the car, you do not have to pay attention to the traffic at all the time, and look if you have to intervene anywhere. The moment a car drives itself and you no longer need to focus on the road, it will ensure that you can relax a bit more.

Moderator: Clear.

### Q3: Imagine traveling with an AV. What are the pros and cons of this in comparison to your normal way of traveling?

Moderator: From now on, we no longer need to answer one by one, but we can think about questions together. We have to imagine that there are no more normal cars, only AV's where you can sit in, you have to indicate where you want to go and that the AV will do that for you. First, I want to think with you about: what are the advantages and disadvantages compared to traveling by public transport or traveling with the traditional car.

Nora: They are probably powered by a battery, right? That car is powered by electricity, I assume?

Moderator: Yes, I think so.

Nora: The disadvantage is that you do not know how many kilometers you can drive. When should you recharge?

Moderator: We assume that these batteries are so strong that you can go anywhere. You can go to Paris at once, if you want. No problem.

Nora: Okay, I thought that would be a disadvantage.

Moderator: Other ideas? Advantages and disadvantages of..

Maarten: For me the advantage would be that it just takes away a bit of stress. First, you do not have to pay much attention to the road. But whatever you hear, at the moment everyone has an AV, that also takes away a little bit of the human factor, for example: if someone looks at his phone and causes a head tail collision, then the highway is stuck. With self-driving vehicles you do not have that anymore. They do not have any of those problems, so the traffic flows will be much better. I can be at my work in 20 minutes, maybe 40, that depends on the traffic, those problems will all be solved soon, that would be a big advantage for me. It just takes away a bit of uncertainty, adding a bit of peace. You can just say much better, if I have to go to work, it takes me 20 minutes and there is little variation in that.

Moderator: Yes, and you do not have to pay attention.

Nora: Perhaps the advantage is that you will no longer receive traffic fines? Those things are set in such a way that you can no longer be flashed. Is that an advantage? That saves you some fines again.

Moderator: Disadvantage for the government, of course.

Nora: Benefit for yourself then.

Niek: Just for my own picture, how should I see that? As a kind of navigation system? Do I have to enter something in that car? And will he then automatically drive?

Moderator: Or maybe you can just say it yourself.

Nora: Yes, just say.

Monique: Nowadays you already have cars, you just say the address and then it brings you there. I saw a TV show about self-driving cars yesterday. It was about how many sensors there were on that car, GPS system, lasers. Someone was standing in front of that car and he thought: I hope I don't die. But that car just stopped a meter and a half in front of him. It just sees you. I see the advantages that, if it is so far, with such a car, that they also communicate with other cars, they will not collide. Also

less traffic jams, cars with the supply of traffic ensure that there are going to be less traffic jams. No fines is also an advantage.

Nora: A better flow indeed.

Monique: Everything becomes smoother, I can only see the benefits.

Moderator: Other benefits?

Niek: Maintenance, malfunctions. What about that? That are expensive costs, right?

Moderator: I think so yes.

Nora: Yes and road tax, how much is that going to cost?

Niek: Look, all nice, but there is something against this. Who is going to finance such a thing?

Nora: It must be affordable for a lot of people, of course.

Moderator: I do not know, I do not know what that will look like.

Nora: No.

Moderator: The costs could be a disadvantage.

Nora: Yes.

Niek: Yes, and maintenance, nowadays everything is digital, you have to deal with errors, updates, that are all extra costs.

Monique: Nowadays you have that with new cars, everything is computer based, so if there is a fault.

Norbert: I think that if you compare it, it might be a bit of a weird comparison, but Uber, for example. I did it for the first time, I always took taxis first, but Uber is much better, it's much faster, you can see exactly where the car is, much cheaper, it's perfect. I do not know exactly how much cheaper it is, but if a taxi is 100%, Uber is 50%. It is exactly the same, and I think it is faster on average. You do not have to call, you do not have to go to a taxi stand, you pay via PayPal it's perfect. Maybe it is similar to this, yes it is perfect.

Moderator: What is perfect about it?

Norbert: It's just a lot faster in my opinion, you do not have to call. With a taxi it is often not clear where to pick up the person. It is cheaper.

[gap]

Norbert: Well exactly. It is, of course, exactly the same as a taxi.

Nora: Does Uber also bring you to Schiphol?

Norbert: Yes, what you want. It is much cheaper. While, when you make a comparison, it might be a little less comfortable than a regular taxi.

Niek: Uber was in the news recently?

Norbert: I have no idea. No, I have no idea.

Niek: I can remember that it was something negative.

Norbert: Yes too large a market share or something?

Niek: Well

Norbert: That's the only thing I've actually heard. You could mention that as negative. But it is just a good sign to me, then they do something right.

Moderator: What I think is, this is a bit of an intermezzo, that taxi drivers are fully liable. So Uber is not liable for anything.

Norbert: Seriously? No, I did not know that.

Maarten: They are all self-employed people.

Moderator: Yes, they are all freelancers. The wage is very low.

Norbert: Yes, must be. You pay via PayPal, so I do not know, how the wage is organized technically. If Uber pays everything and everyone via PayPal, and gets money this way, yes then that is a bit difficult for the tax authorities to find out. I do not know how it works. For people who do that.

Moderator: Back to automatic vehicles, do you know any disadvantages? So maybe the costs. It is of course not possible that they only have benefits.

Nora: Well, I thought you could not ride that far, but you're just saying that you can drive to Paris with it. So then you do not have that disadvantage. A disadvantage are the costs, the road tax.

Moderator: Okay, let's have a more specific look at those automatic vehicles.

#### Q4: Imagine that you have an AV and can adjust the interior as you want. What would you like to do when traveling and why?

Moderator: Yes, what probably could be the case, and what is probably going to happen, is that the interior does not look the same as in a traditional car. So, you do not need the same setup as in a traditional car. You could perhaps adjust the entire interior. So then the question for you is, what would you like to do while traveling? And why? Given that you can adjust it. You can think of this for example.

Nora: I look at my tablet or cell phone or something. Yes then I'm going to watch a movie on my tablet.

Moderator: So instead of 100% NL, you would ..

Nora: Then I would indeed.. yes, then I use YouTube. Well, I don't know, or watch a TV program.

Moderator: What would you do?

Niek: Well I would, just like when you get on a bus, just relax, just sit down and relax.

Moderator: You can relax a little more.

Niek: Yes exactly yes. Normally you are constantly paying attention to the road. You must now imagine that you are going to travel by bus.

Moderator: Yes

Niek: So, a driver who drives the bus, but you do not have to do anything. You can just sit very relaxed.

Moderator: Maybe you can sit in a nice chair.

Niek: Yes exactly.

Nora: A relaxed chair or something.

Moderator: Legs up.

Niek: Well, it has to fit, I do not think it all fits.

Nora: Seat heating.

Niek: It is of course a one person car, if you have a van then it is different.

Monique: Well the example with that chair, you can turn the chair. You do not have to pay attention to the road. I do not have any teenagers at home, so I do not have to play with them. But suppose you have younger children, then you go to a theme park, then you can be busy on the go, quality time with the children. Or if you do business, you can have a business meeting on a large screen. Then you can give a presentation somewhere on the way. That on other side is, it is so broad, you can do a lot with it.

Niek: You can just talk to everyone when you go out with your children. You can feed a baby, you don't have to stop along the highway at a gas station any more. You can just do everything.

Nora: Then you build a coffee machine in your car, then you can just make coffee.

Niek: It's about convenience, now, someone is driving a car, a mother or a father, you often look backwards at your child who wants something. These are dangerous situations.

Moderator: Then you can go to an amusement park much more relaxed, because you do not have to scream back and forth at your children.

Monique: You can then just play games. [gap]

Norbert: You can have breakfast in the morning.

Niek: If you do not have time in the morning to have breakfast, you can do it on the road. Easy in the car.

Moderator: So many possibilities.

Niek: Sure, Norbert? What would you like to do while traveling. Would you change anything?

Norbert: No, I was just thinking about that. I do not think so. Ideally, you could do everything, in such a car. Brushing your teeth, putting on your lenses, everything. You cannot take a shower, that's a little over-enthusiastic. So for me personally the difference would not be that big. I do not have to concentrate at all in the morning. I'm just going to sit down. I have to, what would be nice, now, I often have to wait because I have to transfer, that would be gone. Certainly in winter, it is also not very annoying, but that might be an advantage. But, for the rest, how I would my time spent would not be very different.

Moderator: Okay.

Maarten: Yes also what Norbert says, you can shift your program a bit more. Breakfast, brushing teeth that kind of things you do at home before you leave. If that at your own place, on the road, that would be something that would be nice. I am not someone who is looking forward to a very long travel time, even though you can set up your car as a kind of living room. But still, this would be something that I think is really nice. To move your morning program to your trip.

Moderator: You have all indicated what you would do, right? Let's see.

Q5: Would you like to perform in the AV activities which you normally do in traditional environment like home or work? If so, do you think you can save time for other things which you would like (or have to) do?

Moderator: A few of these activities have already been mentioned, by Maarten. But would you want to do the activities you normally perform at work, or at home, in an automated vehicle.

Nora: Watching TV.

Maarten: Peel the potatoes.

Moderator: I think the second part is also about: if for example, like Maarten, if you say, well I'm going to brush my teeth in the car, then you have time left. What would you do in that time? So if you shift things from your work or from home to the car, so we want to know that first. And secondly, you have time left, how would you use it?

Nora: Then I can sleep longer, right?

Moderator: And what did you say, you indicated that you would watch movies?

Nora: Yes, I would do that yes. I have no work that I can do within my car. So from my job perspective, my work is really my job, so I do not have do that in my car. So, I would go and watch a movie.

Moderator: But you don't watch the same movie in the evening then, right?

Nora: No then I watch something else, then I watch another series.

Moderator: So, if I understand correctly, you will watch more TV per day.

Nora: Yes, watch more TV.

Moderator: Also sleep more?

Nora: Well, than I can also sleep a little longer in the morning.

Monique: Sleep for half an hour longer.

Nora: Yes

Moderator: Okay, just have a look. That's pretty much the same for Norbert.

Norbert: Yes, I think I would not be able to save a lot of time with these things I could do an automatic vehicle.

Moderator: No

Norbert: I drink coffee on the way. I do not do that very often at home. No, it would be relatively similar to how it is at the moment.

Moderator: Well, others? What would you do with the time you saved, Maarten? You are going to have breakfast in the car?

Maarten: Yes or that I can stay in my bed a little longer, or go to work a little earlier. I must also mention that the work I do is not really suitable for working at home. So at the moment, it is of course a cultural thing, that not all people are in the system yet, it is being encouraged to work at home. Whether or not you would work on the road, you will soon be in the train or something.

Moderator: Yes exactly.

Maarten: The moment you have a self-driving vehicle, and you could work a lot in it, whatever you could do at home, then I can imagine that it is becoming more and more, it must be possible for your work, because if you work at Hema then you can do nothing at home, maybe some administration, that might be possible. But I really do office work, so at the moment you could do that in the car, you often see people doing all kind of things while they are in traffic jams, or while you're on the train, that does not work. If you could do the same work as you could do at home, then I can imagine that you work for half an hour or something.

Norbert: It is funny what you say I think, a lot of people of course have an hour or an hour and a quarter of travel time, in which you cannot really do anything. Doing nothing may also be good for your mind and body. But, if you are purely talking about productivity. 2 hours a day, which you can spend more productively. Or things that you no longer have to do at home, that can be a real advantage, for a whole bunch of people I think.

Maarten: Yes it also gives you more freedom. You still have the idea that you can relax more at home.

Norbert: Yes, if you still have to do things at home, for your work or something.

Monique: If you can already prepare work, prepare for the next day.

Norbert: Yes that kind of things.

Monique: When you leave the car you are done, for me it is also difficult, just leave it there and at home is at home.

Moderator: Yes, that can be easier if you can work in your car.

Monique: Yes, that last hour is used differently, you are more productive. And then just feet in the air at home, watching TV, music, knitting, reading.

Norbert: So I am thinking, just like doing nothing, like listening to radio, listening to music in the car, I think that is important, just relaxed, that you do not have a feeling of being rushed all the time, like: I still have to this, I still have this, I'm not going to make it. The time that I have, that you just don't need to do anything, walk quietly to the station, the time that you listen to music, the time you're not busy. That may also be good.

Monique: Look, I think it's true, fortunately I am my own boss, so if I do not feel like working, then I just put on some nice music, hard, and the rest of the people look at me and think that I am crazy. But I enjoy my music, and at other times I do something else. But the stress on the other day, on the next day, is less when I feel like finishing a project, and at home just relaxed, I sleep better. During the day I am also 150% ready for the day, so if you can make a choice.

Norbert: You have a contract that you have to work 8 hours a day, those hours you normally work, not more. But if you have two hours of travel time in which you cannot do anything, then you have lost those two hours, as it were. But if you can already use these two hours, then you really do have time left. I can imagine that that could be a very big advantage.

Moderator: Yes, so you actually have more free time.

Norbert: Exactly

Moderator: Or would you also work more. In your case, would you spend half an hour on free time? Or would you just work an extra half hour a day?

Maarten: It can go two ways, on the one hand I think, I sometimes stay late on my work, but then I am working on something and then I want to finish it. It might be that at the moment you know, I do not want to go home yet because I want to finish something, I could catch up on the way home. But, of course that can also occur when I get up, I have to do things for another hour, so I will be able to prepare some things in advance. I think it does not matter to me very much, it is only that you have more free time, you can be more flexible and be more at home. So if I have something like that, I want to finish something for half an hour, because I will forget it before the next day, then I can do that in the car.

Moderator: Yes, so you do not have to stay at work for so long. Niek, you also had a lot of ideas?

Niek: Yes, look, in my case if I would use an automatic car, I would see it more as a moment of relaxation. It is not that I am going to do things like: preparing my work, it is purely for relaxation. You do not have to pay attention to the road by yourself. It is not that I am going to do all sorts of stuff in the car, brushing teeth, working, mailing or something.

Moderator: Just nice and relaxed.

Niek: Yes just relaxed, a moment of relaxation.

Moderator: Clear.

## Q6: Would you change something in your daily routine if you had an AV?

Moderator: Then another question that goes a bit further, would you really change your daily habit if you had an automatic vehicle. For example, we had seen some examples of Bob. An example of Bob is that he lets the car pick up his daughter from piano lessons and he stays at his work. So first he had to go back but now he can go on with his work and his deadline and the car does it for him. And here, Bob's example, that he first went to his house and then went to pick up his wife at the airport, then he watched Netflix at the airport, relaxed in his car in the cinema position, so he did not have to go to his house. Could you imagine that you would adjust your daily routine, your daily habit, if those cars are there?

Nora: We have to bring my daughter to her internship two evenings a week, so we do not have to take her to an internship anymore. Now, she can get in that car and the car will take her there. And that car comes back to us, so that would save time. So that would be nice, if I trusted it. But I have to trust that thing first. I'm not really going to put my child in such a car on his own.

Niek: Yes, so do I, how do you know that the right person is getting in your car?

Nora: Yes, exactly. It is my daughter, so I do not just do that.

Niek: Is it a kind of taxi without a driver?

Moderator: Yes, they will have to come up with something.

[gap]

Moderator: Maybe you can keep an eye on it as a parent or something?

Monique: Yes I just said something about identifying, now you already have cars with a fingerprint, so then you might be able to enter your family composition.

Nora: Yes, I really have to fully trust it before doing something like that.

Moderator: If you design that, you can become very rich.

[gap]

Moderator: But imagine that it is completely safe.

Nora: Yes, then I would do it.

Moderator: And do you also have an idea about what you would do with that time?

Nora: Then I would be more on the couch instead of bringing her to her internship and picking her up again.

Moderator: And you with soccer?

Monique: Yes, now I take my whole office to the soccer training, because I do not travel to Berkel and back, so I take my office. All mothers and fathers know that, so they do not disturb me. I stay in the car, then I do my administration and my phone calls and then I go home. But I know that it is the case with an automatic vehicle, then I can do something on the road or with my son, have quality time, that is not always easy with a teenager. He does not want anything, only soccer. But certainly for my work, for what I do every day. Every day is different, maybe I will plan my days differently and

do the administration things. Because normally I have to hire someone to call and arrange my appointments. Now, I can personally call them to say I am on the road, in any case, customers like it better when I call instead of someone else. If the car itself drives then I can also do those things myself. That is also economically better for me.

Moderator: Yes, not for the one who does that at the moment.

Monique: It is not just that I hire someone. But also for those phone calls. My turnover is higher when customers hear my voice. That's what it comes down to. So I will certainly adjust myself.

Niek: What kind of work do you do exactly?

Monique: Skin care, make-up advice, image coaching.

Moderator: Other ideas about adjusting daily habits to other routines, in the era with automatic?

Niek: No I don't not know anything.

Monique: I think if you drive very short distances, every day, then you do not change that much.

Niek: No, I do not think so either. So this is really if you do it for someone else? Not for yourself?

Moderator: Yes for yourself, but these are a few examples. You can also think very broadly about how you can change your daily routine from getting up until you go to sleep because of those new cars.

Niek: Maybe leave home later, because the distance will be of course shorter. It saves time.

Norbert: If you do not only have the car available for commuting, but also for a vacation or something. I can imagine that it is easier to go to Paris or to Berlin, because you do not have to wait at an airport. You get in at your front door, sit down, you have movies you want to see with you, books you want to read, then you just go there. That, you do not have that you're on the plane, I can imagine that that can be extraordinarily pleasant. That also makes it more accessible to go somewhere. Yes, but of course it takes longer than, right?

Maarten: If I have to drive for more than two hours, I have completely lost my concentration. I would never make a car trip to Paris, but in this case, you do not have to take it into account.

Norbert: No exactly, and you have the comfort of your own room, no noise, no people who are calling, you do not have that.

Maarten: A good example of my work as well, we have an office in Germany, I want to go there for one week. But I do not see myself doing that because of the distance, with public transport you're on the road for 12 hours. That kind of things, if you have to do a business trip, I get in at 3 o'clock, I'll sleep a bit in the car.

Moderator: Of course you can. Then you arrive fresh.

Norbert: Well, that's not bad, of course, if you travel at night.

Nora: Bed in there, then you can also close your eyes.

Maarten: Yes if you can arrange it exactly as you want.

Norbert: Yes if, for example, you take a night train or something, the question remains whether everything goes smooth, if you have your own place then you should still be able to sleep well.

Nora: That is also an advantage.

Norbert: Yes

Moderator: So the work will be different but also the leisure activities.

Norbert: Yes, especially for medium-long distances, it could be a very pleasant alternative.

Monique: For a weekend away you would easily catch the car. Normally you have to drive a whole day for a weekend away.

Moderator: Now it is much easier to keep your children quiet in the back seat. So maybe we will also be traveling more.

Niek: Maybe there can be more people in such a car.

Moderator: Yes maybe yes.

Niek: Now you are limited to a certain amount of people. With such AV you can of course organize the car differently. You have a larger space, you could make a big couch in it.

Moderator: Yes, and maybe it can also differ by car.

Maarten: I have a small car myself because in practice, of course, I am single. If you have a family, you also have a larger car, which you can choose according to your wishes.

Moderator: Okay, that's funny, we've already mentioned this briefly.

## Q7: If you had an AV, would you travel more often or further to carry

Moderator: Would you travel more often and further to carry out your activities, and what kind of activities would it be? Would you travel more often? Would you also travel further? For what kind of activities would that mainly apply.

Nora: Only for the holidays I think.

Monique: I do. For work and vacation.

Moderator: For work?

Monique: Yes, now I am limited, would I go there or would I go there? Now I can shift the appointments, then I try to merge them with another appointment. Now, I will perhaps realize everything, with holidays and travel. If you take a look at France and Germany, if you have to go by plane, first 2 hours to Schiphol, then you might go by car as well.

Norbert: Yes, and if you, I'm thinking for a moment, on Sundays, I usually do not do anything, then I do not even get out of my house, in that time frame from 12 to 8 in which you watch movies, watch football, just do nothing. In that time frame you are in fact somewhere else, to take a look there. So what I want to say: if you are comfortable, so not with 2 hours of waiting, checking in and everything, which I actually said, I would be more triggered to go further away. I would do that.

Moderator: And you indicated that far away travels for work is now a threshold and that will be gone, that is interesting. So you are more likely to say: I come to you for that appointment of which you are currently thinking, can't I connect it with something else? Okay, interesting. That is also something that is going to influence working.

Maarten: I have the advantage that I live in the Randstad and also work more or less in the Randstad. So for a lot of things I am already close, I do not have to go far. I am not such a vacation enjoyer either, so I do not really see myself doing that either. For me, work is something at a greater distance, [gap]

Moderator: For you Nora and Niek?

Niek: Then it would indeed be for holidays, usually not for work, not that. I would not travel more often just for work.

Moderator: And do you already have ideas for the holidays?

Nora: We have been to [country in Central Europe] by car. That was a hell, I never do that again. I am serious about that, both of us have been driving, but it's really far away. At a given moment you really close your eyes, that is really dangerous. In Germany there are trucks everywhere on the side of the road, so you cannot park alongside with your car, because you cannot go there. You are obliged to continue driving, so you cannot get off the road in Germany. So, if you want to go far away on vacation, then such a car is a great solution. I would never choose to go that far by the car. Then I'll take the plane.

Moderator: So you would be faster..

Nora: In that case, yes. Then you do not have to keep your eyes open, I was really nodding. That is just dangerous.

Moderator: And you? Do you have locations that you would visit? Niek for example.

Niek: Just European countries, but no further away. Only countries that are just across the border, think of Belgium, Germany, that kind of countries.

Moderator: And for you?

Monique: Well for me, the furthest, what I did by car, is my home town, that's a 15, 16 hour drive. I only did that. But that was 10, 15 years ago. I would not do it soon again, because after 2, 3 hours you really have to take a break. Despite all the good motorways, I do not think it's safe anymore to go there. But by plane, when I count up everything, Schiphol, catch a train to get there. When I go by car, it takes me 15, 16 hours to get there, by plane it takes 12 hours. So that are 4 hours, and then I have to arrange a car when I get there. Then I think, I'll just go by car. But I cannot leave for a week, because then you are driving for 2 whole days.

Moderator: Yes exactly.

Maarten: You also assume that if we have such a car, we drive 100, 120 km/h on the highway. You can also drive with 200 km/h if necessary.

[gap]

Monique: Then you don't get stuck in a traffic jam in Germany.

Norbert: I have not thought about that yet, but that is of course also a very interesting thing.

Nora: You do not know the maximum speed of those cars. I think that maximum speed should have a limitation.

Maarten: Of course, there will be less traffic rules, currently you are at your maximum response capacity at 120 km/h, if a computer can respond much faster, then the limits will be more regarding to the physical things of a car. With which speed, I just mention something, you can still drive through a turn without tipping over the crash barrier? Then you think more about these things.

Monique: I think 100, 150, does not make that much of a difference on such a long distance. It is more important how often you get stuck in a traffic jam. If an accident happens, you get stuck for 3 hours. If you have a lot of this type of vehicles, it will prevent accidents from happening. Then you can just drive without traffic jams.

Norbert: Yes, and quality of life. If you often get stuck in a traffic jam, I never have that myself, it seems to me, that you can get pretty grumpy about it.

Nora: A little depressed, but actually you just have to leave it behind you, otherwise you really get frustrated.

Norbert: You cannot really do something.

Niek: Yes you're stuck.

Nora: You have to pay attention, you have to concentrate. Yes, you cannot really do something. You also see people who are doing their make-up in the car.

Niek: I even see people working.

Nora: That is bizarre.

Monique: Usually everyone immediately gets on their mobile phone.

Nora: Well, I really do not. Then you get a very expensive fine.

Niek: But if it really is a stand still traffic jam, then that is allowed, right?

[gap]

Nora: You may not even hold it in your hand.

Monique: Engine off, then you are allowed.

[gap]

Nora: Yes, on the side of the road.

Maarten: If you are standing still in traffic, there will not be many police officers passing by.

[gap]

Moderator: Let's see, the next question.

## Q8: Would an AV be a good alternative for trips which you usually perform by a bicycle or public transport?

Moderator: This is especially for those who sometimes make trips by bicycle and public transport. So, for which journey, which you make by public transport or bicycle, would the AV be a good alternative? If so, for which trips? So think about when you use public transport or bicycle.

Nora: I only go by public transport when I go shopping in Maastricht, then I use a cheap train ticket.

Moderator: And would this offer an alternative?

Monique: It would be an alternative for me if I had to take the bike and change to the bus and the metro, 2 times or 3 times. That is not a direct connection. Then you are on the road for one hour instead of 20 minutes. Then I take the car. If I have to cycle for 10 minutes, I will take the bike.

Moderator: What kind of trips are that?

Monique: I have to go somewhere else every time. Sometimes there is no public transport, or sometimes I just do make it using by public transport and when I must switch.

Moderator: For work or for leisure, for what kind of trips?

Monique: For work, for leisure you will plan differently. Then it is easy for yourself, if you want some challenge. But, for both bicycle and the public transport I would use a vehicle if I had to change 3 or 4 times. Then you think: I won't do that.

Moderator: Okay, others?

Nora: I think if you go to Maastricht with an AV, you also have to pay for your parking ticket. Then I would go with that cheap train ticket.

Moderator: Okay, and would you still travel by public transport?

Norbert: I'm thinking a bit, my assumption is that such a car is strictly individual, is that a good assumption?

Moderator: I think so yes. Or maybe you can still carpool.

Norbert: I could see that as a big advantage, you do not have to wait, you do not have to switch, there are no people that are making phone calls. That makes it very individualistic. Currently you also don't have whole conversations with the people you go to work with on the train in the morning. It is different, you look around you. Otherwise you are more in your own world. But I would still see it as an advantage. It does change for people like me, who travel with public transport.

Moderator: Can you tell us more about this? Because I have heard this before.

Norbert: It becomes a bit like you are at home. As if you are watching a movie at home or sitting behind your PC at home. Currently, people also have their mobile phone, which means less social interaction. Currently, you walk around a bit on the platform, or see who is in the subway, in the train, you watch what people look like, you hear how people talk.

Moderator: What is its value?

Norbert: Yes, what is the value of that, that is a good question.

Moderator: I find that interesting.

Norbert: Well it can be annoying, something strange happens and someone makes a joke about it, that's a funny moment right?

Moderator: Yes

Norbert: And all those kind of moments you will miss. I do not think people like to meet each other when traveling by public transport, but it is becoming more individualistic. What the essential value of it is, the situation is now, I am not sure.

Moderator: If you want to tell something about it later, please.

Norbert: I just don't know.

Moderator: Perhaps another, bicycle, public transport trip that is replaced by AVs?

Maarten: I mainly use the bicycle for things in the city center. I think it's already mentioned, but if you have to park your car there, it will cost you a lot. That is why I think I would still take the bike, because you have to park your car somewhere. The moment I go to my work with an AV, you lose some things. For me, I lose my moment that I do some exercise. You lose that. I do not quite know if I would replace it immediately. On the one hand, I want to organize my time more efficiently, but on the other hand I have to sacrifice my movement in which I can exercise.

Moderator: Or you should put a home trainer the car.

Maarten: I think that's really terrible. I think fitness is the worst sport you can do. It is more that I take my bike because it is practical, it brings me from a to b. I do not see myself exercising when I get that extra time.

Moderator: Okay, Niek? Do you have trips that you make by public transport or bicycle that are being replaced?

Niek: Well, when I would go somewhere where you cannot get easily by using public transport, I would use that car for that. That's the only thing, I could not think of anything else.

Q9: Would you consider moving if you had AV?

- If yes, where to?

- If no, imagine you need to move (e.g. because of a job). Would an AV influence your decision?

Moderator: Would you consider moving? If you would have an AV. I see you shake no.

Nora: No, I'm not going to move.

Moderator: No, you're still okay at your current location?

Nora: Good neighbors, no, I'm not going to move. Certainly not for such a car, no.

Niek: I see it as a nice addition, but I certainly would not move for it.

Moderator: Others who think: I am now no longer stuck to my location?

Norbert: I would consider it when I am older, because then I could really save time, or live in such a quiet village. If I could still go from A to B with the automatic transport, then I would consider that faster than now.

Moderator: Okay.

Nora: On a farm.

Norbert: Yes, yes.

Monique: Yes, I want to move anyway, but not because of that car. That is different. But, now it is possible to search further away for your work, or you can move, you can now increase the distance. I already have enough big distances. So that basically will not be the cause for a move. For my work, that I would be able to cover other distances. Then I would think: I go to Germany three times a year for my work.

Moderator: Does it not matter that much anymore by then?

Monique: Yes, then I can sleep in the car. It is. But I would not move.

Moderator: Maarten?

Maarten: It would not really be a reason to move, but if I were already considering moving, this would make it easier.

Moderator: So, the question remains if this will happen?

Maarten: Yes.

Moderator: But if you are going to move, would this affect your location choice?

Maarten: Yes, I think so. I do not like travel time, but at the moment when you can organize travel time in a better way, that benefit would be taken into account, but not the other way around: I can now organize my travel time more useful, so I'm moving.

Moderator: It's like this, you find travel time very annoying, that would be a little less if those automatic vehicles would be available and it is a little less important factor in your life than it is at the moment.

Maarten: Yes, exactly. Travel time becomes less important.

Moderator: And you? Would it play a role in your decision where you would live.

Monique: No.

Moderator: Okay.

Monique: No, the Netherlands is not that big, I just assume that, when you have this car, you have to go 10 km further, so that does not matter that much.

Moderator: And Niek and Mariette, imagine that you should move, suppose this would be the case, Mariette can hardly imagine it, would it influence your decision where you would live?

Niek: No, for me it is more dependent on the location, not whether I have an automatic car.

Moderator: And Mariette, I see you shaking no.

Nora: No, if I had to move for my job, I would travel a bit further to my job, I would travel a bit further. I would not move for that. I would travel a bit further, that does not matter to me, but I'm not going to move.

Moderator: You just said, I could imagine that I would do it.

Norbert: Yes

Moderator: Then I guess, this is the last question.

## Q10: Would an AV make your life better or worse?

Moderator: Would an automatic vehicle make your life better or worse? And can you argue why? This is a difficult question.

Nora: I think better in a lot of ways, but it depends on the costs. It is of course very relaxing that you do not have to do anything and that you are taken everywhere. I certainly think that in many ways this makes your life a lot more relaxed. Only not regarding costs. I have doubts about that.

Moderator: But imagine that through all kinds of innovations and inventions this is possible.

Nora: That it is possible?

Moderator: That this can be solved.

Nora: Then it would be great.

Moderator: Then what? More relaxed?

Nora: Yes, easier, more relaxed.

Moderator: Others who want to respond to this question?

Norbert: Yes, I agree with that, yes.

Monique: What is better? What is worse? That I can relax better. That I am able to keep my life in better balance. That would be nice. But when it comes to work in the car or whatever, you have to know your own limits. Then I think the car makes it better.

Moderator: What do you mean when you know where your limits are?

Monique: I mean regarding to your work, that you do not just keep going because you have more time, then you go on and on, with everything. For relaxation, the car makes it better. But if you are going to work, work, work and when you have free time you also work, you also take your phone into your bed, then you have no limits anymore. Then you cannot relax. You think you have more time to relax, but it is not. If you have everything in balance, then it is just better.

Moderator: If it is not so then ..

Monique: That is up to you, not the vehicle.

Norbert: If you have to travel by public transport, like me, sometimes you encounter unexpected moment right? How should I say this, if you have the same trip every day in that automatic car, then every day is the same. What you see, whether it rains, if the sun shines, or you see how people walk, what people say, what people look like, all those things. It becomes monotonous. Then you are no longer surprised either in a positive or in a negative sense. Of course, you can also be surprised in negative ways, if someone is talking to you and you do not feel like talking.

Monique: It depends, if you go to work every day and home again, but you can also say: I'll have a drink, then I have an appointment, then I go home, so you can add color in your life, the fact that you can relax makes it better, and then just get back to work totally relaxed.

Norbert: Yes, I often find it relaxed when I have to think about something, or in the weekend, to walk to my home for a longer time. Of course, you do not have that in such a car. Not necessarily better or worse. Not necessarily better.

Moderator: A bit more mechanical?

Norbert: Yes exact.

Moderator: Someone else thoughts about better or worse?

Maarten: I think it only gets worse for people who really like driving a car, or find it exciting. I think that it can become worse for them, a kind of hobby that disappears. Because, if you are going rebuild the infrastructure to self-driving cars infrastructure, you probably do not want a mix of regular cars and AV's, people who drive a regular car with people who drive in such a car.

Nora: It is not good for the driving schools.

[gap]

Maarten: Sometimes you see simulations with those self-driving cars in which they drive half a meter behind each other, because it can all be coordinated, but if you have someone in between who drives a car by him selves, everything goes wrong. So people who drive themselves will no longer be on the road. So probably people who like this, for these it will be worse, or you will of course drive a car on a circuit. You already mentioned it a bit monotonous, but then you assume that the public transport is completely gone, if we replace a car by a mechanical car, or automatic cars, but the rest remains as it is now, so PT could still exist. Only then you get a self-driving bus.

Norbert: No, I did not think about that at all.

Maarten: But you could still keep PT in that kind of way. So I think that many things can stay as they are now, but self-driving by then, so I think there are not so many negative things. Only people that lose their hobby, or experience car driving as relaxing.

Moderator: Okay, Niek does your life get better or worse?

Niek: Well, I would think worse because you do not always [gap], it might make it worse because you will think: is everything okay with my car? Then you are always worried. Better not, I would rather think of easier. This would make it easier instead of better.

Moderator: And in the end?

Niek: Then I would not choose to buy one.

Moderator: No?

Niek: No, I just want to keep driving my own car.

Moderator: [gap]

Niek: Yes, that is it.

Nora: You have regulate this very well. Where does that thing go?

Niek: Soon you will just take your bike, then you say: bike take me there, and then he brings you. Nowadays those electric bikes, that is terrible. What is all happening in the world? Now also with mobile phones, you are somewhere in a bus and everyone is busy with his phone.

Norbert: But in the 20s, 30s, someone said that to me, you have pictures of a bus stop, they just stand there, they do nothing else, so they just wait there, they do not talk to each other.

Nora: We also have a rule at home, no mobile phone at the table. Food and no mobile. Sometimes you see people which are even on their phone when they are sitting at a table, eating and then take a look, no. You also have to be able to put your mobile away.

Moderator: Okay, are there any things we really missed?

## Are there any questions left?

1:16:53

Moderator: Are there any questions left?

Nora: In what time frame do they want to realize this?

Moderator: Different scenarios have been designed for this.

Nora: Okay.

Moderator: But I think that the fastest scenario is already within 10 years. That is really hard to imagine right now.

Nora: No.

Niek: So quickly?

Nora: Yes, that is fast.

Moderator: But that is totally impossible to imagine. How long do we have internet now?

Nora: For a while.

Niek: 20, 25 years? 1999 something like this?

Norbert: That it became common, around early 1995.

Maarten: And when you had this period when you had to call for internet and your phone connection died.

[gap]

Moderator: First you had to wait an hour to download one song.

Nora: I think that these electric cars can be combined with ordinary cars. Then the ordinary cars disappear.

Moderator: No exactly, that the ordinary cars have completely disappeared. And what also plays a role in the optimistic scenario is a problem that has not yet been resolved: how does such a car respond to unexpected situations?

Nora: Yes, I mean that.

Moderator: So, for example, an animal that crosses, and if they always break in such a situation, then I, as a pedestrian, just walk in front of such a car, then at one point pedestrians and cyclists are the boss in the city, and the cars brake always so they can't continue their trip. So how are our cities going to look like? Or are cars not allowed in the city in the future?

Maarten: That makes it a lot easier for the researcher, that this disclaimer is mentioned in the beginning. Such as: these things that are regulated, you do not have to take this into account.

Moderator: Yes exactly.

Maarten: That makes the scope a lot smaller.

Moderator: Otherwise, it is almost impossible to have a discussion. Okay, thank you very much.