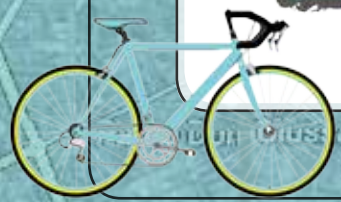

CASA BICI

TAKE CARE OF YOUR BIKE

POLITECNICO DI MILANO
PRODUCT SERVICE SYSTEM DESIGN MASTER DEGREE

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Design is a lifestyle, which goes through my whole life unconsciously.
When someone lives and enjoys every piece of the land, everything will lead him to a perfect direction. I love Milan. I love Italy. I Love everything she brings to me.
Observing things around me, using design as a tool, making a better life.

Thanks for all of you, for everything.
Be positive and happy!

01.08.2013 - 30.04.2014

ABSTRACT

English version

This paper shows how to create a safe, convenient, comfortable and practical way to park bikes around Milan. The analysis relies on national aggregate data as well as case studies of significant cities in other countries. Bicycling is environmental friendly way to treat our cities; moreover, there are great advantages on the aspects of economy and society. It's a sustainable way for the city development.

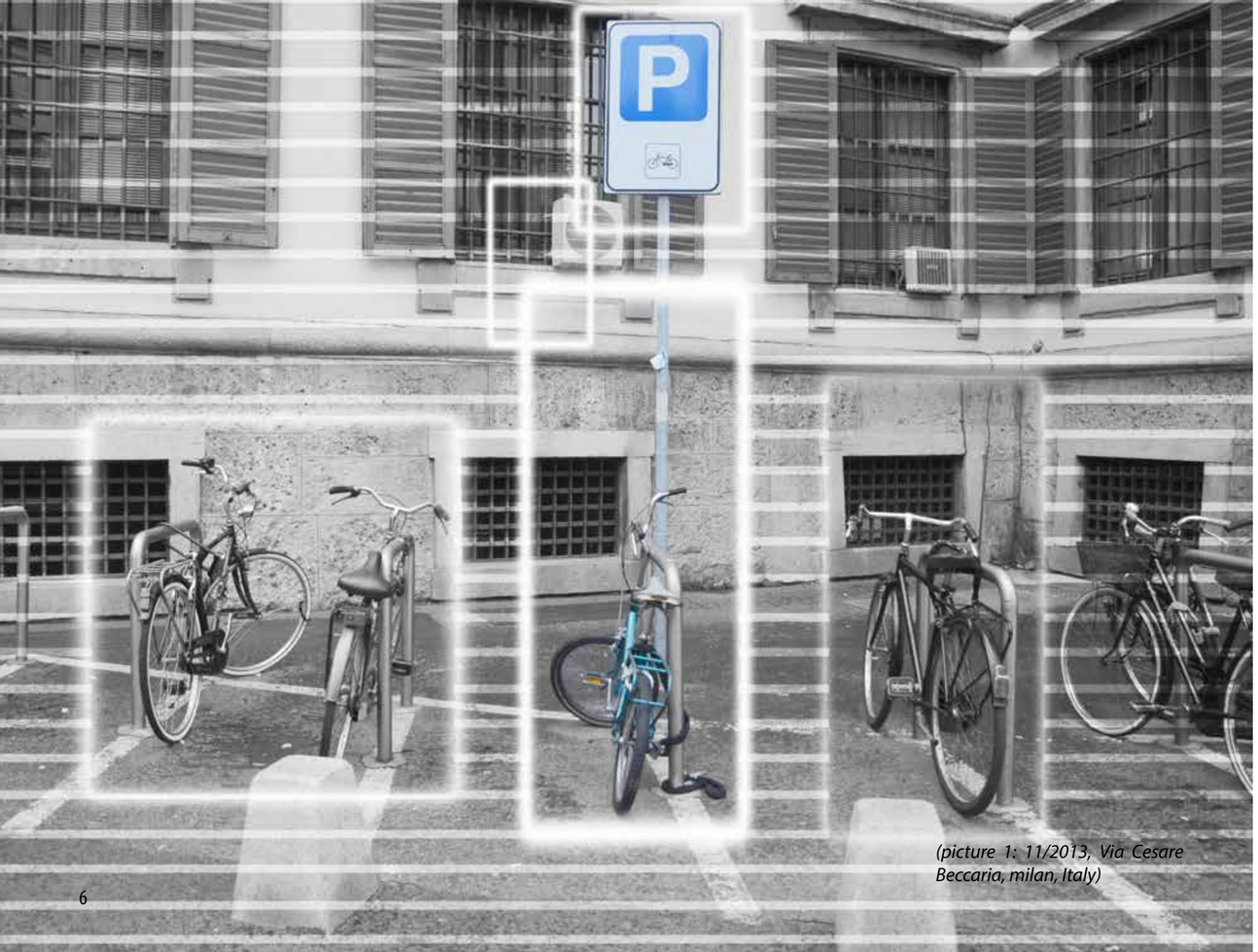
Separating cycling facilities along heavily travelled roads and at intersections and combined with special areas with less traffic to achieve high levels of bicycling appearance. Additionally, the other important manner, which is the main topic will be realized within this project is to design ample and safe parking space for bikes, making all through integration with public transportation, comprehensively utilizing space, and creating a range of promotional events intended to generate enthusiasm and wide public support for cycling. In order to gain the most effective results through this service system, this project will be focus on the existing secure and suitable space, to support more specific users, giving a totally fresh, simple and targeted way, and creating new urban parking system for personal bicycles.

ABSTRACT

Italian version

Questa tesi dimostra come creare un modo sicuro, conveniente, comodo e pratico di parcheggiare le biciclette a Milano. L'analisi si basa sia su dati nazionali sia su casi studio presenti in rilevanti città in altri paesi. Andare in bicicletta è un modo eco sostenibile di rispettare le nostre città; inoltre, ci sono grandi vantaggi per gli aspetti economici e sociali. È un modo sostenibile per lo sviluppo della città.

Per permettere a più utenti possibili di poter andare la bicicletta, la soluzione migliore è di separare le infrastrutture per le biciclette dalle strade pesantemente trafficate e dalle intersezioni pericolose, utilizzando aree speciali meno trafficate. In aggiunta un'altra importante questione, che è il principale argomento che sarà analizzato e sviluppato in questo progetto, è di disegnare un ampio e sicuro parcheggio per biciclette, tenendo conto l'integrazione con il trasporto pubblico, utilizzando a pieno lo spazio e creando una serie di eventi promozionali in modo da generare entusiasmo e ampio spettro di supporto pubblico per il ciclismo. Per ottenere i più effettivi risultati tramite questo sistema di servizio, questo progetto si focalizza su trovare e migliorare adatte e sicure infrastrutture, per supportare meglio utenti speciali, dando un modo totalmente fresco, semplice e metodico e creando un nuovo sistema di parcheggio urbano per biciclette di proprietà privata.



(picture 1: 11/2013, Via Cesare Beccaria, milan, Italy)

INTRODUCTION

The space for parking is a crucial and tough task to be solved in current intensive urban areas. No matter they are private or public transporting tools; they occupy loads of valuable and limited existing space. Cars, buses, subway and bicycles are the most intimate ways of transportation in our daily life. However, cycling is a very useful and worth advocating way for urban people. There is neither any kind of air pollution, nor costs expensive fuel and taxes, moreover, it has no traffic congestion to worry about, and one can control arrival time and feel more free and healthy to ride a bike.

Supporting for cycling is a very efficient way to protect the urban life. From case studies done in other countries, like Netherlands, Denmark and Germany, which are famous for their management planning about cycling, each of those countries proposed the most suitable methods to support and encourage bike users. The same area space can satisfied more bike users than other private car owners. However, until now, bike users still have to concern about theft and vandalism. What we need to do is to design a complete service system, which can offer a safe, convenient parking space for bike users to take care of their bikes; to search for existing places, which may change existing situation and make a balance between users and locations. Choosing a sustainable way for bicycling means that choosing a good future for our city.

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Discovering & Analysis

(picture 2: 03/2014, Piazza Risorgimento, Milan, Italy)

(picture 3: 02/2014, Duomo, Milan, Italy)

Exploring around Milan

Milan is the one of the most popular cities in the whole world, which attracts millions of people come to visit every year. It is the main economic, financial, industrial center of Italy. It is also a romantic and dreaming place for world fashionista and designers to get together, celebrate and share every design contributions. Exploring around Milan is the way to find opportunities or obstacles immediately. Using eyes to observe, listening and feeling everything transformed in front of you, finding a way to design a better life for the future.

Comparing with other cities in Italy, Milan is an international city. Different nationalities stay in one limited space. This forced the city to be a more complex community. People from all over the world, with different background and culture, make the city hard to balance everything in an equal way. There are loads of problems, which have to be solved. Something has quite big influence on the whole country, but something is too little to be considered with the homeland security. For example, the problem of bicycles park security.

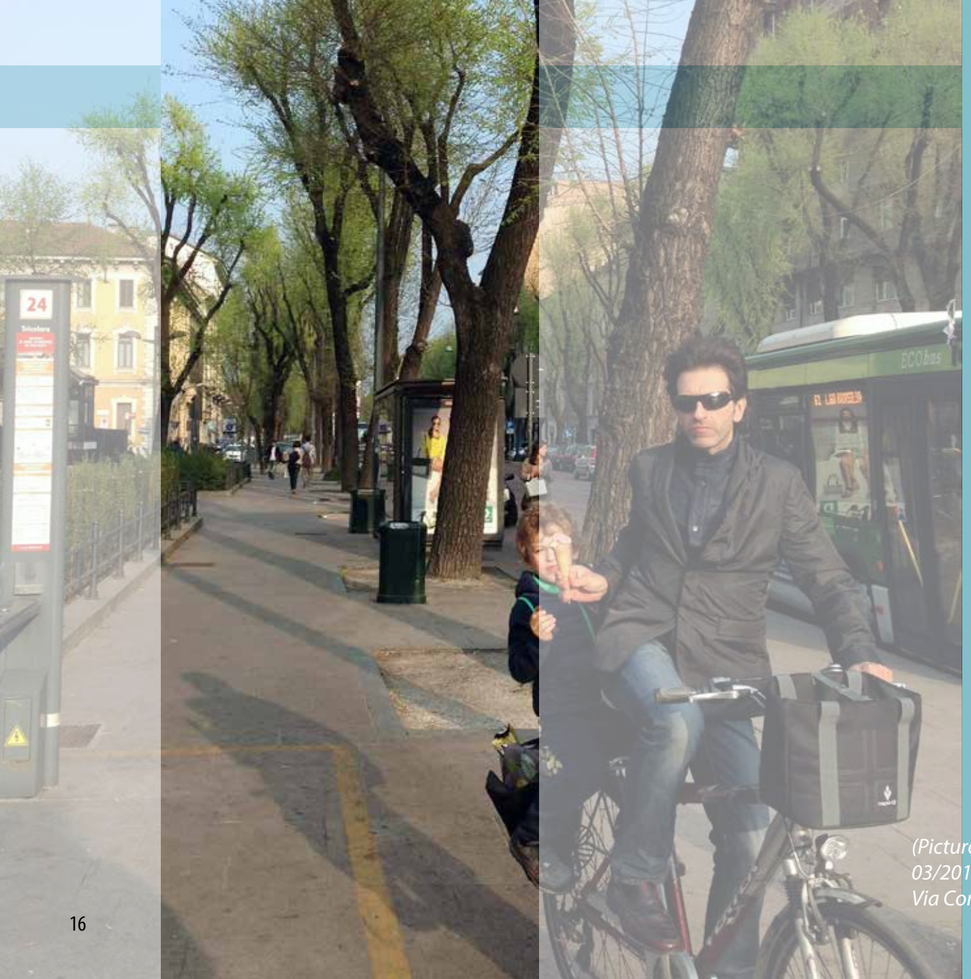
Since 2009 Milan has a bike-sharing program launched by ATM, called "BikeMi". It's an ambitions project and a huge step to bring cycling back to Milan. There are stations with ATM and "BikeMi" signs, which located in downtown, train stations, universities, hospitals and most of the common places. One can easily pick up a bike and ride it, at the same time, you can park the bike near your destination. 2.50€ a day and 6€ a week, picking up a bike in one of the many docks around town and leave it at another. "BikeMi" is Milan's bike sharing system, it is an easy, practical and ecological service. Designed to promote user mobility, it is not just a simple bike rental service but also a real public bicycle transport system to be used for short trips.

Looking around the city of Milan, there are lots of bikes parking everywhere. It is interesting to look at some of the bikes without seats, no rare wheels, or only a main part of bicycle left there with a lock laid on a tube. It is obvious that someone destroys bikes and nobody can prevent these things from happening. Security level for parking bikes in Milan shows a negative status.

Due to life changes and population growth, public city space become limited and used for different functions. There are formal places for drivers to park their cars, but for bikers, it seems not convenient to find a place to take care of their bikes; owners park their bikes in a random way. No matter there is parking facility near by or only a tube standing in the middle of that park.

Thus it leads me to think about a series of problems when using bicycles in Milan. Especially parking service for bicycles.

(Picture 4 : 12/2013, San Babila, Milan, Italy)



(Picture 5:
03/2014,
Via Corso Concordia, 2, Milan, Italy)

— Cycling circumstance in milan

Cycling is one of the most important transportation in Milan. It is quite useful and suitable for citizens or visitors to ride bikes to go around the city. Combined with riding a bike; parking for bikes has also become a big challenge.

Cycling is the best way to reduce heavy traffic and air pollution. It combines convenience with fun. It will relax your mind during the riding period, the increasingly fast pace of life doesn't often leave us time for physical activities. With this way of getting around you can exercise outdoors, taking advantage of short trips, even for work, to stay in shape and fight stress. Cycling is a sustainable way to save energy and maintain resource recycle.

Some databases demonstrate that people who ride a bike are happier than those who drive. Not only about physical side, but it also keeps far away from mental diseases.

Riding on the road you can talk with people whenever or wherever you are, it is another way to communicate with others; it helps people to understand and feel about their life in a more practical way.

There are lots of bikers in Milan. No matter it is sunny or rainy, they prefer to use their bikes as the first tools to arrive their destination. It cannot be more convenient. Here in Milan, it allows riding on the pedestrian areas. Bike is allowed to bring into metro stations or train stations; it is convenient to transport bikes. There are special routes for bike users to enter, and inside the train, it has specific space for bike parking.

(Picture 6: 03/2014, The train to Genova)

Since 2009 Milan has a bike-sharing program, launched by ATM, called "BikeMi". It's an ambitions project and a huge step to bring cycling back to Milan. There are stations with ATM and "BikeMi" signs, which located in downtown, train stations, universities, hospitals and most of the common places. One can easily pick up a bike and ride it, at the same time, you can park the bike near your destination. 2.50€ a day and 6€ a week, picking up a bike in one of the many docks around town and leave it at another. "BikeMi" is Milan's bike sharing system, it is an easy, practical and ecological service. Designed to promote user mobility, it is not just a simple bike rental service but also a real public bicycle transport system to be used for short trips.

(picture 7: 04/2014, San Babila, BikeMi sharing system)

(picture 8 : 04/2014, Piazza Antonio Gramsci, Milan, Italy)

Despite this kind of public bike sharing system, there are also different levels renting shops or agencies in Milan for users to choose.

"Rossignoli bicycle shop" is a place where you can rent bikes. It is a normal bike shop, but offer this renting service for visitors, it costs 6 euros for half a day, 10 euros for a whole day, 18 euros for a weekend or 35 euros for a full week, and 100 euros deposit and identification are both needed.

Milan doesn't have much parking facilities for bikes. Looking around, one will find some stand bicycles, but most people just chain or lock their bikes with something like a tube, which is not easy to move. There are more parking facilities in the center of Milan, but it seems still not enough, when some place is full of office buildings or near an important metro station. Parking situation is quite disorderly and unsafe. Fortunately, bikes are more free to park and do not take so much space like cars or motorbikes. One space for car can park at least 10 bicycles.

There are some bicycle lanes in Milan, but they are not very complete, if you go around and ride for a long time, you can find some of them, which are using different materials to separate from roads, and they are very narrow and short, sometimes it is hard to find the next lane to continue.

(picture 9: 03/2014, Porta Vittoria, Milan, Italy)

Overall, cycling can lead to a harmonious society for citizens, but lots of difficulties still confront and conflict of cyclists in Milan. What we can do to support and improve cycling environment in Milan?

(picture 10: 11/2013, Via Cesare Beccaria, Milan, Italy)

Cycling Trend in Other Countries

(picture 11: 03/2014, Bologna, Italy.)

What is your main mode of transport?

Country	Bike (%)	Car (%)	Public transport (%)
Netherlands	31.2	48.5	11.0
Hungary	19.1	28.2	35.3
Denmark	19.0	63.4	11.8
Germany	13.1	60.9	14.8
Slovakia	9.5	32.3	30.9
Italy	4.7	54.4	18.2
Ireland	3.2	67.7	14.2
France	2.6	63.7	20.1
UK	2.2	57.6	22.1
Spain	1.6	47.4	30.2
EU27 average	7.4	52.9	21.8

SOURCE: EUROPEAN COMMISSION FUTURE OF TRANSPORT REPORT 2011. 1,000 PEOPLE IN EACH COUNTRY WERE ASKED; WHAT IS YOUR MAIN MODE OF TRANSPORT FOR DAILY ACTIVITIES?

(figure 1: BBC magazine, 7 August 2013, Last updated at 23:54 GMT)

Netherlands

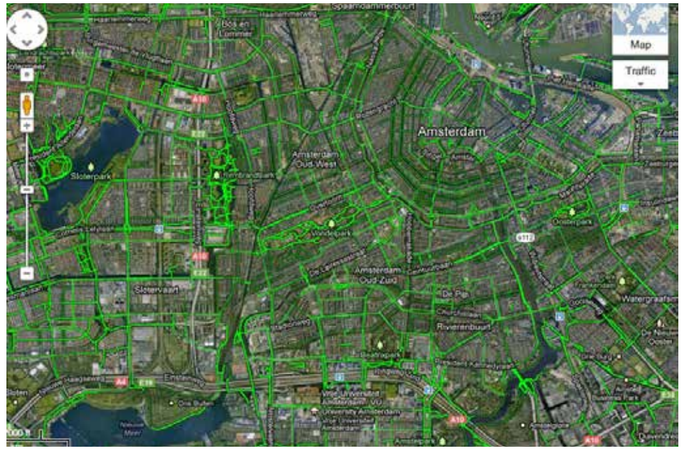
-- A Wonderful Land for Cycling --

Netherlands is a country can not be forggotten when wrote papers about bicycles. Especially the city Amsterdam. It is the most famous bicycle friendliness city in the world. Compare with other countries, netherlands start their ealy life of cycling. In 1890s, the dutch were already buiding bicycle lanes for bikers. However, the development of economy and technology, bikes were squeezed out, instead of motor cars, even so, in Netherlands, the number of cycling was still higher than other European countries.

Netherlands

Since now, the country has complete nerworks of cycle lanes in all towns as well as in country side. It can reach all corners where you may not imagine before. In Amsterdam, up to 60% of trips are made for bikes. It is safe and comfortable to ride bikes in Netherlands.

Single factors cannot support cycling remains so popular in Netherlands. It must combined with other factors reinforce each other. For instance, In Netherlands, there is continuous network of cycle paths, clearly signposted, well maintained and well lit, giving priority to cyclists, it makes cycling itself convenient, pleasant, and safe. There are also bicycle shops spread over the country.



(Figure 1: Green lines and dashes show Amsterdam bicycle lanes, paths and routes, from the view of Google map)

Above all, undoubtedly, there are bike-friendly public policy, planning and laws working together to promote cycling. Considering the needs of cyclists in all stages of urban planning. There are limited policy of using cars, like town with limited number of access and limited parking place for cars. Inconvenient of using cars lead to there are less car owners in the town.

There are very scrupulous laws illustrate how complete the bicycle policy it is in Netherlands, It is allowed cyclists without bicycle helmet. They concluded that a compulsory helmet law would have a negative impact on population health. So it only used by young children and sports cyclist, other cyclists are free to use helmet during their daily riding.

(picture 12: Bike parking in Netherland)

Bicycle parking stations are all around the Netherlands; some of the station can hold thousands of bicycles. Bike theft is very common, cyclists have no more methods to avoid be stolen, they were advised to lock their bikes with a built-in lock and attach a chain from the bike frame to the stand. There are also offer watched cycle parking for a nominal fee,

City councils enforced cyclists to park their bikes in the bike stands, if there are bikes are not placed there, they will remove that bikes. So the locks are cut and for the owners have to pay a fine for their improper behavior.

The Dutch already consider everything it will be possible to influence cyclists, to improve and support their cycling culture go further and further.

Netherlands

(Picture 13: Nørreport Station in Copenhagen. Bike chaos. Author: Leif Jørgensen)

Denmark -- Not Enough Parking Space --

Denmark is the second country I want to study for my design process. From study, there are large amount of cycle paths and lanes built through all city and countryside as well as Netherlands. Cycling is a main feature you can see directly from city appearance. It is compared to the Netherlands as a bicycle nation. Cycling in Denmark is combined with other public transportation service. Bicycles can easily transport in specified carriages.

There are large amount of parking facilities in Denmark, but parking space and stands are not available for most of cyclists. The research demonstrates that existing parking facilities are often in a poor situation, especially in big cities. It is necessary to know that the Danish Cyclists Federation published a bicycle-parking manual with a series of guidelines. This arrangement is from another side to advice city planners to improve their parking facilities in the future.

Different with Netherlands, Denmark doesn't have very strict responsibility for car drivers, but there is a system that practically similar with it, which consider first cyclists rights.

Denmark

China -- A Totally Different Country from European Countries --

Different from European developed countries, China as a developing country is facing more challenges than others. China has a huge population, and there is tremendous distance between different social classes. It is hard to control every kind of things between diverse classes of people. Government makes policies and rules to guide citizens, but things always cannot follow your thought. In brief, with the development of the whole community, everything is changing, no matter how it changed, some cases still cannot avoid happening in our daily life.

(Picture 14: Hangzhou , Zhejiang, China, 2010.)

China

(Picture 15: Tiananmen Square, Beijing, China,1984. Athour: Fang Xuehui)

(Picture 16: Infront of Great Hall of People, Beijing, China, 1984. Athour: Fang Xuehui)

For instance, in China, there are huge numbers of bicycles. More than 60% persons have their own bikes, but most of the bikes are not original, they come second hand market or illegal market. At the beginning, lots of reasons forced very small part people to steal bikes for survival, but only after a short period, lots of people start looking for this as a main job. There are demands in the market, so it becomes a normal phenomenon to steal bikes from everywhere. Unfortunately, no method can help them in a good suggestion or a good way until now.

Ten years ago, when I was living in my aunt's house, which had five floors without lift. Bike was my main tool to go around the town. There was a shed with plastic fences inside the building area. It takes care of our bikes and motorbikes. There was a specified worker to manage everything. We didn't pay the money, cause we were residences of this community. So every time I back my aunt's house, I always went to the shed, park and lock the bikes there. The manager familiar with all of us, so strangers cannot take away bikes under his eyes. It's more safe and convenient to have this kind of shed for us to use. And it also can prevent from bad weather.

China

Not all the places in my town have this secure sheds, once you careless, you cannot find your bike anymore. The persons, who had been stolen didn't go to the police office, because it was meaningless.

Until now, government didn't take any measurement to consider bicycle secure problems in China. The sheds for parking cannot find it widely, it was an old and not efficient way to be used in nowadays community. Users always have to carry their bikes back home. Because of unsafe condition, Most of them didn't spend too much money for a bike, because they are afraid that one-day it will be stolen again.

With the development of economy and technology, almost every person wants to own a car. More and more cars are instead of bicycles, and the good thing is that cars are not so easily to be stolen. On the other side, people realize that air pollution is increase, heavy traffic congestion. Lots of problems come fast, because of overcommitting cars. And you cannot think about it until it happens to you.

Fortunately, Government and most of the citizens have realized the bad situation, they advocate using some kinds of sustainable methods to change and improve the environment. In order to relieve traffic pressure and give a better living environment, there are also specified bike-sharing systems in some of the cities in China.

(Picture 17: Beijing, 2009. Athour: Fang Xuehui)

China

Bike Sharing System

— Different Kinds of City Bikes Are for Only One Reason

(Picture 18: 03/2014, La Spezia, Italy)

-- bike&CO --

Bike Sharing System in Lake Como

(Picture 19: 02/2014, Lake Como, Italy)

-- bike&CO --

I went to the lake Como not only once, which is the most popular lake in Italy, and it is not far away from Milan. There is a bike sharing system called "bike&CO", it provides travellers or citizens a service that allows you to easily move around the city without using cars. "bike&CO" is a real alternative to the car for getting around town. The main purpose of this service is to launch green and environmentally friendly mobility transport in urban centers.

(Picture 20: 03/2014, Cinque Terre, Italy)

-- Cinque Terre --

The second place I want to recommend is Cinque Terre, which is also a very popular tourist destination. It is one of the world national park and became part of UNESCO World Heritage Site. Cinque Terre mainly combined with five villages, and trains are the most important transportation to connect them. I discovered that compare with other cities, the Cinque Terre is a very small city, and there are few bicycles bedside roads. I have seen a same parking facility for bikes in Milan, but here, people park bikes in a totally different perspective. Because that facility can use on both sides, it creates more seats for parking.

There was no bicycle sharing system between villages, cause it is not suitable for Cinque Terre's landscape and I think people there can use boats as well as bikes.

-- Spezia in Bici --

On the way back to Milan, we had to pass by La Spezia, which is the city allowed the Cinque Terre inhabitants to escape their isolation, because of the train between this city La Spezia and Genoa. I looked around the city of La Spezia, there is a bike sharing system in the center, called “Spezia in Bici”. It comes from provider of “Bicincittà”. I searched some information about “Bicincitta". It is a bike sharing initiative created and promoted by the urban communications, products and services company, Comunicare(Turin), to make ‘shared bicycles’ available to get around Italian towns and city centers. It also said the service is combined with other public transport systems in order to facilitate intermodal options for travelling around and in and out of the city without a car.

"C'entro in Bici" is a bike sharing system, which I discovered in Bologna of Italy. Bologna is a prestigious cultural, economic and political institutions as well as one of the most impressive trade fair districts in Europe. It seems the whole city is more active and full of vigor. I feel that there are more public parking infrastructures than other cities, almost everywhere can easily find proper parking place. Because it is a city without metro, the citizens' main transportation are bus and bicycle. However, "C'entro in Bici" only takes a small part of people's daily life. Cause most of the citizens have their own bikes.

Large amount of bike users, it means the city and bike users both confront more difficulties. For instance, parking security, and the condition of parking environment. Most of the bicycles are not in good status. Some of them are without seats, some of them are only left main structures of bike, and so on. And also the public sharing bike can be destroyed easily.

Thus, is it possible to find some solutions can solve usual problems?

BICYCLE PARKING ISSUES

— Existing Bicycle Parking Facilities in Milan

(Picture 21: 04/2014, Piazza Antonio Gramsci, Italy)

At the beginning of choosing my final thesis topic, I was searching pictures about Milan in my brain, and I walked around the city, especially the area of city center, also the area around my living place. I was thinking if I could do anything about the city?

(Picture 22: 03/2014, Lambrate stazione, Milan, Italy)

One day I crossed a street and found there was a bike locking with a taxi signpost, it's a taxi station, why somebody parks his bike with that tube? Attracting by that bicycle for only a second, I went away.

After few days, I went to that place again, the bike still locking there. Several weeks past, I still saw that bike standing in the wind, with poor situation, and someone moves, so it turned to another side. After one month, the bike still standing there in the rain, and nobody can take it away legally; even it impedes the normal working.

(picture 23: 10/2013, Piazza Duomo, Milan, Italy)

(picture 24: 12/2013, Piazza Duomo, Milan, Italy)

(picture 25: 01/2014, Piazza Duomo, Milan, Italy)

(picture 26: 11/2013, Via San Paolo, Milan, Italy)

This is a phenomenon that bike locking on a taxi signpost. It represents the bicycle parking condition in almost all the cities, not only in Milan, which cyclists park improperly, someone locks with a fence, on a tube, or several bikes binding together.

There are more than three kinds of bicycle parking facilities appearance in Milan. However, the problem is that these all kinds of facilities cannot take care of bikes. Thieves can steal them easily, and cannot protect them from bad weather. Furthermore, there are lots of bike stands around the city. Most of them are not in good situation, no matter the bikes or the stands. What I can do? Which methods can help bike users in Milan?

— Bicycle Parking Service in Milan

In view of bicycle parking facilities in Milan, I start to discover is there any bicycle parking service in Milan. Since now, I didn't find a complete case to solve this problem. It is hard to find a private bike parking service system, and it considers the secure side of cycles at the same time. Although you can rent a bike or you can use public sharing system, how about riding your own bike go around the city.

It is a chance to think about a service system to take care of private bikes. Good system can guide users in a proper behavior, If the service can work and function well, it will lead to a more sustainable and content result.

(Picture 27: 03/2014, Bologna, Italy)

Motor Vehicle Parking Issues

(Picture 28: 03/2014, Dateo, Milan, Italy)

— Exiting parking system for cars

Compared with bicycle, Car park system has a long history. Different from bikes, the car cannot bring with you to put everywhere. The size of a car is much bigger than a bike, so it needs more space.

There is some automatic parking systems in Milan, they work well and make contribution for the city. Most of the park lots are underground, and some of them are stereo garages, in order to expand more space. On both sides of road, there are many parking spaces, some of the park seats with yellow strips are reserved for residence, and with the blue strips are the areas for visitors or someone else. All these services spend some money, but the price is reasonable and cost less. For instance, the price for blue strips on road varies from 1 euro per hour to 1.5 euro per hour.

— Analysis of Automobile Parking System

First of all, stealing a car is not so simple. Second, car park system gives a safe and convenient environment to support users. Third, car park system is not a rare thing we have today, it already becomes a successful and complete case. Loads of case studies can be found and each country cannot without this service.

Undoubtedly, the automobile-parking system creates a convenient, safe and useful space for drivers to park and storage their cars. It not only satisfied the users needs, but also improved the utilization percent of existing space.

— Electric Vehicle Sharing Service System in Milan

(Picture 29: 02/2014, Piazza Cinque Giornate, Milan, Italy)

Green Car is an innovative electric vehicle sharing system in Milan, Vehicle sharing system consists of a shared car, taken from the user in a specified parking area, and left in another area, which is the nearest area to user's destination. This service is similar with car rental service, but it's for short duration of trips, and it is more complicated to design a series of additional solutions for the whole system. For example, the charging stations, smart phone working network, the technology behind to support the project.

The Green Car project is a new and dynamic method, in order to overcome existing vehicle sharing services, which are standardization, inter-modality, multi-ownership, multi-business and social networking. Analyzing worldwide car sharing cases in major cities, understanding the best solutions adopted in different projects, then figure out the solutions for electric vehicle sharing system. It is a sustainable project of transportation in the city of MILAN.

The Methods to Improve Cycling

(Picture 30: 03/2014, Piazza Risorgimento, Milan, Italy)

Analysis of existing bicycle parking environment in Milan

For the first general aspect, the result of bicycle parking environment is unsatisfactory in Milan. There are outdoor parking facilities for bicycle around the city, however, the vast majority bike stands state are not good. Some of the pillars had been curved or cut off, and some broken bikes parked there for a long time and occupied the space, nobody deal with them. Sometimes when cyclists saw the broken bikes there, they will not use that facility anymore, they don't want to encounter the same tragedy.

(Picture 31: 03/2014, Lambrate, Milan, Italy)

Nonetheless, the utilization rate is extremely low. More specifically, there are some reasons. Firstly, the location is not near the destination where they really want to go, so that users will lock their bikes in front of the building, because it is more convenient and efficient to park and pick up. Secondly, there is no difference between using out-doors parking facilities or some columns seen at the edge of sidewalks. Neither of these two facts can make a sufficiently good care of your bike. Vandalism happened quite normal. And bad weather, like raining and snowing can not be avoided. Thirdly, even in their own apartment, there is not ample and right space for people to store bikes.

Moreover, Government didn't give as much as effort they could to promote cycling in Milan. For example, like Netherland, government put bicycles on the first place, gave cyclists special rights and it is more convenient to ride bikes than drive a car.

(picture 32: 11/2013, San Babila, Milan, Italy)

Main Goals

This project aims to design a service based on existing bike users in Milan, to solve the most normal problems with them, to take care of their bikes, To find existing public space or empty abandoned places, to manage limited parking space, to develop a safe, comfortable, convenient space for users. To design the most suitable way for the users of the bicycle and to create a sustainable and secure cycle parking service system based on Milan for our future.

(picture 33: 04/2014, Politecnico di Milano, Piazza Leonardo Da Vinci 36, Milan, Italy

CASA BICI

— Take Care of Your Bike

(picture 34: 04/2014, Work Table, Milan, Italy)

" CASA-BICI " is Milan's safe, convenient and comfortable parking service for nongovernmental bikes. This is a project which is made for bike users in Milan. It creates a secure environment for parking bikes, satisfies users' needs, improves utilization rate of bicycles, and designs a sustainable, practical and suitable bicycle parking service system.

Design Process

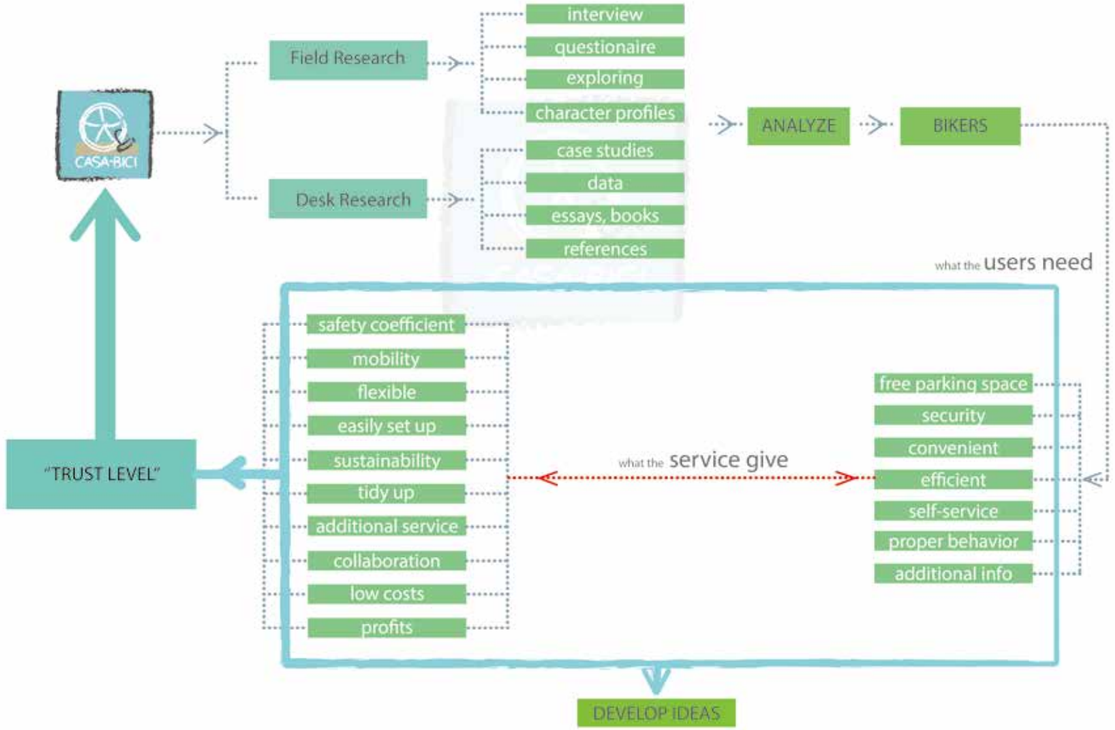
The whole project starts from October of 2013 until April of 2014. In fact, it takes much more time than these 7 months, in order to figure out my final thesis topic. It's quite tough and struggling to discover and decide which direction and content can be followed. I go around the city and observe everything happens around me. The bicycle is a tool can be used and seen everywhere in our daily life. Why I chose this topic is because of the disorderly bicycle parking conditions in Milan. Moreover, I have heared lots of my friends complaining about their bikes had been stolen not only once, thus, it can be seen as a problem or an opportunity to be considered. It is a good challenge to find a solution, and change the situation.

For these reasons, I did all the possibility to achieve my ideal results. I did a "Design Process" map to list all the methods and materials can be used for the project. At the mean time, it can give a clear thought so that I can follow the map to do what I need to do.

As you can see from the next page, field research combined with desk research. Then analyze all the material, which collected from the research part. From the field research side, there are four kinds of tools to help me understanding users needs . About desk research, there are also four methods help me to realise what's the solution can be taken.

Security, free parking space, convenient , and so on are the users needs, which collected from the research, then follow these needs, I defined what is the project can offer. Safty coefficient, mobility, sustainablity, low costs, and so on. And all these needs and offers I treat them as a " Trust Level". It means based on all the characters, users can trust us and choose our service. It not only good for bike users, but also can go back and improve the whole service system.

—Design Process—



Exploring

The first tools I used for defining this project is "Exploring". Because the project is about the bicycle users in Milan, so exploring the city of Milan have a huge meaning for the design process.

As following pages you can see that there are informal cards and formal cards. Informal cards represent informal behaviours when bike users parking their bikes, and formal cards represent formal behaviours .

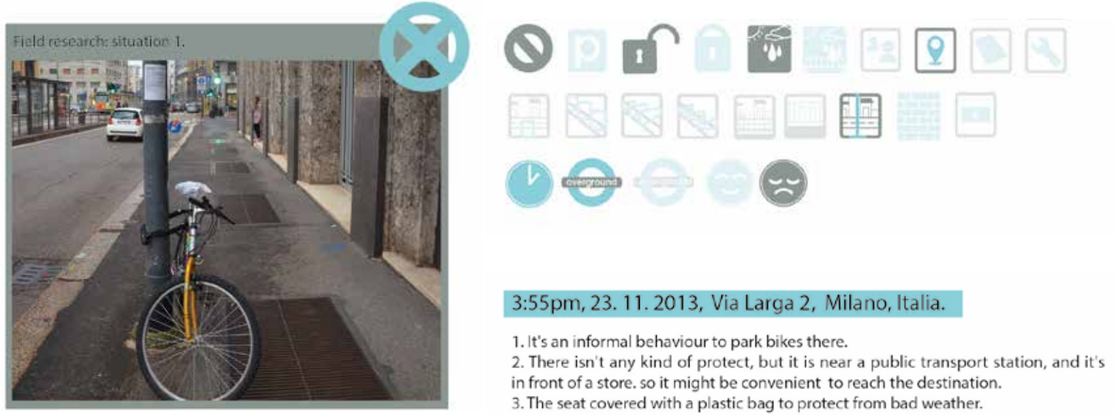
In purpose of understanding two kinds of cards with different behaviour much more better, I draw 24 icons to explain each behaviour in a live way, and i also divide them into two colours, so that these two kinds of cards can be more easily recognise which is the formal behaviour, which is the informal one.

Exploring is interesting, because it just like visiting some place by walk or ride a bike. It spent several days to go around different places. Even when I hanging out with my friends, I always can not forgot my project and take lots of pictures as my design materials.

It is happy to see diverse kinds of bicycle parking behavior, as you see from the pictures, there are tubes, fence, lock with two other bikes, even a trash bin, but it is more difficult to analyze and collect information from so different behaviors. Fortunately, I made these cards and they help me understand users behavior much deeper than I thought before.

Field Research

— Informal Card 1 —



As you read from the title, it is the informal card in grey colour.
The picture is which I took at that place, I record all the details, Like when and where.
Beside the picture, I wrote some sentences to explain the situation when I saw that bike.
And all Icons illustrate the status of the bike as well.

The meaning of each icons:
NO PARKING, PARKING, NOT SECURE, SECURE, NOT PREVENT FROM BAD WEATHER, PREVENT FROM BAD WEATHER, MEMBERSHIP, NEAR DESTINATION, RESTRICTIONS, SELF-SERVICE, ON BIKE STAND, ON SECOND KIND OF BIKE STANDS, ON THIRD KIND OF BIKE STANDS, ON FOURTH KIND OF BIKE STANDS, BESIDE ROAD WITH A FENCE, ON THE FENCE, ON THE TUBE, ON THE WALL, SPEND MONEY, EFFICIENT, OVERGROUND, UNDERGROUND, GOOD EXPERIENCE, NOT GOOD EXPERIENCE.

— Informal Card 2 —

3:57pm, 23. 11. 2013, Piazza Fontana, 6, Milano, Italia.

1. It's an improper parking place,
2. There isn't any kind of protect,
3. It is Near a public transport station.

— Informal Card 3 —

3:60 pm, 23. 11. 2013, Via Cesare Beccaria, 19, Milano, Italia.

1. It's an improper parking place,
2. There isn't any kind of protect,
3. It is Near a small square.
4. The seat covered with a piece of fabric, there is a black plastic bag in front c basket.

— Informal Card 4 —

3:60 pm, 23. 11. 2013, Via Cesare Beccaria, 19, Milano, Italia.

1. It's an improper parking place,
2. There isn't any kind of protect,
3. It is Infront of a building.
4. There is a trash bin and a huge flowerpot.
5. It 's a narrow place to park and it will be a barrier for passengers

— Informal Card 5 —

4:09 pm, 24. 11. 2013, Largo Corsia dei Servi, 3, Milano, Italia

1. It's an improper parking place.
2. There isn't any kind of protect.
3. It is Infront of a caffe bar.
4. There are three bikes locked together at the edge of sidewalk.
5. It is hard to steal three of them.

— Informal Card 6 —

4:45 pm, 24. 11. 2013, Via Sant'Andrea, 2, Milano, Italia

1. It's an improper parking place.
2. There isn't any kind of protect.
3. It is in front of a clothing store.
4. It is locked with a guidepost, at the corner of a street.

— Informal Card 7 —

10:51 am, 8.10. 2013 - 21:16 pm, 7.12.2013, Piazza del Duomo, Milano, Italia

1. It's an improper parking place.
2. There isn't any kind of protect during two months.
3. It is under a guidepost near taxi parking area.
4. The bike park there for two months, no one knows who is the owner.

— Informal Card 8 —

2:47pm, 18. 11. 2013, Via San Paolo, 5-13, Milano, Italia

1. It's an improper parking place.
2. There isn't any kind of protect, all be covered with plastic bags.
3. It is in front of the building, on the edge of sidewalk, be crashed easily by cars.

— Informal Card 9 —

1:19 pm, 1. 12. 2013, Via Arcangeli Pacifico, 2, Milano, Italia

1. It's an improper parking place.
2. There isn't any kind of protect.
3. Lots of people passing by, so the bike be locked on the stage, in order to leave a spac
for pedestrians.

— Informal Card 10 —

5:26 pm, 7. 10. 2013, Viale Papiniano, 40-42, Milano, Italia

1. It's an improper parking place.
2. There isn't any kind of protect.
3. It is damaged seriously.
4. No one knows who is the owner, and nobody will deal with it.

Field Research

— Formal Card 1 —

3:60 pm, 23. 11. 2013, Via Cesare Beccaria, 19, Milano, Italia.

1. It's a proper parking place with bike stands.
2. There are stone stands to protect from cars, but can not avoid bad weather.
3. It is Near the destination.

As you read from the title, it is the formal card in bright colour.
The same as informal card, there are details about when and where I went and took this picture, and also few short sentences to explain the situation of those bikes. also icons to show more obviously.

— Formal Card 2 —

3:60 pm, 23. 11. 2013, Via Cesare Beccaria, 19, Milano, Italia.

1. It's a proper parking place with bike stands.
2. There are more motorbikes than bicycles,
3. Cannot avoid bad weather.
4. It is near the destination.
5. Easily be stolen.

— Formal Card 3 —

2:02 pm, 18. 11. 2013, Porta Vittoria, Milano, Italia.

1. It's a proper parking place with parking facilities.
2. More convenient to park and lock bikes, tidy up the city appearance.
3. Cannot avoid bad weather.
4. It is near the destination.
5. Easily be stolen.

— Formal Card 4 —

2:36 pm, 3. 12. 2013, San babila, Milano, Italia.

1. It's a proper parking place with parking facilities.
2. More convenient to park and lock bikes, tidy up the city appearance.
3. Cannot avoid bad weather.
4. It is near the destination, more efficient than other improper place.
5. Easily be stolen.

— Formal Card 5 —

8:45 pm, 18. 11. 2013, Molino Dorino, Milano, Italia.

1. It's a proper parking place with parking facilities.
2. Old facilities with abandoned bikes, damaged seriously.
3. Cannot find owners, no one take them away and leave space for others.
4. It is near the destination,
5. Easily be stolen and destroy.

— Formal Card 6 —

6:00 pm, 18. 11. 2013, Via Sant'Andrea, 6, Milano, Italia.

1. It's a proper parking place with parking facilities.
2. It is near the destination, infront of office building, convenient to pick up.
3. Easily be stolen
4. Cannot protect from cars and bad weather.

— Formal Card 7 —

2:17 pm, 7. 12. 2013, Piazza Leonardo Da Vinci, 32, Milano, Italia.

1. It's a proper parking place with parking facilities and big shelter.
2. It is near the destination, inside campus, convenient to pick up.
3. Easily be stolen
4. Can protect from bad weather.

Picture 35
These are the first version of cards I print,
so that I can play with the cards and try to figure out if it can work or not.

Exploring in Milan, I discovered that there are various kinds of facilities.

There is no restriction or distinction while parking bikes on bike stands or in-front of the buildings. So users can park their bikes everywhere.

In the city, people can see bikes are everywhere, almost all of them cannot avoid dreadful weather, and thieves are quite normal to see, no place to choose for parking these bikes with protection, except bike owners who really consider of their bikes. What if there is a service can offer this opportunity, to take care of these bikes.

Questionnaire

Questionnaire is an important methods to ask users what they think about cycle experience in Milan and what they think about the service. Before I didn't put the question about age, after we discussed about details of all questions, we realized that different age people have different needs. so it is important to have a selection of asking:" How old are you ?"

The questionnaire published on the website. I use Google Document to do my questionnaire. After I published on the web, then I share with my friends. and it took more than more week, so that there are more people can fill the questionnaire.

There were 60 persons take part in this part of project. so I got 60 questionnaires and read each of them. Then I caculated numbers and made graphs.

Not only this Italian and English version, I also publish a chinese version to ask lots of chinese people to give some advice to solve this parking situation.

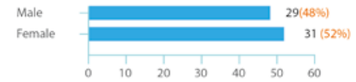
From the questionnaire identified different needs and possibility among cyclists. The majority of users confront the same difficulties. How to prevent their bikes to be stolen.

Understanding why the cyclists choose that place to park bikes, and which problem they think is the most urgent necessary to deal with.

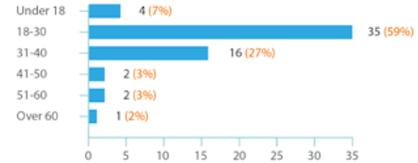
Furthermore, try to understand if there is a service can take care of their bikes and will cost some money, what is the range of the price can accept.

Figure 2:

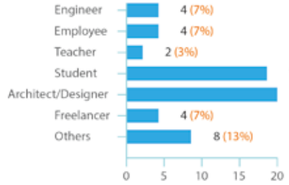
1. Genero (Gender)? *
- o Uomo (Male)
- o Donna (Female)



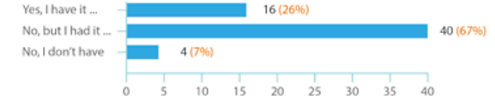
2. Età (Age)? *
- o Sotto i 18 anni (Under 18 years old)
- o 18-30 anni (18-30 years old)
- o 31-40 anni (31-40 years old)
- o 41-50 anni (41-50 years old)
- o 51-60 anni (51-60 years old)
- o Over 60 anni (Over 60 years old)



3. Cosa fai (What do you do)? *
- o Ingegnere (Engineer)
- o Impiegato (Employee)
- o Professore (Teacher)
- o Studente (Student)
- o Architetto/Designer (Architect/Designer)
- o Libero (Freelancer)
- o Other: _____

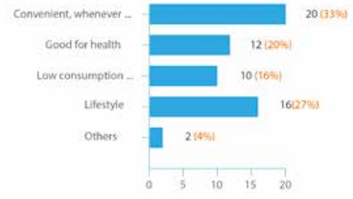


4. Hai una bici di proprietà (Do you have your own bike)? *
- o Si, ne ho una. (Yes, I have it right now)
- o No, ma ne ho avute. (No, but I had it before)
- o No, non ne ho. (No. I don't have)



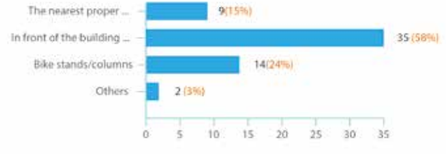
5. Qual'è il principale motivo per avere una bici propria (What is the main reason you have your own bike)? *

o Conveniente. Sempre che ne ho bisogno, posso disporre dalla bici per arrivare in orario a qualsiasi parte dalla città. (Convenient, whenever I need, I can arrive everywhere in the city. Control arrival time, efficient.)
o Fa bene alla salute. (Good for health)
o Basso consumo è praticamente nessun impatto ambientale. (Low consumption and low carbon transportation, it's good for environment.)
o È uno Stile di vita. (Lifestyle)
o Other: For short distance.



6. Dove che parcheggi la tua bici quando esci con essa,per andare al lavoro, di shopping, ecc (Where is the place usually parking your bike when going out/going to work/hanging out)? *

o Il parcheggio autorizzato più vicino al posto dove mi trovo. (The nearest proper public parking place with parking facilities.)
o Davanti al posto dove mi trovo. (In front of the building/working place/-school/supermarket, without any kind of parking facilities.)
o In qualsiasi posto relativamente adatto. (Bike stands/columns)
o Other: Bike parking ground.



7. Perche la parcheggi li (Why you choose there) ? *

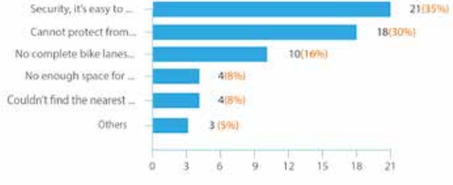
o Perche sono abituato a farlo . (Getting used to)
o Perche più vicino è più facile per riprenderla . (Near the destination, it's more convenient to park and pick up)
o Per sicurezza. (Safety)
o Perche è più facile di parcheggiare li. (Easy to lock there)
o Non conosco il posto abilitato dove parcheggiare la mia bici. (I don't know where is the right place to park my bike)
o Other: Safe and convenient.

8. Dove parcheggi la bici quando torni a casa (Where is the place usually parking your bike when back hom) ? *

o All'entrata del palazzo. (Entrance of the building)
o Nell cortile. (Public corridor)
o Fuori alla porta, vicino a casa mia. (At home, near the entrance)
o Nel piano sotterrato. (Basement)
o Nel Box. (Garage)
o Other: There are parking place in community / Private parking facilities

9. Qual è il problema più grave di usare una bici propria (What is the toughes problem when using your own bike? What's the trouble on your mind)? *
Puoi scegliere più di una opzione (Multiple choice)

o Sicurezza, sempre c'è il rischio che me la possano rubare. (Security, it's easy to be stolen)
o È difficile di proteggerla dalla pioggia e la neve. (Cannot protect from bad weather)
o Non ci sono delle piste ciclabili a sufficienza. (No complete bike lanes)
o Non ci sono posti dove parcheggiare. (No enough space for parking)
o È difficile trovare un posto dove riparare la bici vicino a casa mia. (Couldn't find the nearest place to repair my bike)
o Other: The wheel is out of air, so can not use it at that moment.

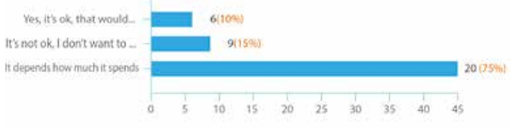


10. Qual è la cosa più urgente da risolvere in città per quelli che usano le bici Milano (Which is the most urgent difficulty need to be solved first for Milan cycling)? *

o Avere più piste ciclabili. (Complete lanes.)
o Spazi sicuri per parcheggiare e proteggere le bici.(Safe parking space can protect private bikes.)
o Più spazi adatti per parcheggiare gratuitamente.(More free space for parking.)
o Una politica pro ciclisti.(Preferential policy for bicycle.)
o Condividere informazione su bike sharing fra i ciclisti.(Sharing bike information between bike users.)
o Other:

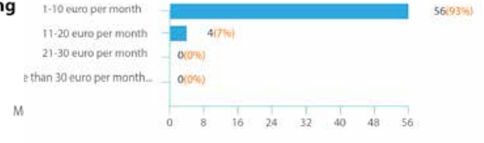
11. Se ci fosse un posto adatto per parcheggiare e riparare la tua bici vicino a te, saresti disposto a pagare per usare il servizio (If there is bike- parking point can take care of your bike, but it will be charged some money, is it ok for you)? *

o Si, certo, sarebbe fantastico! (Yes, it's ok, that would be great!)
o No, non mi piace l'idea di pagare per un servizio dal genere.(It's not ok. I don't want to spend any money on this.)
o Potrebbe essere, tutto dipende di quanto posa costare.(It depends how much it spends.)



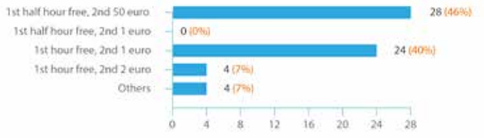
11-1. Che prezzo mensile che saresti disposto a pagare per un servizio dal genere (The range of price you accept to spend for this kind of bike parking point monthly)? *

o 1-10 euro al mese (1-10 euro per month)
o 11-20 euro al mese (11-20 euro per month)
o 21-30 euro al mese (21-30 euro per month)
o more than euro al mese (more than 30 per month)



11-2. Che prezzo saresti disposto a pagare per un servizio dal genere in modo ocassionale (The range of price you accept to spend for this kind of bike parking point occasionally)? *

o Prima mezz'ora gratis, dopo 0.5 € ogni mezz'ora aggiuntiva (1st half hour free, 2nd half hour and successive 50 cent)
o Prima mezz'ora gratis, dopo 1 € ogni ora aggiuntiva (1st half hour free, 2nd half hour and successive 1 euro)
o Prima ora gratis, dopo 1 € ogni mezz'ora aggiuntiva (1st hour free, 2nd hour and successive 1 euro)
o Prima ora gratis, dopo 2 € ogni ora aggiuntiva (1st hour free, 2nd hour and successive 2 euro)
o Other:



12. Qualche domanda o suggerimento (Any suggestion or advice)?

1. Less of bike parking ground with unified management.

2. Advocating formal parking behaviour with clear bike lanes and have the sign of bike maintenance point, maybe design something can use for bikes to protect from bad weather. Free pumb, or maybe give bike licenses, which similar as the rules as cars, or publish some punishment to promote and change parking behaviour.

Interview

This process is a difficult part of my design project.
The first thing is I can not speak italian, how can I interview the person who can not speak english. The truth is, the people who I really want to have a talk with are the residence live and work in Milan, most of them only speak italian. So I ask one of my friends come and help me translate everything.

At the beginning, I can not imagine what will get from the interview. It was a hard day, because we spent the whole day outside. Walking on the road and suddenly there is a target, I have to chase that person. Sometimes even chase the person who was riding his/her bike, sometimes running to next users.

It is not easy to ask people spent times with you for an interview, and something crazy is that I asked one employer, but he didn't have enough time, so I have to walk very fast with him and ask questions at the same time. I followed him and across several streets then finish my interview.

Followed by the interview is useful for me and can guide my project to a correct direction.

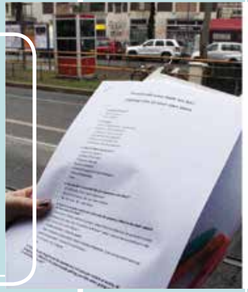
22 users take part in this process. Thanks so much for their patience and precious time to give us advice and opinion.

At the end, I discovered 4 archetypes and develop 4 personas to realise which kinds of users will be considered into this project.

Picture 36: a retired official worker who I interviewed

26 years old
Salesgirl

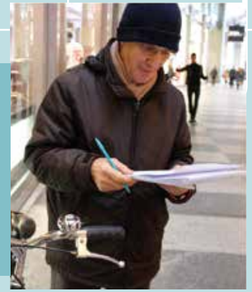
22 years old
Student



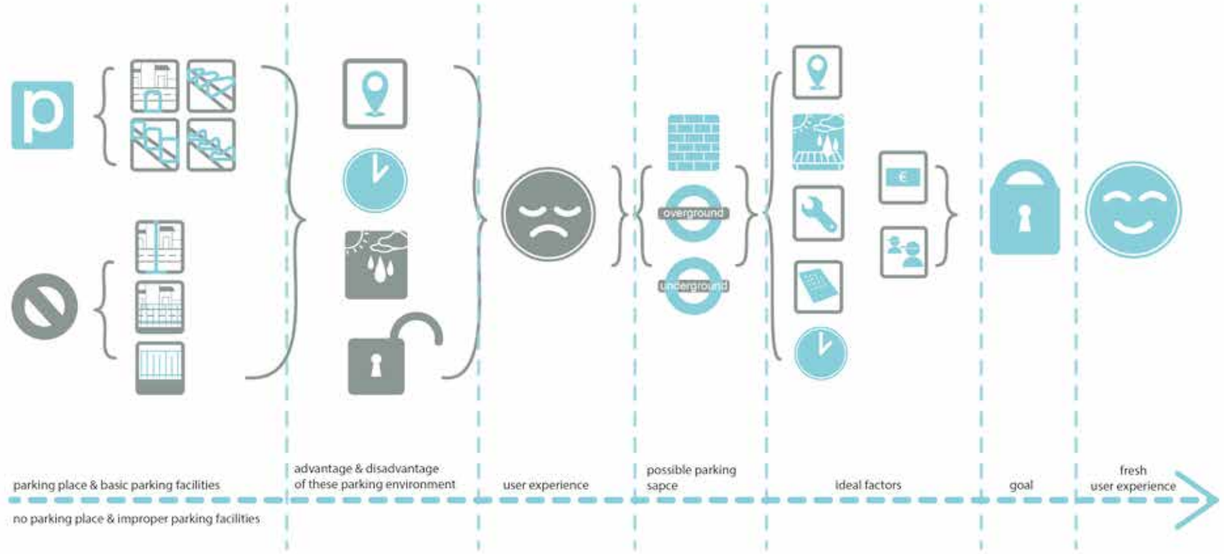
31 years old
Engineer

17 years old
Student

68 years old
retired person



— iCONS —



Never confront this kind of problem.

People who work in Milan, but live in a small town near Milan.
There are less inhabitant and immigrant population,
almost everyone in the town knows each other, they can park their bikes wherever they want even without locks. So as their bikes are very safe, never be stole before.

Still use bikes, but in the same way.

People who work and live in Milan. Bicycles are the main transportation in their daily life.
Unfortunately, Those bikes have been stolen once or more than twice, but it didn't change anything.
They lost their bikes, then buy a new one, but still without any further protection.

Still use bikes, but in the better way.

People who work and live in Milan. Bicycles are the main transportation in their daily life.
Those people lost their bikes because of diverse reasons, but they can not do anything to find their bikes. They have to accept this result and buy new bikes.
Different with last time, these people will look for effective methods to avoid being stole as possible as they can.

Don't want to use it anymore.

People who work and live in Milan.
They lost their bikes, but they don't want to have a new one, because those were terrible experiences and until that moment, they didn't find a good way to take care of their bikes not be stolen.

Simone
35 years old
Italian

He is a official worker, works in Milan, but lives in a small town which quite near Milan. He always rides his bike in his small town. He can park his bike everywhere and not worry about it. Nobody want to steal it and the environment is safe for parking.

Penelope
23 years old
Spanish

She is a student who studies and lives in Milan. She usually rides bike to university or goes around the city.
She had lost two bikes before, but she didn't think about any solution to avoid these things happen again. If someone can tell her what to do, she will follow that and protect her bike.

David
28 years old
Dutch

He is a designer who works and lives in Milan.The bicycle is the only tools for him to visit almost everywhere.
He had lost one bike, so this time he takes some measures to save his bike.

Elena
45 years old
Italian

She is a milanese, lives in Milan but has a job in a small town, which near Milan. There is one bike in her house, but it's her husband's bike. She doesn't want to use bikes anymore, because she lost two bikes, and it is not safe to park her bike outside anymore.

Case study

When I start doing the field research part of my design, I searching loads of cases online at the same time. Following pages are the case studies, which I selected for my project. Each case has different characters so that represent different needs I want to achieve.

It used the same version, like the same size of pictures, logos of each case, and I use the 24 icons to illustrate their advantages and disadvantages again. Under the pictures, there are some key words to highlight each of them.

As a consequence, from the case studies can take advantages of their results and compare each of them to have a general idea of existing service systems about bicycle.

From all these materials, I made a evaluation grid to analize 7 cases and get results.

—Case Study 1—

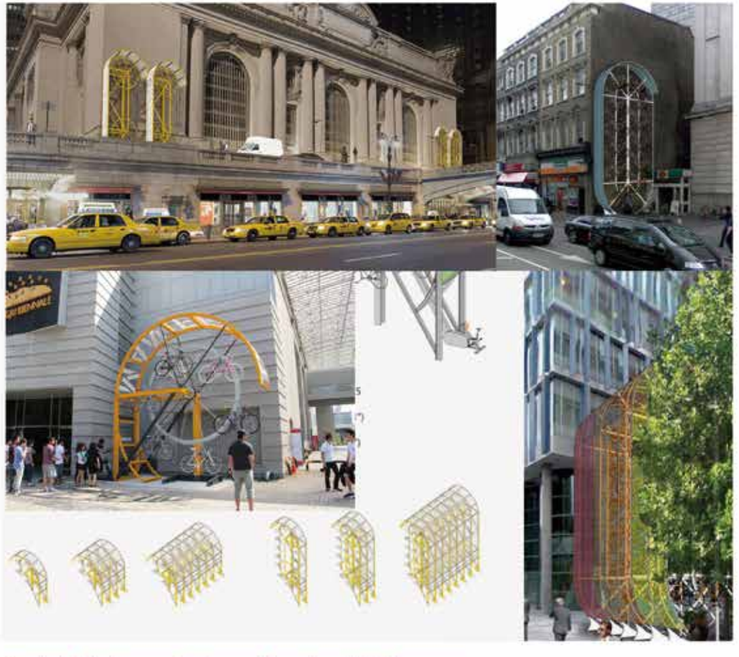
"Eco-Cycle"
Underground public parking service
Tokyo, Japan.

culture aboveground | function underground | security | high technology | utilization rate | explore

eco-cycle
Working to Build Zero Waste Communities

"Eco-Cycle" is a robot system which stores bicycles underground in a 11 meter deep well. It remedy limited urban space, which we do have a load of public transport all over the place . The system build a place to park ones two wheeler illegally. Wide diversity of bicycles can park underground with simply operation. Take full advantage of underground space with quite conventional construction method, take care of your bikes with high level of security. Combined with high technology and explore existing space, make the city appearence tidy and cheerful.

"Bike Hanger"
Overground public parking service
London, England & Seoul, Korea.



MANIFESTO

"Bike Hanger", a vertical bike storage structure to be installed in underutilized urban spaces. This service can save sidewalk space for pedestrians by changing the axis of bicycle storage. The Ferris wheel-like structure can be installed on the sides of buildings and alleys, opening up the limited spaces of the urban landscape. The concept of "Bike Hanger" is currently being developed for Seoul and London, though t he project's low maintenance cost, dedication to using recycled materials and ability to save sidewalk space make it an alluring investment for any city.

vertical bike hanger on the wall sustainability low costs

"Cyclehoop-pump"
Public pump service
London, England.

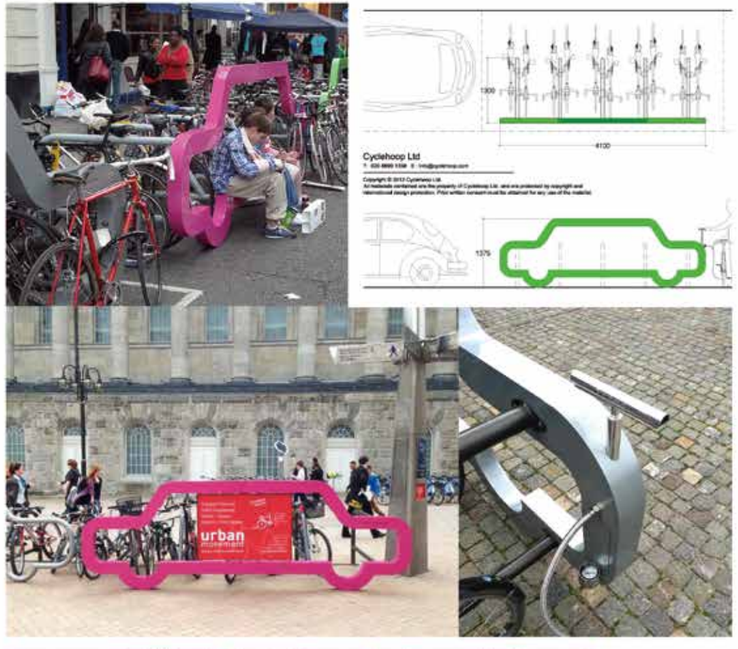
cyclehoop

This heavy duty public bicycle pump is a modern piece of street furniture that can be installed anywhere in the city to provide cyclists with a convenient facility to pump up deflated tyres.
The pump features a robust stainless steel pump handle and an armoured air hose, designed to withstand constant public use.This product is ideal for installing at bicycle parks, along cycle routes and can be neatly incorporated into a row of bollards or used as a standalone pump in high profile city centre locations.And the company developed an online map displaying locations of "Public Bike Pumps" in Central London.

free anywhere convenient incorporated

—Case Study 4—

"Cyclehoop-Car bike port"
Public parking stands
London, England.



cyclehoop

Car Bike Port, originally commissioned by the London Festival of Architecture, has been installed around the UK and in several cities across the World.

The bike rack converts one car space into cycle parking for 10 bicycles. The car shape conveys the message that bicycles are more space efficient than cars, as well as acting as a barrier to protect parked bicycles from cars.

The Car Bike Port is ideal for temporary bike parking at events, as it promotes cycling and can be easily assembled and transported.

one car space for 10 bicycles protect from cars easily assemble & transport

—Case Study 5—

"Bikestation"
Membership parking service
Washington DC, United States.

Bikestation is a 24 secure indoor membership bike parking service. When you drive your bike to public transportation , to work or school , shopping or play , you need a clean , safe place to store your bicycle , locked securely indoors and away from the elements . It offers full range of bicycle services , for instance , some locations include useful bike services and amenities , such as : restrooms, showers and/or changing rooms, self-repair stations, rentals & repairs, retail sales, electric vehicle charging stations, access to environmentally-clean vehicle-sharing, easy access to public transportation, information to plan your commute trips. These additional service create more convenient and complete service system.

indoor security convenient affordable membership additional service

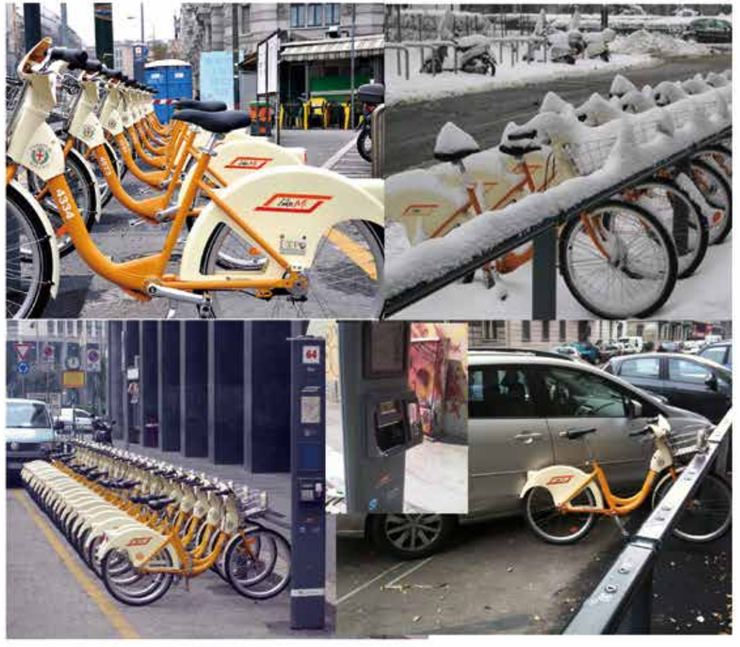
"Bicycle parking restrictions"
Public parking service
Tilburg, Netherlands

"Bicycle parking restrictions"

Some municipalities in the Netherlands see a problem in the high number of 'illegally' parked bicycles around popular destinations in their towns and cities. Even though there are large underground space near the destinations , bikers still lock their bikes in a illegal way . To "tidy up" this central square , goverment use a "barking tricycle" to playfull promote cycling and also put a big sign to warn people with right behavior . Barking tricycle is like a tricycle dog to guard your bike, someone feels like it is new and strange, it will be noticed, but someone can not understand this kind of humour . Warning label to mention that is not permitted to park longer than 28 days in a rack or your bike will be removed at your expenses. This to free racks from abandoned bicycles and thus to create more free parking spaces.

tidy up security illegal restriction playfull promote barking tricycle

"BikeMi"
Public bike sharing service system
Milan, Italy



"BikeMi" is Milan's Bike Sharing service. Designed to promote user mobility, It is not just a simple bike rental service but a real public bicycle transport system to be used for short trips supplemented by ATM traditional transport vehicles. It's a big project that sees BikeMi stations located in strategic points all over the city, starting downtown: train stations and universities, hospitals and tourist attractions, underground stations, administrative offices, malls and parking lots. This will allow all registered users to pick up a bike, ride it and leave it at the station closest to their destination. Although it has illegal place to park bikes, it still can not be safe and convenient to park and protect bikes.

bike sharing promote user mobility public bicycle transport system

—Evaluation Grid—

Brand name \ elements	security	convenient	multi-functional	low costs	sustainable	attractive	space utilization	results
eco-cycle	✓	✓	✓	✗	✓	✓	✓	✓
MANIFESTO bike hanger	✗	✗	✗	✗	✓	✓	✓✗	✗
cyclehoop bike pump	✗	✓	✗	✓	✓	\	✓	✓
cyclehoop car bike port	✗	✗	✗	✓	✗	✓	✓✗	✗
Bikestation	✓	✓	✓	✗	✓	✓	✓	✓
Bicycle parking restrictions	✗	✗	✗	✓	✗	✗	✓✗	✗
BikeMi	✓	✓✗	✗	✗	✓	✓	✗	✓✗
	3	3.5	2	3	5	5	4.5	3.5

Conclution: From the evaluation grid, we can see that from 7 case studies, every case has worth side, but still can not stisfied some of other aspects. So what is the most important elements for bike users, what's the biggest problem need to be solved when using your bike?

content ✓
discontent ✗
half & half ✓✗
satisfied level unsatisfied 1 - 7 the most satisfied

About Bicycle

This service is focus on bikes and bike users, it is important to have a general idea of them.

I went to three bike shops and also surfed online to learn the knowledges of bikes.

Using Adobe Illustrator to draw four types of bicycles.

In order to know biycles more well, I figure out bicycle basic components and the average size for further use.

Not only the bicycles, but also the additional devices, because it also will influence my design process.

During this part of research, I learned the most interesting thing is how to lock a bike in a most efficient way, so that thieves will not consider your bike as a target.

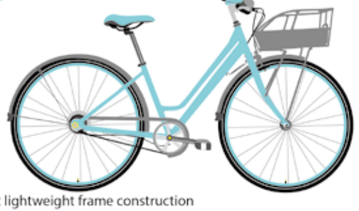
road bike

1. Light frames,
2. Narrow, high-pressure tires.
3. They're generally less comfortable than other types of bicycles.
4. Their design makes for a faster and more responsive ride.

touring bike

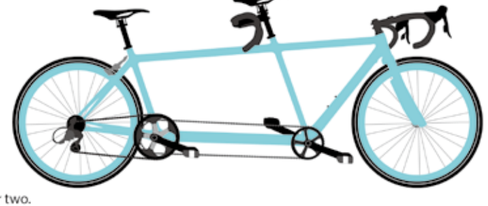
1. More heavy frames.
2. Smooth and wide tires.
3. Stable handling make long road rides comfortable.
4. Accommodate touring bags for multi-day rides.

city bike

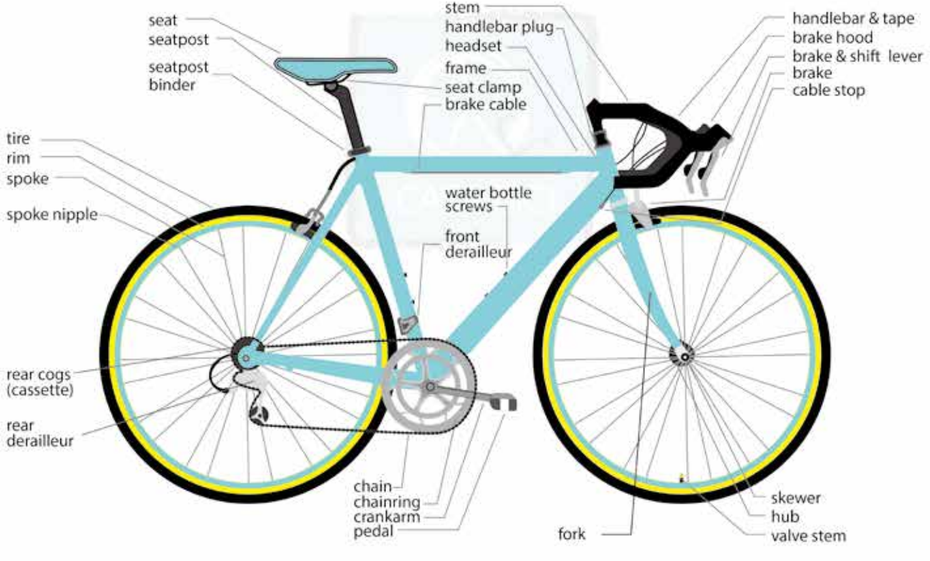


1. Strong yet lightweight frame construction
2. Heavy belted tires designed to shrug off road hazards commonly found in the city
3. Solid and predictable handling, and are normally fitted with full fenders for use in all weather conditions.
4. Lighting systems for use at night or in bad weather.

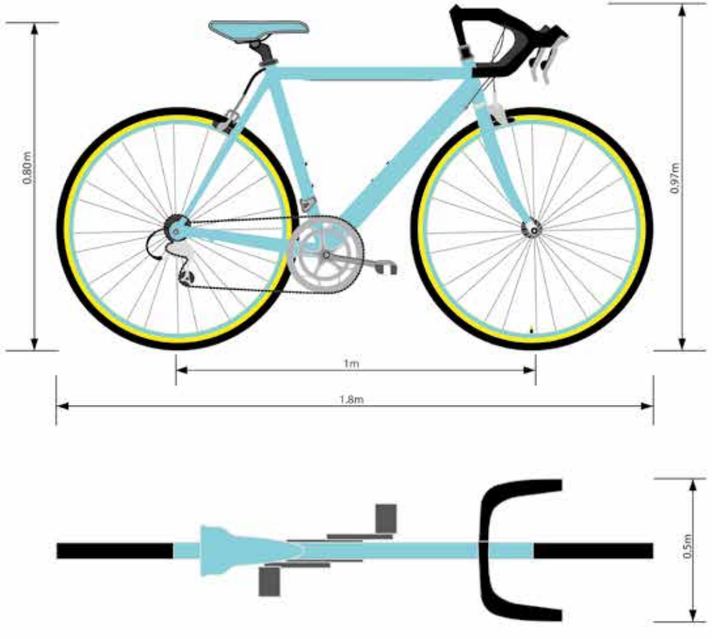
tandem bike



1. It built for two.
2. It comes in four subcategories: mountain, road, hybrid, and recumbent.
3. The front rider (captain) controls the steering, braking, and shifting.
4. Great for leisurely or competitive rides who want to ride together.



—Average Size of Bicycles—



—Existing Locks - Examples—

High anti-theft U lock

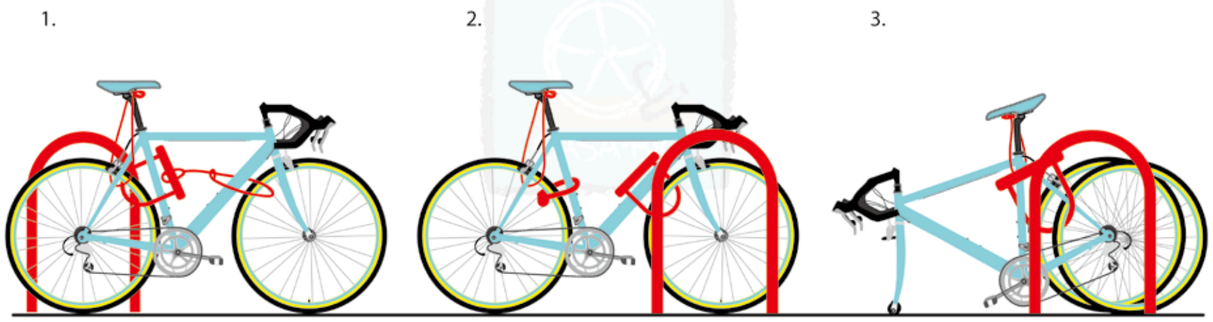
U lock + Fixed piece

Chain lock

U lock + Cable lock

Cable lock

Three kinds of lock ways to prevent thieves



There are three kinds of locks you can see from above picture, and it also can use it shows three different ways to protect bikes.
Every components of bicycles are very important and also expensive. Thus, users can understand which part of the bikes is the most important or easily be stolen. The first bike have been used three locks, one is to lock the rear wheel and triangle frame with a bike stand, then, using one chain lock to bind front wheel with triangle frame also, the last cable lock should go through the rear wheel, the bike frame, the bike stand and also the seat. So that the bike in the most secure level.
Secondly, using another similar way, but lock the front wheel and frame together with a bike stand. then the chain lock bind the rear wheel and frame, the cable lock tie with the seat.
Thirdly, maybe it is not convenient, but it is another effcient way to lock and save your bike.

Concept

Depending on all the researches , case studies, informations and so on, it is time to think about the concept of this project, how to satisfy users' needs, how to solve the problem. What is our service mainly about? I wrote down lots of the key words and use post-it to try something, to figure out some ideas.

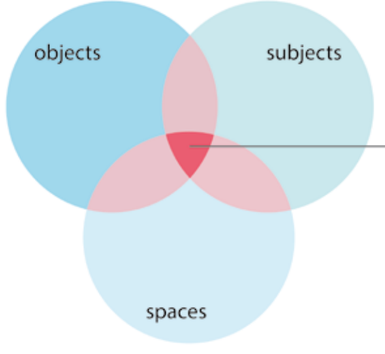
The logo of this project follow the feeling of drawing by hand, because when riding a bike in a good environment, like a beautiful country side, it will be very casual and enjoyable. Hence, drawing by hand can give the feeling of nature, so it can transform casual and enjoyable mood. Beyond that, the logo will be used as a post sign, so I use the square shape. Inside it is a wheel and a lock, and also the hand drawing words "CASA-BICI". "CASA-BICI" it represents a secure and relieved space for parking personal bikes, it means a home for bicycles.

The next, I draw a diagram to identify our service, what it should be included? After these, there is one system map, illustrate the contents and profits flow between service and users, users and suppliers, suppliers and service. So it makes a clear mind of the relationship with service, users, and suppliers.

Business canvas is a good service design material, so there are two kinds of business canvas, one is from "CASA-BICI" side, the other is from existing public parking infrustructure side. Comparing two kinds of parking service through business canvas can understand better of the market and the practical part of our service.

It is a Italian word meaning home.
It represents a secure, relieved space,
which can take care of you.

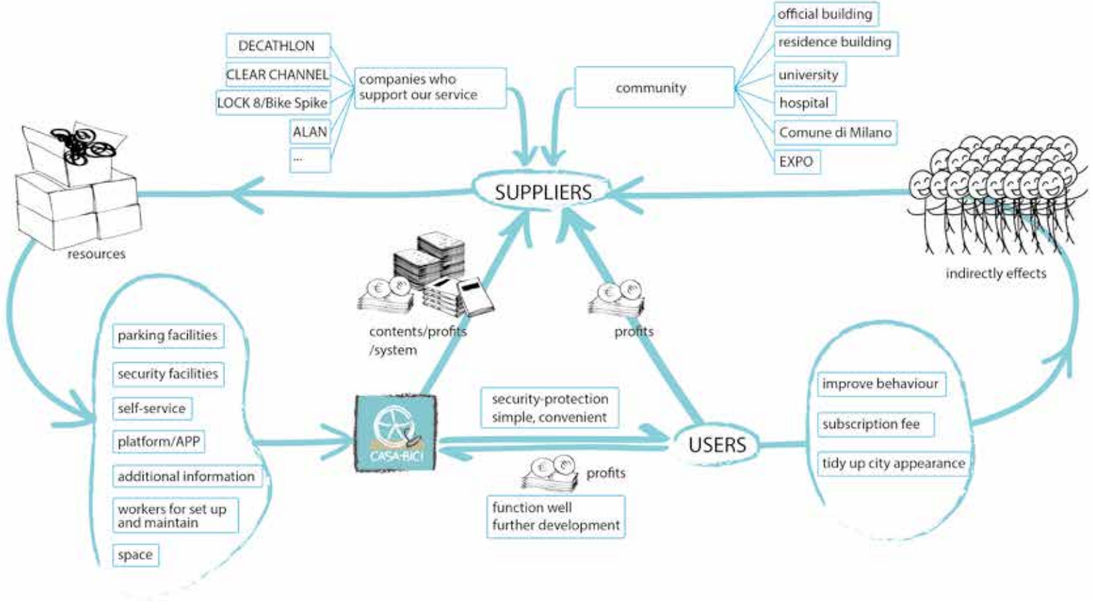
A home for bicycles.
It creates secure and relieved space
for parking personal bikes.



As you seen from the diagram, three circles combined together, each circle represents objects, subjects, and spaces. The definition of this service is in the middle of where the three circles overlaped part.

our service : CASA - BICI

objects	subjects	spaces
parking facility	cyclist	existing parking place
parking space	resident	
shelter	building administrator	street
pump	newsstand owner	in front of building
repair tool	service worker	park
platform	technician	garden/courtyard
App	supplier	university/hospital
information room	...	parking lot/garage
advertisement		abandoned space
...		...



—Business Canvas - Casa Bici—

Key Partners

Decathlon
(Manufacturer of apparels and equipment for a range of sports)
Clear Channel
(media/advertisement)
LOCK 8
(smart bike lock)
Alan
(italian bicycle manufacturer)
other possible companies
Comune di Milano
EXPO

hospital/university/residence/ office building administrations

Key Activities

protect bikes
provide secure parking space
provide locking toolkit
set up and maintain
extra information service

Key Resources

safe places
parking facilities
locking tool kits
addtional informaitons
self-service

Value Propositions

security system
parking facilities
finance support for administration from suppliers
locking toolkits
website & app
additional information
self-service

Customer Relationships

park and take care of their bikes
(security, protection...)

Channels

locations
platform
Advertisement

Customer Segments

bike users in Milan

Cost Structure

parking facilities
Location permits
maintenance
people
website/app
advertisement
set up
tax

Revenue Streams

money charged from BASIC USER (Pay by hour)
money charged from Monthly USER (Pay by month)
loyalty from members
financial support from suppliers.

—Business Canvas - Public Parking Infrustructure—

Key Partners

Decathlon
Clear Channel
LOCK 8
Alan
other possible companies
Comune di Milano
EXPO

hospital/university/residence/ office building administrations

Key Activities

protect bikes
provide secure parking space
provide locking toolkit
set up and maintain
extra information service
provide parking space set up and maintain

Key Resources

safe places
parking facilities
addtional informaiton
self-service

parking facilities

Value Propositions

security system
parking facilities
finance support for administration from suppliers
locking toolkits
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self-service

parking facilities

Customer Relationships

park and take care of their bikes
(security, protection...)

park their bikes

Channels

locations
platform
Advertisement

locations

Customer Segments

bike users in Milan

bike users in Milan

Cost Structure

parking facilities
Location permits
maintenance
people
website/app
advertisement
set up
tax
parking facilities
maintenance

Revenue Streams

money charged from BASIC USER (Pay by hour)
money charged from Monthly USER (Pay by month)
loyalty from members
financial support from suppliers.
none

SWOT

From the service perspective, four aspects to be considered about the service " CASA-BICI"
Strengths, weaknesses, Opportunities and Threats, it is called SWOT analysis.

Besides, I also did other three small SWOT analysis for the whole design process, one is from users point of view, one is from locations side of view, and the last but not least is from existing parking side of view.

Therefore, It can let everyone know better about which difficulty we will confront, which opportunity we can take, which weakness we need to consider about and improve it, which advantage we can use it.

CASA-BICI

S		W	
modular resources	connects users and locations	content's quality	user satisfaction
selling platform	parking management	limited parking	organization
professional system	exploring invisible space	no personal contact	cooperation
	safeness, orderly and convenient	trust	management

O		T	
new parking perspective	abandon locations	new parking perspective	new businesses
guidance	large profit	scale	customer satisfaction
partnership	users refresh	changing habit	limited space
cooperation	derivatives industry	competitor	

User

flexibility	limited
convenient	cost
safe	organization
taking care	community
refresh	to be stealed
deals with locations	to lose trust
	to not reach users

Location

space	limited
possibility	contents
resources	network
services	organization
host contents	customer experience
produce contents	unsatisfying contents
2° business	

existing parking

covenient	destroy
orderly	unsafety
unification	limited
few location	by yourself
partnership	locations self managed

Development

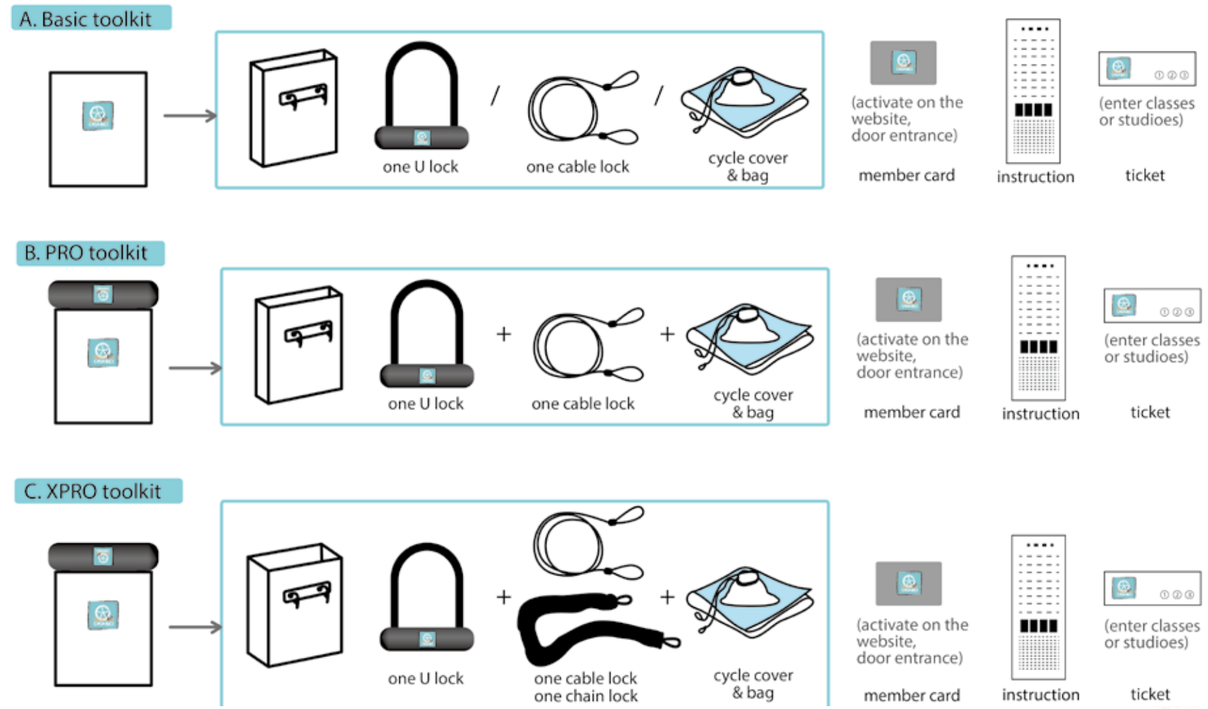
The process of development is the most important part of "CASA-BICI" service design. It concluded all materials and informations I did before, and designed a suitable solution for the service.

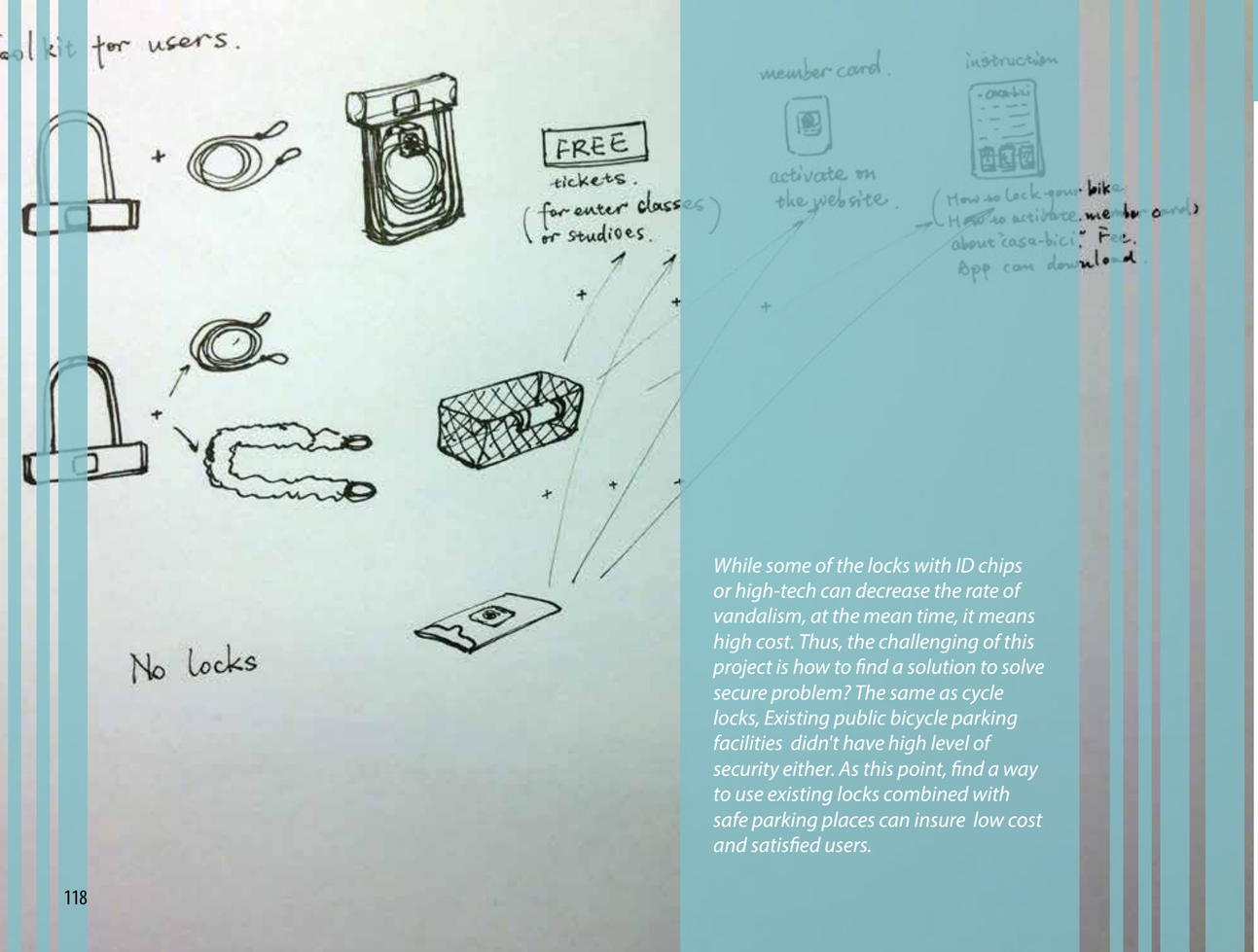
First, I drew three kinds of levels toolkits. One is for basic users. so it is alled "Basic tookit". One is for pro users, so it is called "PRO toolkit" . The last one is for extra pro users, so it is called "XPRO toolkit". Using icons to explain what are consists of one toolkit. For instance, There are one toolkit package, one U lock, one chain lock, one cable lock, one cycle cover and bag, and also a member card of our service, an instruction, and a free ticket for entering our studio or classes, all these tools composed of "XPRO toolkit".

From users side, I try to figure out the price of our service toolkit. Consequently, I searched the price of existing locks in the market, I also balance the price of other similar service, and based on the answers got from questionnaire, at the end, it comes out a preliminary evaluation value for the service toolkit.

Additionally, I designed all the details for service toolkit, especially the instruction booklet, it contains the important information to introduce our service to users.

—Toolkits—





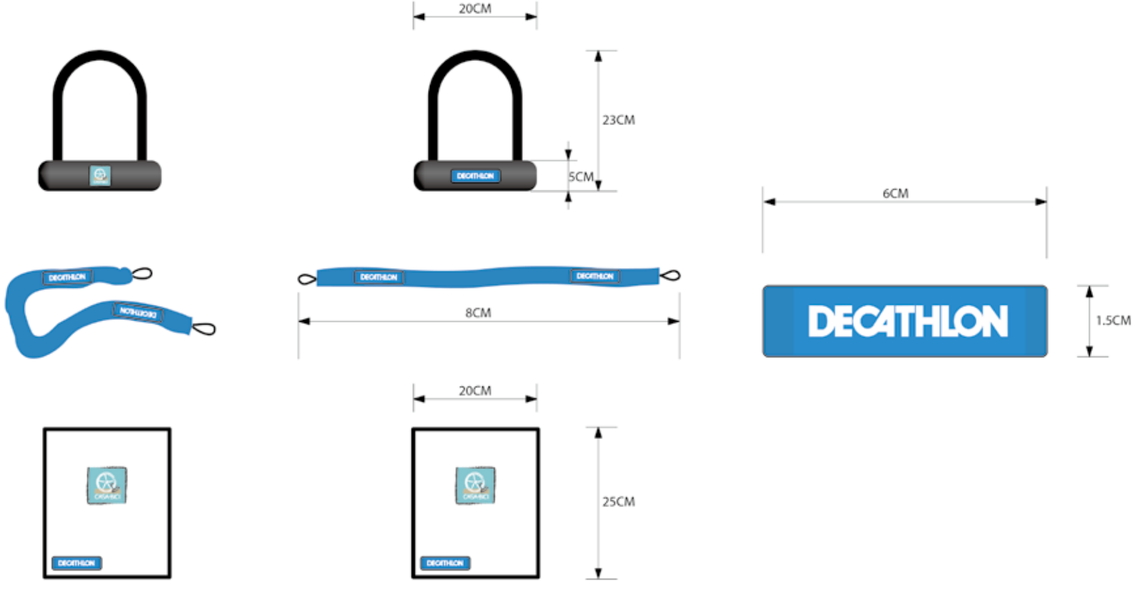
While some of the locks with ID chips or high-tech can decrease the rate of vandalism, at the mean time, it means high cost. Thus, the challenging of this project is how to find a solution to solve secure problem? The same as cycle locks, Existing public bicycle parking facilities didn't have high level of security either. As this point, find a way to use existing locks combined with safe parking places can insure low cost and satisfied users.

—Offering—

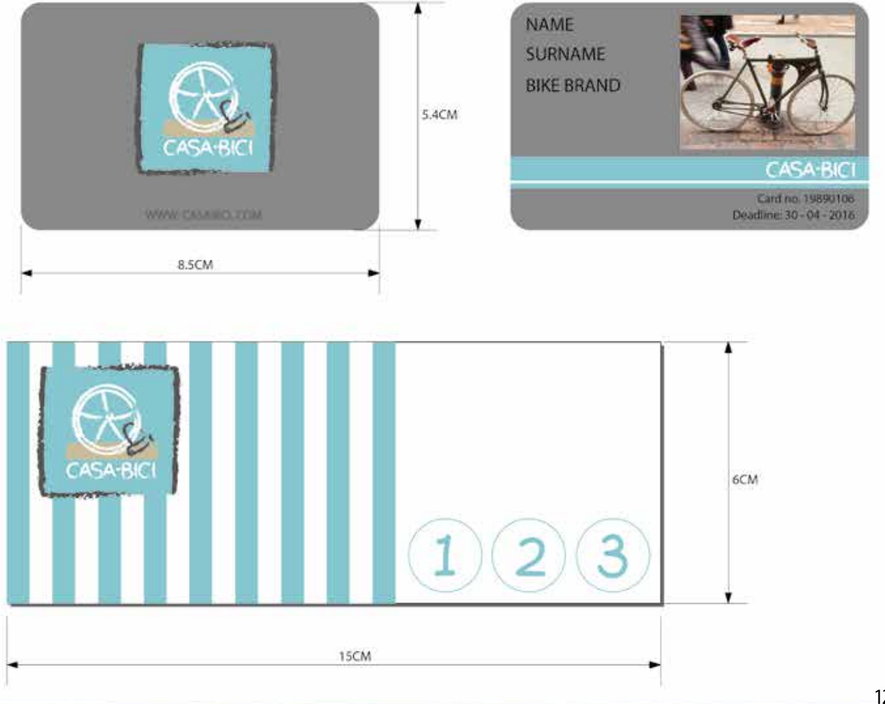
Toolkit type	Tool				Package	Card+Instruction	Tichket	Fee	1st month	after 1st month
	25 €	10 €	20 €	15 €	5 €	15€+ free	free	10 €		
Basic A							1		20 €	10 €
Basic B							1		45 €	10 €
Basic C							1		30 €	10 €
Basic D							1	1month (1st month free, next each month 10 euro)	40 €	10 €
Basic E							1		35 €	10 €
PRO							2		70 €	10 €
XPRO							3		90 €	10 €

119

LOCK PORTABLE CASE SUPPLIER LOGO

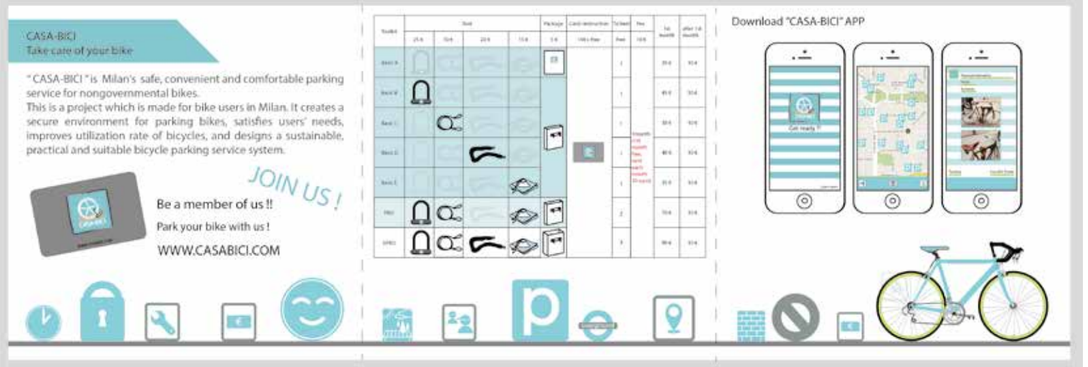


MEMBER CARD TICKET



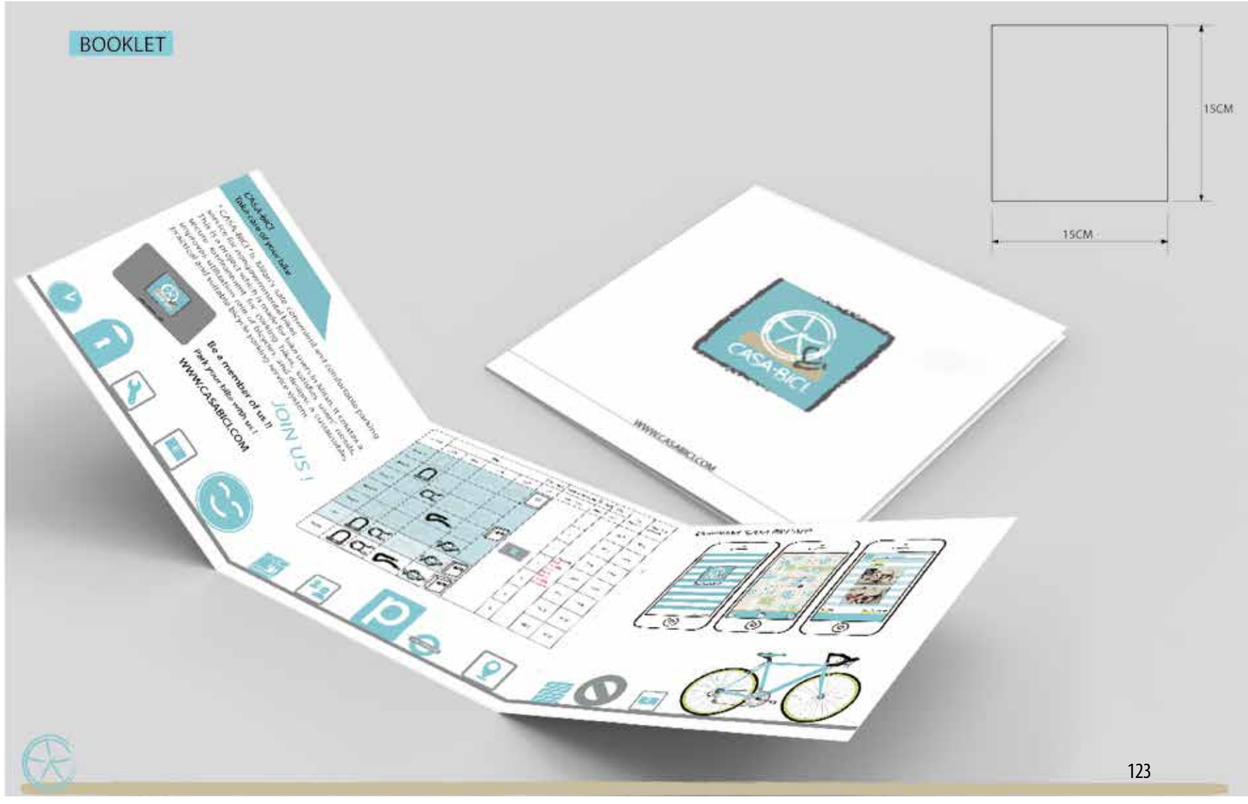
—Details - Service Instruction Booklet Contents—

front

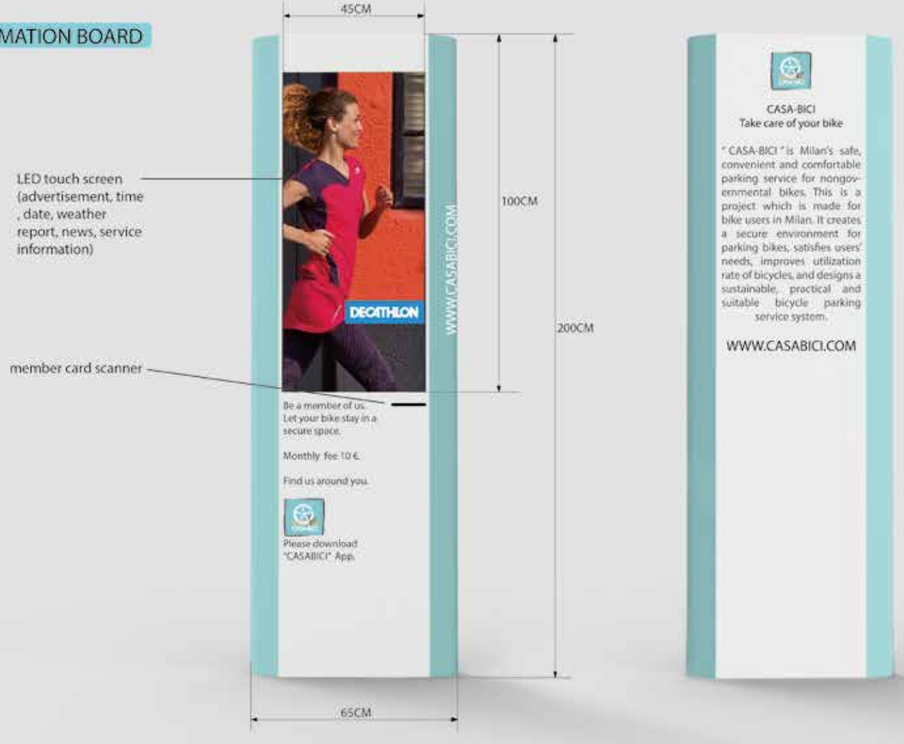


back

—Details—



INFORMATION BOARD

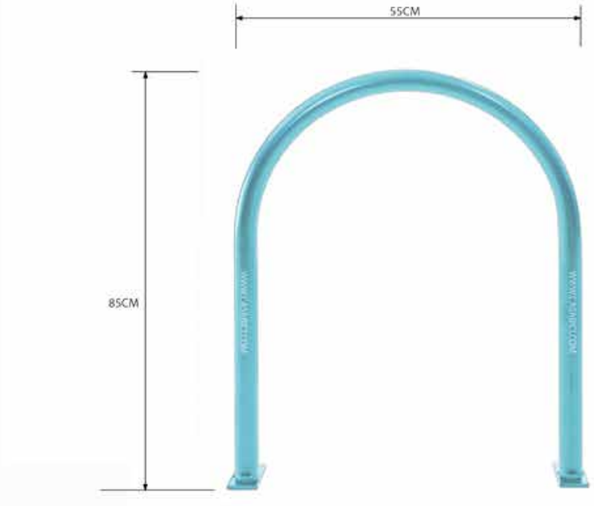


—Details—

SCANNER TUBE

CYCLE COVER

HOOP CYCLE STAND



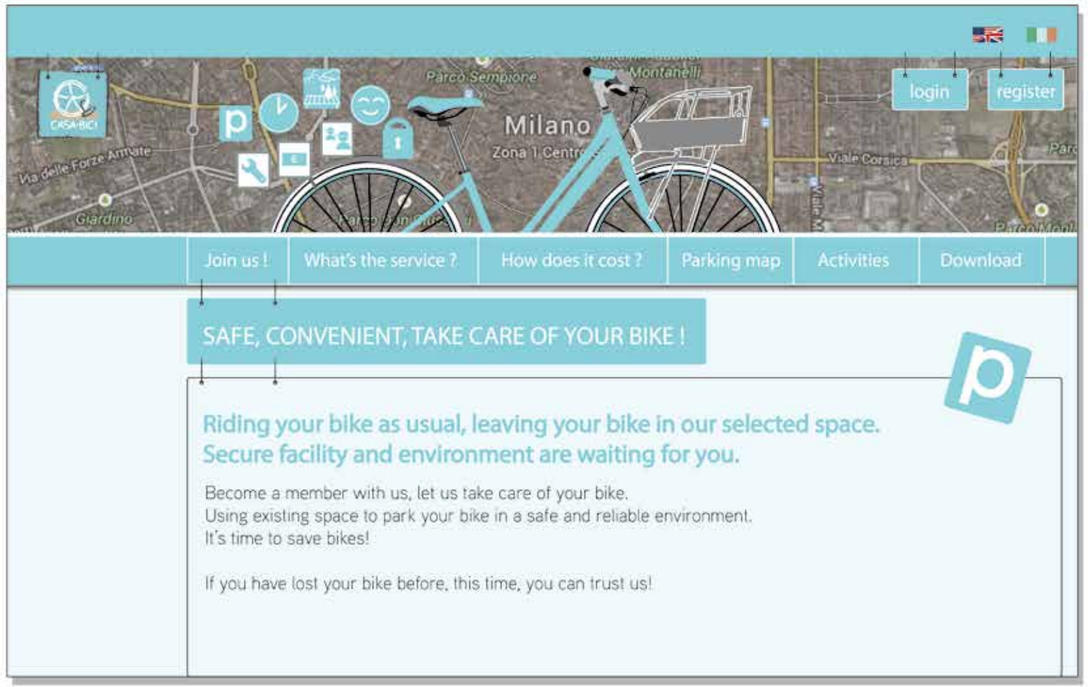
Platform

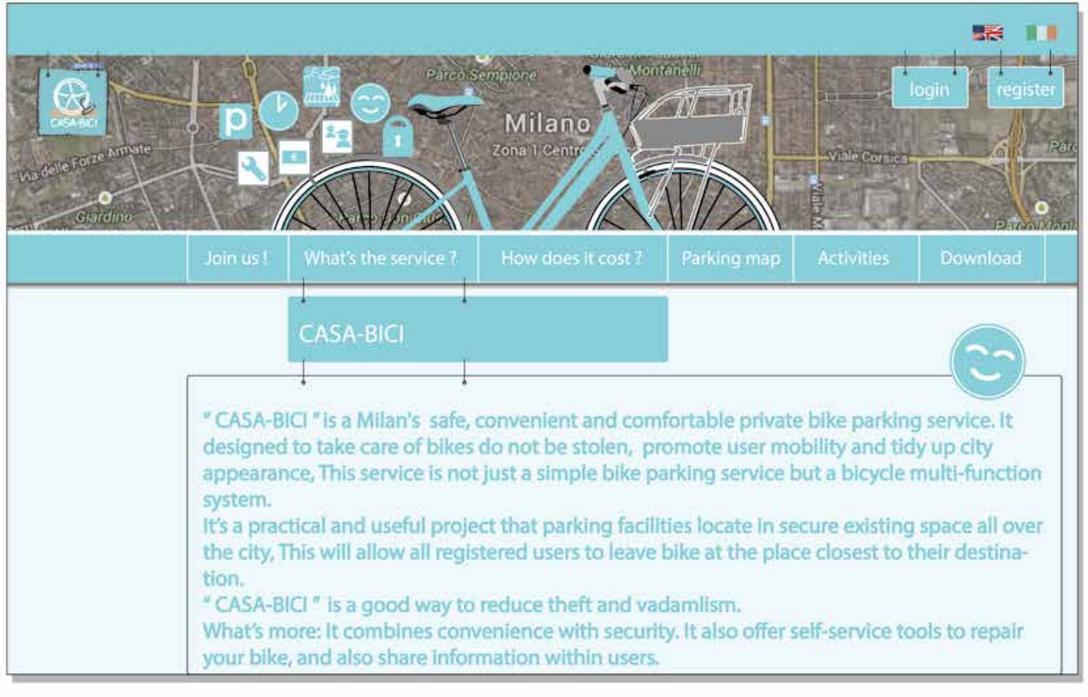
Platform is a very significant stage for users communicate with our "CASA-BICI" service.
So it includes almost every information of our service, which want to share with our users and also suppliers.

Undoubtedly, I did six general title for the website: "Join us!" , " What's the service?", "How does it cost?", "Parking map", "Activities", "Downloads" . Different with other service website, when users want to regist online, they also need to upload the pictures of their bikes, so that it can as a evidence to prove this is his or her bike. on the activities page, users can find schedules of our interesting classes or studioes for sharing bicycle knowledges or even a studio can help you paint bikes by yourselves.

There is a smartphone APP works for bike users. So the first thing you can buy our toolkit from one of the point, which we agreed and licensed, or just regist online then book our service toolkit and pay the money. Then you regist online and download our APP for your mobilephone. Next time it will be more convenient to use our service.

And I also think about the person who didn't have smartphone or have smartphone but out of charge.
So there will be some road sign and information board seted on the road near the parking place, so that it can be seen and used without check your phone.





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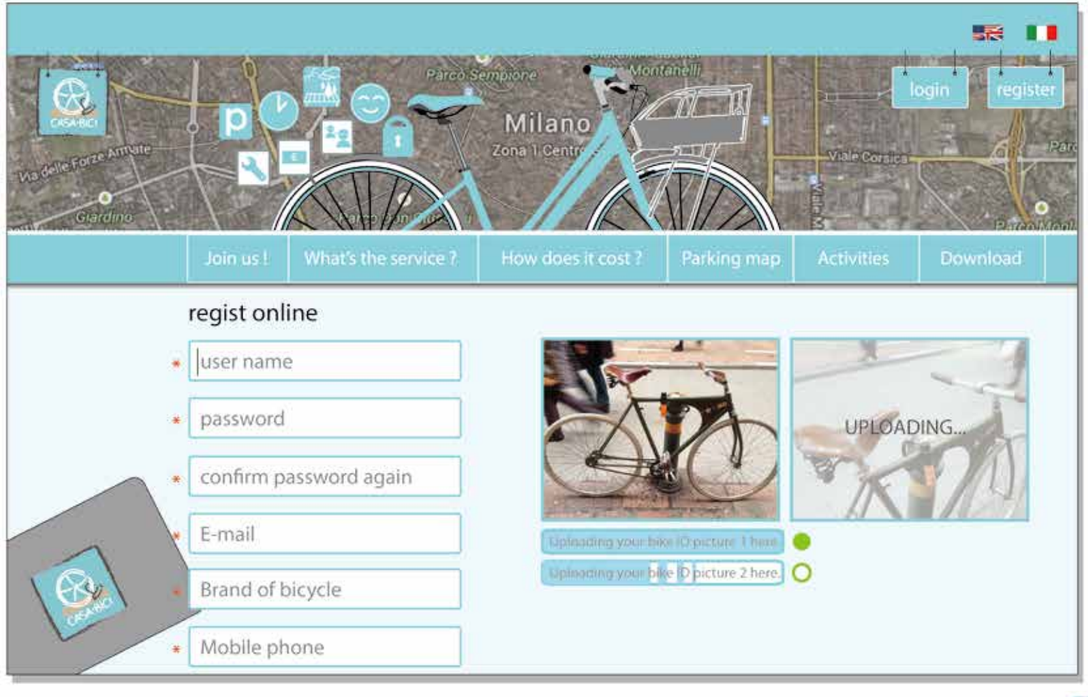

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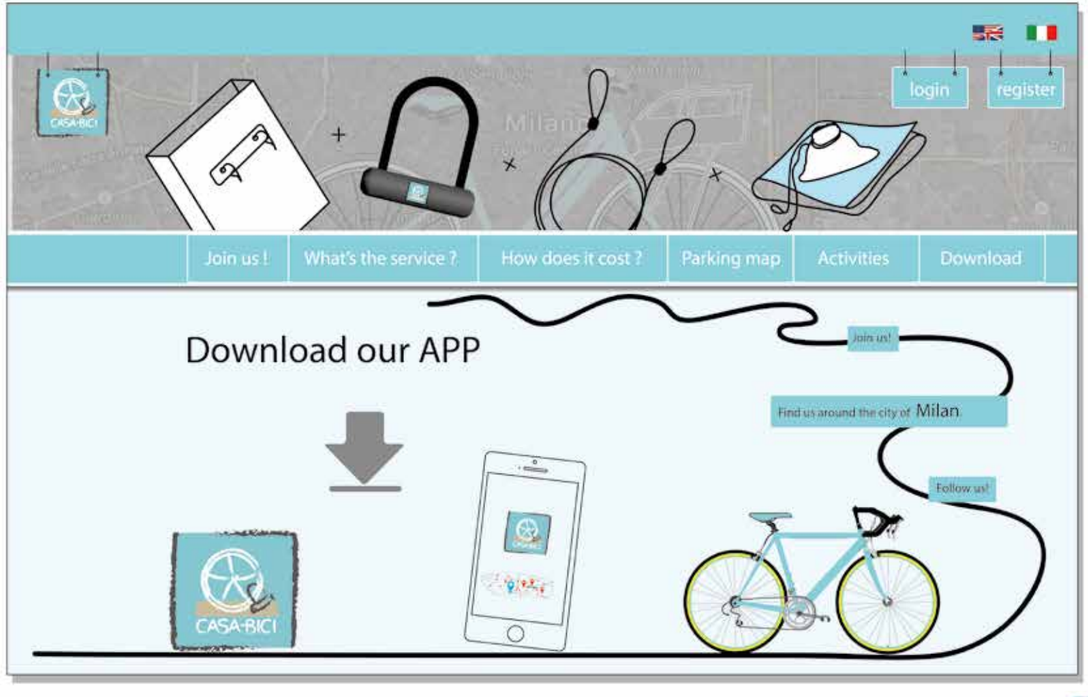
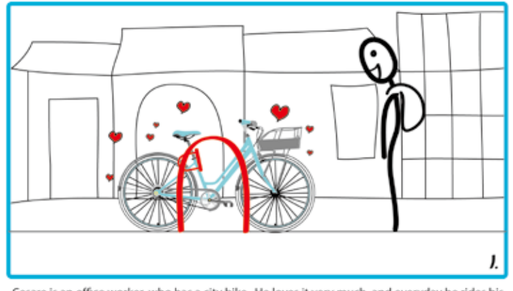


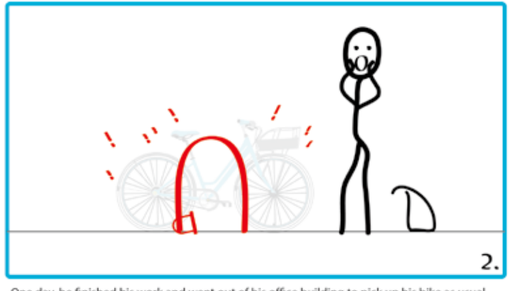
Storytelling

Storytelling is the last part I did to describe "CASA-BICI" service.

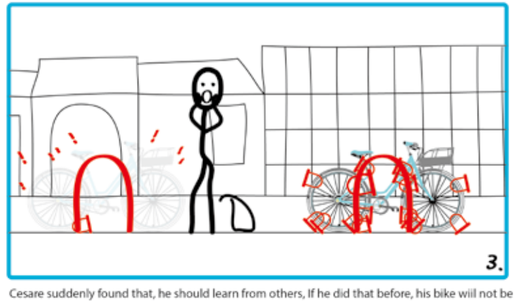
More specifically, I seperate it into two parts but three little stories. One part is from a user side, another part is from our service disgner and building administrator's side to tell our stories. At the same time, from the stories, not only users, but also suppliers and administrators can impressively understand the whole project.



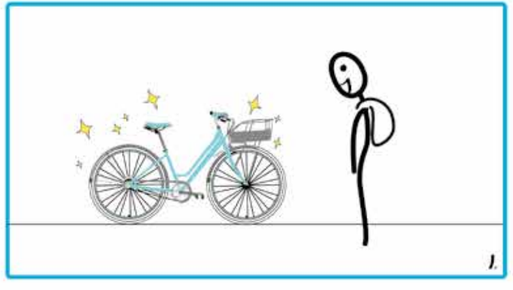
Cesare is an office worker, who has a city bike. He loves it very much, and everyday he rides his bike to work.
He always locks his bike on a bike stand in front of his office building.



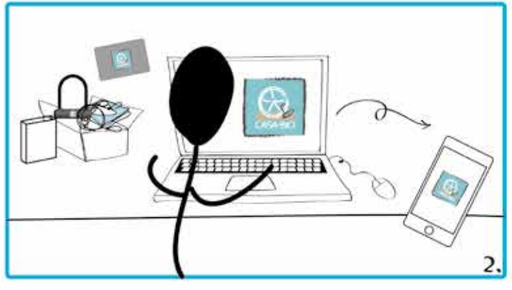
One day, he finished his work and went out of his office building to pick up his bike as usual. But something happened, he could not believe that he lost his bike. Someone has stolen it. "Oh my god ! There is only a lock, where is my bike? " Cesare shouted.



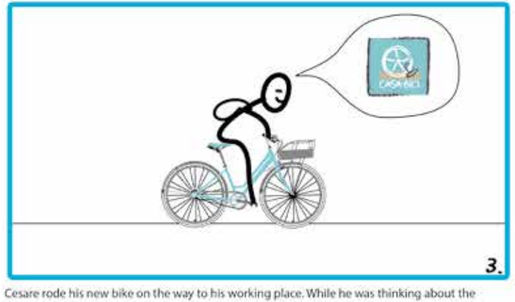
Cesare suddenly found that, he should learn from others, If he did that before, his bike will not be stolen. he was so upset and disappointed.



Cesare bought a new bike to replace the old one. This time, he started looking for some methods to avoid the same tragedy to happen.



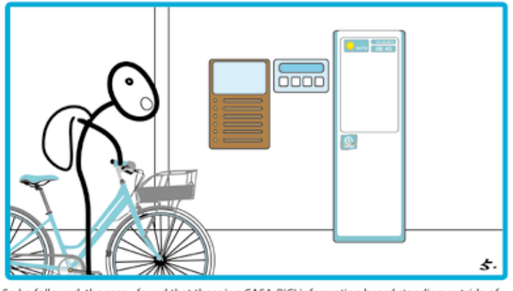
So Cesare surfed online and was attracted by a website called " CASA-BICI" , he registed online, and he also spend 68 euro ordering a secure toolkit by credit card. Next day, he received the toolkit and activate his member card online, then he downloaded the service app on his cellphone, in which he can check more information easily.



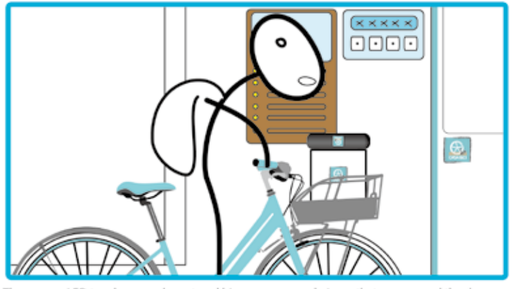
Cesare rode his new bike on the way to his working place. While he was thinking about the service "CASA-BICI", he gets ready to have a try.

After he arrived at his office building, he took out his mobile phone and opened "CASA-BICI" app, he found that there are lots of spots near his office, and there is one, which is the most

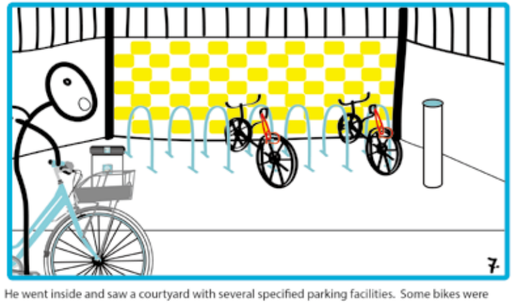
—Storytelling 2 - Cyclist Cesare—



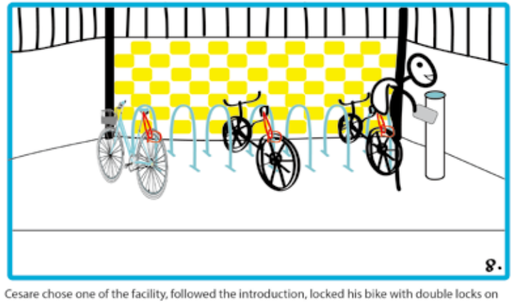
So he followed the map, found that there is a CASA-BICI information board standing outside of the building.



There was a LED touch screen, he entered his user name and pin on that screen, and the door opened for him.



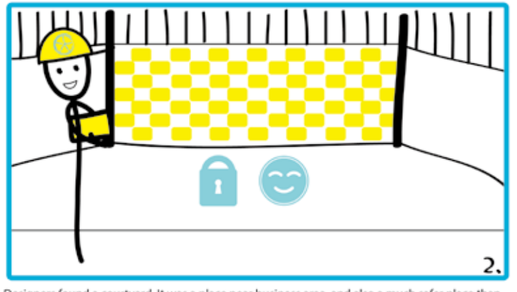
He went inside and saw a courtyard with several specified parking facilities. Some bikes were already parked there with specified locks, which are the same as he bought.



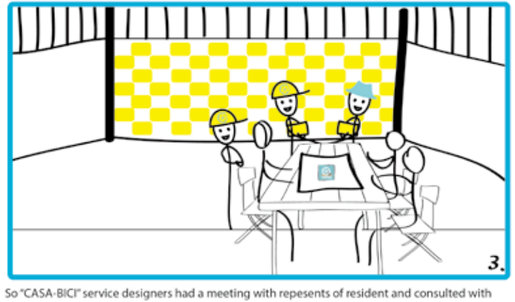
Cesare chose one of the facility, followed the introduction, locked his bike with double locks on the key parts. He scaned his member card in purpose of recording his personal information and let other users know how many parking facilities left. Also it's convenient for service worker to manage and supervise his bike to keep a secure environment.

—Storytelling 3 - Service Designer & Building Administrator—

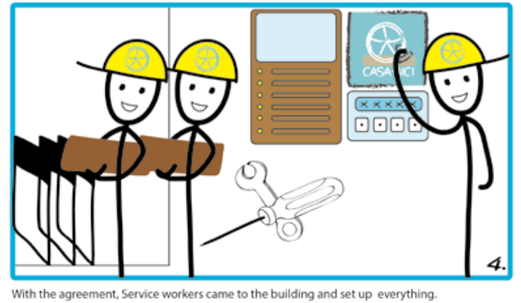
"CASA-BICI" service designer was looking for a ideal place for setting up the a suit of facility.



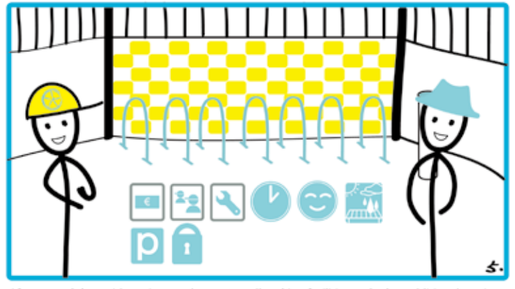
Designers found a courtyard. It was a place near business area, and also a much safer place than outside space along the road.



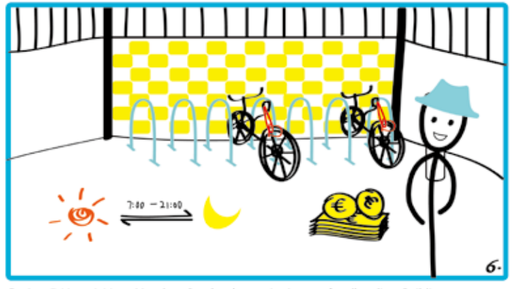
So "CASA-BICI" service designers had a meeting with repesents of resident and consulted with building administrator , after several days, they signed a contract for renting the courtyard space.



With the agreement, Service workers came to the building and set up everything.



After several days with testing, workers set up all parking facilities and other additional service infrastructure, like informaiton point, pump, self-service machines. What is the administrators need to do after the service starts to operate? they only need to check all the machines and bikes whether they are in a good status, otherwise, can contact with workers or bike owners .



During 7:00am-9:00pm Monday - Sunday the service is open for all cyclists. Building administration can receive finance support from CASA-BICI service and have a good parking facility for residents to park their bikes as well.

At the same time, since Cesare used the service to take care of his bike, he felt that it's more secured and less worring to park his bike, so he shared with his friends who always has the same bike-parking problem.

"CASA - BICI" save your bike.

THE END

-- Discussion & the Future --

"CASA BICI" still has lots of possibilities to change and develop in the future.
The main purpose is focus on users, using user centrial approach to achieve our main goals.
There are lots of advantages, like high secure level, good situation, nice parking space, reuse existing space and so on. Nevertheless, there will be lots of challengings, for example, there isn't have enough parking space, maybe after some period, there is a similar service with " CASA BICI", how to compete with them? Moreover, From our suppliers side, how to make more profits and to reinfoced our service statu.

All in all, "CASA BICI" service can solve the problem of high level of vadalism, connect bike users with locations, give them comfortable and proper parking places. Guiding users to a proper behavior, so that the city will be more clean and tidy. Citizens will be more satisfied to live in the city of Milan.

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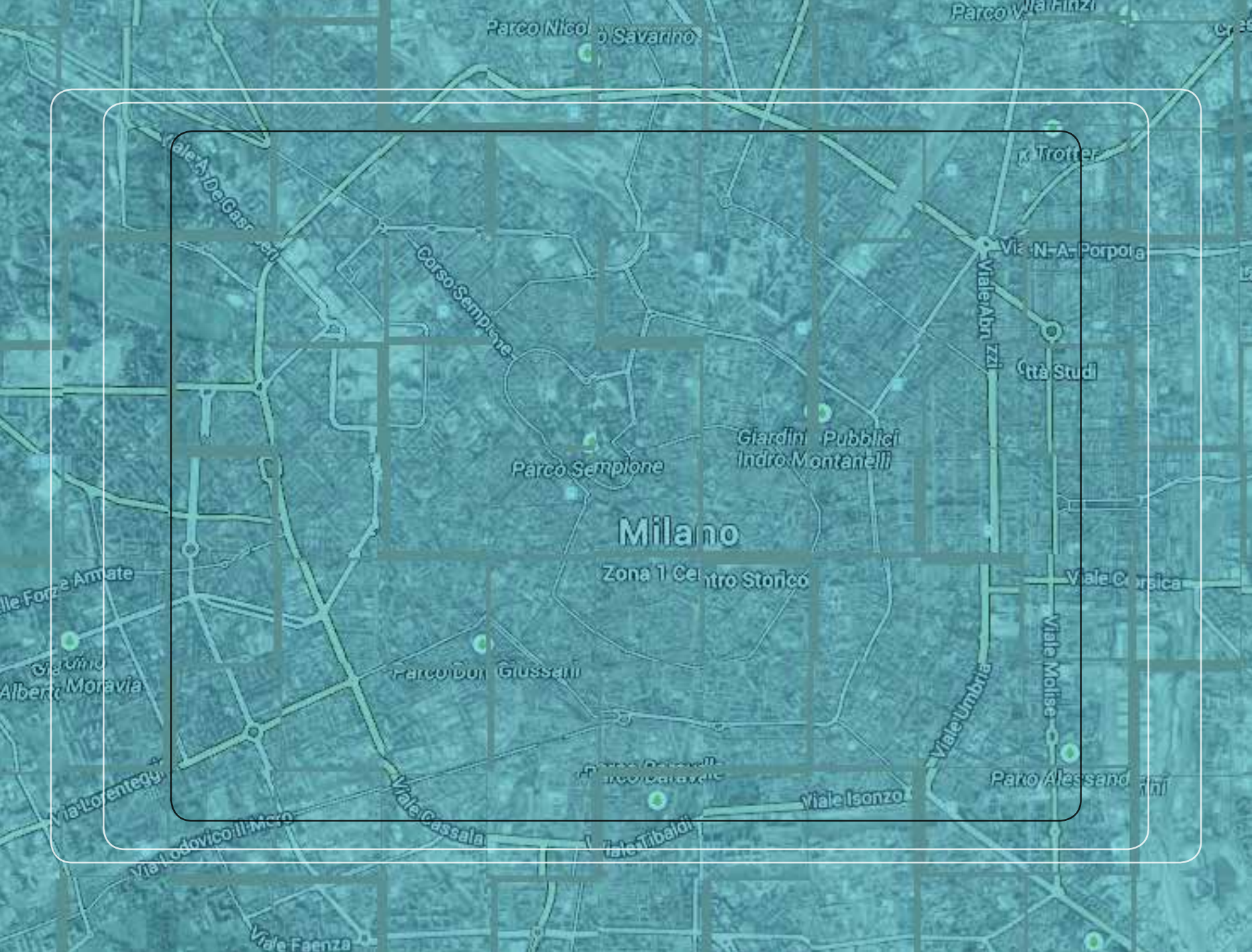
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