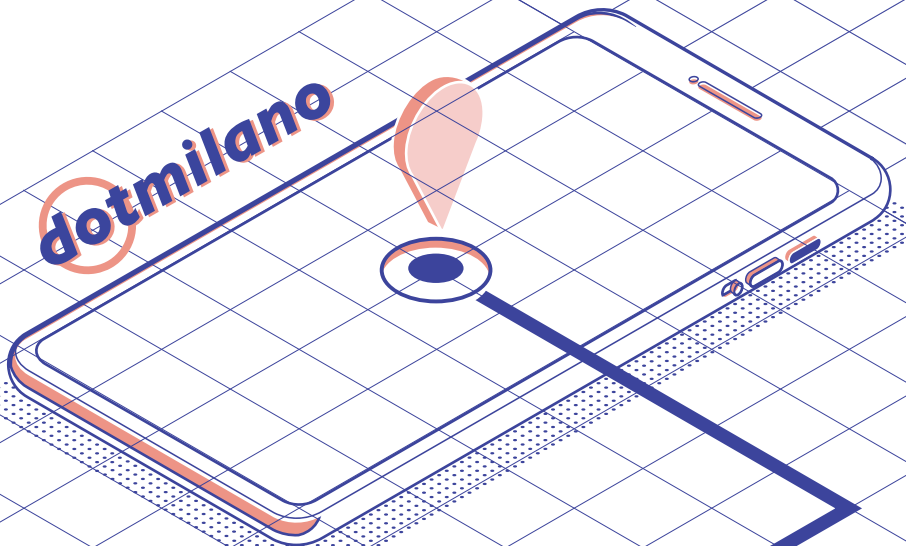
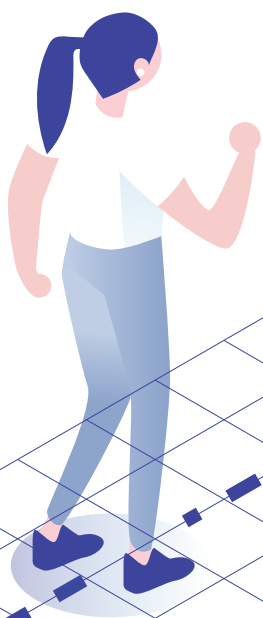


# creating a mobility service for Milan through design for behavior change



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# ***abstract***

Cities are risking too much pressure on their transportation infrastructure with the constant growth of travel demands. Urban mobility is undergoing changes trying to reduce using resources and improve the sustainability of its systems. As a consequence, multimodal travels and short term levers like walking and biking became inevitable to ensure efficiency and reaching public and shared transportations.

The goal of this thesis is to encourage the usership of public/shared transportation and reduce ownership of private vehicles by fostering walking as a transportation mode to relieve other modes and make cities more livable.

Starting off, I carried out an initial desk research identifying some current global trends in the mobility sector. Following, I conducted a field research focusing on Milan in order to understand the target travelers, their mobility behavior state, pain points, needs, and motivations. Soon after, I organized an ideation workshop adopting a behavior progression framework to design a mobility solution with sustained behavior changes.

The final outcome is “dotMilano” a platform for travelers allowing a more personalized door to door experience where users can pre-plan a travel while utilizing the first and last mile in order to be more active and transform them into high points in the experience. Moreover, the platform connects active members allowing them to share their travels making the city more walkable.

**Keywords: #mobility #service design #behavior design #design for behavior change**



# *acknowledgment*

At first, I'd like to thank my supervisor, Anna Meroni, for her support and efforts throughout the whole process. Backing up with expert knowledge and proposing to apply behavior design into my topic allowed me to learn and grow during this thesis.

A big thank you to Ravi Mahamuni who trusted me to use his tools and research to apply them into my thesis. I could not have wished for a better co-tutor.

I would also like to thank every participant from interviewees to designers who were willing to take time to help and share their ideas with me.

Thank you to everyone I had the chance to meet in these two years of PSSD, I could not have made a better choice for a master.

And last, I would like to thank my family and friends who always supported and encouraged me.

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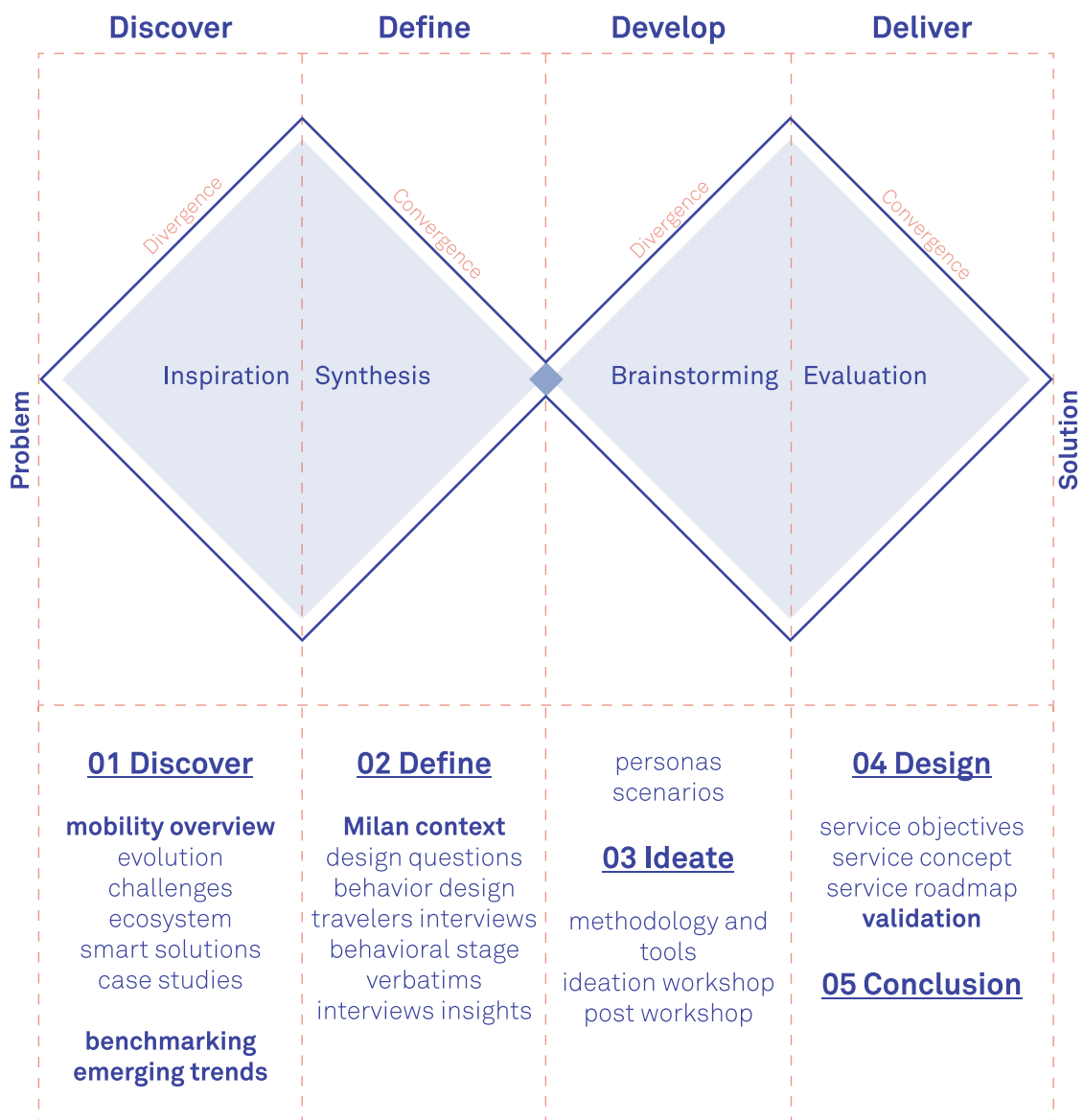
**00**

# ***Introduction***

This section is an overview of the thesis methodology with the research questions and main objectives.

# methodology

For this thesis I followed as a base the **Double Diamond model (Design Council, 2018)**, with the four stages: Discover, Define, Develop and Deliver. I adapted the steps and applied them into my chapters.



## ***research questions***

What are the mobility current market solutions and trends?

What is the current mobility context when it comes to Milan city?

What are the needs of city travelers? And are these needs satisfied at the moment?

## ***thesis objectives***

Identify travelers pain points and understand possible intervention scenarios.

Adopt behavior design framework and apply it into service design.

Create a mobility service for the city of Milan.



# 01

## ***Discover***

This section is an open blue sky research in order to provide a mobility overview and some opportunities guidelines:

What is mobility, its ecosystem and what are the current market innovative solutions and future prospects.

Benchmark of the competitive environment and identification of global trends from the gathered desk research.

# *mobility overview*

## *mobility evolution*

Mobility is defined by the number of collective trips made in a city per day by the inhabitants of a city, as well as by the methods and modes used and characteristics of these travels (such as length and time spent in trip)

Through time mobility witnessed changes in the ways and purposes of user travels and is currently undergoing more transformations

As travelers, we went from traveling with railways and fixed public transport in the 19th century to using private vehicles in the 20th century. Initially, these private vehicles brought efficiency and improvement in terms of transportation up until vehicle ownership increased causing a decrease in its efficiency for travelers. With more vehicles on the streets this solution became a problem for cities. Consequently, it created a need to change how transportation is planned and operated in cities.

Later on, with the arrival of the digitalization phenomena in the 21st century began a new digital area where travelers gained easy access to information allowing transportation services to become more user friendly.

Today's travels are more than just rail, roads and vehicles. We are moving from an ownership mentality towards a usership mentality. Travels went from being rigid from station to station with no real-time guidance to then try to cover a more door to door travel with multimodal offering, real-time information and guidance.

City dwellers are looking for services that are efficient, accessible and convenient that can replace the privately owned vehicle but still with the same efficiency and convenience with customized solutions and range of options .

# *mobility challenges*

Cities in general are facing a lot of challenges impacting their infrastructure, efficiency, quality of life and well being for its future population. Some of the main challenges confronted by cities are urbanization, globalization, climate changes, scarce resources and social changes.

Urban mobility is becoming one of the main issues to be tackled by cities. According to the European Commission (2017), Urban mobility is responsible for 40% of all CO2 emissions of road transport, and up to 70% of other pollutants of transport. Simultaneously, the number of citizens living in urban areas and sharing the same infrastructures is continuously increasing. Congestion and pollution are critical problems in contemporary cities

## **This high demand on the transportation infrastructure puts more and more pressure on the systems leading in a near future to:**

Growth of travel demands causing more and more traffic congestion with a rise in general travel time.

Increase in multimodal travels for a sustainable mobility and more efficiency for reaching public transportations with emerging alternative offers for the personal vehicle.

Need for using some short term levers like walking and cycling to relieve transport networks.

Aggravated health situation with the urgency to improve the air quality by trying to reduce polluting modes of travel.

**Likewise, mobility providers are facing many difficulties in their offering such as:**

Providing seamless mobility offerings starting from information connections, ticketing, payment

Suppling a door to door travel by trying to cover the gap between transportation modes to initial and final destinations

Creating customized offering because not one size fits all.

Bottom-up emerging approach vs. top-down

Dealing with multi-providers in multimodal travels can reduce in the consistency and continuity of the offering.

Competitive environment with new bottom up emerging offerings.

Alone, public transportation can't meet the needs of all citizens as it operates as a fixed-route system, with stops at specific locations to maximize its efficiency. As a consequence to this we face the First/Last Mile problem. The term describes travelers travel in the context of getting to/from a transportation mode. The walking distance from this transportation mode in order to reach the transportation chosen or reach a final destination is considered problematic when it is longer than a comfortable distance.

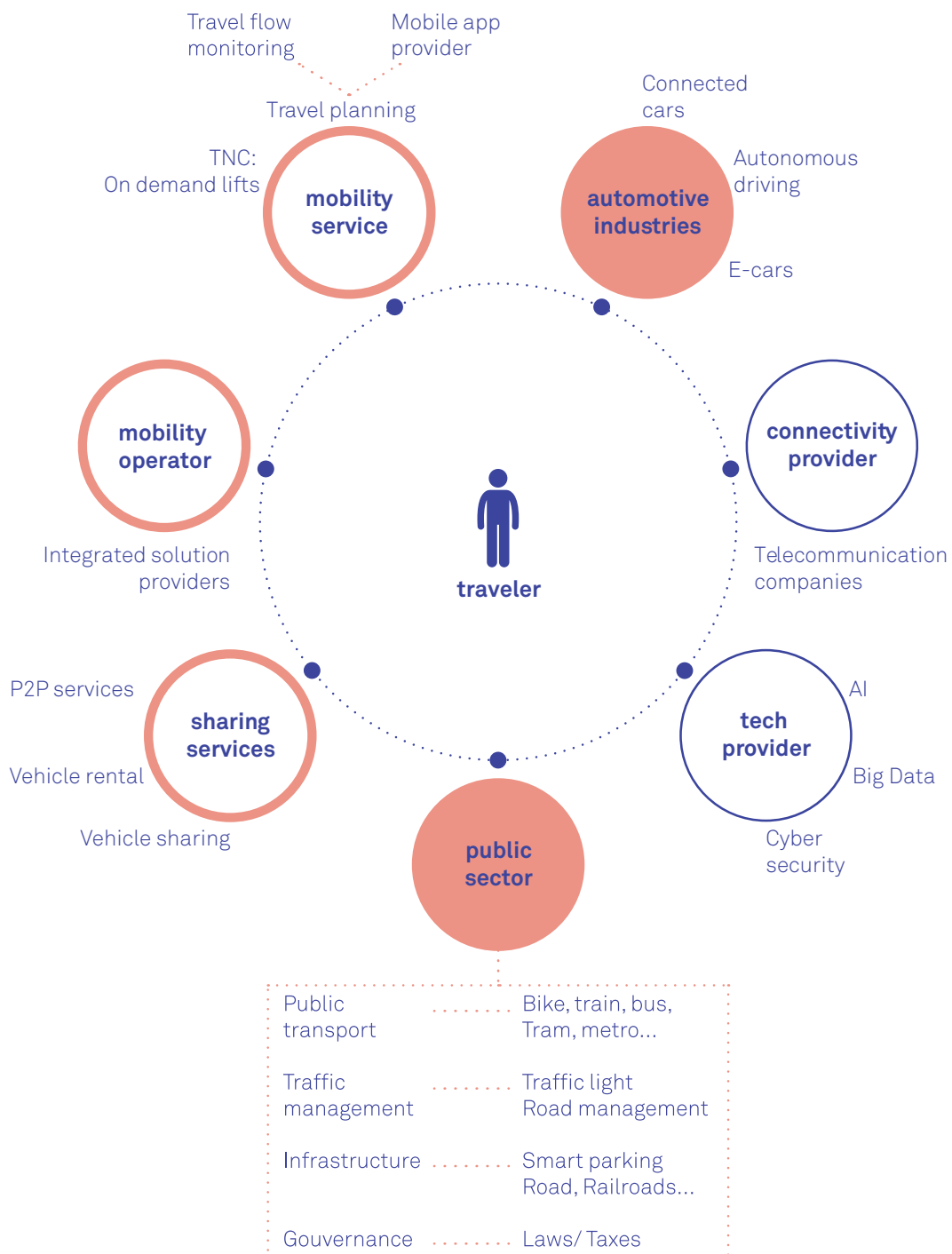
The emergence of shared Mobility offerings was a potential alternative solution to solve this problem, reducing private vehicle ownership and hence the number of vehicles on the streets and pollution rates.

Trying to integrate multiple transportation modes to the mobility offering through multimodal connections might lead to the desired sustainable changes.



# mobility ecosystem

I mapped out the mobility ecosystem with its different actors having the traveler at the heart. The system evolved from having 2 main competing actors (automotive industry and public sector) to becoming complex with many competitors and different business models (sharing services, mobility operators, mobility services). Furthermore, currently with the need for smart solutions we also witness connectivity provider and tech provider as new involved actors.



# ***mobility smart solutions***

Smart mobility solutions aim at creating sustainable mobility in cities by reducing congestion and fostering faster, greener and cheaper transportation options.

The most common and known solution in the market range covers from optimizing current transportation systems to creating new ones like :

- Electric emission free vehicles (e-motorcycle, e-car...)

- New services (bike sharing, motorcycle sharing...)

- New public use vehicles (cable car, autonomous vehicles...)

Smart mobility solutions incorporate ICTs in order to provide innovative product services and systems to increase efficiency.

These smart solution allows the transition from traditional transportation systems into smart mobility systems. Some of the new innovative examples relying on this exchange of data are:

## ***smart parking***

Optimizing the use of parking spaces where sensors collect real time data about available parking spaces reducing time of driving around looking for a spot. At the same time, in case of no available space it can recommend other travel plans like delaying your journey or using different transportation mode.

## ***p2p ride services***

Optimise the uses of privately owned cars, where individuals have the possibility to rent out their car or sell rides for other peers. The most famous examples are BlaBla Car and Uber . These solutions are customer friendly from the point of view convenience and leads to reducing traffic congestion

## ***personalized travel info***

Through IoT travellers can be provided with real time personalised data. Travelling apps can calculate fastest route according to the current time and location while taking into consideration many other factors like delays in public transportation, traffic congestion, walking time to be able to recommend a more smooth journey

## ***smart traffic control***

Optimizing traffic flows through real time data with a system of information flow between vehicles and sensors in the infrastructures. These systems can be beneficial when it comes also to emergency services.

## ***adaptive connected cars***

Cars are getting smarter with systems that provides more safety and convenience. Already we find in the markets cars with some automated actions like self parking. In a near future vehicles will be able to connect between each other and exchange information insuring a safer journey and optimizing their behavior.

## ***shared self driving cars***

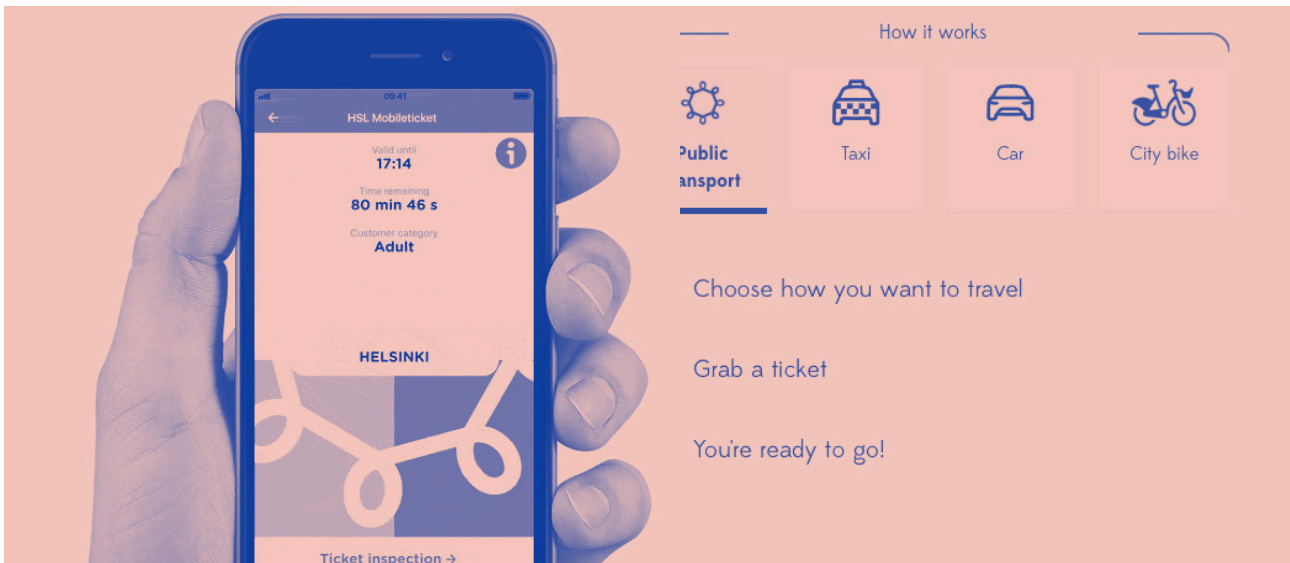
The use of self driving vehicles with shared economy can lead to reducing the numbers of privately owned cars and parking spots in the street.

Residents subscribe to transportation services instead of owning private vehicles.

# case studies

case study 1

**whim**



link: <https://itunes.apple.com/us/app/whim-travel-smarter/id1110962965?mt=>

## Whim, covering all kinds of travels

*Finland (2018)*

Whim is a successful mobility as a service (MaaS) example. The platform offers its subscribers multi-modal transportation allowing to plan and pay for a journey while easily switching between vehicles and transportation modes.

Whim offers as a service offers its users depending on their need different payment plans: pay as you go, monthly and unlimited options while advising on the best routes and handling all tickets and payments.

The company hopes to encourage commuters not to use their private vehicle by simplifying the use of other transport options.

# didi chuxing



link: <http://www.xiaojukeji.com/en/taxi.html>

## Ride sharing platform pilots traffic reduction program

*China (2017)*

Didi Chuxing offers several smart mobility services including taxi hailing, private car hailing, social ride-sharing, bike sharing and food delivery to users in China via a smartphone application.

The Chinese government authorities partnered with chinese-based ride sharing platform to reduce traffic congestion in May 2017.

In the pilot program (debuted in the city of Jinan), they used data from its drivers to power smart traffic lights in real-time and control the flow of traffic. Didi Chuxing was also able to predict traffic patterns and reduce road congestion by approximately 11%

# UrbyMe



link: <http://urby-me.com/URBy-me/Welcome.html>

## Application measuring commuter satisfaction levels in real time

*Switzerland (2017)*

Piloted on Lausanne’s metro network, Urban Mobility by Me (UrbyMe for short) is an app that allows commuters to review their experience of public transport in real time.

After detecting the phone location , passengers are sent to answer some short questions like for example: “Are you comfortable?” or “Are you seated?”. If a passenger replies in the negative, UrbyMe will send a follow-up question that helps the metro network to amend the service. UrbyMe was developed by researchers at the École Polytechnique Fédérale de Lausanne.



link: <https://www.chariot.com/>

## **On-demand commuter bus service receives city approval**

*England (2018)*

Chariot is a ride-sharing bus service for commuters, that started in London in January 2018.

Through an application riders can pre-book their seat on the bus, with the vehicle then picking them up at their preferred stop for a door to door travel.

The service is intended to complement current public transport by serving harder-to-access areas. Furthermore it targets fixing the struggle of last mile problems related to the logistic sector.



link: <https://www.sfmta.com/>

## Parking meter rates change based on demand

*USA (2017)*

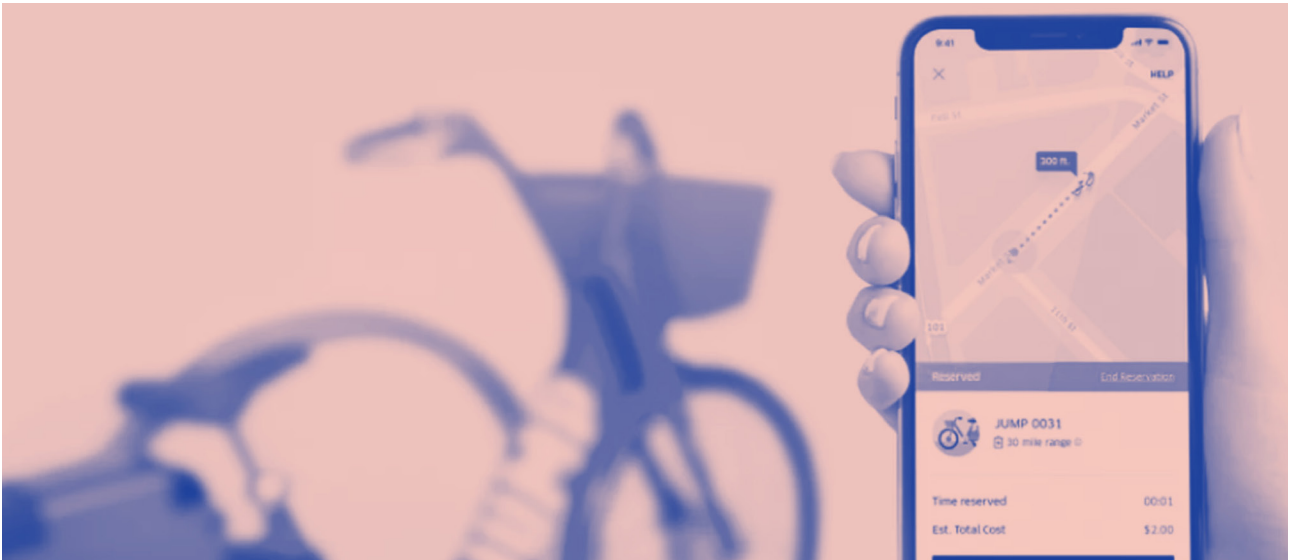
The San Francisco Municipal Transportation Agency (SFMTA) kicked off plans to implement demand-responsive pricing on 28,000 parking meters throughout the city.

Parking rates change based on a spot's location, whether it is a weekend or weekday, and the hour of the day.

Drivers can view real-time meter prices online, and the initiative's initial pilot of the project found that parking rates were reduced overall.



## uber & jump



link: <https://www.uber.com/ride/uber-bike/>

### Uber trials bike renting service

*USA (2018)*

The transportation network company Uber famous for its peer-to-peer car sharing system currently partnered with on-demand bicycle rental service Jump to enable San Francisco customers to rent e-bikes through both the Uber or Jump application.

Beginning in February 2018, the 18-month service trial has released 250 electric bikes in the city; this is the first time Uber has facilitated bike rentals. Once a ride is complete, customers can lock it up at any location.

The collaboration is interesting that it encourages multimodal travels while trying to make it as easy as possible for users.

## NY city council



link: <http://web.mta.info/nyct/fare/rfindex.htm>

### NY launches discounted metro cards for low income residents

USA (2018)

The Mayor of New York Bill de Blasio and City Councilor Corey Johnson agreed on funding for half-price MetroCards, available to low-income residents.

Around USD 106 million was allocated from the city's budget, which will cover the scheme for six months. Over 800,000 New Yorkers are predicted to benefit from the initiative, which will begin in January 2019. The cards will be available to New York City residents who earn less than USD 12,000 per year, or USD 24,399 for a family of four.

The initiative is interesting as it helps ensuring social cohesion. The use of public transport can bring people together by offering mobility to all.



link: <https://www.bird.co>

## **Electric scooter membership plan for low income subscribers**

*USA (2018)*

One Bird is a program for low-income individuals allowing them to ride electric scooters for a low fee. Created by scooter startup, Bird, the program operates across all markets where Bird is present, including Atlanta, Austin and Santa Monica.

Individuals enrolled in state assistance programs such as CalFresh or Medicaid can rent a scooter for 15 cents per minute – with no need to pay the USD 1 fee most riders pay to unlock the vehicle.

On top of that Bird offers its users the possibility to earn extra money by collecting the scooters charging them and returning them to the streets.

## government of Estonia



link: <https://www.bettersa.org/>

### Estonia becomes the first nation to offer free public transport

*Estonia (2018)*

Following a public referendum, a system of free public transport is set to be introduced throughout Estonia during July 2018.

Trialled in the Estonian capital of Tallinn five years ago, residents need only register to access the free service – which is not available to tourists. State subsidies for bus, rail, and road will increase by a total of EUR 73 million.

By having free public transport, Estonia encourage all of its citizens to leave using private vehicles.



link: <https://media.gm.com/media/us/en/gm/bcportal.html?pageNumber=56>

## Automaker releases a new P2P car-sharing program

USA (2018)

General Motors is testing a peer-to-peer car sharing program in Detroit, Ann Arbor and Chicago.

Through the automaker's Maven mobile app, Peer Cars allows people who own a General Motors vehicle (from 2015 onwards) to lease it to other Maven users. Vehicle owners retain 60% of revenue from renting the car, with Maven taking 40%, with cars available to rent by the hour, day, week or month.

For an automotive company it is interesting to implement sharing models in their brand allowing their offering to be more flexible.



link: <https://mogodetroit.org/adaptive-mogo/>

## **Bike sharing firm launches cycles for people with disabilities**

*USA (2018)*

Detroit-based bike sharing company MoGo launched a six-month pilot program of its adaptive cycles in May 2018.

Including a range of 13 different kinds of bicycle and tricycle, the program aims to cater to cyclists of all abilities. The offering tries to be as inclusive as possible. During the pilot, people can rent out the bikes from local shop Wheelhouse Detroit. MoGo offers 2 kind of membership a single use or seasonal pass.



link: <https://www.velometro.com/>

## Pedal-assisted electric bikes look like cars

*Canada (2018)*

Following a pilot scheme at the University of British Columbia, Veemo a pedal-driven electric vehicle launched in Vancouver.

Classified as electric-assisted cycles and conforming to e-bike regulations; Veemo velo-mobiles are can use road or bike lanes and no driver's license is required. Enclosed by a light-weight composite body, with daytime and night-time lighting, indicators, and automatic smart control locks; a rooftop solar panel extends the vehicle's range by up to 20 km per day.

Veemo is one successful example of vehicle solving a last mile problem.

## open road project



link: [https://openroad-project.com/en/testpilot/post\\_3342/](https://openroad-project.com/en/testpilot/post_3342/)

### Exploring the future of mobility by building product service systems

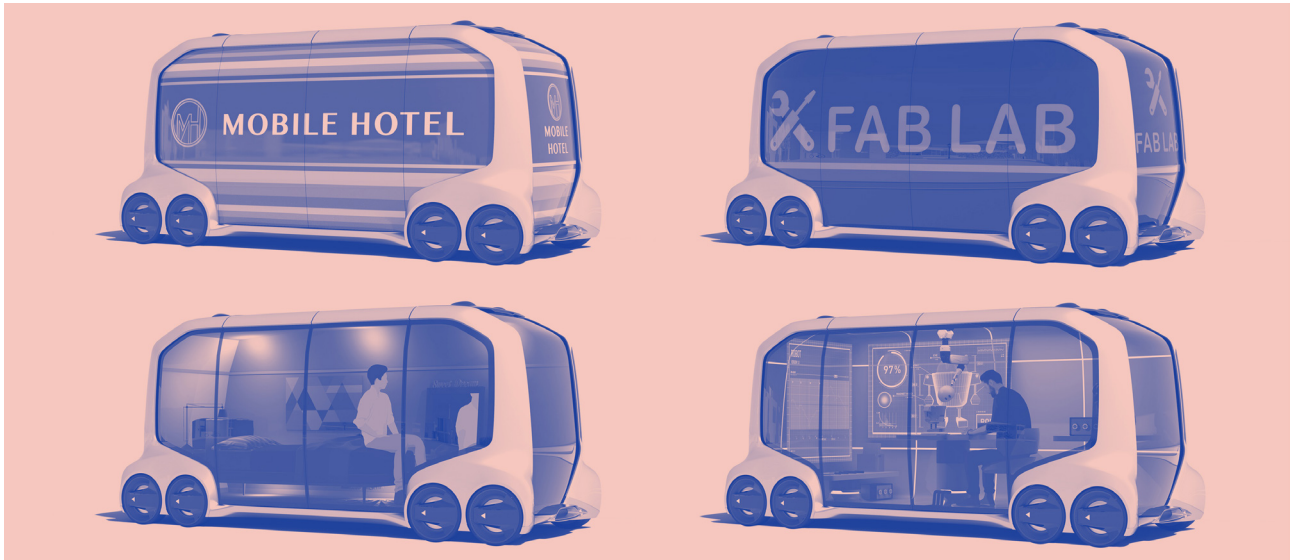
*Japan (2018)*

Open road project is lead by the automobile company Toyota in Tokyo to create a whole new system for urban dense cities. The Intelligent transportation system includes:

- i-Road: small personalized electric vehicle with a singular or double seat
- Smile lock outlet: utilizing private charging sockets and transforming them through IoT technology into outlets for sharing electricity
- Small Space Parking: utilizing all kind of small empty private / public spaces in the city and turning them into i-Road parking spots
- App for finding parking & outlets



## e-Palette, Toyota



link: <https://newsroom.toyota.co.jp/en/corporate/20546438.html>

### On-demand commuter bus service receives city approval

*England (2018)*

e-Palette is a modular and multipurpose completely autonomous electric vehicle space.

Toyota imagines a future scenario where travel time is no longer a driving time and customers can enjoy increased efficiency & productivity.

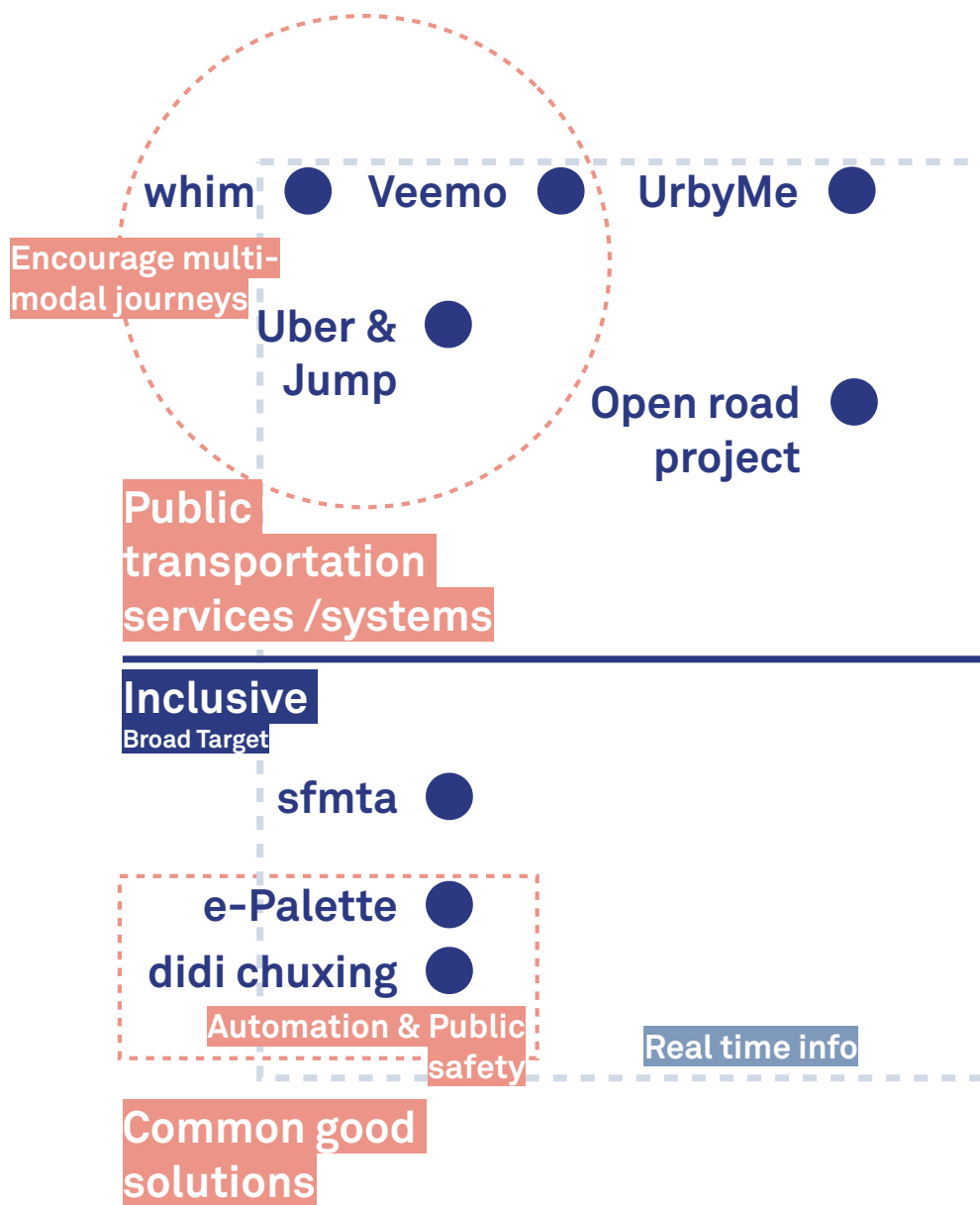
The 24/7 available vehicles are customisable and aim to serve as many purposes as possible like: ride sharing tool, mobile retail store, office, fablab and logistic.

The e-Palette launching partners include Uber, Amazon, DiDi Chuxing, and Pizza Hut where Toyota plans to pilot these vehicles during the 2020 Olympics.

# benchmark

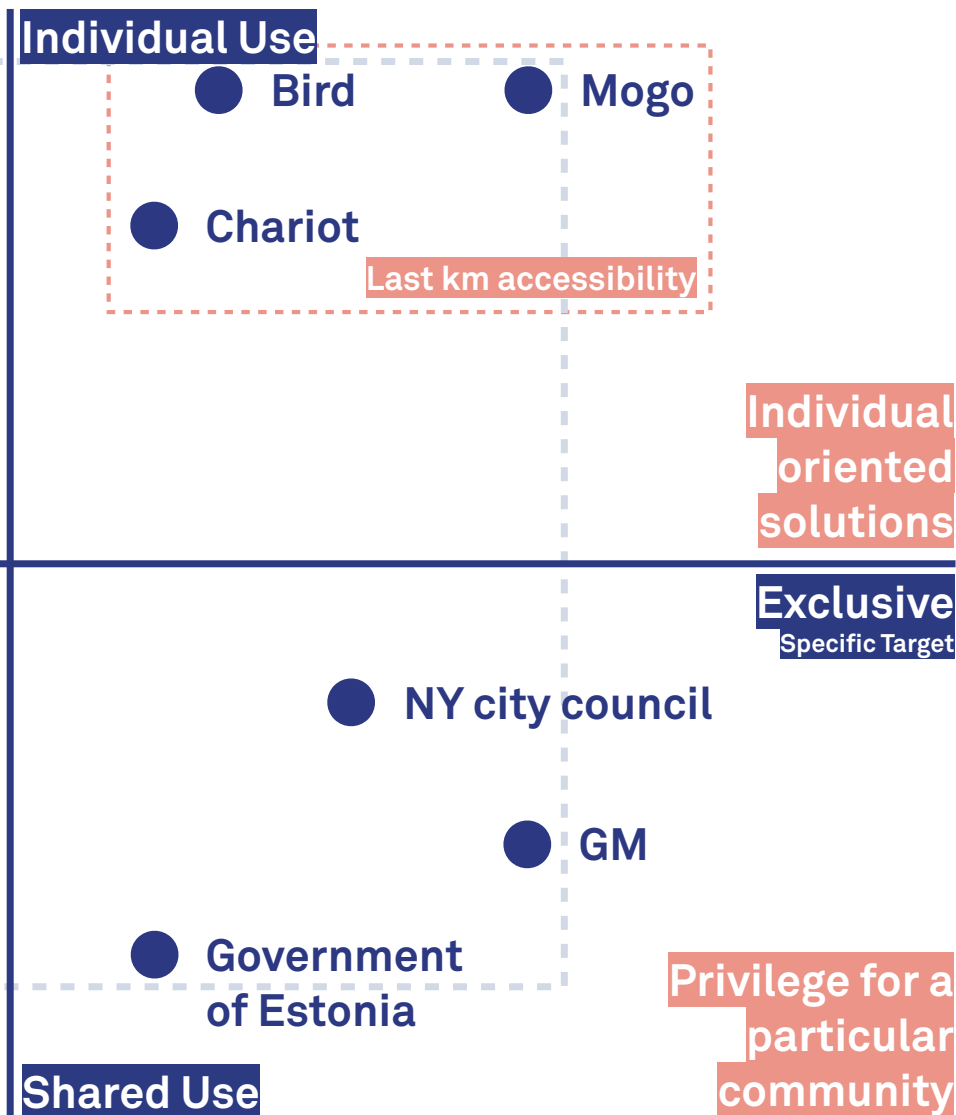
To discover new areas of opportunity I placed the case studies into a positioning map, so that it would be possible to discover new areas of opportunity.

In order to build it, I defined two axes needed, choosing two couples of opposite values. The first polars were Individual use/ Shared use and the second were Inclusive/Exclusive.



The first polar was related to the purpose of use of the solution. Even if some vehicles are meant to be for public use from the case studies emerged individual and shared uses.

While for the second polar is to distinguish inclusive and exclusive design solution where some were targeting a more specific market and other were more for the whole society.



# emerging trends

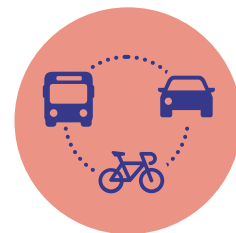
From this first part of desk research conducted, case studies, and benchmarking I tried to construct some guidelines that could for the second phase be used to define some opportunities and have some inspiration to use later on. Therefore, I suggested some global emerging trends in the mobility sector that are:

## *mobility as a service*

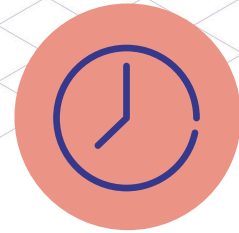


MaaS mobility as a service aim at replacing personal vehicles with a door to door journey offering. MaaS combines different actors, transportation providers (public and private) under one platform allowing to easily book and manage travel while paying one single membership.

## *multimodal travels*



In an overcrowded and continuously expanding urban context multimodal travels will become necessary to guarantee door to door mobility. In addition multimodal travels helps traveler's to have a personalized, faster and more efficient journeys.



## ***real time information***

Smart services with an ecosystem connected in real time where products (vehicles, sensors, street light, smart phone, parking...) through a network communicate and exchange data between each others.



## ***dynamic pricing***

Prices fluctuating based on different factors like time of day (rush or dead hours), road congestion, high demand and customer status.



## ***automation***

Automation of vehicles, processes & services time saving and providing more safety. For instance, autonomous vehicles can possibly maintain smooth traffic even with a reduced distance between them thus increasing road capacity.



## 02

# *Define*

This section focuses on a contextual research in Milan:  
What is the current mobility context in the city?

Defining a design question in order to conduct a qualitative field and desk research focusing on travelers and their travel experiences.

Adopting behavior design into the process and applying all of the knowledge into creating related personas and scenarios.

# ***Milan context***

## ***design questions***

Taking into consideration the previously conducted research I tried to create a more defined design brief as a starting point for my Field Research Brainstorming from all the previous desk research and framing the subject with some related design question that might be suitable for Milan and its residents. The questions were a starting point of a more contextual research.

After the questions definitions I clustered them into 3 main areas of interests:

### **1. Planning and checking travel information**

How might we provide travelers with personalized journey informations that fits their needs?

### **2. Identifying pain points and discomforts making travels unpleasant**

How might we help Milanese residents have a smoother door to door traveling experience?

### **3. Optimization of a travel / solving first and last mile problems**

How might we make transitions in multimodal journeys easier for travelers?



## *design brief*

The 3 categories were too oriented into a very specific problems in a travel journey. So I tried to re-frame the design questions into a broader one that can cover all of the 3 categories in order to have a wider perspective on the problems and the general context.

In addition this will allow to conduct objective and not too oriented interviews as much as possible without trying to steer the travelers into my personal visions.

***How might we encourage Milan residents to use public and shared transportation in a sustained manner?***

# behavior design

« *Service design as a practice results in the design of systems and processes aimed at providing a holistic service to the user.* » (Chi Pham)

By using a human centered approach, as service designers we can tackle difficult challenges and transform them into simple ones while empowering users.

Design for behavior change is an emerging new discipline focusing on creating the right context for individuals or groups in order to influence their decision making and ultimately their behavior. **“It draws on fields like Psychology, Sociology, and Behavioral Economics among others. Governments, social organizations and businesses are leveraging its potential.”** Mahamuni R., Khambete P., Mokashi-Punekar R. (2018). *Service design for behavioral change - current state of the discipline and practice in India.* Linköping University Electronic Press.

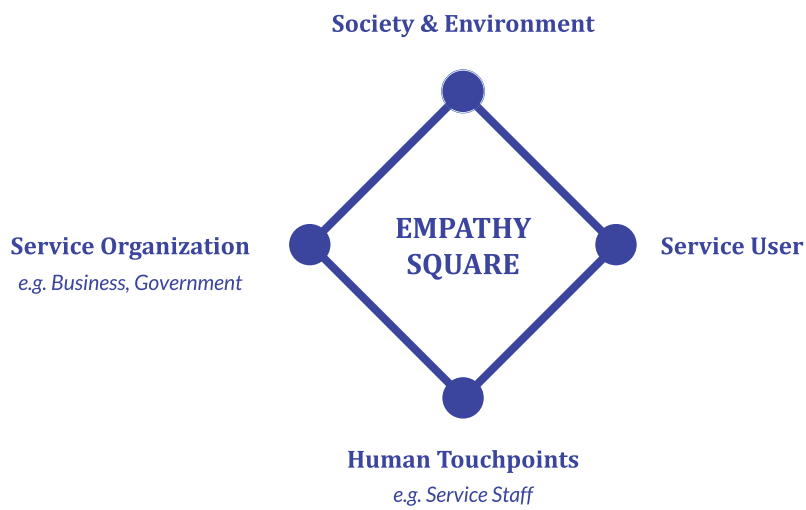
**“Service Design for Behavioral Change aims at refocusing the intent of any design intervention to the users’ actual needs (stated or latent), facilitating a phase-wise transition to an improved behavior through planned design interventions, irrespective of its medium. To understand the needs and desires of the involved stakeholders, being empathetic to stakeholders is one of the prime tools that the design community vests on to generate meaningful insights.”** Mahamuni, R., Khambete, P., Mokashi-Punekar, R. (2018). *Behavior Progression Framework for Designing Sustained Behavior Change.* Tata Research Development and Design Center, Tata Consultancy Services, Indian Institute of Technology Guwahati, India.

Starting the field research of my thesis, I decided to adopt a behavior design approach. While creating a service for the mobility sector I could benefit from introducing design for behavior change. Applying behavior design can allow me to understand my targets behavior states towards mobility and transportation modes, deduced meaningful insights that can allow me to stop or encourage some behavior stages to meet social challenges. I used the **Behavior Progression framework** proposed by **Ravi Mahamuni** for his Ph.D. **Craft for Change**. This Behavior Progression framework was created to design services and interventions for sustained behavior changes:

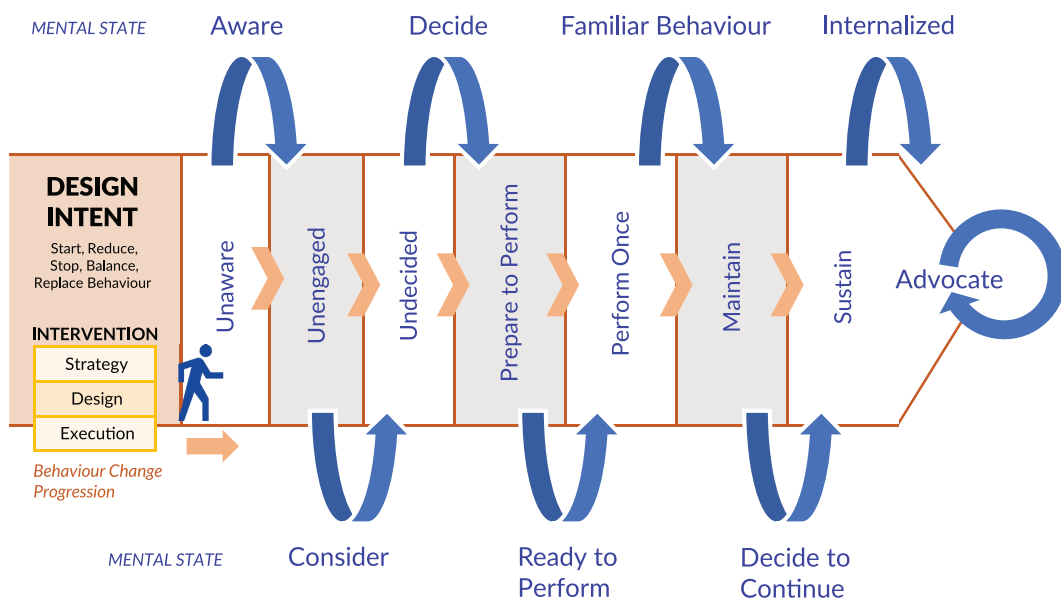
It consists of an empathy square and a behavior change design intervention model that takes into consideration not only the Service user but also incorporates multiple stakeholders that are Society & environment, Service organization and Human Touchpoints making sure that the design intervention does not influence negatively any of them.

Behavior Progression framework:

Design Interventions in light of Empathy Square



Behaviour Change Design Intervention Model



© 2018, Ravi Mahamuni

# target

The target definition was related to many factors. First I needed city dwellers who are workers and had been in the city for a long time so they know the city by heart, have experienced all kind of transportations and can provide me with the most insights possible. On another hand, the choice of the age range and status was related to the interviews that I managed to have in such time frame.

## Target definition

Milan Residents who have been living in the city for 5 or more years

### Age Range

25 - 45

### Status

Single

When conducting the interviews I made sure that the samples were as diverse as possible to cover all the targeted population and represent it as much as possible

	Age Range	Gender	Profession
Interview 1	31	M	Fixed Job
Interview 2	28	M	Fixed Job
Interview 3	27	F	Fixed Job with a lot of outside of the city travel
Interview 4	25	M	Freelancer with a short term fixed jobs
Interview 5	35	M	Editor for an online magazine - Freelancer recently started a fixed job
Interview 6	33	F	Illustrator - Work from home
Interview 7	38	M	Part Time in the weekday Night job in the weekend

# *travelers interviews*

I conducted 7 travelers interviews with single residents living for a minimum of 5 years in Milan.

The interviews were semi structured where the common questions were asked were about:

- *General Information*
- *Resources available*
- *Transportation modes used*
- *Frequency & purpose of use*
- *Positive & negative traveling experiences*
- *Challenges & constraints when it comes to traveling and commuting*

## Objectives

Understand the high and low points of travelers when it comes to their travel experience.

Deduct the factors for a good and bad travel experience and the reason why behind it.

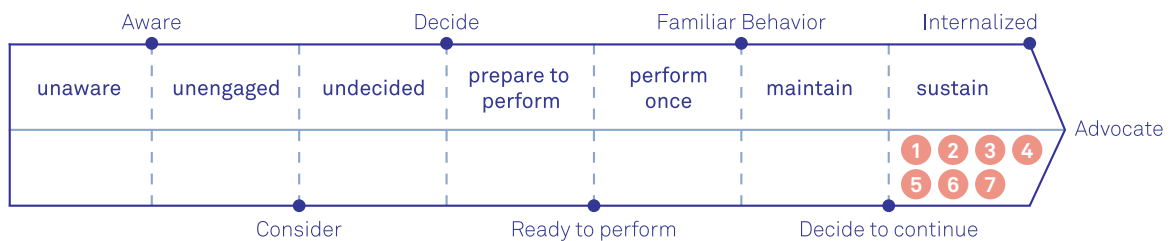
Travelers attitude: their behavior state and in what stage they are when it comes to transportation modes and travel planners.

# travelers behavior stage

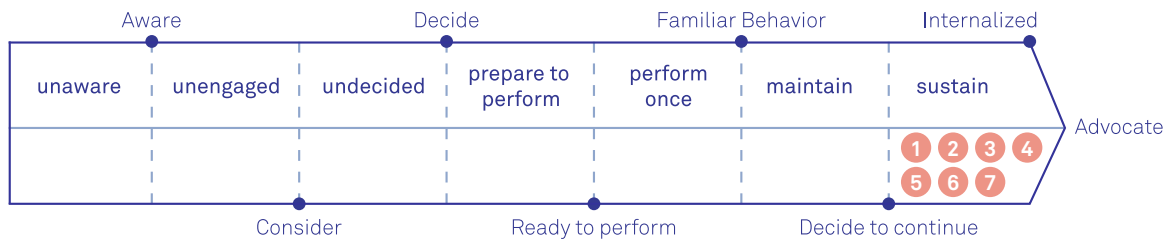
I mapped out the behavior stages of the travelers from the interviews conducted using the behavior stage map created by Ravi Mahamuni for his PhD project titled Craft for Change .

Mapping behavior stages of interviewees helps in understanding where they stand towards every product/service whether they already submit sustained behaviors or not and allows me to create a better view of where to intervene towards a behavior change.

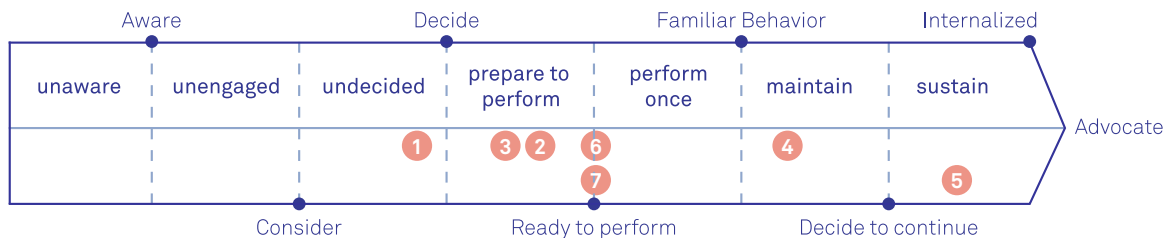
## Travel planners (atm, google maps...)



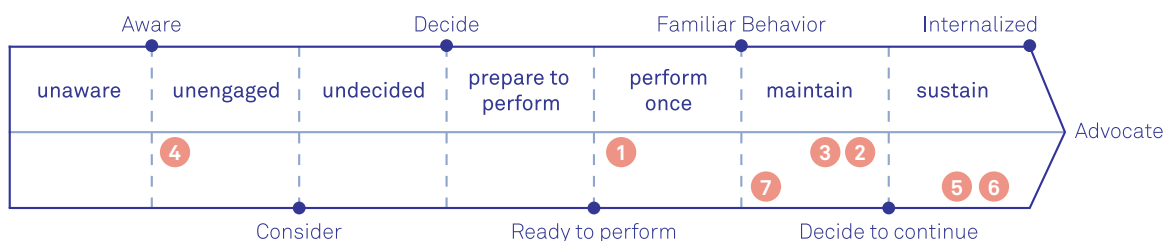
## Public transport



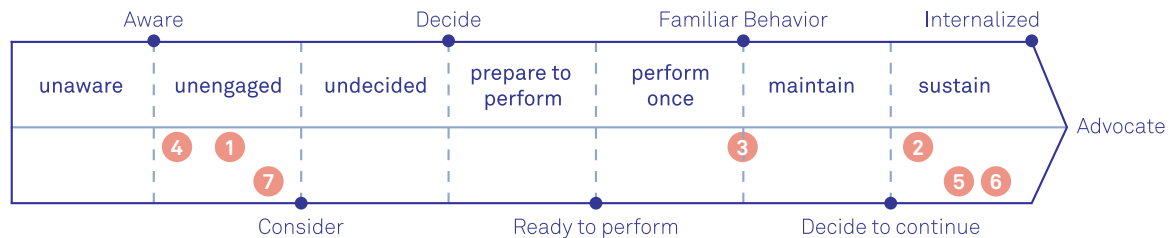
## Car sharing



## Bike sharing



## Taxi and travel network companies



## travelers verbatim

“ *Italians are not used to using bikes because they consider it for the poor people and if you are successful you use your own car.* ”

“ *Even if I get my driving license, I won't buy a car because its too much maintenance and parking is impossible in Milano.* ”

“ *I sometimes take the shared bike but since I already paid for atm even paying as low as 50 is not needed.* ”

“ *In all cities that i visited it was possible to buy a ticket on the bus and in every bus tram or whatever there was someone that controls buying the ticket. I don't understand why here we don't have this!* ”

“ *I would never take a 90 Bus in the night! Instead I usually take a taxi even if I had to pay a lot. I wish the metro would work non stop on a Saturday like in other big cities.* ”

“ *I check travel planners when I need to travel to a place I don't know. But, since they're so convenient I tend to check back for routes I already know sometimes.* ”

# interviews insights

## Public transportation



Money is not an issue: When it comes to public transportation price everyone agreed that it is affordable and most of the residents tend to have and pay their monthly subscriptions.

Travelers find that upper-ground public transport is not successful when it comes to time & flow management.

Temperature and noise are a big discomfort.

## Shared transportation



Last mile problems: finding a parking spot, parking, having to walk back to the final destination, spending extra money in a shared service.

Lack of guidance while using the shared car (misconception about traffic limitation and area C when it comes to using shared services).

No efficient infrastructure.

## Travel planner



Using travel planners is an internalized behavior when it comes to the targets but each one uses it for a different purpose and moment throughout the journey.

Information provided by travel planners usually leave out the last mile making traveler's choose an travel mode without being fully informed.

Frustrating travel planner delay notification.



## **Government action**



Citizens feel disconnected from the government & it's actions even if the government has some initiative they don't feel engaged.

According to interviewers they feel that the government doesn't have an efficient punishment system.

## **Social engagement**

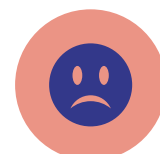


Even if it doesn't change anything the majority put that having a controllers inside of a public transportation can be a factor for a good experience for them.

Italian interviewers blamed other Italians for having traffic and congestion in the city.

Lack of sense of belonging and community.

## **Low points**



Safety is an issue especially when it comes to night shifts.

Waiting for a delayed transportation mode can be the biggest disappointment.

High demand hours are the most frustrating.

# personas

From the previous qualitative research, to better highlight sociocultural aspects, I chose to develop 3 extreme personas that focuses on different needs, challenges and exhibit distinctive behavior patterns towards mobility in the city.



## Active Andy

**Age:** 25

**Work:** Freelance Creative



*Moving around in a car during the day is way too slow to make sense for short distances. In many occasions during rush hours while using my bike I was faster than the cars.*



### Bio

Andy owns a private bike and likes to go around the city with it. He is a Freelancer mostly working from home so he doesn't have a monthly public transportation subscription and is a pay as you go traveler. He usually uses public/shared transportation for long distance trips.

**#Occasional public transportation User   #Sustainable lifestyle   #Biker**

### Needs

Arrive to his destination with the most dynamic way and with minimal waiting  
Understand where he is and where he has to go using his bike  
Bring his bike inside of public transportation

### Travel modes



**Frequency:**      daily



often

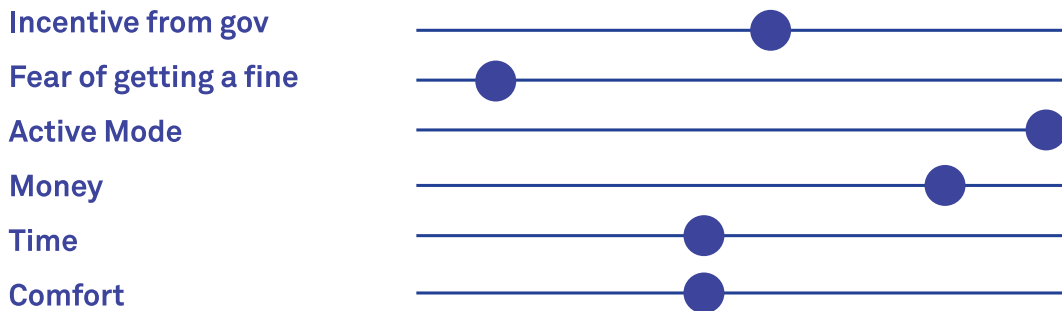


barely

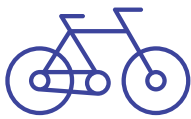
### Frustrations

No bike personalized information when it comes to routes  
No bike infrastructure  
Can't buy ticket on the bus  
No punctual transportation

## Motivation to choose a modet



## Behavioural Stage



Private Bike  
**Internalized  
behavior**



Private Car  
**Unengaged  
stage**



Taxis  
**Unengaged  
stage**



Bike Sharing  
**Familiar  
(Performed Once)**



Car Sharing  
**Ready to perform**

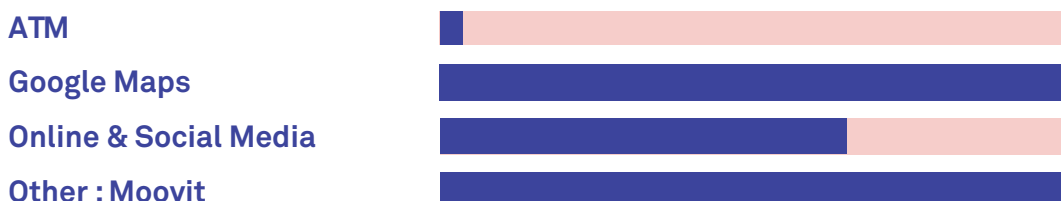


Public Transportation  
**Familiar  
behavior**



Travel Planner  
**Internalized  
behavior**

## Preferred Channels





## Succesful Stefano

**Age:** 45

**Work:** Business Executive



*I see the future with innovative private vehicles.*



### Bio

Stefano is a successful business man. He owns a private car that uses frequently and for him his car is a sign of his social status and achievements. His travel choices are oriented towards his convenience and what would make him feel more comfortable.

**#Status Seeker**

**#Comfort**

**#In Charge**

### Needs

Personal comfort  
Easily find parking spots  
Be in control of his travels

More efficient car sharing services

### Travel Modes



**Frequency:** daily



barely

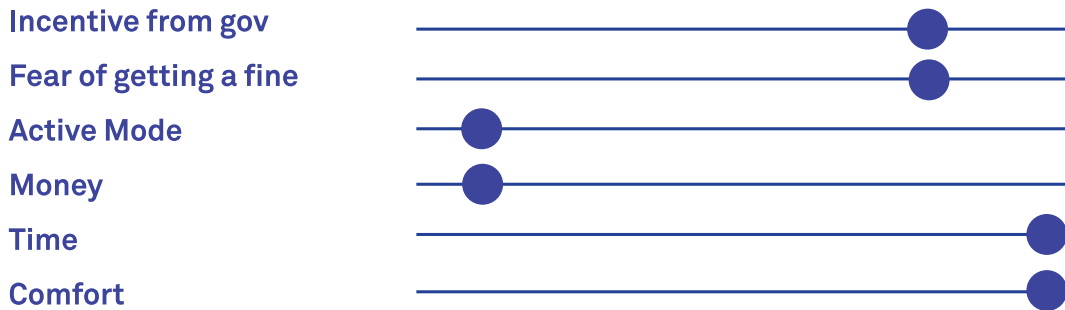


rarely

### Frustrations

Compromising his comfort by using a public transportation: too crowded, bad temperature, waiting times  
Sceptical about car sharing services in terms of environmentally friendly

## Motivation to choose a mode



## Behavioral Stage



Private Bike  
**Unengaged stage**



Private Car  
**Internalized behavior**



Taxis  
**Familiar behavior**



Bike Sharing  
**Unengaged stage**



Car Sharing  
**Ready to perform**

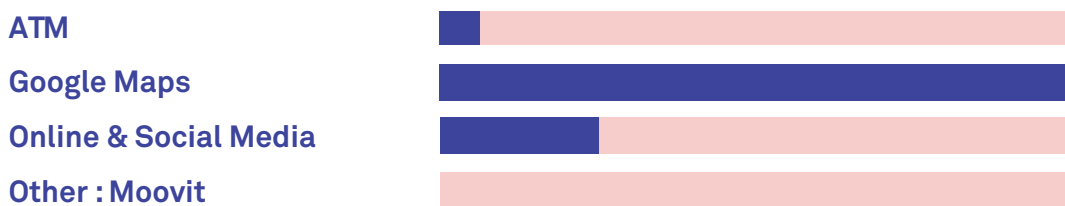


Public Transportation  
**Familiar behavior**



Travel Planner  
**Internalized behavior**

## Preferred Channels





## Puzzled Paola

Age: 30

Work: HR



*If you do something wrong you don't get punished and you don't necessarily have a fine.*



### Bio

Paola uses all kind of transportations. She is now looking for her options to buy a personal car. Her main difficulties are during the night where she doesn't feel safe in public transportations. Instead she usually takes a shared transportation but a lot of times doesn't find any and has to take a taxi that is pretty expensive.

#Time vs. Money

#Looking for options

#Open to change

### Needs

Conduct an activity in the commute  
Punctual and reliable public transport  
Cares about Money/ Time relationship

Controlled public transportation  
Backup transportation plan  
Clear route information

### Travel Modes



Frequency: daily



barely

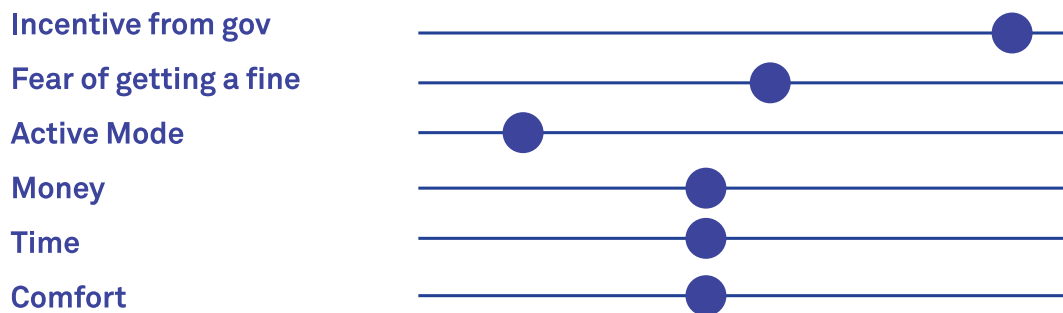


barely

### Frustrations

Frequent service with short waiting time  
Exterior factors that slow down public transportation  
Not being able to pre-plan accurate trips to choose the most convenient mode  
No continuity when it comes to some upper-ground transportation  
Changing too many transportation modes  
No guarantee to to have a shared car on the way back

## Motivation to choose a mode



## Behavioral Stage



Private Bike  
**Unengaged stage**



Private Car  
**Ready to perform**



Taxis  
**Familiar behavior**



Bike Sharing  
**Familiar behavior**



Car Sharing  
**Familiar behavior**



Public Transportation  
**Internalized behavior**



Travel Planner  
**Internalized behavior**

## Preferred Channels



# scenarios

I exploited the knowledge accumulated into developing 3 design scenarios. The 3 scenarios aimed at creating 3 different directions to design new product/services related to mobility in Milan. Instead of creating future scenarios I chose to have ones related to our current context presenting different alternative worlds and possible directions while considering possible turning and critical points.

## **when?**

Pre-planning a trip

## **where?**

At home

## **why?**

compare different options and be able to take an informed decision

Choose the most convenient route and modes

## **how?**

Give more choices with detailed information (price, time, interest) with first and last mile estimations





scenario 1

# planning a travel



Puzzled Paola



Active Andy



Successful Stefano

## **when?**

Rush hour, while commuting

## **where?**

Transition moment in a multimodal travel

## **why?**

With a strict time arrival

Long trip with a need to switch between different transportation modes

## **how?**

Offer clear and simple information with a real time update for back up solutions



# multimodal travel



Puzzled Paola



Active Andy

## ***when?***

Late in the night

## ***where?***

On the street close to a public bus stop

## ***why?***

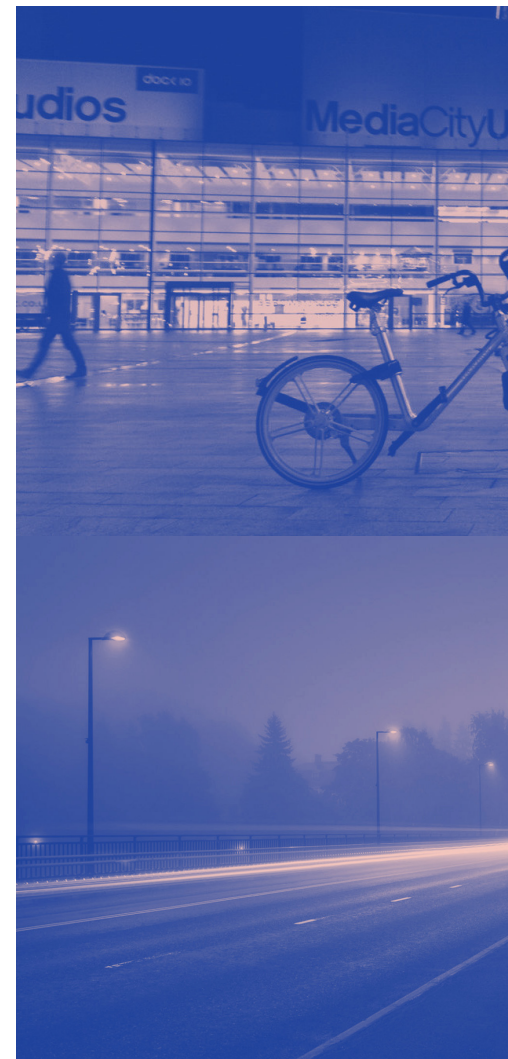
Don't want to wait too long: Feels unsafe

Wants an affordable mode and Prefers not to take a taxi

Not sure of the frequency of the public transportation and availability of other modes

## ***how?***

Overcome obstacles, as smog, bad weather and feeling of unsafe



# night mode



Puzzled Paola



Active Andy



# 03

## *Ideate*

This section is about the ideation workshop.  
Applying behavior design tools in the ideation session for creating a mobility service for travelers in Milan city.  
Preparing materials and tools to be used with an overview of the workshop and its outputs.  
Detailing 3 service ideas.

# workshop timeline

1

Presenting  
the topic

## Design Brief

How might we?

## Field Research

User Interview Users

Behavioural state

Users Highlights

## Personas

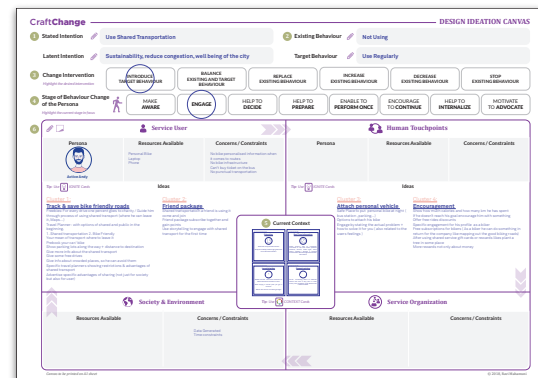
## Scenarios

## Emerging Trends

## Milan Context Cards

2

Design Ideation  
Canvas



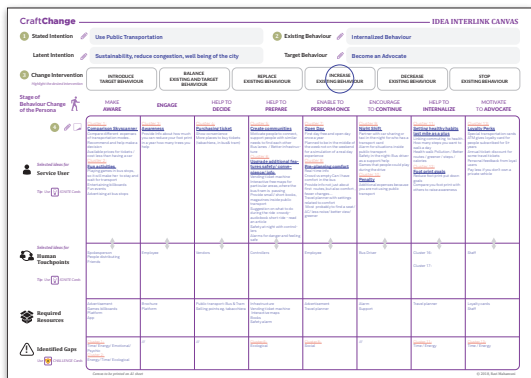
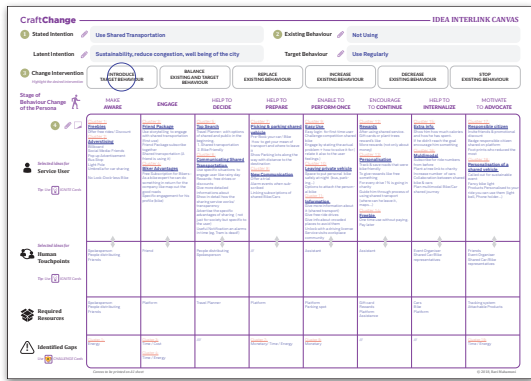
## 1st ideation:

Engage Shared Transportation



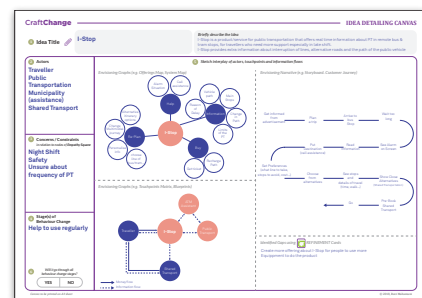
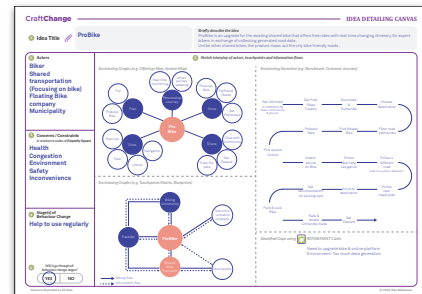
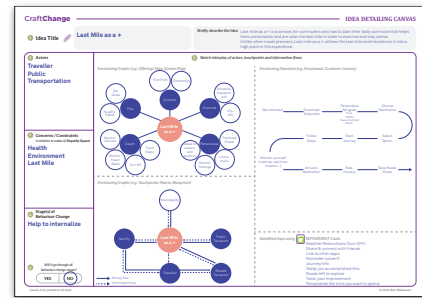
3

## Idea Interlink Canvas



4

## Idea detailing Canvas



## 2nd ideation: Increase Existing Behaviour Public Transportation

# *workshop agenda*

The workshop was facilitated by Ravi Mahamuni as he was the creator of the canvases used. His presence was helpful in terms of guiding us how to use them, suggesting what cards to use to ignite more ideas or understand what are challenges in the ideas generated. Ravi created these tools for his PhD project titled Craft Change and we decided to use it in my thesis project as a test bed for these new tools.

My role in the workshop was the lead service designer launching the topic, presenting my design brief, research & insights to kick off the ideation. We were 4 designers to participate of which 3 service designers and 1 product designer.

We were able to conduct 2 ideation sessions one focusing on shared transportation and the other on public transportation to later on cluster and detail some ideas.

In total we were able to generate 31 idea clusters and develop 3 detailed ideas.



# 1st ideation: shared transportation



**Persona:** Active Andy

**Scenario:** Multimodal travel

**Tools used:** Design ideation canvas  
Idea interlink canvas

## 4 Idea Clusters:

- .Friend Package
- .Attach personal vehicles
- .Encouragement for engagement
- .Tracking and saving bike friendly roads

Only for this first ideation focusing on shared transportation we used the design ideation canvas while for the second ideation focusing on public transportation we instantly decided only to use the second canvas the idea interlink canvas. The decision was both related to time constraint and that we felt that the second was more appropriate to the topic and the objectives of the ideation workshop.



# design ideation canvas

## CraftChange

1 **Stated Intention**  **Use Shared Transportation**

**Latent Intention**  **Sustainability, reduce congestion, well being of the city**

3 **Change Intervention**  
*Highlight the desired intervention*

**INTRODUCE  
TARGET BEHAVIOUR**

**BALANCE  
EXISTING AND TARGET  
BEHAVIOUR**

4 **Stage of Behaviour Change of the Persona**  
*Highlight the current stage in focus*



**MAKE  
AWARE**


**ENGAGE**

**HELP TO  
DECIDE**

6



 **Service User**

Persona	Resources Available	Concerns / Constraints
 <b>Active Andy</b>	Personal Bike Laptop Phone	No bike personalised information when it comes to routes No bike infrastructure Can't buy ticket on the bus No punctual transportation

Tip: Use  **IGNITE Cards**

**Ideas**

Cluster 1:

**Track & save bike friendly roads**

Freebies: For every drive one percent goes to charity / Guide him through process of using shared transport (where he can leave it, Maps...)  
 Travel Planner: with options of shared and public in the beginning.  
 1. Shared transportation 2. Bike Friendly  
 Your mean of transport where to leave it  
 Prebook your car/ bike  
 Show parking lots along the way + distance to destination  
 Give more info about the shared transport  
 Give some free drives  
 Give info about crowded places, so he can avoid them  
 Specific travel planners showing restrictions & advantages of shared transport  
 Advertise specific advantages of sharing (not just for society but also for user)

Cluster 2:

**Friend package**

Shared transportation a friend is using it come and join  
 Friend package subscribe together and gain points  
 Use storytelling to engage with shared transport for the first time



**Society & Environment**

Resources Available	Concerns / Constraints
	Data Generated Time constraints

*Canvas to be printed on A1 sheet*

## DESIGN IDEATION CANVAS

2 Existing Behaviour  Not Using

Target Behaviour  Use Regularly

REPLACE  
EXISTING BEHAVIOUR

INCREASE  
EXISTING BEHAVIOUR

DECREASE  
EXISTING BEHAVIOUR

STOP  
EXISTING BEHAVIOUR

HELP TO  
PREPARE

ENABLE TO  
PERFORM ONCE

ENCOURAGE  
TO CONTINUE

HELP TO  
INTERNALIZE

MOTIVATE  
TO ADVOCATE



### Human Touchpoints

Persona

Resources Available

Concerns / Constraints

Tip: Use  IGNITE Cards

#### Ideas

#### Cluster 3:

#### Attach personal vehicle

Safe Place to put personal bike at night ( bus station , parking...)  
Options to attach his bike  
Engage by stating the actual problem + how to solve it for you ( also related to the users feelings )

#### Cluster 4:

#### Encouragement

Show how much calories and how many km he has spent  
If he doesn't reach his goal encourage him with something  
Offer free rides discounts  
Specific engagement for his profile as a biker  
Free subscriptions for bikers ( As a biker he can do something in return for the company like mapping out the good biking roads)  
After using shared service gift cards or rewards likes plant a tree in some place  
More rewards not only about money

### 5 Current Context

<p><b>Education</b></p> <p>Settimana europea della mobilità European mobility week bringing awareness for multimodal activities</p>	<p><b>Real Time Information</b></p> <p>Smart services with an ecosystem connected in real time where products (bicycles, sensors, smart light, smart phone, parking...) through a network communicate and exchange data between each others</p>
<p><b>Incentivisation</b></p> <p>Mobike and Ofo when first introduced in Milan offered free months for users When buying a annual pass you get a "discount" Women discount for car sharing at night</p>	<p><b>Dynamic pricing</b></p> <p>Pricing fluctuating based on different factors like time of day (rush or dead hours), road congestion, high demand and customer status</p>

Tip: Use  CONTEXT Cards



### Service Organization


Resources Available

Concerns / Constraints

# idea interlink canvas

## CraftChange



1 Stated Intention  Use Shared Transportation

Latent Intention  Sustainability, reduce congestion, well being of the city




Stage of Behaviour Change of the Persona 

MAKE AWARE      ENGAGE      HELP TO DECIDE      HELP TO PREPARE

4  

**Selected ideas for Service User**

Tip: Use  IGNITE Cards


<p><b>Cluster 1: Freebies</b> Offer free rides/ Discount</p> <p><b>Cluster 2: Adverstising</b> Billboard Social Media: Friends Pop up Advertisement Bus Stop Light Pole Umbrella for car sharing</p> <p>No Lock: Dock-less Bike</p>	<p><b>Cluster 3: Friend Package</b> Use storytelling to engage with shared transportation (first use) Friend Package subscribe together Shared transportation (A friend is using it)</p> <p><b>Cluster 4: Biker Advantages</b> Free Subscription for Bikers : As a bike expert he can do something in return for the company like map out the good roads Specific engagement for his profile (bike)</p>	<p><b>Cluster 5: Top Search</b> Travel Planner: with options of shared and public in the beginning. 1. Shared transportation 2. Bike Friendly</p> <p><b>Cluster 6: Communicating Shared Transportation</b> Use specific situations to engage user like rainy day Rewards: free drives or discounts Give more detailed informations about Show in detail how the sharing service works/ transparency Advertise the specific advantages of sharing ( not just for society but specific to the user) Useful Notification an alarms in time (eg. Tram is dead!)</p>	<p><b>Cluster 7: Picking &amp; parking shared vehicle</b> Pre-Book your car/ Bike How to get your mean of transport and where to leave it Show Parking lots along the way with distance to the destination</p> <p><b>Cluster 8: New Communication</b> Offer a trial Alarm events when subscribed Linking subscriptions of shared Bike/Cars</p>
<p>Spokesperson People distributing Friends</p>	<p>Friend</p>	<p>People distributing Spokesperson</p>	<p>///</p>
<p>Spokesperson People distributing Friends</p>	<p>Platform</p>	<p>Travel Planner</p>	<p>Platform</p>
<p><b>Cluster 1:</b> Energy</p>	<p><b>Cluster 3:</b> Time / Cost</p> <p><b>Cluster 4:</b> Time / Energy</p>	<p>///</p>	<p><b>Cluster 7:</b> Monetary/ Time / Energy</p>

**Selected ideas for Human Touchpoints**

Tip: Use  IGNITE Cards

**Required Resources**

**Identified Gaps**

Use  CHALLENGE Cards

Canvas to be printed on A1 sheet

## IDEA INTERLINK CANVAS

2 Existing Behaviour 

Not Using

Target Behaviour 

Use Regularly

INCREASE  
EXISTING BEHAVIOUR

DECREASE  
EXISTING BEHAVIOUR

STOP  
EXISTING BEHAVIOUR

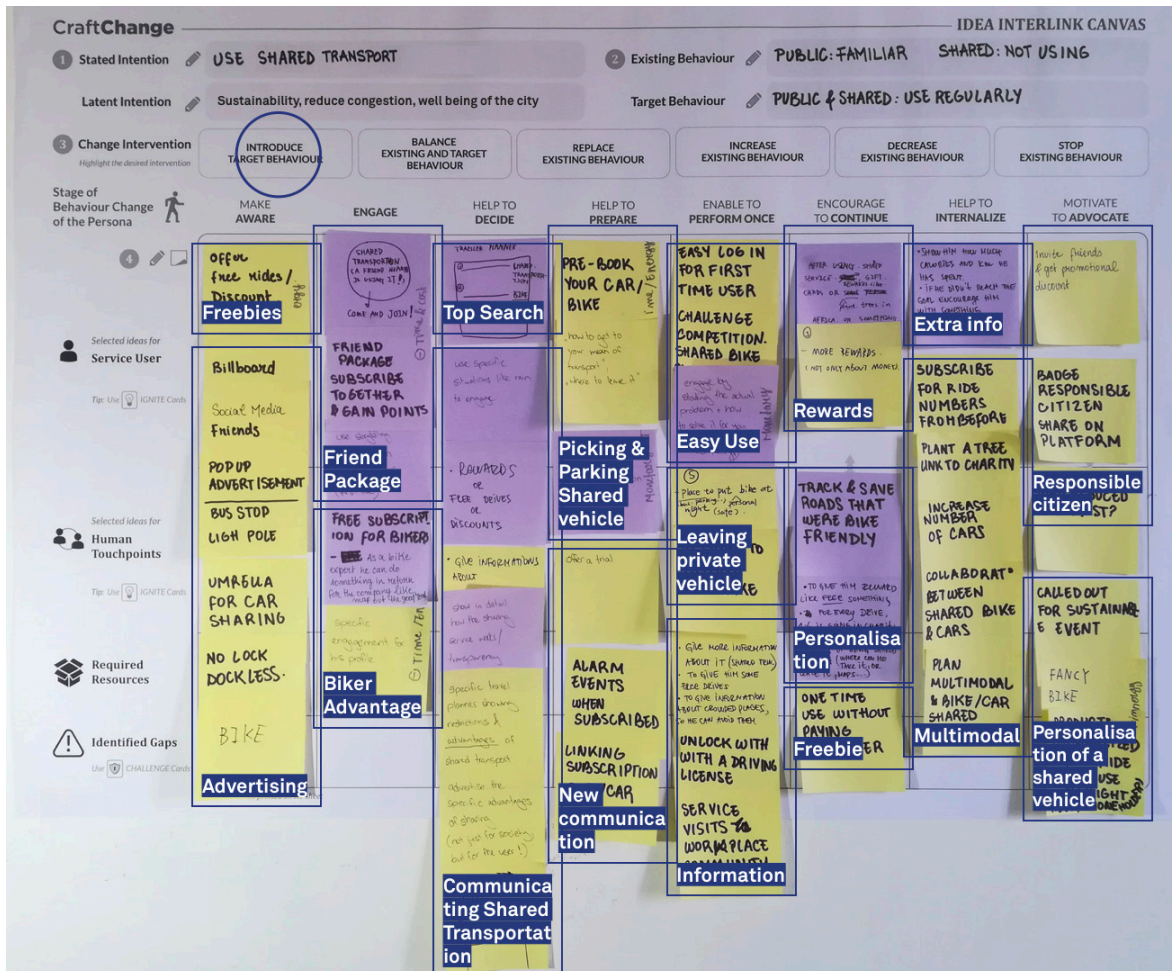
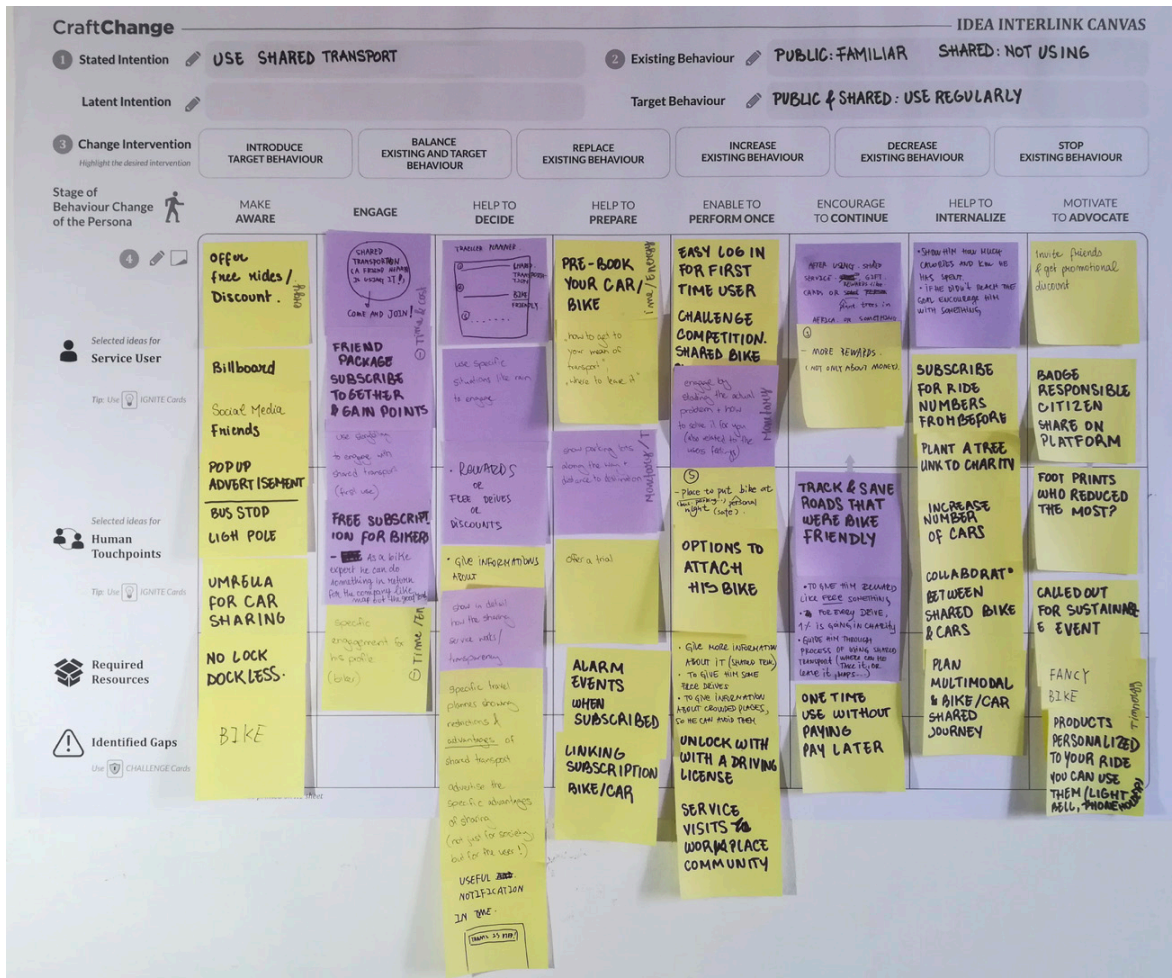
ENABLE TO  
PERFORM ONCE

ENCOURAGE  
TO CONTINUE

HELP TO  
INTERNALIZE

MOTIVATE  
TO ADVOCATE

<p><u>Cluster 9:</u> <b>Easy Use</b> Easy login for first time user Challenge competition shared bike Engage by stating the actual problem + how to solve it for (relate it also to the user feelings)</p> <p><u>Cluster 10:</u> <b>Leaving private vehicle</b> Space to put personal bike safely at night (bus, parking...) Options to attach the personal bike</p> <p><u>Cluster 11:</u> <b>Information</b> Give more information about it (shared transport) Give free ride drives Give info about crowded places to avoid them Unlock with a driving license Service visits workplace community</p>	<p><u>Cluster 12:</u> <b>Rewards</b> After using shared service. Gift cards or plant trees reward's like More rewards (not only about money)</p> <p><u>Cluster 13:</u> <b>Personalisation</b> Track &amp; save roads that were bike friendly To give rewards like free something For every drive 1% is going in charity Guide him through process of using shared transport (where can he leave it, maps...)</p> <p><u>Cluster 14:</u> <b>Freebie</b> One time use without paying. Pay later</p>	<p><u>Cluster 15:</u> <b>Extra info</b> Show him how much calories and how he has spent. If he didn't reach the goal encourage him something</p> <p><u>Cluster 16:</u> <b>Multimodal</b> Subscribe for ride numbers from before Plant a tree link to charity Increase number of cars Collaboration between shared bike &amp; cars Plan multimodal Bike/Car shared journey</p>	<p><u>Cluster 17:</u> <b>Responsible citizen</b> Invite friends &amp; promotional discount Badge responsible citizen shared on platform Foot prints who reduced the most</p> <p><u>Cluster 18:</u> <b>Personalisation of a shared vehicle</b> Called out for sustainable event Fancy bike light Products Personalised to your ride you can use them (light bell, Phone holder...)</p>
<p>Assistant</p>	<p>Assistant</p>	<p>Event Organiser Shared Car/Bike representatives</p>	<p>Friends Event Organiser Shared Car/Bike representatives</p>
<p>Platform Parking spot</p>	<p>Gift card Rewards Platform Assistance</p>	<p>Cars Bike Platform</p>	<p>Tracking system Attachable Products</p>
<p><u>Cluster 9:</u> Monetary</p>	<p>///</p>	<p>///</p>	<p><u>Cluster 19:</u> Time / Energy</p>





# 2nd ideation: public transportation



**Persona:** Puzzled Paola

**Scenario:** Multimodal travel

**Tools used:** Design ideation canvas  
Idea interlink canvas

## **4 Idea Clusters:**

- .Friend Package
- .Attach personal vehicles
- .Encouragement for engagement
- .Tracking and saving bike friendly roads

*After getting accustomed to the tools and deciding only to use the idea interlink canvas this second ideation went so much faster in terms of generating more ideas and clustering them. It also allowed us to reflect on the first ideation and add more ideas to it.*



# idea interlink canvas

## CraftChange

**1 Stated Intention**  Use Public Transportation

Latent Intention  Sustainability, reduce congestion, well being of the city

**3 Change Intervention**  
Highlight the desired intervention

INTRODUCE  
TARGET BEHAVIOUR

BALANCE  
EXISTING AND TARGET  
BEHAVIOUR

REPLACE  
EXISTING BEHAVIOUR

Stage of Behaviour Change of the Persona 

**4**  

 Selected ideas for Service User

Tip: Use  IGNITE Cards

 Selected ideas for Human Touchpoints

Tip: Use  IGNITE Cards

 Required Resources

 Identified Gaps

Use  CHALLENGE Cards

	MAKE AWARE	ENGAGE	HELP TO DECIDE	HELP TO PREPARE
<p><b>Cluster 1:</b> <u>Comparison Skyscanner</u> Compare different expenses of transportation modes . Recommend and help make a decision Available prices for tickets / cost less than having a car</p> <p><b>Cluster 2:</b> <u>Fun activities</u> Playing games in bus stops, so it will make her to stay and wait for transport Entertaining billboards Fun events Advertising at bus stops</p>	<p><b>Cluster 3:</b> <u>Awareness</u> Provide Info about how much you can reduce your foot print in a year how many trees you help</p>	<p><b>Cluster 4:</b> <u>Purchasing ticket</u> Show convenience More places to buy tickets (tabacchiera, in bus&amp; tram)</p>	<p><b>Cluster 5:</b> <u>Create communities</u> Motivate people to connect, support people with similar needs to find each other Bus lanes / Better infrastructure</p> <p><b>Cluster 6:</b> <u>Upgrade additional features safety/ convenience/ info</u> Vending ticket machine Interactive free maps for particular areas, where the bus/tram is passing Provide small/ short books, magazines inside public transport Suggestion on what to do during the ride crowdy-audiobook short ride - read an article Safety at night with controllers Alarms for danger and feeling safe</p>	
	↑↓	↑↓	↑↓	↑↓
<p>Spokesperson People distributing Friends</p>	Employee	Vendors	Controllers	
<p>Advertisement Games billboards Platform App</p>	<p>Brochure Platform</p>	<p>Public transport: Bus &amp; Tram Selling points eg. tabacchiera</p>	<p>Infrastructure Vending ticket machine Interactive maps Books Safety alarm</p>	
<p><b>Cluster 1:</b> Time/ Energy/ Emotional/ Psychic</p> <p><b>Cluster 2:</b> Energy/ Time/ Ecological</p>	///	///	<p><b>Cluster 6:</b> Ecological</p>	

Canvas to be printed on A1 sheet

## IDEA INTERLINK CANVAS

2 Existing Behaviour 

Internalized Behaviour

Target Behaviour 

Become an Advocate

INCREASE  
EXISTING BEHAVIOUR

DECREASE  
EXISTING BEHAVIOUR

STOP  
EXISTING BEHAVIOUR

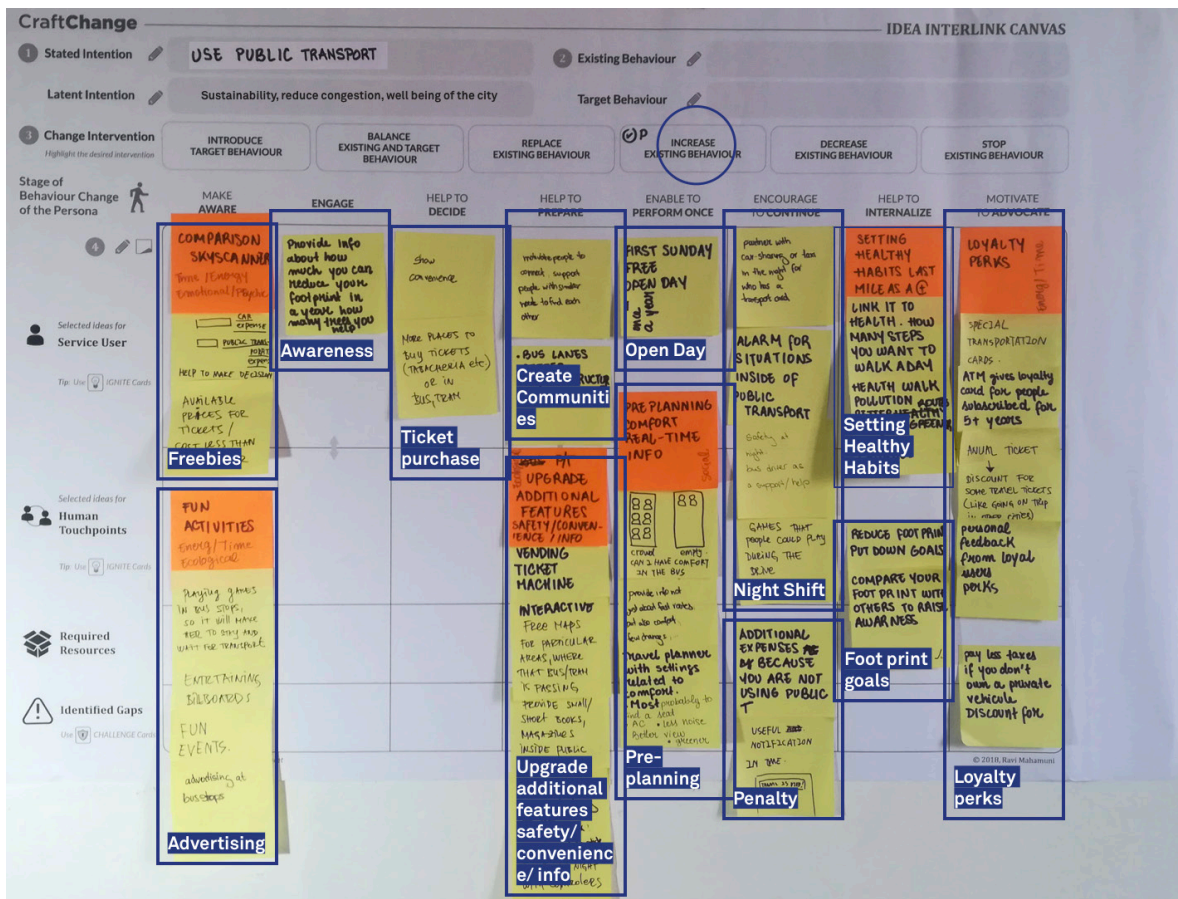
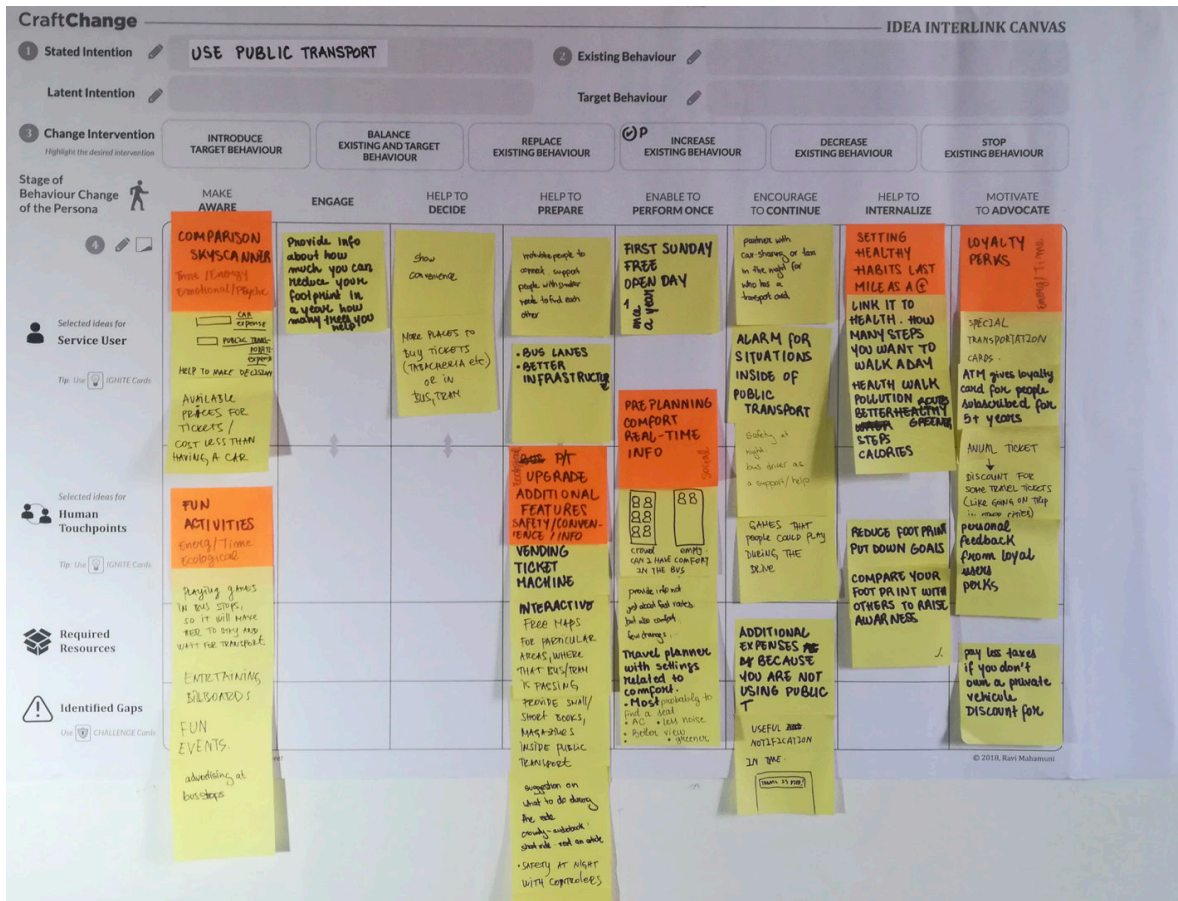
ENABLE TO  
PERFORM ONCE

ENCOURAGE  
TO CONTINUE

HELP TO  
INTERNALIZE

MOTIVATE  
TO ADVOCATE

<p><u>Cluster 7:</u> <b>Open Day</b> First day free and open day once a year Planned to be in the middle of the week not on the weekend for a simulation of a real day experience</p> <p><u>Cluster 8:</u> <b>Pre-planning comfort</b> Real-time info Crowd vs empty Can I have comfort in the bus Provide info not just about first routes, but also comfort, fewer changes... Travel planner with settings related to comfort Most probably to find a seat/ AC/ less noise/ better view/ greener</p>	<p><u>Cluster 9:</u> <b>Night Shift</b> Partner with car sharing or taxi in the night for who has a transport card Alarm for situations inside public transport Safety in the night: Bus driver as a support/help Games that people could play during the drive</p> <p><u>Cluster 10:</u> <b>Penalty</b> Additional expenses because you are not using public transport</p>	<p><u>Cluster 11:</u> <b>Setting healthy habits last mile as a plus</b> Linking commuting to health . How many steps you want to walk a day Health walk Pollution / Better routes / greener / steps / calories</p> <p><u>Cluster 12:</u> <b>Foot print goals</b> Reduce foot print put down goals Compare you foot print with others to raise awareness</p>	<p><u>Cluster 13:</u> <b>Loyalty Perks</b> Special transportation cards ATM gives loyalty card for people subscribed for 5+ years Annual ticket: discount for some travel tickets Personal feedback from loyal users Pay less if you don't own a private vehicle</p>
Employee	Bus Driver	Cluster 16: Cluster 17:	Staff
Advertisement Travel planner	Alarm Support	Travel planner	Loyalty cards Staff
<u>Cluster 8:</u> Social	///	<u>Cluster 11:</u> Time / Energy	<u>Cluster 13:</u> Time / Energy



# cards

Other than the 3 canvases we also used in the workshop 4 set of cards each serving a different purpose and used in a different moment.

## 1. context cards

The context cards were meant to be used through all the ideation session and especially in the beginning with topic introduction. Following some general context cards created by Ravi, I prepared these cards prior to the workshop in order to help us understand what is currently present in Milan from services to initiatives related to mobility.

## 2. ignite cards

Set of 2 ignite cards to be used when stuck in the brainstorming phase. These cards helped in generating more ideas by referencing and inspiring from to other behavior examples.

## 3. challenge cards

These 9 cards were meant to be used after clustering post-its and creating a preliminary set of ideas. They are purposed to understand the challenges behind every idea related to different stakeholder.

## 4. refinement cards

Refinement cards were used in the idea detailing and later on with users for validating my service concept. They help understand the gaps present in an idea and what needs to be refined.

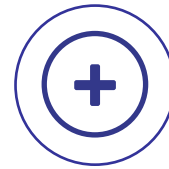


# Milan context cards

Using the **Current Context Cards** created by **Ravi Mahamuni** for his Ph.D. project **Craft Change**, I created Context Cards specific for the city of Milan to be used in the ideation workshop.



## Persuasion



Encourage friends to avoid using private vehicles

## Coercion



Supervision and fines when doing a wrong action.

eg. Parking in the wrong space  
Using public transportation with no pass  
Driving carelessly with dockless bikes

## Incentivisation



Mobike and Ofo when first introduced in Milan offered free months for users

When buying a annual pass you get a discount

Women discount for car sharing at night

## Restriction



Private Vehicles are restricted from the center of Milan in certain hours (area C)  
Expansion of the restricted zone by February 2019 (area B)

## Modelling



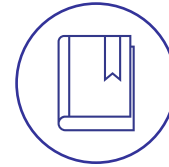
Bike to work Initiative  
Encouraging a sustainable team to use bikes and reduce the CO2 footprint

## Environmental restructuring



Upgrade of the infrastructure:  
Creation of new Bike lanes  
New metro line constructions

## Education



Settimana europea della mobilità  
European mobility week bringing awareness for multimodal activities

## Enablement



Bring your bike for a check up!  
**Policiclo** is an initiative in Politecnico di Milano for students, faculty members and interested citizens offering free help

## Networking



**Bike challenge Italia** where users with their companies can subscribe download the APP love to ride (or other compatible ones Ride Ride Report, Strava, MapMyRide, Endomondo)  
Bike for at least 10 min a day  
And the winner is who manages to engage the highest number of friends and colleagues

# idea detailing

## CraftChange

1 Idea Title 

Last Mile as a +

2 Actors

Traveller  
Public  
Transportation

3 Concerns / Constraints  
in relation to nodes of Empathy Square

Health  
Environment  
Last Mile

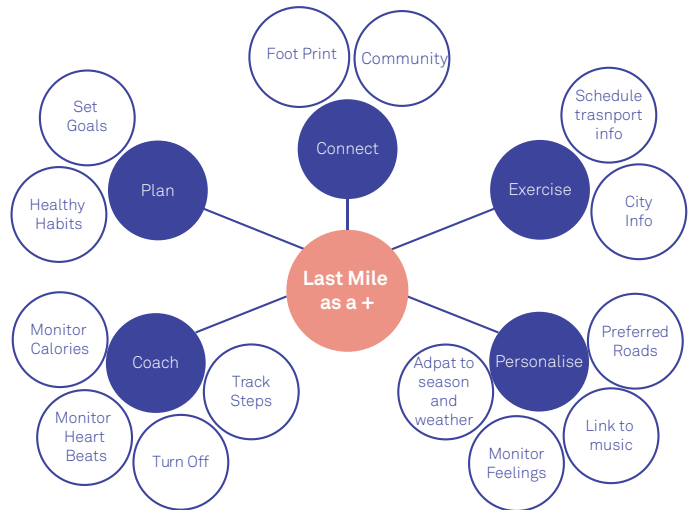
4 Stage(s) of  
Behaviour Change  
Help to internalize

6 Will it go through all  
behaviour change stages?

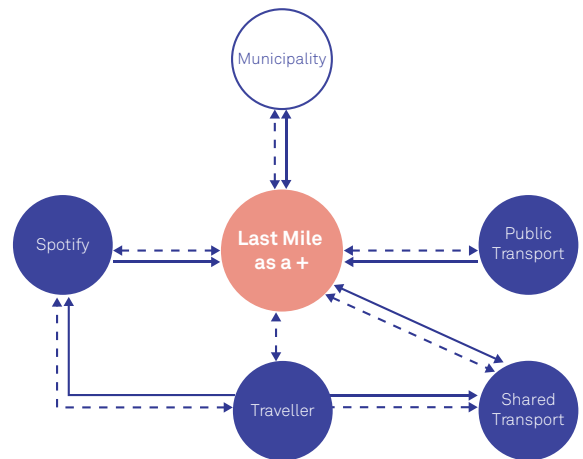
YES  NO

5 Sketch interplay of actors, touchpoints and information flows

Envisioning Graphs (e.g. Offerings Map, System Map)



Envisioning Graphs (e.g. Touchpoints Matrix, Blueprints)



 Money flow  
 Information flow

Canvas to be printed on A3 sheet

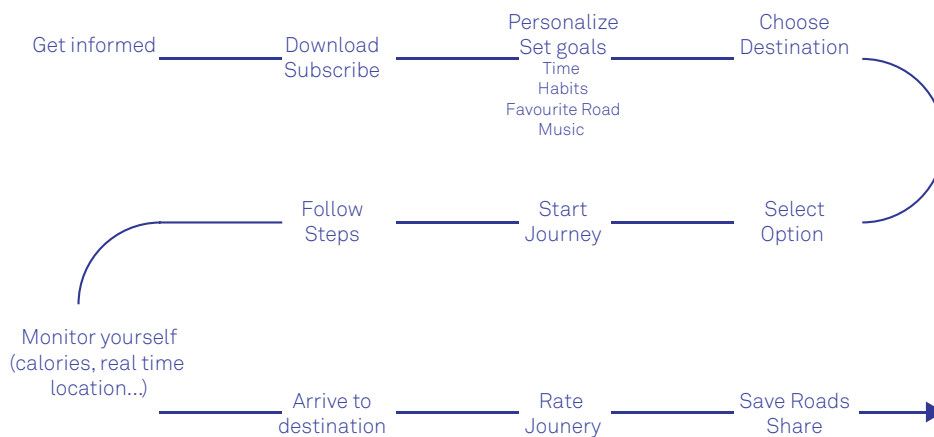


## IDEA DETAILING CANVAS

**Briefly describe the Idea**

Last mile as a + is a service, for commuters who has to plan their daily commute that helps them personalise and pre-plan the last mile in order to exercise and stay active. Unlike other travel planners, Last mile as a + utilises the last mile and transforms it into a high point in the experience.

Envisioning Narrative (e.g. Storyboard. Customer Journey)



Identified Gaps using



REFINEMENT Cards

- Weather Restrictions (Turn OFF)
- Share & connect with friends
- Link to other apps
- Reminder (when?)
- Journey Info
- Today you accomplished this
- Roads left to explore
- Track your improvement
- Personalise the time you want to spend

# idea detailing

## CraftChange

1 Idea Title 

ProBike

2 Actors

**Biker**  
**Shared transportation (Focusing on bike)**  
**Floating Bike company**  
**Municipality**

3 Concerns / Constraints  
*in relation to nodes of Empathy Square*

**Health**  
**Congestion**  
**Environment**  
**Safety**  
**Inconvenience**

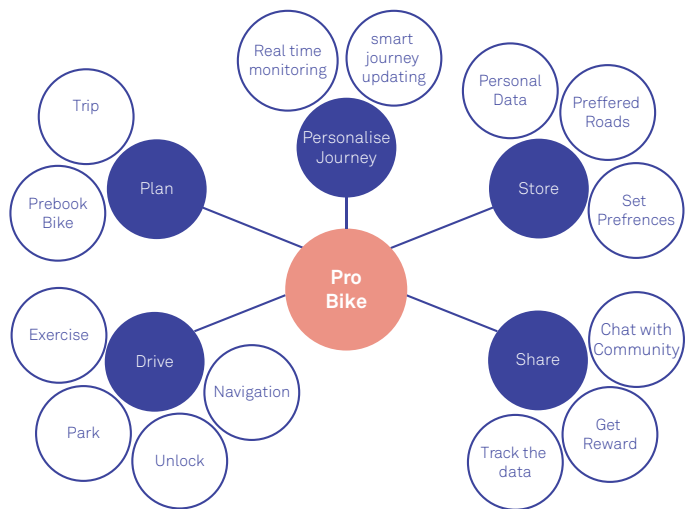
4 Stage(s) of Behaviour Change  
**Help to use regularly**

6 Will it go through all behaviour change stages?

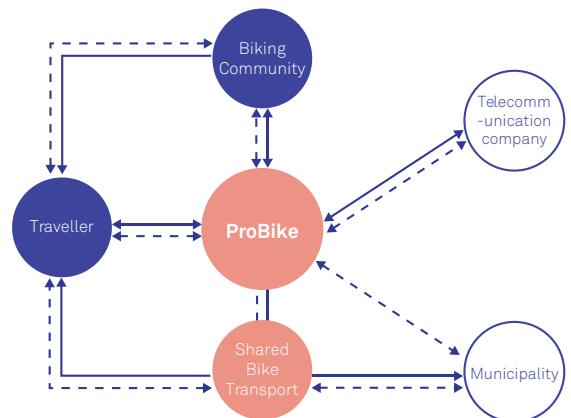
YES  NO

5 Sketch interplay of actors, touchpoints and information flows

Envisioning Graphs (e.g. Offerings Map, System Map)



Envisioning Graphs (e.g. Touchpoints Matrix, Blueprints)

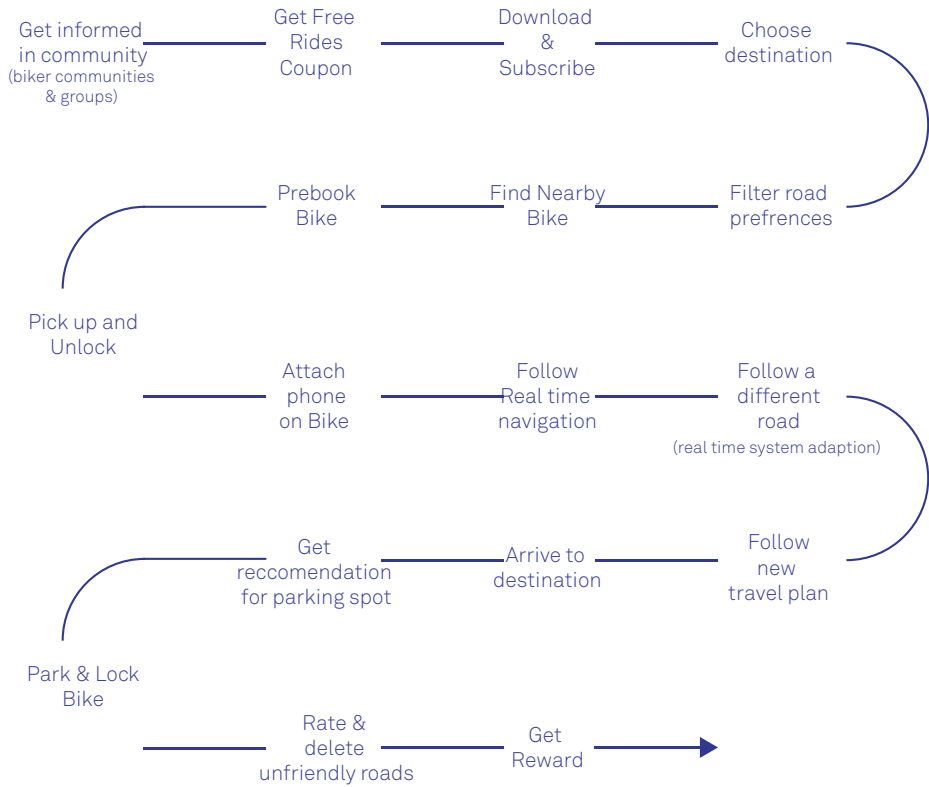


 Money flow  
 Information flow

# IDEA DETAILING CANVAS

**Briefly describe the Idea** ProBike is an upgrade for the existing shared bike that offers free rides with real time changing itinerary, for expert bikers in exchange of collecting generated road data. Unlike other shared bikes, the product maps out the city bike friendly roads.

*Envisioning Narrative (e.g. Storyboard. Customer Journey)*



*Identified Gaps using*  *REFINEMENT Cards*

Need to upgrade bike & online platform  
Environment: Too much data generation

# idea detailing

## CraftChange

1 Idea Title 

I-Stop

2 Actors

**Traveller**  
**Public Transportation Municipality (assistance)**  
**Shared Transport**

3 Concerns / Constraints

*in relation to nodes of Empathy Square*

**Night Shift**  
**Safety**  
**Unsure about frequency of PT**

4 Stage(s) of Behaviour Change

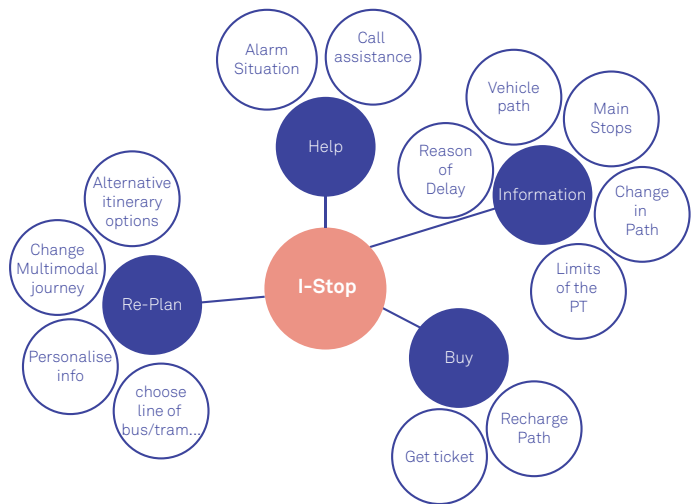
**Help to use regularly**

6 Will it go through all behaviour change stages?

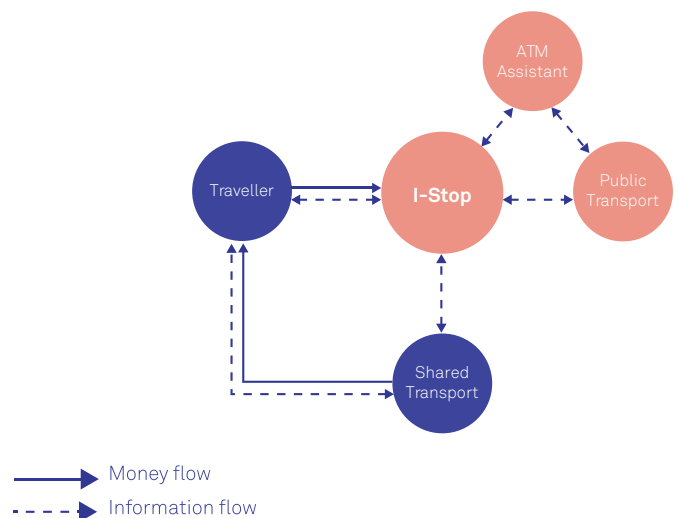
YES  NO

5 Sketch interplay of actors, touchpoints and information flows

*Envisioning Graphs (e.g. Offerings Map, System Map)*



*Envisioning Graphs (e.g. Touchpoints Matrix, Blueprints)*

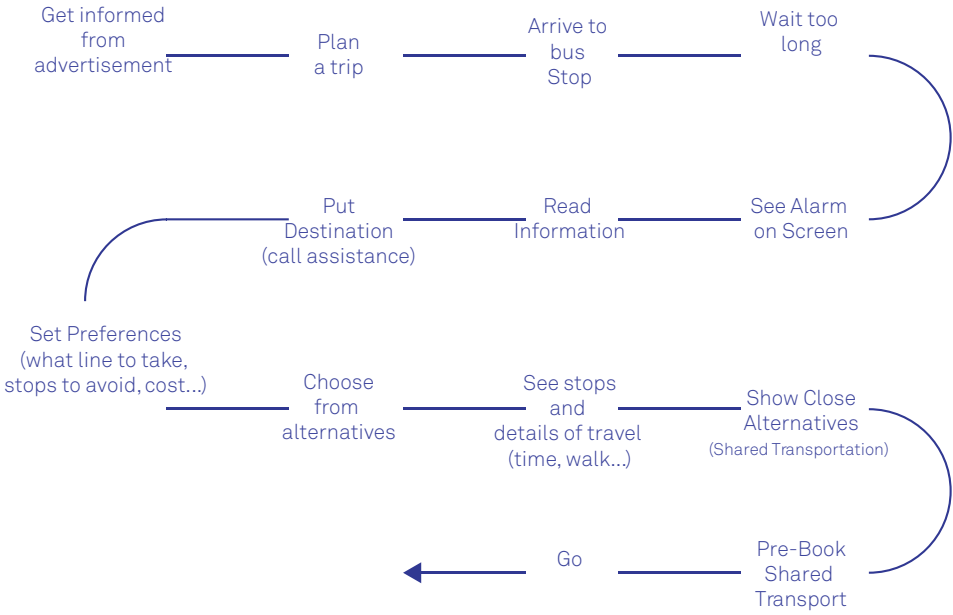


*Canvas to be printed on A3 sheet*

# IDEA DETAILING CANVAS

**Briefly describe the Idea** I-Stop is a product/service for public transportation that offers real time information about P.T in remote bus & tram stops, for travellers who need more support especially in late shift. I-Stop provides extra information about interruption of lines, alternative roads and the path of the public vehicle.

*Envisioning Narrative (e.g. Storyboard. Customer Journey)*



*Identified Gaps using*  *REFINEMENT Cards*

Create more offering about I-Stop for people to use more Equipment to do the product

# *overall impressions*

For the later phase, I decided to adopt the 1st idea “Last mile as a +” as I felt it was the most promising and has the potential to become an innovative service in the field of mobility.

The workshop lasted for about 5 hrs and I, later on, had to do a small 2 hrs session to develop the last 2 detailed ideas and fill in the blanks in the canvases. In general, it went well and we were able to develop and create some detailed ideas.

After these ideation sessions, I also created a small google questionnaire and attached with it a workshop recap presentation of the process and our outputs that I shared with the other participating designers to get some feedback from them about the session and the new tools used.

## ***Some thoughts about the tools adopted and used in the workshop:***

Adopting behavior design methods and tools was suitable for my topic because creating new services is implying a change in users behavior.

The support was a great way to ideate and confront each other they created a context for a clear and focused brainstorming. However, taking the time to accommodate to use the tools was a bit long.

From a time constraint may be the tools needed to be introduced in a simplified way prior to the ideation to familiarize the other participants and not take time from the session.

The challenge and refinement cards allowed us as a group to select the clearest ideas that we also felt can be the easiest to be adopted by final users.

While for the ignite cards they were useful to generate more ideas but as a tool were a bit confusing especially with the subdivided categories. Having this many cards made it difficult to focus on the ideation and think about what is the appropriate card to link and apply into the topic.

About the canvases:

On a personal level, I am not so sure about how suitable for this ideation workshop was it to use the design ideation canvas as it tended to slow down the process. However, it was a good icebreaker for the starting to work on the topic and a way to introduce the participant into the tools.

It was interesting to look at one specific behavior stage but for first-time users, it was a bit constraining the brain into a particular moment. I particularly felt that the 1st canvas would be helpful to focus on a multi-actor situation where it can allow to think in an actor-centered way instead of only being human-centered. Looking at the idea interlink canvas, the second canvas the brainstorming went so much faster and was more efficient as it tended to help to look at different behavior stages at the same time.

It was easy and allowed to create more ideas and link the same idea into different behavior stages to make it stronger.







# 04

## *Design*

This section is about converging towards a design solution.

Elaborating and developing one service concept by using service design tools.

Planning and validating the key principles of the service promise.

# *main service objectives*

Milan is already undergoing changes to become cleaner and more sustainable in order to fight climate change and make the city more livable by taking a different kind of actions like for examples planting more trees by 2030.

Leveraging on the data instead of undergoing great infrastructure changes can also participate in promoting and encouraging city dwellers to adopt a sustainable lifestyle and help in transforming their city.

## **Objectives**

Making cities more livable by using digital technology. Data used for a common good.

Provide a good experience when it comes to multimodal travels.

Promote walkability in the city in order to make it a little bit more livable.

Utilize the first and last mile and transform them into an enjoyable time.

Add a new value to daily transportation.

# service concept

## what?

**dotMilano** is a service for city dwellers. It allows a more personalized door to door experience where users can pre-plan a travel while utilizing the first and last mile in order to be more active and transform them into high points in the experience.

Moreover, the platform connects active members on a daily basis allowing them to share travels and add to a growing data source designed to make Milan a little bit more livable.

## why?

All travels require some walking. In any transportation mode travelers always have some additional walking time for a door to door travel eg. trying to reach a transport mode from a transit to the other and getting to the final destination. With few presets **dotMilano** allows to utilize this time in order to also pre-plan this walk with an intention to stay active.

Pedestrian needs to be put at the heart of the city and considered as one of the transportation mode in the city. Focusing on the pedestrian experience and how we can ameliorate it can make a whole travel seem more enjoyable and seamless. Often walking is disregarded and not considered as part of the travel experience.

Where multimodal travels will be unavoidable the only way to assure seamless travels is by also focusing on the first and last mile and try to make them more smooth and more meaningful.

By allowing travelers to share and update the map can help in giving more importance to the walk as an important part of the travel experience.

The core value of the project is creating a new meaning for mobility inside of the city. A new way for city dwellers to look at moving around and interact with other for the common good of their neighborhoods. **dotMilano** will create a point of contact between travelers, their municipality and their local shops.

The name **dotMilano** is meant to express that the service aims to create dots or nodes that will connect the city travelers together and create a sense of community while also creating links with shops and the municipality.

## **Targets**

There are two main targets, the travelers and the local shop owners.

As a first step **dotMilano** will focus on the travelers.

On the platform, these travelers will have a filter system that allows them to select, explore, save favorite roads and update them later in their personal heatmap. The travelers can also report any repairs that needs to be done in a particular street and leave comments to the online community to build a walkability heatmap of the city.

Also as a community they can start creating events connecting with like minded people and promoting the sustainability of their city.

As a service, if reports done by users are related to issues that needs to be dealt from the municipality (eg. repairs like fixing a hole, parked car blocking a pedestrian road...) the uploaded report will be checked then sent to notify the municipality. **dotMilano** have the potential to become a point of contact between the municipality and the citizens when it comes to mobility.

Later on, local shops will be able to join the platform and connect with the community. Local shops will be pinpointed on the maps for travelers to discover them with the coins reward system created for the contributing members. In addition, these local shops will have a page with a fixed format to fill up with the informations about the places and upload new events that are aligned with the service.

### **Benefits for travelers**

Walkable streets/neighborhoods.

Increase safety and lower crime rate.

Setting healthy habits by linking the last mile to staying active.  
Health benefits like reduce obesity level and lower carbon emissions.

Self satisfaction by being a responsible citizen and trying to help the environment and reducing footprints.

Collectible & exchangeable coins in local shops.

### **Benefits for local shops**

Boost retail sales.

Increase shop visibility.

Gain recognition in promoting sustainability of the city.

### **Platform operation principle**

Using both **open** and **crowdsourced data** to providing a better travel and in particular pedestrian experience.

**Official Data:** schedules, service alerts...

**Real time Data:** GPS, updates, alerts

**Crowd-sourced data:** where users share personal data

Collecting walkability related data (friendliness of the road, safety, greenery)

Creating both a personal and network heatmap representative of the data created while using a system of color coding to represent the different values.

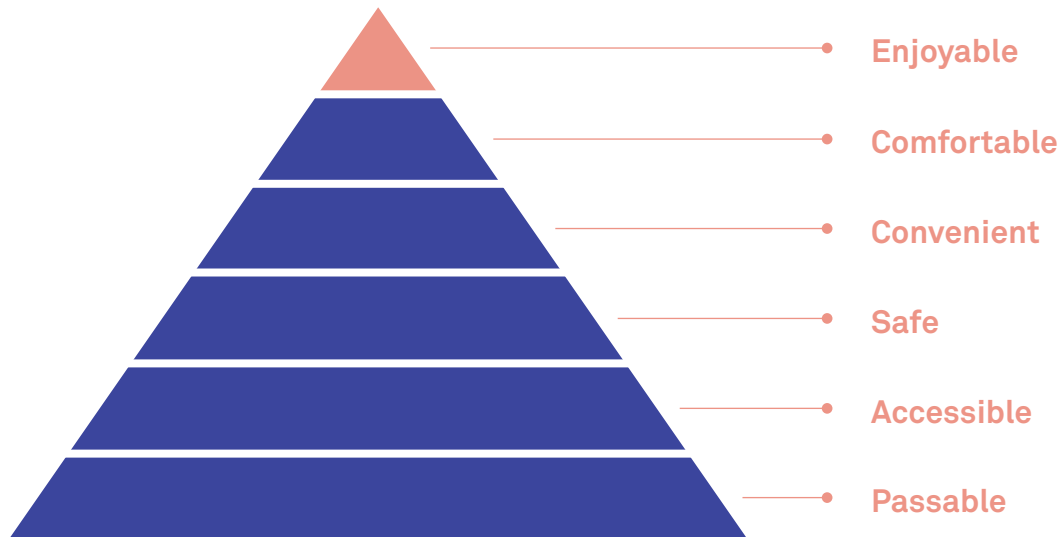
Heatmaps can be used to analyze eventual users behavior.

# walkability

For **dotMilano**, creating a walkability heatmap will measure how pedestrian friendly are the streets of the city and be able to communicate it through the platform for travelers.

To define street walkability I relied on the walkability hierarchy of needs rating streets from passable to enjoyable.

## Walkability hierarchy of needs pyramid



Graphic created by Micheal Flynn, San Schwartz Engineering

### Passable

Continuity and connection of the walkways making it possible to walk from a location to another.

### Accessible

Accessing services within a walkable distance.

### Safe

Providing a safe space away from crime and motored vehicles.

### Convenient

Walking is prioritized by minimizing the time to walk for a destination or transportation mode.

### Comfortable

Minimizing physical discomfort from walking by providing shade and shelter for weather conditions.

### Enjoyable

Adding a joy in walking by having different elements visually appealing.

“ walkability is a crucial first step in creating sustainable transportation in an urban environment.

”

*Institute for Transportation and Development Policy (2018). Pedestrians First, Tools For a Walkable City. 1st ed. New York: ITDP.*

Streets should support walking as a form of mobility, by providing safe, active, continuous, and well connected pedestrian spaces within dense, mixed and accessible neighborhoods interconnected by public transport.

For the future of the platform, I established a detailed checklist for travelers to report the streets in order to measure walkability.

**Checklist ensuring walkability**

**1. Condition of the walkways**

City construction  
Pavement  
wideness

**2. Cleanliness**

Dirt  
Trash  
Obstruction

**3. Safety**

Street Activity  
Street Light

**4. Crosswalks**

Accessible  
Waiting time  
Signals

**5. Traffic Speed**

Speed limits  
Speed Bumps  
Traffic volume

**6. Parkings**

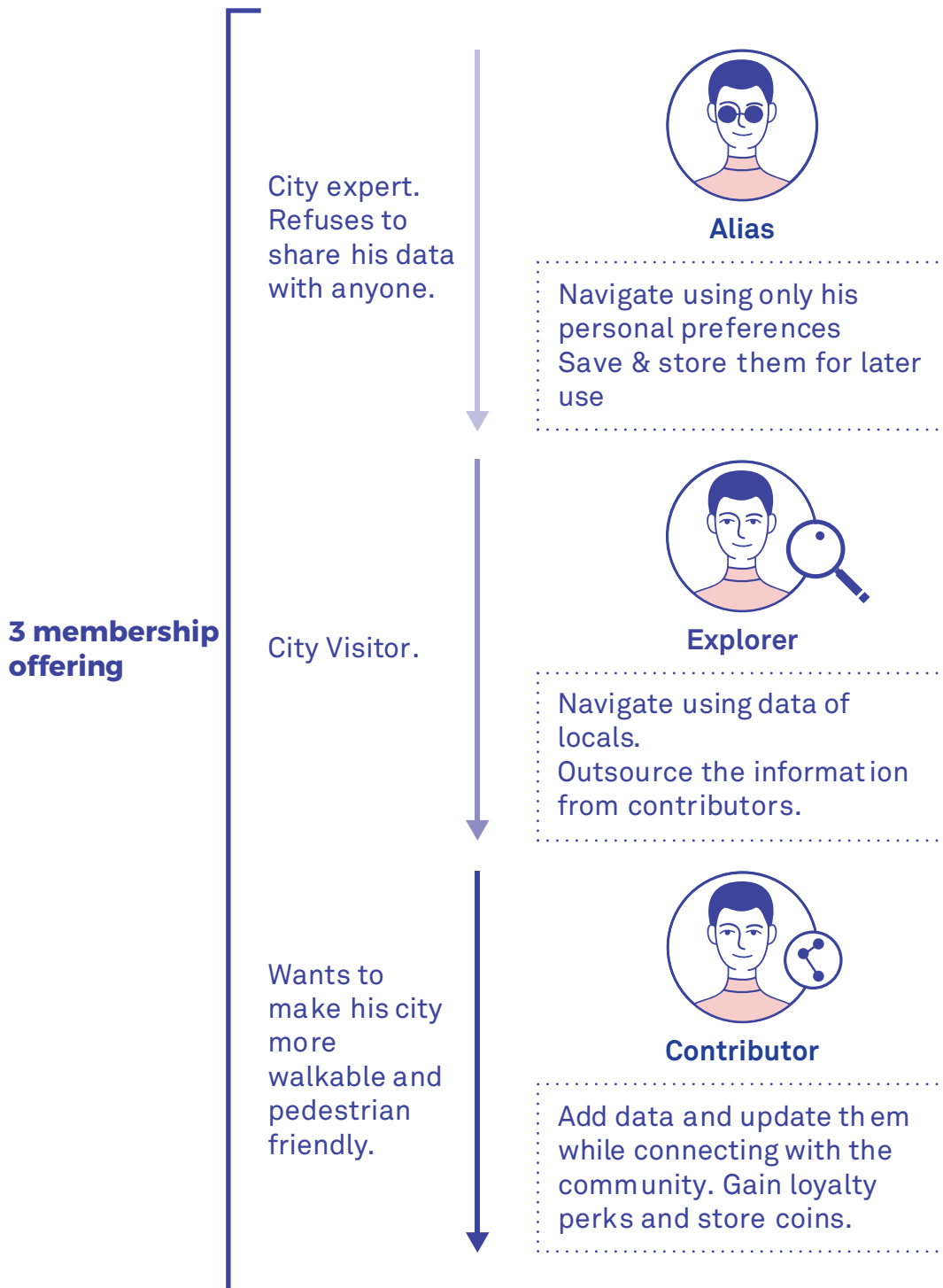
On street parking

**7. Amenities:**

Seating  
Public Toilet  
Trash bins  
Shops  
Greenery

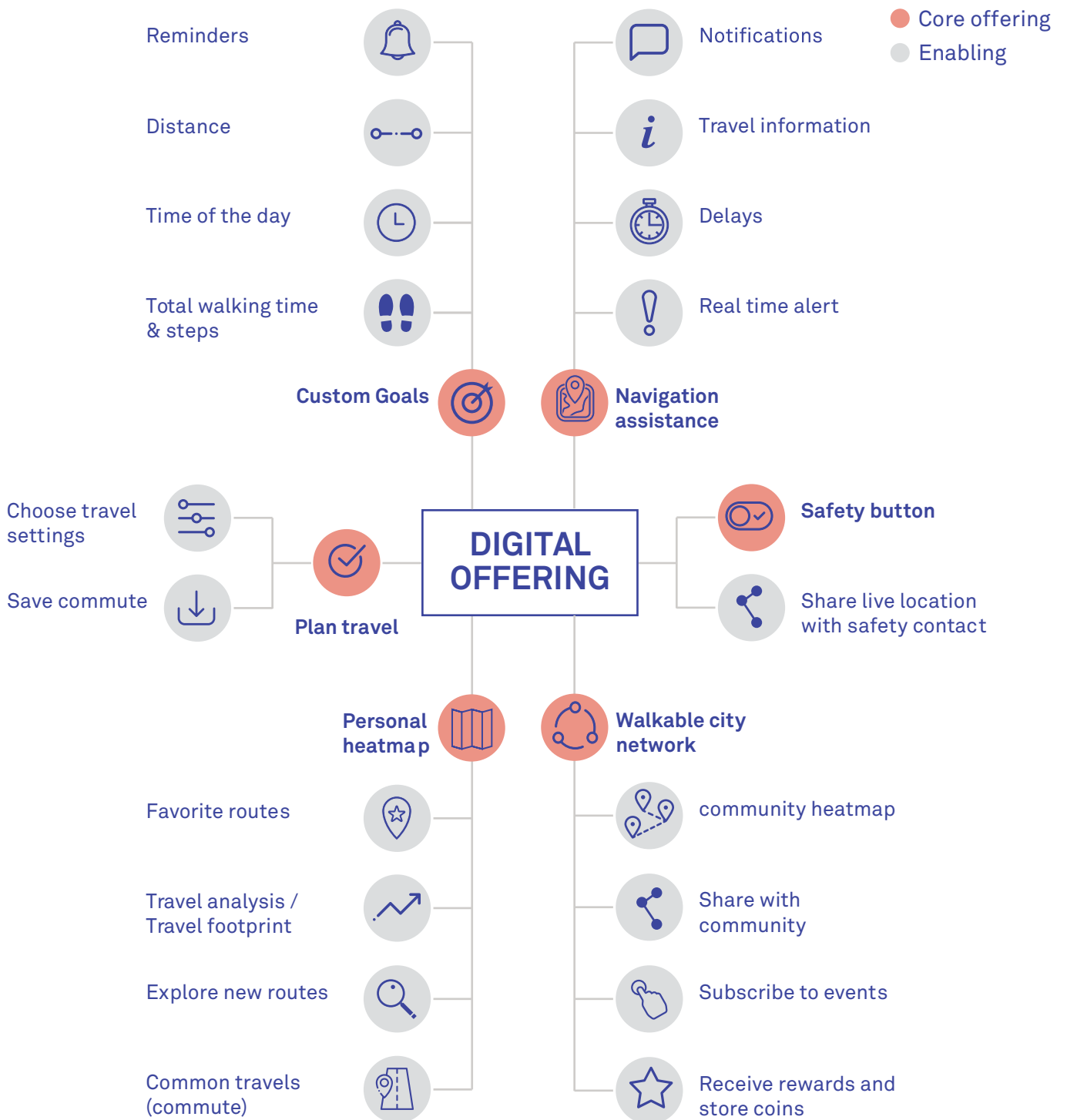
# membership

To give flexibility to the service **dotMilano** offers 3 different kinds of memberships focused membership programs allowing travelers to tailor features to reach their needs.

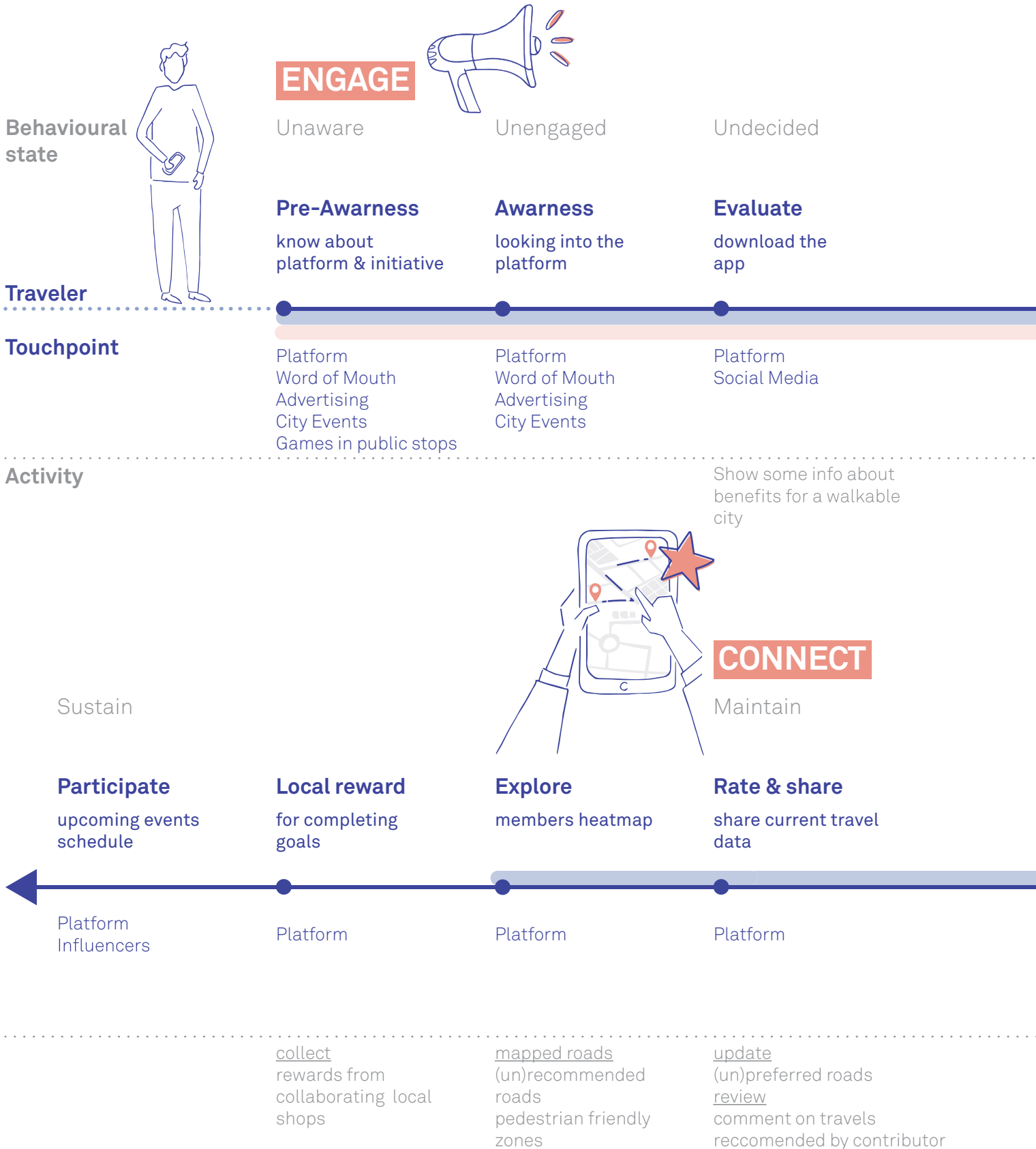




# offering map



# traveler journey



## PREPARE

Prepare to perform



## TRAVEL

Perform once

### Subscribe

choose a membership option

Platform

### Personalize

set preferences & goals

Platform

### Select

wanted destination

Platform

### View

check options

Platform



Set  
. Walking time  
. Time of the day  
. Favorite roads  
. Music

Information sorted by arrival times, schedules and transit mode and walking distance

### Finish

arrive to destination

Platform

### Enjoy & Monitor

plug music  
real time info

Platform  
Transport mode  
Spotify

### Start

follow live  
guidance

Platform  
Transport mode

### Choose

decide on a  
travel option

Platform

travel analysis  
foot print/ calories  
steps/ new roads

monitor  
Calories/ steps

navigate  
Real time location

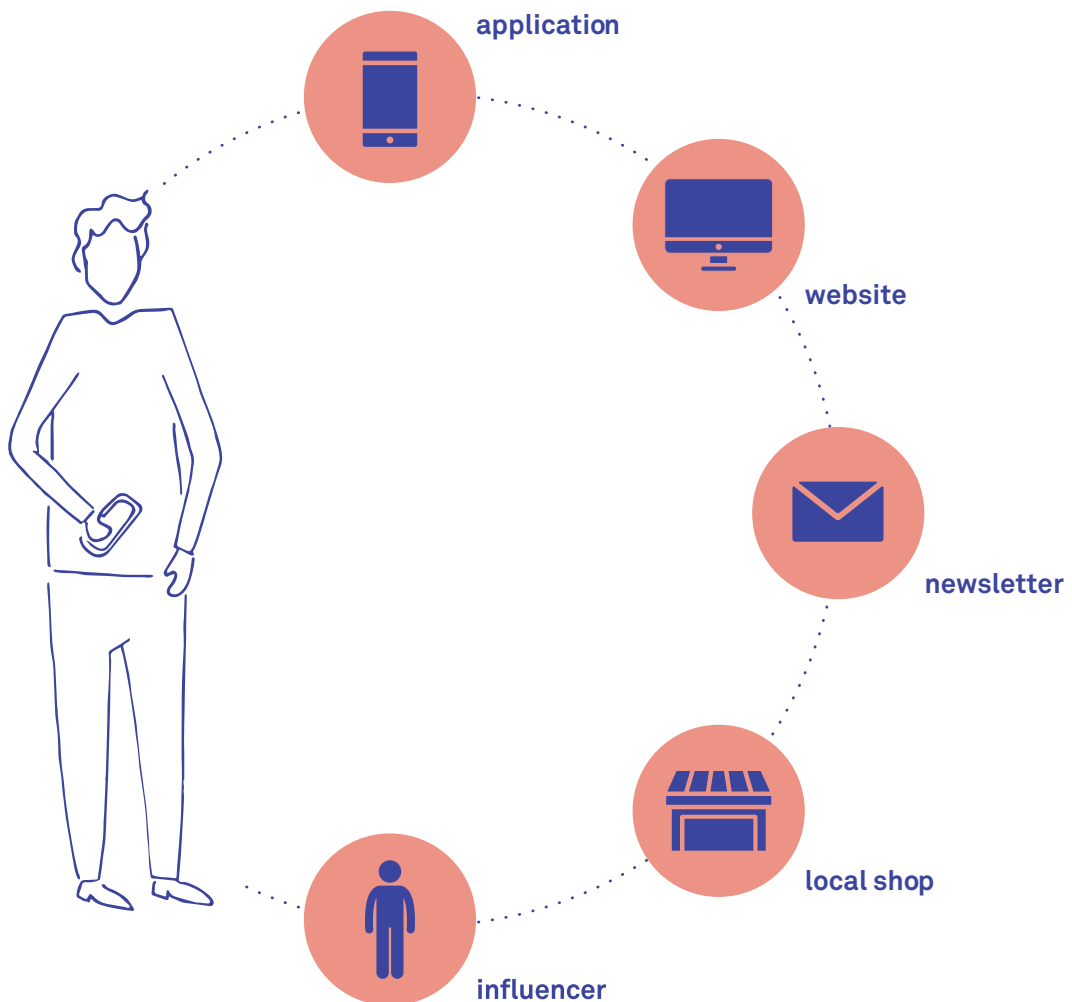
Contributor

Explorer

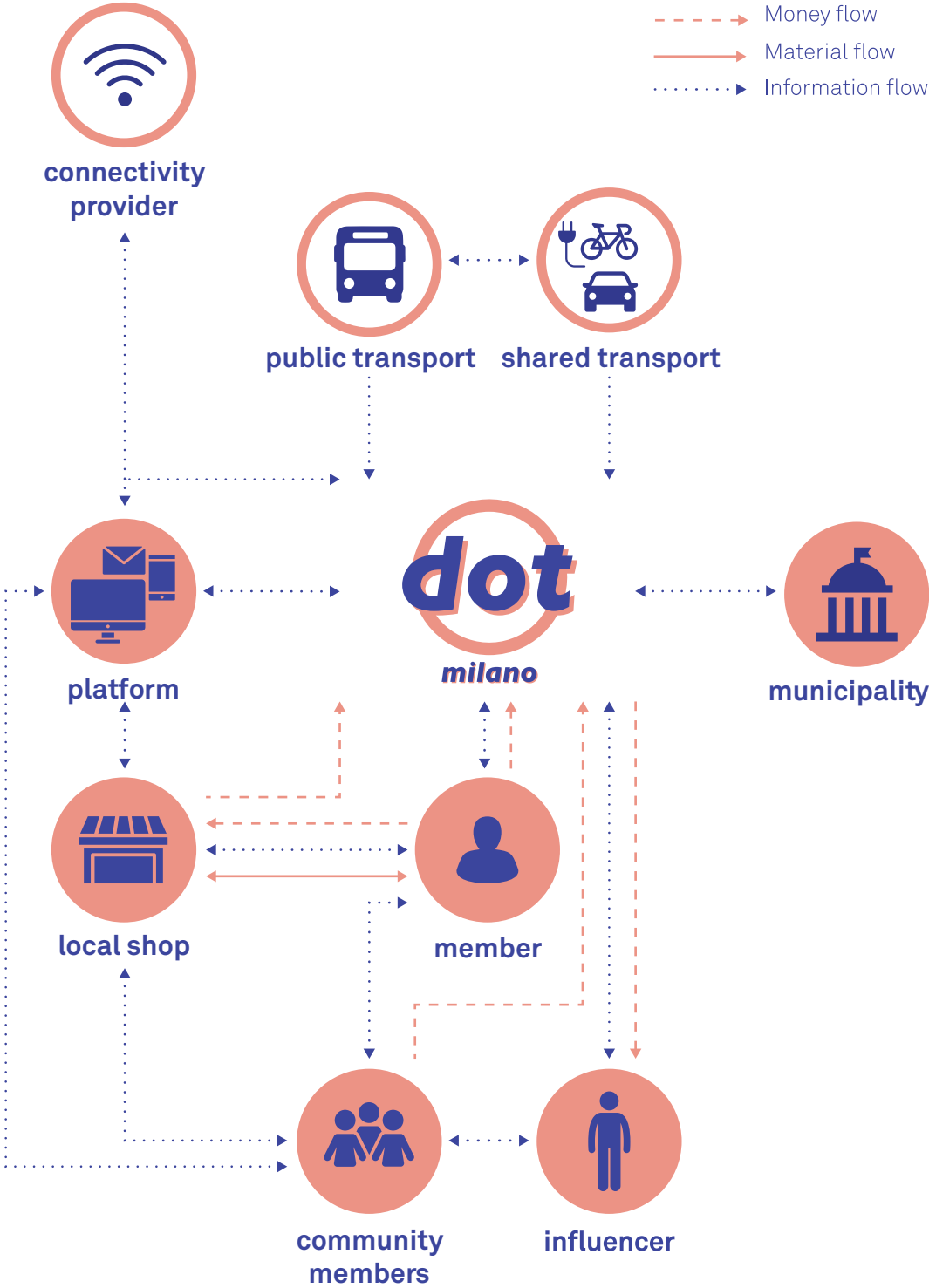
Alias

# touchpoint map

As a beginning, **dotMilano** will start with the platform that will consist of an application, website and a newsletter updating subscribers about new information alerts and events. After becoming more established, the platform will expand to collaborate with local shops and assign influencers to promote the service and create events.



# system map



# brand communication

## Logo:



primary logo

## Brand colors:



C 90 R 61  
M 87 G 69  
Y 00 B 155  
K 00

C 04 R 236  
M 51 G 147  
Y 41 B 134  
K 00



logo for colored background



C 45 R 142  
M 29 G 165  
Y 05 B 204  
K 00

C 02 R 244  
M 22 G 205  
Y 13 B 202  
K 00

## Typography:

### **AkkuratStd**

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.



logo for colored background

Business card sample:









APERTO  
24h

**SALUMI**  
 - 40 BIANCHI 4,99 € / kg  
 - 40 ROSA 4,99 € / kg  
 - 40 FUSI 4,99 € / kg  
 - 40 FUSI 4,99 € / kg

**PASTA DI PIUMI**  
 - 40 BIANCHI 4,99 € / kg  
 - 40 ROSA 4,99 € / kg  
 - 40 FUSI 4,99 € / kg

**PASTA DI ATUM**  
 - 40 BIANCHI 4,99 € / kg  
 - 40 ROSA 4,99 € / kg  
 - 40 FUSI 4,99 € / kg

**PASTA DI FRANGO**  
 - 40 BIANCHI 4,99 € / kg  
 - 40 ROSA 4,99 € / kg  
 - 40 FUSI 4,99 € / kg

**COME IN  
and use your  
coins**



download the app  
to find out more







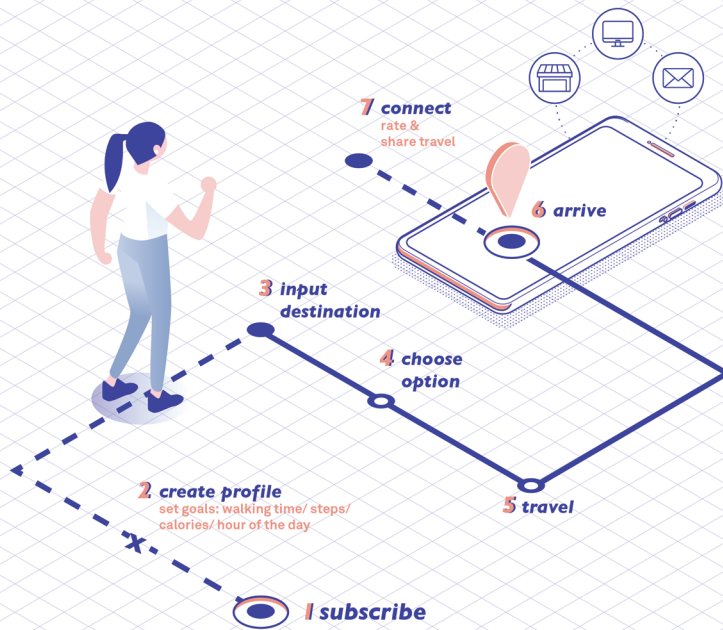
# service infographic poster



The navigation platform that cares about walkability in our city.

dotmilano is a social network for city dwellers. It allows more **personalized door to door experience** where you can pre-plan a travel while utilizing the first and last mile in order to **be more active** and transform them into high points in the experience.

Moreover, the platform can **connect active members** on a daily basis allowing them to share travels and **add to a growing data source** designed to make **Milan** a little bit **more livable**.



### 3 Memberships



**Alias**  
Navigate using only his personal preferences  
Save & store them for later use.



**Explorer**  
Navigate using data of locals.  
Outsources the information.



**Contributor**  
Connect with the community. Gain loyalty perks and store coins.

### Offering



**Navigation assistance**  
Delays  
Real time alert



**Custom Goals**  
Distance  
Hour of the day  
Total walking time & steps



**Plan travel**  
Choose travel settings  
Save & check travels



**Personal heatmap**  
Favorite routes  
Travel analysis  
Explore new routes  
Common travels



**Walkable city network**  
Community heatmap  
Notify your municipality  
Share with community  
Subscribe to events  
Receive rewards



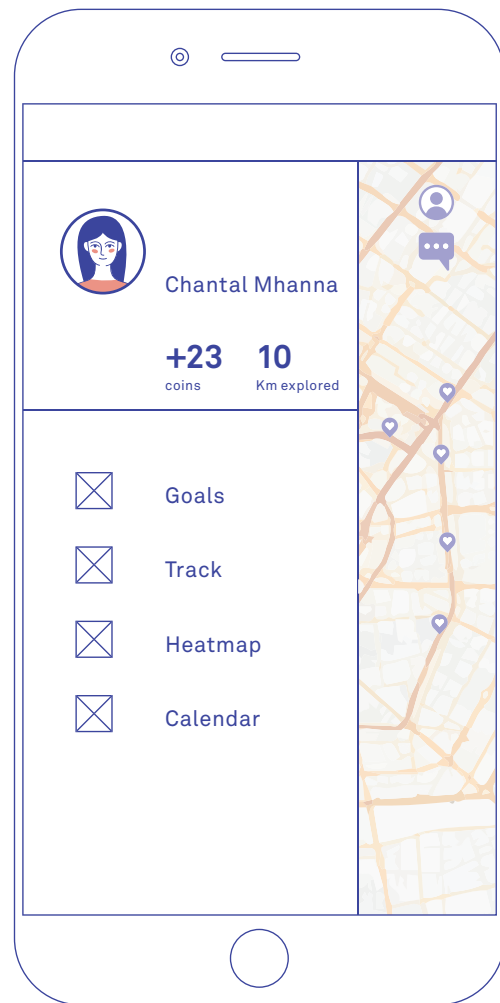
**Safety button**  
Share live location with safety contact

# mobile application wireframes

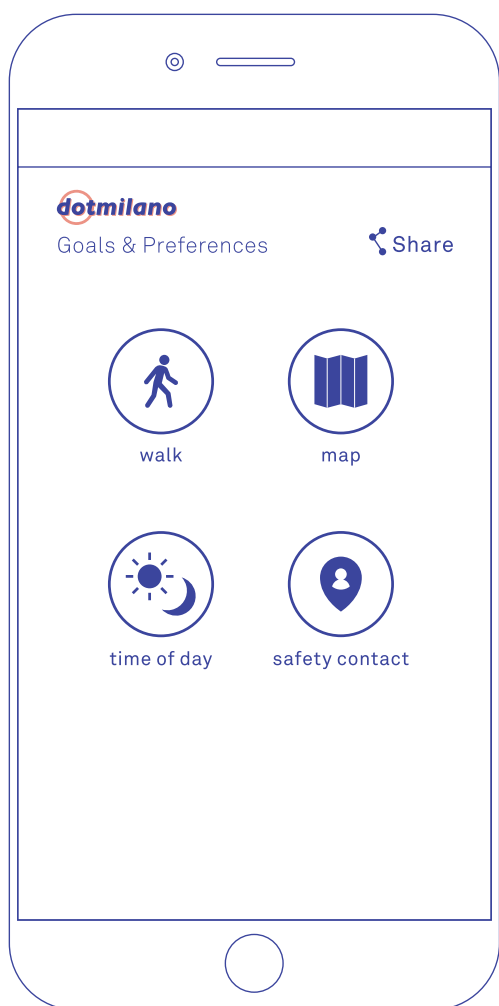
Following the service concept, I have designed an infographic service poster with an initial launch advertising and some of the main screens of the mobile application to be tested by a small group of users for validation. Watching how they reacted and noting their suggestions and questions I modified the service and added some features to the application. I also used the same refinement cards of the ideation session to get feedbacks.



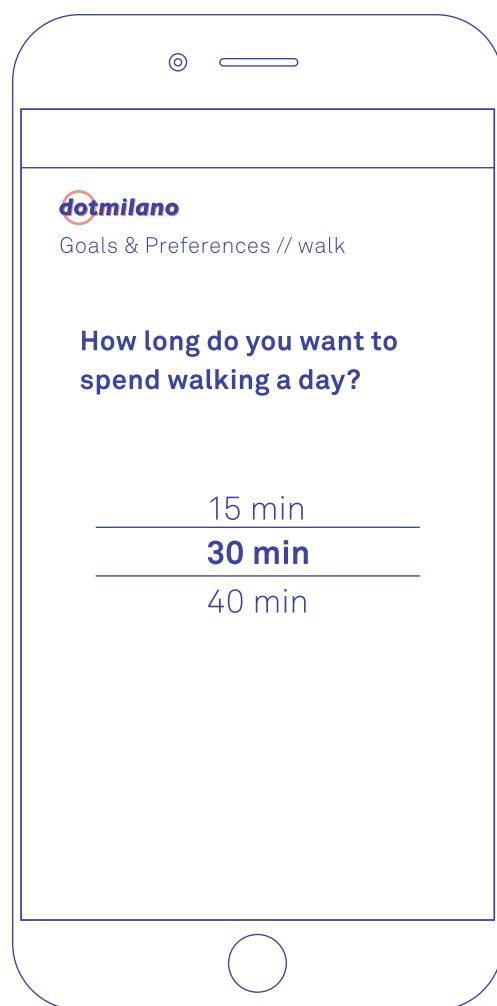
**Landing page**



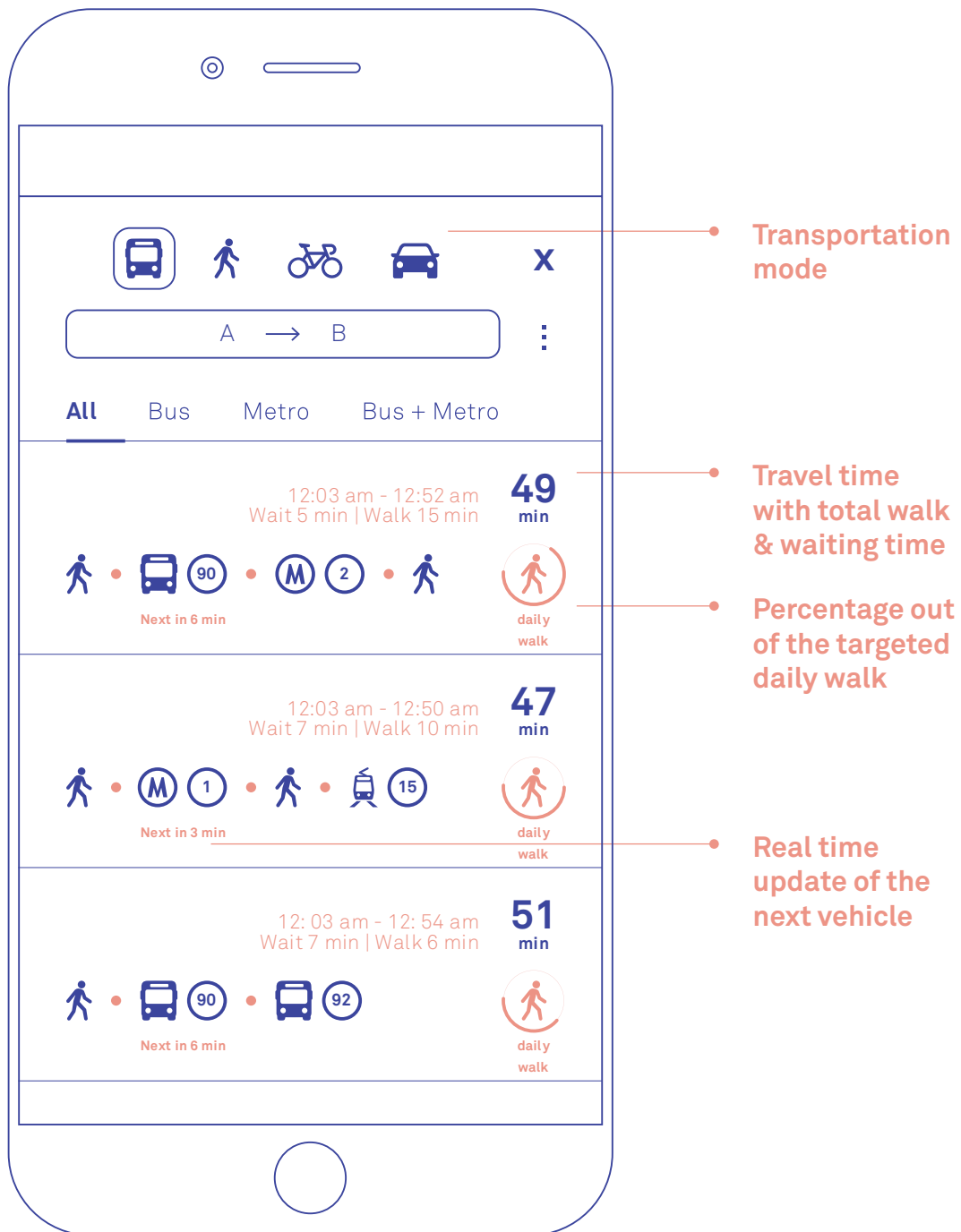
**Personal profile**



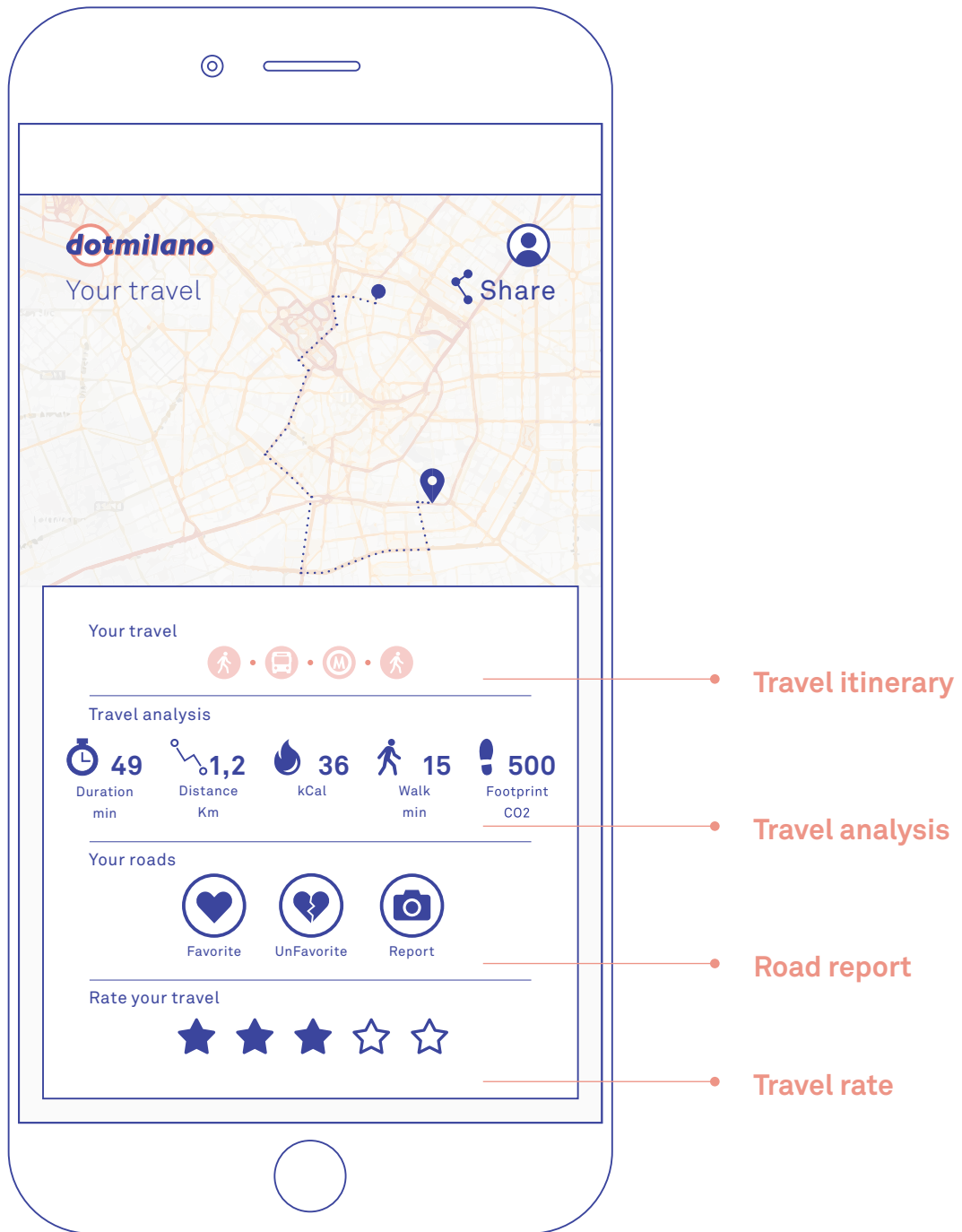
**Setting goals & preferences**



**Walking goals**

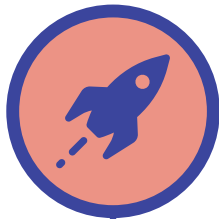


### Travel options



## ***Travel analysis***

# service roadmap



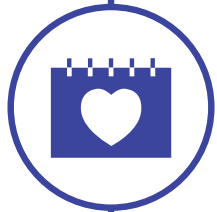
## Launch of navigation platform

- . Start with 2 memberships options: Alias & Contributor
- . Collect a subscription fee from users
- . Start collecting crowdsourced data



## Connect with local shops

- . Offer visibility, pin on map & profile
- . Collect fees from local shops
- . Offer store coins for active users
- . Launch Explorer membership



## Collaborate for events

- . Collaborate with municipality and local shops to create events promoting activity and sustainability in the city



## Establish service

- . Expand in other cities









# 05

## *Conclusion*

This section present final thoughts on urban mobility, behavior design and my design proposal. It also presents possibilities for future developments.

## **About the design solution**

When it comes to multimodal travels, offering options that integrate different modes and services together can be more efficient and user friendly. The main competitor will always be the private vehicle. By collaborating with other services from the mobility sector we can make it easier for travelers to connect and use shared and public modes. Eventually helping users to stop the use of private vehicles.

From my conducted research all travelers demanded more reliability & punctuality from transportation modes, comfort, more environmental responsibility, safety, and security. And I think, in general dotMilano as a solution tries to tackle these problems while adding another value to the travel experience can help make the experience more enjoyable.

In Milan, travelers are already digitally savvy and ready to use new digital services. The main challenge in adopting “dotMilano” lies in the first behavior stages with the awareness, consideration and preparing to perform. As travelers are already subscribed in other services, registering to a new service tend to be a pain point. Linking to other services from the mobility sector is necessary and possibly also linking subscriptions and application use with other sectors like for example a music provider such as Spotify. When traveling, a user can listen while connected to the application to his music list making his travel more enjoyable.

While for sustaining the use of the service, creating a community and involving enough users travelers and local shops can gain the service more reliable and ensure it's economic sustainability.

For a future prospect dotMilano, the service can explore creating new purposes for the first and last mile. Not only making them about having an active experience but also facilitating planning errands of travelers like doing the grocery as linking with local shops and providing the coins makes sense.

By exploring new purposes for the first and last walking part, travelers can stay encouraged and perceive it as a meaningful and useful part of the travel.

At last, when expanding into other cities and replicating the service, it would make sense to do it with urban cities that would offer shared and public transportation in similar size and mobility offering than Milan.

### **Final considerations**

During the development of my thesis project, I got the chance to apply a behavior progression framework to design services and interventions for sustained behavior changes.

As a service designer introducing behavior design can be beneficial through the whole design process. From focusing on users needs, supporting the ideation, relying the intervention on the insights to developing the solution.

When creating new services we want users to take new action and change in their routines thus creating behavior changes. While designing, thinking about each behavior stage can increase the adoption and sustainability of the service developed and reduce the risks of failure.



# ***Annex***

This section includes the interviews and feedback from travelers, a mobility expert and participating designers of the ideation workshop.

# travelers questionnaire

## Transportation Modes /// Frequency & Purposes

**1. What are the current passes and subscriptions that you have for transportation in the city of Milan (Atm, Enjoy, Mobile....)**

Quali sono gli attuali abbonamenti che hai per il trasporto nella città di Milano (Atm, Enjoy, Mobile....)

**2. What transportation do you use on a daily basis & how much time do you spend in them daily?**

Che tipo di trasporto usi quotidianamente e quanto tempo trascorri in loro ogni giorno?

**3. Are you familiar with shared transportation (car, bike, moto)? If yes which one did you use?**

Conoscete il trasporto condiviso (auto, moto, bici)? Se sì quale hai usato?

**4. Do you use them often? For what purpose? Why you don't use them often?**

Li usi spesso? Per quale scopo? Perché non li usi spesso?

**5. Do you own a private vehicle (car, bike, moto...)? If yes, how often do you use them inside of the city and usually for what purposes?**

Possiedi un veicolo privato (auto, bici, moto ...)? Se sì, quanto spesso li usi all'interno della città e di solito a quali scopi?

**6. For what purpose do you use public transportation**

Per quale scopo usi il trasporto pubblico

**For what purpose do you use shared transportation**

Per quale scopo usi il trasporto condiviso

**For what purpose do you use private transportation**

Per quale scopo usi il trasporto privato

**For what purpose you won't use one of them**

Per quale scopo, non userai uno di questi trasporti

**7. For any transport notification on what do you rely (new journeys, delays...)? Do you use more than one platform (atm, google maps, citymapper...)?**

Per qualsiasi notifica di trasporto su cosa ti affidi (nuovi viaggi, ritardi ...)? Usi più di una piattaforma (atm, google maps, citymapper...)?



## **Positive/negative experiences**

**8. Do you use these platforms often? And for what purpose do you usually use them?**

*Li controlli spesso? E per quale motivo li usi di solito?*

**9. For you, what are the factors for a good & successful experience in transportation around the city?**

*Per te, quali sono i fattori per un'esperienza positiva nel trasporto in città?*

**10. What can be your frustrations and low points in transportation around the city? What disturbs you the most during a journey?**

*Quali possono essere le tue frustrazioni e punti bassi nel trasporto in città? Cosa ti disturba di più durante un viaggio?*

**What transportation mode you avoid to use? why?**

*Quale modalità di trasporto eviti di usare? perché*

**11. Do you feel that the government is taking measure to encourage public & shared transportation and discourage using private vehicles? If yes what are they doing?**

*Pensi che il governo stia prendendo misure per incoraggiare il trasporto pubblico e condiviso e scoraggiare l'utilizzo di veicoli privati? Se sì, cosa stanno facendo?*

**12. In your opinion in general what do you think is missing to make the city more sustainable and make people use more public and shared transportation? In terms of transportation, what can the city do better for its residents?**

*Secondo te, cosa pensi che manchi per rendere la città più sostenibile e incoraggiare le persone a utilizzare i trasporti pubblici e condivisi? Cosa può fare la città di più per i suoi residenti?*

**13. Did you find a city that you liked its transportation and thought it's better than Milan? In what way it was better?**

*Hai trovato una città che ti è piaciuta il trasporto e hai pensato che fosse meglio di Milano?*

# travelers interview 1

**Name:** Umberto  
**Sex:** M

**Age:** 31  
**Nationality:** Italian

*“Usually the people who are late are the people coming by car.”*

*“Italians are not used to using bikes because they consider it for the poor people and if you are successful you use your own car.”*

*“If you do something wrong you don’t get punished and you don’t necessarily have a fine.”*

## Behavior types

**Using public transport:** Internalized stage, some times becomes advocate  
Has an annual pass which makes him not really try other modes

**Using Shared Bike:** Familiar behavior, performed once

**Using Shared Car:** Consider stage  
Doesn’t have the subscription but used in the night with friends that already have a pass and would like to use it again

**Using travel planners:** Familiar behavior  
Uses usually google maps for new destinations  
He doesn’t really know or memorise the street or the map of Milan but instead relies on his memory of the underground map

**Using TNC:** Aware stage  
Rarely use it

## **Concerns/Constraints**

Exterior factors that slow down overground public transportations  
Rain and snow especially that it is something normal for the city.

Night lines are unsafe in the night and avoids using 90/91 public buses.  
Delays and slowing down of transportations.

People don't respect the rules because there is no efficient punishment system.

Information usually provided by travel planner leaves out time for finding a parking spot then walking back to the final destination making the information misleading.

## **Expectations**

Short waiting time.

Safe transportation.

Acceptable walking distances.

Clear and not confusing information.

Understand where he is and where he has to go.

# travelers interview 2

**Name:** Enzo  
**Sex:** M

**Age:** 28  
**Nationality:** Chinese

*“I sometimes take the bike but since I already paid for atm even paying as low as 50 is not needed.”*

*“I see a lot of construction but I don’t know what is actually changing. Maybe some lines or extension lines where the bus didn’t get before but its minor changes and it’s not affecting my life so far.”*

*“Riding a bike in Milan makes me feel uncomfortable.”*

*“Not sure that these car sharing services are actually more environmental friendly than having a personal car and taking care of it because these shared cars tend to wear out fast and people don’t take care of them because its not theirs.  
Once I have my driving license I think I will buy my car and I would get an electric one.”*

## Behavior types

**Using public transport:** Internalized stage (monthly subscription)  
Monthly subscriber

**Using Shared Bike:** Familiar behavior  
use it 2 times a month mainly after midnight when the public transport is down

**Using Shared Car:** Ready to perform Stage

**Using travel planners:** Internalized stage  
Has it always on but doesn’t actually benefit from the informations because he knows by heart the passante schedule so usually never checks

**Using TNC:** Familiar behavior  
Used to take taxis in the beginning but then decided to save money and start using the other services

## **Concerns/Constraints**

Money.

Long waiting times at public stations.

Delays in the passante with no alternative with travel planner notifications that are only frustrating.

On a bike relies on google maps who doesn't give a biking route options and didn't actually try to find another app with the option.

His Chinese driving license is not valid.

## **Expectations**

Punctual and reliable public transportation.

Better city infrastructure: When it comes to biking the city has to improve the bike lanes.

Strict time schedules: I know when it's coming and when it's going.

Free sharing bikes.

# travelers interview 3

**Name:** Jin  
**Sex:** F

**Age:** 27  
**Nationality:** Chinese

*“Even if I gets my driving license I won’t buy a car because its too much maintenance and parking is impossible in Milano.”*

*“I prefer walking in the center than using a bike. I enjoy the city more.”*

## Behavior types

**Using public transport:** Internalized stage  
Monthly subscriber

**Using Shared Bike:** Familiar behavior  
prefers to walk for short distances

**Using Shared Car:** Ready to perform Stage

**Using travel planners:** Internalized stage  
Uses 2 atm for delays and bus info google maps for journeys

**Using TNC:** Internalized stage  
Uses it a lot especially in the weekend and in the night spends around 100  
200 euro a month

## **Concerns/Constraints**

Delays in the passante because she usually relies on it for her commute.

Safety in the night.

Connections from airport to city as she travels a lot.

Her Chinese driving license is not valid and needs to do an Italian driving license.

Even if the government is doing an action to motivate people to use less their private vehicle its more a personal choice depending on each person's lifestyle.

## **Expectations**

Better airport/city connections.

Convenient and fast transportations.

# travelers interview 4

**Name:** Luca  
**Sex:** M

**Age:** 25  
**Nationality:** Italian

*“A private car is like a statement of luxury.”*

*“I would love to have a car If I have it will definitely cost me so much more but I have more control over my travel I can have all my things inside and i can personalize.”*

*“Using a shared car to reach the center is challenging because it’s difficult to understand how the streets works with the car and Area C so it’s hard to know how I can get there without breaking some rules.”*

## **Behavior types**

**Using public transport:** Internalized stage  
Pay as you go user

**Using Shared Bike:** Internalized stage

**Using Shared Car:** Internalized stage

**Using travel planners:** Internalized stage

**Using TNC:** Internalized stage



## **Concerns/Constraints**

Few shared car in time of need.

Enjoy doesn't communicate while driving if you crossed an Area C  
Under high demand lack of a car sharing service in the zone.

No continuity when it comes to some tram lines.  
Tram lanes makes it difficult to bike in the city.

## **Expectations**

One app for all managing his pay as you go options.

More efficient service when it comes to car sharing in terms of  
number of cars, crashing app, better vehicle maintenances.

Public transportation controllers.

Good temperature inside of public transportation  
Better flow management: Frequent public transportations to avoid being  
overcrowded.

Ameliorate the transportations for the limits especially that taxis  
cost a lot more than other cities.

# travelers interview 5

**Name:** Luigi  
**Sex:** M

**Age:** 35  
**Nationality:** Italian

*“I don’t see that our future will be only with public transportation, I see electric vehicles and other innovative private vehicles.”*

*“Some people call the public transportation as “la sposta poveri!”*

*“In all cities that i visited it was possible to buy a ticket on the bus and in every bus tram or whatever there was someone that controls buying the ticket . I don’t understand why here we don’t have this!”*

*“It would be nice if google maps can tell me where to park but it’s something that you just told me i didn’t know that i needed it.”*

## Behavior types

**Using public transport:** Internalized stage  
Monthly subscriber

**Using Shared Bike:** Aware stage

**Using Shared Car:** Familiar Behavior

**Using travel planners:** Internalized stage

**Using TNC:** Aware stage

## **Concerns/Constraints**

When using a shared car it is not convenient when going somewhere a little bit on the periphery he is not guaranteed to find a car for his way back.

Parking is a problem You arrive to your location and don't find a parking spot then you spend more money going around looking for a parking spot and trying to find one.

No bike infrastructure.

Relation between time/money spent for a travel(would use his personal car for a trip that takes 7 mins in his car instead of 45 min in public transport).

Changing too many transportation modes.

## **Expectations**

More city Actions like educative initiatives and some incentives for not using the car.

More Sundays with no traffic.

Buy a ticket on the bus.  
Ticket control in public transportation.  
Fines for bad actions.

Recommendations for where he can find a free parking spot.

Better infrastructure: Separate bike and car lanes.

Not to drive but instead take advantage of his travel time.

# travelers interview 6

**Name:** Erica  
**Sex:** F

**Age:** 33  
**Nationality:** Italian

*“Moving around in a car during the day is way too slow to make sense for short distances and if you only need to move yourself too, I can tell from using a bicycle in rush hours a lot, I was faster than cars in many occasions.”*

*“I check travel planners when I need to travel to a place I don’t know. But, Since they’re so convenient I tend to check back for routes I already know sometimes”*

*“ If you’re wealthy you can’t be seen using public means, like those are for the poor.”*

## Behavior types

**Using public transport:** Familiar Behaviour  
Pay as you go user

**Using Shared Bike:** Familiar Behaviour

**Using Shared Car:** Ready to Perform

**Using travel planners:** Internalized stage

**Using TNC:** Aware Stage

## **Concerns/Constraints**

I signed up for enjoy after one night I was far from home and the metro service had stopped, so I'd have a backup if it happened again but haven't used it so far.

When having your personal bike you always Have to keep an eye on weather forecasts, worrying that it might get stolen, etc

Not being able to pre-plan her trip.

Cramped feel of public transportations when they're full  
A metro wagon in commute hours in summer is stinky and sweaty  
A full metro wagon can be alienating in general if you're using it a lot  
Avoid using underground transportation because she feels it is messy and crowded.

People still retain a mentality that it feels more independent and practical to have your own car. more of a status symbol from the past.  
Roads are cramped with cars no one knows where to park.

## **Expectations**

Private cars just make no sense for a single person to just move around.

I have no doubt personally that public and shared transport make more sense than private in a city but I get frustrated when they end up being just as slow, for any reason.

In public transport, a precise time planning like when she plans on her bike.

Be able to conduct another activity in a public transport like reading a book  
Increase number and frequency of public transportation.

Less cars so would free up the roads and probably lessen surface public transport delays.

Buy a ticket on the bus where driver is able to check that everybody has a ticket too.

Direct and better and more affordable connections with major airports.

# travelers interview 7

**Name:** Fabrizio  
**Sex:** M

**Age:** 38  
**Nationality:** Italian

*“I would never take a 90 Bus in the night instead I usually take a taxi even if I had to pay a lot.”*

*“I wish the metro would work non stop on a Saturday like in other big cities.”*

## Behavior types

**Using public transport:** Internalized stage  
Monthly subscriber

**Using Shared Bike:** Internalized stage

**Using Shared Car:** Ready to Perform

**Using travel planners:** Familiar Behavior

**Using TNC:** Familiar Behavior

## **Concerns/Constraints**

Safety in public transportation in the night.

Shared services that you have to park in a designated place (BikeMi).

Temperature of the metros are inconsistent .

Not having his driving license wants to works on having his license.

No bike recommendation routes.

## **Expectations**

Non stop working public service in the weekend with controllers to secure it's safety.

Better night services.

No more public biking park spots.

# expert interview: URBI

**Name:** Emiliano Saurino  
**Urbi (MaaS operating in Milan)**

## **1. Since when did Urbi start to operate in Milan?**

February 2014

## **2. Do all the city that you operate in are similar or do you feel each one has its own particularity?**

We open a city when there are more than 2-3 shared mobility services available, where we think an app like URBI makes sense.

This means that usually they are similar in terms of size and mobility offer. On the other side every city has its own particularity and we need to adapt. A big city like Milan or Berlin with many citizens and many mobility players has different needs than a “medium” city like Turin for example.

## **3. Can you tell me more about the particularity of Milan?**

Milan in Italy is a pioneer in mobility. On one side they are fighting private cars and pollution, on the other are facilitating new mobility trends.

This is a good situation for a service like ours. The users are “digital ready” and they are willing to use new services. Between the Italian cities is also quite international

## **4. Did you face any challenges to launch as MaaS?**

The main problem we are facing is that the public transport company (ATM) doesn't want to cooperate with new initiative although the city is asking them to do so. This is a particular situation because the city is supposed to own ATM.

On the other side, but this is a common problem in all cities, the private stakeholders are not yet in a phase where they see a value to be aggregated. We think that right now the services are not competing between each others, the real competitor is the “private car”.

In order to convince a user to leave the car at home, the alternative service has to be reliable and convenient.

The only way to achieve this is having multiple services.

They still think they will be the only mobility provider

## **5. Did you do any user test before launching in the city? And did you find it was easy to adopt by user?**

It depends on the cities. Usually we “open” a city and then we adapt listening to the users. They give feedback on services they want in the app and they allow us to discover if a city has data that we don't know exists.



Even between same service running in different cities there are small differences. We aggregate more than 60 providers, it's almost impossible to be updated with the changes happening without the help of our users. Once we can reach a core user group in the city everything is much easier. This is the tricky part in "medium-small" cities.

**6. When it comes to travelers, what are the most common pain points that you identified?**

First of all we assume that they are already familiar with shared mobility services, it's difficult that a traveler decides to use them the first time while abroad.

The main pain point is the discovery and enrollment on local services, most of the time they are already registers to other services with all the documents and payment already validated. Going through another registration flow is a big blocker.

The second pain is lack of trust. It's not that they want to pay less, but they might have the feeling that they are paying more for a service just because they are tourists. Especially in Italian cities, it is important to give them a fixed price in our MaaS solution, so they know how much they will pay before they use the services.

**7. For users, did you define any kind of target (age group, personas, living in a specific zones etc.)?**

We did not define target at the beginning. Now we are looking to our data to understand who is using our app and how we can improve the experience of the target that we are not yet hitting. For example most of our users right now are between 24-34 and they are male.

We are working to improve our product in order to attract more females and 18-24 target.

**8. Have you received any kind of feedback from adopters that you thought were insightful?**

We receive many feedbacks by mail, but mostly regarding services and how to improve the current app.

Regarding new features we try to be fast to put in the app a POC of the feature we want to test and than analyzing the data on how the users interact with it we decide if it makes sense to invest time developing it.

**9. How do you currently reach customers (touchpoints and channels) and are you planning on adding others for the future?**

We have tried different approaches. In Milan we've also opened a temporary shop.

In general the most use touch point is mail, than reviews and than social. We do have a couple of "core users" that time to time visit us for a coffee :) In the future we'd like to try to organize small and local mobility events.

# designer ideation feedback 1

Name: Liqin

Service Designer

**1. If you can share some general thoughts about the ideation workshop. Also if you have in mind some advantages and disadvantages about using tools**

The workshop is great, it is the first time me as a service designer to do such scheduled brainstorming section and also it is interesting because it all starts from changing users' behavior's point of view. There are 8 stages of behavior change, it would be great to better explain the difference between those stages. Just maybe taking the time into consideration, it is a little bit too long .and maybe think about how to introduce those tools in a simple and easy way.

**2. Did you think using users behavioral state and this method to conduct the ideation was useful for the project?**

Yes, definitely. It provides a new perspective, promoting a new service is actually changing user's behavior.

**3. What did you think about using the canvas (Design Ideation Canvas, Idea Interlink Canvas, Idea detailing Canvas)**

Some parts actually we didn't use. For example for the design ideation canvas, we didn't talk about the service organization part and the human touchpoints part. I really like the idea interlink canvas, that's the part that we actually start brainstorming and i will prefer to have more space.

**4. What did you think about using the ideation cards? Did you feel they were useful to generate/validate more ideas? (Current context cards, Ignite cards (Primary & Secondary) Challenge Cards, Enrichment Cards )**

Some yes, but I need time to actually understand the cards, but maybe if I use the cards more frequent, I will adapt it easier and faster. Also, as I remember there are some moments that Ravi interprets and ask my understanding about the cards, and I didn't understand it totally. The illustrations of the cards are super good.

**5. Some Ideas to improve the ideation workshop and the use of these particular tools**

Have better explanation about the tools. Maybe a presentation or something instead of just papers.

# designer ideation feedback 2

Name: Felicitas      Service Designer

**1. If you can share some general thoughts about the ideation workshop. Also if you have in mind some advantages and disadvantages about using tools**

I think it was useful because brainstorming was clear and focused on right things. It was easier to think about topic and write down things that I never used to think about before

**2. Did you think using users behavioral state and this method to conduct the ideation was useful for the project?**

I think it was useful because it was interesting to think about stuff that you will never have on your mind to come to the solution.

**3. What did you think about using the canvas (Design Ideation Canvas, Idea Interlink Canvas, Idea detailing Canvas)**

I liked the idea of using canvas because there were main points to think about, it was easier and faster than regular brainstorming

**4. What did you think about using the ideation cards? Did you feel they were useful to generate/validate more ideas? (Current context cards, Ignite cards (Primary & Secondary) Challenge Cards, Enrichment Cards)**

They were useful but sometimes confusing. Sometimes I was able to validate more ideas but sometimes it was too confusing for me to read them and think about the main topic

**5. Some Ideas to improve the ideation workshop and the use of these particular tools**

Maybe an introduction with a very graphical presentation on the tools and a distinction by color of the different kinds could help to clear out the concepts

# designer ideation feedback 3

Name: Tamara      Product Designer

**1. If you can share some general thoughts about the ideation workshop. Also if you have in mind some advantages and disadvantages about using tools**

the cards and supports were a huge help to ideate, identify directions and confront each other

**2. Did you think using users behavioral state and this method to conduct the ideation was useful for the project?**

absolutely, yes

**3. What did you think about using the canvas (Design Ideation Canvas, Idea Interlink Canvas, Idea detailing Canvas)**

The design ideation canvas seemed really useful, the idea interlink canvas was nice, but not that useful in my opinion, I didn't see such an advantage to simply clustering ideas according to specific parameters. The limit of the printed paper made it difficult to organize the quantity of post-its

**4. What did you think about using the ideation cards? Did you feel they were useful to generate/validate more ideas? (Current context cards, Ignite cards (Primary & Secondary) Challenge Cards, Enrichment Cards)**

They were very useful yet a little confusing in the beginning, since there were a lot and subdivided in categories. This made it difficult in first instance to fully concentrate on the ideation instead of what card to take and how these were supposed to work



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