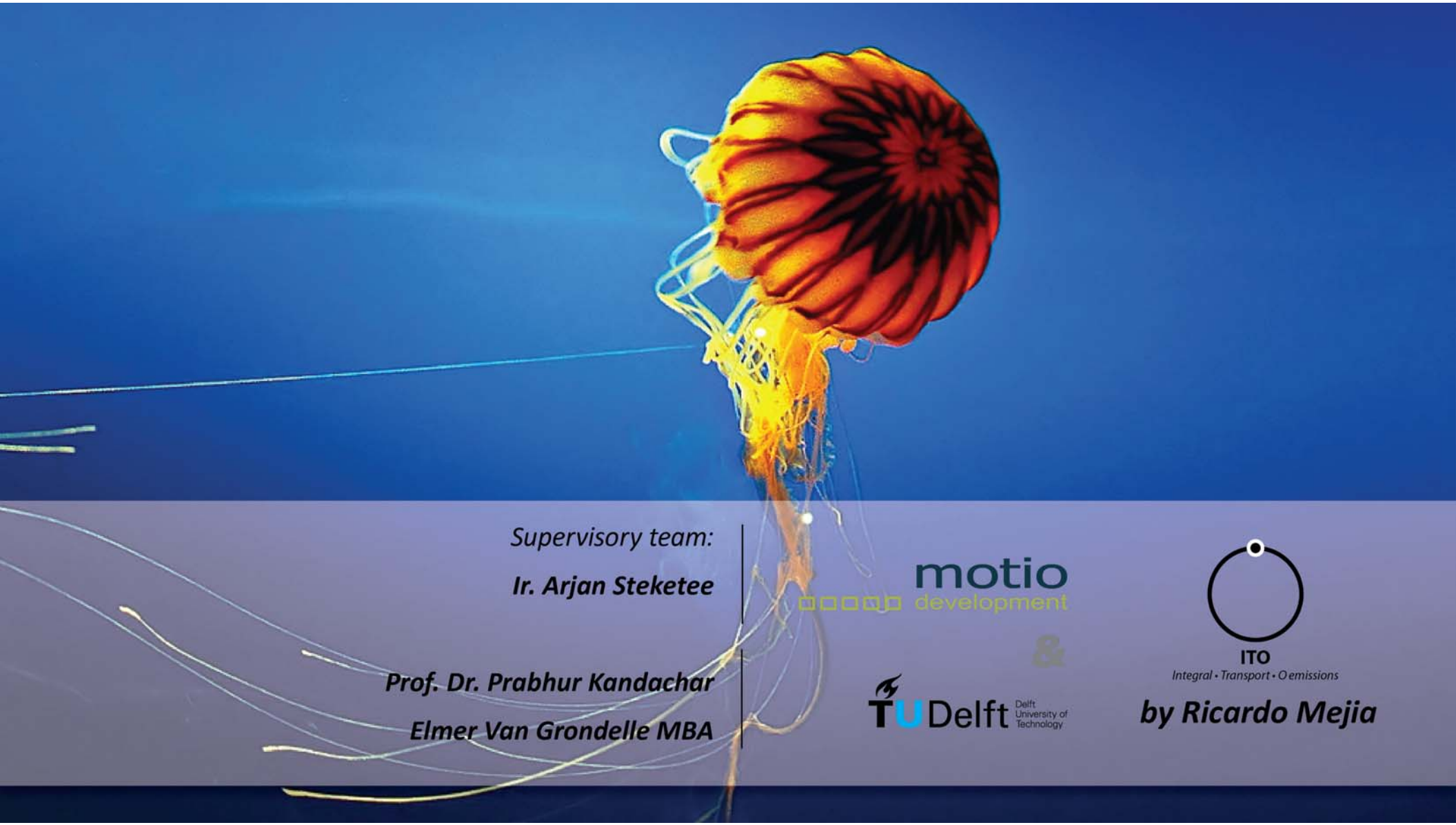


Supervisory team:

Ir. Arjan Steketee

motio development

&

TU Delft Delft University of Technology

Prof. Dr. Prabhur Kandachar

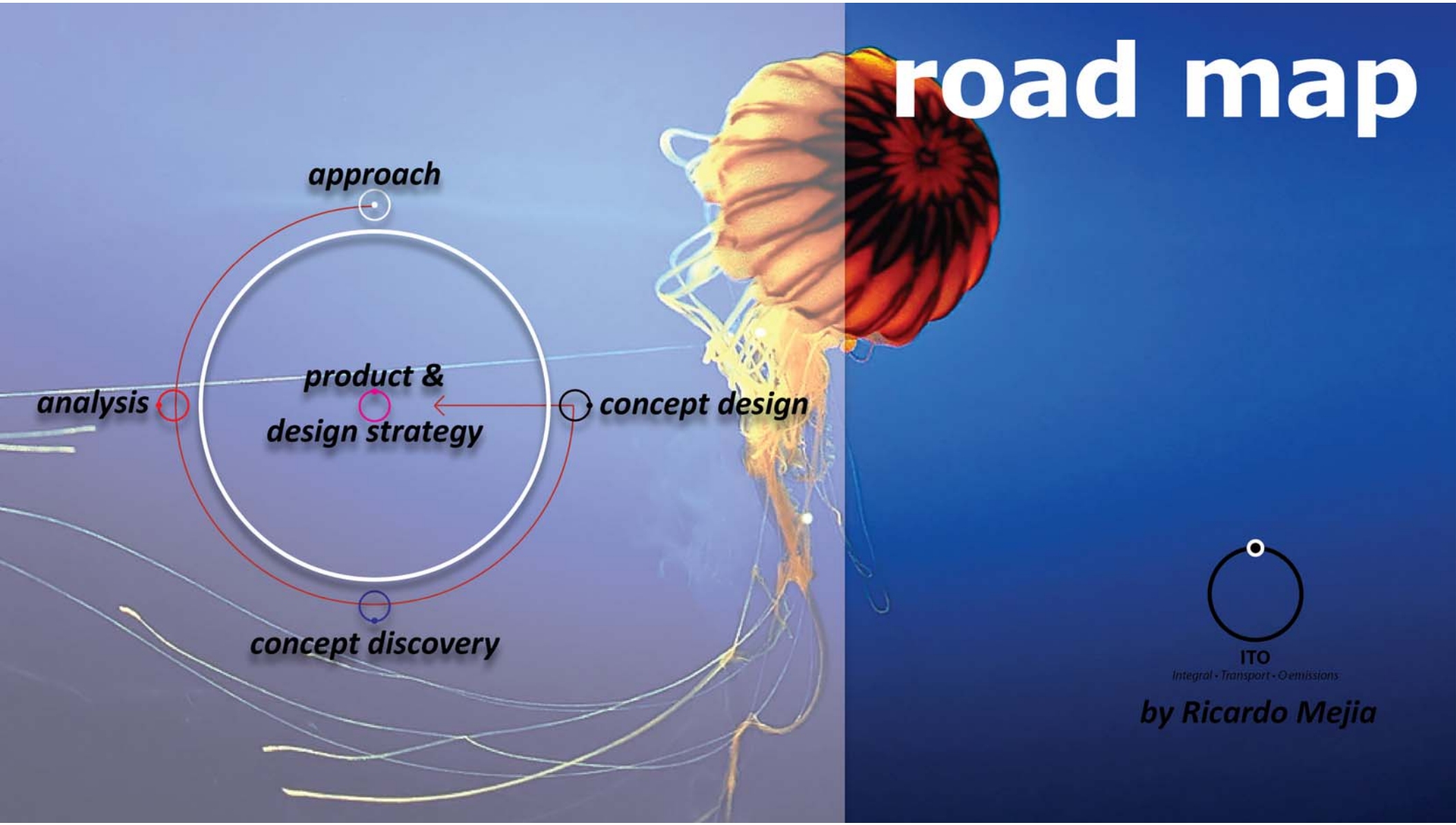
Elmer Van Grondelle MBA

ITO

Integral • Transport • O emissions

by Ricardo Mejia

road map

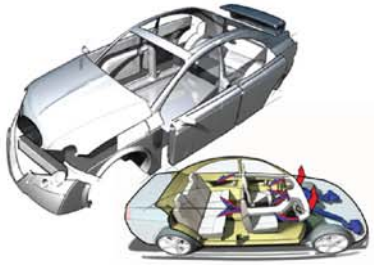


ITO
Integral • Transport • Oemissions

by Ricardo Mejia

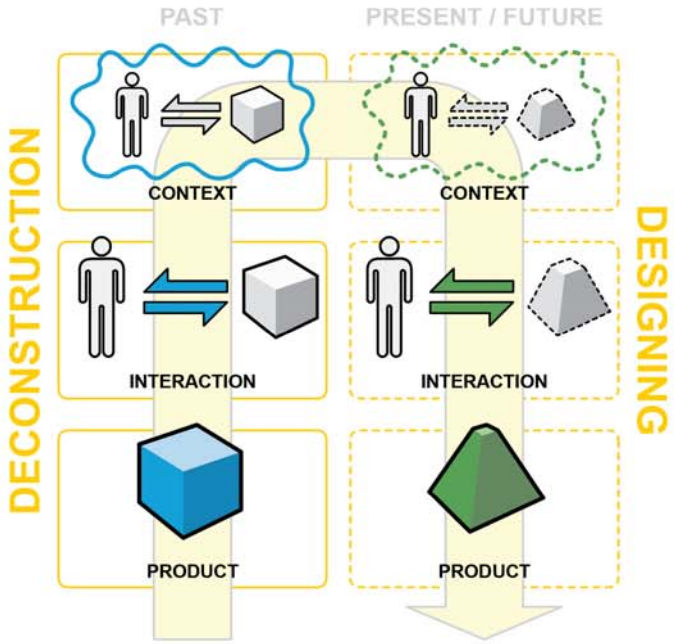

approach
...mobility ...is the state of being in motion*...
*Cambridge University Press





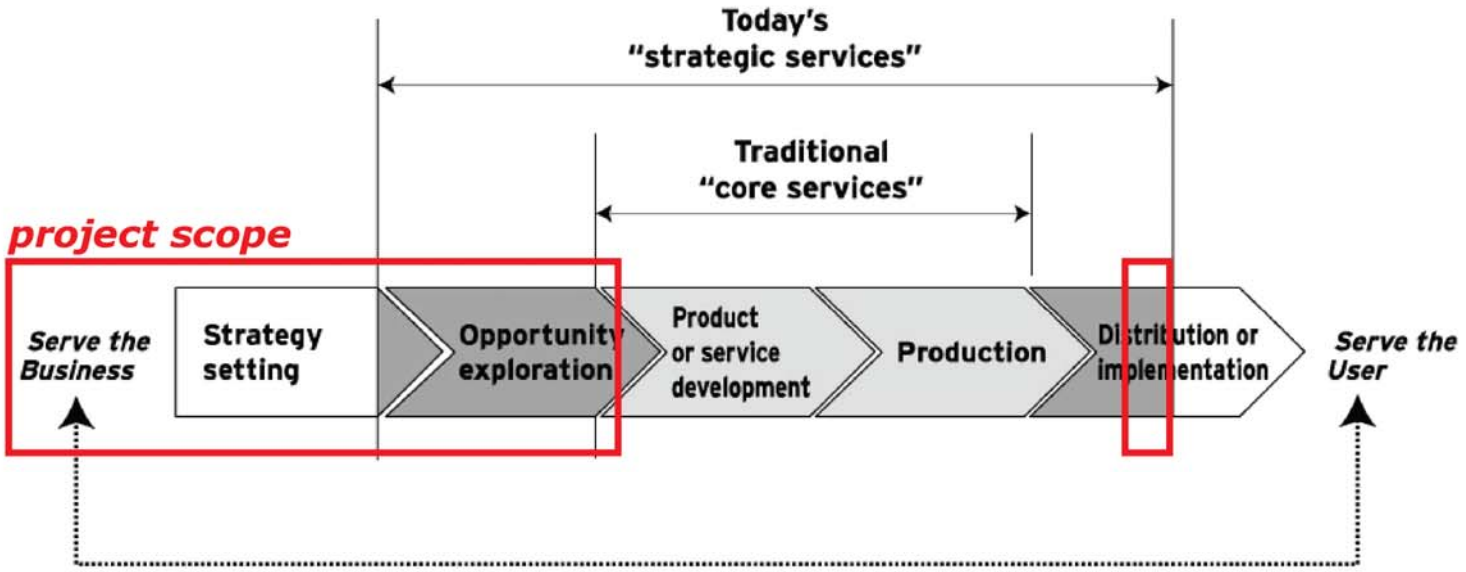
motio development

*is a **design studio** based in the **Netherlands** with a passion for anything that **moves people** or goods, with or without wheels.*



ViP *"...design is about **looking for possibilities**, and **possible futures**..."**

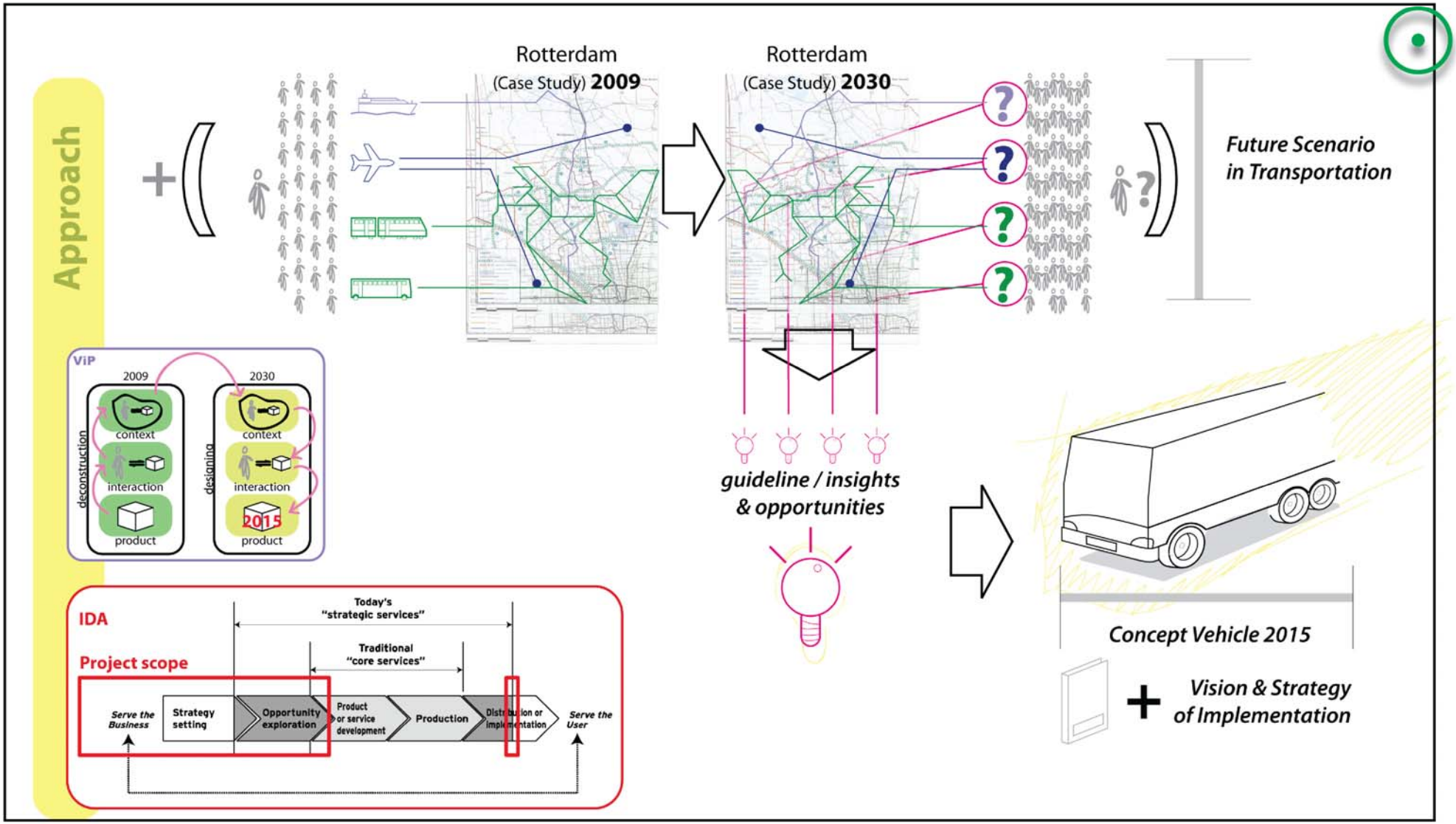
** Vision in Product Design / Stappers, van der Lugt, Hekkert, & Sleeswijk Visser 2008*



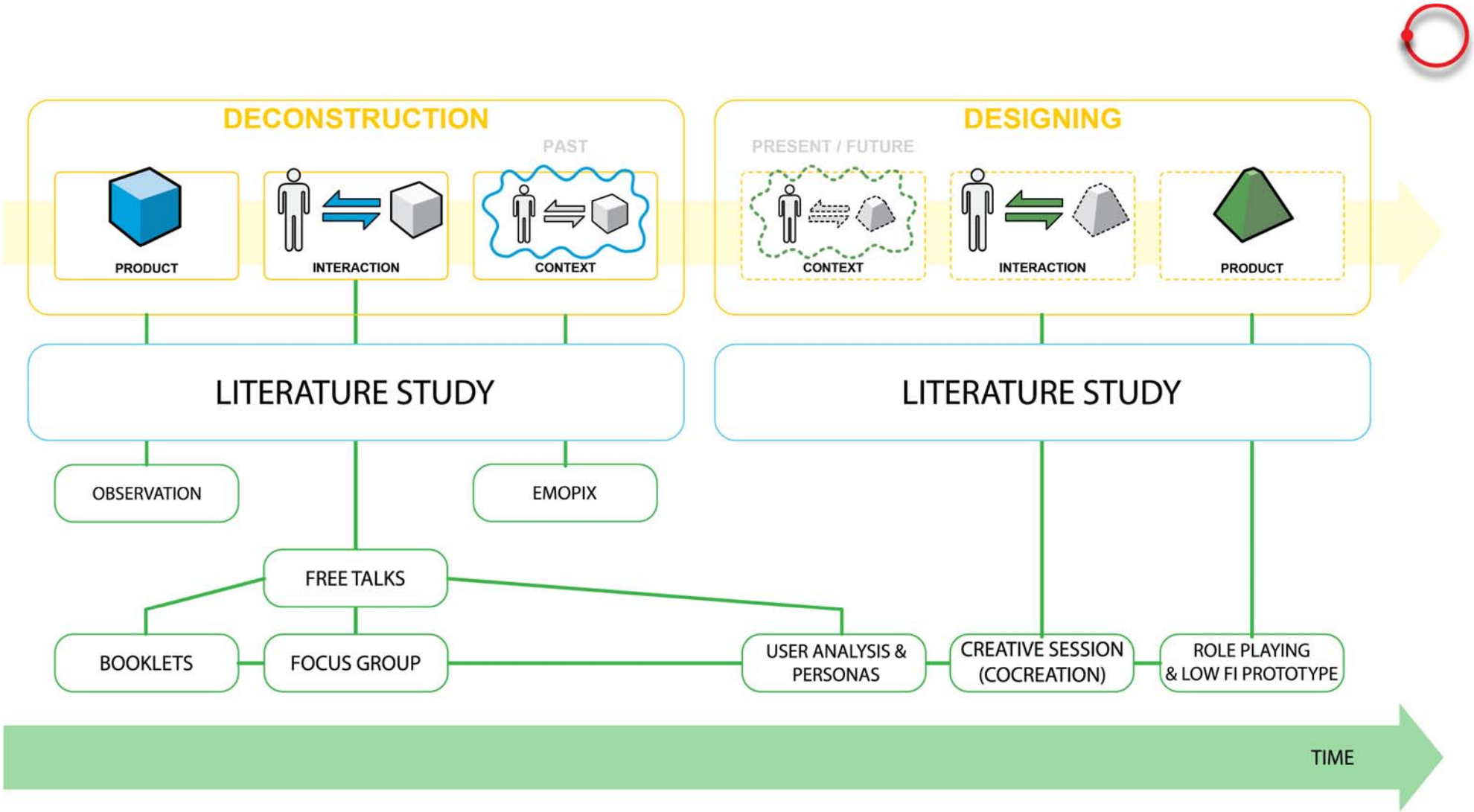
IDA

*"traditional core-services" turn into **"today´s strategy services"**, extending the coverage of the design consultant ratio to **"strengthen the connection between business needs and user needs"****

* ***Integral Design Approach*** */ Weiss, 2002*


Approach
Rotterdam
(Case Study) 2009
Rotterdam
(Case Study) 2030
Future Scenario
in Transportation
ViP
2009
2030
context
interaction
product
deconstruction
designing
2015
guideline / insights
& opportunities
Concept Vehicle 2015
+ Vision & Strategy
of Implementation
IDA
Project scope
Today's
"strategic services"
Traditional
"core services"
Serve the
Business
Strategy
setting
Opportunity
exploration
Product
or service
development
Production
Distribution or
implementation
Serve the
User


analysis
...future of design is human-centered...

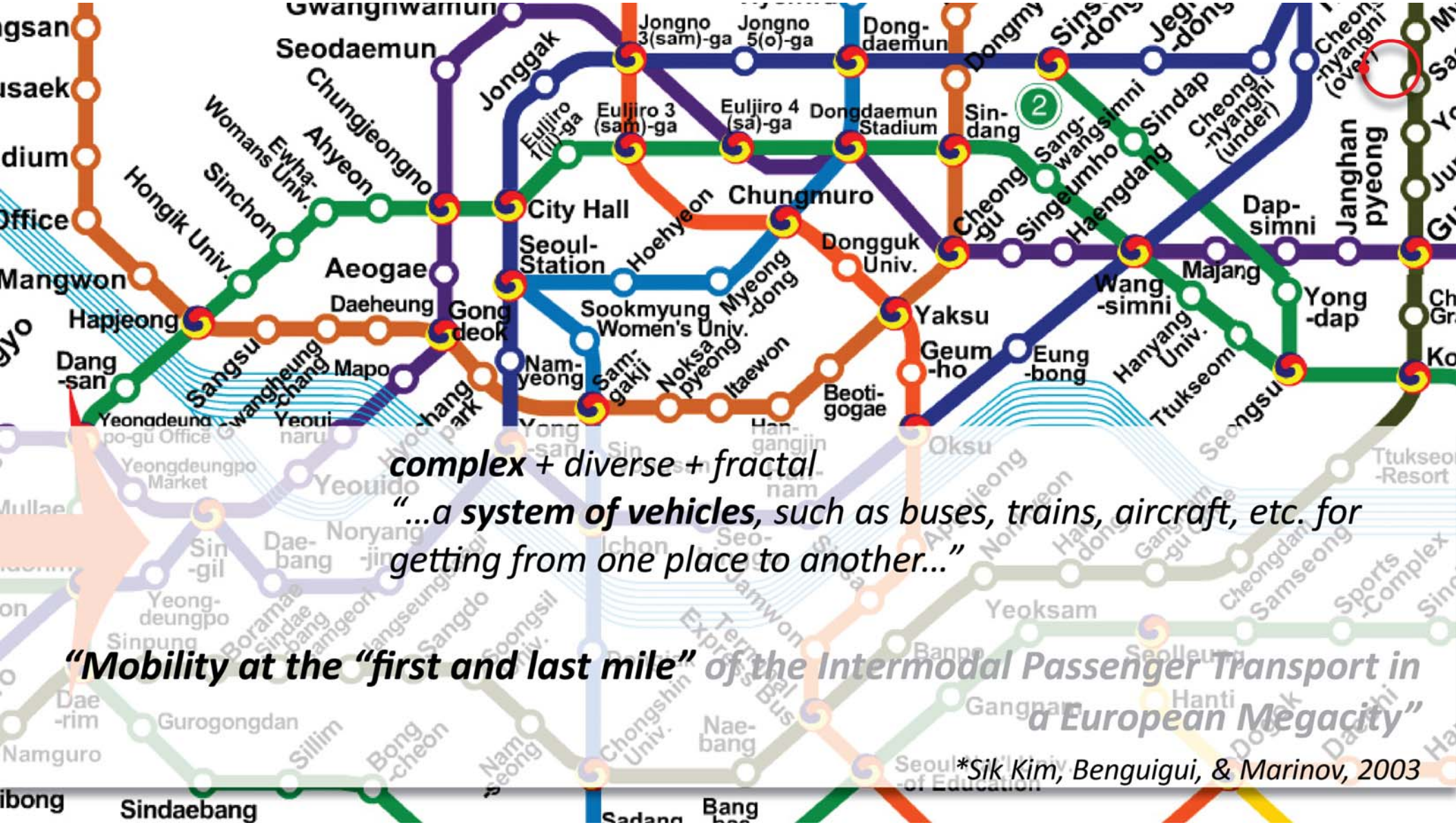

DECONSTRUCTION
PAST
PRODUCT
INTERACTION
CONTEXT
DESIGNING
PRESENT / FUTURE
CONTEXT
INTERACTION
PRODUCT
LITERATURE STUDY
LITERATURE STUDY
OBSERVATION
EMOPIX
FREE TALKS
BOOKLETS
FOCUS GROUP
USER ANALYSIS & PERSONAS
CREATIVE SESSION (COCREATION)
ROLE PLAYING & LOW FI PROTOTYPE
TIME

literature

*"…transport systems must respond to the multiple mobility requests of European citizens so as to **provide the freedom to travel necessary for social and economical development**"*.*

*"**Mobility** at the "first and last mile" of the Intermodal Passenger Transport in a European Megacity"*

** European Commision, 2006*

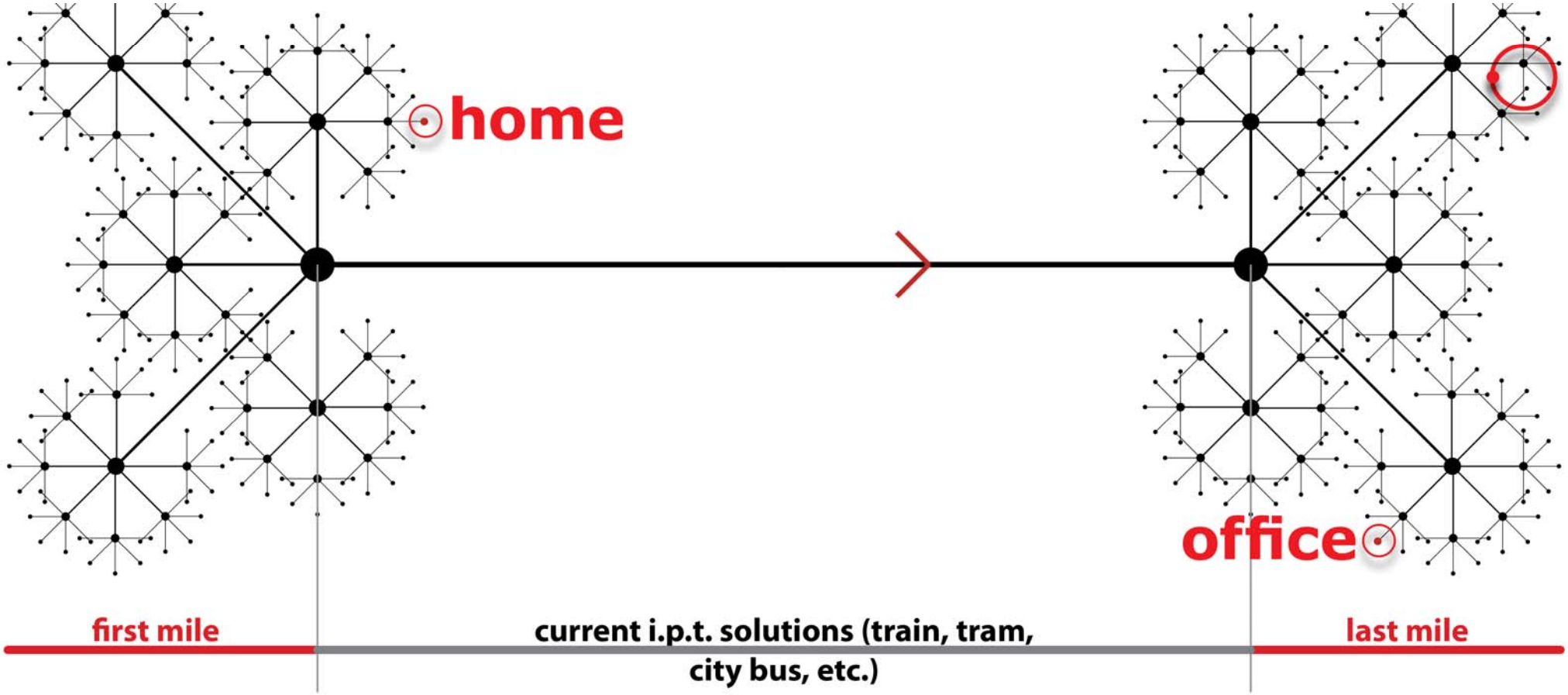


complex *+ diverse + fractal*

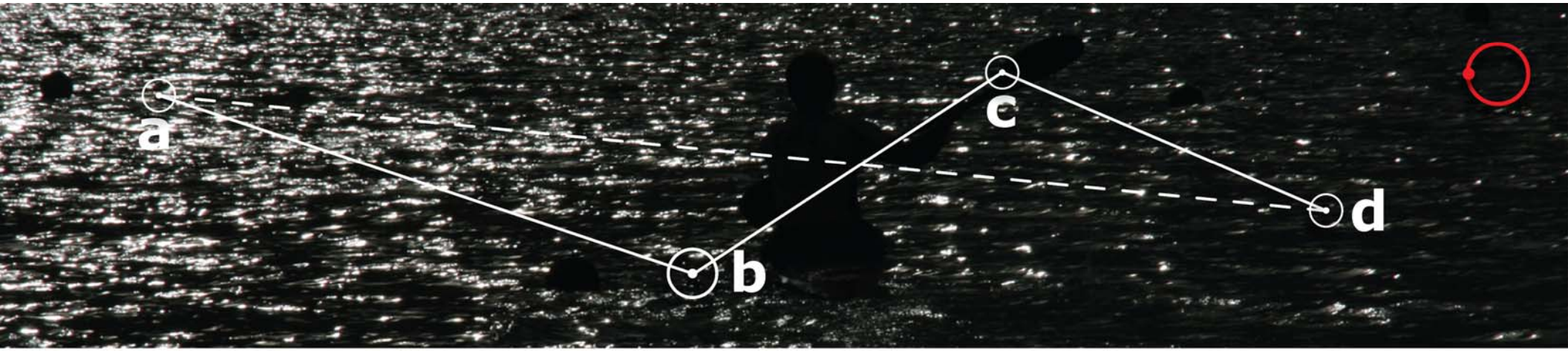
*"…a **system of vehicles**, such as buses, trains, aircraft, etc. for getting from one place to another…"*

"Mobility at the "first and last mile" of the Intermodal Passenger Transport in a European Megacity"

**Sik Kim, Benguigui, & Marinov, 2003*



*"Mobility at the **"first and last mile"** of the Intermodal Passenger Transport in a European Megacity"*



*i.p.t.** ***involves more than one mode of transport of passengers.***

co_modality: ***"use of different modes on their own and in combination"*** *in the aim to obtain* ***"an optimal and sustainable utilization of resources".***

"Mobility at the "first and last mile" of the ***Intermodal Passenger Transport*** *in a European Megacity"*

**European Commision, 2006*

*...if it has a **high concentration of people, values and infrastructure, global influence** and are **globally interlinked**. ...also large, amalgamated **mega-urban regions***...*

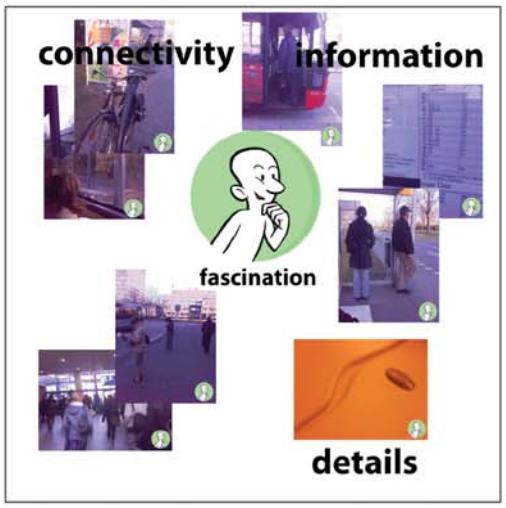
*"Mobility at the "first and last mile" of the Intermodal Passenger Transport in a **European Megacity**"*

**Harvey, 2000*

EmoPix

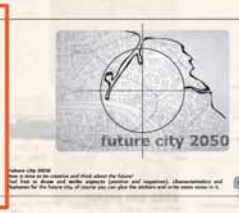
*By using a **handheld device** with a built-in camera, a **user can take pictures of different places**, situations or things and **add an emotional tag** while making use of the bus systems*

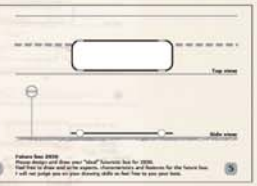
**Susa Group / David Güiza Caicedo, 2009*



mobility diary

28 participants (Euro) + 46% female 54% male + 27 years old (av.)
57% Dutch, 14% Italians, 7% Portuguese, etc… + train & bus





Introduction

Front cover / Inspirational image & project motto

Back cover / Inspirational image & project partners

Instructions / How to fill the booklet

Current situation

General information about the participant / gender, age, occupation and nationality

Current context & transportation

Current Interaction

Future Scenario

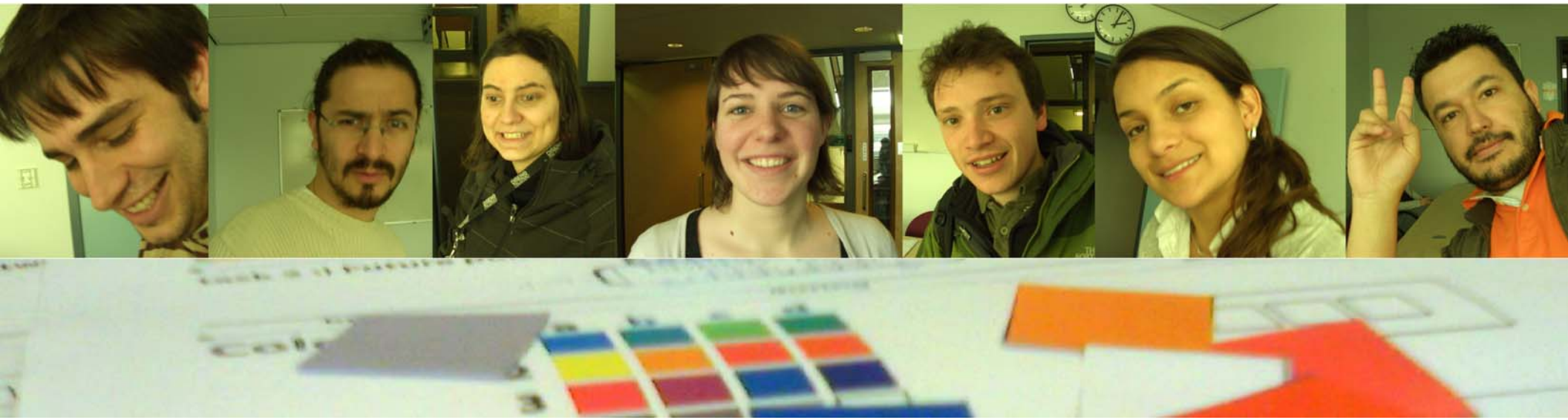
Future Context

Future Product

focus group

6 participants (Euro + 1 Col) + 3 female 3 male + >24 years old

Topics: i.p.t. (current situation + interaction level) + future scenario + future bus



personas

4 “personas” citizen family + guest + tourist couple + eldearly citizen

Merijn, Juliet Assayas and Frans van Dalen
Condition at Rotterdam: Citizens
Age: Merijn (7 years old), Renee (39 years old) and Frans (45 years old)
Nationality: Merijn and Frans are Dutch and Juliet is French
Marital Status: Marriage

Profession: She is economist and studies an MBA at Rotterdam School of Management (Erasmus University), Frans is a civil engineer who works at Shell in the R&D department researching about renewable energy. Merijn is on the 5th grade at De Blijberg.

Other details: they live in a small house at Thomas a Kempisstraat. Frans usually uses private car because he works far away, but when he needs to go to the Shell offices at Coolsingel he takes a public bus. Juliet loves to go to their school by bus and Merijn uses bus only when he is going to practice skateboard with his friends.

Trip itinerary:

Merijn
Saturday 11:00 hrs
From: Thomas a Kempisstraat 23 Rotterdam
To: Station Rotterdam Centraal
Duration: 16 minutes
Luggage: a medium backpack

Frans
Friday 7:45 hrs (he´s late)
From: Thomas a Kempisstraat 23 Rotterdam
To: Shell offices at Coolsingel 44 VP Rotterdam
Duration: 17 minutes
Luggage: a briefcase

Juliet
Monday 17:33 hrs
From: Thomas a Kempisstraat 23 Rotterdam
To: Rotterdam School of Management Rotterdam
Duration: 11 minutes
Luggage: a briefcase



Paul Polman

Condition at Rotterdam: Guest or visitor
Age: 51 years old
Nationality: British
Marital Status: Divorced (has joint custody of a baby girl named Sofia)

Profession: Product Manager at Unilever. Responsible of Magnum and Cornetto
Reason to visit Rotterdam: He is attending a company workshop, where he has a busy agenda making presentations, attending meetings and monitoring over the Cornetto stand at the fair.
Coming from: London UK
Staying for: 2 weeks
Arrived by: Plane

Other details: It´s the first time that Paul visits this city, and he has no experience with the intermodal passenger transport at the Netherlands. His secretary arranged the reservations and transportation instructions. He doesn't speak Dutch.

Trip itinerary:
Monday, 9:15 hrs.
From: Eden-Savoy Hotel 3011PJ Rotterdam
To: Unilever Schaakvereniging 3161 VP Rotterdam
Duration: 22 minutes
Luggage: a briefcase



Miko Lun and Takashy Blame

Condition at Rotterdam: Tourist
Age: Miko (32 years old) and Takashy (33 years old)
Nationality: Japanese
Marital Status: Friends

Profession: She is phone seller and he is plumber
Reason to visit Rotterdam: Tourism
Coming from: Sendai Japan
Staying for: 2 days
Arrived by: Train

Other details: Miko and Takashy are backpackers traveling around Europe; Rotterdam is their second destination after Paris and then they plan to visit Amsterdam for four days. They don't speak Dutch and they have a basic level of English. They are staying in a friend house at Rotterdam. They want to visit a lot of places, including museums, shopping centers, galleries and the stadium.

Trip itinerary:
Wednesday 11:45 hrs
From: Koningsvaren 11 Rotterdam
To: De Kuip Stadium VP Rotterdam
Duration: 25 minutes
Luggage: two big backpacks



Leyla Erener

Condition at Rotterdam: Citizen
Age: 83 years old
Nationality: She is Turkish (Muslimah) and Dutch
Marital Status: widow

Profession: She worked at the hospital as nurse.

Other details: she lives at her house and used to visit her friend Renee during the weekends. She needs a wheelchair and she has a problem of obesity.

Trip itinerary:
Saturday 10:12 hrs
From: Coolsingel 40, Rotterdam 3011 Rotterdam
To: Thomas a Kempisstraat Rotterdam
Duration: 22 minutes
Luggage: a medium backpack


creative session

5 participants + 3 ind. des. + 1 artist + 1 facilitator

Topics: travelling in a public bus + brainstorming (internal layout + experience)

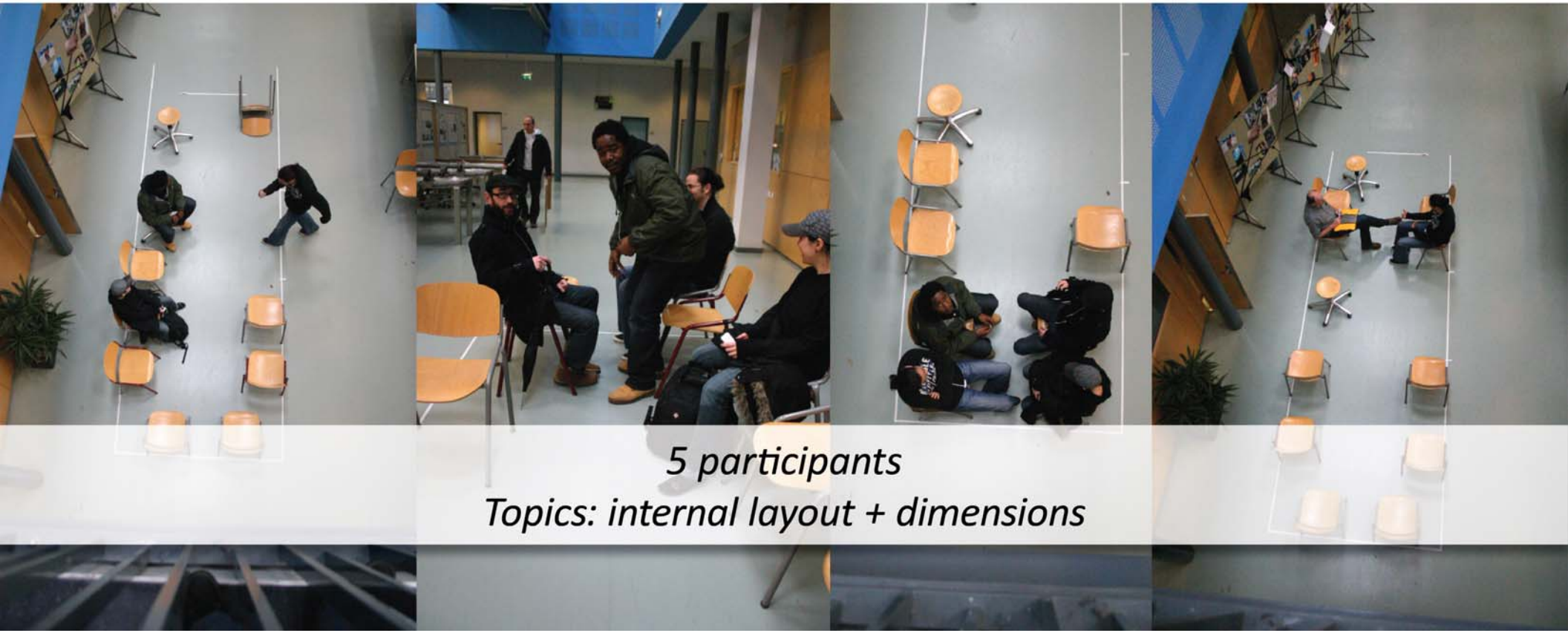
+ storyboarding with personas

role playing

5 participants + roles (David: Paul + Gabriela: Miko + Eline: Leyla + Claudia: Juliet + Natalia: Takashy + Ricardo: bus driver)

Topics: internal layout + experience

low-fi prototype

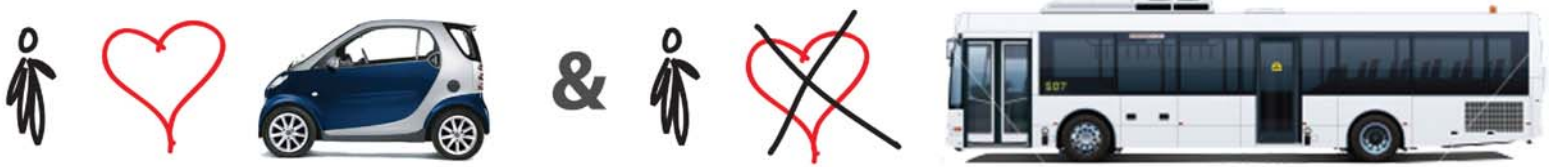


5 participants

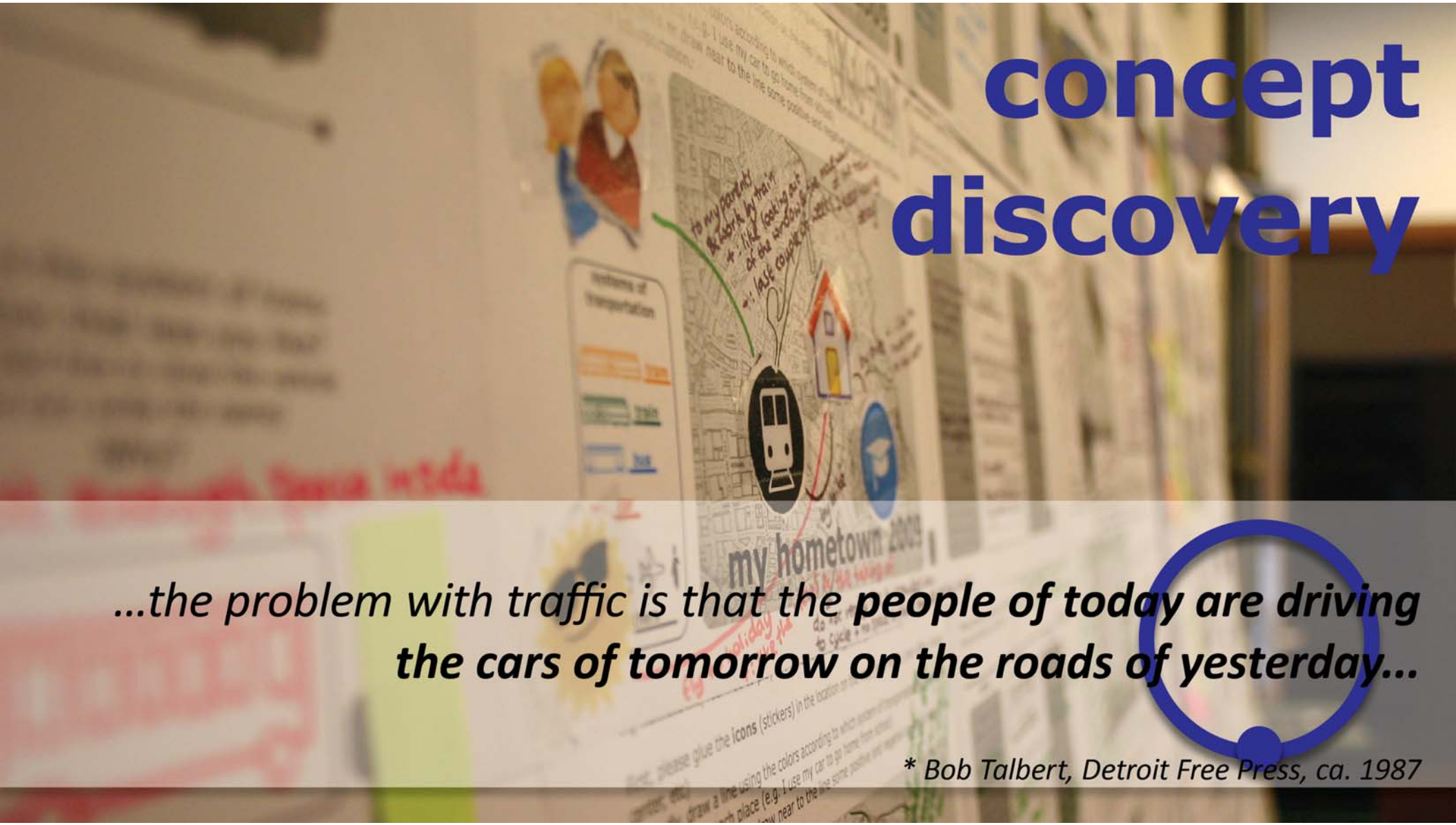
Topics: internal layout + dimensions

findings

...private car paradigm...




findings
...my car is my castle...
= $
status



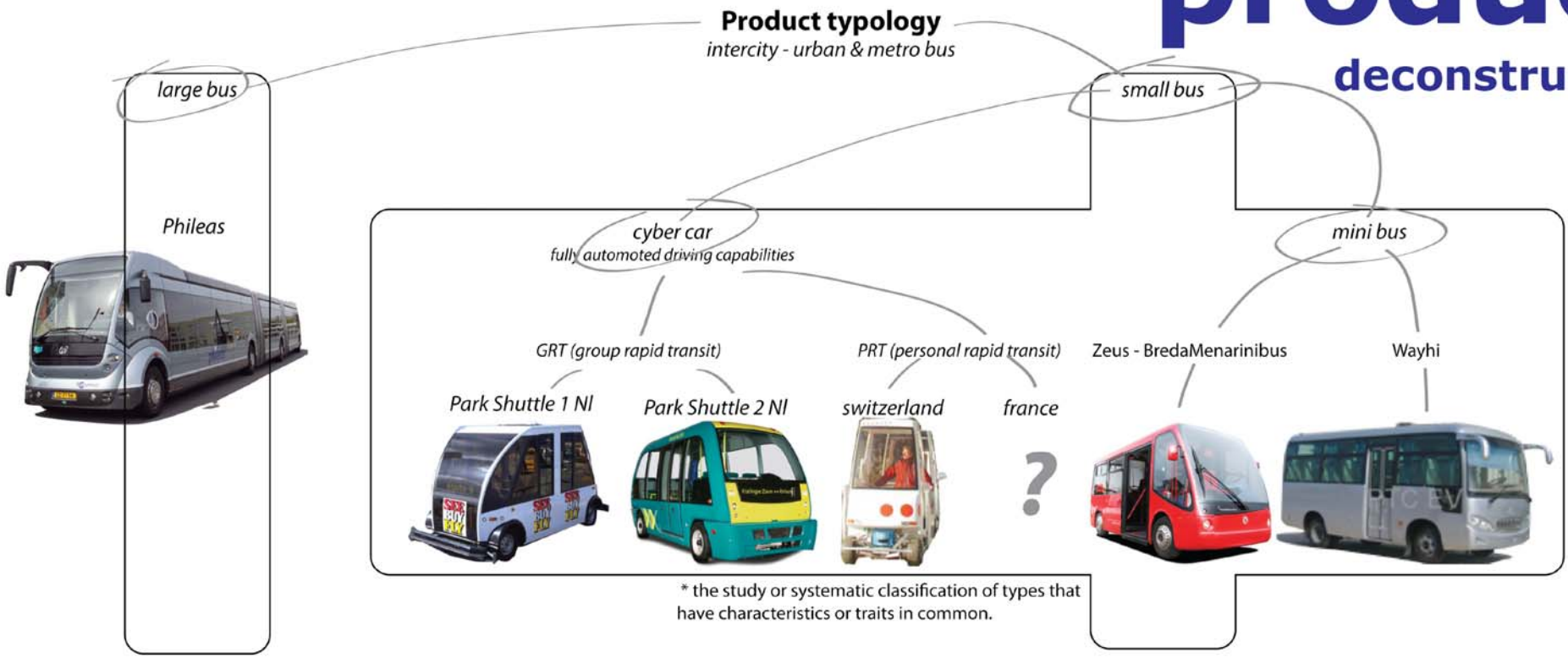
concept discovery

*...the problem with traffic is that the **people of today are driving the cars of tomorrow on the roads of yesterday...***

** Bob Talbert, Detroit Free Press, ca. 1987*

product

deconstruction



*...the old systems such as **private cars** and **traditional public transport** are **starting to show their limits***...*

**OECD, 2009*

system

deconstruction

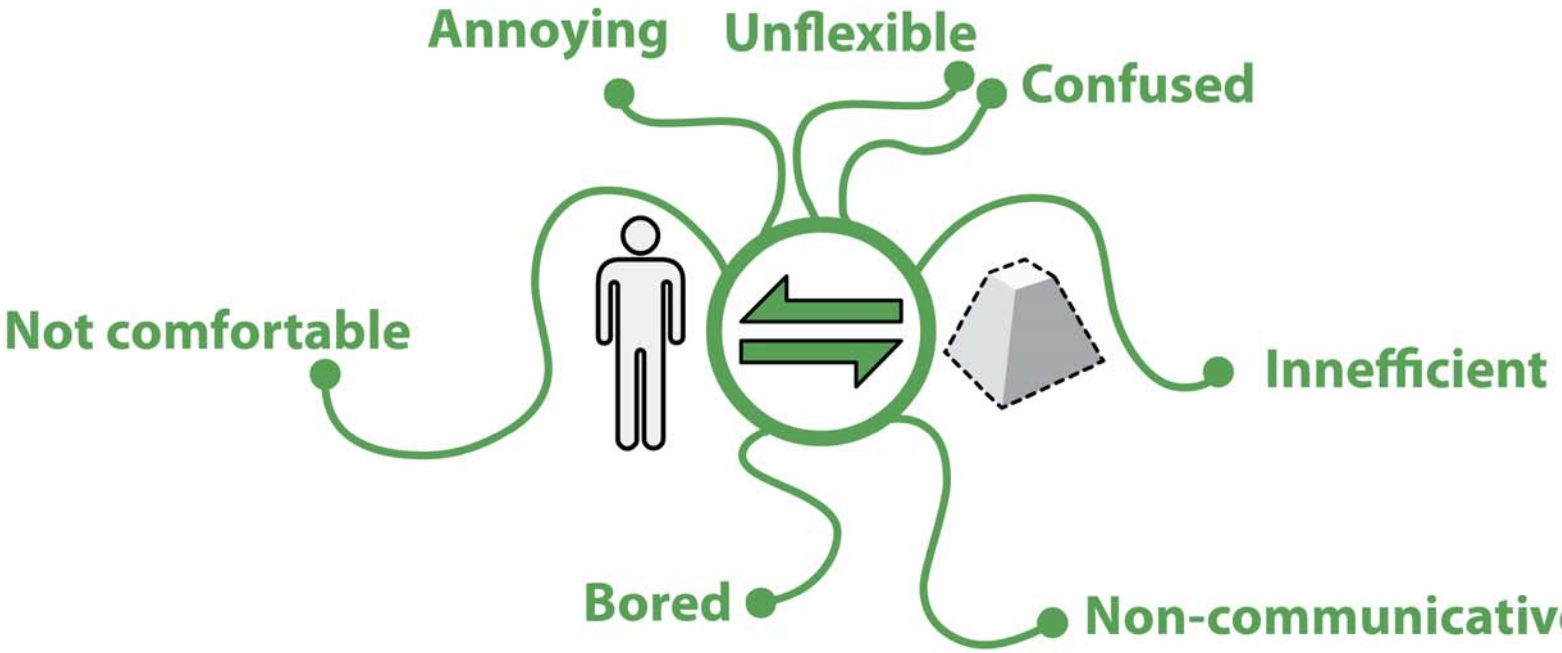
private | **i.p.t.**

*…the potential for more **flexible small vehicle systems** of many types is just starting to emerge*…*

**OECD, 2009*

interaction

deconstruction



*...car dependency ... drains the national economy, encourages the reduction of the quality of **public social space**... It is quickly becoming recognized as a **global social and environmental problem**.*...*

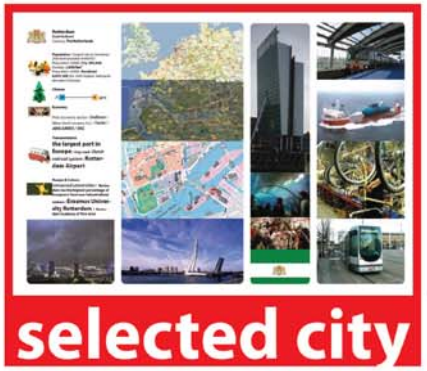
**Perry, 2000)*

CiViTAS
Cleaner and better transport in cities
initiative EC

TELLUS
program

context
deconstruction






Rotterdam

design

*...**experience** is becoming the **new predominant economic offering** where **experiential services** play the central role*...*

** Langlois 2007*

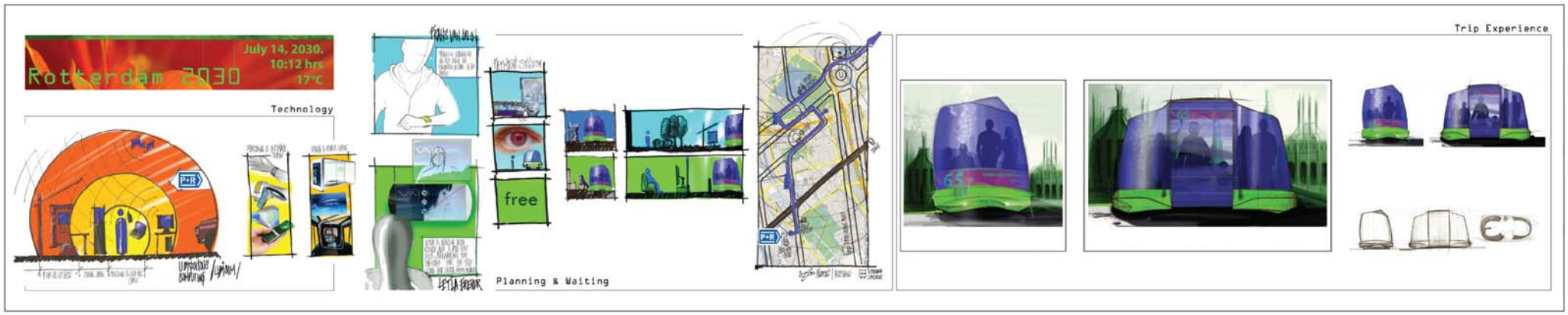

trends
Rotterdam 2025
overpopulation & concentration of population


limited amount of resources
& waste problem


smart
automated systems

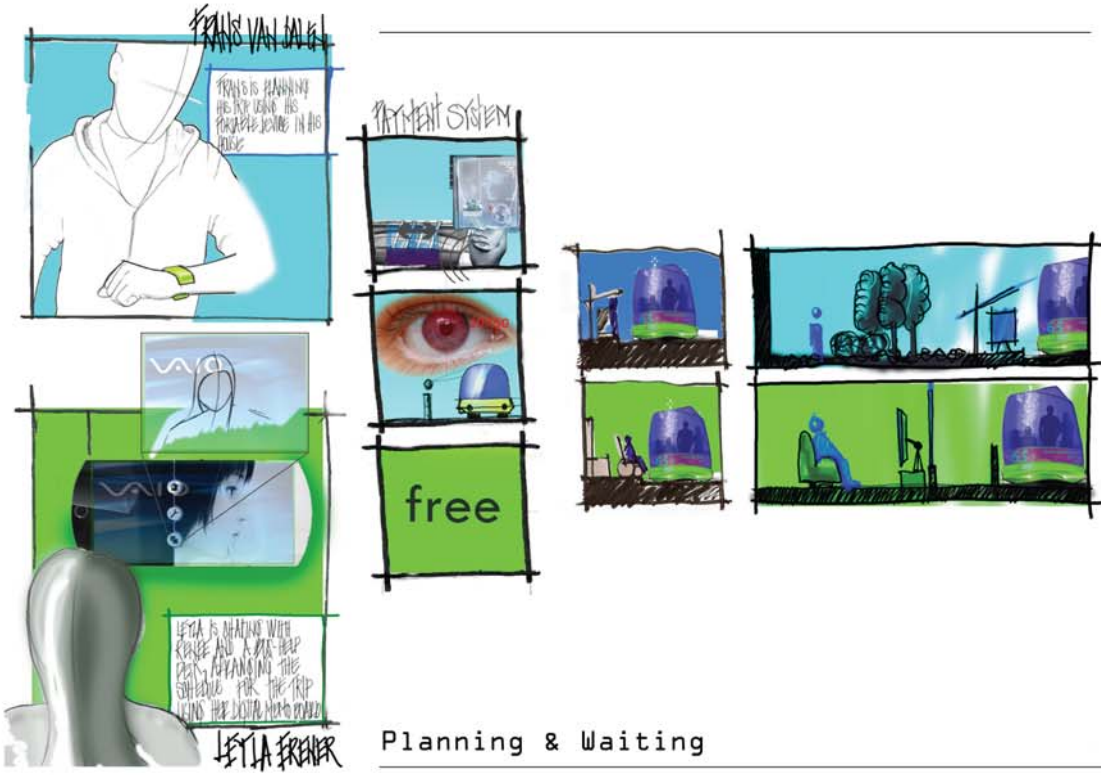

important role of
public transport &
car pooling
car sharing

Future scenario



Future scenario
Planning & waiting

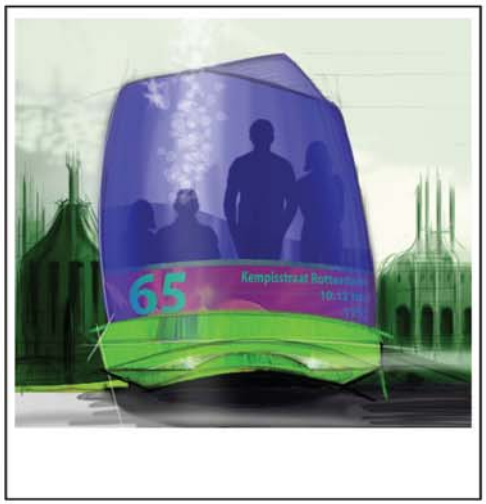
Technology

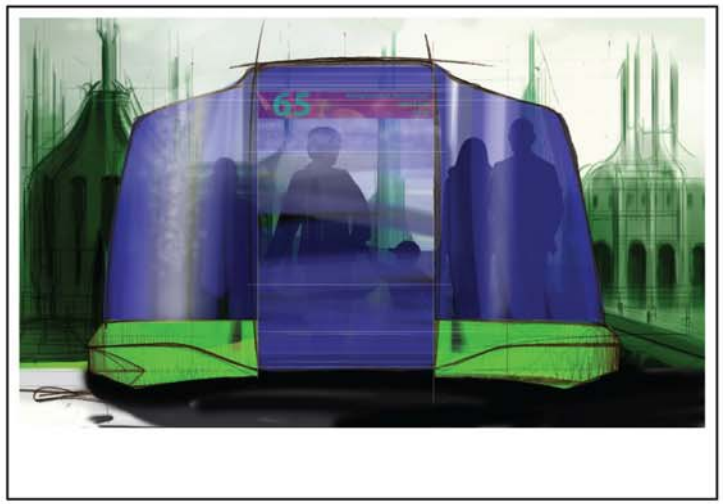


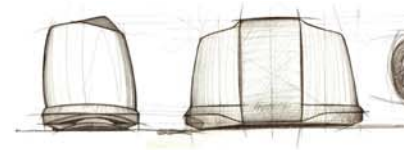
Planning & Waiting

Future scenario
logistic & vehicle

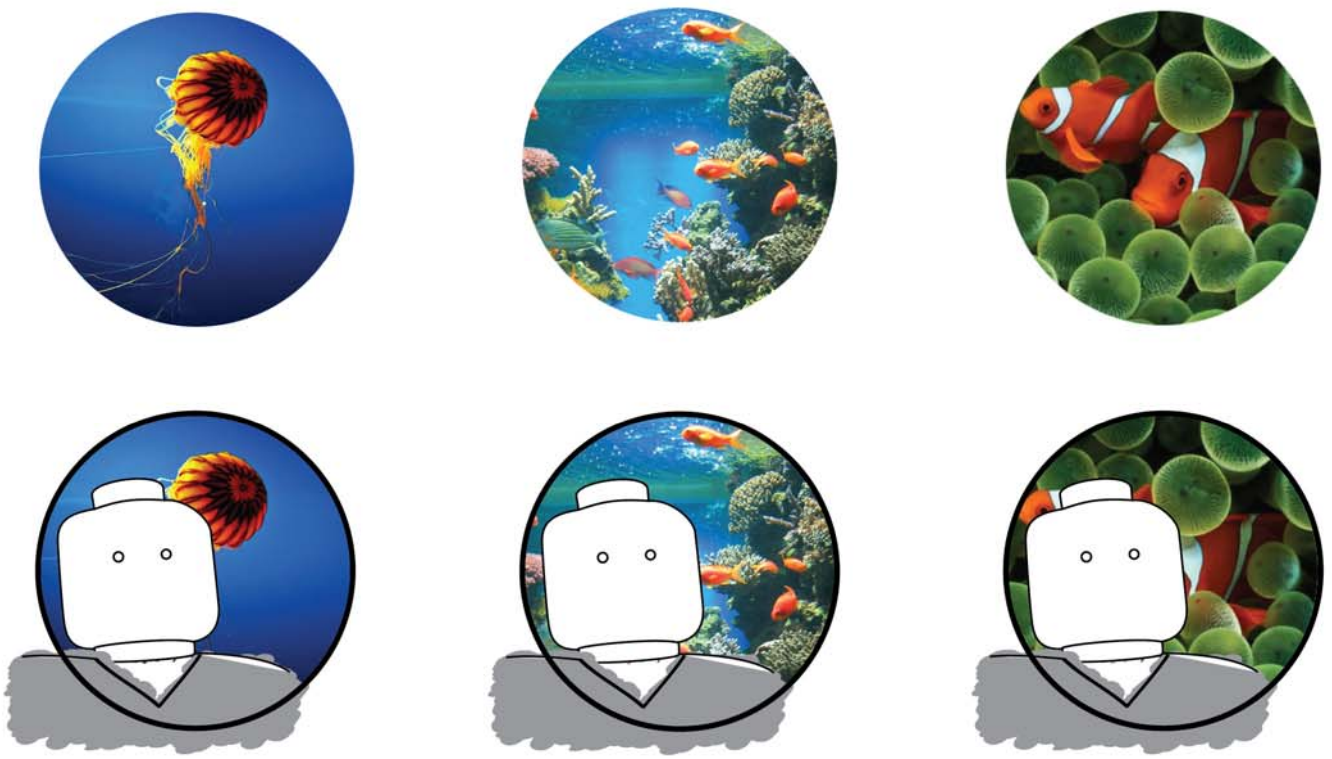
Trip



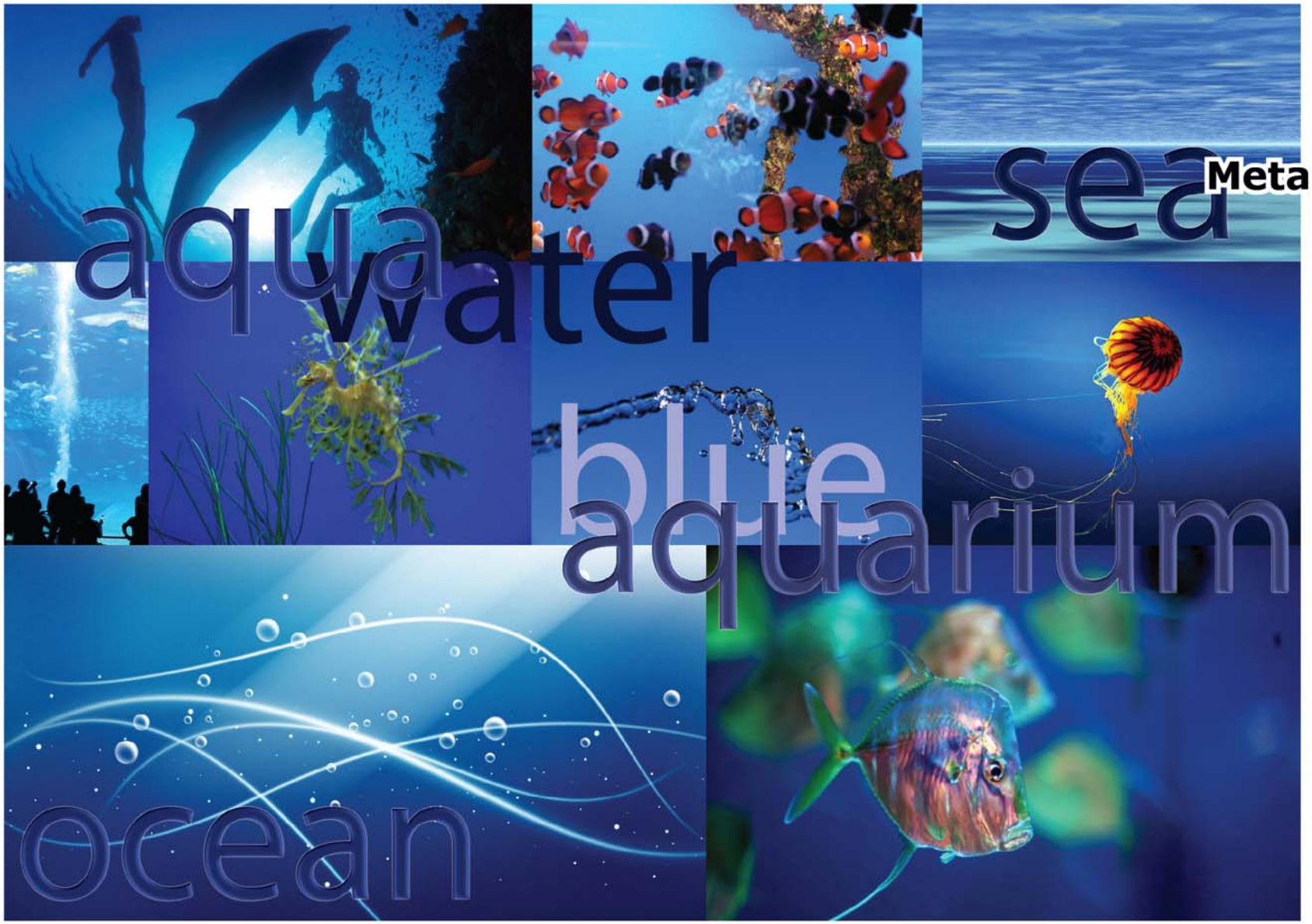




Mission



wants people to experience an uplifting journey in a comfortable system that is part of an *efficient* *and* *flexible transportation network*



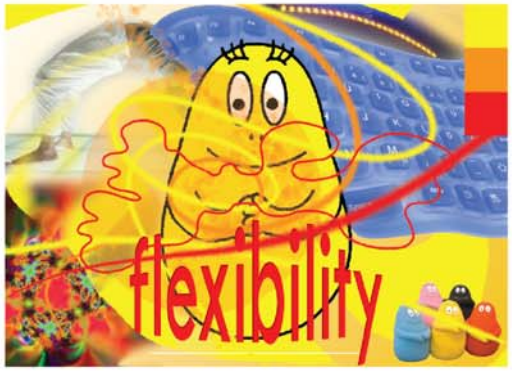
Metaphore

Values

freedom

efficiency

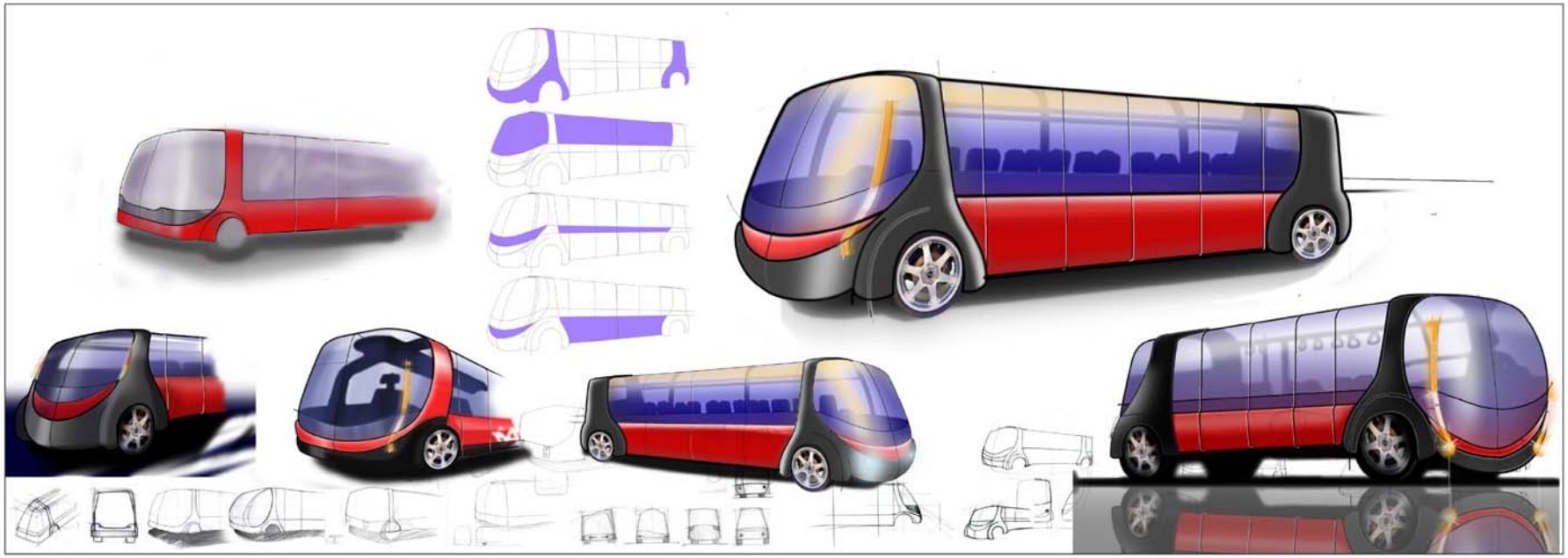
flexibility



comfort

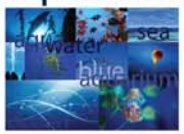
Ideation

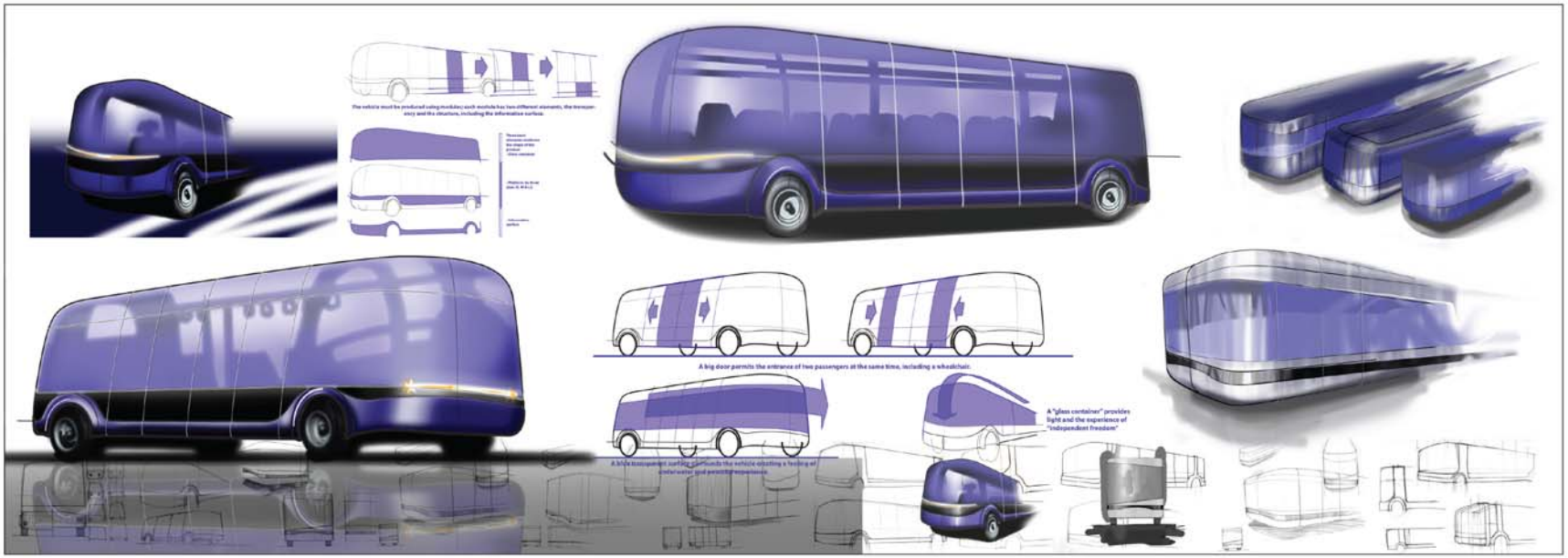
Proposal 1: external structure + internal tube



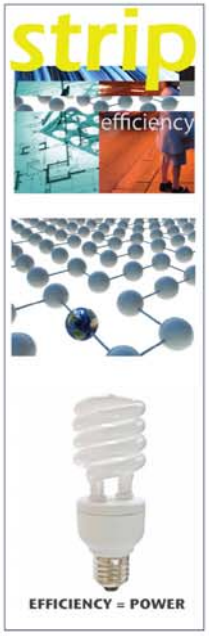
Proposal 2: skateboard + glass container

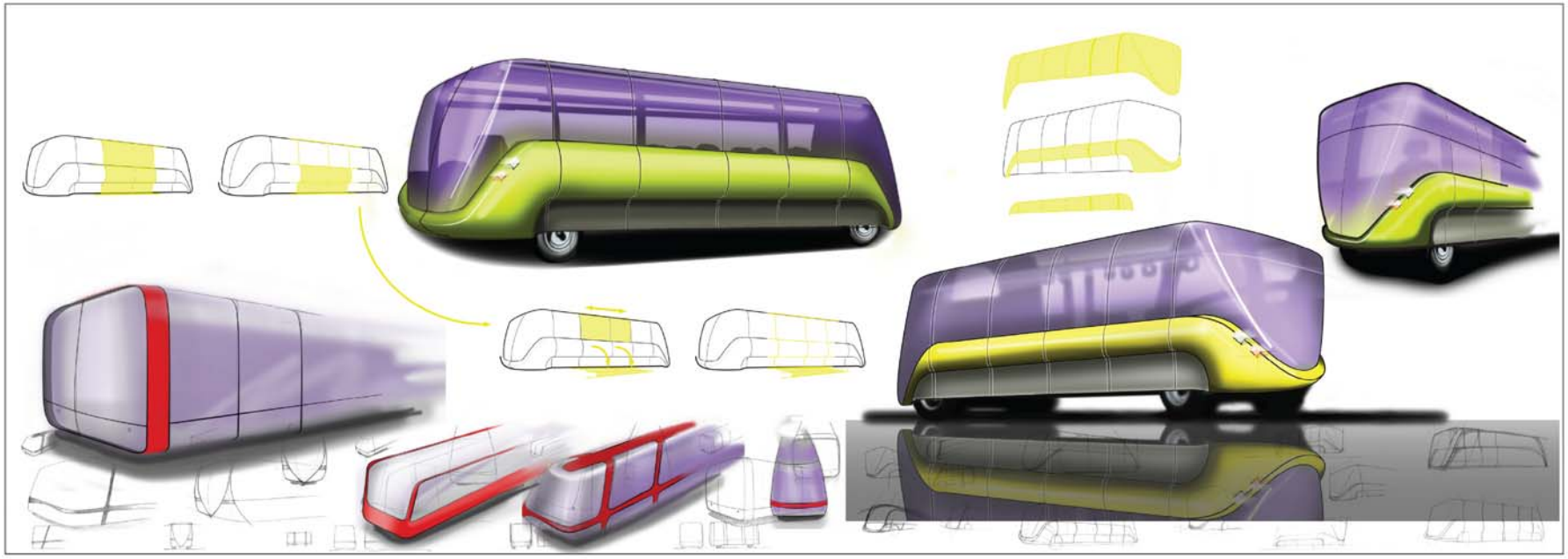
aquarium





Proposal 3: train brother





Selection

selected concept

product & strategy

ITO

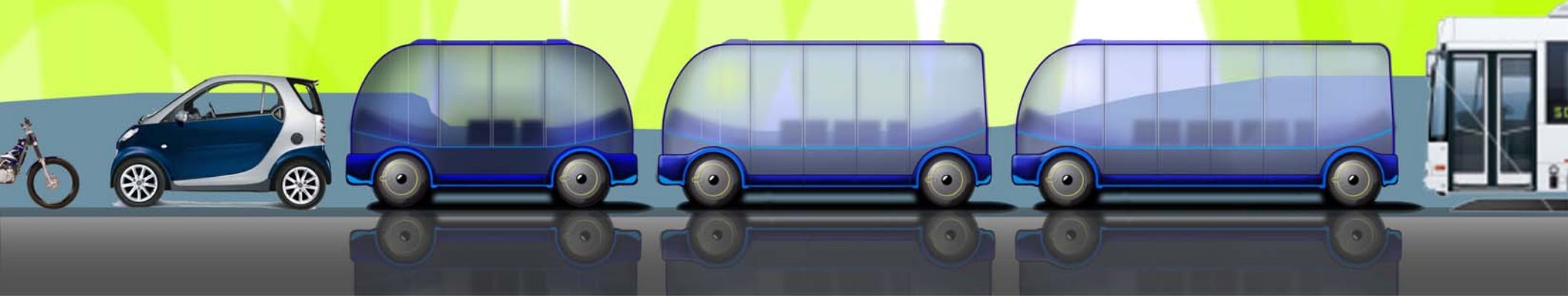
Integral • Transport • O emissions

*...is a family of **fully low floor, modular** and **light-weight** cyber cars, minibuses and buses with **electric propulsion** for a **flexible range of passengers**.*

ITO & i.p.t.

gap 1 **gap 2**

*Using **existing infrastructure** this set of cars can **fill the gap between private vehicles and public city buses** offering an **uplifting journey** in a **comfortable vehicle** that is part of an **efficient** and **flexible i.p.t.***



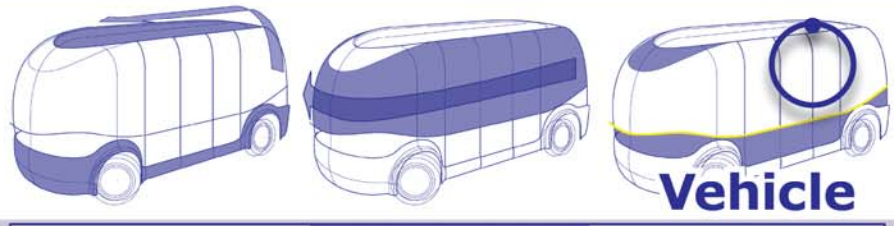
Portfolio

	S	M	L	XL	XXL
	small	medium	large	extra large	extra extra large
	cyber car	mini buses	mini buses	plus buses	plus buses

Vision	Long term	Short term		Medium term	
Main characteristics	cyber car	mini buses	mini buses	plus	plus
Capacity	max 18	20 - 25	25 - 35	50 - 55	55 - 70

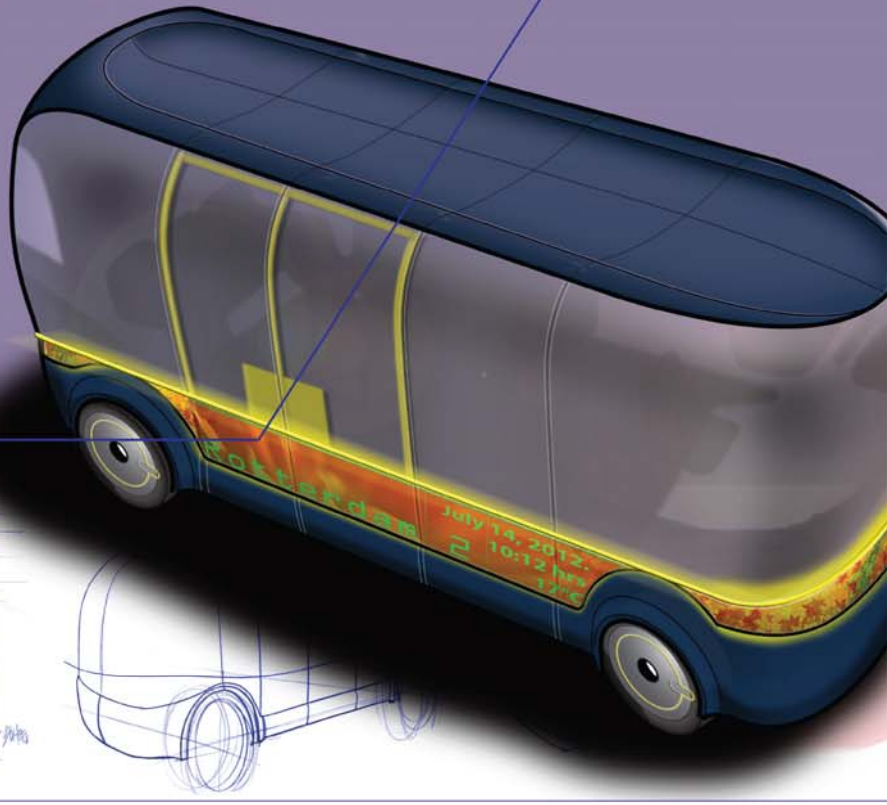

65
Kempisstraat Rotterdam
10:12 hrs
17°C
.....the new paradigm, an uplifting journey...

Vehicle

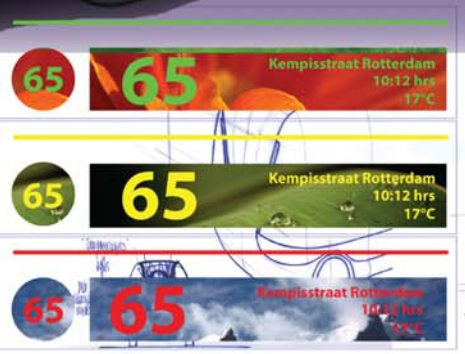


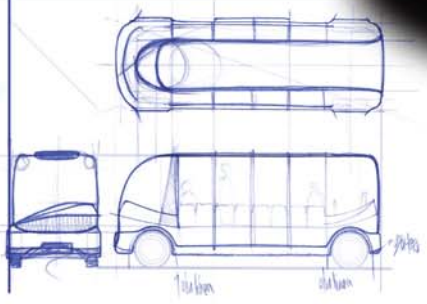
Three basic elements conforms the shape of the product

- Platform (in five sizes (S, M, L, XL & XXL))
- Glass container
- Information surface

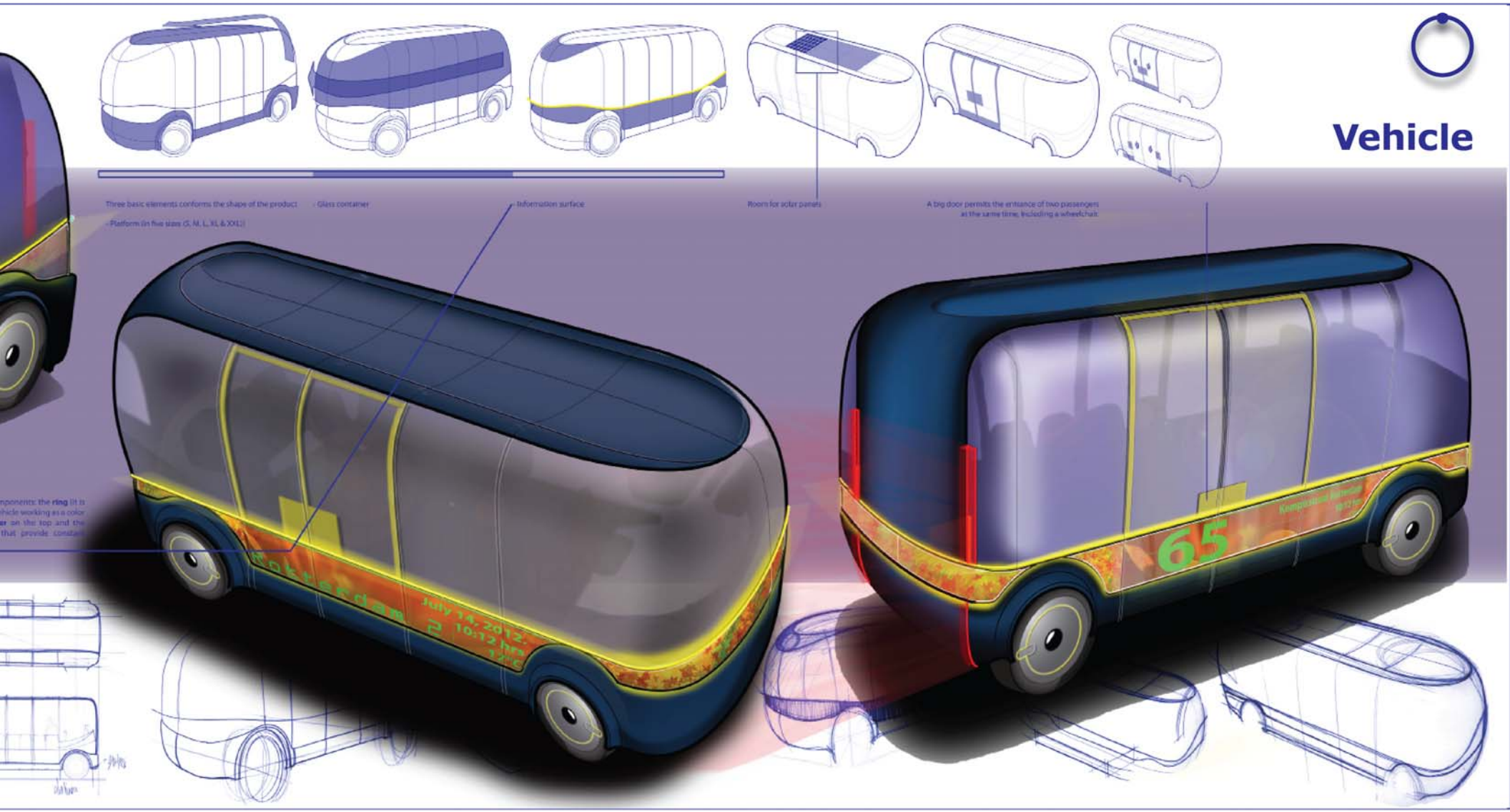


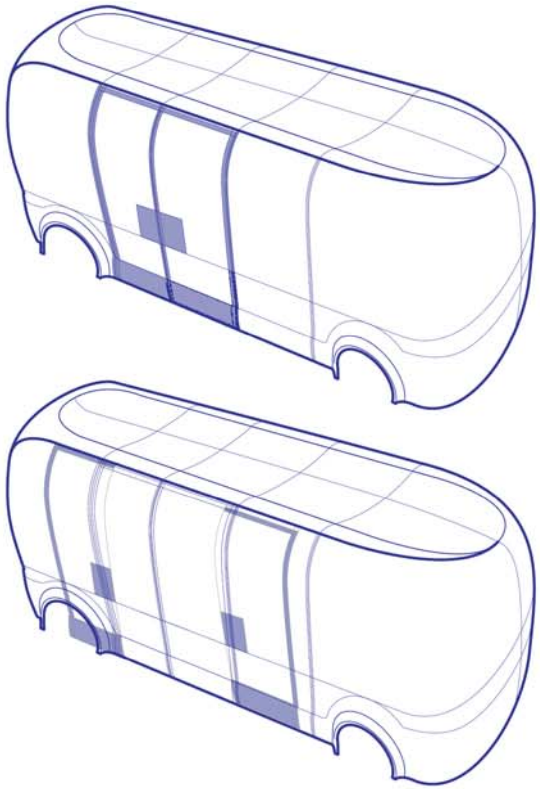
The information surface has three different components: the **ring** (it is a "light tube" that covers the perimeter of the vehicle working as a color code to differentiate each route), the **number** on the top and the **information surface** (a perimetral surface that provide constant information about the city and its activities).





Vehicle


Three basic elements conforms the shape of the product
- Platform (in five sizes (S, M, L, XL & XXL))
- Glass container
- Information surface
Room for solar panels
A big door permits the entrance of two passengers at the same time, including a wheelchair
Rotterdam
July 14, 2012
10:12 hrs
65



Roof

Air

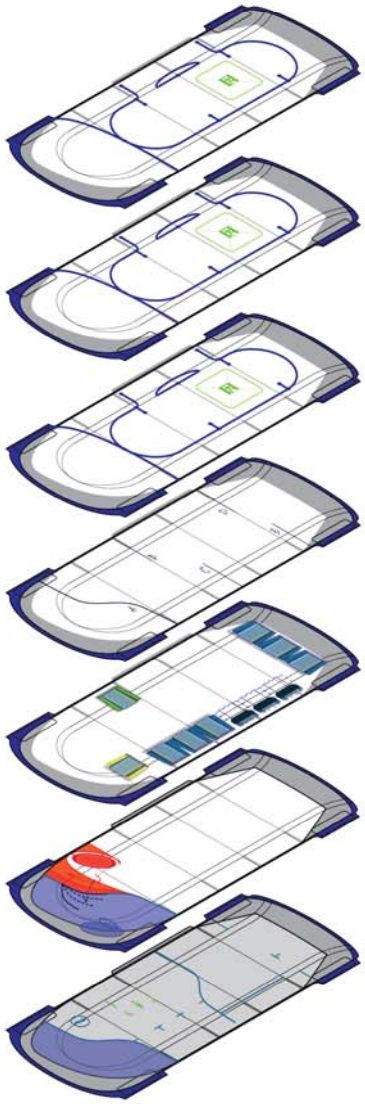
Lighting

Panels

Seats

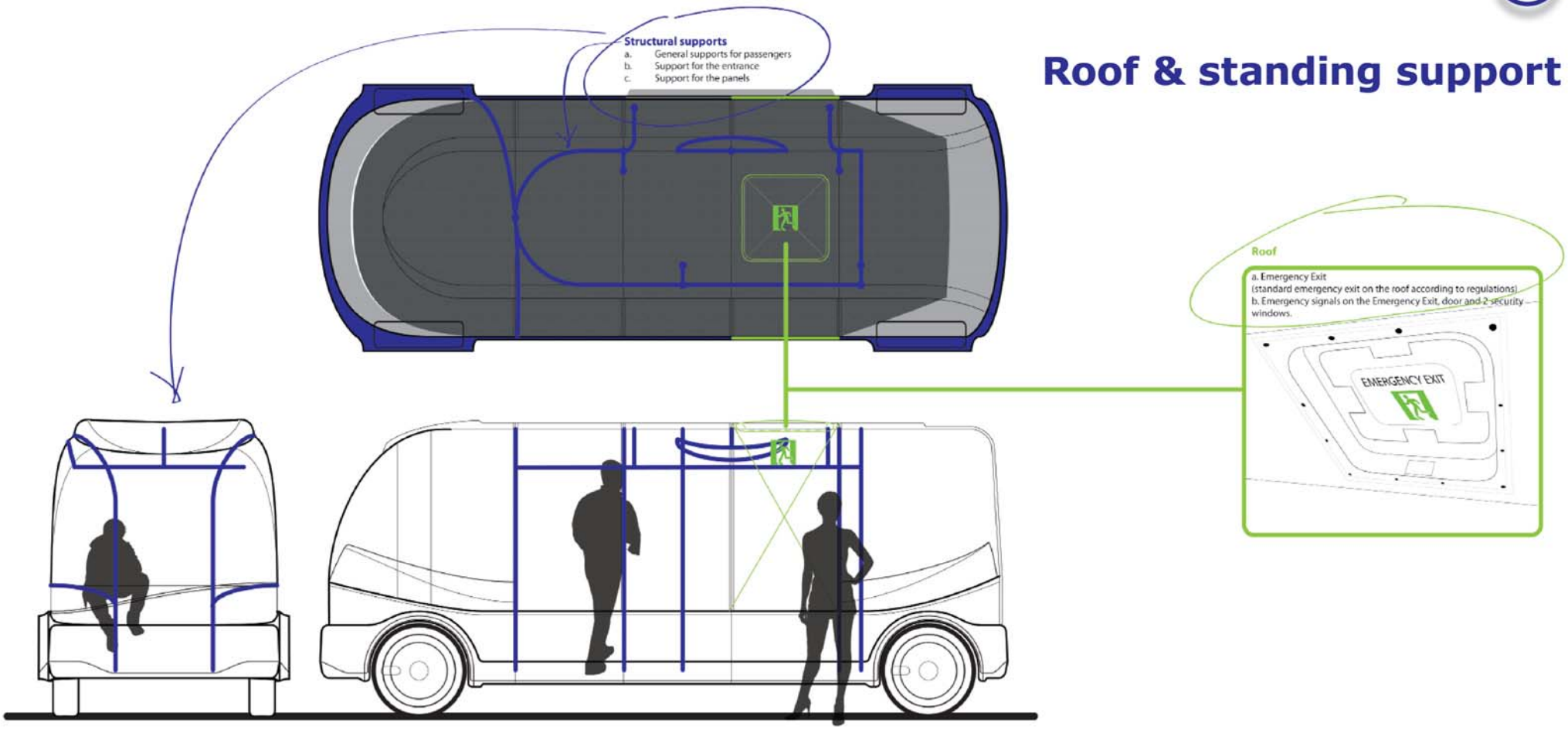
Info

Floor

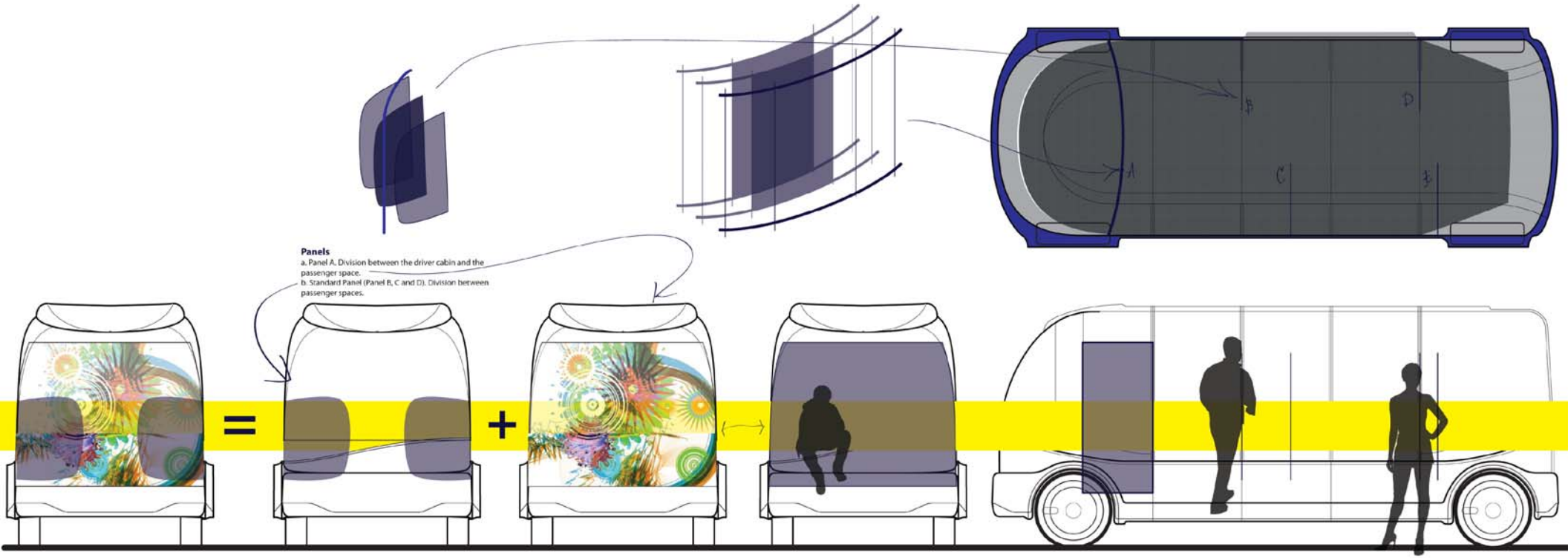


Experience

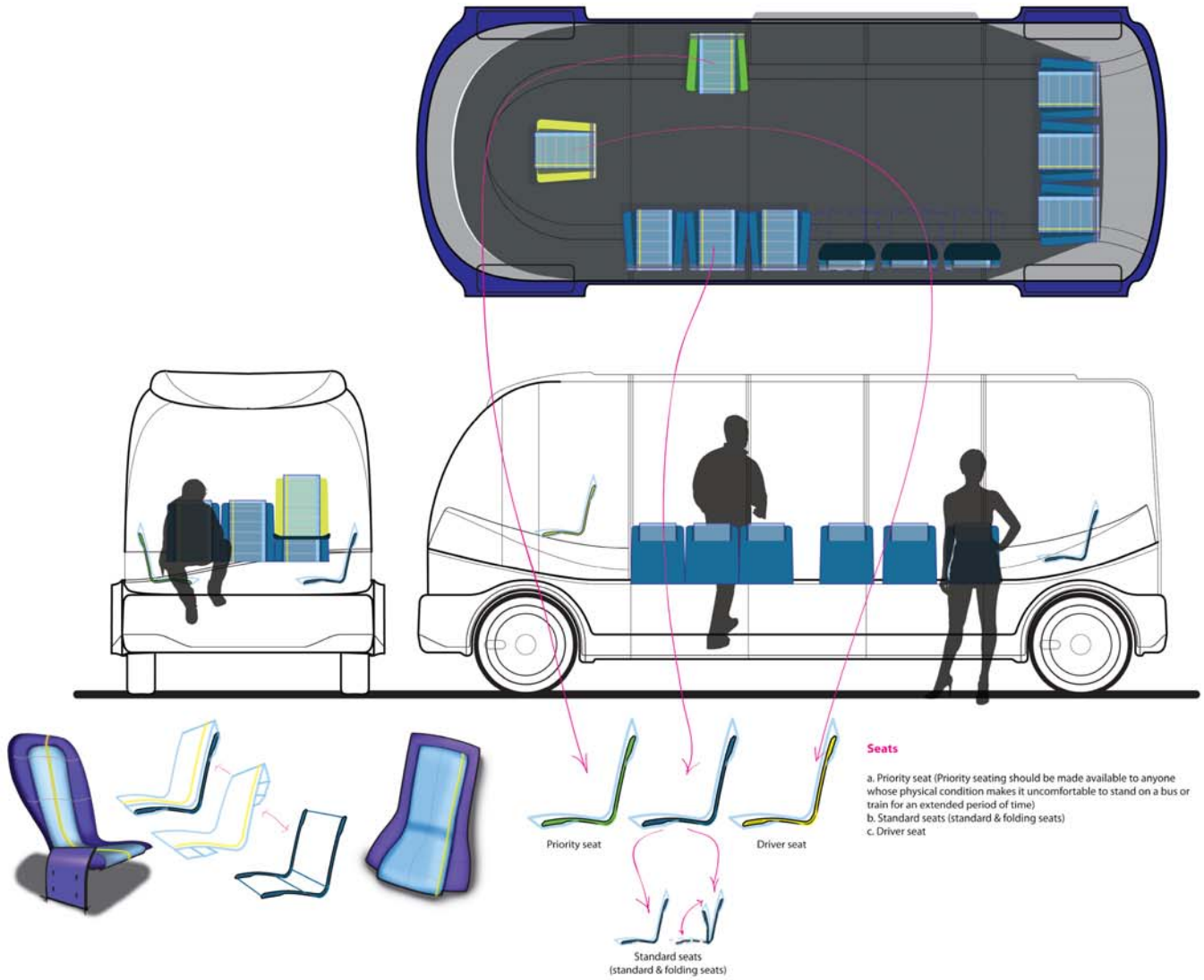
Roof & standing support



Panels & Image



Seats



Seats

a. Priority seat (Priority seating should be made available to anyone whose physical condition makes it uncomfortable to stand on a bus or train for an extended period of time)
b. Standard seats (standard & folding seats)
c. Driver seat

Information & communication

Information point.

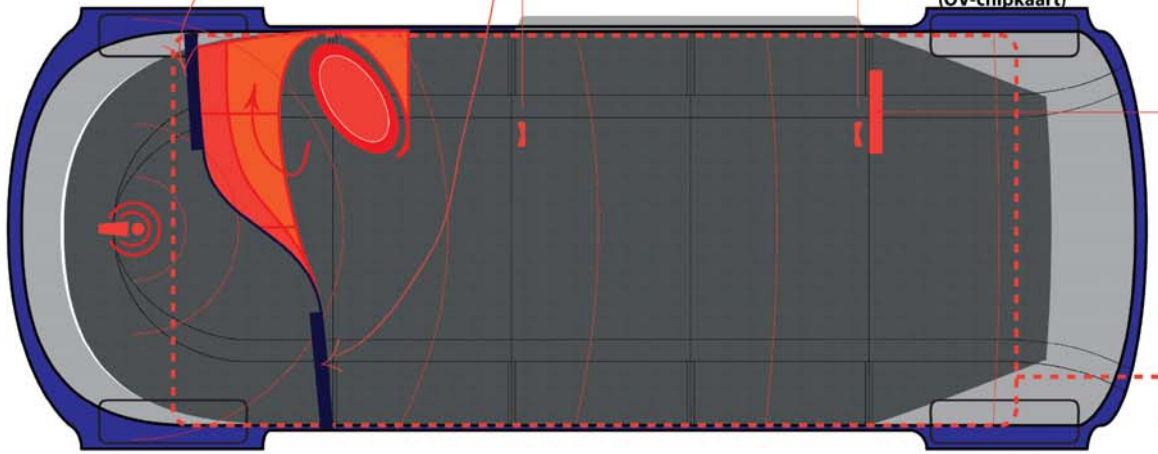
An informal and relaxed space to provide information about:
a. the route,
b. its connections and
c. other important information about the city

LCD screens

Showing information about the route (the next stop and the connections with other ipt)

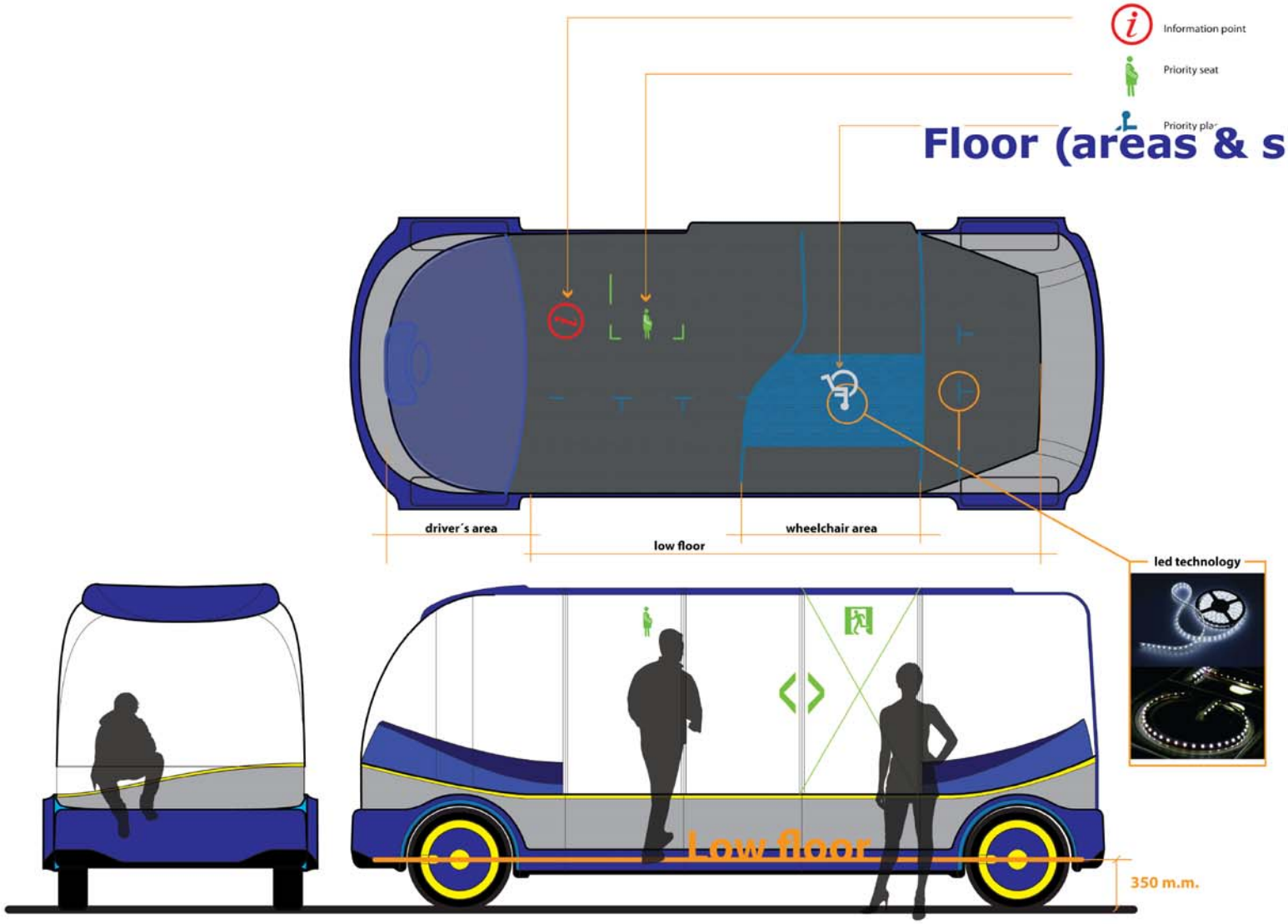
Payment system (OV-chipkaart)

Newspaper dispenser



Wireless communication area

Floor (areas & signaling)



Product

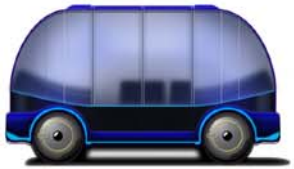
Implementation

ITO & Co-modality

first mile

current i.p.t. solutions (train, tram, city bus, etc.)

last mile

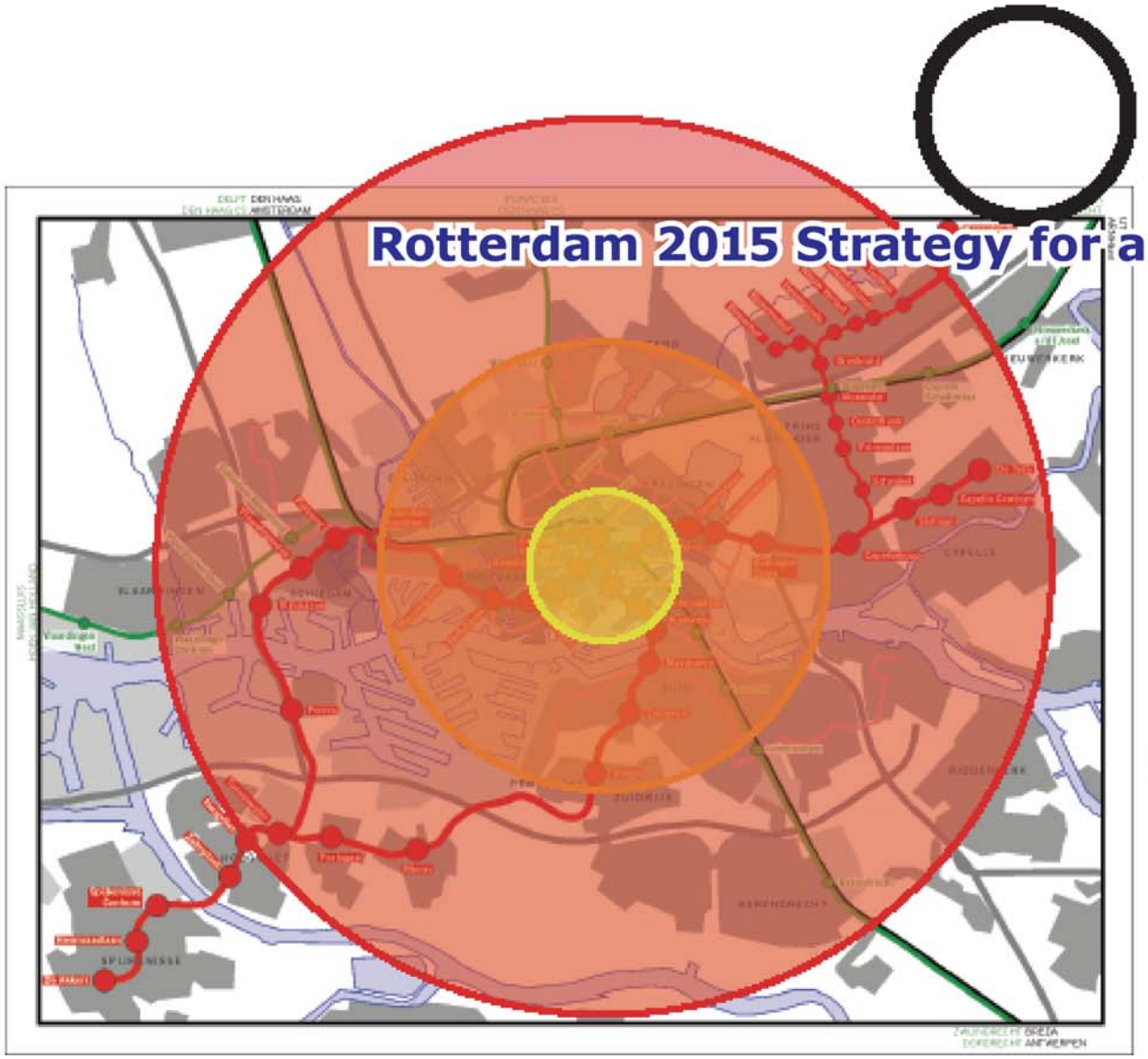


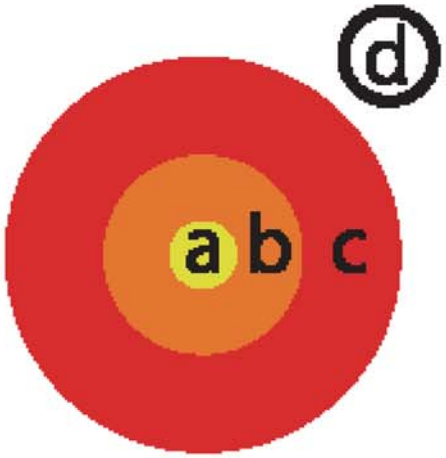
co-modality

Product

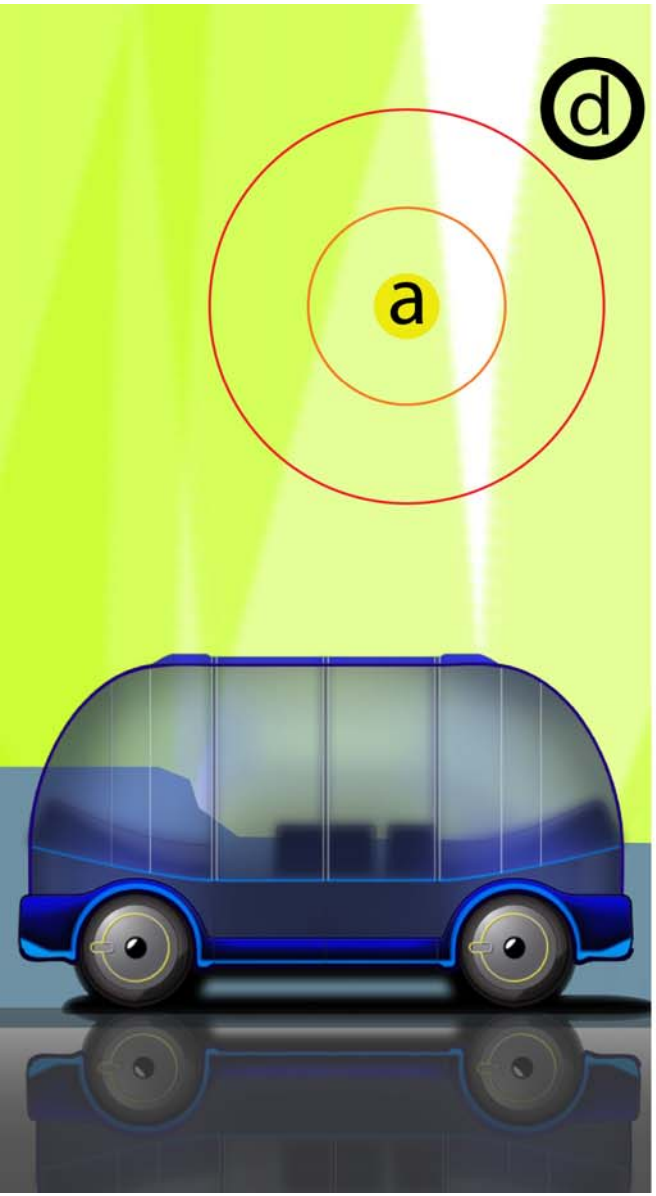
Implementation

Rotterdam 2015 Strategy for an attractive residential city





a city center
b innercity
c conurbation
d suburb



a city center
b innercity
c conurbation
d suburb

Product

Implementation

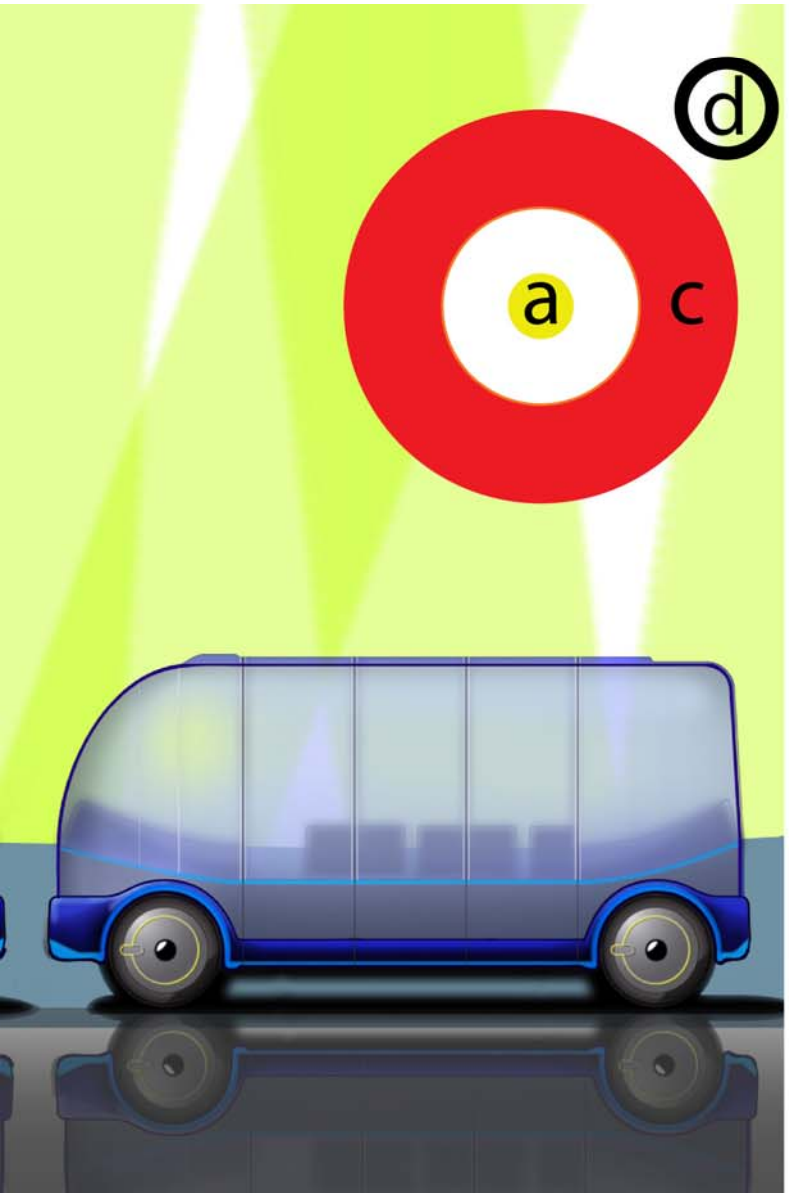
ITO small cyber car

fully automated *driving capabilities*

less than ***16 passengers,***

on-demand *and* ***door-to-door*** *capability*

Uses: ***a*** *&* **b**, ***protected areas, airport buses,*** *share taxis or large taxicabs, corporate transport, charter buses, tour buses.*



a city center
b innercity
c conurbation
d suburb

Product

Implementation

ITO m & l minibuses

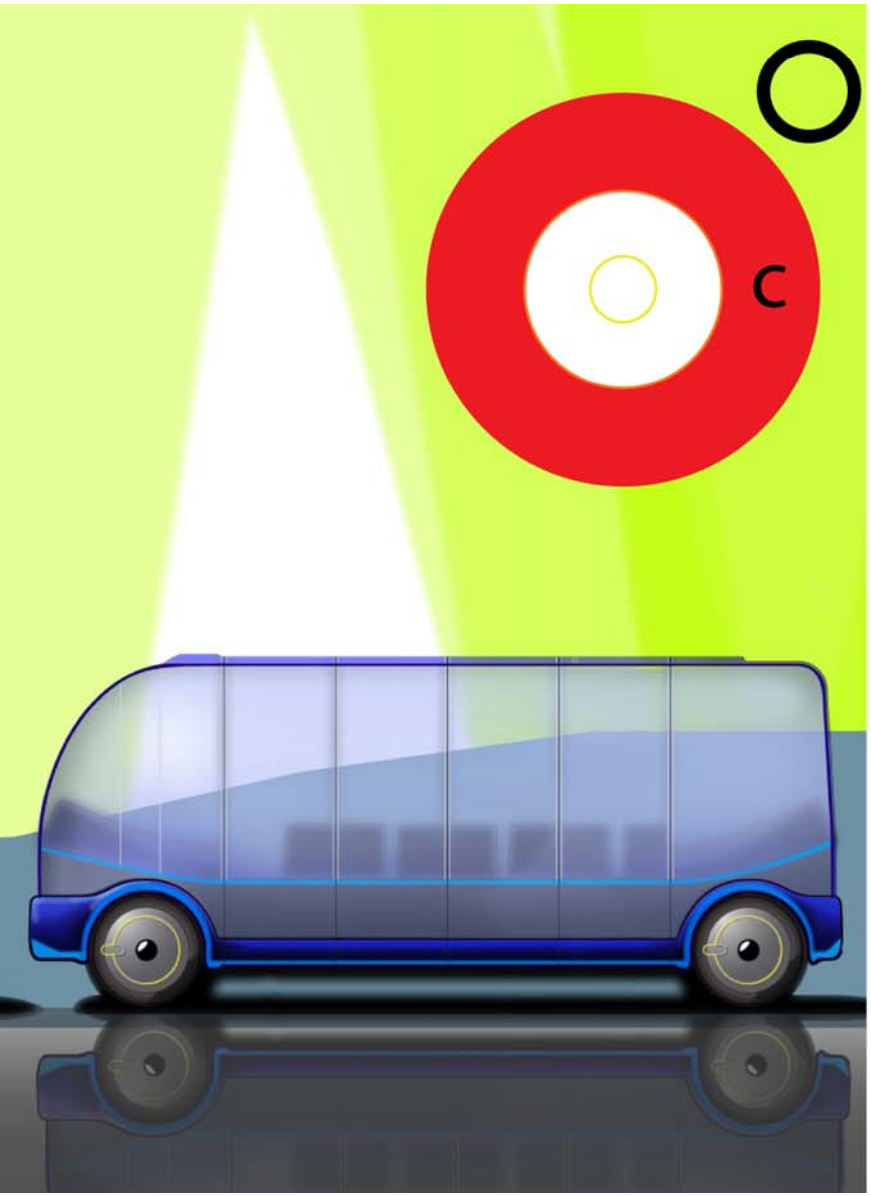
standard *driving capabilities*

between ***22 and 40 passengers,***

fixed route transit buses *and*

flexible demand responsive transport vehicles

Uses: ***a,*** **c** *&* ***d,*** *local authorities or transit operators.*



a city center
b innercity
c conurbation
d suburb

Product

Implementation

ITO xl & xxl plus buses

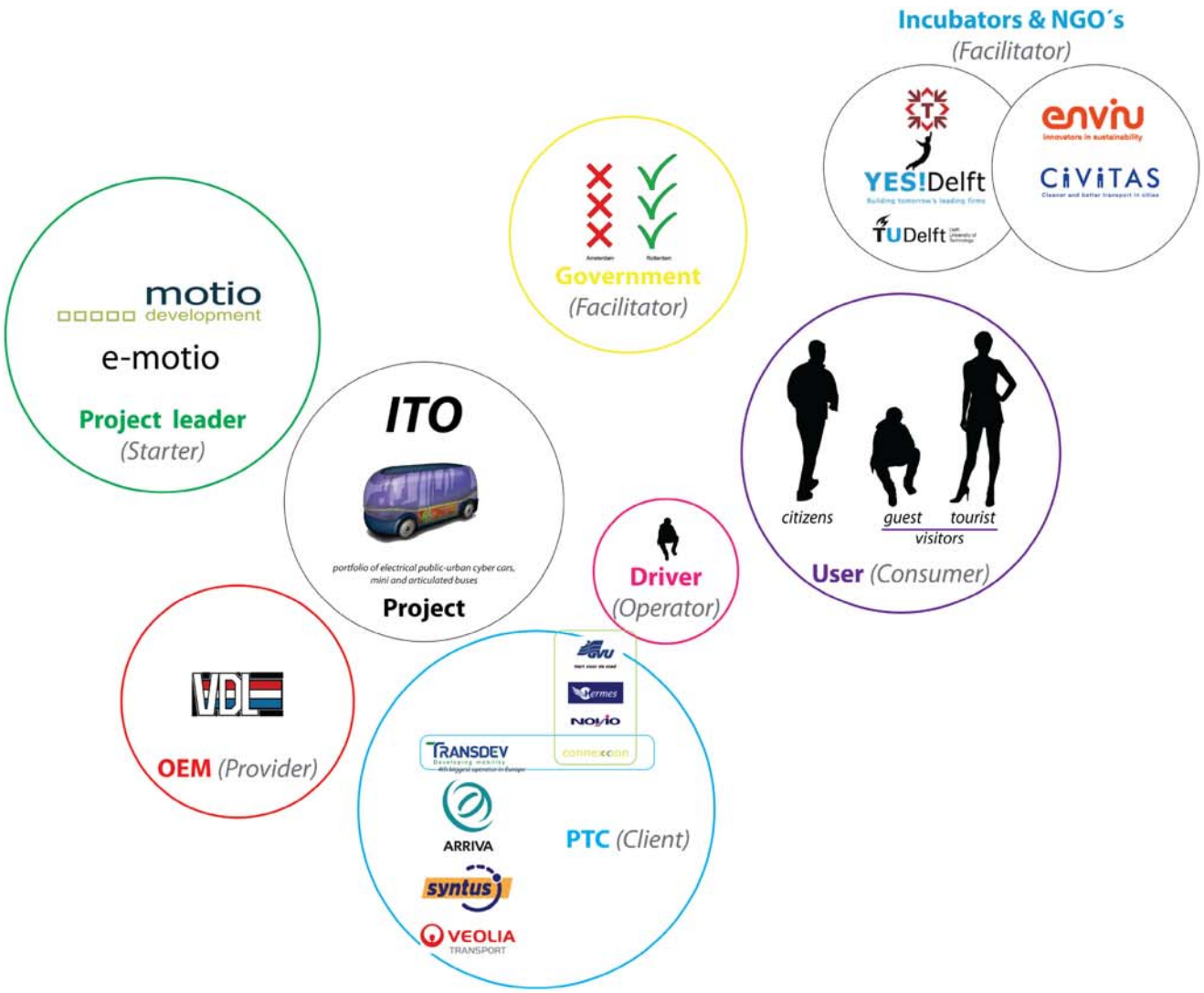
standard *driving capabilities*

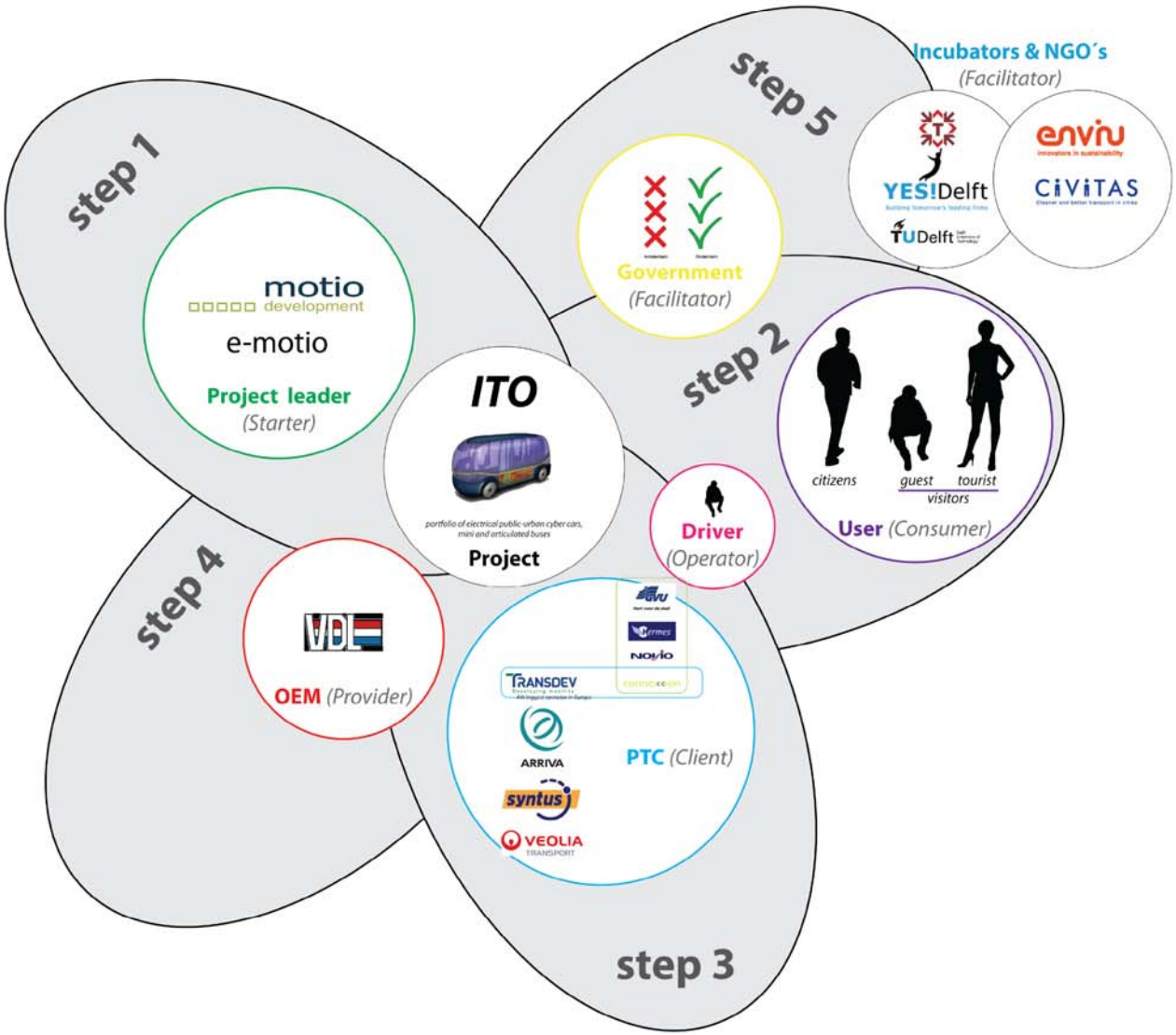
more than ***40 passengers,***

fixed route transit buses

Uses: **c,** *local authorities or transit operators.*

Project
Implementation

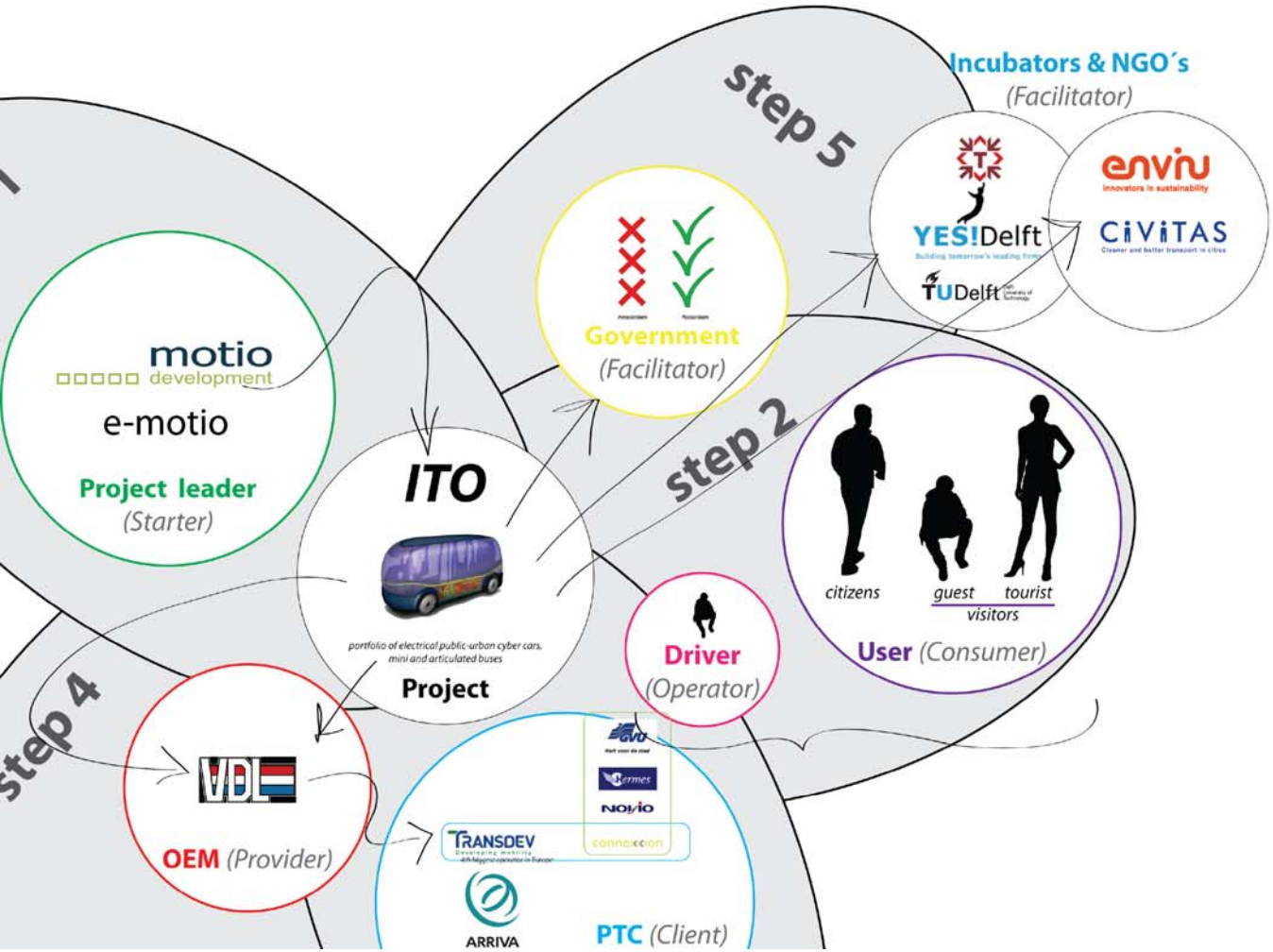




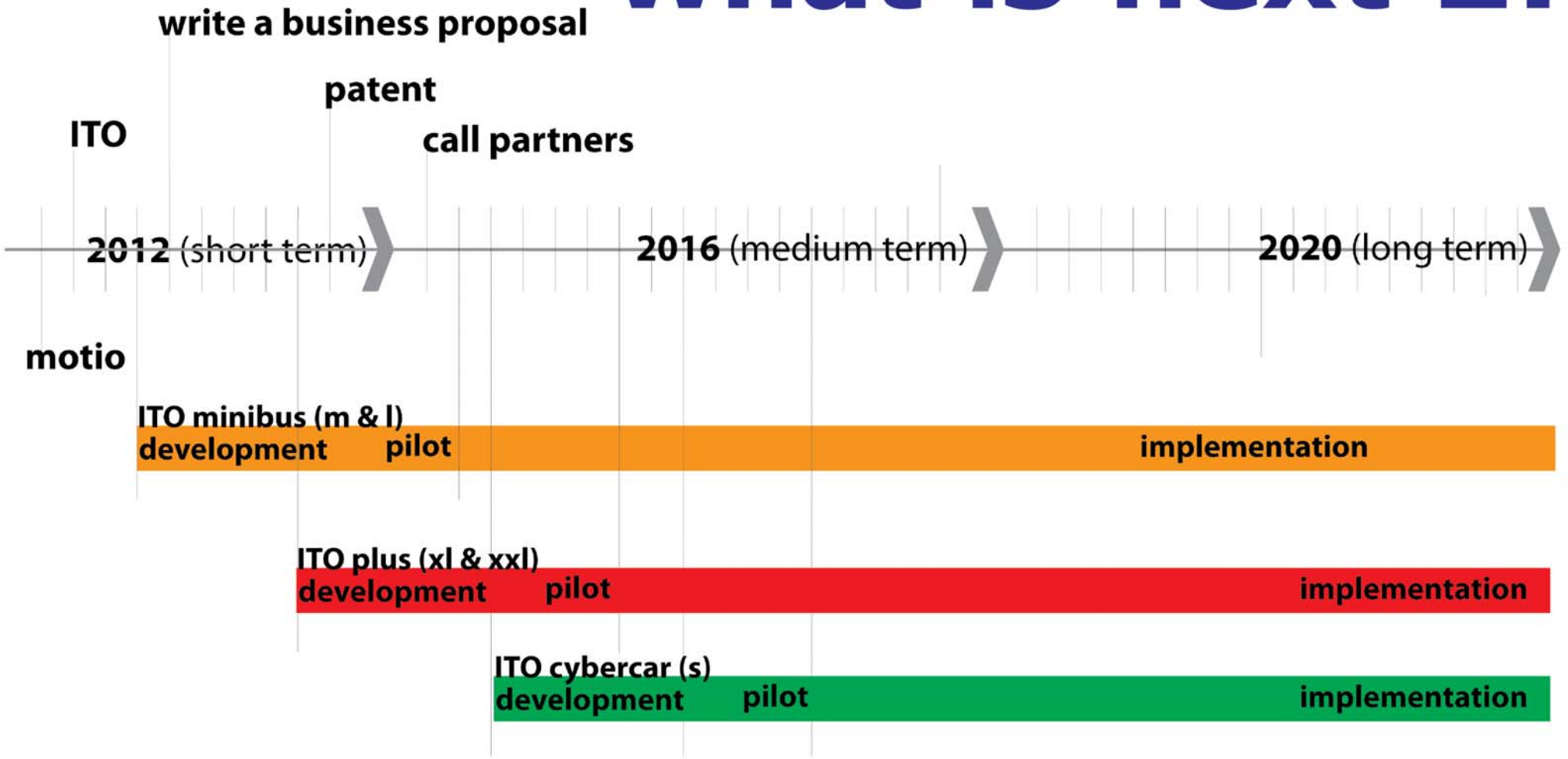
short term strategy

what is next?

medium term strategy



what is next 2?




thanks
jrmejias@yahoo.es