

### **Third focus group, held on 31-10-2017**

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

Katrien

Koen

Laura

Laurens

Linda

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.

Moderator: Today we are going to talk with you about what the future will look like with automatic vehicles, AV's. We are going to take a look at what impact this could have on your life, as researchers we are very much interested in this. It is not my research, it is the research of Baiba, who you just saw a minute ago, and Michal. They both do this research, but both speak poor Dutch. Baiba can speak a little Dutch. That's why I do this for them. There are a few rules during the discussion. The first is that everything is good, so no wrong answers. In the first two questions I will ask you to answer the question separately. But afterwards it can just go in a discussion form, so then you can also just respond to each other. Maybe before we start a small introduction of everybody? So your name and what kind of work you do.

## Introduce yourself briefly.

Moderator: So, I am Niek Mouter and I am an assistant professor here, a university lecturer. I do not do research on this topic but on transport policy. Koen?

Koen: Koen, [30-39 years old] from [city in South Holland], I am a business consultant, I work for various clients throughout the country.

Moderator: Okay.

Laurens: I am Laurens, credit controller at a [removed details] company, father of two kids.

[omitted discussion about the company]

Laura: Laura, I work at an insurance company in [city in South Holland], I do the administration.

Moderator: Okay.

Katrien: Katrien, bus driver, I drive the touring car and I do that throughout the Netherlands.

Moderator: Great.

[removed details about work]

Linda: Linda, I work as a policy researcher at the [removed details], so government.

Moderator: Okay, very good. Yes, Michal and Baiba have made an introduction video for this focus group to explain everything, what it is about.

[Introduction film]

Q1: How do you normally travel?

- train / car / ...?

- How long does your trip take?

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

Moderator: Perfect, the point is that we are going to start thinking about what the future will look like and how the automatic car will change our behavior. This can also be used by the government, for example, if they would invest in infrastructure or not. So that's why we do a number of these sessions. Do you have any questions? Okay, then we go to question 1, in question 1 everybody has to answer separately, this also holds for question 2, after this we will start the discussion. So first, I want to know something, not about the future, but about the present, how your normal journey looks like. And if you often travel by car, take a home-work trip in your mind and if you travel with public transport the same. So, a trip to work or another journey that you often make. So first, do you travel by train or by car? How long does that trip take you? And what do you do when you're on the road? If you could answer those three questions, that would be nice. Koen can I start with you?

Koen: Yes, of course, I travel to work by car. One time it takes an hour the other time two and a half hours. It is a bit mixed during the week. What do I do when I am on the road? Watching traffic. And I do listen to the radio or Spotify in the car. So pay attention and listen to music and being irritated.

Moderator: As a business consultant you obviously have to go to multiple destinations.

Koen: Yes. Multiple locations.

Moderator: Laurens, can you answer this question?

Laurens: I actually combine it, we have an office in [city in South Holland], where I have to be [some] days a week. Then I go partly by car to [town in South Holland], then I get on the Randstad Rail again, because I have to pay parking fees. Then the journey easily takes an hour. Sometimes when it rains we discuss some things, or I read the newspaper or I have a telephone conversation.

Moderator: In the Randstad Rail, I assume? I hope not in the car?

Laurens: I have international customers so they call at 8 in the morning. Then I will be forwarded from the [city in South Holland] office to my mobile phone. Then they ask me if I am available to make a call? I can hardly say to a customer: I am in a train, bye.

Moderator: So in the car part you sometimes call with your customers?

Laurens: Then I am often called.

Moderator: Okay. You said this is the case [some] days a week, and other days?

Laurens: Other days I go by car because we are located at [an inaccessible region in South Holland]. The bus runs there once every half hour so that is no option.

Moderator: And how much time does that take you?

Laurens: That is purely dependent on traffic. If the weather is bad it takes about three quarters to an hour and if the weather is good it takes about half an hour.

Moderator: Okay, and what are you doing in that time?

Laurens: Listening to music, smoking a cigarette, putting the day planning in my head.

Moderator: Clear, Laura.

Laura: Well, I vary between car and train. By train I travel back and forth to [city in South Holland] within half an hour. Ideal. I spend an hour when traveling by the car.

Moderator: Okay, why do you sometimes choose the car?

Laura: Because I want to go somewhere else after work or want to do something else, then I need my car. So then I go by car.

Moderator: Yes, exactly.

Laura: You're just an hour on the road, you're in a traffic jam. It is completely jammed in [a city in South Holland]. I just listen to my radio.

Moderator: Okay.

Katrien: My location is [a town in South Holland], so I travel every day from [a city in South Holland] to [a town in South Holland] via [a motorway]. It can take an hour early in the morning. Late in the evening it takes half an hour. What do I do in the car? Listen to radio, listen to traffic information, mainly prepare for what to do next. I can prepare that, how long do I have to stay at the parking place, how long is my traveling time? Telephone conversation, that also happens. Late in the evening I turn on Spotify at maximum volume to stay awake for the last bit.

Linda: I usually travel by train, I live in [a city in South Holland] and I have to go to [another city in South Holland], then the car is not really an option. The train is uncertain, the car even more uncertain. I live on the [part of a city in South Holland], so I have to switch, so it's a short piece that I travel. It is an hour or so from door to door. I cycle a bit, then the train, then switch again, another train, then a tram. So, a lot of fragmented trips. So, what I mostly do when I travel, especially at night, watching Facebook, reading some news in the morning and staying up to date. Sometimes watching a movie or whatever.

Moderator: Okay, very good.

## Q2: Are you satisfied with how you use the time while traveling or would you rather use this time differently?

Moderator: Then the next question, this is also about the journey that we have just talked about. So, are you satisfied with the time you use while traveling? Or would you rather use it differently? You could also look at this kind of things, you could use this as inspiration. Are you satisfied with how it is now? How you use your travel time now. Or would you rather use it differently? Can I start with you Koen.

Koen: Yes. I am not happy at all with the travel time that I have. I have chosen this job, but the travel time is not in your salary. So, if I have to be somewhere at 8 o'clock, and it's a two hour drive, I have to leave at 6 o'clock. Then I think, in that time I could easily answer my e-mail, make phone calls, things like that. So I would like to see that differently. At the end of a working day it would be nice if you could relax, instead of being annoyed and still have to go all the way home.

Moderator: So, you would like to answer your e-mails. What do you have in mind for the relaxed part?

Koen: Just like in the introduction movie, just a bit of sleeping.

[gap]

Moderator: Okay, Laurens.

Laurens: I am more or less happy with it. You are used to it, and it is until here and not further, in the sense of: if I want to relax then I put on my music and then I am not available unless it is 911. I understand Koen's frustration with traffic. I also worked in [a large city in the Netherlands] for 6 months, so I know exactly what it is about. But at the same time I think: I cannot get through it, I cannot go over it, not under it, so just try to stay calm, it is just a mindset. You just hope that no one will hit you, otherwise it will be annoying.

Moderator: So basically [gap], okay.

Laura: When I am on the train, I am very relaxed. I do not prepare work in the train, I do not need that for my job. I call my sister. [gap] When I go by car, I'm going to do something nice. So then I am especially happy.

Moderator: So when you get in the car you are happy.

Laura: At that moment, for example, I go for diner to my mother. That's why I pick the car. I do not feel like my time lost in the car.

Moderator: You see it mainly as time to relax?

Laura: Yes.

Moderator: Okay.

Katrien: To my work, if it actually takes three quarters of an hour, then I can be like this: shit, isn't there another route? But unfortunately there is no other route to [the town in South Holland]. I'm rather stuck to the [motorway], I cannot make anything else of it. Then sometimes I feel like, when the matrix signs are already on, left an hour earlier, not paid, all my own time. I also feel like this: I have to leave on time with that bus, because there are customers waiting, to whatever place. School trip, other trip, whatever. So that is getting annoying, but as soon as I get on the bus and it starts

running and it does everything that it has to do, then I sit down, enjoy, enjoy looking around. Whether I drive into the traffic jam, so be it. I cannot change it. There is a mobile phone available when I am really late.

Moderator: So especially from [the town in South Holland] to your work can be pretty stressful.

Katrien: Yes. Well, stress, it's just annoying. You try to be somewhere in time as well as you possibly can. And if that does not work out, then there is always the fact that you are in a traffic jam with several people and not alone. And you can look around at what the rest is doing.

Moderator: Would you like to use that journey to your destination and that return journey differently?

Katrien: I would like to shorten it, yes, to half an hour. Within half an hour I can be there if I have to start at 1 o'clock. Or in the evening when I have to do a late shift.

Moderator: What would you like to do then? With the time you have left?

Katrien: Just relax at home with the kids, walk with the dog or go to my horse.

Moderator: Okay.

Linda: Well, I am annoyed by my train journey, especially if it is busy and you have to stand, than you cannot really read a newspaper. And the fact that I have to make switches leads to the fact that I cannot really do anything, prepare for work or whatever. It could be more optimal, that what I do, I adapt to the possibilities that I have at that moment.

Moderator: What would you like to do then?

Linda: Well, in some cases, really reading something, or having a telephone conversation, answering my mail is partly possible on my mobile phone. This is easier when you are sitting down compared to when you are standing. If the train is slightly smaller than planned, that is rather annoying.

Moderator: And of course you have small, short trips.

Linda: Yes, that makes it all even more annoying, you do not start reading something that you have to read for your ten-hour conversation, you do not just do that, that's a bit tricky.

Moderator: Clear, then we go to the next question.

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

Moderator: I suggest that from now on we just have a discussion, so that we do not start at Koen anymore and make a round. What we would like to know now, imagine that you have such an automatic vehicle, and you have to assume that there are no more traditional cars, that all of them have been replaced by AV's, that there are no more problems with safety, no more problems with legal issues, the infrastructure is completely adapted. We all have to assume that. There are still cyclists. But probably also public transport has already been replaced. Maybe the public transport is also completely automatic. So we have to take that into account. What do you think the pros and cons are compared to the current situation?

Linda: Well, I really see it as a kind of individual public transport, individual automated transport. The two conveniences of the current means of transport are combined, in public transport you do not have the worry about the fact that you have to pay attention in traffic, you have the freedom of: I get into the car when it suits me and that car is ready for me at front of my door.

Moderator: It is not like with public transport, when you have exactly [gap]

Linda: That would be something, then it is ready for you and otherwise not.

Moderator: The advantages are therefore the current advantages of the modalities combined.

Linda: Yes. That's how I feel, yes.

Katrien: I wonder then: suppose the bus will be automated, then I think, then I do not have much work left.

[gap]

Katrien: What kind of job do I get?

Moderator: Yes, that is really a personal disadvantage for you.

Katrien: I think so.

Moderator: Not just for you.

Katrien: Also for my colleagues, I think: well, what can I do?

Moderator: For more people.

Katrien: Yes. Certainly in the transport sector. Look, as a truck driver, I can imagine that someone has to be in the vehicle, because all those things that are transported have to get out in the end.

Moderator: Yes.

Katrien: So yes, whether it automatically runs from a to b, perfect, but how do those things get unloaded? You still need a person for that. No, then I'll get on the truck, then I still have something to do. Maybe I'm going to entertain people, that's fun too.

Moderator: It will take a while, Katrien.

Linda: Yes, you are maybe retired at that time.

[gap]

Katrien: Well, leave it.

Moderator: But the labour market will look different.

Katrien: Yes, I think so too. Anyway, I thought for a moment: yes, getting that bus through Amsterdam will be much more easy, so that is another advantage.

Koen: I think as an advantage, a lot of time will be gained for yourself. Whether that is for work or private. In terms of disadvantages, I think it will be much busier on the road. The public transport will disappear, I think: if everyone drives such a car, the infrastructure has been adjusted, but I think that there will always be traffic jams.

Katrien: You do not know that. Because if they are able to fine-tune that, so that you will no longer have traffic jams, it will continue flow. Now, of course you do not have to pay attention to people who are doing 20,000 other things behind the wheel. Sometimes you have to stand on your brakes again, then you think: hello?!

Moderator: Yes exactly. Maybe the cars will also be driving closer together.

Katrien: Eventually. If that continues in a constant stream, then you might also be freed from all those nice traffic jams in the Netherlands.

Moderator: Who knows.

Laura: Not everyone drives a car, you obviously have elderly people without a driver's license, my husband does not have a driver's license. They can also get into such a car.

Moderator: I think so yes.

Linda: In the example, that child was also simply picked up.

Laura: But who is responsible when things are not going well?

[gap]

Katrien: You can do that easily, you just put your child in the back and there is a nice sound screen or a glass wall and then she cannot reach the control panel.

Koen: But I see that as an advantage.

Katrien: Then you can send your children by themselves.

[gap]

Koen: Security and all those things that you just said, if that just works, I think fewer accidents will happen.

Moderator: Certainly in the first phase there are still problems.

Laura: New cars, you do not hear them on the street, and older people do not watch out, children do not watch out, nobody really looks. People walk across the road like that.

Katrien: People are busy with 10,000 other things. Or they listen to music or they have their cell phone in their hands. They see nothing.

Linda: Yes, that are indeed the flows that are not included in the automated flow.

Laura: When I see how people cycle, [gap].

Laurens: The AV's are perhaps ingeniously designed for environmental and emission gases, but how about maintenance? Those things are up and running all day. You already see this with hybrid cars when those batteries have to be replaced. A battery from a simple Toyota Aurus, will cost you 3.500, 5.000 euros or something? But that must also be recycled again, environmentally responsible. If you have such a self-driving car, you have similar issues.

Moderator: Yes exactly.

Laurens: How are you going to do that? An advantage indeed, if it all fits neatly together, you get a train effect. So, one drives in front of the other on the highway. My point remains, even if it is completely automated, I also think it is important that the person remains in control, at all times. Why? An automated system can have looked at all safety scenarios, but there is always a scenario that is not programmed. Then a person must be able to intervene as well. The example that it goes straight to the airport and you can take a nap there, I do not worry about that. But when it first goes home, and then he arrives in such a traffic jam, towards the airport, although it is automated, the person inside is still stressing because it has to be fast because he has to be at the airport on time. Then you are still tense in an automated vehicle.

Moderator: And you cannot do anything about it.

Laurens: No exactly. And other than that, according to me, last year there was an American car manufacturer, who also had a hybrid car, they had hacked that car.

Moderator: Yes.

Laurens: They just kept the CFO in his own car for an hour. Security must be continuously updated. You always have those people who find that a challenge.

Moderator: You always keep that.

Laurens: Then you have these parking spots, everyone wants it at his front door. But, if you live in an apartment? How do you want to solve that?

[gap]

Moderator: So, I hear you say Laurens, there must be more room for parking places.

Laurens: Yes. We can go up, but how high do you want to go?

[gap]

Linda: Or you need more carpooling or what is it called: shared ownership.

Katrien: I think that there will be more cars..

Laurens: That will be the bottleneck, as Koen pointed out. You will automate everything and you will also organize everything according to your needs.

Katrien: You might also be able to just use one car, per household, for example, because that car can drives back and forth without the person in question being in it. That could also be done.

Laurens: Then that thing is driving all day.

Linda: That car will be busy, it runs all day.

Katrien: Garages will like that, those people have to be employed too.

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

Moderator: Okay, we've now talked about pros and cons. The next question, imagine that you have an automatic vehicle, and that the interior, that you have inside such vehicle, maybe it looks like a traditional car but imagine that you can adjust it. You can adjust the inside yourself as you want. What would you like to do in the car while traveling, and why? For the why question you can also use these 5 boxes as inspiration. So assume that you can adjust the inside as you want. What would you like to do in these AV's while traveling? And why? Do you have any ideas about that?

Linda: I would like to prepare myself for my work in the morning. Just like you sometimes do your make-up in the train nowadays, I would definitely want to do that too. Refreshing you can do still at home, nice inside the shower. Your breakfast, maybe a mini fridge, useful for breakfast, other refreshments. WiFi connection, you want to read the news, or your email, that's nice. A small mobile office and a lounge area, so you can watch TV on the way back.

[gap]

Linda: Yes nice and relaxed.

[gap]

Linda: Yes, absolutely.

Koen: I also think that a kind of workstation.

Linda: Exactly. In the morning when you get in that car you can immediately start your work.

Moderator: Including your morning ritual.

Linda: Yes, a little yes. Now, I sometimes have to eat a banana on the way, or do my make-up. Yes, that is also possible.

Koen: There is at least enough room to lie down. But a workplace.

Moderator: A workplace in which you can work in the 2 hours that you have to travel sometimes.

Koen: That you can just do your job. Without being folded, as it is now in the car, together with a colleague. Then I switch on a hotspot and then I can do some things on my laptop but then you're still folded in such a car.

Moderator: So a desk?

Koen: No, it does not necessarily have to be a desk. But if you have your door, you can for example slide a table out. That you can stand in a kind of way in your car, that would be nice.

Katrien: Then it becomes a very big car.

Koen: That does not matter.

Laura: Then all children can go to football like that. Then you do not have to drive back and forth with Linda: cars.

Moderator: Can you specify that a bit more, that's interesting.

Laura: My son plays football, so we always go with 4 or 5 cars to [gap], sometimes with more, then everyone arrives with his car, those 11 children and everyone with a car. If you just have a large car that fits everyone, you do not have to go to [gap] with 6 cars. That is easy for parking, all children are together.

Katrien: Then you can immediately put that coach to work. How many are there? 11 right? 12?

Moderator: The pre match instructions.

Laura: That depends on the age.

Katrien: Well, couples and then you put that coach in the middle. Then they can just do the tragedy for all 7.

Moderator: Exactly.

Katrien: That is handy.

Moderator: And you Katrien? Do you have any?

Katrien: I do not have to prepare anything, of course, in a while not at all. Then all I have to do is sit in that bus and click where we are going and then the bus will go, I think. I think, I would just kill my time watching a movie, listening to music, checking mail, WhatsApp.

Koen: Sports.

[gap]

Katrien: But I cannot take my horse with me, that will be a little tricky.

Moderator: Then you can only make small rounds.

Katrien: And it does not fit.

Moderator: Sports?

Koen: Yes. I suddenly think of this. A kind of bicycle thing or ..

Katrien: Weight lifting.

[gap]

Koen: Yes exactly. That would be nice, if you can work out right when you leave from your work.

Laura: Then you do not have to go to the gym anymore, that's possible in the car.

Koen: And then you can go home right away.

Katrien: Then you must have good ventilation in your car.

Laurens: I would like to have multiple choices. Suppose I have a stressed day, then I want a massage chair and just my favorite music on the background. But indeed, another day I still have energy left, and then I want to exercise. But, also that it is linked to the home, when I start watching a movie in the car, and I arrive at home, that I do not think: shit how am I going to look further, that it is connected to my home and that I can walk inside and I can look further immediately.

Katrien: Then everybody has to look at that movie at home too.

Laurens: Well, that is not necessary.

Laura: You can look yourself, but we are at home with the four of us. Then there must be 4 seats, or 4 places.

Laurens: If you can set it to an individual.

Laura: How big are those cars, is it a bus size?

Katrien: Anyway, everyone can join, so that's handy.

Laura: Then you do not need a driving license. Then I say, I go there and there, does anyone want to join me?

Katrien: Well, maybe you'll go that way.

Linda: Imagine that the whole family should use only one telephone, then you get into a fight.

Moderator: Do you have other activities that you think of: I would like to do now?

Laura: If I can sit in it, I just sit and look outside and I think, enjoy nature.

Katrien: I also do not believe that I do very much, I do not have so much to do in the car of course. I always look around a lot, I always look around me. That does not change whether I'm in the car or on the bus or in a truck. That does not change, I am very busy with that. And the phone, that does not interest me, yes, if it rings.

Laurens: I think it can be very interesting for business people, to be able to make conference call or appointment, to have a video conference. Or answer email as Koen said. But they can also see their agenda, what their day looks like, whether they have to reschedule an appointment.

Moderator: So they can actually work just as much as.. [gap] So you indicated what you would do is something different all the time? And why?

Laurens: Well that has to do with my mood, when I have a dip about my work, then the last thing I am waiting for is a customer who calls me and asks me something. Then you have to wait until I get there. But if I'm in a good mood, I want to have something to watch, listen to, or whatever.

Moderator: And if you have a bad mood and you're in such AV, what would you do?

Laurens: Then I would just want something that relaxes me, while I'm just on my way to work.

Laura: A stress ball in his car.

Laurens: We have customers that make you pretty stressed.

Laura: I would not even accept their calls, I believe.

Laurens: Well they are key customers.

Laura: Sorry, I did not hear the phone.

Moderator: The next question.

Q5: Do you think that performing activities within an AV, instead of outside it, can save you time for the rest of your day? If so, how would you use this time?

Moderator: So performing activities in an AV can save you time on a day, how would you use this time?

Laura: Then we do not have to go to the gym anymore.

Koen: Well I can sleep longer. Imagine that you can do your make-up in the car, wash yourself or name it, you can sleep longer, you can change clothes when you go to work in the car, do your hair, you name it all. I really see time saving. I see sports more as a shortening in time, because you may have an exercise bike and a weights, but the rest it is not there. Then you would get a building as a car. So that's what I think.

Moderator: So especially the time you have left, you can save time than you would sleep longer.

Laura: I do not sit in a car very often. Save time, I do not see myself get changed in the car. I do not think that I can save a lot of time in the car.

Moderator: Okay.

Laura: I drive to my father in [city in the province of Utrecht] for an hour, then I do not know what to do. Yes, look outside.

Moderator: Yes, you also indicated that you would not do other things in the car than you do now, right?

Laura: No, I do not see that happening. Yes, I find it very difficult, what am I going to do in such a car?

Moderator: Fine, no problem.

Laurens: I would, like the example of the child, cooking, all that sort of thing. In Japan, I think there is such a project, that such a woman in the office, put the meat on the furnace, make sure the beans are already cut.

Linda: I am already late at home.

Laurens: By the time she comes home everything is ready. I can see that happening with something like that.

Moderator: So your answer is: yes you will save time, but now the question is, what are you going to do with that time? Do you have any ideas about that?

Laurens: If you have time left, you can of course spend it on something else.

Moderator: Yes, I'm curious?

Laurens: Yeah something fun. How often do you say to friends, sorry I am so tired because I have so much to do so I cannot meet. While, if you have been able to arrange that in advance, then you have that time that makes you less tense. You can more easily maintain your social contacts.

Moderator: So more time for social activities.

Laurens: Yes. We are talking about the Netherlands, of course, that infrastructure. But if it is implemented throughout Europe, you can even use it for your holidays. Then imagine your whole holiday, in terms of route, camping, hotel, or whatever, so you can also travel through Europe without getting fatigued. My only question is: where to get the energy to keep these things up and running?

Moderator: Yes, that's all arranged.

[gap]

Moderator: Many small windmills along the highway. The car passes by and then the mills will turn and then it will generate energy again. They're working on it.

Linda: For me, it would be more efficient use of time, your working time starts as soon as you get out of the door. On the other hand, your free time starts again when you step out of the door at work, or that last bit of work time you can do it on your way home. So that ultimately gives you more free time so you can be more relaxed in it.

Moderator: So then you can have a social life.

Linda: Yes, not necessarily that there has already been cooked at home, but that you can look up a recipe or something. If you switch mentally then you are somewhere else.

Laurens: For example your appointments, you are in that car, you say send a WhatsApp to Koen that we meet at 7 o'clock or 8 o'clock at café de Bruin, at this address. He gets a WhatsApp, okay fine. Then you do not have to call again and hope that he understands, at what time, done.

Moderator: Easy yes. Katrien does it save you time?

Katrien: In terms of work, I do not think so, suppose I would drive back home in three quarters of an hour, I would have to make sure that I managed everything at home, I think. Vacuum cleaning the house, pans on the gas or whatever. Then indeed more time with my children, to my horse, to walk with the dog. I would appreciate that after 10 hours of work without my household waiting.

Moderator: Well if a part of the household is also automated, very nice.

Katrien: Well if that is the result and you can start controlling things from your car, then I'll see a lot of time savings in that.

Moderator: Of course, we are not really talking about that, but that is an interesting one. So, if you're in the AV you might also be able to control things in the house and that saves you even more time.

Katrien: Eventually.

Koen: Do you mean digital control? Or by phone?

Katrien: I assume that by then internet and WiFi is available. So you can easily control things at home via WiFi. That is how I would see it.

Koen: No, it was more of a question for you. You can of course just call in the car.

Moderator: What Laurens also said about that thing in Japan.

Koen: I just thought that you can just turn it on from your car.

Katrien: This is already available.

Koen: If you can do that in the car.

Katrien: You also have robot vacuum cleaners. They go through your house and they are located at such a charging station. If you make sure you can control that thing from another place, you're going to do the cleaning.

Moderator: That might be easier in an AV than in a normal car.

Katrien: I would work like that. That is more easy than it is at the moment. I have a working day of 10 hours, maybe even longer and then I arrive at my home and then there is also a vacuum cleaner waiting. There are also my children who say: mom are we going to eat today?

Moderator: Yes exactly. Maybe you even have cameras in the kitchen, but that's nice because I have not heard this before. Maybe this question.

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

Moderator: This is quite a broad question, but to what extent would you change your daily routine if you had an AV? And here you see a few examples from the movie, so Bob is waiting at the airport, he is watching a movie instead of going home. Or indeed let the AV pick up your child from piano lessons and you do not have to go back and forth yourself and you can finish your work. To what extent do you think you would change your daily routine?

Laurens: Well in fact, now we are talking about Bob and his child, if the car still has WiFi, then he can log into his work on his laptop via WiFi. While he is waiting for his child, he can continue working. If that thing drives automatically and he connects via WiFi to his office server, he can still work on his deadline.

Katrien: Yes, and yet he can be with his child. I don't want to think about that, well my children are already much older, already grown up now, such a young child who is 8 or 10 years old, I would not just put it in the car and say: you have to go there, the door opens and get inside yourself. I would also like to know if he actually arrives there.

Moderator: So Bob does not have to stay at work, he can..

[gap]

Moderator: Would you change your daily routine?

Laurens: I would adjust it to have more time for myself.

Moderator: Yes, what we just discussed.

Laurens: Yes, I mean it's like that airport, I arrive at this time, just program that thing, what's the fastest route, how much time do I have left for my own things?

Moderator: Exactly.

Katrien: Can you also send the car by itself?

[gap]

Laura: I like to take a look at my children, in their preparations. When my son plays football I always go there and look at the training. I am one of the few mothers who never misses a training but I think it's important to see that they play together, and that things are going well.

Katrien: That's nice for your child, when he sees: mom is interested in me.

Laura: I feel really sorry, if I have to make a deadline, but then I say goodbye to my boss, I go to my child.

Moderator: Yes exactly.

Koen: I think you just keep more quality for yourself, take more time for yourself than you do now.

Moderator: Would you set up your day differently?

Koen: Yes.

Moderator: Is it about starting work earlier in your case?

Koen: Start working earlier. Then I am more at home. Then I have already spent 2 hours on work. Then I have more time left for myself in the evening. Then you could eat with friends. More often to the gym. More often to the cinema. Those kind of things. So you adjust things for your social life. But for work, yes, you can work from the car. You cannot really change a habit in that.

Moderator: Others?

Koen: I think I'm going to get bored at a certain moment. Then I think: yes, everything is already done, then I am back on the couch.

Katrien: Then you go to the gym.

Koen: Then after months or years, yes, life was better in the past, back then I was just busy.

Linda: Yes, another disadvantage: driving itself can also be quite nice, if you are not in a traffic jam. I also know people who, on Sundays, not the typical Sunday driver, but who just drive a bit on Sunday, just for fun.

Katrien: I do that almost every day.

Linda: Yes exactly. You have made your work out of your hobby.

Katrien: I love to drive a car or to sit in the bus or ride in the truck. I think it's a bit of freedom. You sit and you look and before you know it you are on the other side of the Netherlands.

Koen: That is true.

Katrien: I like that so much.

Koen: I sometimes when I travel for my work, then I sometimes pick a village and then I walk through the center. But, now you enter the address and you go to where you have to go without stops.

Moderator: Unexpected things.

Katrien: Yes, they are not there anymore, I think.

Laura: Then you can tell it that you are now going to a village.

Katrien: You do not do that.

Koen: Now, you just put on your flash light.

Linda: Yes, you go for the most efficient thing. Then this is already calculated in advance, there are so many people on the road, this requires so much travel time.

Laurens: But what you also can do, you should probably set that thing on alternative routes if you end up in a traffic jam.

Katrien: Yes, but it does that by itself. You do not have to do that anymore.

Laurens: But you have to organize it in a certain way.

Katrien: Then you get a nice TomTom that says to you: now go to the left. Then it is such a narrow street where you have to enter with large a bus.

Moderator: It is nice, what you just mentioned, that freedom but also the unexpected things that you get in a village and get a sandwich there. Why is that important?

Katrien: Just that you see people and can speak to people. You also have that, for example, if you are in another part of the Netherlands, the baker, who has, for example, very different things than here. If I to go to Limburg and I have to drop off people over there, then I have to entertain myself for a few hours because they go to a museum or something like that, then I can do two things. I can lie down in my bus, you will get bored after a while. Then I take the bus and I put it down the street somewhere and then I go for a walk and I going to look where I ended up. Then I walk into the bakery, I see other sandwiches, other pastries or a cake, that I take home, that's fun.

Moderator: Maybe now, you are going to watch Netflix in your AV or something else.

Katrien: Yes, who knows.

Moderator: So less unexpected encounters.

Laurens: You are less careful, [gap], a few weeks ago I drove to [gap] with my girlfriend, at a certain moment I followed the signs to Nijmegen. That was not the road we drove to. Then we passed a part of the Netherlands where you had houses in hills and we really thought like: damn that's fun.

Katrien: That is the Netherlands too.

Laurens: Yes exactly.

Katrien: In any case, I think that if you drive to Limburg or to Friesland, the landscape changes continuously, I think that's great fun.

Laurens: Then you also have something to talk about with your social contacts.

Moderator: Otherwise, your friends may see you very often but you have nothing left to talk about.

Laurens: I remember when I was working in Amsterdam, I was almost on the phone for the whole ride, purely because I was bored.

Moderator: Yes exactly.

Laurens: And with this you have your TV, your internet, or whatever, but you can also make a video call, all that sort of thing.

Katrien: I think that there is a lot more possible, now people also do everything that is not allowed in the car. I see that continuously, I see people with complete laptop when driving, on the 2nd and 3rd lane with 130/140, then I think: okay...

Moderator: Yes you can do that too.

Katrien: Yes it is possible too, but then I think, it is very dangerous.

Moderator: Yes, definitely.

Katrien: That person is totally not paying attention to the traffic. The traffic is so unexpected with everything, then I sometimes worry. Occasionally I am more careful with what others are doing, to ensure that I get my bus through in one piece, than people are like: that is quite interesting that mobile phone.

Laurens: Well nowadays the hype, FaceTiming while driving.

Katrien: Yes that is fun too.

Laurens: What are you doing?

Katrien: Yes no idea. I would like to applaud this for things like this, to make sure this will safer, yes.

Koen: Do they also go faster?

Moderator: No, so that's not really the expectation, because the number of cars will increase, that's not really the expectation.

Koen: Maybe we can let them fly?

[gap]

Katrien: Now we are going too fast.

Laurens: Now we want too much.

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

Moderator: So the next question is, would you travel more often or further to carry out your activities?

Laura: I would travel further, because I do not travel often, because I suffer from my back and then I find it very annoying to have to drive the car. But, if that thing drives itself, then I can sit in it and then I think: yes it brings me to Groningen, I do not have to watch the road.

Moderator: To Groningen for?

Laura: Well, that was just the first thing that came to mind.

Linda: Far away.

[gap]

Katrien: I'll fill it in.

Laura: If I go on vacation now, I prefer to go within one and a half hour, two hours, that is the limit for me. So in this case I would say: I sit down and drive to France for a few days.

Moderator: So for example you would travel further for vacation.

Laura: But also just for myself, a day in Groningen is great fun. A day in Haarlem is also fun.

Linda: 3 hours to your destination, so 6 hours in total, that remains the same.

Katrien: Yes, but less intensive. It is a difference whether you drive yourself or that you can sit back or play a game with your family whatever you do in that car.

Laura: That is a nice, monopoly in the car.

Katrien: Exactly.

Koen: I think that the car itself would drive more often, but not me.

[gap]

Katrien: Yes, but that is indeed possible.

Koen: I think I would drive less myself. I live in [a city in South Holland] but I live quite in the middle of nowhere. There is no public transport, I always have to pick up people in that neighborhood. Then I would send that car, so that would mean less driving.

Katrien: Then you can prepare yourself at home to receive the guests properly. That also has its advantages.

Moderator: It is therefore possible to travel more often and further but also to travel less far.

[gap]

Laurens: Then I would go to Italy or something.

Moderator: Yes?

Laurens: Yes, I do.

Katrien: I do not care, of course.

Moderator: No exactly.

Katrien: That is a completely different story. I would really mind if I worked close to home I believe. I would be bored to death. I would not know what I should do.

Moderator: Maybe next to free time? Or for holidays?

Laurens: I would meet with my customers more easily outside the office. If I want to meet outside the office now, before I have made an appointment, then I have to sit in a car for an hour and a half, one and a half hour back then I think: I am not going to do that.

Moderator: Yes exactly. So maybe an appointment that you do not plan because you think: it takes a lot of time.

Laurens: Well, I remember 2 years ago, when I had to go to [a city in Drenthe] to a lawsuit, that was at 9 o'clock in the morning, I'm living in [a city in South Holland], especially when you arrive at [province of Utrecht].

Katrien: Yes, then the traffic jams are gone. Then you have to leave on time.

Laurens: I left at 6 o'clock and I was there 5 minutes before 9. A close call.

Katrien: Yes, that does not surprise me.

Laurens: Then you have to go back to work afterwards, then you are already broke because you were in the car.

Katrien: And because you started so early.

Linda: It also just takes a lot of your concentration. You are used to it.

Katrien: In that respect, I am not on the same side with you, I think. At home also, this morning by chance my son said: mom we're going to Belgium for a while, fine. My husband says, you are driving. Yes that's OK. I do not mind, I always drive. 10 hours a day is nothing.

Moderator: Not for you.

Katrien: No. In between I have my rest. And after that we go again.

Moderator: Other ideas?

Linda: I would not necessarily go more often, perhaps further, but not more often. I would still like to catch a plane for a long travels. I just want to be there as soon as possible. I mean sitting in a car for a day is not fun, no matter how many movies you see. That is the same as flying to America, that is not fun. Going to America is fun, but flying to America is not fun.

Laurens: I would visit family more often.

Moderator: Yes?

Laurens: My family is in the left right middle and diagonally of the Netherlands. Then they ask when do you come along? Then I say: I'll let you know.

Moderator: This will lower the threshold.

Laurens: Yes because you can rest while you drive there because that thing drives automatically. Then you are also enjoying it more, a bit more social for yourself. I mean when I drive to my nephew in [a city in Brabant] I am on the road for one and a half hours, then I get there and then I am half broke from driving because I have been annoyed by other people who think they are alone on the road. Then you sit there and then you think: shit I have to go back.

Moderator: Yes exactly. You will not become happy from that.

Katrien: The trip to [a city in Brabant] is not too bad, but I can imagine that if you have been with family all day long and have a seat all day and have diner, you also have to go back again.

Laurens: Back, I never feel so bad, especially because it is rather late by then, then I drive without a traffic jam.

Katrien: Yes, start driving after the traffic jam. Yes, I can imagine that people want to go back after a long day, then it is sometimes exhausting, difficult.

Moderator: Okay, next question.

## Q8: Would you consider moving if you had AV?

Moderator: Yes, this is about the location of your home, so you can choose which of the questions you answer. The first is: would you consider moving if you had an AV, yes to... . So, you can say yes and I would then move there and there. But, you could also say, no I would not want to move and then you have to think for yourself that you really should move or get another job somewhere, would the fact then that you have an AV at your disposal affect the choice of your location. Some will say yes and then the question is where. Other say I would not move but then imagine that you should move, would you the fact that you have an AV influence your location choice?

Laura: It would affected me, but especially for my husband and his job. He can be brought to his work with the AV. If I had to move, I would prefer to stay in the neighborhood where I live now.

Moderator: Yes? Because of?

Laura: Well, just because I live in a great neighborhood. If I really had to move then I would only do that for my job.

Moderator: Yes exactly.

Koen: If I had to move then I would move more to the uninhabited world, just like on the video.

Moderator: So even more uninhabited?

Koen: Yes, it is a residential area but there is no public transport. No, but I would like to live in rural areas, for example.

Laurens: A bit more away from the stressed world.

Koen: Yes. But suppose you have to move, suppose I would get a job in Amsterdam and I have to move there, so I would want to live outside of Amsterdam. Because if you want to live in Amsterdam, you have to be really rich. But, if you just start looking at the location, I can be there faster instead of having to go through Amsterdam.

Moderator: So that you can live in a more quiet place.

Koen: Yes. Because you do not have to drive yourself.

Moderator: Others?

Laurens: Well, I agree with Koen, that would be the points that I would look at too. Anyway, can I quickly get on the highway? That is something, I have always found that important. Don't I have to cross a city for half an hour, are you crazy. If you get stuck you have a problem. Then, at the beginning of the year, when that storm was in [the city of South Holland], normally I travel to work for 10 minutes, I have done it in almost two and a half hours.

Koen: That was also the case when the [infrastructure element in the city of South Holland] was closed.

Linda: Then everything was jammed.

[gap]

Moderator: So, if you had to move you would still want to live close to the highway. Even if you have an AV.

Laurens: Yes.

Koen: I think you have that in the countryside, you see all those houses along a national road.

Katrien: Yes, if that would happen to us, I would think: yes, we are moving to a farm somewhere in the middle of nowhere, my animals around me, that would be fine.

Moderator: In [the town in South Holland].

Katrien: No [the town in South Holland], definitely not. To [another town in South Holland] and further. If necessary, back to Brabant, but I moved here for my husband. He had his job here and he really wanted to go back to [city in South Holland], where he was born, well, fine. I'll get in the car anyway and I'll travel. Whether I started working in [the town in South Holland], it is as it is. When I have the choice and it would go faster or easier than I would say: nice farm, animals around me and get my time gains.

Moderator: I still have the idea that it is getting busier on the country side again.

Katrien: Yes, in that case it is.

Laurens: Yes, if you live in a city, you notice more and more that it is getting more and more stressed, busier and busier. I mean, I live in [a part of a city in South Holland]. When I went to live there, if you dropped a pin on the street at 8 o'clock in the morning, no problem. You should not do that now, then you'll get hit by a car. You notice the tension, for example, when I go to pick up my daughter in [a part of the city in South Holland], the moment I drive into [a part of the city in South Holland], I think: damn, what a peace. That sounds very stupid and I understand that it is psychological. But, the fact that you are away from the busy city, if you drive on [a central street in the city in South Holland], then you can have such AV, but at 5 o'clock in the afternoon, the [central street in the city in South Holland], forget it, then you better get out of it and walk.

Laura: I have so much fun when I see those cars driving on the [central street in the city in South Holland].

Laurens: Seriously, that's unbelievable. It is totally jammed over there.

Katrien: Perhaps [another city in South Holland] is not that bad.

Linda: About moving? No, I would not move because I have an AV. If I have to move, then indeed, the time you have to travel back and forth is less decisive than now. Now it is like: it should not be more than an hour, otherwise it is really a waste of your time, but, if you can use this hour useful, then it makes sense. However, I still think I will get bored at a certain moment, you are still locked up. You get some more degrees of freedom, but you're still trapped.

Moderator: Maybe you just do it for a while but then...

Linda: Yes, it's nice for a while.

[gap]

Katrien: That will also be the case.

Laurens: Then it becomes completely boring.

Katrien: All the same model car.

[gap]

Moderator: But you just said: I may not want the same car.

Laura: Exactly.

Moderator: One time I want to get a massage.

Katrien: But that's the inside. The outside has to show who you are.

Linda: You will get a kind of lease construction, you get a subscription on three types of cars, sports car, the chill car and the business car. In the morning I will book the business car, in the afternoon I will take the chill car, and it is there when you need it.

Katrien: Yes, but then you have to share it with others.

Linda: Yes. But there is a cleaning robot in between. You must always take your own stuff with you.

Katrien: I want to be able to put my own identity in my car.

Moderator: You can.

Katrien: Well, I think that's important. I choose a brand on purpose or a model car that I think belongs to me.

Laurens: Then you can link it to your smart watch.

[gap]

Laurens: Yes when he gets in then it adapts to his..

Katrien: That is not possible.

Laurens: Yes, they'll invent something.

Katrien: But the outside is important to me.

Linda: Then you put on VR goggles, and then your car just changes, to meet your preference.

Katrien: I feel like: this is my car.

## Q9: What would change the most in your daily life if you had an AV?

Moderator: The final question, we have discussed many things, many different aspects. What would have the biggest impact on your life? If that AV would be available.

Koen: Daily routine.

Moderator: Daily routine? What is the biggest change? I can imagine that this holds for you.

Koen: Yes, but also if I only have half an hour of travel time.

Moderator: You would have more time for other things.

Koen: Yes.

Moderator: Others?

Katrien: My work.

Moderator: Yes.

Katrien: I am very curious how my life will look like.

Moderator: Yes, I think this is a very clear answer to this question. What would be the biggest impact for others?

Linda: My routine, how it will look like, I do not know, but my pattern will really change. How I would use my travel time is going to change, that can be organized more efficient, I do not think I would travel a lot of extra kilometers or travel more.

Moderator: How about you, Laura?

Laura: I dare not say, yes, I drive a lot in my car, if I have to go to the office every day and the travel time is shorter, that would be ideal. But, if the travel time stays the same, I can prepare my recipe for dinner, but I will be ready in the car at a given moment.

Moderator: You indicated that you might travel a bit further more easily?

Laura: Yes, but that's free time. Not to my work.

Moderator: You can also take that into account. What is the biggest change for you?

Laura: Yes, I would go to other people or a day out, things like that.

Moderator: Biggest change?

Laurens: Time gain.

Moderator: Time gain, yes?

Laurens: You can plan things more easy, everything can be programmed, spending time for my social life increases.

Laura: I have another question, when I have a car together with my family, we are with the 4 of us, so I go to work, then the car goes to my husband, he can take the children to the gym, then the car picks me up again, so that car will drive around.

Moderator: It is also possible that you do not really own a car but can get different types of cars. If you need 2, you get 2.

Laura: It really becomes such a lease system.

Moderator: Maybe both, so you can chose a car, but also have your own car, you can easily lease one with a massage chair.

Laura: A car is surely a luxury product when you see, what a car costs. Of course, you can buy them from very low prices to very high prices. So, the interior of a car will also vary, I think there is a price difference between a car with a massage chair or just 4 normal seats.

Katrien: That's your extra option.

Laura: If I have to park my car in Amsterdam, Rotterdam you have to pay a lot of parking fees. Does this remain? Is that different?

Moderator: I do not know this exactly. I cannot look into the future. I think this was the last question.

## Any questions to us?

Moderator: You have already asked a few. Are there some things that we have missed?

Koen: I am curious about what you are going to do with this research.

Moderator: Baiba's research consists of different parts. But it is mainly about looking at the value of travel time. She also looked at the value of travel time gains, when making decisions in large infrastructure projects. So, do we or don't we have to build a highway. We look at the costs and the value of the time savings. To be able to determine this properly, we need to know how that time is classified when AV's are introduced. This is communicated with the ministry.

Laurens: I think that they have to take into account that it is getting busier on the road.

Moderator: Yes exactly, that remains, of course, there are also different scenarios that are taken into account. So including a scenario that it will be much busier with an AV, but also one that it is not too bad. But what matters most is how time is experienced. We try to find out with such a focus group whether there are many differences or many similarities.

Laurens: Yes, because if you simply take the A4 from the Benelux tunnel and you take the A20, rush hour, you're done, jammed. It is a nice invention, [gap]

Moderator: How bad is that, if you get stuck? What would you do then?

Koen: I can think of a disadvantage now, I'm now going from the left lane to the right lane on the road.

Katrien: Are you one of those people?

Koen: But those AV's go straight and don't switch lanes.

[gap]

Koen: If we are on the left lane and the right lane is driving faster, I'll steer my car to the right.

Katrien: It does not lead to time gains at all.

Koen: Well for my feeling maybe.

Katrien: Yes for your feeling, but in reality that is not the case.

Laura: A while ago, a car that was driving on the left line for a long time, I had to move 3 lanes to overtake him and then I just go back 2 lanes. Then I think, please move up lane.

Linda: That is different way of driving on the left lane.

Laurens: They are not paying attention to the road.

[gap]

Moderator: I think there is a chance that you cannot go faster or slower, that thing decides your speed.

Linda: Yes, so many at the same time, so the speed equals this.

[gap]

Laura: I think you also have advantages with public transport, if there is an automatic bus.

Katrien: Then you put a lot of people together, and with such a thing you are alone.

Laura: Then you can also remove all the trains.

Moderator: I am also curious what will happen to that.

[gap]

Katrien: If everyone is allowed to sit inside it, allowed to drive them, you do not need a train anyway.

Laura: But, where are you going to leave all those things?

Moderator: There may be extra highways for those AV's in the future. That is really what people are now thinking about, what will happen, and should we take this into account already with the decisions we make at the moment? Thank you very much.