

# HARE



## A NEW DELIVERY SYSTEM UNDER THE PANDEMIC



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# 1. INTRODUCTION

During 2020, the real economic has been hit by the epidemic. Many retails begin to realize the importance of e commerce. The people begin to think the relationship between the real economic and internet. Some companies were building the system of distance education, smart working and e commerce. Internet might be the best way under this background.

In the city, because of the lockdown, the people also prefer shopping online. And many retail and restaurants can't open during the epidemic. Shopping online became the best way to achieve the economic growth. Amazon became the one of the most valuable companies in the world in 2020, it has 415.86 billion dollars, beyond Apple and Microsoft. But still many retails collapse during epidemic. Some of them can't open the store online, because of technology or cost.

In this period special, logistic also became the important part in the process. Rider is a hub which connect retails and costumers. But the delivery process has a high-risk infection, riders run in the city all day, contact many people. In order to protect the health and safety of the couriers, Glovo proposed the contactless delivery plan. They stipulate that the distance between the couriers and customers must be more than 1M, when the package arrived the destination, couriers put it front of the door and call the customer for telling them to pick it up. Couriers must stay away the package and wait for customers. Moreover, Golvo also assign a health pack to each courier. However, the plan which proposed by glovo is not very useful, there are still some people no following the rules cause risk of infection.

Therefore, we want to design a system which can achieve completely contactless delivery in the city. This system will provide the safe delivery service without influencing the normal process. Moreover, the client, retail and rider can communicate conveniently under the system.

In order to ensure the integrity of the system, we need to understand the development of logistics and e commerce, study innovative technology which be used in this area, the process of the service and the status development in the worldwide. Moreover, our project also needs to focus on retails' status, we will conduct a lot of market research and analysis territory in Torino, include the location relationship between the area residents and commercial, the transportation system, the relationship between the distribution of express delivery point and traffic.... Afterward, we will analysis their requirement and figure out the pain point.

The final project will connect the rider, costumers and retail in a better way. In the period special, the system will reduce the risk of infection, protect

people's safety. When the epidemic past, the system also can help retail promotion, help them improve economy. The project help them open online store in easy way.



## 2. ANALYSIS E-COMMERCE

### 2.1 INTRODUCTION E-COMMERCE

E-commerce (electronic commerce) is the activity of electronically buying or selling of products on online services or over the Internet. Electronic in e-commerce refers to the use of technologies electronic and system. Commerce present traditional commerce model. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. With the continuous advancement of Internet technology, e-commerce now has new developments.

E-commerce brings new possibilities to people's lives. Once we must go to physical store to shop, but now we can see every product all over the world through the internet. Modern electronic commerce typically uses the World Wide Web for at least one part of the transaction's life cycle although it may also use other technologies such as e-mail. Typical e-commerce transactions include the purchase of online books (such as Amazon) and music purchases (music download in the form of digital distribution such as iTunes Store), and to a less extent, customized/personalized online liquor store inventory services. There are three areas of e-commerce: online retailing, electronic markets, and online auctions. E-commerce is supported by electronic business. E-commerce businesses may also employ some or all the followings:

1. Online shopping for retail sales direct to consumers via Web sites and mobile apps, and conversational commerce via live chat, chatbots, and voice assistants
2. Providing or participating in online marketplaces, which process third-party business-to-consumer (B2C) or consumer-to-consumer (C2C) sales
3. Business-to-business (B2B) buying and selling
4. Gathering and using demographic data through web contacts and social media
5. Business-to-business (B2B) electronic data

interchange

6. Marketing to prospective and established customers by e-mail or fax (for example, with newsletters)
7. Engaging in retail for launching new products and services
8. Online financial exchanges for currency exchanges or trading purposes.

The original of e-commerce can be tracked back to 1970s. First it's used to simplify the business activity by technology electronic. Commonly used technologies include electronic data interchange (EDI) and electronic money transfer. E-commerce is defined as a set of processes that support business activities through the Internet. In the 1970s and 1980s, information analysis technology entered e-commerce. In the 1980s, with the gradual acceptance and application of credit cards, automated teller machines and telephone banking, these became an integral part of electronic trade. In the 1990s, enterprise resource planning (ERP), data mining and data warehouses have also become part of e-commerce. When internet enter people's life in 1994, many researchers predicted e-commerce would become the main business model. However, it took 4 years to develop network security protocols (such as HTTPS) complement and use it. During 1998 to 2000, many American and Western Europe companies developed some webs immature. In ".com" period, e-commerce has added new component – "online trade". With the support of data encryption transmission technology, customers use the virtual shopping

carts and credit cards of online stores to complete goods through the Internet. And service procurement. Between 2000 and 2001, the large number of "pure e-commerce" companies disappeared, but other retail enterprises noticed the potential value of the e-commerce market and stated add e-commerce function on official web. For example, after the online food sales company Webvan closed down, the two traditional supermarket, Albertsons and Safeway both started affiliate e-commerce functions, where consumers can directly order food online. E-commerce is promoted by development of

technology information and diversification of business environment.

Today, e-commerce is an activity widely, from informatization of electronic banking to logistic management. E-commerce stimulates the development of system information, including back-office support systems, application systems and middleware, such as broadband and optical fiber networks, supply chain management modules, raw material planning modules, customer relationship management modules, inventory control modules, and accounting. And corporate finance module.

### Development

– focus on all over the world

Today, the number of customers who shop online is gradually increase. E-commerce provide a convenient Platform, it helps the customers can buy product with lower cost and it is also a convenient way to publicize. It let the information more transparent, and the customer can select their product more liberty in world internet.

In 2019, the requirement of B2C e-commerce exceed the 3 trillion euros. China (1.32 billion euros) became the largest market of e-commerce. America presents a 680-billion-euro market, located second in the world. UK, German and French occupies the half of European market. Now other countries have noticed the value of e-commerce and began to participate in this world.

### Influences

The birth of e-commerce stimulates some new industries.

1. A series of alliances between sector operators (large merchants, startups, but also companies operating in other areas) with the dual aim of developing new technologies and expanding their online business. The development of e-commerce let startups begin business simpler than before. So, a lot persons want to try their ideas.

2. Popularization of new technology solutions, it focuses on how to improve the user experience, for example: artificial intelligence, voice assistance, mobile payment, chatbots, delivery on demand. Because services simile gradually increases in market, the different

user experience is particularly important. How to improve it is a main task for every operator.

3. Platform subsidies. Platform must think about how to stimulate consumption, how to attract the user's attention. So, some platforms have subsidy policy in some days special. In these days, the products will be sold with lower price. For example: 11.11 in Taobao and Black Friday in Amazon.

4. Mutual transfer between physical and virtual. Some traditional companies transfer his business from physical to virtual, for example virtual bank. The transformation is be built for creating operation.

5. Research of use experiment. Many companies want to simplification user experiment.

Amazon and Starbucks use voice assistance to help customer to select product. In payment process, there are some smartphone manufacturers are developing the technology of mobile payment, such as Apple and Samsung. And some operation companies also work in this area. In these years, we can use Alipay and Satispay in some shopping mall. It focuses on solving and popularize the payment way. In delivery process, the trend is technology of self-driving or digital locker. The cooperation is between the logistical company and automobile manufactur. Chatbot. Some company use chatbot to solve the problem simple. It relieves the pressure of some staff, and save customer's time.

6. Alliance between operators. Ecommerce provides some cooperation 's chances. They are all for the goal of mutual profit. Project of technology: use voice assistance to develop ecommerce. (Walmart, Microsoft) Experiment of self-driving in delivery (Domino's Ford Augmented reality (Yoox Net-a-Porter-Lumyer)

– in Italy

More and more consumers are shopping online, attracted by vast assortments and affordable prices. And more and more operators (traditional and innovative) are approaching e-commerce. If we analyze the news relating to recent years, we realize that the world of electronic commerce has been characterized by several particularly significant facts: alliances between large operators (e-commerce and not), affirmation of technological trends (such as voice assistance and chat bots), consecration of various events dedicated to e-commerce. On the other hand, there was no lack of heated debates on the effects of online on traditional commerce. Some traditional large-scale retailers are struggling, unable to design effective hybrid online-offline solutions, while several Dot Coms (companies such as Amazon born specifically to operate online) show strong attention to the opening of physical stores.

In this context, Italy also participates in this world. In 2019 the value of online purchases will touch, according to data from the B2c e-commerce Observatory, 31.6 billion euros, with an increase of 15% compared to 2018. Among the fastest growing sectors: Beauty (+ 27%), Furniture & Home Living (+ 30%), Food & Grocery (+ 42%).

The product sector includ:

### Frequency of shopping online ( Figure 2-1 )

The analyzed data showed that 80% of Italian digital buyers make, on average, at least one purchase via e-commerce per month.

According to the report, Italian digital consumers can be divided into intensive (20%, at least one purchase per week), regular (80%, at least one purchase per month) and finally sporadic (20%, one purchase every quarter or less).

This division shows how the Italian e-commerce market is dominated by regular buyers: one in two Italian e-consumers in fact buys online at least once a month, if not more.



Figure 2-1

**The portrait of the Italian digital consumer (Figure 2-2)**

In Italy, men account for 61.7%, woman account for 38.3%

As for the age groups, however, consumers between 35 and 44 are the predominant ones and represent 26.8% of the total, followed by 25-34 year olds (23.4%) and 45-54 year olds (21.5 %).

The main age group of online shopping is 25-54 years olds

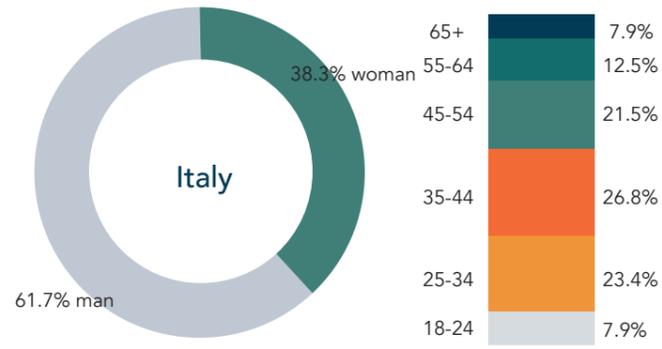


Figure 2-2

**Delivery method statistics (Figure 2-3)**

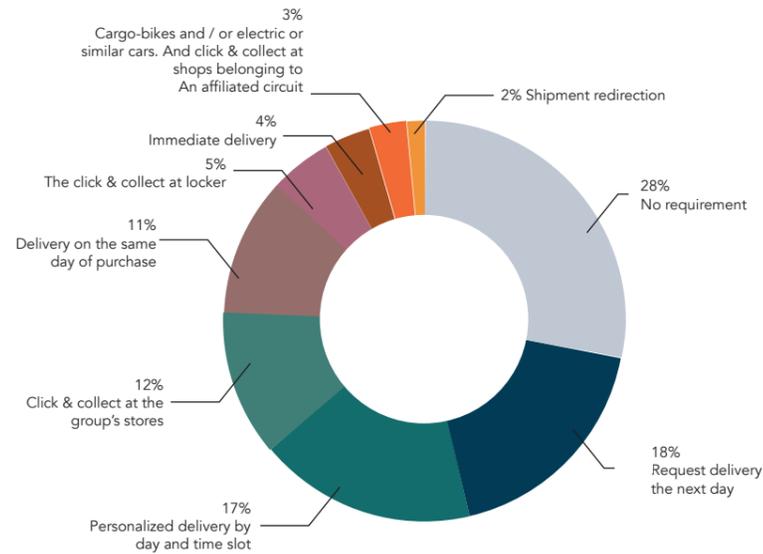


Figure 2-3

**Logistics and delivery methods (Figure 2-4)**

The sector is in full evolution and growing thanks to e-commerce: according to the data analyzed by the B2C e-commerce Observatory, Netcomm - School of Management of the Politecnico di Milano, the volume of deliveries that move in Italy every month it is estimated at around 15 million €

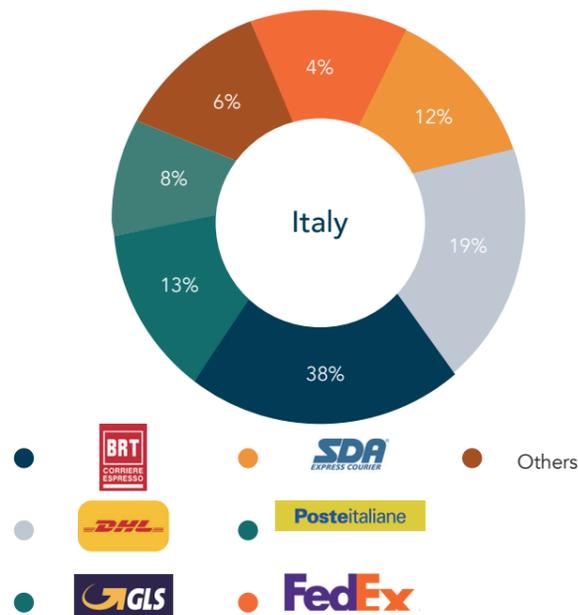
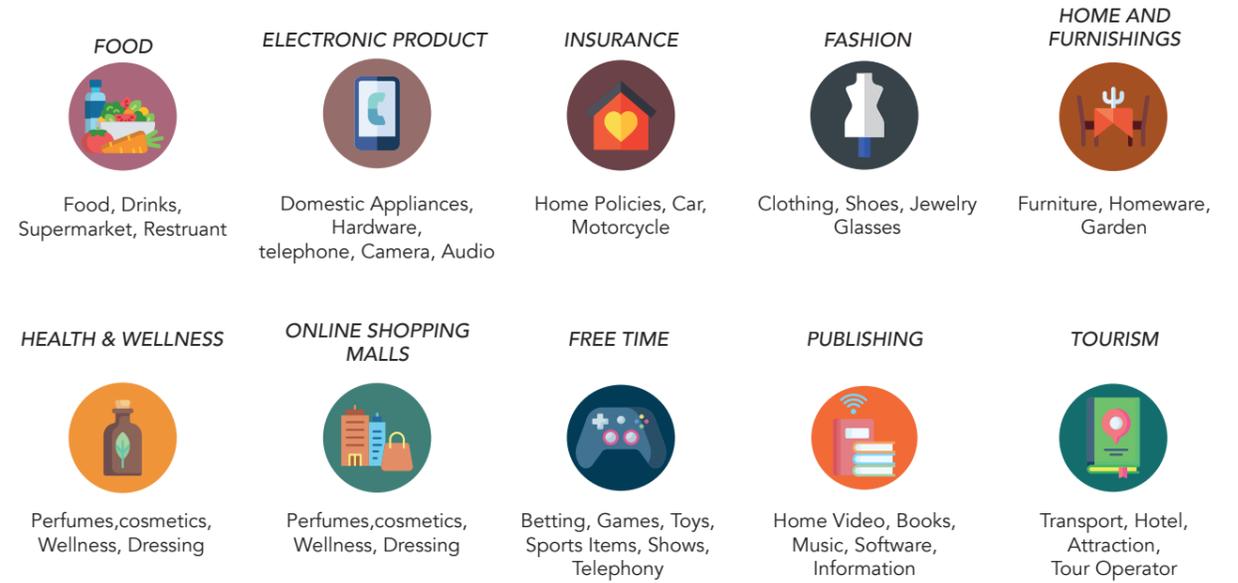


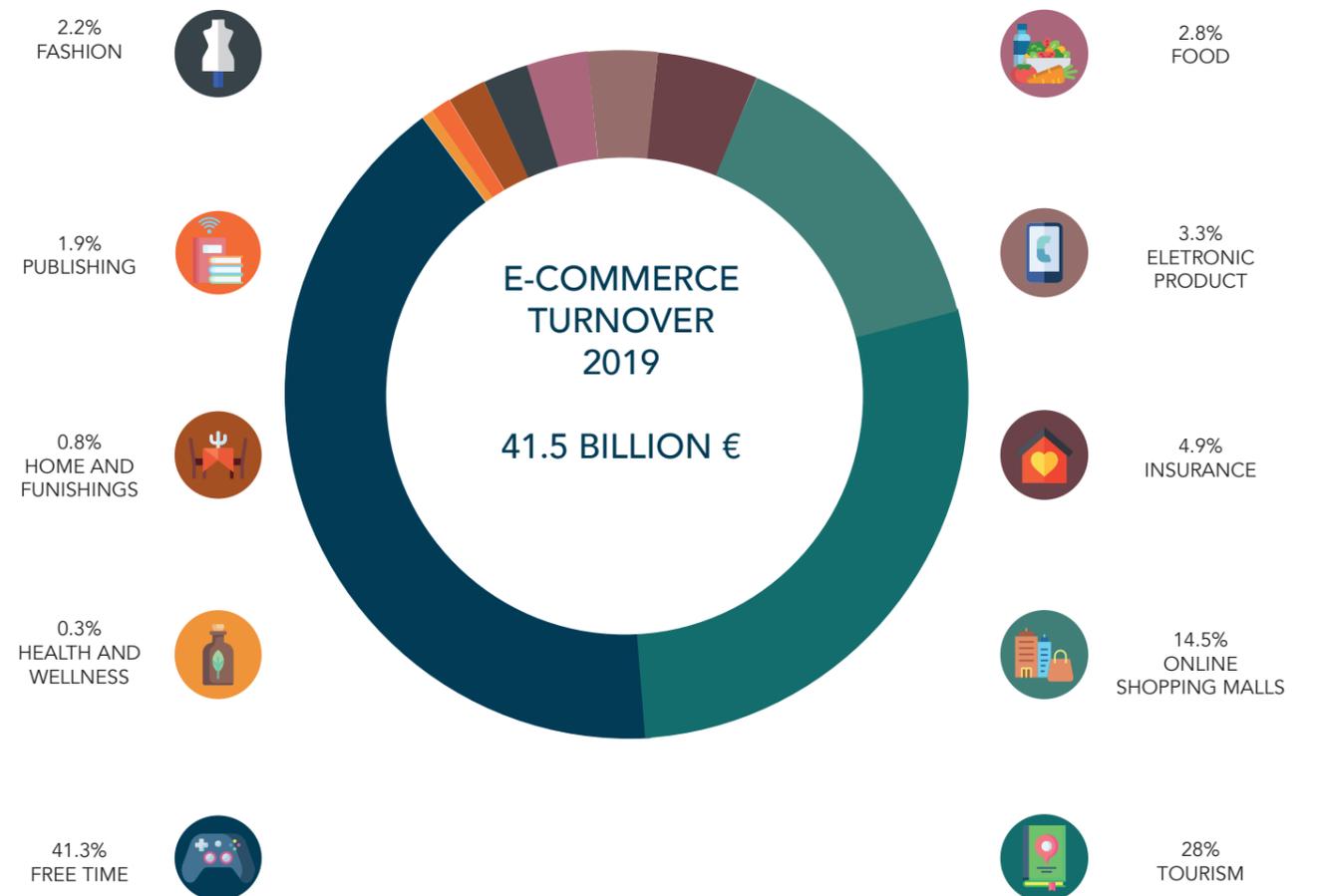
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**2.2 ANALYSIS E-COMMERCE**

**Product Sectors**



**Distribution Of Turnover**



E commerce is becoming a main business activity. Depended on the research , e commerce brings not just benefits, but also some problems.

Pros:

### A Larger Market



E-commerce allows you to reach customers all over the country and around the world. The customers can make a purchase anywhere and anytime, especially more people are getting used to shopping on their mobile devices.

### Customer Insights Through Tracking And Analytics



Whether the seller is sending visitors to your eCommerce website through SEO, PPC ads or a good old postcard, there is a way to track your traffic and customers' entire user journey to get insights into keywords, user experience, marketing message, pricing strategy, and more.

### Fast Response To Consumer Trends And Market Demand



The streamlined logistics, especially for merchants who do "drop ship," allow businesses to respond to market and eCommerce trends and consumer demands in a nimble manner. Merchants can also create promotions and deals on the fly to attract customers and generate more sales.

### Lower Cost



With the advance in eCommerce platform technologies, it has become very easy and affordable to set up and maintain an eCommerce store with a low overhead. Merchants no longer have to spend a large budget on TV ads or billboard, nor worry about the expense for personnel and real estate.

### More Opportunities To "Sell"



Merchants can only provide a limited amount of information on a product in a physical store. On the other hand, eCommerce websites allow the space to include more information such as demo videos, reviews, and customer testimonials to help increase conversion.

### Personalized Messaging



E commerce platforms give merchants the opportunity to serve up personalized content and product recommendations to registered customers. These targeted communications can help increase conversion by showing the most relevant content to each visitor.

### Increased Sales With Instant Gratification



For businesses that sell digital goods, eCommerce allows the delivery of products within seconds of making a purchase. This satisfies consumers' need for instant gratification and helps increase sales, especially for low-cost items that are often "impulse buys."

### Ability to Scale Up (Or Down) Quickly And Unlimited "Shelf Space"



The growth of an online business is not limited by the availability of physical space. Even though logistics can become an issue as one grows, it's less of a challenge compared to those for running a brick-and-mortar store. eCommerce merchants can scale up or down their operation quickly, and take advantage of the unlimited "shelf space," as a response to market trend and consumer demands.

Cons:

### Lack Of Personal Touch



Some consumers value the personal touch they get from visiting a physical store and interacting with sales associates. Such personal touch is particularly important for businesses selling high-end products as customers not only want to buy the merchandise but also have a great experience during the process.

### Lack Of Tactile Experience



No matter how well a video is made, consumers still can't touch and feel a product. Not to mention, it's not an easy feat to deliver a brand experience, which could often include the sense of touch, smell, taste, and sound, through the two-dimensionality of a screen.

### Credit Card Fraud



Credit card fraud is a real and growing problem for online businesses. It can lead to chargebacks that result in the loss of revenue, penalties, and bad reputation.

## 2.3 CONTRAST

### Shopping online

#### Distribution



The warehouse is in the suburbs of the city, and the express station are distributed in the urban area with a wide distribution area.

#### Service



After purchasing online, it will be delivered to the customer's home by transportation. Customers can buy everything without going out.

#### Time cost



It takes a long time from order to delivery

#### Resource consumption

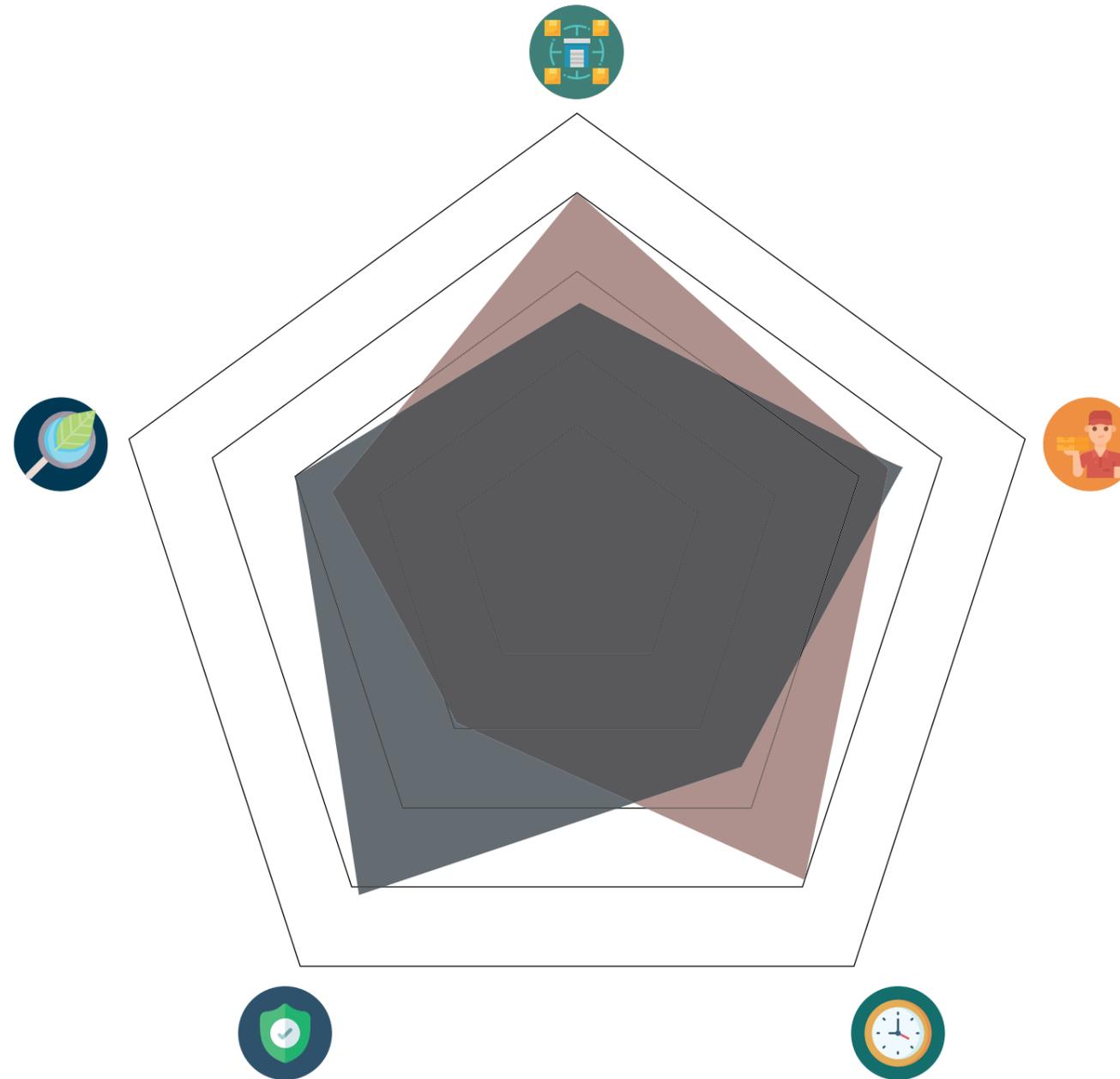


Express delivery consumer manpower road, and energy resources higher cost

#### Security



In the transportation process, the damages of goods and the deviation of service quality caused by the qualities of the staff



### Shopping traditional

#### Distribution



The stores are distributed widely in urban area, but there are still some residence area are far from the store .

#### Service



The customer must go to the store to buy. It largely limits the scope of customers' purchases. But the customer can see product, and help him to know it better.

#### Time cost



Activity of purchases took time little, but the people spend time of journey a lot.

#### Resource consumption



Resource consumption is more flexible. It depend many element, such as distance from store to home.

#### Security



During the coronavirus period, there is a risk of infection when go out for shopping

## 3.1 INTRODUCTION LOGISTICS

With the development of E commerce, the logistics industry also has new vitality. <sup>1</sup>Logistics is generally the detailed organization and implementation of a complex operation. In a general business sense, logistics is the management of the flow of things between the point of origin and the point of consumption to meet the requirements of customers or corporations. The resources managed in logistics may include tangible goods such as materials, equipment, and supplies, as well as food and other consumable items. The logistics of physical items usually involves the integration of information flow, materials handling, production, packaging, inventory, transportation, warehousing, and often security.

Logistics originated from military logistics, which refers to the planning of the transportation and management of raw materials between different warehouses through calculations in wars. "Logistics" can also be called "strategic logistics transportation" or "strategic transportation" for its ultimate purpose. The physical movement of material data from supplier to demander is an activity that creates time value, place value and certain processing value. Logistics refers to the physical movement of a material body from a supplier to a demander. It consists of a series of economic activities that create time value and space value, including transportation, storage, distribution, packaging, loading and unloading, circulation processing and processing. Activities are the unity of these activities.

The modern concept of "logistics" may be based on the logistics theory established by the US military during World War II around the supply of war materials. At that time, "logistics" meant that the production, procurement, transportation, and rationing of war-time materials were arranged as a whole in order to achieve lower cost, faster speed and better service for the supply of strategic materials. Later, the "logistics" system was transplanted into modern economic life, and it gradually evolved into today's logistics. The logistics system can also promote globalization like the Internet. In trade, if you want to further connect with the world, you must rely on a good logistics management system.

Many commodities on the market came after "traveling" in various countries. The raw

materials may come from Malaysia and Thailand, the processing may be in Singapore, but the production is in China, and finally imported to the United States. The "travel" route of the product is planned, organized, directed, coordinated, controlled and supervised by the logistics division, so as to achieve the best coordination and cooperation of various logistics activities to achieve the goal of product logistics. The goal may be to reduce logistics costs (Cost), improve logistics efficiency and quality, or improve logistics supply satisfaction (Availability). There may be trade-offs and emphasis on goals.

Under this background, the logistics company is burned. It's a company which use less cost to transport the material or product to other place for satisfying his client's request. The logistics company also need to manage and plan the entire transportation process. It usually includes three main parts: logistics center, distribution center and shipping warehouse. Depend the different function, it can be divided into the large quantities of raw materials transportation, commodity distribution (for the food industry, is divided into fresh and dry food) and home delivery, express delivery or small package mall. According to their distance and function, the company use different transportation. For example, bicycle can be easy to use in the urban, but it can't carry large or heavy product, and it's also difficult to use in long transportation.

Driven by economic globalization and e-commerce, the logistics industry is rapidly transforming from traditional logistics to modern logistics and has become an inevitable trend in the development of the current logistics industry. Under the guidance of systems engineering thinking, with information technology as the core, strengthening the integration of resources and the optimization of the entire logistics process are the most essential characteristics of modern logistics.



# 3. ANALYSIS LOGISTICS

## 3.2 MODERN LOGISTICS

Because of the innovation of information science and the change of lifestyle, the logistics industry needs to use new ideas for providing better service. The figure 3-1 present the development of logistics in these years. Logistics is not just a transportation industry, it begins to think about how to transportation in a sustainable way, how to use robot to simplify the management.

<sup>2</sup>The modern logistics industry refers to the entire process of the effective flow of raw materials and finished products from starting point to ending point and related information. It organically combines transportation, warehousing, loading and unloading, processing, sorting, distribution, information and other aspects to form a complete supply chain and provide users with multi-functional and integrated comprehensive services. The modern logistics industry is a new type of cross-industry, cross-department, cross-regional, and highly permeable composite industry. The national economic industries involved in modern logistics include railway transportation, road transportation, water transportation, loading, unloading, and other transportation services, warehousing, wholesale, and retail.

According to the environment of development, the logistics management became the important part of the process. Logistics management is that part of supply chain management that plans,

implements, and controls the efficient, effective forward and reverses flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements. It includes three main part: warehouse management, order fulfillment and transportation. For achieve management goals, it needs to focus on four key factors: process through put time, transaction efficiency, transaction reliability and timely accurate external and internal information. From the point of warehouse management, the manager thinks about how to contribute the tracking system, how to communication between product station and warehouse infrastructure in the high efficiency way. If we focus on the internal management of the warehouse, the main part is storage and receipt. This point can be subdivided into distribution management center, inbound warehouse and cross docking. From the point of transportation, the total distance covered by the vehicles and saturation of the vehicles are the two main problem need to focus on.

**Total distance covered by the vehicles:** It is geared at reducing empty kilometers. Less empty runs, fewer costs and more efficiency. To achieve such a goal, it becomes indispensable to elaborate the shortest and most suitable routes to balance the flow of the various shipments.

**Saturation of the vehicles:** It is necessary to analyze the composition of the load, making the most of its volume and weight without compromising the speed of the shipment. Furthermore, it should not be forgotten that the saturation of the means contributes not only to cutting costs, but also to reducing the environmental impact of logistics processes.

In the development of logistics, another point to consider is logistic distribution. Distribution logistics is a central part of the value chain of industrial and commercial companies. It is the link between production and the company's sales market. It is characterized by individualized storage and transport processes, information, control and monitoring measures. The final goal is availability and cost minization.

**Availability:** It must always ensure that a sufficient quantity of products is available to customers. Customers should be able to receive goods promptly and without great effort.

**Cost minization:** High quality demands of the manufacturers require sales logisticians to keep shipping and delivery costs as low as possible. In concrete terms, the aim is to reduce costs associated with transport, storage, shortage and order processing. At the same time, however, delivery is to become faster, more energy-efficient

and more environmentally friendly.

In this topic, for now the company try to use innovative way to improve the situation:

**E – mobility:** Electric vehicles can reduce car pollution to the environment and reduce carbon dioxide emissions

**Self-driving means of transport:** Self-driving technology can help logistics companies save manpower costs and efficiently complete distribution tasks

**Increased quality requirements:** Logistics companies provide better service quality and can provide customers with efficient and safe delivery services.

**Sustainability and environmental protection:** Logistics companies uphold the concept of sustainable development, reduce the impact on the environment and reduce pollution

**Energy efficiency:** Distribution should arrange resources reasonably to maximize the use efficiency of resources

### Timeline of Logistics

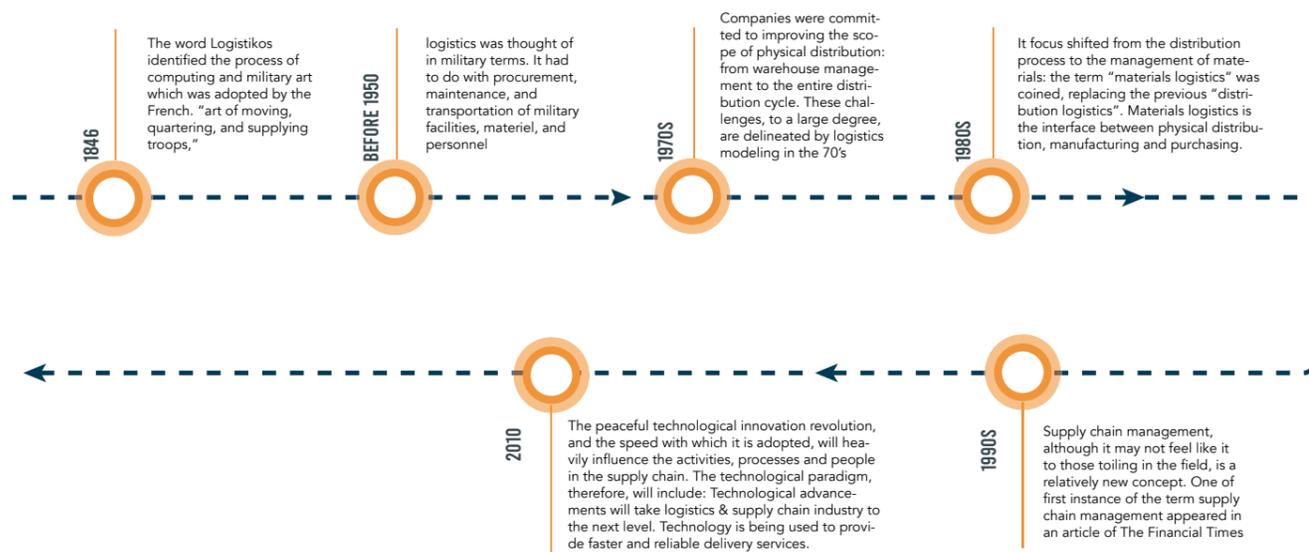
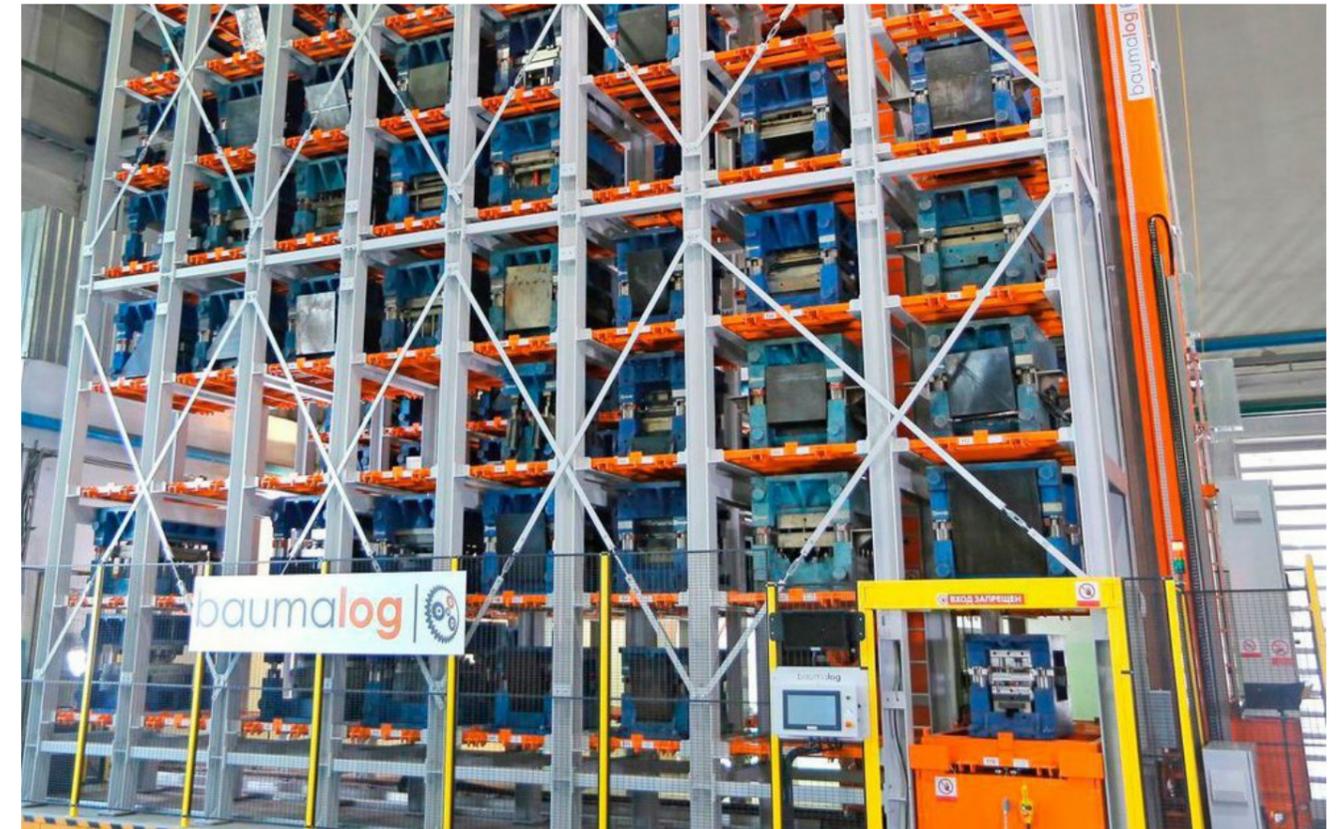


Figure 3-1



## CASE STUDY

**Name:** DHL's Saloodo

**Founded:** 2017

**Parent:** DHL

**Website:** <https://www.saloodo.com/it/>

35 countries worldwide

Saloodo is a digital logistics platform. It brings shippers and transportation providers together. The shipper publishes the information on the platform. After seeing the news, the transportation providers registered decided how to take orders and how to distribute their work. On the platform, the truck driver can clearly see the shipping information and all documents of the order. With the innovative Saloodo! driver app, upcoming tours can be assigned directly to the respective drivers via the app. The app provides the drivers with details of the tour and cargo at all times. Possible delays or other problems can be documented directly in the app. The app also reminds drivers to confirm important status messages during the tour, as soon as they are close to the pickup or delivery address. In addition, with the "in app scanner", drivers can scan the proof of delivery document (POD), upload it immediately and thus get paid within a matter of days. This way greatly improves the work efficiency of the courier, to avoid empty runs. At the same time, it is also convenient for the circulation of goods for small and medium-sized companies.



## CASE STUDY

**Name:** TNT Cargo bike

**Founded:** 2015

**Parent:** TNT

**Website:** [https://www.tnt.com/express/it\\_it/site/home/chi-e-tnt/Media-Relation/Comunicati-stampa/Cargo-bike-Torino.html](https://www.tnt.com/express/it_it/site/home/chi-e-tnt/Media-Relation/Comunicati-stampa/Cargo-bike-Torino.html)

**Areas served:** Worldwide

TNT Among the most interesting innovations in the field of urban mobility are the new systems for the delivery of parcels, mail and goods. No longer with cars, vans and motorcycles, but by bike. TNT Italy, for example, which handles 180,000 shipments every day in our country, has fielded a small, new fleet inspired by the green idea of deliveries. In the front row there is the bike delivery service, 5 cyclists who have replaced three vans, with a maximum capacity of 180 kg each. On average, bikers travel 28 kilometers per day generating a CO2 reduction of 50 kilograms per day. And they manage to make an average of 90 deliveries per day, a productivity absolutely comparable with that of polluting vans



# CASE STUDY

Shipping giant UPS said it will buy 950 electric delivery trucks from Workhorse Group in what looks to be a key order for the electric vehicle startup.

The electric vehicles weigh 5,500 pounds, are equipped with 1,000-cubic foot cargo bays and can carry about 5,000 pounds of payload. With 60-kilowatt-hour battery packs the N-Gen vans can travel up to 100 miles before they need to be recharged. The cost will be about \$6 to travel 100 miles, which is significantly lower than the expense of fuel to run gas or diesel-powered trucks.

**Name:** UPS workhorse electric

**Founded:** 2018

**Parent:** UPS

**Website:** <https://www.trucks.com/2018/06/14/ups-order-950-workhorse-electric-delivery-trucks/>

**Areas served:** America



## UNDER THE ENVIRONMENT OF E COMMERCE, THE DEVELOPMENT OF MODERN LOGISTICS

### 1, self – built model

With the fast development of e commerce, some companies begin to contribute own logistics center. They set logistics center as most important of the chain and provide the production to the retail and department through logistic center. Under the model, it can guarantee the goods supply in time, but it also causes the resources waste. This modo can satisfy a part of e commerce business's need.

### 2.logistics integration model

Logistics integration model means focus on logistics system, develop the system of supply chain. In this model, it needs contribution of third part logistics. It involved production, market and customers. Logistics and production business have closer relationship through this model. Manufacturer product and combinate the product, and logistics company ship it to retail according to the requirement of sale company. This model connects manufacturer, seller and costumer together, they can share resources and achieve the maximize the use of resources. Today, logistics integration model gradually developed into the most commonly used mode.

### 3, TPL model (Third-party Logistics Service)

It means that in order to concentrate on the main business, the production and operation enterprises entrust the logistics activities originally handled by themselves to professional logistics service companies in the form of contracts and maintain close contact to achieve the management of the entire logistics process and contract logistics is for third-party logistics.

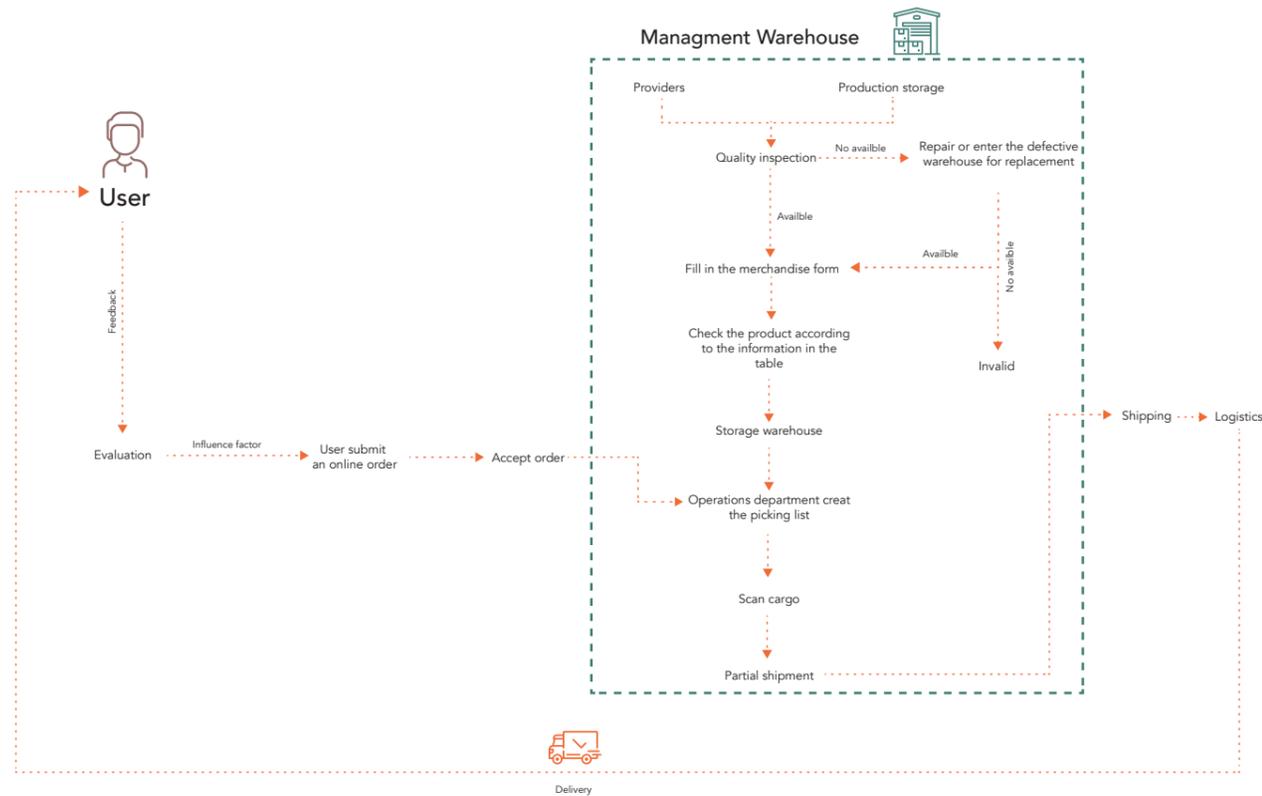
### 4.Common delivery model

Common delivery model's appearance is one result of development of e commerce. This model based on the mutual benefit between the parties, on this basis, the continuous coordination and optimization of the distribution mode, and then construct a new distribution mode. Its content includes the common use of different type of logistics facilities and equipment, common distribution and common management. The emergence of the common distribution model has made distribution scientific and rational.

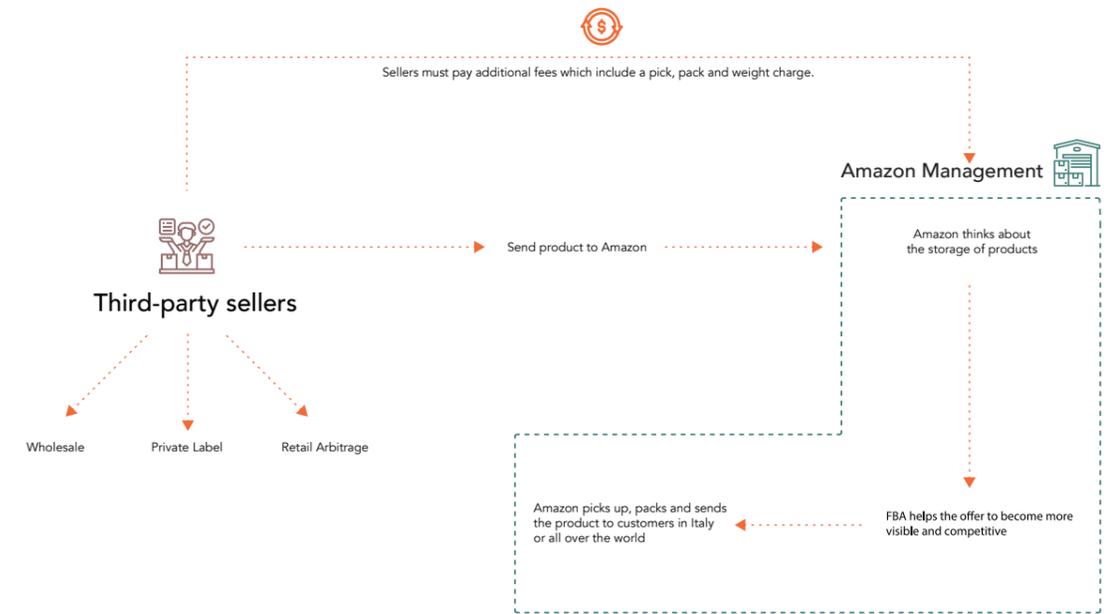
### 3.3 ANALYSIS THE DIFFERENT TYPE OF LOGISTICS

#### Traditional E - commerce

E commerce is the main power to develop the logistics. Traditional e commerce logistics has characteristics of long distance, transport in high frequency and large variety. Depend these features, the supply chain involves management warehouse, logistics distribution and return logistics. In order to provide the better service and reduce cost, the logistics company begin to use new technology or think about innovative management way for optimization the supply chain.



#### Amazon FBA



Fulfillment By Amazon (FBA) is a service provided by Amazon that provides storage, packaging, and shipping assistance to sellers. This takes the burden off of sellers and grants them more flexibility in their selling practices. The program allows sellers to ship their merchandise to an Amazon fulfillment center, where items are stored in warehouses until they are sold. When an order is placed, Amazon employees physically prepare, package, and ship the product(s).

#### PROS:

- Having Amazon's Name Associated With Their Products - Subsidized Shipping. Fees
- Multi-Channel Fulfillment
- Shipping Standardization
- Access to the Prime Audience

#### CONS:

- Costly Fees: Fulfillment and storage fees, including long-term storage fees, can pile up

quickly, especially with slow-moving or oversized products.

- Product Handling Issues by Amazon: Sometimes inventory can get lost or damaged in the fulfillment process.
- Sticker less Commingling: Amazon's default inventory setting is to commingle the same products together from a manufacturer. That means if a seller is selling the exact same product as other retailers or sellers, their inventory will be mixed together.
- More Returns: Given that Amazon handles returns with FBA, sellers may experience higher return rates once customers understand how easy it is to return a product on Amazon

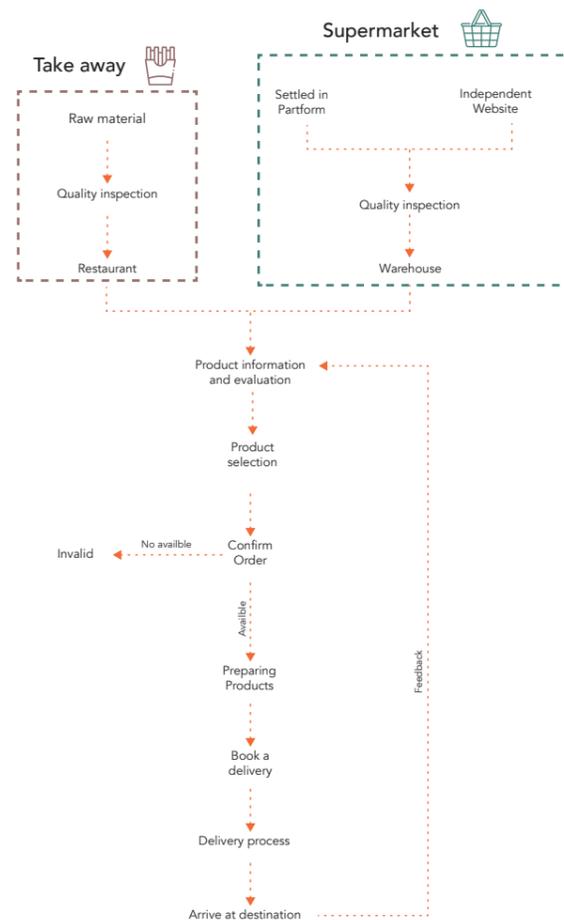
## Delivery Express (supermarket, restaurant)

With the development of food industry, the various style of restaurant appears in our life. Formerly, people can call the restaurant for delivering the food. Now, thanks for the development of information technology, many delivery's planform appear on the smartphone. The planform connects with many restaurants in the city and hires many couriers for delivering food or something else. The costumer can order more things with this service. Some planforms have grading system. It will help costumer to how to select.

The planform also can help the restaurant for promoting their business. But at the same time there is problem of courier's service quality. It's difficult for the planform to manage all the courier. For now, many planforms establish evaluation system for courier. Every time, when courier finish their delivery, the costumer can comment the service. Depend on evaluation, planform can optimization their system service.

Some bigger supermarkets or restaurant also have own planform for delivering. In this type, their service just for themselves costumer, and quality of service is more stable. But it needs more cost for the store.

Delivery express is a most common logistics in the urban city. It has characteristics of small quantities, short distance, high frequency. The courier usually use bicycle, and they always work as part time job. Because bicycle can't pollute the urban environment, and it's a convince way to move in the city. This supply chain is more simply than e commerce. Because it doesn't need warehouse, the courier is the only one who connect the store and costumer.



## 3.4 CASE STUDY (EXPRESS COMPANY)

**Name:** Posteitaliane

**Founded:** 1862

**Service:** mail, postal and telecommunications services; public telematics services; collection and payment operations; postal savings collection.

**Website:** [www.poste.it](http://www.poste.it)

**Areas served:** Worldwide

Poste italiana S.p.A. is a company that deals with the management of the postal service in Italy. It was founded in 1862 as an independent company that managed the postal and telegraph services on behalf of the state in a monopoly and until 1998 it became a public economic body. It is a joint-stock company controlled for 35% by the Cassa Depositi e Prestiti, whose primary activity is: postal, post and telecommunication services; public telematics services; collection and payment operations; postal savings collection.

After the transformation into a joint-stock company of the 90s, following the example of similar. European companies, the Italian post offices acquired stakes in goods transport companies already active on the national territory, expanding and integrating the services offered to customers: in 1998, the SDA Express Courier has fully become part of the group.



**Name:** UPS

**Founded:** August 28, 1907

**Service:** Courier express services, Freight forwarding services, Logistics services

**Website:** www.ups.com



**Areas served:** Worldwide

The business foundation of UPS is the hub and radiation network structure. The UPS operation center collects packages from users and sends them to the hub. The hub collects packages from many operation centers, classifies them, and then distributes them to other operation centers or hubs, and finally reaches the destination.

UPS's primary business is the time-definite delivery of packages and documents worldwide. In recent years, UPS has extended its service portfolio to include less than truckload (LTL) transportation (primarily in the U.S.) and supply chain services. UPS reports its operations in three segments: U.S. Domestic Package operations, International Package operations, and Supply Chain & Freight operations.



**Characteristic:**

			
119.000+	2200+	28.000+	63%
Over 119,000 delivery vehicles worldwide,	More than 2,200 flights every day to transport goods	More than 28,000 access points all over the world	On-time delivery rate just only 63%

UPS has the highest express delivery revenue in the world, especially its obvious advantages in land parcels. The most fleets and outlets are the fulcrums of its business. Although its on-time delivery rate is only 63%, UPS has better competitiveness for time-insensitive packages.



**Name:** FedEx

**Founded:** 1862

**Service:** mail, postal and telecommunications services; public telematics services; collection and payment operations; postal savings collection.

**Website:** www.fedex.com/ or www.fedex.com/en-us/home.html



**Areas served:** Worldwide

The company is known for its overnight shipping service and pioneering a system that could track packages and provide real-time updates on package location, a feature that has now been implemented by most other carrier services. FedEx is also one of the top contractors of the US government.

FedEx is the world's largest express delivery company, providing fast and reliable express delivery services to more than 220 countries and regions around the world. FedEx has a global aviation and land transportation network, usually only one to two working days, can quickly deliver tight deadlines and ensure timely delivery.



**Characteristic:**

			
120	650+	6.000.000+	NEXT DAY
there are 120 independent air freight centers around the world	With 650 aircraft, providing air express delivery service	More than 6,000,000 courier every day in the world	High timeliness can provide the efficiency of the next day delivery courier

FedEx is different from other companies in the company's business structure. It focuses on the express express business. Although it is similar from the customer's perspective, it is different from the company's perspective. FedEx has higher priority for time-sensitive express delivery, Can be delivered at the fastest speed.



**Name:** Express Mail Service

**Founded:** July 15, 1980

**Service:** Mail, postal and telecommunications services

**Website:** <http://www.ems.com.cn/>

**Areas served:** Worldwide

Express mail is an expedited mail delivery service for which the customer pays a premium for faster delivery. Express mail is a service for domestic and international mail, and is in most nations governed by the country's own postal administration. Since 1999, the international express delivery services are governed by the EMS Cooperative.

The EMS Cooperative is an institution of the Universal Postal Union. It cooperates with more than 180 member countries to jointly provide EMS – Express Mail Service – the fastest cross-border postal product. EMS cooperatives promote cooperation among their member positions and provide high-quality and competitive express delivery services (EMS) to customers worldwide.

**Characteristic:**

			
<b>180+</b>	<b>PRIORITY</b>	<b>COOPERATION</b>	<b>SERVICE</b>
Cooperate with more than 180 member countries to jointly provide EMS	Relative to other postal services	International cooperation relationship,	It has the most counters in the world

As an international cooperative express organization, EMS Express has the most stable transportation routes. They are supervised by the League of Nations to provide services to customers in different countries. EMS postal operators have the world's largest last mile coverage with the support of postal delivery networks range.



**Name:** BRT S.p.A.

**Founded:** 1928 in Bologna

**Service:** Transport

**Website:** [www.brt.it](http://www.brt.it)

**Areas served:** Italy

BRT SpA is an Italian company active in the freight sector, founded in Bologna in 1928. The company's main services are domestic road transport and logistics services in Italy. For international transportation, it has an international cooperation relationship with other companies, using the writing of foreign transportation network to reach the destination of service coverage all over the world.

BRT is a flexible and diversified company that can meet the distribution needs of the most demanding customers: from delivering different types of goods to providing logistics services to support the handling and distribution of goods. The wide and clear range of services allows customers to use one interlocutor to meet all logistics and distribution support needs in Italy, Europe and around the world.

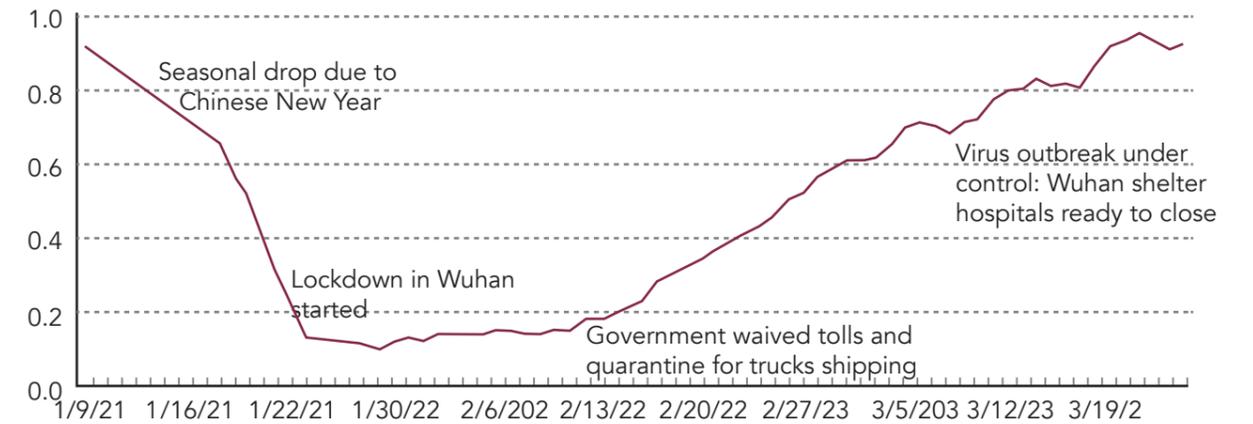
**Characteristic:**

			
<b>22.4%</b>	<b>10.30</b>	<b>COOPERATION</b>	<b>SERVICE</b>
Italy's domestic market share reaches 22.4%	The delivery time is stipulated before 10:30 on the day of receipt	International cooperation relationship,	More than 180 service points in Italy provide transportation services

BRT Express is a local company in Italy. Its service focuses on cargo transportation. It also provides personal express transportation services. It has local advantages in Italy. There are more than 180 transportation centers in Italy and transportation services in Italy. Better than other international transportation companies.



Due to complete shutdown of public transport facilities, workers required for handling and transportation of essential commodities and supplies, now need to commute to their workplace on barefoot.



Source: G7 China Road Freight Report.

Figure 3-2 2020 Full Truck Load (FTL) Recovery Rate

### 3.5 THE IMPACT OF COVID-19 ON LOGISTICS

Because of COVID 19, 2020 is an extraordinary year. Many areas have been locked down, and lead to traumatize on many sectors. Logistics is a sector which involve movement, storage, flow of goods, is also greatly affected. On the one hand, many people stay at home, it increases the e commerce activities. The service of logistics seems very important in this special period. It's the important way to connect the production and client. But the lockdown limits the logistics' development, every country has different transportation policy. And the supply chain of manufacture has changed in the period. The problem of courier health issues is another important problem for the logistics firm. The traditional delivery way is not safe for the courier and clients. How to deliver goods while ensuring everyone's safety is a common problem that logistics firm need to face.

#### The impact in china

The impact of COVID-19 was first felt in China due to the role it plays in global manufacturing (with Wuhan, the epicenter of the pandemic, playing a particularly significant role—more than 200 of Fortune Global 500 Firms have a presence there). China is also a major consumer of global commodities and agricultural products. Disruptions to manufacturing in China rippled through global supply chains. Cargo was backlogged at China's major container ports, travel restrictions led to a shortage of truck drivers to pick up containers, and ocean carriers canceled (or blanked) sailings. The resulting shortage of components from China impacted

manufacturing operations overseas. Major industries around the world, including automotive, electronics, pharmaceuticals, medical equipment and supplies, as well as consumer goods, were affected.

Although manufacturing picked back up—by end-February, about 70 percent of large industry had restarted operations—a return to full production capacity is unlikely in the short term because of the spread of the pandemic to China's trading partners.

The long-haul trucking sector—which carries more than 80 percent of the country's goods—illustrates the effects of the lockdown on Chinese logistics. Between January 24 to February 26, 2020, the volume for long-haul trucking fell below 15 percent of 2019 levels before recovering to 50 percent by the end of February and 92 percent in March. The rapid recovery was driven by the ability to contain the virus quickly and the government's policy towards trucking (such as waiving national highway tolls and quarantine requirements for trucks shipping essential goods).

#### The impact in other country

Leading to lockdowns and border closures that restricted the movement of goods. Additional protocols (such as social distancing at warehouses) introduced to ensure the safety of workers contributed to bottlenecks for freight. For example, in the European Union, trucks formed 37-mile-long lines on the A4 highway after Poland closed its border with Germany in mid-March. In India, the lockdown created a shortage of truck drivers, which resulted in over 50,000 containers

piling up in the ports of Chennai, Kamajarar, and Kattupalli <sup>3</sup>.

Lockdown causes the supply chain disruptions. Operational constraints are expected to lead to delivery delays, congestion, and higher freight rates. However, not all will be impacted equally—companies that serve e-commerce are seeing increased activity as consumers opt for online shopping of essentials, while those that serve other sectors (such as auto and consumer goods) will see a downturn. One mitigant: record-low fuel prices should provide some relief to transport operators. Overall, the uncertainty will exert downward pressure on revenues. For the small player, the impact is severely hit, such as small trucking business. Because they don't have high anti-risk ability, and they don't have a lot financial support. They also lack enough technology support or awareness of following health guideline; it will lead to increase the risk of infection during transportation. For the big player is also a difficult challenge, in April, both DHL and CEVA Logistics declared Force Majeure—a clause that allows contracts to be declared null and void due to acts of God or other unexpected circumstances—on all their contracts due to COVID-19. Other companies' credit metrics are likely to deteriorate, triggering downgrades, as has already been seen in the sector.

For respond the crisis, many governments publish some policy for supporting the logistics firm. Almost ports and airports have been designed special for responding the pandemic spread.

Governments want to ensure the international trades; they are trying to avoid lockdown as much as possible. Although many airports around the world close the passenger fight, but they still open the cargo. It's necessary for responding this situation, because they need to transport such as medical supplies. Government also needs to connect with third part logistics companies, which guarantee the transportation of the supply chain. For the logistics companies, first of all, protect the stuff's health. Some companies introduce new safe protocols, such as the social distance in warehouse, disinfecting work areas, or providing protective gear. Because of the cost increased, some it can't guarantee the execution of each company. Many companies are trying to find the alternative mode of transportation. Since the reduction of flight, DHL have used charter flights to transport shipments to and from China. The third way which optimization the logistics service, is innovating product. Logistics company create the product in line with the development of the time, use new technology in logistics sector. In China, some companies are trying to use robot with self-driving system for delivering. During COVID 19 period, Jingdong used robot for delivering in hospital.

## 3.6 GOING FORWARD

In 2020, in order to recover the business, logistics firm maybe will develop in some direction, as describe below:

### *Increase the cargo capacity*

redistribute the flight, in order to satisfy the requirement of transportation

### *Import and export management*

The government makes a new stipulate for strictly managing the import and export of sensitive cargo. In the long term, it will play important role for limiting the infection.

### *Reconfiguration the globe supply chain*

The pandemic breaks up the traditional production model. Some manufacture which relies on outsourcing, need to develop diversified supply chain. As the same time, the cooperation between companies will be closer. he shortening of supply chains may benefit countries with capable manufacturing sectors and beneficial exports' policy (for example, Colombia, India, and Mexico) to partially substitute China over the medium term. There may also be a trend towards placing additional warehousing capacity or dry ports near demand centers to shorten the time to get goods to market.

### *Technology and e commerce rise*

Logistics always follow the information technology. The bigger companies provide tracking system, use robot in warehouse management. It's an advantage during the pandemic. This would need investment in technology such as the Internet of Things (IoT), cloud computing, automation, and data analytics.

### *Recovery prospects will vary by country, subsector*

As logistics is a diverse sector, recovery prospects will vary depending on the length of lockdowns and the duration of the subsequent economic crisis. Large companies with a diversified business (such as multiple clients, serving different sectors in various countries/states) will be better placed to weather the storm.



UPS loading medical supplies to be transported to Wuhan. UPS

## 3.7 CONTACTLESS DELIVERY AND “LAST MILE”

Among them, the pandemic especially stimulates the development of robotics drones, and autonomous vehicles. Self-delivery system plays an important role in the last mile delivery during the pandemic. It conforms the almost requirement of delivery last mile.

### ● *What's the last mile?*

The “last mile” of logistics distribution is not actually a distance, but an important link in accepting goods on behalf of costumers. The “last mile” is the last link of logistics distribution. The logistics company dispatches the goods to the customers to achieve door-to-door service. Although the “last mile” belongs to the end of distribution, it has a very important meaning. The delivery link is the link where the logistics enterprise directly contacts the customer in the distribution. Customers can intuitively feel the culture and image of the company from the word and deeds of the distribution staff. The quality and efficiency of this link greatly affects customer satisfaction.

### ● *The characteristics of the last mile of logistics*

Form the point of view in product, with the development of the economy and the improvement of the consumption level of urban residents, consumer demand for products has changes from a small variety, large batch and low frequency to a multi-variety, small batch and multiple frequency. In particular, the increasing development of e-commerce B2C and C2C models has made the trend of order fragmentation more and more obvious. Corresponding to this, urban distribution also shows the characteristics of small batches, multiple varieties and high frequency. From the perspective of delivery, logistics mainly serves commercial enterprise and residential consumers. Its distribution service objects include major e-commerce, small and medium supermarkets, hypermarkets, convenience stores, wholesale markets, department store, community families, office building, universities and other demand entities, logistics nodes more. At the same time, because the distribution service needs of end consumer are widely distributed in various places in the city, the urban road network is complicated, and the constraints of the “last mile” road bottleneck and other factors make the distribution system more complicated.

### ● *The requirement of last mile*

Object factors:

Many commodities need to deliver

Complex environment delivered

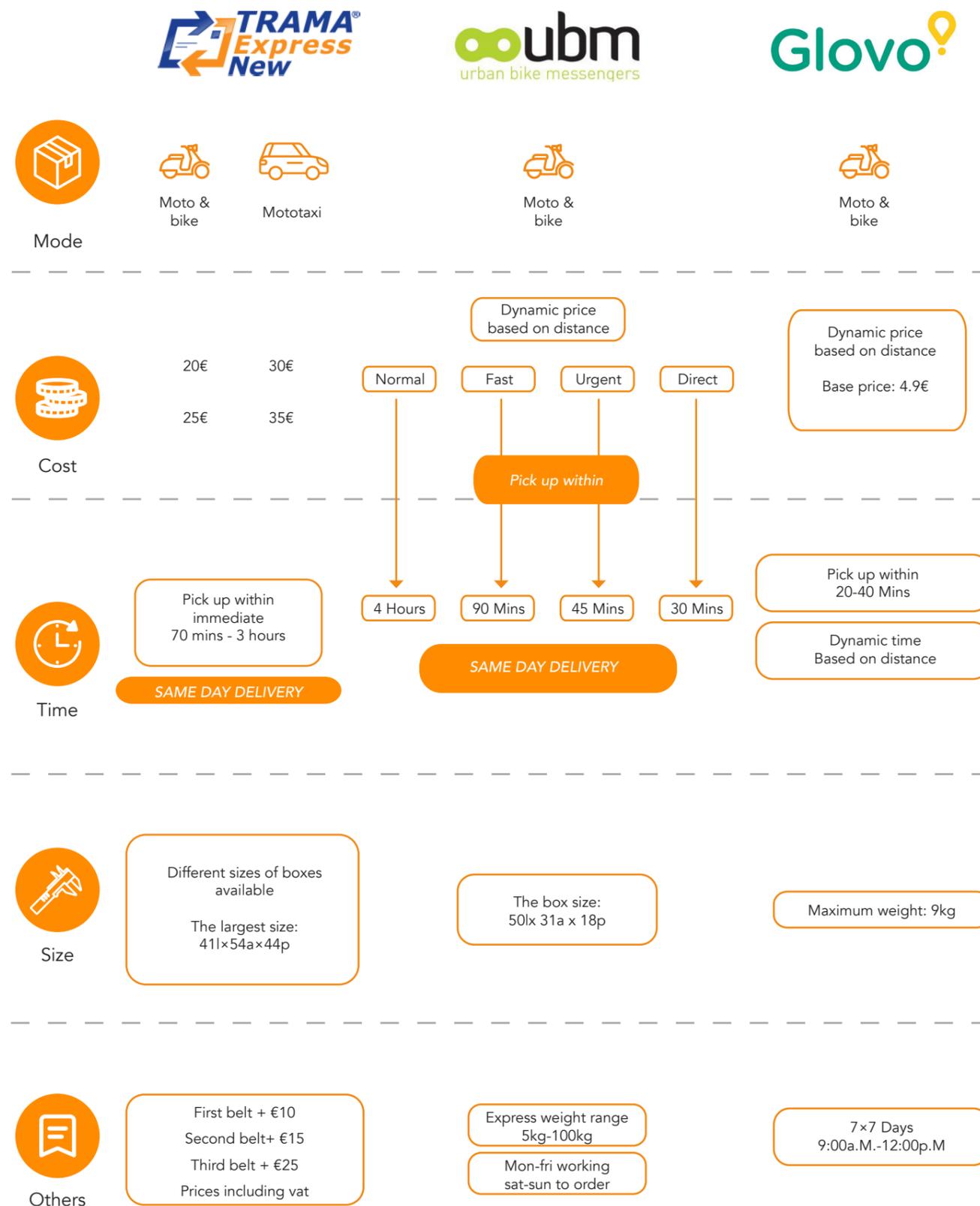
The distribution route is complex and cross

Subject factors:

Diversified customer requirements for delivering

Different quality of delivery personnel

# DELIVERY EXPRESS COMPARISON



## What's the contactless delivery?

Contactless delivery is a new model which born from the pandemic. It means that when users place an order, they can negotiate with the rider on the designated location of the product, such as the front desk of the company, at the door of the company, etc., through the "order remarks", telephone, APP message system, etc.; After that, the rider will notify the user to pick up the meal by himself via telephone, APP and other channels. In this way, it can maximum reduction the risk of infection between the user and rider. It be proposed by Meituan on January 26, 2020 in Wuhan. Meituan stated that this model can ensure the rider's safety and reduce infection. Contactless delivery is an emergency measure to combat the pneumonia epidemic of COVID 19.

Customers can choose contact delivery in two way by the digital planform of Meituan; they can write directly the note on the order page, the other is to communicate directly with the rider for using this service, so as to negotiate with rider that where place the goods. Users in Wuhan gradually used this service. Meituan said that since the "contactless delivery" launched in Wuhan, more and more users actively selected, and with the coverage of cities increasing, they believe that more users understand and use this service. In the contactless delivery process, in addition to remaking information directly on the order page, users can also contact rider through APP or phone. For example, user can contact rider through the "contact rider" or "call rider" button in APP. At the same time, during the delivery process, the rider will call the user to confirm whether to choose the service.

## What's the self-delivery system?

Self delivery refers to a distribution method where there is no or a small amount of human participation in the circulation of goods, and the use of machines instead of manual or human-machine cooperation can achieve the purpose of improving efficiency and reducing costs. There are many demand scenarios, including express delivery, takeaway, B2C retail, Convenience for shopping malls, fresh home delivery, restaurant, etc. Depend the distance, there are three categories:

**10 - 100M:** Scenes such as hotels, office buildings, shopping malls, etc. This range is mostly indoor environment, with large flow of people and relatively changeable environment, and high requirements for robot

performance

**100 - 1000M:** Scenes such as residence communities and parks. This range is mostly outdoor environment. Compared with indoor environment, the light intensity changes greatly, the environment is more complicated, and the road conditions are more complicated

**Above 1000M:** It conforms to outdoor environments such as autonomous driving scenarios. It can also be classified according to the environment.

**Indoor envivroment** (Hotel, Shopping mall, Restaurant, Hospital, Airport): Indoor delivery mainly faces the problem of delivery within 100m. The environment of the last 100m is complicated (for example, taking the elevator, going up the stairs, finding the door, avoiding crowd obstacles, etc.), so it is considered to be improved through unmanned delivery.

Intra-city distribution usually occurs in closed places, for example, in hotels, restaurants, shopping malls, apartments. There are delivery robots for indoor delivery.

**Outdoor envivroment** (Residence communities, University, Park): Outdoor distribution mainly faces the problem of distribution with a distance of more than 100 meters, that is, purchased items After being delivered to the distribution warehouse, from a sorting center, through a certain means of transportation, In an open or semi-closed section of roads or residential quarters, parks, campuses, goods Delivered to the customer's downstairs or distribution point.

Unmanned delivery for outdoor delivery equipment has delivery drone and unmanned driving a logistics vehicle.

# TIMELINE OF DEVELOPMENT SELF-DELIVERY SYSTEM

## 2013 AMAZON PRIME AIR

Amazon was the first to develop an unmanned delivery system. The first order was sent with Prime Air in 2016. The service uses delivery drones to autonomously fly individual packages to customers within 30 minutes of ordering. To qualify for 30-minute delivery, the order must be less than 5 pounds (2.25 kg), must be small enough to fit in the cargo box that the craft will carry, and must have a delivery location within a 10-mile (16 km) radius of a participating Amazon order fulfillment center.



The project was established in 2014 and runs on the sidewalk. Pilot distribution began in 2016. It has multi-sensor fusion technology, based on LIDAR, machine vision, depth sensor, etc., has the ability to locate and navigate high precisely indoors. Peanut can run smoothly and stably indoors even in the complex environment.

## 2014 STARSHIP

## 2015 MARBLE

Marble robots and autonomy technology solutions were created by a visionary team of experts who reimagined the possibilities for delivering goods and materials.

Marble's founders met at Carnegie Mellon University's Field Robotics Center, the world's most prestigious robotics and computer science institution. As students, they developed lunar landers and the first self-driving cars. In 2015, they founded Marble and developed autonomy technology that can be applied immediately to solve business and logistical problems.



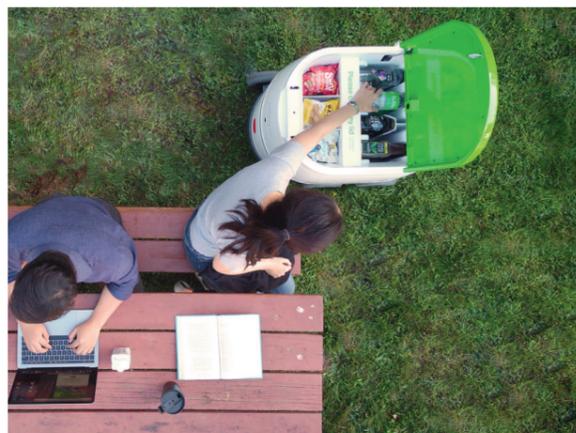
Nuro solve problem of local commerce with last-mile delivery of consumer products, groceries, and hot food from local stores and restaurants. With its specially designed size, weight, pedestrian-protecting front end, operating speed, electric propulsion, and cautious driving habits. It has been put in commerce in 2018. It can load more than 100kg.

## 2016 NURO

**2016  
ROBBY**

Robby offers great freedom within robot fleet to better serve customer needs. It allow flexibility in our payload and container design. The software platform applies to various application scenarios such as food and package delivery, roaming vending machines and many more.

Robby polished R2 in 2018, it can drive on sidewalk.



CarriRo® Deli, which was developed with the aim of realizing the world's first delivery robot service, is a delivery robot that uses Autonomous Driving technology equipped with a loadable box. Equipped with a LiDAR or camera as a sensor for Autonomous movement, LED panels on the eyes and a speaker installed, it can communicate with people around. In order to realize home delivery services, we provide robots that can move autonomously, applications for users and stores, and IT services in a package.

**2017  
ZMP**

**2017  
KIWIBOT**

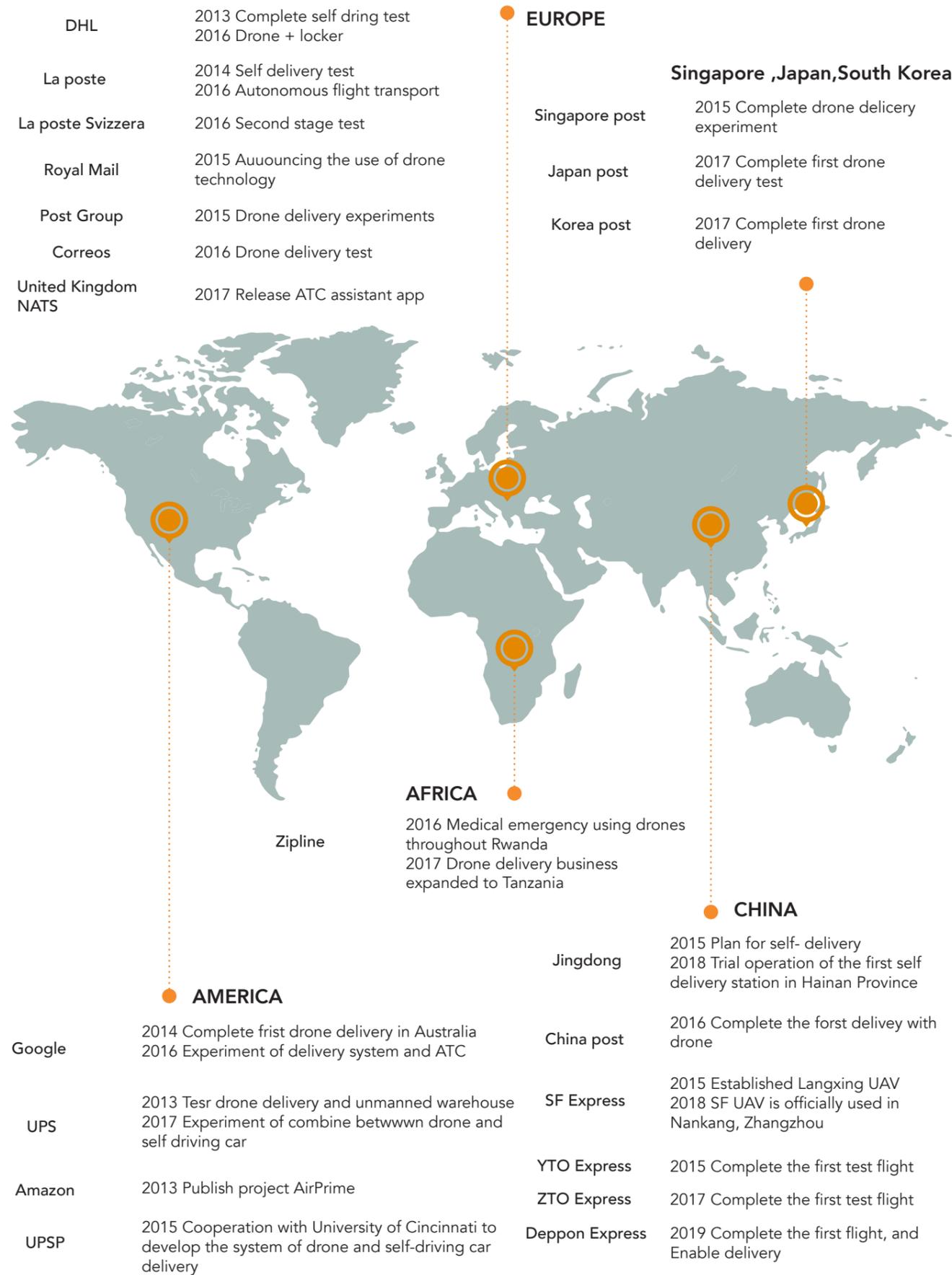
the small KiwiBot It is responsible for making the last leg, discouraging for it on the sidewalks of the city in the company of passers. It is equipped with a small rolling chassis module reminiscent of a miniature SUV. This platform is a container, of something larger drawers to typical motorcycles used in delivery, where food is accommodated to carry. It delivery food on sidewalker and near the university in 2018.



JD distribution robots are mainly used in the last mile distribution business of cities, From site distribution to office buildings, college parks, residential communities, commercial districts and other places. And during the new crown pneumonia epidemic, it was the first to launch contactless delivery in Wuhan.

**2020  
JINGDONG**

# THE DEVELOPMENT AROUND THE WORLD



## What's the locker?

Locker is other way which use contactless delivery model. It has more long history than self-delivery system. The first locker appeared on 2001 in Swierland by DHL. The recipient can take out package in 24h. 2006, Austrian Post released the "Post.24-Station", it's a machine which produced by KEBA in German, the function is similar Packastation. 2011, Amazon also released similar service. In order to solve the problem which no one sign for the package and the package was be stolen, they installed "Amazon locker" in 7-11 in American.

Smart express locker is a storage device for users to self-collect and post express. It's a supporting facility in the delivery process. It is often installed widely at the entrance of residence or at a location that is convenient for citizens to reach. The appearance of the smart locker is similar to that of the electronic luggage locker, it contains storages compartments that can be independently locked and unlocked by circuit control. It also equipped with touch screen as interactive interface, connect to the internet for identify verification, online payment and other functions. Some of them equipped with contactless smart card reader. The courier can place the package in the locker, and the recipient can take out the package after verifying his identity.



Packstation-Rotating storage model, the goods are stored in a parcel box (2004)

# CASE STUDY

Amazon Locker is a self-service package delivery service offered by online retailer Amazon. Amazon customers can select any Locker location as their delivery address, and retrieve their orders at that location by entering a unique pick-up code on the Locker touch screen. However, certain third party sellers on Amazon may not be able to ship to an Amazon Locker, due to their use of other shipping services such as FedEx or UPS that require a signature. There are several sizes but some parcels are too big for any of them. Currently the Lockers accept packages up to 42cm x 35cm x 32cm and a maximum weight of 4.5kg

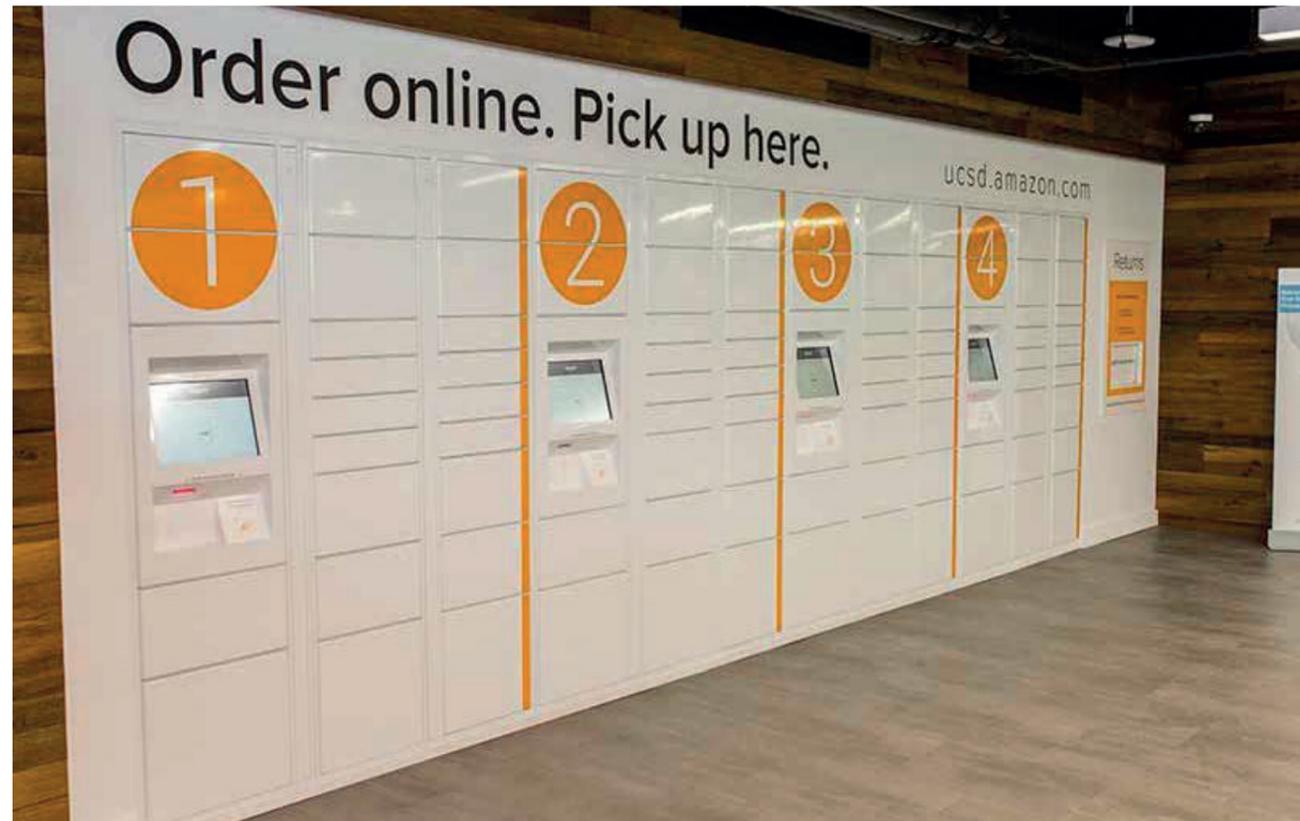
**Name:** Amazon locker

**Founded:** 2011

**Parent:** Amazon

**Website:** amazon.com/locker

**Areas served:** Canada, France, Germany, Italy, United Kingdom, United States, Spain, Japan, Australia, Mexico



# CASE STUDY

UPS Access Point™ lockers help you get fast and secure pickup and drop-off on your schedule. They join the thousands of local businesses, grocery stores, and The UPS Store® locations that make up the UPS Access Point network. All lockers are completely self-service and most are accessible 24 hours a day. UPS point is a service of ups express company. Customers can choose to store the express at ups point, and then choose the right time to take the express themselves. It has different size grids to store different sizes of express.

**Name:** UPS Point

**Founded:** 2010

**Parent:** UPS

**Website:** <https://www.ups.com/it/it/services/individual-shipper/ups-access-point-deliveries.page>

**Areas served:** Worldwide

Due to company management issues, in Italy, ups points exist in another form, they are usually the bar in the city, or tabacchi. At the same time, for ups point, there are certain disadvantages, it can not provide customers with good service.



# CASE STUDY

Fengchao's intelligent express cabinet is a 24-hour self-service open platform for all express companies and e-commerce logistics to provide platform-based express delivery and interactive services.

Fengchao's "Smart Express Cabinet" is a courier collection service jointly launched by a number of courier companies in China. It can solve the trouble of collecting couriers, and it can also make it easier for couriers to deliver couriers.

Thanks to the different community structure, Fengchao Express Cabinet is easy to promote in various cities in China. Due to its high population density, its utilization rate is very high. However, due to the price problem in the company's management model, the number of users has also been affected, but it is undoubtedly the current living environment in China, which has brought great convenience to people.

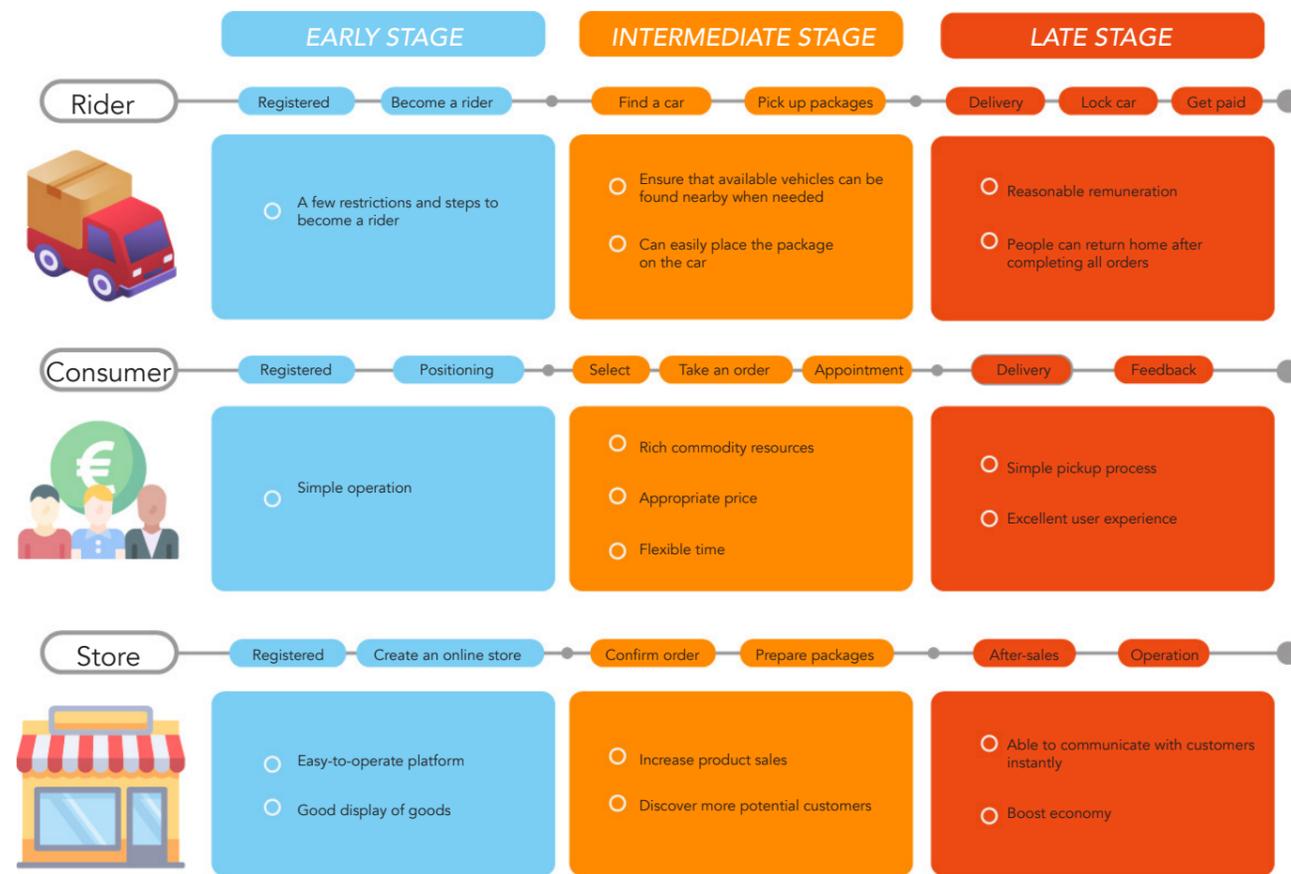
<b>Name:</b>	Hive box
<b>Founded:</b>	2010
<b>Parent:</b>	Hive
<b>Website:</b>	<a href="https://fcbox.com/">https://fcbox.com/</a>
<b>Areas served:</b>	China

# THE IMPACT OF COVID-19 ON DEVELOPMENT OF CONTACTLESS DELIVERY

- **The advantage of contactless delivery is reflected under the senario special**
  - The self delivery equipment don't need rest, it can work 24h
  - It don't have risk of cross infection
  - Higher effeciency than manual deliver
- **Speed up the implementation of contactless delivery in the last mile**
  - Self delivery vehicled have directly entered major communities during the epidemic
  - JD started that it was originally expected to complete the mass production and advancement of related self-driving vechicles in 2020. Due to the epidemic, this plan was quickly advanaced. Currently, it has stepped up production at the factory, and 30 self-driving vechicles will shipped to Wuhan.
- **Further expansion of use cases**
  - In addition to terminal delivery, this epidemic reminds the market that contactless delivery also works in certain high-risk scanrios, for example,hospital and isolation areas where patient are concentrated. The development of "machine instead of labor" has futher expansion, it can be used not only in the last mil, but also in many dangerous scenes that are not suitable for humans to complete



## 3.8 REQUIREMENT



### In early stage:

Rider: Registered, Become a rider

Riders: how to become a rider, which requires registration and submission of credentials

Consumer: Registered, Positioning

Customers: simplified steps so as to place orders online swiftly.

Store: Registered, Create an online store

Store: smoother uploading of commodity information and stronger influence of the platform.

### In intermediate stage:

Rider: Find a car, Pick up package

Riders: to rapidly locate available vehicles for delivery and to have flexible control over their work hours.

Consumer: Select, Take an order, Appointment

Customers: to find the commodities they need, set a time for delivery, etc.

Store: Confirm order, prepare packages

Store: to reach more potential customers and increase sales volumes.

### In last stage:

Rider: Delivery, Lock car, Get Paid, Back

Riders: reasonable pay and thoughtful services—to be allowed to use the vehicle for returning home.

Consumer: Delivery, Feedback

Customers: convenience in collecting ordered commodities and positive user experience.

Store: After Sales, Operation

Store: timely communication with customers to improve pre-sales and after-sales services and maintain the normal operations of the shop.

## REFERENCE

1. <https://en.wikipedia.org/wiki/Logistics>

2. <https://baike.baidu.com/item/>

3. [https://www.ifc.org/wps/wcm/connect/2d6ec419-41df-46c9-8b7b-96384cd36ab3/IFC-Covid19-Logistics-final\\_web.pdf?MOD=AJPERES&CVID=naqOED5](https://www.ifc.org/wps/wcm/connect/2d6ec419-41df-46c9-8b7b-96384cd36ab3/IFC-Covid19-Logistics-final_web.pdf?MOD=AJPERES&CVID=naqOED5)



## 4. SHARING SYSTEM

### 4.1 INTRODUCTION

The sharing economy refers to institutions or individuals with idle resources that transfer the right to use the resources to others for a fee, the transferors get rewards, and the sharers create value by sharing the idle resources of others. In the sharing economy, idle resources are the first and most critical element. It is the basis for resource owners and resource users to realize resource sharing. Idle resources under the concept of sharing economy can be understood as: the resources were originally used by individuals or organizations themselves, and when they are not in use or occupied, they are idle resources.

The concept of sharing has existed for long time. In traditional society, borrowing books or sharing a piece of information between friends, including borrowing things between neighbors, is a form of sharing.

The term "sharing economy" was first published in 1978 by Marcus Felson, professor of sociology at Texas State University, and Joel Spaeth, professor of sociology at the University of Illinois (Community Structure and Collaborative Consumption: A Routine Activity Approach). Its main feature is that it includes a market platform based on information technology created by a third party. This third party can be a commercial institution, organization, or government. Individuals use these platforms to exchange idle items, share their knowledge and experience, or raise funds from companies or an innovative project. The economy involves three main subjects, namely the demand side of goods or services, the supply side and the sharing economy platform. The sharing economy platform serves as a link between the supply and demand parties. Through the establishment of a series of mechanisms such as mobile LBS applications, dynamic algorithms and pricing, and mutual evaluation systems between the parties, the supply and demand parties can trade through the sharing economy platform.

However, this kind of shared enjoyment is controlled by the two major elements of space and relationship. On the one hand, the sharing of information or objects is subject to the limitations of space and can only be limited to the space within the reach of individuals; on the other hand, sharing requires both parties. A relationship of trust can be achieved.

After 2000, with the advent of the Internet web2.0 era, various online virtual communities, BBSs, and forums began to appear, and users began to express opinions and share information to strangers on the Internet. However, the online community is mainly anonymous, and the form of sharing in the community is mainly limited to information sharing or user-provided content (UGC), and does not involve any physical delivery, and most of the time it does not bring any monetary reward.

Around 2010, with the emergence of a series of physical sharing platforms such as Uber and Airbnb, sharing began to move from pure free sharing and information sharing to obtaining a certain reward as the main purpose, based on strangers and temporary transfer of the right to use items. Sharing economy".

"2016 World Sharing Economy Summit Forum" is one of the main forums of the World Free Trade Conference and Expo to be held in Macau from November 8-10, 2016. The theme of this summit forum is: Trillion-dollar sharing economy Investment Opportunities. It is a high-level forum in the field of global sharing economy investment and a platform for international sharing economy investment, operation, cooperation, and talent exchange and cooperation.

In a narrow sense, the sharing economy refers to a business model based on strangers and the temporary transfer of the right to use goods for the main purpose of obtaining certain rewards. The five elements of the sharing economy are: idle resources, use rights, connections, information, and liquidity. The key to the sharing economy is how to achieve optimal matching and achieve zero marginal cost, and to solve technical and institutional issues

The essence of the sharing economy-integrate offline idle goods or services, allowing them to provide products or services at lower prices. For the supplier, a certain monetary return is obtained by transferring the right to use the goods or providing services within a certain period of time; for the demander, it does not directly own the ownership of the goods, but is shared through renting, borrowing, etc Ways to use items.

In addition to idle resources, lower prices, specific

time, ownership, use rights, transfers, etc. are also keywords of the sharing economy. Lower prices are the core advantage of the sharing model's ability to "squeeze" other economic models. It is mainly reflected in two aspects: on the one hand, the price paid by the resource user is lower than the price paid by other channels in the market; on the other hand, the price received by the resource owner is lower than the value that the idle resource can create when serving itself.

The specific time refers to the time when the resource is idle, which is a restriction when the resource is used for sharing. For the party who owns the resource ownership, the transfer of the right to use idle resources under the sharing economy model can achieve greater economic value. The sharing economy creates value from two aspects: on the one hand, resource owners use idle resources to obtain benefits; on the other hand, resource users obtain resources at a lower cost to meet their own needs.

- Characteristic of sharing system

1, use internet as information platform  
Through the public network platform, people adopt a form of personal terminal access to corporate data. Employees can not only access the internal data of the company, but also connect their phones, computers and network platforms to make office work more convenient. Smart terminals are portable and easy to use, with more and more powerful performance, making it more and more convenient for users to use these devices to process work

2.The essence is the temporary transfer of the right to use idle resources

The sharing economy is the socialized use of resources owned by individuals as a silent cost-limiting resource. Simply put, the sharing economy advocates renting rather than buying. The demander of the goods or service temporarily obtains the right to use it from the supplier through the platform, and then transfers it to other owners after completing the goal at a lower cost than the purchase

3.The manifestation is the repeated transaction and efficient use of objects

The core of the sharing economy is through frequent transactions of the owner's idle resources and repeated transfers to other members for use. This form of utilization of wasted resources can improve the efficiency of the use of shared

goods, make funny use of resources, and realize individual The welfare improvement and the sustainable development of the whole society

## 4.2 CASE STUDY



MiMoto is the first made in Italy free-flow electric scooter sharing service active in the cities of Milan, Turin and Genoa.

Using mimoto's app, you can query nearby mimoto, scan or input information with your mobile phone to obtain the right to use mimoto, move around the city at will, and fulfill people's travel needs at a low price and a sharing concept.

### ADVANTAGE

- |   |   |
|---|---|
|  |  |
| UESR FRIENDLY   | FREEFLOATING  |
|  |  |
| ECONOMIC  | SUSTAINABLE   |
|  |  |
| QUICKLY   | SAFETY  |

### PROCESS

Find a nearby mimoto through the app, go to the location to get your mimoto.



After unlocking mimoto, you can drive mimoto to any place in the city, using electricity is more environmentally friendly, and you can quickly get to where you want to go.



Stop the mimoto at the destination, use the app to complete the order and pay the fee without worrying about the loss of mimoto.





The sharing electric scooter platform that takes you from A to B to C in your day's schedule. We are a local startup with a mission to help European cities create centers free from cars and pollution. Dott want that by collaborating with our fellow citizens and municipalities, our mission is achievable. Making short-distance journeys accessible and fun is our main goal along with making eco-friendly journeys the easiest choice for everyone in Europe.

## ADVANTAGE



UESR FRIENDLY



BONUS



ECONOMIC



SUSTAINABLE

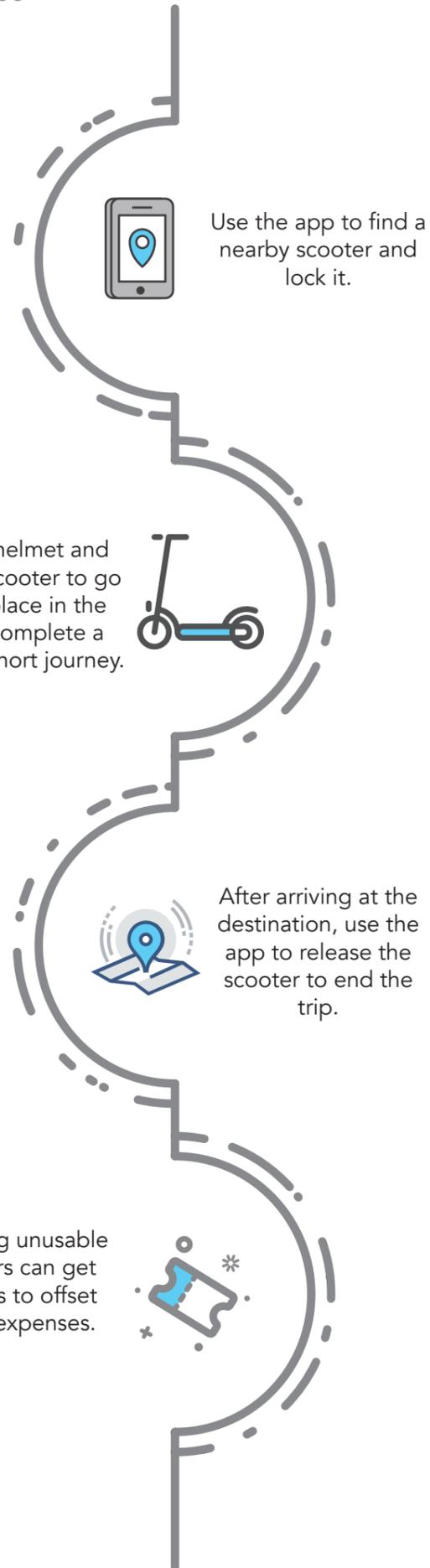


QUICKLY



SAFETY

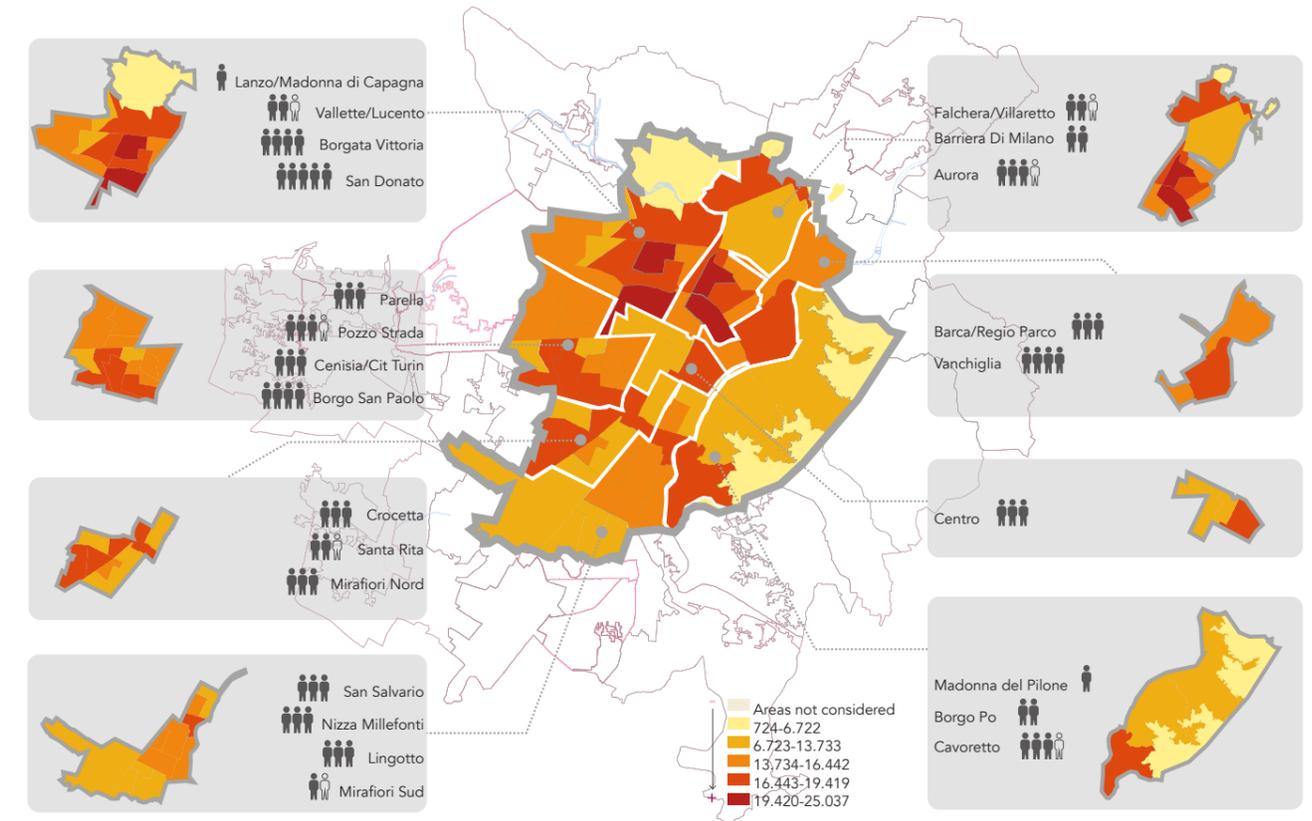
## PROCESS





# 5.TURIN TERRITORY ANALYSIS

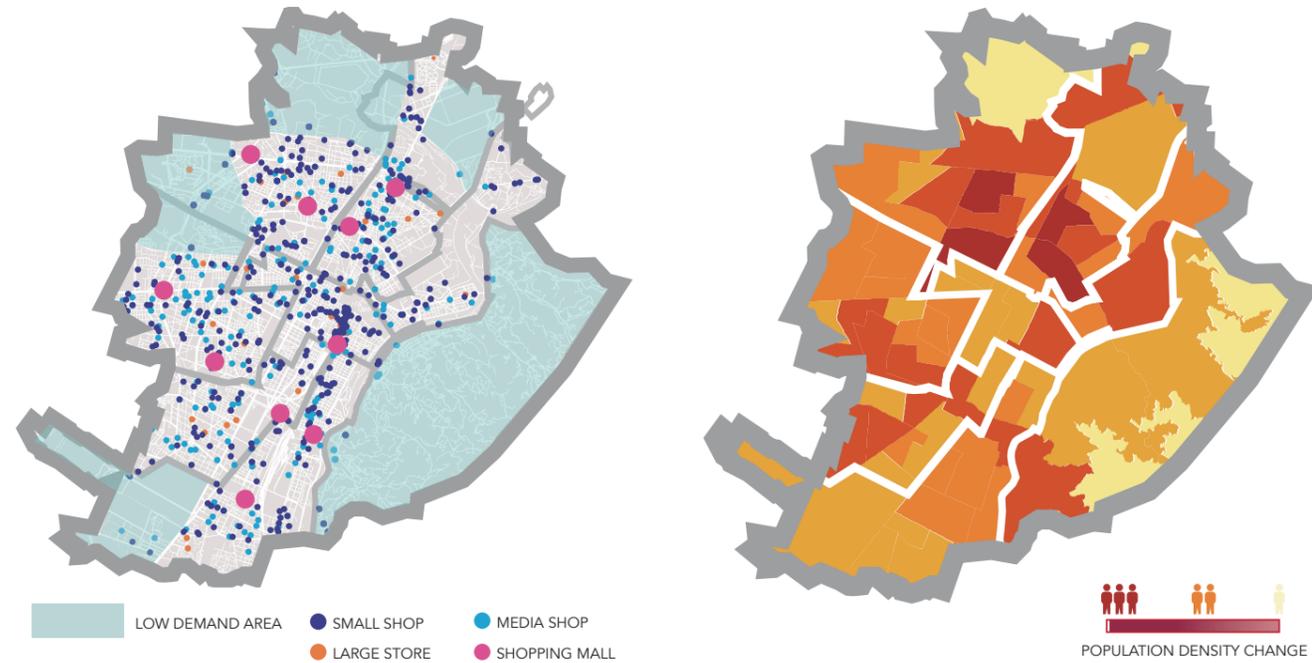
## 5.1 POPULATION ANALYSIS



The most populous area is Area 1( Lanzo/ Madonna di Capagna, Vallette/Lucento, Borgata Vittoria, San Donato) and Area 2 (Parella, Pozzo Strada, Cenisia/Cit Turin,Borgo San Paolo). The area with the least population is Area 8( Madonna del Pilone, Borgo Po, Cavoretto)

In view of the population distribution in Turin, it is divided into 8 areas for analysis. The population size of each area varies, owing to their different functions. The industrial area is less populated and the downtown also has a small population, since it is a business district. Very few people reside in the mountain areas on the other side of the river, due to the inconvenient location.

## 5.2 ANALYSIS OF NUMBER OF RESIDENTS OF TURIN AND DIVISION OF REGIONAL FUNCTIONS



For the population distribution of Turin, we analyzed the population of Turin city. According to the community functional distinction of different blocks in the urban area of Turin and the nature of the current region (the industrial area, commercial area, residential living area and mountain area), we divide it into eight regions for analysis one by one. First of all, in the upper left corner of the figure, SAN DONATO community, as a residential living area, has a large number of residents to settle here, which leads to a large number of neighborhood communities.

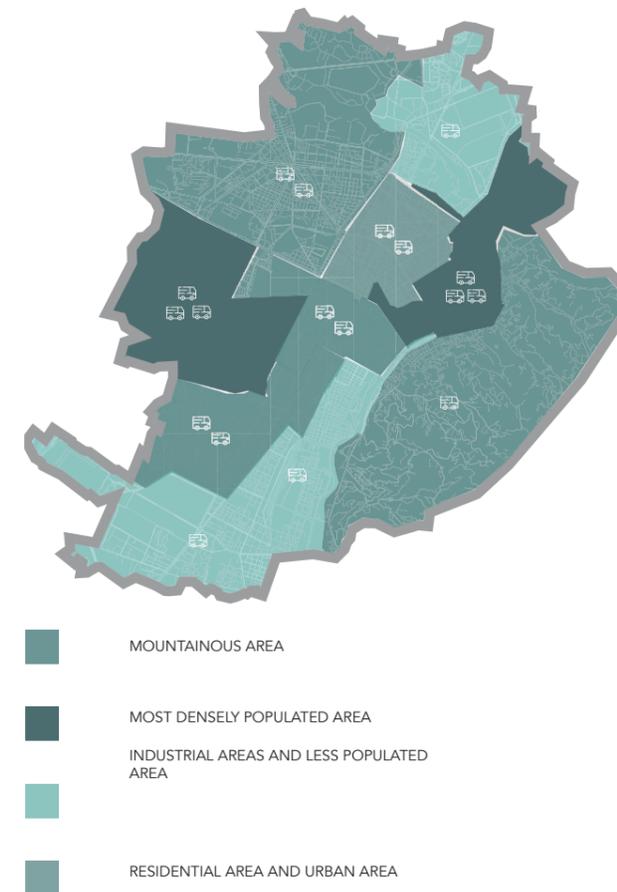
The second area below is also one of the more populous regions, where BORGIO SAN PAOLO has a larger population. The CROCETTA, SANTA RITA, MIRAFIORI NORD below are relatively less populous due to their proximity to industrial zones. SAN SALVARIO, Nizza, LINGOTTO are also several more populous communities, while MIRAFIORI SUD, as an industrial zone, is also far from the city center, resulting in a smaller population.

In the north of Turin, aurora is also a community with high population density. Similar to it, VANCHIGLIA is a residential area with large population in Turin. And the city center of Turin

relatively fixed population is not so large, mainly in commercial areas, more floating population rather than fixed residents. The eastern side of Turin is a mountainous area, only relatively far CAVORETTO has a certain number of residents. Therefore, considering the quantity of our products in the region, the distribution of population will have a certain reference value.

Note : Different regions are distinguished by color according to the difference in population size. As illustrated in the illustration, the population size is roughly shown in the figure.

## 5.3 ANALYSIS OF VEHICLE DISTRIBUTION



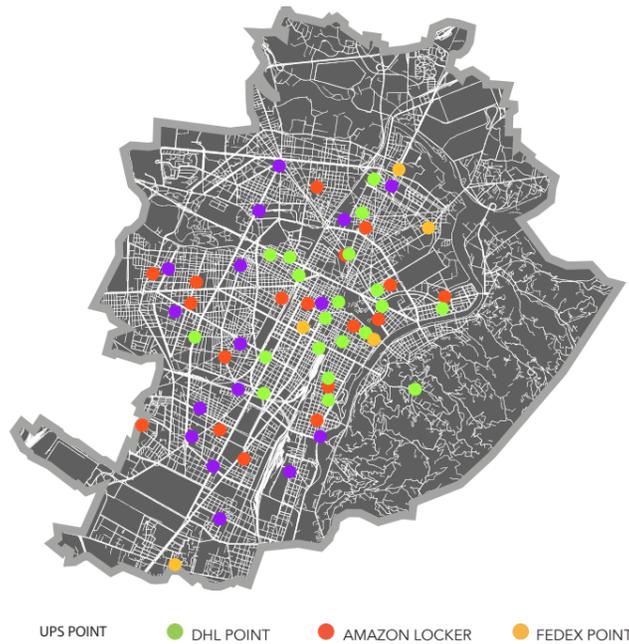
The parts marked in green are mainly industrial areas, mountain areas and areas in Turin with rare shops. Compared with the city area, these areas with less shops and residents will incur higher labor cost and cost price under the traditional pattern of delivery.

Based on an analysis of the population size in each area and the corresponding demand of each, different numbers of delivery vehicles are placed in these areas to meet the demand of each area. The number depends on the population base of each area and their possible quantity of orders.

Based the aforementioned analysis, a larger number of delivery vehicles will be placed in more populated areas, while a modest quantity will be placed in areas with a medium sized population, and a smaller quantity will be placed in remote areas, such as industrial areas and mountain areas, because of their relatively low demand. The quantities of vehicles placed in different areas can be adjusted over a certain period, according to their order quantities, and meanwhile, dynamic changes may take place owing to the final destinations of riders, which reduces costs and resource waste.

## 5.4 THE RELATIONSHIP BETWEEN THE DISTRIBUTION OF EXPRESS DELIVERY POINTS AND TRAFFIC

### EXPRESS POINT DISTRIBUTION



As shown in the figure, most courier service points in Turin belong to UPS, DHL, Amazon, or FedEx. Courier service points in Turin are mostly located in the city area, without covering many other areas, which is the major cause of the lagging courier industry there.

As one of the largest industrial cities in Italy, Turin is equipped with an excellent road network. However, downtown commuting mainly relies on the only subway line that was opened not long ago, while transportation in the rest of the city is mainly performed by light rail, buses and private cars, which results in the needs of the courier delivery services and local roads. To provide efficient delivery services, road capacity for bearing automotive traffic will be challenged. Main roads in Turin are distributed in a net structure, running through basically all the areas in Turin.

The Turin underground is the first in Italy to adopt the VAL system, Automatic Light Vehicle. It has been designed to ensure maximum safety through an Automatic Train Control (ATC) system designed specifically for this type of vehicle. This system benefits from the most advanced features in the industry:

### SUBWAY LINE AND STATION



1. absence of permanent staff on trains and at the station which allows fully automated operation;
2. high fault management capability;
3. remote surveillance and remote measurement of the service (trains, line and station systems);
4. protection of trains against the risk of collisions, speeding, etc., provided by the ATP function (automatic train protection).<sup>1</sup>

Reference:  
1: <http://www.gtt.to.it/cms/linee-e-orari/torino-e-cintura/urbana/240-metropolitana>

## 5.5 PROBLEM AND SOLUTION

1.



*The timeliness of express delivery is unstable*



*Courier tracking information in the last hour*

Due to the difference in express delivery routes, the timeliness of express delivery cannot meet the needs of customers. Customers cannot accurately know the arrival time of express delivery. Some companies will provide express tracking services but the information is updated slowly and the information is ambiguous. We hope to add a more accurate tracking service to the last 10 kilometers of express transportation, and display the current location through a map to help customers know when the express can arrive.

2.



*The low utilization rate of the express receiving point does not facilitate the recipient to receive the express.*



*Increase city coverage and usage*

Due to the remote location of Amazon Locker and other express delivery points, many people do not know the existence of this facility or it is not convenient for them to receive express delivery. The main reason is that the coverage rate is low. We hope to increase the coverage of the city and make people understand this service measure to facilitate people to receive express delivery.

3.



*Pollution and resource consumption*



*New energy and optimization*

By optimizing the existing express transportation routes, and trying to use new sustainable materials to replace traditional materials, to achieve the status quo of reducing resource waste and pollution.

## 6.1 INTERVIEW

Name:

Location:

Type: Remake shoes creative

Questions:

1. Can we find this store online ?

Yes, we already have store online

2. How does it work online?

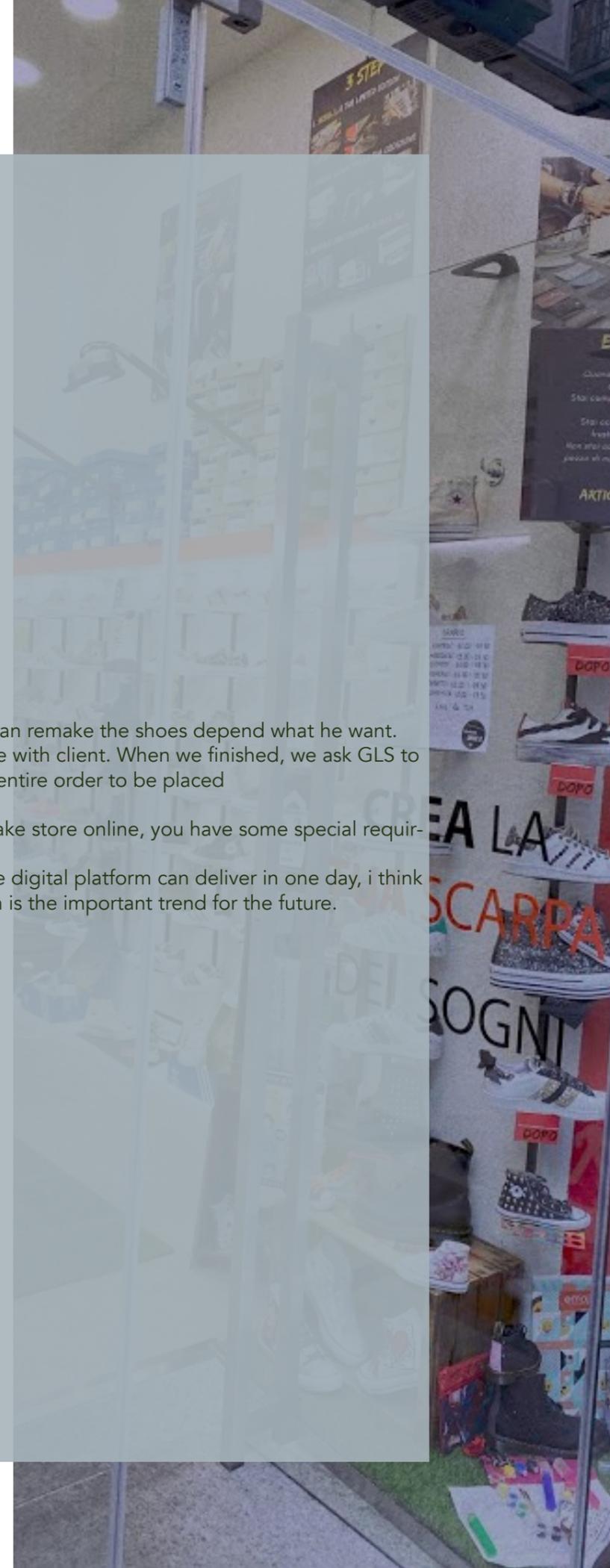
The client can order the shoes online, and we can remake the shoes depend what he want. So we need time to change it and communicate with client. When we finished, we ask GLS to deliver the order. It takes at least 5 days for an entire order to be placed

3.If we make the digital platform for helping make store online, you have some special requirement?

we don't have some special requirements. If the digital platform can deliver in one day, i think it will be cool for us. And i think digital platform is the important trend for the future.



## 6. SCENARIO



Name: Strani Frutti

Location: Via Montebello, 4/c, 10124 Torino TO

Type: Handmade jewelry

Questions:

1. Can we find this store online ?

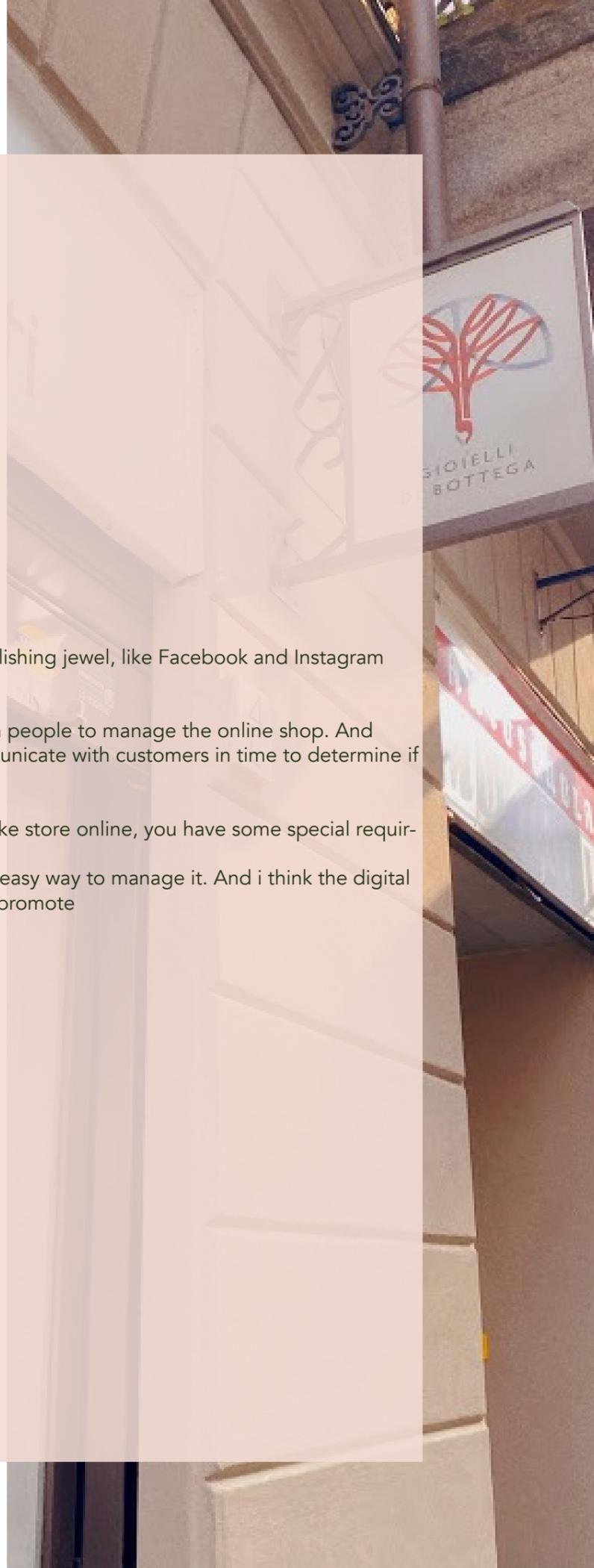
No, we just use the social network sites for publishing jewel, like Facebook and Instagram

2. Why you don't want to create store online?

Because our store is very small, we haven't extra people to manage the online shop. And each of our jewelry is unique, we need to communicate with customers in time to determine if we have it.

3.If we make the digital platform for helping make store online, you have some special requirement?

If we open the shop online, we want to find the easy way to manage it. And i think the digital platform maybe is good way if it can help us to promote



Name: Chez Lolly Accessoires

Location: Via Montebello, 2h, 10124 Torino TO

Type: Fashion accessories shop

Questions:

1. Can we find this store online ?

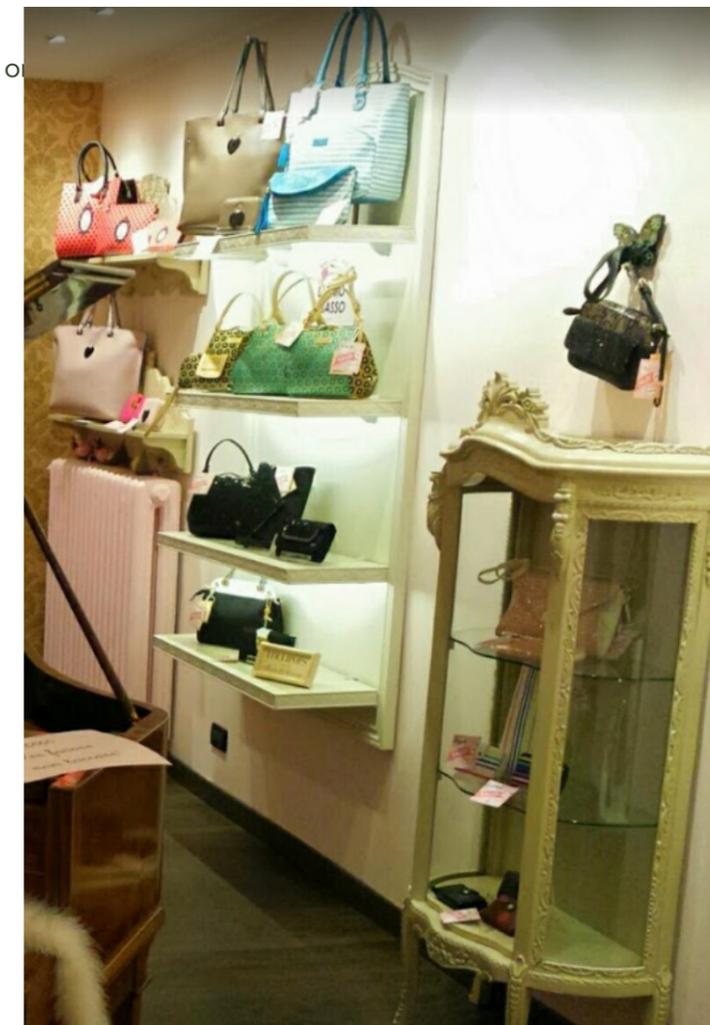
Yes, we just made the site this year. The customer can buy internet. And we also use Facebook and Instagram for promote our shop.

2.Before making the site, you try to sell in other ways with

Yes, we use Whatsapp Business and Instagram to communicate with customer. but It not work very well.

3.If we make the digital platform for helping make store online, you have some special requirement?

It will be cool, we don't need special requirement.





Name:

Location:

Type: Clothing

Questions:

1. Can we find this store online ?

No, because our main customers are older people, so we think they prefer shopping in store. And we think the size is an important element for cloth, if customer don't go to store to try it, maybe they will buy uncomfortable dresses. And it will be difficult that customer want to exchange the dresses, if she bought it online. Another reason we don't want shop online is that our store has many brand, it also difficult to describe the sizes and manage it.

2.If we make the digital platform for helping make store online, you have some special requirement? I don't think our store can sell dresses in this way. But if you have idea can solve the problem of sizes and management, we also can think about it

Name: La Savonnerie De Marseille-La Licorne Srl

Location: Via Giuseppe Luigi Lagrange, 13, 10123 Torino TO

Type: Beauty products shop

Questions:

1. Can we find this store online ?

Yes, we just made the site this year. The customer can buy on the internet.

2. How does it work online?

our shop online is special for the customer who don't live in Torino. During lockdown . There are some customer buy our product with telephone or other way ,and we deliver it by our self.

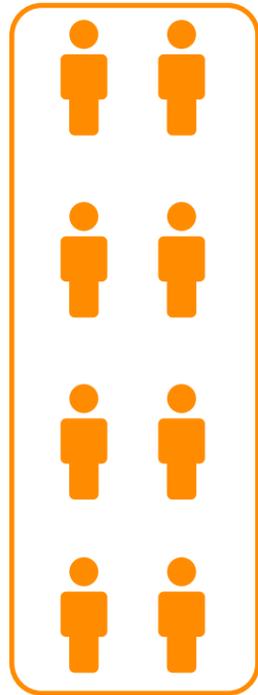
3.If we make the digital platform for helping make store online, you have some special requirement? It will be cool, we don't need special requirement.



## CONCLUSION OF INTERVIEW

Among the stores we interviewed, 80% of the stores already have or want to have store online. 20% of the store don't want to use store online.

80%



Most of their customer are older people. They think these customers don't like shopping online.



Some store don't have enough staffs to organize the system of internet.



Some handmade craft store also don't want store online. Because every craft in the store are unique it's difficult to sell it online.

20%



A lot of their customers are younger people. They spend more time on internet. And they can accept new things easily.



A most of them think the store online is a good way to increase sales, and don't need cost a lot.



A most of them sell industrial product. Everythings are almost the same. It's easy to organize

## 6.2 PERSONAS & COSTUMER JOURNEY



# Giacomo Moncullo

"Anger begins with folly, and ends in repentance."

## About

- 36
- Shopkeeper
- Turin
- Clothing Store

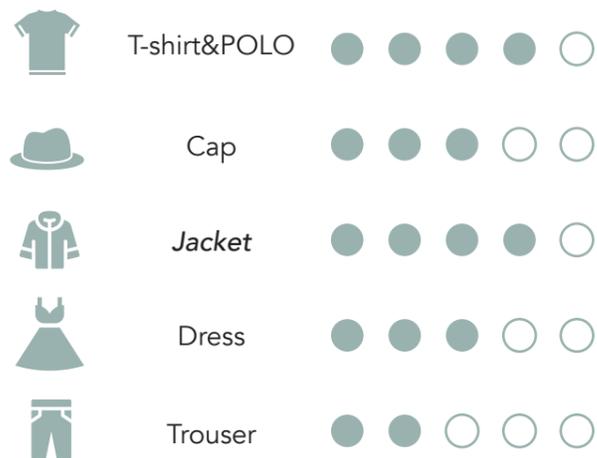
## Introduction

Giacomo is the owner of a clothing store. The store is located in the center of Turin. Since the store is just starting to operate and the location of the store is not a busy street, the business condition of the store is not good, and the store has not been stable. Customer source. Giacomo is looking for some ways to help stores improve efficiency and increase local visibility in Turin to obtain a stable source of customers to ensure the operating conditions of the store.

## Motivation

Due to the location of the store and the newly opened store, it lacks a stable source of customers and local popularity. Otherwise, the business situation of the store will continue to deteriorate, and at the same time, the store's products will continue to accumulate and cause economic losses to the store owner.

## Purchase type



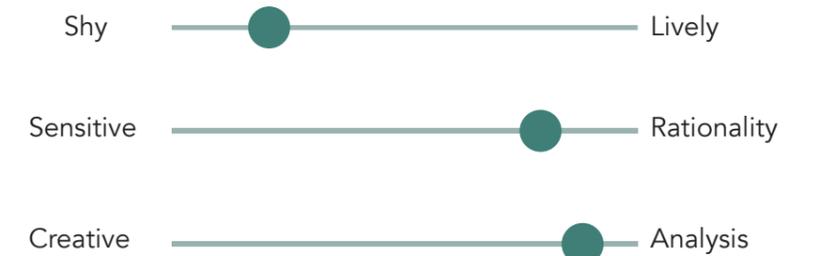
## Core Need

- Increase the sales volume of store goods.
- Increase local visibility.
- Guarantee the business status of the store.

## Business Time

Monday to Friday	10:00 AM-7:00 PM
Saturday	11:00 AM-3:00 PM
Sunday	Close

## Personality



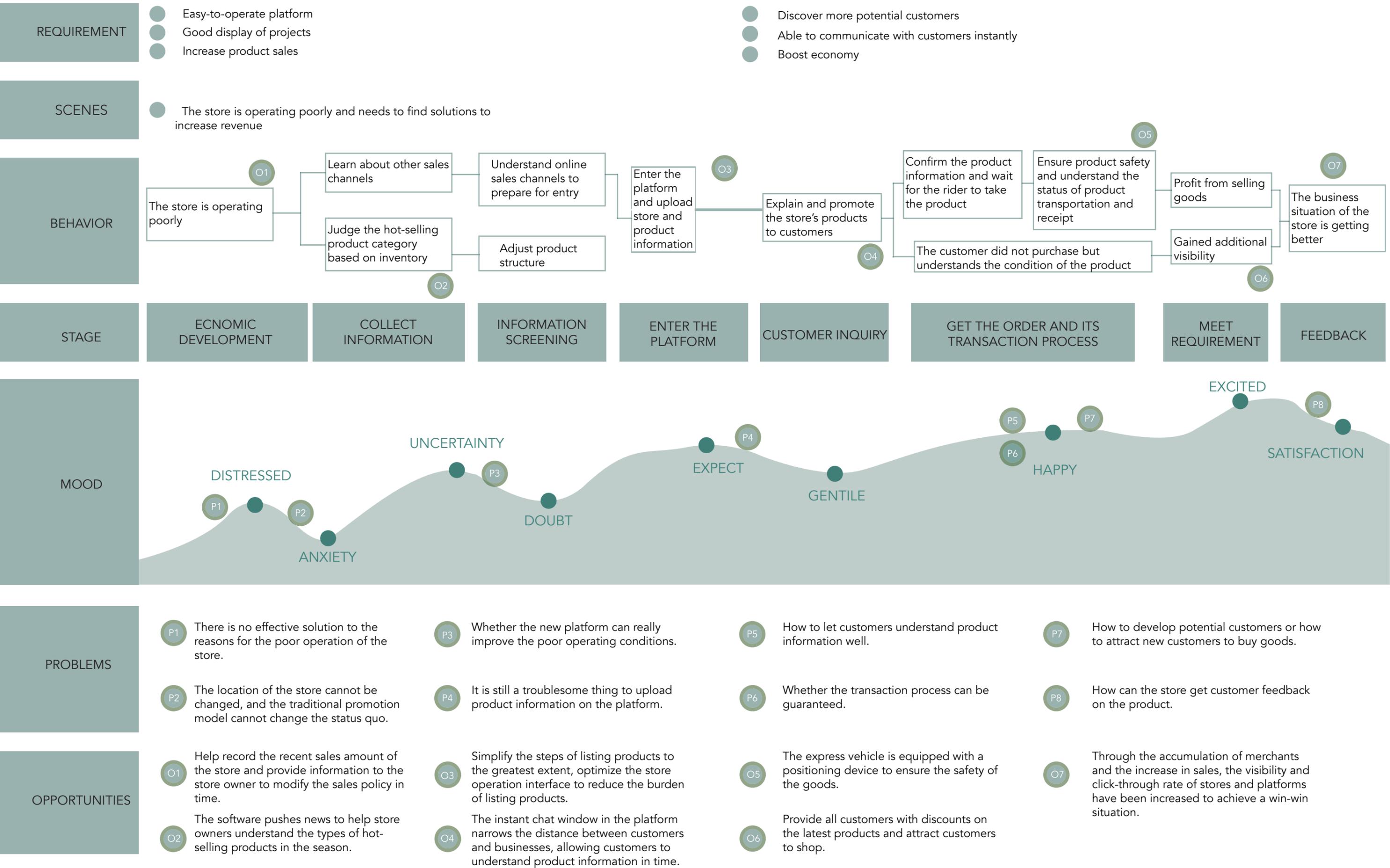
## Online shopping

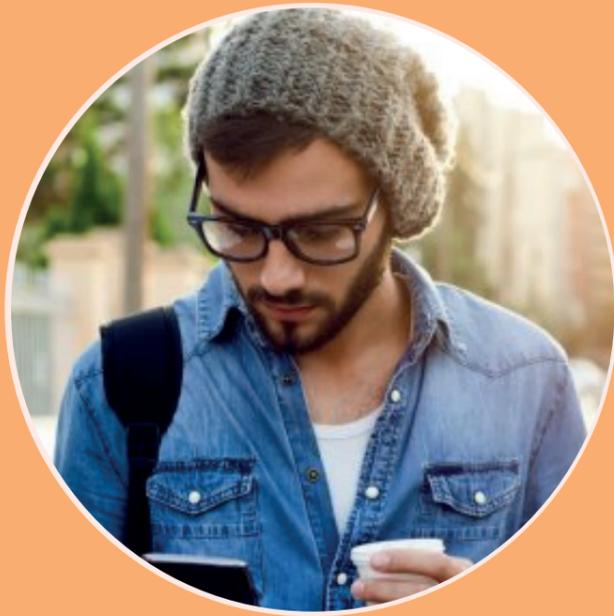
60%

70%

Display the latest products and business information

Display the latest products and business information





# Giuseppe Olmi

"Don't aim for success if you want it; just do what you love and believe in, and it will come naturally."

## About



22



University student



Turin



Living alone

## Introduction

Giuseppe is a second years student of university. He studies in Design. He lives in torino just for his university, and his apartment is near by his university. He usually go to class very convenient.

## Motivation

He want to buy a new computer ,but his parent just afford his living expenses. And he think his classes are not busy sometime, and weekend also have free time. So he want to use these time to earn money.

## Purchase type



## Free Time

Depend the class, but the weekend always free.

## Online shopping



20%



10%



10%

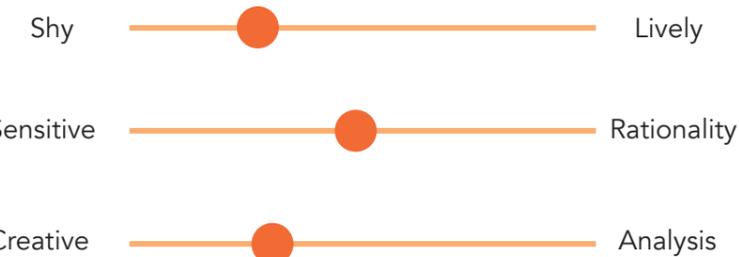


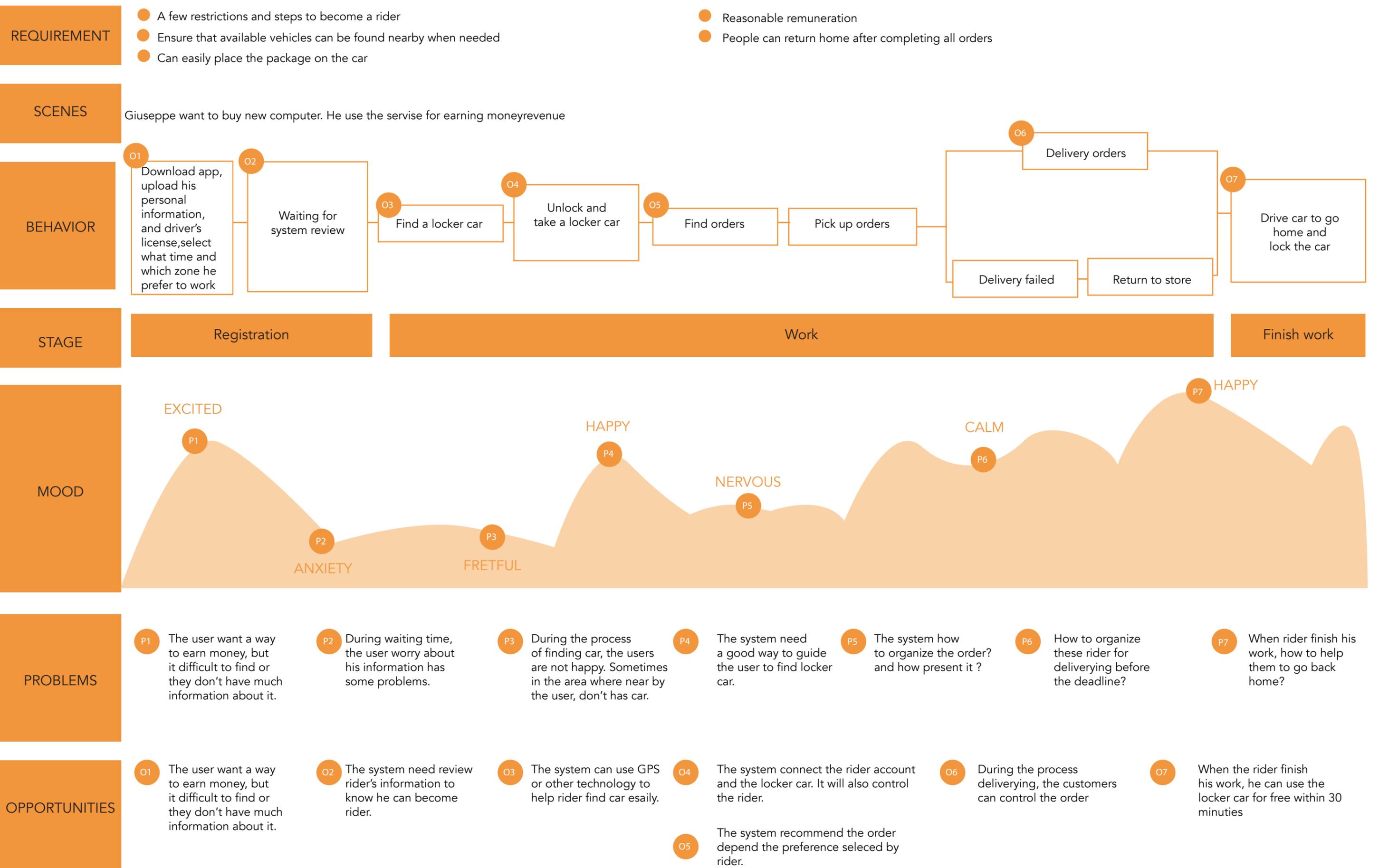
70%

## Core Need

- A few restrictions and steps to become a rider
- Ensure that available vehicles can be found nearby when needed.
- Can easily place the package on the car
- People can return home after completing all orders.
- Reasonable remuneration.

## Personality







# Francesca Mattias

"You cannot improve your past, but you can improve your future. Once time is wasted, life is wasted."

## About



23



University student



Turin



Living alone

## Introduction

Francesca is a college student who lives alone in downtown Turin. Usually at school, at home on weekends or hanging out with friends.

## Motivation

When studying is intense, there is little time to go shopping. Sometimes the store is closed after school, it is difficult to buy the product she wants. There are some shops far away from her home, it is difficult for her to go to shop.

## Purchase type



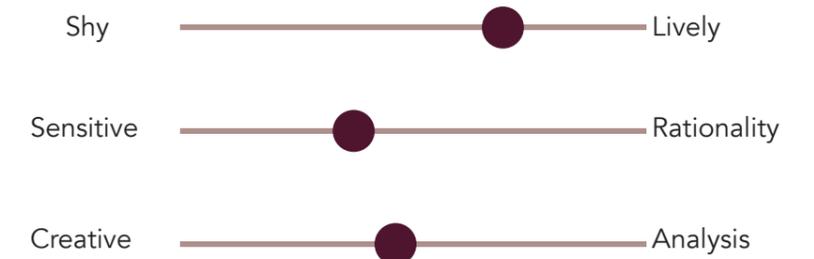
## Core Need

- Can buy daily necessities online
- It is not convenient for the elderly to travel far to buy things and need to buy health care products online

## Free Time

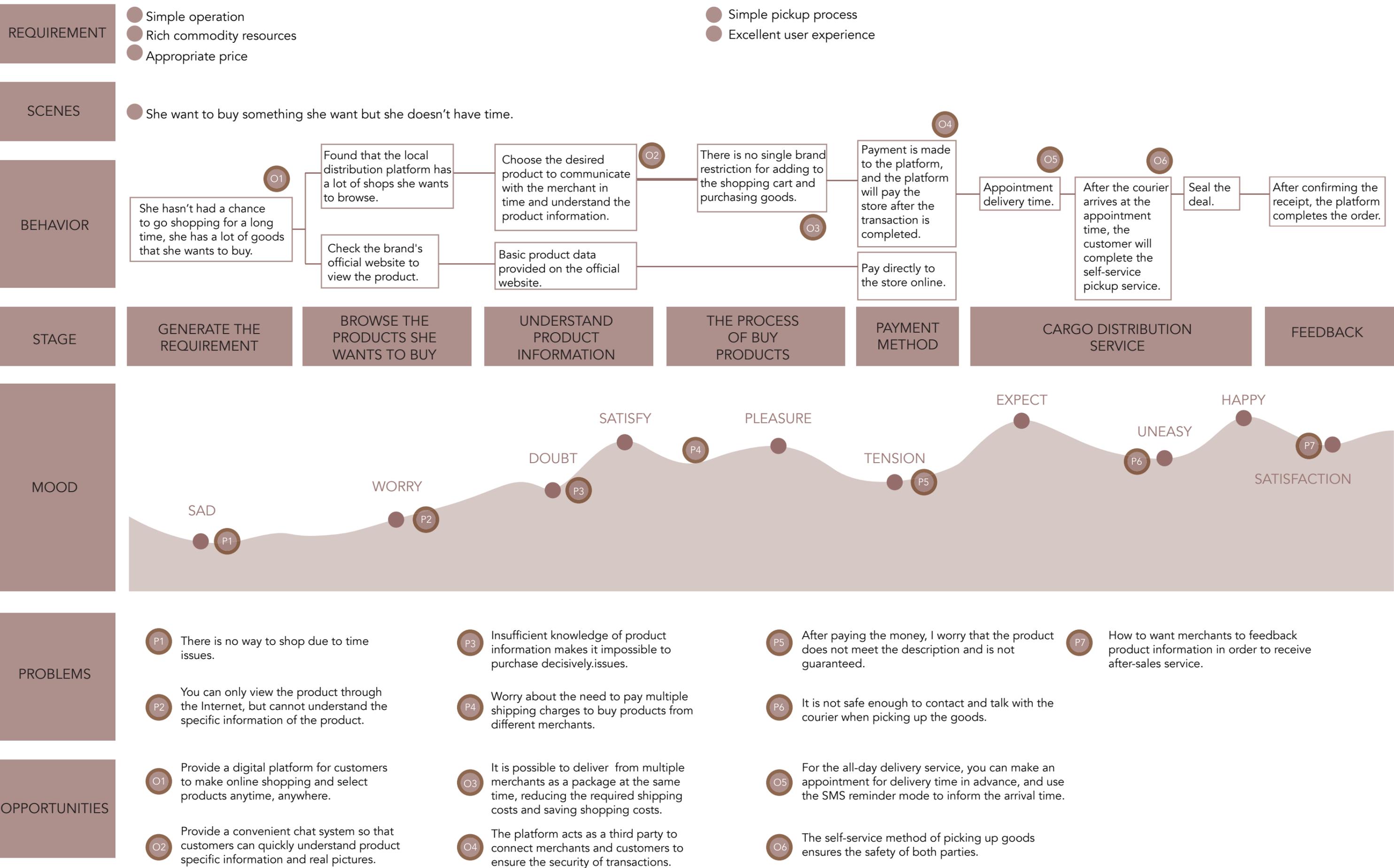
After school and weekends

## Personality

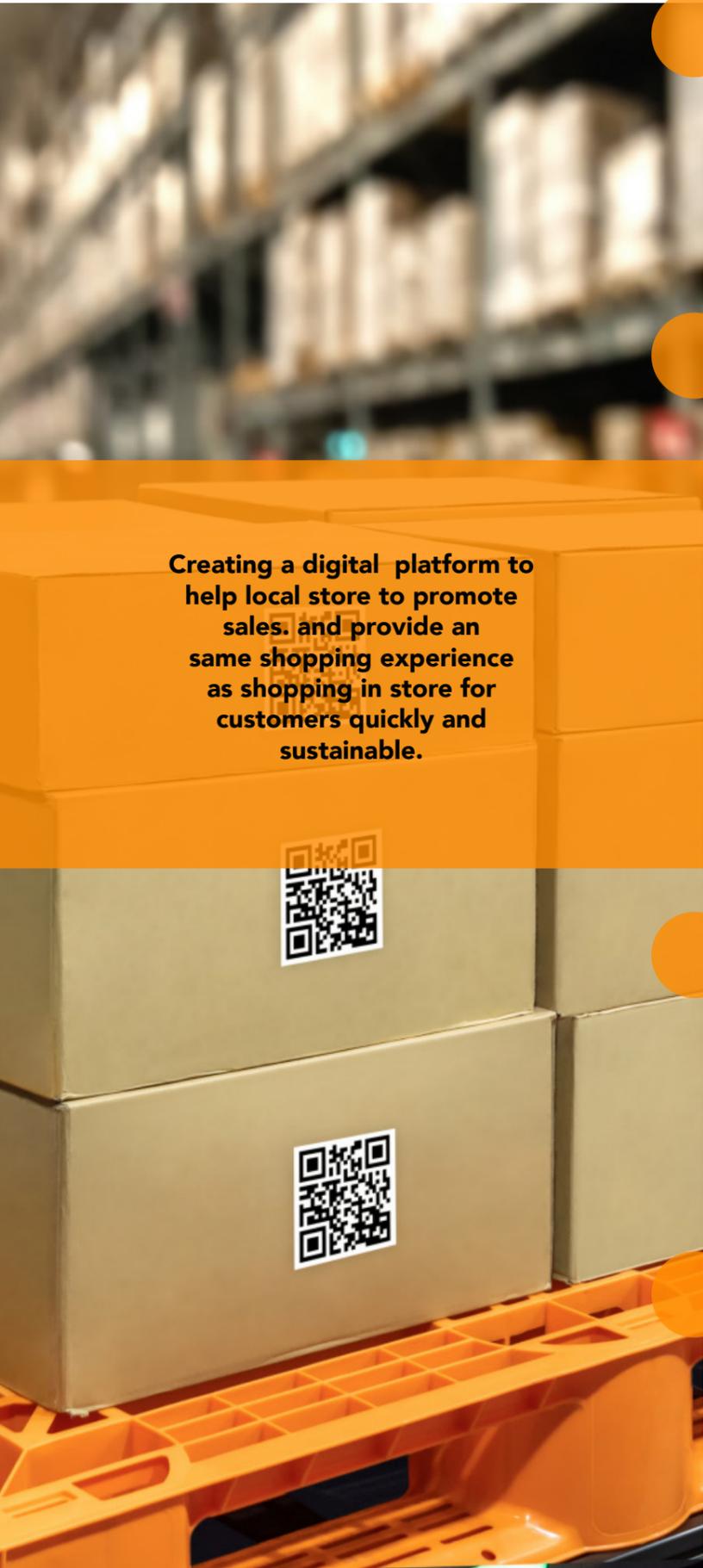


## Online shopping





## 6.3 CONCEPT & GUIDELINE



Creating a digital platform to help local store to promote sales, and provide an same shopping experience as shopping in store for customers quickly and sustainable.

### SHARING ECONOMY

Everyone who meet the criteria can use the car into this sharing system. Sharing mode is a good way to provide convenience to people, at the same time it reduce the cost and excess waste

### OMNI-CHANNEL

Omni - channel means provide the same experience as shopping in store to customers. Omni - channel integrate different sales channels to provide customers with the same shopping experience

### SUSTAINABLE

Sustainable materials will be used as packaging of the product. When the process finished, it also can be used in other way, such as trash can.

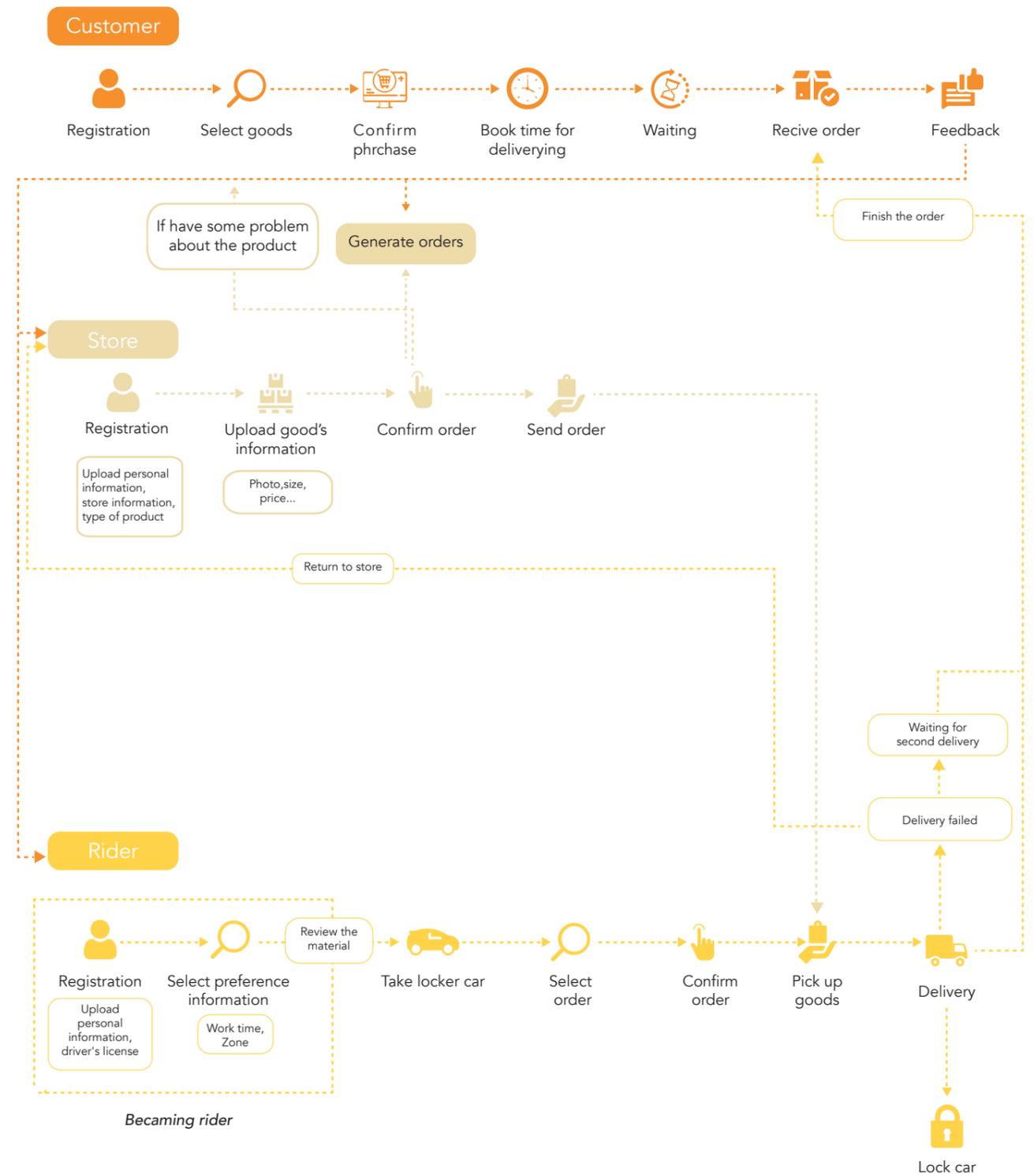
### FAST SHIPPING

Through systematic transportation, it saves time in the middle of distribution and creates a better user experience process, so that customers can get his goods faster.

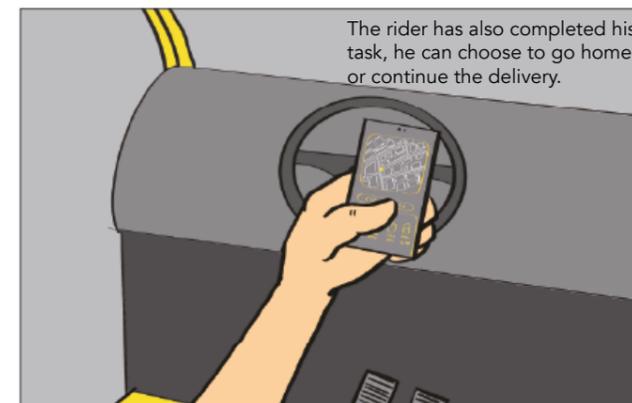
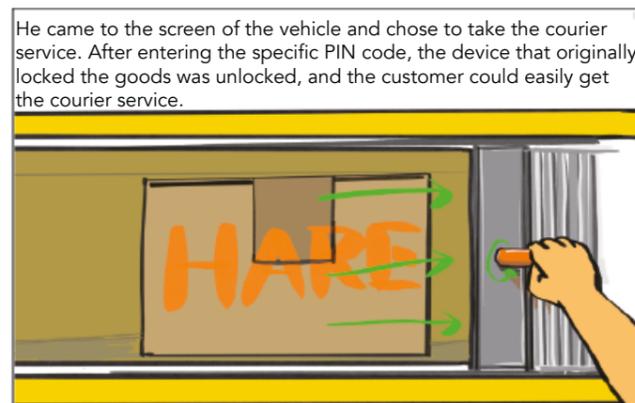
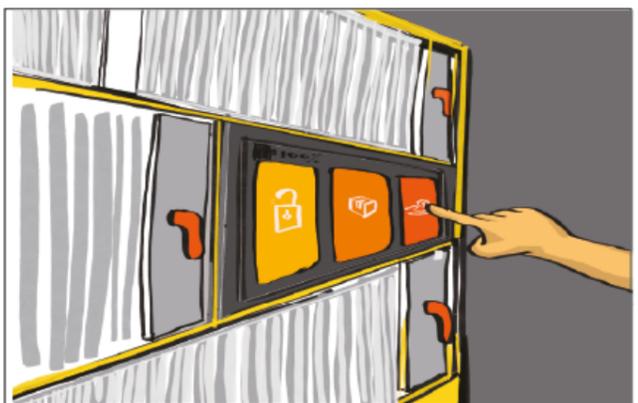
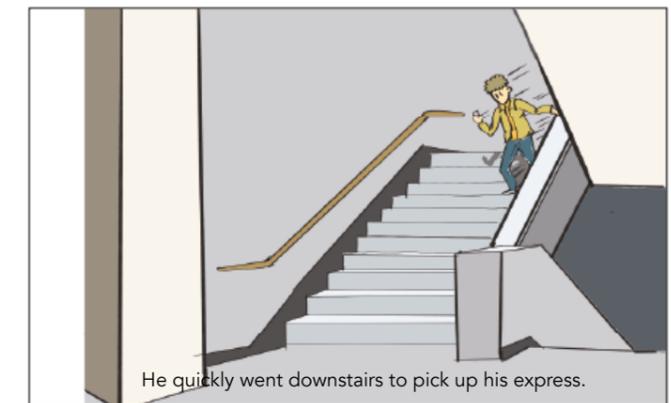
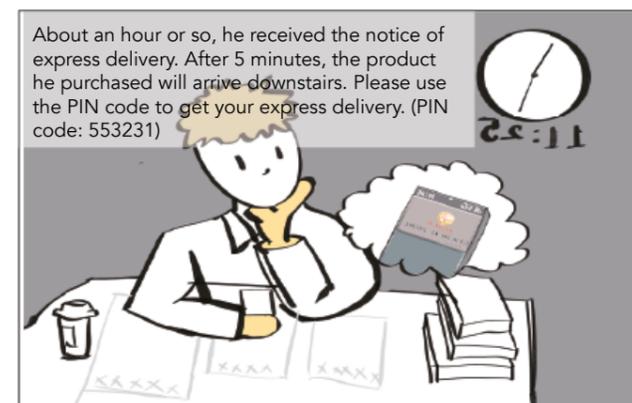
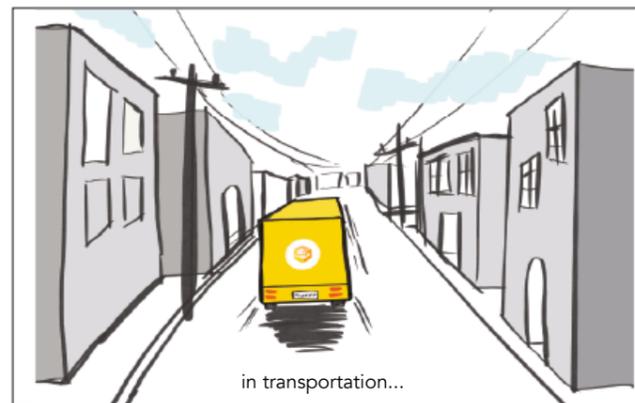
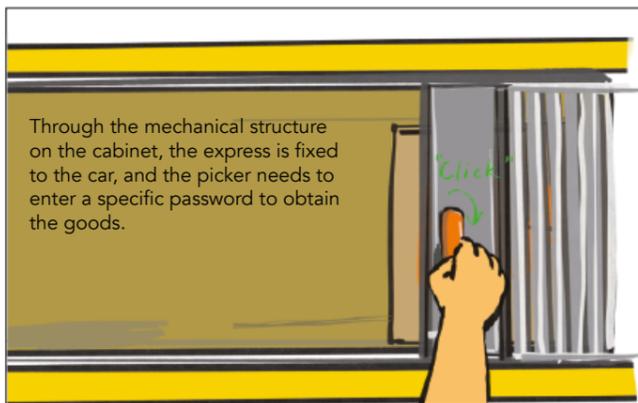
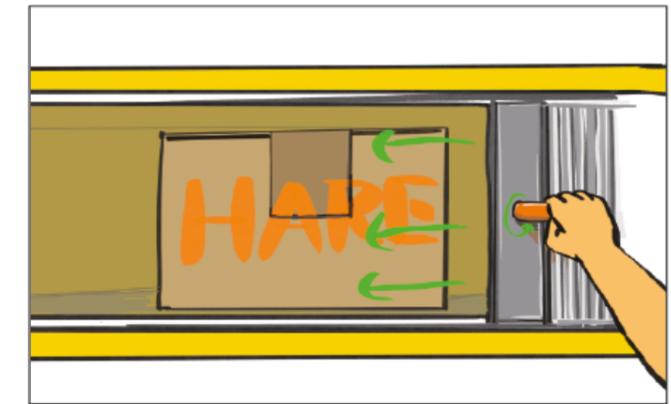
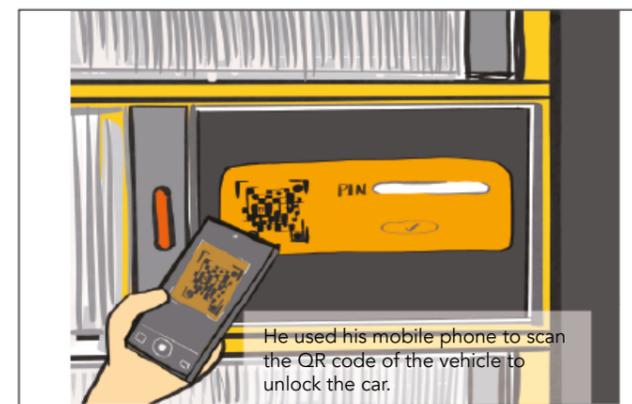
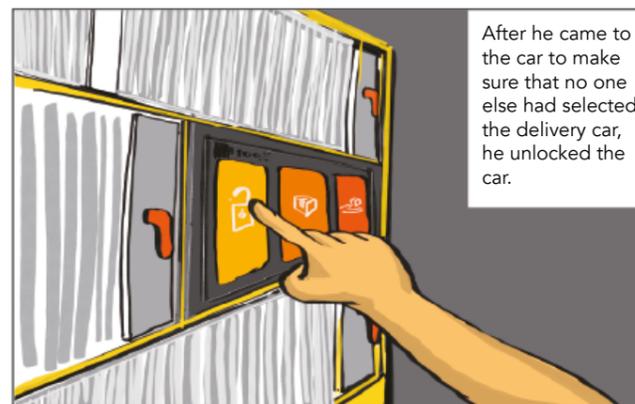
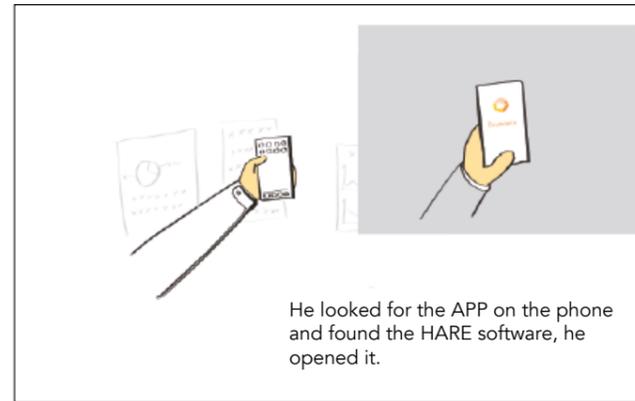


# 7. PROJECT

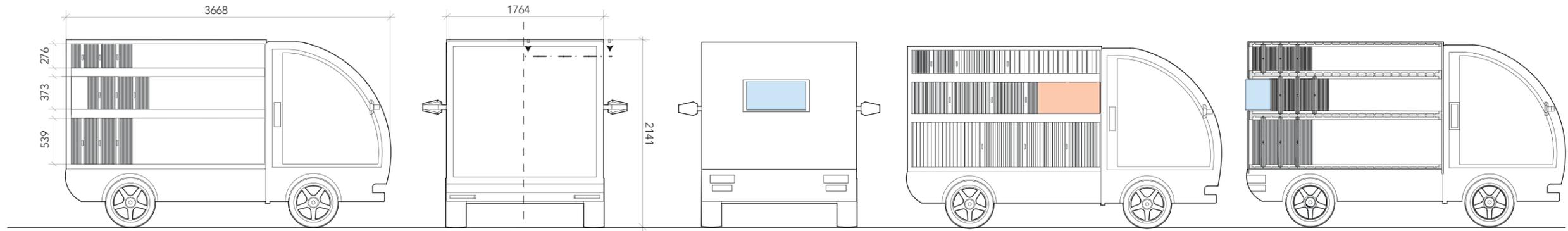
## 7.1 SERVICE PROCESS



## 7.2 STORYBOARD



# 7.3 TECHNICAL



Front View (Cabinet closed)

Right View

Left View

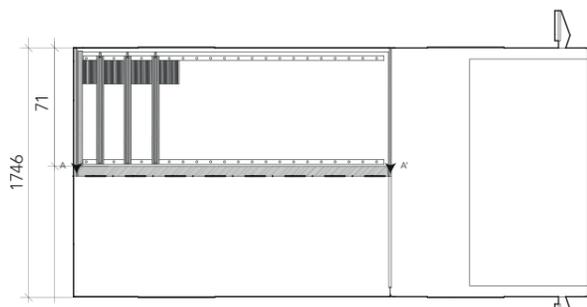
Front View (Cabinet open)

Section A-A'

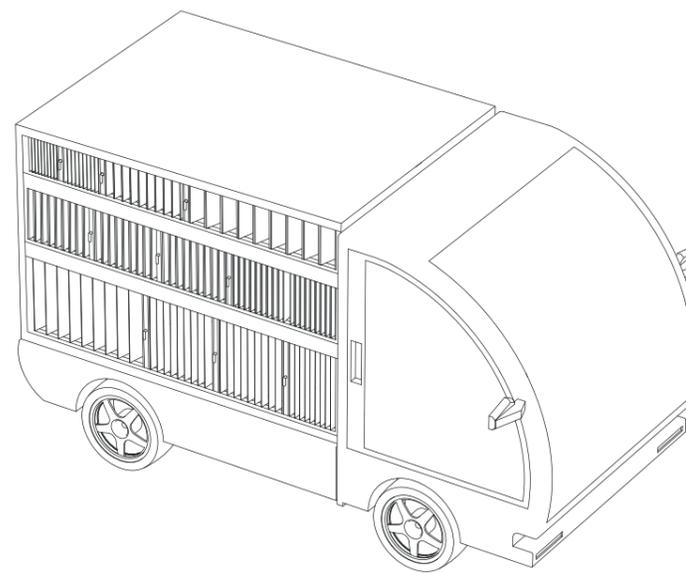
Blue box: Digital screen

Orange box: Space for package

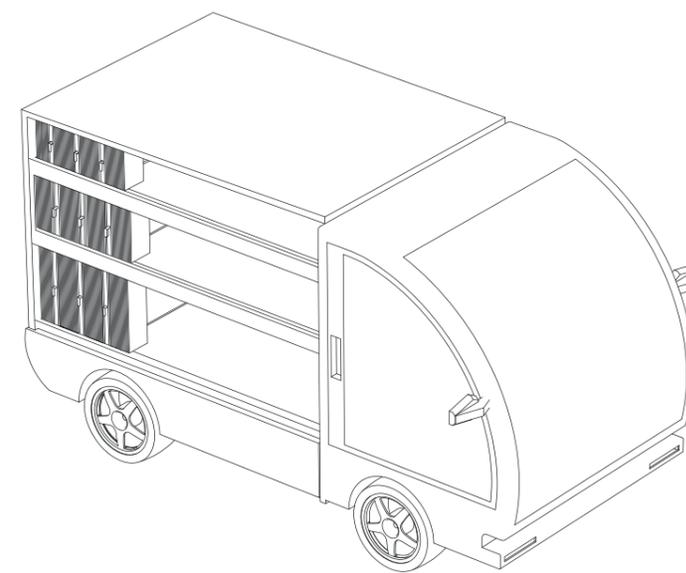
Blue box: Space for digital screen



Top View & Section B-B'

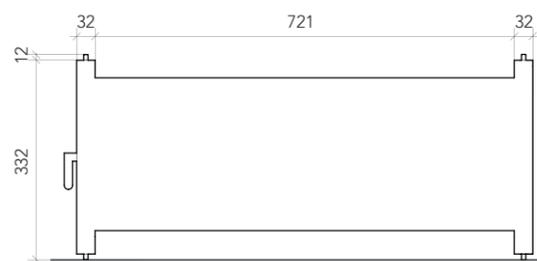


Axonometry (Cabinet open)



Axonometry (Cabinet closed)

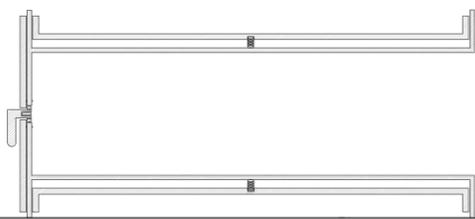
## Partition (height 332mm)



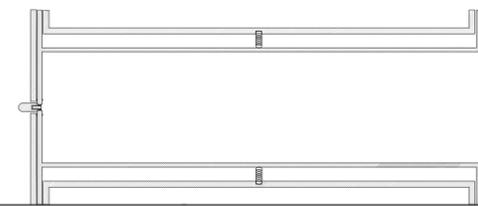
Front View



Side View



Section C-C'



Section C-C' (locked)



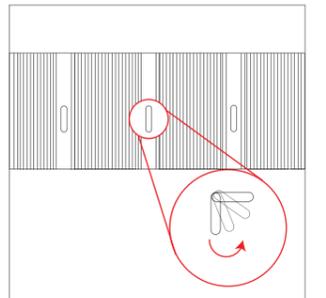
Top View

scala 1:5

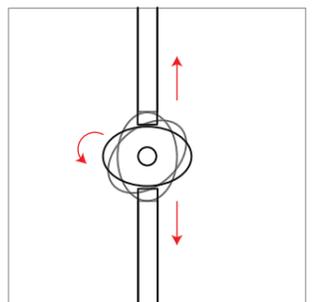


10mm

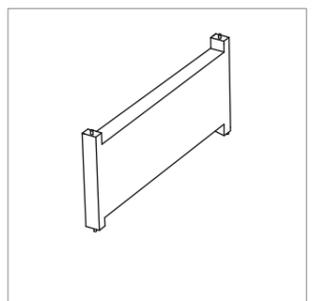
## STORYBOARD



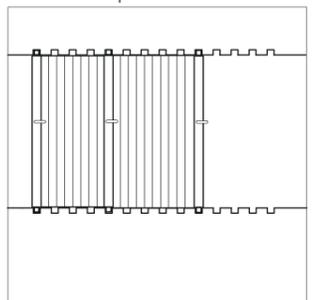
1. Twist handle, twist the handle to the position shown in the figure



2. The twist of the handle drives the movement of the disc, thereby pushing the support rod out



3. The support rod is completely pushed out, the height exceeds the partition



4. The part that exceeds the partition will be stuck in the card slot to fix the position of the partition

## 7.4 MATERIAL&RENDERING



### Cabinet structure

Stainless steel

#### Toughness

The existence of the stainless steel material collective iron leads to the high hardness of the material, especially under high temperature conditions. Its actual high hardness and high strength make it difficult to achieve precise cutting during the processing.

#### Plasticity

During the processing of stainless steel, it present greater plasticity so that the surface of the material attached to the chips produced during the processing is not easy to be removed.

#### High expansion coefficient

In the processing of stainless steel materials, with the deepening of the processing work, the temperature of the material also increases. At the same time, its poor heat dissipation capacity also causes the processing materials to be easily deformed, which affects accuracy.

### Locker handle

ASA  
(Acrylonitrile styrene acrylate)

- Strong weather resistance and anti-aging
- Strong chemical resistance and color stability
- High gloss 90%-95%

- ASA can be welded to itself or to some other plastics,
- Ultrasonic welding can be used to join ASA to PVC, ABS, SAN, PMMA, and some others.

### Folding door

Magnalium

#### Mechanical properties

The strength and stiffness of magnesium are better than plastics, and the elongation and impact resistance are significantly better than die-cast aluminum alloys.

#### Casting performance

The latent heat of fusion per unit volume of magnesium is only 2/3 of that of aluminum, and the specific heat is only 3/4 of that of aluminum, and it has very low iron solubility. These characteristics enable magnesium die castings to achieve almost the same production cost/kg as aluminum. If HOT RUNNER technology with high production efficiency is applied again, the production cost of magnesium die-casting parts is much lower than that of aluminum

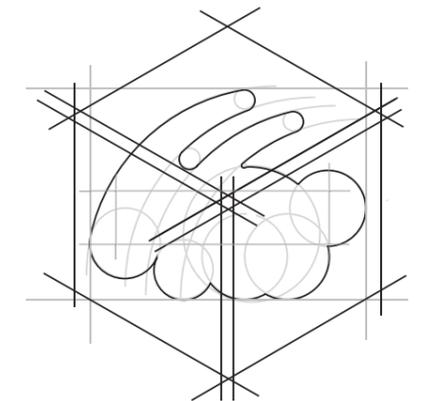
## 7.5 COMMUNICATION -LOGO



It use three orange colors as the main colors of the logo. Orange means lively, which matches our hope that the product can establish a good relationship with customers and give people a vibrant feeling, and the three colors can distinguish businesses , Different software between rider and customer.

We choose to use hare as our name and logo, because our product is positioned as a fast delivery service, this feature fits with hare's flexibility, and we hope to use simpler names and more recognizable items to help users Get memory points.

- Color coding: #F2E1B2
- Color coding: #FFD43C
- Color coding: #FF9100



LOGO 1



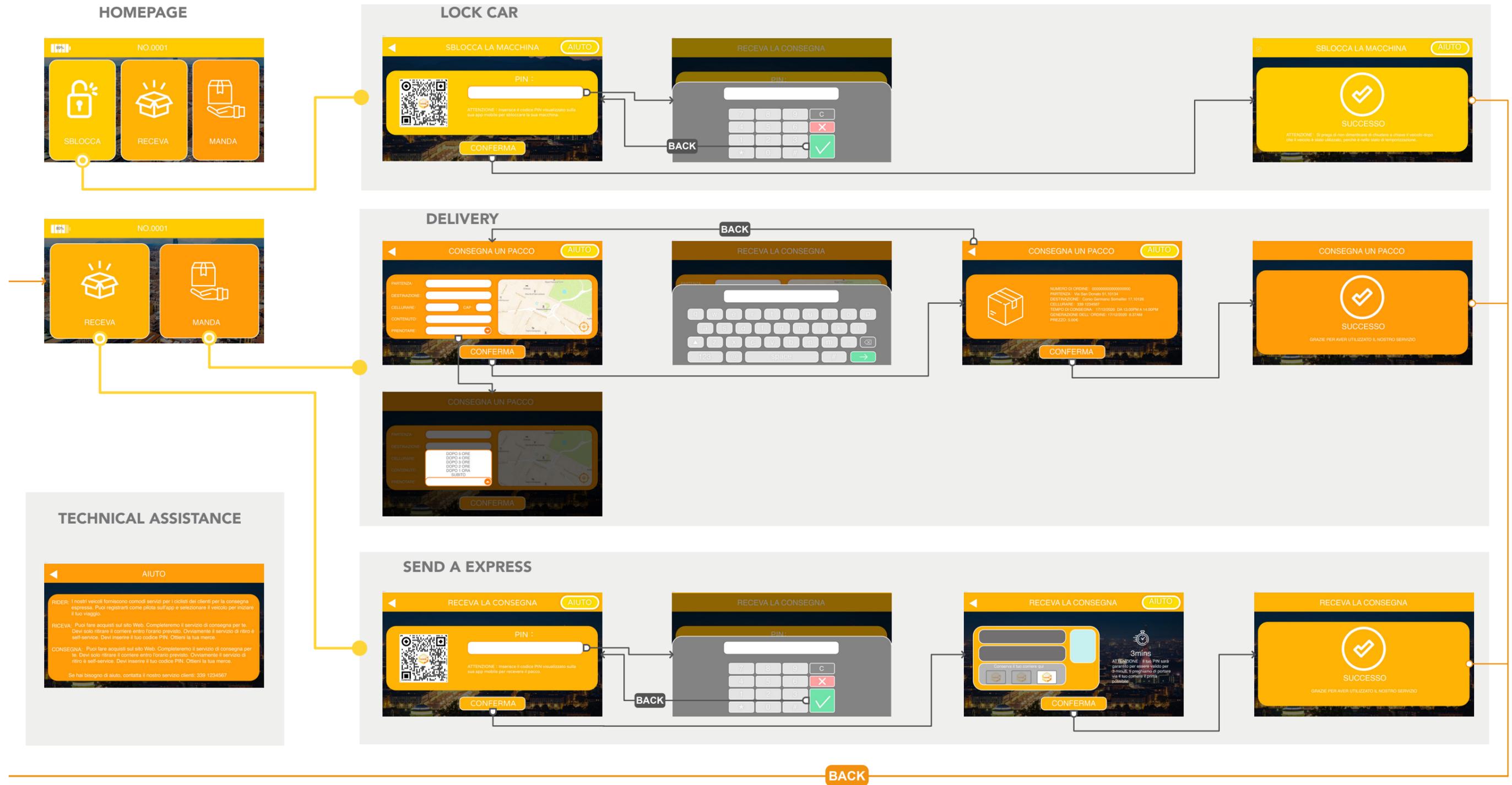
LOGO 2



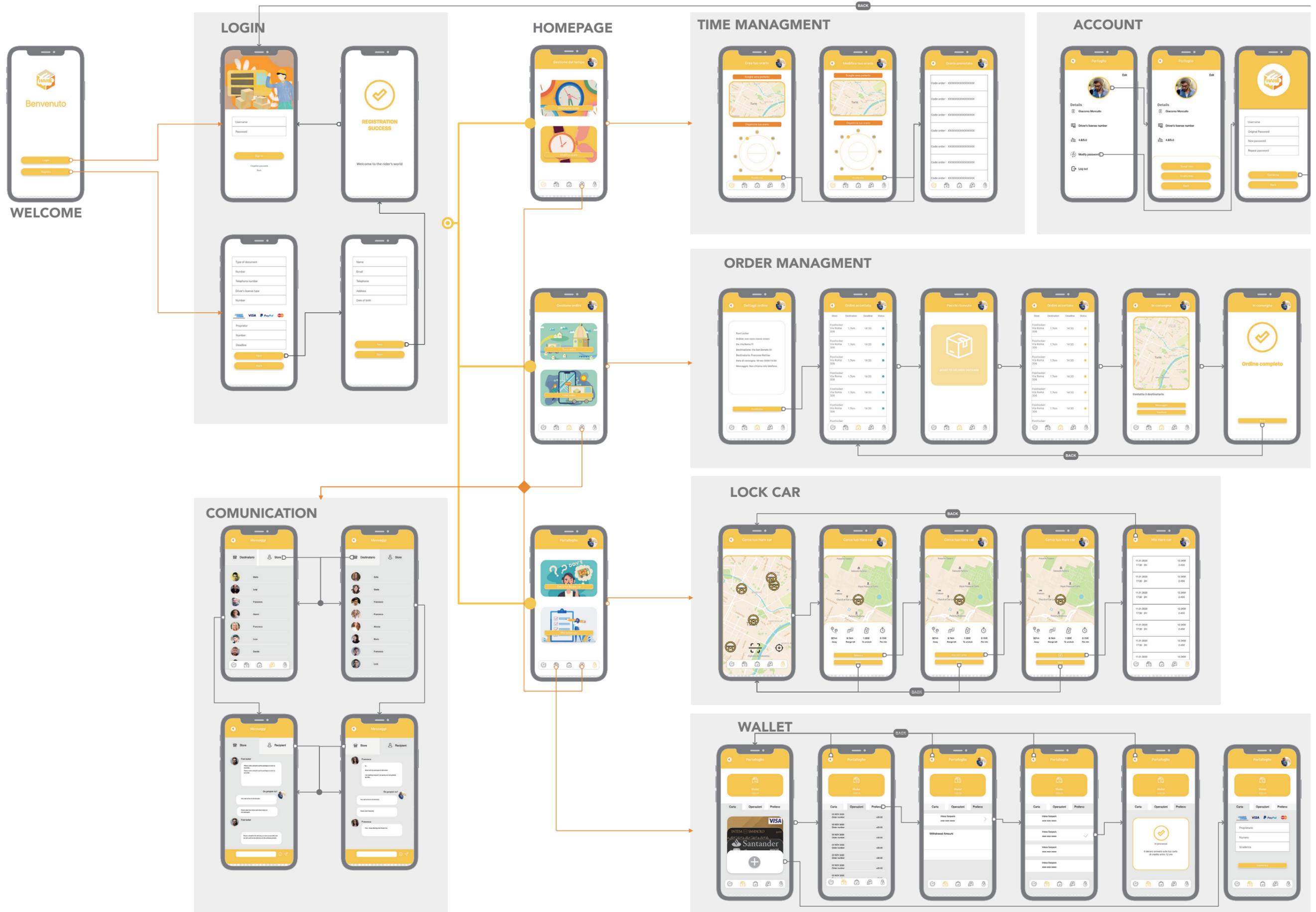
LOGO 3



# 7.5 COMMUNICATION -FLOWCHART SCREEN



# 7.5 COMMUNICATION -FLOWCHART RIDER



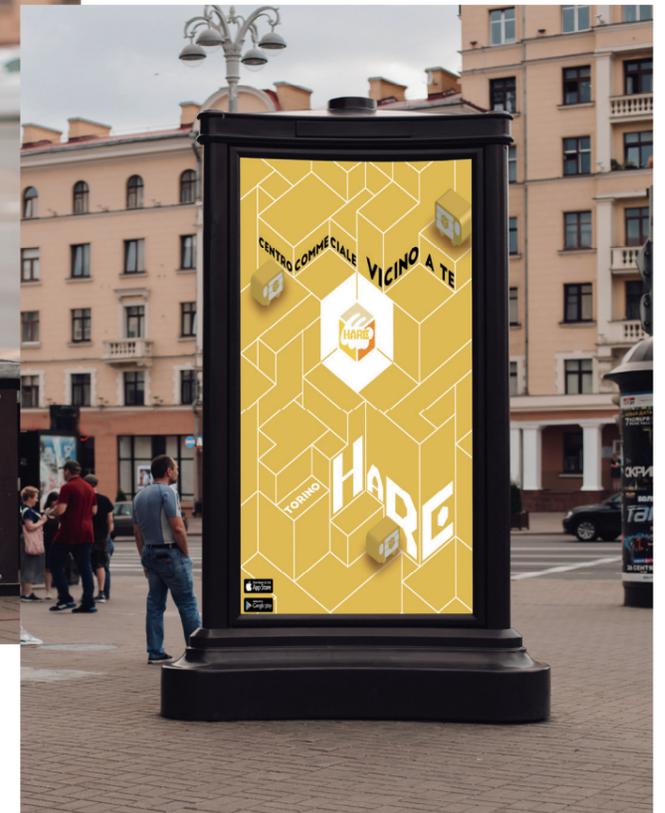
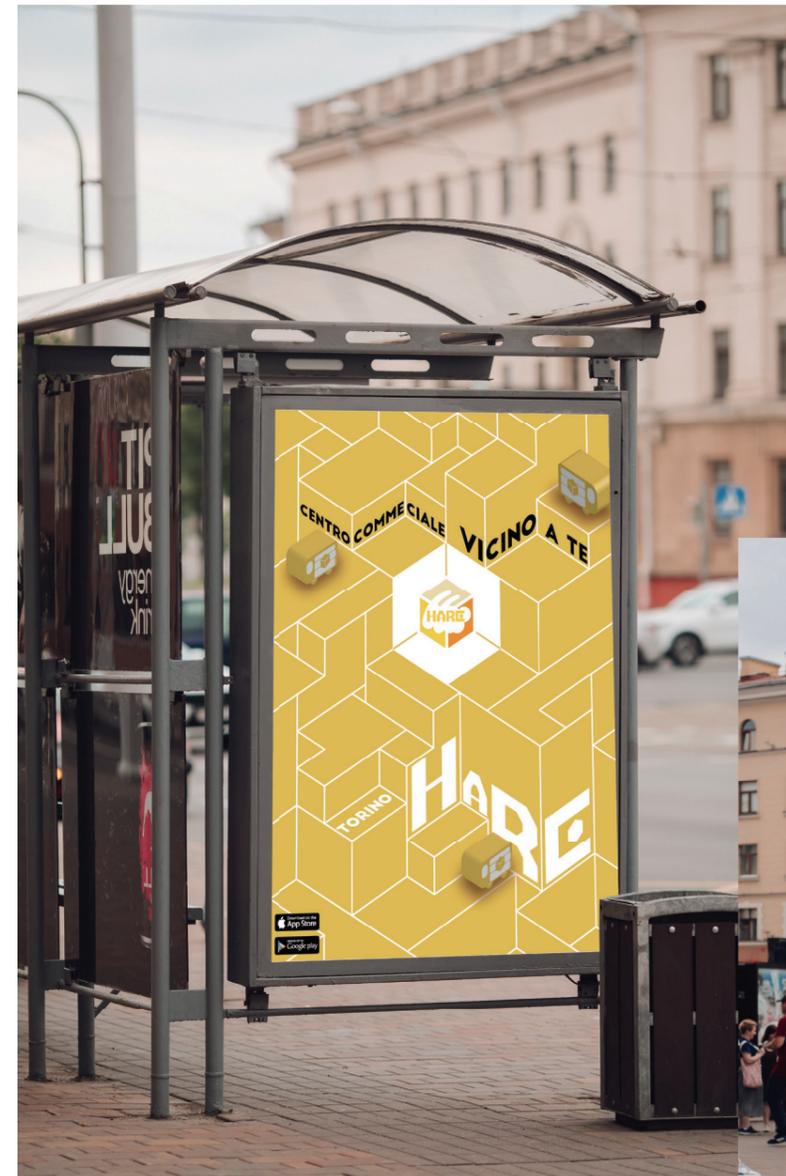
# 7.5 COMMUNICATION - FLOWCHART RETAIL



# 7.5 COMMUNICATION - FLOWCHART CUSTOMER



## 7.5 COMMUNICATION -PROMOTION POSTER



The poster used a lot of geometry line. These lines can present the building and the street in the city. The Hare car drive on them which means our service run in the city. "Torino" is written on the blow the poster; it presents the service's location. The center of the poster is Hare's logo, which means our service can connect the city together. The main color we use the same as Hare car. Because yellow is a color which present speed and fast, it not only can help costumers remember our product, help customer connect the App and Hare car together. It also presents the delivery service's characteristics.

## 7.6 SUSTAINABLE

Nowadays, other distribution service processes have caused a lot of waste of resources and environmental pollution. At the same time, the difference in rider transportation has also caused differences in service experience. We hope to develop product sustainability, and sustainable design will be economical. Aspects, environmental aspects and social aspects are integrated into the product process to achieve sustainable goals.

### SHARING ECONOMY

Sharing economy is an economic model that has emerged in recent years. Our products also fit this economic model. We provide commodity platforms and transportation channels through products, and the main services of the final distribution link are completed by users to form a complete service process. Compared with the traditional distribution service system, it integrates local store resources and also uses social human resources to combine the two to generate benefits. This advantage is not available in other transportation companies, so it has sustainability on service structure.



### SOCIETY

### ENVIRONMENT

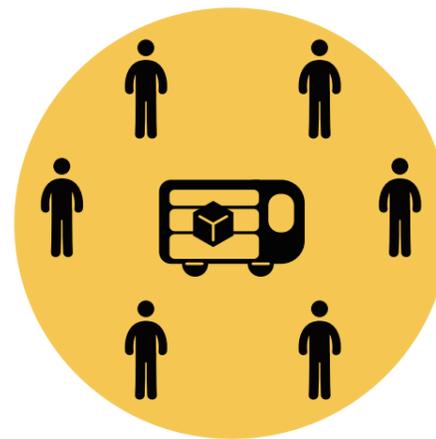
### ECONOMY

Normal Distribution Service Structure



In traditional express delivery services, different riders drive different vehicles for delivery, so it is impossible to conduct unified management and training for delivery personnel, and it will also cause different shopping experiences for customers in the user experience process.

HARE Distribution Service Structure



The use of a shared vehicle model enables riders to use a single vehicle for delivery, which is easier for riders to train and manage, and for consumers to provide a unified service experience.

In terms of social sustainability, using products to connect stores, logistics and consumers provides a platform for local Turin merchants to sell their products, help local stores improve their operations, and provide people with job opportunities to earn money. Take part of the commission, and use users to carry out logistics distribution for other users, which improves the product process and is also a sustainable process.

Since traditional transportation services use cars for transportation, and the volume of vehicles is also large, due to the design of traditional cars, resources such as gasoline will be used for energy transportation. The pollution caused during the transportation will affect the environment and also Due to the large number and the problem of one person driving one car, a large number of vehicles are usually required to match a large number of personnel, which will also cause a waste of resources.

Through the sharing economy, the company provides new energy vehicles of the same scale, that is, electric vehicles, which reduces CO2 emissions during transportation, and also forms a way for multiple people to use the same vehicle, which reduces the waste of resources.

On the economic side, through the sharing economy model, jobs are provided to people for distribution to earn commissions. The establishment of the HARE platform also provides a digital platform for local stores to increase store exposure, improve the economy, but also increase a certain degree of influence. For consumers, shopping through the platform can get discounts from time to time. Can also get a good shopping experience. The sharing economy model has also helped improve the local economy.

## 7.7 THE RELATIONSHIP BETWEEN THEM



2020 is a difficult year. Under the COVID19 epidemic, it has caused a huge blow to the real economy, and many stores are in a stagnant state. In order to seek new development, the real economy began to combine with the Internet e-commerce, and the Internet e-commerce industry showed its unique advantages in this special period. Most of the time in Italy in 2020, people are isolated at home, many people are afraid to go out to increase the risk of infection. But people ' s shopping needs are not reduced. In this context, more and more people are joining to accept online shopping. As an important link connecting stores and customers, express delivery should also seek new development opportunities in such an environment.

Through an analysis of the population of Turin, we understand the density of population in different regions. Analysis of the local traffic situation to understand the local road pick up the goods in the express car after the order arrives.

HARE is mainly targeted at small businesses in the city, because they have little ability to resist risks during the epidemic and do not have enough capacity to build their own online shopping stores. HARE provides them with a simple online store platform, and HARE can provide them with the rest of the services. The owner only needs to focus on running his own store.

Different from traditional distribution services, HARE chooses to transfer the task of distribution to people rather than internal staff. At the same time, traditional distribution services usually require riders to have their own means of transportation, and sharing the way to provide transportation will have a better effect in our service system. From the perspective of society, economy and environment, the concept of sharing economy is consistent with HARE.

In the delivery car, we adopt the management mode of sharing economy. All delivery cars are provided by the company, all riders can use at will, this way can increase the utilization rate to reduce the number of delivery cars. On the one hand, the sharing economy reduces the cost of services; on the other hand, it brings together more market participants in such a system, improves the matching rate of supply and demand, and reduces the problem of information mismatch in market transactions and competition, achieving the sustainable development of society. construction. At the same time, we analyze the related content of logistics transportation, the purpose is to understand the user to buy goods

after the commodity transportation process and the different aspects of the supply chain settings.

After thorough research, we designed the HARE delivery service system. HARE is a city delivery service that combines a shared economy and has no access. It provides a public platform for riders, stores and customers to connect riders with customers. On the one hand, it helps small merchants in Turin to promote their popularity and increase their sales. It provides customers with a safe and convenient shopping platform, on the other hand, it also provides riders with an employment position to help them have a certain source of income in a special period, and use leisure time to earn in the entire service process, HARE can be unmanned throughout, to ensure the safety of businesses, riders and customers, to minimize the risk of infection.

HARE creates three different apps according to different user attributes to provide different user experience. Businesses can manage goods and orders through apps, riders can receive orders through apps, choose working hours, and find and unlock cars. Customers can use app to buy goods. After the customer orders successfully, you can set the delivery time through the app to view the rider ' s position, and the customer can independently



## 8. CONCLUSION



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