URBAN SHARING
Sustainability & Institutionalisation
European Research Council
Grant Agreement No. 771872

URBAN SHARING

in SHANGHAI

City report no 3
URBAN SHARING TEAM

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URBAN SHARING TEAM:

Oksana Mont, Andrius Plepys, Yuliya Voytenko Palgan, Matthias Lehner, Steven Curtis, Lucie Zvolska and Ana Maria Arbelaez Velez.

December 2020

Grant Agreement No. 771872

Cover design: Lucie Zvolska

Cover photo: Pixabay, Pexels, https://www.pexels.com/photo/illuminated-city-skyline-at-night-36789/

ISBN: 978-91-87357-69-5 (print)

ISBN: 978-91-87357-68-8 (pdf)

Printed in Sweden by Media-Tryck, Lund University

Media-Tryck is an environmentally certified and ISO 14001:2015 certified provider of printed material. Read more about our environmental work at www.mediatryck.lu.se

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1 INTRODUCTION

This city report is the result of a Mobile Research Lab [1] conducted in the frame of the five-year research programme Urban Sharing [2], funded by the European Research Council (2018-2023). The Mobile Research Lab involves a combination of methods, including case studies, interviews, observations, expert panels, and in-situ field work. This report presents insights gained by the team of seven researchers from the International Institute of Industrial Environmental Economics at Lund University, Sweden, who collectively wrote the report: Oksana Mont, Andrius Plepys, Yuliya Voytenko Palgan, Jagdeep Singh, Steven Curtis, Lucie Zvolska and Ana Maria Arbelaez Velez.

Case urban sharing organisations (USOs) are chosen by scouting online databases of sharing economy (e.g., the Sharing Cities Network, the Mesh, Shareable Network Hub, Collaborative Consumption and Sharing.org), talking to researchers of the sharing economy, and exploring homepages of sharing organisations, analysing academic and grey literature, and interviewing experts and practitioners.

Purposeful and snowball sampling [3] was used for choosing case USOs from three sectors of the sharing economy: 1) space sharing, including accommodation, and parking space, 2) mobility sharing, including car sharing (business-to-consumer), and bike sharing; and 3) physical goods sharing, including clothes, umbrellas, electronics and DIY tools. We chose these sectors as they have some of the greatest potentials to reduce their environmental impact through sharing. Sharing of these physical goods may or does lead to environmental, social or economic impacts, which can potentially be reduced through different organisational models of sharing, such as peer-to-peer and business-to-consumer as well as for-profit, reciprocal or free. These three sharing sectors follow different institutionalisation pathways and are subjects to different types of engagement by cities and other actors. These three sectors usually vary significantly in terms of prominence in the city, in their reputation among the public and other actors.

According to our strict definition, sharing business models support temporary use of idling assets [4]. This means that peers share resources they already have, i.e., the resources were not purchased for pecuniary purposes for rental or sharing. Ownership stays with the resource owner, and is not transferred to a new owner in a series of subsequent users, as in the case of second-hand markets. Sharing of resources takes place between resource owners and resources users in a peer-to-peer (P2P) business model. We are investigating USOs in which users may have different motivations for sharing their idling resources: pecuniary, non-pecuniary, or reciprocal. B2C cases are also analysed as a reference point for the P2P sharing organisations. In B2C cases a company owns resources, not peers.

However, in China, the sharing economy is defined differently: it is about providing access for people to some goods and services with the help of IT solutions rather than utilising the idling capacity in the society. Thus, the majority of products offered in sharing organisations in China are newly produced, not pre-owned. This also means that instead of peer-to-peer business models, many of business models in the Chinese sharing economy are business-to-consumer, where resource owners are companies that provide access to products they own, such as bicycles, cars or mobile chargers, not individuals. The focus of the sharing economy in China is the Internet trade that encompasses digital B2C services, where transaction costs are reduced, and not the distinction between gaining access to used vs. new products.

Due to the Covid-19 outbreak, research on the sharing economy in Shanghai had to be done in several steps. Step one took place during March-June 2020, when desktop research and 13 distance interviews were conducted. Step two took place in October 2020 when a workshop with Chinese colleagues from School of Sociology and Political Science, Shanghai University, China and Sectional Committee, Sociology of Consumption at the Chinese Sociological Association was organised. The Mobile Research Lab will be conducted once the Covid-19 pandemic is over. The actors interviewed comprised researchers, experts on the sharing economy and representatives from sharing organisations from different sectors, third-party organisations, and users of sharing organisations. The transcribed interviews generated about 200 pages of material for analysis. All the team members contributed to writing different chapters of the report.

The report is structured as follows. Introduction is written by Oksana Mont. Section 2 describes the city context of Shanghai that shapes the sharing economy in the city and is written by Oksana Mont, Matthias Lehner and Andrius Plepys. Section 3 presents a short overview of the sharing economy

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in Shanghai, including levels of awareness and acceptance among the public and is written by Oksana Mont. The subsequent three sections describe our findings and observations from the three sectors of the sharing economy: sharing of space (written by Lucie Zvolska), mobility sharing (written by Andrius Plepys and Ana Maria Arbelaez Velez) and physical goods (written by Oksana Mont), focusing on the drivers and barriers relating to USOs and the sharing economy in general, associated sustainability impacts, impacts on incumbent sectors, and the institutional and regulatory context of each sector. Section 7 (written by Yuliya Voytenko Palgan) analyses governance mechanisms that the city council employs for engaging with the sharing economy, and section 8 offers some concluding remarks and is written by Steven Curtis.

Photo: Pixabay

2 CITY CONTEXT

2.1 Governance structure

2.1.1 CITY GOVERNANCE STRUCTURE

Shanghai is one of four provincial level municipalities and thus its first-level local state administrative organs are directly under the Central Government in China. Shanghai government has to accept the unified leadership of the State Council that decides on the allocation of power, responsibilities and functions between the Central Government and local state administrative organ of the municipality. Shanghai government has the mandate to implement local laws, regulations and decisions made by the people's congresses and its standing committee of the municipality. It is also responsible for reporting about its activities and results to the people's congress and its standing committees. The latter - people's congress and its standing committee in Shanghai - supervise the work of the government of Shanghai municipality, have the power to change and annul decisions made by the municipal government. On the other hand, the Shanghai municipal government leads and supervises the work of the districts, cities, counties, townships and towns. It has the right and responsibility to exercise unified administration over the economic, social, and cultural affairs in areas under its jurisdiction (China.org, 2020). At the end of the 2017 Shanghai consisted of 16 districts, 107 towns, two townships, 105 sub-district committees, 4,253 neighbourhood committees and 1,590 villagers' committees in the city (Information Office of Shanghai Municipality & Shanghai Municipal Statistical Bureau, 2018).

District governments are urban district and suburban district governments established in districts in municipalities directly under the control of the Central Government. Urban district governments govern the urban districts where they have neighbourhood offices. Suburban district governments administer governments of townships, ethnic townships and towns. They may also establish neighbourhood offices (China.org, 2020).

The Mayor of the Shanghai Municipal People's Government (i.e., Mayor of Shanghai Municipality) is the highest ranking executive official in Shanghai. He

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occupies the same level of authority as provincial governors. However, the administrative system in China is mirrored by the party system. Thus, the organisational structure of the Municipality of Shanghai follows the traditional dual party-government system like in all other governing institutions in the People's Republic of China. Every province has a Communist Party of China provincial committee lead by a secretary who is in effect in charge of the province, rather than the governor of the provincial government.

The Shanghai government is composed of a mayor, vice mayors, secretaries-general and directors of bureaus and commissions. Mayors and vice mayors are elected by the Shanghai people's congress, while secretaries-general and directors of bureaus and commissions are nominated by mayors. Like in other prefectural-level cities, the government is elected for five years.

2.1.2 NATIONAL POLICIES FOR SHARING THAT GOVERN SHARING IN SHANGHAI

China has embraced the sharing economy with its own definition that comprises both P2P and B2C online business models as long as they are enabled by IT-solutions. The Central government views the sharing economy as a new innovative development that spurs the economy and contributes to the GDP growth. The sharing economy has been named as "China's economic development in the future" [5].

> ***"China's story is a manly encouragement of the sharing economy. The reason is that it is a new economy based on new science and technology, particularly in the digital economy times." (Int#Sh11)***

Shanghai, being the major innovation hub in China, has also welcomed the sharing economy innovation (Int#Sh4). In terms of regulations and laws, principles for regulatory frameworks governing the sharing economy are set up by the Central government, and operationalised to specific city contexts by the local government (Hou, 2018).

> ***"The basic principles come from the central government and then the local governments or provincial governments, develop their own specifications, rules or standards" (Int#Sh7)***

Table 1 Regulations Adopted by the Central Governments on the Sharing Economy (Hou, 2018)

Dates of Adoption	Ministries	Titles
3 July 2017	National Development and Reform Commission and 7 others	Guiding Opinion on Accelerating the Development of Sharing Economy
6 Nov 2017	State Administration of Food and Drug inspection	Measure for Supervision and Management of Food Safety in Online Catering Services
3 Aug 2017	Ministry of Transportation and 9 others	Guiding Opinion on Promoting and Regulating the Development of Online Bicycle Lending
12 Dec 2016	Ministry of Culture	Measure for Online Performance Activities
4 Nov 2016	National Office of the Central Cyberspace Affairs	Regulation for Webcasting Services
24 Aug 2016	China Banking Regulatory Commission and 3 others	Temporary Measure for Regulating P2P Lending Platforms
28 July 2016	Ministry of Transportation and 6 others	Temporary Measure for Regulating Ride Sharing Services
18 July 2015	People's Bank of China and 9 others	Guiding Opinion on Promoting the Heathy Development of Internet Finance
2016		Specification for App-based Ride-hailing Operation Services (Fu, 2019)

National and city-level policies are typically developed per sector. As the list above indicates, there are specific policies for regulating ride-hailing, food sharing, bike sharing, physical goods sharing, finance sharing and webcasting services. There is also a view that the national government sets a rather positive tone and high expectations on the sharing economy in terms of delivering GDP growth and economic development, while it is the cities and municipalities that have to face the problems stemming from the operation of the sharing organisations in their cities (Int#Sh8).

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Below we present the national level policies and regulations that govern accommodation, sharing mobility, and physical goods. Shanghai city-level policies and regulations are described in respective sections (**Error! Reference source not found.**, **Error! Reference source not found.**, and **Error! Reference source not found.**) and where relevant in chapter **Error! Reference source not found.**.

In *accommodation sharing* sector there are regulations for registration of hosts and users with IDs and very detailed and strict standards for hosts to be able to offer their accommodation on platforms.

When it comes to *car sharing*, much of these services have EV fleets, both electric and new electric vehicles. EV cars are heavily supported and promoted by the national government and thus policies related to EV shared cars are developed at the national level by the Ministry of Transportation (MoT) of China, which sets the goals for how many EV every province should have by the end of 2025 (Int#Sh5). Individual cities then design own policies to implement the national strategies. Shanghai, for instance, discourages fossil fuels cars by restricting the new car registration process. The price for a new permit can be as high as $14,000, while the New Energy Vehicles (including EVs) are exempt from these regulations (van den Steen, 2018).

Which policies national or local are more effective to suppress ICEs and promote EVs remains to be seen, but so far, the gains in China are impressive. About 20% of the global EV sales goes to six Chinese cities where EV sales grow 2-4 times faster than the national average (up to eight times in Beijing, six times in Shanghai and five times in Tianjin) (van den Steen, 2018).When it comes to *bike sharing*, Ministry of Transportation produced a national framework regulating dock-less bike sharing in August 2017 following the increased complaints from citizens about cluttering cities with dock-less bikes, obstructing pedestrian and bike lanes and pilling up in public spaces. The framework included stipulations regulating traffic and bike standards, defining measures for punishing individuals for illegal behaviour and placing demands on local governments to set up designated parking spaces for bikes and ensuring equal distribution of shared bikes in cities (EBMA, 2019). This was the starting point, after which many cities have passed regulations that aimed to control and guide not only use of shared bikes, but also bike design and production, operation and maintenance.

Bike sharing has also shown the need for another type of legislation, the one that deals with *handling of personal data*. Since many sharing businesses in China, and elsewhere, are backed up by large investments, and investors are interested not only in getting return on their money but also in gaining access to users' consumption data, there is a need for strong customer protection laws. Starting from bike sharing sector, national legislators and policy makers have also developed *consumer protection laws* in the past 3 years, some of them are listed in the table above.

For the *physical goods sharing* there is no specifically developed regulatory framework; these businesses are subject to rules applied for off-line trading (Int#Sh7).

2.2 Geography and demographics

2.2.1 TOPOGRAPHY AND URBAN SPRAWL

Shanghai is China's biggest city by urban population, with over 24 million inhabitants in the city and over 34 million in the metropolitan area is divided into 16 districts (see Figure 1) (Shanghai Highlights, 2020). Shanghai with its area of 6,340.5 km^2 is mostly flat, but highly influenced by the geographies of the East China Sea and the Yangtze River Delta. The city is divided into two sides by the Huangpu River - the west side with the that historic centre of, and the east side with modern urban developments. The local climate is sub-tropical, with four distinct seasons, but snow or ice are rare (Shanghai City Guide, 2020).

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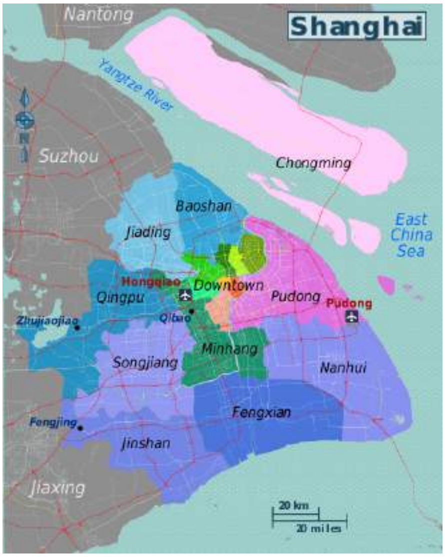

Figure 1 Map of the Greater Shanghai Area.

Source: Peter Fitzgerald, OpenStreetMap: Map of Shanghai's districts. URL: https://commons.wikimedia.org/wiki/File:Shanghai_districts_map.svg

2.2.2 SOCIO-DEMOGRAPHICS

Throughout its history Shanghai has had several economic booms and downfalls, which all had left a mark in the city's development. In the past decades, however, Shanghai has experienced an unprecedented economic growth, which also resulted in a rapid increase in population – from 6 million in the 1950 to over 24 millions today (Information Office of Shanghai Municipality & Shanghai Municipal Statistical Bureau, 2018). Compared to many other Chinese cities, Shanghai has a wealthy population with high life expectancy (Xinhua, 2020), but low birth rate. The aging population and economic growth were important drivers for the rapid influx of new labour resulting in over 40% of being immigrants from other regions of China (Wang, 2020). Rapid economic changes and population increase caused Shanghai to develop unevenly including increasing gaps in social wealth (Chen & Zhu, 2013).

2.2.3 TOURISM IN THE CITY

Over at least two decades, the tourism industry in Shanghai has experienced steady and accelerating growth. The city is today an international tourism attraction with almost 10 million annual visitors. The sector is expected to grow in the foreseeable future, which is also thanks to the outspoken commitment to tourism growth by the Shanghai municipal government (He, 2018; Shanghai.gov, 2020).

2.3 Economy

2.3.1 ECONOMIC VIBRANCY

Historically, Shanghai was a fishing village, but has grown into a megacity, home to China's financial hub and the world's foremost container port. Shanghai generates more than 8% of China's gross industrial output, 10% of its port cargo-throughput, and represents 25% of the country's total value imports and exports (Travel China Guide, 2020). The whole Shanghai region generates 25% of Chinas' gross domestic product (Zaken, 2019).

More than other Chinese cities, Shanghai has a tradition and thus support network for start-up companies. As one of our interviewees pointed out, in China, if you want to start a business, you historically and still today first and foremost come to Shanghai, due to, among others, the availability of venture capital (Int#Sh6). Furthermore, the city has a long tradition being an international trade centre. It is one of the most outwards looking cities and international places to do business in China hosting many innovative and globally-competitive companies (Zaken, 2019).

2.3.2 JOBS

Although over 70% of all jobs used to in agriculture in the 1950s, today 45% of jobs are in the service sector and 30% - in various industries. Only 25% of jobs are still in agriculture (Zaken, 2019). The registered unemployment rate is low, at 3.9% for 2017 (Knoema, 2020). The labour market has been strong and welcoming to new qualified workers, with for example 97% of Shanghai's newly graduated students finding a job (Li, 2017).

2.3.3 INCOME

Shanghai's average monthly income is well-above the Chinese national average. In 2017, it was equivalent to almost 1.500 USD, compared to about 900 USD for the average urban worker in other cities (Zaken, 2019). The annual increase in salaries is also strong, with e.g., an 8% increase for newly graduated workers between 2016 and 2017 (Li, 2017). At the same time,

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Shanghai is also the most expensive Chinese city to live in (TransferWise, 2017), and like in the rest of China inequality is on the rise (BBC, 2020).

2.4 Infrastructure

2.4.1 TECHNOLOGY READINESS

China has gone through a remarkable development to become a global technology leader with cutting-edge hardware and software producers (Woetzel et al., 2017). Shanghai, being its biggest and economically most powerful megacity, is home to some of the country's leading universities and tech companies, hosted in a number of High Tech and Science Parks. This is complemented by Shanghai residents being generally perceived as rather tech savvy and quick to adopt new products and technologies (Zaken, 2019). Even public authorities in Shanghai aim to keep technologically updated. Shanghai residents and companies can access municipal services through a one-stop homepage that merges all government departments' services and streamlines application and approval procedures (Niu et al., 2019).

For the Sharing Economy this means an ecosystem of public support, companies and consumer readiness that is well-receptive to this way of consumption. Consumers are used to using their mobile phones to buy both goods and services, and to pay for them though their phones. Most sharing services are integrated into a few well-established smartphone apps (e.g., WeChat), which are also used for booking and payment (UrbanSharing.org, 2020). One of our interviews (Int#Sh8) also confirmed the accessibility and simplicity of sharing services being integrated into smartphone usage.

2.4.2 MOBILITY INFRASTRUCTURE

The mobility system in Shanghai is composed of both private and public transport including buses, trolley buses, metro, bikes and ferries. During the recent years, the metro system has been developing intensely due to significant governmental efforts to improve services and expand infrastructure and metro network. Especially much work has been done to connect urban and rural areas.

The city government also has clear goals to move towards a zero-emission city, including focus on freight and truck traffic [6]. A significant amount of governmental efforts goes to changing the bus fleet to zero emissions by the end of 2020 using electric busses (ITDP, 2018). In addition, Shanghai is investing into charging infrastructure for electrical vehicles with the objective to install 100.000 charging points between 2020 and 2022. To increase traffic safety and reduce congestion, the city also prioritises investments into systems enabling better communication between vehicles and traffic infrastructures.

China has been traditionally known for its high reliance on bikes as an important mode for local commuting. Just a couple of decades ago, private bicycles were flooding the streets in Shanghai, but in the recent years the bicycles were replaced by private cars, which was also accompanied by gradual elimination of bike lanes. In parallel, a variety of bike sharing schemes emerged in all mega-cities resulting in oversupply of very cheap shared bikes (Int#Sh4).

In Shanghai extensive network of bike lanes has developed, which later partly gave way to cars (Int#Sh4). Lately, however, the municipality of Shanghai started to revert this process installing more bike lanes and increasingly regulating the private bike sharing segment. Today the city has around 600.000 shared bikes in circulation with designated parking spaces for both stationary and free-floating bike schemes. Today, different from just a couple of years ago, the free-floating bikes can no longer be parked anywhere. The prevailing solution is street marking where the bikes can be parked and violations are increasingly enforced by both the local government and the sharing organisations (Int#Sh4). This has resulted in more orderly situation in the use of public spaces and reduced the number of abandoned bikes. In effect, the free-floating bike sharing systems resemble docked bike systems.

Many cities in China, including Shanghai, have introduced measures to curb the exponential growth of private car, increasing congestion and the lack of parking spaces (GIZ, 2020). Another effective measure is capping the number of new vehicle registrations and introducing a system of auctions for the license plates (Boucherat, 2019). This policy, however, does not seem be consistent, since recently the local government in Shanghai has increased the number of license plates for new car registration in order to spur the sales of new vehicles, albeit for public bidding (Qi, 2020).

2.4.3 ACCOMMODATION

The US-based accommodation sharing platform Airbnb is active in Shanghai and has 30,000 listings. Its guests are primarily foreigners. Tujia, a Chinese version of Airbnb, has quickly taken over Airbnb's lead with 400,000 listings. With the rapid economic growth in China, Tujia has achieved its leadership by targeting primarily the domestic market with its services. Other platforms present in Shanghai include Xiaozhu, Zhubaijia, Booking.com and Couchsurfing.

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2.5 Innovation and sustainability

Shanghai has been seen as a benchmark for innovation and entrepreneurship. Being also a financial capital of China explains the vibrant start-up scenery in Shanghai. Many of Chinese brands, such as Tencent, Alibaba, DJI, Xiaomi, Huawei, have started in Shanghai. The government has also been very supportive of private sector development in the city, which fuels R&D spending and research innovation and is reflected in the number of patents filed for intellectual property (Innov8rs, 2019). Clearly Shanghai is becoming a new innovation hub on the global arena (Wenting, 2020). The city of Shanghai aims to develop a framework for a scientific and technological innovation centre by the end of 2020. The city is also a hub for AI development, to which 100 billion yuan were invested already “through specialized funds, demonstration zones and public platforms” (Wei, 2019). In addition, a number of research and development institutes have been founded in past years in Shanghai, including a centre on consumer insights. Shanghai is also known for its gaming industry that ranks #2 in the world. And finally, Shanghai is the city in which 22-24% of its tech start-up founders are female, compared to 17.2% of world average. All these developments attract businesses. The city is home for more than 835 brands, who chose to start their first shops in China (Wei, 2019).

In terms of sustainability, Shanghai ranks eighth in Asia Pacific Sustainable Cities Index and number 76 in 2018 Global Index of city sustainability (Münzner, 2018). The Asia Pacific Index measures and ranks 50 of the world’s leading cities, while the global index ranks first 100 cities according to the environmental (Planet), social (People), and economic (Profit) criteria. In 2019 Shanghai introduced the city's compulsory waste sorting policy. On industrial side, Shanghai focuses on cleaning up and repurposing the many industrial zones situated in Shanghai, as well as the three rivers running through it (Asia Outlook, 2020).

2.6 Socio-cultural conditions

Together with the aforementioned contextual factors, cultural factors also play an essential role in understanding the landscape of the sharing economy in Shanghai. We use Hofstede's cultural theory model to describe Chinese culture along 6 dimensions (Hofstede, 1980; Hofstede Insights, 2019): power distance, individualism/collectivism, uncertainty avoidance, and masculinity/femininity, long/short-term orientation and indulgence/restraint.

Power distance is a measure of how we, as individuals who are embedded in culture, perceive inequalities in society. China (80) scores high on this dimension, meaning that the Chinese have high acceptance of inequalities. They are impressed by authority and influenced by sanctions and, at the same time, believe in an individual's capacity to lead and take the initiative, which is good considering the high entrepreneurial spirit and skills needed for running sharing organisations. This also means that there is a large gap among people from different social classes: high, middle and low class.

Individualism/collectivism is a measure of interdependence among individuals in a society. Having scored 20 on this dimension, China is a highly collectivist culture, where interests of the group are more important than individual interests. This trait resonates well with the ideals of the sharing economy. At the same time, individualism trend is on the rise, driven by the opening up of the society to Western ideals and slowly changing.

Uncertainty avoidance measures how much people feel threatened by unfamiliar situations and have created mechanisms and institutions to cope or avoid these situations. The sharing economy can be seen as such an unknown situation since it is a relatively new phenomenon that emerged very swiftly in various cities and countries, creating both adverse and positive impacts. China scored relatively low (30), demonstrating that in low score societies, people have a rather relaxed and pragmatic approach to uncertainty. At the same time, our interviewees are saying that the Chinese do not trust each other and therefore they need very strong and trustworthy online trust systems and 3rd party payment systems.

> ***"Actually, I would say that trust mechanism in China is not really mature, in particular in the online world, so that is why we developed a very strong online trust system to deal with this difficulty." (Int#Sh7)***

Masculinity/femininity is a measure of what values drive the society: masculine values of competition, achievement and success or feminine values of caring for others and quality of life. China scores high (66) on the masculinity scale. People in China "live to work" and sacrifice leisure and family time for the sake of achievement and progression at work. Success is usually displayed through material means, like cars or latest gadgets. Many of these traits conflict with the ideas of collaboration, social cohesion and community, on which the sharing economy is built. At the same time, these features fit well to the type of the sharing economy that is advocated, supported and financed in China – IT-based large scale B2C business models that provide access to newly produced goods for that specific purpose.

Long/short-term orientation measures the propensity of people to maintain connections to the past while preparing for the future. China scores high on this dimension (87) representing a very pragmatic culture, where traditions and truth are adapted to context, situations and time. Thrift and propensity to save and invest are seen as a way to prepare for an uncertain future. Pragmatism and adapting traditions to changing conditions may also be seen as favourable for the sharing economy, questioning in many ways the established norms, such as ownership and relations with strangers.

Indulgence/restraint measures how well people can control their desires. With its score of 24, China is a restrained society in which people feel that their actions and desires are restrained by social norms and that by themselves - indulgence is wrong.

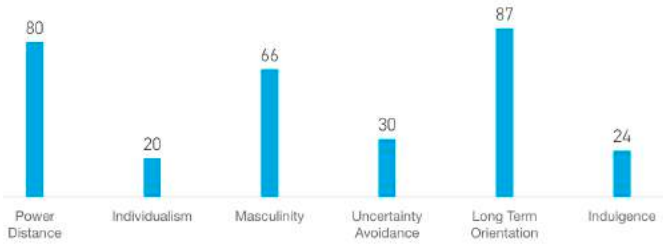

Figure 2 Chinese cultural traits as measured according to Hofstede's Cultural Theory model

Photo: Khunkorn Laowisit, Pexels

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3 URBAN SHARING IN SHANGHAI

The sharing economy is defined differently in China. It is about providing access for people to some goods and services with the help of IT solutions rather than utilising the idling capacity in the society. This has implications for the types of business models that prevail in China. Instead of peer-to-peer business models, Chinese sharing economy business models are business-to-consumer, where companies provide access to products they produce for the purpose of sharing and providing access to them, such as bicycles, cars or mobile chargers, not individuals. Thus, the resource owners are most often not private individuals but professional sellers – companies. More often than not resource owners are not the companies that produce the products, e.g., bikes or cars, but are e-commerce companies, such as Alibaba or Meituan, who invest in the online platforms where goods and services are "shared". There also very few non-profit sharing organisations that adhere to ideas of gift economy, i.e., non-monetary exchanges or giving away. However, the majority of Chinese people associate the sharing economy with Internet trade. One explanation of why B2C models are prevalent in China is the following:

> ***"China is still short on infrastructures and personal ownership of goods. For example, there are a lot less cars than Europeans and Americans have. The car ownership in China is under 200-300 personal cars per 1000 of people. So, in China there are not so many cars to share in C2C. Thus, in China, B2C model is good, maybe B2C model is a leapfrog model. This means that goods do not first go to people and then people share them with other people. We can directly sell services to people. Then still there are many goods in ownership." (Int#Sh11).***

In 2020, the size of the sharing economy in China is expected to exceed 9 trillion RMB in 2020, up from 1,7 trillion RMB billion in 2016. In 2016, it accounted for GDP 4.6% (China News Net, 2017). In 2018, over 760 million Chinese people participated in sharing economy. There were 75 million people employed in the service sector and about 7 million employees served on the platforms (Mingmei, 2019). The report by the National Information Centre's Information Research Department predicted that the country's sharing economy will grow at an annual rate of 40% in the next five years reaching 10% of GDP by 2020, and 20% by 2025 (China News Net, 2017).

> ***""The sharing economy in China began from the bigger cities like Shanghai and Beijing, and then spread to other parts. The reason is the fluctuating population in the cities. In Shanghai, a large percentage of people are not permanent residents, but come from countryside as college students and migrant workers. Younger people are becoming the central part of the sharing economy in China. They … prefer use to the ownership… and they are good with smart phones and IT technology; much better than the ordinary citizens or senior citizens. This is why Shanghai is the first place to have sharing cars and bikes" (Int#Sh11).***

3.1 The landscape of urban sharing in the city

Shanghai is a cradle and home of all types of sharing organisations and initiatives.

In *bike sharing*, free-floating bike sharing seems to be the most widely known and used sharing service in Shanghai with two operators, Mobike, Ofo and Meituan Bike (now restructuring under different mergers and acquisitions), which occupy up to 90-95% of the Shanghai bike sharing market (Yide Ma & Zhang, 2019).

EvCard is China's first electric vehicle rental service launched in Shanghai in 2015. It is owned by Shanghai Motor Company, a state-owned company. Two years later, more than 1,2 million people were members in EvCard and there

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were 6,000 cars in Shanghai in 2017. No recent estimates are available for today, but given the success of the scheme, the numbers are likely to be much higher (EVCARD, 2018).

Ride-hailing is also popular with DiDi being the major online taxi service provider on the Chinese market. There is a significant interest to advance EV use in China and to market China as a world leader for EVs. This is another reason for the government to support EV car sharing. EvCard is the biggest government-owned B2C car sharing platform in Shanghai. Scooter sharing is so far prohibited in Shanghai for safety reasons.

Accommodation sharing seems to be less popular than mobility sharing with two P2P platforms dominating the market: Tujia and Airbnb. Tujia primarily targets the domestic market with its services, while Airbnb targets international visitors to Shanghai. Couchsurfing is also present in Shanghai, but it seems to be less popular among Chinese citizens, arguably due to the general lack of trust to strangers in society. There are also two other companies on the accommodation sharing in Shanghai, one is XiaoZhu, and Aibiying (the Chinese branding of Airbnb). In China overall, Tujia controls almost 50% of the market, followed by XiaoZhu, a company backed by Alibaba. At present (2020) the market share of AirBnB in China is not clear, ranging from 7% (NextUnicorn, 2020) to about 30% (Int#Sh12). AirBnB is facing a tough completion of the already existing players. In addition, there might be some structural and cultural limitations for growth in accommodation sharing market (Int#Sh12), because people in China are not used to self-organising their travel, which Airbnb is premised on. Unlike Airbnb, Tujia offers high-end accommodation that fulfil the expectations of Chinese travellers, such as properties with own kitchen for families or high-end furnishing for business uses.

In the *physical goods sharing*, there are multiple B2C initiatives including sharing of power banks, umbrellas and clothes, the landscape and the business models of which we are exploring. There are also novel models for sharing works of art.

The sharing economy in China, as in many other countries, includes the gig economy, where services are exchanged or bought, like cooking at home or car wash (Int#Sh7). Also, delivery services are a huge sector. One of the sectors in the sharing economy that has not been encountered by the authors before are health care services, including online medical consultation (such as Chunyu Doctor), sharing of medical facilities or doctor sharing (Int # Sh7).

In corona-times, there is a new trend among businesses to share labour (Int#Sh7).

The sharing economy trend also is visible in industrial sectors, where for instance, production facilities and industrial designs are being shared.

3.2 Public perception of urban sharing

China boasts a staggering 94% of population who are willing to accept sharing offers, practices and businesses (compared e.g., to the 43% in the US) (Hyatt, 2019). Nevertheless, public perception of the sharing economy business models is very diverse and fluid and there are large variations among Chinese consumers. Young consumers, who are tech-savvy and mobile are more interested in sharing alternatives. They are less burdened by the institution of ownership and welcome access-based convenient and cool offers. Also, pragmatism, being a cultural trait in China (see section 2.6), contributes to the spread of the sharing economy as people gain access to products and services they need for small use-based fees, while keeping the excess capital for more urgent and daily needs. Some experts explain high acceptance of the sharing economy in China by looking back at its history and the political system. According to Arun Sundararajan "*sharing economy is a mix of capitalists and socialists ideas that appeal to Chinese consumers"* (Sundararajan, 2017).

Bike sharing and accommodation sharing are the most known forms of sharing in China among people:

> ***"When you mention sharing economy in China, no matter whether to academics, businesses or lay people, everybody immediately thinks of bike sharing or accommodation sharing. Other business models are much less talked about." (Int#Sh8)***

However, accommodation sharing is not as accepted as bike sharing because it has to do "has more to do with the private part of life":

> ***"Accommodation is much less accepted than bike sharing because in China… only young people can accept to live in some stranger's home and very few people in middle age or old people would be willing to short-term rent to strangers." (Int#Sh11)***

The sharing economy has also impacted public perception, especially if taking bike sharing in consideration.

> ***"Bike sharing platforms changed the idea of sharing a bike from being something degrading (despite millions of people using a bike), towards being cool, young and totally matching one's social status… Even a lot of very well-paid, highly educated, middle class people don't feel reluctant to use it." (Int#Sh8)***

Convenience was identified as the main reasons for people to join sharing in many studies, as well as in our interviews. A survey of college students that asked about why the students shared bikes got the following answers: 1) bikes were fashionable and convenient; 2) bikes were an environmentally sound and low carbon option of transportation and 3) bike sharing allowed them to save money (Int#Sh11). Another factor mentioned was the fact that sharing services addressed consumer needs, such as power banks sharing offered opportunities for visitors of restaurants and shopping malls to charge their mobile phones.

One of the important mechanisms that enabled the wide spread of the sharing economy in China is the third-party payment system, like AliPay or WeChatPay (Int#Sh7). It gives extra protection to people because payment for services goes to a third party, which gives consumers possibility to rethink their choice. If consumers would like to withdraw that transection, they are free to do so.

Social media plays a significant role in shaping public opinion in China, as in other countries. Years 2017-2018 have seen influx of investments and fierce competition especially in bike sharing sectors, after which many Chinese cities were flooded with dock-less bikes, clogging pathways and public spaces. This created negative sentiments towards bike sharing and the sharing economy as such in China. The adverse impacts of bike sharing were heavily discussed in social media in very negative terms. The government had to step in with strict regulations to control the situation, impose policies for bike maintenance, consumer protection and parking. Governmental policies were also introduced to punish irresponsible behaviour of private users:

> ***"In terms of bike sharing there was much vandalism. People took the shared bicycle and locked it up, took it home or destroyed the lock and used it as a private asset. Or people would not treat bikes in a caring way, which caused a lot of waste, which is to the contrary of being sustainable." (Int#Sh8)***

There was also much negative publicity about the sharing economy which shook people acceptance after two women were raped and killed by Didi drivers. The heated debate across the country resulted in changes in policies and company management practices. Both drivers were sentenced to death within a month from the court decision (Huang, 2019).

Having understood the power of public opinion, many companies are running online discussion or debate places in order to both learn about public perception of their services, as well as to test and probe consumer acceptance of potential market solutions and services. For example, Meituan Bike runs online sessions when they organise debates or collect opinion from the public about features of their service. The public can write their views or vote for opposing views or solutions presented there. Didi car also runs polls, asking the public about features of current or potential services; for example, "do you feel it would be offensive to your privacy if the app had recording system and the camera on once you have entered the shared car?" (Int#Sh8).

In terms of acceptance of sharing own assets, some of the interviewees suggested that Chinese consumers may not own as many possessions per capita as consumers in the West, making it less possible for them to share. Others expressed the following views on prospects for the sharing economy:

"Many people started from [owning] zero.... And, still, the consumption mentality... is staggering in China. We have now also anti-consumption movements, but that's for people who are well off, educated or looking for meaning... I think it will take a while for the access-based economy and, then really going into sharing." (Int#Sh6)

Photo: Zifeng Xia, Pexels

4 SPACE SHARING IN SHANGHAI

This section focuses on space sharing, and specifically on accommodation sharing, which is also known as short-term rentals. It is the most abundant business model among space sharing in Shanghai. While increasing in popularity among young Chinese people and families for offering better services than traditional hotels (Int#Sh13), accommodation sharing seems to be less popular than mobility sharing. Space sharing in Shanghai consists of a number of platforms with similar business models to that of Airbnb.

Two P2P platforms are dominating the market in China, Tujia and Airbnb, but Xiaozhu, Zhubaijia, Booking.com and Couchsurfing are also present. Tujia primarily targets the domestic market with its services, while Airbnb targets international visitors (Int#Sh9). Local embeddedness of sharing economy platforms has proven to be important in Shanghai - compared to Tujia, Airbnb is experiencing a slower market growth. Tujia has over 400,000 listings, while Airbnb, with 30,000 listings, has found it difficult to become fully established on the Chinese market.

Couchsurfing is also present in Shanghai, but awareness of this business model among Chinese citizens is very low. This is arguably due to the general lack of trust to strangers in the society. According to our interviewee, people use Couchsurfing very seldom, and it is mostly known to Chinese people who have lived abroad (Int#Sh8).

3.1. Business models in space sharing

For-profit sharing / rental platforms are predominantly used in Shanghai and in China. We did not come across reciprocal sharing platforms, and the presence of free platforms is negligible. Int #09 posits that all forms of accommodation sharing that do not involve rental of entire apartments are unpopular among the Chinese.

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The interviewee further states that while Airbnb is focusing on brand imagine, Tujia aims to gain as many hosts as possible and provide a better experience for their users. At the moment, Tujia and Airbnb are the strongest competitors on the market. Airbnb serves foreign guests, while Tujia, which has a similar business model, serves Chinese customers (Int#Sh9). At the same time, according to an interviewee, before 2013, 99% of reviews on Airbnb were written in a foreign language and only 1% in Chinese (Int#Sh13). This trend has changed after 2013, and currently, more than 70% of reviews are written in Chinese, which points to an uptake of the platform by Chinese citizens. This uptake could be also explained by an obligation of all foreigners staying in rented properties to register at the police station to prove they have come to travel. Thus, Chinese hosts have come to prefer Chinese guests to avoid getting involved with the Chinese police (Int#Sh9). In addition, Chinese guests can be screened through Credits, which are visible to homeowners. This makes it also easier to rent to Chinese guests. On top of the review system available also in other countries, the credit system offers a safety check for renters (Int#Sh9).

3.2. Drivers and barriers to space sharing

Accommodation sharing is profiting from support from the Central Chinese government, which has allowed it to grow exponentially. At the same time, our interviewees have also identified a number of barriers. This chapter provides a summary of these drivers and barriers to accommodation sharing.

Drivers

A major reason why accommodation sharing is becoming so popular among Chinese citizens is the support of the sharing economy from the central government. It provides opportunities to individuals and grassroots projects to utilise modern technology. It allows them to share not only empty room but also their time and skills.

Furthermore, the Chinese government sees the sharing economy as an opportunity for the Chinese people to find jobs. Thanks to this support, accommodation sharing platforms profit from a favourable development. Official documents clearly state that the development of the “B&B industry” should be supported. It is not common for the government to issue such statements, but this document can be considered as a very important gesture from the central government (Int#Sh13). However, the practicalities of the governmental support remain unclear. We did not find evidence that the government actively governs the sharing economy, other than allowing sharing organisations to operate. As an emerging market economy with previously inexistent private sectors, the boom of sharing economy platforms is unlikely to come as a surprise.

However, the official stance of the Chinese government gives a clear signal to cities that sharing economy business models are to be supported. Contrary to other cities around the world, short-term rentals do not face any regulatory setbacks and are free to develop liberally. It must be noted, however, that Chinese cities do not hold the same jurisdictions as Western cities, and are thus following the will of the national government much more strictly. Int#Sh13 explains that agendas and rules flow from the national government, through provincial to municipal and finally, district-level government. However, in specific deals, local governments are allowed to create their own regulation policies. While entire-city restrictions on short-term rentals are not present in China, they might be forbidden in certain places, for example by rivers or lakes (Int#Sh13). Other places might require a licence in order to operate a short-term rental business. However, Shanghai does not have such requirements.

The lack of restrictions on accommodation sharing in Shanghai has been attributed to the size of the city. With a population of 24 million, there is a large level of anonymity. However, short-term rentals might get shut down by the Police if neighbours complain about noise. This is unique for Shanghai as we did not encounter such authority in our other case cities which in many cases are struggling to regulate short-term rentals. Short-term rentals are not permitted in the strict sense because apartments are intended for residential use, not for business purposes (Int#Sh13). This fact might make it possible for the police to shut down troublesome short-term rentals.

Tujia has become much more successful in China than Airbnb. Its success is attributed to several factors. First, Tujia, originating in China, knows the Chinese market well and knows how to operate domestically. Second, it understands that the Chinese are less comfortable with sharing their homes compared with Western citizens. Therefore, in light of Chinese housing development boom, which saw many Chinese citizens acquiring holiday homes, it has targeted these empty apartments and houses. Third, to make sure Tujia's listings are of good standards, the platform is taking care of the cleaning and maintenance itself (Int#Sh9).

Barriers

While the sharing economy at large is enjoying support from the national government, the state council has issued a document calling for a need to regulate and to put accommodation sharing under control, particularly in connection with customer benefits, safety and hygiene standards. According to Int#Sh13, this kind of regulation would be mainly designed at the local governments' level. In Shanghai, municipal government does not make any regulations against accommodation sharing but the district level governments have issued certain regulation policies against BnB services. However, these policies do not concern short-term rentals as they include only just one flat or several rooms in one apartment building, while the BnB service is more like a small hotel. While there is some proportion of Airbnb listings of the BnB nature, it is not many.

Airbnb is lacking behind Tujia in the number of listings by large. In 2017, they tried to rebrand themselves for the Chinese market and changed their name to "Aibiying," or 爱彼迎, which means "welcome each other with love. However, the new name became a source of mockery from Chinese consumers who pointed out that the name had a double-meaning (Quartz, 2020).

A number of our interviewees mentioned that it is uncommon for a lot of Chinese people to invite strangers into their homes. Their homes are private spaces, often shared with their extended families. This constellation is a major barrier to accommodation sharing in Shanghai. That is why many of the properties offered in Shanghai are second homes / entire apartments. Similarly, guests are mostly interested in renting entire apartments for themselves. According to one interviewee, compared to Western people, the Chinese are less inclined to communicate with strangers and are likely to rent an entire apartment rather than a room in an apartment (Int#Sh12).

According to Int #8, a barrier to institutionalising the sharing economy lies in the platform's inability to pitch their business models. Furthermore, they are not as vocal as mobility sharing platforms, such as bike sharing and DiDi. Therefore, the interviewee got an impression that accommodation sharing platforms and other forms of sharing are drowned in the sea of discussions around bike and car sharing. As a consequence, they are not heard as much when the concept of the sharing economy is being shaped.

Another barrier to accommodation sharing is a low likelihood for business trips being booked through these platforms, especially Tujia, because many hosts do not provide a receipt, which is needed for business travel (Int#Sh13). There is even a risk of booking cancellations for those who do book through accommodation-sharing platforms. One interviewee states lack of trust and a requirement to follow hotel rules – i.e., to check ID registration at check-in, as two major barriers (Int#Sh8).

One interviewee posits that operating short-term rental platforms would become easier if they became registered as online travel agencies, such as Booking.com and Agoda (Int#Sh12). This would allow them to expand their product base beyond privately-owned accommodation.

When our research team was conducting interviews in Shanghai, Covid-19 was impacting people's lives worldwide. The restrictions were most felt in China, where the government shut down businesses. Therefore, the pandemic has negatively impacted the development of accommodation sharing platforms.

In Beijing, all short-term rentals were banned during the pandemic (Int#Sh12). This ban had not reached Shanghai at the time of our interviews, but some accommodation sharing platforms were forced to temporarily change their business model from short-term rentals to medium and long-term rentals. While their average stay before the pandemic was 1-2 days, they were now offering discounts for stays longer than 7, respectively 14 days (Int#Sh12).

3.3. Sustainability impacts of space sharing

When discussing the sustainability impacts of space sharing, we split these into environmental, economic and social dimensions. These are difficult to assess, and it must be noted that this section deals with how sustainability of space sharing is understood by our interviewees, rather than assessing the true impacts of space sharing. Still, we found that the understanding of these impacts among our interviewees is rather limited, which might mean that they are not aware of the connection between space sharing and sustainability, or that it is low on their agendas.

3.3.1 SOCIAL

It has been debated in both academic and grey literature about who benefits the most in the sharing economy. Short-term rentals have been marketed in the Western world as a potential for empty nesters to earn extra money from renting out their children's bedrooms. However, a number of research papers argue that it is the young, middle-class generation comfortable with using mobile phones.

In Shanghai, it also seems that it is mostly young people renting out their apartments and rooms. However, the barrier for older people to capitalise on empty rooms appears to be cultural, rather than technological:

> ***"I think, in China, only young people can accept to live in some stranger's home and very, very few people in middle age or old people would be willing to [rent their house] short term (…) to a lot of strangers who they don't have an idea about who they actually are." (Int#Sh8)***

The interviewee further adds that accommodation sharing is different from bike sharing, which has been accepted by people across the spectrum of different ages because it has less to do with the private part of life.

3.3.2 ECONOMIC

Unlike in many Western cities and countries, people renting out their homes on accommodation sharing platforms in Shanghai do not have to register for paying tax. As a tax paying system is currently not in place, this makes space sharing rather profitable (Int#Sh13). At the same time, the Chinese context does not favour Couchsurfing and other free accommodation-sharing platforms. According to an interviewee, this is because the Chinese way of thinking is currently dominated by a neoliberal state of mind (Int#Sh8).

3.3.3 ENVIRONMENTAL

The environmental impacts of accommodation sharing were mentioned by our interviewees only briefly. According to Int. #9, some hosts install smart metres in the homes they rent out in order to save energy. Airbnb has a sustainability report advising their hosts on how to lower their environmental impact, while Tujia does not.

Overall, the environmental impacts of accommodation sharing is difficult to assess because sharing platforms are reluctant to share their data. Therefore, researchers have to get their data elsewhere, for example, from data scraping websites AirDNA and Inside Airbnb, and from estimates (Int#Sh13).

3.4. Impacts of space sharing on incumbent systems

When discussing the impacts of space sharing on incumbent systems, we predominantly mean the impact on the housing stock and on the hotel industry. According to an interviewee, the proportion of rental apartments is too small to influence the rental market (Int#Sh13). The AirDNA website indicates that there are 32,000 active rentals in Shanghai, which is a very low number when put in the perspective of 24 million inhabitants. This could also be a reason why there is no legislation around short-term rentals. The short-term rentals available in Shanghai are mostly concentrated in The French concession area in Shanghai, where Airbnb listings are most popular.

> ***"That area used to be concession possessed by France some 100 years ago. It preserved European architecture style. The location is really good, it is central. The atmosphere, it has very precious atmosphere. At the beginning, that kind of places with mainly residential communities. When Airbnb started saturating in Shanghai, it was the first high spot. It was very popular by tourists. Airbnb business was driven by the demand." (Int#Sh13)***

This is a similar trend we have seen in other cities where short-term rentals are concentrated in city centres and historical quarters frequented by tourists.

Int#Sh13 further explains that larger sectors, including hotels, might think that short-term rentals are an unfair competition because while the hotel industry pays taxes and has overall stricter regulations, short-term rentals do not. At the same time, short-term rentals are considered a niche with no impact on the hotel sector in Shanghai.

3.5. Regulatory context and institutional systems for space sharing

As mentioned earlier in this section, space sharing remains largely unregulated in Shanghai. Currently, there are only two requirements. Firstly, the platform has to share guests' ID with the government. Secondly, foreign citizens staying at accommodation sharing platforms have to register with their passport at a local police station within 24 hours of arrival.

Short-term rentals in China would have been unimaginable only a decade ago. What has made them possible is the shift to a market economy, and a liberalization of the accommodation market which took place in 1990's. Previously, everything was owned by the state (Int#Sh7).

Institutionalisation of accommodation sharing is taking place at two fronts: on one, it seems that hotels are trying to mimic short-term rentals by offering personalised spaces to live, on the other, short-term rentals wish to be as efficient as hotels, and make registrations and ID verifications for guests easier (Int#Sh8).

To bring home sharing up to good standards, both Airbnb and Tujia have introduced premium listings, which are approved home shares that meet certain standards (Int#Sh9).

Many listings are available through both Airbnb and Tujia, which has made bookings difficult to manage. Thus, a website was developed where hosts who have their properties listed on multiple platforms can administer their bookings. This system points to a high level of institutionalisation of accommodation sharing on an intra-industrial level.

5 MOBILITY SHARING IN SHANGHAI

Traditionally, China has been known as a “biking country”, but its rapid economic growth, the expanding middle-class and multiple governmental efforts to move people from bikes to cars resulted in an exponential demand for private cars (Int#Sh1). Although significant investments were made in public transport infrastructure, urban residents are still dependent on bikes and to an increasing degree – on cars.

Today, most of Chinese mega-cities are clogged by cars and suffer from air pollution. Rapid economic restructuring resulted in massive labour migration from rural to urban areas putting strains on public transportation systems. Although new metro systems have become the main means of mass-transit in mega-cities, the stations are spaced at large distances. Local public transport solutions such as busses are inadequate as last mile travel is often overcrowded and inconvenient. This transportation gap is rapidly being filled by private cars as well as other solutions, such as bike sharing schemes and gradually - car sharing.

In Shanghai, the demand for car sharing is facilitated by the need for personal transportation, lack of parking space and high costs of personal car ownership. Despite the increasing affordability of personal cars, it is increasingly difficult to register new vehicles due to the capped number of vehicle registration plates. Shared bike systems offer greater flexibility and convenience and seem to fill several gaps in public transport and somewhat relieve the difficulties of private vehicle ownership.

The central government and the local authorities generally incentivize shared mobility solutions pointing to their role in addressing urban mobility gaps and ability to provide mobility services to masses at acceptably high levels (Int#Sh5). The governmental incentives are clearly prominent in the area of low emission transport modes, such as electric and other low emission vehicles in both private ownership and sharing schemes. Vehicles complying to a set of certain requirements regarding emissions and fuels are classified as new energy vehicles (NEVs), which are offered a range of policy support.

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The three most prominent characteristics of shared mobility in Shanghai are:

- bike sharing as a complement for public transport, which largely covers the first and last mile commuter travel;
- car sharing dominated by ride hailing, recognized as online taxi services by the government;
- rapid expansion of infrastructures supporting the use of electrical vehicles (EVs).

Bicycles

Bike sharing is present in all major and many medium- and small-size cities in China. In mega-cities the dominant business models are dock-less schemes while in smaller cities it is docked stations (Int#Sh4). Some of the sharing schemes are privately owned, but many are under the status of People Public Private or public-private partnerships (PPP) where public authorities buy sharing services from private companies (Int#Sh4).

In Shanghai, examples of the most widely used bike sharing services are Mobike and Ofo (Summers, 2020). On-going mergers and acquisitions may rapidly change the landscape of bike sharing in the city. Meituan is an example of dock-less bike-sharing scheme which started in 2016 and in one year reached its top in terms of the extent and revenues (Int#Sh4). One of the unique features offered by the company is the ability for the users to personalize their bikes, which got a very good response among younger users. In addition, the company offers high quality bikes designed for recycling. Such integration of circular economy thinking and the high quality of products made Meituan's business model viable and successful (Int#Sh11).

Cars

There are several car sharing options offered in Shanghai. DiDi is the largest provider of on-line/on-demand ride-hailing services similar to taxies (Int # Sh1). Didi's scheme is a platform for people to offer their private cars and driver services, which is very similar to Uber. In addition to the DiDi model, there are also a few other commercial companies offering business-to-consumer services that can be considered as taxies but have services much more integrated with on-demand and on-line possibilities.

For the past decade, the Chinese government demonstrated firm policy commitments to reduce air emissions in cities, especially those from private vehicles. Different measures were introduced including the promotion of the so-called "new energy vehicles" (NEVs), which refer to zero tail-pipe emission vehicles (e.g., electric vehicles (EVs) and hybrid cars; generally, any vehicle which can travel a minimum of 100 km on electricity charge alone (Int#Sh10). Car sharing schemes offering NEVs can have more access to parking and charging infrastructures. Sharing schemes that use EVs are offered as part of the shared mobility which is dominated by the Shanghai Motor Company a state-owned company (Int#Sh1) with approximately 8,000 shared EVs.

5.1 Business models and value orientations

In Shanghai bike sharing and ride-hailing mobility options are very well pronounced and operate with different business attributes. Characteristic to Shanghai and China in general is that several legal mobility options tend to be integrated in large dominant apps which not only handle the transactions, but also facilitate choosing the most convenient set of travel options.

Bike sharing is offered through both dock-less and docked schemes. To our knowledge, the dock-less schemes are owned largely by private organizations that seek to make profit. However, some businesses seem to also emphasise other values (besides the economic). For instance, Mobike demonstrates orientation towards an environmental value by integrating some concepts of circular economy. On the other hand, docked bike schemes are state-owned. However, the latter are not very popular in Shanghai.

In the car sharing domain, the most prominent type is ride hailing. Didi has clearly the largest market share and a clear orientation towards creating economic value. It offers a platform for peer-to-peer car sharing where drivers own and drive their vehicles. Most of companies offering shared EVs are state owned and have a clear environmental orientation. In general, companies that have a focus on environment values are aligned with the goals of the city and supported by the government.

5.2 Drivers and barriers to mobility sharing

Shanghai is the most densely populated city in China. As many megacities, it faces the typical challenges of traffic congestion, pollution and insufficient public transport. All these created prerequisites for the emergence and development of different shared mobility solutions.

In addition, several policies seem to also be instrumental in incentivising shared mobility. One of important policies that proved effective in curbing the

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demand for private cars and facilitating sharing was the governmental cap on yearly car licence plates for newly registered vehicles. Private persons need to buy a licence plate before buying a car. The number of plates is limited and they are auctioned, which increases their price thus deterring some future car owners. For some getting a car may take several years.

The government of Shanghai also supports sharing initiatives that are perceived as environmentally friendly, for example different bike and EV sharing schemes (Int#Sh5). The government regards the free-floating bike sharing schemes as instrumental in first and last mile commuting in an environmentally friendly way without relying on car or public transport (Int#Sh1). While EV sharing schemes have had the support and attention of the government from the very start and developed in a controlled and rational way, bike sharing evolved into over-competitive market segment and resulted in over-supply of bicycles and rather chaotic and disorganized systems before the government stepped in with strict measures to limit the number of shared bikes and a more organised parking (Ma et al. 2019, p. 1154).

An important tool to facilitate shared mobility is the WeChat app, which integrates many different transport options including shared mobility options. Users can now better plan routes, find and book diverse travel options that best suit their needs and available budgets (Int#Sh8). In effect the ap facilitates an intermodal transport system with mixed public transport and shared mobility solutions. This also includes dock-less bike sharing systems, which are very flexible and convenient (Int#Sh1,10).

However, the development of shared mobility presents several challenges. One is the lack of infrastructure, both for EVs and bike sharing solutions (Ma et al. 2019, p. 1154). Lacking infrastructure for parking and charging shared vehicles including EVs, as well delayed regulatory responses to put order in the abundant bike sharing systems has resulted in some chaos in the city including bike companies operating without regulations and different illegal companies offering car rides (Int#Sh6). To some degree this chaos resulted in somewhat negative perception among the citizens. However, recent governmental interventions and a more organised economic competition has pushed most of the unwanted companies out of the market and introduced more order in the overall sharing domain. Other types of shared mobility, such as scooters, are perceived as dangerous and not permitted in the city from the beginning (Int#Sh5).

5.3 Sustainability impacts of mobility sharing

In Shanghai shared mobility options, such as bike and EVs sharing, appear well aligned with the environmental sustainability goals of the city. Although shared mobility has not been developed to target the social and economic sustainability, it has affected them in the city too.

5.3.1 SOCIAL

Shared mobility has generated several benefits of social sustainability. The most apparent ones are better work possibilities for the newcomers in the city and better protection for the under-/unemployed (Int#Sh5). For instance, the government considers the services offered by Didi as online taxi services, and on these grounds the company is obliged to offer employment benefits to its drivers (Int#Sh11). Better social cohesion and empowerment should also be mentioned. For instance, Mobike set up public online debates about their services, giving users a voice (Int#Sh8). Moreover, during the COVID19 lockdown in Wuhan the public transport was closed and Mobike offered free rides for hospital staff. By having a more varied set of mobility options the city could facilitate public transportation with less risks for the spread of the virus (Int#Sh3).

5.3.2 ECONOMIC

Shared mobility options that are deemed aligning with the city's environmental goals received subsidies, which was the for shared EVs and companies offering these solutions. Several of these subsidies were targeting the development of the charging and parking infrastructures thus contributing to more economic activity in the city.

However, other shared mobility companies, such as bike sharing, although seen as green by the government and a solution for the first and last mile, did not get subsides or received much less support (Int#Sh7). To survive, most needed to develop economically viable models to stay in the market. This was challenging for many companies who flooded the market and were competing by under-cutting prices. Most of such companies prioritized economic gains over social and environmental sustainability, but in the end the economic competition weeded out most of the over-supply (Ma et al. 2019, p. 1154).

5.3.3 ENVIRONMENTAL

Car sharing systems offering EVs are well aligned with the city's environmental targets, because they offer low or zero emission vehicles. The entry of Mobike to over 50 cities in China has reduced car journeys by 3%.

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Likewise, bike sharing schemes were effective reducing air pollution and traffic (Int#Sh3). Some companies were pitching a narrative of changed life-styles by reduced consumerism (Int#Sh8). However, some did not have effective and efficient solutions for the end-of-life handling of used bikes. Although bike sharing was effective in curbing the GHG footprint of transport, it often times disregarded the opportunities in more effective use of shared assets and closing material loops beyond scrap metal recovery. Recent governmental interventions and new business initiatives, such as Mobike, reduced the number of scarped bikes and put better quality products on the sharing market int eh city (Int#Sh6).

Car sharing has been also praised for its role in reducing car ownership or delaying a purchase of a car (Int#Sh6). This has positive effects on traffic congestion, parking space and the environmental footprint of personal mobility.

5.4 Impacts of mobility sharing on incumbent systems

Shared mobility schemes did have an impact on the existing mobility businesses in the city. The most controversial impact was of the traditional taxies by car sharing services, such as Didi. One of the contested issues was the cost of operation license that the regular taxi drivers had to procure, while drivers on car sharing platforms did not. This generated a sharp discontent among the taxi drivers, so the sharing companies were started to be more regulated. The new regulations included e.g., banning the shared cars to pick up passengers from the airport, or limiting shared car drivers to pick up only local people living in a specific area of the city (Int#Sh5,7). In effect the regulations restrict where and how the shared cars can be operated.

Another business that has been affected are the docked shared bikes. Users clearly preferred the dock-less systems, because they are more flexible and convenient. These systems were also much more effective in reducing the strain on the public transport system in Shanghai. However, the free-floating bike systems did not result in competing services, but ended up as a supplement to public transport for the first and last mile commutes.

5.5 Regulatory context and institutional systems for mobility sharing

Shared mobility offerings on the market have been regulated at different paces in both China and Shanghai. Since 2016, the Shanghai government began developing rules and regulations pertaining to ride-sharing services. By February 2019, 31 different policies and regulations for ride-hailing were developed and compiled on a government webpage (Fu, 2019). These were directed to both promoting activities that are beneficial to city's sustainability goals and levelling the playing field for the incumbent businesses. For instance, today ride-hailing is considered very much a like the traditional taxi sector with most of rules and regulations applicable to the taxi services.

In addition, the local authorities of Shanghai and Tianjin have imposed regulations on the rapidly growing bike sharing segment in response to the mounting complaints over the accumulation of millions of rentable two-wheelers on the city streets. The regulations came in place after the shared biked had already flooded the city and largely includes rules for bike parking, designated parking places and restrictions on the total amount of bikes per platform including zoning for placement. Broken bikes need to be collected and brought back to a factory for repairs (Int#Sh6,11).

Other policy measures include the development of EV infrastructures for charging (Int#Sh5) and, at initial phases, subsidies for domestic companies manufacturing the EVs. When different internationally-owned companies entered the Chinese EV market, subsides were increasingly re-directed towards supporting the building of EV charging infrastructures (Int # Sh5).

"In many ways bicycle sharing is a public service. They should take into consideration that the whole systems of urban transportation systems. Private cars are just a supplement to public transportation." (Int#Sh11)

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6 SHARING OF PHYSICAL GOODS IN SHANGHAI

The sharing of physical goods represents a small portion of activities in the sharing economy observed in Shanghai, predominantly exemplified via business-to-consumer (B2C) business models compared to more communal forms of sharing. Those examples studied include clothes sharing initiatives, e.g., Dora's Dream, Starluxe, mobile phone charging, e.g., Xiaodian, Jiedian, and umbrella sharing, e.g., Molisan, Mosun.

While physical goods sharing represents an opportunity to reduce environmental impact associated with household consumption, there are several cultural and economic factors that hinder its systemic diffusion in Shanghai and China more broadly. In this section, we will review the business models observed, discuss drivers and barriers, and highlight the regulatory and institutional systems relevant for physical goods sharing.

6.1 Business models in sharing of physical goods

While there appears to be limited examples of business models facilitating physical goods sharing, those that are present seem to be known by those interviewed. These examples include mobile phone charging, umbrella sharing, clothes swapping, and sharing of small household goods.

Mobile phone charging stations, known as power banks, are common throughout Shanghai, including at restaurants, retailers, and other public areas. Several companies exist, which partner with retailers to install branded power banks to provide their patrons access to charge their phones for a fee. The transaction is usually independent of the service or good provided by the retailer; instead, the patron scans a QR code, which facilitates payment for charging of their electronic device (Int#Sh8). Our interviewee indicated that the prices for these power banks have increased over time in order to sustain the business, but acknowledged that people have begun to rely on the charging system provided by power banks. The systems essentially operate as business-to-consumer platforms, with the ownership of the infrastructure maintained by the company providing the charging service.

"They have this kind of machines, where you can borrow these power banks. They set these machines everywhere you go, like in shopping malls and in restaurants. For example, you go to a restaurant and you feel like you are going to run out of battery very soon. So, you borrow one and you sit down, and chat with your friends or family. And after the meal is almost done, you're returning it back" (Int#Sh8).

In 2017, several businesses facilitating umbrella sharing began in Shanghai and other Chinese cities. Caught off guard by a sudden downpour, the business placed umbrellas throughout a city at docking stations, similar to station-based bike sharing docks, to be borrowed and returned. The service received a lot of national and international attention. However, it was largely seen as a failure (Maizland, 2017). For example, the company Sharing E Umbrella distributed over 300,000 umbrellas across 11 cities, including Shanghai. Over the course of just a few weeks, nearly all of the umbrellas had gone missing, resulting in a loss of approx. $2.7 million USD or ¥19 million RBM. There is evidence that umbrella sharing is less popular and less used nowadays, if it even still exists (Int#Sh8).

Clothes swapping seems to take place, although our interviewees did indicate that this practice may not necessarily take place via a platform, but instead happen informally within families or communities. More common practices include donation and buying second hand clothes, which may take place at offline locations, for example, operated by Oxfam, where the focus is on donations of clothes to those in need (Int#Sh8). Otherwise, there appears to be stigma attached with swapping or buying second hand, in general. The culture is influenced by consumerism and growth; there is said to be a social expectation to buy new things to signal affluence (the sign of the masculine society, see section 2.6) and avoid the label of stingy. The widespread practice of clothes swapping seems unlikely at present given the current cultural context, with one interviewee stating "... I think there was a time when it was very popular. Whether it's still popular now, I'm not very sure" (Int#Sh8).

> ***"Consumerism is still on the rise. And second-hand clothes in Chinese culture still has some kind of social stigma attached to it. It's like, 'why can't you treat yourelf better and indulge yourself? Why are you still saving so much money?'" (Int#Sh8).***

At the same time, new trends are emerging driven by increasing price of luxury good in China and growing pressure to "keep the face" on the work market - clothing rental services. They have emerged especially in tier-one and tier-two cities in China over the last few years and became popular not only among consumers, but also among investors, such as Alibaba Group, China Growth Capital, and Softbank China Capital.

There were other examples of businesses providing access to goods such as sports equipment and children's toys. For example, Zhulegeqiu translates to rent a ball, and provides access to basketballs stored at custom lockers placed across the country at public basketball courts. The company charges approx. $0.10 USD per hour, with a deposit required by some users on the basis of the national social credit system, called Sesame Credit (Qin, 2017). In a 2017 story by the New York Times (Qin, 2017), the then-CEO states, "[I]n the long run, it may be more cost-effective to buy rather than rent a ball, but we think Chinese users are willing to pay a little more for convenience."

None of these business models facilitate access to underutilised goods, leveraging idling capacity. These business models operate at business-to-consumer platforms, where the goods are purchased with the purpose of facilitating access. The one exception was provided by one of our interviewees, who described a platform for sharing of Legos and Legos sets, as they are more expensive compared to other children's toys (Int#Sh8). Based on their description, this platform would operate as peer-to-peer; however, we were not able to find any such platform through our investigation.

6.2 Drivers and barriers in relation to sharing of

physical goods

The many factors that drive sharing and short-term rental in China are of course sector specific, but looking at the cloth renting we can see the following reasons (Mitchell, 2019):

DRIVERS

Demands on everyday wear

Cloth renting has starting with renting outfits for special occasions, but the trend now spreads to renting also everyday wear since fashion sensitive consumers continuously update their look and add variety to their wardrobes.

Affordability

The masculinity feature of the Chinese culture drives the competitive spirit and display of social status through material possessions, such as watches, cars and luxury clothing. As luxury goods have become very expensive, an alternative to luxury cloth ownership has emerged - clothing rental services. They provide access to luxury goods at affordable prices to users who wish to have, experience or display a luxury lifestyle.

'Keeping face'

The Chinese cultural trait of "keeping face" drives people to get access to luxury goods to reduce possibility of being embarrassed because of wearing the same outfit as someone else.

Access to quality products

It could be hard to shop clothes and some other products in China, where there are significant differences in quality and price. The market is often divided into very expensive luxury products, fakes, or low-quality products. Rental and sharing allows access to good quality products at reasonable prices.

Convenience

Consumer needs for specific products or services and convenience drive the development of sharing offers in many other sectors, such as short-term renting of power banks or umbrella sharing.

Environmental considerations

Together with other drivers, environmental reasons also start to emerge as a driver for consumers not to own, but get access to what they need.

Source of additional income

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Possibility to earn money on one's wardrobe is a driver for some consumers to participate in the sharing economy in capacity of a resource owner. For example, 30% of clothing on some rental sites, such as YCloset and MSParis are owned by private individuals.

BARRIERS

In terms of barriers, the following barriers have been identified in this study.

Fund-raising

Raising funds for the start-up companies that offer sharing or short-term renting services is always an issue.

Hygiene for certain product groups

For certain product groups that provide access to products that are close to one's skin raises issues of hygiene and cleaning (Shijia, 2018). With the Covid-19 pandemic these issues emerge in other sectors, that have not faced similar issues before, including ride-hailing and accommodation sharing. To help some wary consumers test clothes renting one of the largest clothes renting platforms MsParis launched a new offer enabling rental of new clothes. After their first use, these outfits become a standard offering to other consumers (Forslund, 2019). The hope is that this trial would reduce hesitation of this group of consumers about the hygiene and condition of rented clothes and would entice them into participating in clothes renting and sharing.

Sufficient inventory

Keeping sufficient inventory in stock for many services that share or rent physical goods is a crucial but challenging part of the business (Shijia, 2018).

6.3 Sustainability impacts of sharing physical goods

There were limited instances of our interviewees discussing the perceived sustainability potential of physical goods sharing.

6.3.1 SOCIAL

Social sustainability impacts are not widely discussed, since the definition of the sharing economy in China focuses on any online and IT-mediated mostly B2C business models where economic sustainability is much more prominent. As a consequence, we have not encountered mentioning of communal spirit or local cohesion being spurred by the sharing economy businesses.

6.3.2 ECONOMIC

Economic sustainability of sharing economy organisations in China mostly relates to how fast the companies are growing or how well they are sustaining themselves on the market. Many of the SEOs, especially in sectors such as mobility and accommodation sharing, are backed up by heavy investments. The history of market development in bike sharing demonstrates that these companies are seldom self-sustaining, which would qualify as economic sustainability in our definition. In reality, however, once the investments are used up or withdrawn companies cease to exist.

Economic sustainability has been interpreted in diverse ways by our interviewees. From the one that is close to our own interpretation, meaning self-sustaining, to the one that is been expressed as being linked to people's lifestyles. In one instance, an interviewee indicated that business models for sharing of power banks are:

> ***"... even considered sustainable in a business sense because they connect with the lifestyle, with the context of how we consume..." (Int#Sh8).***

6.3.3 ENVIRONMENTAL

Potential impacts of clothes sharing or renting is reduction in the amount of clothing that is being produced and especially the reduction of fully functional clothes that end up in waste streams and are being either landfilled or incinerated.

The high environmental potential of clothes renting is not be realised automatically. Environmental impacts depend on whether clothes renting replaces clothes ownership or comes in addition to traditional ways of purchasing and using clothes. Thus, consumer behaviour plays important role in determining the environmental impact. Also, the way how consumers pick clothes – the means of transportation – is critical.

They way business model is set up can also affect the environmental outcomes. For example, 30% of profits in YCloset comes from selling items after they have been rented (Forslund, 2019). This means that this large part of clothing is not shared but following a rental period bought and owned. The clothes rental in effect becomes a way for consumers to try outfits on, something that they cannot do with many online clothes selling sites, and then buy and potentially underuse them as in any traditional business model.

Another example of how business models may affect the environmental impacts is the rotation period of clothes. For example, in clothes renting platform StarLux the rotation period is only 16 months (Forslund, 2019), which puts the utilisation rate of each clothing item under question, compared to if consumers own garments.

6.4 Impacts of sharing physical goods on incumbent systems

The online renting of luxury clothes and other items negatively impacts the growth of luxury industry in China (Mitchell, 2019). In response some clothing retail companies start testing renting their own brands. For example, H&M teams up with YCloset in China in order to explore consumer demand, the rental business model and its sustainability aspects (Ringstrom, 2019).

6.5 Regulatory context and institutional systems for sharing of physical goods

So far, there appears to be very limited regulation around the sharing of physical goods in Shanghai due to the very limited scale and niche market of sharing goods.

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7 THE ROLE OF MUNICIPALITY IN GOVERNING SHARING ORGANISATIONS

As discussed in the previous chapters, the sharing economy in a Chinese context has a broader meaning to that of Western societies. In China, most of the services offered through third-party apps are considered a part of the sharing economy. Digitalisation of access to services and functioning of the society as a whole is seen as a way for progressive development, and it appears to be broadly supported by the national government. In addition, promoting economic growth and business development is high on strategic agendas among Chinese policymakers at different levels, which is one of the reasons for a more welcoming climate for B2C sharing models.

According to our interviewees, municipal governments in China differ in relation to their acceptance of innovative ideas, and Shanghai is perceived as one of the most welcoming cities in this respect (Int#Sh5). Shanghai has a Master Plan for urban development in 2017-2035 “Striving for the Excellent Global City” (SMPG, 2017), which aims to turn Shanghai into innovative and sustainable city and which among other priorities highlights the importance of a low carbon development (Yuge Ma et al., 2018). Shanghai is recognised as “one of the pioneer cities” in advancing “sustainability and innovation over traditional economic and employment growth” (Yuge Ma et al., 2018).

Bike and car sharing particularly that of electric vehicles (EVs), are seen as more environmentally sustainable mobility solutions. Bike sharing is also viewed as a way to deliver so-called “first and last mile” service for people to access public transportation conveniently and efficiently. There is a significant interest to advance EV use in China and to market China as a world leader for EVs. This is another reason for the government to support EV car sharing.

Shanghai municipality collaborates with experts from academia and knowledge institutes to inform their decision-making on the questions of sustainable transportation and shared mobility in particular. For example, Prof.

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Chen Xiaohong from College for Transportation Engineering at Tongji University has also acted as Shanghai Urban Planning Commission advisor (Yuge Ma et al., 2018) and as a key advisory expert of Shanghai Master Plan for urban development until 2035.

In our research, we have developed a framework for how municipalities govern the sharing economy (Voytenko Palgan et al., 2020). We distinguish between five key governance mechanisms, which include 11 governance roles. These mechanisms include regulating, self-governing, providing, enabling and collaborating (**Error! Reference source not found.**).

Municipal governments can employ any of the five mechanisms and combine them in different constellations when dealing with various governance issues (Voytenko Palgan et al., 2020). The roles could explicitly or implicitly promote or inhibit the emergence and operation of urban sharing organisations. In the next sections, we present our data on how the City of Shanghai is governing urban sharing using this framework. The summary framework of municipal governance of the sharing economy in Shanghai is presented in Figure 3.

Figure 3 Municipal governance of the sharing economy in Shanghai

7.1 Regulating urban sharing organisations

Municipal governments often regulate the sharing economy through the mechanisms of enforcement and sanction. In the regulating mechanism, municipalities use regulatory tools such as laws, taxes, bans and policies to govern the establishment and operation of sharing economy organisations. In this way, they may constrain the sharing economy, encourage emergence or spreading, or support certain types of sharing organisations.

In a multi-governance perspective in China, the national government generally dictates the tone for local policies and regulations. While with the arrival of Mobike to Shanghai in April 2016, both the national and the municipal governments were largely welcoming free-floating bike sharing (FFBS) schemes, the situation turned in 2017-2018. Between January and August 2017, 13 FFBS companies "flooded Shanghai with more than 1.7 million shared bikes" (Yuge Ma et al., 2018, p. 361), which resulted in massive number of bikes being dumped in public spaces, - the problem that Shanghai municipality had to solve:

> ***"I'm sure you've already seen those pictures... it is basically a mess because it's taken too much public spaces and a lot of people were complaining about it. But the thing is that since the central government is such a big fan of it, it is hard for municipal governments to do something out of blue and say they are against it. Later, after 2018 it became much more convenient for them to make these regulations." (Int#Sh8)***

In November 2017, the government launched the Shanghai Free Floating Bike Sharing Development Guidance, which among other things prohibited to increase the supply of free-floating shared bikes in Shanghai (Yuge Ma et al., 2018). There are rules for bike parking, designated parking places and restrictions on the total amount of bikes per platform including zoning for placement (Int#Sh1). Broken bikes need to be collected and brought back to a factory for repairs (Int#Sh6,11). At the same time, the study by Yuge Ma et al. (2018) showed that citizens were interested in a larger shared bike supply,

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which means that the potential of FFBS may not have been realised in an optimal and balanced manner:

> ***"As in Shanghai... the municipal government said "no more new bicycles"... after that, a think-tank and an institution did a survey saying half of the users want more bicycles to be put into the market. And only 3% of the people being interviewed said they've never used a shared bicycle in their life." (Int#Sh8)***

As discussed in sub-section **Error! Reference source not found.**, in 2016 the C ity of Shanghai started developing rules and regulations for ride-hailing services. By February 2019, these amounted 31 different policies and regulations, which were compiled on the government website (Fu, 2019). These were directed to both promoting activities that are beneficial to municipal sustainability goals and levelling the playing field for the incumbent businesses.

Other policy measures in the mobility sharing sector include the development of EV infrastructure for charging (Int#Sh5) and initial subsidies for domestic companies manufacturing EVs. When different internationally-owned companies entered the Chinese EV market, subsides were increasingly re-directed towards the construction of the EV charging infrastructure (Int # Sh5).

When it comes to e-scooters, there is a national regulation that limits the maximum weight and speed (to 30 km/h) of an e-scooter for it to be allowed on Chinese roads (Int#Sh5), which allows for universal guidelines across the cities. The speed limits were put in place because many people going by e-scooters died in traffic accidents, and the police has been largely against this transportation mode (Int#Sh5).

In the accommodation sharing, the platforms generally find the regulatory climate welcoming (Int#Sh9). There are no restrictions on the total number of days that a property can be rented out on the accommodation sharing platform (Int#Sh9,12,13) unlike many cities in Europe and North America. This is also connected to the fact that the number of listings of shared accommodation is comparatively small in relation to the stock of available apartments, and therefore accommodation sharing seems to have a rather negligible impact on the rental market (Int#Sh13).

"The central government is very favourable and supportive towards this new model, including peer-to-peer sharing. Due to this, Airbnb and others may have the most favourable development in China. But it does not mean that we do not have any regulation policies." (Int#Sh13)

In Shanghai, it is district governments that regulate BnB services. At the same time, BnBs represent rather small hotels often located in rural areas, which constitute only a small portion of the accommodation offered on short-term accommodation sharing platforms (Int#Sh13).

"The state council has issued a document, which says we need to regulate, to put this business under control, in particular, customer benefits, safety issues, hygiene issues etc. We can see that this kind of regulation is mainly at the local governments' level." (Int#Sh13)

When it comes to apartment rental in the city, it seems that this is still a grey regulatory area and the decision on whether it is legal or not to rent out one's property is taken on a case-by-case basis:

"There is no very clear law whether it is prohibited or legal. If there are no negative comments from the neighbours, nobody will hear about it. Shanghai is a big city and people are strangers. But, If there is noise and a neighbour will call the police, it will ask to shut it down. It is not permitted in a very strict sense since it is for residential usage, not for business purpose." (Int#Sh13)

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Tourists in China are generally required to register with their personal IDs when they stay at a hotel while for short-term accommodation rental in Shanghai this practice varies (Int#Sh9,12). Airbnb, for example, collects personal data about guests online when the booking in made. With regards to the hosts, there is a set of standards that one has to meet to become a host (Int#Sh8). For example, to become a host on Tujia one must upload their personal ID and a certificate confirming that the rented property exists, which is to ensure that the police can trace the property, if needed (Int#Sh9).

So far, there appears to be very limited regulation around the sharing of physical goods in Shanghai due to the very limited scale and niche market of sharing goods.

7.2 Providing for urban sharing organisations

Municipalities also govern urban sharing organisations through the provision or withdrawal of practical, material and infrastructural means. The mechanism of provision includes at least four roles: city as an owner, city as a host, city as an investor, and city as a data provider.

'City as an owner' implies that a municipality owns or co-owns a sharing economy initiative. About a decade ago there was a municipal bike sharing scheme in Shanghai, which had bicycles in a dock, however, it has not succeeded as much as FFBS companies because of its lack of flexibility (i.e., the users had to return bikes to the docks located in certain points within the same district) (Int#Sh1,8,11).

> ***"Every district government has its own bike sharing system. You cannot ride to one district and then return them. So, you have to drive it back to another district and you can return your bike. You have to come back. So, it is very inconvenient. This system cannot work." (Int#Sh1)***

Currently there are examples of municipalities in China imitating bike sharing companies and offering their own schemes to share bikes, including initiatives both with dock stations and without:

They [municipalities] want to provide a similar service. Otherwise, they have no way to compete with [free floating bike sharing companies] … The public bicycle company now also operates the dockless bicycle." (Int#Sh5)

The City of Shanghai introduced a docked public bicycle shared system in 2009. By 2017 there were 80 000 bikes shared in the city's five districts making among top five in the world in terms of bike numbers (Spinney & Lin, 2018b). However, the ridership of these bikes is reported as "relatively low" (Spinney & Lin, 2018a, p. 73).

Another example of "city as an owner" role is EvCard, which is a municipally owned car sharing platform for electric vehicles (EVs). It is also the first EV car sharing platform in China: "In the case of EvCard, the government was behind the initial business idea of using the B2C sharing model to promote EVs. Without the strong and continuous government support in terms of granting car licenses, subsidizing EV purchase and allocating parking resources, the capital-intensive EV sharing BMs could not have taken off so vastly and smoothly in China" (Yuge Ma et al., 2019, p. 1152).

In their roles as *investors*, municipalities provide funding to urban sharing organisations. We have not discovered any direct investments by the City of Shanghai in FFBS platforms. The latter have been "very generously funded by the venture capitalists" and they do not lack funding" (Int#Sh8). At the same time, the national government offers subsidies to companies that have EV car fleet:

"A lot of state-owned companies operate shared cars. They always use EV cars. Because... if we are friendly to the environment, to the climate, the government likes to pay. So, if you have a fleet of EV cars, it's easier to get a subsidy from the government to spend on the company.... compared with a private company. They can have subsidy from the government, if they use EV cars." (Int#Sh5)

In addition, the national government has a plan on the commitments for EV vehicles in the provinces, which also dictates the support EV vehicles receive from other tiers of government (Int#Sh5).

At the same time, while the municipality has not provided direct funding to Mobike and FFBS, it supported their development by providing human resources. As such Shanghai police has investigated the cases of shared bicycle thefts or damages, and penalised the misbehaviour. This also helped the institutionalisation of FFBS in Shanghai since "[w]ith the police enforcement, the general public started to realise that FFBSs are protected by institutional rules" (Yuge Ma et al., 2018, p. 360).

City governments often act as *hosts* by providing infrastructure or space to the sharing economy initiatives. Providing road and parking resources to FFBS and Mobike in particular is a clear example of this municipal role in the case of Shanghai: "As a result of close interactions with the government and the shared vision for sustainable transport, the government and Mobike successfully conducted joint actions in terms of allocating biking lanes and bike parking spaces for FFBSs in cities - the dedication of public resources to enable FFBSs." (Yuge Ma et al., 2018, p. 360)

The 'city as a data provider' role relates to municipalities sharing their data with the citizens by, for example, creating and operating open data platforms. This role has not been identified in Shanghai case study.

7.3 Enabling urban sharing organisations

Municipalities may govern urban sharing organisations by enabling or disabling them. Unlike the mechanism of providing, enabling relies on intangible methods, such as persuasion, argument and incentives. This mechanism includes at least two roles: 'city as a match-maker' and 'city as a communicator'.

The 'city as a match-maker' role is evident when municipalities facilitate collaboration of the urban sharing organisations with other similar organisations, potential users, knowledge institutes or venture capitalists.

In their roles as communicators, municipalities may disseminate the best urban sharing practices and market them to different stakeholders. They may also organise competitions and offer voluntary certification schemes to recognise the best sharing practices. The sharing economy as a whole has been endorsed by the national government and the prime-minister:

> *"The government, especially the central government, made it very favourable and supportive towards this new model. Our prime-minister made statement at least twice to support the development of the sharing economy, including this P2P sharing business." (Int#Sh13)*

In addition, there exist several official documents that clearly state "support the development of BnB industry", and which is generally "considered as a very important gesture from the central government" (Int#Sh13).

At the municipal level, at the start of its development Mobike was supported in the communication both by Shanghai district governments, which "showed strong reciprocal support by endorsing Mobike as an official partner for the low-carbon city development" (Ma et al. 2018, p. 360) as well as by Shanghai Urban Planning Commission advisor:

> *"The FFBS enables the city's transformation to sustainability and breaks the locked-in transport structure in Shanghai, which combines the feature of tech and sharing. The main goal of Shanghai 2035 is to achieve more than 85% green transport in all travelling. In this way, FFBS gives the faith and direction of the Shanghai planners and officers" (Yuge Ma et al., 2018, p. 360)*

7.4 Self-governing urban sharing

Municipalities may engage with the sharing economy through the 'self-governing mechanism'. At least two roles exemplify this mechanism: the city as a consumer and the city as a sharer.

The 'city as a consumer' is the role where municipalities adopt urban sharing practices in their own operations, for example, through municipal public procurement. In Shanghai, electric car sharing platform EVCARD also serves internal transportation purpose for municipal employees: "[t]he first mass

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adoption of the innovative EV-sharing system is the Shanghai government's civil servant system, which replaced its previous official chauffeured car system with the EVCARD service" (Yuge Ma et al., 2019, p. 1155).

The 'city as a sharer' is the role when municipal units offer assets they own for shared use by others. Often these are experimental initiatives.

7.5 Collaborating with urban sharing organisations

Municipalities may also engage with the sharing economy initiatives through collaborative mechanisms, when both parties play active roles in the governance process.

The 'city as a negotiator' role refers to situations when a municipality and urban sharing organisations negotiate various aspects in their relationship (e.g., the development of a new policy or data sharing opportunities).

The 'city as a partner' role is often present when a municipality seeks to address its urban sustainability challenges through its engagement with the sharing community. Several examples of partnership can be drawn from municipal collaborations with Mobike. In particular, Mobike has been advising Chinese municipalities on urban planning issues:

> ***"And one thing was how they [Mobike] have been actively working with municipal governments and pointing out the things that could have been improved in terms of city planning and city management. And they say that they have been making changes little by little." (Int#Sh8).***

In 2016, two months after its launch, at a press-conference Mobike announced "a partnership with Yangpu District government to promote FFBSs as an important component of the area's low-carbon transport system" (Yuge Ma et al., 2018, p. 360).

One interviewee also pointed to the fact that FFBS companies collaborate with the government to prevent other actors from entering the market (Int#Sh5).

Another interviewee argued that public private partnership around bike sharing could be a good solution to integrate bike sharing with other transportation modes, e.g., public transportation and walking, in the city:

> ***"If these actors establish a partnership, bike sharing will be a very good support for urban public transportation in terms of sustainability" (Int#Sh11).***

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8 CONCLUDING REMARKS

Shanghai is regarded as the hub of innovation in China, and the destination for start-ups seeking investment to expand within China. Similar to the rest of China, Shanghai has welcomed the sharing economy as a new innovative tech-led phenomenon to drive economic growth and development, even so far as being heralded as “China’s economic development of the future”.

However, in China – and Shanghai – the sharing economy is seen as any internet platform that facilitates access to goods and services, disregarding other often-discussed features of the sharing economy, such as idling capacity and two-sided markets. As such, business-to-consumer businesses dominate the landscape compared to peer-to-peer platforms.

Shanghai Metropolitan Area is home to more than 34 million residents, with more than 10 million annual tourists (prior to the Covid-19 pandemic). A large urban centre with a thriving business and innovation sector – combined with a populace accustomed to using their mobile phones to search, buy, access, and pay for goods and services – residents are receptive to the sharing economy.

In fact, in China, approximately 94% of the population are willing to participate in the sharing economy (compared with only 43% in the US). Building on favourable economic, technological, political, and social conditions, the sharing economy is expected to grow in China. A 2017 report by the National Information Centre’s Information Research Department predicted that the country’s sharing economy will grow at an annual rate of 40% in the next five years, reaching 10% of GDP by 2020, and 20% by 2025 (China News Net, 2017). It is expected that the sharing economy will greatly contribute to economic growth and employment in Shanghai and the rest of China.

However, because the advancement in the sharing economy is driven by technology, we see big tech firms investing heavily in the sector, such as Alibaba & Meituan, or integrated into WeChat. Additionally, we see extreme competition in the sector, especially regarding bike sharing. More than 60 bike sharing platforms have gone bankrupt in China since 2016, which has left millions of bikes abandoned on the city streets of Shanghai (Bloomberg, 2020). Today, the city has around 600.000 shared bikes in circulation with designated parking spaces for both stationary and free-floating bike schemes.

Apart from bike sharing, other shared practices permeate in Shanghai, including car sharing, ride-hailing, accommodation sharing, and – to a lesser extent – physical goods sharing. For example, EvCard is China’s first electrical vehicle car sharing service, which launched in 2015, owned by the state. In 2017, EvCard had 1.2 million members and more than 6,000 cars in Shanghai. Didi is the leading ride-hailing service in Shanghai, operating similarly to Uber. Airbnb is present in Shanghai, seemingly popular with international travellers, but the Chinese equivalent Tujia is more popular among locals. Physical goods sharing takes place, but marginal compared to other sectors, including B2C businesses for mobile phone charging, umbrellas, basketballs, and clothes.

Often included in the sharing economy in Shanghai is the gig economy, where technology platforms mediate access to services. For example, platforms that provide services such as car washes, delivery, healthcare, and home cooking. Again, this is likely because of the focus on technology in developing and promoting the sharing economy.

Some interesting observations emerged from our investigation:

- The Central Government of China and the Provincial Government of Shanghai are favourable towards the sharing economy, likely because of the utilisation of technology and the promise of economic growth.
- Policies tend to be developed per sector, including ride-hailing, food sharing, bike sharing, physical goods sharing, financial lending, and webcasting.
- Cities like Shanghai, not the Central Government, have the mandate to respond to some of the challenges presented by sharing services, such as abandoned bikes, theft, vandalism, etc.
- There is *intense* competition, especially in the bike sharing and accommodation sectors. Dominant actors include Mobike and Ofo as well as Airbnb, Tujia, and XiaoZhu, respectively.
- Convenience and the utilisation of technology were among the main reasons for citizens to participate in the Chinese sharing economy. In addition, the support from the Central Government is also noted as a driving force for participation in the sharing economy.
- There are few examples of not-for-profit platforms or platforms with other forms of value orientation, e.g., social, environmental, societal / public. This speaks to the top-down business and government practices in Shanghai, as well as other cultural tendencies.

This City Report summarises a six months-long study of the sharing economy in Shanghai, as part of the Urban Sharing project. This project investigates the sharing economy in cities, with the aim to provide insights for municipal governments and practitioners to help improve the design and governance of sharing economy initiatives.

The content of this report is based on a comprehensive literature review and over twenty interviews and interactions with different stakeholders, representing sharing organisations, knowledge institutes and academia. The research took place between January and June 2020 virtually due to our inability to travel to Shanghai because of the Covid-19 pandemic.

The City Report represents a snapshot in time, with experience and statistics largely describing a time prior to the Covid-19 pandemic. The long-term impacts on the sharing economy are not yet known, including in Shanghai. However, as our investigation spanned the beginning of the global pandemic, some interesting reflections have emerged regarding how the Covid-19 pandemic may impact the sharing economy in Shanghai.

- *New consumption trends have already emerged* – The fledging bike sharing sector saw increase in usage, as people preferred to bike instead of taking public transit to reduce the risk of infection.

- *Flexible employment practices* – With many companies left idling during lockdown and decreased global demand, companies have shared their employees with the growing internet-based enterprises, keeping people in the workforce and idling companies with some small revenue to stay afloat.

- *Agile business models* – With short-term accommodation sharing limited due to restrictions and reduced demand, platforms and their users quickly adapted to facilitate long-term rental of apartments for tenancy.

- *Philanthropy and reputation-management* – Whether for the greater good or for marketing, platforms provided several promotions to healthcare workers and those otherwise affected by the pandemic, such as free rides, access to services, etc. Such actions give back to the community and help to reduce the burden of the pandemic on citizens and society.

While the future of the sharing economy is yet unknown, Shanghai promises to be a city leading the redevelopment and expansion of the sharing economy in China and around the world. With an innovative spirit, access to capital, receptive citizens, and a supportive Central and Provincial government, we expect the sharing economy to survive and advance in the years to come.

Photo: Charlotte May, Pexels

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