

# Future Mobihubs as social connector for the neighbourhood

(re)designing the Mobihubs

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Delft University of Technology



# Today

Research & Design  
Process



Concept  
presentation



Discussion



Borrel

# Graduation Project Overview

## Scope

### Research - Deconstruction

- Literature study
- Case Studies
- Interviews
- Clustering
- Interaction Vision + Design Statement
- Qualities + Characteristics

### Design - Construction

- Ideation
  - Design
  - Test + Evaluation
  - Redesign
  - Final Design
  - Movie Showcase
  - Evaluation/Recommendations
- We are here

Scope

Scope

# Project Brief

*“Design the Mobility Hub of the future”*

**→ Redesign the appearance and contents of the Mobipunten with a focus on user-centred-ness.**

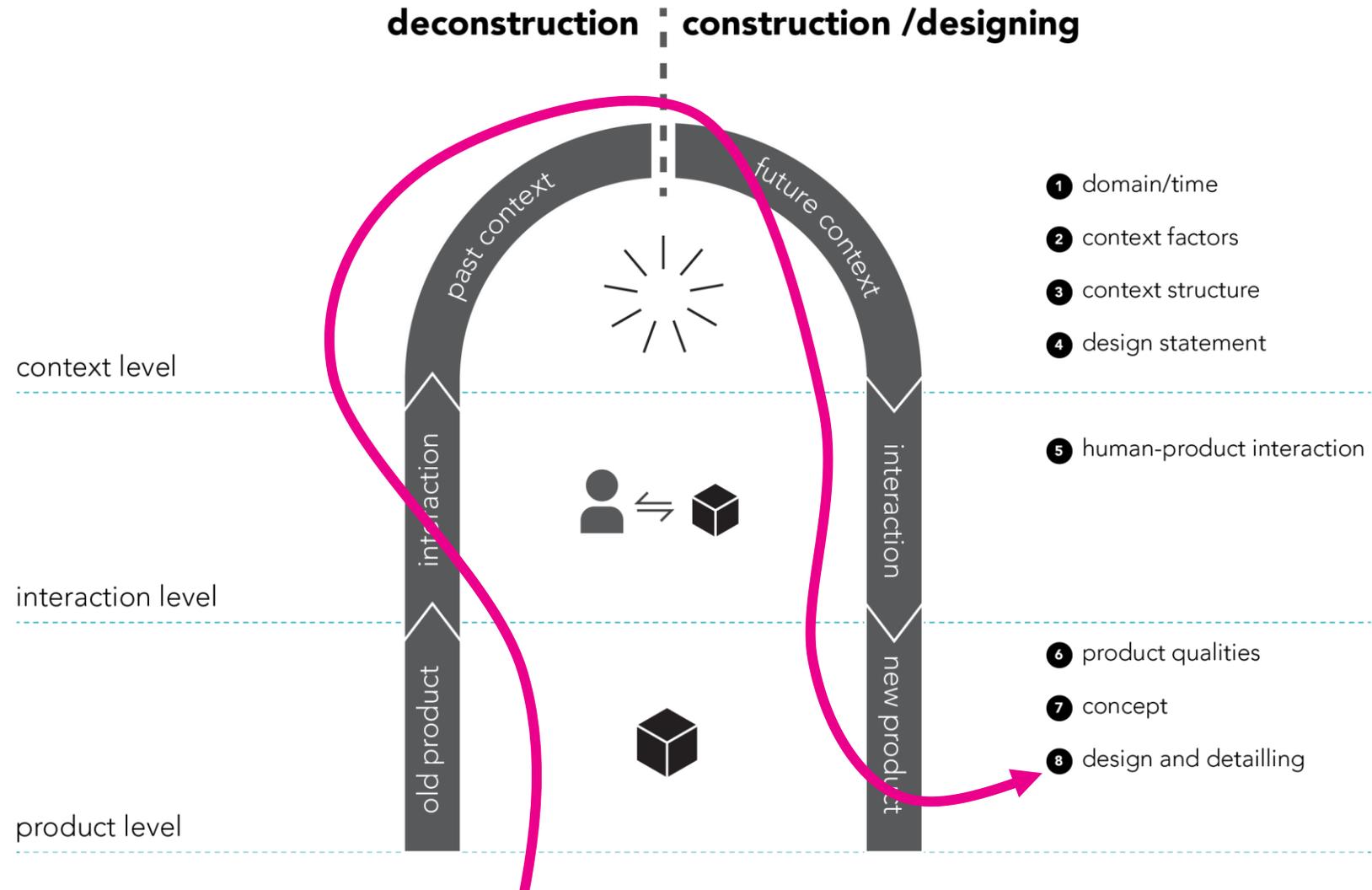
Project domain:

*(social) behaviour at a mobility hub*

Scope

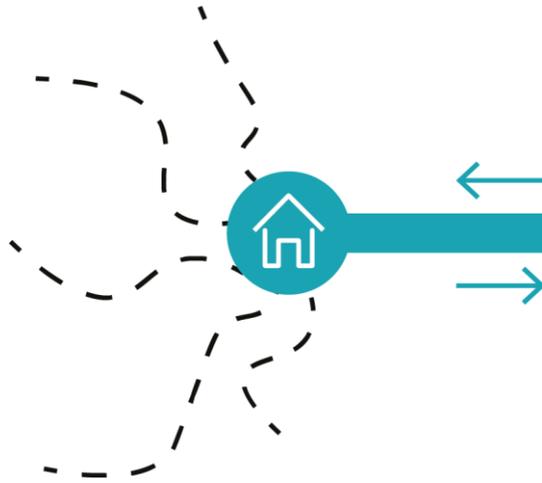
# Method: ViP

- For designing 'for the future'
- Lots of 'storytelling'



Scope

# Defined/found typology



## **Neighborhood hub**

Target group: "suburban citizens"

Research

Contents

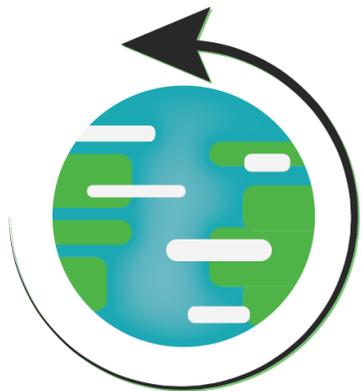
# Case Studies

5 case study visits  
+ observations  
through canvas

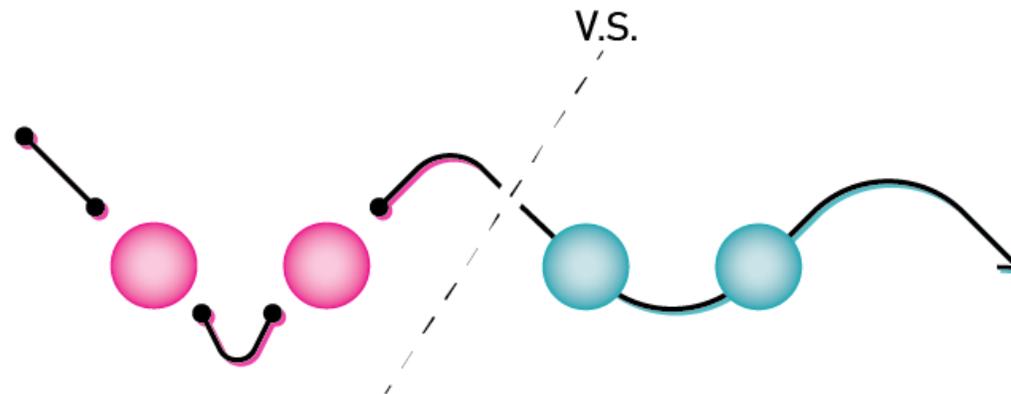


# Insights

Most hubs are **not**  
**all-seasons**



Two types of travelling: **travelling with friction** or **travelling without friction**. Both can be positive and negative.



It's about  
communication



# Interviews

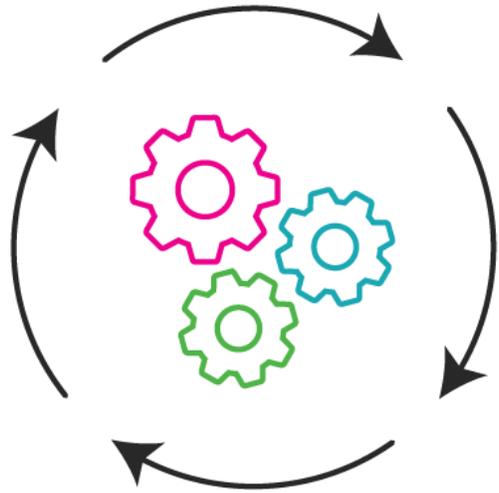
Interviews +  
contextmapping  
creative exercise



Interviews

# Insights

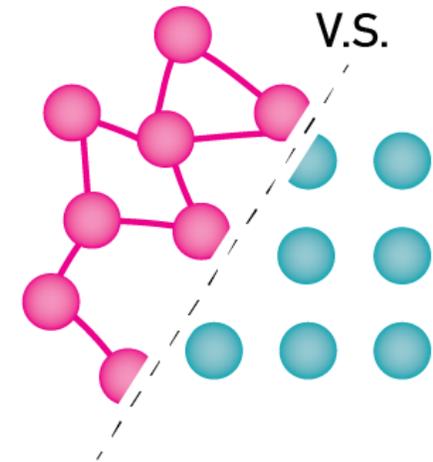
Hubs involve  
routines and  
rituals



The hub and the journey are hard to  
separate



Being connected  
versus being  
autonomous



Clustering

**All insights,  
observations &  
considerations**

## Cultural

Using the same (niche) transport can connect people (principle)

A Dutch workday is 8 hours (state)

## Biological

People sleep on average 7 hours per night (state)

People benefit physically from exercise (state)

## Technological

Autonomous vehicles are becoming increasingly viable (development)

Cities are becoming increasingly connected (development)

Products are becoming increasingly connected (IoT) (development)

Removing boundaries is a strategy of urban planning (principle)

Travel hubs are usually not all-seasons (principle)

The high variety on mobility hubs leads to increased needs of timely and comprehensive information (development)

## Psychological

Peoples mobility needs are changing (trend)

People like to be autonomous (principle)

People want to be able to choose to participate in public events (principle)

People like to "people watch" (principle)

People have a distorted view of their commute duration (principle)

Travel hubs have an important role in the daily life of commuters, since they're at the start and end of the commute (principle)

People generally dont scrutinize their commute patterns or modality choices (principle)

People are more active in the morning commute than in the evening commute (state)

A mobility needs to be 'more than a transfer point' (principle)

People have certain rituals on travel hubs (principle)

People do not pay attention to much on a travel hub, unless something is out of the ordinary (principle)

People care about comfort when travelling (principle)

Only if basic and additional demands are met, are users willing to change their mobility behaviour (principle)

Transport transfers cost (emotional) energy when they are not part of a daily commute (state)

Information provided is an important factor when choosing a mode of transport (principle)

It is hard to see a travel hub as apart from the journey (principle)

People have certain routines on travel hubs (principle)

## Sociological

Hubs that prioritize pedestrians are seen as pleasant (principle)

Busy transport hubs are seen as more pleasant (state)

(Dutch) people like to be independent when travelling (principle)

(Dutch) people do not interact much when travelling (principle)

A travel hub can become a socio-economic hub when the location and facilities are meaningful to users (principle)

People do not interact much with a travel hub that is part of their daily routine (principle)

'branding' a mobility hub improves communication regarding that hub (development)

Parents often do chores at the start and end of their day (principle)

## Economic

Car sharing is best used for trips other than commuting (state)

There is a lot of empty office space in the Netherlands (state)

The rise of the sharing economy (development)

Shared car usage is growing (trend)

Acces based mobility is being used more (trend)

There is an increasing need for sustainable transport options (trend)

Urban mobility hubs offer more modern acces-based mobility options than their rural counter parts because there are more potential users (state)

There is more public transport available in big cities than rural areas (state)

## Demographic

Working parents are frequent car users (state)

House ownership at 25 is not the norm (anymore) (development)

There is an increased pressure on the planning of the daily life of families (development)

Millenials buy less cars than previous generations (trend)

Individual car ownership is on the decline (trend)

Still not everyone uses a mobile phone (trend)

People (can) work from home more (trend)

Mobility behaviour of men and women has equalized over the past few years (development)

Most people live and work in different cities or areas (principle)

Parents often drop their kids off at school, and then return home to change modality (principle)

Start- and endpoints of days are often stressful (for parents) (principle)

The Netherlands are urbanizing (development)

# Context Factors

## Domain: (Social) behaviour at a mobility hub

## Human Connection

Using the same (niche) transport can connect people (principle)

Hubs that prioritize pedestrians are seen as pleasant (principle)

People like to “people watch” (principle)

Busy transport hubs are seen as more pleasant (state)

## Autonomy

People like to be autonomous (principle)

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People like to “people watch” (principle)

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(Dutch) people do not interact much when travelling (principle)

## Facilities are key

A travel hub can become a socio-economic hub when the location and facilities are meaningful to users (principle)

A mobility needs to be ‘more than a transfer point’ (principle)

## Communication is key

‘branding’ a mobility hub improves communication regarding that hub (development)

Travel hubs are usually not all-seasons (principle)

## Urban Shift

Removing boundaries is a strategy of urban planning (principle)

The Netherlands are urbanizing (development)

Urban mobility hubs offer more modern acces-based mobility options than their rural counter parts because there are more potential users (state)

There is more public transport available in big cities than rural areas (state)

## Technological Bulldozering (determinism) / TechShift

Autonomous vehicles are becoming increasingly viable (development)

Cities are becoming increasingly connected (development)

Products are becoming increasingly connected (IoT) (development)

## Generational Shift

Peoples mobility needs are changing (trend)

The rise of the sharing economy (development)

House ownership at 25 is not the norm (anymore) (development)

Millenials buy less cars than previous generations (trend)

Individual car ownership is on the decline (trend)

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Shared car usage is growing (trend)

Acces based mobility is being used more (trend)

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## Information Overload when Travelling

The high variety on mobility hubs leads to increased needs of timely and comprehensive information (development)

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Information provided is an important factor when choosing a mode of transport (principle)

## Double-edged commute

Car sharing is best used for trips other than commuting (state)

There is a lot of empty office space in the Netherlands (state)

Working parents are frequent car users (state)

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Travel hubs have an important role in the daily life of commuters, since theyre at the start and end of the commute (principle)

People are more active in the morning commute than in the evening commute (state)

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People sleep on average 7 hours per night (state)

A Dutch workday is 8 hours (state)

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Parents often do chores at the start and end of their day (principle)

Parents often drop their kids off at school, and then return home to change modality (principle)

Start- and endpoints of days are often stressful (for parents) (principle)

## Travelling is a routine

People have a distorted view of their commute duration (principle)

People generally dont scrutinize their commute patterns or modality choices (principle)

It is hard to see a travel hub as apart from the journey (principle)

People do not interact much with a travel hub that is part of their daily routine (principle)

People have certain routines on travel hubs (principle)

People have certain rituals on travel hubs (principle)

People do not pay attention to much on a travel hub, unless something is out of the ordinary (principle)

## Travelling is tiresome

People benefit physically from excercise (state)

People care about comfort when travelling (principle)

Transport transfers cost (emotional) energy when they are not part of a daily commute (state)

# Clusters

# 'Dimensioning'

Human connection  
Towns become Cities  
Owning becomes Using  
Interconnectedness

Travelling is a routine  
Communication is key  
Towns become Cities  
Double Edged Commute

Travelling is tiresome  
Facilities are key  
Double Edged Commute

Travelling is a routine  
Autonomy

# Design Statement

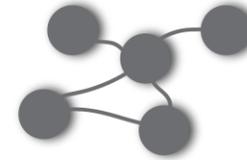
Being connected

Human connection  
Towns become Cities  
Owning becomes Using  
Interconnectedness

Feeling as if you're somewhere else

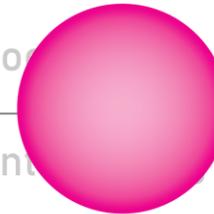


Social Interaction



"The Virtual Hub"

"The Social Hub"



"The Anonymous Hub"

"The Entertainment Hub"

Frictionless traveling

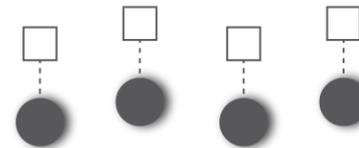
Travelling is a routine  
Communication is key  
Towns become Cities  
Double Edged Commute



Hassle-free travelling

Travelling with friction

Travelling is tiresome  
Facilities are key  
Double Edged Commute



Entertainment

Being autonomous

Travelling is a routine  
Autonomy

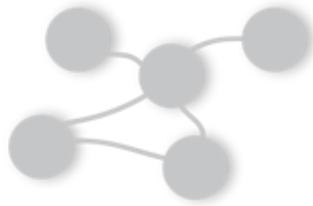
# Design Statement

“I want to wake up people from their daily commute by introducing a kind of positive friction (that literally and figuratively slows them down) at their local Mobihub, with which they can choose to interact, together or alone”

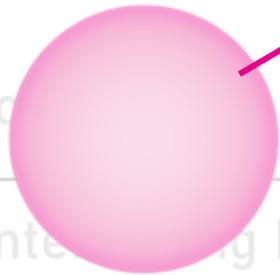
Being connected

Human connection  
Towns become Cities  
Owning becomes Using  
Interconnectedness

Social Interaction



“The So



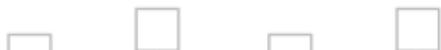
“The Entertaining Hub”

Travelling with friction

Travelling is tiresome

Facilities are key

Double Edged Commute

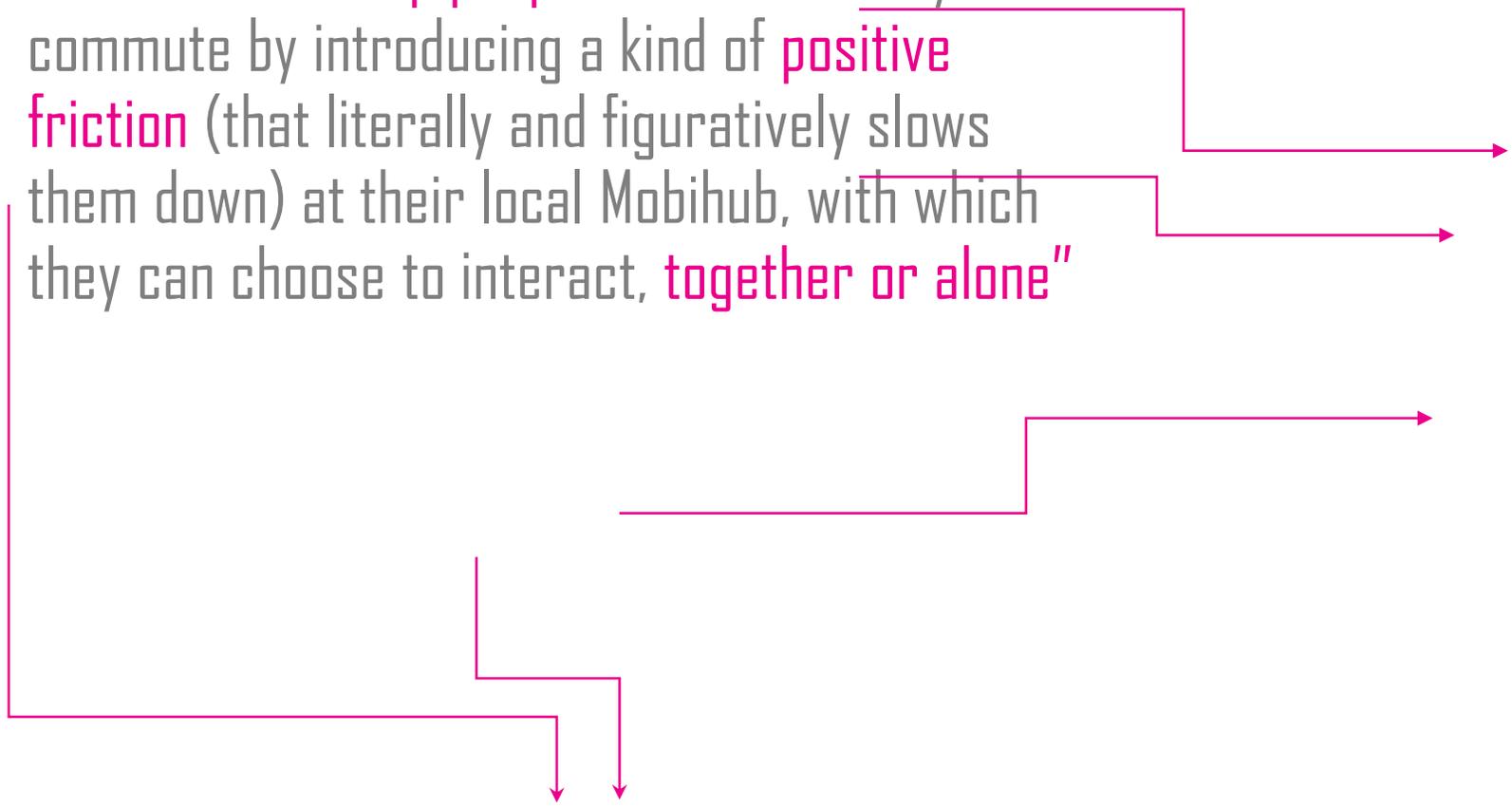


"I want to **wake up people** from their daily commute by introducing a kind of **positive friction** (that literally and figuratively slows them down) at their local Mobihub, with which they can choose to interact, **together or alone**"

# Design Challenges

How to design for two these 'two states' at the same time?

The answer is:  
**quantum mechanics**



Two states: *“the quantum superpositioning problem of mobility hubs”*

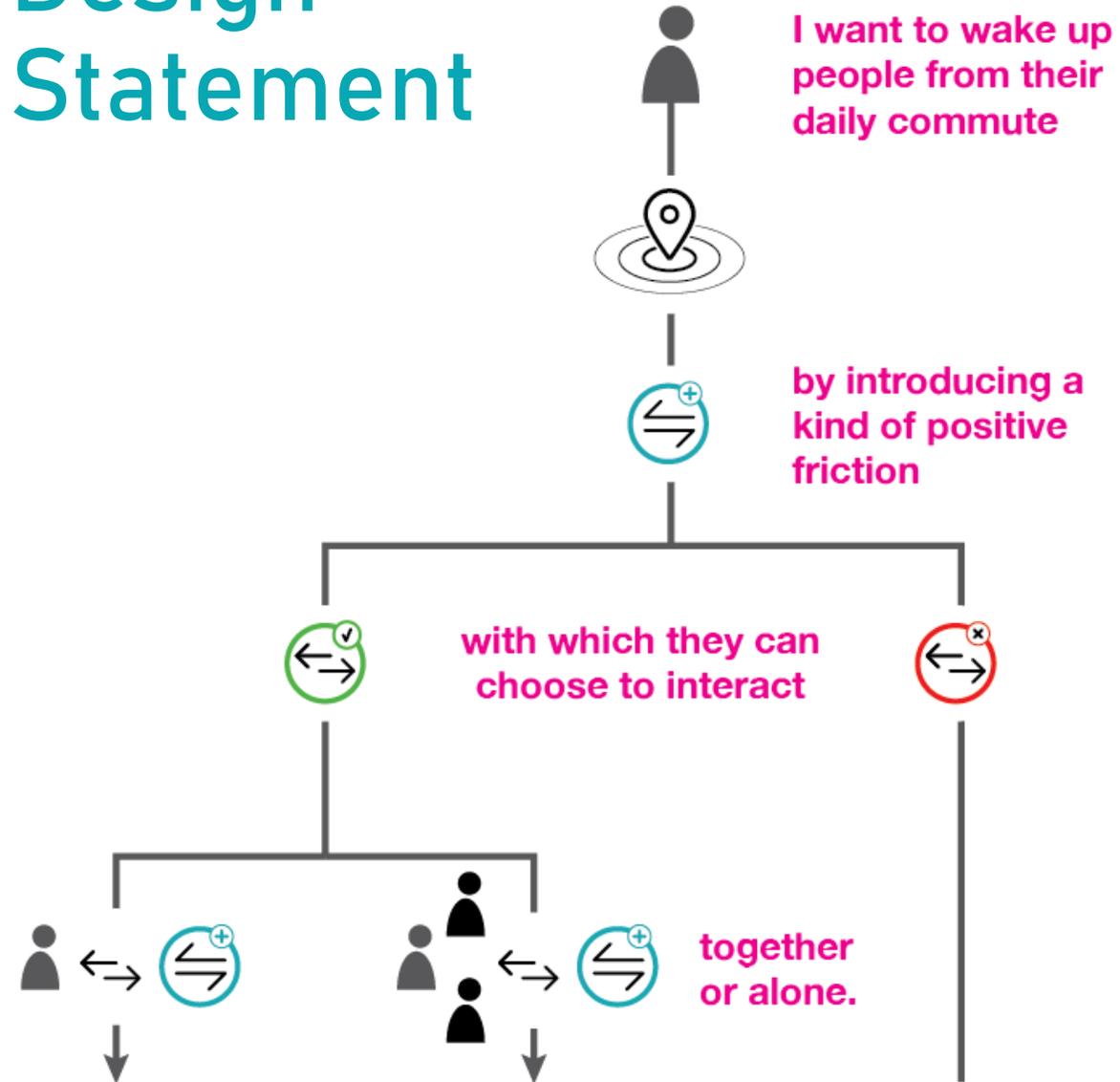


A hub that lets  
you be  
connected

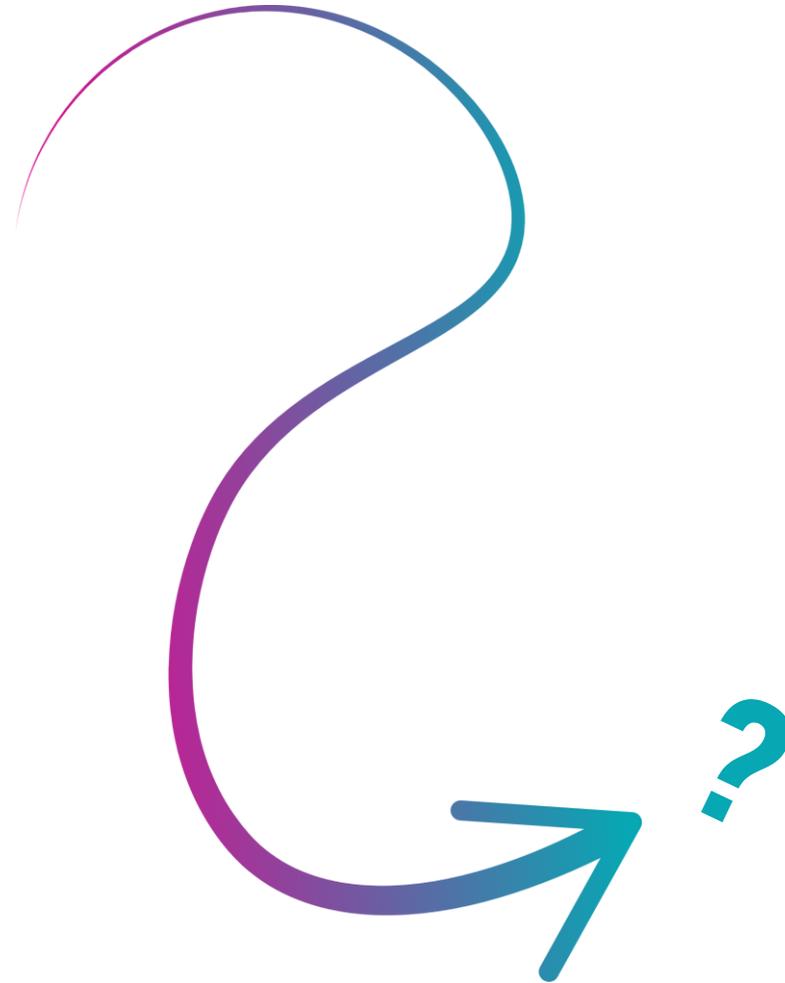
“quantum  
superpositioning”  
of a Mobihub

A hub that lets  
you be  
autonomous

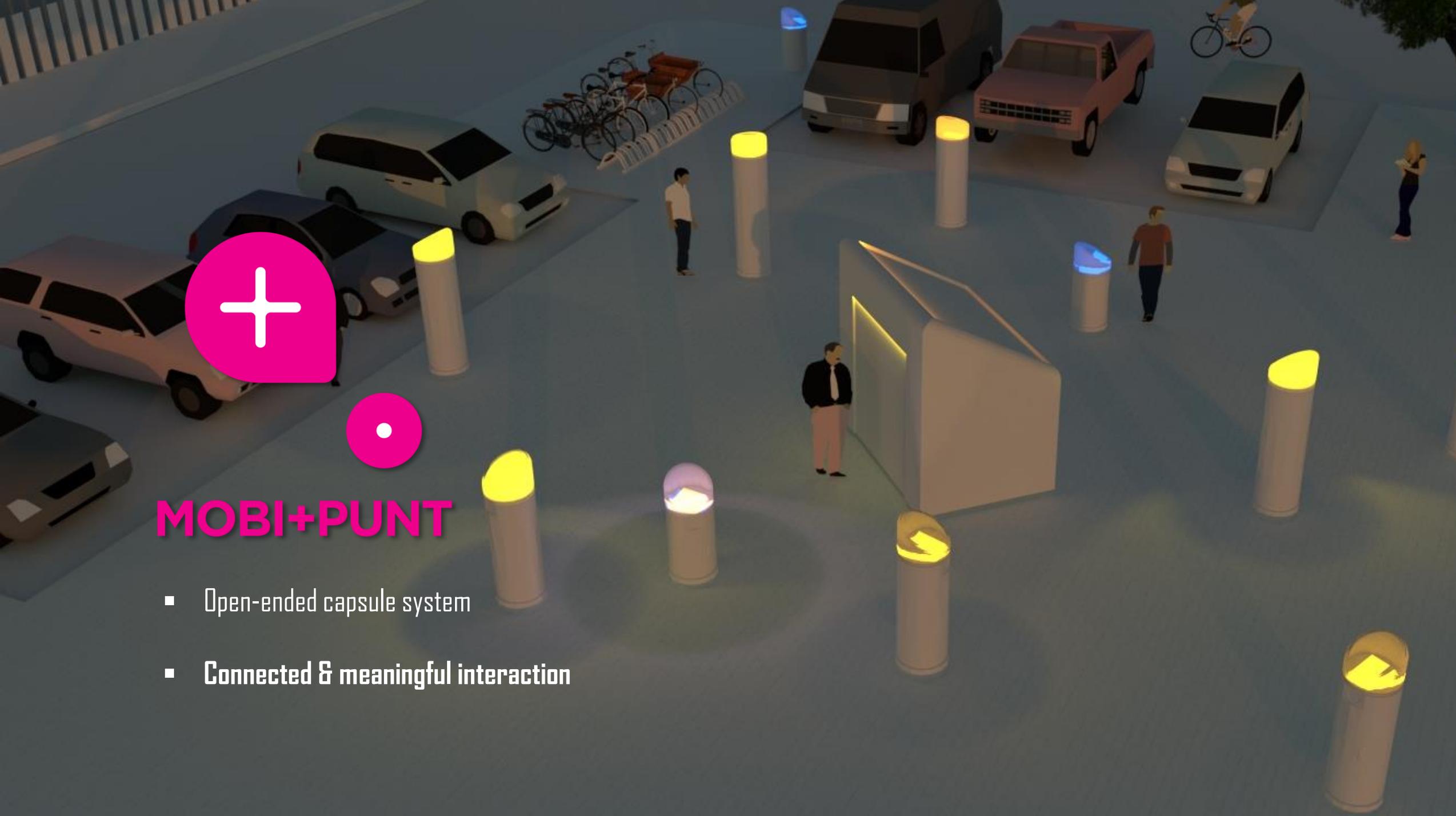
# Design Statement



# Ideation



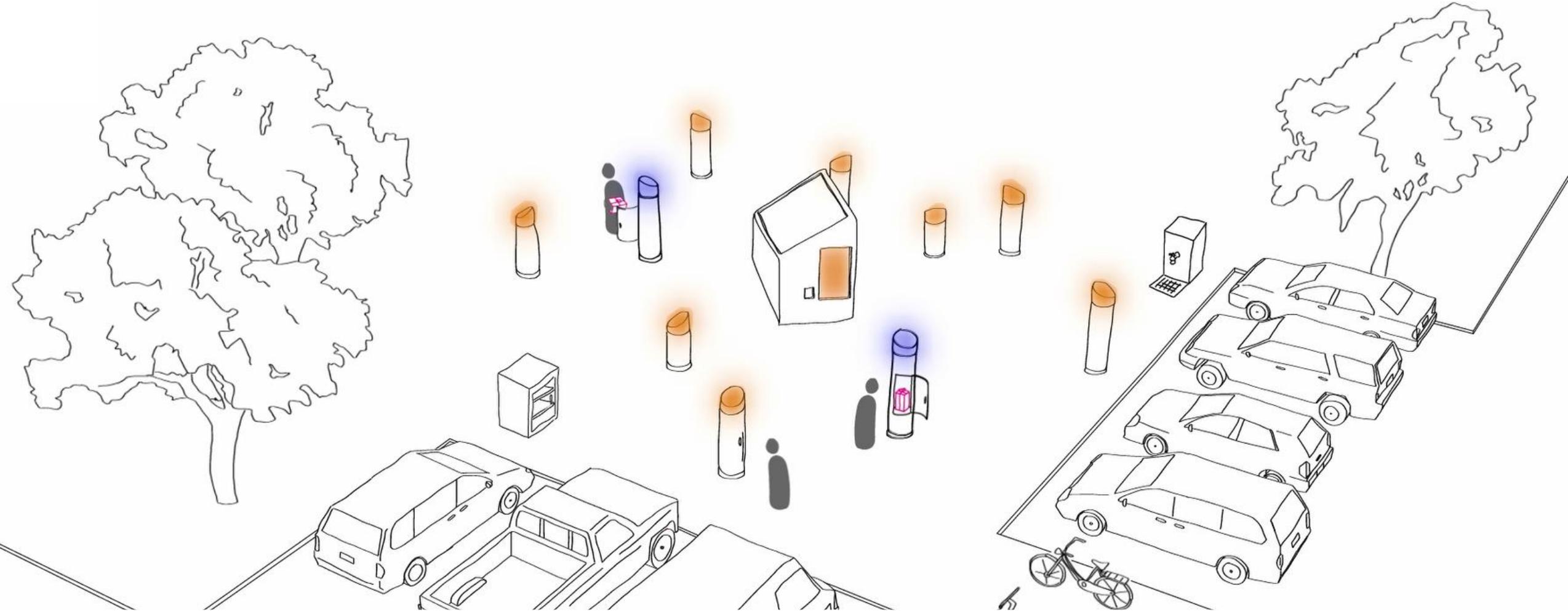




# MOBI+PUNT

- Open-ended capsule system
- Connected & meaningful interaction



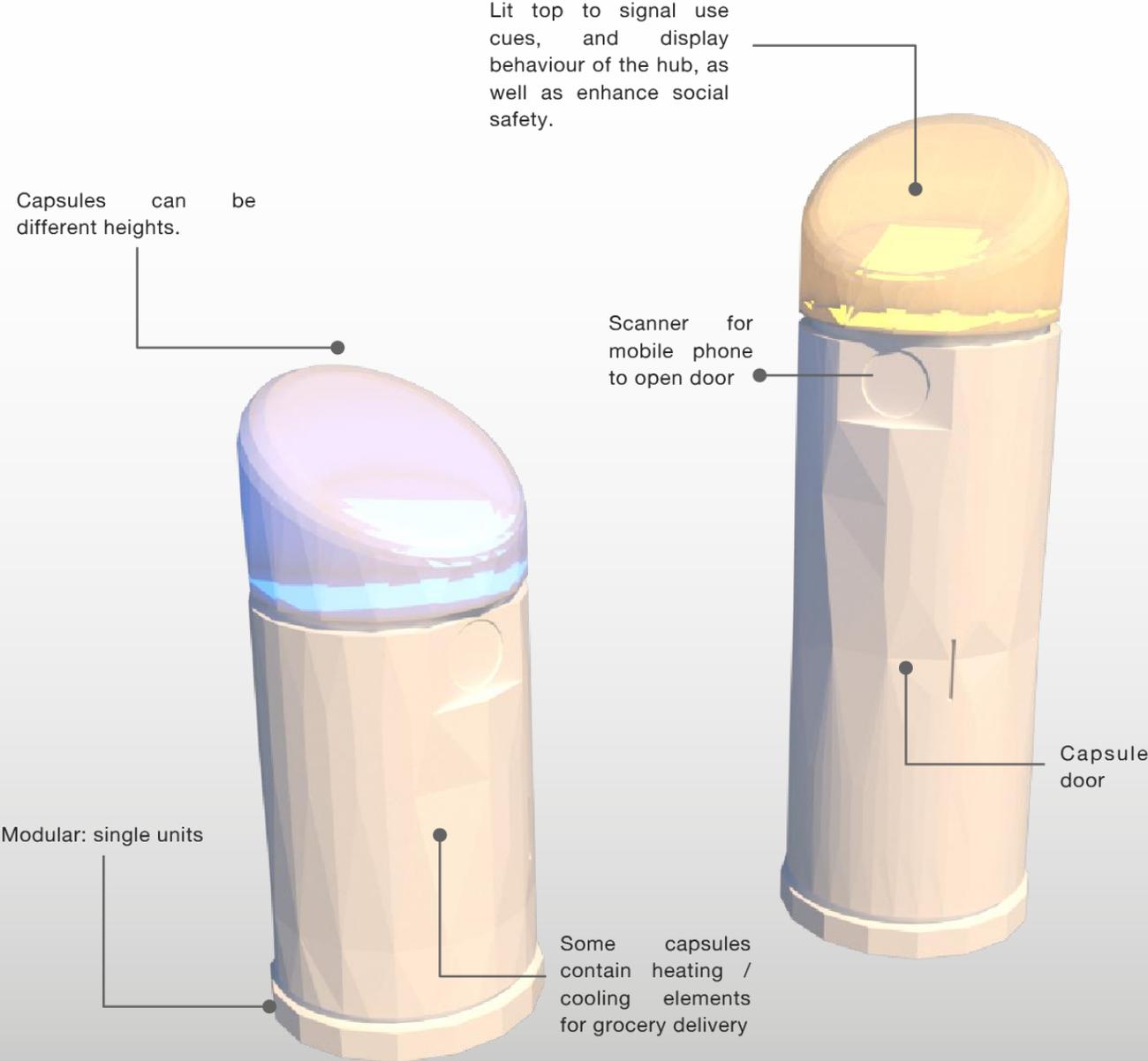


## Delivery System

- Combine all mobility in the neighborhood
- Algorithm facilitates
- Increase connectivity

# Capsules

- Interactive & multipurpose
- Big, small, heated, cooled, etc.
- Open ended usage



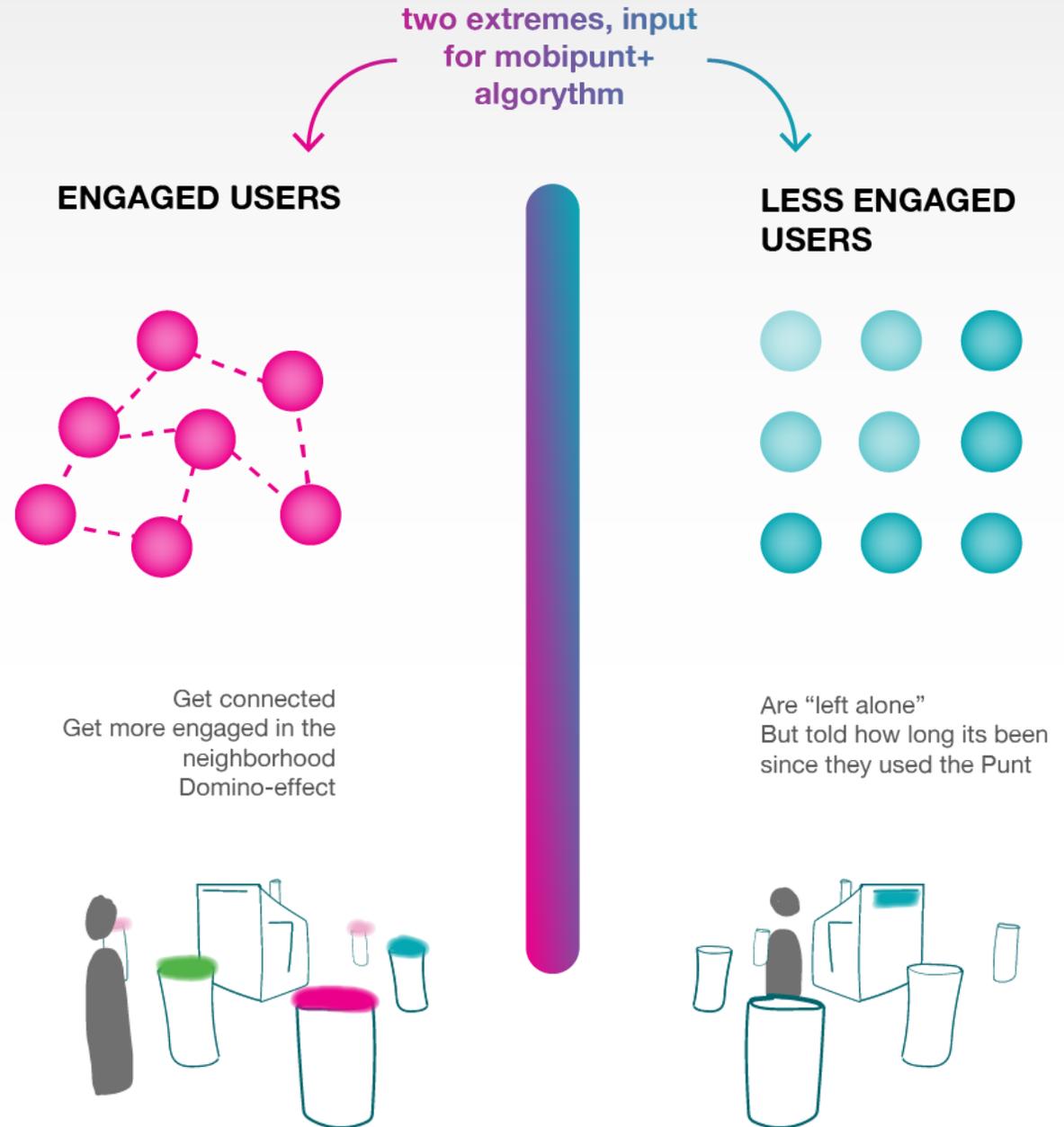
# A meaningful interaction

- Mobipunt sees the same people every day, and knows when they're near
- Parental relationship is **about responsibility, as using the mobipunt is**
- *"Ja hallo, 't is hier geen hotel!"*
- *"Ik zie je nooit meer"*
- *""*
- **Mirror wanted mobility patterns**



# Design principles

- Promote usage
- Connect some people
- Leave some people alone,
- but signal that more usage is 'better' (parent)



# Mobi+Punt app

- Chat to 'parent'
- Possible embedding within existing communication tools in the neighborhood



# Discussion



Één of twee echte succesfactor van het Mobipunt+



Één of twee knelpunten van het Mobipunt+



*"Hoe zou je als ambassadeur het Mobipunt+ samenvatten in een tweet?"*

*"In mijn buurt?"*

*"Businessmodellen?"*





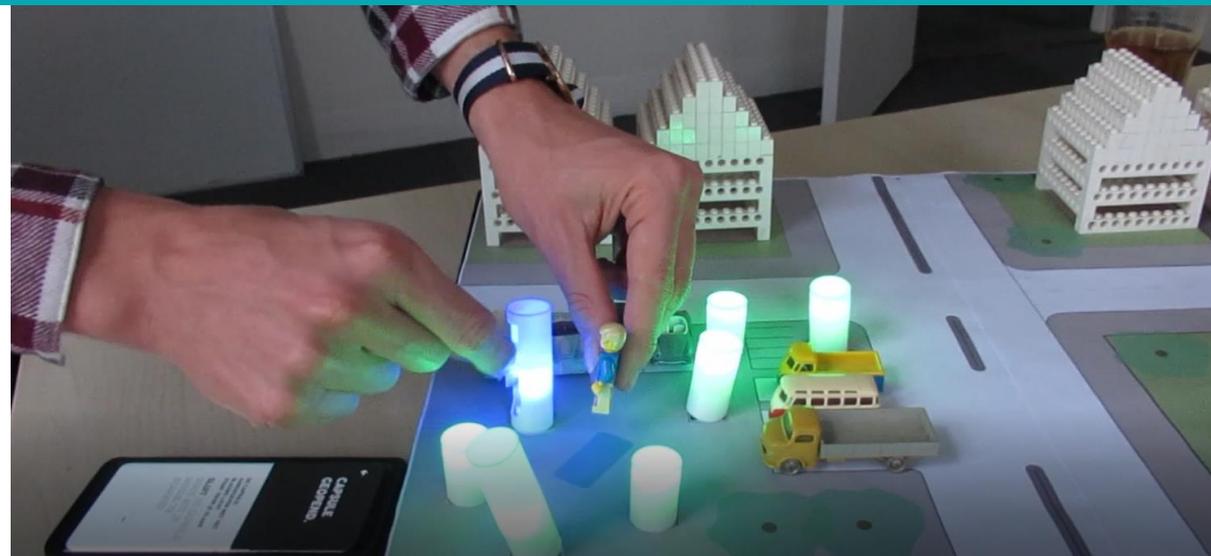


# Prototyping



# Testing / Prototyping

- 9 Participants



# Analysis

## Clustering of recurring subjects

"You could have informal kick-off or something" (J, 12:00)

meet with neighbors for draagvlak

"You do see your neighbors a couple of times per week." (J, 9:30)

"You could have pilot of a year or something" (El, 11:00)

"Ownership is cultivated if occupants can co-create" (El, 11:00)

"You need to be able to see who's responsible" (J, 1:20)

"The responsibility is at the sender." (P, 22:10)

### Security Issues

"I associate safety with cameras." (J, 11:20)

"The process should not be justified" (P, 25:10)

"The responsibility is at the users. For safety." (Ma, 22:00)

"The owner is the municipality, but its like a skatepark: use at your own risk" (P, 25:10)

"If everyone uses it, trust will follow. Marktplaats also used to be scary." (Ri, 6:10)

"Trust just takes time" (Ri, 9:50)

"It is scary to give away" (Ri, 6:10)

"Mouth-to-mouth would work best. If i heard it from a neighbor i would use it" (El, 12:10)

"I would use it for valuable stuff as well if i trust my neighborhood" (J, 1:45)

"All delivery should just be different. And the only thing missing is trust." (Re, 5:00)

"Points to use in the system is fine and all, but if the points get rewarded for good behaviour, that is just a mini-China" (M, 4:40)

"Its kind of the same as a binnenstedelijk parkeervergunning systeem" (M, 5:30)

"If i get shown by my neighbor the barrier to use it is much lower" (El, 12:40)

Trust when other people use it

"Trust comes when other people use it or if its the only option." (Re, 11:30)

"I need to know waar ik aan toe ben met bezorging." (Re, 4:30)

"If most people use it, trust will come. Dan zal het wel oke zitten." (Re, 10:30)

Mobipunten or Money?

"It will only work at the lowest level, by the people" (Ma, 40:06)

"If once its posted its insured, that would solve it all. Like PostNL" (J, 3:00)

"For everyday packages, like return packages, I would use it regardless of my neighborhood" (J, 2:30)

"After a while, negative mobipunten will be called 'eso-points'." (M, 8:00)

"You could be compensated for not using the mobipunt. That's not really left, but might work." (M, 09:00)

"It would be a great social workplace" (Er, 20:45)

"It will probably become a hangplek" (Er, 19:00)

"With mywheels they employ people to check up on the cars and stuff" (El, 13:00)

Maintenance by Social work / employees

"All these delivery busses, its crazy" (Re, 00:20)

"I don't know why it doesnt already work this way" (Re, 09:40)

"All delivery should just be different. And the only thing missing is trust." (Re, 5:00)

Dissatisfaction with current delivery system

"There should be something like a concierge. To fix stuff every week." (Er, 20:30)

"The point should be attractive, clean and safe" (Er, 21:37)

"Yeah why not, even in ships this is used. Combining cargo" (Re, 9:34)

"Delivery at the door I never do anymore. Its just crazy." (Ma, 25:30)

"Thats all fine and dandy, but it gets complicated really fast" (M, 16:30)

"Lights can be fun, but it's not for everybody." (El, 12:45)

"Myeah, colours will be funny." (J, 11:00)

"If the system learns about me, I would not mind that." (Re, 1:00)

"Neighbors can spoil the fun with their lights" (El, 9:00)

"Favourite colour is fun, but dont get too personal" (Re, 0:20)

Personalization: Meh

"Humour and personalization would make me use it more since it something more than usual. It's not just returning a package but a personal experience. Like robot kassas and normal kassas at the AH." (Re, 5:10)

"It does feel nice if it changes according to you." (J, 10:49)

"People kick on personal attention" (Ri, 16:25)

Personalization: Essential

"It is nice to feel as if you are challenged" (J, 12:45)

"Ah this is like green for available parking spaces. It would be nicer to find" (Er, 22:45)

"I would change it one time and then never again" (M, 16:30)

"Favourite colour is fun, but dont get too personal" (Re, 0:20)

"I need my personal belongings in my car, even though they can all fit in a small bag" (M, 19:20)

"Maybe you need a personal shared car-bag to take with you" (M, 20:55)

Quantum Dispositioning of Mobility Hubs

2 kinds of popQuantum Dispositioning of Mobility Hubs

"I can imagine there becoming politics involved" (Re, 2:25)

"If you try to involve everyone that way that will never work" (Re, 12:00)

"I could see people lobbying for their own rules. This would mean persuasive people would get their way

"Could I also say: this package can not be delivered by Diesel car?" (P, 14:00)

Game Rules usage depends on character

"People that dont want no fuss just disengage" (Re, 1:40)

"There should be a deadline to vote" (Re, 30:35)

"Games and neighbors is fun and all, but after a while it gets old. Money still matters." (M, 2:00)

"I would just modify and think along, but I would not come up with ideas" (Re, 14:30)

"Some people will become the voortrekkers, others just

"You could have informal kick-off or something" (J, 12:00)

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"You need to be able to see that it's a tight-knit community" (J, 1:12)

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### Maintenance by work / emplo

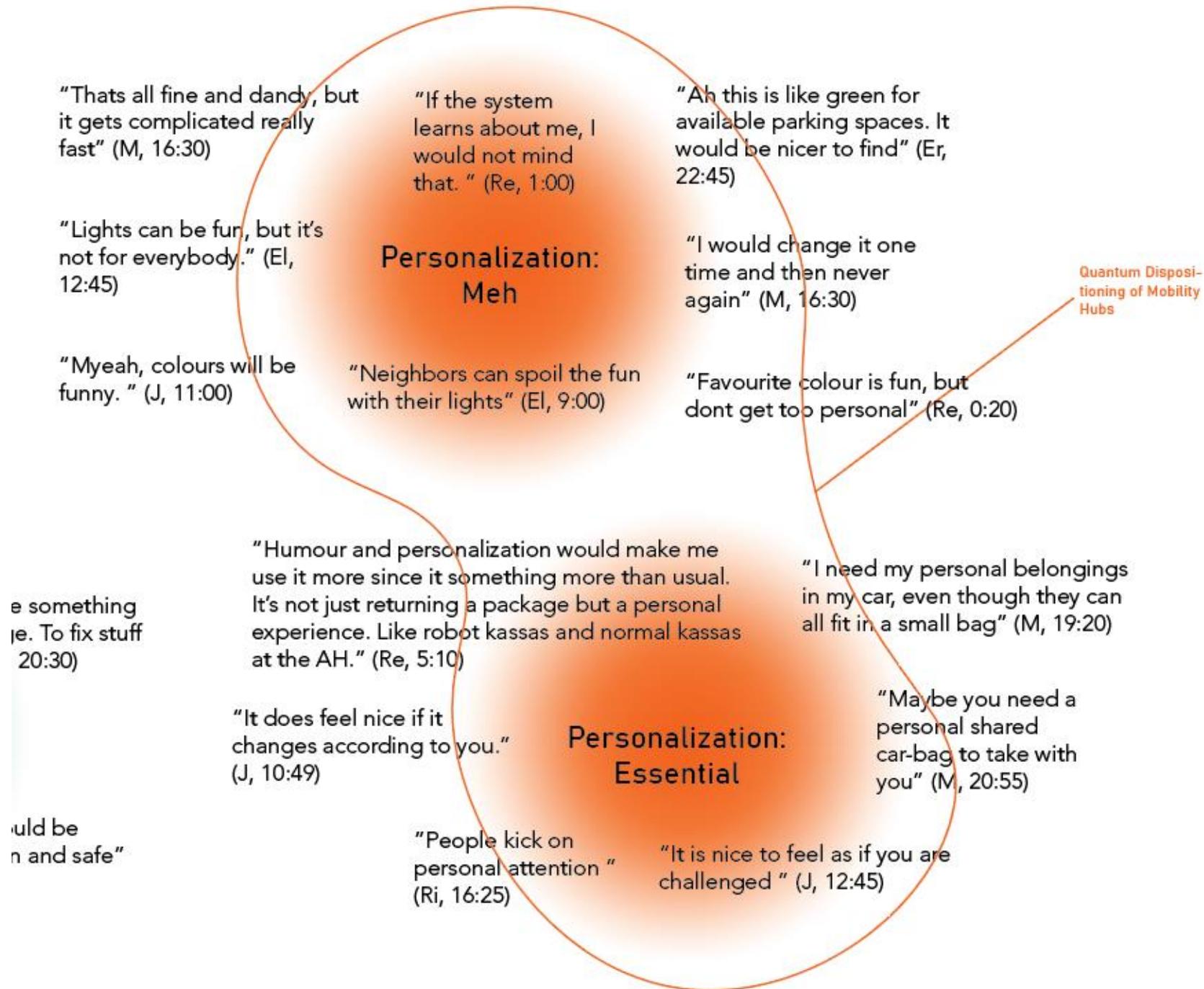
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"Points to use in the system is fine and all, but if the points get rewarded for good behaviour, that is just a mini-China" (M, 4:40)

"A point system will evolve on its own, no need to award or not" (M, 5:30)

"After a while, negative mobipunten will be called 'aso-points'." (M, 8:00)

"I don't know why it doesn't already work this way" (Re, 09:40)

## Dissatisfaction with current delivery system

"All delivery should just be different. And the only thing missing is trust." (Re, 5:00)

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## Mobipunten or Money?

"You could be compensated for not using the mobipunt. That's not really left, but might work." (M, 09:00)

"A social measuring system in the shape of mobipunten that is not good" (M, 5:30)

"Its hard to say if Mobipunten are worth it. Most people only care about money." (Ri, 8:00)

"You could pay for availability and gebruik per kilometer or hour, and the gebruik you can trade." (M, 8:00)

"It's like paying for service for your elevator." (M, 3:00)

"Games and neighbors is fun and all, but after a while it gets old. Money still matters." (M, 2:00)

## Pay-to-use model

"If I damage a shared car I do not feel bad. Unless maybe we all pay for service costs or something. But then maybe people will not enter into it because the costs are unknown" (Er, 19:50)

"I wouldn't mind if Mobipunten are just money." (Ri, 8:00)

"I would like to use the points at for local businesses" (Ma, 18:00)

"This is actually a monthly trade in scarcity of space." (M, 1:15)

"The mobipunt is there to solve scarcity of space. So whoever takes that space, pays extra." (M, 0:30)

st level,

"It would be a great social workplace" (Er, 20:45)

"There should be something like a concierge. To fix stuff every week." (Er, 20:30)

"It will probably become a hangplek" (Er, 19:00)

### Maintenance by Social work / employees

"With mywheels they employ people to check up on the cars and stuff" (El, 13:00)

"The point should be attractive, clean and safe" (Er, 21:37)

"All these delivery busses, its crazy" (Re, 00:20)

"Yeah why not, even in ships this is used. Combining cargo" (Re, 9:34)

### Dissatisfaction with current delivery system

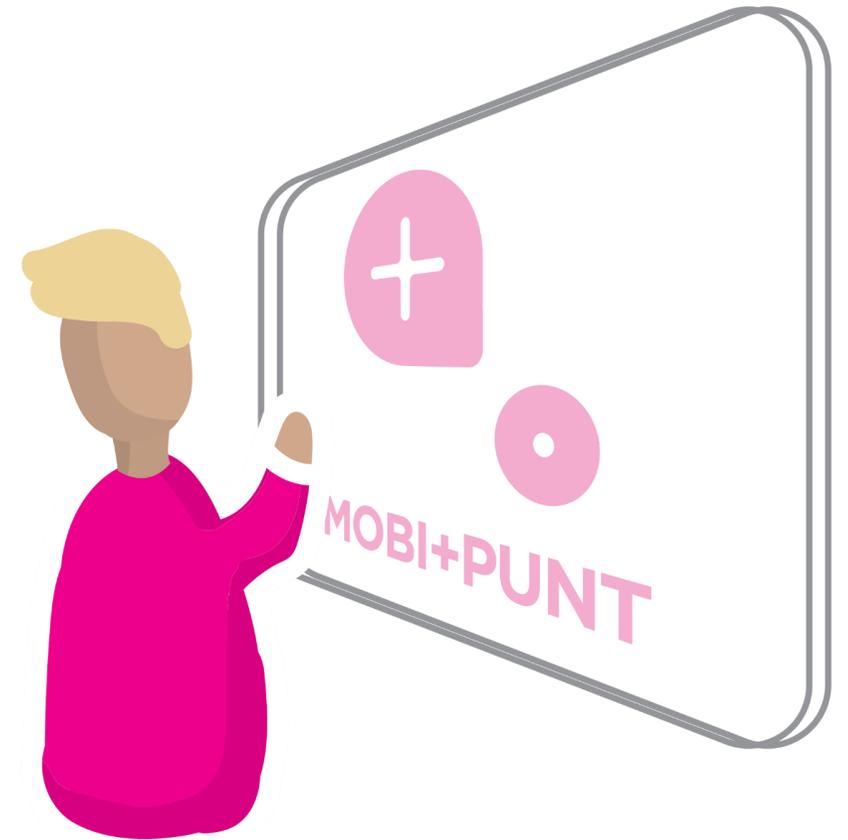
"I don't know why it doesnt already work this way" (Re, 09:40)

"All delivery should just be different. And the only thing missing is trust." (Re, 5:00)

"Delivery at the door I never do anymore. Its just crazy." (Ma, 25:30)

# Kick off session

- With Inhabitants
- Explanatory + Inspirational
- Reference inadequateness of current delivery methods
- Assign ambassadors



# Ambassadors

- Welcome new users
- Manage maintenance by social work
- Act as 'superusers'

