



## A user centric Cabin Design using the Design Thinking approach

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Introduction

The method

Empathize

Define

Ideate







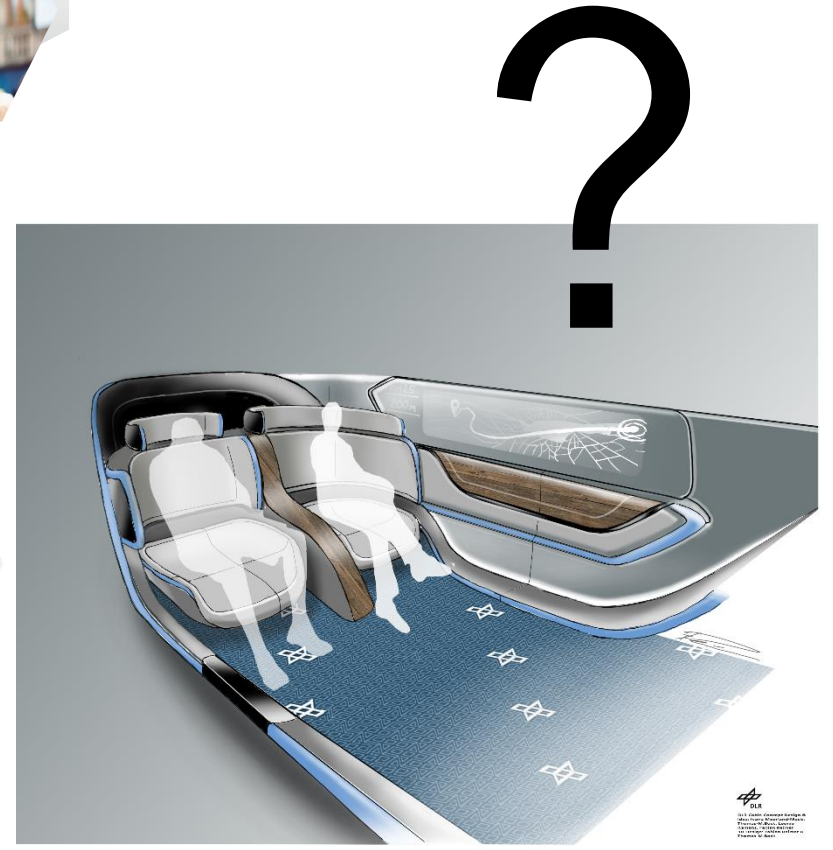
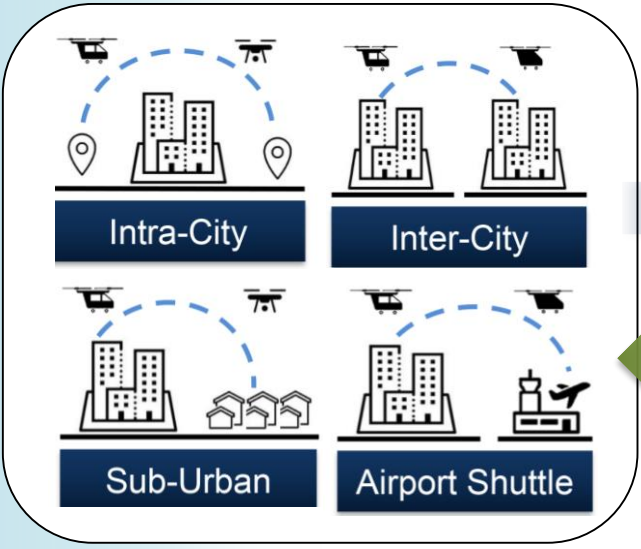
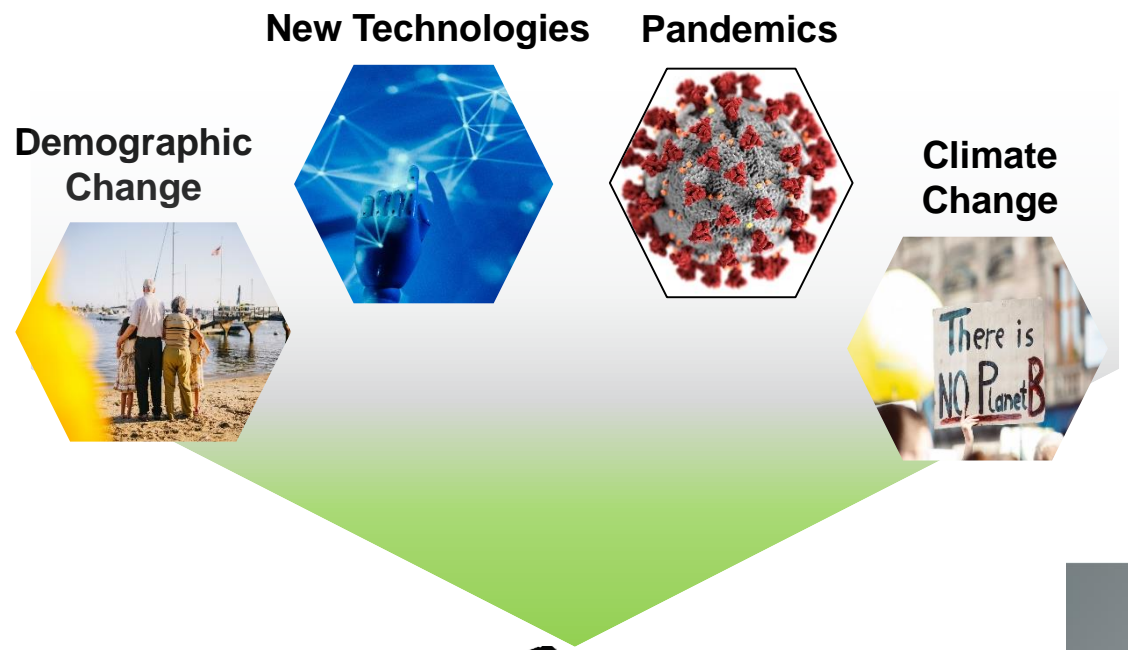
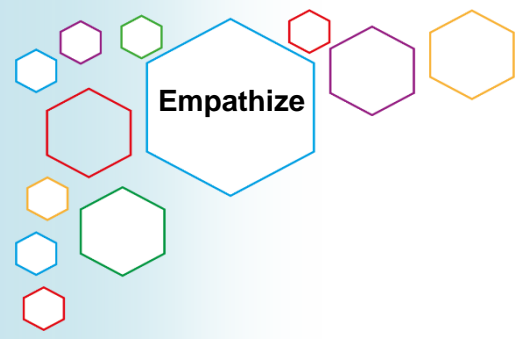


## Introduction

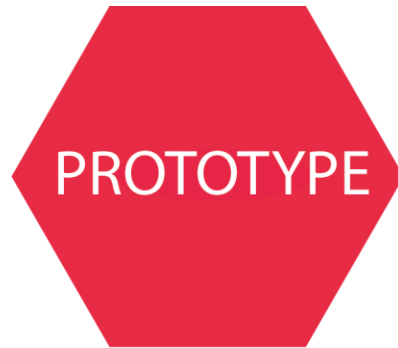
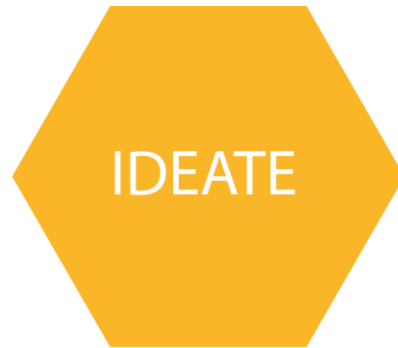
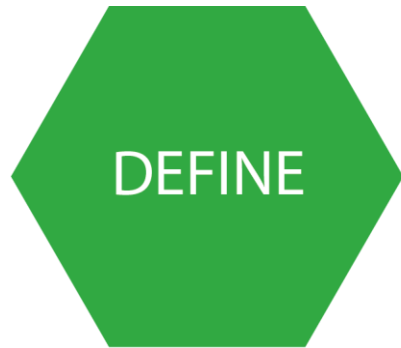


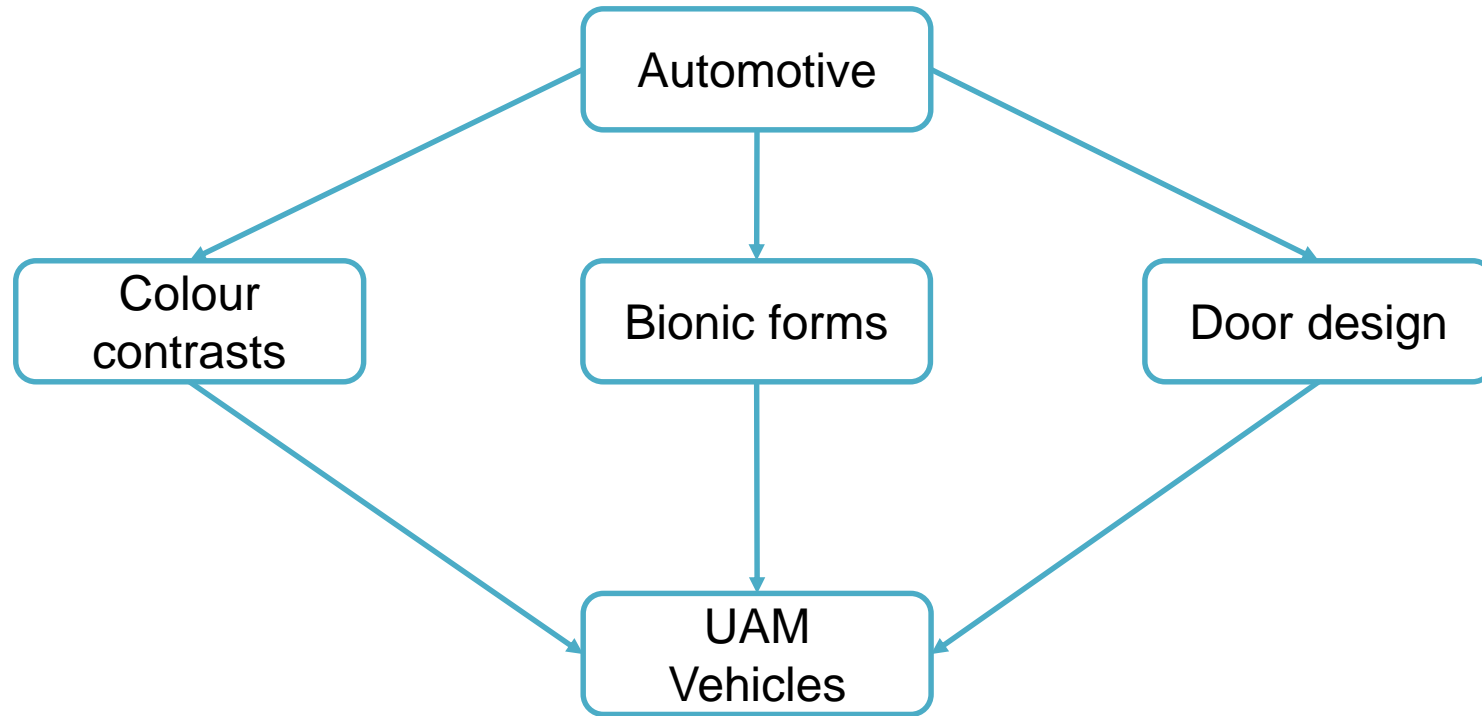
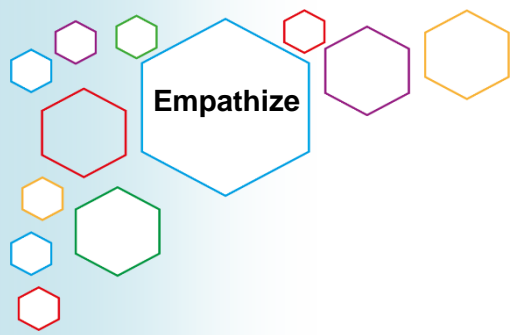
– HorizonUAM –

- German Aerospace Center project
- Cooperation between multiple institutes
- Vehicle and Cabin design by Institute for System Architectures in Aeronautics (Hamburg)
  
- **First cabin design team** at German Aerospace Center
- Acceptance of the idea
- Needs and desires of potential users



# DESIGN THINKING



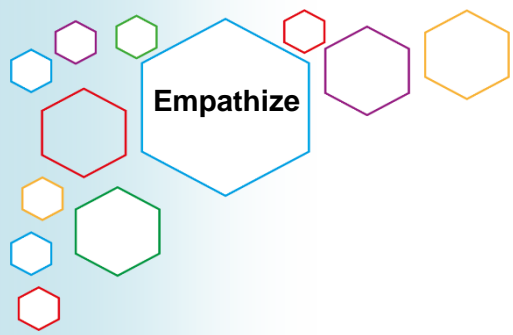


Modern

Spacious

Safe

Value recognition



Empathize

Online questionnaire

German population

German population



Division by age and residence

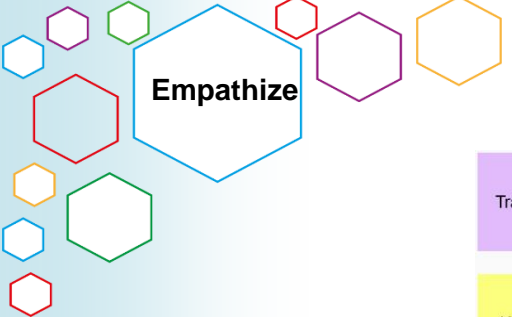
Existing public transport preferences

Disney method

Acceptance of airtaxi

Focus group





# "Disney Method"

- Träumer
- Kritiker
- Realist



„Imagine you would design the Airtaxi Cabin of the Future...“

„...What would it look like? What's important for you?“



Welches Ziel wird angestrebt?  
Innerstädtische Fahrten oder Fernverkehr

Kurzstrecken/  
innerstädtisch

Identifikationskarte  
oder App um Türen  
zu öffnen

Statt Mittelkonsole  
(und unter Sitzen)  
Stauraum

Geld für PV lieber  
in Schnellladetechnik  
investieren

Aerodynamik ist wichtiger als PV. Wahrscheinlich ist das Taxi viel zu uneffizient, als das PV eine Rolle spielt

sinnvoll  
und gut  
umsetzbar!

WLAN

Solarbagh

Qualitativ hochwertige Sitze

Flügelüren!

Flügelüren



Vis-a-vis  
Anordnung

Stackdosen  
& USB-Ports

auch auf Kurzstrecken sinnvoll

Soundsystem mit Steuerung über Smartphone

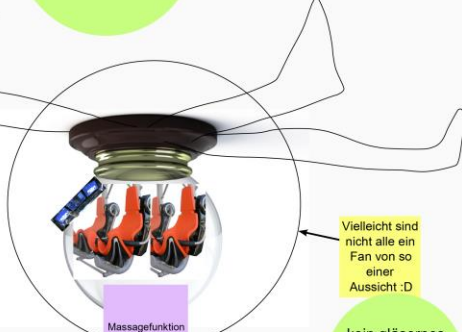
Desinfektionsmittelspender

AR Infos über Stadt in den Fenstern



User Consent sicherstellen

"durchsichtige" Bildschirme/Scheiben nutzen



Vielleicht sind nicht alle ein Fan von so einer Aussicht :D

kein gläsernes Taxi möglich, aber dennoch große Fenster



Informationen werden auf den Scheiben eingeblendet

Glasboden

Vielleicht sind nicht alle ein Fan von Glasboden

Kein Glasboden

Catering/Snacks

Flug zu kurz, um was zu essen oder trinken

brauchen wir nicht, da kurze Strecken



"Angestellte" für einen kurzen Flug weder nötig noch rentabel

hat auf kurzer Strecke nichts, das er servieren könnte, kommt also nicht

DDienstroboter

Empathize



18-40 years

High-tech

40-65 years

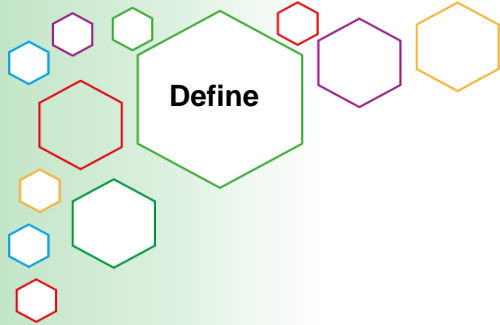
Privacy,  
comfort

Urban area

Individualisation

Rural area

Inclusion



DEMOGRAPHIC DATA

Gender: F  
 Age: 19  
 Job: Student  
 Single  
 Income: 800€  
 Residence: Berlin

USE CASE:  
 Intracity:  
 always on the move in the city  
 connectivity important  
 Intercity:  
 visiting friends,  
 traveling with an UAM for the  
 sake of experience

- Global Clans
- Cultural Purist
- Solo Socializer
- Ethical Traveler

DEMOGRAPHIC DATA

Gender: F  
 Age: 62  
 Job: Teacher  
 Married with children  
 Income: 3000€  
 Residence: Minden bei Hann.

USE CASE:  
 Sub Urban:  
 Lives in a village, works in the city  
 Airportshuttle:  
 Visiting the kids and grandkids  
 Intercity:  
 Trains very comfortable, but unreliable,  
 not a guaranteed seat, too stressful

- Active Seniors
- Global Clans
- Simplicity Searchers
- Sceptic Generation

DEMOGRAFISCHE DATEN

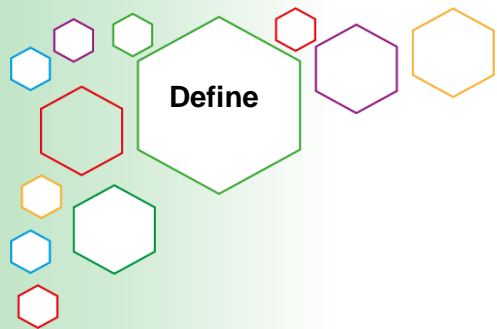
Gender: M  
 Age: 35  
 Job: Real estate agent  
 Married with children  
 Income: 4000€  
 Residence: Trittau (Village)

USE CASE:  
 Sub Urban:  
 From home to different cities  
 nearby  
 Airportshuttle:  
 Holiday with family or seldom  
 business trips

- Individualist
- Nomadic Business (Wo)man
- Social Capital Seekers
- Cosmopolitan Commuters







Define



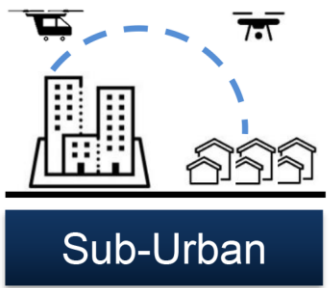
<50 km

On demand



50-100 km

Timetable



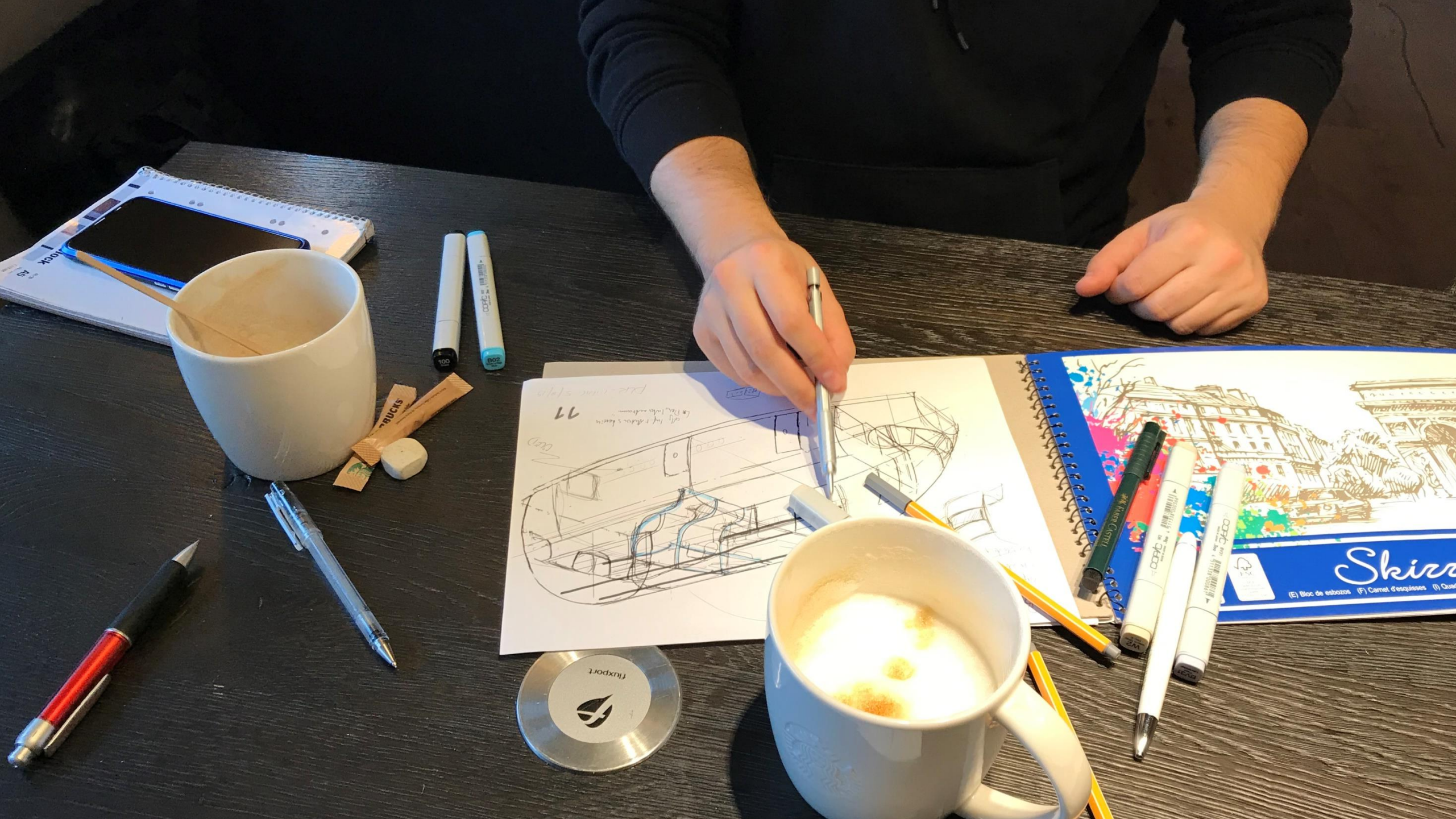
50-100 km

On demand



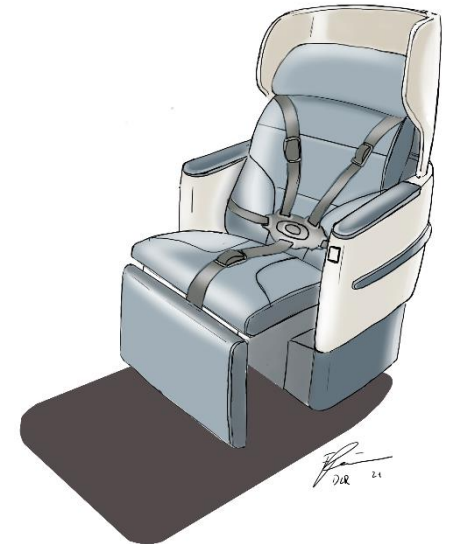
>100 km

On demand





# SEATS



**Type A:**  
Sportscar Seat

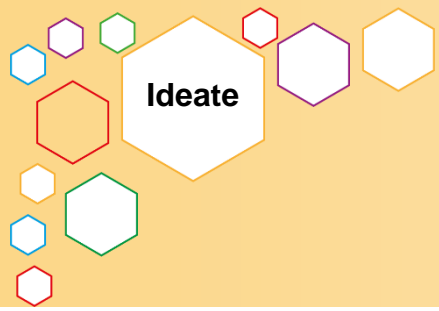
**Type B:**  
Autonomous  
Car Seat style

**Type C:**  
Aircraft  
Premium  
Business Class  
Seat

**Type D:**  
Futuristic Car  
Seat

**Type E:**  
Aircraft First  
Class Seat





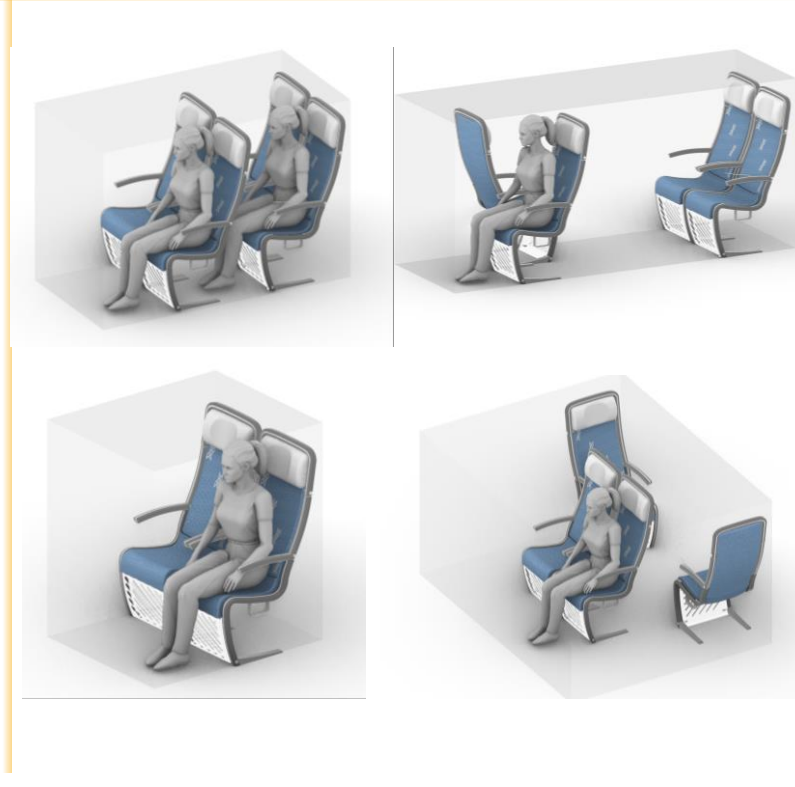
# FURTHER IDEAS



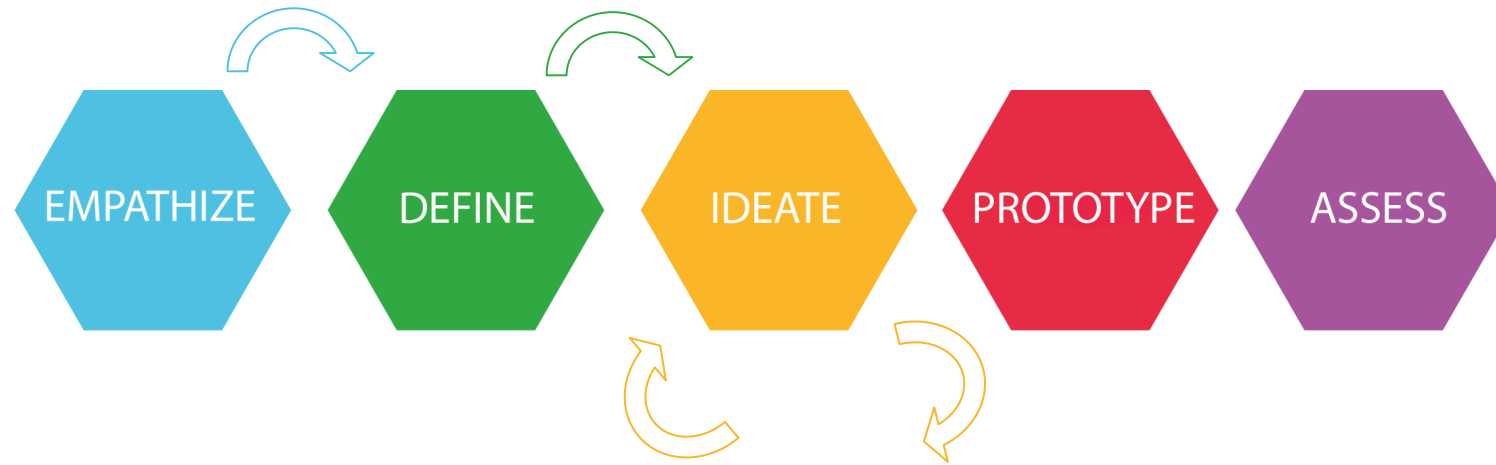
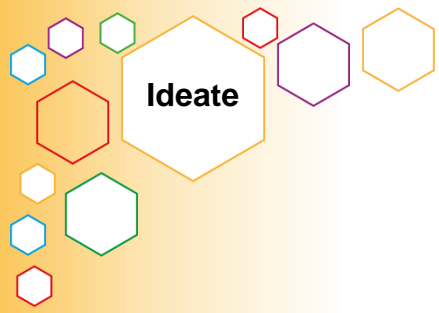
**Safety & Privacy**



**Luggage storage**

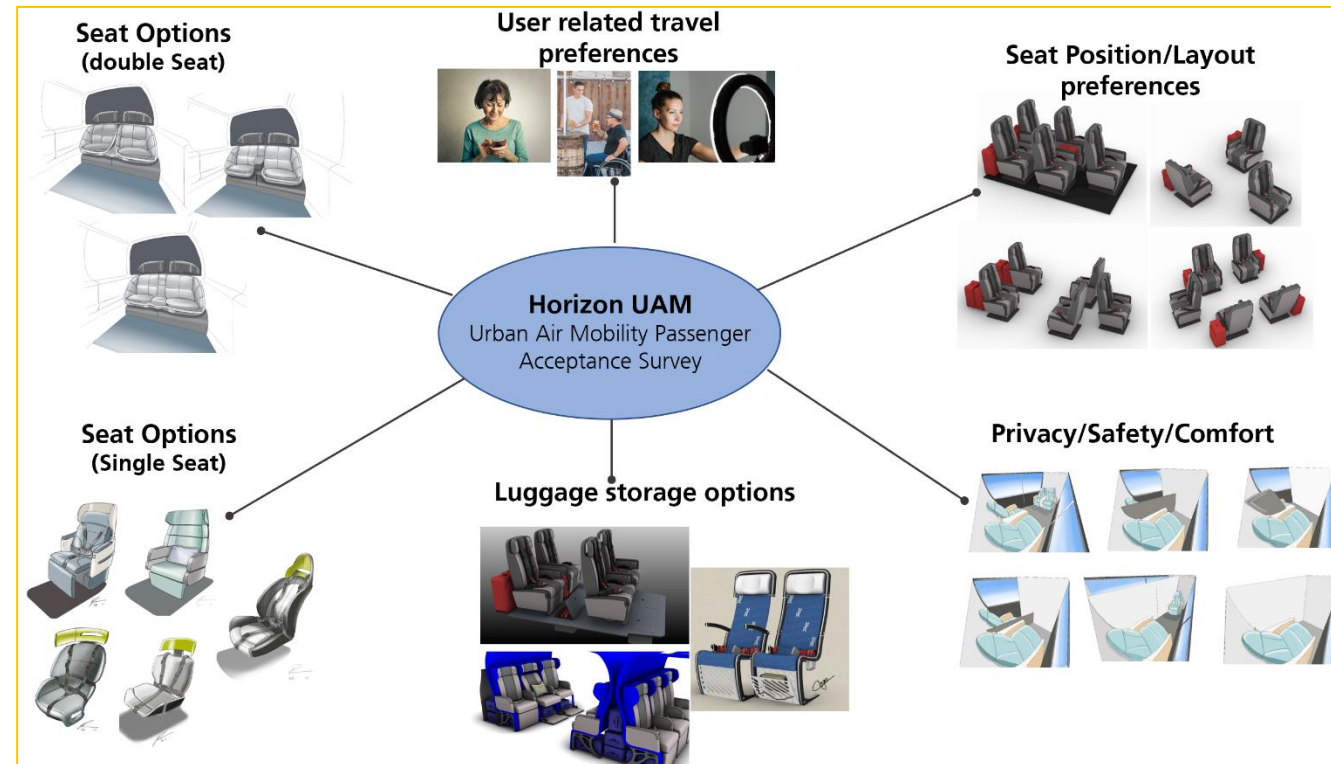


**Seat Positions and arrangements**



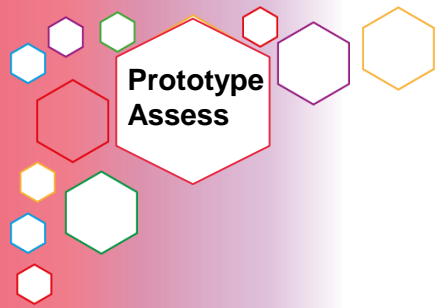
**Passenger acceptance survey from July 21-Sept 21 (Germany)**

- Focus on Seats, Comfort, Experience, Safety and Privacy
- Evaluation of first ideas



Feel free to participate:  
<https://survey.pt-dlr.de/index.php?r=survey/index&sid=244833&lang=de>

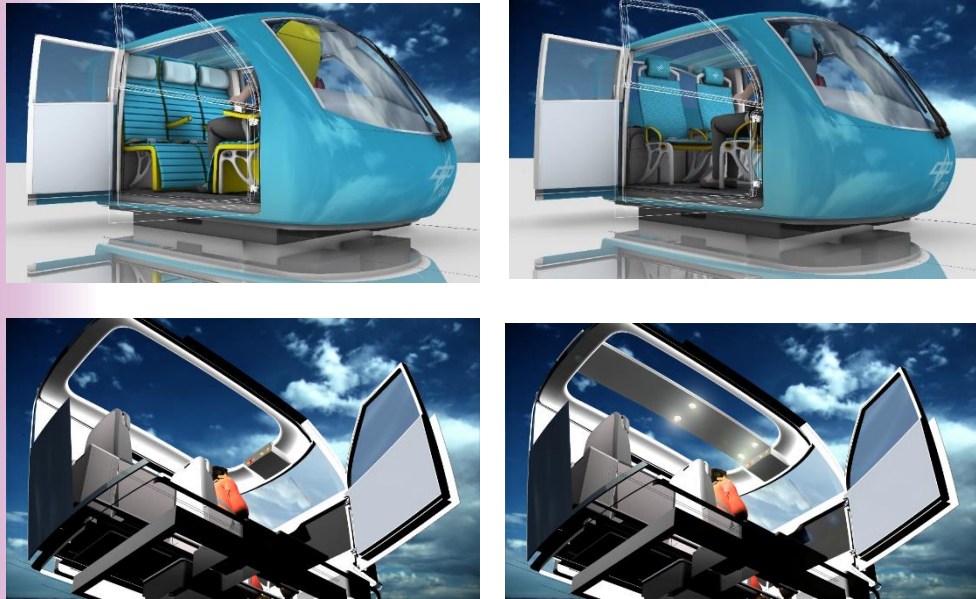




PROTOTYPE



ASSESS



- Digital & Physical Prototyping
- Fully detailed cabin concept designs

- Assessment via VR and physical testing
- Testing for emotion, feeling, comfort, experience and safety



# THE TEAM



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