

# Appendix

Tools to stimulate interaction  
amongst passengers  
of the Seabubble

This appendix is part of the master thesis "*Tools to stimulate interaction amongst passengers of the Seabubble*".

Delft, April 2020

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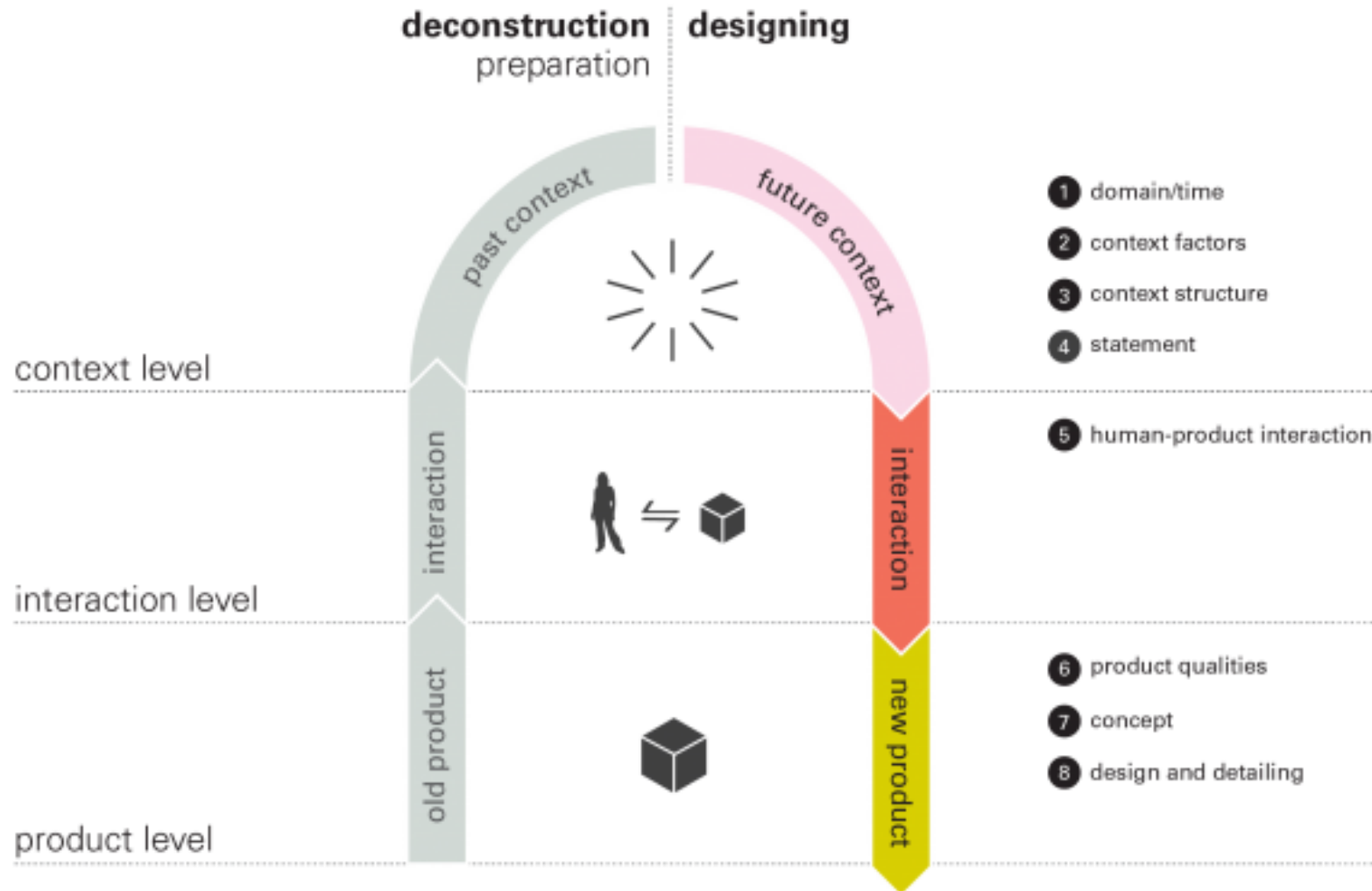
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# Appendix A

## The VIP-method

The VIP method (Hekkert & van Dijk, 2011) is a method used to design future products in future contexts. The figure underneath shows the (original) process structure.



# Appendix B

## Seabubble Measurements & specifications

### The hydrofoil- system

The Seabubble contains a hydrofoil-system: a propulsion system attached to a foil which is powered by an electric motor. This motor is propelled by a battery system (figure B1).

The hydrofoil-system makes it possible to lift the Seabubble 66 cm above the water with a take-off speed of 8 knots (all the specifications are listed below).

### Power & Speed

Specifications about power and speed is listed underneath.

- Take-off speed: 8 knts
- Cruising / top speed: 14 / 18 knts
- Motor power: 2x18 kW
- Battery capacity: 41 kWh (100V), 2kWh (24V)
- Autonomy at cruising speed: 2h30 Range: 65 km
- Charge time: 35 minutes (2x 400Vac/64A)

("Seabubbles", 2019)

### Measurements

Specifications about measurements and weight is listed underneath (figure B2)

- Length exterior: 4.98 m
- Length interior (free space): 3.57 m
- Width interior (free space): 1.69 m
- Height interior (free space): 1.43 m
- Water draft (Archimedean mode): 1.60 m
- Water draft (foiling mode): 0.94 m
- Lightweight: 1300 kg
- Max Load: 500 kg

(Seabubbles, personal communication, 2020)

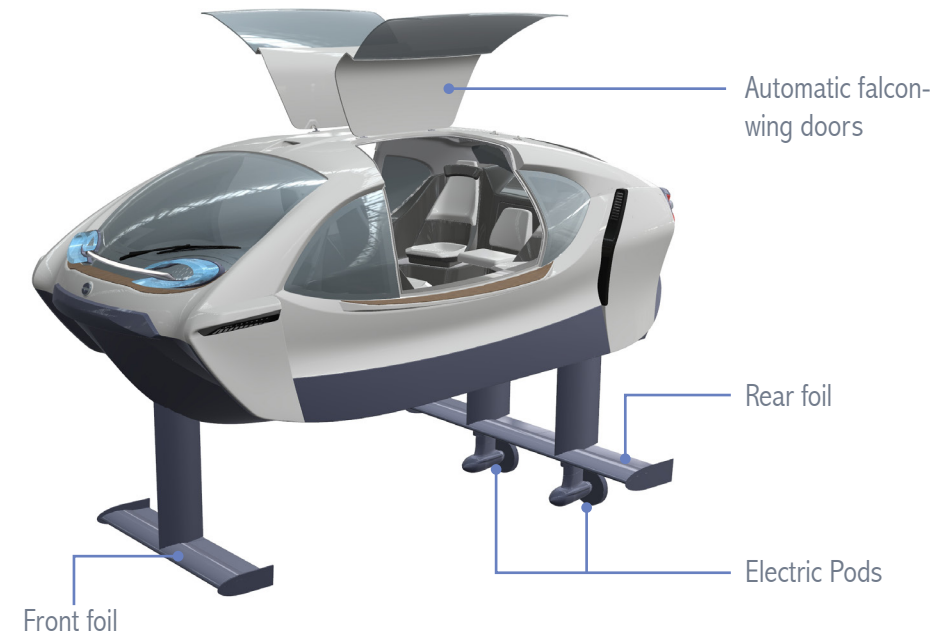


FIGURE B1 Exterior of the Seabubble

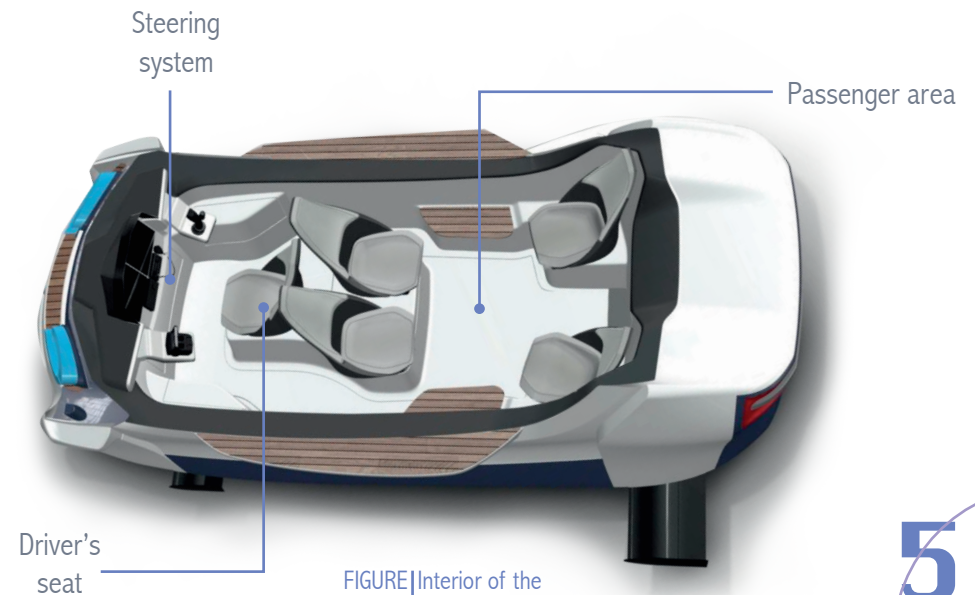


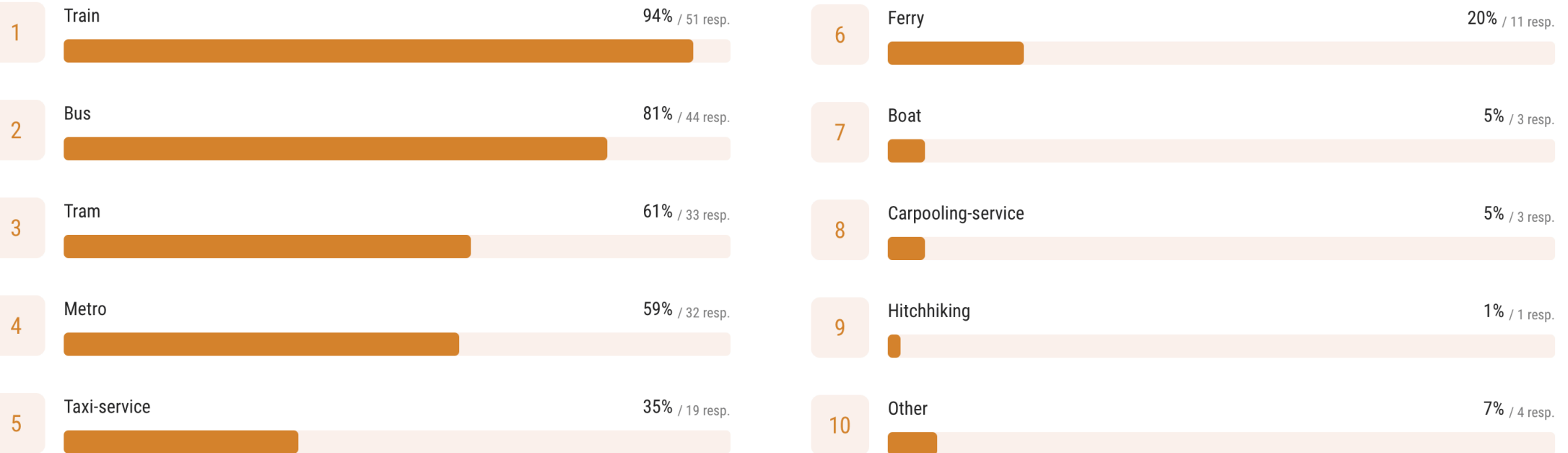
FIGURE B2 Interior of the Seabubble

# Appendix C

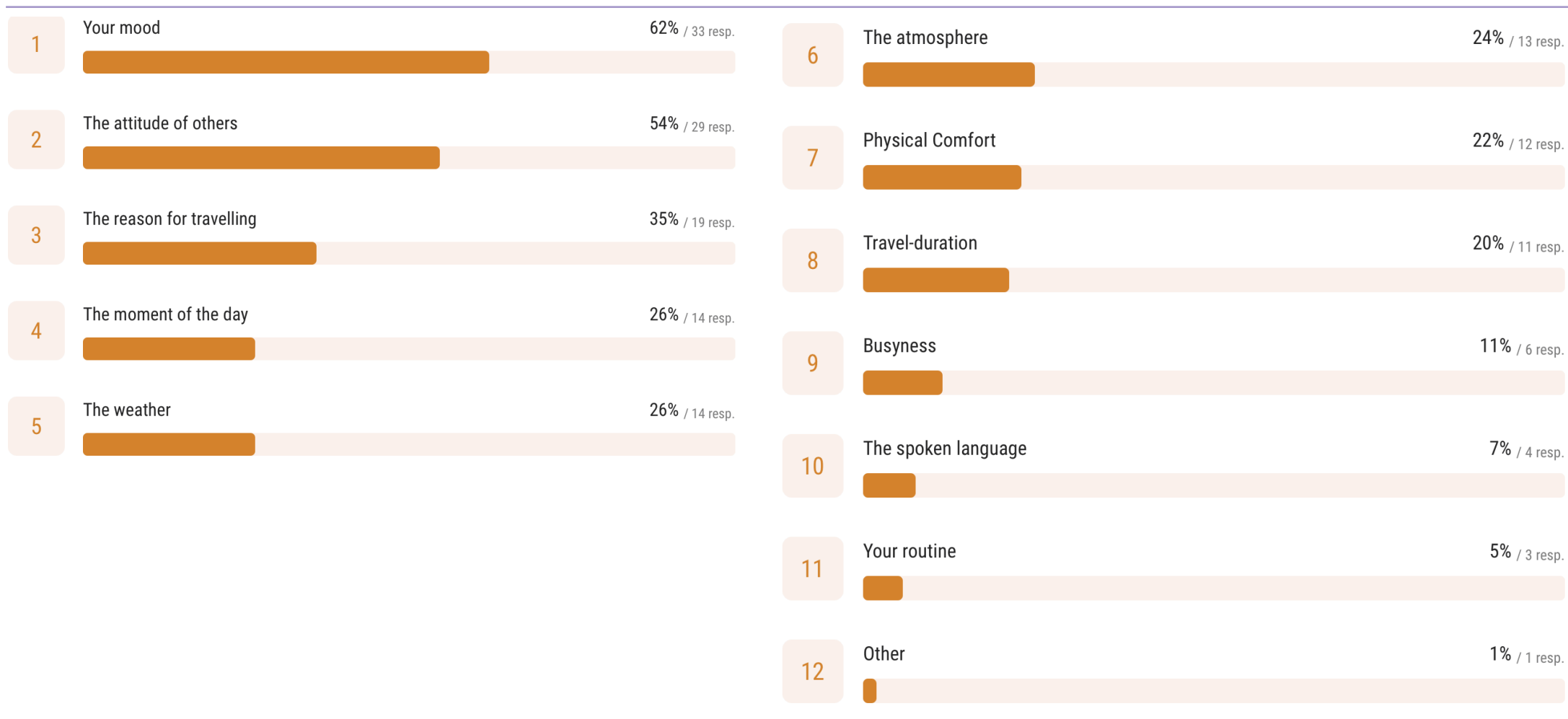
## Results survey *Socially Shared Travelling*

With the help of an online survey with 54 participants, questions were asked about (social) behaviour amongst other travellers during shared transport.

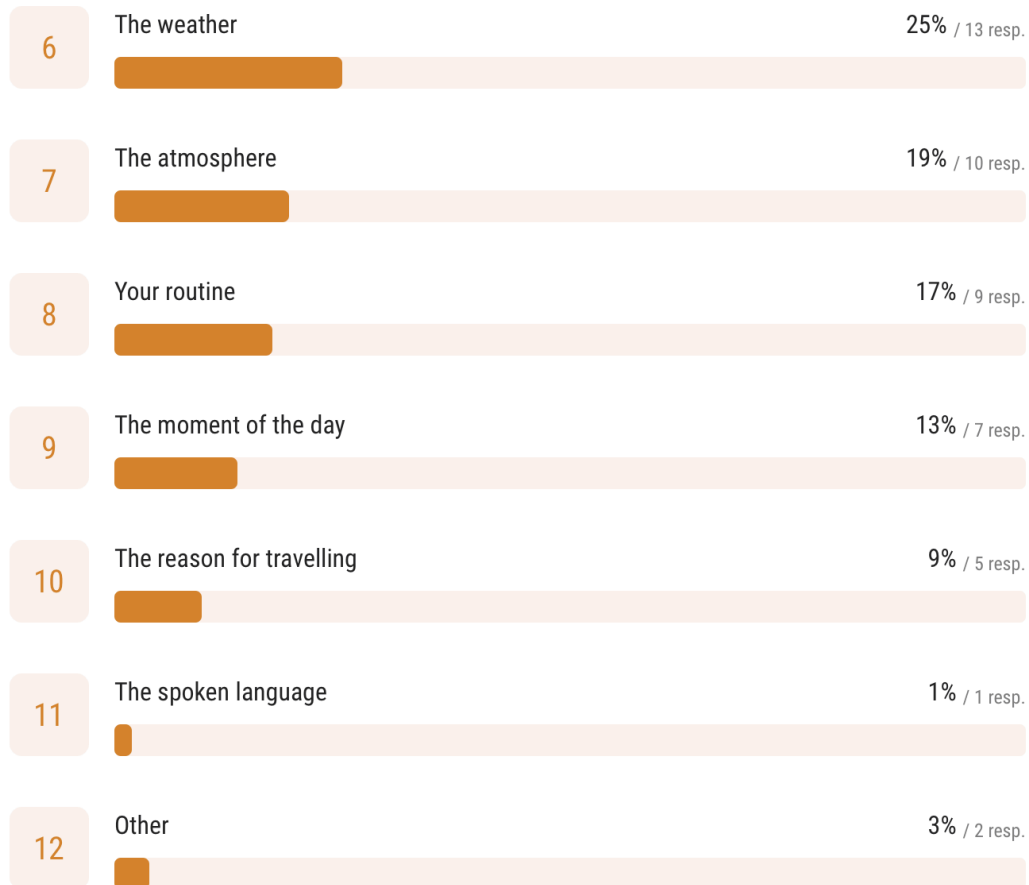
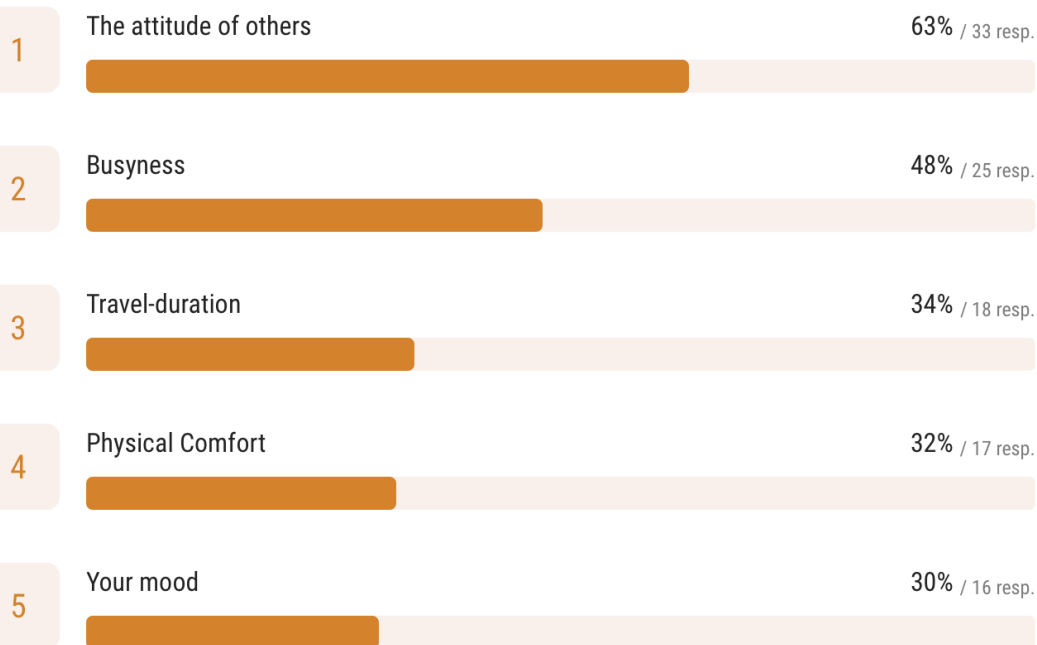
### Used type of shared transport(services)



## Factors that influence social behaviour in a positive way (during shared transport when travelling alone)



## Factors that influence social behaviour in a negative way (during shared transport when travelling alone)



Participant	Age	Description of personal social behaviour towards other travellers	Does your social behaviour depend on the type of transport? And if so, could you explain why there is a difference?
Participant 1		Normal, speak if necessary and try to read	Not the type of transport, but time of traveling
Participant 2	39	Ignore other users and admire the scenery, check news/messages on my phone, listen to music/audiobook. Polite conversation but if you talk to people more than a simple couple of words it's unusual. Every now and again I speak to people in a real conversation but that's mostly tourists and only rarely	Ferries are open, cold (so people are wrapped up warm with scarves and jackets/hoods covering their heads which kind of creates barrier to conversation). Also most people are travelling as tourists so are in groups already. Therefore not much interaction. Trains are usually more social as I tend to use them when travelling to/from the airport so people are visitors or commuters and our shared 'purpose' of being on the train makes conversation easier. Bus/metro/tram are generally imperial and not easy for interaction
Participant 3	39	Open and looking for contact	Depends on mood and time
Participant 4	68	Everton Jos one choice	Time is important
Participant 5	43	Still, quiet, self-isolated. No contact, Yet always aware of the people around.	In UK it's really either bus or train and they are extremely similar. I do think the bus would be less congested with more of the people from one town and therefore it maybe more sociable.
Participant 6	41	Considerate but non-engaging niet of nauwelijks contact, tenzij er zich een bepaalde situatie voordoet, zoals in de trein tillen van een wandelwagen, opstaan voor een oudere, enz.	Not really.
Participant 7	56		neen
Participant 8	41	Lonely	If it's messy or busy, then I get less social
Participant 9	29	Don't bothering others, hoping they won't bother me.	I keep to myself in all forms of transport. In a taxi, however, I talk to the driver about his car.
Participant 10	25	I would say my social interaction with others is limited. I wait for others to step out of the vehicle first (I hate it when people already start squeezing in) and I do hold open doors for others (and politely thanking them when they do that for me). When I sit down in a four seater, I do nod and smile to others sitting there already. After this, I usually take out a book and spend my journey reading (without/with limited interaction). In case of the bus, I do make sure to greet the bus driver when hopping on and off.	It does not necessarily depend on the type of transportation. I think it depends more on the type of configuration of the chairs (e.g. four seaters where you look each other in the eyes) and also on how crowded it is (when closer together/looking for a place to sit/standing in the aisle I sooner exchange some words with others)
Participant 11	61	No contact, unless it is necessary. Then friendly.	NO
Participant 12	47	Neutral/normal and polite	Not depended of the type of transport.
Participant 13	25	In the Netherlands- quite closed interaction not more than a friendly smile	Not significantly
Participant 14	24	Without interactions with other travellers	No
Participant 15	27	Kind, friendly and well behaved	No

Participant	Age	Description of personal social behaviour towards other travellers	Does your social behaviour depend on the type of transport? And if so, could you explain why there is a difference?
Participant 16	26	Isolated	I think there's no difference in public transport, but there might be a difference between public transport and taxi. A taxi is a bit more personal since you're driving with just the driver and sometimes it might feel awkward not to talk. Also, in the bus I always greet the bus driver, in the tram I only do that when I get in in the front, in the train I sometimes greet the personnel, in metro I don't greet anyone.
Participant 17	25	Non-respondent	No
Participant 18	18	Greet people when sitting next or across from each other. And giving my seat away if someone old, or with a handicap doesn't got a seat.	Only when stepping in the bus I greet the busdriver. And in the train I do not. Because of the difference of where the machinist/busdriver is controlling the vehicle.
Participant 19	38	Sometimes connective, sometimes solitary	No. It depends on my own mindset and the goal of my travel
Participant 20	62	Kindly, polite, asking for respect	No
Participant 21	23	Secluded	No
Participant 22	24	I'm mostly listening to music, not really interacting with other travelers	Not so much on the mode of transports, but more on where I'm traveling and with what purpose. On holiday for example I am more social and interactive with other travelers when using different types of public transport
Participant 23	26	Not social at all	Always with a book or earplugs.
Participant 24	28	I am considerate to other passengers, because I am not the owner of the vehicle. Furthermore, I am curious and like to get into contact with other people (mostly abroad)	My sociableness raises with the travel time. So I am more communicative in trains or on ride pooling opportunities
Participant 25	26	Friendly, but not very interactive	Not that I'm aware of
Participant 26	26	I'm mostly minding my own business or am on my phone. If I have eye contact with others I smile, but I hardly join conversations	Hmm I don't really know. In public transport it is pretty much like just described, in a taxi I tend to talk to the driver
Participant 27	25	Polite, but as little as contact as possible	No
Participant 28	30		
Participant 29	39	Kind and tolerant	No difference
Participant 30	63	Normal and discrete	No difference in behavior
Participant 31	54	NOT much	No
Participant 32	54	Oké	No
Participant 33	64	sometimes I am talking with others.	No difference
Participant 34	25	Anonamous. Non-existent. Friendly	someone. In a metro or tram that is mostly not the case. Usually in a train there are more delays also and longer travelling, so thats opportunity for conversation.
Participant 35	23	Mostly on my own, listening to music or reading a book.	Not really, only taxi / Uber because you actually speak with the driver.
Participant 36	25	Neutral. I'm not likely to start a conversation but I will answer politely when asked a question.	No, any form of public transport is the same for me.

Participant	Age	Description of personal social behaviour towards other travellers	Does your social behaviour depend on the type of transport? And if so, could you explain why there is a difference?
Participant 37	54	Ik zal me netjes gedragen zodat ze geen overlast van me hebben.	Nee, maakt geen verschil.
Participant 38	28	Vriendelijk gedag zeggen, ruimte maken, verder op mijzelf; aandacht voor de reis	N.v.t
Participant 39	29	Friendly	I'm not a big fan of the bus or tram, too many stops and a lot of delays.
Participant 40	72	Calm	No difference
Participant 41	20	I don't really pay attention towards other travelers. Tho if they were to ask me something I would do my best to help them	
Participant 42	61	No idea how my behaviour would be/change	No
Participant 43	59	Loner	No
Participant 44	69	Quite and sometimes starting conversation	No
Participant 45	25	Not social, usually people are in a hurry and a bad mood (well, i travel really early in the mornings, most people are still 80% asleep and 20% travelzombie). I try to enjoy my morning music on my noise-cancelling headphone, which means i dont hear anybody	Not really, more dependent on the time i travel, morning/evening more anti-social since im either not awake or tired from a days work
Participant 46	24	Distant and ignoring	
Participant 47	27	Closed, I'm reading a book or listen to a podcast	No
Participant 48	24	Minding my own business, taking my own space (one seat), sometimes smiling/nodding at fellow women	In the bus I mostly look outside the window or on my phone. In the metro I like to look at other passengers because the seating structure is different. In the train I mostly read, because the seating is more like a bus.
Participant 49	28	Often I try to avoid getting in contact with them and rather look at my smartphone. If there is an old man or woman I will stand up and offer my seat	No
Participant 50	22	I usually listen to music or podcasts during my travels with public transport	I tend to talk more when i am in a taxi (socializing with the driver)
Participant 51	23	Closed. On my own.	In the tram, I am much more open than in the train. I think Thats different because it is a shorter distance. In for instance Uber pool, you mostly start a conversation because you are so close to someone
Participant 52	27	Non-existing. I prefer to read or listen to music on my own. Social behavior when getting on or off the train/tram/etc depends. When going on the train during rush hour I tend to be more aggressive to secure a seat.	The train is for longer rides, so I make sure I have a seat and prefer to sit in the silence area. Tram and metro are for shorter rides, so for me I'm not going to 'close myself off' as such and I'm willing to stand instead of sit.
Participant 53	58	It depends if i am in a hurry, when i am relaxed i'm sometimes in contact with the person(s) in front or next to me, but mostly i look around me or outside with no thoughts or playing on my phone a game	Yes it does! In a bus for example i will be allert because the ride is shorter, and i don't talk to anyone because i am allert to get out at the right station, with the train i am relaxed and i can sit down for an hour or so and look around and be excited to get to my appointment.
Participant 54	26	Open	Long distance more open

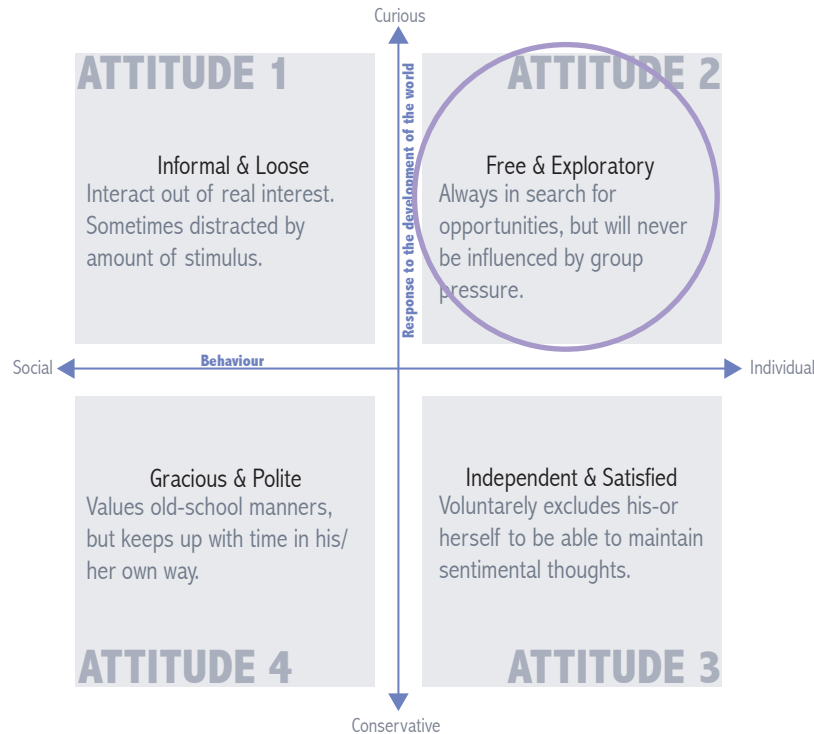
# Appendix D

## Interviews

### Interviews Seabubble users

An User Exploration Map (inspired on the Customer Exploration Map ("Customer exploration map, 2019)) together with the Context Structure (Appendix E) is used during the interviews to create a broad image of the people that experienced travelling by Seabubble.

#### Personal Rick (53)



#### Who?

Could you tell something about yourself?  
 I'm born and raised in Friesland and I'm broadly oriented regarding education: Architecture, traffic-academy (urban planning) and geology. This will be noticed in my daily work in the form of (computer)models, policy proposals, managing advices. The common thread: Things that really matter and questions like what we, as generation, leave for the next generation. At the department of Public Works and Water Management (Rijkswaterstaat) I am occupied with the future of the Wadden Region (with regards to the rising sea-level. I am looking into changes and threads of the region. Not only the sea-level is rising, the sand-level is rising even quicker, with as a result that the waters (of the Wadden Sea) are getting shallower. Dredging is not very sustainable, which is why we are looking for a more sustainable solution.

We try to look further ahead: What if the Wadden Sea bed extremely rises; should we think about alternative transport to the Wadden islands? Like boats with minimum draught, like the Seabubbles. It would be a fitting and clean way of transport, and even more when it would travel autonomously or even program the most optimal route. I am very curious to this technology.

#### Needs?

Why/for what do you use shared transport?  
 I only use the public transport (I don't use other services), which, as a government official, is sort of expected. But because I am living in an area, which is hard to reach, I often choose for private transport. I do combine one trip with several functions, like picking up my children.

What would be the optimal travel experience for you?  
 If there's not much fuzz about it like needing to use 3 types of mobility, or taking care of a lot of preparations. Furthermore it has to be flexible. It should pick me up at my starting-point and bring me to the very end. I am quite sensitive to my surrounding, so the physical surrounding is important, I should be able to look outside; it should be open and transparent.

How would you use the Seabubble?  
 See above

#### Likes/Dislikes?

Social behaviour during daily activities/shared travelling?  
 I like to have free rein. I don't feel very comfortable in both a group of people that I know as in a big group in public transport. I like having space to take care of personal tasks. In earlier days it was antisocial if you would travel with (music) earplugs, now it is more socially accepted and I like to dissociate myself for a moment. This would mean a moment for myself. It does not mean that I don't want to travel with a group, I just don't want to do something with them.

#### How?

How could social behaviour be stimulated? In general and/or shared transport?  
 Terschelling has 2 ferry-services: a quick and a normal one. I usually take the normal one, because I like to be able to move around when I'm with a bigger group. You are not fixated, you have space to move around. At the quick-ferry-service you have to stay seated for 45 minutes, you won't see anything of the trip itself, although it is such a beautiful surrounding. So, you would feel more free in your social behaviour because of the freedom of movement and it does not feel so bound.

# The Seabubble Experience

## Expectations

Did you had any expectations of the travel itself?

*No I did not have any expectations, that's why it was awesome. We were in contact with Advier for a year, amongst other things about the possibility of the Seabubble to travel on the Wadden Sea, but I still could not imagine how it would be.*

## First Impression

Could you explain how to get in and if there is something that caught your attention when getting in?

*It has a very low threshold: there was no special dock or stairs; you would just get in. It is very funny to get into such a small capsule. It is impossible to compare to a ferry-service or a boat because you get into it with other expectations. It is obviously no boat, but more of a capsule, which is why you don't have a clear image of what you are getting into.*

## The experience

- You had to bend over and search for a seat, can you remember which spot you choose and why?

*There were only 5-6 spots. 2 of them were in the front, I imagined that those were for the drivers so I didn't choose those. I got in as the last one so the others were already taken. I would have preferred a seat in the front row, but I was heading forwards anyway so I had a good view. I was mostly looking forwards, because you would know where you are heading.*

- What did you think of the space itself? Both in standing position as in sitting position?

*The space is simple and plain. Even the way of controlling had a plain look. There is only a handle, a control stick and a tablet and that is all you see. It is very functional. It did remind me of Tesla because of the simplicity and the lack of bells and whistles. As a passenger you sit in a big space, it doesn't feel as if you are sitting 'in the back'. There is less of a distinction between driver and passenger.*

- How was the view? Low/High/broad/narrow? Did it influence the experience?

*There's no panoramic view, that's also why I wanted to look ahead. Other than that there was no difference with a car. It was low on the water, but comparable to a normal sailing boat, so to me it didn't feel weird.*

- How did you experience the travel?

Could you explain it in a couple of words?

*Comfortable, almost boring (because you do not notice that you're traveling on the water; you don't bounce, you don't hear anything, it takes away the feeling of sailing).*

- Was there a specific element that made the entire (or just a part of) experience or more comfortable?

*not applicable*

- Is there something comparable(an experience or perhaps another vehicle)?

*not applicable*

## Social Stimulation

Was the space socially stimulating? If not, what was missing?

*Yes it was. You are seated with 5-6 people in a small space in a social arrangement (half a circle). There are no armrests or any other partitions. You are also quite curious to the way of travelling so there is already a conversation about it. The social part is being stimulated by the compact space and that is a quite special experience.*

*If it gets more common that there would be more space to get into your own bubble.*

*If there happens something in a train or other public transport than a reaction occurs. It influences everyone in some way and this could stimulate interaction. In the Seabubble you get into a small space, which brings a different interaction. I think you would feel sort of the same obligation to talk as during a taxi ride.*

## Other

Is there something else you would like to mention?

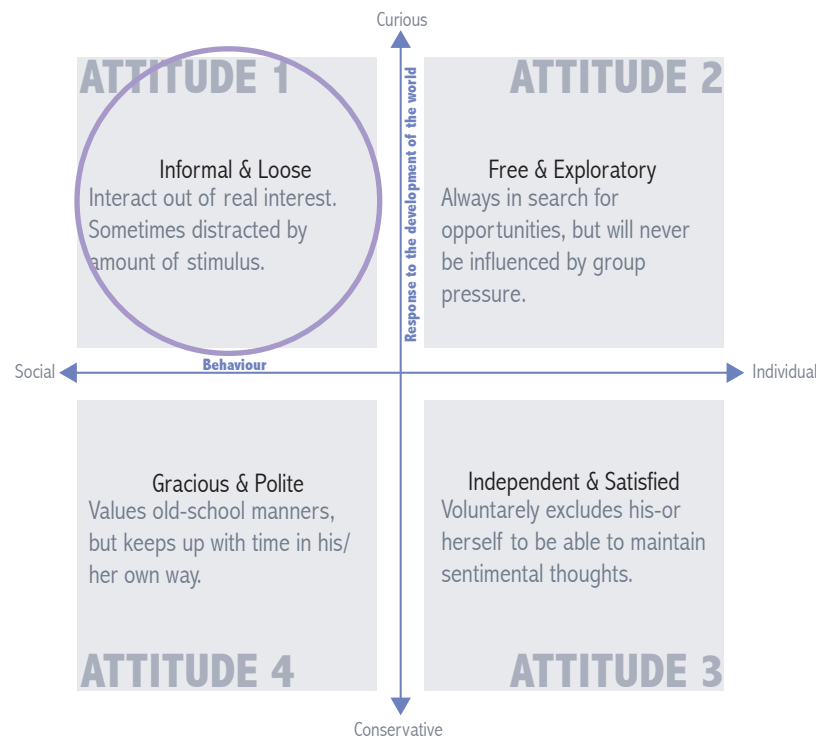
*The trip itself was very stabile and boring, but the feeling when getting lifted out of the water was very funny. The bounce of the water against the capsule disappears and when it lands back on the water it feels very soft. You actually don't see what's underneath the capsule when it is in the water, so it supprises you that it is so flawless and easy and that it does not have to work as hard as for instance a plane when it lifts itself.*

## Personal

Minze (52)



ADVIER  
MOBILISEERT



## Who?

Could you tell something about yourself?

Adviseur en ondernemer. Ik was 5-6 jaar geleden klaar met mobiliteits-wereld. Tot ik het Breder opgepakt mede vanuit uitnodiging van Toyota, New cities foundations en googleX, om in een denktank 'Dwarsdenkers' te gaan zitten. Mobiliteits-markt grootste gamechanger sinds opkomst internet en computer, omdat alle wereldwijde trends op een of andere manier gerelateerd zijn aan mobiliteit. Dat maakt het leuk maar ook ingewikkeld, want nu ben ik geen mobiliteits-specialist maar opeens ook ruimte-ontwikkeling, big-data, klimaat, energie-transities. In de denktank van 'Dwarsdenkers' kwam ik Seabubbles tegen. Seabubbles benaderd, met de vraag "wat kan ik voor jullie doen?", ik was de eerste die ze überhaupt heeft benaderd, dus ik was ook de eerste contractant. Toen in NL terugkwam, ben ik twee weken later in de trein gestapt naar Parijs, kennis gemaakt en een soort eerste overeenkomst opgesteld, daarna in nl aan de slag gegaan om Seabubbles Nederland op te zetten. Seabubbles had toen nog alleen een schaalmodel en sheets. Wat mij in Seabubbles aansprak: het was een beetje een droomverhaal, dit gaat je niet lukken zeiden ze ; toen werd ik juist enthousiast. En ik zag meteen alle mogelijkheden in Nederland voor me. Kijk naar het verleden dan leer je voor de toekomst. Alle vaarwegen liggen er nog. Dit kan echt een oplossing zijn. En een fantastisch voorbeeld van innovatie: vliegtuig-technologie in een boot stoppen.

## Likes/Dislikes?

Social behaviour during daily activities/shared travelling?

-In militaire diensttijd reisde ik veel met de trein, ik ging dan in de rook-ruimte, niet roken is dan een regel dus roken/eten opent gesprek.  
-Roken is nog steeds een plek waar je mensen tegenkomt en praat. Ik sta weleens in een rookhok puur om te netwerken, niet om te roken. Het feit dat je samen iets moet/kan doen maakt een sociaal moment. ookal rook je niet, dan is het meer een netwerkplek. Samen iets moet doen, eten heeft het ook een beetje, dat is een moment om een gesprek te starten, een aanleiding om iets gezamenlijks te doen is nodig.  
-Meeste mensen van nature stil, wie maakt de eerste de coupe aan het zingen? Niemand begint, maar ik zou dat wel willen doen.

## Needs?

Why/for what do you use shared transport?

Ja, ik ben een autoliefhebber, zit er graag alleen in of met weinig, met iemand die niet veel kletst. Maar als ik in gedeeld vervoer zit dan zie ik dat vooral als een sociaal moment, dan klets ik graag. De millennial gedraagt zich anders en is een voorbeeld voor de generatie ervoor. Ze doen goed wat de babyboomers verprutst hebben. De Sharing economy en het bewuster leven gaat ons overkomen. Omdat het noodzaak is en omdat mensen het willen. Het reizen en het zelf rijden kan ik van genieten, het gaat dan om de rij-ervaring, dat is een hobby. Maar je ziet mij in het weekend niet vrijwillig in de auto, wel op de motor.  
Ik heb wel heel veel gelift, ik neem lifters ook 99% van de gevallen mee, verkennen en ontdekken. 98% vd momenten dat je lift is een ervaring an sich: je hebt een leuk gesprek. Verrassings-element van liften maakt het leuk.

What would be the optimal travel experience for you?

- het gevoel van bewegen, liefst in een mooie omgeving en de controle erover.  
- Een zo fantastisch mogelijk sociale ervaring. En dat is Als je een leuk gesprek hebt gehad, iets wat je kan herinneren, iets wat een verhaal creëert.

How would you use the Seabubble?

-Waar: Gewoon in heel Nederland, maar Rotterdam en Amsterdam is grootste markt. Testen en pilots is beter in een kleine markt, zoals Dordrecht. Drechtsteden: Meest drukbevaren gebied van Europa. Als het daar kan dan kan het overal.  
-Alle ambities helemaal vol open: vraag afhankelijk, prijs afhankelijk, auto-noom. Het wordt een keer openbaar vervoer, maar dat past niet bij het concept seabubbles. Ik zie het als mobiliteit als vastgoedsservice, het zit bij je woning: als deelmobiliteit. Deelmobiliteit is zonde om stil te leggen. Het moet een soort uber worden. Volledig ecosysteem: dockingstation, energievoorziening en het vervoer en de ict dat moet matchen.

## How?

How could social behaviour be stimulated? In general and/or shared transport?

- kleine units (4 of 5 man), face to face, koffie en eten  
- bij grote ruimte, bij meer mensen van een meer diverse achtergrond, komen er altijd automatisch regels, hoe meer regels>hoe minder sociaal. Goed voorbeeld: zoals een stile-coupe, als ik dan toch wat zeg dan reageren mensen redelijk asociaal. Niemand vraagt jou vriendelijk om stil te zijn. Zodra je een regel op het bord plakt, zijn mensen anders sociaal. Het is ook menselijk eigen.

## The Seabubble Experience

### Expectations

Did you had any expectations of the travel itself?

*Ja, heel spectaculair qua reizen, qua beleving, motorgevoel: het lijkt alsof ie heel hard gaat, het stijgen en landen, je verwacht iets leuks.*

*Spectaculair, scheuren door de bochten.*

### First Impression

Could you explain how to get in and if there is something that caught your attention when getting in?

*Er viel me niks op, wel de luxe uitstraling, de stoeltjes naar elkaar toe. Omdat je bij vervoer bijna altijd de stoeltjes achter elkaar hebt zitten. Dus je gaat er al inzitten met een gezellig idee. De luxe uitstraling ligt aan het hele bootje. het bootje: er is ruimte en licht, een glazen koepeltje, het geeft toch een futuristisch gevoel. Je associeert het met een jacht, geen rubberboot.*

### The experience

- You had to bend over and search for a seat, can you remember which spot you choose and why?

*Bij de kapitein op de rand gaan zitten, ik wilde zien wat er gebeurd, niet perse om vooruit kijken maakt niet uit. Geïnteresseerd in techniek.*

- What did you think of the space itself? Both in standing position as in sitting position?

*Alleen staand, met de deur openvaren krijg je echt het vervoer beleving en dan kan je gewoon staan en hangen, ik heb geen een keer gezeten, maar ben ook als rol van gastheer aanwezig geweest. Als het gesloten is, dan moet je jezelf herinneren dat je in een boot zit, hele andere beleving dan dat je openvaart. Je stuitert niet en je praat zonder stemverheffing hoe kan dit? Het gebeurd gewoon.*

- How was the view? Low/High/broad/narrow? Did it influence the experience?

*Panoramisch zicht, heel mooi. Vergelijkbaar met de Jetsons.*

- How did you experience the travel?

Could you explain it in a couple of words?

*Het reizen is heel prettig, maar de beweging is niet spectaculair. Stijgen en landen van een vliegtuig is het leukste, als ik op de motor zit dan vind ik bochten het leukst. De Seabubble is vrij saai. De niet-smooth ervaring is vaak het leuke. Misschien is een zeppelin of een ballonvaart hetzelfde, de reis zelf is niet spectaculair, maar Het uitzicht is leuk. Een vliegend tapijt idee.*

- Was there a specific element that made the entire (or just a part of) experience or more comfortable?

*Ja, het zweven, want je voelt niks en je hoort niks, dat was ontspannend. Ik kan me voorstellen dat mensen wat unheimisch worden. Het is een zweef ervaring. Het voelde bijzonder en bevrijdend.*

- Is there something comparable (an experience or perhaps another vehicle)?

*Ballonvaart, als je van een gewone/oude auto in een nieuwe hydraulische auto stapt. Alles gaat ineens bijna automatisch, je voelt het verschil in techniek.*

### Social Stimulation

Was the space socially stimulating? If not, what was missing?

*- Ja, je kijkt elkaar aan. In de huidige opstelling zou ik het voor mezelf heel onprettig vinden om iets voor mezelf te gaan doen. Zeker als je 1 tegenover 1 zit, dan voelt het alsof je asociaal doet als je niet communiceert.*

*- nog meer sociaal stimuleren zou het kunnen zijn door: geen Wi-Fi, wel telefoon oplader achter een gesloten deurtje, of juist niks of een centraal aspect. Sinds de Wi-Fi in de trein is het er niet gezelliger op geworden.*

### Other

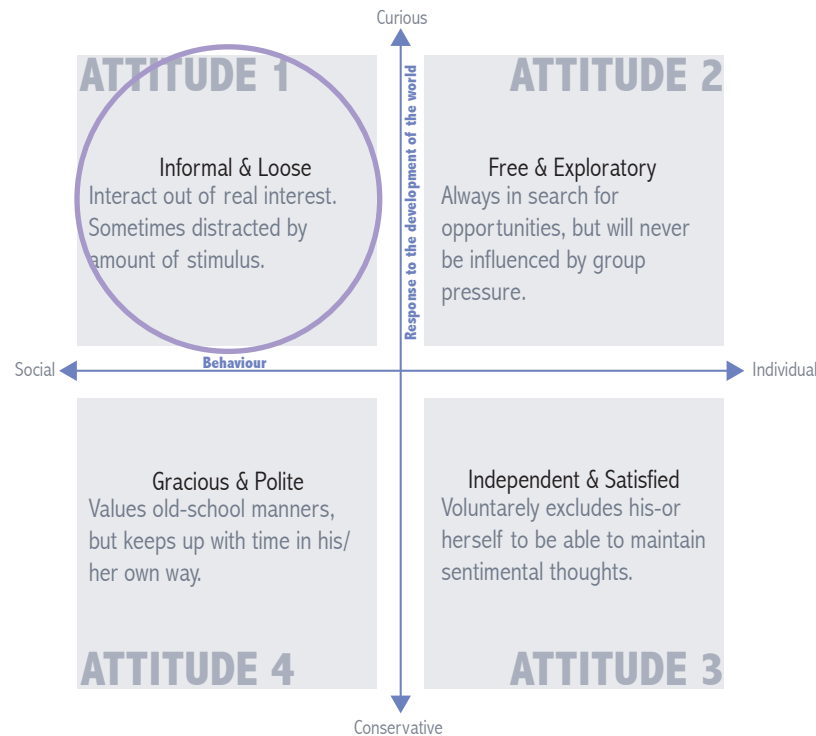
Is there something else you would like to mention?

*Het zou een zwevende vergaderzaal kunnen zijn, creatieve ruimte, rondje maas, goede plek voor brainstormen. Je ziet alles aan je voorbijtrekken. Het nodigt uit om creatief te worden. De reizende vergaderzaal. Ideaal voor een functioneringsgesprek. Open water associeer ik altijd met rustgevend, dit is ook rustgevend. Je zit als een soort toeschouwer in het bootje. De uitstraling v/d Seabubble is ook rustgevend, inspiratievol. Die vleugeldeur associeer je ook met luxe en de instap is ruim en groot en het is licht. Dat is open en ruimtelijk, je voelt je anders ingeblikt, een glazen koepel is wel heel erg lekker.*

# Personal Gerwin (49)



Rijkswaterstaat  
Ministerie van Infrastructuur en Milieu



## Who?

Could you tell something about yourself?

*Ik ben een sociale reiziger want ik kies ervoor, ook tijdens werktijd, om tweede klas te reizen. Ik zonder me niet af. Ik ben Nieuwsgierig, ik voel me een halve innovator, ik ben erg op zoek om problemen via een innovatieprothese op te lossen. Niet perse technologiseren, want technologie moet wel inclusief blijven. Ik kijk er dus met een maatschappelijk toegevoegde waar naar.*

*Ik werk bij Rijkswaterstaat, vanuit die hoedanigheid uitgeleend naar Rijke Waddenzee. Rick en ik zijn samen uitgeleend en wij zijn vanuit het verleden al bezig gegaan met duurzame mobiliteit naar de Wadden eilanden. De Waddenzee verzand verder, van dien aard dat dat veel baggerwerk noodzakelijk maakt. Vanuit klimaat effect blijft dat nog doorzetten: dus de Waddenzee wordt steeds ondieper. Het verwondert ons dat wij hier op bezig zijn op de manier zoals we bezig zijn. Als je in de toekomst wilt blijven varen dan moet je goed gaan nadenken over een innovatieopgave wat betreft ondiepere vaartuigen, wat is er op technologisch gebied gaande? Tunnelbuistechniek, drones, scheepvaart, etc. De Seabubbles is interessant om het kleinschaliger, duurzaam, het produceert geen geluid, golfslag, dat maakt het heel interessant. Iets met schaalvergroting zou dit ons enorm kunnen inspireren.*

## Likes/Dislikes?

Social behaviour during daily activities/shared travelling?

*In mijn reisgedrag denk ik dat ik sociaal reis, als ik met de trein kan reizen, dan doe ik dat ook. Ik stel me sociaal op, ook tijdens werktijd. Ik reis dan tweede klas, dat vind ik socialer dan mijn eigen plekje en genoeg ruimte en dus eerste klas. Ik heb een strategie docent gehad die zei "ik zit bewust in de tweede klas want dan neem ik meer van de wereld waar als in de eerste klas". Dat vond ik een hele mooie uitspraak. Als ik niet perse uren achter de laptop moet maken kan ik net zo goed tweede klas reizen. Dat zie ik socialer dan alleen in mijn eigen auto reizen.*

## Needs?

Why/for what do you use shared transport?

*Werk en prive, familiebezoek, vakanties en dat soort zaken. Binnen ons gezin is nu zelf de discussie in welke maten we nog willen vliegen. Reizen met de trein is wel leuker voor de beleving, dit kan met mijn jeugd te maken hebben, dat is zoveel mooier dan met een grote bus door de lucht gaan. De reisbeleving wordt anders overgeslagen. Ik vind wel dat wij als maatschappij anders naar gedeeld transport moeten kijken, met een veel duurzamere bril.*

What would be the optimal travel experience for you?

*Dat vind ik lastig, het hangt er erg vanaf wat je als doelt stelt. Dat is een beleving die voldoet aan een verwachting of het overtreft. Als je zelf reist, de beleving van de zee opgaan, ik ga naar een eiland, dit is de ruigte van de natuur, dan kan je je voorstellen om kansen in de reisbeleving te vergroten. Dat krijg je al een beetje op de veerboot mee. Reisbeleving is dus erg afhankelijk van wat je ten doel stelt. De Rust, warmte, reinheid beleven op de wadden, daar zou je de reisbeleving op kunnen aanpassen. Duurzaam aspect, meekrijgen van de reis, en een voorproefje krijgen van de reisbestemming. Verschilt per reis.*

How would you use the Seabubble?

*Zie eerste vraag*

## How?

How could social behaviour be stimulated? In general and/or shared transport?

*Dat hangt ook van het moment en een reactie af. Je zit met z'n allen in zo'n collectief vervoersysteem dat zet al de basis. Dingen als inrichting, kunnen interactie vergroten. Als je nu bijvoorbeeld naar de snelboot kijkt, dan zit je in rijen in een vliegtuigopstelling, want dat is efficiënt, maar of dat sociale interactie bevordert vraag ik me af. Er is geen gezellig hoekje. In de Seabubble zitten stoelen die naar elkaar toe staan. Maar niet iedereen heeft behoefte aan dit sociale contact. Sociaal contact is niet altijd zaligmakend.*

# The Seabubble Experience

## Expectations

Did you had any expectations of the travel itself?

*Niet heel uitgesproken, we hadden al links en rechts wat informatie gehad. Het leek kleiner dan ik had verwacht.*

## First Impression

Could you explain how to get in and if there is something that caught your attention when getting in?

*Je stapt in een soort koets. Het is vrij eenvoudig, het is wel een High-tech vormgeving. Je stapt in een future-achtig geval, dat doet ook wel wat met je, dit is nieuw, dit is anders, dat verleid ook tot inspiratie. het roept vragen op naar wat we zo gaan beleven.*

## The experience

- You had to bend over and search for a seat, can you remember which spot you choose and why?

*Helemaal achterin zodat ik ook naar voren kan kijken, dan zie ik ook hoe het bestuurd wordt. Dat was op lpad niveau en ondertussen tijdens het varen heb je ook interactie met de bestuurder.*

- What did you think of the space itself? Both in standing position as in sitting position?

*Het eenvoudig wat het uitstraalde.*

- How was the view? Low/High/broad/narrow? Did it influence the experience?

*Je kijkt ook achteruit door het kleine raampje, nieuwsgierig naar de golfslag, de waterverplaatsing is heel laag. Golfwerking is in een natuurgebied natuurlijk heel belangrijk. Dus eigenlijk heb ik 360 graden om*

*me heen gekeken. Uitzicht is in natuurgebieden wel een heel belangrijk aspect.*

- How did you experience the travel?

Could you explain it in a couple of words?

*Hoe simpel het kan zijn, de ervaring zelf: je stapt in, er wordt een ipad ingeklikt, en je komt uit het water, je vaart stabiel door, je gesprek kan je voortzetten. Het is rustig, het is eenvoudig in positieve zin en stabiel. Een rustige reisbeleving. Het is relatief stil dus de interactie blijft doorgaan. Het is rust.*

- Was there a specific element that made the entire (or just a part of) experience or more comfortable?

*Het beleven van de ruimte waar je doorheen vaart, de weidsheid, geulen, zandplaten, natuur, dat meekrijgen is wel een mooie pré als je zo de beleving kan versterken. Verder zijn goede stoelen belangrijk en daarnaast was ik wel opzoek naar waar ik mijn rugzak kon neerzetten, ik kan me voorstellen dat er nog iets ingericht moet komen voor handbagage. En een koffietje wil je vast ook kwijt, dat kan nu niet.*

- Is there something comparable(an experience or perhaps another vehicle)?

*Achteraf gezien, zat ik laatst toevallig in een Tesla en dan zijn er wel wat parallel overeenkomsten, de elektronische besturing, het "next generation" - gevoel, en duurzamer: innovaties zoals de Energy-Observator, dat is een prototype schip dat het duurzaam varen mogelijk maakt. Mensen laten zien dat het al kan is belangrijk en dit soort vormen is goed om mensen aan te zetten op het wijzen naar de toekomst.*

## Social Stimulation

Was the space socially stimulating? If not, what was missing?

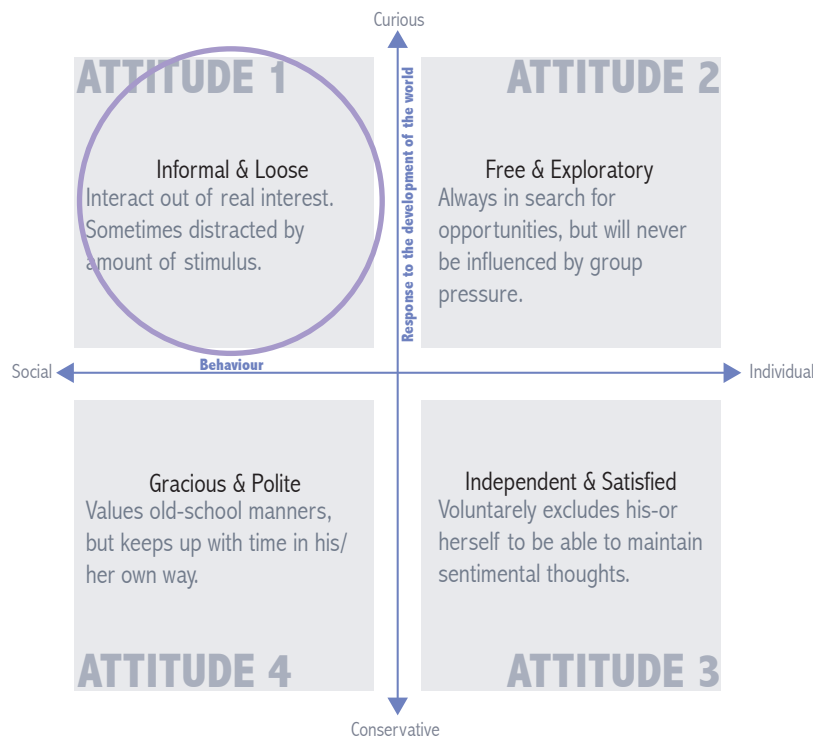
*Sociaal in de zin van toegankelijkheid in de maatschappij: Wij hebben onlangs stil gestaan bij het feit dat je goed moet nadenken bij de technologische ontwikkeling van mobiliteit. Bijvoorbeeld gezien vanuit de overheid; hoe dit inclusief kan blijven voor de hele maatschappij. Het moet toegankelijk blijven, dat technologische ontwikkeling van mobiliteit wel waarde blijft bieden voor de hele maatschappij. Het moet niet alleen maar exclusiever worden dan kan het discriminerend gaan werken. Je moet je bewust blijven van "Voor wie en wat doe ik dit nu?" met maatschappelijk perspectief als uitgangspunt.*

## Other

Is there something else you would like to mention?

*Het moet niet allemaal tot leiden tot exclusiviteit. Daarnaast is iets wat ik heel interessant vind in het waddengebied een reactie op de containerramp: de verbondenheid van Nederland die je dan ziet ontstaan is enorm. Het punt is dat er een hele grote verbondenheid met de identiteit is van het waddengebied; sociaal in de zin van identiteit. Mobiliteit is niet alleen maar een faciliterend goed, het is ook gekoppeld aan eilanders want daardoor voelen mensen zich meer eilander. Daarom is een tunnel voor eilanders iets wat doet met hun identiteit.*

## Personal Menno (33)



### Who?

Could you tell something about yourself?

*Ik werk bij Deal, de regionale promotie en acquisitie organisatie van de Drechtsteden (dat zijn 7 gemeentes in de buurt van Rotterdam), wij promoten onze regio als mooie investeringslocatie en wij acquireren ook bedrijven die van ons van toegevoegde waarde zijn. Alle gemeentes liggen bij ons aan het water, wij doen dus veel bij de maritieme maak-industrie, maar wij kijken ook gericht als organisatie naar initiatieven die bij ons problemen kunnen oplossen. Wij hebben veel file-druk in de regio en er wordt te weinig gebruik gemaakt van het water, het is bijna een maatschappelijk probleem. het water wordt als grens beschouwd in plaats van kans. We hebben wel een waterbus varen die wat haltes aandoet, maar echt het fijnmazige personenvervoer dus echt naar een locatie toe varen dat hebben we niet. Ik ken de eigenaar van Seabubbles en ik heb hem benaderd met het feit dat ik de regio een push wil geven en ik wil iets innovatiefs hebben op het water, dus ik heb gevraagd of het bootje hier niet een keer kan varen.*

### Likes/Dislikes?

Social behaviour during daily activities/shared travelling?

*Hangt heel erg van doel af. Als ik prive reis dan stel ik me socialer op. De Seabubble zou ik denk ik wel zakelijk gebruiken omdat het dit ook mogelijk maakt(het werken tijdens de reis).*

### Needs?

Why/for what do you use shared transport?

*Ik gebruik het niet vaak, ik zou het nu alleen gebruiken op prive basis; zoals uber. Het Ov gebruik ik niet zo vaak, ik woon namelijk op een redelijk landelijke locatie dus daar is niet veel ov. Door de reistijd ook.*

What would be the optimal travel experience for you?

*Op een zo efficient mogelijke manier van A naar B. Daarbij niet teveel ander tijd verlies; ik zou graag nog willen werken, ik zou graag een wat rustigere omgeving zitten, in de trein als je niet in de stille coupe dan wordt er her en der nog behoorlijk veel gesproken. Alle voorzieningen die het voor het doel makkelijk maken om te reizen.*

How would you use the Seabubble?

*Bij ons los je meerdere problemen op; wij kunnen de inwoners van de Drechtsteden vragen of ze meer gebruik willen gaan maken van een watertaxi dus dat je echt de regio's met elkaar verbinden, misschien bij een specifieke locatie een specifieke stijger; echt de consumentenmarkt. De zakelijke markt is dat je ook de bedrijven niet meer over de dijken laat rijden maar ook over het water laat gaan. Anderzijds kunnen we ook toerisme ermee een push geven, er zijn dus meerdere markten voor ons.*

### How?

How could social behaviour be stimulated? In general and/or shared transport?

*- Door een goeie kapitein te hebben, die het gesprek pro-actief aanknoopt.*

*- positie in het voertuig, in 4 zits is het makkelijk,*

## The Seabubble Experience

### Expectations

Did you had any expectations of the travel itself?

*Nee, ik ben zelf ook windsurfer, ik wist dat het wat rustiger zou zijn dan een conventionele boot. Dat het stil zou zijn en dat er een opstartperiode zou zijn. Dat het zo rustig zou zijn had ik niet verwacht. Bij een minimale snelheid stijgt het op. Dat maakt de reiservaring heel prettig, je kan ook serieus ook werken, het geeft ook wel de mogelijkheid om te praten.*

### First Impression

Could you explain how to get in and if there is something that caught your attention when getting in?

*Ik vond het heel ruimtelijk opgezet, het lijkt heel klein maar dat is het niet. Het ligt aan hoe de ruimte gebruikt wordt, het is heel efficiënt, kleine zitjes met voldoende ruimte, groot midden plateau waar je jezelf kan bewegen, wordt veel glas gebruikt en lichte kleuren.*

### The experience

- You had to bend over and search for a seat, can you remember which spot you choose and why?

*Ik heb niet een specifieke plek gekozen.*

- What did you think of the space itself? Both in standing position as in sitting position?

*Ik heb het alleen zittend meegemaakt.*

- How was the view? Low/High/broad/narrow? Did it influence the experience?

*Heel groot zicht, je hebt niet heel erg door dat je boven het water*

*zweeft, normale boot heeft ook een diepe kiel dus qua hoogte heb je het gevoel dat je in hetzelfde zit.*

- How did you experience the travel?

Could you explain it in a couple of words?

*Duurzame, innovatieve, relaxte manier van reizen. Of het avontuurlijk is, is de vraag, meestal vinden mensen het veel gaver als je wel de boot op het water voelt klapperen maar dat draagt bij aan een ander type ervaring. Dit draagt bij aan een relaxte efficiënte manier van reizen.*

- Was there a specific element that made the entire (or just a part of) experience or more comfortable?

*Ja het moment dat het daadwerkelijk dat het boven het water zweeft, dat je echt aan het reizen bent, dat maakt het heel relaxt.*

- Is there something comparable (an experience or perhaps another vehicle)?

*Yoga, want het is dermate relaxt. Of ik nou op een matje zit in de lotus houding of in de Seabubble, dat vind ik wel een beetje hetzelfde.*

### Social Stimulation

Was the space socially stimulating? If not, what was missing?

*Het ziet er een beetje als een tandartspraktijk uit van binnen, het is heel klinisch. dat draagt wel bij aan de relaxt-heid, want je wordt niet afgeleid. Maar als je meer sociale impulsen wil hebben dan moet je iets meer gaan doen met kleurgebruik, accenten of details. Maar dat gaat wel weer ten koste van hoe ruimtelijk het overkomt.*

### Other

Is there something else you would like to mention?

*Als je in een kano zit, op super glad water in Zweden, geen wind met perfecte weersomstandigheden, dat je kano lekker doorglijdt, dat is het effect, dat je geen rimpel voelt. Of op een super strak geprepareerde piste skiën, is ook een beetje hetzelfde.*

# Appendix E

## Constructing the context

### Clarification of appendix E

All factors are grouped into clusters. The type of factor is explained by the abbreviations. Some factors refer to the survey (Appendix C) and some factors are not referenced because it relates to personal beliefs or observations.

### Meaning of abbreviations

Bio = biological	Dem = demographic
Ev = evolutionary	Soc = sociological
Ec = economic	P = principal
Tech = technological	D = development
Cult = cultural	S = state
Psych = psychological	T = trend

## Appendix E.1: Factors & clusters

### All-round communication

Different ways and media to communicate.

- A spoken text is verbal & visual (facial expression, gesture, posture, etc.). (Kress & van Leeuwen, 2006) (Cult. S.)
- Art allows people from different cultures & different times to communicate feelings (Casey, 1971) (Cult. S.)
- Visual language is culturally specific. (Kress & van Leeuwen, 2006) (Cult. S.)
- Non-verbal communication can complement verbal communication but it can replace it as well. (Argyle, 1972) (Soc. P.)
- Metaphors can give a vivid understanding. (Geary, 2009) (Soc. P.)
- People combine elements from the languages they know to make themselves understood. (Kress & van Leeuwen, 2006) (Soc. S.)
- Art can be used as a socially engaged practice to let people collaborate/communicate. ("The art of social change", 2018 ; "Socially engaged practice", 2015) (Soc. S.)

### Influenc(ed)(ing) Society

We influence others, and others influence us in our daily decisions: we creatively share, monitor & adapt.

- Life-logging: continuously share trophies and achievements. (Cult. T.) ("Travel experience tomorrow", 2016)
- More than 95% of the 12-45 year old people is online on daily base. ("Trends in Nederland 2019", 2019) (Cult. T.)
- AI as digital assistant will influence the regular ways of communication. (Zantal-Wiener, 2018) (Tech. T.)
- People (un)consciously sort the world in categories. (Leeuwen, Park, & Penton-Voak, 2012) (Ev. P.)
- Visuals are a very important convincing aspect in advertisement. (Patrick & Hagtvedt, 2011) (Psych. S.)
- Adoption & Usage of a vehicle can be monitored. ("How Watson-enabled connected cars drive innovation, 2018) (Tech. D.)
- Metaphors can influence decisions. (Geary, 2009) (Psych. P.)
- Our instinct is to go with the majority vote. (Sharot, 2017) (Soc. P.)
- Our instinct is to imitate the choices of others. (Sharot, 2017) (Soc. S.)
- Common ground wins: When convincing, arguments that do not contradict with prior beliefs are more effective. (Sharot, 2017) (Soc. P.)

### Taking others into account

Awareness of the world around us becomes more important: The population grows and sharing homes/products/travel is upcoming.

- The digital era redefines etiquette. (Rieland, 2013) (Soc. T.)
- Many commuters think others are not interested in talking which keeps them from making contact. (Epley & Schroeder, 2019) (Soc. T.)
- Most institutions are designed for extroverts. (Cain, 2012) (Soc. D.)
- People's social behaviour (during shared travelling) is mainly negatively influenced by: the attitude of others. [Survey] (Soc. P.)
- People's social behaviour (during shared travelling) is positively influenced by: people's mood, the attitude of others and the reason for travelling. [Survey] (Soc. P.)
- The skills of humans to adapt is challenged by the design of interactive responsive & self-evolving artefacts and environments. (Özcan & Bruns Alonso, 2017) (Ev. P.)
- When sharing a vehicle you have to keep other travellers in mind. (Soc. P.)
- Sharing is popular. (Cult. T.) ("Travel experience tomorrow", 2016)
- Flexibility in work and individual wishes is needed to escape/get inspiration/ get new contacts. (Cult. T.)("Travel experience tomorrow", 2016)
- People, Planet, Purpose: Awareness of oneself and the world is the new base of the "economy of meaning". (Cult. T.) ("Travel experience tomorrow", 2016)
- Crowding: Transportation networks remain unchanged, therefore there is a struggle with unforeseen traffic. (Fitzsimmons & Fessenden & Lai, 2017; Corwin & Pankratz & Dinamani, 2019) (Dem. D.)
- The world's population is expected to urbanize. ("World urbanization prospects: the 2018 revision", 2019) (Dem. D.)

## Trying to keep up the pace (time pressured, fast changing society)

high speed technological development + Living at greater speeds, but all within the same amount of time like there was before.

- Volunteering time makes people feel like they have more of it. (Britt, 2018) (Soc. D.)
- People feel the need to be 'the best one can be'. (Özcan & Bruns Alonso, 2017) (Ev. P.)
- More employees are psychologically tired because of work. (17% has these complaints a couple times a month). ("Trends in Nederland 2019", 2019) (Psych. T.)
- Technologies create a gap between the human senses & the understanding of what is being sensed. (Özcan & Bruns Alonso, 2017) (Tech. D.)
- Vehicles become more connected & intelligent. ("How Watson-enabled connected cars drive innovation, 2018) (Tech. D.)
- People are pressured by lack of time: we travel at greater speeds, but we work, eat sleep & play in the same proportions as before. (Thackara, 2005) (Tech. D.)
- The next generation mobile broadband 5G is coming, makes faster streaming possible. (Collins & Das & Ménard & Patel, 2018) (Tech. D.)
- We are forced to have money to maintain a good quality of life. (Ec. P.)
- A brain processes images 60.000 times faster than written language. ("Amanda Phingbodhipakkiya: The storytelling of science", 2016) (Bio. P.)
- Multitasking could lead to better results. (Andrade, 2010) (Bio. S.)
- Physical boundaries limit our dreams and desires. (Bio. P.)
- All older persons suffer from the tighter and more aggressive traffic. ("How Watson-enabled connected cars drive innovation, 2018) (Dem. T.)

## Best of both worlds (Nostalgia for the old <-> curiosity to the new)

The preference of people goes into two ways: New (technological) products and experiences, but the nostalgic ambience of vintage products as well.

- Upcoming intelligence amplification devices (using silent speech recognition) could make interaction with technology more discrete & unobtrusive. (Golembiewski, 2019) (Tech. D.)
- People are hesitant about the unknown (trust has to be earned). (Psych. S.)
- Millennials will be 75% of the world's population in 2025. (Dem. D.) ("Travel experience tomorrow", 2016)
- The amount of 65+ aged people will double in the coming 25 years. (Dem.D.) ("Travel experience tomorrow", 2016)
- Multi Life: More people tend to have a side-job or spend half a lifetime married and the other half as a single. (Cult. T.) ("Travel experience tomorrow", 2016)
- Vintage attributes are frequently offered nowadays. (Cult. T.)
- There are more visits to concerts and museums. ("Trends in Nederland 2019", 2019) (Cult. T.)
- Millennials rather spend their money on experiences than on products. (Ec. T.) ("Travel experience tomorrow", 2016)

## Social overload

More and more products/services are meant for social interaction.

- Social behaviour is evolutionary conserved. (Provenzano & Chelini & Bozzi, 2017) (Ev. S.)
- Knowledge sharing & human information behaviours originate in early humans. (Spink, 2010) (Ev. P.)
- Using shared-travelling-services saves money. (Ec. S.)
- Economic factors effects Millennials in car-ownership; explaining the difference in car-ownership between Millennials and older generation. (Klein & Smart, 2017) (Ec. D.)
- Intelligence amplification (the use of technology to augment human intelligence) through wearable AI (eg. Hearables like Apple AirPods) is upcoming. (Golembiewski, 2019) (Tech. D.)
- Many people do not interact during travelling by shared transport. [Survey] (Cult. T.)
- Most people only make contact during shared travelling if they have to. Otherwise they do not make a lot of contact. [Survey] (Soc. T.)
- People tend to distinguish themselves from others. (Soc. P.)
- Social behaviour in public transport differs from social behaviour during carpooling/taxi-services. [Survey] (Soc. T.)
- People need privacy (-moments). (Soc. P.)
- People are more social on Holidays. (Soc. P.)

## Work on yourself (you are n.1)

Scheduled personal time for self-enhancement/relaxation/  
practice/mindfulness; putting yourself first without shame.

- There is a connection between DNA and happiness/ depression. (Baselmans & Okbay & Cesarini, 2016) (Bio. S.)
- Smartphone use has negative effects on memory. (Maes, 2019) (Bio. D.)
- Music improves memory, attention, physical coordination & mental development. (Sharma, 2019) (Bio. S.)
- Enhancement technologies could help us regulate emotions. (Maes, 2019) (Tech. T.)
- Brief meditation reduces fatigue, anxiety & increases mindfulness (Zeidan et al., 2010) (Psych. S.)
- There are 4 personality clusters: self-centred, reserved, role model and average (Price, 2018) (Psych. S.)
- Humans have by nature, formal laws in 3 keys areas: kinship, safety and use of objects. ("Six characteristics that define human nature", 2018) (Ev. P.)
- People learn through practice. (Ev. S.)
- The amount of single person households increases .("Worden we individualistischer?", 2017) (Dem. D.)
- People buy stuff to make themselves happy. (Ec. P.)
- Public transport is important to older people's quality of life, their sense of freedom and independence. (Shrestha & Millonig & Hounsell, 2017) (Cult. S.)
- Car use is seen to provide opportunity for personal control and autonomy. (Marsh & Collet, 1986) (Cult. P.)

## Ingrained habits

How it was done before, can still be done in the same way  
now.

- Couples and families with children more often travel by car than singles do. (Steg, 2003) (Dem. S.)
- Higher income groups relatively more often travel by car than lower income groups. (Steg, 2003) (Dem. S.)
- Very few people use shared water transport. [Survey] (Dem. S.)
- Public transport is seen as: lacking status; comfort and convenience. (Stokes & Hallett, 1992; Hamilton & Jenkins & Gregory, 1991; Stokes & Hallett, 1992) (Cult. P.)
- With age, older people start to: walk more; drive less; use more public transport. ("How Watson-enabled connected cars drive innovation, 2018) (Cult. P.)

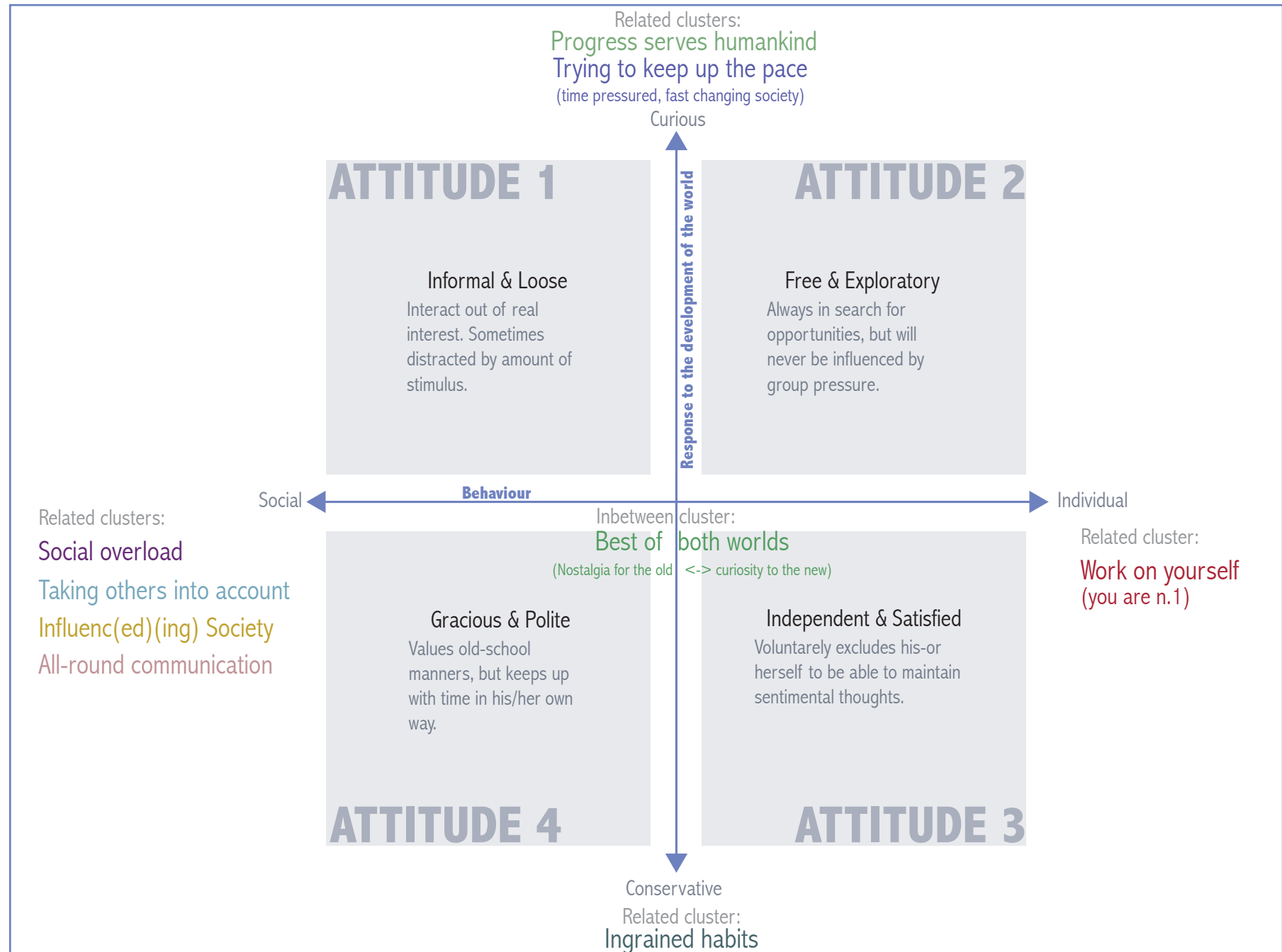
## Progress serves humankind

Designing, discovering, doing research: Developing keeps  
us busy

- Neuroscience will enable the control of products by an implant in the brain (Musk, 2019) (Bio. D.)
- To adapt biological movements into the design; plants and animals have already mastered it and can be of great inspiration. (Özcan & Bruns Alonso, 2017) (Bio. S.)
- There is an increased supply & awareness of travel options other than cars, for people without cars or limited access to cars. (Klein & Smart, 2017) (Cult. T.)
- Design can shine a light on science ("Amanda Phingbodhipakkiya: The storytelling of science", 2016) (Tech. P.)
- Automated mobility has the potential to contribute to job creation & economic growth ("EC exploring economic impact of autonomous driving", 2019), ("How cities can benefit from automated driving", 2019) (Ec. D.)
- Money makes a product: "An object no longer stands merely for what it is, but also for the amount of money that was paid for it" (Weber-berg, n.d.) (Ec. P.)

## Themes & Future attitudes

The clusters of appendix E.1 are divided into two themes 'Response to the (technological) development of the world' and 'Behaviour (towards other travellers)'. These themes led to the definition of 4 passenger attitudes.



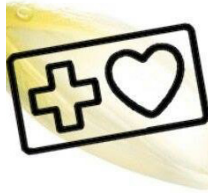
# Appendix F

## Interview Improvisation specialist

The description of the interaction vision (and its interaction qualities) is based on the experience of an improvisation-theater actor.

### Maarten

Improvisatie Theater Delft



- Introductie project: ervaring reiziger -> interactie uitlokken tussen reiziger, daarvoor gebruik ik de analogie improvisatie, het beeld wat ik daarbij heb: variatie van zekerheid en onzekerheid, met de kwaliteiten creatief, flexibel en intuïtief. Hoe denk jij hierover?

*Ik denk dat de kernkwaliteiten wel heel goed past bij improvisatietheater, dat is natuurlijk wel een hele specifieke vorm van improvisatie. Die drie zijn wel de kern-omschrijvingen wat je als persoon moet zijn of hoe je in zo'n context moet zijn. Dat zijn dingen die je nodig hebt om te reageren op anderen terwijl je, zeker aan het begin, geen idee hebt wat er gaat ontstaan.*

*Misschien is het goed om even te schetsen wat we doen. We zijn in principe een amateurgroep, dus ik werk dan ook in het dagelijks leven gewoon bij TNO als AI-onderzoeker, dus dat is iets heel anders. We treden op en we geven ook trainingen en we zijn op een relatief hoog niveau bezig met improvisatie. Wat bij een improvisatietheater vaak centraal staat is dat de spelers voordat ze het toneel opstappen eigenlijk niet weten waar het verhaal of de scene over gaat. Vervolgens krijg je bepaalde input en dat kan variëren van een locatie of een relatie, er kunnen ook specifieke regels zijn (bijvoorbeeld je mag alleen op rijm iets zeggen), maar de regels kunnen ook veel complexer zijn of het moet met een bepaalde emotie (er moeten bijvoorbeeld achter*

*elkaar 3 verschillende emoties komen). Het kan ook dat er al een voorscenario geschetst wordt, vaak zijn dat dan dilemma's. Dat is bijvoorbeeld dat je elkaar als student bent tegengekomen, toen net geen relatie gehad, nu ben jij getrouwd maar je bent niet gelukkig en dan kom je elkaar weer tegen in een café. Dus dan heb je al een soort voedig voor wat er eventueel kan gebeuren. Maar het moment dat je de theateervloer opstapt ben je volledig blanco en weet je er niks van.*

- Als je dan dus niet weet waar het verder over gaat, bijvoorbeeld je weet alleen dat alles in rijm moet en verder weet je niet wat er komt, wat voor gevoel brengt dat met zich mee voordat je toneel opstapt?

*Een soort spanning voel je dan, je weet niet wat er gaat komen, maar je hebt het natuurlijk wel goed voorbereid, want dit zijn dingen die we trainen: bijvoorbeeld hoe je dat dan oppakt en wat de aanpak dan is van zoiets en het gaat ook wel om vertrouwen in de medespeler. dat je vertrouwt dat de dingen die jij bedenkt dat die opgepakt worden en ook dat als jij het even niet meer weet, dat je medespeler daarbij helpt. Dat heb jij eigenlijk niet genoemd, maar bij improvisatietheater is dat wel een hele belangrijke bij vertrouwen in elkaar, dat het wel goed afloopt. Het is natuurlijk in principe vrij eng, want je staat daar en je weet niet waar het over gaat en er zitten 50-60 of misschien 100 of 200 man in de zaal die verwachten dat ze vermaakt worden, dus*

*er moet wel iets uitkomen dan. Allemaal stil op het toneel staan, kan soms een interessante scene zijn maar dat is meestal niet de bedoeling.*

- Stel er is een vorm van onzekerheid, is dit dan meer onzekerheid in 'kan ik goed inspelen op wat mijn medespeler doet' of onzekerheid in 'ik weet niet wat voor onderwerp of thema er gaat komen'?

*Allebei een beetje denk ik, dat hangt dan ook van de persoon af. Met sommige mensen die in de groep spelen die vinden het echt belangrijk dat ze houvast hebben aan een soort thema, maar dat de rest vanzelf gaat. Maar er zijn ook die zeggen 'het thema maakt me niet zoveel uit, maar die zijn dan eerder onzeker hoe het dan opgepakt wordt en of ze wel een mooie scene gaan maken dus dat is in alle soorten onzekerheid, dus eigenlijk is het heel persoonlijk hoe je daarin staat.*

- Zijn er ook veel momenten dat je juist heel zeker weet wat je moet doen, zoals iemand geeft je een thema en je weet precies wat je moet gaan doen?

*Ja, hoe je scenes kan opzetten, daar zijn verschillende manieren voor. Wat bijvoorbeeld een bekende manier is, dat heet Finding the Game. Herhaling speelt dan een grote rol en dat je heel snel ergens naartoe moet gaan werken, naar wat is nou de kern van deze scene en als je die te pakken hebt, als je die allebei hebt (want dat kan je niet tegen elkaar*

*zeggen want je bent aan het spelen), en de kern weet. Een voorbeeld: iemand krijgt 40 keer iets aangeboden maar hij wil het eigenlijk niet hebben en dat wordt steeds gekker of een serieuzere scene waarbij iemand voor het eerst in 20 jaar zijn dochter weer ziet, dat is dan de kern van een scene en daar wil je eigenlijk zo snel mogelijk naartoe werken. Zodat je allebei weet dat het de kern is, en dan is het redelijk makkelijk om zo'n scene meer lading en mooi te maken: dat is dan de 'Confidence', aan het begin heb je dan denk ik meer de 'Doubt' en er kan tussendoor misschien wel even iets gebeuren waardoor je twijfelt of het wel echt de kern is, of iets anders.*

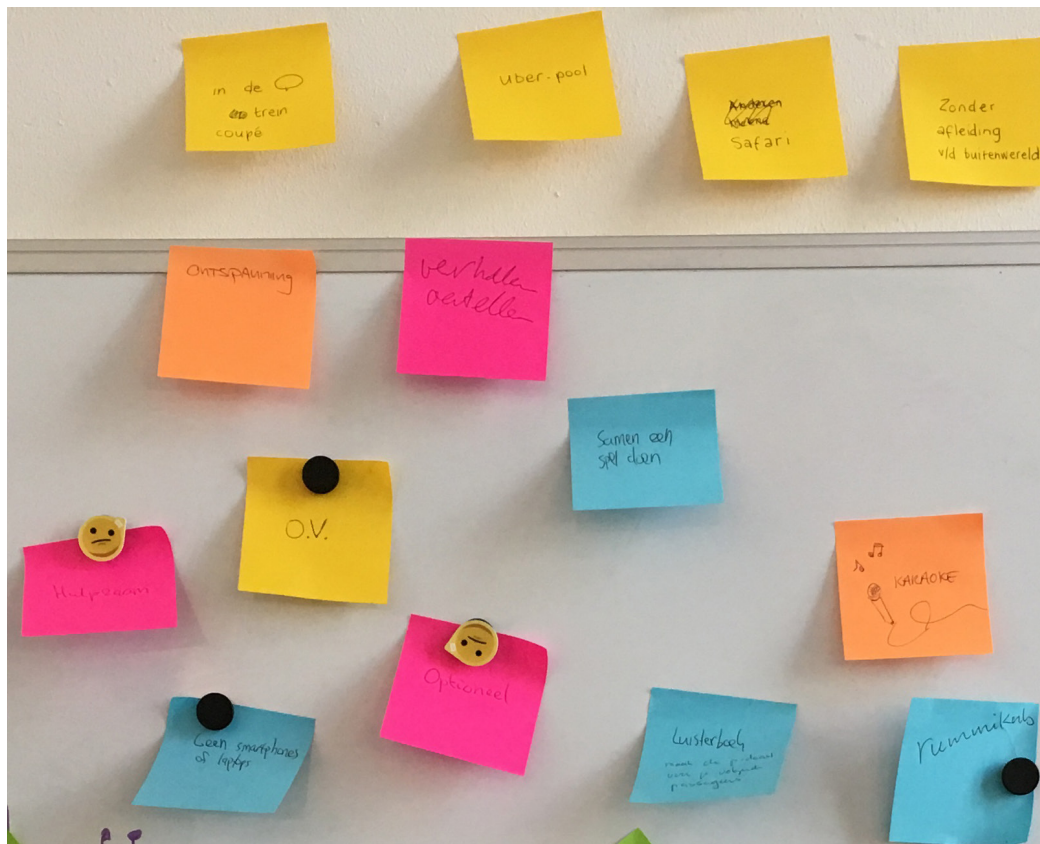
- Hoe ik het nu begrepen heb is dus wat er vooral heel erg belangrijk is vertrouwen in de medespeler en dat dat om veel spanning zou kunnen zorgen, en dat verder dat jullie dingen goed voorbereiden en dat er verschillende vormen zijn van -wel eens- onzekerheid maar ook wel veel zekerheid op moment dat je de kern te pakken hebt.

*Je hebt ook wel groepen die wel minder vast aan elkaar zitten, maar als je een vaste groep hebt, dan heb je door vertrouwen in je medespelers, stap je redelijk ontspannen het toneel op en worden de scenes daardoor ook beter. Omdat je weet dat als je met hem of haar op het toneel bent dat je dan wel weet dat het een leuke scene wordt want je voelt elkaar goed aan en we hebben het al vaker gedaan.*

# Appendix G

## Creative Session

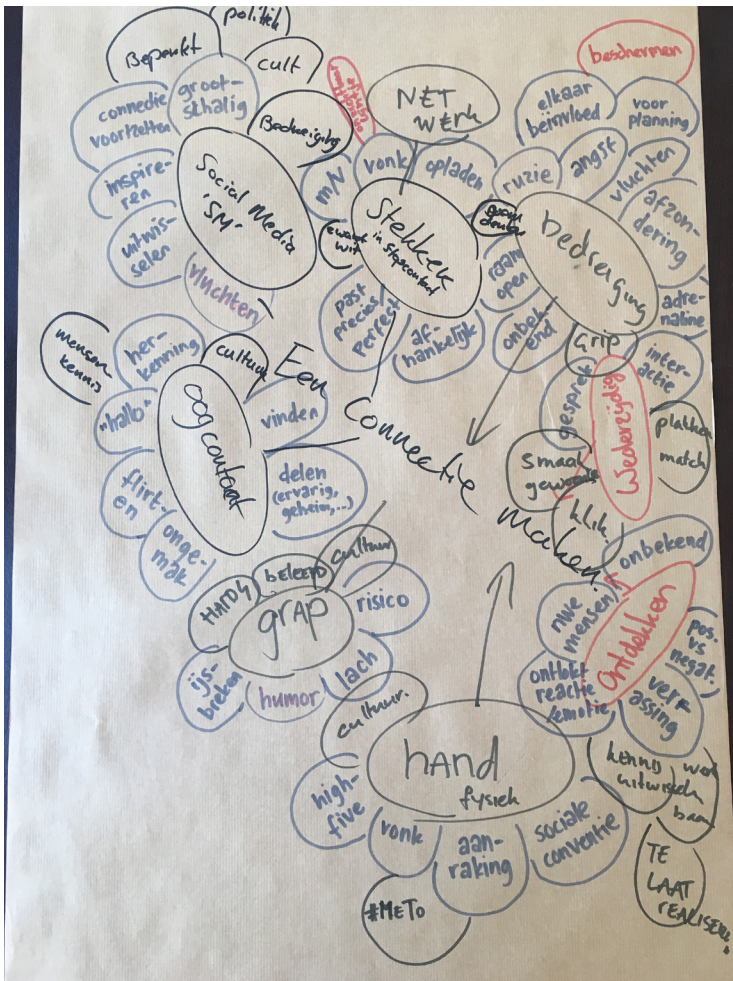
## Appendix G1 – Purge association with “Shared social travelling”



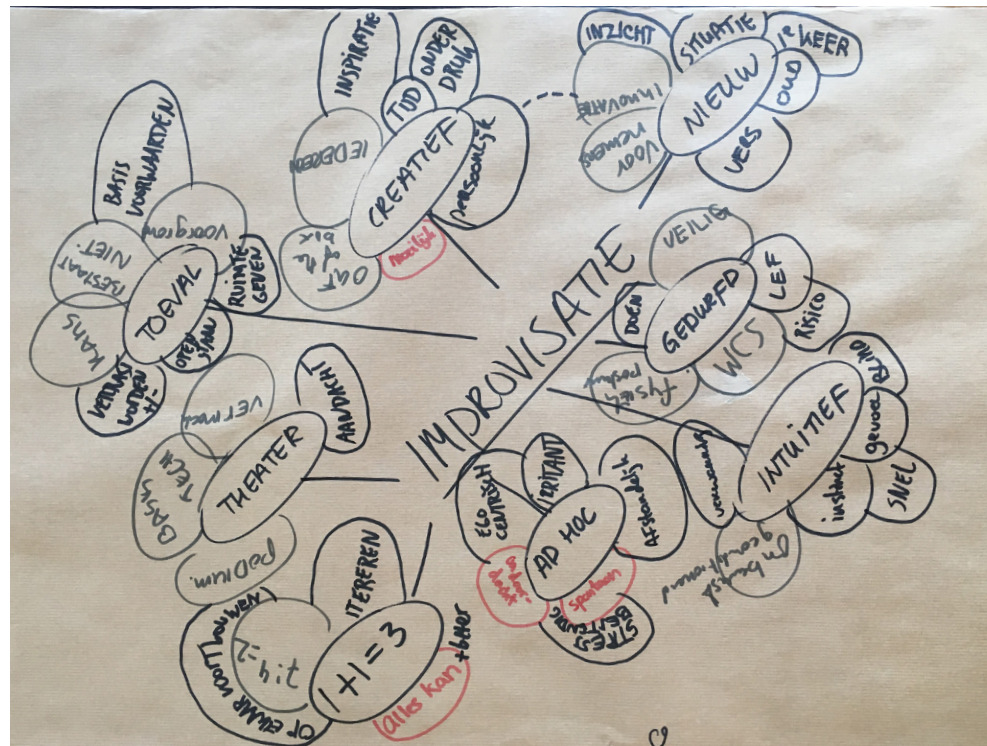
## Appendix G2 – Flower association

The two images below show the flower association around 2 themes: one theme is linked to the statement, the other one is linked to the interaction vision.

## Association flower “making a connection”



## Association flower “Improvisation”

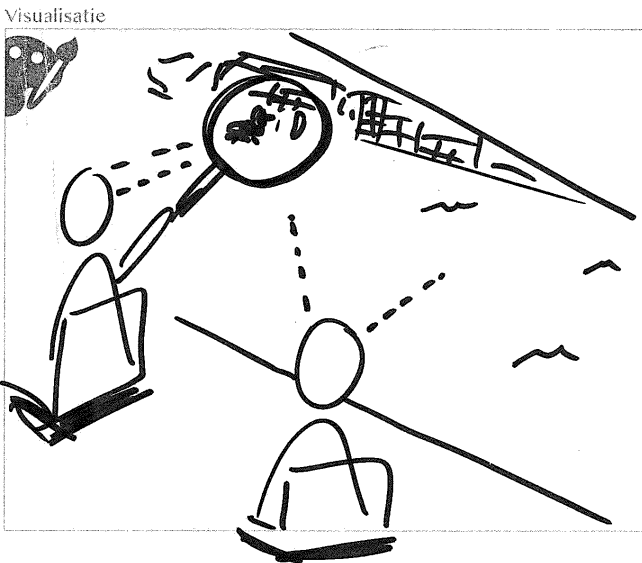


## Appendix G3 – Ideas based on Flower association

n.b. The post-its showing "V2" refers to variations on the original ideas

Titel **VISIONMISSION**

Hashtags **#VISIONMISSION**



Gekozen associatie(s)

- EGOCENTRISCH
- ONTDEKKEN (NIEUWE MENSEN)

Toelichting

op het raam kan je vergrootglas plaatsen, zo kan je het zelf goed zien en handig met meekijken. Dit kan interesse & interactie opleveren

Titel **BYE BYE BUBBLE**

Hashtags **#CHALLENGE #LOL**



Gekozen associatie(s)

**HIGH FIVE INTUÏTIEF**

<sup>V2.1</sup>  
Snelheids afhankelijk  
x hoe hoger de score, hoe  
sneller het spel.

Toelichting

**INTERACTIE ONTLOCKEN DOOR GEZAMENLIJK SPEL.**

**OPTIE: ONLINE HIGH SCORES + PRIJZEN**

<sup>V2.2</sup>  
Rivaliteit / samenwerken  
Alleen maar winnaars  
(verloren bestaat niet)

Titel

Tijdelijke Tentoonstelling

Hashtags

#pop-up #silentartshow

Visualisatie

Verhalen vertellen

Gedeelde ervaring (die aanzet tot praten)

Toelichting

bij reservering uitnodiging om iets te laten zien of delen in bepaald thema.  
 - delen zonder praten

V2

- Thema bubbel  
 - rondvaart bubbel  
 - zelf een route opgeven → kijkje geven in jouw stad

Titel

Wie is de reisleader? Disrupt! Steur!

Hashtags

#onzekerheid #verrassing #match

Visualisatie

Gekozen associatie(s)

\* lijf  
 \* ontdekken  
 ↓  
 (samen) reizen

Toelichting

- distopia  
 steeds verder uit elkaar, reisleader komt in voren taren te zitten  
 reisleader wordt leider van alles. Waar gaat de reis naartoe? Naar mijn werk

utopia

meest onzekere wordt reisleader, redereen gelijk, elkaar helpen, samenweeten

V22

Titel

Stemming Selectax

Hashtags

#gaangeheimen #eerste indruk #aan een half woord genoeg

Visualisatie

Gekozen associatie(s)

#Toeval  
 \* Mensen kennis  
 \* Samen reizen  
 \* Nieuw idee  
 \* eugenis  
 \* aandelen  
 \* aan een half woord genoeg

Toelichting

Mensenkennis is de basis waarop het algoritme zijn werk doet. Zelfkennis is de basis waarop wordt bepaald wat je weggeeft.  
 \* eerste indruk  
 \* eerste indruk vastenigen met gevoel  
 \* geen geheimen uit telefoon  
 \* werk vlak.

indelen op

- sterrenbeeld  
 - gedeelde connecties  
 - muzieksmak  
 - keuze verrant? worden ontmoeten

V2.1



y

Je reist zo, naar je mag naar. 1x je voorkeur geven

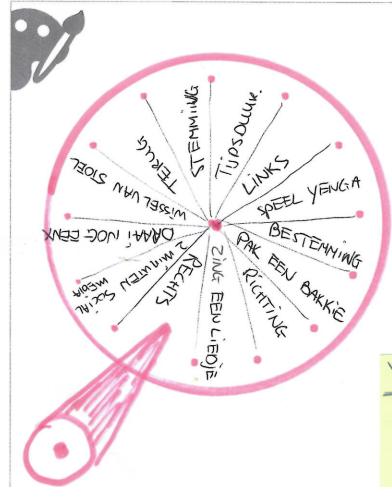
V2.1

## Ideas based on reversed association of “Shared social travelling”

n.b. The post-its showing “V2” refers to variations on the original ideas

<p>Titel</p> <p>ALL for one.</p>	
<p>Hashtags</p> <p>#LEONTIEN #DESTINATIONUNKNOWN #INTHEBUBBLE</p>	

## Visualisatie





- interactieve game tussen 2 bubbels
- paintball rank is 5% minder accu
- escaperoom tot de accu leeg is

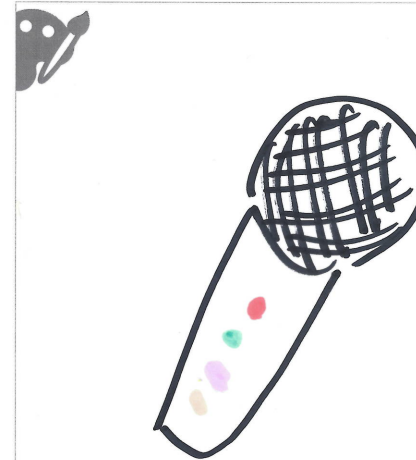
Toelichting

Bestemming is ondergeschikt aan de reis.  
Ook delicten, wijze tijdsbestede  
geen woon/werk verkeer.

toeristische  
attractie  
vrijgezellenfeestjes

Titel	Personal Travel Guide	
Hashtags	#ShareStoryTelling #BubbleBlogging	

## Visualisatie



16.000.000 € share.

### Toelichting

vals maken

opdrachten  
geven

scherpere levert  
meer likes op



## Appendix H1 – MVP test 1 question-sheets

1.1		Test #1	
<p align="center"><b>Personal</b></p> <p align="center"> <i>Sophie Broymans</i> (25)  <small>Name Age</small> </p>			
<p>- Did you had the feeling that you had some sort of contact with someone?</p> <p><i>A little bit.</i></p>	<p>- If so, can you describe the type of interaction?</p> <p><i>That you try to find the other person in the mirrors you try to make eyecontact. But not 'real' eyecontact, but through a mirror. So less direct and therefore more comfortable.</i></p>	<p>- Do you think this interaction could stimulate other types of interaction?</p> <p><i>Yes, you can for example make a little game out of this. And once there is eyecontact it is easier to talk/start a conversation</i></p>	<p>- Were there certain aspects that stimulated this contact?</p> <p><i>The mirrors, trying to find other persons in the mirror.</i></p>
	<p>- Did this interaction make you feel more comfortable with the presence of the other(s)?</p> <p><i>No</i></p>	<p>- Please feel free to mention any likes/dislikes or other comments.</p>	

1.2

Personal

Helmer K. (25)  
Name Age

Test #1

- Did you had the feeling that you had some sort of contact with someone?

Scared off, minimally. Felt as if there was contact with 'the thing'

- If so, can you describe the type of interaction?

fleeing, "sometimes", mysterious

- Do you think this interaction could stimulate other types of interaction?

it unifies no look for distractions, look for the 'answer'

- Were there certain aspects that stimulated this contact?

eye contact, the mirrors, the lights were more disruptive than supportive

- Did this interaction make you feel more comfortable with the presence of the other(s)?

Yes, it felt as if we were discovering something together

- Please feel free to mention any likes/dislikes or other comments.

The blue LED was very bright and maybe too unpleasant.

1.2

Personal

Jordi (27)  
Name Age

Test #1

- Did you had the feeling that you had some sort of contact with someone?

yes

- If so, can you describe the type of interaction?

reflection, uneasy interaction

- Do you think this interaction could stimulate other types of interaction?

yes.

- Were there certain aspects that stimulated this contact?

Trying to look for each other

- Did this interaction make you feel more comfortable with the presence of the other(s)?

no

- Please feel free to mention any likes/dislikes or other comments.

Nice! However I saw mostly my own reflection.

1.3

## Personal

.....**ELKE**.....**(39)**.....  
Name Age

## Test #1

- Did you had the feeling that you had some sort of contact with someone?  
**I SAW THE PERSON IN FRONT OF ME, WHILE WALKING**

- If so, can you describe the type of interaction?  
**WAS SEARCHING FOR HER FACE / EYE CONTACT**

- Do you think this interaction could stimulate other types of interaction?  
**REACTION VERBAL, THEY I CAN SEE YOU!**

- Were there certain aspects that stimulated this contact?  
**MOVING AROUND THE OBJECT**

- Did this interaction make you feel more comfortable with the presence of the other(s)?

**I DON'T KNOW, BECAUSE I KNOW THE PERSON IN FRONT OF ME. COMPARING IT WITH A WINDOW IN A TRAIN IT COULD FEEL UNCOMFORTABLE**

- Please feel free to mention any likes/dislikes or other comments.

**'I TIJD VERBODEN'**

1.3

## Personal

.....**Alieke**.....**(26)**.....  
Name Age

## Test #1

- Did you had the feeling that you had some sort of contact with someone?  
**yes**

- If so, can you describe the type of interaction?

**after I said something the person (Elke) reacted too**

- Do you think this interaction could stimulate other types of interaction?

**yes**

- Were there certain aspects that stimulated this contact?

**a little surprise in looking at the mirror in different positions**

- Did this interaction make you feel more comfortable with the presence of the other(s)?

**? no**

- Please feel free to mention any likes/dislikes or other comments.

## Appendix H2 - MUP test 2 question-sheets

Personal		Test #2
<p>..... <i>Yayin</i>..... (23) Name Age</p>		
<p>- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?</p> <p><i>Yes</i> <i>The sound when pressing the button.</i></p>	<p>- Could you describe the character of the interaction?</p> <p><i>A kind of interesting but too short to feel and the test is get to know the character.</i></p>	<p>- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.</p> <p><i>No.</i></p>
<p>- Were there certain (specific) aspects that stimulated this contact?</p> <p><i>No</i></p>	<p>- Did this interaction make you feel more comfortable with the presence of the other person?</p> <p><i>No</i></p>	<p>- Please feel free to mention any likes/dislikes or other comments.</p> <p><i>Maybe 2 person can be seated separately (do not see each other) <u>only</u> the light to interact.</i></p>

Personal		Test #2
<p>..... <i>Romy</i>..... (23.) Name Age</p>		
<p>- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?</p> <p><i>Not that much. I sometimes felt when she pressed the button and I was curious what she would do, but I didn't feel in contact</i> <i>- Were there certain (specific) aspects that stimulated this contact?</i> <i>When I felt that she pressed the button (my button also moved a bit)</i></p>	<p>- Could you describe the character of the interaction?</p> <p><i>Gaslight</i> <i>⇒ Because I didn't know exactly what she was doing</i></p>	<p>- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.</p> <p><i>Not now, but maybe if the light when on</i></p>
<p>- Did this interaction make you feel more comfortable with the presence of the other person?</p>		<p>- Please feel free to mention any likes/dislikes or other comments.</p> <p><i>Curious about the light now, haha</i></p>

## Test #2

### Personal

Beau ..... (20)  
Name Age

- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?

Yes, made you think about the question again if the other person had another opinion

- Could you describe the character of the interaction?

Makes you think again

- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.

Just thinking about why the other person felt that way, if I predicted that that person would feel that way or not

- Were there certain (specific) aspects that stimulated this contact?

The sound of the button

- Did this interaction make you feel more comfortable with the presence of the other person?

yes

- Please feel free to mention any likes/dislikes or other comments.

Fun test todo

## Test #2

### Personal

afida ..... (19)  
Name Age

- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?

Before we sat down if we both agree we noticed

- Could you describe the character of the interaction?

it was a "really moment" with some of the statements, had agreed, I don't why?

- Did this interaction make you feel more comfortable with the presence of the other person?

yes

- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.

No

- Please feel free to mention any likes/dislikes or other comments.

was fun, not a really long test

- Were there certain (specific) aspects that stimulated this contact?

The blue lamp that was on it when we both agreed

## Test #2

## Personal

kernel (19)  
Name Age

- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?

Yes, reading the same lines you do notice what they think of it by the sound of the button or by the light

- Were there certain (specific) aspects that stimulated this contact?

When you simultaneously do something.

- Could you describe the character of the interaction? subtle and light hearted

- Did this interaction make you feel more comfortable with the presence of the other person?

The fact that there is an interaction made we feel more comfortable, ~~it could have been~~ sitting next to each other without any interaction wouldn't have been comfortable

- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.

- Please feel free to mention any likes/dislikes or other comments.

The fact that we know each other gives a very different and less stressing interaction I think

## Test #2

## Personal

kernel (20)  
Name Age

- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?

I would say a slight feeling. I noticed the blue light popped up when we "agreed" on something which inspired some form of connection

- Were there certain (specific) aspects that stimulated this contact?

Yes, the clicking sound of the button & the blue light.

- Could you describe the character of the interaction?

The character was both affirmative, but also agreeing.

Affirmative because you could feel the same about a topic claim, agreeing because ~~the~~ the sound of the button enhanced the feeling of

- Did this interaction make you feel more comfortable with the presence of the other person?

• Yes & No

↳ because again it's interesting to see that we feel the same about something, No, because we are the only two people & it's very certain when you are the only person that feels in a certain way.

- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.

No

- Please feel free to mention any likes/dislikes or other comments.

I liked the blue light a lot, very interesting set up

# Appendix H3 - MUP test 3 question-sheets

Personal		Test #3
<p>- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?</p> <p>yes, talking, discussing the interaction, cooperating to "touch", a specific point.</p> <p>- Were there certain (specific) aspects that stimulated this contact?</p> <p>both wondering what to do with the screen / device</p>	<p>- Could you describe the character of the interaction?</p> <p>friendly at first and playful</p> <p>- Did this interaction make you feel more comfortable with the presence of the other person?</p> <p>yes, it gives you something to talk about + sense of control</p>	<p>- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.</p> <p>working together to influence the interaction.</p> <p>- Please feel free to mention any likes/dislikes or other comments.</p>

Personal		Test #3
<p>- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?</p> <p>Yes, we tried <del>together</del> to get to the fastest pace together</p> <p>- Were there certain (specific) aspects that stimulated this contact?</p> <p>I think the placement of the different speed stimulated the contact and the uncertainty of what was happening</p>	<p>- Could you describe the character of the interaction?</p> <p>playful</p> <p>- Did this interaction make you feel more comfortable with the presence of the other person?</p> <p>In this case yes but if a grumpy person would step in, it would be more awkward than usual.</p>	<p>- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.</p> <p>him rather than setting the pace. I don't think so</p> <p>- Please feel free to mention any likes/dislikes or other comments.</p> <p>I like the playfulness and that it doesn't work perfectly. Irregular like this would be annoying, but it bonds</p>

## Personal

Julia..... (25)  
Name Age

Test #3

- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?

Yes, collaborative but  
 also kind of 'virtually  
 disconnects

- Could you describe the character of the interaction?

Virtual  
 disconnected  
 playful  
 explorative

- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.

IT invites to play  
 and to converse about  
 goals

- Were there certain (specific) aspects that stimulated this contact?

The collaborative part

- Did this interaction make you feel more comfortable with the presence of the other person?

Yes, because the amount  
 interaction is on the  
 screen and not real-life

- Please feel free to mention any likes/dislikes or other comments.

THE interaction  
 happening in "another  
 world" makes it very  
 engaging (good)

## Personal

Richard..... (27)  
Name Age

Test #3

- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?

yes, we were  
 both explaining what  
 was going on.

- Could you describe the character of the interaction?

• unclear  
 • not-so - responsive  
 • heavy (noizy)  
 • funny

- Were there certain (specific) aspects that stimulated this contact?

• unclear situation/  
 effect of our  
 actions.

- Did this interaction make you feel more comfortable with the presence of the other person?

• yes, but I know  
 we a LG. with  
 a complete stranger  
 it might depend on  
 the person.

- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.

collaboration

- Please feel free to mention any likes/dislikes or other comments.

the +, as but is  
 not giving feedback  
 on our step, so  
 there might be no  
 incentive to keep  
 doing it.

Personal

...Max van Manen (25)  
Name Age

- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)?

Ja. als je samen in een kleine cabine zit is het wel zo netjes om even hoi te zeggen. En als je harder wil dan zou ik dat toch even overleggen.

- Were there certain (specific) aspects that stimulated this contact?

Snellheid, grote van de ruimte, hoe vaak je elkaar al gezien heb

- Could you describe the character of the interaction?

Intutief. Je ziet wat er gebeurt als je beweegt direct terug op de interface.

- Did this interaction make you feel more comfortable with the presence of the other person?

Ja. het breekt het ijs een beetje

- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.

Samenwerking. We zoeken uit of het beter is als je het samen doet.

En je moet hoger rijden (dus meer moeite doen) om sneller te gaan

- Please feel free to mention any likes/dislikes or other comments.

Personal

...Eva..... (26.)  
Name Age

- Did you had the feeling that you had some sort of contact with the one next to you (if so, in what way)? Yes!

we had to work together  
to gather the speed  
we both wanted

- Were there certain (specific) aspects that stimulated this contact?

To figure out who had  
the influence on the  
'purple' dot.

- Could you describe the character of the interaction?

future-based / oriented.  
→ Interactive.  
Socially.

- Did this interaction make you feel more comfortable with the presence of the other person?

For sure.

- Did the contact trigger other kinds of interaction? If so, please describe the type of interaction.

Talk and move.

- Please feel free to mention any likes/dislikes or other comments.

I did like that we had  
to ~~work~~ figure out  
the principle together.

### Concept Test

### Personal

.....Amal..... (27)  
 Name Age

Select your attitude

---

**The Y-axis relates to the attitude towards the (continuous) developments happening around the world.** While attitude 1 & 2 relate to a curious attitude towards this matter, attitude 3 & 4 relate to a more conservative attitude.

**The X-axis presents the behaviour towards other people while travelling.** Attitude 1 & 4 relate to a social attitude, where attitude 2 & 3 relate to a more individual oriented way of travelling.

- Did you had the feeling that you had some sort of contact with the others? Which aspects stimulated this contact? (Could be of any type; psychological/material/social)

Yes, I had

Social contact.  
 I liked the discussion of people about the ways that the vehicle might work. And being part of some thing was cool.

- Can you imagine that you would co-operate with your (perhaps unfamiliar) neighbours? and why (not)?

I guess it's ok, because it could be like a public transport, and you have to co-operate.  
 If you know each other it's possible that you'll be more supportive, but generally I'm ready to help even to ~~unfamiliar~~ people.

- Could you describe the character of the interaction with the others?

I was a bit passive because I didn't understand at the beginning how vehicle works, then I got involved. Fortunately, there were participants so that got it.

- What do you think is the effect of this matter/ how would you react to this?

I will be ok with that, because it is fair. I have to put more effort myself to get the reward.

- How did you feel about the fact that co-operation influenced your amount of control (of the speed)? Did this influence the way of interaction?

I was cautious at the beginning, but then liked it

- Please feel free to mention any likes/dislikes or other comments.

At the beginning it wasn't clear enough how does the vehicle work and how we can regulate the speed.  
 + I really liked the process of cooperation and being involved in the process.

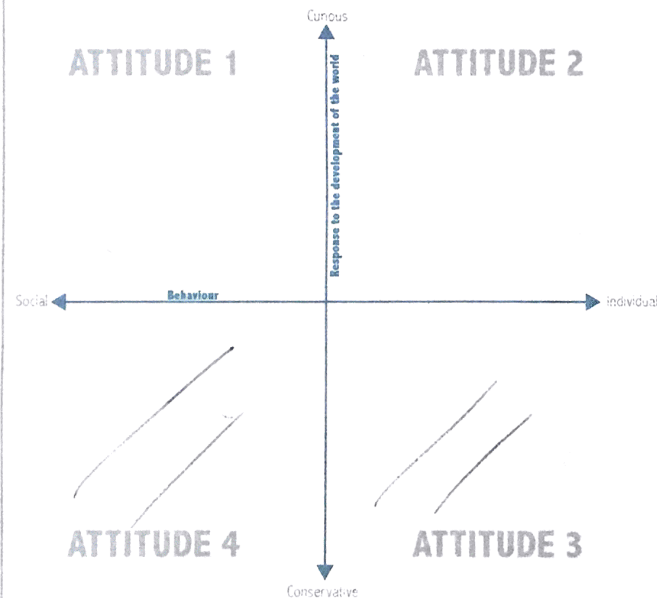
## Concept Test

### Personal

30 Verburg... (56)  
Name Age

Select your attitude

The Y-axis relates to the attitude towards the (continuous) developments happening around the world. While attitude 1 & 2 relate to a curious attitude towards this matter, attitude 3 & 4 relate to a more conservative attitude. The X-axis presents the behaviour towards other people while travelling. Attitude 1 & 4 relate to a social attitude, where attitude 2 & 3 relate to a more individual oriented way of travelling.



- Did you had the feeling that you had some sort of contact with the others? Which aspects stimulated this contact? (Could be of any type; psychological/material/social)

De jonge mensen  
namen het vaker  
an witten vinden  
hoe het werkte

- Could you describe the character of the interaction with the others?

- How did you feel about the fact that co-operation influenced your amount of control (of the speed)? Did this influence the way of interaction?

was niet met de  
snelheid bezig  
meer met hoe het  
werkte

- Can you imagine that you would co-operate with your (perhaps unfamiliar) neighbours? and why (not)?

kan ik me niet  
voastellen  
met mekaar toch  
hetje kennen

The next time that you are travelling with one or more of the same passengers, less effort is needed to control the speed; as a reward for the previous effort & as an indication to whom has travelled together before.

- What do you think is the effect of this matter/ how would you react to this?

- Please feel free to mention any likes/dislikes or other comments.

Bij een gemeenschappelijke  
gebuurtenis komen mensen  
eender bij elkaar

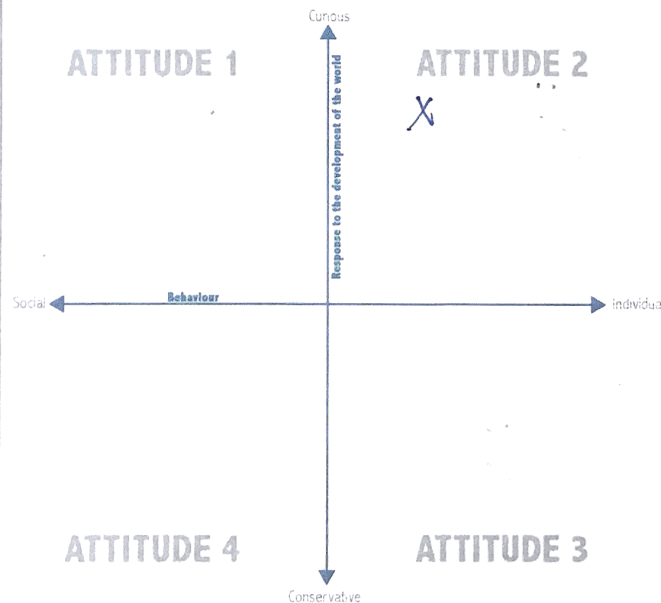
## Concept Test

### Personal

..... Bulat ..... ( 26 )  
Name Age

Select your attitude

The Y-axis relates to the attitude towards the (continuous) developments happening around the world. While attitude 1 & 2 relate to a curious attitude towards this matter, attitude 3 & 4 relate to a more conservative attitude. The X-axis presents the behaviour towards other people while travelling. Attitude 1 & 4 relate to a social attitude, where attitude 2 & 3 relate to a more individual oriented way of travelling.



- Did you had the feeling that you had some sort of contact with the others? Which aspects stimulated this contact? (Could be of any type; psychological/material/social)

*Interface suggested it, creating social interaction. Typically one person simulated and started the interaction.*

- Could you describe the character of the interaction with the others?

*Coordinated interaction*

- How did you feel about the fact that co-operation influenced your amount of control (of the speed)? Did this influence the way of interaction?

*As it was just simulation, all were curious to go all the way. But in reality, the speed would be different.*

- Can you imagine that you would co-operate with your (perhaps unfamiliar) neighbours? and why (not)?

*It's important who starts and coordinates before the interaction. Familiarity makes interaction easier and faster.*

The next time that you are travelling with one or more of the same passengers, less effort is needed to control the speed: as a reward for the previous effort & as an indication to whom has travelled together before.

- What do you think is the effect of this matter/ how would you react to this?

*I can imagine as it would be much easier to collaborate and much relaxed.*

- Please feel free to mention any likes/dislikes or other comments.

*The bubbles design was not clear.*

*There is no indication of speed in the interface transition to a 'danger zone'.*

*Sensitive to the place in the vehicle.*

## Concept Test

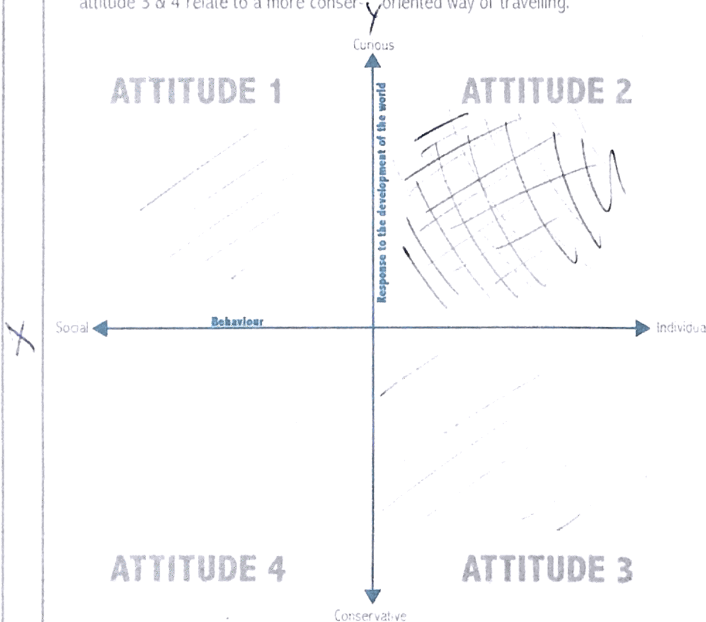
### Personal

Michele...d... (65.)  
Name Age

Wendel

Select your attitude

The Y-axis relates to the attitude towards the (continuous) developments happening around the world. While attitude 1 & 2 relate to a curious attitude towards this matter, attitude 3 & 4 relate to a more conservative attitude. The X-axis presents the behaviour towards other people while travelling. Attitude 1 & 4 relate to a social attitude, where attitude 2 & 3 relate to a more individual oriented way of travelling.



2 Did you had the feeling that you had some sort of contact with the others? Which aspects stimulated this contact? (Could be of any type; psychological/material/social)

- 1 not jet (later)
- 2 Bulat took initiative

- Could you describe the character of the interaction with the others?

like in real life;  
sit and wait  
(and see what happens)

- How did you feel about the fact that co-operation influenced your amount of control (of the speed)? Did this influence the way of interaction?

1 surprise!  
2 yes, I thought:  
I can have influence to: "

- Can you imagine that you would co-operate with your (perhaps unfamiliar) neighbours? and why (not)?

yes, now I know  
that I/we can  
speed up I  
want to

The next time that you are travelling with one or more of the same passengers, less effort is needed to control the speed; as a reward for the previous effort & as an indication to whom has travelled together before.

- What do you think is the effect of this matter/ how would you react to this?

Ha! Him again!  
let him do the  
work so I can sit &  
look out of the window  
and dream on

- Please feel free to mention any likes/dislikes or other comments.

It will work  
only if all  
cell phones are "off"

pezzamenlijke  
activiteit (in de  
buurt,  
brengt mensen  
samen





### Why?

The way we are travelling (together) nowadays will be very different in a couple of years. The role of the driver disappears because of the evolving technology of autonomous driving<sup>1</sup>; and the way we communicate amongst each other gets less and less personal because of the increasing amount of digital communication<sup>2</sup>. Whether your business or personal interest includes public transport, or other

types of (shared) travel services, this guide could be of value to you.

A handful of requirements are provided with the common goal of stimulating interaction amongst passengers in a future-proof way (specific extra conditions might be necessary depending on the amount of travel-time, available space and amount of passengers).

### Reader's guide

The provided requirements (**purple pages**) are all related to each other and, therefore, the application of any individual requirement should be done so while being mindful of its interconnectedness with the others. Equality between requirements is not always necessary; sometimes one requirement plays a bigger part than the other requirements. To clarify how this ratio

between requirements could stand, an example of implementation is given as well as an example of a fitting scenario (**blue pages**).

The requirements do not require reading in a fixed order, although some requirements relate closely and therefore refer to each other (**bold text** indicates such references).

### Background information

This guide is part of a graduation project, as a final part of the Master program 'Design for Interaction at the University of Technology' in Delft. The requirements discussed in the guide are insights gained by testing with several low-fidelity prototypes in test set-ups. The main function of the prototypes is to demonstrate which requirements are needed for stimulating interaction,

it is not directly related with the travel itself. Therefore for this exploration, it was sufficient to use test set-ups, rather than actually testing inside of vehicles.

The wider graduation project focussed on stimulating interaction in a specific vehicle: the Hydrofoil Seabubble. For this reason a scenario, and a form of implementation of requirements regarding the Seabubble, was used

as a case study. However the requirements can be implemented in many other types of shared (autonomous) transport, such as automatic people mover-systems, or any other form of personal rapid transport systems. Whether the mode of transport relies on either cable or rail systems, or no fixed system at all,

the requirements are applicable for all.

The Seabubbles became part of the graduation project in collaboration with Advier and the Cities of Thing Lab of the TU Delft.

Thank you for reading,  
Ilse van Zeumeren

23rd April 2020

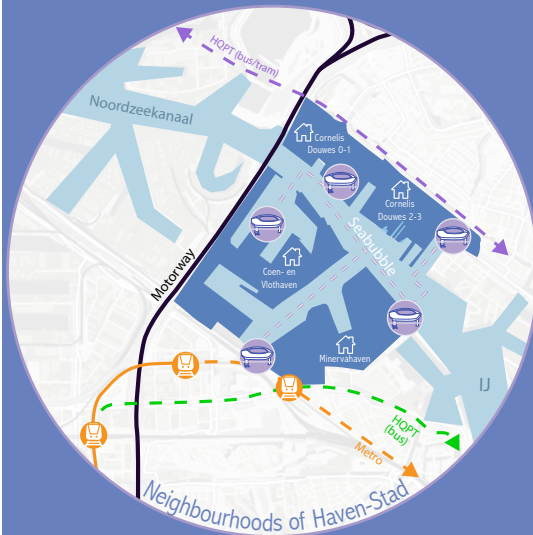
## Example scenario

To illustrate in which scenario it would be interesting to stimulate interaction amongst passengers, the following example is given:

People living in water-rich surroundings whose first and last miles of their journeys take place on the water, in order to reach other transport-routes (illustrated by the figure on the left), a Hydrofoil called *Seabubbles*<sup>4</sup> could take care of transporting

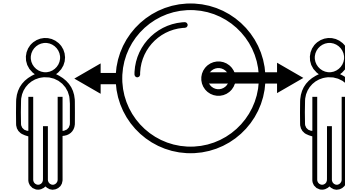
these people from and towards their homes. This vehicle offers 4 seats and a flawless ride because of its hydrofoil technology: perfect conditions to stimulate interaction amongst these people (who are actually neighbours).

The frequent encounter (5-10 minutes) that these neighbours will share inside the small vehicle, can be used to stimulate some kind of interaction amongst them.



Possible area development<sup>3</sup>  
High quality public transport (HQPT)  
infrastructure till 2039  
+ Possible Seabubble route

## A facilitator for interaction

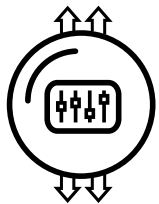


A form of indirect contact could lower the threshold of starting an interaction. It requires an indirect focus point, taking in sort of a facilitator role in which the kick-off of the interaction feels more anonymous, almost unintended. This unintended character might trigger a feeling of surprise (passengers were not planning it

to happen), which could be the trigger for passengers to start talking about how they all experienced it.

The so-called facilitator should not take the focus of attention; passengers should have the feeling that the interaction came naturally, with the facilitator primarily as a means for this interaction.

## Supply a sense of control

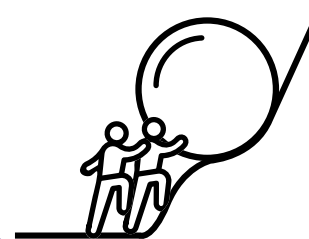


The passengers should be given (a sense of) control over something that influences their direct surrounding. If the (feeling of) control can be influenced together and/or simultaneously, passengers' curiosity will be triggered, which could result in interaction. The effect should be made clear in some way, showing what the passengers are accomplishing (together). This relates to the **balanced feedback** that should be given. The way

of supplying control should fit the way of travelling and the type of passengers (it should not be too future-oriented if the vehicle or the type of passenger is the opposite).

Moreover, the fact that the passenger does not have to take the role of the passive passenger<sup>5</sup>, but is occupied with something related to having control, could result in higher acceptance of autonomously controlled vehicles.

## A need for simultaneous effort

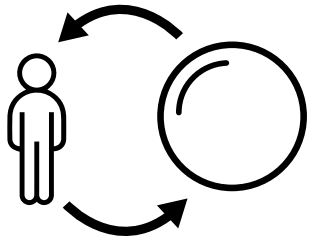


There should be a need for simultaneous effort to get something done, in which a balance should be found between keeping passengers stimulated to put in effort, but not so much that they get discouraged. Also, it should be kept in mind that asking for too much effort will attract too much attention towards

the facilitator. In this case the facilitator does not fulfil its main task anymore, which is having an unobtrusive role, but instead it will take the focus of attention.

This requirement also asks for direct **feedback** to show the effect of the passenger's effort and to keep them stimulated to continue.

## Balanced Feedback



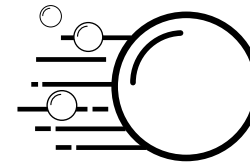
A form of feedback should be provided so passengers do not feel (too much) left in the dark during the interaction. It is not about negative or positive feedback, but more about the effect and reasoning of their actions and those of others.

The feedback should be given in a notable, but subtle way. It should not take attention, yet it needs to be able to pull people out of their own thoughts (or even

comfort-zone). If there is too little feedback, passengers might keep their experience to themselves. It might lead to passengers starting to reflect on their own what is happening, resulting in a more individual experience.

Furthermore a balance should be obtained in which passengers feel informed, although not everything is completely spelled out (a bit of room is left to generate **uncertainty**).

## A non-static character

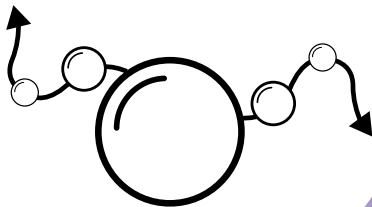


The feedback should be supplied in a non-static way. A non-static character will result in a loose atmosphere, which could positively affect the social attitude of passengers. Moreover it could function as a warm-up to get passengers in the right active mind-set in

relation to interacting amongst each other.

This character could be achieved by continuously providing **feedback** or by actively stimulating **(simultaneous) effort** and/or taking **control**.

## Successive stimuli



There should be a combination of successive (discrete) stimuli, instead of one stimulus, which are spread over the entire length of the journey. The stimuli should mainly be a means for interaction, without it taking the focus of attention (adopting a position of a **facilitator**).

The chances of triggering divergent types of passengers

are being raised by maintaining several (different) stimuli. When it is self-learning, it could even measure if (and which) stimuli are needed for that specific moment and specific type of passengers. In this way, the entire length of the journey can be used to stimulate interaction and to incorporate as many passengers as possible.

## Create uncertainty



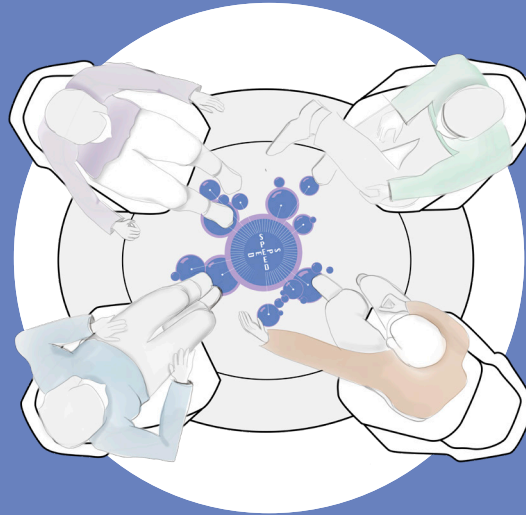
**(Offer a mystery)**

A certain amount of uncertainty should be created, related to a function and/or related to the effect of passengers' actions. The mystery of what might happen or how something might work, could trigger passengers

to start explore together (which relates to **simultaneous effort**). The fact that the passengers already share the feeling of uncertainty could feel as if they have something in common which they might want to share.

## Example of implementation

A good example of a quite literal implementation of the requirement **control** is the *SpeedBubble*. By **simultaneous effort** of the passengers, they can have (a restricted amount) of control over the autonomous Seabubble. **Feedback** is given by the increasing amount of projected bubbles when they speed up; it decreases when one of the passengers decides to drop out (**non-static character**). The *SpeedBubble* lets the passengers work together indirectly and it gives all of them a joint focus-point (**facilitator for interaction**). The fact that the passengers do not know the level of experience and who might take the lead creates a certain amount of **uncertainty**.



A self-learning check-in system could keep up with the level of experience (commuters or day trippers) and adjust the amount of **successive stimuli** during the entire (short) journey. By slightly challenging even the most experienced ones, everyone will have to keep actively involved and possibly stimulate other passengers to collaborate.

This interactive control-system projection is quite future-oriented (adopted to the futuristic character of the Hydrofoil Seabubble), but the implementation of requirements could be scaled down to complement present types of transport.

## Situation specific points of attention

Although the requirements can be implemented in many different kinds of (autonomous) transport, every type of transport comes with situation-specific points of attention. These points are briefly discussed.



### Type of passenger

Different kinds of passengers require different approaches. The level of familiarity can be an influencing factor in people's motivation for interaction. Furthermore, individual-oriented passengers are in need of a different approach than social-oriented passengers.



### Length of the journey

One needs to take into account that every passenger is still following their own scheduled

journey, meaning that most of them have different destinations and so their travel-times will differ. The requirements should be applied in a way that is usable for both short and long trips. This leads to two points of attention:

1. The passengers who remain while others depart should be motivated for (another) interaction.
2. An easy entry option is needed to maintain a low-threshold for the passengers entering in the middle of another passenger's journey.



### Type of transport

The possibilities per type of transport greatly differ. One must take into account the amount of space that

is available, the amount of light that comes in, vibrations that might occur as well as seating-position (which direction passengers are facing and their distance between each other). All these transport-specific factors can open up creative solutions for interaction, but can limit possibilities as well. One application of requirements might be a very successful formula for one type of transport, while it could be inappropriate for another.

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