



# Understanding users' needs and capabilities in a digital transport system

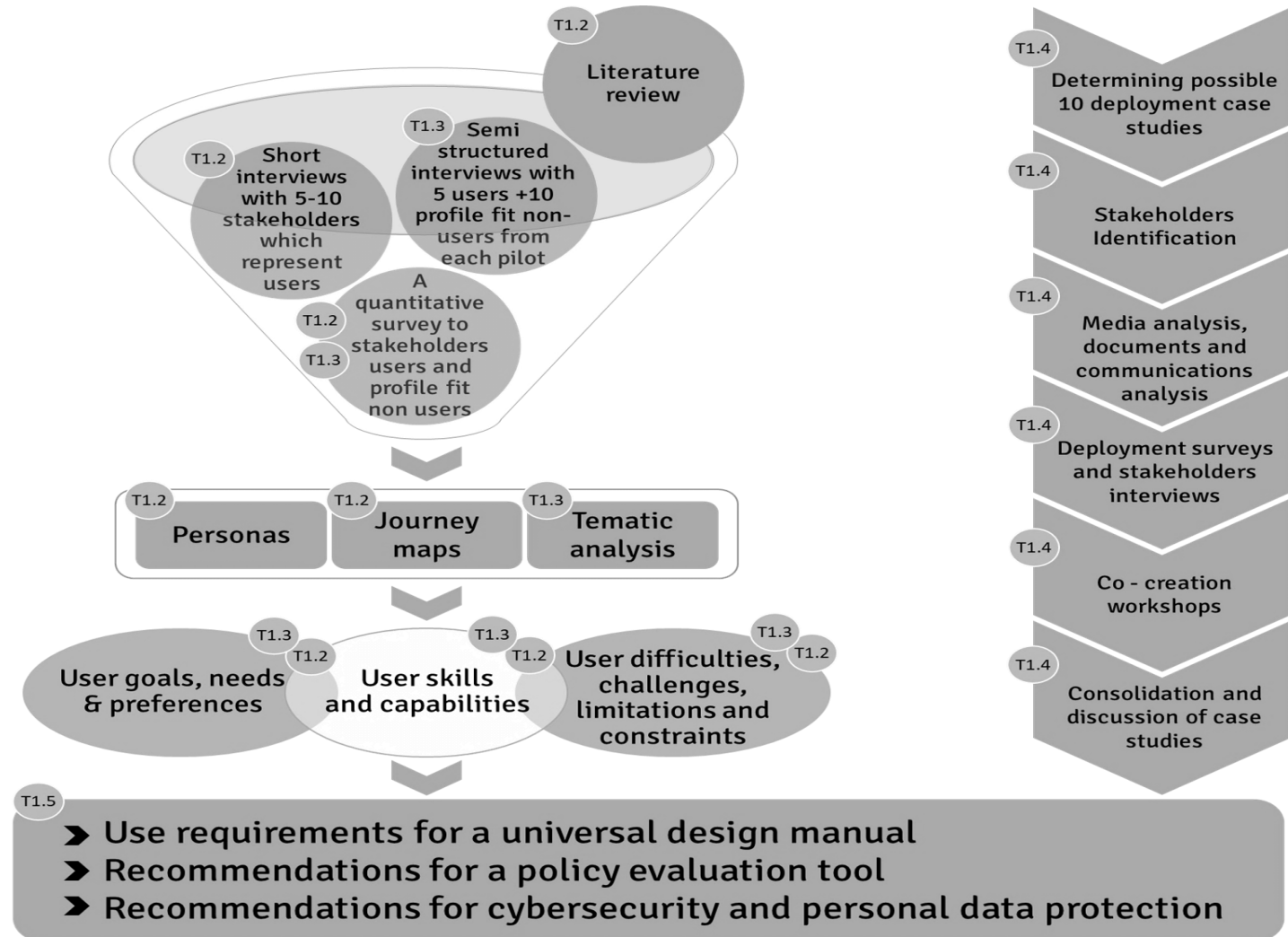
Michelle Specktor, Yoram Shiftan | Technion



# Analysis of the requirements of users towards the digital interconnected transport system



**Framework** for the analysis of barriers and opportunities for tapping the full potential of the digital interconnected transport system.



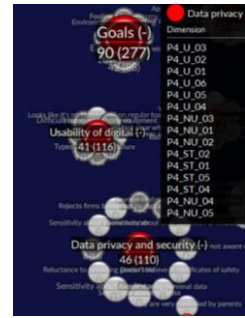
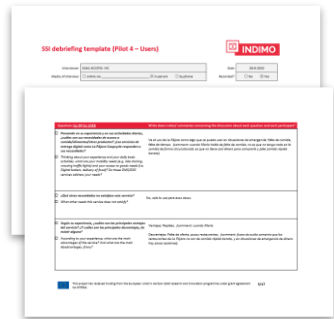
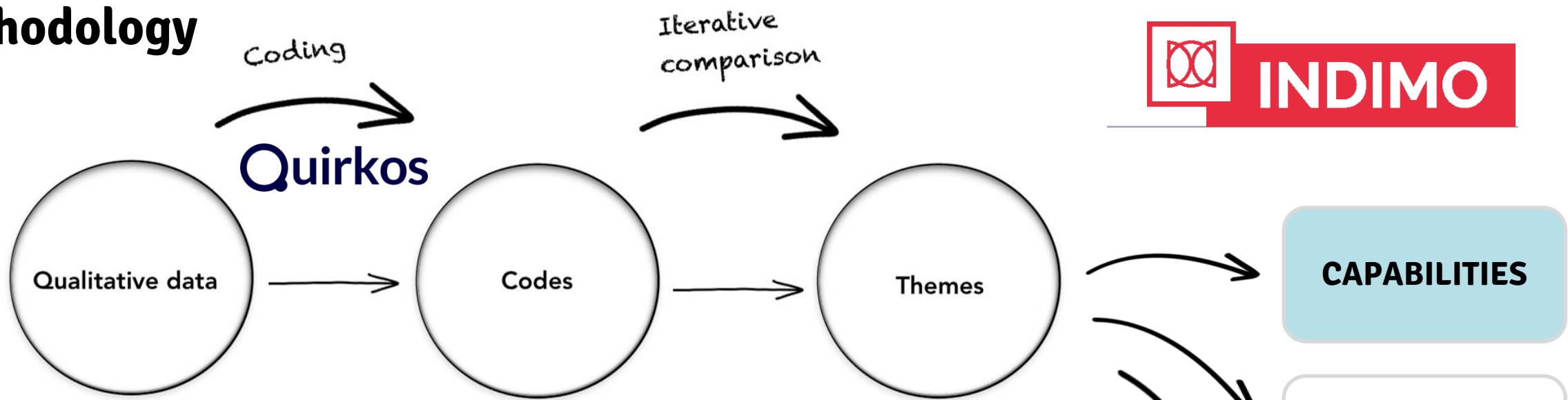


# User capabilities and requirements

Floriea Di Ciommo, Gianni Rondinella, Andres Kilstein | cambiaMO



# Methodology



- **95** Semi-Structured Interviews (face-2-face and/or online)
  - 70 to users/non-users
  - 25 to representing users
- **Debriefings** / relevant fragments of each interview

- Data from **5 pilots** + **1 use case** in Budapest as input for **+400 Codes**

- **31 Themes** identified



## SPACE

- Space is both a condition and a constraint to mobility
- The overlapping of spatial obstacles is a fundamental driver of mobility choices

## TIME

- Time is a valuable resource and the importance of making a good use of it appears in the different pilots

## HUMAN CONTACT

- **Digital tools are something little familiar for a great variety of the groups**
- **Human contact is a requirement to overcome some of the fears contained in the digital domain**

# Methodology. Pilots' names and user profiles



Pilot name and location	User profiles (and characteristics)
<b>P1.</b> Introducing digital lockers to enable e-commerce in rural areas ( <b>Emilia Romagna-Italy</b> )	Older people and migrants/ foreign people who receive/send parcels (lack of digital knowledge; residing in peri-urban locations; lack of digital services; lack of dedicated network infrastructures; language barriers; low income, ...)
<b>P2.</b> Inclusive traffic lights ( <b>Antwerp-Belgium</b> )	Vulnerable pedestrian (i.e. older people; people with reduced mobility; people with reduced vision)
<b>P3.</b> Informal ride-sharing in ethnic towns ( <b>Galilee</b> )	Informal ride-sharing users (ethnic minority man/women; residing in the periphery; language barrier; lack of digital skills)
<b>P4.</b> Cycle logistics platform for delivery healthy food ( <b>Madrid-Spain</b> )	Delivery users (people with reduced mobility; people with reduced vision; socially isolated-unwanted loneliness; not-connected people; low income; COVID-19 confined)
<b>P5.</b> On-demand ride-sharing integrated into multimodal route planning ( <b>Berlin-Germany</b> )	On demand ride-sharing users (caregivers of children/ impaired/ elders; women; lack of services; lack of digital skills, residing in peri-urban locations)







MADRID



Cyclelogistics platform  
for deliveries

## Requirements paths



**INDIMO**

### PEOPLE WITH REDUCED VISION

#### CAPABILITIES

1. Level of autonomy
2. Enjoyment in going to store and selecting products

#### LIMITATIONS

1. Tend to avoid screens
2. Get loss in multiplicity of icons
3. Contrast, shapes and colors are sensitive

#### REQUIREMENTS

Anticipation and control over graphic interface (e.g. customizable fonts...)

### PEOPLE WITH REDUCED MOBILITY

1. Purchase of large amount of food
2. Do not focus on physical condition to justify choices

1. Limitations of physical accessibility of the store
2. They prefer small stores and associate delivery with big chains

1. Human assistance
2. Direct contact with rider to arrange place and conditions of delivery

### NON-CONNECTED PEOPLE

Disconnection might be part of their lifestyle

1. Concerns about data privacy and security (reluctance of ubiquity)
2. Negative perception: association of delivery with sickness or disability

1. Terms and conditions in checkboxes
2. Include the possibility of viewing user's ratings.



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## Requirements paths



INDIMO

### LOW-INCOME

### COVID19-CONFINED

### SOCIALLY ISOLATED

#### CAPABILITIES

Use of digital technology:  
1. communicating with relatives  
2. entertainment

Helping for avoiding risk exposure

Cooking and shopping are part of their leisure activities

#### LIMITATIONS

1. Old equipment
2. Limitation in data availability, and connectivity

May see the contact with the rider and the products as an added exposure?

1. Sensitivity about sharing credit card
2. Sensitivity about giving personal info

#### REQUIREMENTS

1. Budget menus
2. Possibility of paying in cash

Establish COVID protocol and communicate it

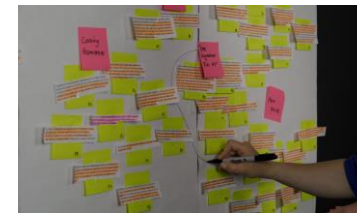
1. Terms and conditions in checkboxes
2. 2.Include the possibility of viewing user's ratings.



# Some insights



- Idiosyncrasies of profile (i.e. older people and rural)
- Mechanical adoption of digital apps
- Self-empowering intention of vulnerable-to-exclusion people ( i.e. tutorial...)
- No-digital natives have more difficulties to use apps
- Foreign people as central public for using technology (i.e. digital lockers)
- COVID19: the Digital Delivery Services as substitute of restaurant and quarantine, but it could be less used for avoiding the infection
- Digital Mobility Gender divide
- Car mandate is internalized even by disable people





# User requirements, personas and journey maps

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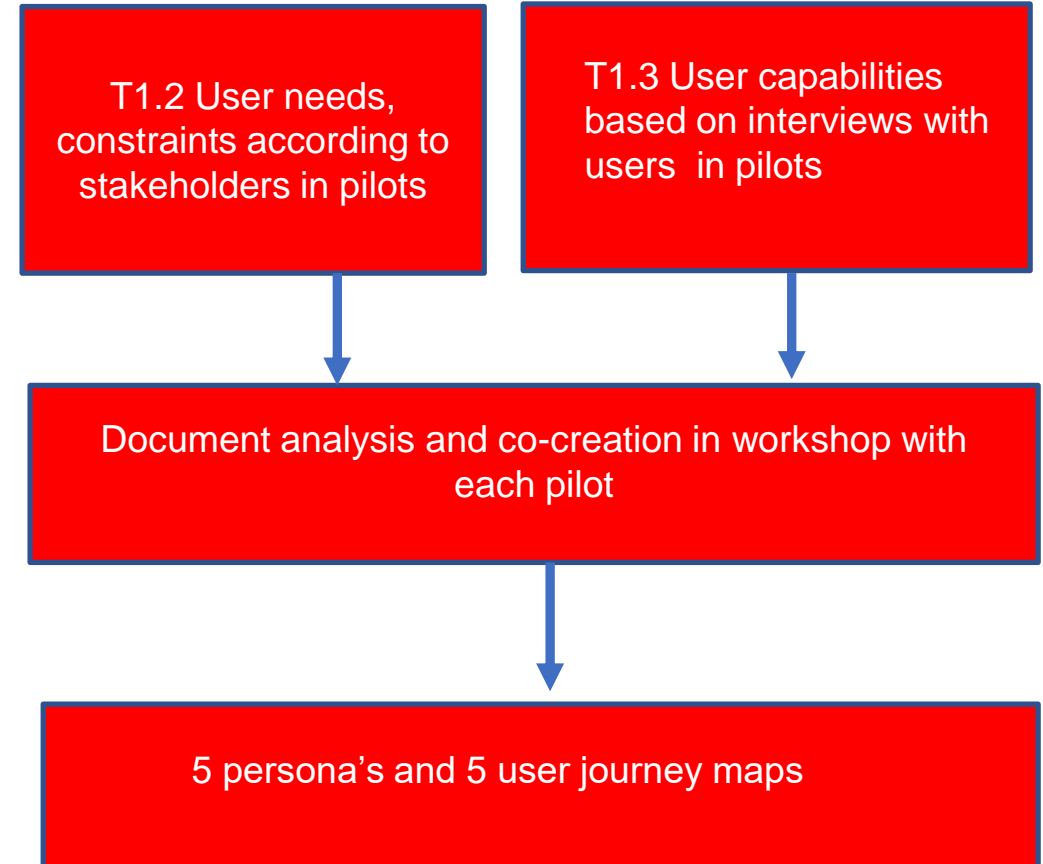


# Personas and user journey map



Visualise/condense the user requirements of T1.2 and T1.3 on a concrete case

Support the development teams in the pilot with understanding the end-user  
Focus on personality, motivation, goals  
Focus to understand current situation to perform an action INDIMO wants to relieve





### Bio

Marie is a 30 year old woman. She is married, has two children, one toddler and one baby. She usually works parttime, however she's now on maternity leave. She lives in the peri-urban location of Berlin with her husband, who needs the car to get to work. Her husband is very busy and her parents live an hour away, so she has little support from others to take care of her child and the household.

There are only limited public transport options in her neighbourhood, so it is more convenient to use the ridesharing option as she wants to bring her children along. She is already a user of the ride sharing service, as it helps her get her everyday tasks done more swiftly and with less frustrations, as the public transport is inadequate. She is now able to plan her trips to the grocery store, doctor, school et cetera without too much hassle.

She's an open-minded woman who does not mind ride sharing with people she does not know and she is not afraid to try out new technologies. However, she's not an explorative person and will not actively look for certain things as she is quite busy, she relies on information from others.

### Name

Marie

Age: 30

Marital status: Married

Children: Two children (just gave birth)

Occupation: Maternity leave

Location: Peri-urban location of Berlin

Income: Medium

### Personality

- Open-minded
- Open to strangers/others
- Open to new technologies
- More passive and busy with other things: lacks time / very busy
- Not explorative and relies on others to discover solutions (not finding new things by herself)

### Goals / Needs

- Switching between different activities/needs of children (e.g. doctor, hobby)
- Efficient, on time, reliable and affordable service
- Reach destination in a safe way
- Flexible (spontaneous)

### Pain points

- Lack of (flexible) public transport services
- Lack of accessibility at PT hubs
- Distance from pick-up point
- PT is uncomfortable
- Have to carry a lot of things (e.g. stroller, grocery bags)
- Difficult to organise chaintripping
- No good connection between the different transport methods (e.g. train, metro)
- Not much important information available about presence of child seat, space for car and groceries, type of car

### Motivation

- Car adapted to needs
- Child-friendly on board facilities (e.g. child seat)
- Punctual
- Affordable: less than using a taxi
- Quality of the service and drivers
- Flexible and comfortable solution
- Trust in actors service: registered and reviewed
- Drivers are very friendly, helpful and child-oriented

### Information Sources

- Website public transport
- Thematical website services
- Current taxi services
- Word of mouth
- Leaflet at the doctor

### Preferred information

- Type of car (e.g. colour, model, space)
- Number of available seats / equipment of the car
- Enough space in the car for everything
- Distance pick up point from location
- Safety of pick up and drop off point
- Transparent pricing
- Support from driver
- Automatic system to determine needs by age (e.g. child seat)
- Trustworthiness of driver and service (e.g. reviews)
- Connection with PT

# 5 Personas



Stage	P1 Emilia Romagna Louisa	P2 Antwerp Johanna	P3 Galilee Mariam	P4 Madrid Maria Carmen	P4 Madrid Sara	P5 Berlin Marie
User characteristic covered	Older woman	Blind	Woman rural community ethnic minority	Older woman socially isolated	Young woman Cognitively impaired	Young Mother Suburban neighbourhood

- Combination of various user characteristics out of stakeholder interviews and users/non-users interview
- Gender common outcome
- Step-by-step approach: interesting user characteristics

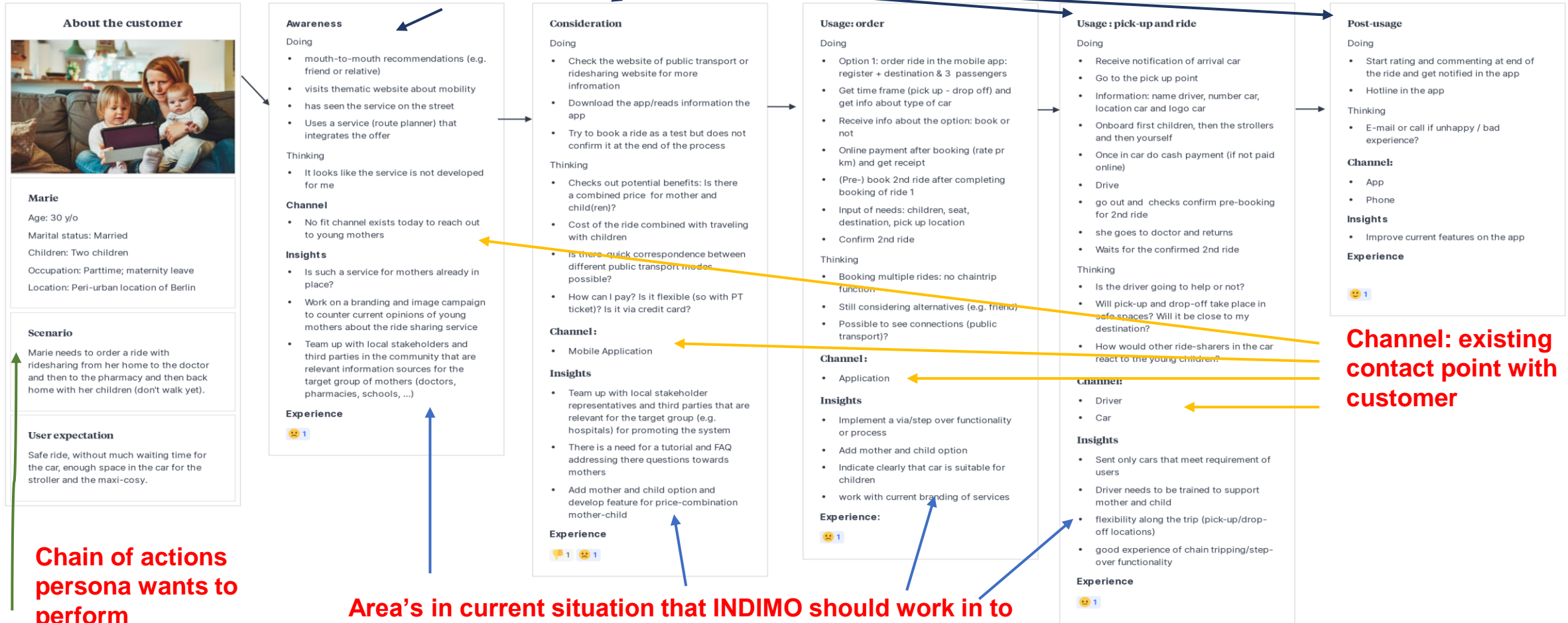
### E.g. Berlin:

- Caregiver mother, maternee leave
- No traffic options, need for chain tripping
- Has to carry bags, many appointments
- Flexible solution
- Needs detailed information on app
- Needs to get to know the service:

# User journey map Berlin – current situation



4 stages: doing, saying, thinking



Chain of actions persona wants to perform

Area's in current situation that INDIMO should work in to improve user journey of target group

Channel: existing contact point with customer





# INDIMO

INCLUSIVE DIGITAL MOBILITY SOLUTIONS

# Thanks for your attention!

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