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A Study of Sharing Economy :

Impact of sharing economy in Mobility, Food Delivery, Co-working and Short-Term Rental,
on Built Environment

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Contents

Abstract:.....	6
1 Introduction	7
1.1 Sharing Economy:.....	7
1.2 History of Sharing economy:	10
1.3 Major sharing economy sectors.....	21
1.3.1 Mobility Industry	23
1.3.2 Retail and consumer goods	25
1.3.3 Tourism and hotel industry	26
1.3.4 Entertainment, multimedia and telecommunication	27
1.3.5 Financial sector	28
1.3.6 Energy sector	29
1.3.7 Human resource	31
2 Literature review.....	33
2.1 Sharing economy.....	33
2.1.1 Drivers and Potentials:.....	34
2.1.2 Issues and challenges of sharing economy	39
2.1.3 Regulating sharing	44
2.1.4 Business models.....	46
2.2 Impact of sharing economy	52
2.2.1 Environmental impact.....	53
2.2.2 Social impact.....	53
2.2.3 Urban sustainability	54
3 Sharing economy and its impacts on built environment.....	55
3.1 Mobility (Car sharing).....	55
3.1.1 Effects on built environment:.....	56
3.1.2 Growth of sharing concept in mobility	58
3.1.3 Discussion and conclusion.....	63
3.2 Food delivery.....	66
3.2.1 Will home delivery kill the restaurant trade?.....	69
3.2.2 Conclusion	76
3.3 Co-working and shared workspaces.....	78
3.3.1 The office of the past	79

3.3.2	Virtual office	80
3.3.3	The office of the present-	81
3.3.4	Co-working spaces in Milan	87
3.3.5	Conclusion	92
3.4	SHORT TERM RENTAL.....	93
3.4.1	Growth of Short term rentals	94
3.4.2	Evolving business models.....	98
3.4.3	Short term rental effect on Hotel	99
3.4.4	Conclusion	103
4	Discussion and conclusion.....	105
4.1	Conclusion.....	105
4.2	Scope for future work.....	106
5	Reference	108

LIST OF FIGURES:

Figure 1 Sharing economy concept.....	8
Figure 2 Major sharing economy sectors	21
Figure 3 Mobility Industry Sharing Economy	23
Figure 4 Retail and consumer goods sharing economy	25
Figure 5 Tourism and hotel industry sharing economy	27
Figure 6 Entertainment and telecommunication sharing economy.....	28
Figure 7 Sharing economy in financial sector	29
Figure 8 Energy sector sharing economy.....	30
Figure 9 Sharing economy in human resource	31
Figure 10 Motivation for shared economy.....	36
Figure 11 Role of government in sharing economy.....	39
Figure 12 Facets of trust in sharing economy	41
Figure 13 Sharing Economy business models	50
Figure 14 World wide market for sharing mobility [31]	59
Figure 15 Car sharing growth comparison in just 6 years [46].....	60
Figure 16 Growth prediction number of cars sharing users worldwide.....	61
Figure 17 Global carsharing market in 2015 and 2021.....	62
Figure 18 Maturity and growth potential of different sectors of sharing economy [31].....	64
Figure 19 Advantages of online food delivery for restaurants	67
Figure 20 Fleet of JUST EAT.....	69
Figure 21 Types of food sectors in Milan.....	70
Figure 22 Population willing to order food online (World wide).....	71
Figure 23 Population willing to order food online (Europe)	71
Figure 24 Share of food delivery market in Milan	75
Figure 25 Comparison of number of branches to number of delivery options.....	75
Figure 26 Increase in number of internet users [40]	82
Figure 27 Different modes of internet users and their growth.....	83
Figure 28 Concept of web [40]	83
Figure 29 Office of the past vs Present.....	84
Figure 30 Evolution of Office space	86
Figure 31 Number of coworking spaces opened in Milan each year.....	89
Figure 32 Density of co-working spaces in Milan.....	89
Figure 33 The main urban agglomerations of co-working spaces in Milan (in July 2015).....	90
Figure 34 Total local host rental offerings by service providers [55].....	95
Figure 35 Growth of mobile internet users [31]	96
Figure 36 Growth of number of rooms offered by Airbnb [31]	97
Figure 37 Maturity and growth potential of sharing economy sectors	98
Figure 38 Top Hotel and short term rentals value sales[57].....	100
Figure 39 Market share in % and US\$ for accommodation in different regions of the world[59].....	101
Figure 40 Short term rentals outlets vs value sale[26].....	101
Figure 41 Growth of Airbnb and Hotels in Amsterdam	102
Figure 42 Short term rentals Forecast in different regions [60].....	103

LIST OF TABLES:

Table 1 Issues and challenges arising from sharing economic models	40
Table 2 Key challenges of review-rating systems and proposed interventions Key	41
Table 3A Key Concerns of Market Players Traditional [31].....	45
Table 4 Fast food sectors in Milan and number of branches	72
Table 5 Number of delivery options provided by fast food sectors.....	73
Table 6 Comparison of online order and in-house orders [48].....	76

Abstract:

The world is both expanding and contracting. The dependency on an unknown entity situated in a faraway country is bringing us our cab rather than over a show of a hand or a whistle. Going out and meeting people is turning into a chat on the phone. In a way we are relying on technology and support from multiple sources but restricting ourselves from old and traditional methods.

Sharing economy is changing the way we do things. We are not per say doing new things. But it's a different approach. There are pros and cons on both sides but sharing economy is what is getting things done much faster way.

Online transactions, finding apartments, ordering food, travel, talking to family and friends all can be accomplished with a phone and internet. Shared economy is basically omnipresent in our everyday life. Choosing the topic was more like getting to know more in detail about how things happen with the day to day life.

Sectors of shared economy which have been researched on are Mobility, Food delivery, co working and to better understand how world has evolved around the need of Internet and a mobile device. To better understand shared economy we have to check the history of where it all started by going through the data of present data on the amount of money involved, people usage, and growth rate etc.. Govt policies, funding support from financial institutions and other macro-economic will also contribute immensely in support and growth of these industries

The objective is to highlight the growth rate of the multiple shared economy sectors as stated above and what would be the impact for the global economy. Related industries that will either support or will be affected by the changes in demand and culture have also been analyzed. A brief insight on the psychological factor influencing the changes in these sectors has also been given

Shared economy is part of the urban life and is fast reaching out to all the corners of the world. Shared economy has grown to become indispensable for the urban population. And it is only going to increase. Research indicates the sectors associated with the shared economy will only grow in a very intricate way. The thesis attempts to look into this detail and how it impacts the people and global economy.

1 Introduction

1.1 Sharing Economy:

The sharing economy also referred as the collaborative economy or collaborative consumption, the access economy or the on-demand economy, is a term used to describe different economic and social activities involving on-line transactions. It includes peer to peer but also B2C commercial transactions. It is a concept that covers a broad range of developments and technologies which endorse the shared consumption of goods and services through on-line platforms. Most definitions can agree that the main premise behind the sharing economy is providing access over ownership.

As dematerialization of the economy takes places, lines between private and communal ownership become blurrier and usages trumps ownership. Therefore, the product becomes a means to an end and not the end in itself. It is likely that for a growing number of enterprises and consumers, the very idea of ownership will seem limited, even old-fashioned, twenty-five years from now. According to Pwc (2015) four in five consumers agree that there are sometimes real advantages to renting over owning, and adults ages 18 to 24 are nearly twice as likely as those ages 25 and older to say that access is the new ownership and shows different platforms in Italy and current economic trends in billions[1].

The sharing economy is a result of different trends coming together; mainly, advances in technology and communications, resource scarcity and socio-cultural changes (Pwc, 2015)[1]. As a result, it is allowing consumers to appreciate the personal benefits than come with accessing products and services over owning them; for instance, saving money, space, and time; making new friends; and become active citizens once again. At the same time, they bring on positive externalities and are making it possible to leapfrog over outdated modes of hyper-consumption and create innovative systems based on shared use such as bike or car sharing. It is an innovative model, that is becoming more accepted and established, and has a big potential and presents a big opportunity for companies, public sector leaders and creative policy makers who are embracing it and using it to contribute to their communities.

There are different typologies of services ranging in scale, maturity and purpose. From exchange of goods to providing access (car-share, bike-share) to free of charge communities (e.g. couch surfing) services take place among a wide range of sectors such as accommodation, goods, household and professional services, finance and transportation. Forecasts indicate a possible increase of sharing economy spending in five areas (travel, car sharing, finance,

staffing and streaming) to \$335 billion by 2025, which would be about 50% of the total spending in said five areas.[2]

These areas can be classified in three categories, product service systems, redistribution markets, and collaborative lifestyles. The second, redistribution markets, makes reference to redistributing goods from where they are not needed to where they are. It can involve swapping, gifting or selling. As a result, it reduces waste and the use of resources. While the third, collaborative lifestyles, deals with the ex- changes of less tangible assets such as time, space, skills and money. Here, human to human interaction is usually the focus of the exchange thus generating relationships and social connectivity.



Figure 1 Sharing economy concept

The first category, in which this project fits into, is product service systems. It is concerned with the payment for the end result or benefit of a product without needing to own it. A service enables multiple products owned by a company to be shared, or products that are privately owned to be shared or rented peer-to-peer.[3] There are many advantages in this system; firstly, utility is maximized as individual products are shared among more people and less need to be produced. And second, for users, it removes entry barriers, it is less costly and burdens of ownership are removed, such as maintenance, repair and insurance. Use instead of ownership also changes users' needs and options to satisfy them increases.

This can be organized in two models, where the first model includes multiple users, through a service, access a product owned by a company or an individual and share its benefits. There are many scenarios where the market is ripe for this type of model, including when the product has high idling capacity (cars or household tools); when the product has a limited use because of fashion (handbags) or it fulfills a temporary need (baby equipment and maternity clothes);

when the product diminishes in appeal and value after usage (a movie); and when high start-up or purchasing costs for products are the barrier to entry (solar panels)[1].

The second is where different services are provided after sale, such as maintenance or repair. The company becomes involved in the whole product lifecycle instead of shifting responsibility completely to the user, thereby reducing the need for replacement or disposal and creating longer lasting and better-quality products.

Sharing is not a new concept and it has occurred in different forms throughout history. For example, farm equipment leases from priests to agricultural workers have been documented from the year 1020B.C in leases of horses, buggies and wagons from the 1700 in the United States[4].

However, the sharing economy is differentiated by leveraging on the use of technologies to reach a wider audience and create an infrastructure of trust and reliability enabling the optimization of resources. Sharing in a larger scale is enabled by modern communications, it allows for the creation of a global village of producers and consumers where sharing assets is cheaper, easier and more trustable by peer reviews and on-line tracking mechanisms (Pwc, 2015)[1]. New business models arise, satisfying needs in a more scalable and efficient manner and leveraging on these new technologies while using existing infrastructure. The rise of the web 2.0 and new ICTs (Information and communication technologies) derives in opportunities to design systems of share use that feel different from traditional rentals. One of the biggest changes is access to more data about people and things, which allows physical assets to be disaggregated and consumed as services.

The sharing economy is distinguished by the following: digital platforms that connect spare capacity and demand, transactions that offer access over ownership, more collaborative forms of consumption, branded experiences that drive emotional connection, understanding an economy built on trust and rethinking value exchange (Pwc, 2015).

The sharing economy allows individuals and communities to do more with what they have. It provides several benefits both for the individual and for the community as a whole. It is an opportunity for income generation, cost savings and provides social value. It is aligned with the individual needs for greater convenience, speed and simplicity. Usually, even if not intended, these types of systems provide environmental benefits by increasing efficiency, reducing waste, encouraging the design of better products and using surplus capacity and idle goods.[5]

“The narrative of disruption transportation marketplace is that sharing has caused in the disrupted in this age of fast anyone and everyone can be applicable to every business: flowing technology and the internet of things”. (Pwc, 2015)[1]

The benefits are in people self-interests, such as saving or earning money and greater convenience and do not require personal sacrifice while yielding positive externalities. For many people “owning today feels like a burden and the most compelling promise of the sharing economy is that it alleviates burden the burden of cost, of maintenance, of choice (or lack thereof) and countless other variables”.(Pwc, 2015). The rise of the sharing economy is predicted to have a major societal impact, and thus holds relevance to both practitioners and policy makers.

Services should be pleasurable because enjoyment is an important motivator and habit changes have to be easy and desirable. Value needs to be created for businesses, consumers and society. Motivations for individuals participating in the different forms of the sharing economy range from intrinsic to extrinsic, price will likely always be a factor, but since more companies are providing different models that accommodate to them and can solve current technological and logistical challenges, the next competitive advantage will be design and creating memorable, simple, convenient, seamless and frictionless user experiences and interfaces. They are no longer a good added feature but a requirement. (Pwc, 2015)[1]

1.2 History of Sharing economy:

Writing a document on the “social economy” and “sharing economy” is a challenging task, as entire reports and books have been devoted to the subject. More importantly, in the scientific literature and in the public discourse, we find a broad range of definitions and understandings of the nature of these phenomena and on the relationship between the them. One could debate to no end on what the term means in each of these cases, what exactly is included or left out. This uncertainty not only poses conceptual problems in describing these phenomena, but also risks undermining the very important role that they all play in today’s society. While trying to navigate through the multitude of concepts used in the literature, in this report we have focused mostly on the sharing economy.[2], [4], [6]

In the last few years, the social economy has increasingly gained political visibility as a sector that constitutes an important pillar notably in terms of employment and social cohesion across Europe and which is also key to achieving the goals of the Europe 2020 Strategy.

Various EU Council documents refer to the social economy enterprises as the universe of organizations based on the primacy of people over capital and include organizational forms such as cooperatives, mutuals, foundations and associations as well as newer forms of social enterprises and may be regarded as vehicles for social and economic cohesion across Europe as they help build a pluralistic and resilient social market economy.[7] Acting in the general interest, social economy enterprises create jobs, provide socially innovative services and goods, facilitate social inclusions and promote a more sustainable and locally anchored economy. They are based on solidarity and empowerment principles.

Social economy enterprises are economic actors whose main purpose is to create a positive social impact. By definition, social economy enterprises use the majority of their possible profits as a means for achieving their primary social objectives, rather than maximizing profits for their owners and shareholders. Their activities rely primarily, but not exclusively, on limited profit distribution business models, whereby most of their surpluses are re-invested in further development of their activity.[8]

The sharing economy has always existed in some form, but a confluence of technologies has significantly reduced traditionally high search and transactional costs and allowed this model to grow rapidly into many industries. Combined with the increasing trust consumers place in online systems such as peer reviews, ratings, and social media verification, the sharing economy has entered the mainstream.[9]

The sharing economy refers to a business model that actually belongs to a 'family' with multiple organizational schemes: some of them are very simple – barter – other much more sophisticated – online exchange platforms, based on complex algorithmic software.

The appearance of sharing economy schemes in historical and geographical terms varies from one model to another: bartering goes back to ancient times and is practiced all around the world, while trading platforms have only emerged in the last few years – in connection with the development of the internet and smartphones – and if their expansion is global, it assumes the presence of communities of critical size and an enabling environment (accessibility) to be economically viable. Between these two opposite examples, many other forms of sharing economy – based on pooling resources – have been tested over time and still work: cooperatives, mutual societies, associations and foundations, tontines.[9]

The sharing economy has grown tremendously over the past few years and is no longer just for the early adopters but is starting to become an everyday feature of modern society. Over the

last decade, the sharing economy has grown from dealings taking place between friends and family to a pool of global businesses which are being increasingly valued in the billions. The sharing industry as a whole had an estimated \$15 billion in revenues last year and is expected to continue to grow at an exponential pace (PWC, 2015)[1]. Uber and Airbnb are the two highest profile companies in the sharing economy, and they are representative of the most developed areas of this movement: ride and accommodation sharing. These sectors have grown rapidly and are developed enough that they are now threatening the traditional business models of the taxi and hospitality industries. [10]

While figures on the significance of the “sharing economies” are hard to come, the PwC analysis suggests considerable future growth potential. It has calculated that the total revenues for the five most prominent sharing economy sectors in the UK – peer-to-peer (P2P) finance, online staffing, P2P accommodation, car sharing and music/video streaming – could rise to around £9 billion by 2025, up from just £500 million today. Globally, revenues from these sectors could hit \$335 billion by 2025, up from just \$15 billion today.[11] The opportunities for business and for entrepreneurs are huge – indeed already Airbnb is valued at over \$10 billion.[12]

This model is typically characterized by two parties entering a transaction that allows them to share the use of an asset or service in a mutually beneficial way. The difference between the sharing economy and the traditional rental economy is that the rental economy involves a firm owning an asset that is then rented out. In the modern version of the sharing economy, an app or service connects an owner of an asset that is used below capacity with someone who would like to use it[13]. The basics of the sharing economy have always existed, as owners of underutilized assets such as a car, a power tool, or an empty guest room searched for those who desired the temporary use of such assets in their community via bulletin boards or newsletters. What has changed is the emergence of mobile software platforms that allow these two parties to easily come together whenever and wherever they wish. This significant reduction in searching and transactional frictions, as well as the flexibility to conduct a trade anytime and anywhere from a smartphone, has driven the sharing economy into the daily lives of many people, changing patterns of consumer behavior. The modern sharing economy allows the participants to have a unique experience that transcends that of a traditional commercial transaction. This model is an apt example of the millennial ideals of breaking with the traditional way of doing things, being flexible, and embracing the advantages of digital and

mobile technology. Therefore, it is worthwhile to understand the impact of this new model and its implications for the banking industry.[13], [14]

There are several macro-economic factors driving the growth of the sharing economy. One such factor is decreased consumer trust in the corporate world as a result of the financial and economic crisis. In addition, unemployment rates have risen and the purchasing power of consumers has dropped. Therefore, people are in need of ways to earn or save money, which is why consumers are currently more receptive to peer-to-peer business models centered on consumer needs both as a potential supplier and buyer. Furthermore, the required technology for hosting an online peer-to-peer market has, in recent years, become available at more reasonable cost.

They use digital platforms, offering consumers access over ownership (i.e. renting, subscribing) and often involve deeper social interactions than traditional sectors. One reason that these companies have been able to grow so rapidly is that their business model, based on the use of specialized software, allows them to scale up, gain recognition, and generate strong network effects without having to invest in costly underlying assets, such as cars or buildings.[15] Moreover, these companies focus on the unique experience of the transaction versus solely focusing on the price. Their principles when it comes to the design of the transactional experience emphasize flexibility, ease of use, and transparency. This has allowed them to continue growing even as the economy has improved and consumers are able to afford more traditional options.[16]

Trust, convenience and a sense of community are all factors in pushing adoption of the sharing economy forward. Thanks to consumer willingness to try mobile apps, there are lower barriers to entry when it comes to building brands and scaling up quickly—the innovation clock is now set to fast-pace, and will get even faster as consumers become more trusting of relationships tied to social sentiment and communities of users. (PWC, 2015)

The review of the literature shows a multitude of concepts such as “social economy”, “social market economy”, “sharing economy”, “social enterprise”, “social business” and very often such terms are interchangeably used. One could debate to no end on what the term means in each of these cases, what exactly is included or left out, and we do not pretend here to redefine them. However, we will try to present below some of the views of various authors that we find most relevant on the subject.

The social economy has been recognized as a distinct set of economic actors only recently. However, organizations belonging to the social economy have long been an important part of the European social, economic, and political history. The term social economy first appeared in France during the first third of the 19 century and its relevance has gone far beyond French borders throughout the centuries, finding a great resonance throughout Europe. Indeed, for almost two centuries now social economy institutions have been key players in the broader social and economic development process both at national and at local levels.[4]

The term “social economy” is used to define a specific part of the economy: a set of organizations (historically, grouped into four major categories: cooperatives, mutual, associations, and, more recently, foundations) that primarily pursue social aims and are characterized by participative governance systems. For close to two centuries, these organizations have engaged in the production of goods and services alongside the Market (i.e. private corporations) and the State (i.e. public sector institutions). The main goals pursued by social economy organizations include both the provision of goods and services (including employment opportunities) to their members or community and the pursuit of general interest goals (i.e. activities that benefit society at large like the provision of services of general interest).[6] Historically, social economy organizations have been grouped into four major categories: cooperative enterprises, mutual societies, foundations and associations, whose legal form may vary considerably from one country to another.

The term “social market economy” refers to a political-economic model created after World War II in response to the need to spread confidence in a new democratic system. At its heart, it sought to harmonize the principle of market freedom with the principle of social security by giving the State an active role in promoting both market competition and balanced social development.[4] This approach was often considered a ‘third way’ between the laissez faire capitalism, based on the principle of minimal State intervention, and the centrally planned economies, in which the State fully directed economic activity. The concept of social market economy originated in Germany and is often associated with its post-WWII reconstruction, but has over time acquired a broader meaning. The social market economy is based on two clearly distinct but complementary pillars of state action: on the one hand, the enforcement of competition to keep prices stable and generate growth and innovation; and on the other, social policy measures to guarantee social justice by correcting negative outcomes and bolstering social protection.[4], [6]

Partly within and partly alongside the universe of social economy organizations, social enterprises have emerged in recent years as a new and very significant phenomenon not only throughout Europe but also in other continents (such as Asia, where Muhammad Yunus promoted the concept of ‘social business’, and North America). Despite the lack of a universal definition of the term, in Europe the concept of social enterprise is increasingly used to identify a ‘different way’ of doing business, which occurs when enterprises are created specifically to pursue social goals. The European Commission gives the term ‘social enterprise’ the following meaning: ‘an operator in the social economy whose main objective is to have a social impact rather than make a profit for their owners or shareholders. It operates by providing goods and services for the market in an entrepreneurial and innovative fashion and uses its profits primarily to achieve social objectives. It is managed in an open and responsible manner and, in particular, involves employees, consumers and stakeholders affected by its commercial activities’. [17]

As defined in various EC documents, the concept of social enterprise overlaps with the traditional social economy organizations and cuts across legal forms, as an entity that operates as a social enterprise might choose to be registered as an association, cooperative, charity etc., as a private enterprise, or as one of the specific forms set up in recent years under national legislation. What distinguishes social enterprises from traditional associations or charities is the fact that social enterprises earn a substantial proportion of their income through trading, rather than being dependent on grants or donations. An indicator of this strong vocation to social purpose, the majority of any profits of these social enterprises (independent of its legal form, for-profit or non-profit) are reinvested or otherwise used to achieve the social mission of the enterprise. [18]

A “social business” is a company created for social benefit rather than private profit. Pioneered by Nobel Peace Prize Laureate Prof. Muhammad Yunus, it is a type of business that focuses on addressing specific social or environmental problems in a financially self-sustainable way. Investors in social businesses are entitled to only the original principal of their investment. Any profits generated by the social business are recycled into the same or other social businesses or socially beneficial activities. [11], [17] Thus, while social business in many aspects is similar to normal commercial business, it does not aim to maximize shareholder value. Instead, it aims to generate beneficial social and environmental outcomes through (i) focus on maximizing employment and income opportunities to all stakeholders along a commercial value chain, including micro- entrepreneurs, with particular focus on vulnerable groups such as female or

rural populations, and/or (ii) tailoring products or services to solve specific social or environmental problems.

The sharing economy has attracted considerable attention, but that attention is relatively recent. If measured by web search interest in the term 'sharing economy', then interest has mounted from 2012 onwards, with the greatest web search interest in Italy, Germany, the United Kingdom and the United States. This relative novelty explains the lack of a settled definition.[10]

Otherwise known as collaborative consumption or peer-to-peer marketplaces, the 'sharing economy' seems to be mostly about getting the maximum use from an asset or skill and thereby allowing participants to make or save money.[4] Leaving aside 'earning or saving money' as one driver of the 'sharing economy' phenomenon, a renewed belief in the importance of community, as well as the global recession which has fundamentally shocked consumer behaviors, are among the key drivers.

People have always shared the things that they own – the digital sharing economy now allows them to do this with people they have never met before and can connect with online. The existing sharing economy platforms are only scratching the surface of what might be possible. The full potential of sharing models is only just starting to become clear, and more research is needed to show how local areas can benefit from embracing these models. Social care, transport, and makerspaces are all areas where sharing economy models are starting to transform communities and services, but we need to do more to understand these benefits and share best practice. The “sharing economy” started coming out as a concept in early 2000. However, sharing unused resources or trading accessibility for money or in-kind is ageless. Long before the web, Servas International, a non-profit founded in 1949 by a peace activist, did the same. Subscribers to Servas paid a nominal fee for membership and agreed to open their doors to other travelers in the network. Over the last decade this model has grown rapidly into many industries, with a confluence of technologies which has significantly reduced traditionally high search and transactional costs. Combined with the increasing trust consumers place in online systems such as peer reviews, ratings, and social media verification, the sharing economy has entered the mainstream.[4], [10], [19]

The term “sharing economy” has now become an umbrella encompassing different types of economic activities, somewhat informal, though all of them dependent on online platforms that bring together providers of different goods and services and users, and where mutual trust is

an essential input as standard and more intrusive regulation is often absent. The term “sharing economy” does not have a consensual definition and has been used as a catchword encompassing different, but possibly overlapping, types of more or less informal economic activities, though all of them dependent on online platforms and all of them involving new governance structures.[20] The term “sharing economy” may not have a consensual definition and has been used as a catchword encompassing different, but possibly overlapping, types of more or less informal economic activities, though all of them dependent on online platforms and all of them involving new governance structures.

The definition of the “sharing economy” does not seem to have a consensus even at EU level. The European Commission prefers to use the expression 'collaborative economy', defined as 'a complex ecosystem of on- demand services and temporary use of assets based on exchanges via online platforms'. The other EU institutions do use the expression 'sharing economy'. The European Parliament refers to it in its resolutions of 9 September 2015³ and 29 October 2015⁴, and defines it as: 'a new socio-economic model that has taken off thanks to the technological revolution, with the internet connecting people through online platforms on which transactions involving goods and services can be conducted securely and transparently'.^[2], ^[21] The European Economic and Social Committee also referred to the sharing economy in its Opinion of 21 January 2014.⁵ Finally, the Committee of the Regions has recently published an opinion⁶, where it argues in favor of the need to distinguish between the different forms of sharing economy; it calls for a coordinated approach between the European Commission and the Member States in order to enable successful sharing economy initiatives to spread easily across EU borders. ^[21]

The terms "sharing economy," "peer economy," "collaborative economy," "on-demand economy," "collaborative consumption" are often being used interchangeably, though they mean very different things, as are the ideas they go hand-in-hand with, like "crowdfunding," "crowdsourcing," and "co-creation.". They can involve C2C, B2C, C2B and B2B “sharing”.^[2]

The Oxford Dictionary of English defines “sharing economy” as “An economic system in which assets or services are shared between private individuals, either for free or for a fee, typically by means of the Internet”. defines “sharing economy” as “online platforms that help people share access to assets, resources, time and skills”. This definition underlines an important characteristic of the “sharing economy”: the significant level of disintermediation it allows in transactions between providers and final customers.

Sharing economy can be defined as “an economic system based on sharing underused assets or services, for free or for a fee, directly from individuals”, as is the case of Airbnb or BlaBlaCar. On the other hand, Uber would be classified as an “on-demand service”, i.e., «a platform that directly matches customer’s needs with providers to immediately deliver goods and services.[16] In this case, no sharing of underused assets may be involved at all. In the case of “collaborative consumption”, there is a reinvention of traditional market behaviors (such as renting, lending, swapping, sharing, bartering, and gifting) through a technology that takes place in ways and on a scale not possible before the internet.[17] What is common to sharing economies, on-demand services and collaborative consumption is the use of computers, tablets, smartphones as IT devices to easily access goods and services in the real world. For the purpose of this column, let us agree on using the term “sharing economy” as an umbrella for all these different activities, as most of the issues that will be addressed here are common to all of them.

The sharing economy allows people to share property, resources, time and skills across online platforms. This can unlock previously unused, or under-used assets – helping people make money from their empty spare room and the tools in their sheds they use once a year. It allows people to go from owning expensive assets, such as cars, to paying for them only when they need them. Individuals can make more from their skills and work more flexibly.

Sharing economies involve new forms of production, transaction (mostly spot transactions) and consumption. They may be regarded as examples of “disruptive innovations” in that they compete with traditional ways of producing, distributing and consuming goods and services, through the use of technological innovations such as smartphones, digital content and online distribution that may be considered disruptive. The new forms of production and of (mostly) spot transactions lead us back to the literature on ‘markets vs. firms’ and how these two alternative forms of organizing economic activity may arise to minimize associated transaction costs. As these types of technological innovations (including the download of apps) reduce transaction costs (e.g., they reduce the costs of dispersion, as it is now much cheaper to match the two sides of a market, i.e., they thicken an otherwise too thin a market, thus increasing economic efficiency), they facilitate trade: people are able to rely more on (spot, peer-to-peer) markets (in this case, digitalized markets) and less on firms for the production and distribution of goods and services, i.e., on ‘markets vs. firms’ as two alternative forms of organizing economic activity, we would see “more markets and less firms”. [2], [4], [19]

Even if several incumbents operating in these markets may fight this new type of competition, some incumbents are themselves joining in the “sharing economy”. He mentions the cases such as Avis, Daimler, GM, B&Q in the UK, which by listing excess capacity (cars, office space, and other durable physical assets) on peer-to-peer rental sites. And they have the advantage of bringing in their solid reputation. Just like what has been happening with online shopping (Walmart and Tesco, for example). They are not necessarily cannibalizing themselves; they want to compete with newcomers and expand their markets. [19]

The sharing economy in UK as online platforms that help people share access to assets, resources, time and skills. It encompasses a broad church of businesses and business models: peer-to-peer marketplaces such as Etsy, which allows anyone to sell their craft ware; services like City Car Club, where people can share access to a car without having to own one themselves and time banks like the Economy of Hours which allows you to trade your skills, an hour for an hour.[11] Indeed, Nesta has estimated that about 25% of the UK adults use internet technologies to sharing assets and resources.[16]

The appearance of sharing economy schemes in historical and geographical terms varies from one model to another: bartering goes back to ancient times and is practiced all around the world, while trading platforms have only emerged in the last few years – in connection with the development of the internet and smartphones – and if their expansion is global, it assumes the presence of communities of critical size and an enabling environment (accessibility) to be economically viable. Between these two opposite examples, many other forms of sharing economy – based on pooling resources – have been tested over time and still work: cooperatives, mutual societies, associations and foundations, tontines[22].

These different models have common elements that are more or less similar to each other; however, they come from different 'philosophies' and have neither the same economic rationale nor the same purpose. Some of them are not profit-based businesses – they fall into the sphere of the social economy; others are for-profit companies, but their organization and governance comply with ethical goals – they could be classified as social entrepreneurship. Others choose a form of entirely for-profit business: this is the case, mainly, for exchange platforms, created mostly in the form of start-ups and whose sharing element lies not in their organization, but in the object of their activity.[4] The sharing economy covers many sectors, including transport, delivery and logistics, travel and hospitality, home services, dining, food and beverages, and finance, each with their own substantial market potential. Some companies are developing and

expanding globally, whereas other markets are still more confined to the US often in dense urban areas, and/or developed countries. For example, as of early March 2015, Airbnb reported operating in more than 34,000 cities and 190 countries, and over 60 million guests⁷. Other services are only available in defined and smaller geographic areas, at least initially, such as one-hour delivery by Amazon—only available in (some parts of) the Manhattan borough of New York City.^[1] The fast evolving cloud-computing platforms that enable new business models, combined with a rapid uptake in digital technologies by consumers and a change in consumer behavior and preferences have enabled the emergence of a so-called ‘sharing economy’ concept and related business models. With new start-ups offering all kinds of services springing up every day, there was soon talk of the ‘Uber⁸ of everything’ or ‘the uberification of the service economy’.^[9]

To help understand the social economy Botsman & Rogers segment the market phenomena into three broader groups (Botsman & Rogers, *What's Mine Is Yours: The Rise of Collaborative Consumption*, 2010): ? Collaborative Lifestyles link groups with similar needs or objectives to share assets like time, space and skills. This requires a high level of trust between participants which is facilitated by star ratings and reviews of participants.

- Product Service Systems which enables the consumer access to a product that comes without the actual burden of owning but renting instead. Internet technology means that this kind of service can increasingly be offered on a peer-to-peer basis.^[2]
- Redistribution Markets aim to bring together unwanted or underused items with those who have a need for them by a variety of models. Items might be given away for free, swapped for other items or sold for hard cash. The internet is reducing transaction costs of arranging beneficial trades.

The term ‘sharing economy’ seems to be somewhat of a misnomer: what exactly is being shared, and is it really sharing if we pay to ‘share’ or is it just a form of renting or paying for a service? In reality, most of these new/digital economy services involve the more efficient utilization (‘sharing’) of physical assets (a house, car, physical space, machinery, tools, appliances, clothes, shoes, bags/accessories), or time (e.g. through tasks such as cooking, cleaning, assembly of furniture, doing DIY⁹ jobs, running errands, etc.). It seems that for sharing economy users, access to assets is more important than ownership of such assets.^[4]

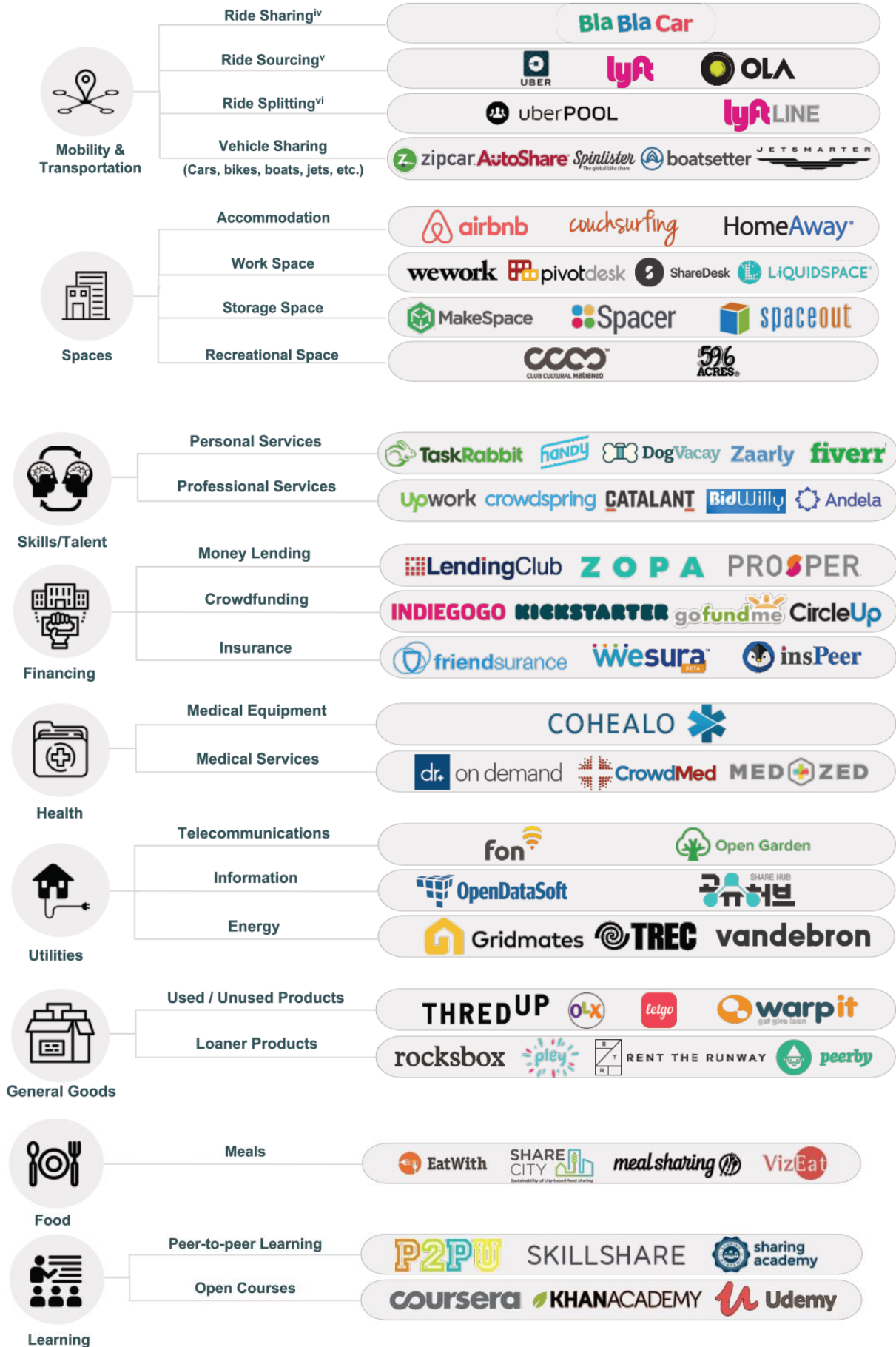
1.3 Major sharing economy sectors

Between 2013 and 2014 alone, there was a 46% growth² in the sharing of used goods. In the year 2015, around €28bn worth of transactions was witnessed within Europe in over 5 key sectors of the sharing economy viz. transportation, accommodation, household goods, collaborative finance, and on-demand professional services. Predictions also state that by 2025, over 42%⁴ of urban shoppers in India – one of the largest emerging markets – will use services built on the sharing economy model[23].



Figure 2 Major sharing economy sectors

While this trend might seem irrelevant to many a retailer, this shift in consumer behavior is hard to ignore. Although Millennials do not settle easily on the services or goods offered blindly, when it comes to a brand that they trust, there is no second thought. This leaves retailers with a lot of room to build their strategy around ‘trust’. User experience and affordability are driving customer decisions everywhere and in such a scenario, being part of the sharing economy can help brands reap greater profits. IKEA was among the many brands that noticed this shift. In 2013, the company set up a Virtual Flea Market – in conjunction with the promotion of the company’s new catalogue – to help customers sell their used furniture. Companies such as Home Depot, Avis, and Mercedes too have jumped onto this bandwagon. I’ve cited all popular brands in order to make a point, but the prime movers of the sharing economy are start-ups. According to a 2015 report, the investment – globally for start-ups involved in sharing has crossed more than \$12 billion⁴. A large chunk of successful sharing economy business models has been built by start-ups; ideas that were previously considered unviable. Change is faster in sectors like Accommodation, Transport, Music & Services.[11], [24], [25] The advent and rise of on-demand transportation, coupled with the fast-paced growth of mobile apps has revealed the many benefits of engaging with the sharing economy and thereby, made it easier for customers to embrace the same. Dynamic pricing is another reason for the success of this model. AirBnB, one of the world’s largest accommodation aggregators provides price recommendations based on location, likeness, and a host of other parameters. The ability to find services and products at the right price is a strong factor that makes the sharing economy all the more desirable.[26]



1.3.1 Mobility Industry

One of the most spectacular advances can be observed in the automotive industry (and other means of transportation), which have brought the industry itself to the threshold of a major transformation. With the spread of sharing-based and access-driven solutions, what is referred to as the mobility industry appears to be forming in parallel with the car industry, and to a certain extent from within it, in which classic vehicle manufacturers are also increasingly trying to reposition themselves as mobility service providers. [3] One of the many drivers of this trend that should certainly be highlighted is the change of attitude that is typical among the younger generations. This age group increasingly views the car as a transportation alternative, and not as a status symbol, the use and maintenance of which entails cost and commitment.



Figure 3 Mobility Industry Sharing Economy

There is a visible trend in major cities around the world for increasingly large areas to be closed off to private vehicular traffic, and pedestrianized or transformed into zones where only community transport is permitted. As a result of this parking spaces are increasingly scarce, and several community-based solutions have emerged to address this problem. The JustPark platform with its almost 500 000 users, for example, hooks up motorists looking for somewhere to park with property owners renting out their free parking spaces.[27]

Car sharing was the first manifestation of the sharing economy in the car industry. The basic concept is that drivers can use an application to search for fellow travellers to join them on journeys that they have already planned and split the travel costs. In this case the market is supply-driven, and the purpose of the ride is not primarily to make a profit, but to share costs. A notable example is BlaBlaCar, which has 20 million members in 19 countries, and also operates in Hungary.[28]

Similarly, This is a variation on car sharing, which functions in a demand-driven way, providing short rides in a c2c model, typically on a for-profit basis. Notable examples are

Uber, which currently has 55 000 users in Hungary, as well as Wundercar. On-demand car rental services are an integral part of the sharing economy, despite the fact that they use a b2c model. The basic principle here is that, similarly to the community bicycle services available in several towns, cars that can be picked up by anyone and dropped off virtually anywhere are provided for occasional use. A prime example of this is the aforementioned Zipcar, the world's largest community short-term car rental service, with 900 000 registered members and close to 10 000 cars for rent.[29]

This concept allows scope for the traditional car manufacturers to reposition their products as services, opening up a new sales channel. In this way manufacturers can reach a new group of customers and earn their loyalty to the brand. Good examples of this are the DriveNow service launched by BMW, with which the company primarily targets young people who aspire to the premium category but can't (for now) afford to pay for it, or the Daimler-run Car2Go service, which has more than 1 million users, and Peugeot's Mu service. Community car rental opportunities can also carry serious cost-cutting potential for companies with large, underutilised vehicle fleets. Sharing economy solutions already exist in the market for transportation vehicles outside the car industry. Boatbound, for example, enables people to share or borrow boats. In addition there are numerous transportation-related sharing economy initiatives out there that provide a solution to various social needs and problems. One such example is the special route planner for wheelchair users, Route4U, or the world's biggest community-based traffic and navigation app, Waze, which on the basis of users' input shares real-time traffic information to help avoid traffic jams and find the best possible route. Meanwhile in Hungary apart from BlaBlaCar, another notable example of a Hungarian car sharing service is Oszkár, which has a 200 000-strong community of users.[1], [28], [29]

The on-demand car rental service providers present in Hungary include Avalon Car(e)Sharing, and the Yes Autorent service, which is another Hungarian company engaged in community car sharing, with 6 000 regular users. In the case of the latter the cars are rented out by private individuals, who share the revenue with the operator of the intermediation platform. An interesting plan for the near future is that the Budapest Transportation Centre (BKK) is also working on a community car sharing system, and a new private service provider, SharingCar will also enter the market shortly.[29] In addition to short-term car rental, bicycle rental is also widespread, for example in the form of the MOL Bubi b2c bicycle rental system, with 1 150 bikes available for use at 91 docking stations, the number of which is increasing continuously in line with the number of subscribers.

1.3.2 Retail and consumer goods

The appearance and rapid spread of the sharing economy in the retail sector is primarily attributable to the emergence of more cost-conscious consumer habits. The solutions that it offers are cheaper, simpler and permit quicker access. All this is the most conspicuous in the case of assets that are typically only used occasionally, such as small household tools and appliances (this is the main purpose of the Peerby and Open Shed applications, for example), the various kitchen appliances, or even sports equipment (for example Spinlister), where the idle capacity allows scope for a profit to be made from their rental. Through the food sharing site Shareyourmeal, home cooking in a value of 400 000 euros was shared in 2014, and it is estimated that the number of users is increasing by 20 000 a year; but there are also many examples of non-monetised services.[7]



Figure 4 Retail and consumer goods sharing economy

Growing concern for the environment is also driving, among others, the spread of sharing and/or short-term rental solutions in the fashion industry – with examples such as Threadflip or Poshmark, which facilitate the sale of second-hand clothing, and on-demand clothes rental services Vinted and Rent the Runway – as well as in the FMCG sector. The latter category includes the so-called shopping communities, which jointly buy direct from fruit and vegetable growers, then share out the goods purchased in this way. Community gardens, meanwhile, are gardens that are usually created and tended in a community initiative for the purpose of urban horticulture (mainly fruit and vegetable growing). There are presently 33 such gardens in Hungary.

By joining the consumer sharing economy market as an intermediation platform, companies with a traditional operating model gain an opportunity both to control quality consistency and strengthen brand loyalty, and to win the custom of numerous potential, but less active shoppers in the long term based on their positive experience of such interaction.[27]

A notable example among the solutions for the sharing of consumer goods is the Rukkola.hu site, which boasts 58 000 items and which enables books to be exchanged free of charge. Piquiq focuses on the discussing and sharing of food, while the recently launched Yumber application – similarly to Uber – allows users to eat as guests in the kitchen of a person they’ve never met before, as and when the need arises.[28]

With the strengthening of globalisation and the growing sense of alienation, the cohesive power of local communities is proving increasingly important, and this is especially difficult to achieve in a metropolitan environment. Certain solutions aim to strengthen this local solidarity; an excellent example of this being Miutcánk.hu, which presently has 30 000 registered users. Its purpose is to forge good relationships between neighbours, which brings numerous benefits from the ability to lend tools and provide services on a reciprocal basis, to the holding of joint events. [28]

1.3.3 Tourism and hotel industry

In the tourism and hotel industry, the sharing economy services are best grouped into the following categories:

The best-known form of monetised home sharing is where someone rents out their own or a leased property for a profit. The leader of this market by a huge margin is Airbnb, as already been mentioned in the earlier part of this analysis, which has achieved explosive growth in recent years. The strength of the trend is shown by the fact that the number of users and guest nights has increased by almost 150% in recent years in all the countries of the region. It’s important to point out that not only private individuals, but companies also rent out flats on Airbnb, so it now goes beyond the classic c2c model.[21]

The best-known form of non-monetised home sharing is the Couchsurfing site also mentioned above, where hosts share their “couch” and home with travellers, free of charge. This has a strong community background, as the hosts can stay with other couchsurfers during their own travels, based on reciprocity and trust.

The top global platform for home exchanges is HomeExchange, which lists the details of 65 000 properties (of which 300 are in Hungary), where registered members can set up home exchanges with each other in return for payment of an annual subscription.[30]

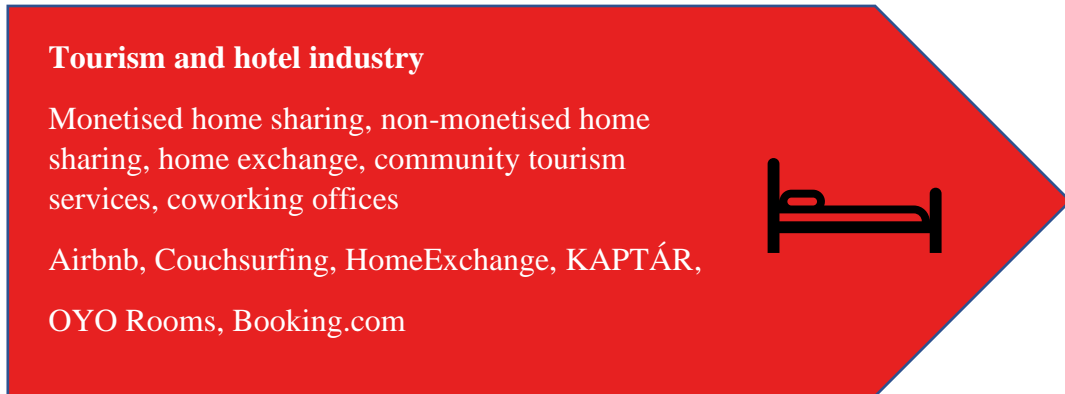


Figure 5 Tourism and hotel industry sharing economy

Community-based tourism services include home dining services, for example, where homeowners offer occasional meals in their private homes. Coworking offices fall mainly into the b2b segment. They only differ from renting space in a conventional office building in that the participating companies or private individuals do not rent a permanent space, but instead work flexibly in the available spaces within the coworking office, and also share the common service areas (e.g. meeting rooms, kitchen).

Meanwhile In Hungary at present it is estimated that up to 7 000 apartments may be partially or fully rented out via Airbnb, and in 2014 approximately 150 000 visitors used it to find accommodation. Couchsurfing, meanwhile, already had more than 15 000 users back in 2010.[21]

1.3.4 Entertainment, multimedia and telecommunication

One of the most prominent c2c and b2c forms of sharing economy enterprise is online content streaming (where content can be watched or listened to without downloading), which have shaken the entertainment industry to its foundations. These services are usually available for a subscription fee, but in some cases some of the content can be accessed free of charge, but only with advertising or reduced functionality.

Where music is concerned, the two market leaders are Spotify and Deezer, while Apple music, which was launched in June 2015, is intent on catching up with them. Their size is illustrated by the fact that Spotify has more than 75 million active users, 20 million of whom pay for the

service. The undisputed global leader among online video streaming services is YouTube with its more than 1 billion users. It was one of the “early birds” of the sharing economy, having been launched in 2005. Just how widespread the service has become is shown by the fact that 300 hours of video content is uploaded to the site every minute, with more than 4 billion views a day.[31]

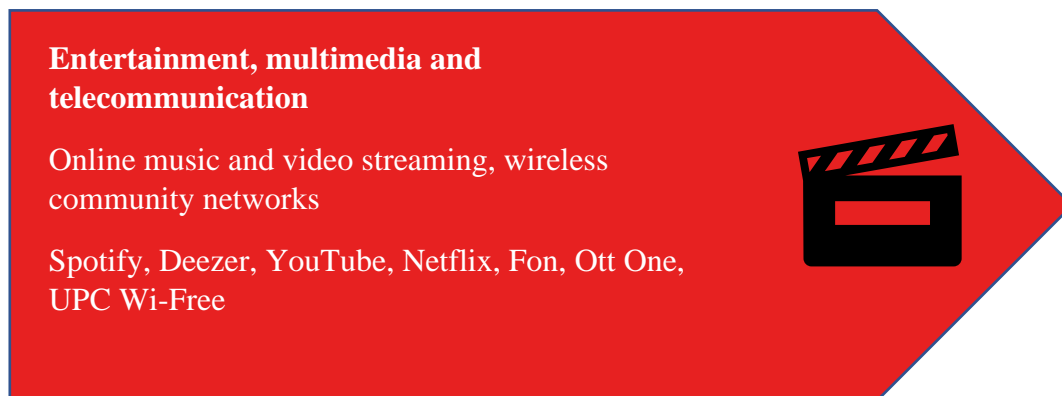


Figure 6 Entertainment and telecommunication sharing economy

The market-leader among providers of television programme and film content is Netflix, with more than 60 million users worldwide. The statistics reveal that one third of internet traffic in America is related to Netflix. In contrast to the classic cable TV service providers, instead of fixed packages Netflix’s subscribers can flexibly choose the content that interests them, sometimes with the help of recommendations from the other users. In addition to third-party content, the company has also started to produce its own content, such as the serial House of Cards. While there is no doubt that the online streaming services deprive the classic film and music industries of certain revenues, in return they also acquire new users who would not otherwise pay for similar content, but instead would use other, in many cases illegal channels.

Wireless community networks, where users make a secondary network available via their router to those who also share their own networks, are also becoming increasingly widespread globally. One of the most successful examples of this is Fon, which has around 15 million access points worldwide.

1.3.5 Financial sector

Crowdfunding, the community-based financing of certain objectives, is an increasingly popular means of starting a business. Now a given new business, startup or lone entrepreneur can not only aspire to secure the support of venture capitalists and “business angels”, or to take out a loan from a bank, but can also gain access to new, alternative sources of funds. The leading crowdfunding platform is Kickstarter, through which more than 80 000 projects had been A

special type of community fundraising is known as crowdcreation, which is where users contribute their ideas to the solving of a complex – possibly an R&D – problem, or to the development of a product. One such site is InnoCentive, which has almost 400 000 users who have already solved more than 40 000 problems since the platform was established, either for fun or for remuneration, but NASA has also set up a similar project.[6], [10]

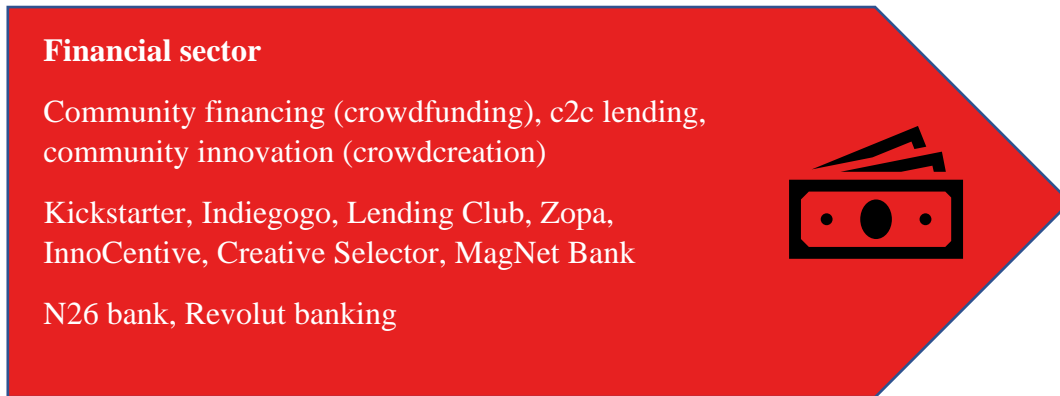


Figure 7 Sharing economy in financial sector

More than 20 million dollars was raised through the site for the production and marketing of the Pebble smart watch alone. Many Hungarian projects have also been financed in this way, such as the board game Trickerion, or the Brewie home brewery, with investment totalling between 200 000 and 300 000.[1]

Meanwhile, c2c lending is growing in popularity worldwide. The basic principle here is that prospective investors lend an amount of their choosing to loan applicants, via an online broking platform. In theory it works like a bank, but since its upkeep costs are considerably lower, the return structures are more favourable for the investors, as are the loan terms for the borrowers. Lending Club is the largest player in the c2c lending market, having placed more than 9 billion dollars in private and business loans by March 2015. Another major player is Zopa, which so far has brokered loans totalling 951 billion UK pounds. The popularity of businesses such as this, on top of the obvious financial advantages, stems from the fact that citizens increasingly want their loans to be flexibly configurable, and to retain a greater degree of control over their own money. If the banking sector wants to keep up with this trend, then more personalised, advanced online platforms and related products will need to be created.[16]

1.3.6 Energy sector

The most common manifestation of the sharing economy in the energy sector is the community financing of renewal energy sources,

the benefits of which lie in the profit and cost-effectiveness aspects on the one hand, and environmental considerations on the other. Decentralised energy production can be for the participants' own consumption and/or for feeding back into the grid and selling. Notable examples include the wind farm in the Hvinde Sande harbour in Denmark, which was partly funded by the local residents, or the community solar projects created by the American Mosaic or Canadian Solar Share companies, and the solar panel shares that embody a stake in them. The town of Feldheim in Germany has made itself completely self-sustaining, partly with the help of a solar power station purchased from its own funds.

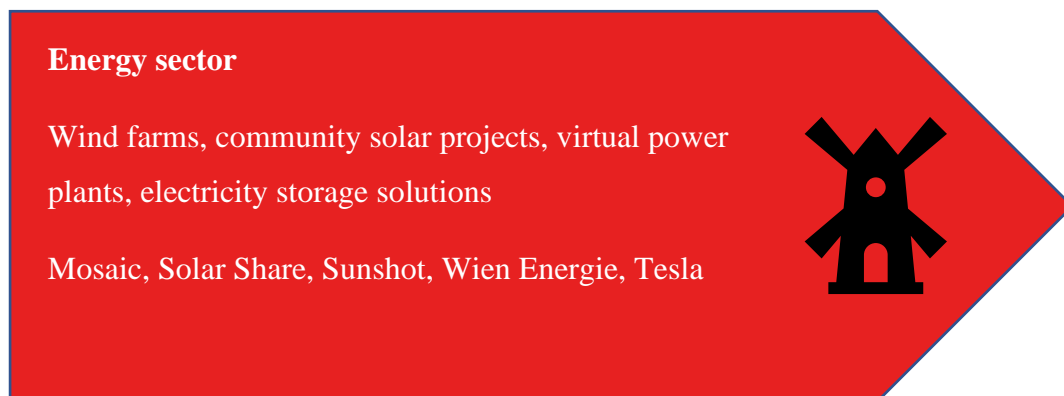


Figure 8 Energy sector sharing economy

Several traditional energy suppliers also participate with similar transaction structures, as it enables them to generate additional revenue, or at least helps them retain consumers who otherwise would still choose this model but with the help of a different service provider. It also has great advertising value, as the base of consumers who are looking for “green” and sustainable solutions, even at a higher price, is growing rapidly. Recognising this, Wien Energie, for example, is also offering virtual solar power station products, allowing consumers to purchase a stake in a community solar power station, as investors.

Virtual power plants, which first emerged in the USA, are based on alliances of small power stations, which are linked to a single control centre by an electricity controlling metering and infocommunication link. This makes it possible to regulate geographically separate power stations from a central location, so that they can operate in the electrical energy market together, as a virtual large power plant. A 2014 study by Navigant Research predicted that the global aggregate capacity of virtual power plants could rise from 4 800 MW at that time to 28 000 MW by 2024. (By way of comparison, Hungary’s total combined power station capacity is around 9 000 MW.)[1]

Another solution that presents major opportunities is the use of batteries with a high energy storage potential, which could possibly be purchased jointly by residential communities. Tesla, among others, plans to market several models of battery with varying capacities.

The spread of sustainable energy solutions and the change in consumer preferences is also bringing profound changes to the energy and utility sectors. Leveraging these trends could bring huge benefits for the classic companies in the sector, and in order to do this they will need to develop products that connect with the sharing economy.

1.3.7 Human resource

An increasingly important area of the sharing economy is the sharing of human resources, allowing individuals to make use of their specialist knowledge and experience to provide services – for free or in return for payment – to others. This has a profound effect on the mobility of human resources, as on the one hand it removes numerous potential employees from the labour market, but on the other it offers a plannable source of supplementary income for a part of the population. In addition to this, it encourages more people to start their own micro-businesses, which in turn has the effect of stimulating consumption and the economy. One of the main reasons for the popularity of these solutions is the high degree of flexibility and controllability that they offer.

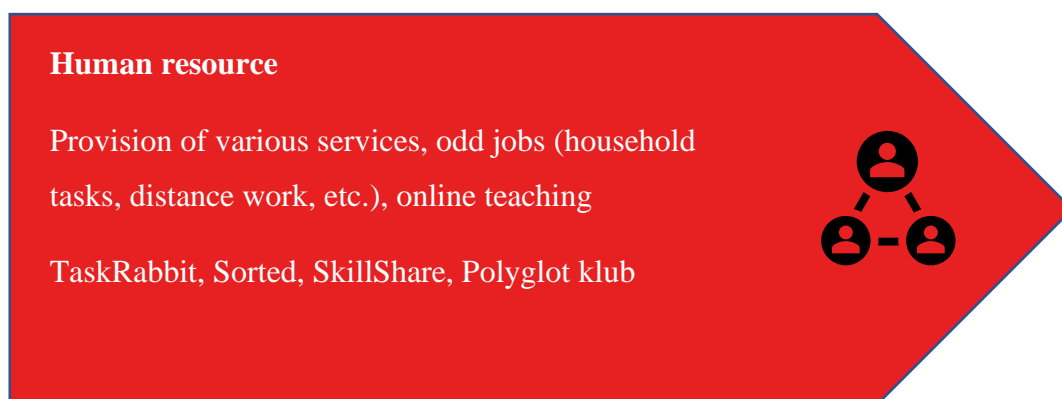


Figure 9 Sharing economy in human resource

An outstanding example is TaskRabbit, a platform on which people who need various services (e.g. household tasks, distance work) can choose from among service providers who have been screened by the site, and are thus quality-checked, at terms that are agreed in advance. Approximately 30000 registered service providers advertise on the site, some of whom potentially earn several thousands of dollars a month, while Sorted, a similar site, also has 12000 registered service providers.[1]

Online solutions offer many new, efficient solutions not only for work, but for training too. On the SkillShare site, for example, for a fixed subscription fee, people who want to learn new skills have masses of online courses to choose from, covering a wide range of topics. Effectively it can be regarded as an open university where students can put together their own training plan from subjects that interest them.[1]

2 Literature review

2.1 Sharing economy

The “sharing economy” companies that are emerging on the back of radical changes in consumer habits – Couchsurfing, Airbnb, Uber and their peers – have overturned entire sectors with their so-called “creative disruption” in the space of only a few years. We can safely say that they are associated with one of the most important global trends and success stories of recent years and, with all certainty, of years to come, and – although controversial – they are going to bring profound changes to our business environment. Certain sharing economy players have grown into global companies in the space of only a few years. In July 2015, according to an analysis by the Wall Street Journal, Uber’s value had topped 50 billion dollars, making it worth more than 80% of the S&P 500 companies, while Airbnb was valued at 24 billion dollars. A related study by PwC shows that while in 2013 the sharing economy companies in the five sectors where the new business model is the most prevalent earned sales revenue of 15 billion dollars, by 2025 this will have risen to 335 billion dollars, so half of the revenues in these markets will go to companies with a sharing-based model.[1], [9]

We can explain what exactly the sharing economy means, how it works and what factors have led to its emergence. We will explore in detail the occurrence of the phenomenon in certain key sectors, and present the related regulatory issues, as well as the societal, economic and political implications.

During the investigation of the phenomenon we identified the following 4 main social and economic changes that have contributed greatly to the rapid spread of the model:

1. The spread of advanced digital platforms and devices
2. Efforts to use material resources more efficiently, economic rationality
3. New consumer needs – closer cooperation and a change in attitudes to ownership, more environmentally friendly consumption choices
4. Social changes – globalization and urbanization

Along with these factors, one of the main reasons for the success of the sharing economy companies is the considerable cost advantage resulting from their economies of scale: global players entering the local market have a lower fixed cost ratio for their services than local

participants. Moreover, their business model enables them to expand extremely rapidly, as breaking into a new market only entails minimal costs for them.

A universally accepted, standard Hungarian definition has yet to emerge, but nevertheless we can apply the following definition on the basis of the main features and characteristics:

In the sharing economy users • share with each other • their idle capacities and resources (e.g. fixed assets, services, money)

- on an on-demand basis (as and when the consumer need arises), usually via an IT platform,
- on the basis of trust, ascribing particular importance to personal interaction and the community experience,
- with an eye on sustainability.

In this study we have investigated 7 key sectors where the sharing economy is already substantial or has high growth potential. We analyzed the main forms it takes, some interesting examples, the trends and their impacts, with a special focus on the participants that operate in Hungary.[1]

2.1.1 Drivers and Potentials:

The internet has seen many steps of evolution since the inception of the world wide web in 1992. They comprise various steps in electronic, mobile and social business. While all phases have spurred new business models, the recent social web also enables a paradigm change from owning to using goods and/or services. Contrary to the traditional market model, which is based on ownership, the “Sharing Economy” is built on using and sharing of products and services among others. The principle per se is not new: sharing resources is known in business-to-business (B2B) domains, such as the sharing of machinery in agriculture and forestry (e.g., Maschinering in the German-speaking countries) as well as in business-to-consumer (B2C) domains (e.g., self-service laundries, ski/video and car rental, public libraries and pools). It has recently received a proliferation to consumer-to-consumer (C2C) transactions and resulted in new business models. Three drivers may be identified for this development:[16]

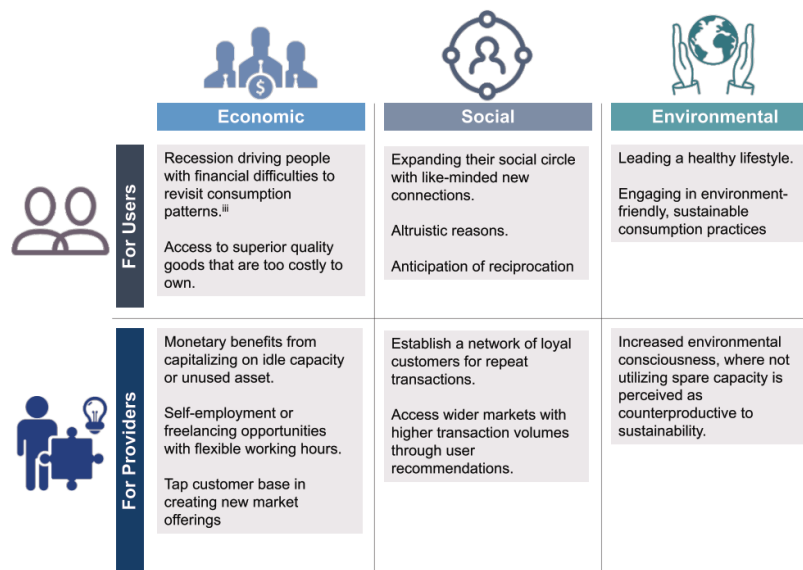
- **Changing consumer behavior** While ownership has been a predominant model for using goods (e.g., cars) in the past, temporary usage has recently become more attractive for many consumers. Examples are car2go, a company owned by Daimler which offers access to shared mobility services as well as Nextbike and Green Bikes Barcelona, both companies offering

bike rental services. Among the reasons for this shift are convenience, lower prices, and ecologic sustain- ability [5]

- **Social networks and electronic markets** The networking among peers is mainly enabled by social networks and community platforms. They link many consumers who are willing to share their goods among each other (the “crowd”). Additionally, electronic market plat- forms (e.g., InnoCentive) reduce the formerly high search and transaction costs. They create mechanisms for trust and reputation in anonymous markets (e.g., rating and feedback) and offer integrated fulfillment as well as payments functions (e.g., social media payment) which ensure easy and reliable compensation for using the shared services.[32]

- **Mobile devices and electronic services** A strong enabler for accessing services in the “app economy” conveniently has come with mobile smart devices, such as smartphones and tablets. For example, a solution for sharing cars is much simpler and more convenient for consumers based on intelligent hardware instead of physical gear. Companies, such as car2go or DriveNow in Germany, Sharoo in Switzer- land, or Getaround and RelayRides in the USA, rely on a combination of an electronic service using smart- phone apps and smartcards instead of physical keys.

By the second half of the 2000s consumer behaviour had changed significantly; a growing number of people were starting to recognise that their consumer habits would no longer be sustainable going forward. In this environment, companies were established that offered a new kind of solution to the changed consumer problems. The term “the sharing economy” started to be used to refer specifically to companies of this type from around 2009-2010 onwards. By this time the players that have since become the best-known companies in the sharing economy – such as Couchsurfing, Airbnb, Uber – had already been set up.[11]



Source – Icons sourced from 'The Noun Project'

Figure 10 Motivation for shared economy

Sharing economy companies are cropping up in a growing number of sectors, and through a process of so-called “creative disruption” they are upturning whole industries within the space of a few years. We can safely say that they are associated with one of the most important global trends and success stories of recent years and, with all certainty, of years to come, and as such they will bring profound changes to our business environment.[32]

It is worth taking a look at just how this phenomenon was able to take root so quickly and become so widespread in just a few years. We have identified 4 main economic and social changes that contributed greatly to the rapid spread of the model, because the novel business model of the sharing economy was able to provide a response to the changed environment and to the new need that have arisen.

1. The spread of advanced digital platforms and devices: The basis for the business model of the sharing economy is the emergence and exponential growth in the take-up of digital platforms and devices. Although people have always engaged in access-driven economic activity (e.g. rental, barter trade), the latest technological advancements have made it possible, via an online platform for the transactions to take place on demand, for them to be precisely measurable in time, and thus more scalable, and for supply and demand to be dynamically matched. The rapid uptake, meanwhile, has contributed to a dramatic reduction in the transactional cost of the trade, as a consequence of the technological advances. Someone wants to rent a car, for example, after requesting one on the Zipcar platform, can

effectively pick up the car immediately at the location specified by the application, using the card received upon registration.[5], [11], [15]

2. **Efforts to use material resources more efficiently, economic rationality:** Research by the European Commission has found that some 740 million of the approximately 1 billion cars on the world's roads today are used by only one person, and the average household has an asset with a value of 3 000 dollars mainly sitting idle on the driveway. The use of the sharing economy could be a rational economic decision from two perspectives: on the one hand, the users don't have to invest in an expensive assets, and on the other the providers of the service can use their idle assets to earn extra income. [21]

Ownership entails a large financial burden, as purchasing and maintaining the product is a costly business. In the access- driven economy, however, you only need to pay for actual use, so it is better to make use of a community-based solution for the use of products that are only needed occasionally (e.g. a chainsaw).

On the flipside, the owners of such items can earn extra income by sharing them. Many view the opportunities provided by the sharing economy as a means of supplementing their earnings, while for others it has become a primary source of income. One of the reasons for this is that the individual activities do not require a substantial or supplementary asset investment or complicated bureaucratic procedures, so the barriers to entry are low, and entering the market

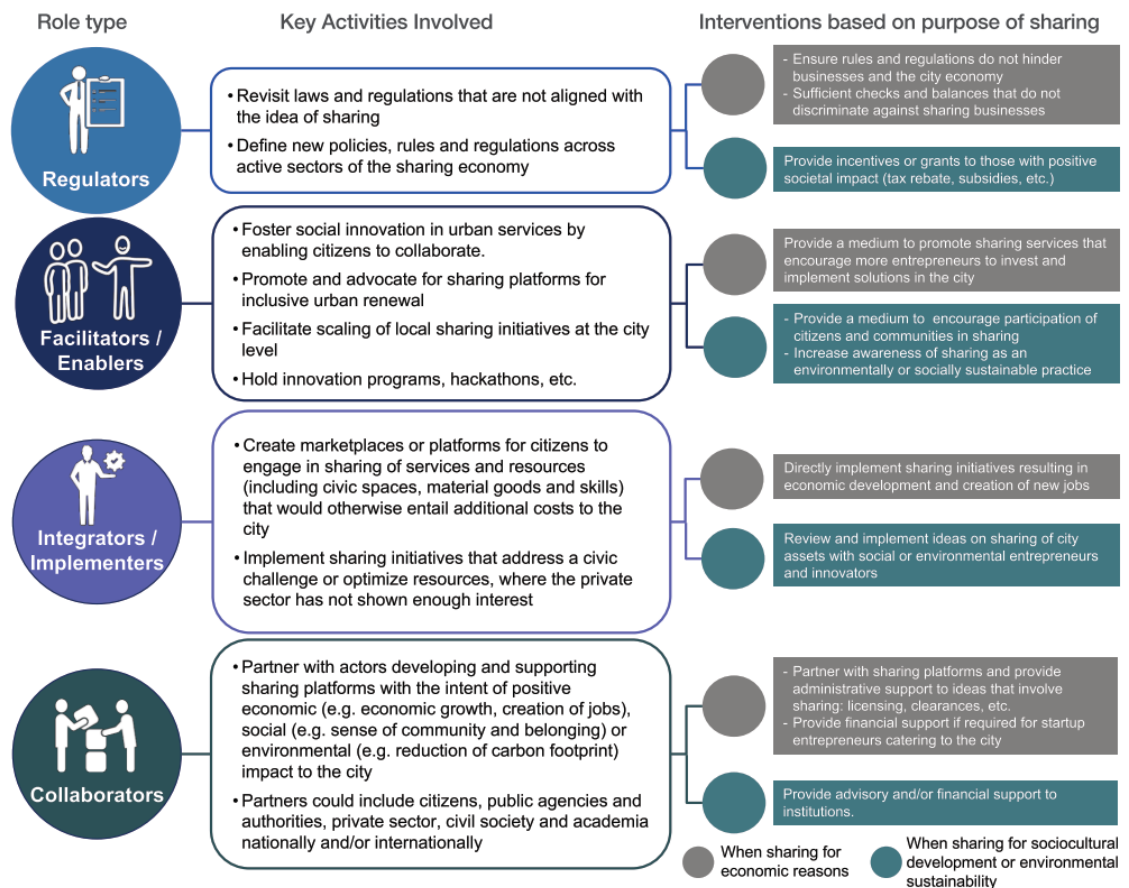
3. **New consumer needs** – (closer cooperation and a change in attitudes to ownership, more environmentally friendly consumption choices) A growing number of people are demanding a form of consumption that entails a high degree of personal interaction, and a community experience, with products offered by individuals rather than “faceless” companies. In this way business services go from being transaction-based to experience-driven, and basis for this is trust. A good example is the free Couchsurfing, where hosts often show their guests around the town in person, or Miutcank.hu, the primary function of which is to create communities of good neighbours. The cooperation aspect is also reflected in the fact that the success of sharing economy services is largely dependent on the retrospective feedback provided by individual users, which helps other users decide whether to use the service. However, we should not lose sight of the fact that the primary incentive is still the convenience and favourable price, and only secondarily the personal relationship.

The other important consumer trend is that while in the past ownership represented a kind of status symbol, today this is no longer the case, especially among the young. In America 43% of consumers take the view that ownership is mainly a hassle: choosing takes time, the

cost of acquisition is high, the asset has to be repaired and stored, and once the purchase has been made the opportunity to make further choices is lost. In contrast, users of the access-driven business model are far less tied down; they can change their products any time they like, and naturally they aren't burdened with the costs of purchasing and maintenance either. Moreover, for many people, more environmentally friendly and sustainable consumption is growing in importance. Some 76% of American adults who are familiar with the sharing economy believe that sharing-based business models are more environmentally friendly, so this is another trend that is supporting growth in the sharing economy.[21], [33]–[35]

4. **Social changes** – (globalisation and urbanization) The change in attitudes towards ownership are closely related to the fact that with the strengthening of globalisation the range of products and services on offer is increasingly large and varied; with the emergence of online marketplaces, it is effectively possible to procure anything from anywhere in the world. So it could be a major boon for consumers if they don't have to commit to any one product for the long term.

And, as a consequence of the growing urbanisation, more and more people are living in any one place, which boosts opportunities for sharing as supply and demand are also becoming geographically closer to each other.[8]



Source - Icons sourced from 'The Noun Project'

Figure 11 Role of government in sharing economy

2.1.2 Issues and challenges of sharing economy

In their book, *Sharing Cities*, Julian Agyeman and Duncan McLaren describe a “healthy urban community” as one in which the “rich diversity of cultures is recognized, difference respected and contact between those cultures enabled and encouraged”. They explain how sharing-economy practices can increase multicultural interactions through:

- **Revolution** – directly disrupting the city’s cultural landscape and exploiting this disruption.
- **Subversion** – using the city’s own power for “symbiotic” opportunities, where existing elites at least partly share the interests of the challenging groups.
- **Reinvention** – creating alternatives at the margins of the conventional economy and establishing new niches.

They argue that the best opportunities for systemic change come from combining reinvention and subversion to “seek interlinked opportunities to enhance well-being, increase justice and equity and spread participative democracy”.

An example is Medellín’s efforts to overcome a history of violence and become a thriving medical, business and tourist centre through “social urbanism” projects such as the Metro-cable system and library parks being designed and planned through a participatory community process and funded through revenue from the city’s public services company, Empresas Públicas de Medellín.

Not all aspects of sharing-economy models are positive. Cities have faced challenges in creating policy and regulatory frameworks for platforms that due to network effects may be seen as monopolies. With the amount of consumer data stored on sharing platforms rising exponentially, challenges are also growing in protecting consumers, avoiding unfair competition, modernizing outdated taxation laws and assuring social inequality. A summary of issues and challenges are illustrated in **Table 1** [36]

Table 1 Issues and challenges arising from sharing economic models

Market-driven sharing (for economic reasons)	Purpose-driven sharing (for social and/or environmental reasons)
– Establishing trust and reputation.	– Guiding sharing towards improving public infrastructure and services.
– Ensuring safety and security. – Uncertain effects of social equality.	
– More “exclusive” than “inclusive”.	– Accountability and transparency in collective/collaborative governance.
Purpose-driven	

Establishing trust and reputation: On any sharing platform buyers and sellers have to provide information necessary for the transactions to occur. Maintaining trust when information asymmetry exists and especially when the reputation of a city is at stake as a facilitator, integrator or collaborator is crucial to the success of sharing platforms. To minimize risk, sharing platforms provide mechanisms to build and maintain trust between participants by verifying their identity, intentions and capabilities. These include review-rating systems, background checks and guarantees or insurance mechanisms to protect buyers and sellers.

The most common ways to establish trust on platforms are summarized by Arun Sundarajan in his book *The Sharing Economy: The End of Employment and the Rise of Crowd- Based Capitalism* (Refer **Figure 12**).[36]

Review-rating systems are the most common interventions, and relatively easy to implement. They encourage high quality of service, establish accountability, promote courteous behaviour and minimize discrimination between users. Uber uses a two-way rating system (i.e. both driver and riders get to rate each other), while Airbnb uses a combination of ratings and written reviews for both homeowners and guests. Both validate users by linking offline identity with online identity, offer a way to withhold payment in case of conflict and provide insurance against loss (Airbnb covers up to \$1 million in damages). Third-party review systems such as the Better Business Bureau go a step further by reviewing complaints and the level of responsiveness to those complaints, and monitoring factors such as licensing status and any ongoing government actions against the entity in question (Federal Trade Commission, 2016).[12]

Some of the key challenges in review-rating systems are listed in Table 3. The challenges listed assume that users trust the centralized platforms more than they trust each other individually. However, a platform’s credibility depends on the aggregate trustworthiness of its users. If a platform offers guarantees and sellers take advantage of them to offer lower- quality products, then overall credibility is undermined and the platform’s trust can disintegrate.



Source – Sundararajan (2017)

Figure 12 Facets of trust in sharing economy

Table 2 Key challenges of review-rating systems and proposed interventions Key

Key challenges	Possible Interventions
<p>Platforms tend to receive feedback when an experience is either positive or extremely negative. In cases of mildly negative or average experience, users generally provide no feedback, which affects the validity of rating systems. Fear of retaliation may also prevent users from leaving a negative rating.</p>	<p>Government can mandate sharing platforms to report the number of transactions that did not result in a review, while also displaying those who provided positive or negative feedback.</p>

Rating systems can be manipulated through fake reviews, either to inflate one's own rating or depress that of a rival. Buyers and sellers may collaborate to dishonestly leave each other positive feedback.	Allow only verified users to review on the platform, which could involve checking personal details such as credit card authorization. Use software to periodically purge reviews that are not authenticated.
Professional reviewers with an established subscriber base may get greater weight than anonymous reviews, and gain the power to affect pricing.	Use a percentile-based rating that allows users to compare sellers on the same platform.
Building reputation and trust is challenging for new buyers or sellers, creating a bias towards older accounts.	Require members to make escrow deposits during the first few transactions to assure quality.
Those with an existing high score on a platform could exploit their trust by reducing their quality of service before ratings readjust for their new feedback.	Weight recent transactions higher than old ones

Ensuring safety and security: Sharing may expose participants and platforms to risks in terms of safety and security. [3]

- **Physical risk (to service providers and users):** using sharing platforms may result in unsafe situations. The renewal of Uber's licence with London's transport authorities, for example, was made conditional on new requirements for reporting serious criminal offences, obtaining medical certificates for its drivers and carrying out criminal background checks.
- **Reputation risk (to platforms and service providers):** a platform's entire business can be at risk if systemic concerns regarding misconduct become prevalent. For example, Uber has responded to concerns about offences committed by drivers by committing \$5 million to sexual assault and domestic violence prevention (Uber, 2017).
- **Platform risk (to service providers and users):** gaps in regulation can expose users to trade risk from platforms that take payment but fail to deliver service. In China, for example, the bike-sharing firm Bluegogo went bankrupt with a cumulative 20 million users and \$140 million worth of user deposits (Xiang, 2017).
- **Supply risk (to platforms):** sharing platforms have expanded aggressively by providing incentives to users and service providers, but profitability depends on scaling back those incentives as the platforms scale up. The balance between profitability and service level creates a tension between the platform as a business and those working on it.

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- **Regulatory risk (to service providers and platforms):** with uncertainty over how laws and regulations pertain to sharing platforms, some city governments have either restricted or barred them from operating. Those who invested in assets needed for service provision are put at risk of failing to recoup their investment.

Uncertain effects of social equality: Cities have to be cautious about social inequalities that can potentially be caused by the sharing economy. Two particular areas of concern are racial discrimination faced by users and income inequality as compared to formal markets.

In the USA, studies by the National Bureau of Economic Research and the American Economic Association have established cases of racial discrimination on platforms such as Uber and Airbnb. African American passengers were subject to longer wait times and higher cancellation rates than white passengers, while guests with African American-sounding names were 16% less likely to be accepted by hosts than guests with white-sounding names[8]. Another study of Airbnb in New York City found African American hosts received nightly rates that were 12% lower and incurred a higher penalty for undesirable. A study by TaskRabbit in Chicago revealed that people are less likely to accept tasks in low socioeconomic neighbourhoods because they perceive them as high-crime areas, and consumers have to pay more in these areas.[35]

Widening wage gaps are another social inequality concern. In the USA, sharing-economy practices are increasing income inequality among the bottom 80% of income distribution. This is due in part to providers on these platforms already having full-time jobs and engaging in sharing to supplement their income, often with highly educated workers doing lower-skilled work such as driving. One response has been “platform cooperativism”, in which workers own and operate the platforms to improve labour conditions and services. Platform cooperatives usually find most success where the diversity levels of the work contributed by employees is low, competition is limited and no frequent funding is required.[22]

More ‘exclusive’ than ‘inclusive’: Many platforms are designed to reach tech-savvy, well-connected users who have the capacity to spend. College graduates are more likely to share than those from a lower educational background. A study by the Pew Research Center in the USA found that only 10% of people with household earnings of less than \$30,000 have booked trips using ride- hailing platforms, and 50% of them were unfamiliar with ride- hailing (BSR, 2016). In Japan, officials have stated that most of their citizens are still unaware of the sharing

economy: in a survey carried out by PwC, only 31% of almost 10,000 citizens surveyed could recognize a sharing-economy service.[1]

Cities need to enable an environment that removes barriers from sharing and allows more people to benefit from the sharing economy, including those from low-income households and lower educational background, physically challenged individuals and senior citizens. Cities should ensure inclusivity as a focus area for sharing platforms to encourage participation from a diverse range of people.

2.1.3 Regulating sharing

While sharing platforms have taken some steps towards implementing mechanisms that establish trust and protect users, this does not remove the need for regulation. Governments first have to understand the intricacies of the specific operating model and its implications – whether economic (taxes, monopolies), legal (redefining labour laws that cater to freelancers) or social (protecting the rights of participants). Cities have to work to involve all necessary levels of government: Seoul illustrates the challenge, as the city government is promoting sharing initiatives within its own scope but higher-level laws and administrative regulations have not caught up.[21], [26]

Striking a balance Cities have to address two goals when designing regulations for sharing platforms: encouraging innovation and competition and protecting the interests of citizens. Cities can adopt a bottom-up approach towards regulatory frameworks, by monitoring markets and adapting to unique situations while in the early stages of evolution; or a top-down approach, imposing rules and regulations for sharing platforms to ensure the rights of all participants.

Playing fair (legal) Cities have to ensure healthy competition among traditional and new business models, raising the question of whether contemporary sharing platforms should be subject to different regulatory treatment than traditional market players (Key concerns of market players listed in Table 4). Carrying out a market assessment of regulatory needs in each sector in which traditional players are competing with contemporary players can be useful in developing a regulatory framework that caters to both kinds of business.[21]

Table 3A Key Concerns of Market Players Traditional [31]

Traditional market players	Contemporary market (based on sharing)
Rules and regulations that are applicable to traditional market players are not being applied to sharing platforms, giving them an unfair advantage.	Regulations designed for traditional market practices are being applied to newly evolved business models in inappropriate ways.
Sharing platforms are disrupting their business	Traditional players are lobbying regulators to impose protective measures that increase costs for contemporary players.

Defining applicable taxes and fees (legal) Taxation laws that are not sufficiently defined for new operating models can put traditional market sellers at an unfair disadvantage. For instance, should individuals sharing their parking space for a fee be taxed in the same way as formal pay-and-park systems? If so, how and on whom should the tax be levied?[3]

Concerns about unclear or unfair taxation structures have been the primary drivers of resistance from operators in traditional markets to sharing platforms. In the absence of applicable existing regulations, many cities have entered into partnerships with sharing-economy platforms to collect and remit taxes on behalf of the city. For instance, Airbnb has entered into agreements with Portland, San Francisco and San Jose where it remits tax collected from its local hosts.

While these partnerships may help in the short term, cities ultimately have to define a statutory tax and/or fee structure that clearly identifies the obligations of platforms to buyers and sellers. For instance, the city council of Seattle recently voted to impose a levy of \$8 per night for rooms and \$14 per night for complete homes on short-term rentals, starting in 2019 – against the wishes of short-term rental platforms, which argued the tax should be a percentage fee rather than a flat rate. In Vancouver, regulations to come into effect in 2018 will require homeowners to pay a one-time \$54 fee and annual \$49 fee to be able to rent out their principal homes for up to 30 days a year.[3], [5], [36]

Cities need to define a regulatory framework that incorporates the views and concerns of all stakeholders – the sharing platforms, traditional market players and participants across different sectors. Some are using the additional revenue generated by these taxes to address relevant social issues: Seattle, for instance, will invest the taxes it collects from the short-term

rental market in community-led projects and paying off bonds for affordable housing (Seattle Weekly, 2017).

Self-regulation (legal): Some regulatory responsibilities can be taken over as fiduciary duties by sharing platforms themselves, allowing for self-regulation where a regulatory framework has not yet been developed. The extent to which these responsibilities can be delegated to platforms depends on the level of data captured for regulatory oversight – for example, as evidence for future governmental audits to determine the effectiveness of enforcement by the platform.

Self-regulation has two major advantages. First, it decreases the pressure on regulatory bodies. Second, it allows the government to observe trends before assisting cities to take corrective steps, if needed.

Protecting data (social): Sharing platforms collect, store and analyze a lot of data on their participants, including transactional data (e.g. information on the goods shared, cost and payment) and non-transactional data (e.g. user profiles, ratings, reviews, geolocation, preferences). This data is valuable and needs to be protected. Platforms usually address concerns regarding disclosure of information in their terms of use.

Data gathered by sharing platforms can also be useful for city governments – as noted above, to assist with transport planning, for example, and also to help determine the effects of sharing in a particular sector to inform regulations. However, sharing private data with government raises privacy concerns. One way to address this is by providing anonymized data to governments that could help achieve the desired results without compromising user identity. For instance, Uber has been providing data to cities on pick-up and drop-off locations at a zip-code level (Federal Trade Commission, 2016).[5]

The challenge of regulating sharing-economy platforms is complex. Governments have to avoid deterring innovation while trying to achieve economic, social or environmental goals. It is, therefore, important for them to have flexibility in their regulatory approach.

2.1.4 Business models

In most cases the legislature is still unready for the sharing economy companies that are already present in several countries and have a complex operating model. There is no perfect solution for their regulation. The regime that applies to traditional players is automatically inapplicable to them in most cases, but neither do total bans appear sensible, as in many cases companies

can circumvent these with legal loopholes. Given the appropriate regulation, however, sharing economy companies could benefit the economy. Since one of the elements of their competitive advantage is precisely their unregulated environment, traditional regulation would endanger their fundamental business model and thus their existence. Decision-makers need to examine the many positives and potential risks of the phenomenon together and use this as the basis for determining any steps that may need to be taken. Internationally, we can observe various different strategies for resolving the problems[1], [21], [32], [37]:

1. Taxes to be paid in directly by the platform providers, rather than the providers of the services.
2. Data reporting obligation for the platform providers.
3. Individual agreements with sharing economy players.
4. Informing service providers of their tax obligations.
5. Holding inspections as a deterrent against non-compliance.
6. Registration and monitoring of service providers.
7. Making sharing economy players subject to a portion of the rules that apply to traditional industry players.
8. Distinguishing between service providers based on whether they participate in the sharing economy on a casual basis or commercially, and regulating them accordingly.
9. Time limits – for example, in the case of homes, a limit on the number of days they can be rented out via a sharing economy platform
10. Location-based restrictions – the service may only be provided in designated zones.
11. In many cases, however, regulators have opted to impose a complete ban on the service.

Many question whether the operating model of the sharing economy companies can really be sustainable, since several companies with a considerable user base are still operating at a loss. It is questionable whether these companies will be able to operate at a profit in the medium and long term, after the aggressive, typically venture capital-fuelled, market acquisition phase of the life cycle. However, the increasingly rapid spread of the sharing economy model, and the explosive growth of these companies, is an undeniable fact, and companies

First and foremost, the traditional companies need to consider which of their service areas are susceptible to the potential emergence of a sharing economy player; then after identifying these areas, the companies need to find an answer as to how they will be capable of keeping pace with this trend.

-
1. Protection of the existing customer base: (1) developing products and services, possibly in collaboration with other traditional companies, in order to boost their competitiveness, or (2) creating a strict regulatory environment through proactive lobbying.
 2. Strategic partnerships: (1) Initiating partnerships with sharing economy companies for promotional purposes or for the testing of shared platforms, or (2) strategic investments, acquisitions, followed by expansion of the existing portfolio with the successful products and services.
 3. Developing sharing economy products, or even switching the entire operation to a sharing economy model.

The most effective responses may differ between sectors and companies. In the less threatened sectors, where sharing economy players can only acquire a small segment, reactive responses such as protecting the customer base are more likely to be the right approach in the short term. In the medium and long term, however, and in sectors that are under a greater threat from the sharing economy, proactive steps will be necessary[38]

the main directions and characteristics that are typical of sharing economy companies are

Sharing-based: In sharing economy models, users share their resources, which may be physical assets or services, with each other for the short or long term. In the case of the car sharing services – Uber, Wundercar, Oszkár, BlaBlaCar – car owners share their vehicles with users who need a means of transport at any given time. This group also includes solutions where the members of a community (e.g. a residential community, village or a group of towns) share the costs of an investment, and then following its implementation they also enjoy the benefits accruing from the project.[34]

Idle capacities: resources Another important characteristic of the sharing economy is that participants offer their idle capacities and resources for sale, or share them with others. With TaskRabbit, in their free time users offer their specialist skills for shorter or longer periods, to those who have need of them. Similarly, the users of Airbnb or Couchsurfing make their empty homes or rooms available.

On-demand access: With on-demand services, users can satisfy their needs as consumers as and when they arise, and in exchange for the resources used they only need to pay an amount that is proportionate to their usage. Companies that fulfil needs on-demand are usually capable of providing their services via an IT platform. A good example of this is the MOL Bubi public

bicycle system, which can be used immediately and for as long as you like with a card and mobile application.

A higher degree of personal interaction: The extent of personal interaction is far higher in the sharing economy business models; users often see themselves as members of a community. A typical feature of these communities is that their members trust each other without being personally acquainted. This mutual trust is a very important building block of the model, as without it the sharing of resources between strangers would not be workable. The establishment of this atmosphere of trust is facilitated by the evaluation and feedback systems.

Drive towards sustainability: Sharing economy initiatives aim to achieve sustainability. Instead of buying new products, members prefer to share their idle assets with each other as a means of saving costs, increasing the useful life of the individual products and reducing the extent of environmental pollution resulting from the purchase of new products.

An explanation of these common features can give guidance when determining which companies we consider to be a part of the sharing economy; however, not all of the above features apply to every initiative.

We can distinguish between sharing economy companies in terms of the parties participating in the exchange or transaction; that is, between consumer-to-consumer (c2c) and business-to-consumer (b2c) business models. In the case of the former, the demand and supply side interact with each other with the intermediation of a third company, via the platform it provides. This category includes, among others, accommodation sharing and ride sharing services, such as Wundercar, which enable users to make contact with the person providing the service via the application or website.[39]

Coworking offices can also be slotted into this category. In Hungary for the time being we can mainly find examples of c2c companies, but globally more and more traditional companies are starting to recognise the opportunities that the sharing economy provides for them to supply their products to users using this business model as well, establishing a new revenue stream in the process. The Car rental company Avis and the car manufacturers BMW and Ford have launched their car sharing applications at numerous locations worldwide, where they allow users to rent cars for short period on an on-demand basis.[1]

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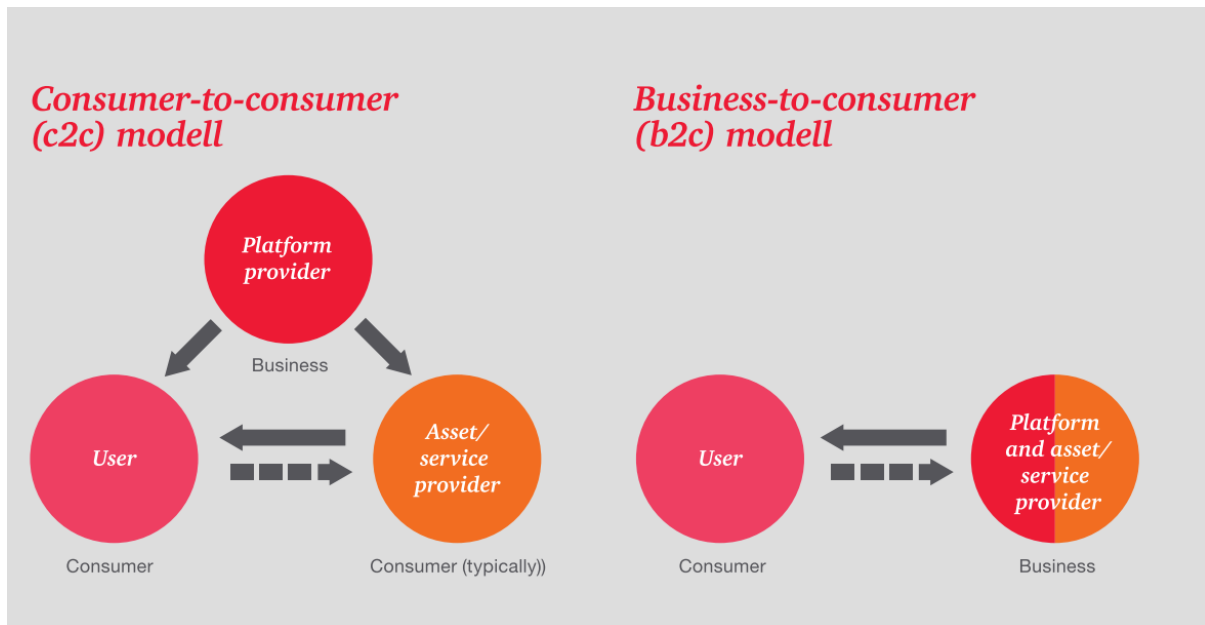


Figure 13 Sharing Economy business models

The Sharing Economy leads to hybrid forms of economic value exchange and thus extends existing models from the micro- and macro-economic perspective. A framework may serve to map the different approaches and provide guidance. The Sharing Economy either directly connects consumers through C2C models or provides access via an intermediary. The providers produce and distribute services for consumers, who in turn may also produce and distribute services for other consumers. In the Sharing Economy model, the line between consumers and producers is blurring because in a C2C scenario the provider would also be a consumer. An example is the lending of consumer credits by other consumers, an area which was formerly restricted to banks as financial service providers. However, the traditional service providers, such as banks, can also position themselves in the Sharing Economy. An example are banks which secure C2C lending scenarios

Consumers, providers and intermediaries are connected by different types of process categories. On the provider side, the “service lifecycle” differentiates the seven generic phases of identification, requirements analysis, conception, development, implementation, operation, and enhancement of services. These lifecycle processes support providers’ strategies, such as

the re-ownership of products, for which specific processes within the service lifecycle are relevant. For example, companies could provide specific repair services in the operations phase for second hand goods or offer refitting services in the enhancement phase to enrich those goods and services. On the intermediary side, these sharing processes need to be linked with service processes in the different service categories as for example food, logistics, etc. In a C2C model where only consumers are involved, the consumer offering a product or service to be shared would be the provider and thus owner of the service lifecycle process. For example he identifies opportunities to rent his apartment, analyze the requirements (e.g., insurance, regulation, etc.), etc.[18], [37]

The role of intermediaries is typically based on three generic process categories achieving market transparency (listing of services), the use of services via a shared transaction infrastructure (service contracting, billing, and fulfillment), and regulation (service rating as a form of self-regulation; in addition governmental regulation rules could be part of contracting, billing, and fulfillment processes). These processes have to be adapted depending on the service context. For example, sharing a car requires different processes for service use (e.g., cleaning, parking, etc.) than the lending of money (e.g., interest rates, payback periods, etc.).[37] On the consumer side, the specifics of consumers' sharing processes have to be considered, which are not focused on the transfer of ownership and include transactions, such as payments. Five process categories are relevant from the consumer perspective. First, consumers inform themselves about services they need and compare them. Second, they obtain access to relevant offerings, such as electronic keys for car sharing. Third, consumers pay for the service use. If (micro) payment functionalities are available in the sharing platform frictions regarding the use of shared services are reduced. Fourth, additional value added services support consumers in sharing resources. An example are insurance services, which reduce the providers' risks and thus improve trust. Finally, consumers rate the overall service quality based on criteria, such as convenience, which also serves as a trust mechanism.

On the systems layer consumers typically use electronic market platforms to identify goods and services that they would like to share. In a pure C2C model, they connect consumers and in B2C model businesses as well as consumers. These platforms support the three generic process categories market transparency, transaction, and regulation from the process layer. For example, Airbnb offers a service catalog for providing market transparency and allows consumers to search for and compare different apartments. The transaction infrastructure enables them to book and pay the apartments and the community offers rating mechanisms and

the like. On the provider side, Social CRM systems ensure the link to online communities. For this, Social CRM systems provide analysis and interaction functions, such as social search, social media monitoring, social network analysis, and social network management. The data from these systems can be integrated into the consumer processes along the entire service life cycle, such as consumer ratings in the identification phase or complaint management in the enhancement phase. Additionally, SLM systems link the providers' service lifecycle processes to the shared goods and services.[7] For this, systems for SLM (e.g., systems for service description such as IBM Websphere Service Repository & Registry or for service management such as Protege) or provide functionalities for an integrated management of services from a technical and business point of view: a homogeneous service description, value orientation including costs and revenues of services, inter-organizational view and a service portfolio view. If, for example, a consumer bundles a car sharing service with a public transportation service, both services require a compatible semantic model to exchange data among each other. For that the services should rely on common standards, such as the Unified Service Description Language (USDL), which aims at business, operational, and technical aspects of services. An example for another standardization initiative are the World Wide Web consortium's (W3C) efforts to establish an online payment standard that enables a homogeneous payment infrastructure for service transactions and extends the semantic web with the possibility to exchange value among service consumers and providers.

2.2 Impact of sharing economy

Under the background of scarcity of resources caused by oil crisis, the concept of "shared economy" was put forward as early as 1978 by Marcus Felson in the paper "Community Structure and Collaborative Consumption: A Routine Activity Approach". As indicated, in most large cities current infrastructure is not satisfactory, and people are on the search for alternatives.[41]

As the term of Sustainable Development was put forward by World Commission on Environment and Development in the report named Our Common Future, it attracted attention wildly. Based on the literature review, in this paper we will discuss what impact will the shared economy takes to the urban sustainability. From the perspective of social sustainability, scholars concluded that shared economy will promote human development, safety and effectiveness as well as offering more jobs while others suggested that regulations are necessary to confront with potential problems. From the perspective of environmental sustainability, studies show that shared economy will benefit environment by optimizing

resources allocation, decreasing emission and saving energy while also releasing pressure in other ways due to its easy accessibility.

2.2.1 Environmental impact

Shared economy is generally expected to be highly ecologically sustainable. Based on German studies, highlighted the resource-saving potentials of shared economy. Shared economy satisfies a blizzard of demands and eliminates ineffectiveness to environment. As for the impact on resources, it is illustrated that shared economy optimizes resources disposition. Ulteriorly, as for the impact on greenhouse gases emissions, scholars routinely agreed that carsharing-people reduce their vehicle holdings, resulting in the reduction of per capita gasoline consumption, and carbon dioxide emissions. However, others held the opposite views. It is found that greenhouse gas emissions of accommodation P2P platforms (including Home Exchange, Couchsurfing etc.) kept invariant compared to incumbent hotel industry. Meanwhile, 1/3 of respondents stayed longer in the spot when they booked accommodation through P2P platforms, which may create extra local pressure on the environment. Taking Airbnb as an example, it is recognized that the cheap ride services attract people to take rides more often, resulting in the increasing volume of carbon emissions.[29], [41]

2.2.2 Social impact

Shared economy promotes social sustainable development in many ways. From the perspective of entrepreneurship, it can be stressed that shared economy does not only devote to the sustainability of itself but also to social sustainability. We can claim that shared economy plays an important role in solving the unemployment problem, although the marginal effect decreases as the size of sharing economy increases.

Combined with capital theory, it is considered that sharing transportation contributes to social capital as well as ecological, capital and human capital. It can also be concluded that shared economy is capable of generating a more general sustainable model by establishing collective and probably more lasting sustainable behaviors. Sharing economy is mostly concentrated on interaction between strangers, followed by the establishment of trust. A study about Uber in UK gave out a SWOT chart whereby the safety and effectiveness of carsharing gained acceptance. Nevertheless, some potential problems about shared economy have been noticed in reality. [3]

In China, due to the competitive bash from taxi apps, there aroused a serious resentment among traditional taxi drivers and government regulation was so strict. This year, the French

government also announced a series of new enforcement measures against car-hailing apps, which reflects the concerns including some unresolved issues for taxi apps, that is, the instability of supply and demand sides and driver background checks for safety, etc.

2.2.3 Urban sustainability

In 1987, the concept of Sustainable Development was put forward by World Commission on Environment and Development. Our Common Future, which does little harm to offsprings while satisfying the need of contemporary people. In this paper, we agree to that sustainability should integrate social, economic and environmental aspects. In terms of social aspect, it is indicated that urban social sustainability is expected to promote mutual communication and information dissemination. It is also established that sustainable city should also be a living city, getting different environments accustomed to the needs of diverse lifestyles. European sustainable cities report (1996) emphasized that social sustainability should supply employment as well as training chances, averting social conflicts. From the aspect of economic sustainability, the World Health Organization pointed out that the urban sustainability should improve urban economics towards the direction of effectiveness and innovation with limited resources. It is stressed that a city should maximize its potential in order to yield qualified and voluminous technology and economic benefits. The accountability of environmental issues should not be shirked onto other countries, thus Sustainable City is also described as Responsible City. It is also deemed that the purpose of urban sustainability is to build a green garden city. It is claimed that the process of sustainable urban development is a process of recourses consumption, which should be designed to be more effective and environment friendly. It is suggested that the public is supposed to devote to ameliorating the natural environment of community and the whole region.[10], [27], [41]

3 Sharing economy and its impacts on built environment

3.1 Mobility (Car sharing)

In the past decade, car sharing has become a worldwide phenomenon, with copious news coverage and uptake by consumers. Originating in Switzerland and Germany more than 20 years ago, car sharing is a popular alternative to car ownership and has grown systematically in the United States, where the revenue from car-sharing programs is expected to be \$3.3 billion in 2016, up from \$253 million in 2009. In car sharing, consumers access cars owned by a company, which makes it distinct from carpooling or peer-to-peer car-sharing programs, such as RelayRides. Car sharing is one of the most high-profile access-based contexts in today's marketplace. Further, the automobile is full of symbolism in the American cultural context. As prior research has documented, American consumers forge strong attachments to their cars, and cars symbolize a sense of consumer identity. Owning one's first car is a rite of passage to adulthood, and often cars can be symbols of masculinity and independence. Consumers forge strong relationships with their cars, and often brand communities coalesce around this product. Thus, the context of car sharing allows us to examine whether the symbolic and experiential benefits associated with car ownership can also be experienced in access.

Car sharing consists of a group of paying individuals who access a fleet of cars along with other paying members periodically over time. Cars are used almost exclusively for short, local trips, as the cost becomes prohibitive for longer distances. Specifically, our study is conducted with Zipcar users, the world's largest car-sharing company and the sole car-sharing company in the United States for a decade. Zipcar has become an icon of sharing among the business community. Since its beginning in 2000, Zipcar has experienced 100% growth annually, and its annual revenue in 2011 was \$241.6 million (<http://www.zipcar.com>). By the end of 2011, Zipcar had more than 650,000 members and over 8,900 cars in urban areas and college campuses throughout the United States, Canada, and the United Kingdom.[42]

Essentially, Zipcar works as follows: to use Zipcar, a consumer must be at least 21 years old and become a member of Zipcar by going through a rigorous member check, which includes driving history. Members receive a Zipcard, which serves as an automatic key to unlock the door of each car, enabling members to have automated access to any Zipcar they reserve. Members can reserve Zipcars online or by phone in minutes or up to a year in advance. Rates

are as low as \$6 per hour and \$60 per day, with gas, parking, insurance, and maintenance included.[42]

As cities continue to grow in population and land use, increasing pressure is being placed on the reliability of urban transportation systems. Although traditional transportation public policy focused on “minimizing congestion” and commute times, supported by the consumer’s desire for the shortest drive time, emerging transportation research challenges such a stance. Minimizing commute time for people in single occupancy vehicles only exacerbates the use of private vehicles and the need for parking and street maintenance. Single occupancy vehicle use also leads to health issues such as obesity by minimizing exercise and increasing air contamination.

3.1.1 Effects on built environment:

Then again, the rapid urbanization occurring around the globe is challenging the capacity of local governments to achieve these sustainable mobility objectives. Adding additional public transit capacity is costly, time-consuming, and often fraught with NIMBY (not-in-my-backyard) citizen activism. While smarter and more compact urban development, along with efficient and affordable new public transit options like bus rapid transit contribute to more sustainable transit, cities are challenged to keep up with demand. Mobility in urban area is becoming an issue of importance in urban planning. The majority of European citizens live in an urban environment, and for their mobility they share the same infrastructure. Urban mobility is responsible for 40% of all CO₂ emissions of road transport, and up to 70% of other pollutants of transport (European Commission, 2017). At the same time, congestion in the EU is a common problem both in and around urban areas, and it costs around EUR 100 billion – 1% of the EU’s GDP – annually (European Commission, 2017).[43]

The last decade has been the scenario of a significant global socio-economic development: the Sharing Economy, a new paradigm which prioritizes access rather than ownership of goods. Following this phenomenon, the paradigm of mobility has also started shifting from the private ownership of transportation modes for personal use, towards different mobility solutions that are consumed as a service.

The “division” of mobility of the Sharing Economy is referred to as Shared Mobility, which is defined as the shared use of a vehicle, bicycle, or other mode which enables users to gain short-term access to transportation modes on an “as-needed” basis. This new kind of mobility services offer users access rather than ownership, making transportation more accessible to

people. Vehicles are accessed on a demand responsive modality, avoiding the high asset idle times related to private ownership, and reducing vehicle usage, ownership and vehicle kilometers traveled (VKT). Shared Mobility includes different modalities, as car-sharing, bike-sharing, ride-sharing, and on-demand ride services.

Shared mobility services include various modalities which differ one another depending on the vehicle involved, or even by the element that is being shared – the vehicle itself or a spot inside a vehicle.

The term shared mobility includes various forms of car-sharing, bike-sharing, scooter-sharing, ride-sharing, and on-demand ride services. The term may also include other secondary or alternative transit services, such as paratransit, shuttles, and private transit services (such as shuttles or microtransit).[39] It could even include commercial delivery vehicles providing flexible goods movement, also referred to as Courier Network Services (CNS), which provide for-hire delivery services using an online platform to connect couriers using their personal vehicles, bicycles, or scooters with freight (as packages or food).

Regarding to the issue of allocation of Parking and Rights-of-way, local governments have to define how public spaces will be used, enabling shared mobility services operate in a certain area. This is a key issue especially for car-sharing and bike-sharing operators, which need physical space for the location of their stations (in station-based models), or special parking policies (for free-float systems) for the allocation of their vehicles.

Other roles of public entities are related to Signage and Advertising (set of policies regarding street markings, wayfinding signs, pick-up and drop-off point signalization, and others), Multimodal Integration (how to determine the role of public transit operators in advancing multimodal integration with shared modes), Planning Processes (how to incorporate shared mobility into local planning processes, such as land use and transportation plans), Data Sharing, Privacy, and Standardization (how to develop a balanced data system which balances data sharing with privacy among individuals, companies and public agencies), and Accessibility and Equity Issues (how to address trends in shared mobility related to accessibility to the services, including how public entities and shared mobility operators address equity)[7]

From the study of many research carried out on many cities of the world we can see the major effects of sharing economy in mobility, and they are

- City of Leipzig, in Germany, implemented a system of Mobility Stations to integrate public transportation stops with other modes as car-sharing, bike-sharing, taxi, and other mobility features as electric car charging stations and bike parking, complemented with a mobile app (Leipzig Mobil) as platform for information, booking and payment of the mobility service. The information needed was taken from official reports of City of Leipzig, as well as from secondary sources as press articles and partners websites.
- The city of Austin, Texas, amended its zoning code to reduce minimum off-street parking requirements by “twenty (20) spaces for every car-sharing vehicle provided in a program that complies with its requirements,” under which it approves binding contracts between developers and car-sharing companies to gain reductions of up to 40 percent of required off-street spaces. Nick Vetsch, a market specialist for car2go, a car-sharing service owned by Daimler AG, the Stuttgart, Germany–based automobile company, says that on just three Austin projects alone, Austin developer Lincoln Ventures reduced parking spaces by 160. He says that at about \$35,000 per structured parking space, that equates to about \$5.6 million.[44]
- the cities in which car2go operates (Seattle, Portland, Vancouver, Calgary, Montreal, Minneapolis, Denver, Austin, San Diego, New York City, Chicago, and Washington, D.C.) now provide on-street parking within an agreed-upon home area that is free to the user, although not always to the service company, which may pay for actual time used or a fixed fee per car in its fleet, or may have free use of on-street spaces designated for car-share use only.
- There are cases where the cities are reserving parking spaces just for car sharing. These can be a very dominating changes in the high density cities like New York, where the city municipal has taken a initiative to run a pilot program.

Increase in shared mobility has increased free and abandoned parking spaces in many cities where the people and municipal are turning them into many creative and cultural space.[45]

- Food truck parking
- Parks
- Turn the parking garages into houses and shop spaces
- Turn them into co-working space (USA)

3.1.2 Growth of sharing concept in mobility

New mobility services entail concepts such as car sharing, free-floating vehicle fleets, carpooling and ride-hailing. There are also micro mobility services such as the recent of (e-

)scooter and (e-)bike sharing. In times of decreasing car ownership and drivers' licenses, these services cater to consumers with a preference for flexibility and freedom. Furthermore, consumers have become used to pay-per-use business models while the general concept of the sharing economy satisfies sustainable transport preferences. Ride-hailing is clearly leading this trend—both in terms of usage numbers and venture capital funding volume. Last year, ride-hailing services were used by over half a billion passengers. The proliferation of these mobility services was both triggered and enabled by the increased adoption of smartphones starting in 2007. Interestingly, the leading ride-hailing companies, Uber and Didi, both launched when smartphone penetration reached about 20% in their respective domestic markets. Today, the landscape is characterized by local players as transport preferences and habits as well as regulation differs between local markets. This is the case with e-scooters even between cities in the same country. Naturally, new mobility services are especially sought after in areas with poor public transportation systems. However, these new mobility-as-a-service concepts make it challenging for vehicle OEMs to maintain control over their relationship with the end user.

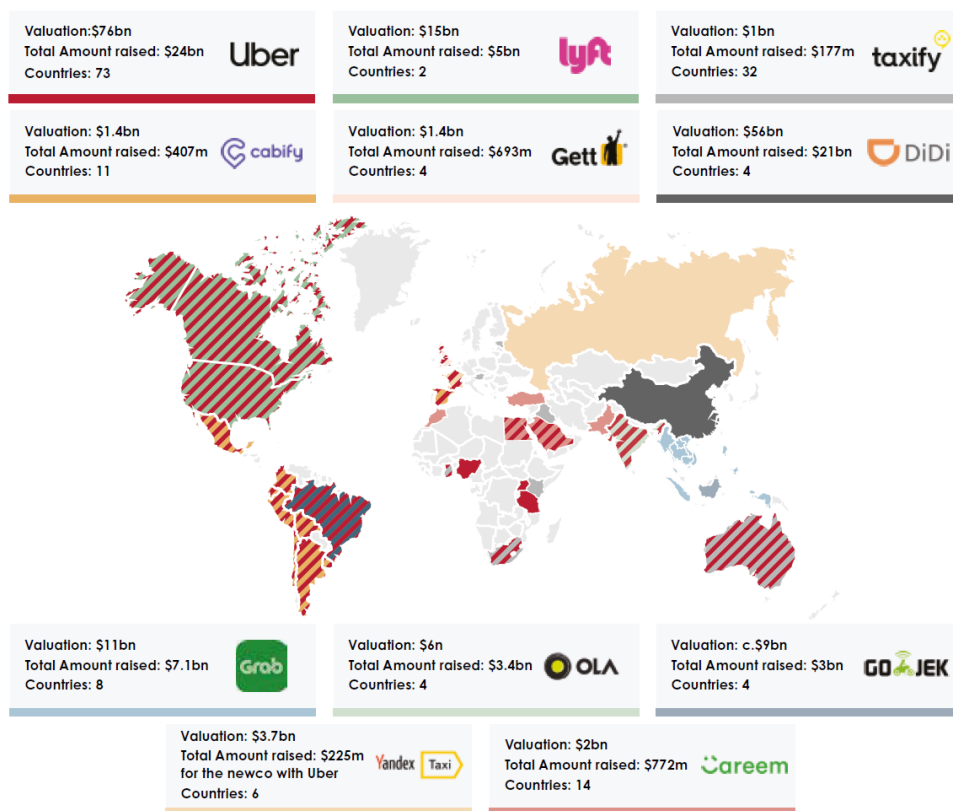


Figure 14 World wide market for sharing mobility [31]

Unlike expansions in mass transport systems, which are typically spearheaded by governments, the growth of car-sharing was initially driven by private organizations like Zipcar, Greenwheels, and Car2Go. Modern car-sharing was born in Switzerland and Germany in the

1980s, introduced to North America and Asia in the 1990s, and steadily gained global popularity during the first decade of the 21st century. In 2009, the number of cities with car-sharing systems topped 1,000. As of October 2012, 1.79 million customers were sharing nearly 43,550 vehicles in car-sharing systems across 27 countries and five continents, signaling that the rate of growth for this relatively young industry is increasing rapidly.[46]

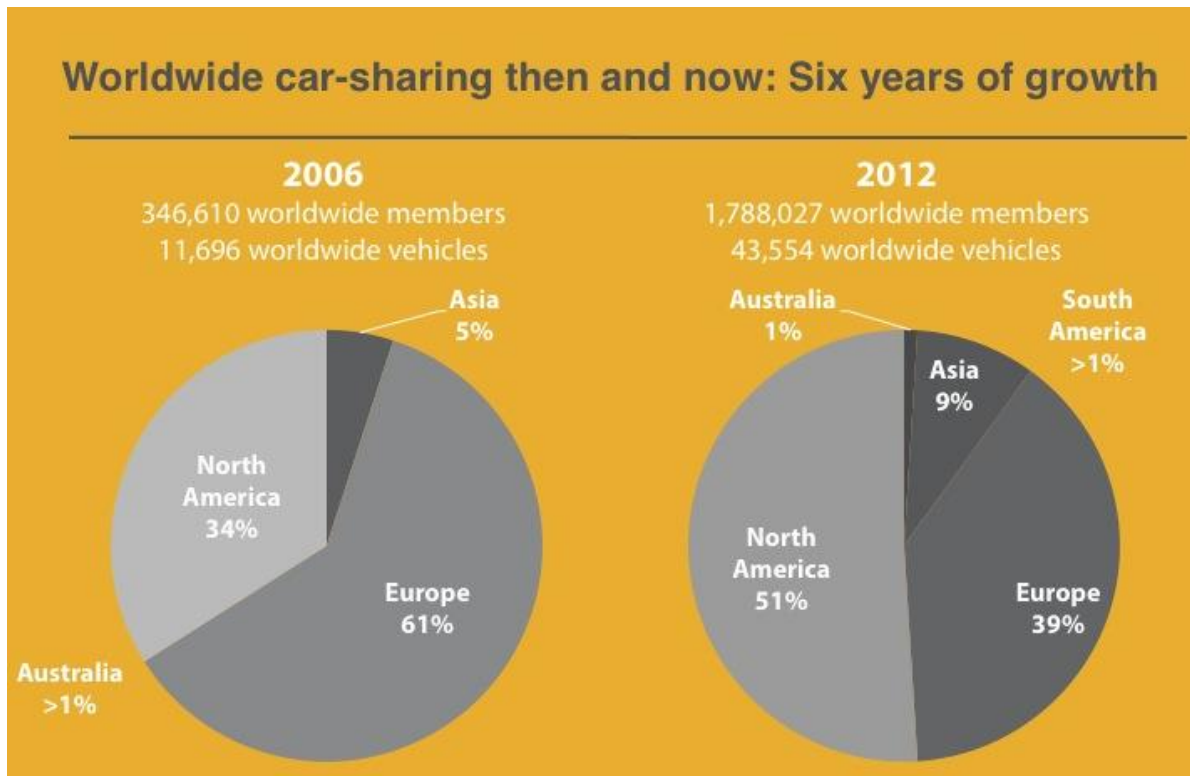


Figure 15 Car sharing growth comparison in just 6 years [46]

From the graph we can make comparison of growth of car sharing. Although that North America and Europe currently account for about 90% of car-sharing memberships and fleets, car-sharing has quietly taken hold in several cities located in emerging economies, including São Paulo, Brazil (2009); Beijing, China (2009); Hangzhou, China (2011); Istanbul, Turkey (2011); Mexico City (2012); and Bangalore, India (2013), among others. Car-sharing operators in emerging economies are generally quite small – EMBARQ research found the largest had just 60 cars as recently as August 2012 – but some are growing quickly, particularly in Mexico and China. For example, Hangzhou's EVnet increased its number of stations from 13 to over 50, and membership from 1,300 to 4,000, in a single year.[45], [46]

Just to get the idea on the growth rate of carsharing the following stats are listed

- In 2017, Uber registered 17.7 million smartphone users had accessed their car sharing app. Another 16.6 million people were mobile-only users. 6.8% used a desktop to book a ride, while 1.2% used a tablet. (Statista)
- There were 44.8 million people who used sharing economy services in the United States in 2016. That figure is expected to double by 2021. (Statista)

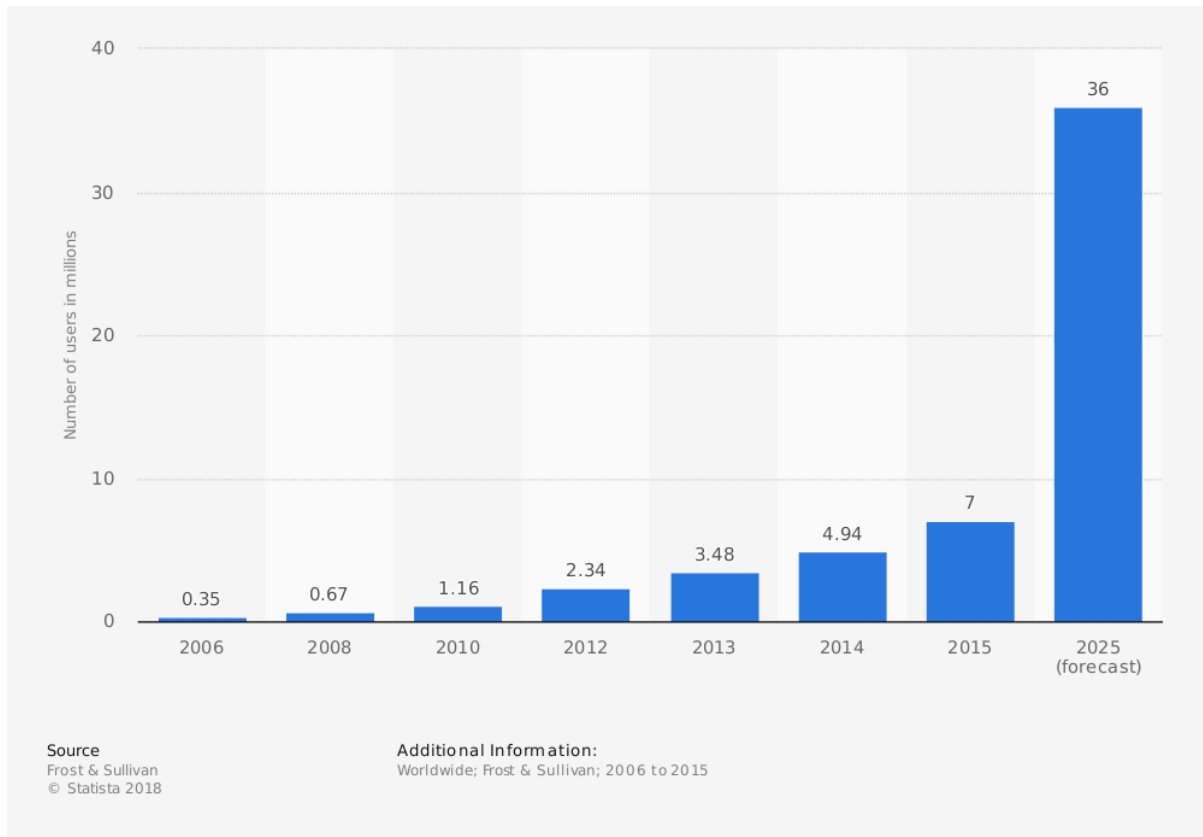


Figure 16 Growth prediction number of cars sharing users worldwide

- About 7 million people used a car sharing service at least once in 2015. (Statista)
- The current value of the car sharing industry is \$1 billion in the United States. From 2012-2017, revenues grew at an average annualized rate of 21.3%. (IBIS World)
- There are currently 168 businesses operating within the car sharing industry in the United States. Excluding contract drivers, they provide employment opportunities for about 3,600 people. (IBIS World)[47]
- In 2010, revenues from car rentals was valued at \$335 million. Hertz held the largest share of car rental revenues, at 21%. They were followed by Avis (15.9%), National (12.7%), and Alamo (12.4%) (America Association of Airport Executives)[47]

- The current value of the global car rental industry is \$58.2 billion, directly supported by the performance of the travel industry. Global GDP growth went from 3.1% to 3.5% in 2017, which led to an increase in traveling. (Carlson Wagonlit Travel)
- In 2006, the car sharing market development in Europe was just 0.2%. In 2014, it had risen to 2.2%. By 2020, the market development may reach 15.6%, with more than 15 million users within the industry. (Deloitte)
- In 2016, Germany had 1.2 million active users within the car sharing industry. There were also 150 providers and 16,000 cars active within the industry, making it the largest market in Europe. (Deloitte)
- Although 88% of people are aware of car sharing services that are available to them, just 2.5% of people actually use the service. (McKinsey)

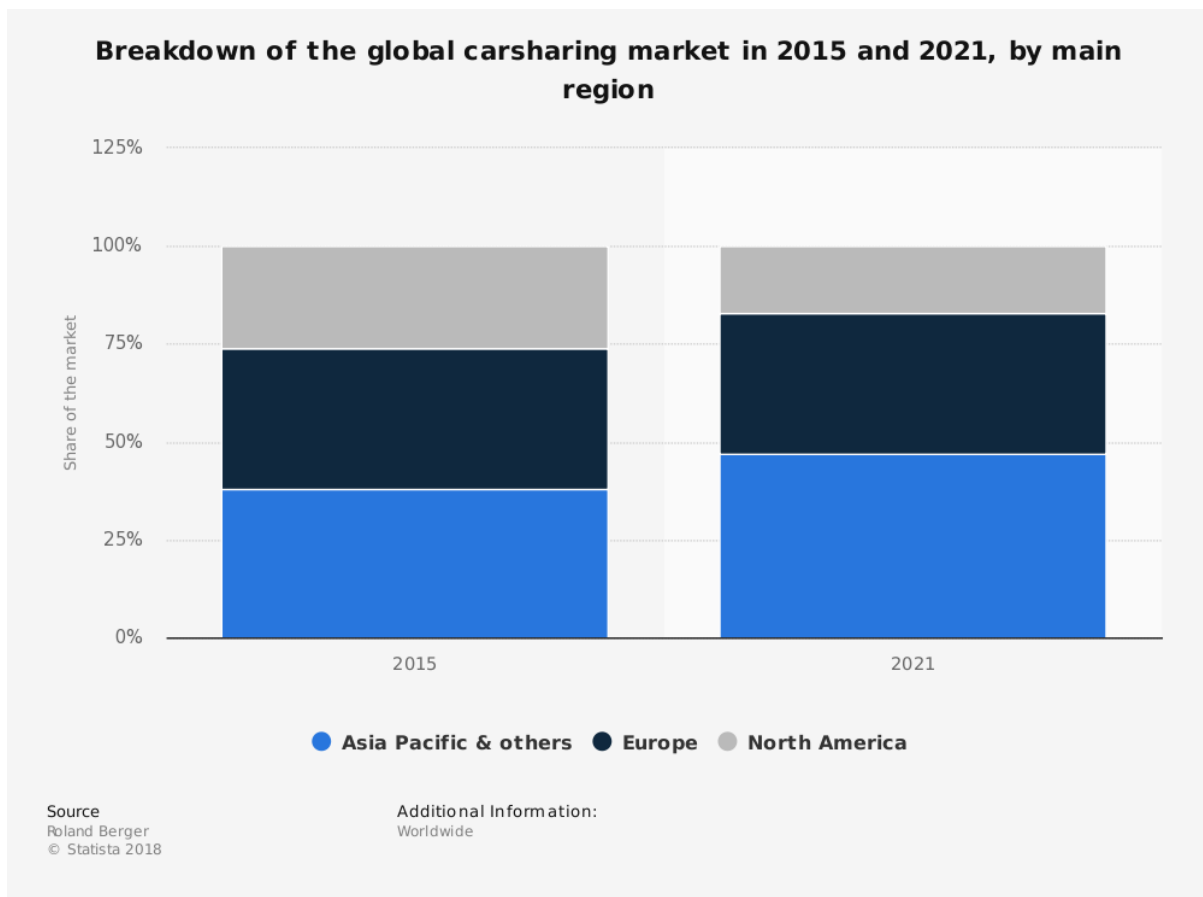


Figure 17 Global carsharing market in 2015 and 2021

- 75% of consumers within the car sharing industry actually own a vehicle themselves. They see services like Lyft and Uber as an additional car that is available to them instead of a replacement for a vehicle. (McKinsey)

- When a fleet of shared cars with 10% of the vehicles being electric is compared to a fleet of private vehicles, there is a 13% reduction in carbon dioxide emissions over the lifetime of both fleets. (McKinsey)
- There are currently more than 1,000 cities around the world which have permitted car sharing services. (World Carshare Consortium)
- The largest car sharing company in the world today is currently car2go, with more than 2.5 million registered members. They also have a fleet of 14,000 vehicles, with 26 total locations over 3 continents. Zipcar comes in second, with over 750,00 registered members and 11,000 vehicles available. (Zipcar)
- In the United States, about 1.4 million people are currently registered members of a car sharing service. There are another 511,000 registered members in Canada, with 10,000 registered in Mexico. (U.S. Environmental Protection Agency)
- Over 17,000 vehicles are currently registered to car sharing services in the United States. Canada has over 7,400 vehicles registered. In Mexico, just 39 vehicles are registered, which is a decrease of more than 50% from 2015 figures. (U.S. Environmental Protection Agency)
- The average household in the United States saves a minimum of \$154 per month after joining a car sharing network. Some households are able to save over \$430 per month. (U.S. Environmental Protection Agency)
- In North America, households which use car2go services exclusively reduce their greenhouse emissions by up to 18%. (U.S. Environmental Protection Agency)
- For people who use Zipcar, 80% of people say they don't own a car because of the availability of car sharing. 43% of Zipcar users say that they either sold their car or put off buying another one because of the service. (U.S. Environmental Protection Agency)
- The U.S. South has experienced the largest benefits with car sharing services, seeing a reduction of urban vehicle miles traveled by 4.3%. Canada has experienced a 5% reduction in vehicle miles traveled. (U.S. Environmental Protection Agency)

3.1.3 Discussion and conclusion

The spread of communication technologies and internet access has been the major driving force for the success of sharing economy in mobility and has helped to scale far more quickly than was previously possible, while the growth of smartphones has put consumers almost

permanently online. As costs have fallen, internet use has reached almost total penetration in many countries

From the data collected in the above work we can infer that the ability of growth of sharing in mobility has huge potential and this has started the ripple at its epi-center which will hit the market, economy, and the world as a whole like a tsunami wave. From the **Figure 18** we can observe that the growth rate of sharing in mobility has just started and it is already worth billions of dollars and it is just the tip of the ice berg.

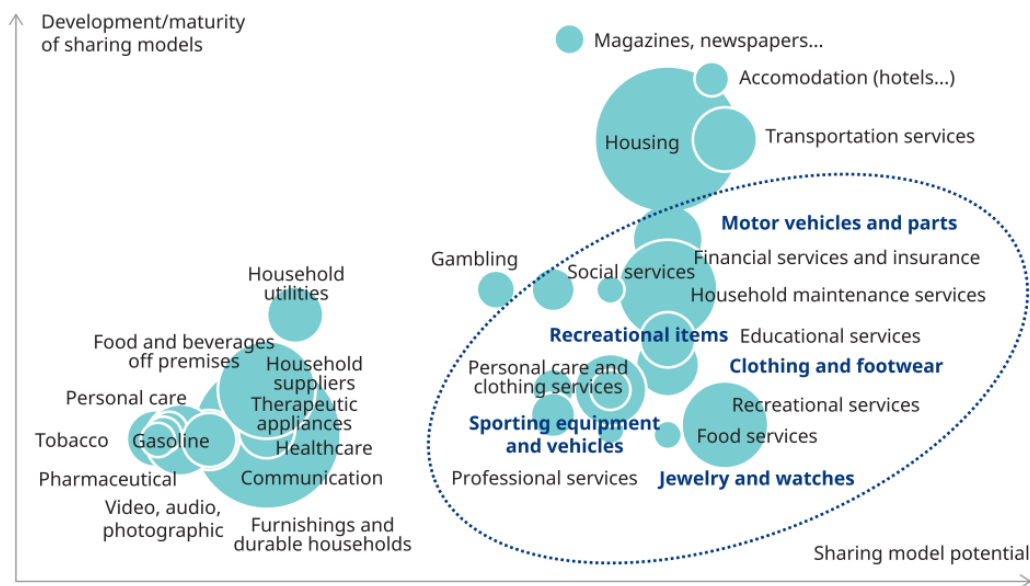


Figure 18 Maturity and growth potential of different sectors of sharing economy [31]

Moving on to conclusion, the effects of sharing economy in mobility on the built environment, the work is mainly concentrated on its effects on parking spaces. From the above conclusions it can be safe to say that sharing mobility has reduced parking congestion in many cities and the municipality and the city residents and converting them in to many cultural and social interaction spaces. There are examples in USA of converting the parking structures into apartments and also turning the abandoned parking lot into food truck and cultural spaces.

The sharing economy has just reached the growth stage of the famous S-Curve and has started to show positive effects in many cities. The concept of going green or sustainability and other environmental friendly concepts which are the major advantages of sharing in mobility has inspired most of the millennials and also the many developed countries who are looking to reduce their per capita carbon emission.

Finally to conclude on the concept will sharing economy in mobility be the death of parking, it can be said based on the data analysed that it will for surely reduce the congestion of parking the middle of the cities. Thus creating lot of free parking spaces in the cities which needs to be converted to many useful structures of social – cultural locations.

3.2 Food delivery

Food delivery is nothing new to the restaurant industry. Even before the invent of modern technology, delivery was offered as takeaway or delivery by only restaurants. Internet and modern technology expanded the reach of restaurants and delivery providers, it also offers consumers number of different platforms and channels to order from. Focusing on food delivery and food delivery app or companies like UberEATS, Deliveroo, Foodora and others have provided a new food experience since their arrival. In the year 2017-18 food delivery alone contributed to 2% of revenue of about \$21 Billion just in Europe market.[48]

The food delivery market is changing and growing at an accelerated pace, and most of the restaurants are coming down to conclusion that going online is the way to go when it comes down to expanding their current customer base and boosting their stream of revenue.

We live in a golden age of golden ages premium cable TV series, kitten cafés, cheekbone contouring, and restaurant meal delivery. In a sector where pizza and Chinese food once held a near duopoly, mobile apps have streamlined the ordering process, allowing hungry diners to get food from a wide variety of restaurants that don't provide their own delivery, shipped straight to their front door, without having to talk to another human being. The internet has almost changed the old ways, where most people choose to order online rather than order offline through phone call, as it is easy, convenient and completely transparent.

The advantages of online food ordering systems for restaurant and consumer are as listed below

1. Customers prefer to order from restaurant website and apps VS food portals **Figure 19**
2. One click away – Thanks to smartphones and tablets consumers can easily order online. Studies conducted shows that 69% of customers order food online using mobile device.
3. Fast, easy and comfortable
4. Visually appealing and stimulating hungry consumers
5. No misunderstandings and no frustrations
6. Online ordering is open 24/7
7. Online menu is simpler to manage

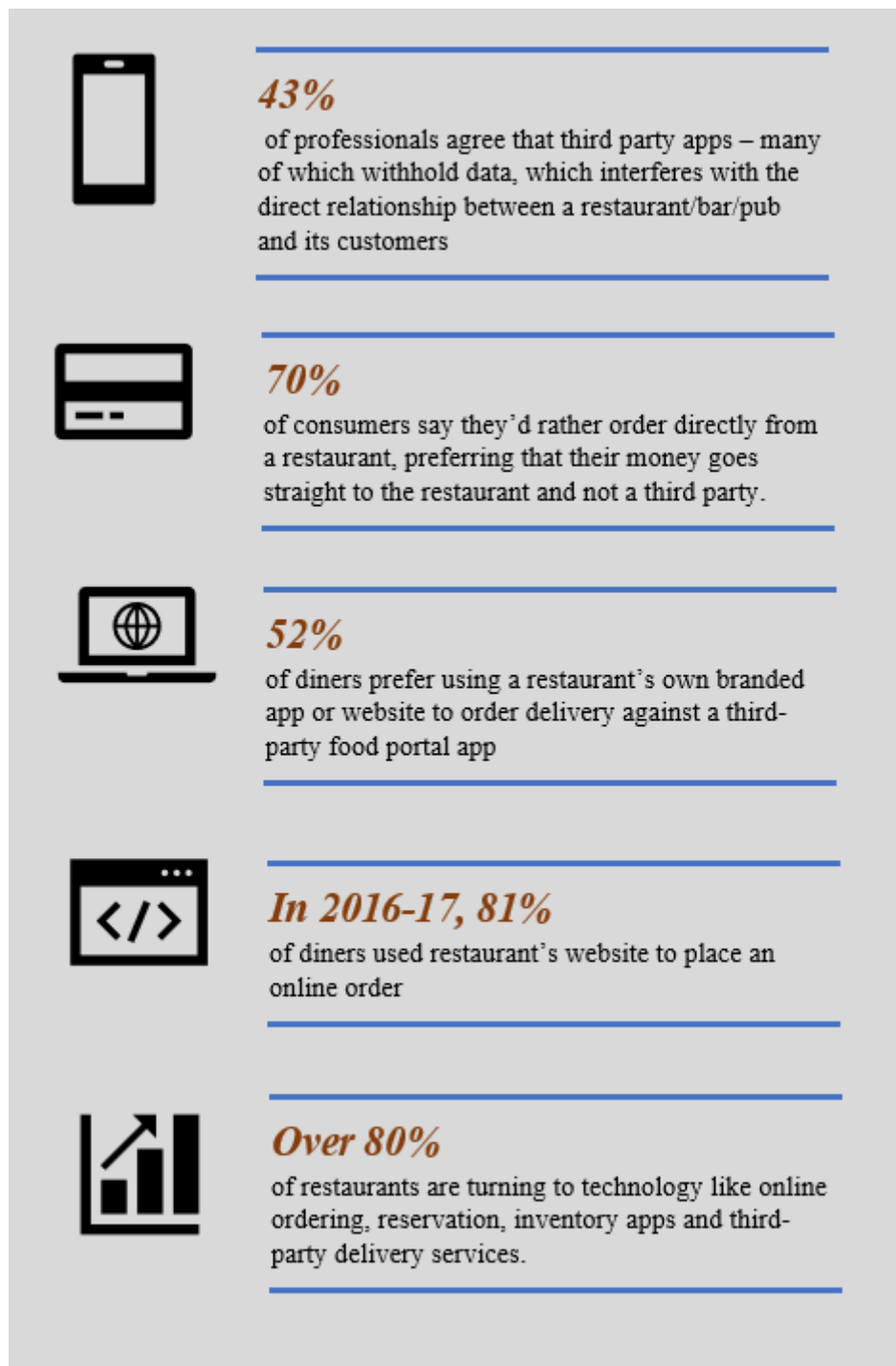


Figure 19 Advantages of online food delivery for restaurants

With all these advantages and also major driving force behind the growth of online food ordering is the millennials who use their smartphones to do almost all the things. Increasingly, people are opting to eat takeaways at home instead of going out, to keep up with the demand for growing delivery orders restaurants are adopting services such as Deliveroo, JustEAT and others to keep ahead of the game. The major food delivery providers are as follows

-
1. **Foodora:** Foodora is a Berlin-based online food delivery company, which offers meals from over 9,000 selected restaurants in 9 countries worldwide. Using the Foodora app, website or the corporate platform, customers can browse local restaurants, place an order, and track it as it's prepared and delivered by a bike courier or delivery driver. It was founded under the name Volo GmbH in Munich in February 2014, and it arrived in Italy in 2015 ("Foodora," 2018).
 2. **Deliveroo:** Roofoods Ltd. (branded as Deliveroo) is a British online food delivery company founded in 2013 by Americans Will Shu and Greg Orlowski. Based in London, it operates in two hundred cities in the UK, the Netherlands, France, Germany, Belgium, Ireland, Spain, Italy, Australia, Singapore, United Arab Emirates, and Hong Kong. Orders are placed through its app or website and then self-employed couriers transport orders from restaurants to customers. It arrived in Italy in 2014, and the service is active in the cities of Milan, Rome, Florence, Bologna, Turin, Padua, Verona, Monza, Genoa, Piacenza, Bergamo, Brescia, Parma, Pavia, Modena, Varese, Lecco, Como, Busto Arsizio and Cagliari (Deliveroo, 2018).
 3. **Just Eat:** Just Eat plc is an online food order and delivery service. It acts as an intermediary between independent take-out food outlets and customers. It is headquartered in the United Kingdom and operates in thirteen countries in Europe, Asia, Oceania, and the Americas. In Italy, it arrived in 2011 with a small group of lovers of good food. **Figure 20**
 4. **Glovo:** Glovo is a Spanish start-up founded in Barcelona in 2015. It is an on-demand service that purchases, picks-up and delivers anything that is ordered through the app. In June 2017 entered in Italy and the same year, an exclusive agreement was signed with McDonald's Spain and Italy for Glovo to partner with the McDelivery service.
 5. **Uber eat:** Uber Eats is an American online food ordering and delivery platform launched by Uber in 2014 and based in San Francisco, California. It arrived in Italy on October 26, 2016.



Figure 20 Fleet of JUST EAT

6. **Bacchette Forchette:** Bacchette Forchette is an online food ordering company in Milan which has an agreement with a network of restaurants.

Food delivery is growing at a phenomenal speed of 25% month on month, in more than 70 countries worldwide, and with still – rampant plans for further growth. The number of cyclists zipping about carrying implausibly sized padded boxes on their backs in all the major cities of the world.

3.2.1 Will home delivery kill the restaurant trade?

The impact of food delivery is so huge that restaurants are opening “delivery only” kitchen, solely offering food to the whole city through third party delivery services. Knowing the market of food delivery, a food delivery company in India – Swiggy has started its own delivery only kitchens all over the cities of India. These are still restaurants but without any seating arrangements at all. Even the fine dine restaurants are trying to tap into this huge market and starting new branches just for delivery in London (Example: Clockjack in London) even higher end restaurant and Michelin starred restaurants adapting to changing demand for food delivery.[49]

If deliveries in the smartphone age get too good, will they eventually kill proper restaurants? Dining out isn't always as good an option as it first seems, especially in these days of queuing for no-reservation places, tipping stress and other annoyances that mar the experience.

To analyse these effects on restaurants due to dramatic increase in food delivery market, in the following chapter we will analyse data collected for Milan, Italy. The data is collected on number of fast food chains and their branches in Milan. Then the data on delivery are compared with all branches to analyse the effect of food delivery on restaurant.

Initially comparing the whole of food industry and segregating it in to 4 different categories, as [50]

1. Full-Service Restaurant
2. Fast Food
3. Coffee and Tea shop
4. Ice Cream Vendor

The worldwide data of market share for the four categories are as shown in the **Figure 21** below. We can observe that market as of now is dominated by full-service restaurant and in near second is the growing fast food sector. The fast food sector is selected for the analysis of effect of food delivery, a type of shared economy on the restaurant.[48]

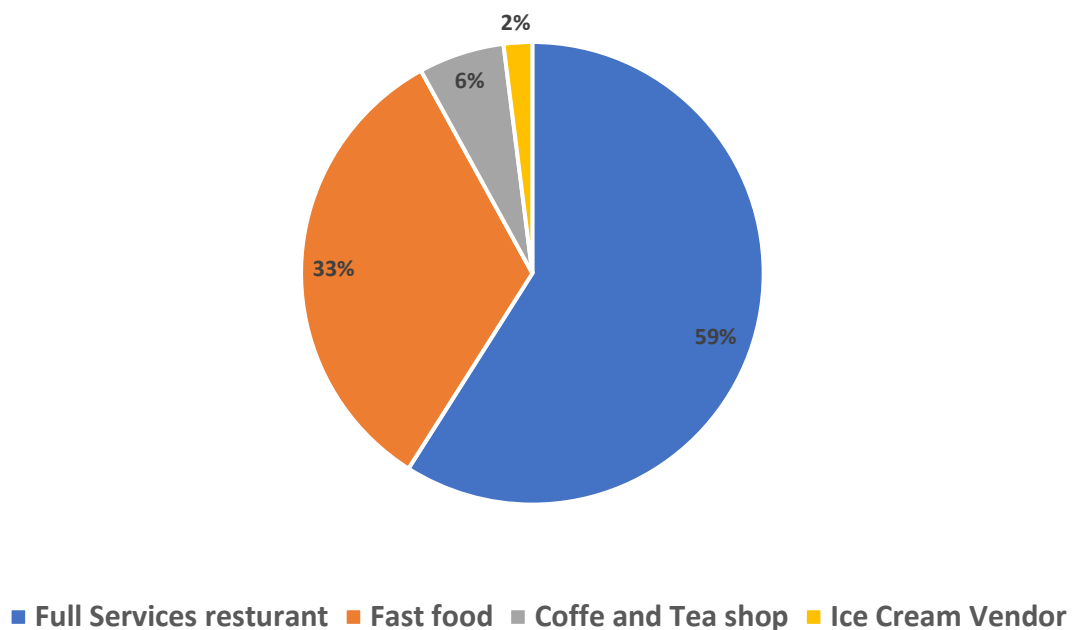


Figure 21 Types of food sectors in Milan

Before doing a local analysis of the topic on a chosen city, we compare some results of worldwide consumer market willing to spend on eating out. The **Figure 22** shows that USA has the best market for food industry where around 22% of whole population are will to spend money to eat out. Similarly most of the developed countries have a good market for the industry and moving on to Europe, we can observe from the **Figure 23** that Italy is one of the top markets for consumer of food industry (Restaurants) with almost 12% share in the whole Europe.

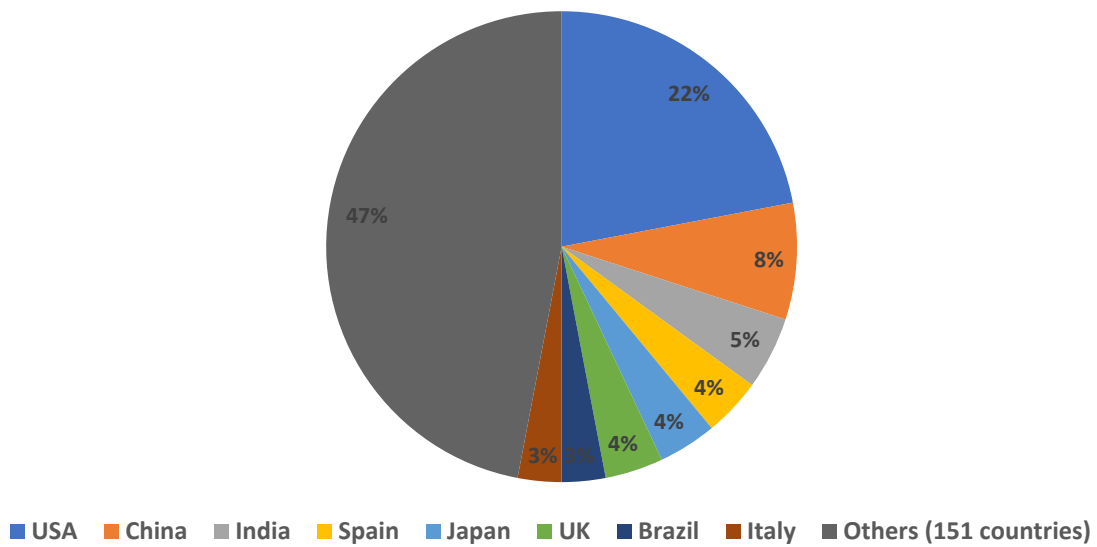


Figure 22 Population willing to order food online (World wide)

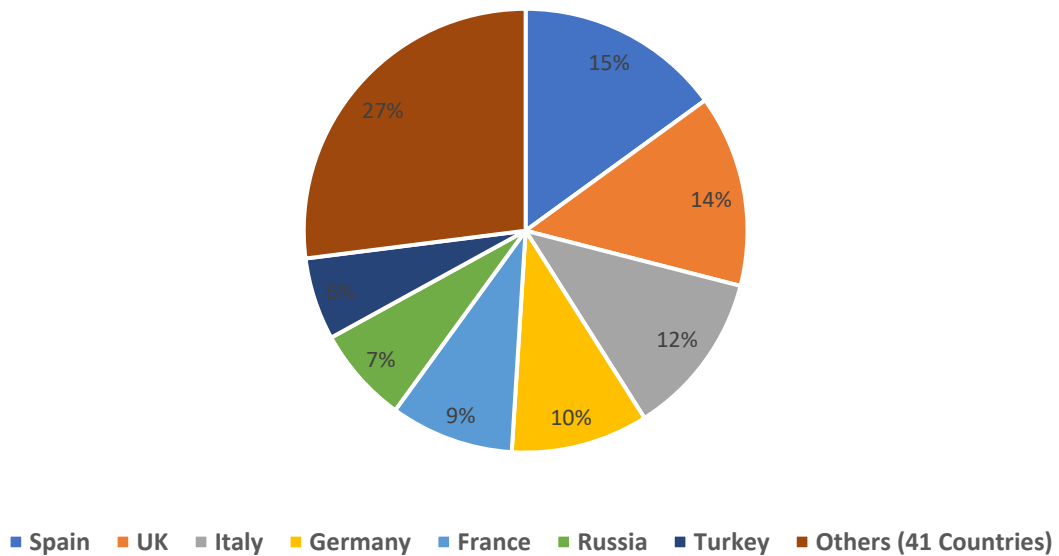


Figure 23 Population willing to order food online (Europe)

The gathered data shows that 219 fast food stores which belong to 40 fast food chain brands are active in Milan. The table below is representing the fast food chains and it is sorted according to their number of branches in Milan. It is evident that McDonald's with 30 stores has the highest number branches in Milan which is 30% higher than the second one, La Piadineria, with 21 branches.[48]

It is also interesting that the Meatball Family has three street food truck (one ape Piaggio and two caravan vintage) which are customized for touring events and catering all over Italy. This idea provides a Creative solution to increase their stores.

Table 4 Fast food sectors in Milan and number of branches

Fast food	no. of branches
Mcdonald's	30
La Piadineria	21
Panini Durini	15
Panino Giusto	14
Spontini	11
Domino's Pizza	10
La Caveja	10
California Bakery	8
Ckn & Ckn	8
Rossopomodoro	8
Old Wild West	7
Burger King	6
Burger Wave	6
100 Montaditos	5
Alice Pizza	4
Ham Holy Burger	4
Mama Burger	4
Road House	4
Streat	4
That's Vapore	4
Antica Focacceria S. Francesco	3
Burgez	3
Meatball Family	3
Polpa Burger	3
Sorrymama	3
Toast Amore	3

Biif Burger	2
È Arrivato Paolino	2
Flower Burger	2
Kfc	2
America Graffiti	1
Capatoast	1
Eataly	1
Flunch Italia Ristoranti	1
Il Panzerotto del Senatore	1
Pizza Italiana Espresso	1
Pollicino	1
Risto	1
Saporita Forneria	1
Wiener Haus	1

All these fast food chains have already started to implement new and advanced technology from preparing and cooking food, free Wifi, online ordering and even establishing entertainment stations on the dining table to attract customers. The table below shows the different amenities provided by the fast food services.

Moving on to food delivery in the listed fast food companies, the **Table 4** shows the list of fast food restaurants with highest number of deliveries providing third party companies. The six delivery providers are as follows

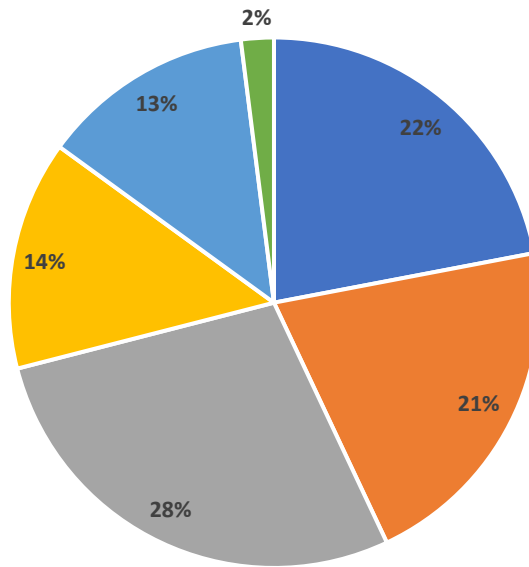
1. JustEAT
2. Deliveroo
3. Foodora
4. Glovo
5. UberEat
6. Bacchete Forchette

Table 5 Number of delivery options provided by fast food sectors

Fast food	no. of delivery option
Mama Burger	6
Sorrymama	5
La Piadineria	4

Panino Giusto	4
Ckn & Ckn	4
Old Wild West	4
Burger Wave	4
Streat	4
Burgez	4
Polpa Burger	4
Il Panzerotto del Senatore	4
Mcdonald's	3
Rossopomodoro	3
100 Montaditos	3
Ham Holy Burger	3
Meatball Family	3
Biif Burger	3
Flower Burger	3
Kfc	3
Panini Durini	2
Domino's Pizza	2
That's Vapore	2
Antica Focacceria S. Francesco	2
Toast Amore	2
Wiener Haus	2
Spontini	1
California Bakery	1
Burger King	1
Alice Pizza	1
Road House	1
America Graffiti	1
Capatoast	1
Eataly	1
Pizza Italiana Espresso	1
Pollicino	1
La Caveja	0
È Arrivato Paolino	0
Flunch Italia Ristoranti	0
Risto	0
Saporita Forneria	0

As **Table 5** [48] shows, more than 87% of fast food chains have at least one delivery option. The collected data also shows that Foodora with 28% has the highest share and Bacchette Forchette with 2% has the lowest share in collaborating with fast food chains. The chart shows the percentage of delivery companies' collaborations with fast food chain brands in Milan



■ JUSTEAT ■ DELIVEROO ■ FOODORA ■ GLOVO ■ UBEREAT ■ BACCHETE FORCHETTE

Figure 24 Share of food delivery market in Milan

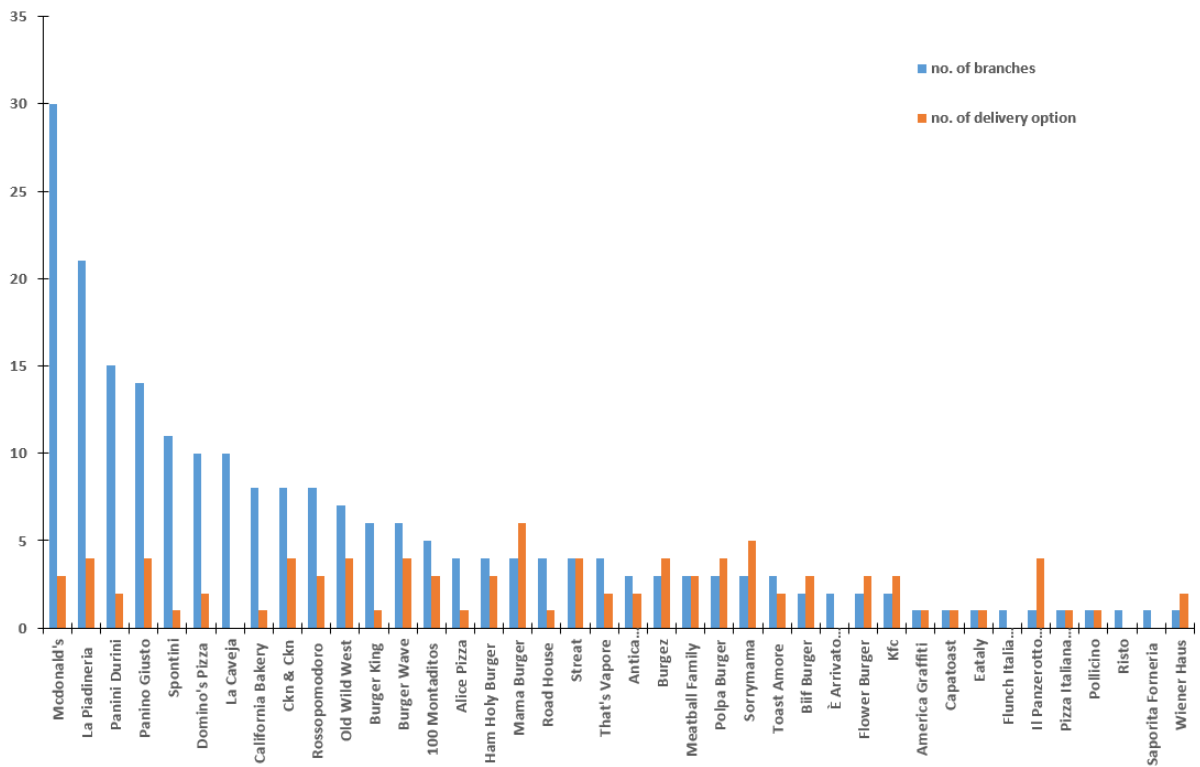


Figure 25 Comparison of number of branches to number of delivery options

From the tables of number of branches of fast food units and number of delivery options provided by the restaurant, the **Figure 25** was obtained. From the graph we can compare the delivery options and number of branches. We can understand that there are even with very

large number of branches McDonald's provides a smaller number of delivery options than Mama Burger.

Table 6 Comparison of online order and in-house orders [48]

		McDonald's	La Piadineria	Panini Durini	Burger King	Mama Burger	KFC
In-Store	Opening Hours	7:00am-12:00am	11:30am-5:30pm	7:00am-8:00pm	11:00am-11:00pm	11:45am-11:15pm	10:00am-11:00pm
	Customer Area M²	150	80	70	120	110	100
	Number of Seats	130	50	40	120	130	110
	Wheelchair Entrance	Yes	No	No	Yes	Yes	No
	Wheelchair Toilet	Yes	No	No	Yes	Yes	No
	Free WIFI	Yes	No	No	No	No	Yes
	Other Facilities	Children Play Area, Self-Serve Kiosks	-	-	Self-Serve Kiosks, Special Offer	Outdoor Seating	Separate Take Away Gate
	Take Away Option	Yes	Yes		Yes	Yes	Yes
	Daily In-Store Orders	2300	210	220	700	300	1000
E-Commerce	Daily Delivery Orders	100	6	5	15	20	30
	Delivery Option	Glovo, Deliveroo, Ubereat	Justeat	Glovo	Deliveroo, Foodora	Glovo, Justeat, Ubereat, Foodora, Deliveroo, Bacchette Forchette	Glovo, Ubereat, Justeat
	Online Orders To The Total Orders	4%	3%	2%	2%	6%	3%

3.2.2 Conclusion

Finally taking all the data into consideration we can observe a growth of around 25% every month in food delivery due to many circumstances and technological advantage. This growth rate suggests that the industry is in rapid growth stage of the S-curve. Because of these growth trend more and more restaurants are opting to deliver food along with in-store seating. The **Table 6** shows different amenities provided by these fast food units to attract different levels

or age group of customers. These amenities or strategies used to attract customers as the revenue or profit from in-store is to the restaurant only, as the commission and charges for delivery provided by different delivery providers are much higher than all the amenities provided by the fast food units.

The delivery companies charge from 25% to 35% of each order from the restaurant. This also includes rider fee, company website and profit. Due to these conditions the local chain of restaurants are getting hit hard as the number of in-store consumers are reducing. This is the major impact of sharing economy – as in food delivery on the restaurant business. This reduction in number of flowing customers to these restaurants is one of the reasons for reduction in size of seating area and introduction of drive-in orders and food deliver section built into the restaurant.

Focussing on the impact of food delivery on built environment such as restaurant size, its structure, type of restaurant etc., From the analysis I have reached a conclusion that fast food industry as of now has a lot of potential in the delivery field which is untapped. So, there is not much impact on the built environment as of now. We can observe from the **Figure 25** that McDonald's with highest number of branches has a huge potential to increase its reach by just increasing delivery options rather than increasing number of branches. But as the growth of food delivery reaches stability it will have become a major part of the restaurant business and there might as well be reduction in the size of restaurant like Fast Food and few restaurants also. The introduction of many delivery only restaurants in India and UK are some of the examples which show that restaurants are adapting to the changing demand.

3.3 Co-working and shared workspaces

Cities have had a primarily economic and administrative role throughout the history. Our century has seen the rise of Suburbia and "non-urban" lifestyles especially in post-industrial societies. The previous "urbane" lifestyle has been altered by the construction of the new virtual world: cyberspace. Especially this decade has witnessed the birth of virtual digital environments that are distributed by the World Wide Web or the Internet.

The rise of automobile has allowed people to move farther faster and brought the ease of door to door transport capability. However the fantastic acceleration of information networks allow us to being everywhere in a few seconds while actually being nowhere: This is the digital revolution of computer age. Now, one can connect a stadium via the net to watch the match of the day, or can easily visit the Louvre Museum and record the paintings to his CD-ROM and buy different variety of commercial products from the cybermalls for his friends and family. What are the main components of this digital area? How will the new information technologies reshape our community and our cities? What will be the future of cities in the information age? In this paper, I will concisely discuss the impacts of information technology upon urban life and environment into three main headings:[40]

Firstly, the rise of information technology and the birth of the terms 'cyberspace', 'global village', 'electronic cottage' etc. will be summarized. It will also be added a brief historical background that indicate advances and changes in the development of digital environment.

Secondly, I will mention about the digital life of cyberspace and give some examples from them. In this part, digital life will be examined under four main headings: the concept of virtual (digital) community, teleworking, teleshopping and the change of office space needs, and distance learning or in other words tele-education.

Finally the future of cities will briefly be discussed under the guidance of contemporary social thinkers, philosophers and other scientists. Also futuristic scenarios and predictions will be added on the comments.

In recent decades advances in information technology is booming and the Internet has enhanced the individual's capabilities for gathering information and news, doing business, or communicating with friends and colleagues. However, it is so critical that how the Internet and information technology affect our society and cities.

Our interest to the term information technology and networks began with the advances in the computer technology in recent decades. The development of personal computer (PC) provided the spreading out of computers to the home and individuals: "In 1981, IBM introduced its personal computer (PC) for use in the, office and schools. The 1980's saw an expansion in computer use all three arenas as clones of the IBM PC made the personal even more affordable. The number of personal computers in more than doubled from 2 million in 1981 to 5.5 million in 1982.years later.

Personal computer that is the ultimate communications device of today forming the all telecommunication devices in one. The portable and locally connected powerful PC's replaced the huge mainframe computers of big companies and headquarters of the past Personal computers has become the most effective tools in the constitution of global networks and villages.

The computer interfaces and the World Wide Web of information highways allow us to live in cyberspaces or electronic spaces. As Rheingold states, "cyberspace, originally a term from William Gibson's science-fiction novel Neuromancer, is the name some people use for the conceptual space where words, human relationships, data, wealth, and power are manifested by people using computer-mediated communications." [51]. The terms 'cybercities', 'virtual cities', 'virtual communities', 'virtual shopping malls' and 'cybervillages' are become increasingly common.

3.3.1 The office of the past

For office, we usually define it as: a place where people can do their work. In the first part of the thesis, I read lots of historical materials about office space, and have understood the origin and development of office. By collecting and studying the historic significance of office, it can be found that each development of office space can't be separated from the reform of social history and the changes of human production and living ways. Until today, human society has experienced two great reforms, and every reform has changed the people's life style. Moreover, office mode will be changed following the change of human life style. From the prototype in the agricultural era to Intelligent office and diverse office, the development of office has gone through a long history.[52]

Office space has been changing constantly with the development of human society, especially in 20th century, the work environment in office building has been changed thoroughly with the

rise of the computer and Internet, and the diversification of the office mode also prompted the change of office space.

3.3.2 Virtual office

The application of computer simplifies the original information connection mode of office space, due to the involvement of the computer, the concept of the structural group was replaced by the central information and programming system, moreover, the organization and structure of office space was changed from the original "One System" to "Multi-system". The original manual file transfer in office also was changed by the application of computer, and replaced by the transfer way of "Paperless Office". What's more, the working state of the office staff was changed from the original "Man to Man" to "Man and Machine". All the essential office equipment can be incorporated onto a tiny laptop, So only need a table and a laptop, you can complete the definition of office space. A good example British Telecom in its 'business park' building is open plan with both personal and non-territorial work-places. A flexible infrastructure takes voice, data and video connections to each workstation. Break out areas were being more attention in order to create more 'human' or 'user friendly atmosphere'. Cellular layouts no longer matched with 'new ways of working' with interaction and teamwork, so 'combi-office' concept was combined with desk sharing.[52] The idea was to use different purposed workplaces for different activities: 'quiet booths' for solo activities, 'open spaces' for group work, and 'break out areas' for informal conversation. The wholly open plan layout proved even more open plan than the Taylorist office, as all workspaces were open with no separate offices. reflecting British Telecom's strong promotion of virtual office amongst its staff.

In 1994, architect, Frank Ghery, designed an office for the Losangeles headquarters of TBWA. The office was defined as virtual office in thinking made a working space seemed to be community library without fixed position, but high and low bar, workbench and desk. Workers could have a seat anywhere with a laptop. Combined with the relatively new phenomenon of hot-desking – where employees were encouraged to set up and use different desks each day – this allowed TBWA to save space, promote a more flexible working environment. Thid advances in office design sought to change the working culture of the organisation completely.

Though this new form of "completely open plan" office layout had positive intentions – saving costs, enabling better flexibility, and encouraging more collaboration, the early Virtual Office still had its drawbacks. In the actual office environment, the regularised, even tedious open

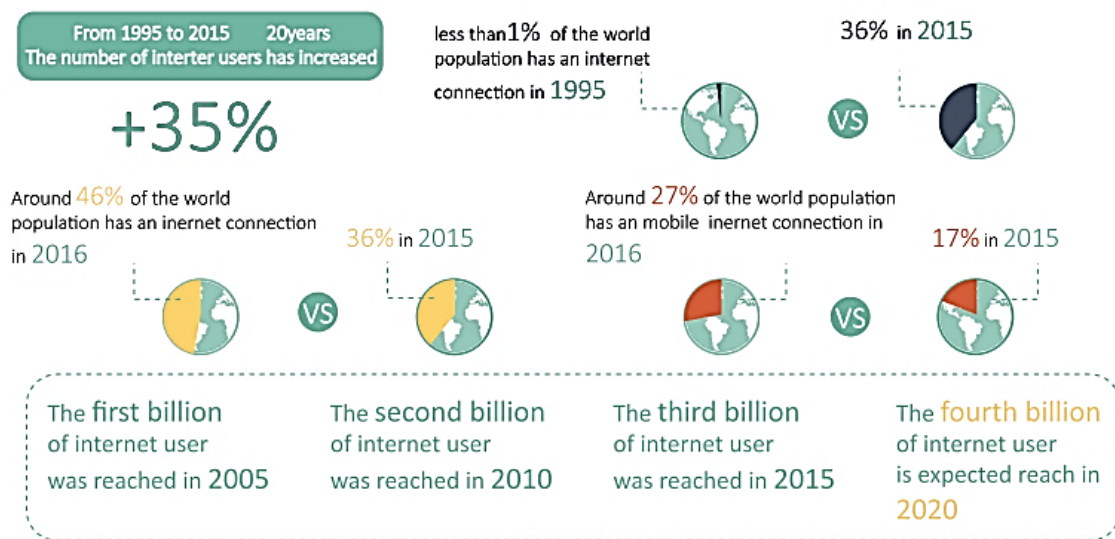
plan has made it difficult for employees to identify or feel at home: even the dreaded cubicle was territorial, allowing for workers to customise their own “space.”

And, it was limited by the current technology condition and working condition, such new working office could not only make a virtual operation but also reduce the working efficiency of workers. Such advanced office space design was not acknowledged vastly

3.3.3 The office of the present-

The word "office" actually stems from this burra fabric, the name of which formed the origins of the word "bureau", the table upon which the fabric was placed, which in turn then evolved further to describe the room in which the table is placed. It can be said therefore that there are always two elements that define an office—the space and the tools placed within it. In the modern world, all that is required to constitute an office is a laptop (the core of the modern office) and a mobile phone. In the second part of the thesis, analyzes the contemporary work environment and know the development of the Internet has a important role on the design of working space. Network development have given workers a new freedom, and a new meaning to work- place flexibility. Office workers are no Longer subject to the constraints of time and space, at the same time, the network makes the geographical location of the city center no longer so important. The daily work office will be transformed into an information market.

Now all the information is located somewhere within the IT - information technology - network. This means that people should be able to work flexibly accessing the technology resources anytime within the office or within the wider distributed workplace. People have already started working different work patterns over time to assist work-life balance as well as business needs. The office design is no longer in order to improve the economic benefit of enterprise as the goal, on the contrary, The ultimate purpose of office space design is to provide people with the best work and living environment, so that people in the indoor environment can get physical and psychological sense of comfort, security, relaxation. Digitalisation has freed office work from its fixed office hours, fixed locations and schematic work processes and has had a direct impact upon the structure of the office. While it also affect the mode and shape of working space. In our current 21st century, there are many new forms of working space with the influence of Internet. The office space is no longer a single Type of form and function



Graph 01, Source: WeAreSocial 2016 network data report

Figure 26 Increase in number of internet users [40]

As shown in the **Figure 26** the popularity of mobile Internet and the vast application of social Internet, people could work, do business, contact with friends, study and entertain through visiting Internet, so we could get the document source or study tool of daily job easily. Mobile Internet redefined the connection among all social elements. According to the "WeAreSocial 2016 network data report", there were 1 billion 970 million effective users who use mobile Internet, which was equal to 27% global permeability. The Internet and Mobile internet seems to have created a new way of doing old things, rather than being a technology that changes the manner in which people live their lives They have changed the nature of people's connection to others in their social world, Meanwhile, it also affect the working method and management mode of people. Human's working life is more diversified and characteristic. Each of working group could have self growth and management. Meanwhile, working office is still having experiment of flexibility and space efficiency.[40]

The mobile Internet refers to browser based Internet services accessed from handheld mobile devices, such as smartphones or feature phones, through a mobile or other wireless network.[4] Mobile Internet means the activities of technology of Internet, the platform, business mode and the activities applied with mobile communication technology combined with practice. There are terminal, software and application three layers. Terminal includes smart phone, pad, E-book, MID and so on; software includes operation system, inter-media, data base and safety software. Applications means leisure and entertainment, tools, media, business, finance and other

different applications and services, the mobile internet connection to other modes of internet can be compared in the **fig**

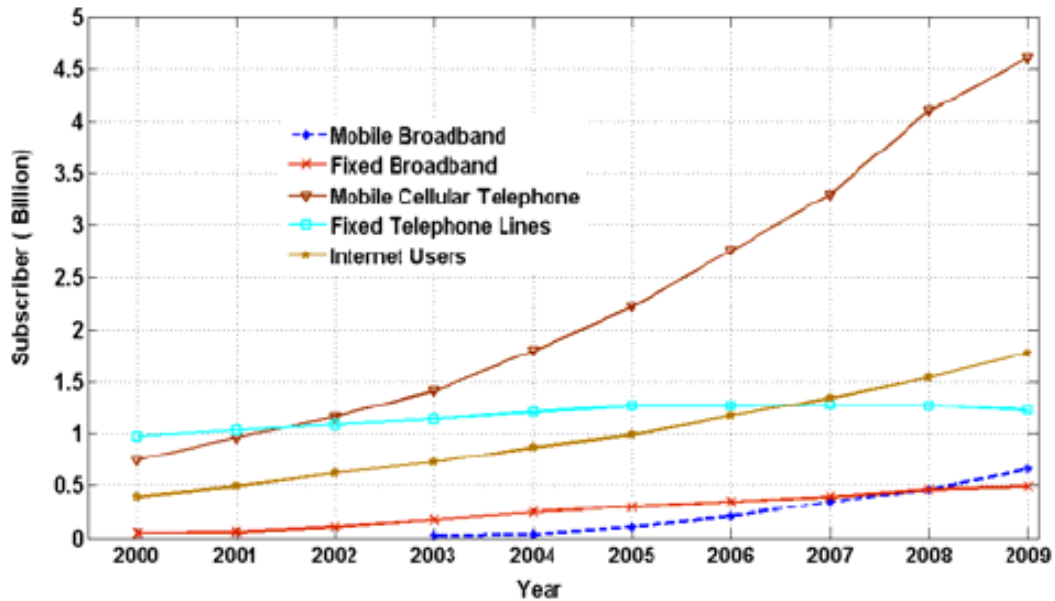


Figure 27 Different modes of internet users and their growth

The invention of the Internet since 1969 can be divided into three main stages:[31]

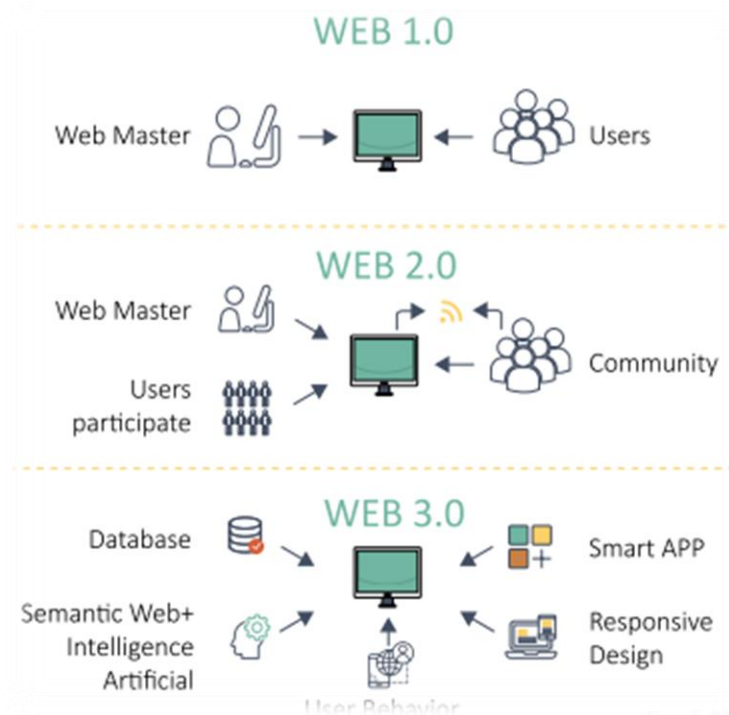


Figure 28 Concept of web [40]

1. **Web 1.0:1990s-** In Web 1.0, there is only limited interaction between sites and web users. Web 1.0 is simply an information portal where users passively receive

information without being given the opportunity to post reviews, comments, and feedback.

2. **Web 2.0:2000** - Unlike Web 1.0, Web 2.0 facilitates interaction between web users and sites, so it allows users to interact more freely with each other. Web 2.0 encourages participation, collaboration, and information sharing. Examples of Web 2.0 applications are Youtube, Wiki, Flickr, Facebook, and so on.
3. **Web 3.0 NOW:-** In Web 3.0, computer can interpret information like humans and intelligently generate and distribute useful content tailored to the needs of users. One example of Web 3.0 is Tivo, a digital video recorder. Its recording program can search the web and read what it finds to you based on your preferences. The **Figure 29** represents the change in the way of work and work space and condition.



Figure 29 Office of the past vs Present

The boundaries of office is disappearing. With the change of channel to get information and communication, from individual worker and team cooperator to crossing border cooperation team, freedom of different scale of working is amplified. People could choose site freely and arrange time flexibly to control the working cost and arrange working attribute. Such huge freedom makes the demands of working space to team cooperation, meeting and stimulation stronger. Breaking through the boundary of space and time, office could be a behavior of

individual to enter into society to reduce the reliance of the space of traditional work. The boundary of work and life and the demarcation of working space and urban space which is clear to us will be more and more fuzzy. The disappearance of space boundary was in the office and living function in the early time and the result is SOHO. Such mode comes from the feasibility of remote communication brought by information technology. We are harder and harder to define working space. It could be coffee shop and public library. We could even say that the place with WIFI is office. The meaning of office is modified and the boundary of time and space which defines it is gone: the traditional and clear distinguish of space has been eliminated in all working space of corner in the cities. Through vast studies of working space, the special function of working space is more and more fuzzy. The confusion of working function also breeds the virtual space boundary.

Co-working spaces are shared workplaces utilised by different sorts of knowledge professionals, mostly freelancers, working in various degrees of specialisation in the vast domain of the knowledge industry. Practically conceived as office renting facilities where workers hire a desk and a wi-fi connection these are, more importantly, places where independent professionals live their daily routines side-by-side with professional peers, largely working in the same sector – a circumstance which has huge implications on the nature of their job, the relevance of social relations across their own professional networks and – ultimately – their existence as productive workers in the knowledge economy. [52]

The public working space would not only provide physical working space and it is also a platform of the community of coworker. Some co-working places were developed by nomadic Internet entrepreneurs seeking an alternative to working in coffee shops and cafes, or to isolation in independent or home office. Besides, some people will establish coworker community (team) and then build up co-working space. The concept of co-working was started from San Francisco in 2005. The software engineer of Google, Brad Neuberg, built up a co-working website with the name of Hat Factory in San Francisco, so the fashion became popular. Now San Francisco has been the city with the highest density of co-working space and the concept has been in all around the world. After Hat Factory, other coworking spaces opened in San Francisco, including the Sandbox Suites Citizen Space, The Hub, and pariSoma. Rather quickly, other coworking spaces and communities also opened in New York, Austin, Houston, Philadelphia, Portland, Seattle, Boston, Chicago.



Figure 30 Evolution of Office space

The "sharing economy" driving workplace **Figure 30** change The world of work has changed from an industrial economy built on command and control to a sharing economy promoting creativity and ideas. We believe that the sharing economy will open up a number of interesting possibilities across different economic activities and change the future of work, production, and collaboration. Also will inevitably affect the development of the future working space. Sharing economy brings a new social division of labor. The traditional employment and working mode are changed and people could choose job opportunity flexibly according to the interest and skill. They participate in the economic activity with the identity of self-employed workers without the reliance of relevant industry. There are many freelancer coming from it. With the wave of sharing economy, work becomes unpredictable--cooperate, explore, positive and initial culture in rapid study. This is the world of knowledge work. Creating and sharing new knowledge is an essential and experiential requirement for office future. the sharing knowledge is transforming the work force and is making the road to entrepreneurship more accessible for many people.[2] Nowhere has the sharing economy been more visible than the changing workplace, driven by technology where it is possible to run a business with little more than laptop and cell-phone and as a result given rise to co-working spaces. Co-working as an innovative way to meet their professional needs while also contributing to a community that cares about their personal needs as well. We de- fined co-working spaces as membership-based work spaces where diverse groups of free- lancers, remote workers, and other independent professionals work together in a shared, communal setting. the co-working aims to build communities, support collaboration, encourage learning and improve sustainability. This mode of work is also a necessary product to share the economy. According to new results of the Global Co-working Survey. We'll see over 10,000 co-working spaces open by the end of 2017.And found that 42 percent of respondents reported earning more money after joining a co-working space. And more than half said they collaborate on projects more often since joining a co-working space. [39], [40]

3.3.4 Co-working spaces in Milan

The case study on the growth of co-working spaces in Milan and its effects on built environment. The growth of CSs in the last few years has been exponential across the world. Their

annual increase was nearly 100 percent between 2007 and 2012, while Deskwanted⁶—a global network of co-working spaces and shared offices—reported nearly 2,500 CSs worldwide in 2013 and 7,800 CSs worldwide in 2015, the outlook being a figure around 10,000 CSs worldwide by the end of 2016. The development of co-working spaces has been particularly intense during and after the breaking out of the global crisis in 2008, beginning in dynamic cities such as Boston, San Francisco, and New York City in the United States, as well as Amsterdam, Barcelona, Berlin, London, and Paris in the European Union.⁷ Therefore, CSs are located all over the world, with a prevalence for creative cities of advanced economies, characterized by high urban liveliness, vibrancy, and cosmopolitan milieu, attractive for knowledge, creative, and digital workers. Cities are the focal points of innovation, the place where co-locating firms enjoy the presence of other creative companies, specialized in different industries and cross-fertilizing ideas through formal and informal exchange of information. That growth was especially noticeable in South European countries, in which the property value collapse created a strong economic downturn. In this context, the growth of CSs seems related, on the one hand, to the need to reduce unemployment and, on the other, to the post-crisis availability of cheap office spaces. However, most CSs (nearly 60 percent) are still not profitable. Generally, the most profitable are the largest ones, but the rescaling of existing co-working spaces is not always possible, and they often survive thanks to additional resources (such as public subsidies, service sales, or large firm sponsorships).[52]

The case study covers CSs located in Milan as of July 2015 that were identified by the authors on the basis of the following definition: “Co-working spaces are shared work-spaces utilized by different sorts of knowledge professionals, mostly freelancers, working in various degrees of specialization in the vast domain of the knowledge industry”[27]. We identified Milan’s 68 CSs from a list of co-working spaces generated by the Milan City Council in 2013, supplemented by press reviews and websites.

In Italy, CSs are mainly concentrated in regions with large urban areas (i.e., Lombardy, Veneto, Emilia Romagna, Lazio, Tuscany, and Piedmont), and specifically in the largest cities, even though notable exceptions exist in rural and less dense areas. In this context, Milan attracted

CSs because it is an urban area characterized by the most dynamic socioeconomic and spatial systems of the country, particularly within the sector of creative industries.

Three of the city's main characteristics that favor the proliferation of CSs are[52]:

1. Milan has a long tradition as a “self-governing city,” a city in which the role of private actors (both profit and non-profit), as well as of higher education and cultural institutions has always been as important as that of Local Authorities in setting the urban agenda and in implementing urban projects
2. Milan shows, at the same time, an increasing trend in the demand and supply of economic and social innovation
3. Milan has strongly reacted to the current economic downturn by exploiting its traditional economic and social strengths (such as its high levels of entrepreneurial activity and its social cooperation), and by integrating them with both ICT innovations and the related growth of the sharing economy and society. This has been accomplished through the (mainly spontaneous) rise of collective organizational alternatives to traditional workplace where new activities are promoted by sharing spaces, exchanging expertise and, consequently, reducing costs.

The rise of co-working spaces in Milan is recent. The first one was opened in 2006, with their “boom years” occurring in 2012, 2013, and 2014 (See **Figure 31**); in July 2015, 68 CSs were identified in Milan. As mapping showed, they are mainly agglomerated in the northern part of the city (Viale Monza, Isola-Sarpi, and Lambrate-Città Studi, which host about 67 percent of CSs), followed by central districts (Brera-Centrale-Porta Venezia, with 20 percent), and by south-western neighborhoods (Tortona-Navigli, with the remaining 13 percent) (See **Figure 31** and **Figure 32**). According to the articulation of the Milan municipal area into 88 NIL, the desk research allowed us to recognize that the main agglomerations in the north concern the Local Identity Units characterized by good local public transport accessibility, high urban density (in terms of inhabitants and firms) and functional mix, and proximity to universities and research centers. [13], [52], [53]

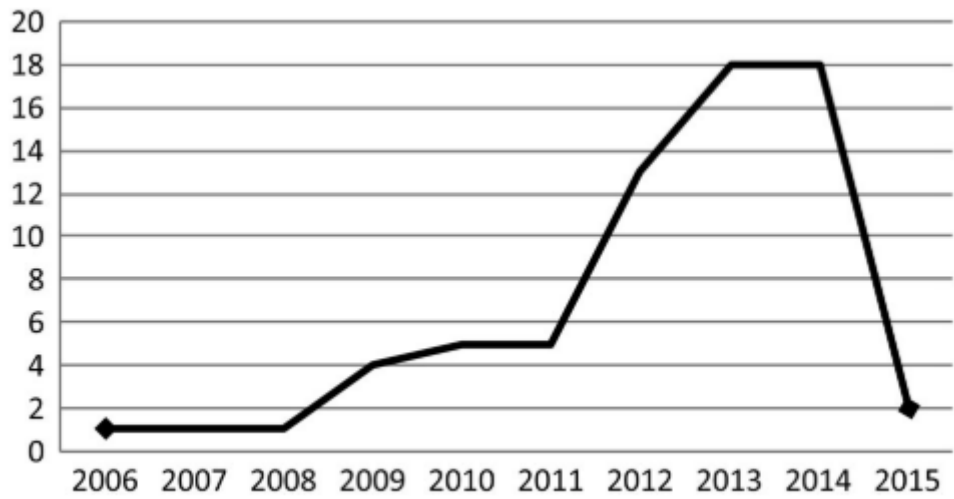


Figure 31 Number of coworking spaces opened in Milan each year

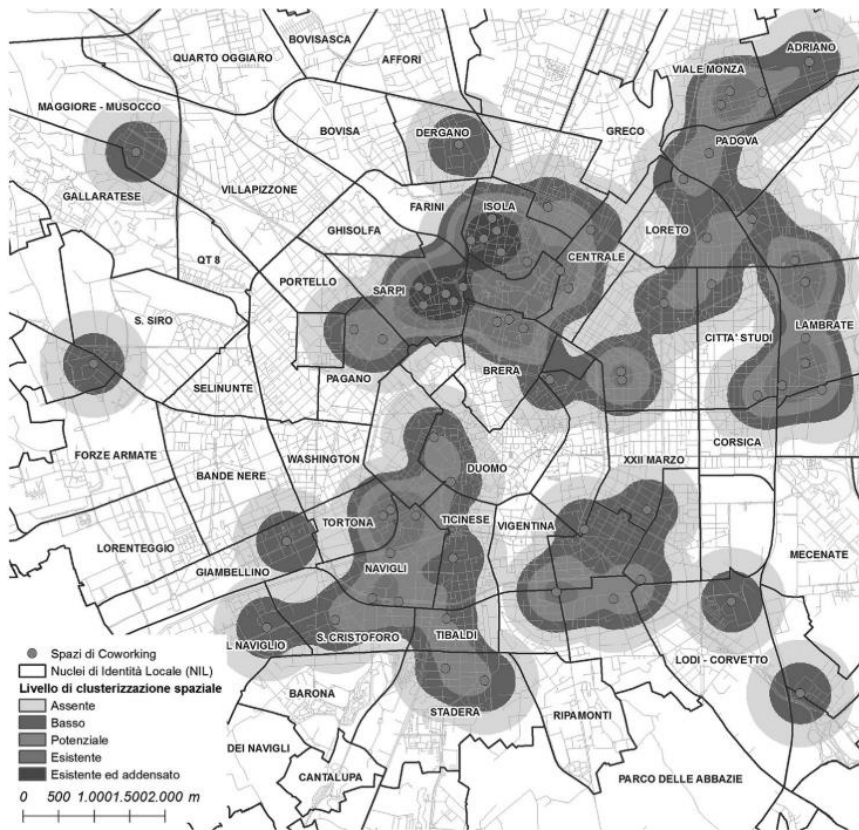


Figure 32 Density of co-working spaces in Milan

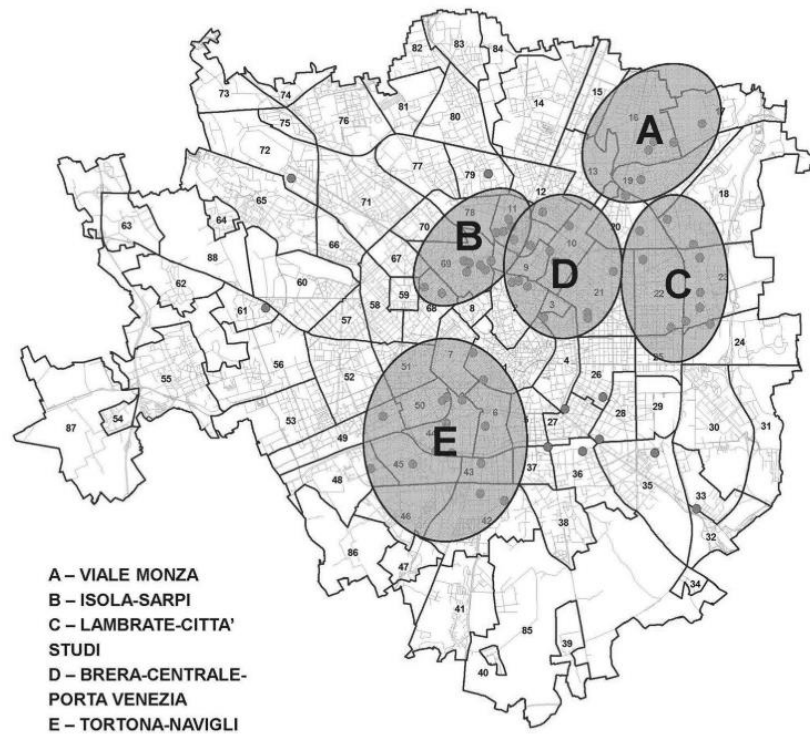


Figure 33 The main urban agglomerations of co-working spaces in Milan (in July 2015)

In addition, this in-depth analysis of the 68 Milan CSs showed that about half of them are specialized in a specific sector, or branch of sectors, which may imply or not a selection of coworkers. The main sectors are: architecture and design (18 percent), digital professions (15 percent), communication and information technology (8 percent, respectively), social innovation (5 percent) and other sectors (3 percent). Specifically, the CSs located in “creative neighborhoods” (such as the ones hosting exhibitions during Milan Design Week), focus on a specific activity. For instance, the CSs located in the Isola-Sarpi area are mainly specialized in the media sector, while the CSs located in the Tortona-Navigli area that is, one of the most important Design Week districts are mainly oriented to architects and designers. As stressed by the literature, the activities relying on symbolic knowledge (artistic and aesthetic) tend to prefer lively urban atmospheres (Asheim and Hansen, 2009; Van Winden and Carvalho, 2016) and, specifically, environments with a distinct and urban identity (Florida, 2008), like the Tortona-Navigli and Isola-Sarpi areas.[52]

As was mentioned earlier, one of the least investigated aspects of the diffusion of co-working spaces in contemporary cities is their urban effect, that is, the ability they may or may not have to positively affect the actual contexts in which they are located, in terms of community building (not just within the workspaces), improvement of surrounding public space, and ultimately urban revitalization. As the success of CSs cannot be taken for granted—there are

high risks in the knowledge-based, creative, and digital economy their growth potentials remain unknown. The benefits of proximity in enhancing the diffusion of tacit knowledge within CSs cannot be automatically transposed at the neighborhood nor at the urban scale, but specific urban effects should be investigated.

While traditionally workspaces used to be closed, exclusive, detached from the urban environment, and in some cases utterly invisible, CSs (and, more in general, working spaces in the knowledge-based, creative, and digital economy) usually aim at being visible, transparent, showing what happens inside. Moreover, in the Milan case, an inherent tension remains: some CSs, notably the smaller and more “office-like” ones, are closed, secluded from other spaces, because they are devoted to a specific activity, and are sometimes invisible. However, larger CSs are more innovative, and they are more open to interactions with the urban context, both physically and in terms of uses, thus becoming more visible. While in the first case, the benefits of proximity tend, therefore, to remain limited to what happens inside the workspace, in the second case proximity dynamics can have spillover effects. Indeed, larger CSs—mainly settled in the north of the city in former productive or commercial buildings—are usually able to offer several facilities both to their coworkers (from meeting rooms to places of aggregation, such as kitchens, spaces to relax, or gardens) and to external users (e.g., cafés and restaurants), and they often organize events (e.g., meetings, exhibitions, seminars, or training courses) open to the outside community.

The main effect of CSs on built environment are [33], [52]

- Confirmation of central district attractiveness
- Development of spontaneous aggregation in districts already devoted to creative and cultural industries, or previously characterized by workshops and handcrafts
- Episodic transformations in the public space (temporary/installations or permanent/new equipment
- the confirmation of the attractiveness of traditional and central commercial, business, and gentrified districts, such as in the case of the Brera-Centrale-Porta Venezia CSs agglomeration
- the development of spontaneous agglomerations formed by CSs and other innovative workplaces (such as makerspaces) in neighborhoods already devoted to creative and cultural industries; this is the case of the Isola-Sarpi, Lambrate-Città Studi, and

Tortona-Navigli areas, which have been characterized by the diffusion and infill of these new uses during the last 10 to 15 years

- the development of spontaneous agglomerations of CSs and other innovative workplaces in areas of the city previously characterized by abandon and the presence of empty buildings formerly hosting workshops and handcrafts, as in Viale Monza area.

From the spatial point of view, they can be read in the episodic transformation of the public space, caused in individual cases: for instance, new urban equipment, space to rest or for leisure, art and cultural installations. This type of micro-urban transformation can be linked to the presence of new urban populations in the involved areas, triggered in turn by a new type of cultural and creative offer (such as readings, workshop, concerts, art performances, and exhibitions) hosted in the larger CSs, which are more articulated in terms of functions and services. This is the case of Login, and Talent Garden in the Lambrate- Città Studi and Viale Monza areas, and of Impact Hub in the Isola-Sarpi area. Such physical change can be permanent, but more frequently it is temporary, linked to the hosting of specific events: for instance, exhibitions connected to the already mentioned Milan Design Week. By the way, this may be an evolving situation, which may lead to projects designed to be temporary and becoming permanent.

3.3.5 Conclusion

Co-working spaces are innovative workplaces where independent (and frequently precarious) knowledge-based, creative, and digital workers—mainly freelancers or self-employed professionals—share their workspaces. They rent a desk (for months, days, or even just hours) in return for different kinds of services: both traditional (such as, for instance, administrative offices, meeting rooms, or spaces of aggregation) and digital (such as, for instance, wifi, connections, or printers).

Finally moving on to effects of Co-working on built environment, it can be concluded that sharing economy has once again evolved the workspace to a whole new level. It is observed in many cases in the work, that workspace is an ever-evolving concept in terms of built environment. It is observed that workspace-built environment changes with requirements of employees or the mindset of the people and many other influencers. So, to state if all the workspace needs to be converted to co-working! No, as inferred from the work there are always many concepts of work space and the co-working growth is limited to many small scale companies at the moment and many multinational companies still continue to work in their own office space for ease of exchange of information.

3.4 SHORT TERM RENTAL

The world of short-term rentals, Airbnb being Exhibit A, is barely the tip of the iceberg when it comes to how rapidly large-scale change is coming to the real estate and hotel businesses via the sharing economy. “Rather than buying or signing leases for a specific residence or office, people will one day have membership options with companies that guarantee space in any of their facilities worldwide –timeshares for the twenty-first century,” writes Peter L. Allen in this opinion piece. Allen is head of the outreach and public affairs department of Agoda.com, the Asia-based subsidiary of Booking Holding. He also notes that several other waves of transformation are on the way.

Here are a few examples of companies successfully operating within the sharing economy short term rental:[37]

- **Airbnb:** Airbnb is a community marketplace for people to list, discover and book unique accommodations around the world – online or from a mobile phone or tablet. Airbnb allows people to monetize their extra space and promote it to a widespread, targeted audience.
- **Hipcamp:** Hipcamp is an online travel service designed to help people discover and book camping experiences on ranches, farms, vineyards, nature preserves and public sites. It connects landowners who want to keep their land undeveloped with responsible, ecologically-minded campers.
- **Couchsurfing:** Couchsurfing connects travelers with a global network of people willing to share life in profound and meaningful ways, making travel a truly social experience. Hosts open their homes to travelers for no charge, promoting cultural exchange and mutual respect.
- **VRBO:** Vacation Rental By Owner, a.k.a. VRBO, started way back in 1995. This marketplace is powered by HomeAway which is the owner of both websites. Unlike Airbnb, VRBO focuses more on the classic rentals of entire homes that are built for vacations instead of business trips
- **Booking.com:** Booking.com is also venturing into the vacation rental space, even though most travelers still think of it as a hotel booking site. You may want to consider Booking.com for visibility, but the trade-offs are high host fees and strict rules.

The advent and rapid expansion of the sharing economy are changing the accommodations industry. The avatar of this change, of course, is the rise of Airbnb, which has grown from a tiny San Francisco seedling called “Airbed and Breakfast” into a global player – but the change

is much broader than that. A number of major short-term rental players now offer over a million listings each, and investments have been pouring in. The hotel industry has begun to innovate and adapt in response. Dozens, and probably hundreds, of ancillary companies are popping up (and sometimes popping down again), offering hosts and guests new services and new ways to travel. These developments create opportunities (new business models, new companies, new jobs), difficulties (Schumpeter’s “creative destruction” at play), and challenges (how do governments manage, regulate, tax and extract benefits from accommodations that are alternatively residential and commercial?)[54]

As these changes continue – and even accelerate the sector will continue to grow, much more quickly than the traditional rental economy. Some of the hottest areas will be Asia, business travel and the millennial traveler. Business models will change, with hotels and short-term accommodations learning from one another; types of travel will blur. Ancillary industries will expand to fill the ecosystem, and with them employment will continue to change.

3.4.1 Growth of Short term rentals

The sharing economy, including short-term accommodations, is growing fast. Already, Booking Homes (part of the Booking Holdings Group) has over 5.6 million listings in 227 countries, with an average of 1.5 million room nights booked daily; Airbnb has over 5 million listings in 191 countries, with 400 million cumulative guest arrivals; HomeAway over 2 million listings in 190 countries; Agoda (also part of Booking Holdings) has over 1.1 million properties; and Tujia has over 1 million listings in 300 Chinese cities and global locations.[55]

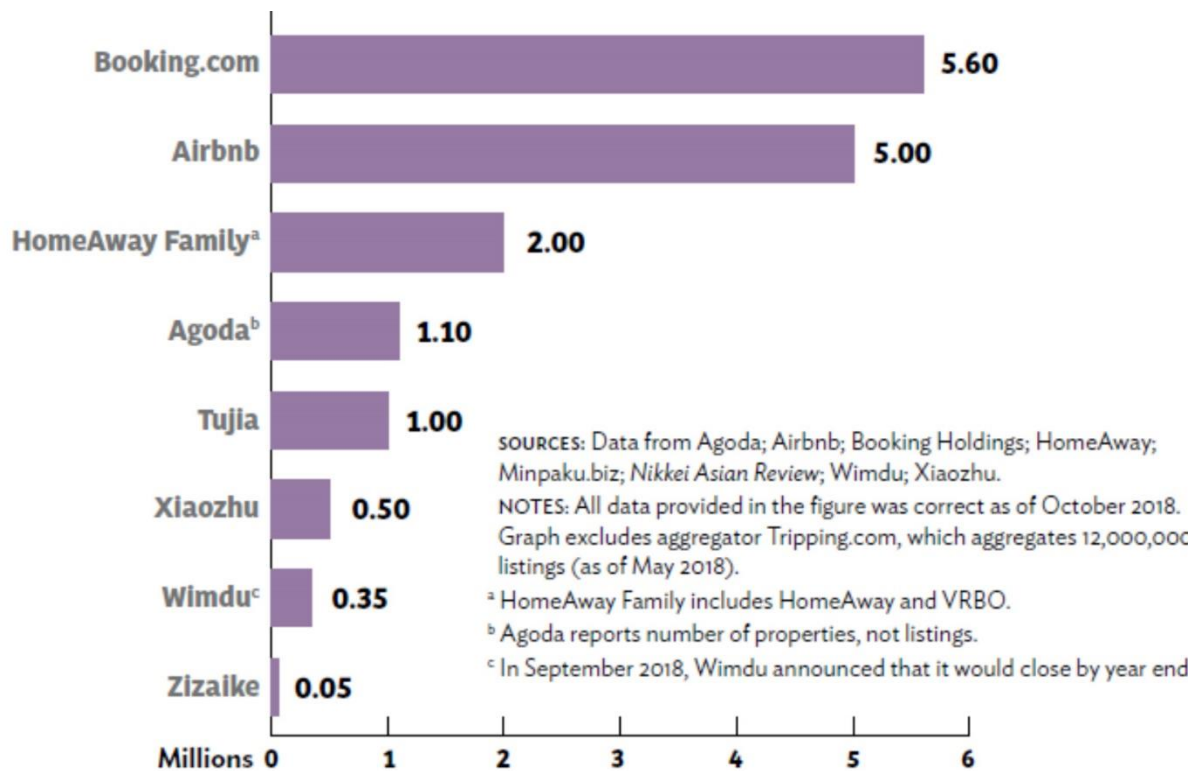


Figure 34 Total local host rental offerings by service providers [55]

The swift rise to prominence of companies such as Airbnb and Uber emphasizes the importance of identifying sectors and companies potentially at risk of similar disruptions. Sharing businesses have emerged as the hot topic in the current wave of technology excitement. Start-ups compete to be “the Airbnb” of every industry imaginable and for the capital that label can attract. The impacts are already clear in several sectors. Airbnb itself advertises three times more beds than the world’s largest hotel chain. Meanwhile, Uber has become the largest passenger transport network. Remarkably, despite the inroads they have made into established markets, those examples are still very young; Airbnb was founded just eight years ago, and Uber only launched in 2011. Identifying sectors vulnerable to similar disruptions and understanding incumbents’ exposures and strategic responses is increasingly vital given the scale and speed with which change can unfold.

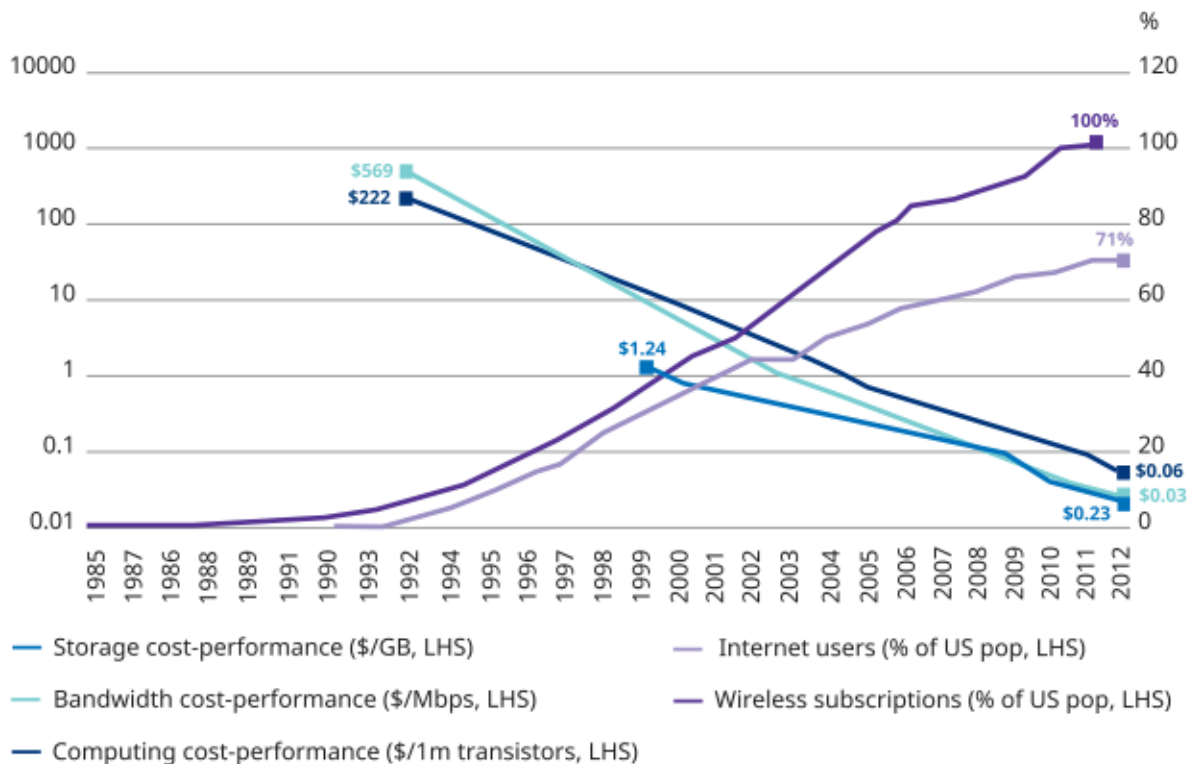
The disruptive impact of sharing businesses is already clear. Heavy investment has provided new entrants with war chests for assaults on established industries. Coupled with short lead times, the commercial impacts can be substantial.[12]

- Sharing businesses receive more venture capital funding than any other category, overtaking social media platforms in recent years. \$23 billion of new capital has been

invested in the sector since 2009 and \$20 billion in just the last two years¹. This creates a powerful disruptive force gathering in the sidelines of many sectors

- The total value of sharing start-up businesses had reached \$219 billion by mid-2015 according to Credit Suisse
- Sharing revenues are set to grow at 25% annually over the next decade, to reach \$335 billion by 2025, PWC estimates

The drivers of this growth are swelling These include access to communication technologies, increased trust and social acceptance of online exchanges and sharing, recognition of the existing inefficiencies and the savings those models can deliver to consumers, and flexible working patterns. Those trends are strongest among younger generations, who represent the most active users of sharing businesses.

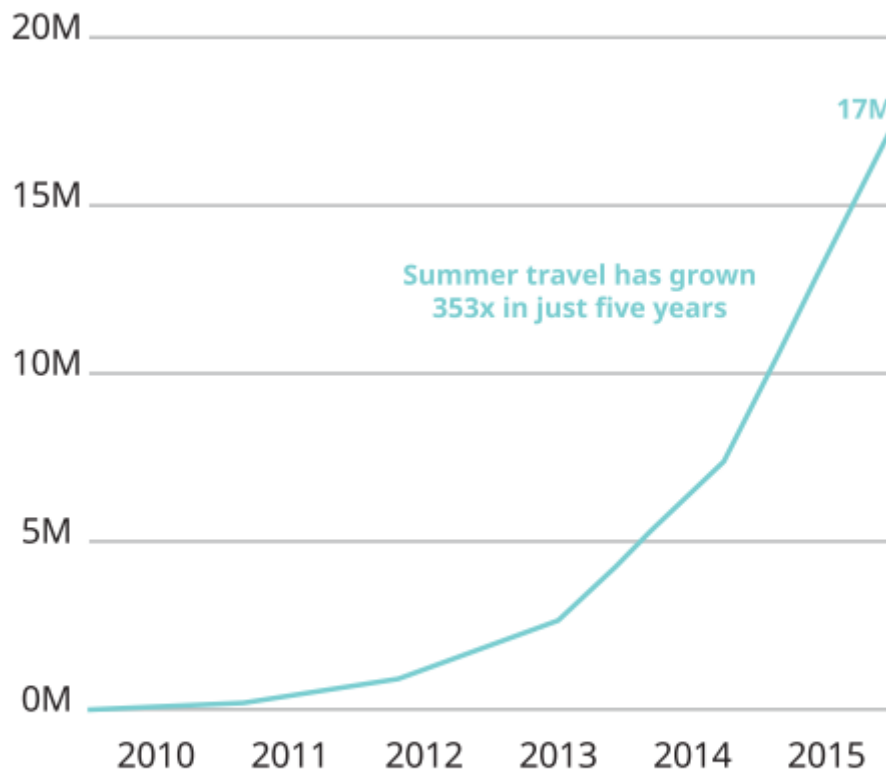


Source: Deloitte University press, 2013 <http://dupress.com/articles/from-exponential-technologies-to-exponential-innovation/>.

Figure 35 Growth of mobile internet users [31]

Although only few sharing businesses have reached global scale, growth rates are impressive across sharing business models in a range of industries. Credit Suisse estimates 43 sharing start-ups had reached US\$1bn valuations last year which aggregate value reached US\$219bn⁸.

Accountant PWC believes sharing revenues could reach US\$335bn by 2025, up from US\$15bn in 2013, implying an annual CAGR of over 25%. Airbnb, The peer-to-peer accommodating website has 2m listings worldwide, up from 1m on offer at the end of 2015, itself a threefold increase over the previous year. Lodging giants Hilton and Intercontinental Hotel Group have around 750,000 and 700,000 rooms respectively in their portfolios.[31], [56]



Source: <http://blog.airbnb.com/wp-content/uploads/2015/09/Airbnb-Summer-Travel-Report-1.pdf>

Figure 36 Growth of number of rooms offered by Airbnb [31]

As observed in the **Figure 37** below we see travel equipment, sports goods and equipment, luxury goods, apparel and footwear as most likely to be impacted, alongside accommodation and transportation vehicles. We have examined each of these markets and drawn some conclusion on their resilience to the emergence of the sharing model risk. we have typically observed with successful sharing businesses such as Airbnb and Uber is their ability to innovate very rapidly, undermining the economics of traditional peers. Airbnb uses the scale of an online marketplace to allow home owners to generate a positive return on property, albeit often lower than hotel groups would demand for the same investment, and eliminates redundant administrative and service overheads its users don't require. Every industry is different, and

therefore each innovation will be specific to its sector. But it is clear from these examples that change can unfold very quickly; leaving incumbents to adapt after that trend has become established.

It can also be inferred that the sharing consumer space is still underdeveloped, although tiny companies often exist, indicating potential. Given the fast growth rate in underpenetrated markets, as demonstrated by peer-to-peer finance and online staffing, we think that other sharing activities, underdeveloped at this stage, have a potential to grow.

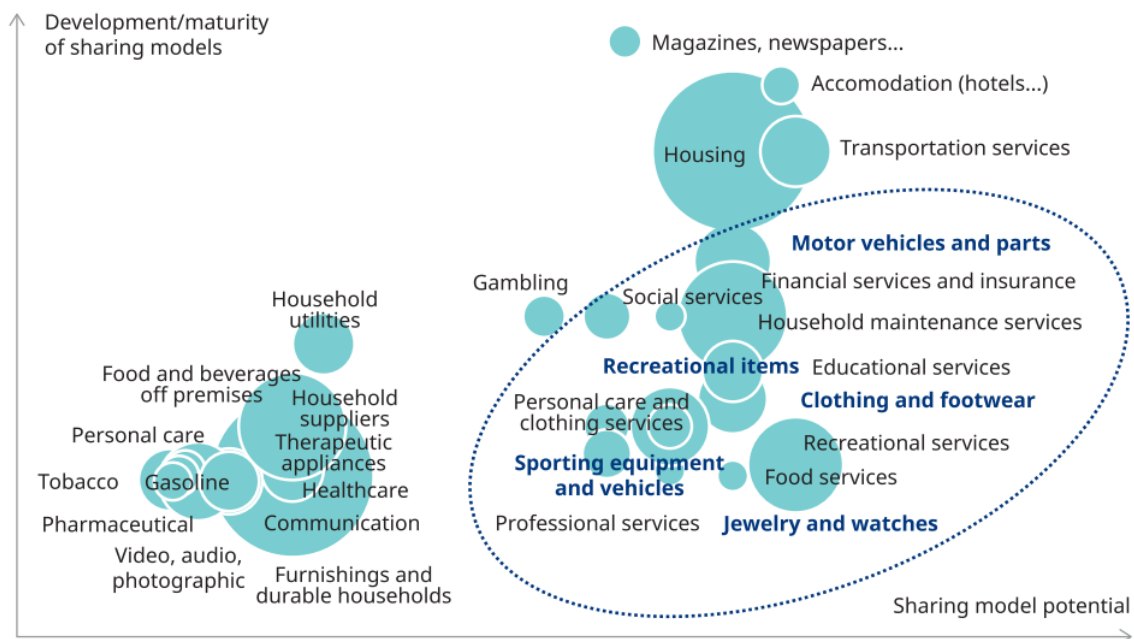


Figure 37 Maturity and growth potential of sharing economy sectors

3.4.2 Evolving business models

It is in the nature of business models to change. Sharing accommodations (think bed-and-breakfasts) are far from new, but the sector has grown very fast in the past couple of decades for two main reasons. One is the growth and change in demand, tied to the high cost of hotels in urban markets, the need for additional supply created by special events, family travel needs (especially laundry and kitchens). And the other, of course, is technology – the rise of online travel.

Interestingly, as the market evolves, short-term rentals and hotels are beginning to resemble one another. As short-term rental services expand, customer demand is pushing them toward hotels, with greater standardization, easy check-in, and more whole-unit rentals (as opposed to

bedrooms in an owner's home). Eventually it may be a handful of large, global brands that control the space, the short-term rental market is commercializing.[57]

Conversely, hotels are already becoming more locally focused. Hilton is developing “locally curated” hotels; YOTEL Singapore offers self-service check-in and communal work and leisure spaces. Competition stimulates innovation; each side is learning from the other.

Vacation rentals cannot compete with five-star hotels in every area, but an ecosystem of ancillary services is emerging; it replicates, and in some cases even expands upon, the hotel model. Some of the more intriguing new services include LuggageHero, a baggage storage service; Cleanly (dry cleaning and laundry); Drizly, a beer, wine, and liquor delivery app; Zeel (same-day massages and spa treatments); Glamsquad (beauty services); Handstand (bike routes and appointments with local trainers); and Helpr, which provides screened childcare providers within three hours' notice. And while these services may have been designed with vacation rentals in mind, they work for hotels, too. In some cases, they may displace captive offerings (e.g., food delivery apps replacing room service), but in others they allow hotels to offer outsourced services they might otherwise not have provided at all. The hotel model will continue to be disaggregated and reconfigured.

The concept of shared space is altering other parts of life, as well. Korea has had “officetels” (urban buildings with both “office” and “hotel” features) since the mid-1980s, but this concept is expanding at a much more rapid pace through the exceptional growth of WeWork. Launched in 2010 to provide flexible office space with millennial-friendly features (e.g., communal spaces; free beer and coffee), WeWork is growing fast around the world, and is itself evolving. Their new WeLive product, for example, offers buildings whose residents can participate in communal meals, movie nights and yoga classes – as well as internet and cable access, and monthly cleaning services. In May 2017, the company announced WeWork Wellness, with communal gym classes. Six months later, news surfaced about WeGrow – grade schools in WeWork buildings, with a mix of traditional instruction and business-oriented topics.[58]

3.4.3 Short term rental effect on Hotel

To make the comparison little easier the analysis is carried out taking the data available for Airbnb and the hotel industries.

When comparing both hotel and alternative accommodation companies, the combined Marriott-Starwood is projected to be the largest hospitality company in 2020 in terms of “value

sales” (Euromonitor’s term for how much guests pay to rent a hotel room or short-term rental, including revenue secured by chains and property owners.) Marriott was already the largest company in terms of room sales in 2015.

Airbnb is projected to be the second largest hospitality company in terms of room sales (or, in its case, sales from short-term rentals) by 2020, but a lot could happen between now and then to alter that projection.

The fig 38 below indicates that Marriott, for example, had nearly \$30 billion in room sales in 2015 but its annual 10-K Securities and Exchange Commission filing says the company’s overall 2015 revenue was about \$14.5 billion. [12], [57]

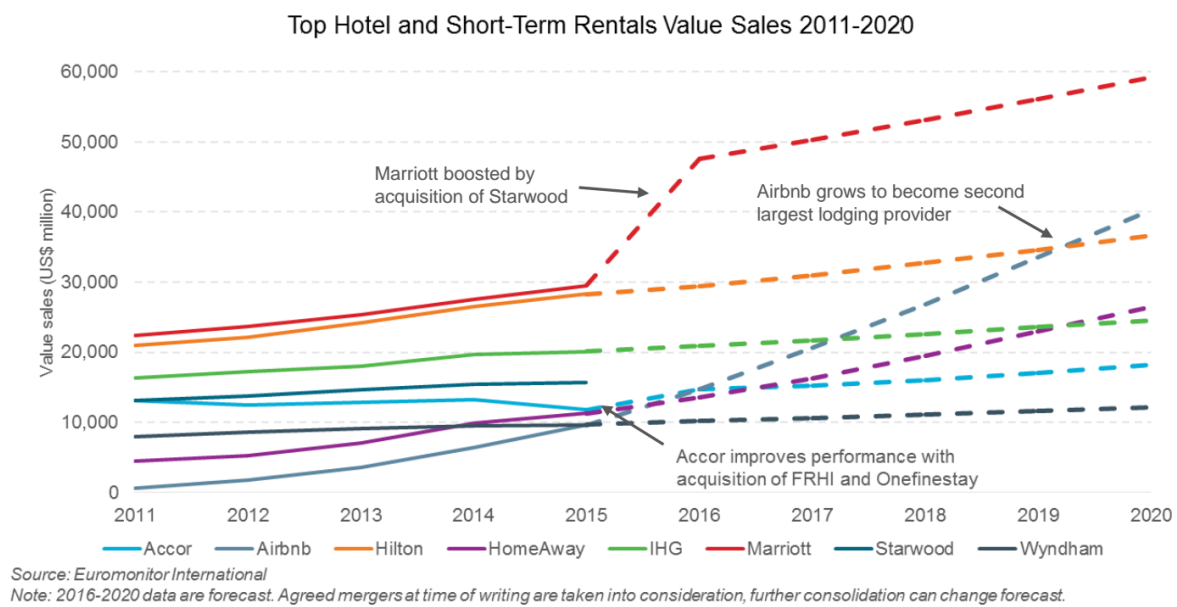


Figure 38 Top Hotel and short term rentals value sales[57]

In 2015, short-term rentals were one of the largest percentages of accommodations in North America, Western Europe, the Middle East and Africa, and Asia-Pacific. Short-term rentals’ percentages of total lodging were largest in North America and Asia-Pacific while North America and Western Europe had the largest revenue for short-term rentals.

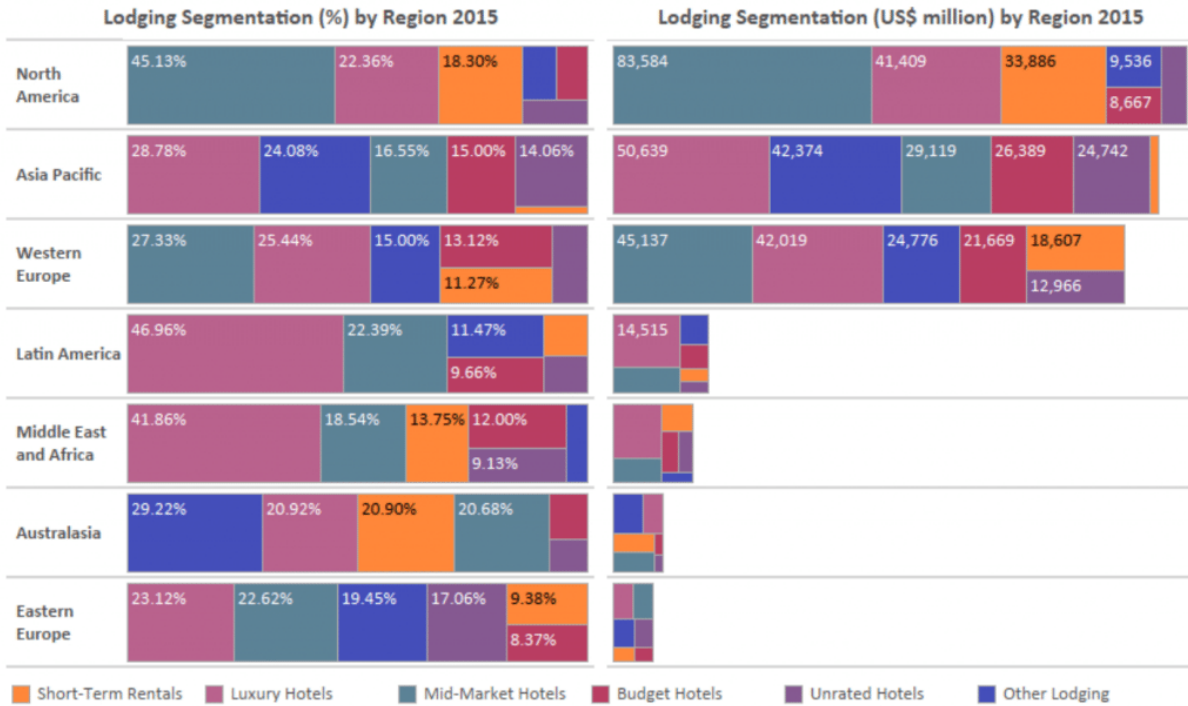


Figure 39 Market share in % and US\$ for accommodation in different regions of the world[59]

The average amount a short-term rental guest has paid per booking has decreased since 2008 as short-term rentals' popularity has grown in general. The fact that value sales growth is trailing outlet growth means that value sales per available inventory are in a downward spiral. This is mostly due to demand for short-term rentals not keeping pace with that sector's expanding supply. Airbnb has more than 2 million listings around the world, for example

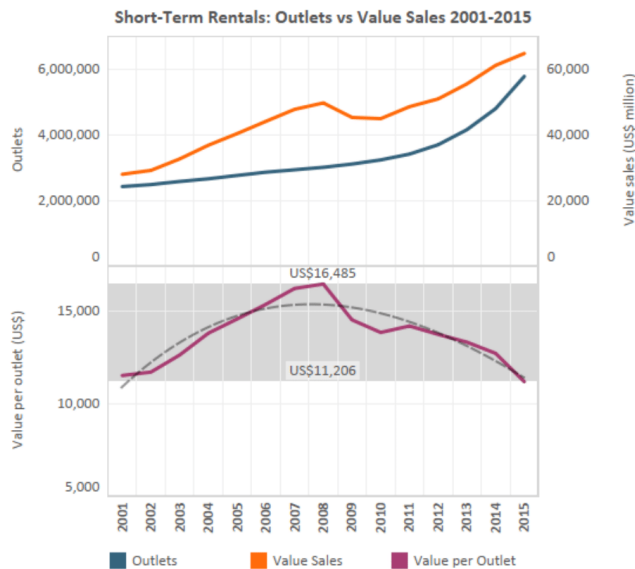


Figure 40 Short term rentals outlets vs value sale[26]

Airbnb is sometimes accused of offering up unfair competition to the hotel industry. Because Airbnb does not have to comply with the same legislation as hotels, the company is able to offer accommodation at a significantly smaller cost. Some even feel that Airbnb is replacing the traditional hotel industry. This fig 41 shows that even though Airbnb in Amsterdam is growing incredibly fast (from 48 to 16,000 properties listed in the course of just seven years).

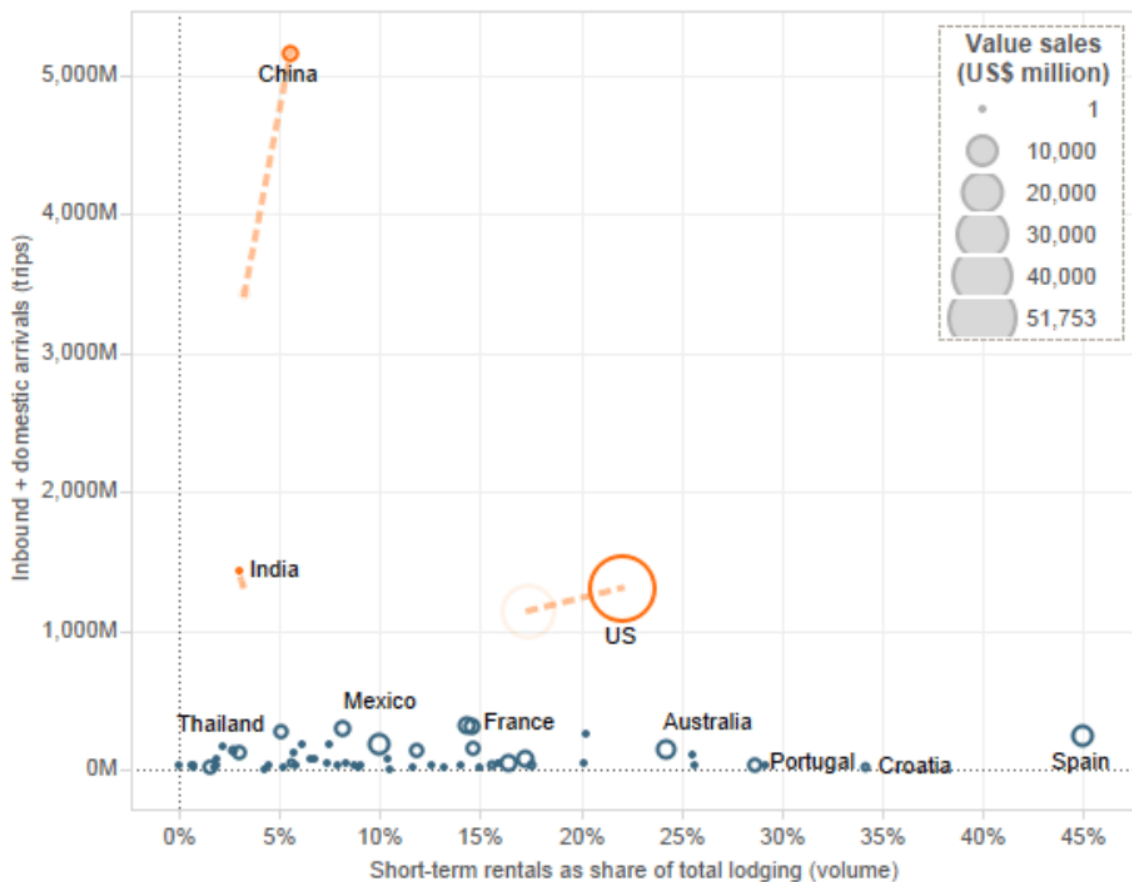


Figure 41 Growth of Airbnb and Hotels in Amsterdam

The U.S. is one of the largest markets for short-term rentals. Short-term rentals made up about 17 percent of total available accommodations in the U.S. in 2015 and Euromonitor projects it will account for about 23 percent in 2020.

Spain (not shown on this fig 42) is already showing signs of oversupply in short-term rentals. By 2020 more than 45 percent of the country’s accommodations will be short-term rentals.

Short-Term Rentals: Forecast by Arrivals and Lodging Category Share 2015-2020



Note: Start of faded line indicates position in 2015, blue and orange circles 2020. Total lodging volume includes hotel rooms, hostel rooms, other lodging rooms (incl. chalets and B&Bs) and short-term rental outlets. Bubble size relates to short-term rental value sales in US\$ million.

Figure 42 Short term rentals Forecast in different regions [60]

3.4.4 Conclusion

As explained before, tourism has a strong impact on cities, bringing with it a list of externalities that shake the balance of the urban environment, generally composed by the local community and the public space. In the following subparagraphs, the possible benefits and drawbacks of Airbnb will be confronted at different levels, mainly economic, social and spatial. Although the following spheres are provided split, in practice, they are strictly interlinked.

With regard to the short-term rentals, besides the undeniable economic impact, in the latest years, they are definitely having a huge impact on the tourism and also a negative impacts like people protesting for destroying the local communities in Barcelona and other cities where the over tourism has flooded with tourist.

Moving on to the effects of growth of sharing of economy on the hotel industry it can be inferred from the data analyzed in the above work that short term rents like Airbnb and other

notable companies are growing at a very fast pace and Airbnb is the second largest company to host customers where the chain of hotels Marriott stands at the top. Airbnb with a very less history has reached this stage in few years and is still in growing stage according stage. The hotel industry is also adopting to changes like partnering with food delivery companies and removing room service and many other. The comparison of short term rentals with hotels is not a fair comparison as the short term rentals mostly consists of entire place or a part of the place, even though it has created a dent in the market.

Finally to conclude on this topic based on the analysis conducted above short term rentals are creating a negative impact on hotels, but as the boom in short term rentals is increasing the tourist concentration to many different areas in the cities the surrounding built environment are changing and growing with the growth of short term rentals. Finally to conclude on the topic of short term rentals vs hotels it is safe to say that they both have impact on each other where short term rentals are moving towards more service oriented and in the mean while hotel are striving to create a more home like and customer oriented platform. Based on this is can be concluded that short term rentals and Hotels are competitions to each other to grow to higher stage.

4 Discussion and conclusion

4.1 Conclusion

Sharing economy is creating a huge impact on the world right now in all the sectors and this ripple in the global economy is growing at a very fast pace. This research work deals with some of the sectors like mobility, food delivery, co-working spaces and short term rentals and their growth in from the past few years and their effects on built environment. Mobility or car sharing analysis made in the previous chapters we can observe that in most of the developed countries and developing countries the mobility is predicted to increase a lot based on the data compared and the abandoning of parking spaces is one the effects of sharing mobility. The change in built environment handling these abandoned parking spaces. From the study it can be inferred that the trend of reducing the parking spaces per flat in apartments are reducing and the abandoned spaces are converted into social-cultural exchange places, apartments, and coworking spaces.

Similarly, effect of food delivery on the restaurants are resulting in reduction in the overall size of the restaurants. Co-working spaces' effect on built environment can be considered as the evolution of office space. Finally, short term rentals effects on the hotels, that short term rentals are growing very fast and has become a rival for the hotel industry. But this competition has forced the growth of both the industries.

From this thesis we can conclude that most of these sharing economies are evolving to become inter dependent on each other. To support this conclusion from this report, some examples are taken such as, due to rapid growth of short term rentals, hotels are adopting by removing room service and partnering with food delivery. And due to the growth of food delivery, the restaurants which are facing challenges due to their large construction are turning them in to café + co-working, restaurant + live performance, also there are instances in India and other Asian countries where the food delivery in carried out using shared bicycles or motorcycle which are increasing the free parking places which are then converted to socio-cultural exchange or tourist attraction spots which in turn helps the growth of short term rentals. This cycle of growth can be seen in many different sectors of sharing economy. So, to conclude this thesis, it can be said that built environment is evolving with sharing economy and the future work must be carried out to check the extent of these relation between sectors or services.

Ridesharing, home sharing and the gig economy industries are all reportedly concerned with the COVID-19 outbreak, with some already being impacted by it, and others preparing for it. For example Airbnb hosts suffering from booking cancellation and drop of occupancy rate due

to lock down, host in Japan which had their occupancy rate drop from 80% in January 2020 to zero, another host in Italy that has had all March 2020 bookings cancelled, and a third host "who hosts 2,000 guests a month in his Las Vegas network of mansions, [and has] slashed prices on the properties by 10 percent and plans to keep cutting as visitors dwindle[61]. These drastic changes has made many hosts to convert their places in to long term rentals. The pandemic has sent Uber and Lyft's stocks plummeting. Even after a rally on Thursday, share prices for both companies are down over 30% from Feb. 21, when values first began dropping significantly. Lyft is worth only \$9 billion today, less than it was as a private company at the end of 2017. Both companies are likely to see significant disruptions in their operations for the foreseeable future. Uber may be partially insulated by its food delivery business, which could help offset a collapse in ride-hailing volume. Delivery companies like Instacart Inc., for instance, have been doing far more business than they were before the pandemic. It's an oversimplification to say that a stressed-out population sheltering in place will be good for delivery companies. Services like DoorDash and Grubhub Inc. reducing fees they charge to restaurants, as they worry that supply will dry up as restaurants shut down or go out of business entirely. [62]

4.2 Scope for future work

The growing Sharing Economy has implications for research in at least three areas. First, from a macro-economic perspective, the traditional differentiation of industries is blurring and points towards cross-industry ecosystems. Service systems might emerge where different services are bundled and exchanged in C2C and B2C Sharing Economy models depending on consumers' requirements (outside-in) instead of inside-out generated goods and services which are based on providers' assumptions about consumer needs. In such an economy, traditional market- and non-market models converge to hybrid forms of value exchange. Research may contribute with a more detailed analysis of these ecosystems and advance the understanding of the impact of the Sharing Economy. Among the research questions are: Which sectors will emerge in the future? How would consumers for example combine a car sharing service with a traditional flight arrangement or a crowd investment service with a stock portfolio from their bank? What new forms of value exchange will support these evolving ecosystems? In such a scenario even money could become obsolete and be complemented by new forms of value transactions, such as time banks which record how much effort was invested in providing a certain service. Innovative distributed ledger technologies such as for example the blockchain

could support this with transparent recording and value exchange mechanisms among the involved actors.

Second, from a micro-economic perspective, companies might disappear in certain areas as traditional forms for institutionalized service production. Instead, service and goods production facilities could be shared among single workers that co-create services, each of them focusing on single tasks in which one is specialized in, a development recently termed as hyper specialization or crowdsourcing. Additionally, consumer processes and companies' service lifecycle processes need to be adapted to the context of the Sharing Economy. An example are maintenance processes that rely on location-based criteria in the case of car sharing, which might even be outsourced to consumers. Zipcar, for example, values the cleaning of cars with 15 USD. Another question in this regard refers to the organization of insurances of shared goods and services that compensate consumers for loss or damages. Among the research questions in the micro-economic domain are: What are new business models for the Sharing Economy? How can these new forms of work be organized and in which areas will the hierarchical organization still have its eligibility or where more decentralized forms might prevail? What is the role of intermediaries, such as electronic markets, in the context of the Sharing Economy? For example, how might consumers connect different identities on different sharing platforms towards a cross-platform identity management? Another question in this context refers to the organization of insurances of shared goods and services, which compensate consumers for loss or damages.

In order to integrate the different perspectives, Service Science could contribute with an overall link for the different disciplines. With services systems as primary research object, the discipline could describe how those different research areas might be inter-connected alongside the different macro- and micro-economic dimensions. The information systems domain is well positioned to provide answers to these questions as it is interdisciplinary by nature and connects the expertise of various disciplines.

5 Reference

- [1] “Sharing or paring? Growth of the sharing economy (PWC).”
- [2] T. Puschmann and R. Alt, “Sharing economy,” *Bus. Inf. Syst. Eng.*, vol. 58, no. 1, pp. 93–99, Jan. 2016.
- [3] A. Pawlicz, “Pros and cons of sharing economy regulation. Implications for sustainable city logistics,” in *Transportation Research Procedia*, 2019, vol. 39, pp. 398–404.
- [4] “Comparative Study on Sharing Economy in EU and ECORL Consortium Countries.”
- [5] F. Bardhi and G. M. Eckhardt, “Access-Based Consumption: The Case of Car Sharing: Table 1,” *J. Consum. Res.*, vol. 39, no. 4, pp. 881–898, Dec. 2012.
- [6] “Collaboration in Cities: From Sharing to ‘Sharing,’ 2017.
- [7] S. Della Torre, S. Cattaneo, C. Lenzi, and A. Zanelli, Eds., *Regeneration of the Built Environment from a Circular Economy Perspective*. Cham: Springer International Publishing, 2020.
- [8] X. Wu and Q. Zhi, “Impact of Shared Economy on Urban Sustainability: From the Perspective of Social, Economic, and Environmental Sustainability,” in *Energy Procedia*, 2016, vol. 104, pp. 191–196.
- [9] “A Snapshot of the Sharing Economy • By the Numbers • Perspective from Industry Specialists The Business of Sharing • Automotive • Retail and Consumer Goods • Hospitality • Entertainment, Media and Communications.”
- [10] A. Bisello, D. Vettorato, P. Laconte, and S. Costa, Eds., *Smart and Sustainable Planning for Cities and Regions*. Cham: Springer International Publishing, 2018.
- [11] “The Sharing Economy: How Technology is Revolutionising Real Estate.” [Online]. Available: <https://blog.goodaudience.com/the-sharing-economy-how-technology-is-revolutionising-real-estate-c2044e8ee0ba>. [Accessed: 21-Nov-2019].
- [12] A. Caccese Supervisor, M. Robiglio Politecnico di Torino Co-supervisor, and A. Ardura Urquiaga, “The Airbnb effect architecture and urban consequences of a new way of trading homes,” 2019.
- [13] “How the sharing economy can make its case.”
- [14] T. Dogru, M. Mody, and C. Suess, “Adding evidence to the debate: Quantifying Airbnb’s disruptive impact on ten key hotel markets,” *Tour. Manag.*, vol. 72, pp. 27–38, Jun. 2019.
- [15] X. Xu, “How do consumers in the sharing economy value sharing? Evidence from online reviews,” *Decis. Support Syst.*, p. 113162, Oct. 2019.
- [16] Y. Li, X. Bai, and K. Xue, “Business modes in the sharing economy: How does the OEM cooperate with third-party sharing platforms?,” *Int. J. Prod. Econ.*, 2019.
- [17] A. Malhotra and M. Van Alstyne, “The dark side of the sharing economy ... and how to lighten it,” *Communications of the ACM*, vol. 57, no. 11. Association for Computing Machinery, pp. 24–27, 01-Nov-2014.

- [18] J. Hamari, M. Sjöklint, and A. Ukkonen, "The sharing economy: Why people participate in collaborative consumption," *J. Assoc. Inf. Sci. Technol.*, vol. 67, no. 9, pp. 2047–2059, Sep. 2016.
- [19] "The Sharing Economy and Real Estate Market: The Phenomenon of Shared Houses | SpringerLink." [Online]. Available: https://link.springer.com/chapter/10.1007/978-3-319-75774-2_17. [Accessed: 21-Nov-2019].
- [20] "The impact of the sharing economy - Engel & Völkers." [Online]. Available: <https://www.engelvoelkers.com/en/blog/property-insights/market-trends/impact-sharing-economy-real-estate-sector/>. [Accessed: 21-Nov-2019].
- [21] J. Yi, G. Yuan, and C. Yoo, "The effect of the perceived risk on the adoption of the sharing economy in the tourism industry: The case of Airbnb," *Inf. Process. Manag.*, vol. 57, no. 1, Jan. 2020.
- [22] P. Roma, U. Panniello, and G. Lo Nigro, "Sharing economy and incumbents' pricing strategy: The impact of Airbnb on the hospitality industry," *Int. J. Prod. Econ.*, vol. 214, pp. 17–29, Aug. 2019.
- [23] "4 ways the sharing economy will develop in 2019 | World Economic Forum." [Online]. Available: <https://www.weforum.org/agenda/2019/01/sharing-economy/>. [Accessed: 18-Nov-2019].
- [24] "5+1 steps to success in the sharing economy - 5+1 steps to success in the sharing economy - Régens." [Online]. Available: <https://www.regens.com/en/-/5-1-steps-to-success-in-the-sharing-economy>. [Accessed: 18-Nov-2019].
- [25] "4 Ways The Sharing Economy Has Dramatically Impacted Real Estate | Marketplace Platform." [Online]. Available: <https://www.marketplaceplatform.com/4-ways-the-sharing-economy-has-dramatically-impacted-real-estate/>. [Accessed: 21-Nov-2019].
- [26] D. Guttentag, "Airbnb: disruptive innovation and the rise of an informal tourism accommodation sector," *Curr. Issues Tour.*, vol. 18, no. 12, pp. 1192–1217, Dec. 2015.
- [27] G. Smorto, "THE SHARING ECONOMY AS A MEANS TO URBAN COMMONING *."
- [28] B. Villari, P. Milano, and S. Design, "GoRide A FREE-FLOATING BIKE SHARING SERVICE," 2017.
- [29] Y. Zhang and Z. Mi, "Environmental benefits of bike sharing: A big data-based analysis," *Appl. Energy*, vol. 220, pp. 296–301, Jun. 2018.
- [30] "The Sharing Economy & the Real Estate Sector: What's the Impact?" [Online]. Available: <https://landsterling.com/the-sharing-economy-the-real-estate-sector-whats-the-impact/>. [Accessed: 21-Nov-2019].
- [31] "Solange Le Jeune, Sustainable Investment Analyst For professional clients only. Not suitable for retail clients," 2016.
- [32] J. H. Hong, B. C. Kim, and K. S. Park, "Optimal risk management for the sharing economy with stranger danger and service quality," *Eur. J. Oper. Res.*, vol. 279, no. 3, pp. 1024–1035, Dec. 2019.
- [33] E. Vernezi, "How Customer Journey has been Influenced by Emerging Socio-Cultural

- Model: Sharing Economy-Case Study: Shared Mobility,” no. April, pp. 81–100, 2017.
- [34] S. K. Curtis and M. Lehner, “Defining the sharing economy for sustainability,” *Sustain.*, vol. 11, no. 3, 2019.
- [35] Z. Mi and D. M. Coffman, “The sharing economy promotes sustainable societies,” *Nature Communications*, vol. 10, no. 1. Nature Publishing Group, 01-Dec-2019.
- [36] R. Bolici, G. Leali, and S. Mirandola, “Reusing Built Heritage. Design for the Sharing Economy,” 2020, pp. 315–324.
- [37] S. B. Yang, K. Lee, H. Lee, and C. Koo, “In Airbnb we trust: Understanding consumers’ trust-attachment building mechanisms in the sharing economy,” *Int. J. Hosp. Manag.*, vol. 83, pp. 198–209, Oct. 2019.
- [38] B. Cohen and J. Kietzmann, “Ride On! Mobility Business Models for the Sharing Economy,” *Organ. Environ.*, vol. 27, no. 3, pp. 279–296, Sep. 2014.
- [39] P. M. Smolnicki and J. Softys, “Driverless Mobility: The Impact on Metropolitan Spatial Structures,” *Procedia Eng.*, vol. 161, no. April, pp. 2184–2190, 2016.
- [40] “A Changeable Workplace for a Changing City,” 2017.
- [41] J. M. Skjelvik, A. M. Erlandsen, and O. Haavardsholm, “Environmental impacts and potential of the sharing economy,” 2017.
- [42] B. Bondorová and G. Archer, “Does sharing cars really reduce car use?,” *Transp. Environ.*, no. June, pp. 1–8, 2017.
- [43] MOMO-CS, “The Environmental Impacts of Car-Sharing Use,” no. 3, 2009.
- [44] “Go places - Platform based service for multifunctional spaces,” 2018.
- [45] “Imported from https://www.researchgate.net/publication/242598016_Carsharing_and_the_Built_Environment_Geographic_Information_System-Based_Study_of_One_US_Operator.”
- [46] “Imported from https://www.google.com/amp/s/www.researchgate.net/figure/European-trends-in-car-sharing_fig17_317169170/amp.”
- [47] “Imported from <http://www.angelfire.com/ar/corei/infotech.html>.”
- [48] M. Khoshkar Gianandrea Ciaramella, “ON THE FAST FOOD RETAIL IN MILAN-BRICK & MORTAR AND E-COMMERCE.”
- [49] “Imported from <https://www.newyorker.com/culture/annals-of-gastronomy/are-delivery-apps-killing-restaurants>.”
- [50] “Imported from <https://www.cntraveler.com/story/how-grubhub-uber-eats-and-other-meal-delivery-apps-are-killing-hotel-room-service>.”
- [51] R. Yu, M. Burke, and N. Raad, “Exploring impact of future flexible working model evolution on urban environment, economy and planning,” *J. Urban Manag.*, vol. 8, no. 3, pp. 447–457, 2019.
- [52] C. Pacchi and P. Di Milano, “Coworking Spaces in Milan: Location Patterns and Urban Effects,” *Artic. J. Urban Technol.*, 2017.

-
- [53] “What Is the Sharing Economy? Definition, Examples & Companies - OneSpace.” [Online]. Available: <https://www.onespace.com/blog/2017/06/sharing-economy-definition-examples-companies/>. [Accessed: 18-Nov-2019].
- [54] N. Stors and S. Baltes, “Constructing Urban Tourism Space Digitally: A Study of Airbnb Listings in Two Berlin Neighborhoods,” *Proc. ACM Hum.-Comput. Interact.*, vol. 2, p. 29, 2018.
- [55] “Imported from <http://urbanlegacylab.net/reading-uneven-structure-of-post-crisis-cities-through-airbnb-platform-urbanization/>.”
- [56] “Airbnb, Booking.com and the Battle for Hearts – and Homes - WIT.” [Online]. Available: <https://www.webintravel.com/airbnb-booking-com-battle-hearts-homes/>. [Accessed: 06-Feb-2020].
- [57] “Imported from <https://www.soegjobs.com/airbnb-vs-hotel-industry/>.”
- [58] T. Dogru, M. Mody, and C. Suess, “Adding evidence to the debate: Quantifying Airbnb’s disruptive impact on ten key hotel markets,” *Tour. Manag.*, vol. 72, pp. 27–38, 2019.
- [59] “Imported from https://www.researchgate.net/publication/320716473_Tourism_and_the_Sharing_Economy_An_Evidence_from_Airbnb_Usage_in_Italy_and_Romania/figures?lo=1.”
- [60] “Imported from <https://www.statista.com/statistics/808690/airbnb-rentals-in-italy/>.”
- [61] “Sharing Economy Reacts to COVID-19 Outbreak | Verisk Analytics.” [Online]. Available: <https://www.verisk.com/insurance/covid-19/iso-insights/sharing-economy-reacts-to-covid-19-outbreak/>. [Accessed: 10-May-2020].
- [62] “covid-19: The sharing economy faces the abyss in a pandemic - The Economic Times.” [Online]. Available: <https://economictimes.indiatimes.com/small-biz/startups/features/the-sharing-economy-faces-the-abyss-in-a-pandemic/articleshow/74857984.cms?from=mdr>. [Accessed: 10-May-2020].