

First focus group, held on 27-9-2017

Replaced names of the participants:

André

Arjun

Bart

Caroline

Chris

Daniel

Dennis

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.

Please, tell us shortly who you are and what do you do at TU Delft?

André: I'm André. I am a master student in [faculty of TU Delft].

Arjun: Hi, My name is Arjun but you can call me [nickname]. I study at [faculty of TU Delft], doing masters in [study program].

Bart: My name is Bart. I'm a post doc in [faculty of TU Delft].

Caroline: I'm Caroline. I'm working in [faculty of TU Delft]. I'm doing research on [research theme].

Moderator: You are doing research together with [a professor]?

[omitted short conversation about common acquaintances]

Chris: I'm Chris. I'm working at the [department in TU Delft], as a post doc and my research is [research theme].

[omitted short conversation about research]

Daniel: Good, my name is Daniel.

[omitted short conversation about the name]

Daniel: I'm post doc in [faculty in TU Delft], I'm doing research in [research theme].

[omitted short conversation about research]

Dennis: My name is Dennis. I'm finishing my PhD in [research theme]. But I'm working [part time] in TU Delft to [omitted work description]. And [part time] I'm working at a consultancy.

[omitted short conversation about the consultancy]

Q1 Please describe how you usually travel. Think rather of more regular trips than of unique and rare ones, like for holiday. What do you do during the trip?

Moderator: Do you all make trip by car?

Moderator: Dennis not? So you travel by public transport?

Dennis: Yeah.

Moderator: So if you don't regularly drive car, it is important that you think about public transport. And for the rest, can you imagine a regular car trip? So please, describe this regular trip very briefly, and also describe what you do during a drip. Is that clear?

Bart: Do we have to be the driver?

Moderator: Yes please, are you listening to music for instance.

Bart: I don't drive much.

Moderator: OK, then it is totally OK to think about public transport. Yeah? Clear? André, can I start with you?

André: OK, so I don't drive either. So, I go by public transport.

Moderator: That's OK.

André: And normally, do I just say what I do normally during...

Moderator: Yeah, normally, yeah.

André: Just play on my phone and read a book, that's it.

Moderator: And what for your regular commute? Do you also live in [city in South Holland]?

André: I live in [city in South Holland] so my regular commute would be bicycle.

Moderator: OK, OK. And if you go up to the [gap] where do you go?

André: I work in [city in province of Utrecht], I have a part-time job in [city in province of Utrecht]. So, I go to [city in province of Utrecht] sometimes. And [city in North Holland] to friends.

Moderator: OK, and in these cases you just read a book?

André: I just read a book or on my phone.

Moderator: OK

André: And listen to music I guess.

Moderator: OK great

Arjun: It's a month since I have been in the Netherlands.

Moderator: OK, yes

Arjun: Nowadays, I'm biking from my home to the university. But before that I used to drive car in my country in [country in Asia]. [omitted description about the country]. I used to face a lot of congestion.

Moderator: Yeah of course

Arjun: You get frustrated...

Moderator: I have been there once. What do you do when you have these congested moments?

Arjun: I get frustrated that's all.

Moderator: So your activity is getting frustrated.

[gap]

Arjun: People keep on honking. I used to get suck up at traffic for two hours.

Moderator: yeah, two hours?

Arjun: It's normal. To get stuck for two hours, yeah.

Moderator: very clear, so André reads a book, and you get frustrated.

Arjun: haha!

Moderator: Let's go to Bart.

Bart: In public transport, well, I used to take when I was in [city in Europe]. So mainly I used to read. And sometimes just looking at the landscape.

Moderator: Ah, just relax?

Bart: Yeah, looking around.

Moderator: How do you like the Dutch landscape?

Bart: OK, yeah.

Moderator: OK, yeah? Flowers? You are just relaxing or thinking about new research? Can you describe it a little bit more?

Bart: Ok, well. Maybe observing the landscape, the seasons. Sometimes an idea may come up.

Moderator: OK. Caroline.

Caroline: Yeah, I don't drive. But here in the Netherlands I use my bicycle, so I cannot do anything. But something that came to my mind: there was a time that I used public transport regularly, and I used to have a presentation. So, I could use that time for getting ready for the presentation. And it was very useful.

Moderator: Yeah?

Caroline: Yeah. Despite of the fact that I feel dizzy when I do something when I am moving. But I could use that time just to get prepared for my presentation. Yeah. But I usually do nothing, when I am going for a leisure, I do nothing I don't read. But if I have to...

Moderator: If you have to...

Caroline: If I have to get ready, yeah, I can use the time.

Moderator: So it is dependent?

Caroline: Yeah.

Moderator: whether there is a deadline or?

Caroline: Yeah, but I prefer to do nothing.

Moderator: OK, and if you are doing nothing, what is doing nothing?

Caroline: Just check on my phone, or talking to, if I have a company. Talking or yeah.

Moderator: OK yeah, Chris?

Chris: Before coming here I used to drive a lot. And during driving I...

Moderator: which country?

Chris: [country in Asia].

Moderator: [country in Asia], OK.

Chris: Yeah, I like driving. Then I listen during the driving to music or radio or just nothing, just take care of driving. Once I came here, most of the time I bike. And if I use public transport, I prefer to watch around, to watch the people, the cars, the city, the nature.

Moderator: So that's interesting, so you changed. Your mobility behaviour changed.

Chris: Exactly, yes.

Moderator: And you don't like to drive? Or?

Chris: I love to drive, and also I love to bike. Less public transport. I don't like so much public transport. So I prefer either bike or drive, yeah.

Moderator: Daniel.

Daniel: I often use the train. To commute through the Netherlands or to the airport. But inside the train I do approximately the same as when I am riding a bicycle. I listen to music or audio book. Or just steer around through the window. Sometimes you get lucky when there is internet inside the trains, then I read twitter.

Moderator: At some places, yeah.

Daniel: In all trains it is not always an option. On early mornings I can't do much, and then I just sleep. I try to sleep, it is not always..

Moderator: You start early? Sometimes your trip...

Daniel: Sometimes at 5

Moderator: seriously? Why?

Daniel: Because I need to go to [city in Brabant].

Moderator: Ah to [city in Brabant], OK. Dennis.

Dennis: Well, I bike for [few] days a week to [city in South Holland]. It is roughly about half an hour cycling trip.

Moderator: Yeah

Dennis: But if I go to my consultancy...

Moderator: yeah

Dennis: it is about a 20 minutes bus ride.

Moderator: OK

Dennis: So when I am cycling I don't do anything. I usually cycle with my wife, so I have to talk to her. Or look at the landscape or try to be faster, asking her come faster.

Moderator: And in the bus?

Dennis: And in the bus I usually listen to podcasts or music or yeah I just.

Moderator: What kind of podcasts?

Dennis: Different types. I have some economics, transport, logistics.

Moderator: So informative ones.

Dennis: yeah, usually informative. But I also listen to audio books, which is a bit more fiction.

Moderator: OK, very nice. Thank you very much. Then let's go to the next one.

Follow-up question: Do you consider travel time as productive or unproductive?
Would you rather utilize this time differently?

Moderator: So André, if we go to your book reading, playing with your phone. Do you think it is productive? You can say yes and then you are finished. But if it is unproductive, can you also think of how you would utilize it otherwise.

André: It is not really productive, I would say. [gap] I could use the time to prepare homework or studies. That would be a more productive way to spend it. On the other hand, If I am going to work, why would I also work in the train? And I sometimes read a book.

Moderator: Yeah, and maybe you are than even more productive at work, if you just...

André: Yeah, just take time-off before work.

Moderator: So you are maybe productive, I don't know. Maybe it is not the correct word but you are happy with the way you spend your time during your trip. Don't want to really change it.

André: No, I am quite happy with it.

Moderator: OK, maybe your answer will be different, I don't know.

Arjun: No, I don't think it is productive, it is totally unproductive. So, even if I can work on my laptop I would prefer to send some mails, which can be short tasks, I can finish when travelling.

Moderator: So if you had the opportunity to send emails and to work a little bit, than you will definitely do that.

Arjun: Yeah, sure.

Moderator: Bart, I am really interested in your thoughts.

Bart: Yeah, well, quite productive actually in public transport I used to read quite a lot, more than when I am at home. So yeah, when I travel, I used to, I don't know, maybe psychological, I used to read a lot.

Moderator: So in the train you can be productive?

Bart: Yeah, it is yeah, the aspect of moving and changing places make me willing to read.

Moderator: That's interesting, can you explain it a little bit more. The fact that you are moving might influence your productivity.

Bart: We are changing places so we change environment and it gives the will I think to see differences, different experiences, traveling is an experience. Reading is an experience as well. It is a kind of travelling.

Moderator: OK, interesting. And maybe you work in a different way than when you work at your office.

Bart: Yeah, it is quite stimulating. I don't know it is just going away.

Moderator: OK, clear.

Bart: yeah moving away from the office. The working place I'm used to.

Moderator: Caroline.

Caroline: I think it really depends on the travel time, how long am I in a train? Or in a car? Or bus? So if I have a transfer on my way I don't do anything because I am just waiting to changing the trains or changing the bus. Maybe it is because I don't regularly travel and the travel time is not too long. I did not find it productive.

Moderator: Only at a certain point for instance 20 minutes.

Caroline: If I have an, I mean, if I need some time to do something, yeah, but usually doesn't happen.

Moderator: OK

Caroline: I don't find it productive.

Moderator: OK clear. Chris.

Chris: Yeah it depends on when and how long you... For example, if you have to travel by public transport, it depends when. If it is in the morning, and for instance for 20 minutes it's a good time, because usually when I start working, I turn on the electronic devices, first I read the news, check my email, so if it is in the morning for 20 minutes yeah it is good.

Moderator: Then you already checked your email.

Chris: Yeah exactly. It saves my time. I can immediately, when I'm going to the office, I can immediately start my work.

Moderator: And at the bike?

Chris: The bike, no.

Moderator: Than you need to do it on your bike. Than you need to do it behind your desk. In [country in Asia] you were driving the car, enjoying yourselves. Listen to music.

Chris: Yeah, in [country in Asia], yeah, of course when you are driving, you don't do anything you just driving. I cannot do any work.

Moderator: But it made you happy, you said so.

Chris: Yeah

Moderator: Daniel.

Daniel: I think for me it is something in between productive and unproductive. I can't say it is totally unproductive, because if I have this time at home, I have wasted this time completely even worse when driving train. It is not totally unproductive as well because at least I can check the internet. Sometimes it is also not good because it feeds my internet addiction further. It seems that all this internet is finished.

Moderator: I already saw your hands shaking a little bit. After 30 minutes.

Daniel: Yeah so, difficult question.

Moderator: OK so, Dennis.

Dennis: So when I cycle with my wife I guess it is [omitted personal information] productive. It's meaningful. You're just talking and spending time together. But if I was alone, probably I want to reach my destination as fast as possible, cause I don't think it is really productive if I was cycling. If I was cycling alone.

Moderator: And in the bus you can?

Dennis: But if I am in a bus I think sometimes I feel like I want to extend the trip so I can finish this particular podcast. So sometimes the length of the audio varies, sometimes it is very short and sometimes it is more than 20 minutes. I consider it as nice entertainment and I don't want to stop.

Moderator: So, sometimes the bus is delayed and all the people are 'grr...' and you are 'yes!'.

Dennis: Yes! Delayed.

Caroline: And I remember something because we are doing research and we think about, something that we do a lot in cycling or when I am in public transport, I'm thinking about, we shouldn't think about work, but usually I use this time just to concentrate and think about what I am going to , how I am going to solve this problem.

Moderator: So sometimes it maybe is a bit easier. To think about something than you be behind your computer.

Caroline: Yeah.

Bart: Do you think about it actively? Do you plan to use this time to work on your problem? Or just spontaneously.

Caroline: No it just comes. It is not planned.

Moderator: OK.

Q2 Now imagine that you're travelling with an AV. What are advantages and disadvantages in comparison to your usual way of travelling?

Daniel: I think, one of the disadvantages for me, if I replace my bike and train to an AV, I will become fat really fast.

Moderator: Sorry?

Daniel: Become fat really quickly.

Moderator: Fat? Seriously?

Daniel: It's true. Because I will be too lazy to go for a run in the evenings or to the gym afterwards to burn extra calories. I also could not resist eating the same, less.

Moderator: Isn't there a gym in your AV? Or not in yours?

Daniel: But it still takes the willpower to use the gym. It's only a resource for me.

Moderator: I think the weightwatchers' companies will promote AV's, because they will earn more. So anyone else?

Bart: Another disadvantage is that we may not go to the train stations anymore. So there is a bit of breaking some social aspects. So, I have good memories in train stations. There are people, we can go and have a coffee, buy a journal, and wait for the train. It is a pleasant time, when we can see people. I am afraid that if we use AV's all the time, we will find ourselves in bubbles. We go from point A to destination in an isolated way. So there may be no be much room for interaction and unpredictable things. Like it may be to deterministic, less exciting.

Chris: But there is no bus-AV or something like trans-taxi sharing

Moderator: The assumption is that everything is automated.

Caroline: Private automated cars?

Moderator: yeah so all the cars are changing to private AV's, but there are still trains left. So for Bart, he can still go by train. You can also take your AV.

Daniel: You take your AV to the train station [gap].

Bart: Ah oke, so there is the possibility to use them but not replacing them all the time.

Moderator: So we still have bicycles.

Bart: Ah I see.

Moderator: But also I think when you are in a car, you still have to interact with other car drivers and now you just sit down. So that's the difference you were referring to.

Bart: Maybe yeah.

Chris: It is interesting to sit in a car that moves automatically, you have no stress, at least if the electronics, the computer does not give any error. So it is fine. But on the other hand, I think...

Moderator: What's fine, first, what's nice? Why?

Chris: You are relaxing, sitting in a car, smooth, automatically. It is good. If it is your personal car again, I can check my email, read the news, easily talk with phone, send message.

Moderator: And on the negative side?

Chris: Negative side, I can remember, when I was a child, sometimes my father came to my school, and he picked me up and during the distance he asked me, he Chris what did you do? Wat was fun in school or you had some discussion in-between. Now sometimes you cannot find the time because your father is more busy most of the time. So this will take that opportunity for the families.

Moderator: Yeah, because otherwise your car just picks you up and brings you to home.

Chris: Like now the mobiles are always inside the Facebook, twitter.

Moderator: That will increase.

Chris: Exactly, this may be.

Moderator: I never thought about it, I am not an expert in AV's , so I have never thought about these kind of things, so thank you very much.

Daniel: There is such an advantage for the father, he does not have to shuttle, pick up his children from the school. The car does it instead of him. He just enjoys life together with wife.

Moderator: So fathers are going to enjoy life and have no good relation with their kids anymore.

Daniel: The children have never enough.

Moderator: OK thank you very much. Any of you guys?

Arjun: Yeah, if this is actually happening, is going to be, as everybody knows, it's going to be revolutionary, we don't need the firefighters, the moment we call... I mean, the vehicle knows where is the fire, I mean, can be revolutionary for the ambulance also. The moment we call the ambulance, I mean, we don't need to transfer between the firefighters and then the vehicles and the firefighters will reach. An on the other way, there will be no traffic signals, there will be no congestion. By the time you get into the vehicle, the vehicle would realise which path it should go and where would be no congestion and shortest path would be taken.

Moderator: And especially in [country in Asia] that will be a good thing.

Arjun: Yeah, the way blood moves into the veins, I am quite convinced. Very futuristic yeah.

Chris: Maybe in the future there is an app that can control the traffic. Then you can connect to the app, so there is no more traffic in the street. Because everything, yeah, the AV is somehow connected to the app, something like that. So there is less traffic.

Daniel: VIP function. No traffic in my street, please.

Arjun: Even if they go at the speed of 100 or 200 it does not matter. They know when they are going to clash.

Daniel: sure, 200.

Arjun: yeah, 500 km, it doesn't matter, but they know when they are going to clash. That's OK.

Daniel: Scary experience.

Q3 Think for a moment about the interior of a traditional car. Does it have any limitations preventing you from performing certain activities you might want to perform?

Follow-up question: Now imagine you have an AV and can arrange the interior of the vehicle any way you like. Would you rearrange the interior and if so how? What activities would you like to perform on-board?

Moderator: Like Bob (in the introduction movie), he was laying on a couch watching a movie. On a really nice sofa. That's possible. So we really want to reflect with you guys about how would you change the interior of your car and why?

Moderator: André, do you have an idea?

André: I don't think people will have a car with one interior. You just order a car and then you want to sleep, then a car with a bed comes in. Or I want a car with a desk or something. I don't think people would have their own car. You can just order a car. You know the blue bicycles in Delft.

Moderator: Ok interesting. Never thought like that. So, you don't have your own car. You can just order the couch car or the work extension car.

André: That's how I see it. That will be fun. Or maybe one with friends, with a bar.

Daniel: Party car.

Moderator: Any other types of cars? The gym car for Daniel, when he has the willpower.

Bart: Food

Moderator: Food yeah? With a mini bar.

André: Full diner, why not?

Caroline: There is no limitation?

Moderator: No.

Caroline: ...for the size of the vehicle? Because size is very important. You should provide a parking. The bigger the size of the vehicle, the more is the traffic jam. For sure we have some traffic. Maybe there is no traffic lights, but we still have lots of cars on the streets. So, the bigger the size of the car, I think we need some limitations for the length of the cars. A car for 12 persons. There should be some limitations.

Moderator: There might be some constraints, yeah, right. I can't know, of course. But I can imagine that there are some constraints, but maybe we can change the interior of a normal car in what you just mentioned so food and workstation might be possible or a bed. Other wishes.

Arjun: Playing field, it could be possible. You can play chess, you can play darts, cards. Books reading. I mean you can have a small shelves of books. Even you can have like a whole menu like in restaurants: which kind of car you want.

Moderator: Interesting stuff. Do you like this idea Bart?

Bart: Yeah, maybe thinking about resting like 'relaxation car' where I can lay down maybe with music and maybe perfumes.

Moderator: But maybe you have to wait a while when your favourite car shows up or you have to plan it. Right? That might be a down side. Or maybe have your own car before your house just a normal one and you can order a new one. If you want.

Chris: You can 3D print it.

Moderator: Or that is sort of a transformer. Why not?

Bart: Maybe cars that are available for rent. A collection of cars with different functions. They may be available for rent. There are cities where there are programs for car sharing. You rent the car when you need it, when you go away for the weekend, they tell you the position of the car in the city.

Daniel: You can also rent your car to somebody else, when you are not using it.

Bart: So there are cities where there are programs for car sharing, so maybe on the border of the subject. But you rent the car when you need. If you have to go away for the weekend you call for a car and they may tell you, it is at this position in the city. Then you can get to the car and open the car.

Moderator: It is in Amsterdam as well. You can have a small car but if you have to move stuff you can also order a bigger car.

Bart: Alright, yeah.

Moderator: If they are not taken by other people of course. That's always possible.

Q4 With AVs there would be a possibility to ‘transfer’ some of the daily activities you perform at home, in the workplace or another ‘traditional’ environment to AV. Would you perform any of your daily activities inside the AV instead of outside it?

Arjun: I’ll get five more minutes of sleep in the morning. At my home, so I can sleep for 5, 10 more minutes. [gap] And I can get ready in my vehicle.

Moderator: So the AV saves you time.

Arjun: Yeah.

Moderator: So you also transfer sleep to the AV?

Arjun: No. [gap] I can read news in my vehicle and have breakfast.

Moderator: Yeah breakfast ok. Normally you have your breakfast at home, but now you change your breakfast to..

Arjun: Normally I don’t have breakfast, because I don’t have time in the morning.

Moderator: So you also need your tooth brush of course. Ok, anyone else? What’s the most important activity that you would transfer from for instance your workplace or your home or someplace else to your AV?

Daniel: I would install some kind of virtual reality helmet inside. Convert the car in to a hardcore gaming place. [gap] It is possible, but not sure, when there are not much vibrations and an internet connection is suitable. The road should be very smooth.

Moderator: But is it really a transfer of activities you do at home? Do you then stop with gaming at home? Or is it just an extension? You game just more: instead of 14 hours, you game for 16 hours.

Daniel: I also could do something else in this time. Too much gaming is also not a good idea.

Moderator: Ok, the focus is really on would you stop doing something at the workplace or at home and start with doing that activity in your AV. I mean other ideas?

André: Sleep, if you have to drive for one hour in the morning to work I guess. Normally I go to bed at 11 but now if I know I can stay up for another hour.

Moderator: For me when I am awake it is really difficult to sleep, but for you it is not?

André: No.

Moderator: Ok, one of my friends is also able to do that. He can sleep everywhere, he is blessed. Dennis?

Dennis: Actually, I don’t think I would. I like what and where I am doing right now.

[personal conversation omitted]

Dennis: No, well, If I compare with like a public transport or a bus I would do the same thing, I would listen do a podcast or read a book. I don’t think I would work more. So, I think for me it doesn’t really change much. It’s not transferring something I do at home to something which I do in a car.

Moderator: And you guys?

Caroline: Some people might leave their office earlier to do the rest in the car. But if the travel time is at least one hour. They may leave earlier to reach home earlier. But this is not my type, I won't do that. For me the work should be done in the office, the time during the public transport or cycling is for myself. I just want to concentrate, be free, it is a kind of a rest. I won't do the work in my car. But busy people may do this.

Moderator: Chris?

Chris: Maybe just sleeping in the car. Depends on what kind of facilities the car has. Breakfast will be a good idea and email sounds good. If it can make a burger very fast, yeah, that's good.

Moderator: Ok, and Bart?

Bart: I think I would check the news in the car. And do things I can do on my own, for work like - checking emails.

Moderator: You already do this in public transport right? Does it actually change something for you?

Bart: I would say it will be different from public transport, because in public transport I don't put my laptop out. Well I have a smartphone. I will take the car as a mini office space, movable office space, and do office work that does not need any interaction with people. So it is different because it is a confined environment where I can concentrate.

Moderator: Clear, thank you very much.

Q5 Performing mentioned activities inside the AVs instead of outside the car would give us some 'extra' time during the day. How would you utilise this time?

Moderator: So for André, you don't sleep at 11 but at 12. What would you do in that extra hour? You sleep longer or?

Arjun: I can do a lot of things, back home [gap], I do a lot of things.

Moderator: What extras?

Arjun: A lot of things extra like, speak back to my home. Read or study maybe. Improve my study performance.

Moderator: And André?

André: Probably I'll spend more time on hobbies I guess. Watch a movie or do sports. Or more sleep.

Moderator: And you Chris?

Chris: If I use the AV in the morning so I can sleep more and have breakfast in the car.

Moderator: So you get extra sleep. So no one has the bags any more. Because we sleep more. And you?

Daniel: I think I would use this saved time for something useful like learning some new stuff, to code a bit more or some more words in Dutch. Or doing something healthier. But after some time I'll find some easier ways of gratification of myself like watching some more YouTube or more television more entertainment. Than the time will be wasted anyway.

Caroline: I think in my AV I would do something I have never time to do that. For example, maybe use the car as karaoke salon. I will sing, but now I don't have to do that. So I don't substitute that time, the working time. So I use it for something that I have never get time for.

Moderator: New stuff, a karaoke. Never did it.

Caroline: you should try it.

Moderator: Why not! Bart, any remarks?

Bart: I'll use the extra time for casual time with interacting with people, like talking about general things like, how is life going, friendly chat. Maybe spending more time on lunch, sitting with people having a proper lunch will be a big improvement.

Moderator: you are [from a country in Europe], right?

Bart: It would be a big improvement.

Daniel: A lot of wine.

Bart: Yeah.

Moderator: That's possible now, right? You can have a good wine [from a country in Europe].

Bart: People are busy, it is all. I feel that people do not spend time, which is essential, for casual interaction or not about work. Spending time with people with good colleagues. It is very important.

Spending some time to work in the car will liberate, make available some time for this kind of interaction.

Moderator: Yeah so maybe if you go with colleagues to another place, then you can just have a proper lunch.

Bart: In the car?

Moderator: In the car yeah.

Bart: Yeah, maybe.

Daniel: You can convert car to bar, and start drink some alcohol.

Bart: I don't feel like the car is a, maybe a big car, the size of a room can be a good place for a lunch with colleagues.

André: It is not about lunch in the car, right?

Moderator: Yeah, we are talking about having lunch in the car right?

Bart: Yeah, lunch in the car.

Moderator: Lunch in the car.

André: The question is about how you would use the time not being in the car.

Moderator: You are totally right.

Bart: Yeah

Daniel: A bit off-topic.

Bart: Yeah of course the time would be used to have this interaction.

André: You think people will? I think when people have more time, they just spend more time on their own.

Bart: I hope not. They would feel more free and less stressed and be more relaxed and more available for casual interaction.

Moderator: Thank you.

Q6 Think about the introduction movie for a moment. Do you remember how Bob changed his daily routine because he could park his AV, comfortably lay back in a couch and watch a movie while waiting for his daughter? If you had an AV and could perform a whole variety of activities on board, would you rearrange your daily schedule in any way to make different use of time during the day? Think also about the possibility of performing activities inside the AV when it's parked.

Daniel: I think this is advantageous. I see no point for him waiting in the car waiting for his daughter.

Moderator: Because now he can see a movie

Daniel: He can sit at home, do something else.

Moderator: That's possible, you're right.

Daniel: Ok, if the car is really good, and even a better couch, why not.

Caroline: It is not a matter of AV, you can have a limousine.

Moderator: That's true.

Caroline: But I prefer to stay at home and watch TV and a comfortable couch than...

Moderator: ...being at a parking lot.

Caroline: Yeah, I'll just send a car. If it is reliable.

Moderator: That's really a behavioural change. Also, what Chris was referring, don't pick up the kids at school, just stay at home and the kids will just take the AV. Can you think about more of these kind of things? This was a good example. You just send the car to the piano lessons of your daughter.

Caroline: Because we should not spend more time in the car because the car comfortable. My home is also comfortable, so why not spend time there?

Daniel: Maybe you spend all of your money on your car, and house is not so important anymore?

Caroline: So, I just forget about the house, and I can live in my car. Because of being comfortable, I should not spend more time in the car. It does not make sense for me.

Moderator: Maybe other big behavioural changes?

Dennis: For example, right now where I am living, I have a supermarket right opposite. I am really comfortable to walk like 3 minutes to the shop. When I had a car I don't mind traveling somewhere else to get stuff maybe I can go to more specialty shops, which is further. But when I take public transport and bicycles it would be kind of a hassle, bicycle is not so bad, but if you have to carry heavy stuff or have a lot of stuff, then it is kind of a hassle. So there is an advantage of having an AV if you can do the same things you would do in public transport.

Moderator: Is that for you the change of having a car or no car, or between having a car or an AV?

Dennis: I think two things come together, so if it is an AV, I would prefer an AV compared to a bus. Or rather in terms of entertainment value what I can do in the bus I can easily transfer to an AV because I read, I can text and listen, whatever. So to me the same activities can be done for a normal commute, in a bus and AV. But because I am in a bus, I don't want to travel further for shopping activities on the way back from work or something I don't want to trip chain. But I could if I had an AV.

Moderator: So the specialty shops with a normal car, you don't do it but with an AV you might do it.

Dennis: Because it comes together. I like my entertainment, as well as doing the shopping with public transport is too much of a hassle.

Moderator: Other big behavioural changes?

Daniel: I think another behavioural change could be, sitting in the car, watch a movie, drink some beers or some other alcohol, not worry about how you are going to drive home. So basically more people will be drunk inside these cars.

Moderator: And also parties, you always have to decide who is going to drink and who not. And now you can be drunk together.

Chris: This was also the point I wanted to mention. One of the challenges is that when you want to go to a bar and if you drive, you cannot drink, so you have to use the public transport. So, when you have an AV it is fine.

Moderator: Is it positive?

Chris: Yes, that's positive.

Moderator: More drunk people, positive.

Daniel: Because remove all the drunk people from the cars.

Moderator: Yeah, safety

Daniel: A safer environment.

Moderator: So, the weightwatchers will like it, but also Heineken will like it. So the behavioural changes, we have listed them all?

Q7 Are there any travel destinations or activities which you currently don't choose or do as often as you would like due to travel-related inconvenience, e.g. too long travelling time? If you had an AV, would you travel to these destinations and perform these activities more often?

Caroline: Not for a destination in one hour. Because usually people like driving if there is no traffic jam. But, for example, I would go with my AV, because I am not concerned about being tired or sleepy. So maybe I travel to [country in Middle East], my country. It's ok, I am comfortable. I can see all of the cities on the way.

Moderator: People will maybe make longer trips because of the decrease in inconvenience. You're not sitting in a plane like this. No Ryanair anymore.

Caroline: I can see lots of cities on my way.

Moderator: The car will stop if there is a nice city. I never thought about it like this, but maybe we see more of the world when we have an AV. Because it is not a problem to travel long distances. This is a big change, if this is really true. This might change a lot.

Bart: Maybe the same thing for night travels. For travelling in Europe. There are night busses. So if I know that I am able to sleep in the car I would do the travel at night. So arrive at the destination and maybe be able to shave and brush my teeth. It is a big help. I would arrive at my destination in a much better shape than when I have to sleep at a chair in a bus.

Moderator: Yeah, that would be nice.

Daniel: Sometimes it is not possible to park your car and sleep inside it, you have to drive a car. So if you sleep inside a car that drives around the city during the night, you sleep inside and wake up in the morning.

Moderator: so good for weightwatchers, good for Heineken, bad for AirBnB and all the hotels.

Caroline: And for the environment, fuel consumption...

Daniel: a car can drive very slowly, it would consume minimal amount of fuel, not pollute so much. Or it can drive outside the city and then come back.

Bart: And then you produce white noise. Which is helpful sleeping. As a baby in car, there is a commercial with a baby in the car with white noise.

Moderator: Other destinations?

Chris: If I have AV than for the places that I have to park my car I don't need a carpark, just maybe can automatically find a car park and I go shopping.

Moderator: You go to the centre of Amsterdam.

Chris: Yeah, exactly.

Moderator: You don't have this problem. You have to pay all these charges. Because the AV will find something that is not charged.

Daniel: [gap] there will be a point with not so much AV's, because otherwise if everybody would do like this there will be a big traffic jam. If many people start to do like this and the cars start to go around and city centre just waiting for message and will go empty, traffic jams.

Moderator: Yeah maybe they go underground. I don't know. Or in the sky, I don't know I have no idea.

Arjun: I don't think AV will get stuck in traffic jams. You also mentioned that there are traffic signals. I think, there won't be need for traffic signals. Even if we go at the speed of 100 the vehicle would be knowing that, another vehicles are running around at 70 or 20 so the vehicle knows when to stop or where to stop or the path, it already knows. I mean it doesn't matter if it flies at 300 we should limit at some point maybe. If it is safe it does not matter if we go at 300 or 70 or 20.

Moderator: Yeah, I am very curious about this, I hope that I can experience them in my life.

Q8 Imagine you have to move to another city for a job and are looking for a place to live. Would having an AV influence your decision? Would commuting time be as important factor as it is now?

N [rephrased question]: would you move to another city? Or maybe you like the place where you live now.

Chris: It makes the decision easier. If you live in a place where your work is far away. If I have AV I will be more comfortable.

Moderator: I won't tell it to your boss. Better position in Eindhoven, no problem. Yeah, but any other ideas?

Caroline: There is no difference for me. I don't want to change my city. I don't want to spend time commuting every day.

Dennis: I think for me I have, it might be that there are other people. In my case: my wife, she likes it in Delft, maybe other people want to work somewhere else. So we have two people we have to choose kind of like the centre spot where is the most accessible for the both of us. But if I had an AV, right now we are living in a place which is quite convenient for both of us. It is easy for me to go to my consultancy and easy for us to go to the university. But when you have your own private car or AV I think it would definitely be so much easier, you don't have to think so much. I know people that commute from Leiden or Amsterdam to come to Delft, it is like a bit strange that you want to travel a lot, but if you have other constraints, for example, my wife, then it makes the decision quite easy.

Daniel: I think it is also depends on how expensive the living there is in the region. If there is a big advantage in price by living outside the city and you don't have a choice, then it is an option. But in the Netherlands almost all places are the same expensive.

Moderator: I think that you have never been in the north of the Netherlands or the east or the south. The prices are way lower. You can have a really nice villa in the North if you want.

Daniel: I think in some suburbs the price for house is also good.

Moderator: Other people packing their backs?

Bart: Yeah, it would influence my decision. In [city in South Holland] rents are very high, so we may decide to rent a flat elsewhere. In a place with better housing and nicer for weekends. And commute in AV.

Moderator: so the commute is less problematic for you.

Bart: Yeah, so this is related to housing pressure. In places that attract work and people employees.

Q9 If you had an AV what do you think would change the most in your daily life?

Dennis: Daily life in terms of activities? I would say if I was using an AV my cost of transport will be much higher I guess. Compared to what I am paying right now. Cycling for example is almost zero. The cost of transport that will be higher. I mean if you think of it as a private car, that it is much more expensive than public transport or cycling.

Moderator: Would you buy one?

Dennis: Do we get like coupons here, since we participate? Haha!

Moderator: [personal information omitted] Any other? What is the biggest impact?

Chris: Is it personal AV?

Moderator: Yeah.

Chris: Only one person? The biggest impact, one of the biggest impacts is I cannot travel with my wife.

Moderator: Ok, but if there are multiple person AV's?

Caroline: We can share.

Chris: Then yeah, one of my hobbies would be changed to travel more.

Moderator: Yeah, you would travel more.

André: Travel more, visit friends and family. My parents live in Brabant which is quite far. I could go there more often. Now it is doable in public transport but you have to cycle to the station, to the train. And with an AV you, if money is not an issue, I would also go to like, I like climbing, and the Netherlands does not have mountains.

Moderator: Vaalserberg, 300 meters

André: I see my friends twice a year now, but then probably way more often. Yeah, big change for me.

Moderator: Yeah, you can easily catch up.

André: It's seven hours, I'll just sleep during the night, arrive in the morning. We don't even have to take days off for work.

Daniel: I think I disagree with André, I would travel less, I will send the vehicle without me to pick up children, if I would have, or friends from airports. Or help somebody to deliver something. Usually you ask the person who has a car, please help me to move stuff in the weekend. I prefer to do something more useful.

Moderator: It eases your life. It might have a different impact for different people. Some people will travel more, some people will even travel less.

Caroline: Hotels will not be happy with this because if it is allowed people will spend the night in their AV. So for them traveling is cheaper, because they do not need to pay for the hotel.

Chris: Some people cannot sleep in the car.

Caroline: Why?

Chris: Some people are not comfortable to sleep in the car.

Caroline: You have a good bed. So traveling is cheaper so maybe I will travel more.

Any final remarks? Questions or topics that we should discuss the next time?

André: What is the goal?

Moderator: Just to gather as much as possible associations regarding how the daily life of people will look like in the future with AV. Of course, we can't know, but what we can do, is to do this with multiple groups. I already hear some ideas regarding karaoke, I never thought of it myself. But I already hear a lot of new stuff about what can be changed in the future.

Arjun: Would people own their own car in the future? Or maybe just pay 500 euro's per month...

Moderator: What kind of business models, for instance?

Caroline: Maybe we can ask about the long-term effects. First, when AVs come, they are very interesting for people. They would answer: yeah, I would spend more time in it. But after a while, maybe that's not interesting any more. For example, instead of playing in your car, you would rather go home and play there.

Moderator: Interesting, yeah, thank you. Any other?

Daniel: Maybe you could also investigate more how to change people's behaviour, share more? Because now people are quite selfish, and they don't use their car efficiently. Use the car only for 5% in the day, at other times it just stays at the parking. Instead, it can be used for moving some other persons. Currently people have negative attitude towards sharing. You need to think how to improve the attitude towards sharing.

Moderator: Yeah, that's interesting. So, if first a group of people use this car for a party, and then it comes to you, and you want to use it for a business meeting, I don't know if that's really good.

Daniel: This is why it doesn't work so good. But I think there are solutions to solve even these problems.

Arjun: If a car can move automatically, it can also clean itself automatically. Interesting thing would be to investigate the transition points. School starts at a particular time, movie show ends at a particular time, or a football match. So many people get out of the stadium at the same time, movie theatre or get out of the party. How are they going to access the AVs? That I don't know.

Moderator: You have to stand in line.

Daniel: In this way, the train is much more convenient. 1000 people can go inside at one go.

Chris: I always think how reliable can an AV be? If someone hack the AV? Or it can be remotely stolen.

Moderator: So, there will always be crime. Criminals are always ahead of the police, they say. So, that's always a problem. I have no idea. I am also interested in it, I like to talk about it, but it's so uncertain. Safety problems.

Thank you!