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of Business and Management

Chair of Entrepreneurship & Innovation

The Evolution of the Sharing Economy: Redefining Industries Borders and Reinventing the Concept of Mobility

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INTRODUCTION

The sharing economy has redefined people's consumption habits, creating innovative solutions thanks to enabling technology. Through the development of platforms, users are increasingly interconnected and have the opportunity to interact, find solutions to their needs and share resources and knowledge. The sharing economy creates both new markets and innovative solutions, but also redefines traditional practices and raises them to a higher level. Users who adopt shared solutions also embrace several cultural elements that characterise this mode of consumption, such as mutual respect, environmental sustainability, resource optimisation and the concept of sharing to save money. Through review systems each user can evaluate a service offered or the work of another user, to create standards that the entire consumer community is committed to respecting, creating in such a way a mutual control mechanism. For sharing services to continue to exist, respect for what is used and respect for others is fundamental. In this way, a new consumer ecosystem is defined, made up of users of sharing services, providers of these services and regulators who establish laws and practices of correct use: all this takes place thanks to enabling technology, which allows the creation of platforms that interconnect the parties involved. Innovative models based on shared consumption have taken hold in various sectors, new business models emerged, and the rapid proliferation of innovative platforms and services has often faced outdated regulations that are not suitable for such models. Legislators have had to intervene in several cases to regulate the operation of sharing economy platforms and thus create new laws that can regulate the conduct of operations. A new economy is defined as an economy no longer based on the possession of a good, but on its temporary use: we are thus moving from an economy of possession to an economy of access, and this is the issue that will be carefully analysed. The sharing economy has had a particular success in the field of mobility: the aim of the thesis is to investigate the various alternatives that individuals have to traditional transport as a proprietary vehicle and public transport, to define whether shared transport solutions can definitively replace a proprietary vehicle.

In the first chapter, we will analyse the factors that have enabled the diffusion of platforms that base their business models on the sharing economy: by adopting specific solutions users become part of a consumer community that shares a set of values. In the "Couchsurfing" business case we will see how enabling technology has redefined a traditional practice such as hosting an acquaintance, in a global platform of cultural exchange that connects people from all over the world by creating a community of travellers who host each other for free. Then the "AirBnB" platform will be analysed, which has redefined the accommodation market, creating a marketplace where the owner of a home can list it on the platform and can offer the whole house

or part of it. The adaptability of sharing economy practices is transversal to different sectors: in the case of “TooGoodToGo” users embrace the theme of "Food Waste" and join together to combat waste by going to buy the leftovers of restaurants and bars that join the platform. Retailers will avoid throwing away good food and users will be able to get food at a discounted price. The area where such practices have been most successful is undoubtedly mobility. If before a user's transport alternative was a private vehicle or the use of public transport, now the citizens of large cities have several tools that enabling technology has made available.

In the second chapter, the focus will shift to mobility. The various ways in which the sharing economy operates in the mobility sector, such as ridesharing, carpooling, carsharing will be defined. We will analyse with business cases related to each modality, and we will see how innovative mobility services are competing with traditional services, often incurring legal problems. To analyse carpooling, we will address the case of a pioneer, BlaBlaCar. This platform connects people looking to travel medium and long-distance with drivers heading the same way, so they can travel together and share costs. Subsequently, the Uber case will be tackled, which has redefined the Taxi market, entering the market in a disruptive way with a ride-hailing platform. If before to transport people and carry out the taxi service needed a license, comply with safety standards and fulfil legal duties, with Uber anyone has the opportunity to register and transport users who require a ride through the App on a smartphone. By revolutionising the market in such a clear-cut way, we are incurring in the de-professionalisation of a service, which no longer has any standards but which can be freely performed. In pursuit of innovation, there are the regulations that often slow down the pace of progress: lawmakers must first categorise these platforms and define their size to apply appropriate rules. Technological progress remains the key factor for the creation of new services: thanks to GPS technologies and the interconnection between devices, not only portals have emerged that interconnect supply and demand for mobility but also car sharing and scooter sharing services. In the streets of major cities around the world, we find vehicles with the brands of various operators available to users immediately. People with a need for mobility, can activate these vehicles and use them to make their journey via Apps on smartphones: no meeting with physical operators is required, and the system is fully automated. The smartphone thus becomes the "ignition key" for vehicles in sharing mode on the roads. We will analyse the concept of Mobility As A Service (MaaS), to explain how new platforms integrate different transport options into a single solution so that the user can compare the various alternatives, choose and pay for the preferred one as intuitively as possible. The importance of the concept of MaaS will be highlighted with ShareNow, a joint venture of BMW and Daimler, that had to redefine their roles, moving from being car manufacturers to providers of mobility services. Future trends in the automotive industry will also be analysed with the "easycy" model developed by PwC: electrified, autonomous, shared,

connected, yearly updated. This model foresees a future made up of electrified and autonomous cars, which are always connected to the internet with constantly updated software and a widespread tendency for sharing.

The third chapter deals with new mobility trends, with an in-depth examination of the issue of micromobility, defining the theme of the "last mile": the kind of journeys that are too long to be made on foot, but too short to be made by car. Such trips are often complementary to other services such as public transport, and "light" vehicles such as electric scooters and electric bicycles fill the gap. As they do not require a driving licence and are particularly easy to handle, these vehicles can also be driven by young people and the public interest is therefore growing. It will also be analysed how the Covid-19 pandemic has influenced the world of transport, leading governments around the globe to promote micro-mobility and build new infrastructure to avoid crowds of people and traffic congestion in big cities. Given their high adoption rate, electric scooters have become a real trend around the world: dozens of platforms have emerged that have put thousands of scooters on the road in free floating sharing mode, often arising problems and debates. To better understand this topic, will be analysed the business case of Lime, the leading operator of micromobility in the world, which manages fleets made up of thousands and thousands electric scooters and electric bikes. The analysis will shift endlessly to the business case of "Turo" which has redefined the traditional Car Rental market by creating an AirBnB for the machines with a platform that connects car owners and people looking for a rental car. Through an elaborate insurance system, users can safely rent any car, from a small car to a supercar, all interfacing through the platform directly with the car owner.

Since there are now multiple and complementary solutions for mobility, users will have to make consumption choices and evaluate the most convenient for their needs. In the fourth chapter, a survey will be conducted to understand users' perception of the various mobility solutions in the specific Italian territory, what their consumption patterns are and how their habits have changed according to the Covid-19 pandemic. The final aim of the survey is to establish whether Italian citizens are ready to abandon the concept of owning a vehicle for their daily transports and adopt only shared mobility solutions, moving definitively from an economy of possession to an economy of access.

1.1 Definition and leading principles of the concept of Sharing Economy

The so-called sharing economy proposes a new economic and cultural model, capable of promoting forms of conscious consumption that favour the rationalization of resources based on the use and exchange of goods and services rather than on their purchase: there is a prevailing concept of access rather than possession.¹

The concept of "Sharing Economy" is founded therefore on values rooted in our community since the days before the advent of new technologies: digitalization has enabled and spread this phenomenon, expanding the potential and accessibility of the various services. The impasse of traditional economic models and the employment crisis have created even more favourable conditions for the diffusion of this new model of consumption. The model opens markets to new opportunities of growth, employment and entrepreneurship, based on the idea of sustainable development from an economically, socially and environmentally perspective. The model of Sharing Economy itself embodies an approach aimed at the active participation of citizens and to build resilient communities, or to strengthen the ability of such communities to influence the course of a change by dealing with a cooperative approach to the various events that communities daily face.

One of the driving forces for the ascent of collaborative economics is undoubtedly information technology and the use of social media, which have drastically reduced the obstacles to which the organizational and business models based about sharing can spread. Since when a series of enabling technologies, including open data and the widespread use of smartphones have become accessible to all, people can easily interact and get access to platforms enabling the sharing of goods and services.

Innovation is not only a question of technology, but it represents something deeper, involving social and cultural changes, new styles of life and development of new business models. Innovation creates new connections between the needs of communities with problem solver services and creating in such a way new cultures, jobs, laws and rights. We are facing a new cultural model, which rebuilds the idea of community, promotes the rationalization of consumption and the fight against the waste of resources, embracing a full set of values on which the communities are based.

¹ *Access-Based Consumption: The Case of Car Sharing, Journal of Consumer Research 39(4):881-898 · December 2012 Fleura Bardhi University Of London.*

Among the distinctive features of the collaborative economy, it is possible to identify some elements common to all the different experiences present today on the world scene. They can be framed in two macro-areas²:

1 Sharing Relationships: the common use of a resource in a different way traditional forms of exchange: goods and services are rented for limited usage, after which are available for another user of the community.

1 Peer-to-peer relationship: the horizontal relationship between the parties involved that is radically different from the traditional forms of the relationship between producer and consumer by responding to new needs. These new alternatives include for example the growing need to interact with companies in a more participative way, launching processes of co-creation with the presence of a digital platform that supports this relationship, working thanks to a digital reputation mechanism where transactions happen thanks to electronic payments.

The forms and objects of sharing can be the most varied, from physical goods as the transportations until you get to accessories, digital products, spaces, time, skills and services, whose value may not necessarily be determined in cash and may take into account elements generally excluded by the traditional logics of exchange, such as the environmental or social impact that such activities have. It can therefore be expected that the sharing economy in the coming years may respond to needs that have so far remained unsatisfied: new innovative platforms, if operated with a logical of integration with the traditional market and framed within a framework of norms clear and transparent, can increase the offer and expand the possibilities for consumers, covering market shares that would otherwise remain uncovered or not used, also stimulating the innovation of the existing models and the Competition among firms and sectors.³

Is reasonable to think that there is a potential economy behind the sharing economy. We are facing great opportunities to seize the production capacity not yet exploited and encourage the birth of new forms of employment and entrepreneurship, also thanks to enabling technologies that are constantly evolving and improving.

The Ministry of Labour and Enterprise of the United Kingdom in November 2014 has circulated a document of analysis on the phenomenon of sharing economy from which emerge some significant data:⁴ "25% of the adult population has somehow the world of the collaborative economy, and by 2015, 70% of the population will take care of or benefit from the sharing economy. 97% of people claim to be satisfied with the sharing experience".

² *"Peer-to-Peer Service Sharing Platforms: Driving Share and Share Alike on a Mass-Scale"*, Magnus Andersson, Michel Avital. January 2013

³ *Economic Papers, European Commission, Directorate-General for Economic and Financial Affairs 2007*

⁴ *"An economic review on the Collaborative Economy"*, European Parliament 2016

Following this report, the United Kingdom Government set in its "2015 budget programme" targets to improve economic growth, to make Great Britain the ⁵ "best place in the world to start, invest in, and grow a business, including through a package of measures to help unlock the potential of the sharing economy".

In Italy, according to a study by "Collaboriamo.org" and the "Catholic University"⁶, the collaborative platforms most concerned are crowdfunding then transport and services for the exchange of consumer goods. The study detects a continuous evolution and experimentation of Italian collaborative platforms but also some effort of these services to grow and reach the critic mass to achieve sustainability and efficiency. According to the entrepreneurs interviewed, there is a lack of funding, culture and partnerships with large companies.

The European Union defines the sharing economy as "The collaborative economy, sometimes called the sharing economy, covers a great variety of sectors and is rapidly emerging across Europe. Many people in the EU have already used, or are aware of collaborative economy services, which range from sharing houses and car journeys, to domestic services. The collaborative economy provides new opportunities for citizens and innovative entrepreneurs. But it has also created tensions between the new service providers and existing market operators. We have to encourage the development of new innovative services, the temporary use of assets while ensuring adequate consumer and social protection.". The EU Commission supports the sharing economy as an engine for growth but wants to underline also the fact that it is important that the services offered using the concept of Sharing Economy do not are a source of practices to avoid taxes or create unfair Competition: all the practices must respect local and regional regulations or national and European regulations.⁷ From this reflections it is possible to identify different aspects involving sharing economy on which it is necessary to reflect: the ratio of value distribution between new solutions and traditional sectors, the creation of new value, the possibility to integrate, coexist and turn traditional models into innovative ones. The final goal is the possibility of avoiding contrasts by making the collective interest to prevail.⁸ The challenge of sharing economy is redefining certain methods of measurement, in the labour market and in various economic contexts, to see the parameters and the standards that are required in an economy based not anymore on sale and on the production of goods and services, but on their sharing or on the trade: this process to be sustainable requires unconventional operational frameworks.

⁵ "The Red Book UK GOVERNMENT- Budget report – March 2015", House of Commons, Chancellor of the Exchequer.

⁶ "La Mappatura delle piattaforme di Sharing Economy 2017 Report", Collaboriamo.org, Università Cattolica 2017

⁷ "European Agenda for the collaborative economy" European Commission, Bruxelles 2.06.2016 COM(2016)

⁸ "The Passions and the Interests: Unpacking the 'Sharing Economy'" European Commission 2016

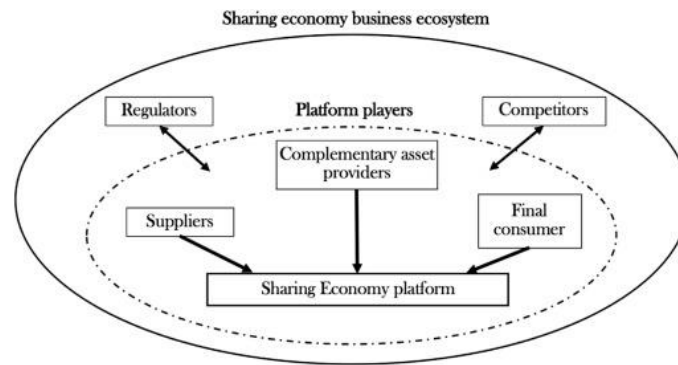


Figure1

In the debate among old frameworks and new economies, emerges the complex theme of the legal status of the platforms and of the protection of the worker who operates through the sharing economy platforms: due to the unique and new setting, traditional legal models can hardly be adapted, because they are rigid and not designed for a context where labour and Competition are in continuous transformation. The main task for the legislator is to ensure fairness and transparency, especially in terms of rules and taxation, between those who work in the field of sharing economy and traditional economic operators, working in similar activities. Defining appropriate rules and frameworks must also be guaranteed for the protection of consumers, in particular regard to the safety, health and security aspects, that traditional activities already respect in order to define standards also for the platforms based on sharing economies, to ensure the privacy and transparency on the conditions that underly the services or of the assets used.⁹These difficulties will be overcome thanks to constantly updated legislation, that will allow the upgrade to a new economy, more efficient and more flexible. It is necessary to begin to predefine regulatory interventions in the field of sharing economy, transversal to the different professional sectors involved, to manage the changing process that cannot be arrested but that must be governed in the proper way. A complete regulation of the phenomenon would, in fact, allow the emergence of a large segment of the informal economy related to services typically attributable to the sharing economy. The regulations must be updated properly, and there must be a clear disclosure of the contractual conditions between the platform and users, in addition to information and obligations by both the parts.

Worldwide during the last years, different traditional sectors evolved with new practices that operate with a Sharing Economy model, sometimes innovating already existing sectors and sometimes creating new markets and new economies. An example is the Crowdfunding, an application of the sharing economy to finance that consists of fundraising to finance a project. A Crowdfunding campaign is, most of the times, started when a group of people field an idea, which becomes unworkable in the absence of funds. This bottom-up micro-financing is an

⁹ *Committee on the Internal Market and Consumer Protection, Nicola Danti 2017*

alternative to bank lending, in fact, all people interested in the initiative, who spontaneously donate their money to finance the project, will get a "reward" that can be of various nature; otherwise, many campaigns might be simply to pursue an objective via public donations. This is a practical approach to the sharing economy from a financial perspective. Sharing can also be of cars, and in this specific category we will see that sharing economy has radically changed people habits: "car-sharing - carpooling - ride-sharing are the three types that provide the sharing of the entire car or part of it" ¹⁰: the car might be shared by the owner or might belong to a third party company. The idea of sharing in transportation was born to economically optimize trips, which represented a real chance to be exploited. If a driver has to move to a city to another, he can decide to offer a ride to other people that require the same trip, in exchange for sharing fuel and general costs: this mechanism is defined as "carpooling". The sharing economy of the car sector is not limited to the offer of rides only, but innovative platforms such as Uber has started a real alternative service to taxis, which is part of ride-sharing. In addition, services such as Enjoy and Ca2go have allowed consumers to independently drive the car of a third-party company without the need for a driver; in this case, we talk about car sharing. The three types also help environmental sustainability; therefore, these activities could be configured within the green economy.

The access economy is changing the structure of a variety of industries, and a new understanding of the consumer is needed to drive successful business models. A successful business model in the access economy will not be based on a community; however, as a sharing orientation does not accurately depict the benefits consumers hope to receive. It is important to highlight the benefits that access provides in contrast to the disadvantages of ownership and sharing. These consist of convenient and cost-effective access to valued resources, flexibility, and freedom from the financial, social, and emotional obligations embedded in ownership and sharing. There are also two main key factors identified in the success of the sharing economy that are not purely connected with the building of a sharing platform, but on the value that consumers perceive from the idea of sharing¹¹:

"Competition between companies will not hinge on which platform can provide the most social interaction and community, contrary to the current sharing economy rhetoric. Consumers prefer the companies that allow them to satisfy their needs at a lower price, and the platforms that emphasize convenience and price, over the ability to foster connections, will have a competitive advantage. Companies and platforms that tried to focus on the direct connections between

¹⁰ <https://blog.blablacar.it/blablalife/era-della-condivisione/sharing-economy/differenze-carsharing-ridesharing-carpooling>

¹¹ "The Sharing Economy Isn't About Sharing at All, Harvard Business Review", Giana Eckhadrdt, Fleuara Bardhi 2015

consumers have found a low level of trust between strangers where there is no market mediation. Consumers think about access differently than they think about ownership. Being part of a community, identified over a brand, is important for the customers that identify the product or services that they choose with the brand associated. This builds a new identity with a defined mindset: When consumers are able to access a wide variety of brands at any given moment, like driving a BMW one day and a Toyota Prius the next day, they do not necessarily feel that one brand is more "them" than another, and they do not connect to the brands in the same closely-binding, identity building fashion. They would rather sample a variety of identities which they can discard when they want. Thus, trying to foster a community of consumers around an access economy brand is rarely successful, as we found with Zipcar. Zipcar tried to foster a brand community by sending out chatty newsletters and facilitating meet-ups, but these were not received well. Consumers are not looking for social value out of rental exchanges with strangers. The access economy is changing the structure of a variety of industries, and a new understanding of the consumer is needed to drive successful business models.

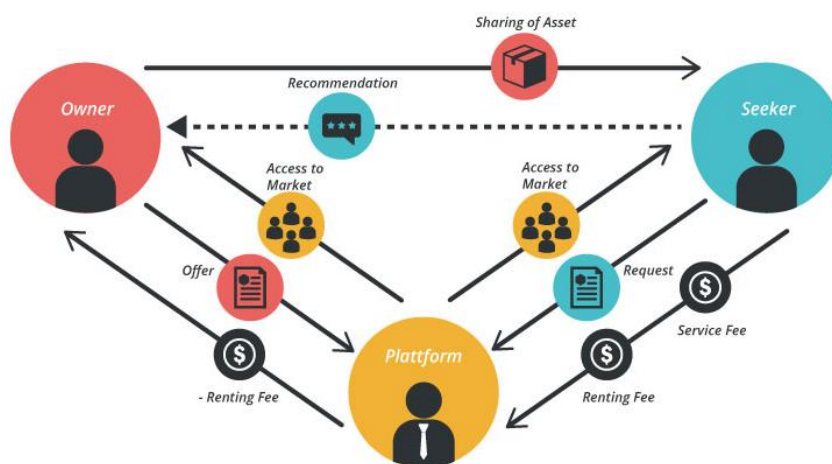


Figure 2

A successful business model in the access economy will not be based on a community; however, as a sharing orientation does not accurately depict the benefits consumers hope to receive. It is important to highlight the benefits that access provides in contrast to the disadvantages of ownership and sharing. These consist of convenient and cost-effective access to valued resources, flexibility, and freedom from the financial, social, and emotional obligations embedded in ownership and sharing.”¹²

¹² “The Sharing Economy Isn’t About Sharing at All, Harvard Business Review”, Giana Eckhardt, Fleuara Bardhi 2015

Figure 2 “The sharing economy promotes sustainable societies” Zhifu Mi, D’Maris Coffman, Nature.com 2019

Fair conditions of Competition for the operators that play in similar activities of the one performed by new platforms of sharing economy is an argument still discussed nowadays.

In this new competitive environment governments have to deal with radical changes in business models: sharing economy redefines traditional payment models and requires specific regulations. This change is a matter of a cultural rather than organizational transformation, populated mostly by start-ups, which rethink the traditional exchange of goods and services and therefore also the market.

1.2 Enabling Technology for Collaborative Consumption

The concept of Sharing Economy became concrete with the spread of the internet and the birth of communities. The second decade of the 21st century is witnessing an economic momentum dictated by a real and exponential virtual revolution: "Digital platforms provide a more rapid (accessed through digital devices), low cost (no/low intermediary costs), and creative (innovative forms of offering services) way for practising the sharing economy and sharing resources. The basic idea behind the sharing economy is to promote the utilization of available and underused resources, such as transportation means, accommodation, or consumables."¹³

Sharing Economy models have developed mainly thanks to the technological progress that has allowed an increasing diffusion of the internet, technology, development of online communities and new technological platforms. In this scenario, entrepreneurs operating in the sharing economy have seen an opportunity for consumers to share both tangible and intangible goods.¹⁴

We can generally frame sharing economy features in two main principles "We are all aware of examples like Uber and Airbnb, which are often discussed as the front-runners in the sharing economy. The idea here is that as users we share with other people "assets" that we own, like our houses or our cars, because they might sit idle, and might not be used most of the time. If we have spare time we can act as drivers and earn some money "on the side". Clearly, those examples have certain commonalities, but they also have some very important differences. Let's look at two main principles that underpin the sharing economy. Analyzing the phenomenon of collaborative consumption, we recognize some dynamics that must subsist in order to collaborative models to work: its functioning can be interpreted as a cause of the existence of

¹³ "ICT-Enabled Sharing Economy and Environmental Sustainability—A Resource-Oriented Approach: Managing Disruption, Big Data and Open Science" Maria J. Pouri and Lorenz M. Hilty, University of Zurich 2019

¹⁴ "Leading Sustainable Development, Principles of the sharing economy" Kai Riemer, Sydney Business School 2016

and the functioning of collaborative consumption. It occurs to define the fundamental pillars of this phenomenon¹⁵:

Principle 1: Sharing of things and services: The first is sharing. The sharing of things, of what we might generally assets, such as cars, rooms, time. Using various services, people share these assets among each other. But if we look at definitions of the sharing economy and where it came from, where it started out – its roots – it's an idea that is based on sharing more broadly. A requirement for Sharing Economy models to exist is a Critical mass: it is defined as the quantity or the threshold level for triggering a phenomenon. Critical mass for innovation is the point at which its diffusion becomes self-sustaining and does not need to be supported by change agents or similar forces anymore. It is especially important for interactive innovations: Rogers defines these as innovations through which an exchange between individuals is facilitated, and which allow individuals to switch roles. "

Principle 2: Shared ownership, decision-making, collaboration: The second principle is based on a peer-to-peer, or collaboration aspect, which determines shared decision making, shared ways of deciding on the rules by which this particular part of the economy is operating, the fairness of the economy, the greater good, sustainability, reducing waste and alternative ways of organizing and doing business, which must be regulated with specific regulations. A collaborative economy differs deeply respect to a traditional one and requires another point of view, that usually is out of sight of the establishment of rules for a traditional economy, which has its roots in old principles that evolved during thousand years.

Defined those principles, we have nowadays several frameworks and elements of the discussion that can define different approaches to the definition and the establishment of a Sharing Economy dynamic thanks to enabling technology. The implementation of new techniques and tools has the function of making the production process more efficient, leveraging on technological innovation that allows creating links and relationships between the various objects and systems present in a system. The various enabling tools that allow this optimization progress interact with each other thanks to the concept of "Internet of Things (IoT)" an expression used to indicate the network of equipment and devices connected to the internet.¹⁶ Thanks to enabling technologies, every physical object has the potential to become smart and generate or share data on its operating status. Thanks to the increasingly extensive and efficient wireless networks, data are collected and disseminated with enormous speed and

¹⁵ "Collaboration in the Digital Age: How Technology Enables Individuals, Teams and Businesses", Kai Riemer, Sydney Business School 2018

¹⁶ "Future internet: The Internet of Things", Lu Tan ; Neng Wang September 2010

communication between devices is always easier and faster: we have gone from operations such as being able to manage home thermostat through a smartphone, to being able to unlock and renting a car, parked on the street, with the same device. Through the various enabling technologies, the ultimate goal is to simplify the lives of individuals by automating increasingly complex processes and making available to everyone sets of informations that are usually not available without such technologies: an example are a real time updated platforms such as Google Maps where users are able to know the state of traffic in real time thanks to GPS tracking of various individuals' smartphones: an algorithm will calculate the travel time and the optimal route to save time. Thanks to the various enabling technologies, there is again in terms of optimization, generating immediately measurable returns. The fields of applicability range from industrial applications in production processes, to logistics, environmental protection and a more immediate communication among different people: is in this specific area that the various enabling technologies play a crucial role in the sharing economy. Information and communication technology (ICT) have redesigned the concept of consumption. The widespread use of smart devices has enabled practising a wide variety of "sharing economy" activities, a development that brings new ways of resource consumption to our everyday life.¹⁷ The concept is associated with more collaborative resource consumption, but this may, in practice, be limited to some resources being shared.

With the "Three-Levels Model" we can assess how the development of technology enables behavioural and structural changes in society.

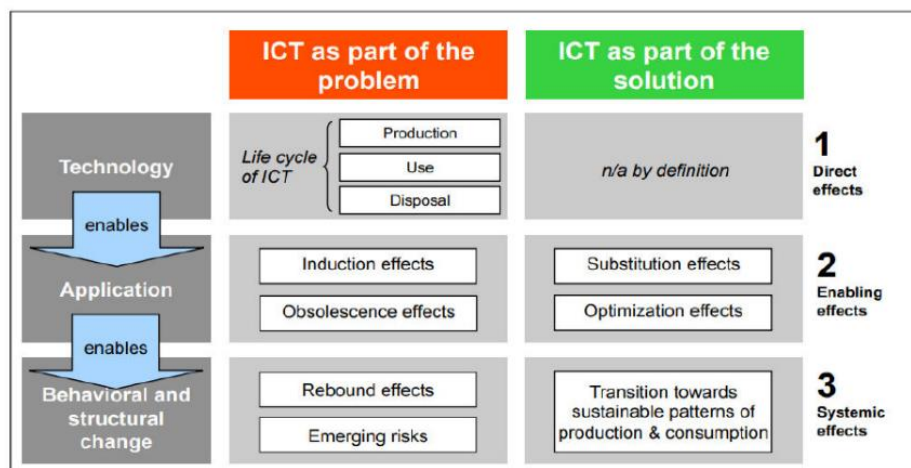


Figure 3

In this framework, we see in the first moment how the development a new technology has a direct environmental effect first on the production process. When the application of new

¹⁷ "ICT-Enabled Sharing Economy and Environmental Sustainability – a Resource-oriented Approach" Maria J. Pouri1 and Lorenz M. Hilty1,2 University of Zurich 2018

enabling technology is consolidated, there is an indirect environmental impact through the change of "production processes, products, and distribution systems". In a third phase, the application determines new behaviours through the impact on lifestyles and value systems' of the whole society. The impact of technology enabling sharing economy dynamics happens when there is the "Optimization effect": The use of new technology reduces the use of another resource, as for example less energy is used for heating in a smart home that knows where the people who live in it are located, which windows are open, what weather is forecast. This optimization effect will be commonly accepted and will cause a behavioural change of the lifestyles and so also an economic structural change. These patterns also have a negative effect, converting efficiency improvements into additional consumption, and new risk may emerge due to the vulnerability of ICT networks. This change will create new markets and define new mechanisms of social coordination.

To see the application of such theories to a practical example, we are going to see how an idea of the collaborative economy, thanks to the enabling technology of the internet, turned into a billionaire platform, such as the case of AirBnb.

1.2.1 How technology redefines schemes: From Couchsurfing to AirBnb

Trust and collaboration with others, characterize the market exchange both in the "Peer to Peer" (P2P) and "Business to Consumer" (B2C) modes. Some people rent their car for a few hours; others offer to cook meals to allow an ordinary tourist to immediately immerse themselves in the local culinary tradition, others still share their home with people from the other side of the world. Casey Fenton, a 25-year-old New Hampshire programmer, in 2003 had an idea that revolutionized the way many young people travel. Being a great traveller himself and having discovered that there are many people who host others when they travel, he wanted to create a website that would put all these people in touch, so he invented Couchsurfing. Social contact is the engine that pushes the hosts, on the one hand, to make available a bed, a sofa, any type of accommodation totally free of charge: any financial contribution would be a voluntary donation by the user to his host. Intercultural exchange, connection and sharing are the ingredients that characterize the service and that have made it successful.¹⁸ Thus was born "couchsurfing.org" the site which, after registration, creates a connection between people who, around the world, offer a sofa or a room to travellers who do not want to go to the hotel but who prefer human contact with the locals, starting with the sleeping arrangements. When a "couchsurfer", as platform users are defined, has in mind to organize a trip, he gets in touch with the users who most resemble him for hobbies and passions, who provide accommodation in the location of interest. Start a dialogue via email and ask for availability. The creation of an online platform is a first step of enabling technology, which digitizes and brings to the internet an ancient tradition that took place between students: before the Couchsurfing platform there was a community that put people from all over the world in contact to share accommodation and everything happened in an epistolary manner or with word of mouth. Couchsurfing philosophy is based on the free exchange of hospitality so no payment would be expected, but it was used by the guests to bring some product from their land or a monetary donation.¹⁹ The platform offers a bilateral feedback system: both the host and the guest will be able to comment on the experience and evaluate it, so that other travellers can consult it and that the hosts can evaluate the correctness of the guests they intend to host. Trust is, in fact, a very important element for these platforms, which constantly monitor the level of satisfaction of hosts and guests, to avoid fraud, dangerous situations for people and to protect the credibility of the system. Couchsurfing based his success on the creation of an "open community" accessible to all people. People are expected to tell details about themselves as their interests, passions, languages known and

¹⁸ "How to Explain CouchSurfing's Success?" *Review of Sociology*, Ildikó Dén-Nagy, Gábor Király 2013

¹⁹ <https://www.couchsurfing.com/about/how-it-works/>

relating what they are looking for or what they are offering for sharing. Couchsurfing to ensure safety for its service, bases his platform on three main trust guarantees provided by the system of the community²⁰:

Verification system refers to an optional check on one's name and location by platform administrators, using a bank payment transfer of a small amount of money. This will give the users the status of "verified": this helps guest users to check that a host really exists under the name put on the platform and that lives at the address provided.

Feedback: involve providing a rating about the experience. Both the host and guest will leave feedback to the other so that both the parts have the chance to share their opinion, and this will be visible to all the users. It differs from verification because as it happens after people met, so it is a post-experience source of trust.

Vouching: it is designed to foster and promote a safe network of people within the community. Being "vouched" means that a one-way trust relationship and requires three other members to "vouch" for an individual: these people will guarantee for another user and it is useful to spread trusted relations among the community. The strongly social nature of the platform is also found in other sections of the portal: there is, in fact, an "Events" section, a tool for meeting and participating in events that are proposed. Within site, in fact, there are numerous groups divided into the various cities within which meetings, discussions, parties and other initiatives open to all are organized: joining Couchsurfing means joining a real community. From data in 2018, the platform counts roughly 12 million members, both surfers and hosts and operates in 200,000 cities across the globe.²¹

In this way, a sharing model is created, as a tool of mere sharing with the aim of offering an interpersonal experience and cultural enrichment, without any profit. The enabling technology thus creates new connections and defines a new mechanic which, once established, will subsequently become a real gain tool. The evolution of the idea of Couchsurfing regarding the concept of "HomeSharing" led to the creation of many other platforms like AirBnb.

Founded in California in 2008, the Airbnb platform is founded by Brian Chesky, Nathan Blecharczyk and Joe Gebbia. Airbnb has created a new category of rental accommodation: "short-term rentals" by filling a gap between residential rental accommodation, usually for a medium to long term and hotel hospitality. Airbnb has been a pioneer in the sector and is still

²⁰ <https://www.couchsurfing.com/about/safety/>

²¹ <https://www.chicagotribune.com/real-estate/ct-re-chicago-couchsurfing-hosts-20180909-story.html> Randy Shaffer 2018

established as the main intermediary of services through the peer-to-peer system that allows the meeting between the tourist and the landlord through PCs, smartphones and tablets. AirBnb transforms the idea of sharing into an income tool, which, through enabling technology, manages to operate globally. Airbnb has been valued at over \$ 35 billion privately.²² Since its launch, Airbnb hosted more than 400 million guests, and in 2020 operates in 191 countries with 150 million active users. Worldwide, Airbnb offers more than 5 million listings being present in more than 65000 cities.²³ As it starts to think about going public, a key question that investors should ask is how strong Airbnb's marketplace is. The strategy of the platform is very well defined, but it also had many problems to operate in accord with the various legal regulations. Airbnb led to the transformation of entire neighbourhoods into cathedrals for consumer and hit and run entertainment: offering unused spaces as an opportunity to get revenues becomes so simple that in an uncontrolled way historic city centres are transformed into fences for tourists. Depopulated neighbourhoods reduced to playgrounds, villages that become widespread hotels. Airbnb's digital capitalism contributes to the "gentrification" of urban space²⁴. All this happens because there is no specific regulation that can appropriately define and regulate the offer on AirBnb. Often innovation is marching faster than legislation, that inevitably lags behind revolutionary changes, which if at the first moment they might seem contained or irrelevant, once affirmed they become a real problem to manage. By adopting a business model based on a percentage share of the rent and allowing the transfer of money on its platform from customers directly to the hosts, Airbnb creates its own marketplace, which as soon as it started working was absolutely unregulated: in this way AirBnb adopts unfair competition behaviour compared to the traditional alternatives such as hotels or B&Bs. A well-known sentence in New York in 2013 fined Nigel Warren for \$ 2400 for subletting his apartment for less than 30 days without being present in the town and thus violating New York law, trespassing on illegal hotel practices.²⁵ The case triggered a series of chain reactions, with investigations and false requests for hospitality by the authorities to flush out those who rented the apartment in a serial manner without permission. From a practical point of view, those who offer accommodations on Airbnb perform the same service as hotels, hostels, bed & breakfasts without however registering their own activity and therefore not declaring the income generated by it to the tax authorities; also the other big issue concerns the safety of visitors: the rooms are not subject to quality standards and there are not a whole series of requirements that cannot be lacking in a hotel and extra-hotel structures such as an evacuation plan, smoke, fire prevention system, emergency exits. The

²² "Marketplace Checklist: How Airbnb Built A \$35 Billion Business On Its Brand Strength", Mike Ghaffary, *Forbes.com* 2019

²³ <https://www.statista.com/topics/2273/airbnb/>

²⁴ "The impact of Airbnb on our cities: Gentrification and 'disneyfication' 2.0" *LabGov.City*, Monica Bernardi 2018

²⁵ "Airbnb Wins New York City Appeal On Short-Term Rentals", *Forbes.com*, Tomio Geron 2013

portal defends itself by saying that hosts should know the law before trying their hand at the service and states that the host could "be subject to local and national taxes", adding: "We expect all hosts to comply with local regulations, contracts, tax authorities and any other laws applicable to their case. Each host is responsible for managing taxes and any tax obligations"²⁶. The platform declares to be only an intermediary, but it was inevitable that a dialogue with the different states was required: the platform worked on meeting points between its operations and various state laws, in order to standardize the various legislations, that are very different towards the community.²⁷

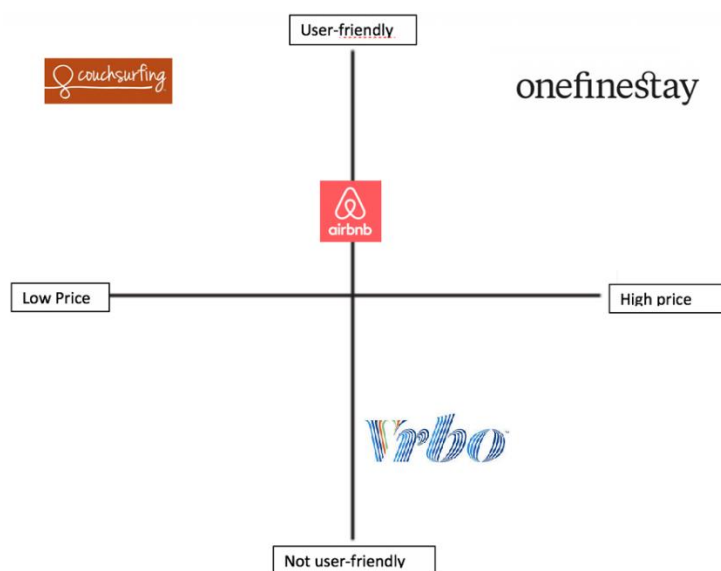


Figure 4

Defined the major differences in how AirBnb and CouchSurfing operate, we are going to analyze a positioning map of the main players in the home sharing sector: the enabling technology has led to the definition of platforms such as Vrbo, part of Expedia Group, whose offer is mainly based on offering a private home at a competitive price, without focusing particularly on the experience which you are going to live: the platform is simply an intermediary among the owner and the customer, and the focus is on the competitive price, without defining a particular experience. Other platforms such as Onefinestay offer the possibility to share a private accommodation but operating exclusively in the luxury category. In that way the platform offers a precise user experience, with a high price that competes with that of hotels: in this case sharing, usually, a savings tool becomes an enabling key to live a unique luxury experience. The adaptability of sharing economy in house sharing thus takes on

²⁶ airbnb.com/help/article/376/what-legal-and-regulatory-issues-should-i-consider-before-hosting-on-airbnb?_set_bev_on_new_domain=1588235930_MmEwYmVhNmY0ZTY5

²⁷ "Airbnb to America's Big Cities: See You in Court" Bloomberg.com, O. Carville, A. Tartar, J.C.F. Lin 2020

different nuances, offering different types of accommodation, ranging from "cheap" to "luxury" experiences.

1.3 Cultural Elements influencing Sharing Economy

The birth of online communities has allowed people who are unknown but who might share the same needs to come to get in touch in a simple, fast and safe way. "Let us start from the assumption that shared consumption is not a new idea. Anthropologists and developmental scholars identify the principle of reciprocity as one of the foundations of human behaviour. Until fifty years ago, exchanging tools, lending money, helping each other out among neighbours was common and well-established practice."²⁸ With collaborative consumption, the ways of exchanging goods and services are being redefined and, at the same time, new business models are taking shape and vigour. It is a constantly evolving reality in which innovation is constant. There are many reasons why people participate in the sharing economy, some given by the social context that shapes habits and needs, others induced by motivations of cultural type. Among the principal factors we can see:²⁹

- Green thinking: people have slowly become aware that continuing to buy for the mere desire to own, produces garbage. The prospect of sharing allows people to look with different eyes at what is already available or what others can provide. Sustainability is a factor that directs and multiplies the positive effects. Becoming greener proves to be an advantage not only for reputation but an element that reduces costs and risks, drives innovation, shapes the supply chain, the products, the business model: All in a long-term perspective that is rewarding. Sustainability is also a competitive advantage.³⁰

- Share to save concept: the credit and consumption crisis is a condition that, at different levels, tightens the plots of purchasing power and triggers the search for adjustment processes that make it possible not to completely renounce the experiences lived to date, but to enjoy them in a different and sustainable way. Economic saving always remains a good motive if we add the tendency to revalue accumulated and badly used goods and resources.

²⁸ "The Evolution of Cooperation." Axelrod, Robert. New York: Basic Books, 1984. Revised edition of 2006.

²⁹ "The sharing economy: Why people participate in collaborative consumption" J. Hamari, M. Sjöklint, A. Ukkonen 2015

³⁰ "Sustainability and Competitive Advantage" MIT Sloan Management Review, M. Berns, A. Townend 2009

- They need to feel like a community: sharing needs and solutions with a group of peers makes the activity fun. It rediscovers a social dimension made up of people, characters, humanity, passions and common interests.

- The long technological march: web and mobile access are the polar stars that today make it possible to create that universe of contacts and connections without which the sharing economy would not exist. In addition, the internet has introduced peer to peer mechanisms that fall on its own image.

The numbers of collaborative consumption are constantly growing and are obtaining increasingly large market shares.³¹ For many people today, collaborative consumption means optimizing, reducing, saving and earning. It is an economy that makes sustainability its flag, a new way of rethinking consumption in which the protagonist is the individual: the novelty aspect of innovation can be expressed in terms of knowledge, persuasion or adoption decision. "The adoption rate is the relative speed to the way in which an innovation is adopted by members of a social system, which is defined as the set of interrelated units that are involved in the resolution of a common problem to achieve a collective goal"³². Dissemination³³ is a process by which an innovation is communicated through channels over time between members of a social system: it is a special type of communication in which the messages are steeped in new ideas. Communication is, therefore, a process in which participants create and share information between them in order to reach a mutual understanding: therefore, the dissemination should be considered as a type of social change defined as a process through which there are alterations both in the structure and in the function of the social system. Rate of adoption of innovation with the concept of critical mass defines the S-Shaped Adoption Curve.

³¹ "What is Collaborative Consumption? Platforms and Participation of People in Collaborative Consumption – Impact of the New Technologies", Benson Nwaorgu 2018

³² "Measuring user adoption", Tomer Sharon, 2018

³³ "Dissemination of Innovation: The Will to Change an Organization", James W Dearing 2008

Figure 5: The Diffusion S-Curve (Rogers, 1995; Mahler and Rogers, 1999)

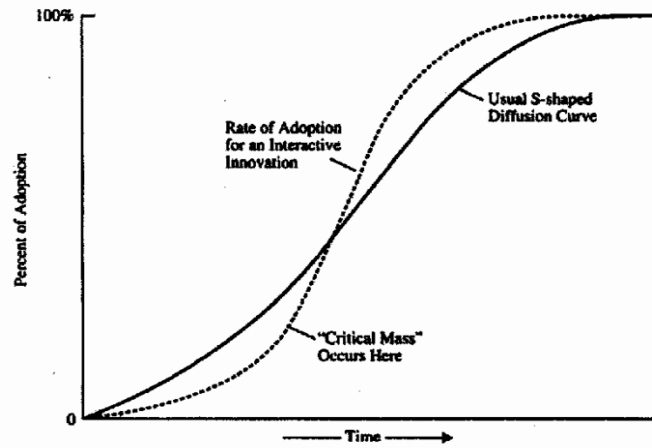


Figure 5³⁴

Achieving critical mass means that the diffusion of innovation has reached the threshold level that allows the transformation of the social system and therefore can be considered as the mechanism that allows a new social system to become self-sufficient and thrive. The concept of critical mass, therefore, plays a fundamental role for collaborative consumption because most types of the model can be represented as an innovation, and as such, need a level of diffusion such that the system becomes self-sustaining, which is precisely given by the critical mass. Critical mass is not a quantifiable level, but it can be made explicit through the concepts of evidence social and consumer choice.³⁵ This social test is closely related to behavioural context: there is a psychological effect that describes the behaviour for which individuals are often led to believe that the actions of others reflect the correct behaviour for such a situation: it indicates basically a kind of conformism. It is a primitive instinct and a kind of cognitive shortcut that allows individuals to make decisions by copying the actions or behaviour of others. The new behaviour in terms of adoption threshold level. An action taken by an individual makes such actions more attractive, making him or her exceed his or her level of threshold. These threshold effects³⁶ can be defined as the set of choices that maximize the utility of the individual when it depends on the choice of others. Due to the fact that one individual perceives the intrinsic value of being like others, as a part of a community which shares the same behaviours, values, cultures and resources. In the case of adoption of new behaviours, the value given by following other people's behaviour is not intrinsic, but rather derivative: looking at others to make a certain choice means that you are not going to take a high risk. The choices made by different individuals can strengthen each other: this means that even a subset of the participants, sometimes even a small subset, can cause a change in the system from one balance to another simply by changing their choices. In this sense we can explain the structural change in the

³⁴ "Diffusion of Innovations, 5th Edition", Everett M. Rogers 1962

³⁵ "Diffusion of Innovations, 5th Edition", Everett M. Rogers 1962

³⁶ "A Simple Model of Stability in Critical Mass Dynamics", MIT Journal of Statistical Physics, April 2013 Damon Centola

system of reference that has led to the emergence and sustenance of the paradigm of collaborative consumption dynamics: peer to peer practices of the digital sphere have opened the way to this new concept of consumption and redefined the society. Thanks to a combination of forces including digital distribution, research technologies and Internet penetration in our daily routine, the costs of connecting supply and demand have fallen drastically. The whole nature of the market has changed, which involves not just a quantitative, but also a qualitative change. The collaborative consumption system can only sustain itself and grow if there is a critical mass of users that provide the necessary assets to create an offer that is not only convenient, but that also satisfies the individual self-interest. The cultural perspective, based on the verification and functioning of the various services that an urban environment can offer, is based not only of the availability of the different tools but on their effective accessibility and usability that is also matter of study in order of the definition of indexes such as the quality of urban life.³⁷ From the analysis of the various situations of everyday life, it is now a matter of moving on to the chain of daily circumstances, focusing on the specific moments that define our routine: only with this point of view, we can mark the progressive construction of a new society that defines individuals, and then arrives at the definition of the conflicts as they are articulated, to find mediation in the case of not infinite resources: one of the main aspects that determine those moments is the transportation. The constant trend of sharing transport, the search for mobility tools for always shorter routes, are also a consequence of the adoption of the innovation by the individuals, of their ability to attend different contexts with alternating temporal rhythms, to develop multiple identities based on the different contexts, to feel part of different communities. To define how sharing economy reshaped the culture of the various individuals, we have to look to the emerging perspective that the quality of life does not correspond only to the possession of tangible and intangible assets, but means to live in a society where citizens play an increasingly important role in the decision-making process that concerns the efficient allocation and use of the community's own resources. The assumption of mutual responsibility and commitment by the individual in what we could define as a "sharing" in the process of social production and comforts. The themes of active participation, collaborative consumption and sharing are central in responding to individual needs, in order to optimize the consumption of resources for mutual welfare, establishing at the same time linking to common community perspectives.³⁸ The risk of such rapid change and the adoption of new standards is the possible cut of individuals out of urban well-being, as for example people living in the

³⁷ *Investigating Quality of Urban Life: Theory, Methods, and Empirical Research*, Robert W. Marans, Robert J. Stimson 2011

³⁸ "La qualità della vita delle città: metodi e risultati delle ricerche comparative" 1998 Giampaolo Nuvolati

suburbs, where the development of the sharing culture seems to work less.³⁹ The possibility of giving birth to initiatives promoted from below and supported by institutions seems to constitute one of the most viable ways to enhance local resources in a perspective of collaborative well-being. Everyday life practices that individuals, individually or in groups, put in place to interact with reality, especially the urban one that is characterized by high complexity, shape the culture of consumption of individuals: "the trajectories of rationality, efficiency and effectiveness of the activities in the daily moments, converge in solutions that support sharing economy models, which are sustainable and increasingly important elements for improving the quality of life in the new smart cities" ⁴⁰dominating above all the space-time constraints of living thanks to technologically advanced instruments. The theme of quality of life is combined with the reflection on the trade-off dynamics that characterize the lifestyle choices of individuals in terms of informed evaluation of the pros and cons with respect to the options available

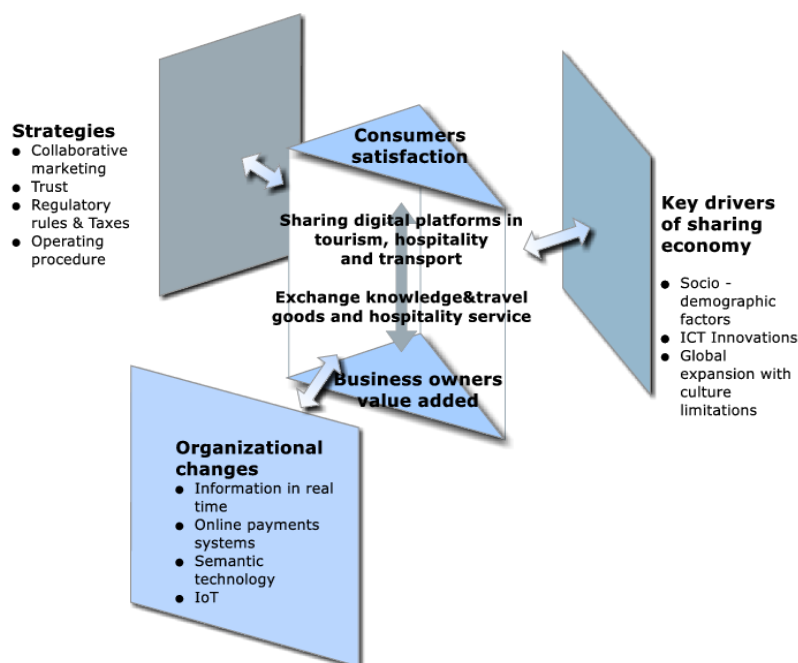


Figure 6

Dynamics based on the ability of individuals to acquire and process data, communications and information regarding their needs and possible solutions, put an individual in a constant research phase for always better alternatives. In that way, the choices and preferences of single individuals define the cultural aspect that develops and shapes the quality of life of the entire community. These collaborative dynamics also define many contradictions: first of all that the creation of communities strongly cohesive within themselves but closed outwards, characterized by a so-called "nimby (not in my back yard) orientation in which the search for

³⁹ "The Sharing Economy as a Means to Urban Commoning" IASC Thematic Conference on Urban Commons, Guido Smorto 2016

⁴⁰ "Smart Sustainable Cities: Definition and Challenges" Mattias Höjer and Josefin Wangel 2015

Figure3: "Complexity of a sharing economy for tourism and hospitality" Vasja Roblek Zlatka Meško Štok Maja Meško April 2016

the satisfaction of specific interests can often prevail at the expense of another neighbouring community."⁴¹, for example, people living in the suburbs or in non-profitable areas from the point of view of the shared services providers. Participation, in its many forms, from environmental associations to co-working experiences, today seems to be an important key for the development of well-being not only for the beneficiaries of these actions but also for those who implement them. Thanks to people who first see a specific need and develop or look for a provider that solves this problem, the whole community will be able to use it. Social innovations find greater opportunities for development and the cultural aspect is defined from strongly collaborative aspects, even if in some ways contradictory. The quality of life tends to improve thanks to the collaborative culture of the whole community increasingly, but the characteristics of immateriality face the general the solutions adopted on the needs of the greater part of the community, based on the common will of pure mass consumption and those solutions might leave part of the community out. Mobility in its intensification assumes increasingly irregular trajectories, and the results are a conception of quality of life based on the interaction of individuals that are more and more connected. Is not easy to define new maps for our daily life in this framework of growing complexity: Even if people apparently share a common culture, there are profoundly different specific needs, that share only the common will of enabling instruments to solve them.

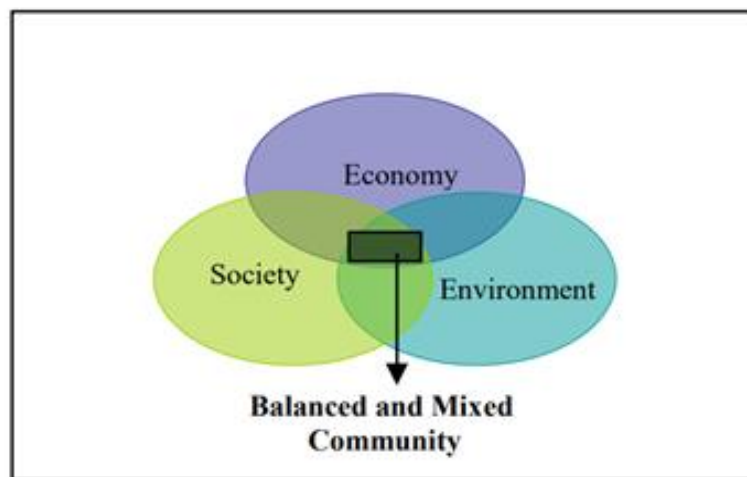


Figure 7

In the beginning, the solutions provided to communities were based on mere consumption and the needs of the majority, in order to create profitable tools, but the dimension in which they operated were separated. The dimensions that intersect and give life to a new model of a mixed and balanced community, where both the economic aspect that guarantees prosperity in terms

⁴¹ "Re-visiting NIMBY: From conflicting interests to conflicting valuations" V Eranti - *The Sociological Review*, 2017
 Figure 6: "The neighbourhood facilities and the sustainable communities agenda: an overview" R. Kasim, R. Ahmad 2013

of well-being and the social aspect that requires respect for all of the shared goods and resources are important. The evolution and the more and more intense use of shared solutions defined what are we going to call a "sustainable community"⁴²: Cities are centres for new ideas, trade, culture, science, productivity, social development and much more. However, many challenges persist in keeping urban centres as places of work and prosperity, avoiding the same tame damages to the territory and resources. The challenges posed by the urban environment include traffic, lack of funds to provide basic services, scarcity of adequate housing, degradation of infrastructure. The challenges that community face can be overcome optimizing the use of resources and reducing pollution and poverty, for a sustainable medium and long term perspective. The focus on the environment in recent years is highlighted: the common environment must be respected, and each individual must give its own contribution to safeguard it. Sustainable consumption and production aim to increase the welfare of the economic activities by reducing resource use, degradation and pollution throughout the production cycle, with the final goal of improving the quality of life. This involves different stakeholders, including business, consumers, policymakers, researchers, scientists, retailers, media and development cooperation agencies. To work is required a "systematic and cooperative approach between actors in the supply chains, from the producer to the consumer".⁴³ This also requires involving consumers in initiatives to raise awareness of sustainable consumption and lifestyles, offering them adequate information on standards and on what they consume, involving them, among other things, in sustainable public procurement. A first attempt to avoid waste is in daily consumption choices: we are going to see how new models based on the specific values of environment safeguard and reduction of emission emerged.

⁴² "Toward an interactional approach to sustainable community development" Jeffrey C. Bridgera, A.E. Luloffb 2017

⁴³ "Technologies for Supporting Reasoning Communities and Collaborative Decision Making" Yearwood John 2011
Figure 7

1.3.1 How TooGoodToGo sensitizes against food waste

"2.5 million tons of such products are thrown away annually in the Netherlands only".⁴⁴ With this statement, the Startup "TooGoodToGo" decided to develop a platform where a community can develop a model of "Food Sharing" to save food from being thrown away. An example is a pizza-sliced vendor that at the end of the day has some leftovers that should be thrown away. Thanks to the platform TooGoodToGo a person can buy with a "sight unseen" box called "Magic Box" that will contain a minimum guaranteed quantity of products. This box is a lot cheaper than buying the product normally, and customers have to book it hours before as the various shops put a limited amount of boxes available to optimize their offer.



Figure 8⁴⁵

The platform was born in Denmark in 2015, founded by Chris Wilson and Jamie Crummie, and then they spread their idea to various countries both European and non-European. The offer of the platform is based on the idea of avoiding waste, that in Denmark is an idea highly supported also by subsidies by the government⁴⁶. From a practical point of view, once you booked your "Magic Box" in a specific time slot, you will have to pick it personally as the app is not offering any delivery service, in order to focus on very competitive prices. Thanks to this initiative local HoReCa sector operators are connected with people that can monitor the offer that is continuously changing: every day the various shops, which range from restaurants to groceries, indicate what they expect to have leftover and define a quantity of box available. This is a win-win business model because customers can buy at a lower price up to 80%⁴⁷ off the retail price and shops can get some revenues from something that without the platform had no value. The price of a box ranges from 3€ to 5€ and is underlined the high quality of the products, also based on a review system made by the customers that, after they have made an order, they have to rate service quality and quantity of the box. The value proposition wants to speak mainly to

⁴⁴ <https://toogoodtogo.com/aboutus>

⁴⁵ <https://toogoodtogo.com>

⁴⁶ "Zero Waste Consumption & Production Report" Zerowasteurope.eu 2019

⁴⁷ "Too Good To Go Food App Review – Save Money and Reduce Food Waste" Sustainabilitymattersdaily.com, Admund 2020

Figure6 Ministry of the Environment of Denmark, Too Good To Go Pitch, mst.dk

environmentally conscious consumers: when you buy a Magic Box, the app tells you which amount of CO₂ you helped reducing buying on the app instead that in a traditional way. The community against the waste of food shares a common vision with the company that is to reach "a planet where there is no waste of food."⁴⁸ In order to reach this goal, the platform stimulates and inspires people actively to fight food waste, building a movement defined by some fundamental values. In addition to its direct impact, through the app, there is also an indirect impact, which is the result of four pillars, each with a different target to be reached at the end of 2020 that the platform proposes to the world on their website.

The first pillar is specifically addressed to families, considering that about 50% of food waste in Europe can be attributed to homemade behaviour. This pillar provides educational messages with advice and tips to reduce daily waste buying, preserving, and cooking better the food. The ultimate goal is to raise awareness about the value of food, making the problem of food waste more tangible. The platform in its offer includes groceries and supermarkets and encourages its customers to buy using the app instead of buying directly to the store. The second pillar is aimed at businesses, with a specific aim to go beyond simple retail or food services, but they want the suppliers of food to prevent the waste of food and the losses that occur at a higher level in the supply chain. "It consists of plans aimed at improving the agendas of sustainability of 38,000 partners that are already working with TooGoodToGo".⁴⁹ The third pillar is addressed to schools, aiming at the education of younger generations with the creation of educational tools containing exercises and guides for teachers to explain in an elementary way the impact of food waste in our society. The fourth pillar focuses on public institutions. The company wants to cooperate with the lawmakers to define a correct regulatory framework, aimed at reducing food waste and encouraging the shift towards a more sustainable system. The problem of waste is, in fact, discussed also by institutions such as the EU Commission that is trying "to set and reach specific goals to improve the supply chain of the all actors in the food sector that have can cooperate in preventing and reducing food waste, from those who produce and process foods such as farmers, food manufacturers and processors to those who make foods available for consumption such as hospitality sector and retailers and ultimately consumers themselves."⁵⁰ The platform has a very focused targeting segment: "The largest consumer base is presented by millennials, who are overall more aware and involved with the environment"⁵¹. Defined the value proposition and the customer side, we can see that also the value propositions for the

⁴⁸ <https://toogoodtogo.com/en-us/movement>

⁴⁹ <https://toogoodtogo.org/en/movement/businesses>

⁵⁰ "Food Waste", European Commission ec.europa.eu/food/safety/food_waste_en

⁵¹ "Green marketing: what the Millennials buy", *Journal of Business Strategy*, Leslie Lu, Dora Bock, Mathew Joseph, (2013)

suppliers is coherent: thanks to the platform they are giving a new life to products that would be thrown away. The only gain is not only the revenues from the sale but also the money saved from the disposal of the extra waste. Being acknowledged by this service, shops might improve their offer and try to exploit economies of scale, reducing the risk and the loss of getting scraps of food. The app and its functions are very much adaptable in the business operations and easy in use since the interface for the suppliers is very intuitive. TooGoodToGo also functions a marketing platform for suppliers that by being part of the app, can attract new particularly sensitive to some specific values.

Too Good To Go is still in a strong growth phase, and their business model is based on a percentage of the revenues that each supplier makes, and differ across companies.⁵² By gaining more customers, and at the same time working with more suppliers on the app, "TooGoodToGo will become profitable on the longer term. From their beginning, they used a very little marketing budget because their unique value proposition helped the platform to be known thanks to a strong online presence and word of mouth. The platform counts roughly 36 millions of magic box sold. The model had some problems in efficiency terms due to the fact that the platform had not been able to penetrate in small cities or rural areas, because they sustain that the demand in such areas is very different from the demand in big cities where the platform is working with no problems."⁵³ But even if TooGoodToGo started operating in Italy during 2019, this trend of "fighting waste" has already been faced also by other players in the food industry: Eataly promoted in 2015 a partnership with Cuki, firm specialized in food preservation also which made of sustainability part of his value proposition. This partnership promoted a "Save Bag" made by Cuki, an innovative project aimed at fight food waste and promoting responsible consumption.⁵⁴

Fighting food waste means understanding the value of food not only in the context of consumption, but it becomes a real moral and cultural duty, on which a market made up of conscious consumers with values such as the optimization of resources and the fight against waste. These values thus define a community that is committed to supporting its ideologies, making consumption choices that are consistent with its values. In this scenario, the words sharing economy and sustainability always move together, redefining the culture of consumption, in more and more innovative and widespread ways, thanks to the increasingly powerful enabling technology.

⁵² *"The entrepreneur stopping food waste" BBC.com, Adrienne Murray 2020*

⁵³ *"The food waste App that attracted 300,000 users within one year and aimed to save 1 million meals from the bin in 2019" BusinessInsider.nl Ties Keyzer 2019*

⁵⁴ *"Eataly e Cuki insieme nella lotta allo spreco alimentare" Eataly.net, 2016*

2 Evolution of the idea of Transportation with Sharing Economy

The urban transportation market is nowadays in constant evolution: looking at new dynamics, it acquires new shapes and interest, presenting itself as full of problematic profiles, due to the new challenges that have arisen with sharing economy, offering a proper solution that can solve the need. With the advent of the sharing economy, this market reshaped: as before there was only the chance of taking the proper vehicle or a public one like the metro or the bus, in this new economic system, goods and services are shared thanks to the enabling tools such as the internet. There are several innovations that the economy of sharing brings in the specific sector of transportations. First of all, we move from the traditional concept of property-purchase to a new concept of consumption and sharing, which allows temporary access to goods and services. This new model of the exchange between the service provider and the consumer leaves space for the intermediation and so to new agents that will manage the supply and demand of goods and services between consumers. The technological innovation is the enabling key of this market and the presence of online platforms that allow, first the intermediation. The sharing and consumption of good and services are a fundamental tool to ensure the system to exist: platform could not exist without internet and internet would be useless without the proper platforms, so they need to work together to create a new ecosystem.

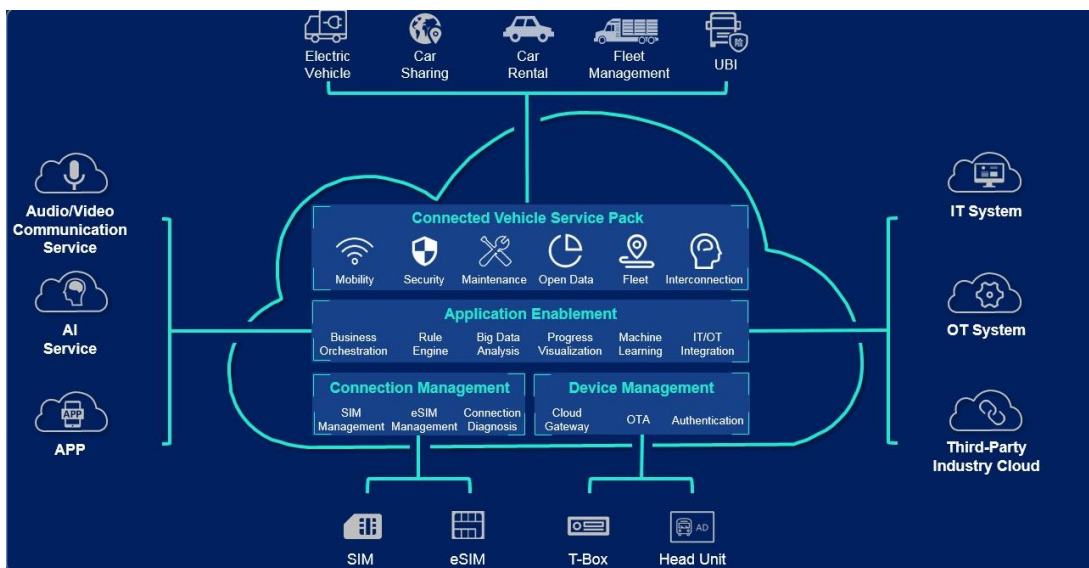


Figure 9 “Huawei Connected Vehicle Solution” ⁵⁵

⁵⁵ <https://www.huawei.com/minisite/iot/en/vehicle-networking.html>

2.1 Innovative Platform reinventing Peer-To-Peer transportation

The new ecosystem of common consumption is not made up only by the set of providers that put their goods or services to the use of the community, but also by private individuals willing to share their cars or their driving activities in favour of other private individuals. The intermediation, a fundamental prerequisite for creating the exchange of information and the sharing, is usually carried out by well established economic operators. With their software applications, which are used mostly on smartphones, put private individuals who express the need for mobility in direct contact with other individuals or firms willing to provide a solution. The direct relationship between private individuals, providing similar solutions to the one already existing as the peer to peer service, made both by platforms like Uber and traditional Taxi services, has created tensions in a market: almost everywhere regulations followed by the traditional service providers were not clear as the one that these new providers had to follow. The rules that characterise the traditional transportation sector have been put in crisis not only by the non-professional service providers but also by the increasing use and growth of online brokerage platforms. The traditional operators had to update and to adapt to the technological progress, leaving their obsolete channels and create innovative ones, as in the case of MyTaxi where traditional operators adopted the innovation, developed their platform and accepted to compete with similar services like Uber, even if the regulations that the parts have to respect are different.

The creation of new and innovative platforms led to social clashes that accompanied the rise of these operators in the market, with protests by the more conservative part of traditional carriers, that are worldwide still ongoing. The social instances projected themselves in the legal field, and the local administrations and the national courts became the coordinators of the debate, in a background of deep legal uncertainty, due to the lack of adequate regulation and with univocal interventions about the opportunity to support or slow down the economic progress of new operators, trying to create an environment where there is a regulatory framework of fair competition.

In this context, different states issued different local laws, introducing constraints and boundaries to the offer of non-traditional urban mobility services. In the specific case of Italy as an example, has been established in the beginning, that transport services could be provided on an exclusive basis by traditional carriers, as the taxi drivers and car rental with driver service in Italy defined as NCC. Regulators in such a way arose a barrier limiting the access to the market for operators that adopt the new technological mobility services.⁵⁶

⁵⁶ AGCM, "Segnalazione in merito alla riforma del settore della mobilità non di linea Rif S2782" March 2017

The basic concept of peer to peer transport is that on the one hand, there is a driver that is driving his car, and on the other hand, there are users who need a ride. Users book and pay for the ride from point A to point B. For each journey, the providers charge an amount that the user has to pay, depending on the time and the distance of the route. Thanks to enabling technologies, the traditional service provided by taxi evolved into platforms offering a system of review of the driver that is going to pick you up, a precise estimation of the cost of the route, the introduction of the possibility of texting with the driver. The redefinition of the market, due to technological improvements, also introduced new solutions that, based on the willingness of the users, will provide solutions to their need for mobility. Such solutions can be grouped in macro-categories based on particular features that characterise them:

RIDE SHARING: The concept of ride sharing has been extensively discussed in recent years and has evolved to encompass a series of car ride sharing activities, with very different modalities and purposes. For this reason, it happens that different activities, such as ride sharing and carpooling, can be confused. Depending on some particular characteristics of the sharing of a ride and in the modality of how it happens, we can distinguish the ride sharing for its main feature: the fact of being "on-demand". On-demand ridesharing is a commercial service that operates in urban areas. On the user side the ride sharing service overlaps with that of Taxis that performed the same service traditionally: innovative platforms such as Uber have had the ability, not only to offer contour services and to guarantee different standards of service but have also achieved the goal of doing it with a more competitive price. Ride Sharing is in most cases cheaper than a traditional private ride and also allows the user to know the cost of the ride when booking, while with the traditional taxi service the cost of the ride is given by the taximeter during the journey: a user will not have the opportunity to compare valid alternatives, since he does not know the price of the service he is using until he has to pay. By commissioning the work from the drivers and retaining a portion of the earnings on each route, the enabling platform is the central hub of the entire ride sharing activity. In "ride hailing" mode, the driver is a professional, and the ride is exclusive for the user that booked it and is therefore paid for by the only passenger that will get directly to the desired location without any deviations, so in the shorter time possible. The world's largest taxi sharing platform is "FreeNow," formerly MyTaxi operated jointly by BMW and Mercedes. Analysing the offer side there are innovative services such as UberPop that allow anyone with a car to offer rides to users with few minimum requirements, offering the same service as the professionals, but in a de-professionalised way "Instead of studying for years to gain "the knowledge," as London's black cab drivers call their intimate familiarity with the city's streets, they simply follow the on-screen arrows from turn to turn directed by distant satellites and unseen data. Their customers are, in turn, further alienated; the whole system is contributing

to the offshoring of tax revenues, the decline of public transport services, and the class divisions and congestion of city streets." ⁵⁷ Car sharing and carpooling are thus the two phenomena that support cities becoming increasingly smart and supporting sustainable mobility. To adapt to compete with such innovative models, the traditional operators of the taxi category had to cope with carpooling and ride sharing apps, starting to operate under platforms that coordinate them in a similar way to Uber. Generally in the world taxi service has to bear many costs such as purchasing a license, passenger insurance, cars must meet certain requirements, time service obligation, mandatory safety measures, but we see that those requirements for ride sharing operators are minimal or absent and often such situation has framed a regulatory gap that led to a market with unfair competition.

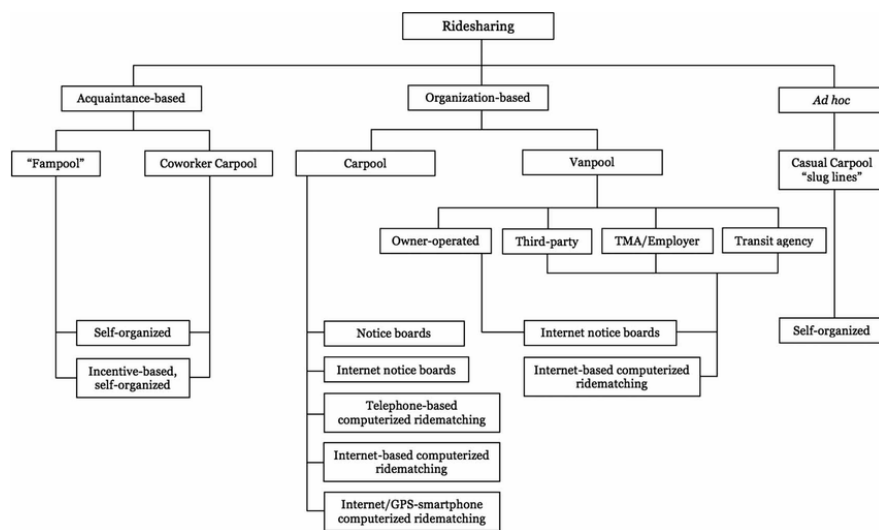


Figure 10⁵⁸ "Structure of Ridesharing"

CAR SHARING: simple definition of car sharing services defines them as "very short-term car rentals that a user uses for a single ride."⁵⁹ The price of a ride is based on time and distances, while the services can be divided into two macro areas based on how they operate: "free-floating" or "station-based" services. In the free floating case, users can take and park the car in different points of the city, within the delimited boundaries. In the case of station based modality, a user can take and have a car only in special parking stations that can be either garages or reserved parking spaces with special strips within the city. The car is usually booked through the service app on smartphones, and the ride begins with the "unlocking" of the car, which is done electronically and ends with the automatic closing of the car through the app on a smartphone. The best known and used carsharing platform is ShareNow, born

⁵⁷ *New Dark Age: Technology and the End of the Future*, James Bridle 2019

⁵⁸ Figure10: "Ridesharing in North America: Past, Present, and Future" Nelson D. Chan, Susan A. Shaheen

⁵⁹ <https://www.enterprise.com/en/car-rental/short-term.html>

from the merger of the carsharing services of BMW and Mercedes, respectively DriveNow and car2go.

CARPOOLING: Carpooling differs from ride sharing from the fact that it is about putting people in the same car, that will make a journey together. This prevents each of them from using their own car to make the same journey as they could make it in another person's car. This solution is definitely sustainable from several points of view ⁶⁰: it reduces emissions and protects the environment, improves the quality of life in the city by reducing traffic, and therefore travels time, and it is also a cheaper solution due to the split of the sharing of costs. With technological development, different digital platforms emerged: they can connect people who do not know each other but that have to go to the same place. These platforms also integrated a payment system, so who puts the car, is able to save money, reducing the expenses with contributions from the other passengers. Thanks to these innovative solutions, based on the sharing of the assets, there is a tangible reduction in urban traffic and pollution in our cities: despite the fact that many people are still anchored to traditional mobility and car ownership, the data show a constantly growing trend of adoption of shared mode solutions, particularly in large cities.⁶¹ Platforms performing ride hailing services have expanded its business by also operating in Ride Pooling mode: an example is Uber that in some countries, where is legally allowed, it also operates with services like UberPool. The most popular carpooling platform among private individuals is "BlaBla Car," while the most used corporate carpooling platform in Italy is JoJob.⁶²

⁶⁰ *CarpoolNow: Just-In-Time Carpooling Without Elaborate Preplanning*
Massaro, Garrola, Gawade January 2009

⁶¹ "Exploratory study of consumer issues in online peer-to-peer platform markets" EU Commission

⁶² <https://www.ilsole24ore.com/art/jojob-car-pooling-jojob-car-pooling-che-ha-tagliato-200mila-auto-pendolari-un-anno-ACPGXqAB>

2.1.1 BUSINESS CASE: BlaBlaCar

BlaBlaCar was born in Paris in 2006 with the initial name "Covoiturage.fr". It was founded by Frédéric Mazzella, Francis Nappes, and Nicolas Brusson with the desire to offer an alternative to traditional ways of moving people.⁶³ It quickly established itself as a new transportation system for many French people. “BlaBlaCar is the world’s leading long-distance carpooling platform – a global, trusted community of 90 million drivers and passengers in 22 countries. The platform connects people looking to travel medium and long distances with drivers heading the same way, so they can travel together and share costs. With the recent integration of a coaching network and a commuter carpooling service, BlaBlaCar aims to become the go-to marketplace for shared road mobility. “There are 25 million travellers per quarter and more than €1.4 billion saved by members since BlaBlaCar’s creation due to the efficiency that the platform provides. The average distance of a BlaBlaCar trip is 263 kilometres, and the community's kilometres shared are more than 30 billion since BlaBlaCar’s creation”⁶⁴. BlaBlaCar offers an online interface where users can see drivers with free seats in their cars for a specific destination to the one that a user sets.

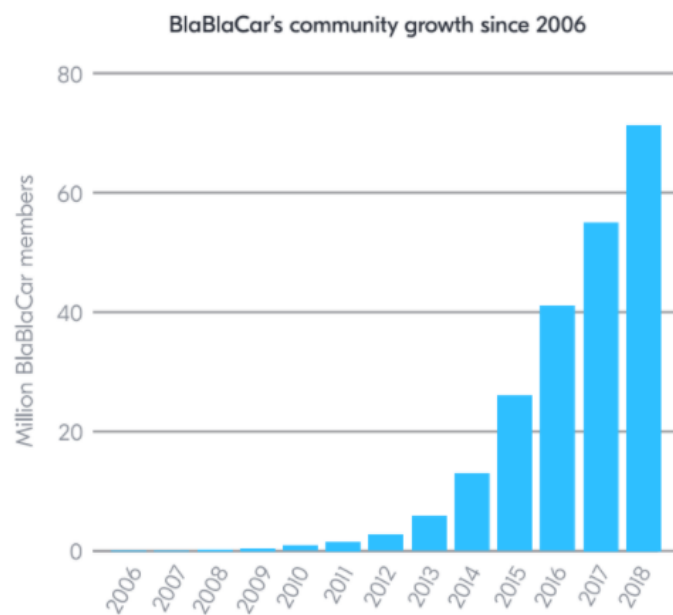


Figure 11: BlaBlaCar Growth⁶⁵

Users can use this system by connecting directly to the website or downloading the app for smartphones. The success of the platform is based on the strong social factor and on the idea

⁶³ <http://breakthrough.unglobalcompact.org/briefs/blablacar-born-to-ride-share-frederic-mazzella/>

⁶⁴ <https://blog.blablacar.com/about-us>

⁶⁵ Figure 11 “Zero Empty Seat” BIPE Research Study for BlaBlaCar

of sharing: when a new user joins the community, during the registration process, is required to distinguish her person, her preferences, thus allowing all users to be known to others: during the journey each individual will know whether the driver or another passenger is willing to chat or prefers to stay in silent. Users can also specify their favorite topics of conversation, to create targeted discussions with other people in the car and spend a comfortable trip. For every user that is going to share the car with other passengers, the system has developed a list of preferences related to the trip where they are asked to take a positive, neutral or negative position about some factors such as music, smoking, and the presence of animals. In such a way, people will outline their profiles in detail, and a user will already know the preferences of the other. The driver of the car will set a maximum space allowed for luggage, so user carrying some bags must specify the size of their baggage, whether small, medium or large, in order to ensure that all passengers have space for their personal belongings. Everything is thought in detail, and there is particular attention to the pre-experience factors that are very clear among the users, to avoid unpleasant situations during the travel. From a practical perspective, the BlaBlaCar manages the whole set of transactions between peers on the platform, that are defined as payments to cover the cost-sharing between the peers, but BlaBlaCar operating as an intermediary takes a fee that is among 10% to 12% of the total ride⁶⁶: even if it is a great social instrument, it is also a commercial company and aims to make a profit from the transactions it facilitates. BlaBlaCar adapts its business model to the countries where the platform operates in function of the size of the membership, carpooling habits and levels of acquaintance with the platform: generally, the platform starts with a free service and cash-for-rides model before shifting to a transaction fee model with booking and payments, managed online through the platform, but this model is sustainable only once a certain critical mass has been achieved. BlaBlaCar is, therefore, a clear example of a combination of different business models that evolve over time as the platform grows.⁶⁷ BlaBlaCar acts as an intermediary which actively matches demand and supply through search functions, filters, and instant messaging system, providing guidance for posting listings and checking the information of the users which help to facilitate the pre-screening through the verification of identity documents, to guarantee a security standard. The price that drivers can charge as a contribution to people that want a seat for a ride is relatively free: the platform provides only non-binding pricing guidance, based on an algorithm which takes into account the distance, the time, the number of seats that the driver wants to offer and more generally the prices charged by the other drivers. The review and reputation system, which are based on ratings and badges assigned by the platform, are another way to ensure a comfortable experience, to

⁶⁶ <https://insights.daffodilsw.com/blog/how-blablacar-works-business-model-and-revenue-streams>

⁶⁷ “BlaBlaCar: The Road Ahead”, Harvard Business Case, Karim R. Lakhania

guarantee the correct behavior of the users: there are also penalties and fees for cancellations. The platform manages payments and monitors the success of rides before releasing payments to drivers that provide the ride: the customer service, in fact, in case of problems, manages complaints and refunds transactions. To ensure security standards the platform offers the possibility to register an account with the social network Facebook and therefore allows users to access the site extremely quickly by logging in via Facebook, which will fill the form of the user's credentials automatically on Blablacar, ensuring the possibility of a double control over users. Users are classified on five levels that are beginner, apprentice, connoisseur, expert, and finally ambassador, on the basis of four factors that relate to the verification of the phone number, identity documents, email, and the completeness of the profile.⁶⁸ Another classification is made based on the feedback received: after ten experiences with positive feedback, a user is identified as "experienced users."⁶⁹

BlaBlaCar's Experience Levels

	Newcomer	Intermediate	Experienced	Expert	Ambassador
Verified email and phone	Welcome!	✓✓	✓✓	✓✓	✓✓
Preferences set		✓	✓	✓	✓
Profile photo added				✓	✓
# of positive ratings received		★ 1 rating	★ 3 ratings	★ 6 ratings	★ 12 ratings
% of positive ratings received		★ >60%	★ >70%	★ >80%	★ >90%
Seniority		📅 1 month	📅 3 months	📅 6 months	📅 12 months

Figure 12⁷⁰

The platform underlines in the whole registration process and booking pages the values on which the service is based, explaining that it works thanks to trust among users and to the mutual respect, creating an efficient tool that allows people to share experiences. The fundamental element is trust: by connecting unknown people, the platform is committed to ensuring, through the elaborate system of defining preferences, that the experience of the travel is as pleasant as possible. Blablacar becomes both a tool for sharing, saving, optimising consumption, but also a tool to meet new people and create new connections: the social factor as emerged in the surveys of the research conducted by Sharitaly⁷¹ is certainly a pillar on which the application is based. The relational element that defines the travel experience and the quality of service is judged by users in a positive way: it is shown that BlaBlaCar users

⁶⁸ <https://www.blablacar.co.uk/faq/question/how-do-i-verify-my-id>

⁶⁹ <https://blablacar.com/experience-level>

⁷⁰ Figure12: Blablacar.com

⁷¹ "Sharing or paring? Growth of the sharing economy" PwC Publications, 2015

would show a higher than average level of relational well-being, as well as a higher level of generalised trust in strangers. The richness of the relational dimension of BlaBlaCar users is an element that explains the strong interaction on the platform and could positively affect the propensity of more social people to use it. The functioning and the growth of a platform based on the sharing economy are based on the ability to build something more than a simple network that can generate transactions, but on the ability to create a distinctive brand that can convey a sense of sharing, that embraces a defined set of values, and that can transmit a real sense of belonging to people creating in that way a community. The common experience of the service becomes the first discussion theme on which users base their discussions. Specific consumption practices and choices based on sharing produce and generate forms of belonging that make the name of the company much more than a simple graphic logo, but a source of symbols and codes to feel affection, develop rituals and traditions, as well as its own ethics of responsibility towards other members. BlaBlaCar thus becomes a "living fabric" of experiences and practices that unites subjects and facilitates exchanges.

The platform shapes a social innovation framework based on the sharing principle that defines the paradigm of the collaborative economy ⁷²: the service that BlaBlaCar offers is not only innovative from an economic point of view, as users use it and benefit from it in terms of savings and flexibility, but also from a social point of view, because the relational dimension that characterises the service represents both a distinctive element of the service, a driver for users but, above all, an output generated by it.

BlaBlaCar, by redefining the medium-long range mobility service, in a sharing key, as a low intermediation model managed by peers, not only changes the way in which a company responds to the need for mobility but also fulfils the "re socialising" function that is one of the greatest promises of the collaborative economy narrative. This element is supported by data that show a representation of the exchanges on the platform that goes well beyond the simple dimension of the market and individual interest, building more than a digital network of transactions between strangers, but a real community, called "Support Based": It is a group of people who join together starting from a utilitarian and individual need but who develop all the typical characteristics of a real community.⁷³ Users adopt a consciousness, an identity linked to the group of people transacting on the platform, which is visible both in the processes of systemic trust towards its transactional model, but also in the forms of loyalty to the service that is more visible among the most active users have an even stronger level of trust in other people. The sharing of traditions and rituals shape the consumption experiences generated

⁷² *"Il fenomeno della sharing economy in Italia e nel mondo"* M. Manieri 2015

⁷³ *"Brand Community"* Albert M. Muniz, Jr., Thomas C. O'Guinn, Oxford Academic 2001

through the platform and help to generate meaning and affection among users by promoting their relationship as well as interaction: the sense of moral responsibility felt both shared among members is particularly visible in the practice of feedback as a Community standard but also as a recognised sanction mechanism. This would prove the development of socialisation by respecting a metric of collective value that takes responsibility through its good work for which personal compliance with the rules contributes to the functioning of the system for all other members. This community sense is linked not only to the use of the platform, but people are connected by universes of sense that encourage the interaction among subjects of this collective identity dimension, which share some important social characteristics: the young age and the high predisposition to interact through new technologies, but also the high level of cultural and social capital, which also lead them to develop a very high level of trust in other individuals, which find in the platform nothing but a way to be expressed and codified in a system of behaviors and transactions in which they feel perfectly comfortable.

2.1.2 BUSINESS CASE: Uber

The Uber case faces different dimensions that are transversal to different disciplines between law, market regulations, and technology, highlighting how obsolete legal regulations cannot keep up with the exponential evolution of the markets that is redefined by the technological process. At first is required a focus on the regulation of Uber in the United States, which has tended to be more open than the strict and restrictive regulation of the various European States. The main problem of the regulations worldwide is based on the charge of "Unfair Competition"⁷⁴ where a new entrant, like Uber, has to compete with the incumbents who were already operating in the sector, with precise regulations and obligations. From the European perspective in a matter of regulations, different rules are applied according to the different States, highlighting the lack of a central political power that can define a series of single regulations on which to operate, forcing the platform to offer different standards of service and to operate in a strategically different way according to the different European States.⁷⁵ The evolution of technology, which redefines market standards, needs adequate regulations that can move together with the technological process: the progress and innovation find themselves slowed down by the times of bureaucracy, depriving citizens of efficient tools.

⁷⁴ "Uber: the Future of Work... Or Just Another Taxi Company?" J. Adams-Prassl, University Of Oxford Faculty of Law, 2017

⁷⁵ "Digitalisation and working life: lessons from the Uber cases around Europe," Adam, Duncan ; Eurofound Publications, 2016

The Sharing Economy drastically redefines the modes of consumption, creating solutions both with social and economic purposes, and it is through this innovative way of consumption that Uber has redefined the transport market, becoming the main economic operator in the transport sector attributable to the sharing economy.⁷⁶ Immediately acquiring an operational relevance, Uber has aroused doubts about the regulations of the market of non-scheduled urban mobility, widening its borders, and often bypassing unclear regulations on certain aspects.

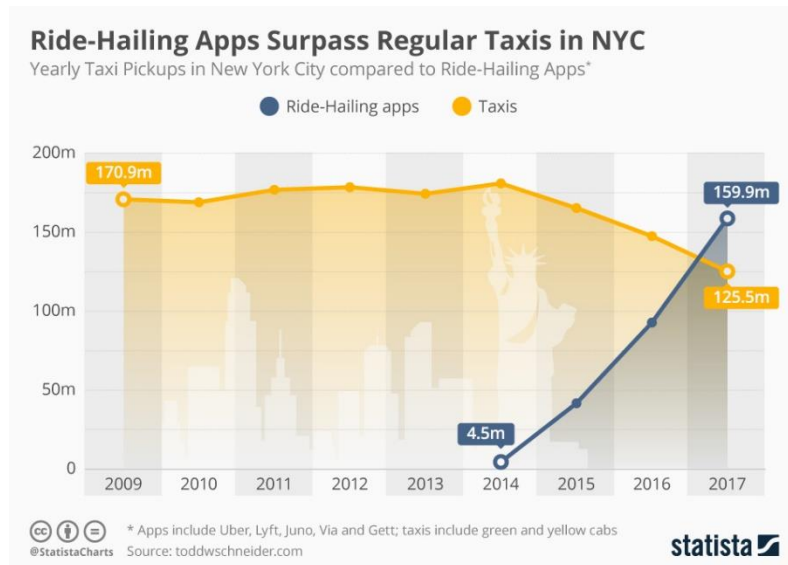


Figure 13 ⁷⁷

The entry of Uber has highlighted all over the world legal issues related to the nature of services and the respect of the rules of traditional operators in the sector, showing clearly the need to change and to update these regulations, to make the necessary changes in order to frame a context of fair competition. The issue of competition, in fact, becomes central to the debate: technology inevitably impacts the regulated markets for traditional carriers, who find a new competitor that manages to offer the same service, without having any obligation to comply with and succeeding in offering a qualitatively better service at a lower price. Uber in such way initiates a social process called "Uberification of Society" ⁷⁸ which radically changes the habits of movement of people all over the world, becoming an undisputed reference point in terms of innovative mobility and transport service provider. The platform operates through a mobile software application on smartphones. This app allows the meeting between demand

⁷⁶ "Scoping the Sharing Economy: Origins, Definitions, Impact and Regulatory Issues" EU Commission, JRC Technical Report 2016

⁷⁷ <https://www.statista.com/chart/13480/ride-hailing-apps-surpass-regular-taxis-in-nyc/>

⁷⁸ <https://mobileworldcapital.com/503/>

and supply of urban mobility: by creating a community, in which members are drivers on the supply side who are in charge of transporting users who need a ride and on the other hand there are users on the demand side, who require mobility services. Users that need a ride will be able to geo-localise themselves, check distances and waiting times for a ride, get in touch with the driver, and make a request for the transport service. In return for the mobility service provided by the driver, there is monetary compensation paid by the user. This fee that is paid only by credit card is determined by the platform and quantified with an automated algorithm according to the "surge pricing"⁷⁹ a mechanism, a methodology according to which the price of the service increases with increasing demand.

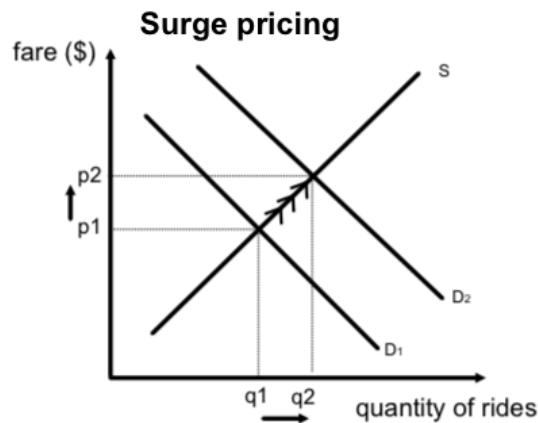


Figure 14⁸⁰

The payment is managed by Uber, which, first, collects the entire amount, then withholding apart, about 20%⁸¹, as compensation for the services. Only when the ride ends, and when both the parts make a positive review of the experience, the platform provides the payment to the driver for the remaining fee. At the end of the ride, both parties evaluate each other, creating a bilateral evaluation mechanism. In the presence of inadequate feedback levels, Uber may decide to deactivate the profiles of the community members, whether they are drivers or users. Through this feedback structure, a safety standard is created, that guarantees both drivers to transport safe people and users to have a driver guaranteed by others. The mechanism of sharing and mutual evaluation becomes for the whole community a security standard which is guaranteed mutually among the users themselves, through the enabling platform. Outlined the fundamental characteristics of the platform, the enabling technological element intrinsic to the way in which Uber exploits the sharing economy is evaluated, defining a new market framework, with new dynamics and new needs that must be regulated.

⁷⁹ <https://www.uber.com/us/en/drive/driver-app/how-surge-works/>

⁸⁰ <https://www.tutor2u.net/economics/blog/ubers-surge-pricing-and-economic-models>

⁸¹ <https://marketplace.uber.com/pricing/service-fee>

Uber redefined the sharing economy, defining four main dimensions: apps, communities, algorithms, and feedback mechanisms.⁸² The collaborative or sharing economy, in fact, has a strong technological connotation, as it is an economic system in which goods and services are shared among private individuals typically through the internet. Temporary access to goods and services takes place through internet-based platforms that allow intermediation between supply and demand: Uber through reputational mechanisms, that allow its members to evaluate each other and estimate the credibility of each member within the community, creates a new model strongly innovative, different from the traditional ways in which the services of non-line urban mobility are provided. This diversity, certainly combined with the economic interests of each category, makes traditional professional categories increasingly distant from the new economic group, dividing two worlds that seem irreconcilable and completely unable to communicate. Uber started its activity in the United States in 2009 in California. It followed a rapid expansion in the next years, going to operate in metropolises such as New York City, Chicago, Washington, then spreading in a more and more widespread way, gaining a wide success in most cities of the United States.⁸³ At the basis of the success of the platform, there is the enhancement of entrepreneurship, typical of the American culture, as well as economic factors such as the 2008 crisis in the United States: these elements have constituted the ideal socio-economic substratum for the rapid rise of Uber.⁸⁴

In general, the different regulatory models adopted globally for non-line transport services tend to be heterogeneous, but the problems that Uber had to face with the various local institutions refer to three specific characteristics that are more or less accentuated:⁸⁵

(i) the provision of a licensing system, which often appears to be quota-driven in absolute terms: a regulatory body determines the maximum number of licenses that may be distributed locally. The distribution of a license also includes a series of obligations and requirements, as well as an official registration in public registers, compulsory driving tests to be passed, certain seniority in driving: acquiring a license thus presents a genuine professional qualification path that needs to be followed.

(ii) The existence of pre-defined tariff regimes, which are defined by regulatory bodies, which define the maximum and minimum limits and certain predetermined prices for 'sensitive' routes, for example, a ride to the airport from the center of a city. The pre-determination of fares, whether maximum or minimum, has an impact on the whole transport market by defining the general pricing of the non-scheduled transport sector.

⁸² "Uber: Aggressive management for growth"; *The Case Journal*, Jay O'Toole, Brett Matherne 2017

⁸³ <https://www.uber.com/en/newsroom/history/>

⁸⁴ "Uber: Innovation in the society"; Schneider, Henry 2017

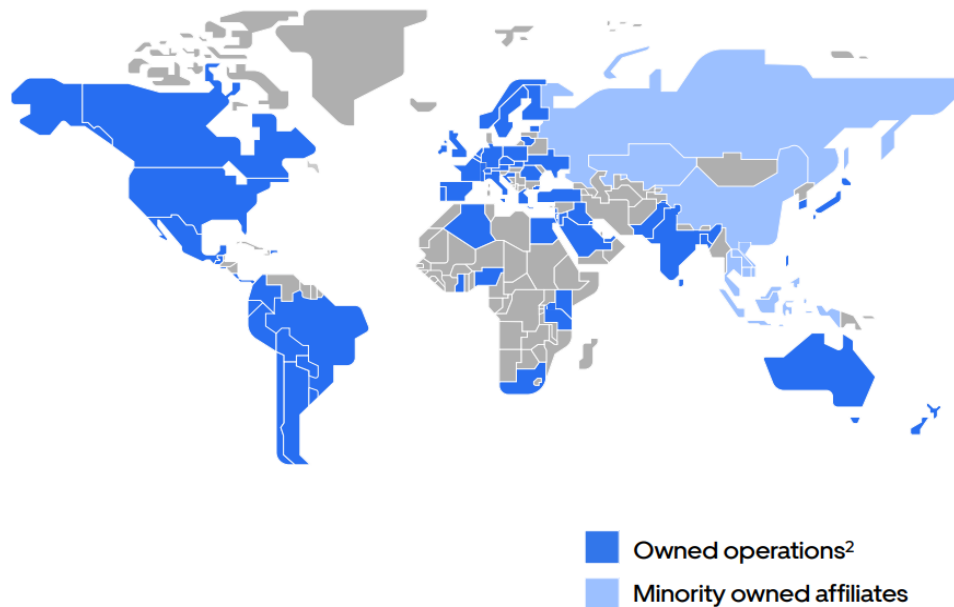
⁸⁵ "Il caso Uber. La sharing economy nel confronto tra common law e civil law" E. Mostacci, A. Somma 2016

(iii) the presence of service obligations, such as that of providing the required activity without being able to refuse or that offering mobility services also to residents of disadvantaged areas. Even in the case of an unprofitable activity, the traditional provider cannot refuse because of legal obligations, so it will not be able to give up a less profitable race for a more profitable one but will have to accept them all indiscriminately.

The advent of Uber has redefined the fees that had been defined in agreement with the traditional operators: despite the fact that Uber is not the owner of the cars, but is only an enabling platform that carries out an activity of intermediation, it ends up satisfying with its offer the same need for urban mobility that is provided by taxi drivers. Globally, the main accusation made against the new entrant is the configuration of a hypothesis of unfair competition, given the similarity of the nature of the activity carried out, which would not be dissimilar from the one performed by traditional carriers, arising from the competitive advantage obtained as a result of the lack of homologation in terms of licenses and standards of service with respect to the transport service of the traditional carriers and, therefore, the violation of the rules relating to the taxi service.⁸⁶ Another accusation made at the new entrant is that of not being part of the sharing economy and of not being connoted by the spirit of sharing that characterises instead the platforms that can be traced back to this label, since the platform becomes a real service provider, operating not by virtue of the common good but by adopting profit margins, thus becoming a purely economic instrument where sharing is not the founding element. With reference to this accusation, the municipality of Anchorage, for example, has contested the legitimacy of the service before the Municipal Superior Court, asking it to impose the performance of the activity in conditions of substantial gratuity, therefore without profit margins for society.⁸⁷ This request, which was accepted by Judge Micheal Corey of the Anchorage Superior Court and which could not avoid involving inevitably also the choice of Uber to inhibit the service in its territory.

⁸⁶ *"The service provided by Uber connecting individuals with non-professional drivers is covered by services in the field of transport, Court Of Justice" EU Union Press Release 136/17*

⁸⁷ <https://www.govtech.com/applications/Judge-Sides-with-Anchorage-in-Limiting-Uber-to-Offer-Only-Free-Rides-.html>



1. Category position refers to share of the ridesharing category, not including the wider market of local transport options (taxi, public transit etc.). Percentages are based on our internal estimates of Gross Bookings using available information as of Jan 31, 2020
 2. Includes countries acquired as part of Careem acquisition where regulatory approval has been obtained

*Figure 15 Worldwide Uber operations map*⁸⁸

In its history, Uber has accepted different reactions from various legislation, which have been, depending on the cases, favourable and aimed at not hindering the entry of the new operator or hostile to the rise of the new entrant and inclined to extend to it the discipline already applicable to traditional carriers as happened in New York City ⁸⁹. Further legislation has sought a meeting point to create a third intermediate way, which could regulate the new platform and, at the same time, avoid burdening it with constraints that would have prevented its effective operability. This more moderate option has been implemented by various States, as the platform is judged theoretically capable of balancing the interest in technological innovation and market development in the sense of efficiency, providing a tool of interest for the users: through specific regulations for the Uber carrier, an attempt has been made to guarantee users standards of various kinds, relating both to their safety and to the desire to prevent price gouging phenomena⁹⁰ to their detriment. States such as California, Nevada, and Massachusetts in particular, have created, starting from 2013, the category of the Transportation Network Companies (TNC) ⁹¹, which includes Uber and all those platforms that provide mobility services through technological tools, linking to this label a legal discipline aimed at allowing the economic advancement of the new entrant, while respecting

⁸⁸ Figure 15 Uber.com, Company Report 2020

⁸⁹ <https://www.nytimes.com/2018/07/27/nyregion/uber-nyc-cap-city-council.html>

⁹⁰ "Everyone Hates Uber's Surge Pricing – Here's How to Fix It" Utpal M. Dholakia, Harvard Business Review

⁹¹ <https://www.cpuc.ca.gov/tncinfo/>

certain constraints to guarantee the users' safety standards with provisions that establish additional minimum requirements and more standards of control for drivers or provisions that set maximum limits to price increases. The overall framework that Uber goes to respect in the different states follows common general lines, but with individual facets according to the different states, also deriving from the legal structures inherent to the regulation of traditional services and the decisions taken by the different public decision-makers in relation to the Uber phenomenon. The various decisions revolve around a guideline undertaken by the various States, which, however, seeks to support and enhance economic individualism, innovation, and the development of new technologies. This intermediate route seems to evoke and recall the road of light regulation, which has worked as in the case of TNC.

In the city of New York City, Mayor Bill De Blasio has proposed the introduction of a licensing requirement for Uber drivers as well, suggesting the idea of setting up a regulatory system for them to enter the market.⁹² This proposal, which was not appreciated by Uber, led the platform to show in its app, next to the ordinary driver display mode, a fictitious "De Blasio mode," in order to show the user what would have happened if the Mayor's proposal had been accepted, with the disappearance therefore of the cars in circulation and the communication of a waiting time of 25 minutes.⁹³

The European scenario for non-scheduled urban transport appears to be highly regulated. The legislative framework tends to be characterised by licensing systems, quotas, administered fares, public service obligations, and strict distinctions between taxi and chauffeur service. The advent of Uber in the most important cities of Europe has been followed, in fact, in almost every context, first by the claims of the traditional operators of the sector, then to the measures of the various administrations involved, to reach individual and different decisions taken by the national courts, that almost never accepted the requests of the exponents of the new economy. This attitude of closure has not only affected the Uberpop service, which, according to the regulators, is too far from the traditional service, since it is unable to offer adequate protection measures, but also the UberBlack service, despite the fact that it has been accepted and regulated in other states. In France, a country in Europe where Uber took its first steps in Europe, there is a regulatory system full of rules and constraints, especially following the adoption of the "Thèvenoud law"⁹⁴, which re-regulated the non-scheduled urban transport sector by making several amendments to the original transport code. In these provisions and in those contained in the European antitrust regulations, the Cour d'Appel de Paris has

⁹² <https://www1.nyc.gov/site/tlc/businesses/high-volume-for-hire-services.page>

⁹³ <https://techcrunch.com/2015/07/16/uber-launches-de-blasios-uber-feature-in-nyc-with-25-minute-wait-times/>

⁹⁴ <https://www.reuters.com/article/us-eu-uber-tech-france/ec-to-challenge-french-taxi-law-after-uber-complaint-idUSKCN0XG0Z0>

prohibited the provision of the Uberpop service, considered a form of unfair competition.⁹⁵ The situation in Germany, where there is a highly administered market, is not too dissimilar: both the administrative and civil parties have placed themselves in a position of clear closure to the new market player.⁹⁶ In the Netherlands, despite the fact that it is a country characterised by a more liberalised system where, although there is a licensing system, there is no quota system, the Uberpop service has been inhibited.⁹⁷ A closing attitude is also found in Belgium, following several rulings by the Tribunal de commerce de Bruxelles.⁹⁸ With regard to Spain, there is a market full of rules and a hostile jurisprudence that inhibits the services offered by the new entrant. In Spain, the approach of the regulators has been different: the judges decided first to interpret the nature of the activity carried out by Uber in order to understand whether, behind the guise of a digital mediation platform, there is, indeed, a substantial transport activity. The situation in Spain is further tangled up by the fact that in the same country there are even several jurisdictions: In the city of Barcelona the service was definitively suspended on 31 January 2019⁹⁹ while in other Spanish cities like Madrid the service was able to meet the needs of taxi drivers, showing a strong openness to dialogue and collaboration. In November 2020 a big step was marked: Uber has included on its app the possibility to book traditional taxis. Despite the constant clashes between the traditional incumbent and the innovative new entrant, cooperation has become possible.



Figure 16 Uber cooperates with Traditional Taxi¹⁰⁰

In Europe, the Courts have frequently unmasked the reality of things, strong of a right that looks more and more to the substantive than to the formal one. Only by taking over in the activity of Uber a mobility service; in fact, they have been able to pronounce themselves in

⁹⁵ <https://www.bbc.com/news/business-36491926>

⁹⁶ <https://www.loc.gov/law/foreign-news/article/germany-federal-court-of-justice-prohibits-uber-black-app/>

⁹⁷ <https://www.dutchnews.nl/news/2015/11/uber-drops-uberpops-taxi-service-in-the-netherlands/>

⁹⁸ <https://www.brusselstimes.com/news/business/52840/uber-banned-by-brussels-judge/>

⁹⁹ <https://www.bbc.com/news/business-47071710>

¹⁰⁰ https://english.elpais.com/elpais/2019/11/26/inenglish/1574782401_808801.html

the sense of unfair competition. In the United States, otherwise, economic and technological development has been supported, also given the greater sensitivity that competition law directs towards consumers and not competitors: in this way, a fragmentation and multidirectional of the services offered by the platform prevails, however, managing to operate in a regulated manner on the territory. European law has recently taken an interest in the nature of the services provided by Uber, in relation to the decisions taken by the Spanish legal system.¹⁰¹ In Italy, observing the national legal system, there is a market characterised by a very pervasive regulatory system traditionally reserved for authorised professionals in the sector: taxi drivers and private drivers defined "NCC."¹⁰² As far as the taxi service is concerned, the public nature derives from the presence of uneconomic obligations that the drivers would not assume if they were free to act according to a pure market logic: tariff obligations, performance obligations, space-time continuity obligations of the service. The definition and regulation of the NCC service do not present the obligations of public service, since these are non-compulsory, non-continuous mobility services, freely determined by the parties. This private transport activity is strongly characterised by areas of autonomy and defines only some uneconomic obligations for NCC drivers: among them, the obligation to return to the depot after each transport service.¹⁰³

The Italian legislators have decided to strictly regulate the non-scheduled transport market: in particular, through the establishment of a strict market entry system, based on the ownership of taxi licenses and NCC authorisations through the setting of a quota. In Italy, after the advent of Uber in the market, there have been different regulatory intervention to regulate the operations of the platform, trying to solve the conflict between traditional carriers and the new entrant. The interventions of the legislators concerned both the Uberblack service and the Uberpop service. However, only with reference to the latter service, the ordinary judge configured a situation of unfair competition and inhibited the activity.¹⁰⁴

With regard to the UberBlack service, the judges ruled the obligation to return to the depot for Uber drivers, as ruled for the already regulated NCC, adopting a strong uneconomic constraint for the service that the Uber platform wants to perform. The court judged "irrational in the light of technical progress that, after the conclusion of a race, the driver, who immediately afterward receives another request electronically, must necessarily return to his garage [...] instead of directly reaching the waiting customer"¹⁰⁵. The latest decision took by the Constitutional Court during March 2020, has marked an important point in favour of NCC

¹⁰¹ *"Asociacion Profesional Elite Taxi Vs. Uber Systems Spain SL" EU Sentence C-434/15*

¹⁰² https://www.uber.com/it/blog/milan/guidare_con_uber_in_italia_17/

¹⁰³ <https://www.gazzettaufficiale.it/eli/id/2020/04/01/T-200056/s1>

¹⁰⁴ <https://giuricivile.it/caso-uber-italia/>

¹⁰⁵ <https://www.ilsole24ore.com/art/ncc-senza-obbligo-rientro-rimessa-altri-due-anni-protesta-taxi-AByrE2dB>

service active in Italy.¹⁰⁶ With a new judgment, the Council has, in fact, established that the NCC are not obliged to return to the remittance at the end of a ride before starting a new one. The Court held that the obligation to run back empty is «disproportionate» in order to ensure that the service is aimed at a specific and not undifferentiated set of customers. This need can, however, be respected even without requiring vehicles to return to the place where reservations are collected but making it necessary to use the technological tools to use the service that is available only to the users which register and accept the regulations of the Uber platform, without interfering with the work of traditional taxis. Such judgment opens up for a real opportunity for Uber to work in Italy, until further changes. The aim of this measure was to avoid the overlap with the taxi service and to separate the economic viability of the activity carried out by taxi drivers, in relation to the quota system and the strict professional requirements required to obtain authorisation. These are measures which, while aimed at achieving higher safety standards both for the passenger and for the community in general, also represent protection for traditional operators, creating entry barriers for Uber.

Beyond the motivations found by the courts worldwide, the focal point underlying the considerations developed in each ruling is always the same: the nature of the services which Uber really offers. What is disputed, in fact, is that Uber represents a mere intermediary between supply and demand of services: the company, even if they do not own any car, determines the averages of the payments, the standards for their drivers, retains a share from the transport services rendered by the drivers and it would seem to constitute a single economic unit. The effective operating market must be defined taking into account the type of customers, who are the competitors which offer the satisfaction of the same needs, the fungibility of the services: these aspects lead to a new framework with new operators in the urban mobility market, in competition with traditional carriers. Therefore, the activity carried out by Uber is not in a third party position with respect to the operating parties, and instead, the platform offers, together with its drivers, a real transport service.¹⁰⁷ Such conditions are enough to integrate the extremes of unfair competition, due to the violation, by its drivers, of those provisions relating to the methods of entry into the market and the performance of the service to which taxi drivers and traditional operators are otherwise required to comply. The European Court defined the position of Uber as a transportation platform, but without denying that Uber is an intermediary, established that the platform "creates at the same time an offer of urban transport services which it makes accessible in particular by means of IT tools [...] and whose general operation it organises".¹⁰⁸ was thus defined by the court as meaning that

¹⁰⁶ *Corte Costituzionale, Sentenza n. 56 26 Marzo 2020*

¹⁰⁷ *“Asociación Profesional Elite Taxi V Uber System Spain SL”*; *Judgment of the EU Court, 20 December 2017*

¹⁰⁸ <https://curia.europa.eu/jcms/upload/docs/application/pdf/2017-12/cp170136en.pdf>

without such application, drivers would not be induced to provide transport services and persons wishing to travel in the urban area would not use the services of those drivers. These statements thus highlight the instrumental relationship that exists between intermediation and mobility, such that the latter would not exist if there were not the former and on the basis of which it does not appear possible to deny a relationship of connectedness between them.

Uber exerts a decisive influence on the conditions for the provision of drivers' services by setting prices, intermediating payment, controlling drivers' behaviour, and being able to decide to deactivate their profiles. These characteristics strengthen the instrumental relationship between intermediation and transport, clearly showing the indissoluble relationship created by the enabling technology. In the absence of European provisions relating to urban transport, the Court can only conclude by stating that, as things stand at present, "it is for the Member States to regulate the conditions for the provision"¹⁰⁹ of services formally linked to intermediation and mobility.

The Uber case fully represents the impossibility of legislation to be modern, "in step" with the market and technology: as also in other sectors, increasingly disruptive technologies tend to age the rules, going to develop new ways of offering goods and services, leading to the emergence of new phenomena, which are not always able to fit into the traditional legal categories. For this reason, the law tends to become obsolete. In a technology based society, the market rapidly generates new giants, that base their economic power precisely on technological innovation. The legal solutions that have emerged in Europe do not leave Uber the space to express itself as it could and lacks a valorisation of innovation, which is based on principles such as the already noted unfair competition, also on the lack of logic of sharing, on the lucrative purpose of the new entrant, on the first-order role assumed by the economic operator in organising the services, on the risk of opportunistic behaviour linked to the price mechanisms defined by Uber, on the instances connected to the safety of the users and of the generality of the parties involved. In this context, defined by decisions taken at the jurisprudential level, a high barrier can only emerge from case law, which goes to define the choices related to the competitive structure of a market. The best way out of this is to highlight the opportunities related to the revolution that platforms such as Uber, which are linked to the development of the market and efficiency, is able to offer users a quality service at a low price. Uberpop represents an intermediary service between non-professional drivers and users that is, evidently, the one that has generated the greatest problems, due to the greater detachment that characterises its offer compared to that traditionally made within the aforementioned market. In this case, in fact, the possession of a smartphone with the Uber app, a 5-door car

¹⁰⁹ <https://www.uber.com/legal/en/document/?country=united-states&lang=en&name=general-terms-of-use>

registered for no more than eight years and a driving license not suspended for at least three years is sufficient to become a driver of Uber, providing a transport service comparable to that offered by traditional carriers ¹¹⁰ : this scenario of freedom with minimal requirements, without dedicated authorities that can control, create a utopic environment for such kind of service to be performed by Uber, in a rigid legislative framework such as the European.

2.2 Car Sharing Services: from carmakers to mobility providers

The so-called shared mobility, better known as "shared mobility" is today a much-debated topic in the transport sector and is one of the solutions suggested by the European Commission to orient mobility towards greater sustainability ¹¹¹ is one of the components of the so-called "sharing economy. The services provided by sharing economy can be summarised as an access-based economy where the sharing aspect becomes secondary because the market is mediated by an intermediary company that will make consumption possible.

FIGURE 2

Fields of play: Mobility services OEMs could explore

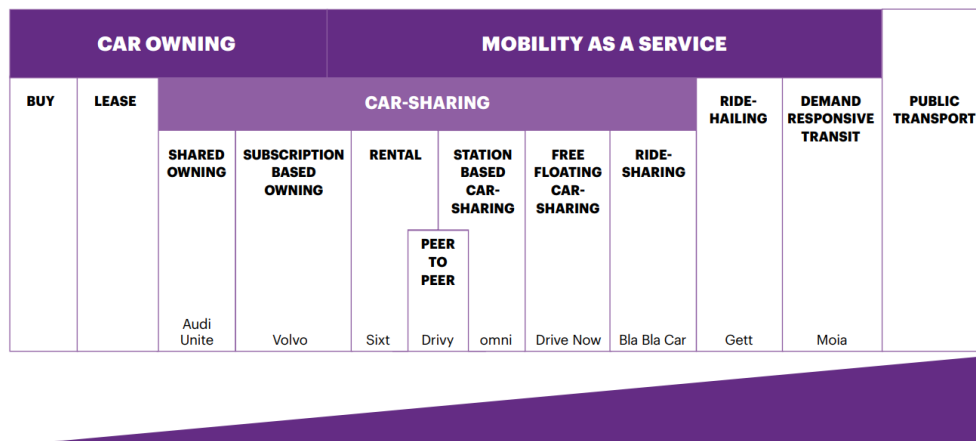


Figure 17¹¹²

We are thus going to make some reflections on the added value of the mobility services within the framework of transport policies that aim to support greater sustainability in the daily transport routine of citizens. The sharing economy has strongly redefined some traditional

¹¹⁰ "UberPop, UberBlack, and the Regulation of Digital Platforms" EU Case Law, Philipp Hacker

¹¹¹ The European Commission's science and knowledge service Joint Research Centre Shared mobility, Publication Office of The European Union

¹¹² "From Owning to Using" Accenture Report 2018

sectors, such as the hotel and taxi industry. A car becomes a purely logistic tool, with the aim of moving from one point to another and is not required anymore to own a car to use. Users not always tend to trust shared economy companies until they are properly regulated: consumers are willing to use shared services provided by these new economic models, but especially in the automotive sector, these must ensure the safety standards that traditional alternatives respect.¹¹³ In the transport sector, the sharing economy is gaining more and more ground, but it should not be forgotten that it is not a new model, but rather the evolution of the traditional "car rental" which has become "car-sharing" and which, in turn, has gone from renting on a daily or hourly basis to an omnipresent and instantaneous system which allows a vehicle to be used for even a few minutes: all this is done without having to deal with human operators or without signing every time a new contract; all the operations happen in a fully automated manner. Such a change has led automotive companies to rethink their role and image, becoming, in addition to vehicle manufacturers, suppliers of mobility services. The most active companies in this transformation are Mercedes-Benz with Car2Go, General Motors with Lyft, Maven, Turo managed by Google, Citroen with Multicity, BMW with DriveNow, Ford with Chariot and Audi with Silvercar. Also, traditional car rental companies have tried to keep up with the times, updating and expanding their business, extending it in ways similar to today's sharing models: some examples are "Enterprise" with "Car Share" and "RideShare" and the leader of traditional car rental sector Hertz with the service "Hertz24/7" which offers hourly rates for the car that were used to be rented for a minimum of one day.¹¹⁴

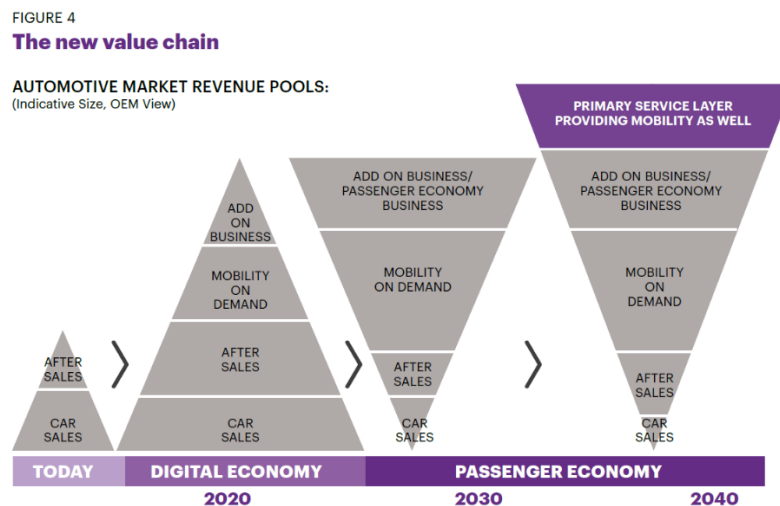


Figure 18¹¹⁵

¹¹³ *Uber Vs. London – The Courtroom Battle The World Is Watching*, Forbes.com

¹¹⁴ Hertz24/7.com, About Us

¹¹⁵ "From Owning to Using" Accenture Report 2018

The shared mobility sector has begun to raise the question of the profitability of the services rendered, and the definition of the most suitable business model to adopt has become a priority for all companies operating in this sector: shared mobility is continually challenged by the dynamics of the context in which companies face several difficulties both for the complexity of predicting customer demand and for the use of digital technologies that are constantly changing. As new innovative tools are provided, it is not easy to define how consumers will approach such solutions. Economic and regulatory constraints are further slowdown in the process of adopting new solutions. Like the other traditional on-demand services such as taxis, rental with and without the driver, all sharing mobility services are characterised by being available on request of the transporters, according to routes and timetables established from time to time. However, compared to the latter, sharing mobility services are enabled by new digital technologies that allow access to innovative platforms that allow users to book a ride or rent a car. It is due to this fundamental technological revolution that some niche services have begun to impose themselves as forms of mass consumption, that reaching critical masses and the possibility of economies of scale, the various mobility services have undergone a radical transformation, evolving and becoming true mobility providers. The characteristics that distinguish the innovative sharing mobility services from line services and traditional on-demand services are various, for example, the reticular: digital platforms allow to create relationships and exchanges across physical boundaries, faster and more effectively than traditional services, which tend to operate on pre-configured and longer distance routes. Sharing mobility services thus allow greater interactivity: by using digital platforms, users of shared mobility services not only have the possibility to use an asset but also to modify the service offered, according to their needs. An example is the Scooter sharing service "Acciona," which applies different rates according to the service to be used: if the user travels on an urban stretch with a high traffic density, he can opt for payment of € 0.29 per minute with a maximum vehicle speed of 50 km/h. If the section to be covered allows higher speeds, the user can select the S model at the cost of €0.34 per minute for a maximum speed of 80 km/h or the S package at the cost of €0.40 per minute to reach a speed of 100 km/h.¹¹⁶ By defining different options for the same vehicle, the user will be able to model the offer according to his needs. Sharing mobility platforms are also based on social factors such as collaboration: through the formation of an active network of users, coordination and optimisation practices between individuals are created: the users are asked to perform such activities and are directly involved in the service, and the choices of a user will impact on the availability of the asset for another user. The various sharing mobility platforms adopt incentives and monetary

¹¹⁶ <https://movilidad.acciona.com/e>, FAQ, Prices

rewards for users who decide to collaborate in some way. The car sharing platform "Enjoy" offers a Voucher of 5€ to users who decide to refuel, at expenses of the platform, a car that is signaled to be low of fuel.¹¹⁷ The Electric Scooter Sharing platform "Lime" offers users the possibility to recharge their scooters and put them back on the road, paying who decide to collaborate with them, creating a community of "Lime Juicers"¹¹⁸ The formation of a community, in addition to being an element of recognition and reputation for the platforms, represents the opportunity to enable multiple possibilities of transactions, including non-commercial, based on the exchange and usability of services. From the point of view of efficiency, Sharing Mobility services optimise the residual capacity of the assets: compared to personal and exclusive use of vehicle, a vehicle in sharing mobility mode can be used by different users who have different needs, perhaps at different times of the day and therefore this vehicle will remain unused for fewer hours than a private vehicle. This increased productivity of a vehicle can occur both during a journey when the filling rate of a vehicle increases, for example, through the use of a carpooling platform such as BlaBlaCar, but mainly reducing the period of time in which a vehicle is stationary, at the roadside without transporting anyone. Car Sharing specifically is an urban mobility service, which consists of renting and allowing users to use a vehicle on reservation for a limited period of time and paying according to the actual time of use. These services use digital platforms to organise and deliver the service. Users through the platform can organise their trips at any time of the day in a very simple way, as the vehicles are already on the road and are automatically unlocked as they are connected to the internet. Car Sharing operates mainly in a "Free Floating" which is a mode in which vehicles do not have assigned parking spaces, but can be parked wherever a private vehicle can be parked in the city area, delimited by the platform. The average price per minute varies from 0.25€ to 0.30€¹¹⁹ per minute and an additional fee is applied only in cases in which a certain mileage is exceeded. Numerous studies have documented that the use of Car Sharing reduces not only the number of vehicles on the roads but also the emission of pollutants into the atmosphere and the cost of individual transport.¹²⁰ Car Sharing is attracting more and more users, in fact, globally the use of vehicles in Sharing mode is exponentially increasing¹²¹ because this mode is able to offer travel solutions based on users' needs, moving from a structure based on fixed costs to a structure based on variable

¹¹⁷ <https://enjoy.eni.com/it/milano/refueling>

¹¹⁸ " <https://lime.bike/juicer>

¹¹⁹ <https://www.statista.com/statistics/945147/price-per-hour-renting-shared-cars-european-capitals/>

¹²⁰

Impacts of car2go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions, E. Martin and S. Shaheen. Working Paper. July 2016, University of California, Berkeley

¹²¹ *Five trends transforming the Automotive Industry, PwC Research 2018*

costs, where you pay for what you consume. The success of this model and the willingness of consumers to adopt such a mobility sharing solution rather than using a private vehicle is certainly defined by the technology that has allowed the simplification of procedures that would have been much slower without the intuitive and immediate platforms, which allow instantaneously to solve a need of the customer who sees in today's mobility a daily problem and based on several circumstances such as weather or time, is ready to adopt new solutions to solve his needs. A growing number of innovative offers and services, even from new operators not linked to the traditional world of mobility, has redefined the concept of transportation, but in order to achieve full development and change the habit of the people, these new forms of mobility require both institutional and private operators to put in place targeted initiatives along two lines: the creation of an offer by firms and system interventions by regulators. The institutions must not only streamline the bureaucratic process that innovative operators must follow, but also system interventions oriented to the development of innovative infrastructures that facilitate the diffusion of new services, and to the promotion of incentives and stimuli for businesses and citizens. Private operators can, in the same way, immediately stimulate the change taking place by identifying concrete strategies and interventions, consistent with the expressed and latent needs of citizens, going to simplify and make the customer experience as intuitive as possible, offering in a clear way the different forms of mobility and proposing a "unique" mobility package. An example in this field is Uber which, from its platform, allows both to book a ride with a driver and to use its shared scooters in the territory: in this way, the customer is created alternatives of mobility, enclosed in a single platform and managed by a single operator. Operators and institutions must clarify the objectives to be covered within the new mobility value chain, starting from a strong enhancement of the position already held and defining the most appropriate ways of development upstream and downstream, in terms of services provided. The new mobility not only has significant potential in terms of improving the quality of life and developing environmental sustainability, is a concrete and increasingly strategic industrial trend for the various sectors and for the major players in the mobility industry: the world's largest car manufacturers have in fact framed this trend and have personally entered the Car Sharing market, often with their own vehicles.

2.2.1 BUSINESS CASE: BMW and Daimler merge mobility services

“Car2go is the largest car sharing company in the world, with around 3.6 million users and over 14000 vehicles in the 30 cities in which it operates. The platform is controlled by the Daimler AG group, which also controls the car manufacturers Mercedes-Benz and Smart Gmbh. Its fleet of cars available to users consists mainly in Smart ForTwo and Smart ForFour, but in some cities, there are also Mercedes-Benz GLA, Mercedes-Benz CLA and electric or hybrid cars. ¹²². A particularly relevant data is the very strong growth rate of Car2Go which has an average rate of 30%: in 2016 there were about 2 million users while in 2018 there were more than 3 million.” ¹²³



Figure 19 Car2Go Numbers ¹²⁴

This growth rate indicates a clear willingness of the users to adopt alternatives to traditional transport services. "Car2go is committed to a better quality of life, promoting road safety. Research has proven that free-float carshare like car2go effectively reduces road congestion while improving urban air quality. The University of California Berkeley study found that each car2go vehicle removed as many as 11 personal cars from the road, and has a tangible, positive impact on reducing greenhouse gas emissions as well as overall vehicle miles/kilometres travelled. Car2go was the first and still only carshare service actively supporting the goals of Vision Zero and the Road to Zero Coalition. car2go recently launched free road safety courses to all U.S. members as part of our ongoing commitment to Vision Zero." ¹²⁵. One of the main factors of success for Car2Go and similar CarSharing models is the development of an intuitive and immediate digital platform: This is an essential structure

¹²² <https://www.car2go.com/AT/en/modelle/>

¹²³ https://www.car2go.com/media/data/na/press/releases/011019_press-release_car2go-2018-success_na.pdf

¹²⁴ https://www.car2go.com/media/data/na/press/releases/011019_press-release_car2go-2018-success_na.pdf

¹²⁵ www.car2go.com , Press Release January 2019

for connecting the customers with the service offered by the company, and its smooth operation is vital for the construction of an efficient and effective shared mobility service that can meet the user's needs immediately. "Renting a car anywhere, anytime and at low prices - this is car2go. Thanks to the free-floating carsharing system, the vehicles are available to members

throughout the entire business region. Operations within Europe are managed by car2go Europe GmbH, a joint venture company of Daimler and Europcar. car2go is a pioneer and market leader in fully flexible carsharing. The original idea was developed in 2007. The first project phase started in October 2008 in the research and science city Ulm. In March 2009, the public pilot test began there. The official market entry followed in 2010. Today, car2go is available in Europe, North America and China and is continuously building on its market leadership in the free-floating carsharing segment."¹²⁶ The value proposition of Car2Go defines clear advantages of respect to similar services performed by competitors: the availability of instant rentals can be started and ended in few a very immediate way, anywhere in the home area. The platform offers a unique and attractive fleet of cars depending on the location, adopting in certain cities a fleet of exclusively electric vehicles such as the case of Amsterdam and Paris. Car2Go in fact highly supports innovative and futuristic trends in its vision, sustaining that the future of carsharing is electric, with self-driving vehicles, that are capable of sensing their environment and navigating without human input."¹²⁷ From a practical point of view, everything required to rent a vehicle is done on the smartphone, from the registration to the rental process. In the past, in some countries, it was necessary to validate the driving licence physically in a partner office of the platform, but thanks to legislative developments this obstacle, which slowed down the overall registration procedure, has been removed.¹²⁸ Once the driving license is validated, the process to rent a car is intuitive and immediate: the platform operates with a policy of cost transparency, charging a per-minute billing and hourly rates, with no binding contracts for the users, that can also rent a car on a daily base for a fixed price that can vary from 50€ to 70€ depending on the location and on the car selected.¹²⁹ Competing with Car2Go, in a similar strategically manner, is the service DriveNow born from the joint venture between BMW and Sixt.

¹²⁶ "Pioneer and market leader in free floating", www.car2go.com, Press Release November 2017

¹²⁷ "The five conditions essential to successfully operate autonomous carsharing fleets in the future" www.car2go.com, Press Release November 2017

¹²⁸ "See, register, drive off: registration with car2go is now possible entirely online" Media.daimler.com

¹²⁹ <https://www.car2go.com/en/rom/costs/>

DriveNow started operating in Munich in June 2011 and had a rapid growth: in 2015 they had more than 5000 vehicles in 7 different countries, with more than 800.000 customers.¹³⁰ Even if the lower numbers respect to Car2Go, DriveNow decided to focus mainly on initiatives supporting electric vehicles. "In addition to cooperation with city councils on expanding the charging infrastructure, this commitment was recognised with the Energy Award 2016 in the "Mobility" category, an award presented by Handelsblatt for progress and innovation in the energy industry."¹³¹

The fleet of DriveNow offers a range of high-quality premium vehicles of the BMW and MINI brands, based on the free-floating principle. "We are convinced that electric vehicles are the logical extension of the sustainable carsharing idea. Despite the frequent lack of electric infrastructure in previous years, DriveNow has proactively offered one of the easiest accesses to electromobility for a broad target group. DriveNow is the only car sharer to extend its fleet consistently at all locations with electric vehicles. Around 20 per cent of the entire fleet is already electrified. Our activity contributes to easing the traffic situation in cities and to reduce CO2 emissions."¹³²

Main manufacturers in the automotive industry redefined their strategies and found themselves competing in a new market, the one of carsharing, changing their role: if before these giants were manufacturers and distributors of their vehicles, now they have to manage their vehicles directly on the streets, becoming through the enabling platforms real mobility service providers. Through a rebranding BMW and Daimler have thus decided to found together with a new set of companies with the aim of creating a single multimodal mobility operator that can offer a new and complete set of services, to provide under a unique brand a complete set of solutions for mobility: with this scope Your-Now was born¹³³. In March 2018, Daimler Group and BMW Group signed an agreement for the merger of their business units for mobility services, with the goal of offering customers a comprehensive mobility ecosystem that is intelligent, seamlessly connected and available at the touch of a fingertip. After being approved by the antitrust authorities in December 2018, the transaction was completed on January 31, 2019. "The aim of this transaction is to become a leading provider of innovative mobility services. Both automotive manufacturers aim to shape the mobility of the future to be able to offer their customers unique experiences and support their partners, such as cities and communes, in achieving sustainable urban mobility."¹³⁴ The existing services of both the

¹³⁰ "Annual review 2015: DriveNow pursues sustainability, innovation and expansion" Press Release, Drive-Now.com

¹³¹ 2016 in review: DriveNow remains on course for success", Press Release, Drive-Now.com

¹³² "Carsharing has a sustainable effect: DriveNow takes stock for European Mobility Week", Press Release, Drive-Now.com

¹³³ <https://www.your-now.com/our-story>

¹³⁴ "BMW Group and Daimler AG agree to combine mobility services" Your-Now Press Release March 2018

companies, operating in the different fields of on-demand mobility, car sharing, ride hailing, parking, charging and multimodal mobility platform, were combined creating five different joint ventures operating under a unique mobility provider called “Your-Now”¹³⁵:



Figure 20¹³⁶

REACH NOW operates in the field of on-demand mobility and multimodality, offering to users simple and direct access to a range of mobility services through a single multimodal platform. This new platform was born from the acquisition of the platform “moovel”. The app offers a range of options for getting from point A to destination B, allowing users to book and pay directly for public transport and various other mobility options, such as car-sharing, ride-hailing and bike rentals.

CHARGE NOW is a service which provides a comprehensive electric charging network, to become a key contributor to zero-emissions driving. It makes public charge points quick and easy to locate, use and pay for, both at home and abroad. “Charge Now wants to develop simple, standardised access to public charge points for car manufacturers and fleet operators. With over 100,000 charge points across 25 countries, its white-label solutions are helping OEMs and fleet operators to realise their strategies for electric mobility. Customers benefit from cross-border access to one of the world’s largest and fastest-growing charging networks, with over 250 charge point operators.”¹³⁷

FREE NOW offers a variety of mobility services including taxis, private chauffeurs with rental vehicles and e-scooters, all at the tap of a finger. It is the result of the acquisition and merging of the platforms mytaxi, Chauffeur Privé, Clever Taxi and Beat. Merging under the unique brand FreeNow, the platform serves over “21 million customers and works with more

¹³⁵ <https://www.your-now.com/our-solutions>

¹³⁶ <https://www.your-now.com/our-solutions>

¹³⁷ <https://www.your-now.com/our-solutions/charge-now>

than 250,000 drivers. The FREE NOW Group also includes the e-scooter service “hive”, which was launched in Lisbon in November 2018 and will be rolled out in several European countries in 2019. Operating in more than 130 towns and cities in 17 European and Latin American countries, the FREE NOW Group is a leading provider of ride-hailing services in Europe and South America. Innovative offers such as “mytaximatch”, in which people not known to each other share a taxi at a fingertip, make an important contribution to reducing inner-city traffic by eliminating numerous individual trips in the urban space.”¹³⁸

PARK NOW makes parking easier, on-street or off. The innovative digital parking service offers users the best possible parking solutions, allowing users to reserve parking slots and manage their parking times, and enables ticketless entry and exit in public garages as well as cashless payment of parking fees. The platform is the result of the merging of the platforms ParkNow, Parkmobile Group Europa, Parkmobile International, LLC, RingGo und Park-line. In addition, with the search for parking currently accounting for about 30 per cent of the traffic on urban roads, PARK NOW is helping towns and cities to reduce traffic volumes, thereby helping to make city centres cleaner, healthier and more liveable. In Europe and North America, over 30 million customers are already using the service in more than 1,100 cities.

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SHARE NOW is a free-floating car-sharing service that allows customers to rent and pay for vehicles by smartphone anytime and anywhere. “Its fleet will now be extended to incorporate a wider range of models and increase market coverage. More than 4 million customers in total currently use the fleet's 20,000 vehicles in 31 cities around the world. Car-sharing increases vehicle utilisation rates, helping to cut the overall number of cars on the roads in urban areas.”¹⁴⁰

“The joint venture will focus on ensuring the personal freedom of customers in the field of urban mobility. Geared towards this vision of future urban mobility, a new mobility offer will be created that is based on easy access, intuitive interface and focused on the needs of the user. On their urban journey, customers will move through a seamlessly connected and sustainable ecosystem that combines CarSharing, Ride-Hailing, Parking, Charging and Multimodality from a single source and is available with just a few taps. The idea is to create the most attractive, most comprehensive mobility solution for a better life in our connected world.”¹⁴¹

“Car-sharing and ride-hailing services that work with enabling technologies are set to become a key driver for profits in the future trends for auto markets, far outstripping the profitability

¹³⁸ “Fact Sheet comprising five Joint Ventures”, Press Release, February 2019, www.Your-Now.com

¹³⁹ <https://parknowgroup.com/about-us/>

¹⁴⁰ “Fact Sheet: ShareNow”, Press Release, February 2019, www.Your-Now.com

¹⁴¹ “BMW Group and Daimler AG plan next steps for joint mobility company. Competition authorities approve the merger of mobility services.” December 2018, Press Release, www.Your-Now.com

potential of traditional car making. Accenture research shows that by 2030, revenues from manufacturing and selling vehicles (around €2 trillion) will be only marginally higher than they are today and that profits from car sales will even shrink slightly (from €126 billion to €122 billion). By contrast, revenues from mobility services are projected to soar to almost €1.2 trillion—with profits reaching as much as €220 billion. Fueled by constant improvements in autonomous vehicle technologies, global markets for mobility as a service are set to grow exponentially over the next decade.”¹⁴²

2.2.2 Future trends of the automotive industry : “eascy model”

The key to long-term success to support innovative initiatives in the automotive sector and to scale: car producers can exploit their existing resources and capabilities around creating and manufacturing cars, in order to develop new sources of mobility: around ideating, testing and rolling out mobility and digital services the car producers nowadays have a different role from the one that they had in the past.

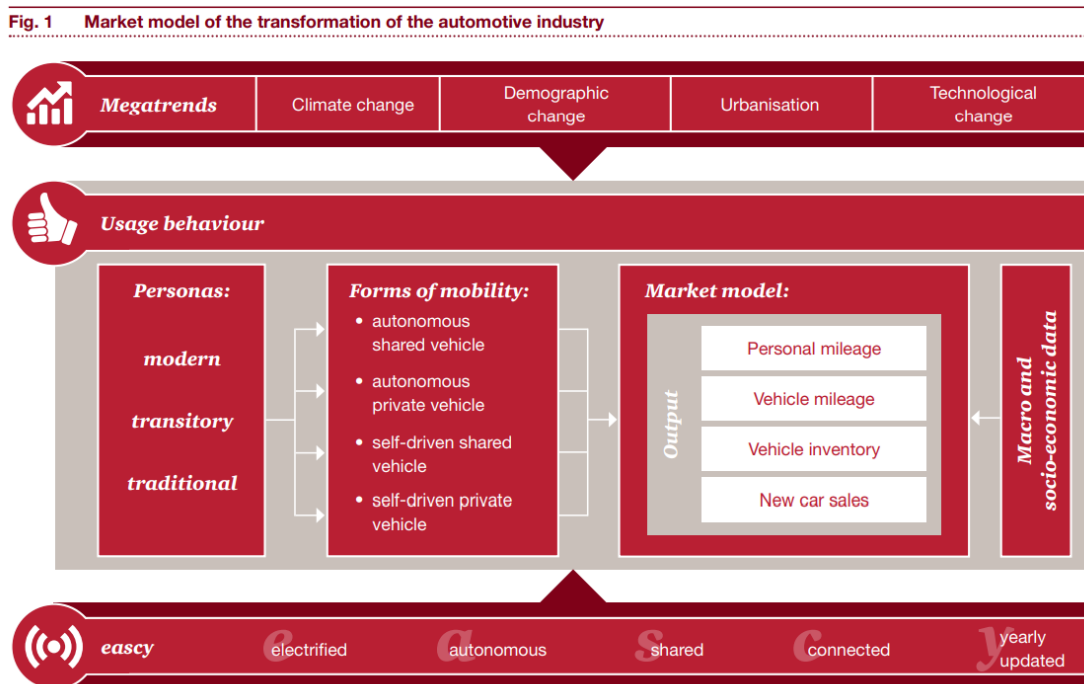


Figure 21 “eascy model”¹⁴³

The "eascy Model" developed by PwC clearly summarises how the automotive and transportation industry, in general, is moving. While previously, vehicle manufacturers have focused on fuel economy, emissions reduction or increasingly attractive designs, new trends

¹⁴² "Mobility as a service is accelerating in the auto industry" Accenture Report, 2018

¹⁴³ "Five trends transforming the Automotive Industry" PwC Report 2018

require innovations that are no longer incremental but are moving towards innovations that are increasingly similar to disruptive ones. The future is projected on the complete electrification of vehicles even if the infrastructures of the cities are not always allowing it and the vehicles are increasingly "smart". If before only top-tier vehicles had services such as onboard computers with touch display and dedicated software that was constantly updated, nowadays this is a standard also for new basic models. Software technologies also allow for an easy incremental development: a user does not buy a new car every year, but thanks to constant software updates he will be able to benefit from incremental innovations without incurring in additional expense. In the future trends are imagined shared mobility services "on-demand" where a user will no longer have to find for a car in sharing mode that is parked and available on the street, but will be able to book an autonomous vehicle that will reach him in the required position. The automotive industry is going to strongly reshape: PWC predicts that by 2030 the car industry will have split in two, with at least 30% of the European market being in standard models destined to become shared vehicles sold to mobility providers. The other part of the market would become increasingly specialised and made by unique and customisable models. The change is driven by patterns of consuming that younger consumers are adopting: the idea of shared assets that are used only for the effective temporary use is also expanding in the transportation sector as it has already done in others such as the one of accommodation with Airbnb or with the concept of crowdfunding. Car producers are changing their positioning, and the sharing economy is redefining the industry in which they compete: also becoming suppliers of services, manufacturers will have different contact with customers who might have less and less loyalty towards their brand, due to the fact that they are only looking to solutions that satisfy their need of mobility. For this reason, to separate the mobility services and the manufacturing activities, firms decided to provide a set of services under another brand: as said Daimler and BMW created the joint venture Your-Now but also other producers as example Volkswagen has moved into on-demand transport services with their ride-sharing company MOIA.¹⁴⁴ Similarly, also the operators providing traditional solutions to mobility services as the car rental "Europcar", decided to rebrand creating Europcar Mobility Group in 2018, transforming from being a car rental specialist to a mobility solution provider.¹⁴⁵ "The traditional model of owning a car doesn't fit-for-all anymore," Caroline Parot, Europcar Mobility Group CEO commented. "Furthermore, thanks to technology and digital innovation, there are now many other smart and cost-effective solutions to get from one point to another, and that's what really matters for people." Europcar had diversified in recent years by buying up a number of companies offering additional services

¹⁴⁴ <https://modo.volkswagengroup.it/en/q-life/moia-the-shared-mobility-of-the-future-is-already-here>

¹⁴⁵ <https://europcar-mobility-group.com/vision>

such as car-sharing and scooter-sharing.”¹⁴⁶ Car manufacturers have to face new challenges and have to be able to compete with tech and mobility companies. If the market of the manufacturing was a market requiring high entry barrier such as a huge capital investment to start production of cars, this new market made by platforms, where technological change is the leading factor creates a lot of uncertainty and also requires for the leading players in the automotive industry to compete and constantly look at the direction in which the industry is moving. The fact that manufacturers have included specific departments in their business model to develop and provide increasingly advanced mobility services is a clear sign that the concept of mobility for consumers is changing. There are still constraints for car sharing services to exist: when conditions such as rapidly evolving competitive mobility landscape, the lack of necessary infrastructure to support new technology including electric vehicle car share and low adoption rates are in place, the result is an increase in operating costs such high, that makes the business unsustainable, as was the case for ShareNow in North America, Brussels, London and Florence where the service ceased in March 2020 .¹⁴⁷ From a strategic point of view, the decision of large manufacturers to enter the car sharing market could have a cannibalising effect on demand: a user might prefer to use a car in sharing mode rather than buying the same for his own use. This effect may also be the opposite: by testing a car in sharing mode, a user may appreciate it so much that he or she decides to buy the same model for exclusive use after she had the chance to test it on the streets. "Finally, we find that "high-end" car producers benefit more from introducing car sharing than "low-end" producers. This is because when only selling vehicles, they serve only a part (the higher end) of the market as they face a greater potential for cannibalisation. Car sharing allows them to serve additional customers without cannibalising their existing sales. This finding may help explain why Daimler and BMW have been particularly active in the car sharing business."¹⁴⁸

3 New Trends of Sharing Mobility and the emerging concept of Micromobility

¹⁴⁶ https://www.repubblica.it/motori/sezioni/attualita/2018/05/22/news/europcar_cambia_pelle-197085589/

¹⁴⁷ <https://www.share-now.com/us/en/important-update/>

¹⁴⁸ "The Car Sharing Economy: Interaction of Business Model Choice and Product Line Design"; Bellos, Ferguson and Toktay; May 2017

The modes of transport in cities has recently been redefined by new means of transport that have started to circulate on the roads. The new trend of electric has led to the conception and introduction of new vehicles in the field of micro-displacements, i.e. the one that offers innovative solutions for "last mile" journeys. This type of movement can be understood in the field of transport of individuals in the management of goods delivery logistics. Going to analyze the logistic definition, for the last mile it is meant the final distance that a product must cover to be delivered to the customer, after having been transported on another means for a long distance. For example, a product after a long air transport must reach the final destination from the airport, that is intended as the last mile. In recent years this concept has also been used in the transport of individuals: in this specific context, the last mile is defined as a short distance that requires a long walk, and that has no reasonable solutions with means of transport. An example is when you take public transport, but then the final destination is still far from the last stop and requires a long walk. The micromobility has focused as an operational segment of the last mile movements, deciding to offer solutions to these needs and thus create intermodal or combined movements. It creates an integration between complementary services, which allows new and better travel options able to compete with door-to-door trips made with private vehicles: sharing mobility services cooperate with traditional services, increasing the attractiveness of scheduled transport services. The full integration between different mobility services takes place through the various platforms that go to define the set of tools that create what goes to define the "MaaS" or Mobility as a Service. With this type of platforms, consumers can purchase mobility services provided by one or more operators using a single platform and a single payment. The platform provides an intermodal journey planner, a reservation system, a single payment method for different types of transport. The Uber platform, for example, offers in a single platform its classic ride hailing service but also the possibility to book electric scooters or electric bicycles.¹⁴⁹

TYPES OF POWERED MICROMOBILITY VEHICLES¹⁵⁰

	Powered Bicycle	Powered Standing Scooter	Powered Seated Scooter	Powered Self-Balancing Board	Powered Non-Self-Balancing Board	Powered Skates
Center column	Y	Y	Y	Possible	N	N
Seat	Y	N	Y	N	N	N
Operable pedals	Y	N	N	N	N	N
Floorboard / foot pegs	Possible	Y	Y	Y	Y	Y
Self-balancing ¹⁵¹	N	N	N	Y	N	Possible

¹⁵⁰All vehicles typically designed for one person, except for those specifically designed to accommodate additional passenger(s)
¹⁵¹Self-balancing refers to dynamic stabilization achieved via a combination of sensors and gyroscopes contained within the vehicle

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Figure 22 : Classification of Micromobility¹⁵¹

¹⁴⁹ <https://www.uber.com/it/it/ride/uber-bike/>

¹⁵⁰ Sae J3194 Taxonomy & Classification of Powered Micromobility

¹⁵¹ Sae J3194 Taxonomy & Classification of Powered Micromobility

Thanks to these solutions, users have at their disposal a complete set of vehicles and, according to their needs, can combine different means of transport to reach their final destination, avoiding the use of a private vehicle. This type of integration between journeys made in various ways over time is further enhanced by the availability of so-called "bundles" or integrated mobility service packages. Both spatial and temporal integration between shared services of all kinds is a crucial aspect both for an efficiently delivered offer and for users to be able to reduce the use of their means of transport to the point where they can give up possession of it.

3.1 Market Trends for the Scooter Sharing Market

Every year new shared mobility services are created and established that were unthinkable until now. In some cases, these are transformations that have taken place at a global level, such as free floating bikesharing or scooter sharing. Still, even if these services are established, they are undergoing a constant migration towards the exclusive use of electric motors. One of the leading scooter sharing providers in Europe is "Cooltra", which "enables the rental of two-wheelers for private individuals, both short and long term, in more than 100 locations. Similarly, it has become the leading company in the rental of electric motorbikes for companies, law enforcement agencies and other public institutions.

eCooltra, founded in 2016, is the pioneer motorbike company in Southern Europe, with a presence in 6 cities in 3 countries and over 1,000,000 users. In addition to the shared bike service, electric bicycles are available in the city of Barcelona. Cooltra is present in Spain, France, Italy, Austria, Portugal and the Czech Republic, has a fleet of 17,000 motorbikes (56% electric), more than 300 100% electric bikes and 400 workers" ¹⁵²

Electric scooters are a dominant trend in the scooter sharing market: in 2018 97% of scooters available in sharing mode worldwide were electric, after which two new players in the Indian market entered with fleets of combustion vehicles," putting more than 20,000 scooters on the road between 2018 and 2019. Bounce and Vogo are in fact, two major players that entered the Indian market with immediately huge numbers of scooters on the street, compared to the gradual growth implemented by the players in Europe. However, these companies have expressed the intention to gradually change their fleet to increase the number of electric scooters on the road." ¹⁵³

The particular success of scooter sharing in India is given by the incredibly competitive rates: the rental of a full-day scooter costs around € 0.65. The hailing alternatives available in India such as Uber or Ola have higher rates for the same route, also given the high traffic congestion

¹⁵² <https://corporate.cooltra.com/es/notas-de-prensa/>

¹⁵³ <https://techcrunch.com/2019/06/17/bounce-raises-72-million/>

in Indian cities such as Bangalore or Delhi where the use of two-wheeled vehicles rather than cars tends to be preferred. A short ride of about 10 minutes to Delhi with Uber costs about 0,30€ .¹⁵⁴ With a robust growth trend, the Indian market has revolutionized scooter sharing: in 2019 alone about 20,000 vehicles were put on the road and scooters in India alone account for 30% of the world fleet of scooters and there are also future investments planned to increase this number.¹⁵⁵

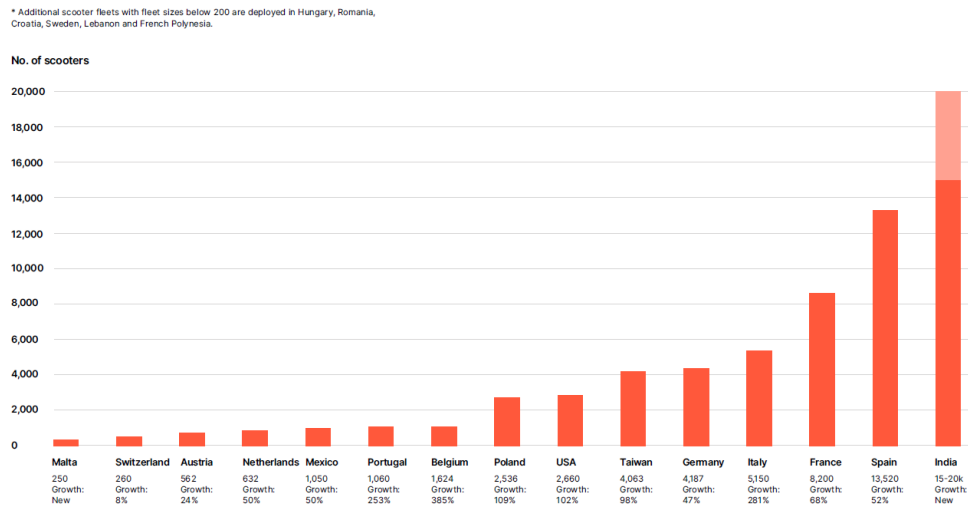


Figure 23 :Number of scooter offered by shared mobility platforms worldwide¹⁵⁶

The scooter sharing market has a strong tendency to be present in Europe where there are Scooter Sharing services in 72 out of a total of 88 cities in the world where such services are present. The American market is still growing but, despite being at the forefront of other types of mobility services such as ride hailing or car sharing, the numbers are significantly lower than in Europe. The micromobility market makes it possible to create intermodal travel solutions: the new challenge for cities is to reduce pollution and congestion while improving urban accessibility and quality of life.

¹⁵⁴ <https://www.uber.com/it/it/price-estimate/>

¹⁵⁵ *Distribution: unu Global Scooter Sharing Market Report 2019*

¹⁵⁶ *Global Scooter Sharing Market Report 2019F*

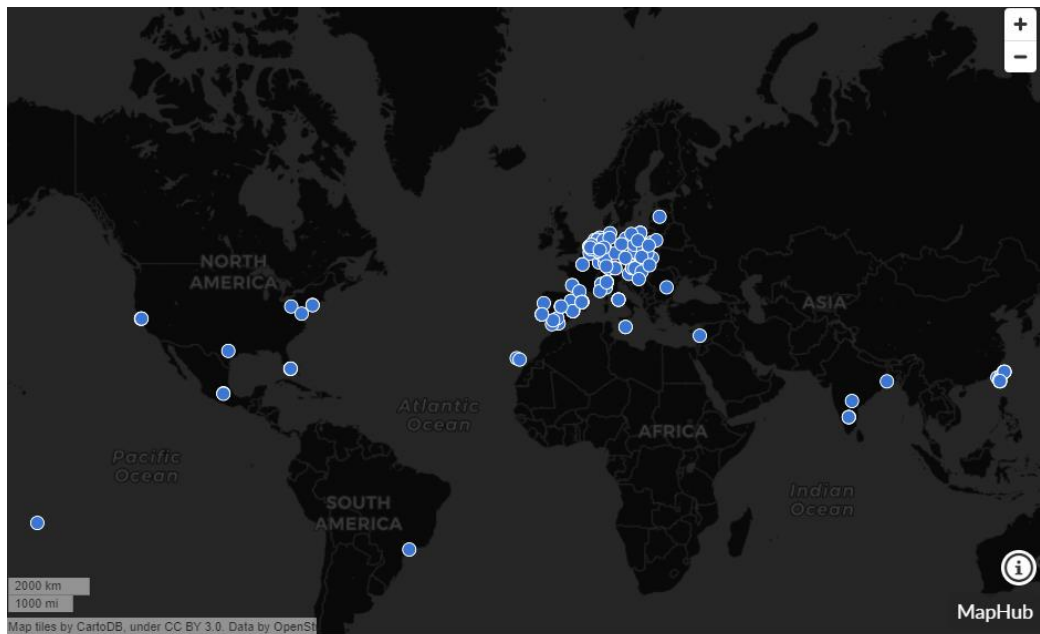


Figure 24 “Worldwide distribution of Scooter Sharing Operators” in 2020¹⁵⁷

The benefits for citizens are also social and economic, not only environmental. Congestion is significantly reduced and the trips offered are from door to door, without interchanges, and the general accessibility of citizens to the services of the city increases dramatically, ensuring more significant equity of access. Thanks to these new means, inequalities inaccessibility to workplaces, schools or health services in urban areas are eliminated.

3.2 Concept of Micromobility: Covering the last mile

The overall expansion of the availability of shared mobility solutions and the access to an integrated mobility offer to replace the use of the private vehicle, can pursue the goal of resource-efficient, low-emission and socially inclusive mobility. It is precisely from the social point of view that the issue of micromobility has emerged that has taken on particular importance with the outbreak of the Covid-19 pandemic¹⁵⁸: the impact of the pandemic in the short term has led to several lockdowns in the world, which have put in crisis the transport sector in general but in the medium to long term due to social distancing and precautionary factors, it is estimated that consumer consumption patterns in terms of transport are changing. If before a user used public transport to reach a place of interest, now to avoid closed places and respect social distancing, micromobility is a valid alternative to cover the need that

¹⁵⁷ <https://share.unumotors.com/global-mobility-sharing-market-report>

¹⁵⁸ <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-future-of-micromobility-ridership-and-revenue-after-a-crisis>

traditionally public transport could satisfy. After a strong negative trend of use given by the lockdown, in the medium and long term, a strong adoption as an alternative solution is expected.

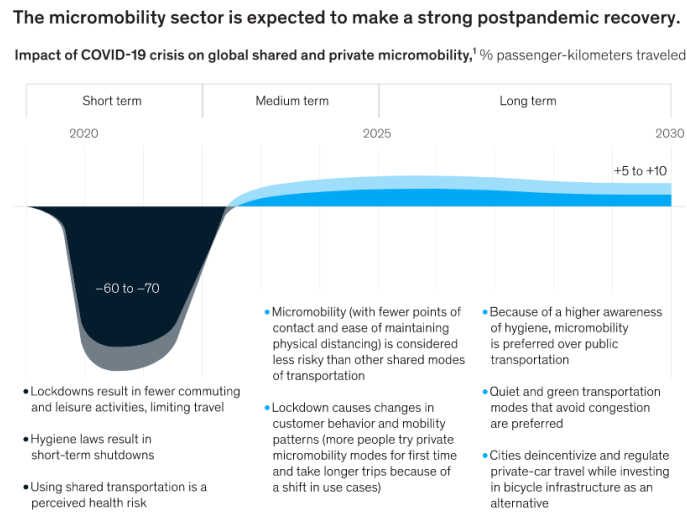


Figure 25: Micromobility sector expectations after COVID-19 crisis¹⁵⁹

In fact, several countries have supported a pedestrianization of the roads, investing in cycle paths and proposing monetary bonuses for the purchase of micro-mobility vehicles. An example is the Italian government that has allocated funds to support with a bonus of € 500 all citizens who intend to purchase a vehicle of the category of micromobility, covering up to 60% of the purchase value or intend to use this bonus on Sharing Mobility platforms.¹⁶⁰

Given the various attentions of the mass media and governments on these new forms of mobility, it is precisely in 2020 in the post-pandemic era, that all over the world works of urban soil optimization have started to facilitate the circulation of alternative means of transport to cars: in order to respect the social distancing all people would tend to use private means and so to avoid situations of heavy traffic congestion and pollution, cities like Paris have decided to transform 50 km of roads reserved for cars into cycle paths. The French government has also allocated about 300M€ to upgrade their roads and make them more viable for alternative means of transport to cars. The final project includes more than 650km of cycle paths and new bike sharing services for the French population throughout France.¹⁶¹

The ability to request, book and pay for travel on mobile devices is once again changing the way people move and interact with mobility services. Digitization is at the heart of this revolution: thanks to enabling technologies and engineering progress, more and more categories

¹⁵⁹ <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-future-of-micromobility-ridership-and-revenue-after-a-crisis>

¹⁶⁰ <http://www.mit.gov.it/comunicazione/news/sostenibilita-fino-500-euro-per-buono-mobilita>

¹⁶¹ <https://www.forbes.com/sites/carltonreid/2020/04/22/paris-to-create-650-kilometers-of-pop-up-corona-cycleways-for-post-lockdown-travel>

of vehicles are on the road. The first aspect of this rapid and radical transformation underway is the quantity and quality of the new shared mobility services that have been emerging in recent years and are enabled by digital platforms. The existence of multimodal planners allow you to build and consume your own integrated mobility from a click on your smartphone, have opened up new possibilities of integration hitherto unexplored. When planning a trip from home to work or a long-distance trip, people consider the cost, convenience and complexity of the entire trip from door to door, not a single element. Thanks to the rapid fruition and the possibility to know and estimate the fares and times before the trip, the user can choose between various services offered by different operators operating different modes of transport, comparing the available alternatives and choosing the one that best suits their needs. If before the user had to choose between his own vehicle or public transport, today analyzing the performance of all shared mobility services, both traditional and innovative, it emerges that while traditional services continue to ensure those levels of capacity, speed and range for which they occupy an irreplaceable position in the contemporary transport scene, traditional on-demand services and shared mobility services are able to offer those characteristics of accessibility, availability, flexibility and versatility typical of the model of the use of the personal vehicle. Thanks to a coordinated offer between operators and the integration offered by the platforms, the smartphone becomes the "ignition key" of personal freedom of movement for the individual. This new perception of reality pushes individuals to desire a way to move in the physical reality that is closer and closer to what happens in the virtual world: the user, after a ride with an electric scooter like eCooltra, will be able to know how much CO₂ he has saved while riding with an electric vehicle, compared to the use of a combustion vehicle.¹⁶²

Thanks to innovative algorithms, the user obtains immediate feedback on his choice of consumption: thanks to virtual tools, you have a different perception of reality, which will impact on consumer choices. Individuals today are, in fact, much more oriented to the use of electric mobility services and in combination with other services: The main reason is that they perceive that all this is technically possible and sustainable.

Accessing a service, using only temporarily what we need instead of owning it but above all "being transported" instead of "driving" is something that is slowly becoming closer to the contemporary lifestyle. The future application of the so-called autonomous driving will further contribute consolidating this trend towards the continuous transformation of the models of organization and consumption of shared services to the point of cancelling many of the current differences between services. Driveless vehicles will allow a radical reduction in the operating costs of certain types of service as well as the possibility of offering travel solutions even closer

¹⁶² <https://www.ecooltra.com/en/how-it-works>

to the needs of demand in terms of availability, flexibility and scalability. Autonomous driving, for example, will allow some shared services such as the ride-hailing ¹⁶³to become even more competitive, both in terms of price and performance. Today we are facing a new and imminent paradigm shift, of the same magnitude as the advent of mass motorization in the last century. This is a new reversal that may once again question the primacy of individual mobility over shared mobility, of self-produced mobility over mobility as a service. The daily movements of people in the cities can be made through different modes of transport: on the one hand, there are traditional public transports such as rail, metro, tram, bus. On the other hand, there are private means of transport such as bicycles, cars and motorbikes. The user can therefore decide to move around using a private means of transport, starting from his or her own legs, bicycle, motorbike or car, or you can move around sharing a vehicle or a trip. In the first case, we will talk about individual mobility in the second about shared mobility. The great availability of cars with even better performance, constantly expanding road infrastructure, a widespread supply network and increased availability of income have led more and more people to own and use personal vehicles, especially cars. The increase in the population living and working in the city, combined with the progressive dispersion of activities on the territory, the so-called "urban sprawl"¹⁶⁴, has further increased the need to move around the city, leading to inevitable traffic congestion. Despite improvements and optimizations, the city's infrastructure is increasingly difficult and often creates situations of heavy congestion. Public transport can be a solution, but not always a point of interest is adequately reached. Public transport also has timetables to respect, while accessibility and immediate availability of alternative solutions have radically changed the concept of city travel. To redefine the modes of transport, "Micromobility" vehicles have entered our streets. These vehicles cover distances that are too long to be travelled on foot, but too short to be travelled by car.

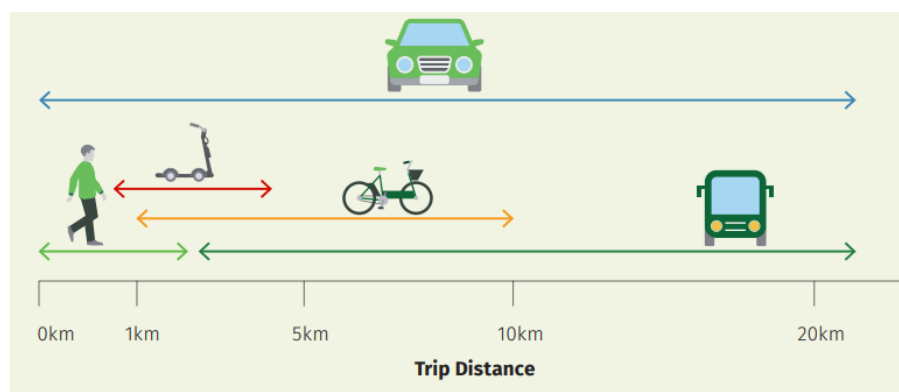


Figure 26 ¹⁶⁵

¹⁶³ <https://www.uber.com/us/en/atg/technology>

¹⁶⁴ <http://www.econ.brown.edu/Faculty/henderson/sprawl.pdf>

¹⁶⁵ Institute for Transportation and Development Policy Report 2019

3.2.1 Electric Kick Scooter: sharing platforms and regulations

The first vehicle to enter the micro-mobility segment is judged the Segway Personal Transporter¹⁶⁶, but due to its bulky size and high cost, it has remained a niche vehicle. Technological progress from an engineering point of view has led to the production of increasingly high-performance vehicles: the new micro-mobility vehicles have become lighter, faster, easier to handle and with ever longer battery life. The prices of such vehicles with technological progress are increasingly competitive: the price at the launch of a Segway in 2001 was about 5000€, while today an electric kick scooter produced by Segway costs about 500€.

¹⁶⁷ Segway has been a pioneer in the production of vehicles concerning micro-mobility, making vehicles of daily utility that were often associated with children's toys. The electrification of the motor industry and the consequent research and improvement of the product has been fundamental to support the spread of micro-mobility vehicles: more and more manageable, performing and sold at increasingly competitive prices, the "kick scooter" type electric scooters have been particularly successful. To make micromobility so widespread can be framed some particularly relevant factors that can be defined "ENABLERS OF MICROMOBILITY"¹⁶⁸. The trend of shared mobility, which has become more and more widespread in cities has strongly supported the spread of micro-mobility: thanks to the sharing mobility platforms that have put their fleets on the road, a mechanism has been triggered that has attracted customers to try these innovative vehicles.¹⁶⁹ In particular, the users who have most appreciated this service are those belonging to the Millennials demographic category¹⁷⁰. This segment is "digital native" has a very familiar approach to technology and therefore, a propensity to use innovative transport systems, such as those offered by sharing mobility platforms. Thanks to the development of internet-of-things, increasingly avant-garde GPS systems and digital payment platforms, market operators have been able to put "microvehicles" on the road, following operating modes similar to those of the already established car sharing. As microvehicles are out of standard, as has happened in other situations, legislation has not had an immediate response to regulate the way in which these vehicles can circulate on the road. Compatibility with other road users and existing infrastructure has not always been adequate to accommodate these new vehicles. A general problem with such vehicles belonging to the micro-mobility category is, in fact, that of safety:

¹⁶⁶ <https://www.isegway.cz/prague-segway-article/history-of-the-segway-pt>

¹⁶⁷ <https://shop.segway.com>

¹⁶⁸ *Trend or Fad? Deciphering the Enablers of Micromobility in the US*, 2019 A. Chang, L. Sun, L. Miranda

¹⁶⁹ Shaheen, S., A. Cohen, and A. Chang, *Definitions for terms related to shared mobility and Enabling technologies*, in *White Paper of SAE International*. 2018

¹⁷⁰ Fernandes, L., H. McCausland, and A. McDougall, *Millennials on millennials: Why we matter*. 2018

there is no clear common legislation, and the operational guidelines remain fairly vague. As light vehicles that can circulate both in pedestrianized areas and on the roads, they are placed in an intermediate category between classic bicycles and traditional scooters, creating ambiguities. In Italy, which was one of the last countries to regulate vehicles belonging to micromobility, a general regulation has been defined to regulate the correct use of such vehicles. "The micro-mobility category in Italy includes electric scooters, segways, hoverboards, monowheels and similar electric personal mobility devices. The new rules relate to the age limits for driving them, the obligation to wear a helmet for children under the age of eighteen and the obligation to wear a reflective vest in poor visibility conditions. The circulation of electric scooters, as a result of the equalization with velocipedes, is not subject to particular prescriptions concerning homologation, approval, registration, number plate, insurance coverage. In order to circulate on the road, however, they must meet specific characteristics such as having an electric motor with a continuous rated power not exceeding 500 watts; they must not be equipped with a seat for the user because they are intended to be used by the latter with a standing posture; they must be equipped with a speed limiter that does not allow them to exceed 25 km/h when circulating on the roadway and 6 km/h when circulating in pedestrian areas; be equipped with a bell for acoustic signals; bear the "CE" marking certifying European production standards; have the specific components for electric scooters; during the whole period of darkness, and during the day, if the weather conditions require lighting, they must be equipped with white or yellow front lights and red lights and red rear reflectors for visual signals and, failing this, they cannot be used, but only conducted or transported by hand."¹⁷¹ These safety standards are different all over the world, in America for example in the state of Washington there are no specific power and speed limits on electric scooters, but a correct use is imposed according to the general speed limits on the roads, and particular attention is required in case of pedestrian traffic congestion when circulating in areas not intended for motorized vehicles. The use of these vehicles on cycle paths is expressly permitted, as is the possibility of circulating on pavements if there is no space on alternative routes: this leaves a lot of room for common sense on the part of users who should commit themselves to the correct use of these vehicles. Common sense and respect for commonplaces become a particularly important aspect with the concept of micro-mobility, especially in the shared use of such vehicles. Shared cars must respect the rules of all other cars, such as parking in the correct areas between the strips and in such a way that traffic is not obstructed. For electric scooters in kick-scooter mode, the problem of parking is, in fact, an increasingly relevant component for sharing platforms: operators, not having clear legislative directives, cannot sanction or impose limits for incorrect

¹⁷¹ *Italian Legislation, Decree-Law no. 8 of 28 February 2020, no. 8*

behaviour. The Lime platform on Rome "advises" not to block ramps for disabled access, not to park in such a way as to obstruct pedestrian crossings or cycle paths, the entrance to hospitals, the entrance to fire stations. It is forbidden to park inside fenced areas and in areas where parking is prohibited.¹⁷² As a standard of protection, scooter sharing operators require a photo of the parked vehicle at the end of each ride to ensure that it does not obstruct sensitive areas. However, a particularly significant problem remains: in cities like Rome, where there are a clear legislative hole and a problem of infrastructure in terms of micro-mobility, more than five thousand scooters have arrived in about three months, and in the past, there have already been problems and havoc committed by citizens, as in the case of oBike, a bike-sharing operator who decided to leave Rome because of excessive uncivilized behaviour.¹⁷³ In fact, the "wild parking" has become a particularly important problem, which is causing the indignation of a large part of the population who are witnessing, in all the historical squares or near monuments, dozens of scooters parked in a wild way. It is necessary to establish clear rules of conduct, which leave no room for interpretation and which regulate the use of scooters in a clear manner, such as that of scooters and cars, establishing risk areas that cannot be used: without strict rules in force, a concentration of vehicles improperly parked in particular places of interest or used dangerously in places of pedestrian congestion is inevitable. "Not surprisingly, many cities are concerned about the unbridled growth of e-scooters, given the problems (such as obstructed sidewalks and vandalism) unleashed by the rapid rise of free-floating bicycles. In 2018, for example, San Francisco and Indianapolis backpedalled on e-scooters, putting restrictions on their use; in New York and Chicago, e-scooters are currently banned. In the US, at least, e-scooters are unlikely to transform the urban landscape overnight. But leaders should not let recent missteps colour their views on e-scooters. When introduced properly, e-scooters can alleviate some of the seemingly intractable challenges that cities and their residents face—namely congestion, pollution, and the difficulty of bridging the first- and last-mile gaps. To start with, cities can penalize or impose limitations on providers that do not abide by existing rules. But they can do much more, proactively, to foster the benefits and bypass the pitfalls. For instance, Portland, Oregon, has adopted a sensible approach, starting with a pilot program to test impacts.¹⁷⁴ In the city's initial study, 34% of local passengers and 48% of visitors took an e-scooter instead of driving their cars or using Uber, Lyft, or a taxi, proving that the potential for reducing car traffic is promising. In the US, at least, e-scooters are unlikely to transform the urban landscape overnight. But leaders should not let recent missteps to influence their views

¹⁷² <https://help.li.me/hc/it/articles/115004745967-Parcheggiare-e-bloccare-un-veicolo>

¹⁷³ <https://www.tpi.it/news/obike-lascia-roma-20181031191985/>

¹⁷⁴ www.portlandoregon.gov/transportation/article/709719

on e-scooters. When introduced properly, e-scooters can alleviate some of the seemingly intractable challenges that cities and their residents face—namely congestion, pollution, and the difficulty of bridging the first- and last-mile gaps. To start with, cities can penalize or impose limitations on providers that do not abide by existing rules. But they can do much more, proactively, to foster the benefits and bypass the pitfalls. Elsewhere, cities are experimenting with other policies and practices, such as designated parking zones and licensing by jurisdiction. Lisbon, for example, has taken a cue from pioneering US cities and established no-parking zones for e-scooters. In Madrid, providers must now obtain licenses to operate in their own designated areas of the city and are required to ensure that their e-scooters will be parked within their prescribed area for a minimum amount of time. They must also report usage data to the city.”¹⁷⁵



Figure 27 Kick Scooter under the Colosseum, Rome ¹⁷⁶

Micro-mobility vehicles have an undeniable fun component and are not only used to move around in need but also to live an experience, especially among young people. Accidents with scooters are already known, mainly resulting from incorrect use and reckless behaviour, which have led to sanctions. ¹⁷⁷The versatility of the scooters and their immediate availability on the road thanks to Sharing Mobility operators are undoubtedly characterizing a trend that is going to redefine the patterns of movement. The huge early-stage investments in various operators have shown a particular economic interest behind electric scooters. ¹⁷⁸ The main indicator of interest in this market has been a strong adoption rate, much higher than for carsharing, given

¹⁷⁵ <https://www.bcg.com/it-it/publications/2019/promise-pitfalls-e-scooter-sharing>

¹⁷⁶ <https://www.confine.live/it/a-roma-impazzano-i-monopattini-elettrici-mobilita-sostenibile-ma-anche-incidenti-monopattini-parcheggiati-colosseo/>

¹⁷⁷ https://roma.repubblica.it/cronaca/2020/07/25/news/monopattini_roma_150_multe-262868478/

¹⁷⁸ <https://tnmt.com/infographics/ranking-all-e-scooter-startups-by-venture-capital-received/>

the fact that no driving licence is required to drive an electric scooter. ¹⁷⁹“The average e-scooter currently has a life-span of just three months. E-scooters were originally designed for private use, not for rental, so the heavy usage, rough handling, and even vandalism that users inflict on them have dramatically cut down on their durability. Yet despite the modest cost of an e-scooter, it takes almost four months, not counting marketing and overhead expenses, for a rental company to break even on its investment.”¹⁸⁰

Despite technological progress, scooters have a limited battery life: everyday scooter sharing operators collect scooters from the streets and transport them to charging and maintenance areas. After maintenance, the scooters are put back on the road. These activities significantly increase operating costs and despite the "crowd-charging" models ¹⁸¹where the user is remunerated to contribute to the recharging and putting scooters back on the road, the profitability of this business can be improved. Future technological improvements that would extend the life of scooters could be sources of profitability. The market for shared mobility operators, in general, is increasingly competitive, but in the e-scooter market, it is even more so: “many companies are launching their programs simultaneously in individual cities. Six e-scooter companies (Lime, Bird, Tier Mobility, Wind Mobility, Flash, and Hive) currently compete in Vienna alone, for example, and two more (Voi Technology and Arolla) are reportedly considering entry there. [...]. Consumers regard e-scooters as a commodity; they will pick the closest available scooter. Thus far, putting a high-quality, reliable product on virtually every corner is apparently all the marketing that providers have needed. But over time, companies competing with others in the same neighbourhood will have to establish brand loyalty.”¹⁸²

As in the Car Sharing market, the scooter-sharing market requires the necessary conditions for these platforms to operate profitably: reaching a critical mass is fundamental to ensure the performance of operations and the market, with more and more operators, could lead to a price war that would make profitability difficult. It will be the task of the platforms to identify the right tradeoff between the rate of use versus the number of available means so that an operative balance can be reached. The market is currently still in a phase of growth and, although the main operators such as Bird and Lime are already recognized, the market is still fragmented, with many operators offering similar services at the same prices. In the future, the biggest players in the sector are expected to implement a policy of consolidation by buying smaller competitors, as happened with Bird, which bought Circ, another scooter sharing operator.

¹⁷⁹ <https://www.populus.ai/micro-mobility-2018-july>

¹⁸⁰ <https://www.bcg.com/publications/2019/promise-pitfalls-e-scooter-sharing>

¹⁸¹ <https://techcrunch.com/2020/01/17/how-scooter-charging-startups-want-to-make-the-industry-more-profitable/>

¹⁸² <https://www.bcg.com/it-it/publications/2020/e-scooters-can-win-place-in-urban-transport>

¹⁸³Establishing partnerships with public transport or creating synergies with other platforms can be a further factor of success, as in 2018 Jump, a free floating bike sharing platform, established a partnership with Getaround to integrate car rental on its App. ¹⁸⁴

Determining the attractiveness of the micromobility market and the desire to create a unique platform of services for mobility is the Uber platform: first, it acquired the Bike Sharing platform "Jump" in 2018 for an estimated value of 200M\$ ¹⁸⁵, then moving on to the new trend of electric kick scooters, participating with other partners in an investment round of 170M\$. After this round Lime will take control of Jump's operations, becoming the market share leader in the micromobility market. ¹⁸⁶

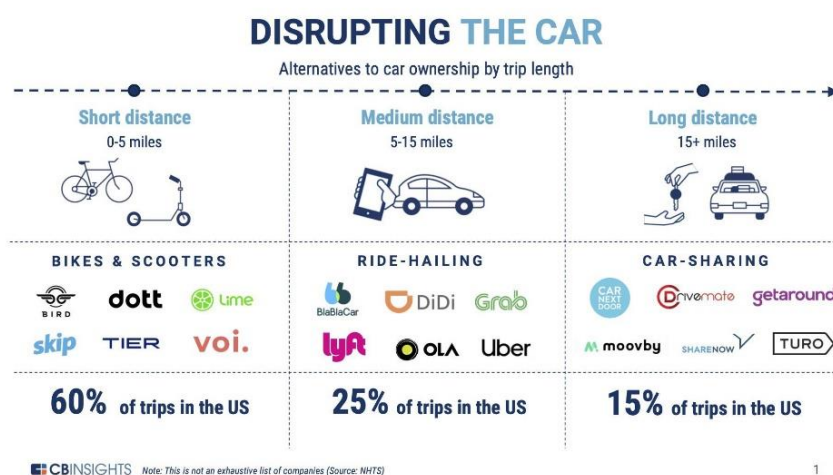


Figure 28 “Disrupting the car”¹⁸⁷

3.2.2 BUSINESS CASE: Lime

Lime is a platform founded in January 2017 by Toby Sun and Brad Bao. His vision is to "offer an accessible, affordable and ubiquitous new model of transport to help more and more people get around the urban environment"¹⁸⁸. Lime began its work by calling itself "LimeBike" and followed the model of companies operating in the BikeSharing sector already present in the Chinese market such as "MoBike" and "Ofo", which had already raised large amounts of funds in previous years. ¹⁸⁹ The initial intention was to export the free-floating bike sharing model to America, and they started with 125 bikes at the University of North Carolina. A few months after its birth, in March 2017, the startup raised \$12M, and by July 2017 it was already operating

¹⁸³ <https://venturebeat.com/2020/01/27/bird-raises-75-million-more-and-acquires-escooter-startup-circ/>

¹⁸⁴ <https://www.theverge.com/2018/4/11/17220408/uber-jump-getaround-masabi-cities-data>

¹⁸⁵ <https://techcrunch.com/2018/04/09/uber-acquires-bike-share-startup-jump/>

¹⁸⁶ <https://www.li.me/second-street/new-financing-strengthens-lime-leadership>

¹⁸⁷ “Disrupting the Car: Startups, corporates, and technologies disrupting personal car ownership in 2018 and beyond.” CBInsight.com

¹⁸⁸ <https://greensboro.com/news/education/green-machines-new-bike-share-program-gets-its-start-at-uncg-video/>

¹⁸⁹ <https://techcrunch.com/2017/03/15/limebike-raises-12-million-to-roll-out-bike-sharing-without-kiosks-in-the-us/>

in Florida, Indiana and California. ¹⁹⁰After further rounds of financing, just one year after its birth in 2018 Lime had already been defined as a unicorn with a rating of 1.1B\$.¹⁹¹Lime's turning point was given by its partnership with Segway, "which allowed in 2018 to put "Lime-S" kick scooters on the road, with a modern design and improved to focus on rider safety and comfort".¹⁹² "Scooter sharing has been a polarising phenomenon in local communities. Some residents consider the hundreds of vehicles that have suddenly appeared across their cities to be "littering" and causing a safety hazard for both riders and pedestrians. Bird and Lime have exploited loopholes in city bylaws that do not explicitly allow or prohibit their services, catching local authorities off-guard. Yet despite regulatory run-ins, the benefits have largely been able to continue operating. Many residents see the scooters as a convenient way to commute or travel a mile faster than walking, while tourists use them as a way to explore a new city." ¹⁹³ Starting from a service of sharing normal bicycles, Lime has become in one year a complete mobility provider, offering a varied range of vehicles:

Lime-B is the first vehicle launched by Lime. It is a traditional bicycle, offered in a free-floating mode that is unlocked through the platform, thanks to a combination of a GPS and 3G connectivity.

Lime-E is the electric bicycle used by Lime. The bike is of the assisted pedalling type, with a battery life of about 90 km. The bike reaches 25 km/h and is designed for medium distance trips. Since the battery is more durable than scooters, it requires lower operating costs, so this vehicle is not one of those that Lime Juicers can charge. The platform uses Lime-E vehicles in cities where scooters are not regulated, such as London or New York City. Following Uber's investments in the company, Lime uses both its electric bicycles and those of Uber "Jump", which can always be booked on the Lime platform.

Lime-S is Lime's offer of electric scooters of the kick scooter type. There are different types of scooters, but for regulatory reasons, all of them have a maximum speed of 25 km/h. Lime is also committed to produce and design its scooters, which are more durable, resistant and have an enhanced battery compared to traditional scooters. Depending on the different models, the scooters have a journey time of between 20-40 km.

LimePod is the platform's offer in the CarSharing market. The service offered in dockless mode a fleet of electric Fiat 500s, but this service was a pilot programme that Lime is abandoning,

¹⁹⁰ <https://www.southbendtribune.com/news/business/bike-sharing-company-limebike-is-coming-to-south-bend/>

¹⁹¹ <https://finance.yahoo.com/news/startup-west-coast-scooter-sharing-161119672.html>

¹⁹² <https://www.prnewswire.com/news-releases/lime-rebrands-and-announces-a-partnership-with-segway-300650581.html>

¹⁹³ <https://www.ft.com/content/65c32246-5bc9-11e8-9334-2218e7146b04>

focusing on the development of micromobility vehicles. ¹⁹⁴The platform's business model is made up of the proceeds from the rental of its vehicles: the cost of a rental is 1€ to unlock a scooter plus about 0.25€ per minute, the rate in fact changes according to the different countries. Electric bikes have similar costs, slightly lower¹⁹⁵. The platform also offers bundled prepaid minute packages: by purchasing a "Lime Daily Pass" a user for €13.99 will be able to use a scooter for the whole day, or an "Unlimited Unlocks" package can be purchased for 30 days at the cost of €7.99, during which the user will not have to pay €1 for each rental.¹⁹⁶ A distinctive element of Lime compared to its competitors is the management of operations. Having been a first-mover in the management of light vehicles in sharing mode, the management of operations is constantly evolving and experimenting with trying to make the service always better. Since scooters, the company's core business, are vehicles with limited battery life and quite fragile, they require daily maintenance. Operations management thus becomes crucial for the platform: first and foremost, scooters and e-bikes have different operational requirements. "We plan on having an operations team that will manage both our Lime-E and Lime-S fleets in Santa Monica. Since each device is handled differently, there will be slightly separate but coordinated teams and plans in place. For instance, we have two main methods for deploying and redistributing scooters: a robust, responsive and efficient on-the-ground operations team comprised of local hires, and a network of reliable, independent contractors who serve as "Juicers." Our bikes, however, are rebalanced just by our team. We believe our commitment to having Lime employees as a local operations team differentiates us from other operators. It is also what will allow us to manage our multi-modal fleet effectively and enable us to address issues in a prompt fashion. The overall goal for the team is to make our devices are visible, presentable and rideable. During operational hours we feature a fleet of 6 vehicles sweeping the city for errant bikes and scooters which may have been parked in wrong ways or misplaced. The team has a daily strategy on where to collect our devices and where to redistribute around the city. Any devices flagged for repair, maintenance or charging will also be removed from the streets (batteries on Lime-E are swappable) and brought back to our warehouse for further inspection."¹⁹⁷

While Lime-E bicycles are available at all hours of the day, the constant maintenance required by Lime-S requires them to be discontinued at night, when the scooters are recharged and put

¹⁹⁴ <https://techcrunch.com/2019/09/19/lime-is-shutting-down-car-rental-service-limepod/>

¹⁹⁵ <https://www.li.me/pricing>

¹⁹⁶ <https://www.theverge.com/2020/6/18/21295903/lime-pass-subscription-daily-monthly-scooter>.

¹⁹⁷ <https://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/LIME%20-%20Scooter%20and%20Bike.pdf>

back on the road the following morning. From an operational point of view, the day is characterised by three main moments:

Morning shift: this is the moment when the scooters are put back on the road. Drop-off locations are chosen according to the availability of space and the analysis of previous use. There are also "LimeHubs", i.e. private activities that decide to collaborate with the platform and host scooters on their private land.

Mid-Day-Shift: at this stage of maintenance, the operational team at 11 a.m. deals with the general maintenance of the fleet. Specifically, they monitor if there are scooters that require recharging, manage customer reports and repair vehicles that are reported as improperly parked.

Night Shift: This phase starts at 7.30 p.m., and its main task is to collect all the scooters that need to be recharged from the streets. The scooters are collected, loaded onto vans and taken to the depot for recharging. Before they are put back on the road, there is general maintenance, brakes are checked, and the functioning of each vehicle is suitable.

The operations of the platform are entrusted to local partners who are instructed on how to operate it. The platform, therefore, has a large network of mechanics and maintainers, having specific references in each city. In addition to professionals, the scooters can also be recharged by users who decide to collaborate with Lime. Users can request on the platform to become "LimeJuicers" and once authorised, they will be able to collect the scooters unloaded from the road, take them to their homes and recharge them, and then put them on the road again the following day, in the suggested places. After completing a recharge, a LimeJuicer receives a "LimeJuicers report an average of about \$8 per scooter, with \$5-\$12 per scooter as a reasonable range. You can most likely expect to make around \$20-\$30 per hour."¹⁹⁸ This operational solution was subsequently adopted also by Lime's competitors, such as Bird, which allows its users to become "Bird Flyers".¹⁹⁹

Each Lime user is guaranteed insurance cover, through a partnership with Allianz, for the damage that a rider may cause during the rental to himself and others.²⁰⁰ Lime is very committed to the development of new technologies, and its R&D department has also developed unique solutions such as "geofencing" which allows for the application of specific regulations such as limited speed in particularly crowded areas or the possibility to park or not in specific areas.

Through its patented "Geofencing" technology, scooters will react in the following ways automatic in specific areas: in some areas marked in red on the platform map it will not be possible to park the scooter, in other designated areas the speed of the vehicle will be

¹⁹⁸ <https://gridwise.io/the-ultimate-guide-to-being-a-lime-scooter-charger-juicer>

¹⁹⁹ <https://flyers.bird.co/>.

²⁰⁰ <https://www.li.me/en-US/insurance>

automatically limited. In specific zones, the user will not be able to drive at all, and if he enters this zone, the vehicle will stop, block and switch off, requesting the rider to leave the zone to block the ride.²⁰¹ Another specific technology is "sidewalk detection" which allows the platform to automatically recognise when a user steps onto a pavement. In cities, one of the main problems is when scooters drive on pavements at high speed, becoming dangerous. Through this technology, a user will be notified at the end of the ride if he has travelled more than 50% of his journey on the sidewalk. If this misbehaviour is repeated, the user risks having their account suspended.²⁰²

Scooter sharing services in general base their operation on common sense and invite users to use them correctly. The development of technology has enabled increasingly advanced control systems, which seek to establish safety standards: for example, although it is not required to drive such vehicles, Lime still requires a driving licence to verify the age of its users. Despite the continuous evolution of electric scooters, doubts remain in terms of operation and profitability. "While the market potential for e-scooters is promising, their unit economics, at least for the first generation of vehicles, is challenging. Today's e-scooters are not profitable. The average e-scooter currently has a life-span of just three months. E-scooters were originally designed for private use, not for rental, so the heavy usage, rough handling, and even vandalism that users inflict on them have dramatically cut down on their durability. Yet despite the modest cost of an e-scooter, it takes almost four months, not counting marketing and overhead expenses, for a rental company to break even on its investment. The highest costs today arise from operations and charging. Every day, providers typically collect the e-scooters; transport them to a central facility for battery charging, maintenance, and repairs; and then redistribute them for the next day. The additional costs incurred are substantial. Some providers try to defray these expenses by using a "crowd-charging" model, in which they pay the user (in cash or e-scooter minutes) to take the e-scooter home for charging and then return it the next day.

²⁰¹ <https://www.li.me/second-street/lime-introduces-new-geofencing-technology-setting-industry-standards-for-scooters>

²⁰² <https://www.li.me/second-street/lime-debuts-sidewalk-detection-latest-innovation-to-improve-scooters-for-all>

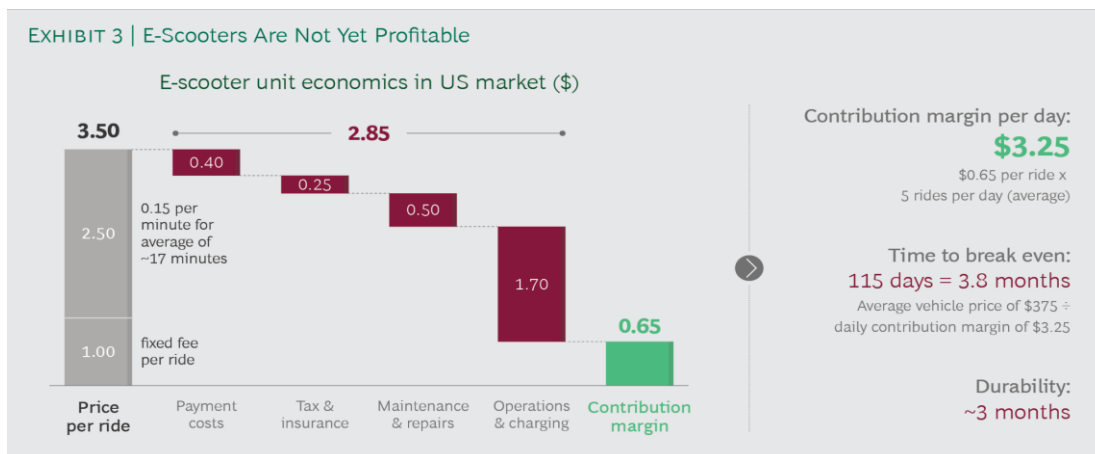


Figure 29: Analysis for Electric Kick Scooter Market²⁰³

Fortunately, improvements are already in the works. Longer-lasting or swappable batteries will reduce the need for charging and operations. At current price levels, e-scooters will likely generate a profit if they can last around six months; several providers are developing their own hardware to boost product durability too as much as ten months (and some have already rolled out a more rugged line of e-scooters). These measures, along with economies of scale in production, will enhance e-scooters' profitability considerably."²⁰⁴

3.3 Reinventing Car Rental: Turo Business Case

Turo is a platform that has redefined the car rental market, creating a portal that connects car owners and people looking for a rental car. Turo has thus created the first peer-to-peer Car Sharing portal: the platform operates without owning any cars, but only as an intermediary. The platform started operating in 2010 under the name RelayRides, founded by Shelby Clark in Boston. The platform is based on the idea that there are people who have low use of their car and to make a profit, they can put it on the platform and take care of the delivery and collection of their car.²⁰⁵ There are no constraints per car category, and the platform offers from a common utility car for the price of 50€ per day, to Supercar for over 1000€ per day. "Turo is a car sharing marketplace where guests can book any car they want, wherever they want it, from a vibrant community of local hosts across the US, Canada, and the UK. Guests choose from a totally unique selection of nearby cars, while hosts earn extra money to offset the costs of car ownership. A pioneer of the sharing economy and travel industry, Turo is a safe, supportive community over 10 million strong with more than 350,000 vehicles listed and over 850 unique makes and models. Whether it's a truck to help out on moving day, a Mercedes-Benz for a

²⁰³ <https://www.bcg.com/publications/2019/promise-pitfalls-e-scooter-sharing>

²⁰⁴ <https://www.bcg.com/publications/2019/promise-pitfalls-e-scooter-sharing>

²⁰⁵ <https://jungleworks.com/turo-car-sharing-platform-startup-story/>

luxurious weekend away, or a classic VW bus for a picture-perfect road trip, Turo lets you book cars that are part of a story, not a fleet. ²⁰⁶ The platform operates with rates on a daily basis, competing with traditional Car Rental services such as Sixt and Hertz or with car rental on-demand services such as ZipCar. By not dealing with the maintenance and fleet management of its vehicles, the platform is able to offer more competitive rates than traditional operators. The platform operates without physical points, but only with its own website and App that put the user in contact directly with the car owner.²⁰⁷ In 2015 the platform changed its name from RelayRides to "Turo".²⁰⁸ In the first moment, the platform aimed to automate the service by installing GPS and automatic opening systems on the cars on the platform, following ZipCar's operational strategy. The initial strategy also included the possibility of renting cars at hourly rates, while rebranding and changing the name to Turo shifted the focus to daily rates. A return to automated rentals was made with the "Turo Go" initiative which, by mounting hardware on a host's car, allows the car to be unlocked autonomously, tracks the routes and geolocates it. This opportunity was given by the fact that the cars that had the possibility to be booked instantly or the cars that offered the delivery service were more booked on the platform than the others.²⁰⁹ The most important role of the platform is to offer specific insurance coverage at the time of booking: a user will thus be covered by a third part insurance package that the platform provides. Insurance is a very sensitive issue for Turo, given the disputes that there were in 2013 where the platform was accused of implementing unfair commercial practices, not offering real insurance cover to its customers in the event of serious damage. This accusation led to the platform having to pay a \$200,000 fine to NYC's financial services department.²¹⁰ To curb this problem and maintain its credibility, the platform subsequently entered into partnerships with various insurance entities, depending on the area of operation. In Europe, it works with Allianz, in America with Liberty Mutual and in Canada with Intact and ICBC.²¹¹ The insurance coverage of the platform offers several options for hosts who put their cars on the portal. Based on a fee that will cover the insurance costs, different services will be offered. Hosts who place their car on the portal earn "between 60% and 92.5% of the price, fees, and charges you set, depending on your location and the host protection plan you choose." ²¹² In fact, the platform offers both supply side insurance and demand side insurance for its "guests". On the supply side, the parameters that define the various insurance packages are

²⁰⁶ <https://turo.com/gb/en/about>

²⁰⁷ <https://www.columbian.com/news/2015/dec/26/in-seattle-turo-turns-strangers-into-car-sharers/>

²⁰⁸ <https://digital.hbs.edu/platform-digit/submission/relayrides-the-new-era-of-car-sharing-economy>

²⁰⁹ <https://www.prnewswire.com/news-releases/turo-unlocks-the-future-of-car-sharing-with-turo-go-300664619.html>

²¹⁰ https://www.dfs.ny.gov/reports_and_publications/press_releases/pr1403101

²¹¹ <https://turo.com/gb/en/insurance>

²¹² <https://support.turo.com/hc/en-us/articles/203992000-Earnings-and-payment>

based on six dimensions: the value of the deductible in case of damage, liability towards third parties, replacement vehicle in case of problems with guests, external damage and loss of receipts in case of problems with guests. Let's analyse the various insurance packages offered in Europe with Allianz: the insurance package with the highest coverage is the "65 plan" where the host will earn 65% of the price paid by the guest, so there will be a 35% fee that Turo will keep for the insurance coverage, offering in case of damage to your car, a courtesy car to the host. The package with less coverage is the "75 plan" where the platform retains 25% but offers as follows coverage only of the damage to third parties with a maximum limit of £20,000,000.

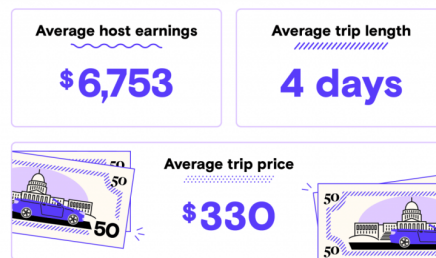


Figure 30: Turo Average Numbers²¹³

On the guest side, the user can choose between three packages that determine the deductible in case of damage. The price the user will pay is a % surcharge based on the rental cost. The minimum package is the one that provides with a 5% surcharge an excess of £2000 in case of damage while paying a 30% surcharge this amount will be reduced to £750.

Paying the full coverage with an extra 80% will reset the deductible to zero, but the user will pay almost double their rental. By offering dynamic packages, Turo gives the possibility to list a car not only to those who have their car for private use, but also to commercial operators. In fact, car dealers can decide to put cars that they have available also to sell on the platform and thus develop a parallel business without having to invest in marketing, licensing or having to make special efforts: all they need to do is take photos and put the car on the portal. Turo invites to operate with them also to independent car rental and classifies differently private operators and commercial operators.

The “Commercial Host” programme qualifies professional operators that should be available to offer higher standards for their services and the platform defines them as “Car rental companies who can offer commercial rental insurance to cover themselves, their guests, and their cars are eligible to list cars as a Commercial Host. Turo only allows businesses to participate that demonstrate strong customer service values and align with the high standards we expect of all our hosts.”²¹⁴ Users, both commercial and private, are free to define the price

²¹³ <https://turo.com/blog/community/2020-turo-market-guide-los-angeles>

²¹⁴ <https://explore.turo.com/commercial-host/>

they prefer, but the platform offers a tool called "Carculator" which, by entering the vehicle model, year of production and place where the service is to be offered, allows them to work out the recommended price to put on the platform, which is calculated instantly using an algorithm.²¹⁵ The platform offers a bi-lateral review system to guarantee the satisfaction of both hosts and guest, which will rate each other after a trip.²¹⁶ Working with third parties and not having direct control over the cars on the platform, Turo is not able to guarantee standards of cleanliness or safety so takes very seriously complaints and in case of negative reviews there are specific investigations. The platform puts effort in guaranteeing cleanliness and safety, an example is their offer of products for cleaning and sanitising the host cars, especially after the COVID-19 pandemic. The platform offers a direct distribution store, where it sells its own merchandising and car care products, encouraging its partners to keep their cars clean and safe.²¹⁷ In this moment of pandemic in history, where travelling is very restricted, car rentals all over the world have been hit hard as they have had their car fleets idle for months, while Turo, acting only as an intermediary and not owning any cars, has managed not to suffer huge losses, while still maintaining a minimum of active operations.²¹⁸ Turo acting as an intermediary agent has a limited responsibility of the service it can offer: as in the case of Uber, where with minimum requirements you can do the work of a taxi driver or in the case of Airbnb where anyone can improvise "host", with Turo in case of problems with a car you do not have the same guarantees as you would with a traditional operator. "Since we do not have our own car fleet, in the event of a vehicle accident, the user will not have immediate availability of another vehicle as is guaranteed by traditional car rentals. There are also unpleasant episodes in which people who offered their car on Turo, have subsequently had negative experiences such as the case of Phillip Stephen who had purchased an Audi R8 worth \$78,000 and after an accident of a user had to take a long procedure with Turo to clarify the responsibilities of the case"²¹⁹. In the specific case, the car was practically destroyed by the user, and the insurance reimbursement procedures for the owner were handled unclearly: the car was so destroyed that it was not repairable and the reimbursement estimates made by the insurance company that handled the case, according to the owners of the car, were not corrected, underestimating the real value of the car. Additional problems can occur such as the payment of freeway tolls: in America the payment system is automated and traditional car rental operators offer optional extras that allow you to add devices to pay tolls automatically, while with Turo being private

²¹⁵ <https://turo.com/gb/en/carculator>

²¹⁶ <https://support.turo.com/hc/en-us/articles/115014930288-Review-Policy>

²¹⁷ <https://turo.com/blog/news/practicing-safe-car-sharing-while-navigating-covid-19>

²¹⁸ <https://turo.com/blog/insights/the-impact-of-covid-19-on-turo-in-march>

²¹⁹ <https://jalopnik.com/here-s-what-happens-when-someone-on-turo-crashes-your-a-1792048817>

vehicles, they are not always equipped with such devices and in case of negligence of payments, fines have been reported and then charged to users.²²⁰

There are further cases where it is verified that cars have been delivered with tires worn to such an extent that various situations of negligence on the part of car owners can be dangerous. A comprehensive response from Turo Customer Support is "I am sorry to hear that there were concerns with the vehicle condition. We take vehicle safety extremely seriously at Turo. Unfortunately, we cannot be present at each reservation start which is why we rely on both our Hosts and Guests. When the trip is about to start, we ask that the parties review the vehicle condition before accepting the keys. In our public policy, "Reporting a car that's unsafe or unsatisfactory", we have directions on what to do if you feel the vehicle is unsafe. If a customer ever feels that a vehicle is unsafe to drive or is unsatisfactory, Turo will step in and either refund you in full or get you into a different vehicle as soon as possible. This must be reported to Turo prior to taking the vehicle though."²²¹

Innovative platforms are not always able to guarantee the same standards as traditional operators since different business models are adopted where the responsibilities are mainly of users and suppliers: platforms act as intermediaries and despite the efforts to ensure safety standards and to engage in control, they can solve an unpleasant situation but not easily prevent it. In the case of sharing platforms, in order to ensure their diffusion and continuous operations, it is important that each user feels an integral part of the service, taking their responsibilities and respecting the rules and practices of correct use of the shared services they are going to use. In the specific field of mobility, thanks to the increasingly developed GPS technologies and interconnection between devices, platforms can constantly monitor the correct use, acting immediately in case of problems or incorrect practices. Increasing the forms of control, security standards and educating users to the correct use and respect for the community, the work of platforms will become increasingly autonomous, limiting the direct intervention of service providers only in case of particular problems or operational needs.

²²⁰ <https://www.bbb.org/us/ca/san-francisco/profile/auto-renting-and-leasing/turo-1116-378793/complaints>

²²¹ <https://www.bbb.org/us/ca/san-francisco/profile/auto-renting-and-leasing/turo-1116-378793/complaints>

4 Investigation of demographic trends for Sharing Mobility

4.1 Scope of investigation: How demographic factors influence preferences for using Shared Mobility

After analysing what the different sharing economy operators offer, the survey conducted aims to investigate the definition of the consumption patterns of Sharing Economy users in mobility in Italy. More and more platforms are entering into operation in Italian cities, offering car sharing, bike sharing, scooter sharing and kick scooter sharing services. These operators are present both in traditional mobility by providing cars and scooters and in micromobility with electric bicycles and kick-scooters. Platforms are expanding throughout Italy, from North to South. The research aims to identify the current state of people's perception of the use of vehicles in shared mode, to identify patterns of use and to identify trends. The final aim of the research is to identify different segments of consumers based on common characteristics of preference and use and to establish whether vehicles in shared mode will be able to replace private vehicles in the future. In this way, it will be investigated whether, with the spread of more and more platforms that offer vehicles in sharing mode, users are ready to abandon the traditional concept of ownership and convert to the exclusive use of vehicles in sharing mode. Once different groups of consumers have been defined, they will position themselves on Roger's "Innovation Curve. More." to define a current status of the various groups on the adoption of shared mobility platforms.

"Are Italian citizens ready to abandon a vehicle they own to adopt shared mobility solutions?"

4.2 Analysis of the general trends emerged

The questionnaire was uploaded on the online platform "GoogleForms" for a week during September 2020 and was closed with 500 responses. Excel software and SPSS software were used for statistical processing. The questionnaire consists of a first part that defines the demographic. The first part investigates about gender, age group, driving licence in possession. Then details are requested from a geographical point of view, to frame the context of each participant. After defining a demographic profile, consumers will be asked to express their actual patterns of consumption, their perception about private and shared vehicles and their willingness to adopt a shared vehicle or to buy or keep owning a private one.

	N	%
Male	259	51,8%
Female	237	47,4%
Prefer Not To Say	4	0,8%

Table 1

The sample from a gender point of view is composed of 500 respondents which 259 are Men, 237 are Women, and 4 individuals preferred not to specify their gender.

	N	%
0-18	61	12,2%
19-25	224	44,8%
26-40	87	17,4%
41-60	97	19,4%
more than 60	31	6,2%

Table 2

For the definition of the Age Group, generational parameters were used to assess whether belonging to a specific generation of consumers²²² characterises particular consumption trends in the context of shared mobility.

²²² <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/true-gen-generation-z-and-its-implications-for-companies>

Number of people living in the city

	N	%
0-20.000	49	9,8%
20.001-40.000	85	17,0%
40.001-60.000	57	11,4%
60.001-80.000	31	6,2%
80.001-100.000	66	13,2%
more than 100.000	212	42,4%

Table 3

Users were asked to indicate the number of inhabitants of the city in which they live. As a reference for the number of inhabitants, the concept of "average city"²²³ was taken into consideration, which in Italy defines an average of 50,000 inhabitants per Italian city. Therefore, intervals have been established that take the average city as an average reference point.

Geographic Location

	N	%
South of Italy	181	36,2%
Center of Italy	161	32,2%
North of Italy	158	31,6%

Table 4

The user expressed their geographic position in Italy. Italy has differences in terms of infrastructure and accessibility between North, Centre and South, which could make its geographical position relevant for determining whether or not shared mobility services are appreciated.

²²³ <https://www.centrodocumentazionecomuni.it/comuni-analytics/i-quaderni-dei-comuni>

Do you own a private vehicle?

	N	%
I own my private vehicle	260	52,0%
I share a vehicle with my family	172	34,4%
I do not have a private vehicle	68	13,6%

Table 5

We evaluated the actual state of ownership of a vehicle. We see that only 13,6% of people does not own a Vehicle of property. 86.4% own a vehicle or share a private vehicle with their family. This figure shows that the people who responded to the survey are strongly linked to owning a transport vehicle.

Average Time spent for transport

	N	%
Less than 20 minutes	157	31,4%
20 - 40 minutes	202	40,4%
40 minutes - 1 hour	98	19,6%
more than 1 hour	43	8,6%

Table 6

Users had to express their daily average use of transport services. It emerges that 71.8% of individuals spend less than 20-40 minutes for their daily trips.

Which kind of transportation do you use based on your daily routine?

	N	%
Car	260	52,0%
Scooter	82	16,4%
Kick Scooter	38	7,6%
Motorbike	11	2,2%
Bike	7	1,4%
Electric bike	7	1,4%
Electric Car	5	1,0%
50 cc Microcar	3	0,6%
Public Transport	64	12,8%
Electric scooter	13	2,6%
Walking	10	2,0%

Table 7

Most of the people interviewed use a car as their daily vehicle for transport (52%). The second most used vehicle for transport is the scooter (16,4%). Public transport has also been included in this question as a transport option, which becomes the third most popular option for users. It is interesting the number of Kick Scooters, which despite being a new trend, which was regulated in March 2020 is used by 7.6% of respondents.

Which kind of road do you daily take?

	N	%
Urban Roads	289	57,8%
Mix of Urban-Extra Urban roads	185	37,0%
Extra Urban Roads	26	5,2%

Table 8

We can see that 57.8% of respondents travel exclusively on urban roads while 37% travel on a mix of urban and non-urban roads. Only 5.2% of those interviewed travel exclusively on non-Urban roads. This question is relevant in terms of vehicle choice: driving on an extra-urban road with a bicycle or a kick-scooter could be problematic, micromobility vehicles are in fact more suitable for urban roads

Have you ever used shared mobility services?

		Frequency	Percent	Cumulative Percent
Valid	Yes many times	177	35,4	35,4
	Yes, just a few times	174	34,8	70,2
	No, but I would try them	108	21,6	91,8
	No, I am not interested in them	41	8,2	100,0
	Total	500	100,0	

Table 9

The majority of respondents often use vehicles in a shared manner (35.4%) or have used them a few times (34.8%). Therefore, 70.2% of respondents have already used shared vehicles at least once. 29.8% of respondents have never used shared vehicles. 91.8% of respondents have a positive attitude towards shared mobility services and only 8.2% of respondents are not interested in using shared vehicles.

With which frequency do you use shared mobility services?

		Frequency	Percent	Cumulative Percent
Valid	Every day	46	13,10	13,10
	2/3 times per week	115	32,76	45,86
	Once per week	41	11,68	57,54
	2/3 times per month	57	16,24	73,78
	Less than once per month	76	21,65	95,44
	I do not use them	16	4,56	100,0
	Total	351	100	

Table 10

The people that answered “No, but I would try them” or “No, I am not interested in them” skipped this question about the frequency of usage. Among the 351 positive response among people which used at least one time shared vehicles, we see that only the 4,56% of people that have used shared mobility services at least once decided not to use them anymore. The trend is the usage of “2/3 times per week” that is the 32,76% of the interviewed. This data show that people who tried even once time shared services, keep using them with frequency.

Did Covid-19 pandemic change your mobility habits? If Yes, How? (Explain shortly in "Other")

	N	%
It did not change my habits	435	87,0%
Other	65	13,0%

Table 11

The decision to put a question about Covid-19 and Mobility is to check if Social Distancing changed the habits of people. The users that selected "Other" listed with an open answer the reasons for their change of habits. Among the different reasons, the most common that emerge are that many people are in smart working and do not need to go to job everyday so they are at home and do not use any kind of transport. People that were using "Public transport" are trying instead to avoid it to keep social distancing and adopted different solutions. Among them some people bought a private vehicle while others adopted shared mobility solutions. For the 87% of people that did not change habits.

Once the general trends have been established, let's investigate through Crosstabs if there are relevant differences by putting variables such as geographical location, composition of the city or frequency of use into system with the expression of the preference to use a shared vehicle instead than a private one. The interviewers were asked to rate from 1 to 5 their interest for using a shared vehicle instead than a private one. The rate 1 means that an user prefers to use a private vehicle, a rate 5 means that an user prefers to use shared mobility.

\$SharedServices*GEOGRAPHLOC Crosstabulation

		GEOGRAPHLOC			Count Total	of		
		South Italy	of	Center Italy			of	North Italy
Shared Services	Car Sharing	Count	43		122		115	280
		% of Raw	15,36%		43,57%		41,07%	56,00%
	Bike Sharing	Count	29		101		90	220
		% of Raw	13,18%		45,91%		40,91%	44,00%
	Scooter Sharing	Count	21		104		99	224
		% of Raw	9,38%		46,43%		44,20%	44,80%
	Kick Scooter Sharing	Count	27		104		111	242
		% of Raw	11,16%		42,98%		45,87%	48,40%
	No Shared Services	Count		119		32	31	182
		% of Raw		65,38%		17,58%	17,03%	36,40%
	Total	Count		181		161	158	500
		% of Total		36,20%		32,20%	31,60%	100,00%

Percentages and totals are based on respondents.

Table 12

When people are asked "Is your city offering shared mobility services?" we see that the service most present is Car Sharing. However, this service is concentrated in Central and Northern Italy, and we see that among the users who have stated that they have a Car Sharing service in their city, only 15.36% are from Southern Italy. A figure that emerges is that 48.4% of respondents have a Kick Scooter Sharing service in their city. These services have been regulated and introduced since May 2020, and the analysis was conducted in September 2020: although less than 6 months, this data shows that these services are becoming increasingly widespread in Italy. However, there remains a concentration of services in central and northern Italy. A figure that also emerges is that among the people who do not have a any Mobility Sharing service in their city, 65.38% come from the South of Italy.

CROSSTAB REPORT

Average Time spent for transport		I prefer to use a shared vehicle instead of my own vehicle:	Future willingness to adopt a shared vehicle
Less than 20 minutes	Mean	3,61	3,79
	N	157	157
20 - 40 minutes	Mean	3,29	3,49
	N	202	202
40 minutes - 1 hour	Mean	2,61	2,67
	N	98	98
more than 1 hour	Mean	2,35	2,42
	N	43	43

Table 13

This table compares the average time spent daily by users on transport with the current preference for using a vehicle in sharing mode and the preference for future adoption, which both range from 1 to 5. We can see that there is an inversely proportional relationship between the preference to use a vehicle in sharing mode and the time spent on transport daily. As the daily time spent on transport increases, the preference to use a sharing solution decreases. We also note the trend that future willingness to adopt a shared vehicle instead than a private one, is always greater than the current preference to use a vehicle in shared mode.

SharedServices*NPeople CROSSTAB

		How many people live in your city?					
		0- 20.000	20.001- 40.000	40.001- 60.000	60.001- 80.000	80.001- 100.000	more than 100.000
Car Sharing	Count	10	26	14	9	46	175
	% within \$SharedServices	3,60%	9,30%	5,00%	3,20%	16,40%	62,50%
	% of Total	2,00%	5,20%	2,80%	1,80%	9,20%	35,00%
Bike Sharing	Count	6	22	10	7	26	149
	% within \$SharedServices	2,70%	10,00%	4,50%	3,20%	11,80%	67,70%
	% of Total	1,20%	4,40%	2,00%	1,40%	5,20%	29,80%
Scooter Sharing	Count	4	22	9	7	33	149
	% within \$SharedServices	1,80%	9,80%	4,00%	3,10%	14,70%	66,50%
	% of Total	0,80%	4,40%	1,80%	1,40%	6,60%	29,80%
Electric Kick Scooter	Count	5	20	9	10	40	158
	% within \$SharedServices	2,10%	8,30%	3,70%	4,10%	16,50%	65,30%
	% of Total	1,00%	4,00%	1,80%	2,00%	8,00%	31,60%
No Shared Services	Count	37	57	39	19	12	18
	% within \$SharedServices	20,30%	31,30%	21,40%	10,40%	6,60%	9,90%
	% of Total	7,40%	11,40%	7,80%	3,80%	2,40%	3,60%
Total	Count	49	85	57	31	66	212
	% of Total	9,80%	17,00%	11,40%	6,20%	13,20%	42,40%

Table 14

Going to analyse the distribution of the different mobility sharing services according to the different Italian cities, we see how there is a concentration of services in cities with more than 80.000 inhabitants. We also note that among the interviewees, those who do not have sharing services are in cities with less than 60,000 inhabitants. This condition may describe the need for a critical mass that sharing mobility platforms need to operate profitably: this mass may be difficult to reach in smaller cities, so cities below the average municipality may continue to be without shared services.

4.3 Definitions and characteristics of the clusters

After analysing the subgroups and noticing the trends that were highlighted, a Cluster Analysis was conducted. The variables inserted are 6:

”Geographic Location” ; “Future willingness to adopt a shared vehicle” ; “Actual preference for a shared vehicle” ; “Number of people living in the city” ; “Age Group” ; “Average time spent daily for transportation”

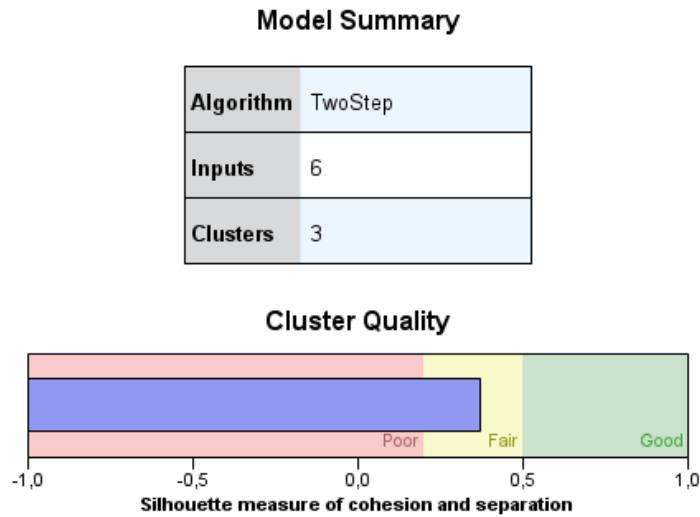


Figure 31

Running a “TwoStep Cluster Analysis” with SPSS Software 3 clusters emerge.

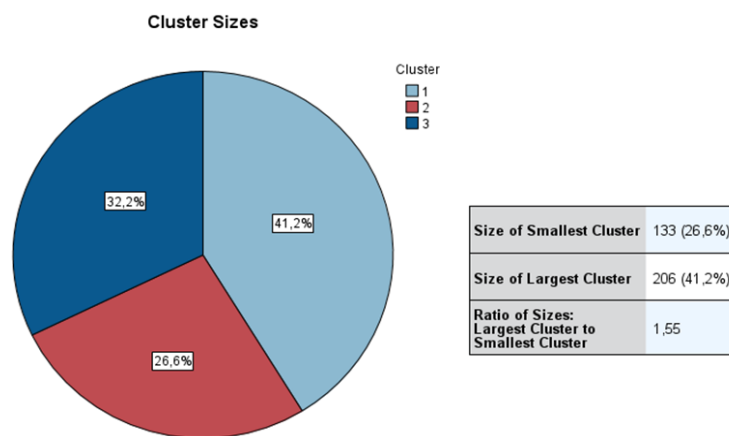


Figure 32

The clusters identified are balanced. Cluster 1 is composed by 206 individuals, Cluster 2 by 133 individuals and Cluster 3 by 161 individuals.

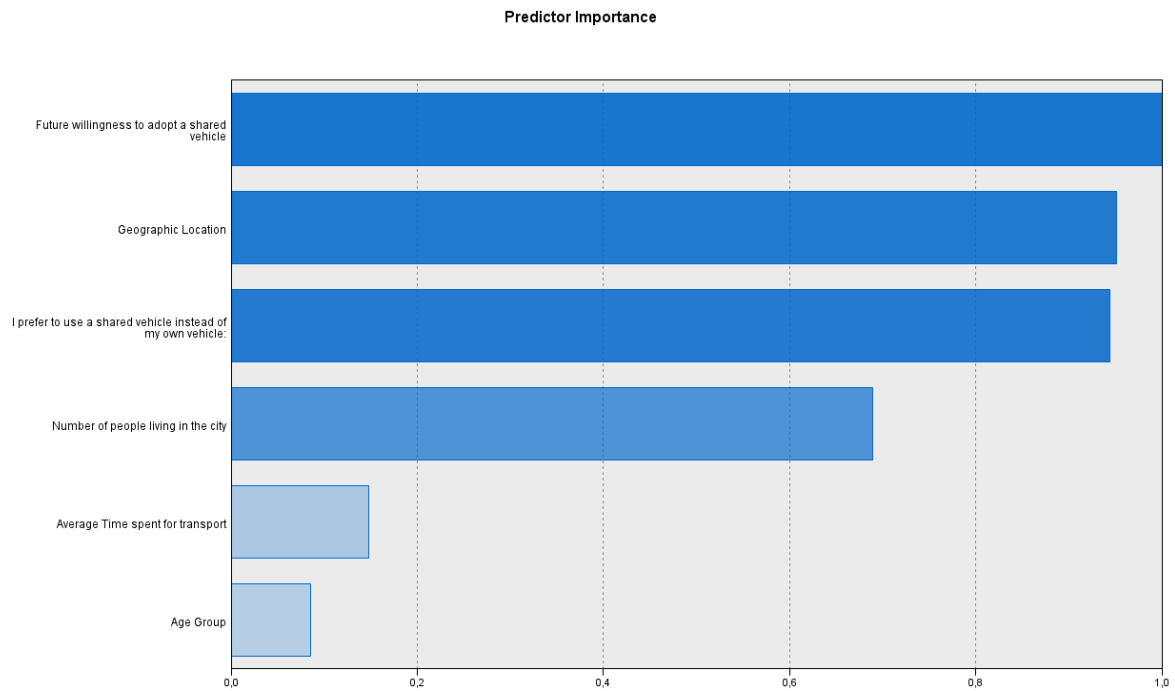


Figure 33

Analysing “Predictors of Importance” we see that the main influence on clusters is given by the definition of the “Future willingness to adopt a shared vehicle” , “Geographical location”, “preference to adopt a sharing or owned vehicle” and “number of people living in the city”. The least important predictors are "Age Group" and "Average time spent for transport". Let's analyze in detail inside the clusters the predictors, starting from the least important to the most important.

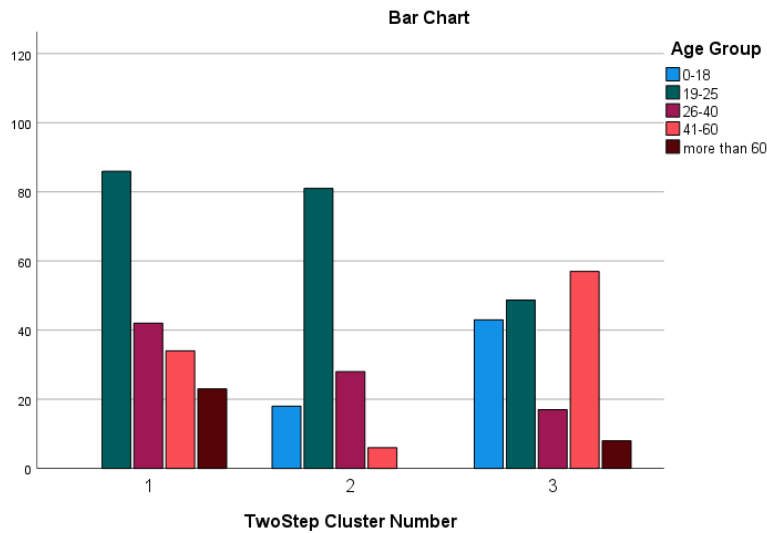


Figure 34

Age groups results to be the lowest important predictor: the distribution of age groups does not mark differences among the clusters. We can notice a balanced distribution of people among the different clusters. The only difference that emerges is that most part of people with more than 60 years is in Cluster 1 while people of the age group “0-18” are concentrated in the Cluster 3.

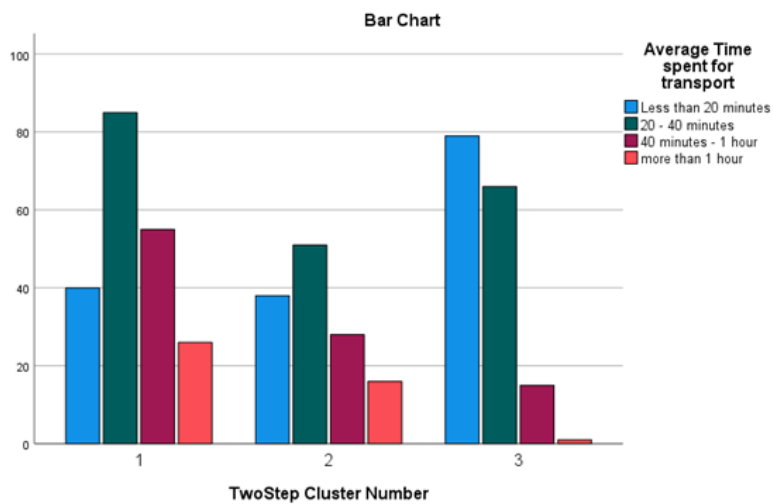


Figure 35

The second lowest important variable is the time spent. We noticed before the general trend that confirms that lower is the time that a people spends on shared services, more is the propensity to use shared services. We see that in cluster 3 there is the most part of people that have daily trips of 40 minutes or lower, while in group one the most part of people that have daily trips of 20-40 minutes.

CROSSTAB

		Number of people living in the city						Total
		0-20.000	20.001-40.000	40.001-60.000	60.001-80.000	80.001-100.000	more than 100.000	
TwoStep Cluster Number	Cluster 1	9	18	9	12	25	133	206
	Internal %	4%	9%	4%	6%	12%	65%	
	Cluster 2	37	44	40	9	3	0	133
	Internal %	28%	33%	30%	7%	2%	0%	
	Cluster 3	3	23	8	10	38	79	161
	Internal %	2%	14%	5%	6%	24%	49%	

Table 15

Number of people living in the city is the third least important. Here we see clear differences among the clusters. Cluster 1 is composed by the most part of people living in cities with “more than 100.000 people” (65%).

Cluster 2 is composed by the 91% of people living in cities with a lower number of 60.000 people.

In Cluster 3 we have the majority of people living in cities with “more than 100.000” (49%) but also a significant number of people living in cities between “80.001-100.000 people” (24%)

REPORT

I prefer to use a shared vehicle instead of my own vehicle:

TwoStep Cluster Number	Mean	N	Std. Deviation
1	2,11	206	1,006
2	3,26	133	1,099
3	4,48	161	,708
Total	3,18	500	1,385

Table 16

Actual preference to use a shared vehicle is the third most important predictor. Looking at the means of the actual preference for a shared vehicle we clearly see that Cluster 1 has the lowest propensity to adopt a shared vehicle (mean value 2,11) while Cluster 2 has a medium propensity (3,26) and the Cluster 3 has a strong propensity to adopt a shared vehicle (4,48)

TwoStep Cluster Analysis* Geographic Location Crosstabulation

	Geographic Location			Total
	South of Italy	Center of Italy	North of Italy	
Cluster 1	69	109	28	206
	33,5%	52,9%	13,6%	
Cluster 2	107	23	3	133
	80,45%	17,29%	2,26%	
Cluster 3	5	29	127	161
	3,11%	18,01%	78,88%	
Total	181	161	158	500

Table 17

Analyzing the Geographical Location of the clusters emerges that Cluster 1 is composed mainly by people living in Center of Italy (52,9%) and South Italy (33,5%). Cluster 2 mainly by people living in South Italy (80,45%). Cluster 3 is composed mainly by people living in cities of North of Italy (78,88%).

Report

Future willingness to adopt a shared vehicle

TwoStep Cluster Number	Mean	N
1	2,18	206
2	3,41	133
3	4,74	161
Total	3,33	500

Table 18

The most important predictor, the “Future willingness to adopt a shared vehicle” makes significant differences among the clusters: looking at the means inside the clusters, Cluster 1 has the lower propensity (2,18) , Cluster 2 has an average Propensity (3,41) while Cluster 3 has a clear propensity to adopt shared vehicles (4,74).

Clusters

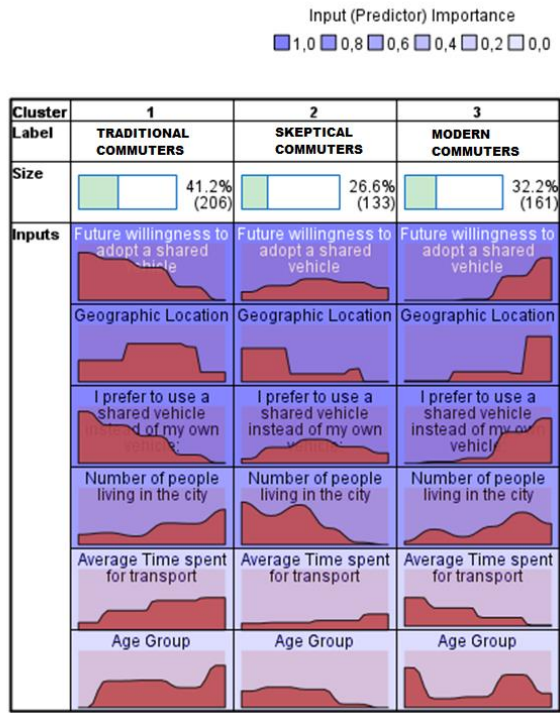


Table 19

Defined the characteristics and preferences for every cluster follows a description and naming: Cluster 1: This is the largest cluster compared to the others. This cluster is mostly composed of people aged 19-25 and most people over 60 compared to the other groups. In this group, most people have daily mileage of more than 20-40 minutes. This cluster also includes the largest number of people with "40 minutes-1 hour" and "more than 1 hour", so we can define this group as the group with the longest daily mileage. This group of people lives in cities that tend to be large, above 80,000 inhabitants and has a preference for the use of vehicles in sharing lower than all the other clusters. Of this group, most people are located in Central Italy and Southern Italy. The propensity to adopt sharing solutions in the future is the lowest compared to all other clusters. This result is consistent with what we analysed before: having longer time of daily travels than other clusters, this group has a lower propensity to use vehicles in sharing mode. We have also seen that most of the shared services are concentrated in Northern Italy, and since this group is composed mainly by people from Central and Southern Italy where there are fewer shared services, individuals belonging to this group are less familiar with shared vehicles than other clusters. Preferring the adoption of traditional solutions for their daily life such as vehicle ownership, we will call this cluster *"TRADITIONAL COMMUTERS"*.

Cluster 2: This is the smallest cluster compared to the others. The age group of this cluster is mixed, and no particular trends emerge. The daily travel time of this cluster tends to be more than 20-40 minutes. This cluster consists mainly of people living in cities under 60,000

inhabitants. The preference for the use of shared means of transport of this group is average compared to the other clusters, so this can be defined the "undecided" group. Inside Cluster 2, most of the individuals live in the South of Italy. The propensity to adopt a shared vehicle instead of a private one is on average compared to the other clusters. Such clusters living in smaller cities cannot use shared vehicles. Being in majority part of the South of Italy, these individuals tend not to have available vehicles in sharing mode because, as we have previously seen, most of the Sharing services are concentrated in the North and Central Italy. This group has an average propensity to use and contains people who have used shared vehicles but who, living in small and medium cities, especially in the South of Italy, do not have sharing services available. However, this group shows an inclined tendency towards the use of means in sharing mode, and if they had a greater availability, this propensity could increase. We will define this group as *"SKEPTICAL CONSUMER"* due to their not very firm approach to shared mobility.

Cluster 3: This group contains the largest number of individuals aged 41-60 and 0-18 years compared to the other groups. The average mileage in this group is under 20-40 minutes, and in this cluster, there is the largest number of people with a "Less than 20 minutes" mileage: the number of people with daily trips lower than 20 minutes is almost equal to the sum of the people with the same time spent of the other two groups. Inside the cluster is also concentrated the majority of individuals with short to medium time spent for transports. This cluster consists mainly of people living in medium-large cities above 80,000 inhabitants. The preference for the use of vehicles in sharing mode rather than a private vehicle of this group is the highest compared to the other clusters. The individuals belonging to this cluster are mainly individuals from Northern Italy (78.88%). In this cluster the propensity to use sharing mode vehicles in the future is the highest compared to other clusters. Most of the individuals from Northern Italy are part of this cluster and therefore, they have stronger accessibility respect to other clusters to shared platforms, as they are concentrated in Northern Italy. This cluster has an overall lower time spent for transports than the other clusters and therefore has a higher preference than the others to adopt sharing mobility solutions for their travel. As this is the cluster with the highest preference to adopt modern solutions instead than the traditional ones, we will define this cluster *"MODERN CONSUMERS"*

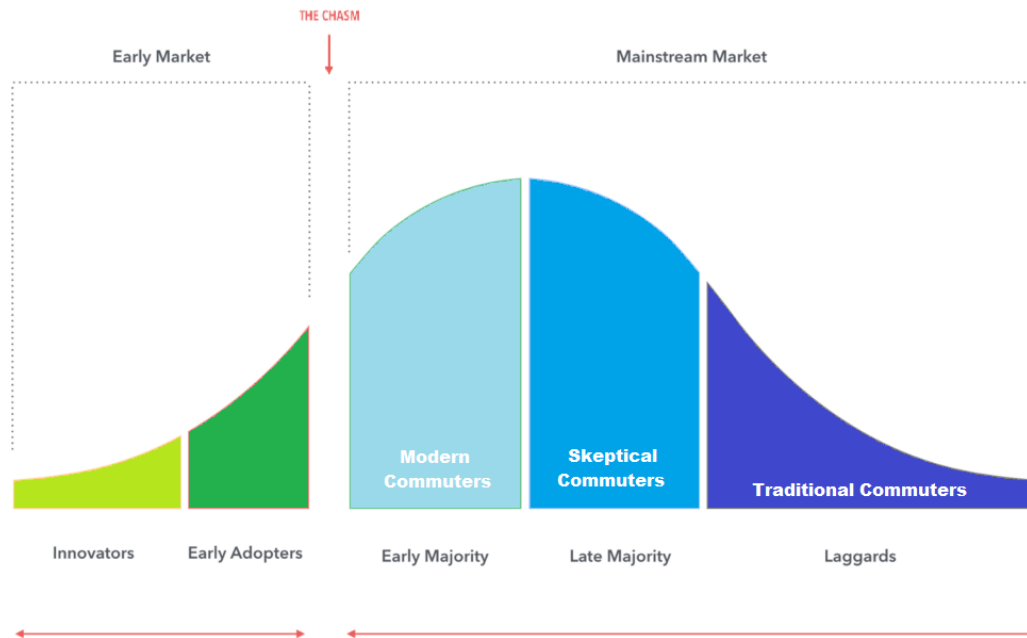


Figure 36 Roger's Adoption Curve with personal adjustments, "Diffusion of Innovation" Everett M. Rogers (1962)

Distinguished the different clusters and analysed their preferences, we can find similarities with the consumer groups analysed in Rogers' "Adoption Curve" model.

The sharing mobility market is already established and mainstream, so similarities emerged with the consumer segments identified by Rogers. Rogers defines the "Early Majority" segment as: "members of the early majority category will adopt new ideas just before the average member of a social system. They frequently interact with peers, but are not often found holding leadership positions [...] Seldom leading, early majority adopters willingly follow in adopting innovations"²²⁴

Therefore we can place Modern Commuters in this category. Being mainly individuals from Northern Italy, they were among the first in Italy to be able to use vehicles in Sharing. An example is the company "Helbiz" which started in Italy with its kick scooters in Verona in Northern Italy in October 2019 while they arrived in Rome only in May 2020.^{225 226} Being the first to use innovative platforms of shared mobility, this segment has a high adoption rate and a high propensity for the use of vehicle sharing instead than owning a vehicle. They spend a relatively low time for transport respect to the other clusters and thanks to the availability of shared vehicles in their streets; they found in shared mobility the perfect solution for their needs. This segment is the leader for others in the diffusion of innovation.

The "late majority" segment is defined as a "skeptical group, adopting new ideas just after the average member of a social system. Their adoption may be borne out of economic necessity

²²⁴ "Diffusion of Innovation", Everett M. Rogers 1962

²²⁵ <https://www.romatoday.it/motori/mobilita-sostenibile/helbiz-roma-monopattini-quanto-costa-come-funziona.html>

²²⁶ <https://www.venetoeconomia.it/2019/10/verona-monopattini-elettrici/>

and in response to increasing social pressure. They are cautious about innovations and are reluctant to adopt until most others in their social system do so first. [...] While they may be persuaded about the utility of an innovation, there must be strong pressure from peers to adopt”

²²⁷

The "Skeptical Commuter" segment is still undecided and has not yet fully understood the innovation offered by shared mobility, and its preference is not clear. Since this cluster is mainly populated by people from the South of Italy, they do not have the same accessibility to sharing vehicles respect the one that the other segments have. If they had the availability, they could have a better perception of shared vehicles and replace private solutions for transport in their daily routine with shared ones.

“Traditional Commuters" cluster has similarities with "Laggards" which are defined "traditionalists and the last to adopt an innovation. They are fixated on the past, and all decisions must be made in terms of previous generations. [...] Laggards are likely to be suspicious not only of innovations, but of innovators and change agents as well " ²²⁸ Traditional Commuters strongly prefer the use of a private vehicle rather than a mobility solution in sharing mode, but this preference is not fully dictated by a personal choice. There might also be a logistical barrier and an operational impossibility: as this group is characterised by daily travel times of more than 40 minutes, the use of a vehicle in sharing mode may be too expensive, or the user may need to reach peripheral places that are not covered by sharing mobility services. The habits of this segment appear to be incompatible with the services performed by shared mobility operators.

²²⁷ *"Diffusion of Innovation", Everett M. Rogers 1962*

²²⁸ *"Diffusion of Innovation", Everett M. Rogers 1962*

CONCLUSIONS

Having defined the general characteristics of the sharing economy and analysed in detail the various shared mobility options, the results of the analysis show that in Italy users show a different perception of mobility according to different factors. To be profitable shared mobility platforms need a critical mass of users using such services, so there is a concentration of shared mobility services in large cities, as clearly emerges from the survey. In these large cities, the operational area is optimised to make the service as efficient as possible, and meets the interest of the majority, but not all. Citizens living in the suburbs, who are often not covered by shared mobility services, despite having a favourable attitude towards the use of shared mobility tools, are unable to meet their needs with such services and are forced to use private vehicles or public transport.

It emerges from the analysis that the determining variable that defines the preference for a private vehicle or a shared mobility solution is the city environment in which a person lives and the time of use that a user uses for transport daily. The survey shows that when the time of daily use of a vehicle increases, the propensity to use a sharing vehicle rather than a private one decreases. As vehicle sharing mode have a pricing per minute, a person with a daily journey of more than one hour would incur in too high expense compared to using a private vehicle, and therefore the use of a sharing vehicle would be inconvenient. The survey shows that electric kick scooters are very popular, although they have been officially regulated in Italy since March 2020, there is availability in many Italian cities, both in the north and south, unlike car-sharing services which are concentrated mainly in the north and centre of Italy. We also see that the general propensity to use shared mobility is favourable and that consumers have a strong positive tendency to use or to try shared mobility vehicles and those who use them at least once, continue to use them frequently. A general problem underlying the spread of shared mobility is that Southern Italy is still lagging in terms of infrastructure and innovation. Although most individuals from Southern Italy may have a positive attitude towards the use of a shared mobility vehicle, they do not yet have the availability of vehicles on the streets and therefore remains anchored to the use of a private vehicle. An inhabitant of a small and medium-sized city does not have shared mobility services available: if he or she has tried them in a large city, cannot imagine whether such services can be a definitive solution for their mobility or not, not having fully understood them. It is clear from the survey that Northern Italy has many more shared mobility services. Therefore individuals are much more likely to abandon a vehicle they own to use a shared mobility vehicle. However, it should be borne in mind that Italy is not only made up of large cities but also of small and medium-sized cities, where shared mobility platforms are unlikely to find profitability as economies of scale would be impossible to exploit.

In such realities, people are forced to remain anchored to the use of their vehicles, not by choice, but by necessity.

Government intervention, to make Italian mobility more sustainable, could support shared mobility initiatives also in small and medium-sized cities. A solution could be offering in sharing mode vehicles through subsidies, creating a public shared mobility service that could support traditional public transport services.

The Covid19 pandemic has changed the mobility habits of individuals, but mainly of those using public transport who are increasingly trying to avoid it. Among the individuals who changed their habits to avoid public transport, some adopted shared mobility solutions, while others bought a light vehicle such as a kick-scooter or an electric bicycle. Micro-mobility means of transport have been widely promoted both by institutions and citizens, since the massive use of cars to avoid public transport would have created, especially in big cities, intense traffic congestion situations. After analysing all the various alternatives, we resume the research question "Are Italian citizens ready to abandon a vehicle they own to adopt shared mobility solutions?" the answer is "YES, but not all of them." The cluster analysis of the results of the survey identified 3 demographic segments that have different habits:

"Traditional Commuters" are people whose consumption patterns are incompatible with those of shared mobility offers, therefore they remain anchored to the use of a private vehicle.

"Skeptical Commuters" are people who do not yet have a clear perception of how shared mobility works and could adopt shared mobility solutions if they were more available.

"Modern Commuters" are the citizens of large cities, who widely adopt shared mobility solutions for their daily journeys and are in favour of abandoning their own vehicles to adopt only shared mobility solutions.

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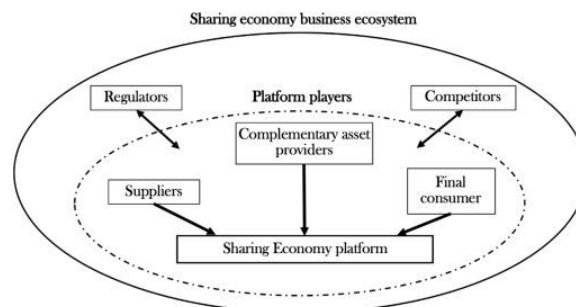
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EXECUTIVE SUMMARY

The so-called sharing economy proposes a new economic and cultural model, capable of promoting forms of conscious consumption that favour the rationalization of resources based on the use and exchange of goods and services rather than on their purchase: there is a prevailing concept of access rather than possession. The concept of "Sharing Economy" is founded therefore on values rooted in our community since the days before the advent of new technologies: digitalization has enabled and spread this phenomenon, expanding the potential and accessibility of the various services. The model opens markets to new opportunities of growth, employment and entrepreneurship, based on the idea of sustainable development from an economically, socially and environmentally perspective. Driving forces for the ascent of collaborative economics are information technology, the use of social media and in general enabling technologies. The forms and objects of sharing can be the most varied, from physical goods as the transportations until you get to accessories, digital products, spaces, time, skills and services, whose value may not necessarily be determined in cash and may take into account elements generally excluded by the traditional logics of exchange, such as the environmental or social impact that such activities have.



The *access economy* is changing the structure of a variety of industries, and a new understanding of the consumer is needed to drive successful business models. Analyzing the phenomenon of collaborative consumption, we recognize some dynamics that must subsist in order to collaborative models to work: its functioning can be interpreted as a cause of the existence of and the functioning of collaborative consumption. It occurs to define the fundamental pillars of this phenomenon:

Principle 1: Sharing of things and services. A requirement for Sharing Economy models to exist is a Critical mass: it is defined as the quantity or the threshold level for triggering a phenomenon. Critical mass for innovation is the point at which its diffusion becomes self-sustaining and does not need to be supported by change agents or similar forces anymore.

Principle 2: Shared ownership, decision-making, collaboration: The second principle is based on a peer-to-peer, or collaboration aspect, which determines shared decision making, shared ways of deciding on the rules by which this particular part of the economy is operating, the fairness of the economy, the greater good, sustainability, reducing waste and alternative ways of organizing and doing business, which must be regulated with specific regulations.

Trust and collaboration with others, characterize the market exchange both in the "Peer to Peer" (P2P) and "Business to Consumer" (B2C) modes. Among the successful businesses models supporting shared economy created, one of the pioneer in the house-sharing is Couchsurfing, which bases its roots on social contact that is the engine that pushes the hosts, on the one hand, to make available a bed, a sofa, any type of accommodation totally free of charge for guests: any financial contribution would be a voluntary donation by the user to his host. Intercultural exchange, connection and sharing are the ingredients that characterize the service and that have made it successful. The creation of an online platform is a first step of enabling technology, which digitizes and brings to the internet an ancient tradition that took place between students: before the Couchsurfing platform there was a community that put people from all over the world in contact to share accommodation and everything happened in an epistolary manner or with word of mouth. Another successful case is the one of Airbnb which has created a new category of rental accommodation: "short-term rentals" by filling a gap between residential rental accommodation, usually for a medium to long term and hotel hospitality. Airbnb has been a pioneer in the sector and is still established as the main intermediary of services through the peer-to-peer system that allows the meeting between the tourist and the landlord through PCs, smartphones and tablets. AirBnb transforms the idea of sharing into an income tool, which, through enabling technology, manages to operate globally. The birth of online communities has allowed people who are unknown but who might share the same needs to come to get in touch in a simple, fast and safe way. It is a constantly evolving reality in which innovation is constant. There are many reasons why people participate in the sharing economy, some given by the social context that shapes habits and needs, others induced by motivations of cultural type.

Among the principal *cultural factors* we have:

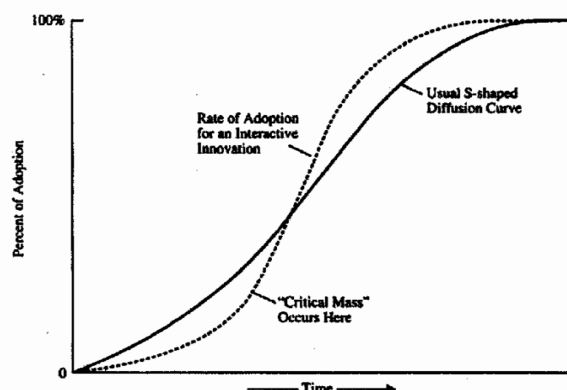
Green thinking: Sustainability is a factor that directs and multiplies the positive effects. Becoming greener proves to be an advantage not only for reputation but an element that reduces costs and risks, drives innovation, shapes a sustainable the supply chain, the products, the business model: All in a long-term perspective that is rewarding. Sustainability is also a competitive advantage.

Share to save concept: the credit and consumption crisis is a condition that, at different levels, tightens the plots of purchasing power and triggers the search for adjustment processes that make it possible not to completely renounce the experiences lived to date, but to enjoy them in a different and sustainable way. Economic saving always remains a good motive if we add the tendency to revalue accumulated and badly used goods and resources.

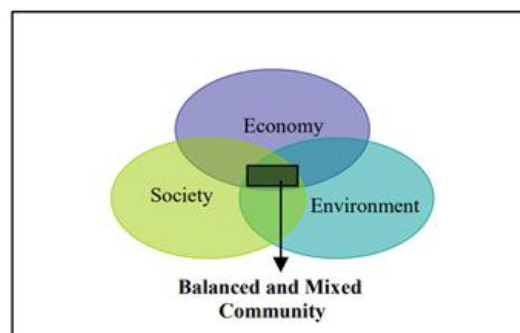
They need to feel like a “*community*”: sharing needs and solutions with a group of peers makes the activity fun. It rediscovers a social dimension made up of people, characters, humanity, passions and common interests.

The long *technological march*: web and mobile access are the polar stars that today make it possible to create that universe of contacts and connections without which the sharing economy would not exist. In addition, the internet has introduced peer to peer mechanisms that fall on its own image.

Collaborative consumption is an economy that makes sustainability its flag, a new way of rethinking consumption in which the protagonist is the individual: the novelty aspect of innovation can be expressed in terms of knowledge, persuasion or adoption decision. The *adoption rate* is the relative speed to the way in which an innovation is adopted by members of a social system, which is defined as the set of interrelated units that are involved in the resolution of a common problem to achieve a collective goal. Communication is, therefore, a process in which participants create and share information between them in order to reach a mutual understanding: therefore, the social change is defined as a process through which there are alterations both in the structure and in the function of the social system. Rate of adoption of innovation with the concept of critical mass defines the S-Shaped Adoption Curve.



Achieving *critical mass* means that the diffusion of innovation has reached the threshold level that allows the transformation of the social system and therefore can be considered as the mechanism that allows a new social system to become self-sufficient and thrive. In the case of adoption of new behaviours, the value given by following other people's behaviour is not intrinsic, but rather derivative: looking at others to make a certain choice means that you are not going to take a high risk. Thanks to a combination of forces including digital distribution, research technologies and Internet penetration in our daily routine, the costs of connecting supply and demand have fallen drastically. The whole nature of the market has changed, which involves not just a quantitative, but also a qualitative change. The assumption of mutual responsibility and commitment by the individual in what we could define as a "sharing" in the process of social production and comforts. The possibility of giving birth to initiatives promoted from below and supported by institutions seems to constitute one of the most viable ways to enhance local resources in a perspective of collaborative well-being. Is not easy to define new maps for our daily life in this framework of growing complexity: Even if people apparently share a common culture, there are profoundly different specific needs, that share only the common will of enabling instruments to solve them.



The Startup "TooGoodToGo" decided to create a platform where a community can develop a model of "Food Sharing" to save food from being thrown away. An example is a pizza-sliced vendor that at the end of the day has some leftovers that should be thrown away. Thanks to the platform TooGoodToGo a person can buy with a "sight unseen" box called "Magic Box" that will contain a minimum guaranteed quantity of products. This box is a lot cheaper than buying the product normally, and customers have to book it hours before as the various shops put a limited amount of boxes available to optimize their offer. Fighting food waste means understanding the value of food not only in the context of consumption, but it becomes a real moral and cultural duty, on which a market made up of conscious consumers with values such as the optimization of resources and the fight against waste. These values thus define a community that is committed to supporting its ideologies, making consumption choices that are consistent with its values. In this scenario, the words sharing economy

and sustainability always move together, redefining the culture of consumption, in more and more innovative and widespread ways, thanks to the increasingly powerful enabling technology.

With the advent of the sharing economy, *the market of transportations reshaped*: as before there was only the chance of taking the proper vehicle or a public one like the metro or the bus, in this new economic system, goods and services are shared thanks to the enabling tools such as the internet. People move from the traditional concept of property-purchase to a new concept of consumption and sharing, which allows temporary access to goods and services. This new model of the exchange between the service provider and the consumer leaves space for the intermediation and so to new agents that will manage the supply and demand of goods and services between consumers. The technological innovation is the enabling key of this market and the presence of online platforms that allow, first the intermediation.

We can distinguish different ways in which *shared economy applies to transportations* such as:

RIDE SHARING: On-demand ridesharing is a commercial service that operates in urban areas.

Ride Sharing is in most cases cheaper than a traditional private ride and also allows the user to know the cost of the ride when booking, while with the traditional taxi service the cost of the ride is given by the taximeter during the journey: a user will not have the opportunity to compare valid alternatives, since he does not know the price of the service he is using until he has to pay. By commissioning the work from the drivers and retaining a portion of the earnings on each route, the enabling platform is the central hub of the entire ride sharing activity.

CAR SHARING: It is a very short-term car rentals that a user uses for a single ride. The price of a ride is based on time and distances, while the services can be divided into two macro areas based on how they operate: "free-floating" or "station-based" services. In the free floating case, users can take and park the car in different points of the city, within the delimited boundaries. In the case of station based modality, a user can take and have a car only in special parking stations that can be either garages or reserved parking spaces with special strips within the city. The vehicles are unlocked independently, thanks to their connection to an internet system, so the rental process fully automated. In the same operational mode, we have different vehicles to which the same modes have been applied such as scooters, electric bikes and electric kick-scooters.

CARPOOLING: Carpooling differs from ride sharing from the fact that it is about putting people in the same car, that will make a journey together. This prevents each of them from using their own car to make the same journey as they could make it in another person's car. This solution is definitely sustainable from several points of view: it reduces emissions and protects the environment, improves the quality of life in the city by reducing traffic, and therefore travels time, and it is also a cheaper solution due to the split of the sharing of costs.

The leading platform operating with *carpooling* is “*BlaBlaCar*. The platform connects people looking to travel medium and long distances with drivers heading the same way, so they can travel together and share costs. The functioning and the growth of a platform based on the sharing economy are based on the ability to build something more than a simple network that can generate transactions, but on the ability to create a distinctive brand that can convey a sense of sharing, that embraces a defined set of values, and that can transmit a real sense of belonging to people creating in that way a community. The common experience of the service becomes the first discussion theme on which users base their discussions during the travel. BlaBlaCar, by redefining the medium-long range mobility service, in a sharing key, as a low intermediation model managed by peers, not only changes the way in which a company responds to the need for mobility but also fulfils the "re socialising" function that is one of the greatest promises of the collaborative economy narrative.

The main operator of *ride sharing*, which has revolutionized the traditional taxi market is *Uber*. The Uber case faces different dimensions that are transversal to different disciplines between law, market regulations, and technology, highlighting how obsolete legal regulations cannot keep up with the exponential evolution of the markets that is redefined by the technological process. The Sharing Economy drastically redefines the modes of consumption, creating solutions both with social and economic purposes, and it is through this innovative way of consumption that Uber has redefined the transport market, becoming the main economic operator in the transport sector attributable to the sharing economy.

In general, the different regulatory models adopted globally for non-line transport services tend to be heterogeneous, but the problems that Uber had to face with the various local institutions refer to three specific characteristics that are more or less accentuated:

(i) *the provision of a licensing system*, which often appears to be quota-driven in absolute terms: a regulatory body determines the maximum number of licenses that may be distributed locally. The distribution of a license also includes a series of obligations and requirements, as well as an official registration in public registers, compulsory driving tests to be passed, certain seniority in driving: acquiring a license thus presents a genuine professional qualification path that needs to be followed.

(ii) *The existence of pre-defined tariff regimes*, which are defined by regulatory bodies, which define the maximum and minimum limits and certain predetermined prices for 'sensitive' routes, for example, a ride to the airport from the center of a city. The pre-determination of fares, whether maximum or minimum, has an impact on the whole transport market by defining the general pricing of the non-scheduled transport sector.

(iii) the presence of service obligations, such as that of providing the required activity without being able to refuse or that offering mobility services also to residents of disadvantaged areas. Even in the case of an unprofitable activity, the traditional provider cannot refuse because of legal obligations, so it will not be able to give up a less profitable race for a more profitable one but will have to accept them all indiscriminately.

The advent of Uber has redefined the fees that had been defined in agreement with the traditional operators: despite the fact that Uber is not the owner of the cars, but is only an enabling platform that carries out an activity of intermediation, it ends up satisfying with its offer the same need for urban mobility that is provided by taxi drivers. The Uber case fully represents the impossibility of legislation to be modern, "in step" with the market and technology: as also in other sectors, increasingly disruptive technologies tend to age the rules, going to develop new ways of offering goods and services, leading to the emergence of new phenomena, which are not always able to fit into the traditional legal categories.

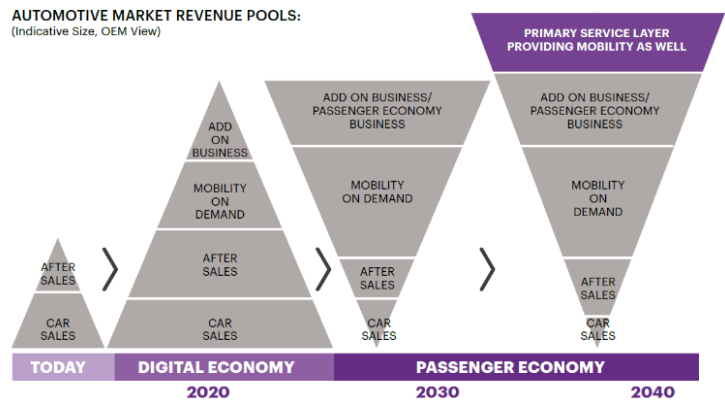
FIGURE 2

Fields of play: Mobility services OEMs could explore

CAR OWNING		MOBILITY AS A SERVICE							PUBLIC TRANSPORT	
BUY	LEASE	CAR-SHARING						RIDE-HAILING		DEMAND RESPONSIVE TRANSIT
		SHARED OWNING	SUBSCRIPTION BASED OWNING	RENTAL	STATION BASED CAR-SHARING	FREE FLOATING CAR-SHARING	RIDE-SHARING			
		Audi Unite	Volvo	Sixt	PEER TO PEER Drivy omni	Drive Now	Bla Bla Car	Gett	Moia	

In the transport sector, the sharing economy is gaining more and more ground, but it should not be forgotten that it is not a new model, but rather the evolution of the traditional "car rental" which has become "car-sharing" and which, in turn, has gone from renting on a daily or hourly basis to an omnipresent and instantaneous system which allows a vehicle to be used for even a few minutes: all this is done without having to deal with human operators or without signing every time a new contract because all the operations happen in a fully automated manner. Such a change has led automotive companies to rethink their role and image, becoming, in addition to vehicle manufacturers, suppliers of mobility services. The most active companies in this transformation are Mercedes-Benz with Car2Go, General Motors with Lyft, Maven, Turo managed by Google and BMW with DriveNow.

FIGURE 4
The new value chain

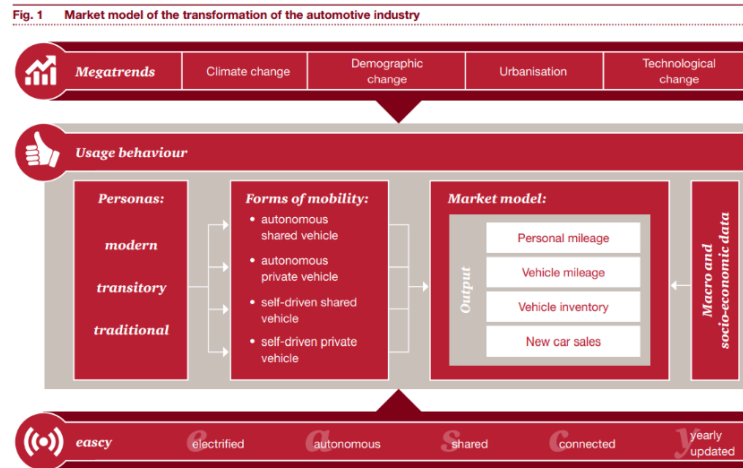


Main manufacturers in the automotive industry redefined their strategies and found themselves competing in a new market, the one of carsharing, changing their role: if before these giants were manufacturers and distributors of their vehicles, now they have to manage their vehicles directly on the streets, becoming through the enabling platforms real mobility service providers. Through a rebranding BMW and Daimler have thus decided to found together with a new set of companies with the aim of creating a single multimodal mobility operator that can offer a new and complete set of services, to provide under a unique brand a complete set of solutions for mobility: with this scope Your-Now was born.



The new brand is intended to encompass the entire set of applications offering mobility services of all kinds. "REACH NOW" operates in the field of on-demand mobility and multimodality, offering to users simple and direct access to a range of mobility services through a single multimodal platform. "CHARGE NOW" is a service which provides a comprehensive electric charging network, to become a key contributor to zero-emissions driving. "FREE NOW" offers a variety of mobility services including taxis, private chauffeurs with rental vehicles and e-scooters, all at the tap of a finger. "PARK NOW" manages innovative digital parking service, allowing users to reserve parking slots and manage their parking times, and enables ticketless entry and exit in public garages as well as cashless

payment of parking fees. SHARE NOW is a free-floating car-sharing service that allows customers to rent and pay for vehicles by smartphone, anytime and anywhere.



The "easycy Model" developed by PwC clearly summarises how the automotive and transportation industry, in general, is moving. While previously, vehicle manufacturers have focused on fuel economy, emissions reduction or increasingly attractive designs, new trends require innovations that are no longer incremental but are moving towards innovations that are increasingly similar to disruptive ones. The future is projected on the complete electrification of vehicles, on constantly updated software technologies which will allow shared mobility services "on-demand" and autonomous vehicle that will reach customers in the required position. Car producers are changing their positioning, and the sharing economy is redefining the industry in which they compete: also becoming suppliers of services, manufacturers will have different contact with customers who might have less and less loyalty towards their brand, due to the fact that they are only looking to solutions that satisfy their need of mobility. If the market of the manufacturing was a market requiring high entry barrier such as a huge capital investment to start production of cars, this new market made by platforms, where technological change is the leading factor creates a lot of uncertainty and also requires for the leading players in the automotive industry to compete and constantly look at the direction in which the industry is moving. The fact that manufacturers have included specific departments in their business model to develop and provide increasingly advanced mobility services is a clear sign that the concept of mobility for consumers is changing. From a strategic point of view, the decision of large manufacturers to enter the car sharing market could have a cannibalising effect on demand: a user might prefer to use a car in sharing mode rather than buying the same for his own use. This effect may also be the opposite: by testing a car in sharing mode, a user may appreciate it so much that he or she decides to buy the same model for exclusive use after she had the chance to test it on the streets.

The modes of transport in cities has recently been redefined by new means of transport that have started to circulate on the roads. The new trend of electrics has led to the conception and introduction of new vehicles in the field of micro-displacements the one that offers innovative solutions for "last mile" journeys. In the specific context of shared mobility, the last mile is defined as a short distance that requires a long walk, and that has no reasonable solutions with means of transport. An example is when you take public transport, but then the final destination is still far from the last stop and requires a long walk. The micromobility has focused as an operational segment of the last mile movements, deciding to offer solutions to these needs and thus create intermodal or combined movements. It creates an integration between complementary services. The full integration between different mobility services takes place through the various platforms that go to define the set of tools that create what goes to define the "MaaS" or Mobility as a Service. With this type of platforms, consumers can purchase mobility services provided by one or more operators using a single platform and a single payment. The platform provides an intermodal journey planner, a reservation system, a single payment method for different types of transport. The Uber platform, for example, offers in a single platform its classic ride hailing service but also the possibility to book electric scooters or electric bicycles.

TYPES OF POWERED MICROMOBILITY VEHICLES¹

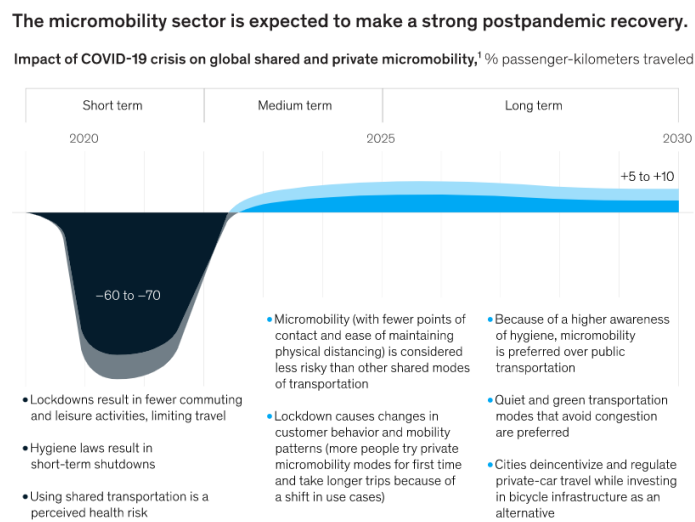
	Powered Bicycle	Powered Standing Scooter	Powered Seated Scooter	Powered Self-Balancing Board	Powered Non-Self-Balancing Board	Powered Skates
Center column	Y	Y	Y	Possible	N	N
Seat	Y	N	Y	N	N	N
Operable pedals	Y	N	N	N	N	N
Floorboard / foot pegs	Possible	Y	Y	Y	Y	Y
Self-balancing ²	N	N	N	Y	N	Possible

¹All vehicles typically designed for one person, except for those specifically designed to accommodate additional passenger(s)
²Self-balancing refers to dynamic stabilization achieved via a combination of sensors and gyroscopes contained in/on the vehicle

Thanks to these solutions, users have at their disposal a complete set of vehicles and, according to their needs, can combine different means of transport to reach their final destination, avoiding the use of a private vehicle. The benefits for citizens are also social and economic, not only environmental. Traffic congestion is significantly reduced and the trips offered are from door to door, without interchanges, and the general accessibility of citizens to the services of the city increases dramatically, ensuring more significant equity of access. Thanks to these new means, inequalities inaccessibility to workplaces, schools or health services in urban areas are eliminated.

It is precisely from the social point of view that the issue of micromobility has emerged that has taken on particular importance with the outbreak of the Covid-19 pandemic:the impact of the pandemic in the short term has led to several lockdowns in the world, which have put in crisis the transport sector in general but in the medium to long term due to social distancing and

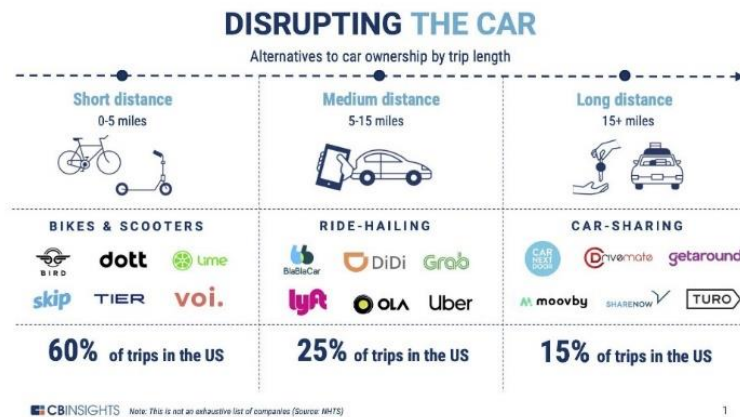
precautionary factors, it is estimated that consumer consumption patterns in terms of transport are changing. If before a user used public transport to reach a place of interest, now to avoid closed places and respect social distancing, micromobility is a valid alternative to cover the need that traditionally public transport could satisfy.



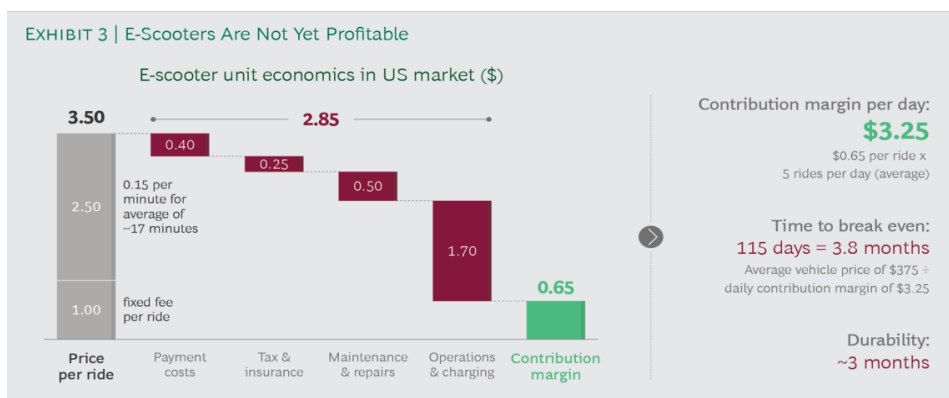
Several countries have supported a pedestrianization of the roads, investing in cycle paths and proposing monetary bonuses for the purchase of micro-mobility vehicles. The existence of multimodal planners allow customer to build and consume integrated mobility from a click on their smartphone, opening up new possibilities of integration hitherto unexplored. When planning a trip from home to work or a long-distance trip, people consider the cost, convenience and complexity of the entire trip from door to door, not a single element. Thanks to the rapid fruition and the possibility to know and estimate the fares and times before the trip, the user can choose between various services offered by different operators operating different modes of transport, comparing the available alternatives and choosing the one that best suits their needs. The smartphone becomes the "ignition key" of personal freedom of movement for the individual.

Micro-mobility vehicles are light, fast, easy to handle. The prices of such vehicles with technological progress are increasingly competitive: the price at the launch of a Segway in 2001 was about 5000€, while today an electric kick scooter produced by Segway costs about 500€. To make micromobility so widespread can be framed some particularly relevant factors that can be defined "ENABLERS OF MICROMOBILITY". The trend of shared mobility, which has become more and more widespread in cities has strongly supported the spread of micro-mobility: thanks to the sharing mobility platforms that have put their fleets on the road, a mechanism has been triggered that has attracted customers to try these innovative vehicles. Thanks to the development of internet-of-things, increasingly avant-garde GPS systems and digital payment platforms, market operators have been able to put "microvehicles" on the road,

following operating modes similar to those of the already established car sharing. When introduced properly, e-scooters can alleviate some of the seemingly intractable challenges that cities and their residents face—namely congestion, pollution, and the difficulty of bridging the first- and last-mile gaps.



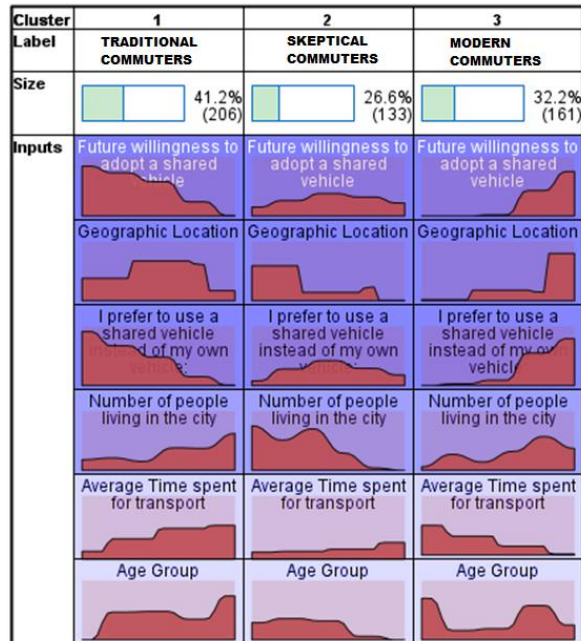
Lime is the leading platform for micromobility his vision is to "offer an accessible, affordable and ubiquitous new model of transport to help more and more people get around the urban environment". Today's e-scooters are not profitable. The average e-scooter currently has a life-span of just three months. E-scooters were originally designed for private use, not for rental, so the heavy usage, rough handling, and even vandalism that users inflict on them have dramatically cut down on their durability. Yet despite the modest cost of an e-scooter, it takes almost four months, not counting marketing and overhead expenses, for a rental company to break even on its investment. The highest costs today arise from operations of maintenance and charging. Every day, providers typically collect the e-scooters; transport them to a central facility for battery charging, maintenance, and repairs; and then redistribute them for the next day. The additional costs incurred are substantial. Some providers try to defray these expenses by using a "crowd-charging" model, in which they pay the user in cash or e-scooter minutes to take the e-scooter home for charging and then return it the next day.



Another strongly innovative business case analysed is “Turo”, which redefined the car rental market, creating a portal that connects car owners and people looking for a rental car. Turo has thus created the first peer-to-peer Car Sharing portal: the platform operates without owning any cars, but only as an intermediary. The most important role of the platform is to offer specific insurance coverage at the time of booking: a user will thus be covered by a third part insurance package that the platform provides, both for the car owner and for the user who rents the car. Innovative platforms are not always able to guarantee the same standards as traditional operators since different business models are adopted where the responsibilities are mainly of users and suppliers: platforms act as intermediaries and despite the efforts to ensure safety standards and to engage in control, they can solve an unpleasant situation but not easily prevent it. In the case of sharing platforms, in order to ensure their diffusion and continuous operations, it is important that each user feels an integral part of the service, taking their responsibilities and respecting the rules and practices of correct use of the shared services they are going to use. Increasing the forms of control, security standards and educating users to the correct use and respect for the community, the work of platforms will become increasingly autonomous, limiting the direct intervention of service providers only in case of particular problems or operational needs.

After analysing what the different sharing economy operators offer, the survey conducted aims to investigate the definition of the consumption patterns of Sharing Economy users in mobility in Italy. More and more platforms are entering into operation in Italian cities, offering car sharing, bike sharing, scooter sharing and kick scooter sharing services. These operators are present both in traditional mobility by providing cars and scooters and in micromobility with electric bicycles and kick-scooters. Platforms are expanding throughout Italy, from North to South. The research aims to identify the current state of people's perception of the use of vehicles in shared mode, to identify patterns of use and to identify trends. The final aim of the research is to identify different segments of consumers based on common characteristics of preference and use and to establish whether vehicles in shared mode will be able to replace private vehicles in the future. In this way, it will be investigated whether, with the spread of more and more platforms that offer vehicles in sharing mode, users are ready to abandon the traditional concept of ownership and convert to the exclusive use of vehicles in sharing mode. Once different groups of consumers have been defined, they will position themselves on Roger's "Innovation Curve. More." to define a current status of the various groups on the adoption of shared mobility platforms.

The questionnaire was uploaded on the online platform "GoogleForms" for a week during September 2020 and was closed with 500 responses. Excel software and SPSS software were used for statistical processing. The questionnaire consists of a first part that defines the demographic and after consumers will be asked to express their actual patterns of consumption, their perception about private and shared vehicles and their willingness to adopt a shared vehicle or to buy or keep owning a private one. From the data emerged a Cluster Analysis defined three different groups of customers, with different habits and different preferences.



The sharing mobility market is already established and mainstream, so similarities emerged with the consumer segments identified by Rogers. Rogers defines the "Early Majority" segment as: "members of the early majority category will adopt new ideas just before the average member of a social system. They frequently interact with peers, but are not often found holding leadership positions [...] Seldom leading, early majority adopters willingly follow in adopting innovations"

Therefore we can place *Modern Commuters* in this category. Being mainly individuals from Northern Italy, they were among the first in Italy to be able to use vehicles in Sharing. An example is the company "Helbiz" which started in Italy with its kick scooters in Verona in Northern Italy in October 2019 while they arrived in Rome only in May 2020. Being the first to use innovative platforms of shared mobility, this segment has a high adoption rate and a high propensity for the use of vehicle sharing instead than owning a vehicle. They spend a relatively low time for transport respect to the other clusters and thanks to the availability of shared vehicles in their streets; they found in shared mobility the perfect solution for their needs. This segment is the leader for others in the diffusion of innovation.

The "late majority" segment is defined as a "skeptical group, adopting new ideas just after the average member of a social system. Their adoption may be borne out of economic necessity and in response to increasing social pressure. They are cautious about innovations and are reluctant to adopt until most others in their social system do so first. [...] While they may be persuaded about the utility of an innovation, there must be strong pressure from peers to adopt"

The "*Skeptical Commuter*" segment is still undecided and has not yet fully understood the innovation offered by shared mobility, and its preference is not clear. Since this cluster is mainly populated by people from the South of Italy, they do not have the same accessibility to sharing vehicles respect the one that the other segments have. If they had the availability, they could have a better perception of shared vehicles and replace private solutions for transport in their daily routine with shared ones.

"*Traditional Commuters*" cluster has similarities with "Laggards" which are defined "traditionalists and the last to adopt an innovation. They are fixated on the past, and all decisions must be made in terms of previous generations. [...] Laggards are likely to be suspicious not only of innovations, but of innovators and change agents as well " Traditional Commuters strongly prefer the use of a private vehicle rather than a mobility solution in sharing mode, but this preference is not fully dictated by a personal choice. There might also be a logistical barrier and an operational impossibility: as this group is characterised by daily travel times of more than 40 minutes, the use of a vehicle in sharing mode may be too expensive, or the user may need to reach peripheral places that are not covered by sharing mobility services. The habits of this segment appear to be incompatible with the services performed by shared mobility operators.

