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前言

2013 年我第一次去中国，当 2017 年 4 月我再次去到中国的时候，我感到它发生了翻天覆地的变化。我第一次去中国的时候，让我感到震撼的是中国人使用手机的频率竟然如此之高。

当 2017 年我再次去到中国的时候，我感到中国人使用手机的频率越来越高了。这期间我在上海的一个展览会工作了两个星期，我没有办法买到一瓶水喝，因为所有的售卖机器不接受现金，只接受网上支付，而我又没有这些支付应用，例如支付宝和微信红包。

我写这篇论文的主要原因是如今智能手机在中国的普及率越来越高，以及中国人在日常生活中都非常依赖于网络。

这篇论文分析了网络在中国逐渐普及，然后在几年间彻底改变中国人生活方式的过程，在几年间这些新的元素成为了中国经济发展的重要因素，例如：电子商务和 020（线上线下服务）商业模式。

这篇论文的第一章节主要分析了网络在中国的发展进程，自 1987 年从北京市电脑应用研究机构给德国卡尔斯鲁厄大学发送的第一封邮件起，到 1994 年，中国已经正式普及了网络。这个部分也阐述了网络在中国惊人的发展速度，自中国正式加入网络共同体，最开始用户只有 62 万人，3 年后这个数目惊人地增长到了 1660 万人。最新的数据显示，截至 2017 年年底，中国的网络用户人数达到了 7.2 亿。

这个部分也对中国的网络用户群体进行了分析。主要发现是最开始主要是一些年轻人使用网络，他们是科技人员或者是学术界的人士，现如今网络用户的年龄段没有了太大的区别，年纪大的人和年轻人一样，同样使用网络。网络的传播速度也受地域的影响，最开始网络先在大城市普及，比如北京和上海，那里人们的平均收入要比农村高很多。城市里网络的普及率是农村的十倍。现如今，感谢政府的扶持以及网络基础设施在农村的建设，在农村也可以轻松上网，费用比以前减少很多。

第一章节的最后一个部分阐述了电子科技在中国的迅速传播，特别是智能手机和互联网。在几年间，中国迅速完成了互联网的基础建设，大大提高了网络的速度，在 2020 年预计在中国普及 5G 网络。而且，中国拥有世界上很多大型手机的生产商。所有的这些原因导致了智能手机在中国的普及以及互联网用户的人数呈现跨越式的增长。

第二章节主要描述了受互联网影响，给中国经济社会带来巨大变化的一个因素，即电子商务。一开始电子商务的实践受 EDI（电子数据交换）的影响，也就是说一份文件需要从一台电脑传到另一台电脑上，然后，随着电子商务的广泛传播，技术产生了很大的改变，例如有了亚马逊和易趣这样的应用平台。

使用手机网络用户的人数增长，促进了电子商务的发展。在 2010 年，通过手机应用，亚马逊的成交额达到了 10 亿美元。2018 年仅在美国，亚马逊的手机用户人数就达到了 1.3 亿。

第二章节的第二个部分主要描述了电子商务在中国的发展进程。一开始，电子商务的传播速度非常慢。主要原因是中国人不相信它的安全

性，所以不敢在网上支付。另外一个原因是电子商务没有从"人"的角度出发，没有聊天系统，这个对于中国人在做生意时是相当重要的。

第三方支付系统的产生让中国人更相信了网上购物的安全性，比如支付宝和微信支付。此外，电子商务网站上的聊天工具出现了，它让中国人更乐意在上面购物，例如阿里旺旺。

中国的电子商务是由阿里巴巴集团操控的，这个集团拥有中国三大主要电子商务类型及其平台，即 B2B（商业到商业），B2C（商业到消费者），C2C（消费者到消费者）。

这篇论文的最后一个章节主要是描述了 O2O（线上线下服务）商业模式。其目的是促进线上资源共享，线下消费体验。这种服务让人们轻松地在网上购物，享受线下的体验。应用这个商业模式的例子有 Uber, Airbnb 以及一些其他的娱乐业，食品业服务。

O2O（线上线下服务）商业模式的优势是它为买家和卖家节约了成本，可以为买家提供更便利地服务和更愉快地消费体验。二维码工具的应用让这项服务更加普及。

最后一个章节的第二部分主要描述了 O2O（线上线下服务）商业模式在中国的普及。这项服务自 2012 年开始在中国传播，并从那时起，交易数量逐年增长。

在中国，O2O（线上线下服务）商业模式成功应用在了娱乐产业，美容美体产业以及餐饮业。餐饮业包括送餐服务，在 2017 年交易额超过了 300 亿美元。主要的应用有饿了么，美团外卖和百度外卖。论文里描述了这三大应用和他们的商业模式。

最后一部分分析了一些案例，这些应用搜集了一些大数据，例如消费者的姓名，住址，电话号码等私人信息，然后把他们非法的卖向了黑市，并进行了黑市交易。

另外一个案例的分析是中国政府尝试建立一个针对中国人的社交信用体系，这项计划 2014 年被提出，预计在 2020 年正式实施。这项社交信用体系主要基于人们的线上线下操作。

FIRST CHAPTER

CHINA'S INFORMATIZATION PROCESS

1.1 China's Connection to the Internet
Crossing the Great Wall to Join the World.

On September 20, 1987 Professor Qian Tianbai inaugurated the internet era in China with these words. They were written in the first e-mail sent from Beijing Municipal Computer Application Research Institute to the University of Karlshruhe. These two institutions were partners in a project known as CANET (Chinese Academic Network).[1] This cooperation was part of a World Bank project launched in 1982 in order to help some Chinese universities to boost their technological development allowing them to reach high standards in fields such as engineering and scientific research.[2] Equipping these universities with advanced computers was part of the project and Siemens took care of this by providing the required instruments.[3]

In December 1988 the campus network of QingHua University of Beijing was connected to the University of British Columbia (UBC) via the X.25 network so that these two institutes could start an e-mail exchange.[4]

In October 1989 the project known as National Computing and Networking Facility of China (NCFC), was officially approved and in November it was officially launched. NCFC was supported by the State Development Planning Commission, the Chinese Academy of Sciences, the National Natural Science Foundation of China and the

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[1] Evolution of Internet in China, http://www.edu.cn/introduction_1378/20060323/t20060323_4285.shtml, 19/02/18

[2] World Bank, *China - University Development Project (English)*. Washington, DC: World Bank, 1981. pp 23-25. http://documents.worldbank.org/curated/en/669881468240345194/China-University-Development-Projec

[3] Werner Zorn, *China's CSNET Connection 1987 – Origin of the China Academic Network CANET,* Hasso-Plattner-Institute at Potsdam University/KIT - Karlsruhe Institute of Technology, 29.06.2012, pg. 1

[4] 中国互联网发展, http://www.isc.org.cn/ihf/info.php?cid=218, 19/02/18

Education Commission. The project's task was to connect three main Chinese research institutes such as Beijing University, Qinghua University and the Chinese Academy of Sciences through a super-computing center located in Beijing.[5]

Two years later in 1990, the registration of the top-level domain *.cn* was completed. However, due to the fact that China's Internet infrastructure level was still under developed, the University of Karlsruhe in Germany offered to temporarily host China's *.cn* top-level domain server.[6]

The following years were very important for two main reason. Firstly because all the academic networks included in the NCFC project were realized[7] and secondly because China started to internationally promote its access to the Internet. To do this, at the International Networking Conference held in Kobe in 1992, Qian Hualin, a researcher from the Chinese Academy of Science, met with a member of the International Internet Department of the United States National Science Foundation (NSF) to formally discuss the inclusion of China in the global Internet. In June 1993 Qian Hualin attended the CCIRN (Coordinating Committee for Intercontinental Research Networking) meeting where the main topic to discuss was China admission to Internet. The aforementioned issue was supported by the majority of the meeting attendants. This was a turning point in China's access to the Internet process.[8]

In April 1994 the Vice President of the China Academy of Science officially asked for NCFC network linkage with American NSF. The American side agreed and on 20th April China's NCFC was connected to the Internet through a 64K international line via an American company called Spirit.[9]

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[5] Garnaut, Ross Ligang Song, "*China: New Engine of World Growth*.", China Update Series, ANU Press, 2012, pg. 277

[6] The Internet Timeline of China 1986~2003, https://cnnic.com.cn/IDR/hlwfzdsj/201306/t20130628_40563.htm, 19/02/18

[7] The Internet Timeline of China 1986~2003, https://cnnic.com.cn/IDR/hlwfzdsj/201306/t20130628_40563.htm, 19/02/18

[8] Yungeng Xie, *New Media and China's Social Development*, Springer, 2017, pg.3

[9] 1994 年～1996 年互联网大事记, http://www.edu.cn/fzlc_7956/20130408/t20130408_927537.shtml, 19/02/18

1.2 The First Structure of China's Internet

Now that China had entered the global Internet, the government had to bring it to the common people. In order to do that, the People's Republic of China chose to design four Internet backbone networks.

The first one was CERNET (China Education and Research Network). This project was invested by the State Development Planning Commission in 1994 and run by the State Education Commission. The aim was to realize an inter-campus computer network in order to share information and resources. [10]

The second one was CSTNet (China Science and Technology Network). After the Chinese Academy of Science officially linked its NCFC network with American NSF in 1994, it continued to expand the newly formed CASNet (Chinese Academy of Science Network). In December 1995 the CASNet included more than one hundred research institutes and scientific and technological units outside the Chinese Academy of Sciences. This network wasn't just a means to connect different universities, also it became a useful tool where different institutions and government departments had the opportunity to create a flow exchange of information. For this reason this network was named China Science and Technology Network (CSTNet). [11] The network is still managed by the Chinese Academy of Science. [12]

The third Chinese Internet backbone network was CHINANet. It was launched in 1994 by the Ministry of Post and Telecommunications (MPT) and China Telecom bore the responsibility of the network's construction and management. [13]This was China's first commercial network[14] and in it 1995 was connected to the Internet. [15] It was a wholesale provider of bandwidth and moreover it gave the public a lot of services such as e-mail, web surfing, file transfer and newsgroup. Its customers were state corporations, private

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[10] Jintong Lin, Yan Wan, a cura di Jintong Lin, Xiongjian Liang, Yan Wan, "*Telecommunications in China: Development and Prospects*", Nova Publishers, 2001, pg. 44

[11] 中国科技网, http://www.cstnet.net.cn/events.htm, 20/02/18

[12] Jintong Lin, Yan Wan, *op. cit*, pg.42

[13] Ling, Rich et al*., China's Emerging New Economy: The Internet and E-Commerce*, World Scientific Publishing Co Pte Ltd, 2014, pg. 32

[14] 四清·刘, 田力, 计算机网络实用教程: 技术基础与实践, Jìsuànjī wǎngluò shíyòng jiàochéng: Jìshù jīchǔ yǔ shíjiàn , 清华大学出版社有限公司, Tsinghua University Press Co. Ltd, 2005, pg. 162

[15] Jintong Lin, Yan Wan, a cura di Jintong Lin, Xiongjian Liang, Yan Wan, "*Telecommunications in China: Development and Prospects*", Nova Publishers, 2001, pg.43

companies and individuals who could afford the expensive fees to benefit from these services.[16] Up to now CHINANet is the country's largest Internet Service Provider hosting 70% of web sites in China.[17]

The last network was China Golden Bridge Network (ChinaGBN). This project was part of the 9th "Five Year Plan". It was designed to be the second commercial network after CHINANet.[18] The network was realized by Jitong Communication Co, LTD and its main goal was to provide data communications and information services to government, enterprises and institutions.[19]

In October 1997 CHINANET, CSTNET, CERNET and CHINAGBN connected together.[20]

All of these networks are still in use and they are under the Chinese government's control that can censure contents that are believed to damage the government policies.

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[16] XiaoRu Wang, *Behind the Great Firewall: The Internet and Democratization in China,* The University of Michigan, 2009, pg. 53

[17] Qiang, Christine Zhen-Wei, *China's Information Revolution: Managing the Economic and Social Transformation*, World Bank Publications, 2007, pg. 54

[18] Jintong Lin, Yan Wan, *op. cit,* pg.45

[19] 王利, 张玉祥, 杨良怀, 编著, "*计算机网络实用教程*, Jìsuànjī wǎngluò shíyòng jiàochéng 清华大学出版社, Tsinghua University Press, 1999, pg. 272

[20] The Internet Timeline of China 1986~2003 https://cnnic.com.cn/IDR/hlwfzdsj/201306/t20130628_40563.htm, 22/02/18

1.3 CNNIC and Internet Penetration's Process

After realizing the connection of the four backbones the Internet's development pace kept growing. The Chinese government continued to invest a lot of resources to expand the bandwidth of the aforementioned networks.[21]

Thanks to these favorable conditions, the number of PCs connected to the Internet continued to increase. For this reason the Chinese government decided to set up an organization that was in charge of monitoring the Internet growth in China. This body was named China Internet Network Information Center and on 30 May 1997 the Chinese Academy of Science was authorized to establish and to manage it. [22] This non-profit organization is still operating and its main functions are the same that they were in the past, such as:

- to provide domain names registration service,
- to distribute Internet protocol addresses,
- to collect data about network consumers and statistics regarding the development of Internet in China[23].

The results of the data's collection are published twice a year in dedicated reports[24].

The first CNNIC's report (Statistical Report on Internet Development in China) was issued in November 1997, and it refers to data collected until 31 October 1997. This document stated that up to that moment there were 299,000 computers that had access to the Internet in China while Internet subscribers were 620,000. Moreover, there were 4,066 domain names registered under .cn. Most of them were .com domains[25] and there were 1,500 WWW websites. [26]

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[21] Yungeng Xie, *op cit*, pg. 7

[22] *Ibidem*, pg. 7

[23] Ling, Rich, et al. *China's Emerging New Economy: The Internet and E-Commerce*, World Scientific Publishing Co Pte Ltd, 2014, pg. 34

[24] Zixue Tai, *The Internet in China: Cyberspace and Civil Society*, Routledge, 2007, pg. 144

[25] 中国互联网络信息中心(CNNIC), 中国互联网络发展状况统计报告, Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào, CNNIC, 1997, pg.3

[26] The Internet Timeline of China 1986~2003 https://cnnic.com.cn/IDR/hlwfzdsj/201306/t20130628_40563.htm, 23/02/18
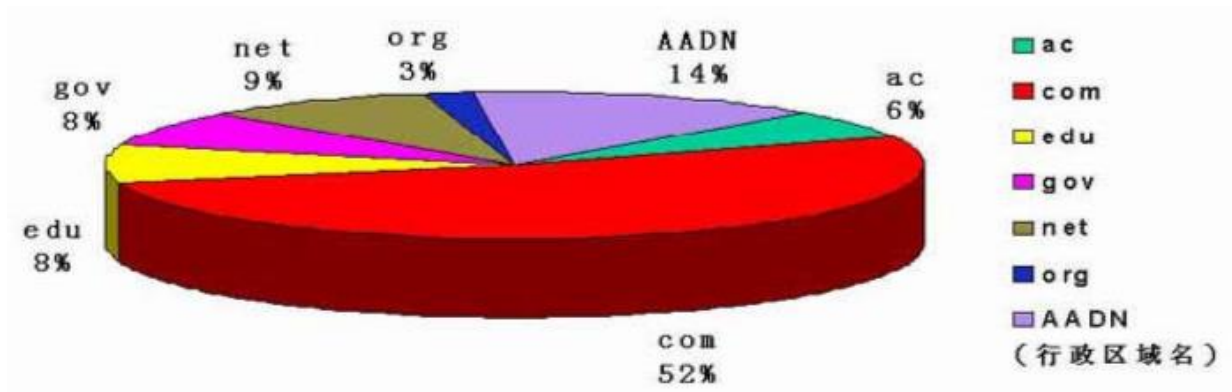
In the following years this data continued to increase. In fact, as stated by the CNNIC report issued in January 1999, the number of computers that had an internet connection was 747,000 and the internet subscribers were more than two million. The domain registered under CN and the number of WWW websites had a large increase too.[27]

Looking at to these numbers we can realize how fast the Internet penetration in China was. In just a year the number of internet subscribers and the amount of computers with an internet access were almost tripled compared to the ones in 1998.

With the beginning of the 2000s the Internet's penetration pace continued to increase very fast. Indeed, 2000 CNNIC's report showed that at that time China had 6.5 million computers connected to Internet and 16.6 million Internet subscribers.[28]

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[27] 中国互联网发展史（大事记）, http://www.isc.org.cn/ihf/info.php?cid=218, 23/0218
[28] Ling, Rich, et al., *op cit*, pg. 41

Figure 2: Internet Users and Internet Penetration Rate (Dec. 2013)

Source: CNNIC December 2013

As shown in the chart above, the Internet users and the Internet penetration continued to increase year by year. [29] The Internet penetration rate by the end of 2013 reached 45.8% of the Chinese population, and the internet users were almost 618,000,000. [30]

Figure 3:Internet Users and Internet Penetration Rate (2007-2017)

Source:CNNIC December 2017

In the following period, until the end of 2017, the collected data put in evidence that the trend was always the same. The growth of the Internet diffusion, even with lower growth

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[29] 中国互联网络信息中心(CNNIC), *第 33 次中国互联网络发展状况统计报告*, Dì 33 cì zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào, CNNIC, pg. 15

[30] *Ibidem*, pg. 15

rates, ketp expanding. The most recent data, published in the 41th CNNIC's report, states that China now has about 720 million internt users while the penetration rate is 55.8%.[31]

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[31] 中国互联网络信息中心(CNNIC), *第 41 次中国互联网络发展状况统计报告*, Dì 41 cì zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào, CNNIC, 2018, pg. 21

1.3 Chinese Internet Users

As seen in the previous pages, China had a very booming Internet development. But who are the Internet users?

To answer this question we have to start looking at the first stages of the development process. Academics were the main Internet users because before 1995, most of the network operators in China at that time were academic or research institutions that set up their networks for academic and research purposes.[32]

This scenario started to change after CHINANet, the first Chinese commercial network, was connected to the Internet and individuals had the opportunity to purchase Internet accounts from CHINANet directly.[33]

From this moment, ordinary Chinese people had the chance to be connected to the Internet. According to the data colleted by CNNIC until the October 1997, as published in the organization's first report on Internet Development in China, the majority of Chinese Internet users were from 21-35 years old. This age group represented 78.5% of all the Internet users in China.[34]

15 以下	16-20	21-25	26-30	31-35	36-40	41-50	50 以上
0.3%	5.3%	36.3%	29%	13.2%	4.3%	6.8%	4.8%

Figure 4:Internet Users Distribution by Users' Age

Source: CNNIC 1997

Moreover, this report stated that 87.7% of the people who took part in the survey were male while just 12.3% were female. At that time Internet was mostly used by netizens to find online information about finance, business and technology. Internet users were mostly interested in technology. In fact, 80.4% of the people who went online at that time wanted to acquire more technology information. This was because most of the 1997's Chinese Internet users were employed in jobs strictly linked with technology. For example 15% of the people interviewed worked in the computer industry, 13.3% worked

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[32] Cullen Richard, Choy D. W., "*The Internet in China* ", Columbia Journal of Asian Law, Vol. 13, 1999, pg.104
[33] *Ibidem*, pg.105
[34] 中国互联网络信息中心(CNNIC), 中国互联网络发展状况统计报告, Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào, CNNIC, 1997*, pg.2*

in the education field, 12.8% had a job related to the research field and 13.6% were students.[35]

The fast developmpent of Internet in China lead to a big change of the data about the Internet users.

According to CNNIC's report issued in January 2006, the situation of netizens was very different from the one reported in 1997.

Changes were, for example, in the distribution of Internet users in age groups. According the data collected up to the end of 2005, the age group 18-24 was most represented was the one including people from, while the 25-30 was reduced by almost a third compared to the 1997 value. The under-eighteen cluster dramatically increased from 1997 to 2006. That year, its value was 18.6%, while in 1997 it was just 5.3% (including also people that were 19 and 20 years old). [36]
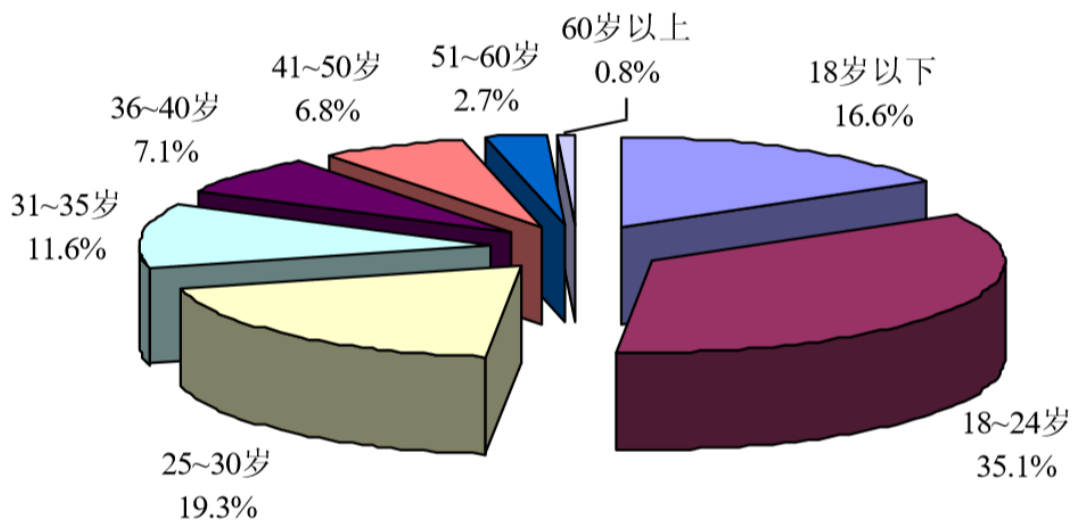

Figure 5: Internet Users Divided by Age

Source: CNNIC 2006

Another important change in the 2006's Internet users egadered the occupations of the people representing that group. As seen before, in 1997 most part of Interent users were people working in computer industries while according to the 2006 report, the largest

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35 中国互联网络信息中心(CNNIC), 中国互联网络发展状况统计报告, Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào, CNNIC, 1997, pg.3

36 中国互联网络信息中心(CNNIC), *中国互联网络发展状况统计报告（2006/1）*, Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào, 2006, pg.39

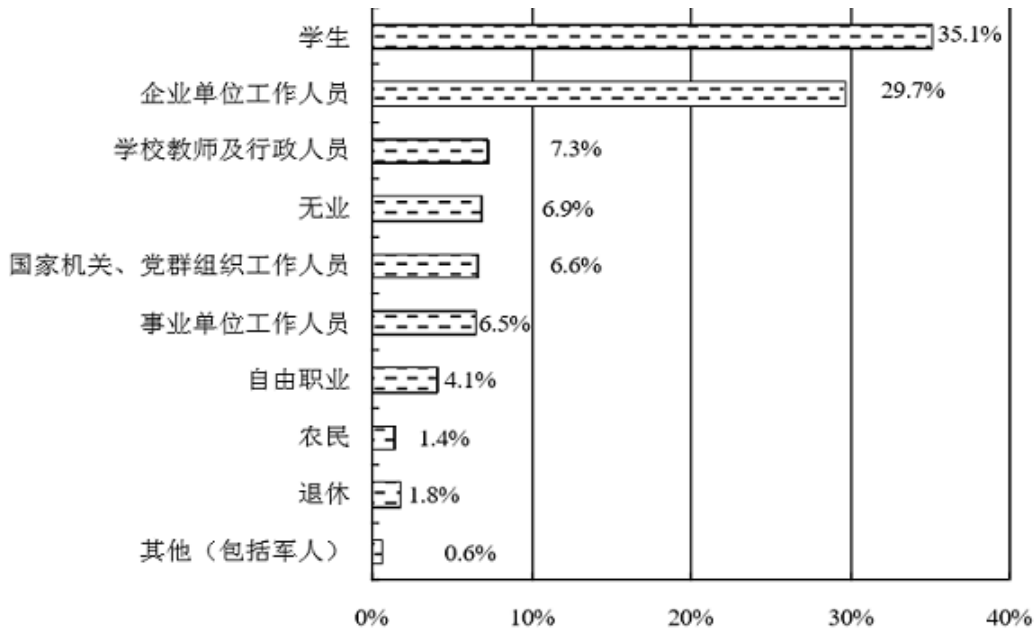group of netizens were students (35.1%) and the second larger group was composed by people working in companies (29.7%).[37]

Figure 6: Internet Users Occupation

Source: CNNIC 2006

Finally, another difference with the 1997's situation was about the gender of users. The 2006's report highlighted a great increase of the women users percentage. The results of CNNIC's analysis stated that female Internet users accounted for 41.3% while in 1997 female users were just 13.3%.[38]

In the following years, the netizen's body continued to evolve. To analyze the changes from the previous situation, we'll take into account the situation presented in CNNIC's July 2016 report.

First of all, compared to the 2006 report it underlined a more equal distribution of Internet users in the various age groups, with an increment of the older age groups (50-59, 60 and above) while the percentage of under-thirty Internet users was the largest (54%), but when

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[37] 中国互联网络信息中心(CNNIC), *中国互联网络发展状况统计报告（2006/1）*, Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào, 2006, pg.46
[38] 中国互联网络信息中心(CNNIC), *中国互联网络发展状况统计报告（2006/1）*, Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào, 2006, pg.36

compared with the situation in 2006 this data has decreased. As seen before, the under-thirty group age percentage in 2006 was almost 71% of the Chinese netizens.[39]
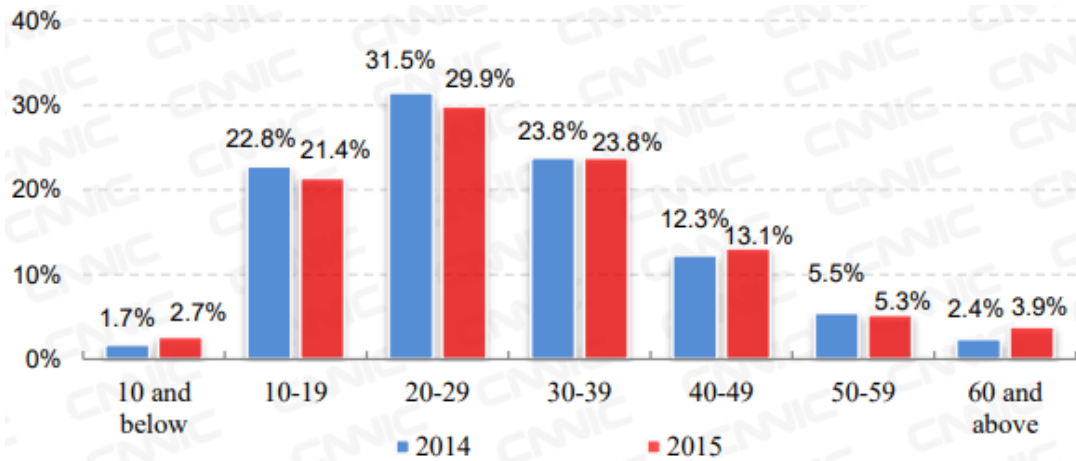

Figure 7: Age Structure of Chinese Internet Users (Dec. 2015)

Source: CNNIC December 2015

Another important change was about the occupation of users. The largest group was still the one composed by students. Moreover, we can see a reduction of the company' personnel group that in 2006 was 29.7% and in 2015 decreased to 12.4%. The main news in this kind of data was surely the skyrocket increase of freelancers. This group was just 4.1% in 2006, while in 2015 it reached 22.1% of the Chinese Internet users.[40]

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[39] China Internet Network Information Center, *Statistical Report on Internet Development in China*, January 2016, CNNIC, pg.56
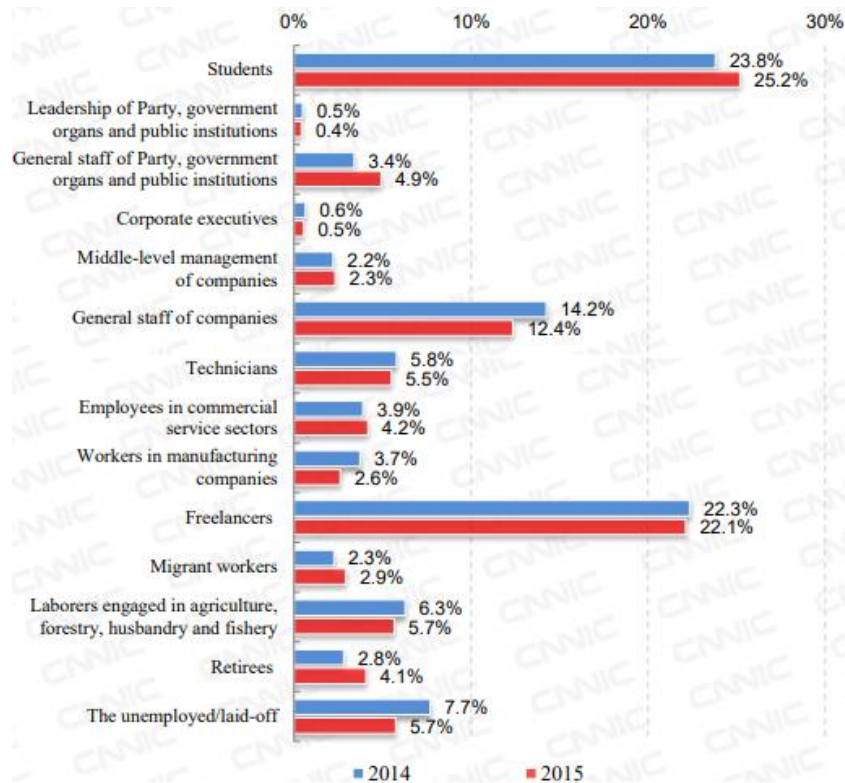[40] *Ibidem*, pg. 53

Figure 8: Occupational Structure of Chinese Internet Users (Dec. 2015)

Source: CNNIC December 2015

Finally, there was a cahnge in the female percentage of Internet users. Which in 2015 accpunted for 46.4% of people with an access.[41]
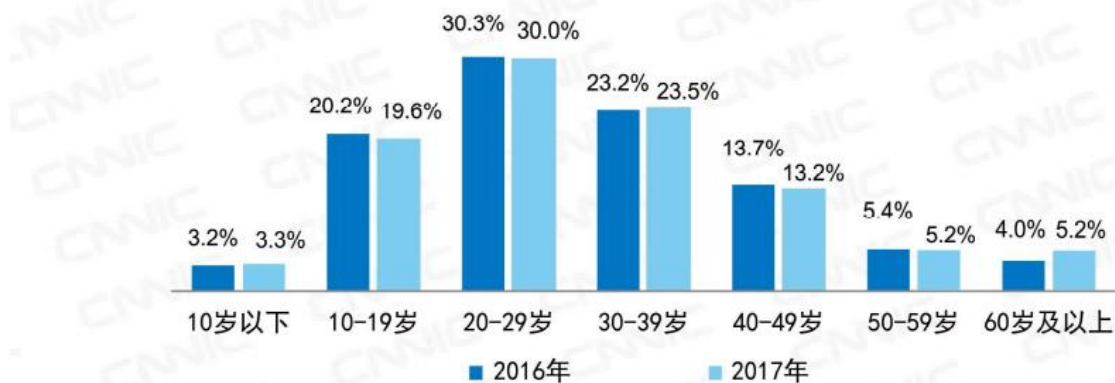
The trend that resulted from 2016 CNNIC's report was also confirmed by the report released in January 2018.

As regard the age of Chinese Internet users, according to the latest survey, most of them are people under-thirty. The largest age group is still the one with people between twenty and twentynine years old. The oldest age group has grown again, in fact the percentage of users sixty is now 5.2%, while in 2015 it was 3.9%.[42]

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[41] China Internet Network Information Center, *Statistical Report on Internet Development in China,* January 2016*,* CNNIC*,* pg. 51

[42] 中国互联网络信息中心(CNNIC),中国互联网络发展状况统计报告（2018/1），Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào (2018/1), 2018, pg.25

中国网民年龄结构

30.3% 30.0%

23.2% 23.5%

20.2% 19.6%

13.7% 13.2%

5.4% 5.2%

4.0% 5.2%

3.2% 3.3%

10岁以下 10-19岁 20-29岁 30-39岁 40-49岁 50-59岁 60岁及以上

■ 2016年 ■ 2017年

来源:CNNIC 中国互联网络发展状况统计调查   2017.12

Figure 9: Age Structure of Chinese Internet Users (2016-2017)

Source: CNNIC December 2017

From the user's profession point of view, the situation was very similar to the one listed in 2016 CNNIC's report. Most of netizens are students, freelancers and people employed in companies.[43]

The data about the distribution of users according to their gender refers that female netizen are 47.4% of the total users.[44]

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[43] 中国互联网络信息中心(CNNIC),中国互联网络发展状况统计报告（2018/1）, Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào (2018/1), 2018, pg. 27

[44] *Ibidem*, pg. 25

1. 4 Digital Divide in China

The Internet penetration process has lead China to face some issues. One of the greatest challenge that China had and have to face is *Digital Divide.* The gap between who has access to modern information and communications technology and those who can't access or have a limited access to them.[45]

In China the main discrepancies are between urban-rural and costal-inland areas.

Accoring to the data collected until 2004, the ratio of internet access in large cities as Beijing and Shanghai was more than ten times that of the poorest regions of the country, like Guizhou and Yunnan.[46]

The main obstacle that rural dwellers had to face to access Internet was the low income that didn't allow them to pay the costs of usage. For example, in 2002 urban residents of Beijing and Shanghai had a monthly income of more than 133 US$, while urban dwellers in Guizhou earned more or less 63 US$. The rural residents of these municipalities earned respectively 54 and 21 US$. Even if the government took some measures to lower the cost of Internet access, it was evident that the inhabitants of poorer provinces have less opportunity and interest to access Internet.[47]

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[45] Eva Johanna Schweitzer, Digital divide, https://www.britannica.com/topic/digital-divide, 24/02/18
[46] Harwit, Eric. "*Spreading Telecommunications to Developing Areas in China: Telephones, the Internet and the Digital Divide*", The China Quarterly, N. 180, 2004, pg. 1010
[47] *Ibidem*, pg. 1023

Above six per cent of population using the internet

Three per cent to six per cent of population using the internet

Below three per cent of population using the internet

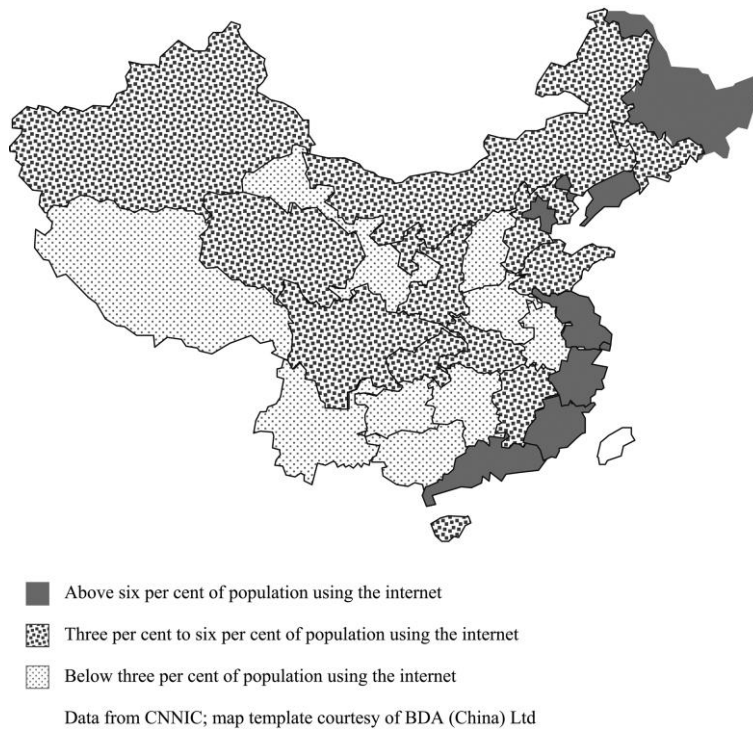Data from CNNIC; map template courtesy of BDA (China) Ltd

Figure 10: Internet Penetration Percentage by Region

Source: Harwit E., *Spreading Telecommunications to Developing Areas in China: Telephones, the Internet and the Digital Divide*

Moreover, the low income of rural dwellers was critical to their opportunity to access Internet not only because they couldn't afford the costs, but also because children in that areas had to drop out of school to work in field or industries. Due to this fact they couldn't have the basic skills to correctly access the net.[48]

Individuals who didn't have the opportunity to access Internet had less chances to improve their quality of life. In fact, people that couldn't access online resources have been denied some socio-economic opportunities such as:

• Social equality   Internet can smooth out social disparity. For example, in a society that penalizes women in their education Internet and e-learning can help them to overcome this cultural barrier.

• Social mobility   Access to Information and Communication Technology (ICT) can lead to advantages in education, job-training and health-care. These aspects are strongly

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[48] Harwit, Eric., *op. cit*, pg. 1025

related to the economic condition of an individual. People who have these advantages can more easily came out from the typical difficulties of living in rural areas.[49]

• e-democracy   ICTs can provide more transparency in information and can give to everybody the chance to express their opinion.[50]

One element that gave a strong contribution to the widening of the digital divide was the difference between infrastructure's development in rural areas and in urban areas. Indeed, resources invested in well-off areas are far higher than the ones invested in poor hubs.[51]
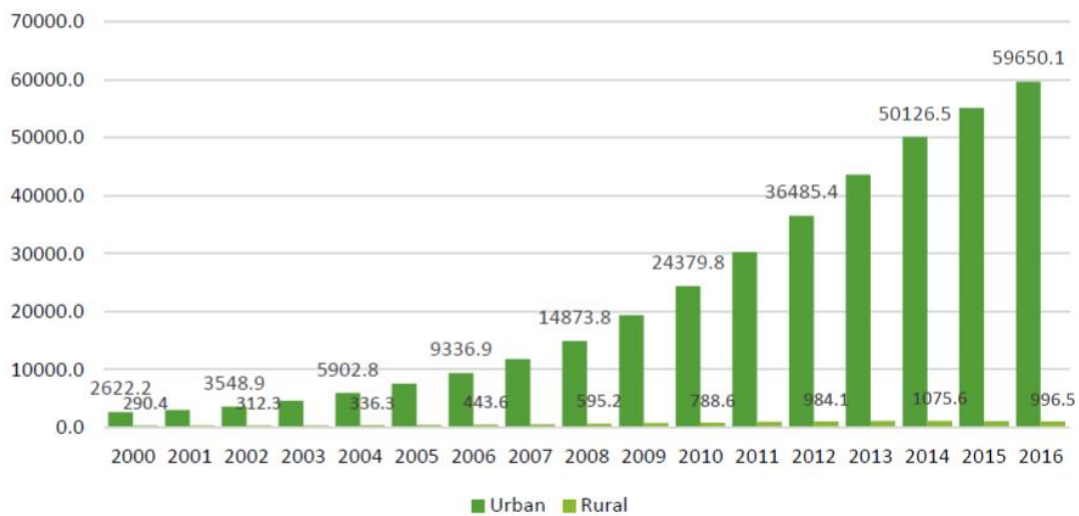

Figure 11: Total fixed asset investment in urban and rural areas (billions RMB)

Source:National Bureau of Statistics of China

Up to December 2016, 642 million Chinese citizens had never used the Internet, 60.1% of them were rural dwellers while 39.9% came from urban areas. This highlighted a great inequality between urban and rural environment. This is caused by factors as low income and education level, and this is a key challenge for public authorities.[52]

From the earliest stages the Chinese governement tried to reduce the gap between urban and rural areas to the access to technology promulgating the following provisions:

[49] Fong, M. W. L. (2009), *Digital Divide Between Urban and Rural Regions in China*, The Electronic Journal of Information Systems in Developing Countries, 2006, pg.3
[50] Harwit, Eric, *op. cit*. pg. 1026
[51] Shenglin Ben, Bosc Romain, Jiao Jinpu, Li Wenwei, Simonelli Felice, Zhang Ruidong, *Digital Infrastructure: Overcoming the D-igital Divide in China and the European Union*, CEPS Research Report, November 2017, pg.12
[52] Shenglin Ben, Bosc Romain, Jiao Jinpu, Li Wenwei, Simonelli Felice, Zhang Ruidong, *op. cit*, pg. 12

- The 'Golden Agriculture' Project   Introduced in December 1994 by the Chinese government. Its main purpose was to accelerate and promote digitalisation in agricultural and rural areas.[53]

- The 'Three in One' Project   Approved in 2005 by the Ministry of Agriculture, it was given to 56 rural areas. The main task of this project was to grant access to three information services (telephone, the internet and TV) by increasing the diffusion of the telephones, computers and televisions in the rural hubs.[54]

- The Information Service Project   In 2006 the Ministry of Commerce launched the "New Village Commercial Information Service System" mostly to take commercial business services to rural areas and to help remote farmers in their commerce operations. It allows farmers to be updated on conditions and prices of agricultural products, so they can price the products rationally and therefore reach higher incomes.[55]

- The 12th Five-Year Plan for Informatisation Development of Agriculture and Rural Area in China   Formulated in 2011, the Plan proposed that by 2015, the overall informatisation rural areas should have reached 35% (at that time it was around 20%). Among the main tasks of the Plan there were the further development of infrastructures for the digitalization of rural hubs and the acceleratation of procedures in order to provide modern agriculture with IT technologies.[56]

- "Internet Plus" Project   In July 2015 the State Council initiated the "Instructions on Active Promotion of 'Internet plus' Action". The core objective of this plan is to further develop the integration between Internet and all sectors of the Chinese economy. This project is thought to shape new economic patterns and to be the major economic driving force of the future. [57]

On one hand, thanks to the measures taken by the Chinese government, the number of rural Internet users in China continued to increase. On the other hand, the difference

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[53] *Ibidem*, pg.14
[54] Shenglin Ben, Bosc Romain, Jiao Jinpu, Li Wenwei, Simonelli Felice, Zhang Ruidong, *op. cit*, pg, pg.14
[55] *Ibidem*, pg.15
[56] *Ibidem*, pg.15
[57] *Ibidem*, pg. 17

between the percentage of Internet users in contryside and the ones in urban contest was still critical. According to data from CNNIC, in December 2016 the Internet penetration rate in urban areas was 69.1% while in rural areas was 33.1%.[58] The latter value hadreported a further growth in the last year. In fact, as reported in the last document of the China Internet Network Information Center issued in January 2018, the Internet penetration rate in rural hubs was 35.4%.[59]

So it is evident that the digital divide question have had some improvement if compared to its early stages, but it still represent a problem that the Chinese leadership have to face. In the next paragraph an element that is contribuiting to the reduction of the gap between rural and urban areas in accessing the web will be analyised.

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[58] *Ibidem*, pg. 11
[59] 中国互联网络信息中心(CNNIC),中国互联网络发展状况统计报告（2018/1）, Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào (2018/1), 2018, pg.23

1.5 Mobile Internet in China

There's no doubt that an element contribuiting to the increase of penetration rate of Internet in rural areas was the diffusion of Mobile Internet. Thanks to this technology people having a smartphone have the opportunity to acces the Web.

To bettter understand the development of Mobile Internet, it is necessary to look at the process that revolutioned China's telecommunication sector.

From the earliest stages of its development, this sector was under government's control. Also with the beginning of the reform process, characterized by a more opened approach to foreign investment, the access to telecommunication industry was given just to companies with niche technology unknown to local manufacturers and to companies willing to invest in the western part of China, in order to boost the development process of this underdeveloped area.[60]

The appearance of mobile technology in China can be divided in three main phases as follows:

- First phase (1987-1997): China introduced commercial mobile service (1G) in 1987, but digital mobile service was provided in 1995. The world's mobile phone market was dominated by European and American players as Alcatel, Ericsson, Motorola, Nokia, Nortel, and Siemens. Chinese manufacturers had to obtain licenses from foreign market's leaders to try to develop their products and the internal market. The Government had a strong control over the sector, and just a small number of non-chinsese company were present in the market by establishing joint ventures with Chinese partners. In 1998 2G technology appeared in chinese market.[61]
- Second phase (1998-2001): After the introduction of 2G technology in China, the governent allowed foreign companies to access the Chinese market with their best technologies. In short time they gained the biggest quota of the Chinese market as testyfied by the picture.

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[60] Pek-Hooi Soh, Jiang Yu, *Institutional environment and complementary assets: Business strategy in China's 3G development*, Asia Pacific Journal of Management, Issue 27, N.4, 2010, pg. 658
[61] Pek-Hooi Soh, Jiang Yu, *op. cit,* pg. 659

Mobile switching subsystem				Base station subsystem			
Rank	Firms	Original country	Market-share %	Rank	Firms	Original country	Market-share %
1	Siemens	Germany	32.3	1	Ericsson	Sweden	31.3
2	Ericsson	Sweden	24.1	2	Motorola	USA	21.5
3	Nokia	Finland	17.1	3	Nokia	Finland	17.3
5	Huawei	China	8	6	Huawei	China	3.4
7	Datang	China	1	9	ZTE	China	0.6
9	ZTE	China	0.3	10	Datang	China	0.2

Figure 12: Market share for China's 2G network in 2001

Source: CCID Consulting 2003, The Research Report on the Landscape of China's Mobile Industry

This foreign presence was seen by the government as something negative and oppressive for the Chinese local manufacturers. In order to avoid similar situations, the chinese government presented a project to self-develop the 3G technology without the interference of external players.

Unfortunately, the Chinese manufacturers didn't have the required skills and management capabilities to run the project by themeselves, so the Chinese leadership had to count once again on the support of foreign enterprises.

This phase was concluded in 2001, when China became a member of World Trade Organization (WTO). To be aligned with the organization's norm, the Chinese government had to further relax restrictions on foreign penetration in the market. To face the future competition the Chinese government had absolutely to develop local competences.[62]

- Third phase (2002-2007): the government exhorted domestic sponsors with non-market resources to speed up the development of new products and services and share the intellectual property with other manufacturers. Moreover, foreign firms with high marketing and R&D capabilities were encouraged to enter the market. This allowed Chinese players to enojoy technologies and resources unknown before. Alliances between companies, also foreign ones, were promoted.[63]

In the following years, the government spent more resources to deploy 3G network all over China. Despite this effort, initially 3G appeared slow to take off in the market. The twist arrived in 2010, when iPhone was launched in China and the amount of 3G

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[62] Pek-Hooi Soh, Jiang Yu, *op. cit,* pg. 660
[63] *Ibidem*, pg. 661

subscribers skyrocketed. In January 2011 the data reported that there were 50 million mobile subscribers.[64]

The development process of China's telecommunication sector continued with the introduction of the 4G network in 2013. The first operator to introduce this new service was China Mobile. This new technology in short time gained the most part of Chinese mobile useres. In fact from 2013 to December 2015 the number of people with a contract for 4G usage almost quadruplicated. On the other hand, subscribers of 2G and 3G services declined. [65]
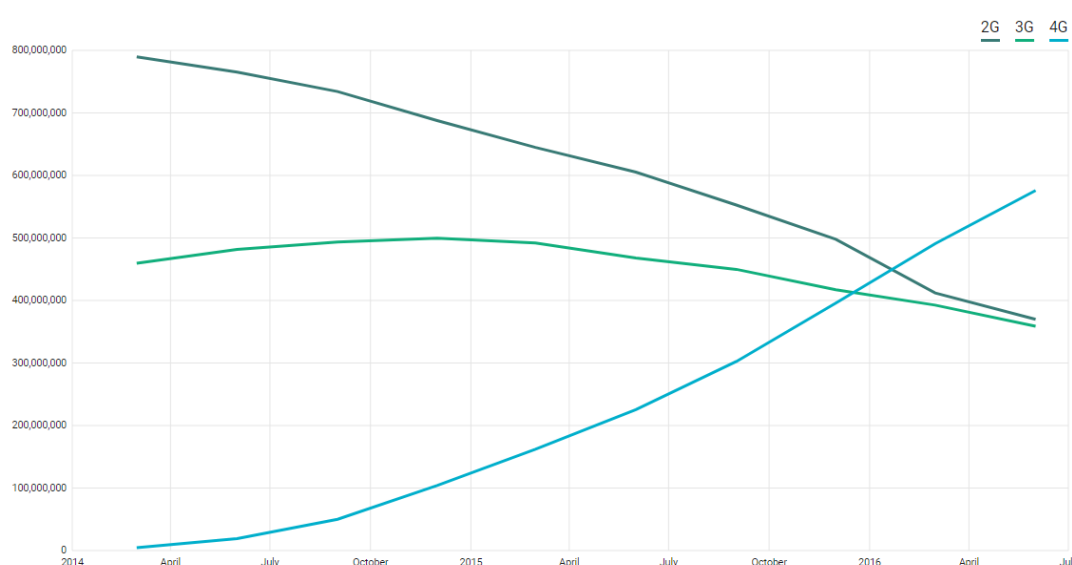

Figure 13: 4G, 3G and 2G users in China

Source: Telegeography

In current years, China is moving towards a new communication technology, namely 5G. China Mobile, the largest telecommunication company of the country, has announced that in 2018 5G has been tested in some Chinese cities and from 2020 5G services will be available on a large scale.[66]

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[64] James Stewart , Xiaobai Shen , Chengwei Wang, Ian Graham, "*From 3G to 4G: standards and the development of mobile broadband in China*", Technology Analysis &Strategic Management, Vol. 23, N.7, 2011, pg.780

[65] 4G Breaks Through That Great Chinese Wall, https://blog.telegeography.com/4g-market-in-china-subscriber-growth-of-china-mobile, 11/03/18

[66] 后 4G 时代：4G+/4.5G/5G 的那些事，http://fiber.ofweek.com/2018-03/ART-210007-8120-30209885.html, 15/03/18

1.6 Chinese Mobile Internet Users

As mentioned before, Chinese people using mobile technologies increased year by year. To better understand this concept we can consider that PC's Internet took six years to grow from 20 million users to a 100 million users while mobile Internet had the same growth in just two years.[67]

According to January 2017 report issued by CNNIC, 95.1% of Internet users went online through mobile devices, mostly through mobile phones and tablets. The percentage of Internet Users using desktop PC and laptop continues to decline. For example, the Internet connection via PC collapsed from 67.6% in 2015 to 60.1% in 2016.[68]
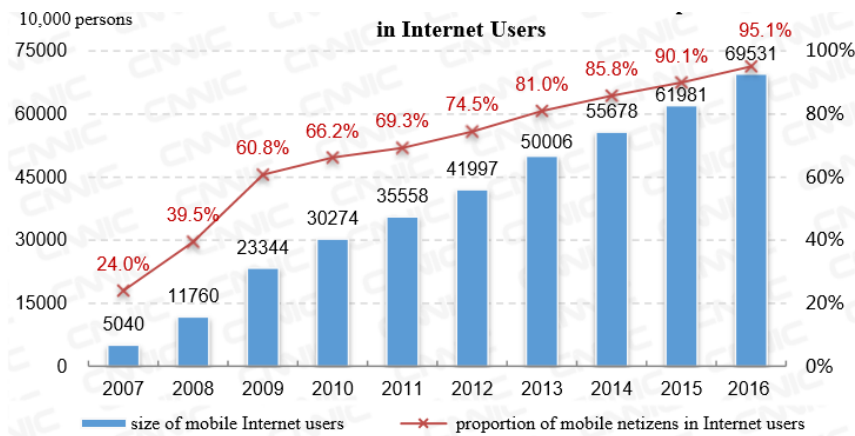

Figure 14: Size of Mobile Internet Users in China and Its Proportion in Internet Users

Source: CNNIC December 2016

The booming increase of Internet mobile users in China was influenced by several factors. First of all by the smartphone's diffusion among the Chinese citizens. On April 2017 China was reported to be the country with more smartphone owners in the world. At that time China had 717.31 million of smartphone users[69] allowing people to be connected everywhere and in every moment of their life.[70]

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[67] 杨栋梁, *移动互联网发展趋势的研究*, Yídòng hùliánwǎng fāzhǎn qūshì de yánjiū, 电脑知识与技 (Computer Knowledge and Technology),Vol.8, No.5, February 2012, pg.1040

[68] China Internet Network Information Center, *Statistical Report on Internet Development in China,* J, CNNIC, January 2017, pp. 40-50

[69] Number of smartphone users in top 15 countries worldwide, as of April 2017 (in millions), https://www.statista.com/statistics/748053/worldwide-top-countries-smartphone-users/, 15/03/18

[70] 杨栋梁, *op. cit*, pg.1040

According to CNNIC's analysis, Chinese netizens use mobile internet to enjoy several services. Among them the most frequent are online shopping, games and news. In 2016 more than 440 million of netizens made online purchases via mobile, more than 517 million of useres surf the net through their telephone looking for news.[71]
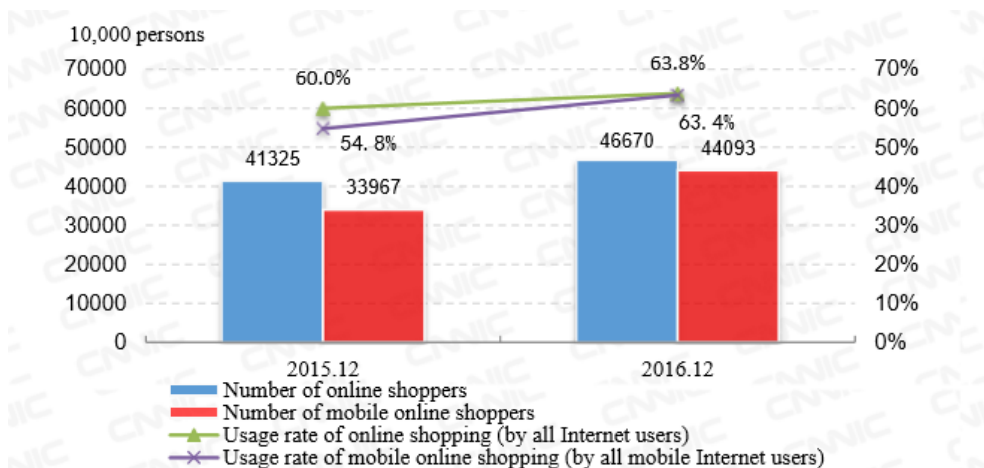

Figure 15: User Scale and Utilization Ratio of Online/Mobile Online Shopping Users (Dec. 2015-Dec. 2016)
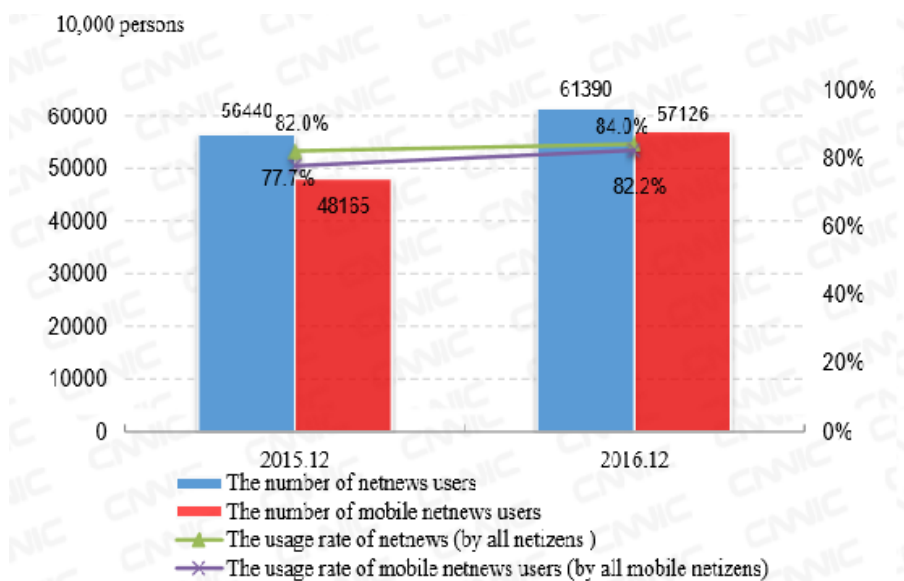
Source: CNNIC December 2016

Figure 16: User Scale and Utilization Ratio of Netnews/Mobile Netnews (Dec. 2015-Dec. 2016)

Source: CNNIC December 2016

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[71] China Internet Network Information Center, *Statistical Report on Internet Development in China,* CNNIC, January 2017, pp. 60-62

Another attractive sector is the one of online gaming. Mobile users often use their devices to play online games and in 2018 the number of netizens using this kind of services accounts for 560 million.[72]

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[72] Gaming addiction debate reignites with Tencent in spotlight after mobile games compared to 'opium' , http://www.scmp.com/tech/article/2136128/gaming-addiction-debate-reignites-tencent-spotlight-after-mobile-games-compared, 15/03/18

SECOND CHAPTER

INTERNET'S INFLUENCE IN BUSINESS: THE E-COMMERCE REVOLUTION

2.1 E-commerce

The way of doing business all over the world was dramatically changed by the widespread diffusion of the Internet. Thanks to the opportunities provided by web services, transactions are now much faster than in the past and people from every corner of the world can exchange goods in a few seconds. This phenomenon is called *e-commerce* and it can be defined as any commercial activity made by using electronic means, especially the Internet. [73]

Nowadays, almost everyone uses the internet to purchase goods such as books, food and clothes. Websites like e-Bay and Amazon have millions of users in every country of the world and their everyday turnover is exorbitant. It is enough to say that only in 2014 just in America nearly US$ 305 billion have been spent in online purchases[74] and that Amazon realized US$ 60.5 billion of revenues in 2017's fourth quarter.[75]

To better understand the booming increase of popularity of e-commerce we have to analyze how it evolved from its earliest stages to now.

The development process of this new business can be divided into three phases as follows:[76]

- *Phase one:* this phase was characterized by the large use of Electronic Data Interchange (EDI) in e-commerce practices. EDI was the first method to allow the transmission of standardized business documents from one computer to another

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[73] Zheng Qin, "*Introduction to E-commerce*", Springer Science & Business Media, 2010, pg. 7

[74] The Evolution Of eCommerce, https://www.forbes.com/sites/steveolenski/2015/12/29/the-evolution-of-ecommerce/#4e7567b97145, 18/03/18/

[75] Net revenue of Amazon from 1st quarter 2007 to 1st quarter 2018 (in billion U.S. dollars), https://www.statista.com/statistics/273963/quarterly-revenue-of-amazoncom/, 18/03/18

[76] Zheng Qin*, op. cit*., pg. 5

saving users time and paper.[77] The first utilization of EDI was implemented around 1960. In the following years this method was improved and had a great diffusion among enterprises. Its development led companies to better manage business relations with customers and suppliers and made the purchasing process easier.[78] On the other hand, due to the Internet's backwardness enterprises were forced to exchange documents through a Value-Added Network (VAN) that was very costly. For this reason only big companies who could afford the fees had the opportunity to use EDI.[79]

- *Phase two:* by the beginning of 1990 the internet spread around the world, and in a short time e-commerce found its way through the internet and VAN was no longer necessary. Because the internet was less costly than VAN, many medium and small enterprises had the chance to develop their own e-commerce services.[80]

This phase can be divided in three stages as follows:

1. *Germination stage* (1995-1997): in this stage internet was just used to do research about products and not to make online transactions. Companies used internet mainly to deliver information to customers.[81]

2. *Innovation stage* (1997-2000): in this period the internet was applied to business activities and it was clear to the world how e-commerce could represent a revolution in the global economy. Buyers had the opportunity to buy without entering a shop while sellers had another selling channel to take advantage of in order to increase their revenues. In this period e-commerce was greeted to a great enthusiasm because of the profitable opportunity that it offered to investors. Investments in this sector skyrocketed but many of them failed because they were not planned with accuracy.[82] Many e-commerce companies went bankrupt, and giants like Amazon had a lot of difficulties due to the collapse of its share value. This on one side made investors more cautious, on the other side improved the quality of e-commerce services. Before investing, people then developed clear business

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[77] Qin, Zheng et al. *E-Commerce Strategy,* Springer Berlin Heidelberg, 2014, pg. 6
[78] *Ibidem, pg.*7
[79] *Ibidem*, pg. 7
[80] *Ibidem*, pg. 9
[81] *Ibidem*, pg. 9
[82] *Ibidem*, pg. 9

strategies and evaluated the risks brought by financing new online activities. This period between the burst of the e-commerce bubble and the development of a more conscious approach in e-commerce investments lasted until 2004.[83]

3. *Mature stage* (2004 -): the improvement of business strategies applied to e-commerce and the widespread diffusion of the internet all over the world made online business transaction on large scale possible.[84]

• *Phase three:* the introduction of broadband gave a great boost to the e-commerce development process. Broadband delivers the reproduction of videos and images faster. Through these resources users could acquire more information about products. Broadband also made business transactions faster.[85]

Along with the development of the e-commerce, there has also been a diversification. Nowadays we have several ways to buy goods online, which involves different players. Therefore, each kind of e-commerce depend on the players involved in the transaction.
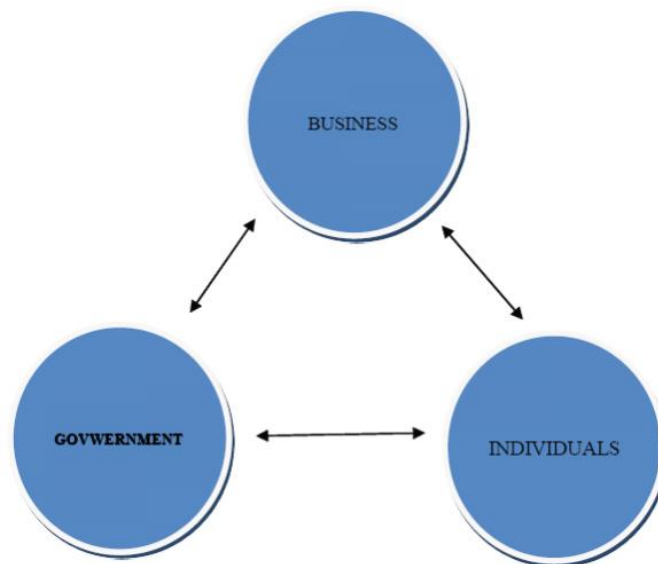

Figure 17: e-commerce players

Source: Gao Ye e Ying Liang Yun, Business ess to web-site under the financial crisis - A case study of four Business to Consumer web-site

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[83] Qin, Zheng et al., *op. cit.,* pg.9
[84] *Ibidem*, pg.9
[85] *Ibidem,* pg 9

The main e-commerce types are classified as follows:

- *Business to Business (B2B)*: it describes commerce transactions among different businesses, for example between a manufacturer and a wholesaler, or between a wholesaler and a retailer. This kind of transaction is the most frequent even more frequent than the Business-to-Consumer (B2C) transactions. The main reason is that in a common supply chain process, such as a vehicle production process, there are a lot of B2C transactions involving raw materials and other minor components. On the contrary, there is just one B2C transaction which is when the seller sells a vehicle to the customer.[86]

- *Business-to-Consumer* (B2C): this term describes online transactions among businesses and final consumers involving products and services (the aforementioned car sold by a car seller to a customer). When speaking about B2C e-commerce the majority of people surely thinks of Amazon, the online book seller that from 1995 to nowadays skyrocketed obtaining booming revenues. However, online resellers are not the only players in B2C transactions. Thanks to its growth in recent years this sector now includes online banking services, travel services and real estate services.[87]

- *Consumer-to-Consumer (C2C)*: it involves the online transactions between consumers through some third parties. Here we have three players: online seller, online buyer and the platform that hosts the transaction. This process involves a person who wants to sell something and to do so he puts an item on sale in a website where everyone can make his or her offer and the higher offer will receive the item. The third party, the website who hosts the bid process, will charge a commission. A common example is the online auction in which a consumer posts an item for sale and other consumers bid to purchase it and the third party generally charges a flat fee or commission.[88]

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[86] Nemat, Rania, *"Taking a look at different types of e-commerce."*, World Applied Programming, Vol.1, N.2, 2011, pg. 100
[87] Nemat, Rania*, op. cit.*, pg.101
[88] *Ibidem,* pg.102

In addition to these three forms of e-commerce that are the most widespread, we also have Business-to-Government (B2G) that refers to the use of the internet that businesses make in order to participate in public bidding or to complete licensing procedures.[89]

Another form of e-commerce is Consumer-to-Business (C2B). In this model consumers offer products and services to companies that pay for them. This kind of e-commerce is similar to the traditional B2C model in which companies offer their products to customers. An example of this business model are blog authors that in their articles include links that direct visitors to some business. If the customer buys something from these companies, the blog author receives compensation.[90]

Moreover, there are forms of online interactions that see the Government as a player. The most important ones are Government-to-Business (G2B) and Government-to-Consumer (G2C). The first one includes online exchanges between Government and companies or non-Profit organizations and are complex multilevel-transactions while G2C operations include online exchanges between Government and common citizens. These kinds of operations are often very simple such as renewing a driver license or paying parking tickets or fines.[91]

Focusing on the aforementioned three main kinds of e-commerce, it is very interesting to analyze why they had such a widespread diffusion in such a short time. This is because e-commerce in general has many advantages for both customers and businesses.

Among the main benefits that individuals can enjoy are as follows:

- Convenience: customer just has to type the name of the product on the keyboard. In a few seconds all the results will appear in a very easy to consult list.[92]
- Time saving: e-commerce allows people to save a lot time. They just have to order the product that they can easily find in an online retailer and they will

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[89] Goldstein, A., O'Connor D., "*E-Commerce for Development: Prospects and Policy Issues*", OECD Development Centre Working Papers, No. 164, OECD Publishing, Paris, 2000, pg. 14
[90] Turban E., *Introduction to Electronic Commerce,* Cram101 Textbook Reviews, Content Technologies, 2016
[91] Mahmood A. Awan, *Dubai e-Government: An Evaluation of G2B Websites, in Journal of Internet Commerce*, 2008, vol. 6, n. 3, pg. 117
[92] C. Eugine Franco, Bulomine Regi. S, *Advantages and Challenges Of E-Commerce Customers and Businesses: In Indian Perspective*, International Journal of Research –GRANTHAALAYAH, 2016, Vol.4, N. 3, pg.8

receive it at home in a few days. Time saving is one of the most valid reason that pushes people to buy online.[93]

- Wide range of options: using e-commerce platforms the customer can compare a lot of products by their price and other important characteristics. The online retailer doesn't need to carry stock, while a physical store has to face this issue.[94]

- Comparability: customers can easily compare products. It allows them to buy the best option according to the characteristics they want in their purchase.[95]

- Easy to find reviews: after a purchase, a customer can post feedback about the product he purchased. In this way other buyers can read opinions about the item that they want to buy. This can be helpful in their decision-making process.[96]

Besides the benefits that customer can enjoy, e-commerce can offer many advantages to businesses such as:

- Expand the customer base: customer base size is a crucial issue in the life of a business. E-commerce and the global penetration of the internet allow companies to sell their products all over the world enhancing their popularity among buyers.[97]

- No constraints of time or space: e-commerce portals are always available. They are connected 24/7 and 365 days/year. It doesn't matter if buyers and sellers are in the same place or not, through the internet they can be always in touch and they can freely negotiate. Traditional shops don't have this advantage because their employees are not always working.[98]

- Reduction of costs: businesses that conduct their operation through the internet can save a lot of costs. For example, they can set their warehouses and offices in places were rent is not expensive and they can perform their sales just by

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[93] European Commission, *Open data: An engine for innovation, growth and transparent governance Open Data Impact*, Mar. 2011, pp. 1-13

[94] C. Eugine Franco, Bulomine Regi. S, *op cit.*, pg. 8

[95] *Ibidem,* pg. 8

[96] Abdul Gaffar Khan, *Electronic Commerce: A Study on Benefits and Challenges in an Emerging Economy,* Global Journal of Management and Business Research: B Economics and Commerce, Vol. 16, N. 1, 2016, pg. 21

[97] Mohamed Abou-Shouk, Phil Megicks, Wai Mun Lim*, Perceived Benefits and E-Commerce Adoption by SME Travel Agents in Developing Countries: Evidence from Egypt,* Journal of Hospitality & Tourism Research, Vol. 37, N. 4, pg.495

[98] Qin, Zheng et al, *op.cit,* pg. 5

providing a good delivery services instead of paying rental fees for different physical shops.[99]

In the following years other innovations improved the efficiency of e-commerce and definitely boosted its popularity by the introduction and diffusion of mobile technology.[100]

The possibility of conducting online transactions via smartphones or Personal Digital Assistant (PDAs) had huge implications in electronic commerce development process. This way of online purchasing was named Mobile Commerce and people usually refer to it as m-commerce.[101]

The m-commerce development process wasn't always easy and smooth. In fact, at the beginning stages this new way of doing online shopping met a lot of difficulties. Since around 1997 mobile network operators, like the Japanese NTT DoCoMo, the European Vodafone and the American Verizon Wireless, tried to develop services available from their mobile devices. The most common were weather information or ringtone download, but they never attracted customers as mobile network operators expected.[102] The turning point in mobile commerce was the introduction of speed 3G mobile network and the spread of smartphones with surfing net capabilities. Users now had the opportunity to directly access the internet and to surf it in a smooth way. These two factors pushed traditional e-commerce services providers to develop versions of their contents that suited mobile devices.[103]

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[99] Jonathan L. Willis, *What impact will E-commerce have on the U.S. economy?,* Economic Review, Federal Reserve Bank of Kansas City, 2004, pg. 59

[100] *Ibidem*, pg. 9

[101] Palwinder Sandhu, *Mobile Commerce: Beyond E-Commerce,* International Journal of Computer Science And Technology, Vol. 3, N. 1, 2012, pg.759

[102] Panos E. Kourouthanassis, George M. Giaglis *Introduction to the Special Issue Mobile Commerce: The Past, Present, and Future of Mobile Commerce Research*, International Journal of Electronic Commerce, Vol. 16, N. 4, 2014, pg.6

[103] *Ibidem,* pg.7

Since that moment the presence in the market of commercial services available on mobile devices skyrocketed. Mobile commerce applications are used especially in fields such as finance and banking, ticketing, purchasing and location-based services.[104]

The mobile technologies applied in finance and banking sectors are, for example, mobile payments. This service allows customers to transform their mobile device into a useful business tool. In just a few seconds users can transfer money from a bank account to another without physically stepping in a bank or waiting in line at an ATM.[105]

As for ticketing, the implementation of mobile systems to make payments is very useful to improve and to speed up the process of ticket purchasing. The first application of mobile technologies on ticketing was the purchase of travel document through SMS sent by customer's mobile phone. In this case the ticket's fees were charged on the monthly telephone bill. With the evolutions of mobile technology also the mobile ticketing solutions improved. The application of Near-Field Communication (NFC) technology on mobile devices and their capabilities to access the internet allowed users to purchase and download transport tickets on their phone. In this way customers can validate their tickets by scanning them directly on board.[106]

Thanks to the possibilities mobile devices offer for location identification, a lot of services based on the position of the user have been released. This kind of applications can be divided in two main categories such as: person-oriented and device-oriented. The former one includes that applications that are user-based and that user can control. Its main scope is to determine the position of the users and offer them a service. Example of this can be social network applications where users can locate the position of friends and relatives. The latter, device-oriented applications are not controlled by the user. Indeed, they are

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[104] Niranjanamurthy M, Kavyashree N, Mr S.Jagannath, DR. Dharmendra Chahar, *Analysis of E-Commerce and M-Commerce: Advantages, Limitations and Security issues,* International Journal of Advanced Research in Computer and Communication Engineering, Vol. 2, N. 6, June 2013, pg. 2368 - 2369
[105] Upkar Varshney, Ron Vetter, *Mobile Commerce: Framework, Applications and Networking Support, Mobile Networks and Applications,* June 2002, Vol. 7, N. 3, pg. 187
[106] Marta Campos Ferreira, Maria Henriqueta Nóvoa, Teresa Galvão Dias, *A Proposal for a Mobile Ticketing Solution for Metropolitan Area of Oporto Public Transport*, in Falcão e Cunha J., Snene M., Nóvoa H. (a cura di), Exploring Services Science, IESS 2013. Lecture Notes in Business Information Processing, Springer, Berlin, Vol 143, pg. 265

mostly are developed in order to locate objects. An example can be applications that locate cars in case of theft.[107]

With regard to the applications of mobile technologies in purchasing their results are astonishing. Data from *PwC* reveal that in 2010 Amazon reached US$ 1 billion in sales through mobile devices while eBay Mobile sold an item every two seconds generating an income of US$ 1.5 billion.[108] In the following years the use of mobile applications in the purchasing process continued to increase. In fact, in February 2018 the data reported that Amazon's mobile app had more than 130 million users in the United States while eBay's mobile app had almost 58 million users.[109]
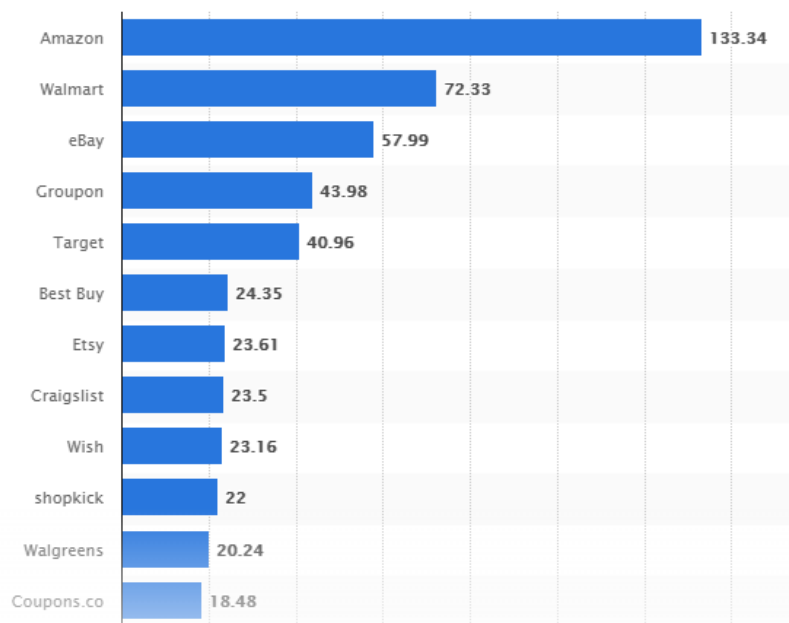
Figure 18: Most popular mobile shopping apps in the United States as of February 2018, by monthly users (in millions)

Source: Statista

Amazon and eBay are not the only companies to have a great number of customers using their mobile application. In China for example, Alibaba's online shopping platforms have

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[107] B. Renuka, Manjula Poojary, B.Ramesh Babu, *Location Based Services on Mobile E-Commerce*, International Journal of Computer Science and Information Technologies, Vol. 3, n. 1, 2012, pg. 3148

[108] Matt Anderson, Nicholas Buckner, Stefan Eikelmann, Fabian Seelbach, *Shoppers on the go: Winning strategies in mobile commerce,* Strategy&, PwC, 2010, pg. 7

[109] Most popular mobile shopping apps in the United States as of May 2018, by monthly users (in millions), https://www.statista.com/statistics/579718/most-popular-us-shopping-apps-ranked-by-audience/, 25/03/18

been reached by almost 550 million users in the third quarter of 2017, generating an income of CNY 133 billion (US\$ 15.65 billion) for that period.[110]

Thanks to the possibility of connecting to the internet from every corner in the world, and at any time, m-commerce transactions are always available. For this reason m-commerce has developed and spread so fast. The results of this tremendous development are very easy to see when analyzing the global value of mobile commerce transactions. In fact, the following chart shows that in 2017 this value was almost US\$ 290 billion, while in 2019 the global amount of mobile-based commerce transaction will overcome US\$ 690 billion.[111]
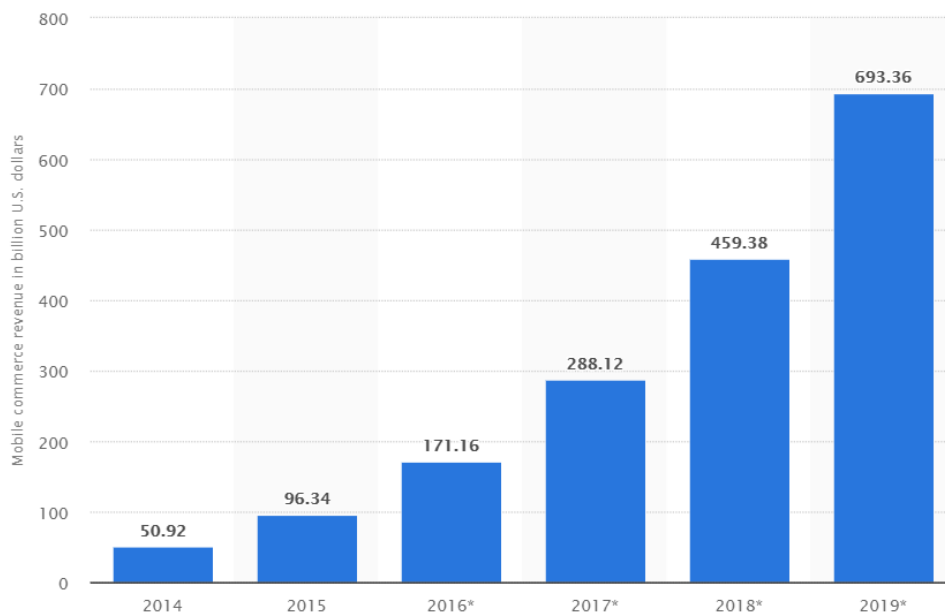
Figure 19: Transaction value of global m-commerce sales from 2014 to 2019 (in billion U.S. dollars)

Source: Statista

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[110] Number of mobile monthly active users across Alibaba's online shopping properties from 1st quarter 2015 to 3rd quarter 2017 (in millions), https://www.statista.com/statistics/663464/alibaba-cumulative-active-mobile-users-taobao-tmall/, 25/03/18
[111] Transaction value of global m-commerce sales from 2014 to 2019 (in billion U.S. dollars), https://www.statista.com/statistics/557951/mobile-commerce-transaction-value-worldwide/, 25/03/18

2.2 E-commerce in China

The high rate of Internet penetration and the astonishing number of mobile users among the population in China had a lot of consequences in how Chinese people behave especially when they have to purchase something.

According to data collected from the China Internet Network Information Center Taobao and Alipay are among the five most used application in China. Taobao is a subsidiary of the e-commerce giant Alibaba while the second one is an application to perform online payment and it is own by Alibaba as well.[112]

To understand how Chinese netizens are involved in e-commerce we should analyze the data from the last report of the CNNIC. It states that during 2017 in China almost CNY 7.18 trillion have been spent in online transactions, with an increase of 32.2% when compared with the amount in the previous year.[113]
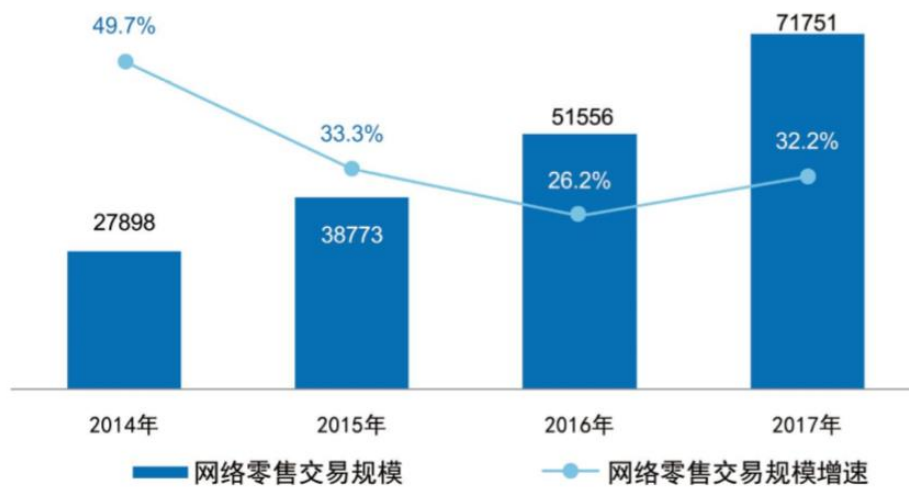

Figure 20: Online sells volume in hundred million CNY

Source: CNNIC

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[112] China Internet Network Information Center, *Statistical Report on Internet Development in China,* J, CNNIC, January 2017, pg. 58

[113] 中国互联网络信息中心(CNNIC),中国互联网络发展状况统计报告（2018/1）, Zhōngguó hùlián wǎngluò fāzhǎn zhuàngkuàng tǒngjì bàogào (2018/1), 2018, pg. 67

These huge numbers reflect the importance that the internet now has in Chinese society and how the Chinese are involved in online activities especially e-commerce. However, it took years to reach this level of commitment in online transaction.

The rise of e-commerce in China dates back in 1996 when the first online transaction was completed. The development of e-commerce in the following years proceeded at a slow pace. The main reasons to justify this were the lack of development of the internet structures. The transmission of data was too slow and often unreliable. Moreover, the logistic aspect also had major problems. The railway transport system was used for other purposes and it was overloaded, while road transport often had congestion problems so the delivery services were not possible.[114]

In fact, in 1999 in China there were just 600 websites where online transactions were possible.[115] The following years the rate of diffusion started to increase and out of 16,000 websites present on the Chinese web, only 1,100 were able to conduct e-commerce transactions. The most common ones were shopping sites, but there or there were also sites that hosted online auctions, sites for medical care and sites in which people could attend correspondence courses. It is interesting to highlight that shopping sites were mostly involved in the commercialization of online services instead of in retailing operations. This data highlighted that retailers and buyers didn't have so much confidence in transactions that took place online.[116]

This lack of faith of both Chinese buyers and sellers can be explained through the Hofstede's six dimensions of national culture theory. According to this theory, developed in 1980, different cultures can be classified through six dimensions that can explain why people from a certain culture behave in a certain way.[117] These six dimensions are the following:

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[114] Ling, Rich, et al. *China's Emerging New Economy: The Internet and E-Commerce*, World Scientific Publishing Co Pte Ltd, 2014, pg. 77

[115] *Ibidem, pg.* 66

[116] *Ibidem, pg.* 68

[117] Luthans, Doh, *The Meaning and Dimension of Culture*, in Andrea Pontiggia (a cura di), *International Organizational Design and Human Resources Management to China*, Ca' Foscari University of Venice, Department of Management, McGraw-Hill Education, 2016, pg. 150

- *Power distance*: it is defined as the extent to which members of less powerful institutions and organizations accept that power is not equally distributed. Companies in cultures characterized by high power distance have often flat organizations structure while in high power distance cultures, organizations are often centralized and have vertical structure.[118]

- *Uncertainty avoidance*: it measures the extent to which people feel threatened by uncertain and ambiguous situations and how they created beliefs and institutions to avoid these situations. People from high uncertainty avoidance cultures tend to be less ambitious employees, they have a strong need for security, they give great importance to written rules and don't take too many risks. In low uncertainty avoidance contexts people are quite comfortable with taking risks and great importance is given to unwritten rules.[119]

- *Individualism*: it measures in a society how much people take care of themselves and their relatives only. It is opposed to collectivism that is the tendency of people to be part of groups and take care of each other in exchange of loyalty.[120]

- *Masculinity:* it is defined as a situation in which the dominant values of a culture are success, money and advancement. It is opposed to femininity, that is a situation in which the values that prevail are taking care of others and quality of life.[121]

- *Time orientation*: this dimension has been added in 1988. It divides societies in long-term oriented and short-term oriented. The former ones are characterized by the ability to save and invest, they are focused on long-term results. Individual in these societies are very careful when spending money and they can easily adapt to unknown circumstances. Short-term oriented societies give more importance to the past than to the future, so they have great respect for tradition. Individuals from these cultures spend money more freely. [122]

- *Indulgence versus Restraint*: this dimension has been added in 2010 after a study conducted by Hofstede on happiness around the world. This dimension divides

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[118] Luthans, Doh, *op. cit,* pg.160
[119] *Ibidem,* pg. 161
[120] *Ibidem,* pg. 161
[121] *Ibidem,* pg. 162
[122] *Ibidem,* pg. 164

societies into two different classes. The first one is societies with high indulgence. They encourage their individuals to satisfy their human needs. People form indulgent societies are concerned about the moment and they want to live it. The other kind of societies are low-indulgence societies. Here people are told to control their emotions and to base their behavior on socially accepted norms.[123]

When speaking about the adoption of e-commerce in China, these six dimensions are useful to analyze the process and to explain where the main obstacles were.

According to Hofstede's findings, Chinese society is characterized by a high level of long-term orientation. This has a great influence on e-commerce implementation because it means that Chinese people were very concerned about their online transactions, at least at the beginning stage of e-commerce development. They wanted to have a lot of information about the purchase to avoid losing their money. In short-term oriented societies such as the American one, individuals are less concerned about money and they show an attitude more oriented towards e-commerce purchase.[124] Moreover, in long-term orientation societies the concept of trusting has a crucial impact on the use of e-commerce. Trust is the cornerstone of business relationships that are a core element of long-term oriented societies.[125] In Chinese society it is very important to interact with sellers and the bargain process is a central part of a business transaction. Without these social elements it is very difficult for a Chinese consumer to make a purchase. These reasons contributed to determine the initial diffidence that Chinese consumers had for e-commerce.[126]

One of the greatest provision taken to solve this problem was the introduction on e-commerce websites of chat tools to let buyer communicate directly with the sellers to gain information about products and try to obtain more advantageous deals. The most famous chat tool is Aliwangwang. It was developed by the Alibaba Group Holding Ltd (阿里巴

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[123] Luthans, Doh, *op. cit,* pg.164

[124] Lin Chai, Paul A. Pavlou, *What Drives Electronic Commerce Across Cultures? A Cross-Cultural Empirical Investigation of the Theory of Planned Behavior*, Journal of Electronic Commerce Research, Vol. 3, n. 4, 2002, pg. 244

[125] CheolhoYoon, *The effects of national culture values on consumer acceptance of e-commerce: Online shoppers in China*, Information & Management, Vol. 46, n.5, giugno 2009, pg. 300

[126] Maris G. Martinsons, *Relationship-based e-commerce: theory and evidence from China*, Information Systems Journal, vol. 18, n. 4, 2009, pg.337

巴集团控股有限公司; Ālǐbābā Jítuán Kònggǔ Yǒuxiàn Gōngsī), founded in 1998 by Jack Ma and it became the major global electronic marketplace in the world.[127] Besides acquiring more information about the products and trying to obtain more convenient prices, Aliwangwang also provides information about the status of the delivery. Moreover, it gives the users the possibility of recording all the messages between seller and buyer. In this way both buyers and sellers can use these messages as legal proofs in case of a dispute.[128] Thanks to these characteristics this service has been used a lot by users. In fact, according to data obtained by interviewing Taobao.com users, 99% of people stated that they used the service at least once before making a purchase and 77% declared that they use Aliwangwang to get in touch with the seller before every online transaction they did.[129]

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[127] Rashad Yazdanifard, Merveen Tan Hunn Li, *The Review of Alibaba's Online Business Marketing Strategies Which Navigate them to Present Success*, Global Journal of Management and Business Research, Vol. 7, N. 9, pg. 33

[128] Han, Tongyo, et al. "*Building a Korean Fashion Platform in Taobao, China's Biggest Online Commerce: The Case of Fashion E-Commerce Company Accommate.*" Seoul Journal of Business, Vol. 21, N. 1, giugno 2015, pg. 92

[129] Gao J., Zhang Z., *User Satisfaction of Ali Wangwang, an Instant Messenger Tool*. In: Marcus A. (a cura di) *Design, User Experience, and Usability. Theory, Methods, Tools and Practice*. DUXU 2011. Lecture Notes in Computer Science, 2011, Vol. 6770, pg. 414
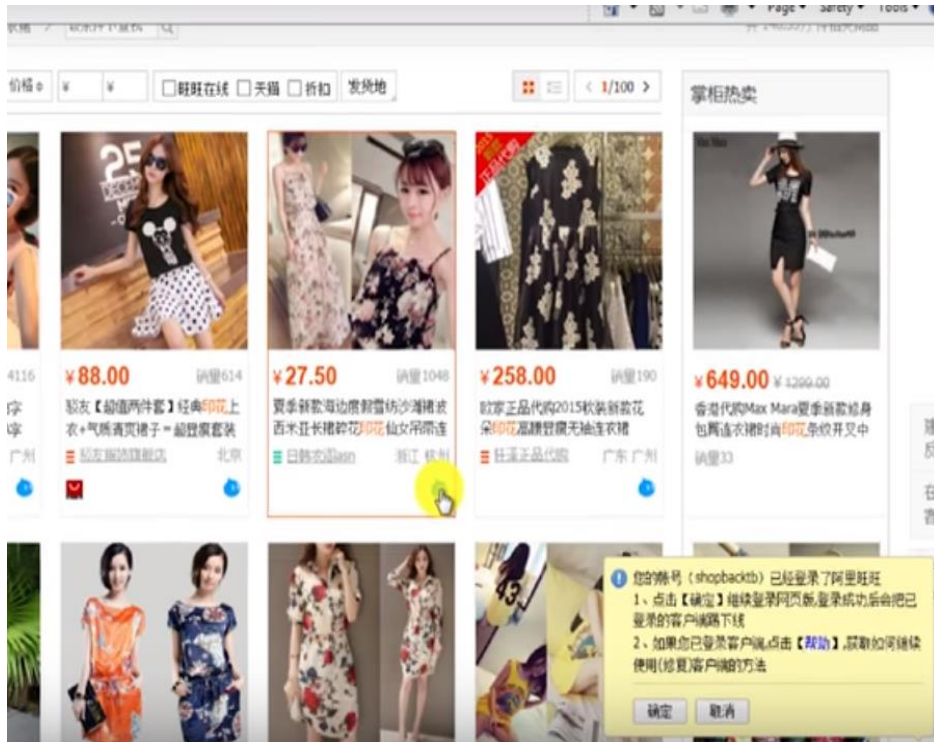
Figure 21: How to contact Taobao seller using Aliwangwang

Source: https://www.youtube.com/watch?v=XBVjpocEwNs

Figure 22: How to contact Taobao seller using Aliwangwang

Source: https://www.youtube.com/watch?v=XBVjpocEwNs

Another barrier that e-commerce activities had to overcome in China was linked with the dimension of uncertainty avoidance. Although China's score on this dimension is not so high if compared with other Asian countries such as Thailand at the beginning stages of the e-commerce development Chinese customers didn't feel comfortable with online payments because they had doubts about their security and efficiency. This had a great impact on slowing down the implementation of e-commerce practices.[130]

In the past years, although in China payments such as payments by credit cards or debit cards, payments via bank transfer or through electronic wallets were available, customers and sellers prefer to use offline payment systems. This practice was so consistent that some websites only accepted cash-on-delivery payments. According to the data collected by the CNNIC, in 2000 40% of buyers preferred cash-on-delivery payments because they were considered safer by clients.[131] Offline transactions were slower than online payments and they increased the operational costs of every purchase weakening the convenience aspect that was one of the strength point of e-commerce.[132]

A turning point of this situation was surely the introduction of third-party payment services. This kind of services had a great success in China because they are perceived by customers safer than other kind of online payments.

In 2003 Alibaba Group launched Alipay (支付宝, Zhifubao) in China. This was a revolution in the field of online transactions because before the advent of Alipay platform, it was a problem for both buyers and sellers to have information on each other and therefore it was very difficult to trust each other. With the participation of Alipay as third-party in the transaction process both buyers and sellers are more comfortable and have guarantees that the transaction won't be fraudulent because they have the possibility to verify the identity of the counterpart.[133]

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[130] Jeyashoke N., Vongterapak B., Long Y., *Does Culture Matter? A Case Study on Online Retailing Stores across Three Asian Countries*, Hasan School of Business, Colorado State University Pueblo, pg. 5
[131] Ling, Rich, et al*., op. cit.,* pg. 72
[132] Ling, Rich, et al*., op. cit.,* pg. 72
[133] Junsheng Xie, Rui Lin, *Understanding the adoption of third-party online payment An empirical study of user acceptance of Alipay in China*, Jönköping International Business School, Jönköping University, 2014, pg. 1

The strength of Alipay is how it works when unknown parties come in touch and a payment is made between them. In this case customers require an indirect payment. To guarantee each other the security of the transaction, Alipay receives the money from the buyer and store it in its official account. The sum will then be released to the seller only when the buyer has confirmed that the good purchased respects the characteristics that persuaded him to buy it.[134]
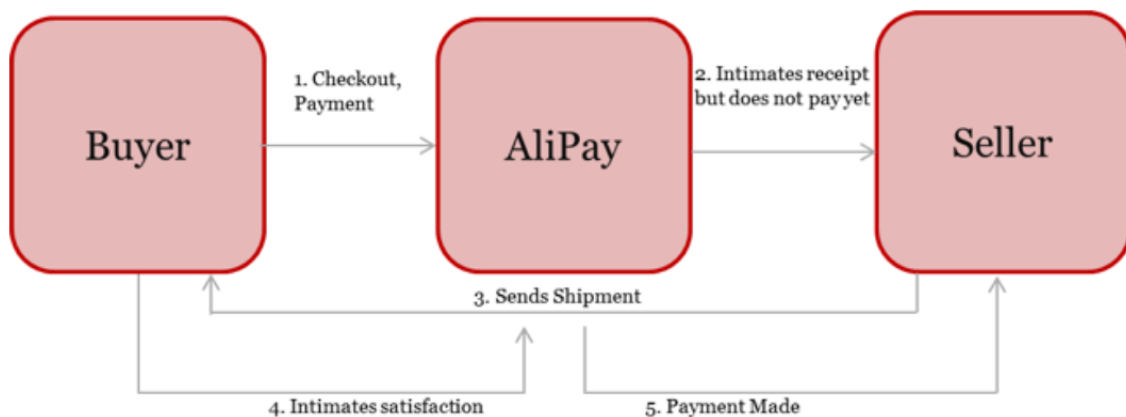

Figure 23: Alipay escrow system

Source:https://rctom.hbs.org/submission/alipay-wining-the-payments-game-in-china/

Besides indirect payments, Alipay also gives the customers the chance to perform direct payments. This solution can be adopted when the two parties involved in the transaction know each other, for example friends or relatives, or when a service is provided by the seller without the need of a shipment such as taxi rides or payment of bills. In this case the transaction is immediate.[135] Direct payments can be of two kinds. The first one is direct transaction between seller and buyer, the second one is direct transaction between non-seller and non-buyer. In the first case the buyer selects the item, pays for it, and after the seller receives the funds, the item will be sent to the buyer.[136]

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[134] Rongbing Liu, *The Role of Alipay in China*, Radboud University Nijmegen, 2015, pg. 13
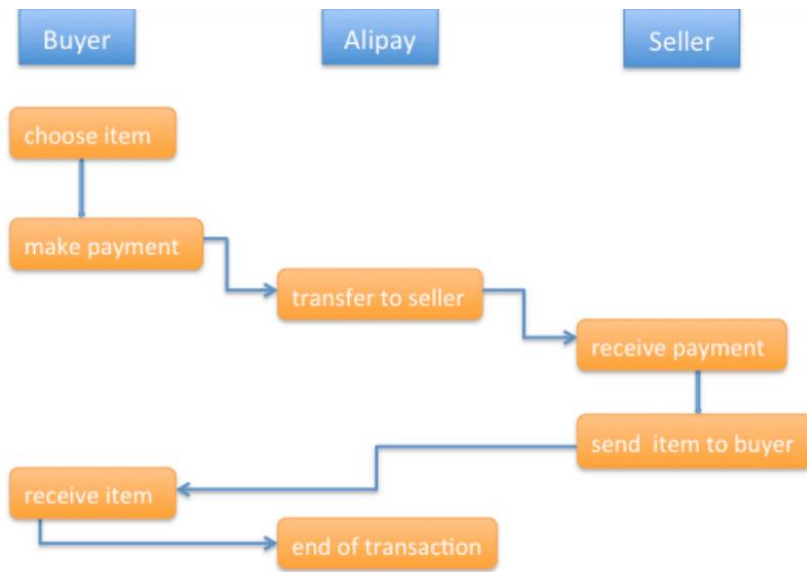[135] Rongbing Liu, *op. cit.*, pg. 15
[136] *Ibidem,* pg.16

Figure 24: Direct transaction between buyer and seller on Alipay

Source: Rongbing Liu, The Role of Alipay in China

In the second case, the sender has to select the account that will be the recipient of the payment and has to verify that this account fits the identity of the person who has to receive the money. After the verification is completed the money is successfully sent to the receiver.[137]
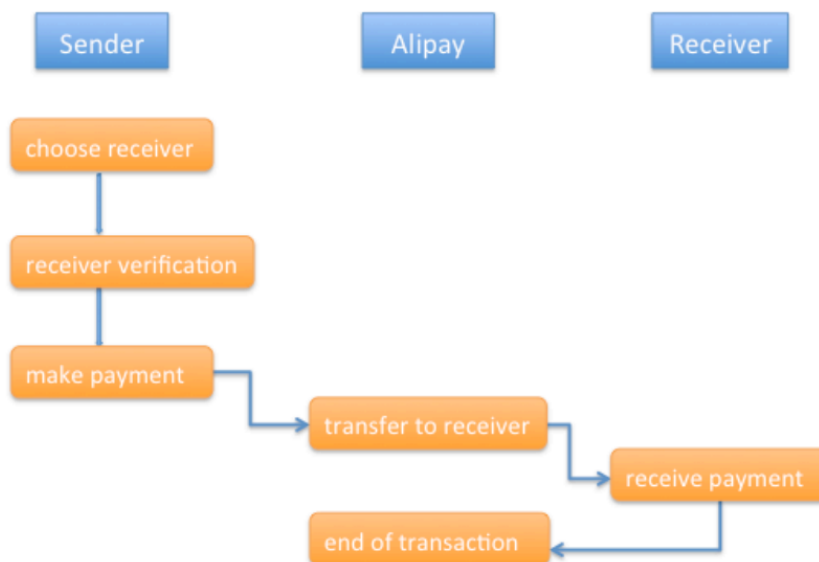

Figure 25: Direct transaction between non-buyer and non-seller on Alipay

Source: Source: Rongbing Liu, The Role of Alipay in China

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[137] Rongbing Liu, *op. cit.*, pg. 17

The possibility of choosing indirect payment or direct payment and the guarantees that Alipay offer to its users make this application very popular among Chinese shoppers. In fact, according to data published by the company Alipay now has 520 million users[138] and it is the main player in the third-party payment systems in China with a market share of almost 31%.
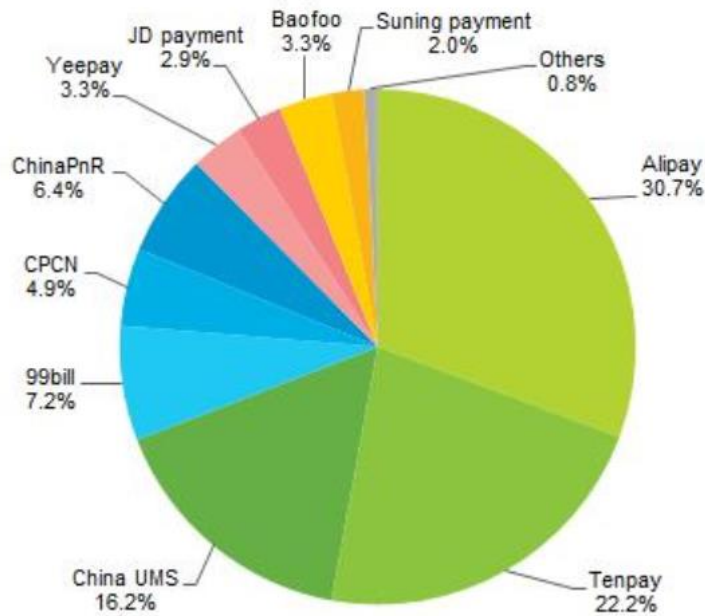

Figure 26:China's Third-party Online Payment Market Structure in Q1 2017

Source:iResearch

In China another important player in third-party payment is Tenpay. This service was developed by Tencent Holding Limited (腾讯控股有限公司, Téngxùn Kònggǔ Yǒuxiàn Gōngsī) in 2004. In the first stages of its development Tenpay had a market share much smaller compared to Alipay's. The situation has changed in recent years when Tencent decided to implement Tenpay on WeChat, its most used application. From the merger of these two applications WeChat Pay was born.[139] This third-party payment application provides users with services similar to the ones offered by Alipay, but also has a particular feature called "Lucky Money". It allows users to send cash to each other as a gift.[140] This practice was thought by Tencent's developers as an evolution of the traditional red

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[138] Alipay, https://intl.alipay.com, 27/03/18

[139] Mu Hong-Lei, Lee,Young-Chan, *Examining the Influencing Factors of Third-Party Mobile Payment Adoption: A Comparative Study of Alipay and WeChat Pay*, Journal of Information Systems, Issue 26, N.4, 2017, pg. 248

[140] *Ibidem*, pg. 255

envelopes with gift money given to relatives during the main festivities.[141] This innovation was well appreciated by Chinese customers and just on 1st January 2016 it recorded transactions for CNY 2.16 billion (US$ 254 million).[142]

The diffusion of these kinds of payment services increased the confidence that Chinese netizens have with online purchasing. Moreover, the introduction of tools that allow parties involved in the transactions to come into contact and bargain which restores the importance of relationships in business, has been decisive in contributing to the diffusion of e-commerce in China.

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[141] WeChat Lucky Money Craze in China, https://sampi.co/wechat-lucky-money-craze/, 1/04/18
[142] Mu Hong-Lei, Lee,Young-Chan, *op. cit.*, pg. 251

2.3 Alibaba's domain in Chinese e-commerce

In the Chinese e-commerce scenario there are many different players, but there is only one real giant: Alibaba. This group owns companies in every sector that are market leaders in e-commerce.
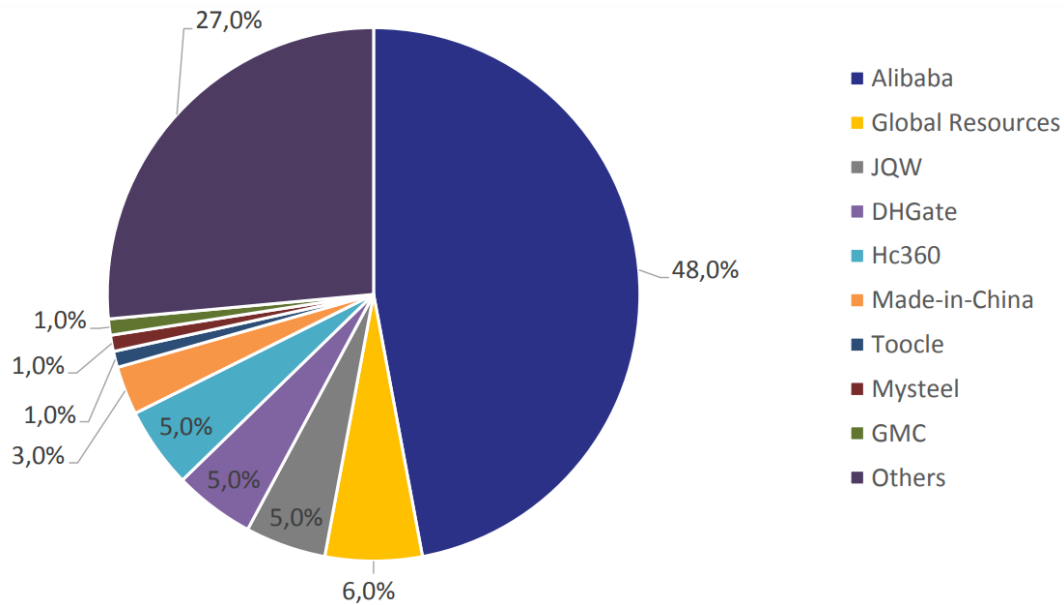

Figure 27: E-commerce in China. B2B major players

Source: iResearch

As shown in the chart above Alibaba owns almost half of the market share in B2B e-commerce. The rise of this colossus started in 1998 when it was founded by Jack Ma (马云, Mǎ Yún).[143] In the first stages of its development the company's scope was to provide free information to the enterprises that wanted to enter the B2B market.[144] Later, they started to create customized profiles for enterprises so they could get in touch easier. These services were for free in order to gain market share. However, to begin to generate an income Alibaba.com created a service called Gold Supplier. It was designated for members only who could benefit from a customized profile and other advantages such as

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[143] Honghong Qing , Zishan Xu, *A Model For Value-Added E-Marketplace Provisioning: Case Study From Alibaba.com*, College of Computer Science and Information Engineering, Chongqing Technology &Business University, Chongqing, 2009, pg. 1

[144] Wang, Guo-An, *Research in China's Alibaba's Development*, 2011, pg. 1

immediate contact with buyers while users had to wait 7 days to get in touch with clients.[145] This strategy was so appreciated by users that in 2007 there were more than 27 million Gold Supplier members. Also, it was very productive for the company and it registered revenues for more than CNY 2 million (US$ 235,000).[146]

The portal has two different versions. The first one, www.alibaba.com, is available for companies involved in international trade while the other, www.1688.com, is reserved to Chinese traders.[147]

In 2017 just on 1688.com there were 230 million suppliers while the paying member were more than 960,000.[148]
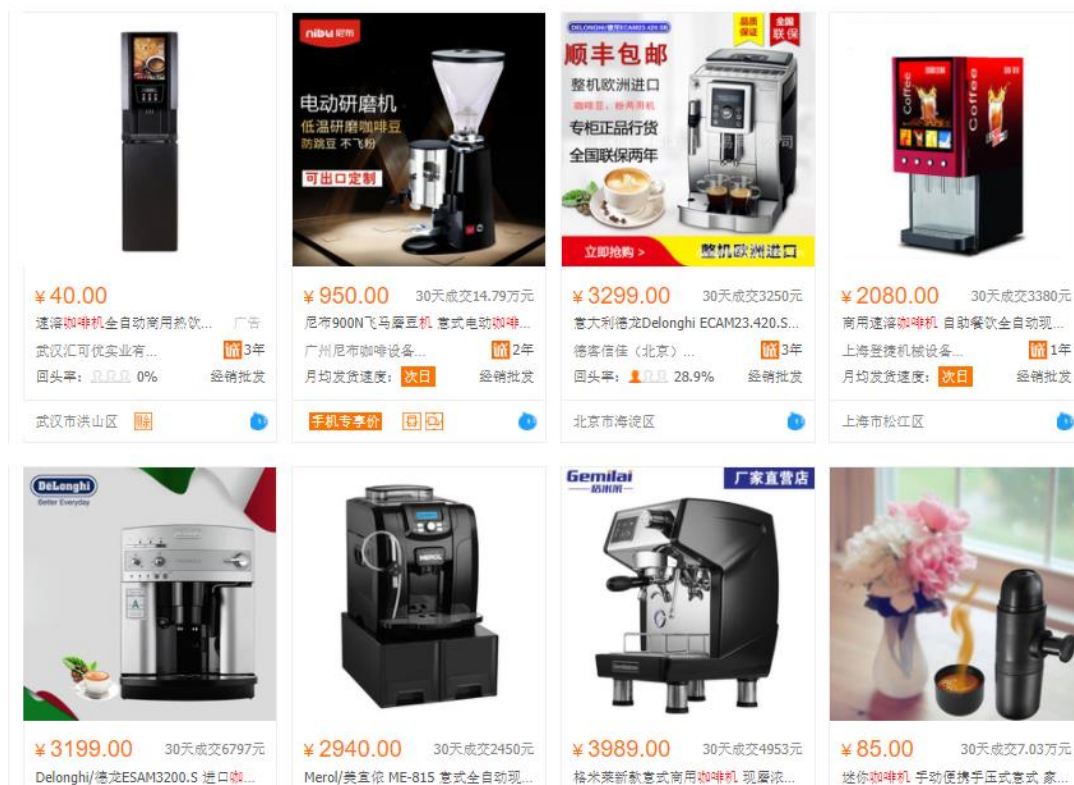
Figure 28: 1688's Web Page Screenshot

Source: 1688.com

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[145] Parissa Haghirian, *Case Studies in Asian Management World*, Scientific Publishing Co Pte Ltd, 2014, pg. 40

[146] Parissa Haghirian, *op. cit.,* 41

[147] Alibaba's Help Center, https://service.alibaba.com/buyer/faq_detail/20153592.htm, 3/04/18

[148] Deborah Weinswig, *Alibaba Group: From Strength to Strength— An overview of the business units of the world's largest e-commerce company*, The Fung Group, 2017, pg. 16
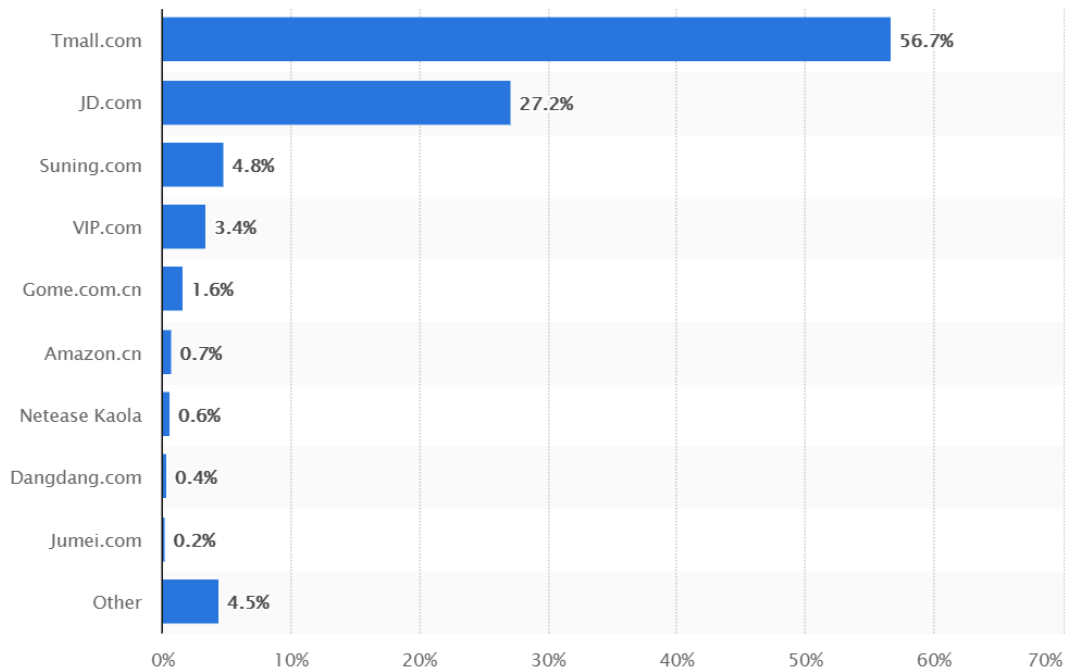
2.4 B2C e-commerce in China

Figure 29:Market share of B2C online shopping websites in China in 2nd quarter 2017

Source: Statista

In 2010 Alibaba Group created Tmall (天猫, Tiānmāo). It is a B2C platform where brands from all over the world can sell their products directly to Chinese consumers.[149]

This platform has the 56.7% of the market share in China. Customers really enjoy the Tmall shopping experience mostly because this website offers purchasers some guarantees on the quality of the products sold and it gives clients the opportunity to have their money back also without a valid reason if they return the item in 7 days.[150] The feedback system allows customer to choose better merchants by looking at the score that

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[149] Zakkour, Michael, Savio Chan, *China's Super Consumers: What 1 Billion Customers Want and How to Sell It to Them*, John Wiley & Sons, 2014, pg. 132
[150] https://baike.baidu.com/item/%E5%A4%A9%E7%8C%AB, 6/04/18

they have in that moment. The score is the result of the feedback that other buyers give to that seller.[151]

Figure 30: User's Score on Tmall

Source:Tmall.com

Moreover, Tmall allows buyers to select the payment method he prefers, for example they can choose Alipay or payment by credit or debit card depending on which payment method they are more comfortable with. Then, after the completion of the order, customers can benefit from a tracking service to know where the purchased item is at any moment.[152]

In 2014 Alibaba also created an international version of Tmall, called 天猫国际 (Tiānmāo Guójì). Here Chinese customers can buy products from international brand's stores that opened their flagship store on the website. Companies like Metro or Football Club Bayern

[151] Consumer Experience, http://about.tmall.com/tmall/consumer_experience?spm=3.6636093.0.0.22a7364eiaLpMn#place, 8/04/18

[152] Consumer Experience, http://about.tmall.com/tmall/consumer_experience?spm=3.6636093.0.0.22a7364eiaLpMn#place, 8/04/18

Munich from Germany[153] and also the American CostCo had opened their shops on Tianmao Guoji.[154]
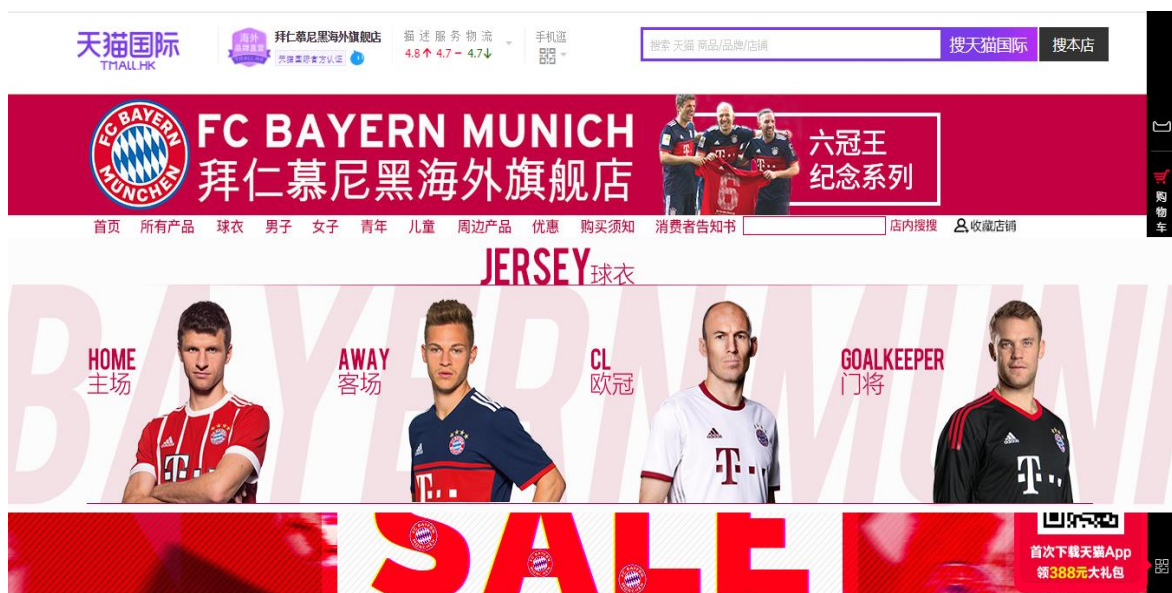

Figure 31: Official Store of Bayern Munich on Tmall

Source: Tmall.com

Tmall is the platform of choice for the most renowned brands in the world such as Givenchy, Giorgio Armani Beauty whose flagship stores are hosted in the platform. Also product from brands like Volvo, Longines, Hennessy, Dom Perignon and Baccarat are available on Tmall's Luxury Pavilion.[155]

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[153] FC Bayern launches store on Tmall Global for fans in China, https://fcbayern.com/en/news/2015/05/bayern-launches-online-fan-shop-on-tmall-global, 9/04/18

[154] Costco to enter China through Alibaba's Tmall, https://www.reuters.com/article/us-costco-wholesale-china/costco-to-enter-china-through-alibabas-tmall-idUSKCN0I314K20141014, 9/04/18

[155] Alibaba Group, *Alibaba Group Announces December Quarter 2017 Results*, Hangzhou, Feb. 2018 http://www.alibabagroup.com/en/news/press_pdf/p180201.pdf
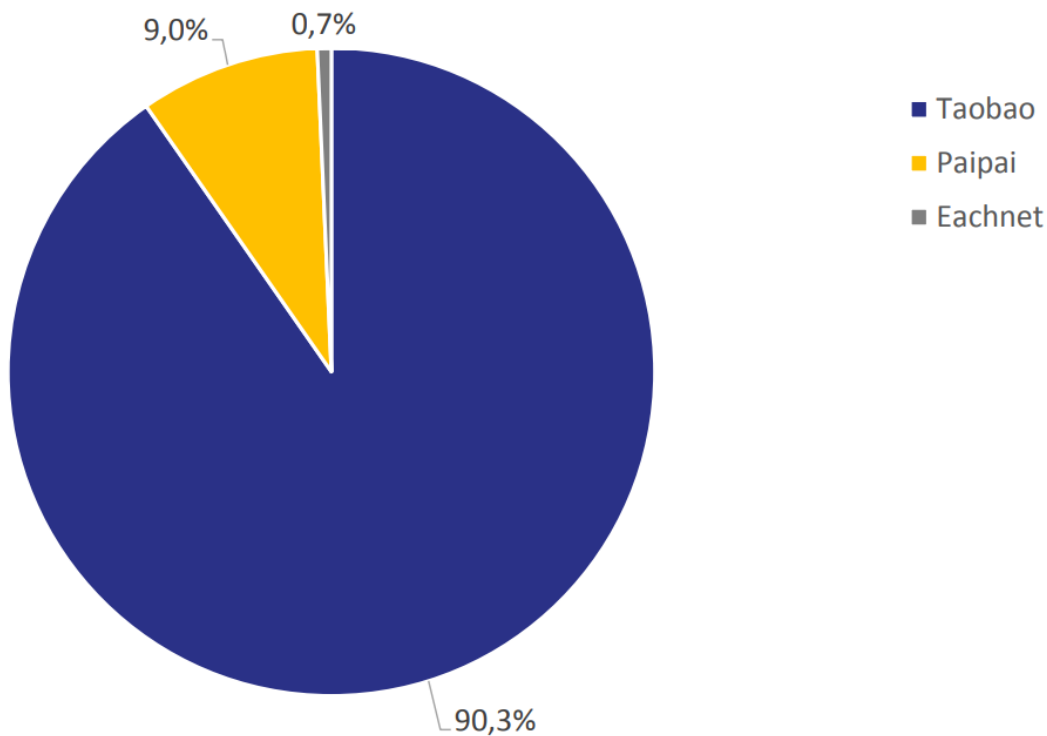
2.5 C2C e-commerce in China

Figure 32:E-commerce in China in 2011. C2C major players.

Source: iResearch

The Consumer-to-Consumer market in China is dominated by Taobao (淘宝   , Táobǎo

Wǎng). In 2003 it was launched by Alibaba Group and it rapidly became the largest C2C

platform in China, reaching 370 million users in 2010.[156] To reach this popularity among

Chinese consumers, Alibaba Group decided that Taobao should have been free at least

for the first years of its development to acquire as large market share as possible. Thanks

to this strategy in just two years Taobao was able to overtake e-Bay China. In fact, the

American company that entered the Chinese market the year before the birth of Taobao

used to charge customers when they listed their products online. In the following years

Taobao continued to innovate in order to attract more clients. To do this the company

decided to introduce Aliwangwang, a tool that allows website users to communicate and

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[156] Xue Youzhi, Guo Yongfeng, *Competitive Strategy of E-business Sellers on Consumer-to-Consumer Platform: Based on Data from Taobao.com*, Vol. 15, No. 5, Nankai University, pg. 129

to bargain in private as in real business. Moreover, they implemented Alipay in order to also attract shoppers who didn't feel comfortable with online payments. [157]

TaoBao reached 90.3% of the Chinese market share in just after nine years it was launched. When it was launched its major competitor was EachNet that in 2003 owned more than 80% of the market. In a few years the situation was completely overturned and TaoBao became the main player in the market.[158]
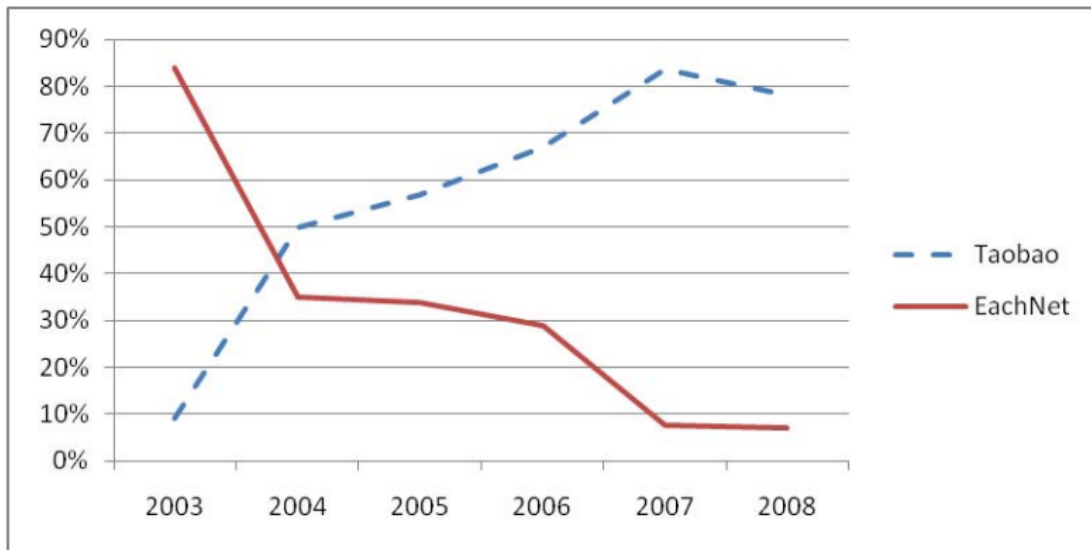

Figure 33: The Comparison of Market Share between Taobao and EachNet by Years.

Source: Wenwen Xu, Why Taobao Outperformed Eachnet: The Importance Of Website Features On E-Satisfaction and E-Loyalty

This was thanks to some policies adopted by the Alibaba owned company. Not only the implementation of Aliwangwang and Alipay and the no-fees listing process, but also other reasons contributed to TaoBao's success. For example, the advertising campaign obtained unexpected results. TaoBao couldn't conduct its campaign on mainstream media because they already had contracts with Eachnet, so they focused on billboards and other more traditional ways of advertisement. Another strength point that contributed to the expansion of TaoBao was its customer service. Since the beginning it was available for customers 24/7 and there was also an online community that could help customers to solve their issues. On the other hand, Eachnet's customer service did not exist until 2005

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[157] How Taobao bested Ebay in China, https://www.ft.com/content/52670084-6c2c-11e1-b00f-00144feab49a, 11/04/18

[158] Wenwen Xu, *Why Taobao Outperformed Eachnet: The Importance Of Website Features On E-Satisfaction and E-Loyalty*, Beijing Institution of Clothing Technology, Beijing, 2007, pg. 16

and customers could contact the website just by e-mail making it impossible to solve immediately the issues they had.[159]

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[159] Wenwen Xu, *op. cit.,* pp. 24-25

THIRD CHAPTER

O2O SERVICES

3.1 What is O2O?

When ordering food through delivery service or when riding a taxi, people often do not think about the service they are using and how they obtained it.

In a world like the one we live in, where the Internet has become an integral part of our lives and where almost three billion people own a smartphone[160], using the Internet connection to order a meal or to book a taxi ride via smartphone is something very common.

These kinds of operations are performed in two different levels: online and offline. When we submit an order on a restaurant's website we are at the online level because we are obviously connected to the Internet but when the delivery staff brings the food we ordered to our home and we eat it we are at the offline level.

This service model is called Online-to-Offline (O2O) and its purpose is to integrate online resources with offline business in order to increase the offline sales.[161]

The online part is everything that precedes the purchase. At this level customers can get information about products, select the ones that better fit their requests and pay for it. The

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[160] Number of smartphone users worldwide from 2014 to 2020 (in billions), https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/, 24/04/18
[161] Ye Yang, *The Influential Factors of Customer Experience in O2O E-commerce: A quantitative Study of What Affects Chinese Customers' Experience in Online Travel Industry Under the O2O E-commerce Context,* Linnaeus University, 2017, pg. 8

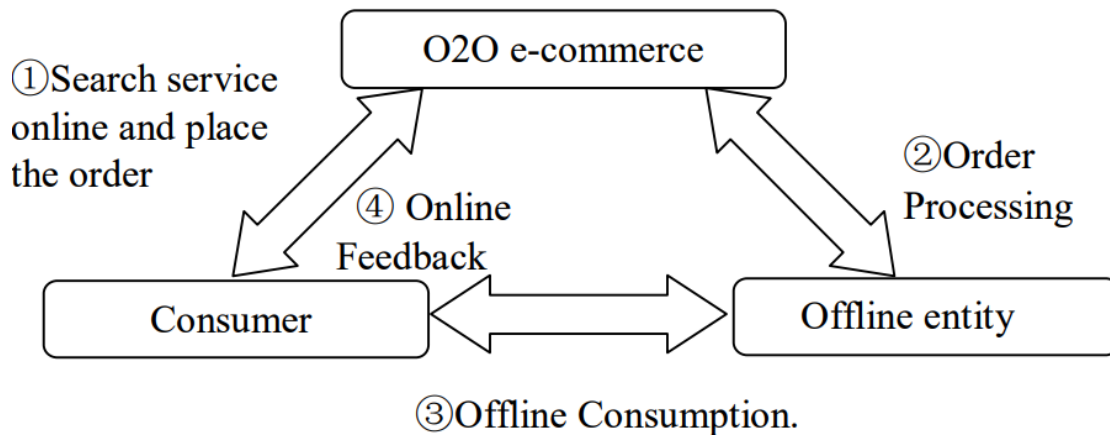offline part is the implementation of the order that allows customer to enjoy the service or the article he/she purchased.[162]

Figure 34: Operation Flow of O2O e-Commerce Mode

Source: Study on the Development of O2O E-commerce Platform of China from the Perspective of Offline Service Quality

Besides taxi rides and meal orders, another example that can explain the concept of O2O commerce is provided by services like Airbnb where you can select accommodations when travelling. A customer can select on the online platform the place where he would like to stay by applying filters on position, price, number of rooms etc. in order to evaluate the solution that best fits his/her needs. After making his/her choice the customer pays for the service and he/she will experience the product or the service at the offline level.[163]

This business model allows users to save costs. Sometimes the customer does not have a clear idea about the quantities of a product he/she wants to buy or the platform does not supply accurate information. By having a direct QA line with customers you can avoid possible mistakes when ordering. This kind of service does not represent much of a cost for the seller who saves money by not having a middle man or costs for returning

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[162] Qiongwei Ye, Baojun Ma, *Internet+ and Electronic Business in China: Innovation and Applications*, 2017, pg. 224

[163] Ye Yang, *op. cit.*, pg. 7

merchandise and/or replacement. On the other side it represents a more efficient service for the buyer improving his/her online experience.[164]

Moreover, O2O commerce can reach customers in a deeper way. In fact, when customers place an order on a platform that applyies O2O business model, the data of the purchasing remain in the memory of the system. In this way the seller can acquire data about his/her clients and tailors offers and services that perfectly suit consumers needs. In this way a stronger connection between seller and buyer is built for the benefits of both parties. The seller gets a loyal customer and the buyer gets services that better satisfy his/her needs. By stocking and analyzing this data sellers can also obtain better knowledge of the market in which they operate and can develop strategies in order to acquire more clients.[165]

Afterwards, to give customers customized services, O2O businesses offer clients the support of online sales personnel. Thanks to their preparation and knowledge they are able to propose customized services and products to better satisfy the need of the purchaser.[166]

It is clear that besides the advantages that this sort of services offers for the users in terms of cost and time savings O2O business model provides customers with services that are, as much as, possible tailored to the client needs. Customers are the cornerstone of this type of businesses. For this reason O2O services are very focused on consumers and their personality. In fact, since there are a lot of different items on the market, customers now want to buy something that is unique to their personality, and out of the ordinary. Therefore, customization of products is very important.[167]

Moreover, thanks to a general improvement of the quality of products, in these days people are more focused on shopping experience than in the past. Prices and product value are always important but not as much as before. Nowadays customers give a lot of importance on how they feel when they buy something. So, once again, it is essential that

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[164] Fang-lan Xu, Song Luo, *Analysis of the Operating Mechanism of O2O Business Model in the Retail Industry Under the Internet Plus Era*, 2016 3rd International Conference on Economics and Management (ICEM 2016), 2016, pg. 2
[165] *Ibidem,* pg. 2
[166] *Ibidem,* pg. 2
[167] Jin Zhang, *Customer' Loyalty Forming Mechanism of O2O E-Commerce*, International Journal of Business and Social Science, Vol. 5, No. 5, 2014, pg. 165

businesses invest time and money to tailor a perfect shopping experience that will fit the expectations of clients. [168]

To improve the customer's shopping experience the brick and mortar shops provide geo-located services to attract people. This is the case of Baidu Connect, a service developed by Baidu, a Chinese giant tech company, which is integrated with its map service. In this way notifications are sent to the app users when they are close to stores that offer goods on sale or have special offers. [169]

Moreover, another way to improve in-store experience is to supply shops with video-wall showing offers and deals available for customers and tools to allow clients to manage their shopping experience with their smartphone as well. For example, Lane Crawford's flagship store in Shanghai provides its customers with amazing interactive activities. By using their smartphone in certain spots of the store clients can download contents to receive a more interactive experience inside the shop and to develop a more enthusiastic attitude towards the brand. [170]

Also, another important element that can attract customers and improve their shopping experience is the utilization of QR (Quick Response) codes. [171]

The QR codes were developed in 2012 by a Toyota's subsidiary, Denso Wave. They are very similar to the traditional barcode but they store information not just along the horizontal axis but also along the vertical one so the code can store more information. To use them, customers simply scan them by using their phone's camera and then they can access the content that the code contains in just a few seconds. For example, the content

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[168] Jin Zhang, *op. cit.,* pg. 166

[169] PwC, *Delivers on O2O: How Chinese Retailers Can Respond to the Blurring of Online and Offline*, 2015, pg. 13

[170] http://red-luxury.com/brands-retail/lane-crawford-remakes-shanghai-store-into-futuristic-shopping-arcade-for-anniversary-26876, 28/04/18

[171] PwC, *op. cit.,* pg. 13

can show the coordinates in a map, a text message, information about a contact or a URL linked to a certain website or to videos.[172]

Figure 35: QR code Vs Barcode

Source: Isaac T. Asare and Daisy Asare, The Effective Use of Quick Response (QR) Code as a Marketing Tool

QR codes have various applications in marketing and they can be employed in different ways to improve the client experience. One of the most profitable use is the promotion of discounts and special offers. They are also very useful when used in advertising because videos and or other interactive experiences that they store are more effective than traditional printed advertisements.[173]

O2O business model is available also in the Offline-to-Online form. For instance this happens when a client visits a physical store and he/she is exposed to a certain service or product but then he/she places his/her order on line on the store's website.[174]

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[172] Teuta Cata, Payal S. Patel , Toru Sakaguchi,*„QR Code: A New Opportunity for Effective Mobile Marketing*, Journal of Mobile Technologies, Knowledge and Society, 2013, pg. 2
[173] *Ibidem,* pg. 6
[174] Qiongwei Ye, Baojun, *op. cit.*, pg. 25

3.2 O2O Services development in China

In China the Online-to-Offline commerce had a wide development since about 2012. Some data collected by iResearch reveal that this kind of services are very popular among Chinese netizens and that the transactions value of this commerce has increased year by year.

The most widespread O2O services are the ones addressed to the shopping of products or services that local people use in everyday life such as movies, catering, entertainment and beauty care services. In 2017 the transactions of these services reached the impressive amount of CNY 1,145 billion (US$ 176 billion). [175]
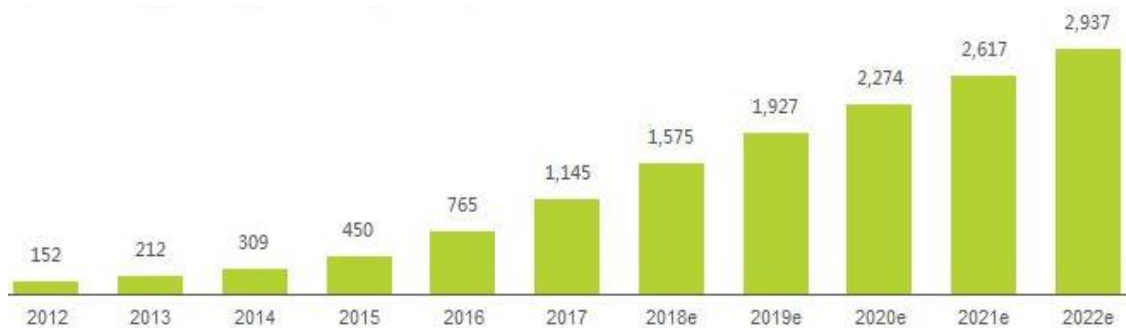
Figure 36: GMV of China's Local Lifestyle Service O2O Market 2012-2022

Source: iResearch

In recent years, studies have affirmed that the majority of transactions in O2O services are performed by women, generating 62% of the Online-to-Offline transaction volume in 2016.[176] Women shop mostly for travel or transportation services and for services linked to the food industry such as home delivery services and restaurant reservations.[177]

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[175] China's Local Lifestyle Serivce O2O Sector Data in 2017, http://www.iresearchchina.com/content/details7_40893.html, 6/05/18

[176] Women driving growth of O2O http://usa.chinadaily.com.cn/epaper/2016-03/04/content_23740942.htm, 6/05/18

[177] Types of Online-to-Offline (O2O) Services Purchased by Internet Users in China, by Gender, Dec 2015https://www.emarketer.com/Chart/Types-of-Online-to-Offline-O2O-Services-Purchased-by-Internet-Users-China-by-Gender-Dec-2015-of-respondents-each-group/184181, 6/05/18

	Female	Male	Total
Restaurant and dining/food delivery	73.0%	49.3%	56.6%
Transportation	36.8%	32.3%	33.7%
Travel	38.3%	28.7%	31.7%
Groceries/fresh food	16.0%	9.6%	11.6%
Real estate	12.9%	10.8%	11.4%
Home improvement	7.0%	6.9%	6.9%
Auto**	5.0%	6.2%	5.8%
Housekeeping	5.3%	3.9%	4.3%
Beauty	4.7%	2.2%	3.0%

Note: n=11,261; *the acquisition of services (e.g., food delivery, housekeeping, movie tickets, transportation) digitally that are then claimed/consumed offline or at brick-and-mortar locations; **maintenance, repair, cleaning, etc.
Source: Tencent Penguin Intelligence, "2015-2016 Report on the Year's Internet Trends in China," Dec 24, 2015

203107   www.**eMarketer**.com

Figure 37: Types of Online-to-Offline Services Purchased by Gender

Source: eMarketer 2015

By looking at the distribution of O2O services by age groups we can notice that in all the data clusters the percentage of users of the services is always more than 50% both in the oldest and in the youngest age group as well. This is influenced by the persistent growth of the number of internet users and smartphones among the Chinese population regardless their age.[178]

Age	
<20	58.8%
20-29	75.9%
30-39	75.0%
40-49	62.8%
50-59	52.3%
60+	50.6%

Figure 38:O2O services users divided by age group

Source: eMarketer 2015

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[178] Internet Users in China Who Have Purchased Online-to-Offline (O2O)* Services, by Demographichttp://www.emarketer.com/Chart/Internet-Users-China-Who-Have-Purchased-Online-to-Offline-O2O-Services-by-Demographic-Dec-2015-of-respondents-each-group/184180, 8/05/18

Among the services mentioned above, the ones with the largest market share are online catering whose gross merchandise volume (GMV) reached almost CNY 713 billion (US$110 billion) in 2017.[179]

When speaking about online catering services we cannot avoid to mention Idachu (爱大厨). This company was set up in 2013 in Beijing. Its main purpose is to offer consumers the opportunity to enjoy meals prepared by qualified chefs while staying in their own homes. Users can choose which chef will cook for them by reading the reviews posted by other customers on the chef's profile. Once they have decided the chef who will cook for them the clients decide how many courses they want by selecting one of three options which are four, six or eight courses. Moreover, clients can choose whether to buy the ingredients on their own or let chefs buy them.

Also, to improve customer's dining experience, Idachu offers its clients the opportunity to enjoy a five-star hotel service with trained waiters serving them.

This service is used mostly when people have to celebrate an event such as birthdays or other festivities.

Idachu initially was only available in Beijing, it is now accessible also in other Chinese main cities such as Shanghai, Guangzhou and Shenzhen.[180]

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[179] Internet Users in China Who Have Purchased Online-to-Offline (O2O)* Services, by Demographic http://www.emarketer.com/Chart/Internet-Users-China-Who-Have-Purchased-Online-to-Offline-O2O-Services-by-Demographic-Dec-2015-of-respondents-each-group/184180, 8/05/18
[180] 冯晓霞, *爱大厨玩转餐饮 O2O*, Ài dà chú wán zhuǎn cānyǐn O2O, 光彩, Brilliance, 2016, N.1, pg. 34

Figure 39: Screenshot of Idachu website.

Source:http://www.idachu.com/

Figure 40: Example of an Order Placed on the Website's Mobile Version

Source: http://www.idachu.com/

Besides Idachu, another popular online catering service is Good Chef (Hǎo chúshī, 好厨师). This platform was set up in 2014 in Beijing by Xu Zhiyan. It now runs its services in first-tier cities such as Beijing, Shanghai, Shenzhen and Hangzhou. It offers a similar service as Idachu providing customers with the opportunity to enjoy meals of the Chinese cooking traditions prepared by real chefs. The ranking method is based on the reviews of previous clients.

Another point that has been taken care of regards the security of the service. Since many customers are concerned about unknown people entering and working in their houses Godd Chef carefully checks the background of the more than 3000 employed chefs who have to provide the company with detailed information about themselves. Also, they have to pay a deposit as a guarantee to their proper conduct. On request the customer can access this information when placing an order on the platform.[181]

Figure 41:Number of Courses Selection on Haochushi Website (mobile version)

Source: www.chushi007.com

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[181] 任慧媛,*好厨师： 线下地推+ 拥抱 B 端商家*, Hǎo chúshī: Xiàn xiàdì tuī + yǒngbào Bduān shāngjiā, 中国连锁, China Chain, No. 9, 2015, pp. 32-34

Figure 42: Ingredients Option on Haochushi Website (mobile version)

Source:www.chushi007.com

Figure 43: Haochushi's Payment Method Selection

Source: www.chushi007.com

3.3 Offline-to-Online Food Delivery Services

Online catering services also include food delivery services. In 2017 in China CNY 204.6 billion (US$ 31.9 billion) have been spent for online orders and delivery services with an increase of 23% when compared to the previous year.[182]

According to the data collected by the China Internet Watch the main users of these services are white collars followed by families and students.[183]
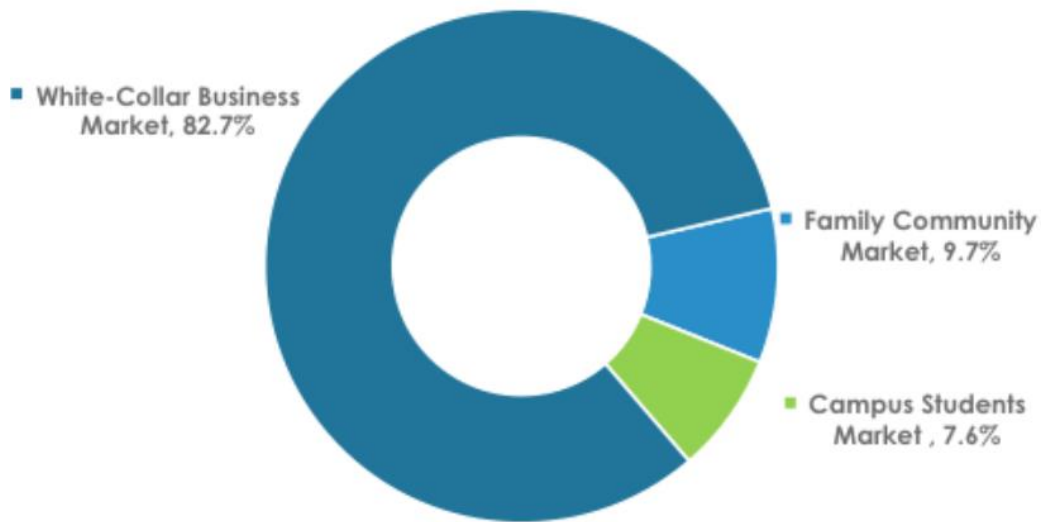
Figure 44: Market Share of China Online Food Delivery Market Segmentation by Revenues

Source: China Internet Watch

In this market sector the most important players are Ele.me (Èle me, 饿了么), Měi tuán wàimài (美团外卖) and Bǎidù wàimài (百度外卖). These three companies have more than the 90% of the market share as shown in the chart below.

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[182] China's food delivery market grows 23% in 2017, http://www.chinadaily.com.cn/a/201801/22/WS5a6564e3a3106e7dcc135bf7.html, 12/05/18

[183] China online food delivery market in Q4 2017, led by Ele.me & Baidu Waimaihttps://www.chinainternetwatch.com/23419/online-food-delivery-q4-2017/, 12/02/18
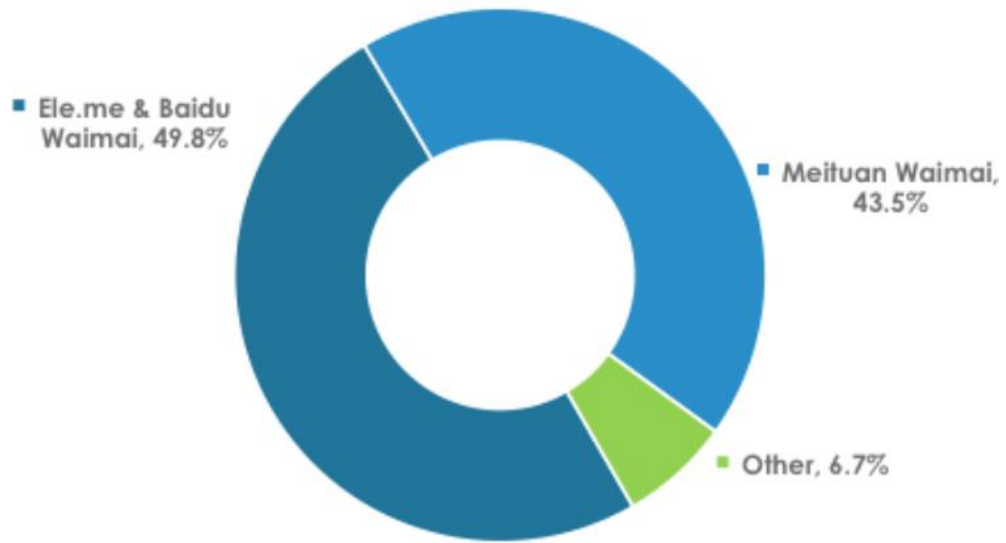
Figure 45: Market Share of China Online Food Delivery Operators by Revenues

Source China Internet Watch

3.4 Main Players in O2O Food Delivery Services

3.4.1 Ele.me (饿了么)

Ele.me is one of the Chinese largest O2O catering platform that offers its customers catering services and food delivery services. It was founded in 2008 by two students of Shanghai Jiaotong University, Mark Zhang (张旭豪) and Jack Kang (康嘉).[184]

Initially the Ele.me service was available only in the hub of Shanghai but later, from 2011 to 2012, it branched out to other China's first-tier cities such as Beijing, Hangzhou, Guangzhou and Tianjin. [185]

One of the most important steps in Ele.me expansion was the releasing in 2012 of a mobile application and the possibility for users to access and secure online payment methods.[186] The expansion process of Ele.me continued in the following years reaching more than 2,000 Chinese cities in 2017.[187]

Nowadays Ele.me counts more than 1.3 million restaurants on its platform[188] and its users base counts about 260 million people served by more than 3 million people working in the delivery staff.[189]

Initially the main users were students in universities campus. However, the founders of Ele.me soon realized that this market segment wasn't a good source of revenues due to the limited income of the students, their possibility to eat at universities canteen that offer meals at competitive prices, and periods of slow business when students were on holidays. These factors indicated that this segment could not be treated as a loyal customer. Therefore, in order to gain new customers Ele.me put great efforts into improving their

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[184] 关于我们, https://www.ele.me/support/about, 14/05/18

[185] 关于我们, https://www.ele.me/support/about, 14/05/18

[186] 孙继伟，孔蕴雯，*外卖 O2O 平台商业模式比较——以饿了么、美团外卖、到家美食会为例, Wàimài O2O píngtái shāngyè móshì bǐjiào——yǐ èle me, měi tuán wàimài, dàojiā měishí huì wéi lì*，企业管理, Enterprieses Management, 2016, N.2, pg. 1

[187] 张 晓 睿,"*饿了么"营销浅析, Èle me yíngxiāo qiǎnxī*,, 轻工科技, Light Industry Science and Technology, 2016, pg. 137

[188] Fung Business Intelligence, *Alibaba fully acquires Ele.me – Key highlights and takeaways*, "New Retail" in action, N.15, 2018, pg. 4

[189] 关于我们, https://www.ele.me/support/about, 14/05/18

logistic services by increasing the speed and the coverage of their delivery services and providing high-end options to better attract the young white collars. In this way they reached a more stable market segment with customers of more economic power than students.[190]

In its first development stages Ele.me shared its profits with the offline restaurants present in the platform.[191] The company charged restaurant owners with a fee of around 8% of the restaurant total turnover generated by using Ele.me services.[192] This solution was initially accepted by the offline restaurants. Then, with the increase of their turnover, the commissions they had to pay to Ele.me were considered excessive.[193]

To settle this issue, Ele.me decided to change their policy asking a fixed service fee to the owners that wanted to join their platform services.[194]

Using the platform's services is very easy. After log-in customers select the area in where they live, then they select the restaurants or shops in that area, and at that point they make the order. The payment is done online and customers are allowed to use third-party payments such as WechatPay or Alipay. [195]

In the past, the main competitors of Ele.me were Meituan Waimai (美团外卖) and Baidu Waimai (百度外卖). In summer 2017 Ele.me bought Baidu's takeaway services, Baidu maps service and Baidu Nuomi, Baidu group buying platform.[196] The amount of the deal was about US$800 million.[197]

After buying out Baidu Waimai, Ele.me entered in negotiations with Alibaba. Previously, in 2016, Jack Ma, who owns both Alibaba and Ant Financial, an affiliated company of Alibaba, invested more than US$ 1.2 billion in Ele.me. Then in March 2017 another

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[190] 孙继伟，孔蕴雯, *op. cit.,* pg. 2

[191] Shen Chentao, Wang Yongle, *Online to Offline Business Model: Comparative Study of Chinese O2O Companies*, Halmstad University, 2014, pg. 44

[192] 孙继伟，孔蕴雯, *op. cit.,* pg. 3

[193] Shen Chentao, Wang Yongle, *op. cit.*

[194] 孙继伟，孔蕴雯, *op. cit.,* pg. 3

[195] How to get delivered food in China with Ele.me (饿了么), http://dmb-shanghai.com/uncategorized/how-to-get-delivered-food-in-china-with-ele-me-%E9%A5%BF%E4%BA%86%E4%B9%88/, 15/05/18

[196] Ele.me swallows up Baidu Waimai, http://www.chinadaily.com.cn/business/2017-08/25/content_31084147.htm, 15/05/18

[197] Fung Business Intelligence, *op. cit,* pg. 4

US$400 million were invested by Jack Ma's group in Ele.me. This was just the preparation ground for the complete acquisition that took place in March 2018 when Alibaba bought the shares of Ele.me that it did not posses yet. The total transactions amount that allowed the Hangzhou group of Jack Ma to take control of Ele.me reached US$ 9.5 billion.[198]

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[198] Fung Business Intelligence, *op. cit,* pg. 4

3.4.2 Meituan Dianping (美团点评)

Metiuan.com was founded in Beijing on March 4, 2010 by the Chinese entrepreneur Wáng Xìng (王兴).[199]

The platform was born as a group-buying website in which users could benefit from products and services offered at lower prices. It followed the example of the American company Group-on that offers vouchers with big discounts for many services to a minimum number of customers.[200]

These services were initially offered just in first-tier cities such as Shanghai and Beijing. Then they also spread across smaller and less developed cities reaching more than 1,000 cities in 2015 with over 200 million users and hosting in its platform more than 800,000 merchants. This huge number of users was also reached thanks to the development of Meituan Waimai (美团外卖, Měi tuán wàimài), a takeaway and delivery service, in 2015.[201]

In July 2015 the company declared that in the first quarter of 2015 the delivery services generated a turnover of CNY 47 billion (US$ 7.2 billion). This service is really appreciated by users mostly because it offers an extremely fast delivery. An order is usually handed to the customers in an average time of 28 minutes.[202]

In the same year Meituan announced a merger with another giant in the O2O sector, namely Dianping, one of Meituan's major competitors in the Chinese market. Dianping was founded in 2003 by Zhang Tao (张涛). It has been providing customers with group-buying offers, restaurant reservations and coupons. However, it has become very popular

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[199] 漆莉, *美团网运营模式研究, Měi tuán wǎng yùnyíng móshì yánjiū,* 重庆工商大学学报（自然科学版）, Journal of Chongqing Technology and Business University, Vol.13, N. 15, 2014, pg. 109

[200] Ruiqi Zhao, *Customer Experience in Chinese Group Buying Business*, Department of Business and Management, Aalborg University, 2015, pg. 37

[201] *Ibidem,* pg. 37

[202] 苏王华 杨媛媛, *O2O 平台的盈利模式分析——以美团网为例，* O2O píngtái de yínglì móshì fēnxī——yǐ měi tuán wǎng wéi lì 价值工程, Value Engineering, 2017, N. 31, pg. 2

among Chinese users mostly because of its review function similar to the American platform Yelp. [203]

In October 2015 both companies issued a statement officially announcing the merger. The newborn Meituan-Dianping was assessed at around US$ 15 billion.[204]

From this merger both parties involved gained benefits, mainly for two reasons. On one hand Meituan was already strong in some business areas such as food takeaway, ticketing and hotel reservations in which products and services not only were sold at low prices but also they had an extensive diversity. On the other hand, Dianping was more focused on high-end services. Moreover, the two companies targeted different cities. Dianping services were mainly used in first and second-tier cities while Meituan services were more widespread in third and fourth-tier cities. [205]

In this way, the combination of the two Chinese companies helped the newborn one to better reach Chinese customers all over the country, to better allocate the resources of both of the two commercial enterprises and to create wider and more effective distribution channels.[206]

According to statistics recently collected, Meituan-Dianping has now 320 million users and more than 4 million merchants registered in China while the transactions volume reached US$ 57 billion in 2017.[207]

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[203] Fung Business Intelligence Center, "*China's Meituan Agrees to $15 Billion Dianping Merger*", 1 October 2015, pg. 2

[204] 周运兰, 刘晓娆, 潘泽江, *美团网与大众点评网合并案剖析*, Měi tuán wǎng yǔ dàzhòng diǎnpíng wǎng hébìng àn pōuxī , 财会通讯, Cáihuì Tōngxùn, 2016, No. 29, pg 87

[205] *Ibidem, pg. 88*

[206] *Ibidem, pg. 88*

[207] Meituan to Seek a $60 Billion Valuation in Hong Kong IPO https://www.bloomberg.com/news/articles/2018-03-23/meituan-is-said-to-seek-a-60-billion-valuation-in-hong-kong-ipo, 18/05/18

Figure 46: Screenshots of an order placed on Meituan Waimai Website (mobile version)

Source: www.i.waimai.meituan.com

3.4.3 Baidu Waimai (百度外卖)

Baidu Waimai (百度外卖) was set up in Beijing on May 20, 2014. It is the Online-to-Offline catering platform owned by the giant Chinese tech Baidu.[208]

In 2015 the platform's delivery service was available in more than 300 cities in China reaching over 100 million Chinese customers.[209] The daily order amount reached 1 million orders per day and each member of the staff employed in the delivery service perform an average of twenty orders per day.[210]

The presence of many competitors with a larger market share in the O2O delivery sector compelled Baidu Waimai to make a great effort to improve its service. The strength point of an efficient delivery service is definitely its speed. Baidu Waimai's developers figured out that by improving this aspect of their platform they could gain new customers. They invested time and money designing efficient routes in order to cover as many areas as possible of certain city. Moreover, in 2016 Baidu Waimai signed a deal with the Chinese logistic company Shun Feng (顺丰) since Baidu Waimai management considered this partnership a solution to better perform the huge number of orders they received in peak hours such as during lunchtime.[211]

On one hand, as in the case of Ele.me, the main market segment of Baidu Waimai is represented by white collars and people employed in offices. On the other hand, Ele.me reached white collars only after focusing on students in universities campuses. Probably, since Baidu Waimai entered the delivery market after its competitors, they immediately decided to focus their strategies on gaining the white collars' market. They did that

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[208] 李雪苑, *浅谈第三方外卖平台的运营管理—以百度外卖为例*, Qiǎn tán dì sānfāng wàimài píngtái de yùnyíng guǎnlǐ —yǐ bǎidù wàimài wéi lì, 经贸实践, Economic & Trade,2016, N.8, pg. 208
[209] 景琳, *百度外卖针对白领人士的推广策略*, Bǎidù wàimài zhēnduì báilǐng rénshì dì tuīguǎng cèlüè, 时代农, Times Agricultural Machinery, 2016, N.9, pp. 70-72
[210] 李雪苑, *op. cit.*, pg, 208
[211] iiMedia Research Group, *2016-2017 中国在线 餐饮外卖市场 研究报告*, 2016-2017 Zhōngguó zàixiàn cānyǐn wàimài shìchǎng yán jiù bàogào, pg. 3

starting at the very beginning to offer and to promote high-end products directed to market segments with a medium-high disposable income.[212]

Besides the economic aspect, Baidu Waimai's management was also persuaded by other white collars' characteristics. First of all, it should be mentioned the white collars need to receive their meal quickly. Often, office employees get into troubles if they leave the office to go eat because at peak hours all the nearby restaurants could be crowded and it would take a long time to be served making them late to go back to their office.[213]

Moreover, due to the fact that most office workers have fixed working hours with fixed breaks, Baidu Waimai decided to promote discounted snacks and meals during break hours in order to attract more customers in the white collar's market segment.[214]

Also, Baidu took into consideration another white-collar characteristic that is their social responsibility. Due to their medium-high educational level they are more sensitive to social issues than other market segments. Baidu Waimai decided therefore to promote some environmental friendly initiatives.[215] For example, in order to reduce the production of garbage, they started to deliver food on biodegradable packaging.[216]

Although students' segment market is not Baidu Waimai's primary target it cannot be completely ignored. As previously explained this segment has several drawbacks but it still represents a huge portion of the Chinese market. Therefore, to gain access to the students' market Baidu Waimai begun to promote discounted meals and snacks to gain students' loyalty. For example, they promoted a policy of discounts according to quantity bought. The more you buy, the lower the unit price is.[217]

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[212] 李雪苑, *op. cit.*, pg, 208

[213] 景琳, *op. cit.* pp. 70-72

[214] *Ibidem,* pp. 70-72

[215] *Ibidem,* pp. 70-72

[216] The Thin Line Between Innovation and Irritation, https://www.wsj.com/articles/a-lesson-for-tech-giants-with-great-power-comes-great-responsibility-1505988301, 22/05/18

[217] 李雪苑, *op. cit.*, pg, 208

In 2016 Baidu Waimai announced a partnership with the cosmetics leader Watson. The agreement established that in the O2O platform also cosmetics products would be available and that they would be delivered in two hours from the online order.[218]

These strategies allowed Baidu Waimai to become the third most important player in the Chinese O2O food related market, gaining almost 19% of the market share by the end of 2016.

In summer the 2017 Ele.me backed by Alibaba, bought out Baidu Waimai with an investment of almost US$ 800 million.[219]
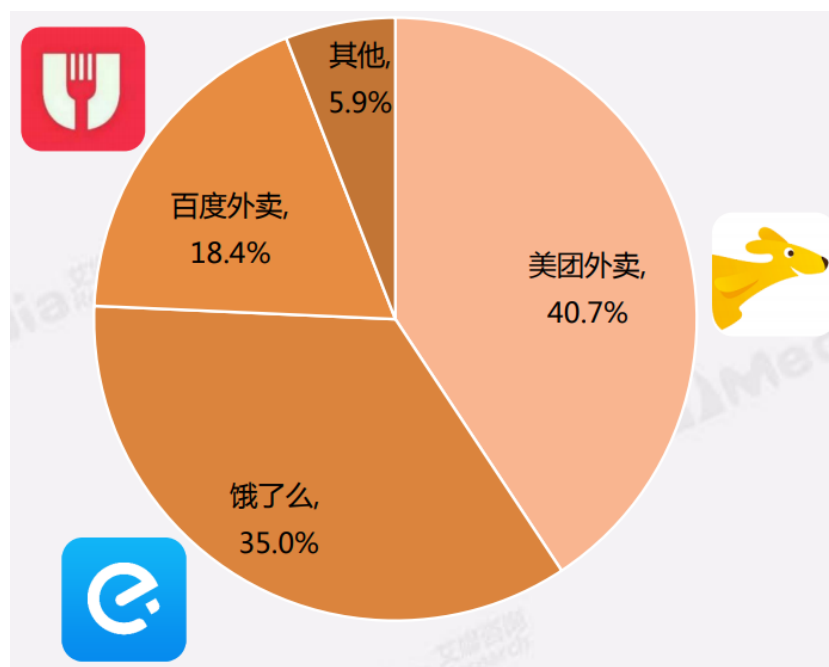
Figure 47: Food Delivery Services in China by Market Share in 2016

Source: iiMedia Research Group

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[218] Watsons reaches agreement with Baidu Waimai, http://www.aswatson.com/watsons-reaches-agreement-baidu-waimai/, 22/05/18

[219] Fung Business Intelligence, *op. cit,* pg. 4

3.5 Big Data Protection Issue

When using online services users are often required to provide personal data such as name, telephone number, address, etc.

For example, to place an order on Ele.me, Meituan-Dianping or Baidu Waimai customers have to fill in their telephone number, then they have to connect to their Alipay or WechatPay account and finally they have to write down their address in order to receive the meal they ordered at their place.

Every time users conclude an online transaction their data are kept by the websites or apps involved in the transaction. These data can be used for example to carry on studies on consumer behavior to increase sales or to predict the trends that will be successful in the future. For these reasons this type of data are useful not only for apps and websites developers but also for marketing companies as well.

Big data have been in the middle of a scandal that hit Meituan-Dianping and Ele.me on April 2018. In fact, an investigation by the Beijing News reported that thousands of customers' personal information had been stolen and sold in the black market.[220]

After an investigation was carried out, it was discovered that the leakage was not due to a bad data management of the delivery companies involved, as the companies immediately stated, but instead some of the restaurant owners and some of the drivers of the delivery companies were responsible for the data theft. It worked in this way: they would write down users' data such as customer's name, address, telephone number, ordered items etc, store this information in Excel files and sell it to telemarketing companies or other private users that most of the times used it in scam calls or to harass people. The price for about 10,000 users' data was around US$ 125. [221]

Meituan-Dianping and Ele.me stated that an option to guarantee the anonymity of users has been available since 2017. This option allows customers to protect their telephone number and other data. Although it really exists this option has to be selected by the

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[220] 外卖送餐信息被指在网上售卖, http://www.bjnews.com.cn/inside/2018/04/23/484211.html, 25/05/18
[221] 外卖送餐信息被指在网上售卖, http://www.bjnews.com.cn/inside/2018/04/23/484211.html, 25/05/18

customers and it is not set by default. This is the reason why many customers who did not know about it did not use it and allowing the theft of their data.[222]

Meituan-Dianping and Ele.me declared that they are now working on safer options for the benefits of the customers. They have already implemented some functions not to allow drivers to see customers' telephone number compelling them to communicate with clients only via App. Moreover, the addresses of users are now removed just after the delivery is completed.[223]

[222] 美团、饿了么，保护隐私为何好事不能办好？ http://www.xinhuanet.com/fortune/2018-05/22/c_1122870435.htm, 26/05/18
[223] Delivery apps in China pledge to protect user information by hiding their phone numbers, https://www.abacusnews.com/digital-life/delivery-apps-china-pledge-protect-user-information-hiding-their-phone-numbers/article/2147639, 26/05/18

3.6 Big Data Employment in Citizens Evaluation

Big data collected by tracing the online activities of users can be employed in various ways.

In recent years China announced the use of big data in developing an evaluation system to assign citizens with a certain score based on their behavior both in real life and on the way they behave online.

This social credit system project was announced by the Chinese government in 2014 to be put into effect by 2020.[224]

This project was seen by the Chinese leadership as an effective measure to cure some problems that are affecting Chinese society. Chinese government main purpose is to conceive a tool to create a trust-based economy and society by rewarding worthy citizens and companies and by punishing the ones who do not respect the law or do not behave in a proper way.

Other purposes of this project are to asses people involved in economic transaction, to check whether they are trustworthy, to restore a proper moral conduct in Chinese society by eliminating fraud and corruption and to educate people to maintain a good online behavior.

According to the Chinese government point of view, by enhancing the credibility of Chinese citizens also the Chinese economy will have a great benefit. The Chinese market will be more efficient and great issues connected to intellectual property right and counterfeiting will be reduced.[225]

Companies and individuals that do not respect the law are punished by the system that will lower their creditworthiness. A bad score can deeply influence the ordinary life of individuals and companies. For instance, if people lose their score they can be denied the

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[224] 时 事 大 家 谈 ： 中 国 社 会 信 用 制 度 ， 国 家 全 面 监 控 的 新 时 代 来 临 ？ https://www.voachinese.com/a/voaweishi-20180403-io-china-social-credit-system-why-would-beijing-want-to-rate-its-citizens/4330385.html, 27/05/18
[225] Mareike Ohlberg, Shazeda Ahmed, Bertram Lang "*CENTRAL PLANNING, LOCAL EXPERIMENTS: The complex implementation of China's Social Credit System, MERICS Mercator Institute for China Studies, 12 December 2017, pg. 4*

opportunity to send their children to private schools or to gain prestigious working positions in the future.[226]

This social credit system launched by the Communist Party has been tested in different beta-versions promoted by both government and private companies. The ones pursued by the government include policies that have been promulgated since 2015 in 43 municipalities and districts. In some provinces such as Hubei, Shaanxi and Hebei and in the municipality of Shanghai regulations on how to manage social credit information have been approved while other provinces are still developing their regulations. These first beta-version policies have been implemented in order to give priority to those economic and societal areas such as production, taxes, e-commerce and IPR that mostly need the intervention of the social credit system.[227]

The system adopted in Shanghai and in Shandong province is a good example of local utilization of these policies. Since 2016, an application called "Honest Shanghai" (诚信上海) is available in Shanghai. 24 hours after registration users receive a message with their actual credit score (very good, good, bad). In the city of Rongcheng, Shandong, the local administration assigns citizens a score up to 10,000 points. Violations and bad behaviors will result in points reduction. People are evaluated on a scale from AAA to D. The ones who have a bad score the will receive a worse service when dealing with bureaucracy, they could be asked to produce more guarantees and to undergo more detailed procedures than people with good grades.[228]

The Chinese government has also developed two platforms where useres can get information about blacklisted companies and citizens. Credit China (信用中国网) is the platform that provides information on citizens while National Enterprise Credit Information Publicity System (国家企业信用信息公示系统) is the one dedicated to find information on companies.[229]

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[226] Mareike Ohlberg, Shazeda Ahmed, Bertram Lang, *op. cit.,* pg. 12
[227] *Ibidem*, pg. 10
[228] *Ibidem*, pg. 12
[229] *Ibidem*, pg. 11

The social credit system has been promoted not only by government initiatives, but also private companies have encouraging its development.

Among these companies once again there is Alibaba. The Chinese e-commerce giant gave birth to Sesame Credit (芝麻信用). Users' data are collected through Alibaba's financial subsidiary, Ant Financial, that creates users' profile by analyzing their online behavior, taking into account their online purchases, their social connections and whether their bills are paid on time.[230]

The score on Sesame Credit is between 350 and 950. People with high score are able to benefit from special offerings on Alibaba e-commerce platforms or can access more easily to financial services provided by Ant Financial.[231]

Besides Alibaba, in 2015 also Tencent and other six companies received a license issued by government to develop pilot programs to assign users a credit score. In 2017 these licenses were revoked by the government mainly because these companies run their own e-commerce business. For this reason, they were not willing to share their findings on their customers consumer behaviors with competitors.[232]

In the end the Chinese government decided that the data collected by these companies were not relevant to the development of a social credit systems but rather to their own business. Moreover, in the government opinion, these eight companies did not have an adequate data protection policy to protect users' privacy.[233]

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[230] Nicholas Loubere, Stefan Brehm, China's Dystopian Social Credit System Is a Harbinger of the Global Age of the Algorithm, Lund University, January 2018, pg. 1
[231] Ibidem, pg. 2
[232] China changes tack on 'social credit' scheme plan, https://www.ft.com/content/f772a9ce-60c4-11e7-91a7-502f7ee26895, 28/05/18
[233] Mareike Ohlberg, Shazeda Ahmed, Bertram Lang, *op. cit.,* pg. 12

CONCLUSIONS

Since the end of the Eighties, the first email was sent from China to Germany by professor Qian Tianbai and first efforts were made to provide China with a connection to the rest of the world. Since then the PRC has gone through a series of extremely rapid and significant changes that have caused China to become one of most important players on the international stage.

It cannot be avoided to discuss the importance that the Internet had on these changes. The Internet influences society and the economy as well. In the case of China it gave the possibility of access to services that in the past were just a mirage to millions of people. Thanks to the Internet also people who live in the less developed regions of the country now have a chance to join educational programs and health-care information, just to mention a few. The Internet services can help business owners as well to be more competitive and to avoid being crushed by larger companies coming from more developed areas. For instance, in this way farmers in rural areas can be constantly updated on prices of seeds and cereals and therefore price their agriculture products in a rational way without losing in a competition with more established farming companies. Although the digital divide is still present in China the improvements that the Internet provides and the spread of technologies such as mobile phone are helping Chinese society to become more equal.

Not only Chinese society but also the Chinese economy has completely changed since the arrival of the Internet. The way of doing business is completely different nowadays. Companies from all over the world can be in touch just with a click no matter if they are in another country or even in another continent. Years ago, any information exchange process would have required several days and concluding a transaction was a long procedure. Now everything happens in real time. Information is exchanged in just a few seconds and the same is true for money.

The introduction of e-commerce represents another revolution brought by the Internet in the Chinese economy. Initially the spread of e-commerce was hindered by some factors. The first one was users' skepticism on the safety of online payment methods. Then there were problems of goods circulation due to an inadequate logistic system and also there

were some cultural obstacles such as the initial lack of negotiation in e-commerce transactions. Thanks to the efforts made by some tech companies, especially Alibaba that introduced tools such as Alipay and Aliwangwang which allowed users to receive a more realistic and safer online-experience, now e-commerce use has skyrocketed. The main actor on this scenario is Jack Ma's group that owns the largest e-commerce platforms in every e-commerce sector (B2B, B2C, C2C).

After the introduction of e-commerce business models, O2O business model started to be applied by several companies. Online to Offline business model includes all those services that allow customers to buy something online but enjoy their purchase offline. In China there are now various kinds of O2O services, but those who generate a greater turnover are the ones involved in the entertainment and online catering services such as movies, travels, restaurant reservations and food delivery. In this field the Chinese market is dominated by three main players, namely Ele.me, Meituan-Dianping and Baidu Waimai. They are not just delivering food to consumers, they are also expanding their businesses including the delivery of medicines and beauty products.

These kinds of services are supposed to continue to grow in popularity and its gross merchandise volume is expected to exceed CNY 2,000 billion in 2020.

The extent to which people in China are using the Internet and the services related to the Web is causing people to worry mostly due to privacy's issues. To be always connected and to use a lot of services that require users to fill in their personal data sometimes can be dangerous for users, especially when companies do not use adequate policies of data protection.

Big data management has become a major issue especially since 2014, when the Chinese government began to implement a Social Credit System to evaluate its citizens behavior both online and offline. The Chinese government took this initiative to create a tool to reward citizens with a proper behavior and to punish the ones that act against the law.

On one hand, in the government's opinion it was just a mean to resolve some issues that are affecting China's society, particularly corruption and fraud.

On the other hand, this Chinese government's provision raised controversy in the western media. The majority of western media reported this news as an attempt to install an Orwellian surveillance system to control citizens on every aspects of their lives and they call for human rights violations.

At this point one major question arises. While western media are concerned about Chinese government's policies on big data management, are we sure that our private data are safe?

Recent evidence proves the contrary.

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