Professional MBA
Automotive Industry

Influencing of Car Apps to the Marketing Strategy and After-Sales Service in Automotive Industry
— A Case Study of Dongfeng Peugeot

A Master's Thesis submitted for the degree of
"Master of Business Administration"

supervised by
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Vienna, October, 08,2016

Affidavit

I, **LEI ZHANG**, hereby declare

1. that I am the sole author of the present Master's Thesis, "INFLUENCING OF CAR APPS TO THE MARKETING STRATEGY AND AFTER-SALES SERVICE IN AUTOMOTIVE INDUSTRY — A CASE STUDY OF DONGFENG PEUGEOT", 60 pages, bound, and that I have not used any source or tool other than those referenced or any other illicit aid or tool, and

2. that I have not prior to this date submitted this Master's Thesis as an examination paper in any form in Austria or abroad.

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Content

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Abstract:

With the popularization of intelligent mobile terminal and the rise of auto third-party software —— auto apps, the auto industry in the dilemma of traditional marketing will greet the new phase of automobile marketing and after-sales service where auto apps are becoming the focus of auto makers and their features decide that they will surely be the main approach to automobile marketing and after-sales service in the future. Compared to the traditional mode of automobile marketing and after-sales service, auto apps are cheap, accurate and convenient with no time and space limitations and high adhesiveness of users, quietly grabbing market share and bringing unprecedented opportunities to the auto industry. Their emergence not only breaks the pattern of traditional automobile marketing but also makes the aftermarket face a reshuffle. As BMW, Audi, Volkswagen take the lead to tentatively launch their branded apps with great success, auto makers follow suit to expect a market share; besides these branded apps, a large number of other auto apps are coming on to the market, bringing fresh vitality to the industry and convenience to car owners and potential buyers. However, everything has two sides, where there are opportunities, there are challenges. It is inevitable that auto apps in the intelligent mobile terminal replace computers as a main pattern of automobile marketing and after-sales service. But in the meanwhile, the hot market will see more intense competitions between like products, and gaining share is not an easy task though there is a great temptation. A flow of these apps makes an auto market with serious homogenization, especially in the aftermarket. Any enterprise or group attempting to introduce a new auto app has to "pour much money" into marketing, which has no essential difference from the traditional marketing. In the age of intelligent mobile terminal, we may not conclude that user experience and demand are changing irregularly or invariable though users have more free choices. In a word, only by suiting to the user needs and continuously improving apps can enterprises survive in the market.

Keywords: intelligent mobile terminal; auto apps; automobile marketing; after-sales service; homogenization

1   Introduction

1.1   Grounds for topic selection

1.1.1 Popularization of intelligent mobile terminal results in many apps

Since its introduction, the intelligent mobile terminal (which in particular refers to smartphones, tablet PCs with mobile apps) has outstripped feature phones as a "treasured object" in people's mind within a few years. We call it an "intelligent" terminal because it makes our life easier, richer and more exciting besides basic functions provided in previous mobile terminals. Its emergence makes many people become dependent on intelligent mobile products when they are sleeping, walking, eating, riding or even going to the toilet (Fig. 1). People are crazy about it because they are now free to study and work anytime and anywhere with these intelligent mobile terminals in hands rather than at fixed times and places as in the past, lets put it this way: these limitations are broken after the rise of apps.

Fig. 1 Intelligent Mobile Terminal in People's Life

According to The Next Web, a new report from NPD said that shipments of smartphones in 2013 reached 937 million globally, surpassing feature phones for the first time [1], which are expected to exceed 1400 million worldwide in 2016.
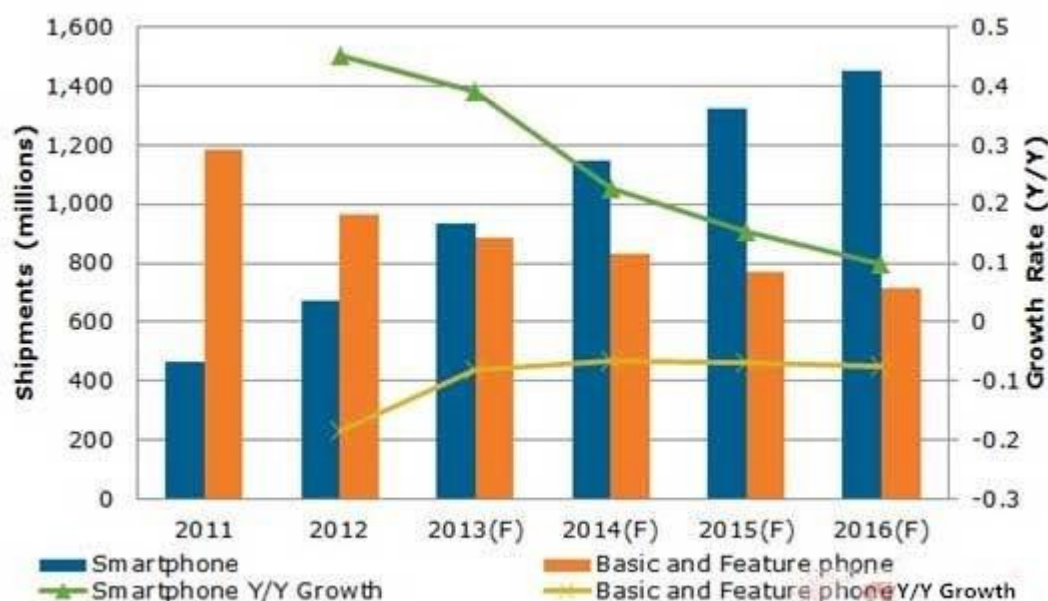
Fig. 2 Global Shipments of Smartphones in 2013

Such overwhelming global expansion thanks to the third-party software – apps in the intelligent mobile terminal, typical examples include social app, game app, entertainment app and life app. Like the intelligent mobile terminal, these apps are becoming a new favorite in all walks of life at a tremendous speed and their popularity can only be described as the "transport during the Spring Festival" thought it is not very appropriate. These products are now developing fast in a way that any previous electronics couldn't. There were less than 500 apps in 2008 when Apple Inc launched its App Store, but the number of apps in App store had reached 500,000 in the followed three years, with 15 billion downloads accumulatively *[2]*. Statistics from Gartner showed that downloads from the world's largest application stores including Apple App Store, Google Play, Blackberry APP World, Amazon App

Store, Windows Phone Store reached 300 billion in 2016 (Fig. 3).

	2011	2012	2013	2014	2015	2016
Free downloads	22.1 Billion	40.6 Billion	73.3 Billion	119.9 Billion	189 Billion	287.9 Billion
Paid-for downloads	2.9 Billion	5.0 Billion	8.1 Billion	11.9 Billion	16.4 Billion	21.7 Billion
Total downloads	24.9 Billion	45.6 Billion	81.4 Billion	131.7 Billion	205.4 Billion	309.6 Billion
Percentage free downloads	88.4%	89.0%	90.0%	91.0%	92.0%	93.0%
Source: © Gartner.com						via: © mobiThinking

Fig. 3 Global App Downloads (2011~2016)

According to the 2016 global data report issued by App Annie, besides mature markets like those in U.S., Japan, BRIC (Brazil, Russia, India, China) with great market development potential have made a big contribution by accounting for nearly 30% in global total downloads, in which China has undoubtedly become a major force in the app market at the fastest rate of growth amongst developing countries *[3]*.

As for time consumption on apps, the data from Nielsen suggested that about 37.5 h was spent on apps in intelligent mobile terminal on average each month in the fourth quarter of 2014, up by 63% from two years ago *[4]*.

This shows that intelligent mobile terminal and apps are changing our life and lifestyles, and apps have profound influence on people's life, study and work, no matter in a developing or developed country. Such influence is similar in significance to but further than that exerted by means of transport (e.g. airplane, high-speed rail) on the way people travel.

1.1.2 Auto apps are changing the auto market structure and buying habits of consumers

Since the introduction of Apple Inc APP Store, the soaring number of apps and downloads makes app soon become a new moneymaking target of business in various industries, and rank among the mainstream media of the new era. The auto industry also gets involved in this competition, and both auto markers and IT industry regard the app as an important way of new automobile marketing and after-sales service. The emergence of auto apps changes not only the automobile marketing and after-sales service mode but also the buying habits of consumers. Of course, it is hard to tell which side is positive and which side is passive, we can only put it this way that the times produce their situation. For manufacturers, traditional automobile marketing and after-sales service are mainly carried out through TV, radio, ads and computer network, supplemented by print ads in a small coverage and auto show which is also an important aspect of marketing. Car purchase and maintenance are also made through these ways. The introduction of auto apps results in a higher social participation in automobile marketing and after-sales service, and more detailed division of automotive field, moreover, the coming of app marketing era brings us more choices.

Recent years have seen an increase in the number of mobile internet users and apps in each field. China has been the world's largest smartphone market since 2011, growing the fastest in the app market [5]. In the first half of 2015, among the top 20 in growth of app segments in China, there were three auto apps including car-sharing app, car maintenance-related app and car rental-related app (data from Quest Mobile).
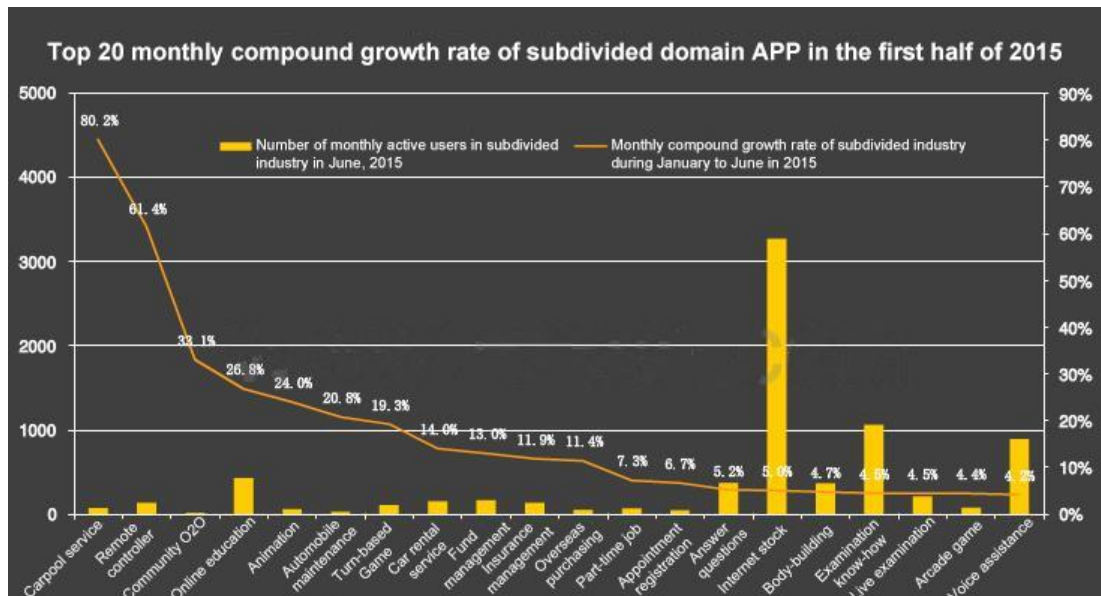
Fig. 4 Top 20 in Growth of App Segments in China in the First Half of 2015

According to the market research report issued in September 2015 by Cred Data jointly with Yunduimedia, capmclub, buycar, renhedao and jiepaikuche - *Survey on Utilization of Auto Apps of Potential Buyers (By Brand) – Auto Apps Survey Data Report* (Fig. 5), Volkswagen's apps showed the highest utilization of 74.8%, followed by Chery and BYD which were 70.4% and 68.4%, respectively *[6]*.
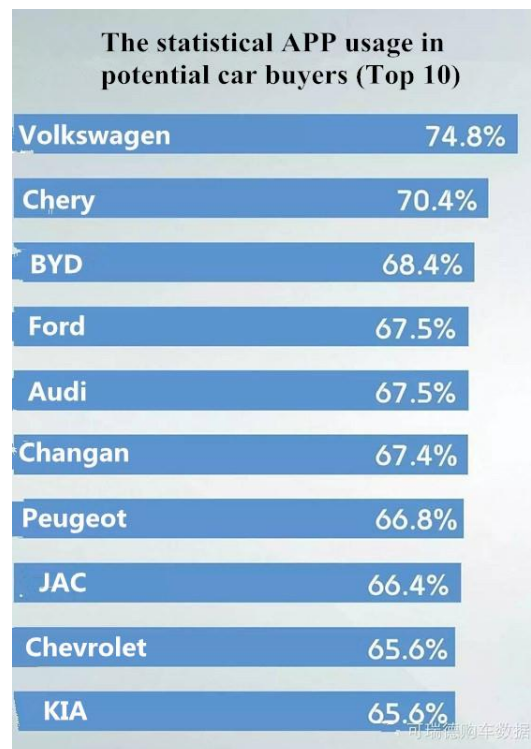
Fig. 5 Top 10 in Utilization of Auto Apps of Potential Buyers in 2015 (By Brand)

From the above survey data, the utilization of these branded apps exceeded 60%, that is to say, more than half of potential buyers will seek purchase information by consulting apps. Combined with rapid growth of auto apps market, auto apps are replacing the traditional mode of automobile marketing and after-sales service as the main approach. They are not only changing the market structure but also our lifestyles

1.2　Research objectives.

1.2.1 Identify the future development tread of auto apps more clearly

As the product of intelligent mobile terminal, auto apps bring great convenience to people's life. For the current market, the rise of auto apps produces macro-benefit in the auto industry. The future development trend of auto apps is analyzed while discussing their influence on automobile marketing and after-sales service.

1.2.2 Use the findings as the guidance and reference for automobile marketing and after-service market

The features of auto app that distinguish it from traditional marketing position it in the core of automobile marketing and after-sales service in the future. However, any hot market will give rise to serious homogenization which can be seen in the current auto app market. Therefore, whether we can grab market share among like products depends on the users of intelligent mobile terminal. To this end, the research findings can be consulted in automobile marketing and after-sales service to some extent.

1.3 Overview and research proposal

1.3.1 Overview

With the emergence and popularization of intelligent mobile terminal, its app is becoming a ready source of money of business in the new era, and the rise of intelligent mobile terminal has eclipsed enterprises that were champions (e.g. NOKIA) in the industry of mobile electronic products. China market has seen a large number of intelligent mobile terminal products which are hot worldwide, such as MiOne, ZTE, and various apps develop prosperously, including auto apps.

Before the emergence of intelligent mobile terminal, automobile marketing is mainly carried out through TV, radio, ads, 4S shop experience, test drive, auto show and internet, which are called the traditional marketing mode. With the popularization of intelligent mobile terminal, auto apps become the "business target" auto makers seize rapidly. Besides apps launched by manufacturers or 4S shops, those with different functions have sprung up, such as the front-end purchase info apps (Car Price List, autohome); middle-end cab-hailing apps (Didi Car-sharing, 51 Car-pooling), maintenance apps (Diandian Car Maintenance); back-end traffic violation inquiry apps (Chelun Traffic Violation Inquiry, China Traffic Violation Record Lookup). It is easy to see from the hot market of auto apps that cheaper apps providing accurate customer orientation, convenience and removability based on the discontinuity and fragmentation of user time of intelligent mobile terminal have become the main group in automobile marketing and after-sales service. Therefore, it is of substantive significance to study their influence on automobile marketing and after-sales service.

1.3.2 Research status

There are relatively less researches on such kind of topic in academia, and most of existing data are reports organized by media. In the APP Era, Subverting the Automobile Marketing [7], the author points out that rapid development of intelligent mobile terminal is a great challenge to the traditional automobile marketing, as APP marketing is more diversified and better fits to user needs. In today's world where the intelligent mobile terminal will soon dominate the IT industry, APP marketing will certainly be the core in automobile marketing. In the Research on Application of Mobile App Marketing in Automobile After-sales Service, based on the summary of mobile app features, Chen Rongzhang et al [8] point out that in this era, manufacturers or dealers shall promote the brand image and public praise by taking the car as mobile terminal based on independent development of after-sales service apps via existing media like Microblog, Wechat. On the whole, there is lack of integrity and comprehensiveness in the research on such topics. For this reason, this paper focuses on the research and discussion in this regards.

1.4   Research method

The research is carried out based on the established and scientific big data, with a combination of various research methods. Firstly, the literature and information research method is adopted in analysis and arrangement of documentation related to existing auto apps, automobile marketing and after-sales service to provide a deep insight into the development status of auto apps and evolution of automobile marketing and after-sales service mode; then the relevant conclusions are drawn by combing the survey research and the case study on the basis of data collection.

2 Overview of Auto APPs

2.1 Emergence and development of auto apps

In February 1999, the Japanese mobile operator NTT DoCoMo launched a mobile internet service i-mode based on its unique mobile communication standard PDC, which becomes the world's most popular mobile Internet services for it includes almost all applications of mobile data services, and whose user number had rapidly increased to 14 million by October, 2000. I-mode adopts the charging mode by amount of information and mobile phone users can remain the "on-line" state. The cooperation mode with manufacturers and information content providers that NTT DoCoMo adopts in the development of i-mode service has become a new example of business model for mobile data communications and is followed by mobile operators in various countries. Meanwhile, the success of NTT DoCoMo's i-mode provides a very good basis for the development of the third generation mobile communication (3G). The FOMA launched in 2001 opens the 3G era of mobile services *[9]*.

In 2008, Apple Inc introduced the App Store, and this innovative marketing mode where cell-phone applications are taken as digital content to make a platform-based distribution was a great success. This mode got rapid progress, and it integrated the dispersed industry chain resources and opened up new market segments [10]. The advent of the App Store opened the prelude to the APP era, and also opened the APP marketing era of the automotive industry.

In June 1995, OnStar was established as a wholly owned subsidiary of General Motors Corporation and became the exclusive configuration of automobiles, whose main technique is to provide for mainly the GM automobiles with security information services, including Automatic Collision Notification, roadside assistance, remote unlocking, remote vehicle diagnostics and road navigation and other services. Onstar has been constantly seeking innovation and technological improvement since its establishment, and it has more than 6 million users in the United States and

Canada. As the automobile security information service technology, OnStar is undoubtedly very successful, and compared with the currently very popular automobile branded apps and on–board apps, except the difference in the background of emergence and times, there is no essential difference in the functions and technologies. In 2010, Mercedes-Benz became the world's first manufacturer that applies the DSA system, and named the system "e-Star", and since then, more than 20 automobile manufacturers and dealers such as BMW and Audi have also begun to apply the ipad and other mobile devices to the sales and management in their 4S stores [11]. Meanwhile, major auto manufacturers have launched their own branded apps (Fig. 6) in succession and the apps in the market segments of the automotive industry are showing a tendency of blowout.

Fig. 6 Major Automobile Branded APPs (Section)

2.2 Features of auto apps

2.2.1 Low cost

The traditional automobile marketing and after-sales service are mainly carried out through TV and radio ads, auto webpage promotion, Auto show and so on, among which either the TV and radio advertising or the web advertisement and Auto show will take a huge amount of endorsement fees, advertising fees and other expenses. In contrast, the cost of auto apps is reflected in the early-stage development, middle-stage market investment and promotion and late-stage system maintenance and updates. Comparing the two models, the traditional one has inferior interactivity and timeliness than the app model and meanwhile not only the advertising is unilateral but also the space is limited; while the app model has good two-way interactivity and immediate feedback, and its page space may be adjusted arbitrarily *[12]*. In other words, the auto app marketing means take lower cost than the traditional automobile marketing means.

2.2.2 Convenience

The hot market of auto app is established on the basis of the popularization of intelligent mobile terminal, for which the network can be interrupted, mobile and not limited by time and region when in use so that the user can use any time and any where compared to the computer. Nowadays as the intelligent mobile terminal is widely used, "phubbers" can be seen everywhere; for businesses, the fragmentation of the time has become valuable due to the emergence of intelligent mobile terminals, and for users, making full use of the fragmentation of time can save a lot of time costs. Taking the car-buying as an example, for the consumer, according to the traditional buying mode, to buy a favorite and suitable car can be said to be a not small battle. You need to spend plenty of time in lingering in the automobile forums, collecting and studying relevant information before buying, and you need to go to various 4S shops during buying to take a look of the car, have a test drive and comparison, bargain, wait and pick up your car, which may be a "really wearing" job and will take a lot of time and energy. However, the emergence of the auto apps makes the buying easier and more convenient. When consumers have the buying

demand, they can firstly get a multifaceted understanding and comparison of the purchase information through the auto news apps, and meanwhile they can fully understand the selected car model through the favorite branded app, select suitable 4S shop to book and go there to pay and pick up the car. In contrast, the buying mode of auto app is more convenient and saves time and effort.

2.2.3 Accuracy

The emergency of the APP has largely saved the time costs for users and potential users. Taking the automobile marketing as an example, the traditional automotive marketing mainly relies on ads and auto shows, but after all, the advertising time and page are too limited to fully reflect the advantages of a car, mainly making macro show or relying on celebrity endorsements, and potential users are passive acceptors, so it is difficult to seize the user. Relative to the ads, the user can know the specific performance and various parameters of the car in Auto shows which enables a more comprehensive understanding of the car; however, only small part of the potential customers visits the Auto shows, therefore the Auto show is limited in the number of audience. The emergence of the auto apps enables the users and potential users to choose to download and use relevant apps according to their own needs without spending a lot of time to search related content in the website or traveling to various 4S shops of different brands, and through the app notification push, one can master all the information they need within doors.

2.2.4 High adhesiveness of users

In the era that it is necessary to rely on the traditional computer network, the user can only choose to browse the official websites of major auto makers or auto websites to understand the related auto information, however, the user cannot stay at a website for a long period because the traditional computer network has time, space and regional limit. But the auto apps can well make amends for this disappointment, as long as the user has downloaded the required app and this application can meet the needs of the user, then this app is less likely to be uninstalled by the user, at this time, for the user, the value of this app is reflected, and the businesses can deliver the

brand information to the user through the app. This is a basic advantage of auto apps compared to the auto-related websites of the traditional computer network.

2.2.5 Other features

Compared to the auto-related webpage in traditional computer network, the auto apps have a significant advantage in function, and the typical examples include the taxi-hailing app, map and navigation related apps, etc. With the high development of the society and the improvement of people's living standard, in addition to private cars, travel by taxi has become a new way of life and trend, such as the Didi Taxi in China, Uber in USA, Hailo in Britain and Autowale in India. In addition to the taxi-hailing apps, the map and navigation apps have also become a necessary good product for travel. Using map and navigation apps to find the destination, check the traffic situation and plan the transportation routes, etc. has saved users a lot of time and money for travel. At the same time, the taxi-hailing related apps can not be separated from the navigation APP as well, for example, cooperation of Uber with the Baidu Map.

2.3   Application status of auto apps – a case study of Chinese market

The introduction of Apple Inc's App Store in 2008 largely has speeded up the market growth of the intelligent mobile terminal and APP, while China has become a country with fastest growth in intelligent mobile terminal and APP downloads and with largest market potential. In terms of the automobile market, the global auto industry was weakened in 2015 and the global auto sales growth slowed down

According to the data compiled by the auto industry data provider WardsAuto.com, the South American and Russian markets fell sharply in 2015, while the steady growth of the Chinese market has injected vitality into the automobile market.

2.3.1 Classification and application of auto apps

The auto apps may be divided into the automobile marketing type and after-sales service type in general; in terms of functions, it may be divided into News, tools and social type; in terms of usage phase, it may be divided into the front-end purchase news type, middle-end car maintenance, repair, taxi-hailing, car rental, map and navigation, and back-end traffic violation inquiry type, etc. The automobile marketing apps are mainly from the branded apps that are developed by major automobile manufacturers independently or with IT companies, for instance, the Mercedes-Benz, BMW, Audi, Chevrolet, Buick and Ford have launched their own branded apps.

In addition to the automobile branded apps, other auto apps developed by the IT industry actually occupies a large market of the auto industry at present. For instance, the news apps such as Autohome and Car Price List, which mainly push various brand automobile information to the intelligent mobile terminal and meanwhile generate relevant data according to the usage in terminal for user's reference; second-hand car related apps such as Guazi and Youxin Second-hand Car, which, as the second-hand car trading and consulting platform, contain a large amount of relevant second-hand car information to provide advice and reference for car buyers; social auto apps such as Autohome and Motorists' Club, which belong to a place for motorists to exchange their unique experiences; maintenance related apps such as Diandian Car Maintenance and Tuhu Car Maintenance, which provide maintenance and repair services or information for user's reference; taxi-hailing related apps such as Didi Taxi and Uber, which are based on app and combine the map and navigation related apps to send the customers to their destination, and for which the difference from the taxi is the emphasis on user experience; driving test related apps such as Driving Test Book and Shortcut to Driving Schools, whose main function is to provide users with driving test information and practice; traffic violation inquiry related apps such as Chelun Traffic Violation Inquiry and China Traffic Violation Record Lookup; map and navigation related apps such as Baidu Map and Amap, which not only have the basic map inquiry and navigation functions, but also can

combine the map to provide many convenient life and entertainment services, such as group food buying and film ordering; mobile car wash related apps such as Guagua Car wash and e-Car Wash. It can be said that the automobile app market has flourished everywhere with everything you need in recent years, and the quick updating and the overall coverage of products makes it far beyond reach of the previous electronics industry.

2.3.2 Market and usage analysis of auto apps

With the rise of intelligent mobile terminals, the auto apps began to emerge in various fields, and since various auto makers launched their branded apps, the IT industry have also started to invest a lot of manpower and financial resources in the automobile field. The branded apps launched by the auto makers mainly focus on the automobile marketing and owner's after-sales experience, while the investment of IT industry in the automobile field mainly focuses on the auto news apps and after-sales service apps.

1. Brief analysis of automobile branded apps

Among the branded apps launched by auto makers or dealer and 4S shops, take the fairly successful and practical Mercedes-Benz automobile marketing app and Chevrolet app promotion software as examples *[13]*. In the Mercedes-Benz automobile marketing app, parameters such as model parameters, fastest consultation, picture comparison, maintenance appointment, test drive appointment are highly detailed (Fig. 7).

Fig. 7 Mercedes-Benz App Software Parameters
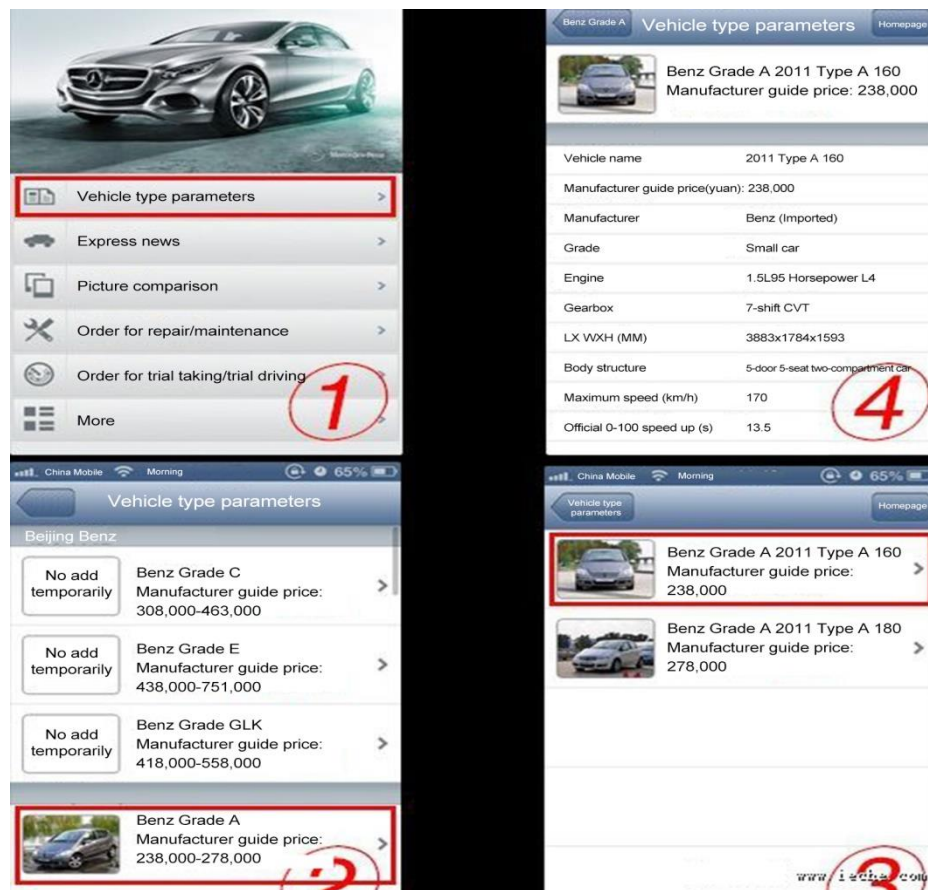
Fig. 8 Mercedes-Benz App Software Picture Comparisons

The picture comparison (Fig. 8) is a major highlight of the Mercedes-Benz app

compared to other automobile brands. For customers, by downloading the Mercedes-Benz app, they can learn about various vehicle models of Mercedes-Benz and their advantages and disadvantages in detail, and can get a more intuitive understanding of the vehicle model that can meet their needs; for sellers, the customers can largely determine the vehicle model they need as well as related information through the app, so, the target customers become very clear and targeted.

The Chevrolet app promotion software is considered and designed more carefully and comprehensively compared to other automobile brands.
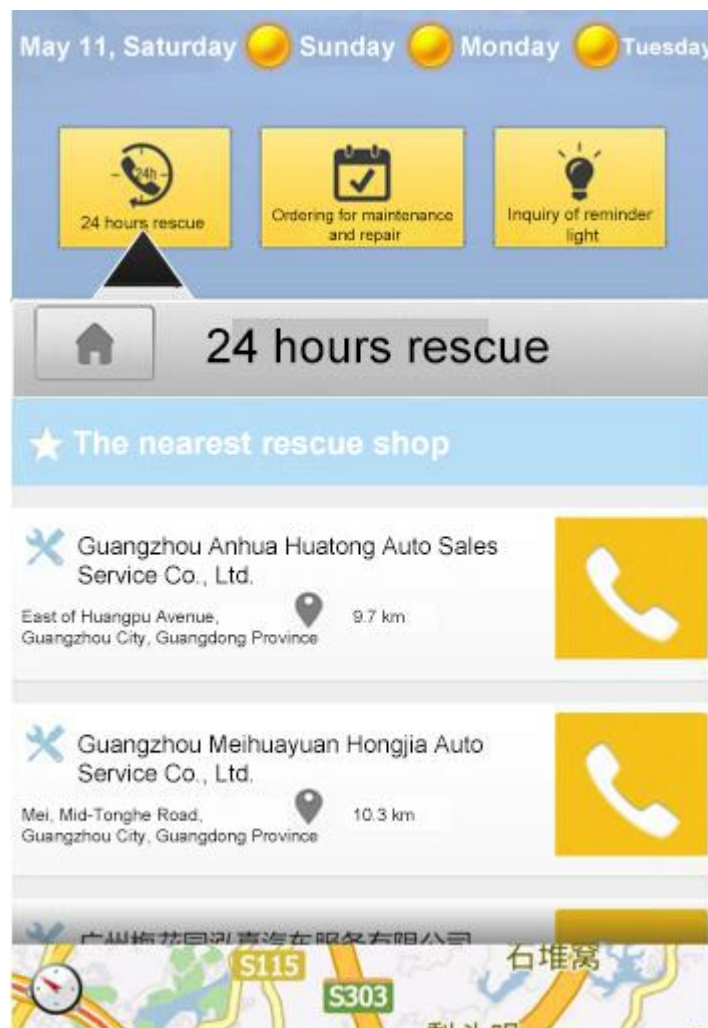
Fig. 9 Chevrolet App Software Home Page

Three very eye-catching signs can be seen in the Chevrolet app home page, namely, the 24-hour rescue, maintenance appointment and indicator inquiry (Fig. 9).

Open the 24-hour rescue and you can search the nearest rescue shop, and for car users, these three functions are used very commonly and also very practical.

Fig. 10 Chevrolet App Software Presentation

Various basic information of the car that you can see when you open the Chevrolet app and enter the software is a setting similar to each automobile branded app; while the special part of the Chevrolet app is the design of its CHEVY

AROUND U class, which intuitively reflects the careful and warm design of the Chevrolet app (Fig. 10).

2. Automotive IT industry related app

Currently among the auto apps, the front-end auto news related apps and after-sales related apps are a more active category in the auto industry and market. Among the Auto News apps, according to the survey data from Quest Mobile *[14]*, the Autohome occupied the top of usage of news apps in the China Android-based auto app market over the half year from November 2014 to March 2015 (Fig. 11), followed by the Car Price List, while the Chelun Owner Community had an increase in usage of up to 215.7% over the half year.
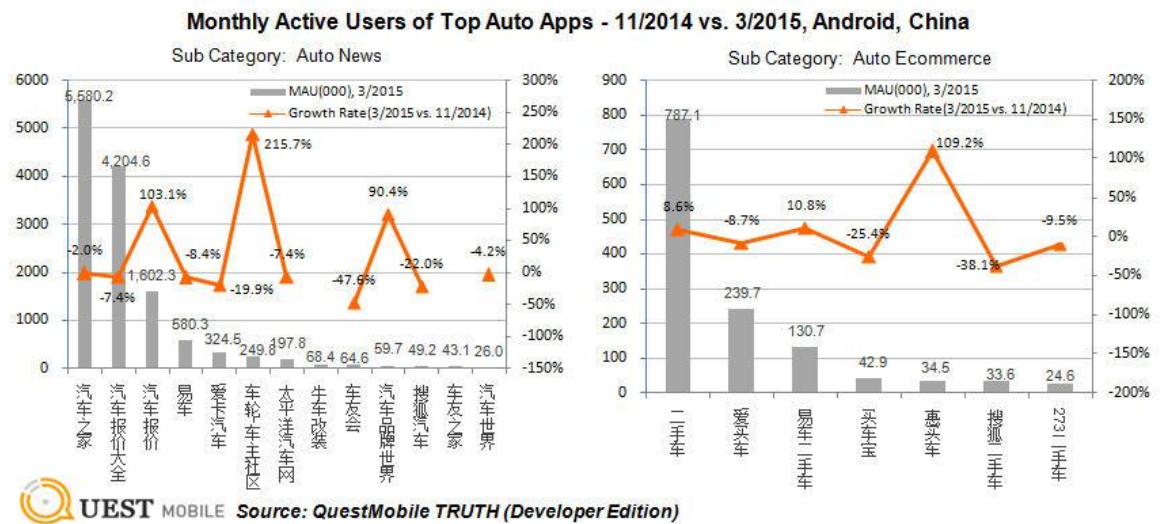
Fig. 11 Usage of Auto News Apps by Users in China from November 2014 to March 2015 (Android)

For the second-hand car news apps, the Second-hand car takes the first place, far more than other similar apps, and meanwhile, the Preferential Car Buying (Huimaiche) has obtained remarkable achievements, with an increase of up to 109.2%.

For the special car and driving test related apps, judged by the market data from November 2014 to March 2015, there are many special car and taxi-hailing mobile

softwares, but Didi Taxi and Fast Taxi almost occupy more than 90% market share and become the fully-deserving winner in this quarter; the Driving Test Book wins the first place of the driving test related app market similarly with excellent market performance (Fig. 12).
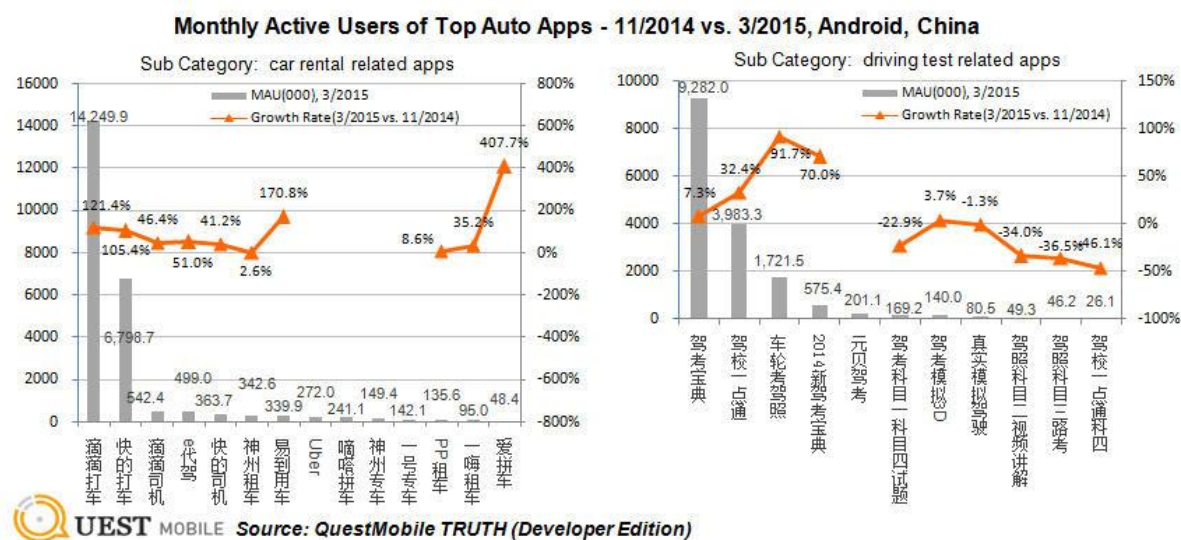
Fig. 12 Usage of Special Car and Driving Test Related Apps by Users in China from November 2014 to March 2015 (Android)

During the same period, the Chelun Traffic Violation Inquiry occupies the largest market share of traffic violation inquiry related apps and maintenance related apps in the after-sales services, followed by the China Traffic Violation Record Lookup; however, the maintenance apps make little achievement (Fig. 13).
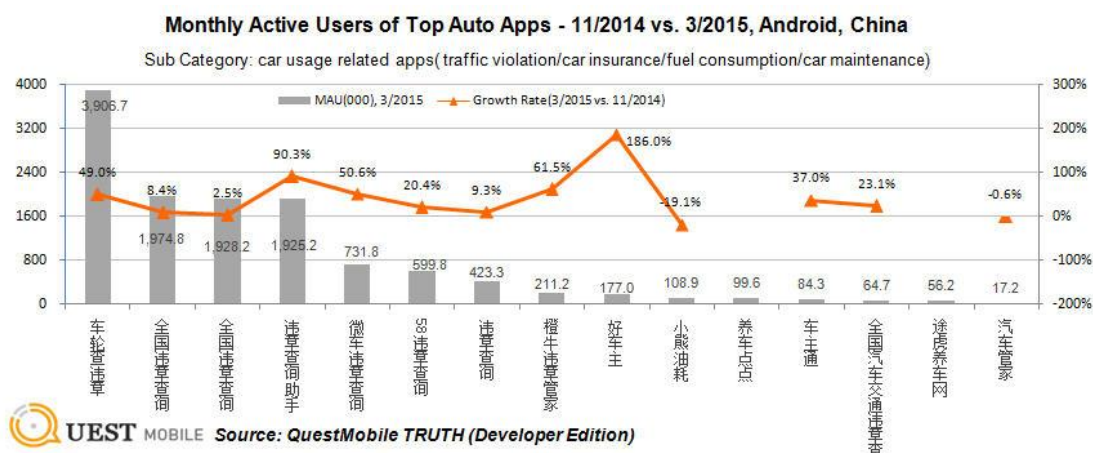
Fig. 13 Usage of Traffic Violation Inquiry and Maintenance Related Apps by Users

The survey data also from the Quest Mobile show that, there is no significant changes in the market share and ranking of auto news apps, special car and driving test related apps, and traffic violation inquiry and maintenance related apps in June of the same year (Fig. 14, Fig. 15 and Fig. 16).
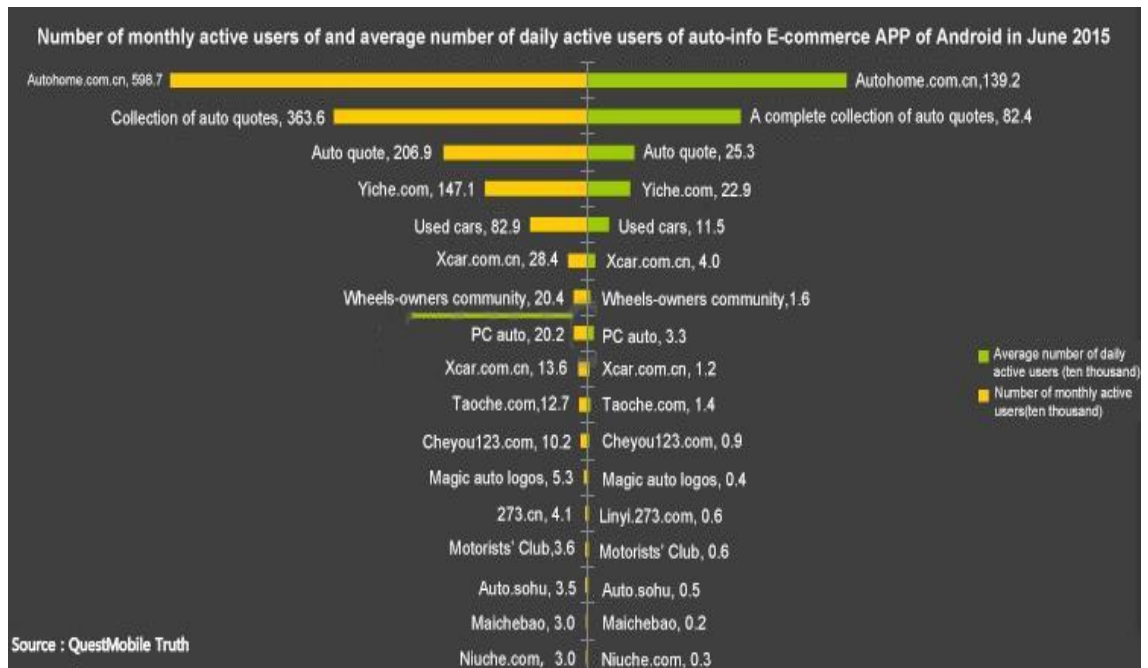
Fig. 14 Active User of Auto News Apps in June 2015 (Android)
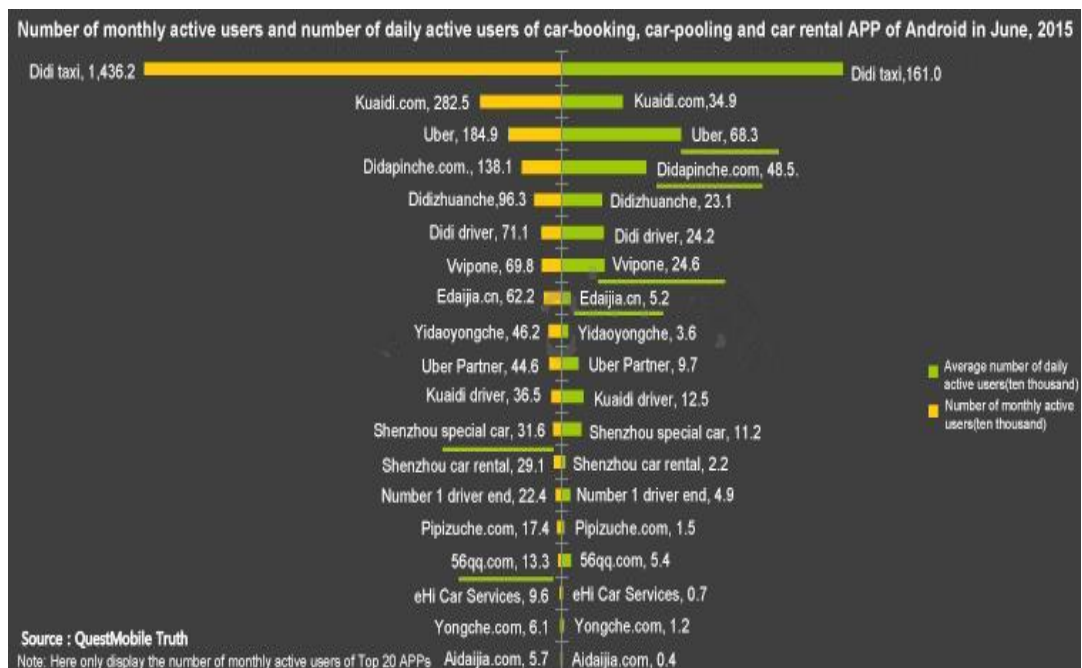
Fig. 15 Active User of Special Car and Taxi-hailing Related Apps in June 2015 (Android)
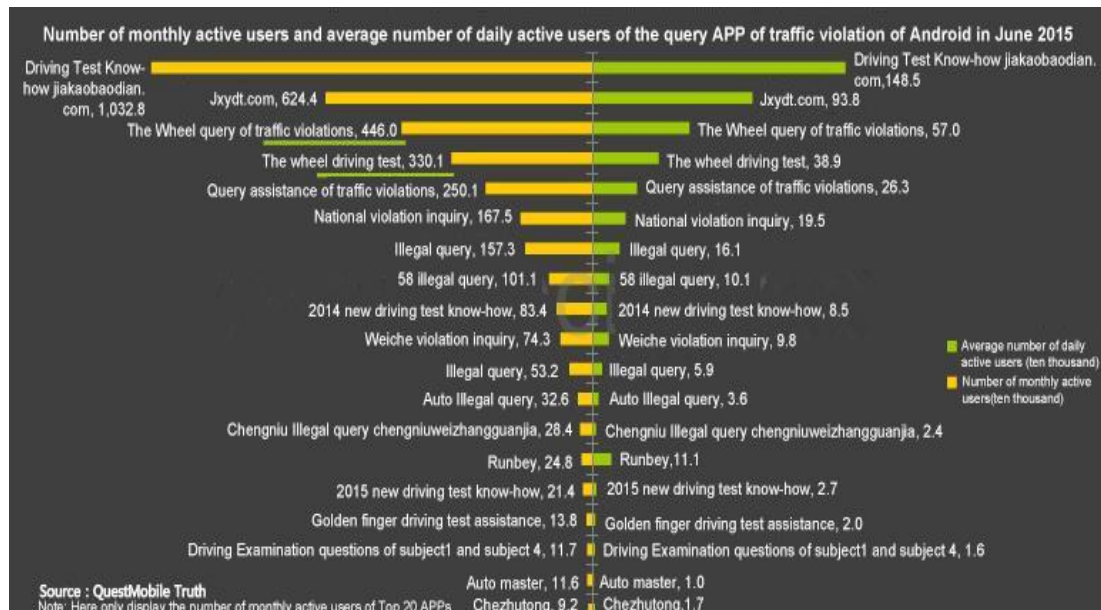
Fig. 16 Active User of Traffic Violation Inquiry and Driving Test Related Apps in June 2015 (Android)

In various map and navigation related apps, the Baidu Map is in the lead, whose active user number in June 2015 is twice that of the Amap which ranked second (Fig. 17).
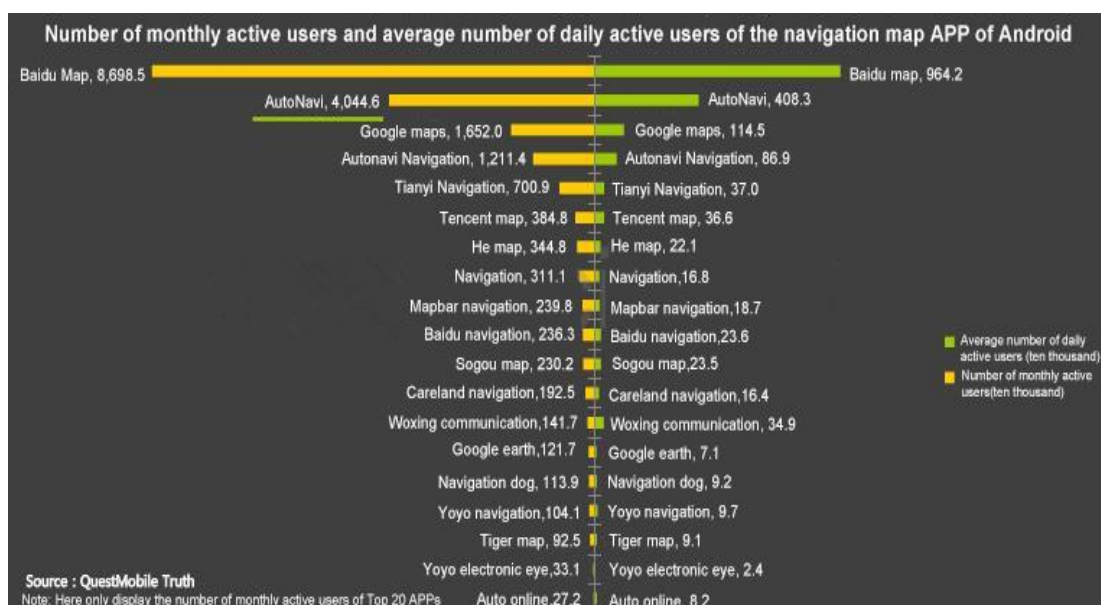
Fig. 17 Active User of Map and Navigation Related Apps in June 2015 (Android)

Through the market analysis of the above mentioned automobile related apps, we can see that the hot market of auto apps has become the "focus" of all auto makers and IT industry. Judging from the huge global demand for intelligent mobile terminal and the steady growth of shipment, the era of intelligent mobile terminal will continue, and there is still huge room for growth of the auto apps, that is to say, the influence of the auto apps on the auto industry will be larger and larger.

3 Changes in Automobile Marketing Pattern and After-sales Service with the Times

3.1 Overview of traditional automobile marketing pattern

3.1.1 Pattern and characteristics of traditional automobile marketing

Automobiles have had a history of one hundred years since invented in Europe at the end of the last century and played an irreplaceable part in people's life so far. As a means of transportation with complicated modern engineering, automobiles have experienced reforms and developments beyond the imagination of ancestors in the aspects of manufacturing technology and production process for more than a century. With the progress and development of the times, the automobile marketing pattern is changing gradually from the generation of single sales channel in the early period of birth to the emergence of mobile APPs, thus forming a unique marketing pattern for the automobile industry. Automobile marketing also varies by countries. Mature automobile markets in Europe, America, Japan, etc. enjoy their own specialties in the marketing pattern.

In Germany - one of the countries with the most developed automobile industry in Europe, a 4S store is the main sales channel. Besides, the automobile sales profit

has decreased yearly in the past few years, therefore, the EU has decided to make the automobile sales open. Thus, the situation in which a single-brand automobile store is allowed to manage multiple brands comes into being in Germany. In the after-sales service field, Germany pays great attention to personalized service and cultivates more loyal users by contacting with users, conducting regular telephone follow-up, reminding users of automobile repair and maintenance, giving users birthday gifts, flowers and information about new product, etc. As a developed country with the largest global automobile market and a higher per capita automobile ownership, America is another mature automobile industry power, and its automobile marketing pattern deserves to be mentioned. It has many automobile sales channels with the automobile store as the mainstream combing such patterns as multi-brand sales group and automobile shop, avenue or street. Different from the EU, America almost has no independent dealer. A brand store makes profits in the following pattern: Automobile manufacturers make investment, dealers gain the commission and banks return profits *[15]*. Another difference of America's automobile sales channel from the EU is transaction on the internet. As the American internet takes its place in the front ranks of the world and automobile manufacturers enjoy high reputation and gain much trust among customers, purchase of automobiles on the internet is very common. According to the survey data of American J.D. Power & Associates, the American customers purchasing automobiles on the internet nearly accounted for 40% of the total buyers in 2000. America has very strict recruitment standards and training means for automobile sales personnel. Sales personnel in the "sales battlefield" generally have high educational and professional levels.

It can be said that the marketing pattern of automobile manufactures or dealers is subjective to a great extent regardless of country, automobile market and sales channel, which is the most important characteristic of the pattern of traditional marketing. Automobile manufacturers or dealers convey their sales intentions to customers through advertisements, while customers can only accept these intentions passively. Manufacturers or dealers may also make an interview survey of users by phone, through visit and via the internet so as to obtain relevant sales data and intentions, but it is difficult to make a decisive conclusion because the obtained data

can't completely represent the public automobile purchase views and intentions from a scientific perspective due to low participation enthusiasm, narrow scope and small sample of the surveyed users. In such a case, manufacturers or dealers can only make the next strategic plan and adjustment according to the obtained data as well as the subjective judgment, which is essentially caused by the limitation of the times.

3.1.2 Traditional after-sales service and its characteristics

The automobile after-sales service, generally called the automotive aftermarket, refers to various services provided during the use from sales to scrapping and covers all required services for customers after purchase. With the development of the times, the automobile after-sales service scope is expanding gradually. In the early 1930s, the automobile detailing and maintenance industry started in European and American developed countries, meanwhile, the prototype of the automotive aftermarket began to form. The automobile after-sales service in the early period mainly involved maintenance, repair, detailing, etc. After the Second World War, with the recovery of economy, the national economy and automobile industry technology in European and American countries, Japan and other countries developed rapidly, and the demand and scope of the automotive aftermarket expanded. So far, the automobile after-sales service has covered maintenance, repair, detailing, parts & accessories, decoration, modification, financial service, advertisement, leasing, driving school, club, second-hand automobile, transportation information service, etc. With the expansion of the automotive aftermarket scope, the automobile after-sales service makes greater contributions to the profits in the whole automobile industry chain. In the automobile industry chain of mature European, American and Japanese markets, 20%, 20% and 60% profits are from the complete vehicle, automotive parts and service industry respectively *[16]*. The automotive aftermarket is a very important industry especially in America - an automobile power. From the statistical report of AAIA, the number of employees in the American aftermarket amounted to 41,000 (total population of about 313 million) in 2012, the total sales of the automotive part & accessory market alone reached $ 307.7 billion which increased by 3.5% when compared with that in 2011. According to the forecast in *Factbook 2015* of ACA, the total sales of

American automotive aftermarket will be $ 362.59 billion at a compound annual growth rate of 3.4% (as shown in Fig. 18).
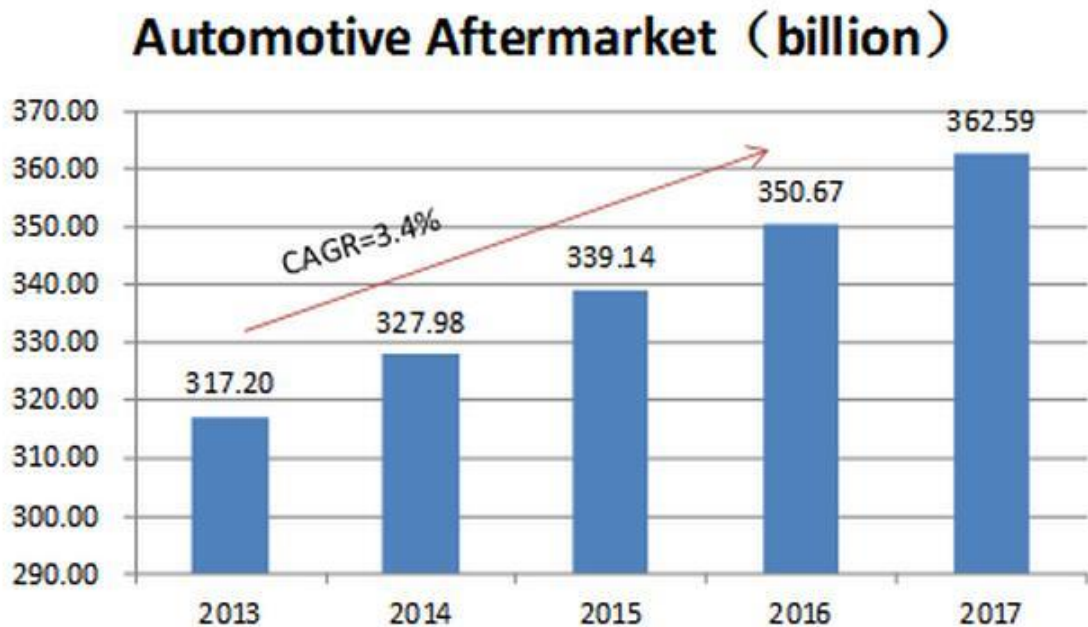
Fig. 18   Scale of American Automotive Aftermarket

In Germany - another European automobile power, the output value of the automotive aftermarket had approximated to € 32.4 billion by the end of 2013, among which the automotive parts & accessories accounted for € 22.2 billion;   the incomes of the overall automotive aftermarket, parts & accessories and service increased by about 2.2%, 2.8% and 0.8% respectively *[17]*.

It can be seen that the automotive parts & accessories play a major role in the incomes of the aftermarket no matter in America or Germany while other services are not prominent. The reason may be that other services are not very convenient and necessary while the parts and accessories are expensive necessities, which is also the characteristic of the service industry. When customers' rigid demands can't be met by a certain service, their demands in other aspects must be satisfied for profit, which is similar to how to sell a batch of combs to temples.

3.2   Changes in theory of automobile marketing and after-sales service

With the development of the times, the marketing theory has experienced

several reforms since proposed. In the inaugural speech of American Marketing Association in 1953, Neil Borden created " Marketing mix" which means the market demand is more or less affected by the so-called "marketing variables" or "marketing elements" to some extent. In 1960, Jerome Macarthy, a professor of University of Michigan, generally summarized these elements as 4 categories: Product, Price, Place and Promotion, i.e. the famous 4Ps in his *Basic Marketing*. In 1967, Philip Kotler, the father of modern marketing, further confirmed the marketing mix with 4Ps, i.e. Product, Price, Place and Promotion, as the core in the first edition of his bestseller *Marketing Management: Analysis, Planning and Control* (as shown in Fig. 19).
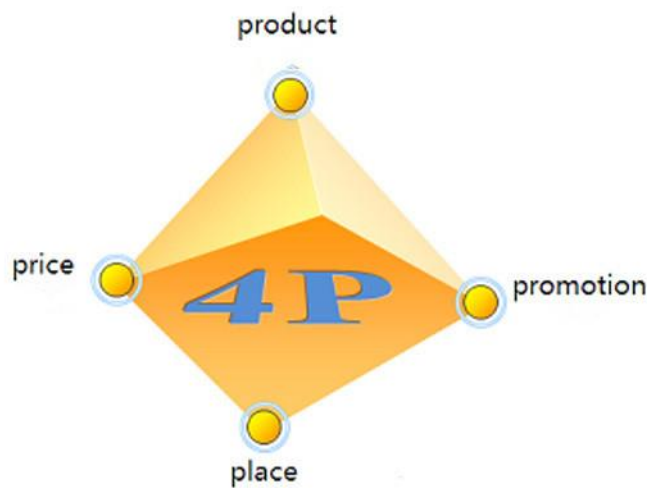
Fig. 19　4P Theory

As the market competition becomes increasingly fierce and the medium communication gets faster, the 4P theory is under greater challenge. In 1990, Professor Robert Lauterborn, an American scholar, proposed the marketing theory of 4Cs corresponding to the traditional marketing theory of 4Ps in his *New Marketing Litany: Four Ps Passé C-Words Take Over*. The marketing theory of 4Cs (Customer, Cost, Convenience and Communication) is customer-oriented and resets the four basic elements of marketing mix: aiming at the customers' demands and expectations (Customer) (as shown in Fig. 20).
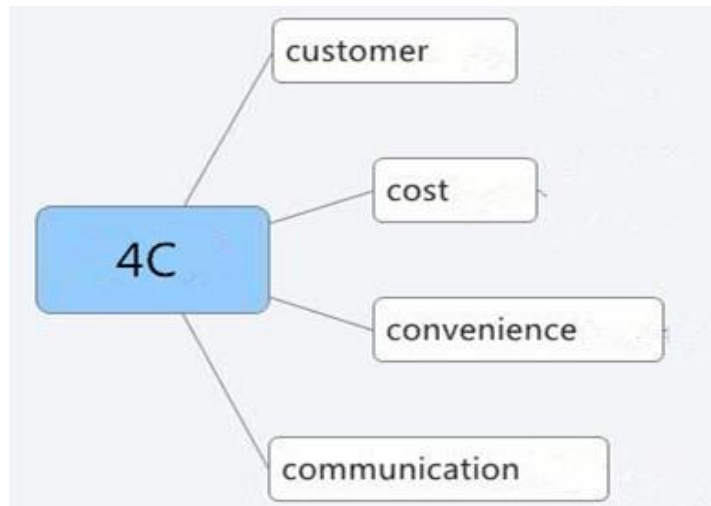
Fig. 20   4C Theory

At the beginning of the 21st century, Elliott Ettenberg, an American marketing scholar, proposed the marketing theory of 4Rs in his *4R Marketing* in 2001. The 4R theory centers on relationship marketing, focuses on building customer loyalty and explains four new elements of marketing mix: Relativity, Reaction, Relation and Retribution) (as shown in Fig. 21).
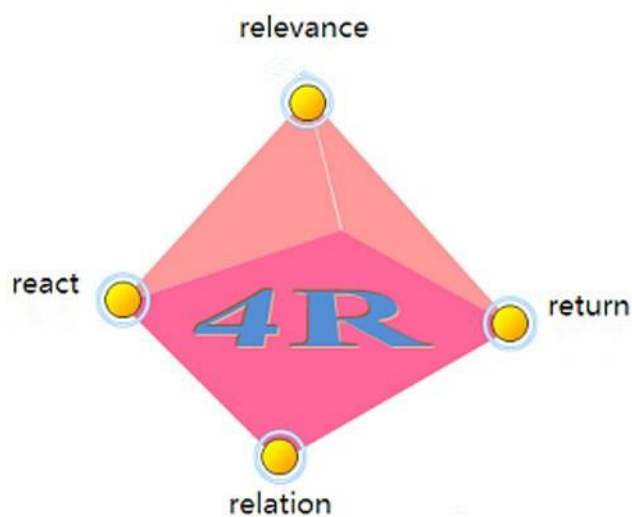
Fig. 21   4R Theory

With the rapid development of the internet, the traditional marketing classics are not applicable and mobile marketing is changing the world. Zhu Haisong, a Chinese

scholar, proposed the 4I model (i.e. Interest, Interesting, Interactive and Individual) based on the marketing characteristics of the 3G age to discuss "delicate" relationship marketing *[18]* (as shown in Fig. 22).
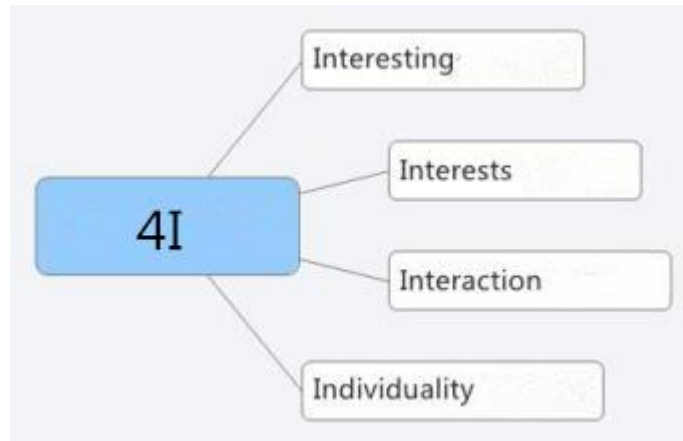
Fig. 22   4I Theory

Based on the changes in the marketing theory with the times, the guidance concept and value of the automobile marketing and after-sales service are changing continuously. The automobile industry in the early period is eminently characterized by relative shortage and inadequate supply of products. Automobiles produced by automobile companies can be sold out as long as they are affordable. For example, Ford automobiles in the early 1900s were supplied at such an affordable price that they accounted for 75% of the global market share in 1920s. This was the first-generation product-orientated automobile marketing. GM in the same period was on the verge of bankruptcy under the influence of Ford's low-price strategy, so it had to seek for a new sales pattern and started automobile marketing. GM began to make product innovations, launch advertising campaigns, build its brand and seek for various sales channels under great survival pressure. In 1930s, GM surpassed Ford and became the world's largest automobile company. Meanwhile, it showed the characteristics of the second-generation automobile marketing, i.e. automobile manufacturers began to seek for new sales channels and automobile marketing entered an innovative age of multiple marketing means. In 1960s, Professor Jerome Macarthy proposed the marketing theory of 4Ps, which declared the arrival of the third-generation automobile marketing, i.e. integrated marketing. Ford, GM and

other world famous automobile brands started to actively apply the 4P theory, build their own brands and increase brand awareness using the following marketing means: holding automobile races, organizing reporters to watch the races, making special report on their own brands in relevant journals and magazines and placing automobiles in American hotels and markets. Automobile marketing at this stage began to be systematic and strategic and focus on brand publicity and market awareness. However, the third-generation automobile marketing didn't last a long time. In 1970s, the Middle East oil crisis broken out in the field of global economy and the global oil price soared accordingly, thus leading to a marketing crisis among large automobile enterprises under the guidance of the 4P theory. So people realized that the 4P theory neglected a key marketing element - customer's demand although it emphasized the systematicness and uniformity of special professional marketing tools. The high oil price changed the customers' demands and turned their attention to small cars with low power consumption. At this time, Toyota Motor Corporation relying on low power consumption gradually showed its advantage. It began to visit customers door to door to know about their demands and effectively seek, analyze and manage these demands, thus gradually controlling the Japanese automobile market and accounting for 40% of the market share for a relatively long time. Its success put the third stage of automobile marketing to an end and declared the entry into the forth-generation marketing. With the rapid the development of economic globalization and times, customers' automobile purchase demands have greatly changed from basic material demands to automobile personalization requirements and satisfaction of needs of the times since the 21st century. Due to the great market competition, all automobile companies have always sought for a new marketing pattern so as to reflect the maximum brand value and cultivate loyal customers while meeting customers' demands. Value-based strategic marketing is the characteristic of the undetermined fifth-generation automobile marketing.

3.3 Automobile marketing and after-sales service in auto app era

3.3.1 Automobile marketing in auto app era

It is destined to be the world of Internet marketing after entering the 21st century. There is no doubt that Internet marketing has entered big data marketing era. With the rapid rise of social networks and mobile Internet, more and more brand manufacturers and advertising & marketing agencies have devoted themselves to network marketing mode based on big data, so as to promote enterprise competitiveness and business level. This change in marketing trend has continuously impacted the traditional automobile marketing field. Especially in big data era, in accordance with the behavior data left by the netizens on the Internet, the enterprises can analyze and research what kind of marketing shall be used to effectively boost sales more directly when the consumers are at different stages. "No matter what business you are in, it is actually data business in the future", predicted by Kevin Kelly, Founding Editor-in-Chief of Wired (U.S.). The traditional automobile marketing mode has seemed to be powerless since the emergence of mobile Internet. Under the background of big data era of mobile Internet, data marketing is bound to replace the traditional subjective marketing of automobiles. That is the automobile marketing in the app era.

In the big data era, independent data acquisition by intelligent system makes the merchants master major initiative, and various data relating to the consumers can be exposed completely and easily. For example, before emergence of the mobile Apps, the automobile manufacturers or dealers carried out consumer survey mainly in the ways such as telephone interview, visit, face-to-face interview, network questionnaire survey, etc. This traditional data acquisition mode would be limited by many factors; irrespective of efficiency or manpower, material resources and financial resources needing to be consumed by the merchants, whether the consumers were willing to

actively participate in it and its authenticity were a limitation. After the automobile marketing entered marketing era of mobile Apps, these limiting factors have "collapsed of themselves". Because the consumers' car purchase intention, car purchase preference, driving habits, etc. will be recorded by the mobile network and then sent to the background, the automobile manufacturers or dealers can master the consumers' consumption attitude, intention and trend easily by analyzing the data.

Above all, Auto Apps marketing has the characteristic of fissionability no matter in advertising or in participation of the consumers. The one who can make a good use of the media in the new era can occupy the market. Taking MINI as an example, Apps marketing case of Getaway Stockholom of MINI is very classic in the auto industry. In 2010, MINI set up a set of virtual MINI latest four-door and four-drive Countryman somewhere in Stockholm; the participants would download Getaway Stockholom APP of MINI, check location of the virtual MINI through the APP, and then complete the essential theme "Getaway" released by Countryman (Fig. 22). The last participant who could grab and keep the virtual MINI Countryman would obtain a real Countryman as a reward.

Fig. 22 Graphical Representation of MINI Getaway Stockholm App Case

In this game, the average time for everyone to hold the virtual Countryman was 5 hours and 6 minutes, and the game participants were from 90 countries in the world. In the first quarter after finish of the game, sales volume of MINI rose by 108% just in Sweden. That was a very terrible number, and meanwhile it showed that Getaway Stockholom APP marketing of MINI achieved great success. Through mobile App, it combined Augmented Reality (which combines virtual 3D and real images together through image processing technology, overlays the real environment and the virtual world onto the same picture or space, and make them exist simultaneously; AP for short) and Location Based Service (which obtains geographical coordinates and other location information of the mobile terminal users through Telecom mobile operators' radio communication networks such as GSM, CDMA or GPS and other external positioning ways; LBS for short). Combination of the two technologies has perfectly

realized wide publicity of brand, promotion of new product and increase of sales volume. MINI's success in this marketing behavior not only interpreted 4I theory (Interest, Interactive, Interesting and Individual) of mobile Internet era very well, but also grasped the opportunity of growing prosperity of auto apps properly, thus obtaining the market.

3.3.2 Automobile after-sales service in auto app era

Automobile after-sales service includes all relevant services from sales to scrap of the automobile. Before rise of auto apps, the automobile after-sales services were mainly carried out at physical stores, such as 4S store, auto repair shop, car wash shop, etc. However, auto apps rapidly rose in various market segments of automobiles, which greatly impacted the traditional automobile after-sales service market, hereinto, the entity merchants of car washing, automobile decoration, repair and spare parts were impacted most, because advantages of the auto apps could make up the defects of the traditional automobile after-sales services to some extent. At present, the automobile after-sales service apps on some integrated platforms have exceeded the traditional automobile after-sales service market web pages and physical stores in the number of users, and become the preferred one of the users, such as RepairPal, AutoMD, etc. in the American market. Taking RepairPal APP which was relatively successful in the American automobile after-sales service market as an example, according to American market research data, 82% of the users interviewed deemed that price was an important factor for choosing repair shops, 38% of the users did not believe automotive technicians, and 66% of the users interviewed deemed that they were fleeced by the repair shops. It could be seen from these data that most of the American automobile users lacked sense of trust towards the repair shops. Based on that, the main purpose for establishment of RepairPal was to resolve the problem of information asymmetry in the process of automobile maintenance

through estimating quotation of spare parts and repair services, which was applicable to the whole U.S. region. As the first aggregated automobile maintenance and repair service platform in the U.S., home page of RepairPal App includes three main items which respectively are Find A Shop, Get Estimate and My Car, as well as a rectangular mark - Get Roadside Assistance (Fig. 23). No matter where the users are in the U.S., they can find the nearest repair shop which has the suitable price and is reliable only by opening RepairPal App and moving fingers. RepairPal has built consumers' confidence in RepairPal through this kind of convenience.

Fig. 23 RepairPal App Interface

In addition, besides the files included in the traditional automobile after-sale services, the fields of automobile after-sale service apps has been expanded to more market segments of automobiles, such as traffic violation inquiry related apps, car rental and taxi-hailing related apps, map and navigation related apps, driving school related apps and other practical auto apps in life. Taking navigation related apps as an example, self-driving travel has become a mainstream way of traveling along with continuous improvement of material living standards, and the navigation related apps have become a necessity for traveling by car. For example, Google Map can be used in all regions of the U.S., most regions of Canada, most regions in Europe, China Mainland and Hong Kong, Macao and Taiwan regions, Japan, Australia, Singapore and other countries and regions.

The automobile after-sales service apps have greatly improved driving experience of the automobile users. The automobile after-sales service apps have "encircled" the automobile users and in a few years since their appearance, and replaced the traditional after-sales service mode quietly. The apps definitely will become the leading role in the automobile after-sales service field in the future.

4 Usage of Auto Apps in Automobile Marketing and After-sales Service as well as Satisfaction Survey -- A Case Study of Dongfeng Peugeot

4.1 Overview of brand background of Dongfeng Peugeot

In October 2002, Dongfeng Motor Corporation (China) and PSA Group (PSA Peugeot Citroen) (France) signed a joint venture contract for expanding cooperation. The two powerful groups worked together to fully carry out the blueprint of introducing the brand of Peugeot into China. Then Dongfeng Peugeot was born. It is a brand of Dongfeng Peugeot Citroen Automobile Company Ltd. In accordance with the brand concept of "beauty, reliability, vigor and innovation", Dongfeng Peugeot has being committed itself to building itself into one of the mainstream automobile brands in China since its establishment. Through a series of activities such as compensation for price difference, safe driving and happen world, blue commitment, etc., Dongfeng Peugeot has set up a good image of honest brand. In March 2014, PSA Peugeot Citroen and Dongfeng Motor Group (China) signed a global strategic cooperation agreement, and formally started the new development stage. According to the report of Chinese automobile media [20], it might be said that Chinese automobile industry encountered cold snaps constantly in 2015. Sales volume of various automobile brands was not too optimistic, while sales volume of Dongfeng

Peugeot increased by 10% on a year-over-year basis under such an environment. As reported, for the reasons why Dongfeng Peugeot could open its own path when the industry was depressed, besides depending on hits superior technical advantages and excellent service theory, the attention paid to user experience and services was an important factor for Dongfeng Peugeot's rise against the market. Thus it can be seen that Dongfeng Peugeot is remarkable not only in marketing strategies but also in company policies.

4.2   Dongfeng Peugeot branded app analysis and users' usage survey

4.2.1 Dongfeng Peugeot branded app — My Peugeot

With the coming of mobile Internet era, various automobile brands have launched their own automobile branded apps, and Dongfeng Peugeot is no exception. The branded app launched by Dongfeng Peugeot is named "My Peugeot" – an official automobile club of Dongfeng Peugeot. It is a Dongfeng Peugeot user experience platform which integrates automobile marketing and automobile after-sales service into one, including contents such as common knowledge about automobile maintenance, new auto message, comprehensive information on vehicle models, welfare activities, roadside assistance and site query, maintenance appointment, etc. Maintenance appointment, consultation, rescue service, automobile care book, automobile purchase service and site query as well as other items can be seen on the homepage of My Peugeot app (Fig. 24).

Fig. 24 Homepage of Dongfeng Peugeot - My Peugeot App

Like most of the automobile branded apps, My Peugeot app also includes the two items of automobile care book and rescue service which are very practical to the users. In the automobile care book (Fig. 25), automobile indicator light, user manual, etc. can make a user grasp relevant information of his automobile quickly and comprehensively; when the user encounters difficulty and needs rescue in the process of driving, he can see his current location and the nearest rescue shop after entering rescue service (Fig. 26).
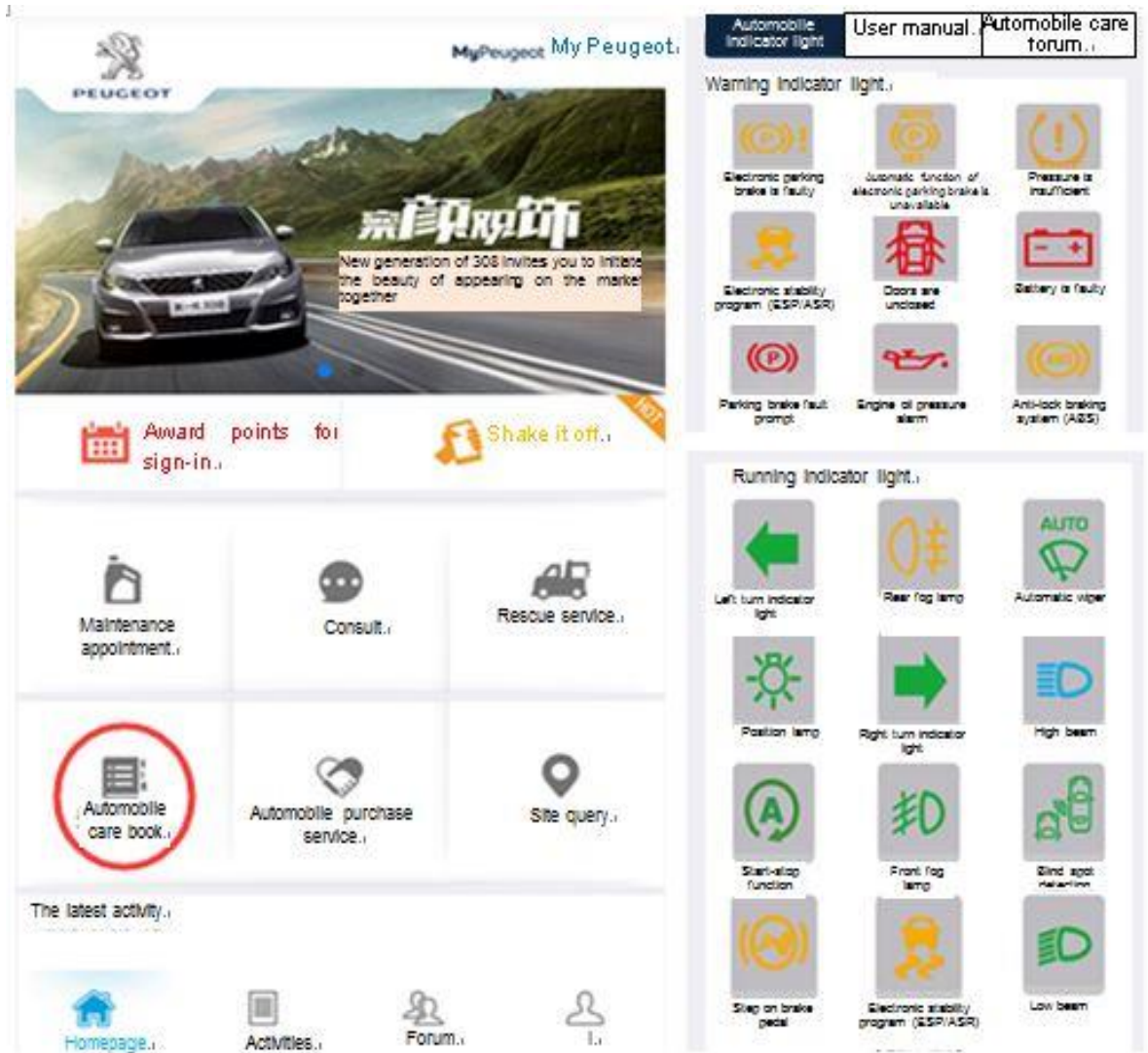
Fig. 25 Automobile Care Book of Dongfeng Peugeot - My Peugeot App
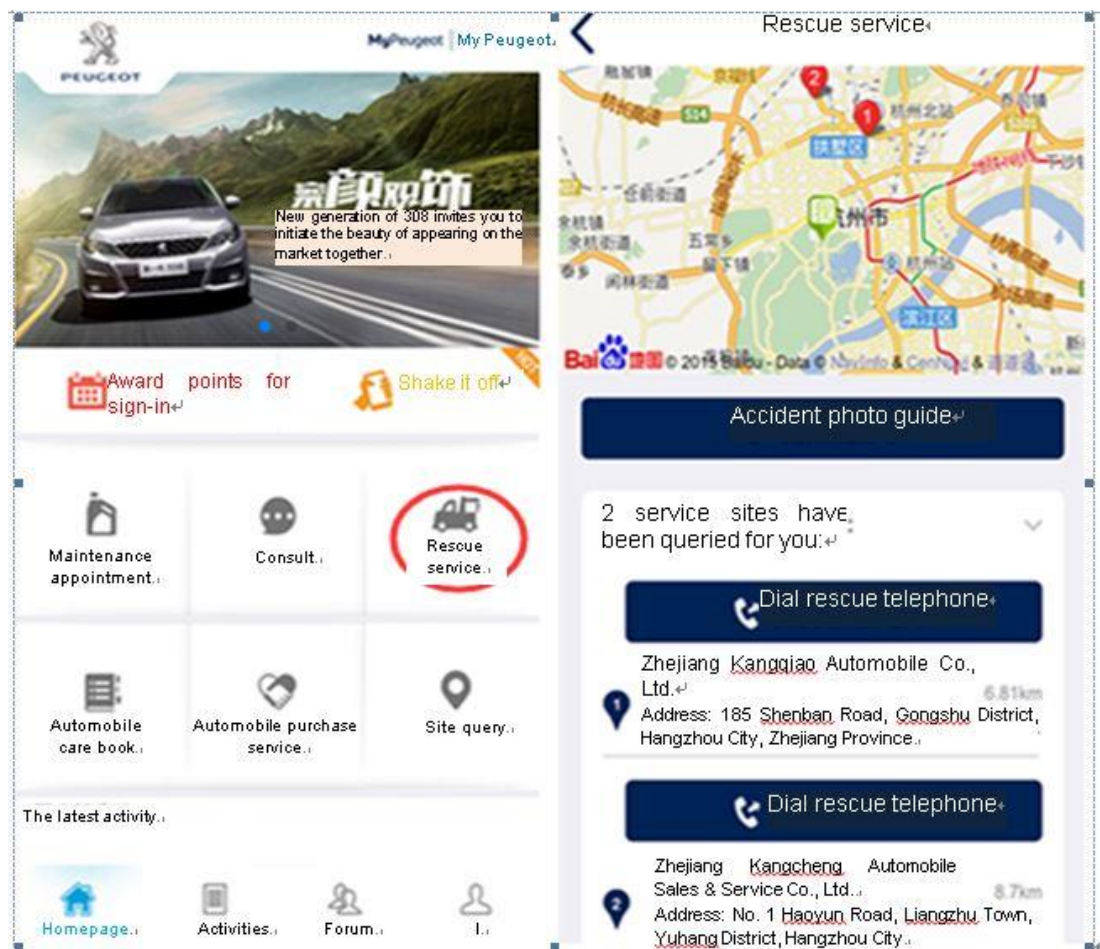
Fig. 26 Rescue Service of Dongfeng Peugeot - My Peugeot App

The latest auto message, brand activities, etc. of Dongfeng Peugeot can be browsed in the column of "Activities" at the bottom of My Peugeot app (Fig. 27). For the users who have the demand for purchasing an automobile again, they can be the first to learn relevant information, and for the merchants, they can cultivate potential brand loyalty of the users to some extent by actively pushing auto message, brand activities and promotion information. It is worth mentioning that the forum of Dongfeng Peugeot can be regarded as a feature of Dongfeng Peugeot - My Peugeot app, and it is direct representation of Dongfeng Peugeot automobile club. The forum is used for communication between the merchants and the users and among the users, and it is also an important channel for the users to obtain other information relating to the automobile.
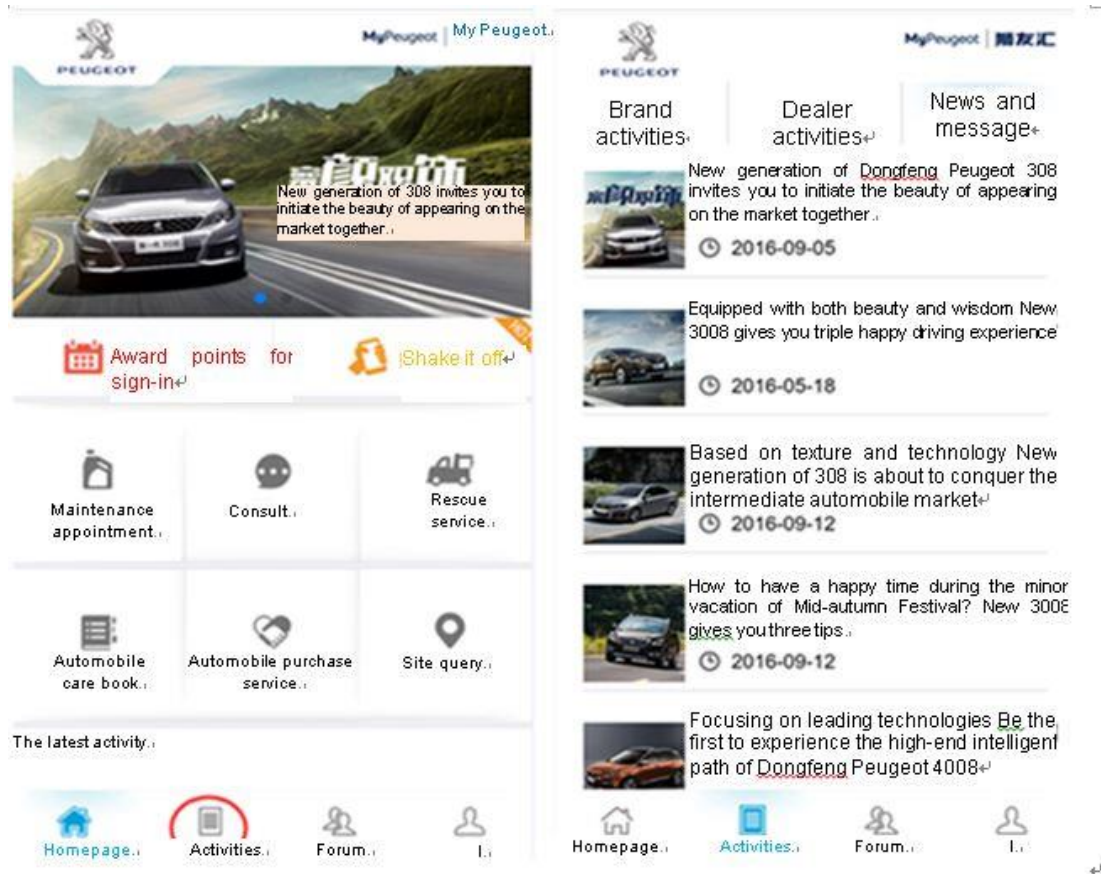
Fig. 27 Activity Information of Dongfeng Peugeot - My Peugeot App

4.2.2 Users' usage and satisfaction survey of Dongfeng Peugeot - My Peugeot App

The data in this text is from Dongfeng Peugeot's Internet survey questionnaire for the users. Based on activeness status of the users in the forum of My Peugeot, Dongfeng Peugeot collected some App users' real experience and feelings about My Peugeot app in terms of various functions and contents of My Peugeot app at present. 82.35% were men and 17.65% were women among the users participating in the survey. Age ratio of the users is shown in the following figure (Fig. 28).
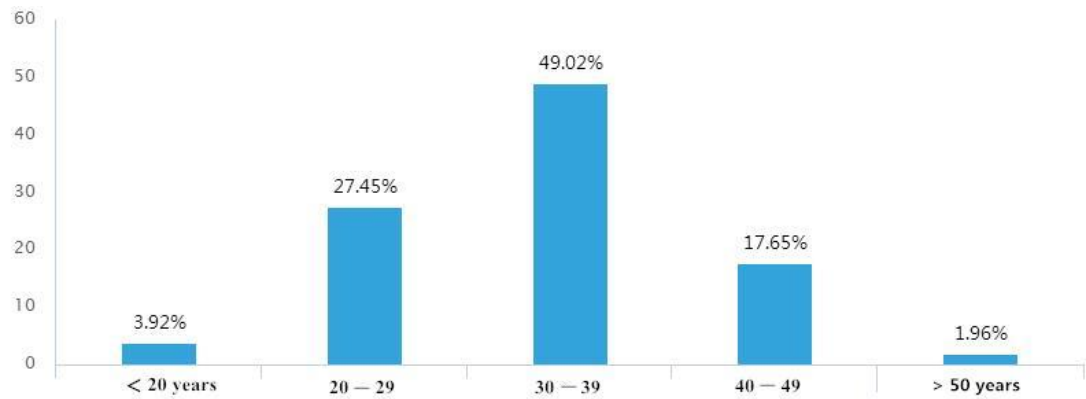
Fig. 28 Age Ratio of Users of Dongfeng Peugeot - My Peugeot App

For the function of site query in the app, more than 90% of the users deemed that their favorite sites were included in the service sites queried (Fig. 29).
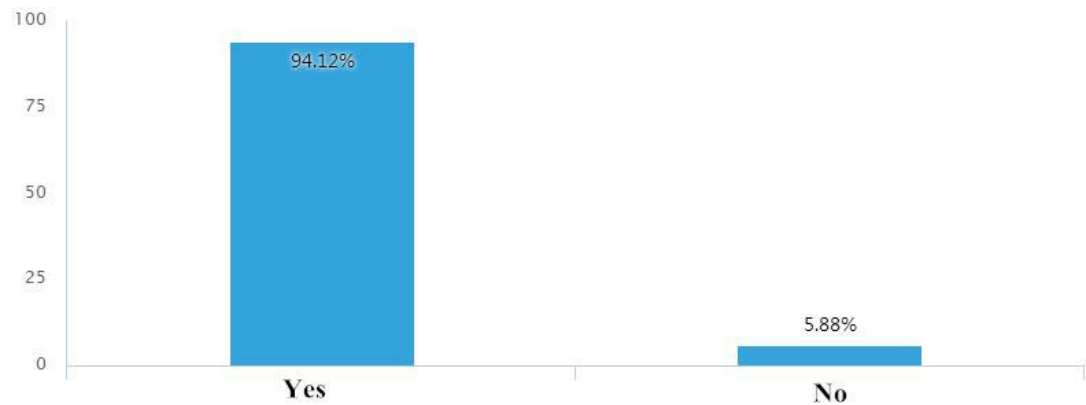
Fig. 29 User Satisfaction with Site Query in Dongfeng Peugeot - My Peugeot App

In the function of rescue service, 96% of the users deemed that the site of rescue telephone and rescue shop displayed in the app was the site which was the nearest to position of the accident (Fig. 30).
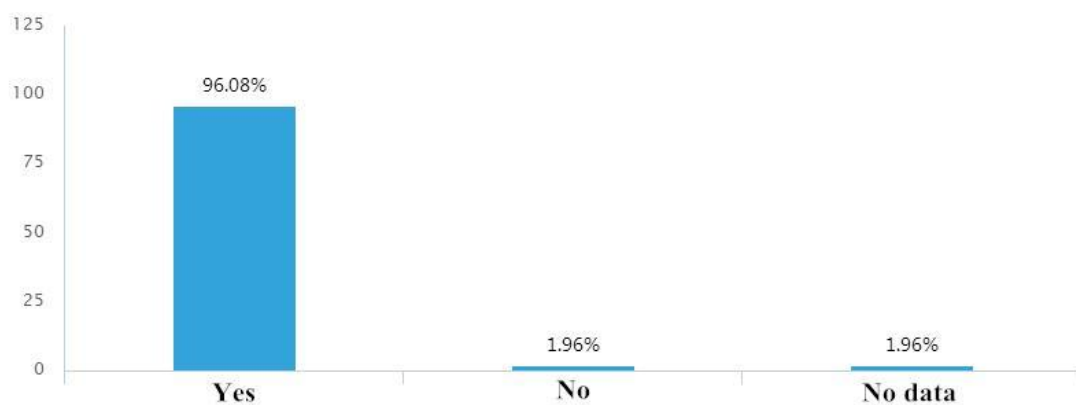
Fig. 30 User Satisfaction with the Function of Rescue Service in Dongfeng Peugeot - My Peugeot App

In respect of content settings of automobile care forum, 86.27% of the users deemed that the content settings had reference meaning and value relatively (Fig. 31).
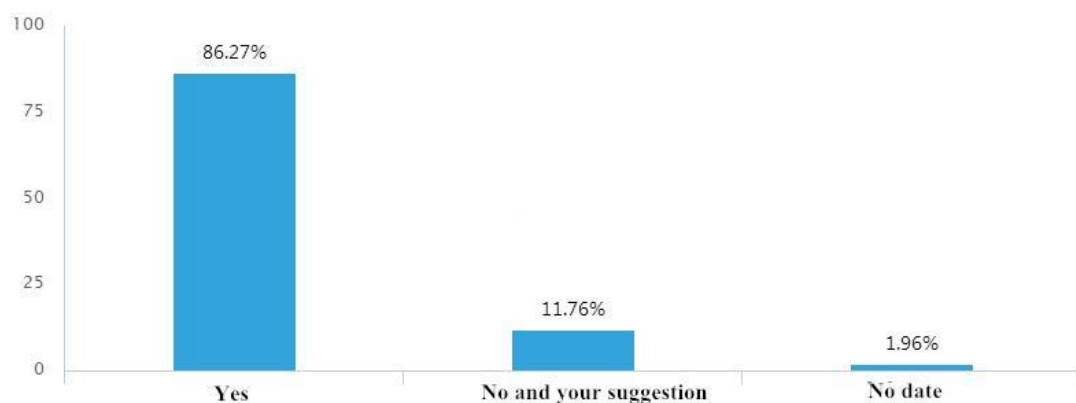
Fig. 31 User Satisfaction with the Function of Automobile Care Forum in Dongfeng Peugeot - My Peugeot App

Dongfeng Peugeot - My Peugeot app is not only for serving the users who have purchased automobiles. The contents such as automobile information and activities are also significant to the potential automobile purchasers and the users having the demand for purchasing automobiles again. Among the potential users accepting the survey, 84.31% of the potential users and the users having the demand for purchasing

automobiles again deemed that settings of automobiles information and messages in the column of "Recommendation for automobile purchase" were comparatively reasonable (Fig. 32).
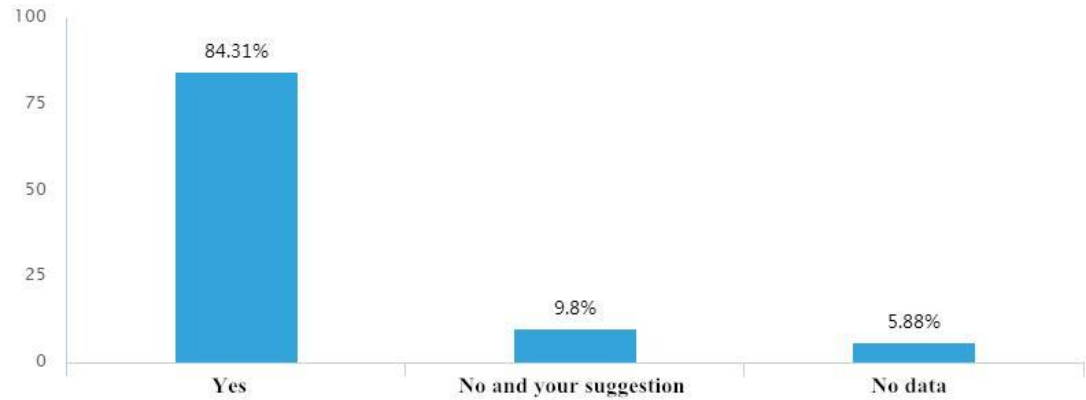
Fig. 32 User Satisfaction with Automobile Purchase Information in Dongfeng Peugeot - My Peugeot App

Among all the contents included in the app, activity and promotion information in My Peugeot became the information which the majority of the users wanted to browse most (Fig. 33) among the graphic pushes on the top of the app which the users wanted to see most (multiple choices).
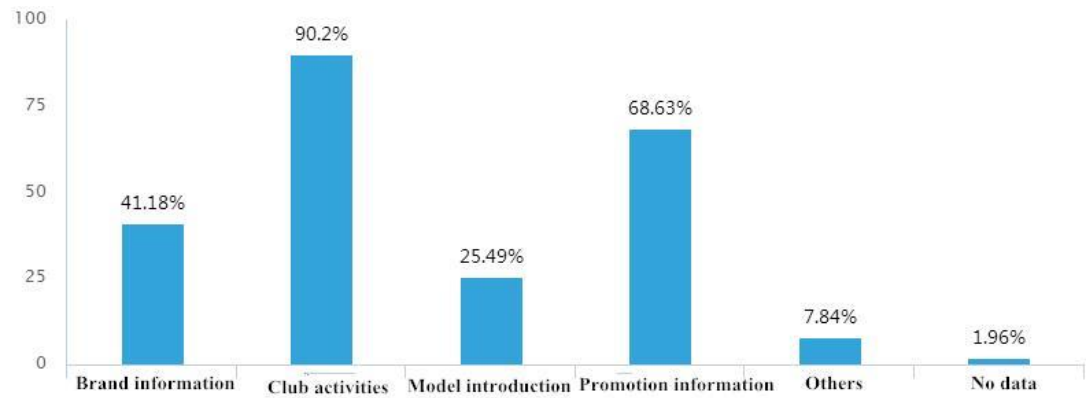
Fig. 33 Users' Choice of Sticky Contents Pushed in Dongfeng Peugeot - My Peugeot App

Finally, in respect of perfection of social network data of the users, only about 30% of the users were willing to perfect their social network data, more than 50% of the users chose to perfect some of the data, and 9.8% of the users were unwilling to fill in the social network data (Fig. 34).
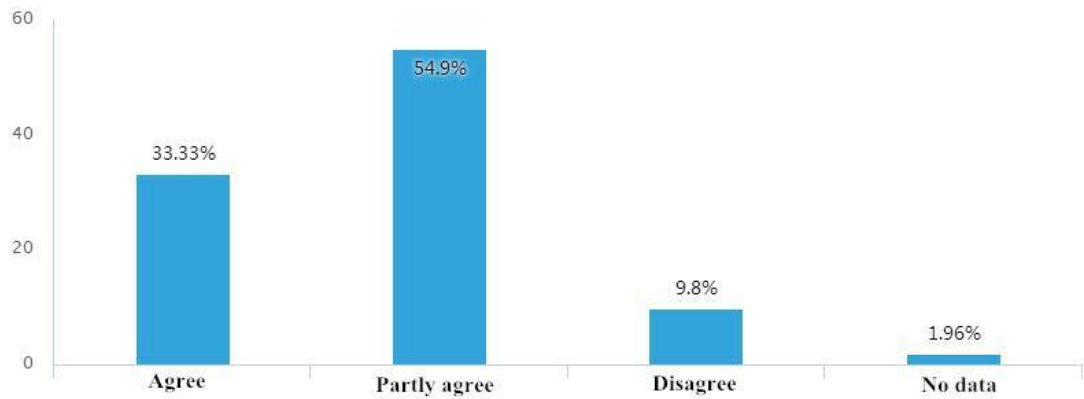
Fig. 34 Survey on Perfection of Social Network Data of the Users in Dongfeng Peugeot - My Peugeot App

4.3 Result and discussion

Through analysis of Dongfeng Peugeot - My Peugeot app and discussion about the data of users' usage survey, it is found that Dongfeng Peugeot - My Peugeot app is applicable to not only the automobile after-sales service, but also the automobile marketing link in respects of function of the app. By the use of this app, the potential users can not only be the first to learn promotion activities of the merchants and complete automobile information, but also comprehensively master their favorite vehicle models in advance, thus obtaining better experience. User experience and service which Dongfeng Peugeot - My Peugeot app has brought to the potential automobile purchasers are an indispensable important factor which enabled its sales volume to rise by 10% on a year-over-year basis in 2015 when Chinese automobile industry was depressed.

In respect of users' usage survey about the app, not only rescue service and site query but also relevant automobile messages and activities pushed by the merchants have been highly praised by the users in general. In terms of age of the users participating in the survey, the users aged 20 to 39 accounted for more than 70%. On the one hand, it shows that Dongfeng Peugeot's user groups tend to be youth on the one hand, and on the other hand, it shows that young people are the main force to use the app. However, in the term that most of the users did not choose to perfect their social network data, on the one hand, it shows that the users are highly alert to information security, and on the other hand, it shows that there may be loopholes in the social network function of Dongfeng Peugeot - My Peugeot app, thus causing incomplete trust of the users. In terms of the sticky contents pushed which the users wanted to see, the call for My Peugeot activities was the highest. In other words, My Peugeot forum by which Dongfeng Peugeot is characterized shall guarantee security of the system and confidentiality of user information on the premise of guaranteeing quality.

In general, Dongfeng Peugeot - My Peugeot app has been highly recognized by the users. In terms of evaluation of the users, the app has become a bridge of the interaction between the users and the merchants. For the users, the app has gradually become the main channel not only for automobile purchase but also for automobile after-sales service from now to the future; for the merchants, the app has become the main battlefield of automobile marketing and after-sales service.

5　Influence of Auto Apps on Automobile Marketing and After-sales Service

5.1 Positive influence of auto apps on automobile marketing and after-sales service

There is no denying that emergence of auto apps brings a lot of convenience to the automobile users and the potential users, such as Volkswagen app, Chevrolet app and Dongfeng Peugeot - My Peugeot app mentioned above. The users can have a more comprehensive grasp of situation of their own automobiles in all respects through apps, and can query the nearest automobile repair and rescue shop and others through relevant apps during traveling by car. For the automobile manufacturers and automobile IT industry, the auto apps bring many advantages to automobile marketing and after-sales service as well.

5.1.1 Auto apps improve market penetration rate of automobile marketing and after-sales service publicity

In the Internet era before popularization of the mobile Internet, main publicity channels in the automobile industry were based on official website, web page about automobile and advertising push in other ways. These channels had been very leading-edge at the time of rise of Internet. But the disadvantage of relatively poor market penetration rate of the previous publicity channels started to become apparent after rise of the mobile Internet. Compared to the Internet represented by PCs, the first advantage of the mobile Internet represented by smartphones is quantity. As shown by the survey data released by an American market research institution (Gartner) (Fig. 35), global PC shipments in 2015 were only 288.7 million, which fell by 8% on a year-over-year basis, and reached the lowest level in the past eight years.
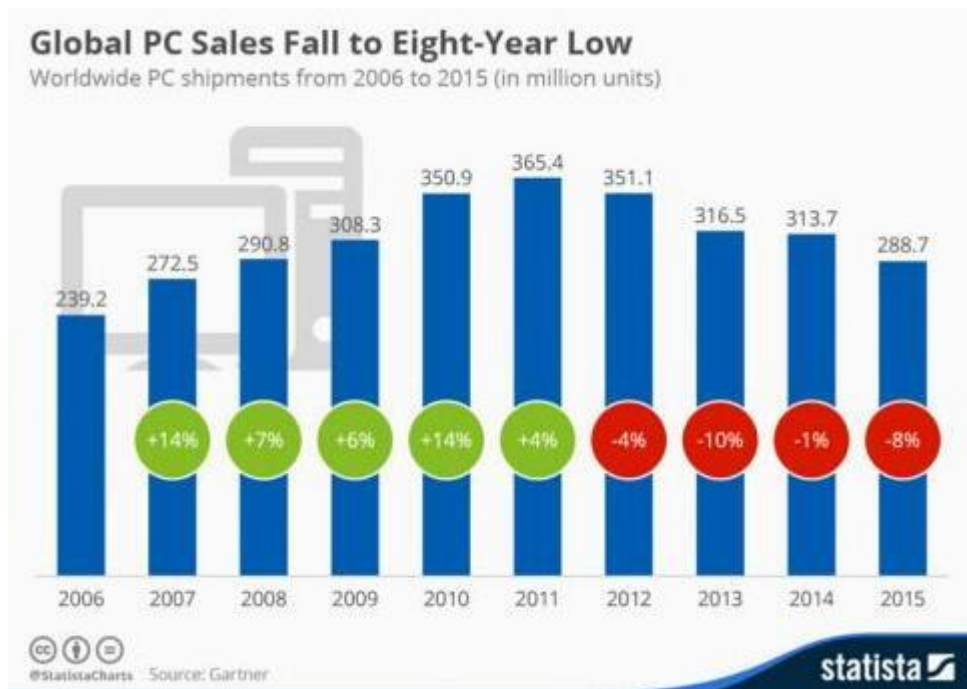
Fig. 35 Global PC Shipments in 2015 Reached the Lowest Level in the Past Eight

Years

It can be seen from Fig. 35 that global PC shipments reached the maximum in 2011 and then gradually fell from 2012, while tablet PCs started to rise in 2012.

Compared to weakness of PC market, global market share of smartphones has soared all the way. As shown by the data released by authoritative market statistics and research institution (IDC) (Table 2), global shipments of smartphones in 2015 reached 1,432.9 million, which increased by 10.1% on a year-over-year basis.

Table 2 Global Shipments of Smartphones in 2015

Vendor	2015 Shipment Volumes	2015 Market Share	2014 Shipment Volumes	2014 Market Share	Year-Over-Year Growth
1. Samsung	324.8	22.7%	318.2	24.4%	2.1%
2. Apple	231.5	16.2%	192.7	14.8%	20.2%
3. Huawei	106.6	7.4%	73.8	5.7%	44.3%
4. Lenovo	74.0	5.2%	59.4	4.6%	24.5%
5. Xiaomi	70.8	4.9%	57.7	4.4%	22.8%
Others	625.2	43.6%	599.9	46.1%	4.2%
Total	1,432.9	100.0%	1,301.7	100.0%	10.1%
Lenovo + Motorola	73.9	5.16%	93.7	7.20%	-21.1%

Through comparing global market changes of PCs and smartphones, it can be found that popularization rate of the mobile Internet represented by smartphones has exceeded that of the Internet represented by PCs. In addition, high popularization rate of the mobile Internet has brought high exposure rate to the auto apps. For both the automobile users and the potential automobile purchasers, the way of taking auto apps as publicity channels and platforms of automobile marketing and after-sales service improves publicity penetration rate and pertinence to a large extent, and is really targeted well.

5.1.2 Auto apps enhance interactivity and participation of the consumers

Sudden rise of the intelligent mobile terminal makes auto apps come into view of each user and potential user in a gesture of "being needed", which enables the users and the potential users to be able to use fragments of time to grasp the information which they need, thus saving their time cost. For automobile dealers, because the consumers have very definite automobile purchase or after-sales service choices, high cost of personnel and funding can be saved. Thus it can be seen that emergence of auto apps is a win-win situation to both the consumers and the merchants. As for the reasons for reaching this win-win situation, besides the reason

that auto apps can improve market publicity penetration rate of automobile marketing and after-sales service, it is owed to another advantage brought by auto apps, namely, interactivity and participation between the consumers and the merchants. Internet is still the reference object here. When Internet was previously taken as the main camp of automobile marketing and after-sales service, besides relatively low feedback of the consumers, few consumers participated in activities of the automobile manufacturers. However, in the mobile Internet era, any platform is likely to become the battlefield of automobile marketing and after-sales service, and the consumers can participate in the "game" of the automobile manufacturers anytime and anywhere. For example, Getaway Stockholom app marketing of MINI mentioned above is a very successful case of interaction between the merchants and the consumers. From the marketing case of MINI, it can be seen that 4I theory (Interest, Interesting, Interactive and Individual) generated on the basis of this era was excellently used by MINI. MINI made the users experience the beauty of combination of virtual and real world through interesting game settings, which improved participation of the users, and meanwhile enhanced interactivity between the users and the merchants. However, that cannot be done through automobile web page and other channels based on Internet.

5.1.3 Auto app can cultivate the brand loyalty of users

For all industries, loyal users are the largest source of profit. Automobiles and their corresponding parts, differing from other consumable goods, enjoy a relative longer service life; considering the issues in aspects of performance and cost, it is hard to cultivate loyal users, especially in countries with less developed automotive industry. In 2014, Boston Consulting Group made a survey on brand loyalty of auto market in China, one of the world's largest automobile consumption countries; as shown by the results, nearly 75% of owners, especially the owners of mid- and

low-end automobile brands, planned to change the brands during changing of automobiles [21], which means that the brand loyalty of owners of mid- and low-end automobile brands in China was only 25% in 2014. As the special expensive products, it is more difficult to cultivate the brand loyalty of automobiles than that of ordinary goods. At present, there are several hundred auto brands around the world, each of which has automobiles of different grades and prices, thus further complicating the selection of consumers. The satisfaction and trust on former brands are main external factors affecting the brand loyalty of consumers, while their economic capacity and demand are internal factors affecting the brand loyalty. The external factors may act upon the internal factors, so on the basis of consumers' demand for auto purchase again, the dominant factors affecting their choices are the relevant factors of each auto brand (price, performance, and appearance, etc.). Auto apps, as the bridge for communication between auto manufacturers and consumers, can better guide the consumers, and understand their demands and opinions. At present, most auto manufacturers have launched their own brand apps; excellent apps possess all detailed functions described in the instruction, they can also help drivers to realize driving safety, and timely remind drivers of the driving state. In addition, dealers can also push advertisements of new automobiles, as well as their related information, promotions, surveys and return visits to consumers through apps, which may seize the initiative, and help dealers to occupy the dominant position. The so-called "favorable position gains special advantages" is a large advantage of auto apps; when consumers intend to buy automobiles again, the probability for them to consider the brands that they already had would be greatly improved; it is believed that the brand loyalty of consumers would be inevitably improved as time goes by.

5.2   Challenges and ways of auto apps

Everything has two sides, where there are opportunities, there are challenges.

The emergence of auto apps brings a new model and market for automobile marketing and after-sales service. But in the meanwhile, like apps in other industries, auto apps also inevitably suffer from the serious homogenization. The homogeneous app market makes consumers dazzled, and many apps eventually disappeared due to their failure in standing the trial of the homogeneous market. In the highly competitive auto app market, only the products really meeting the psychological needs of consumers can be invincible.

5.2.1 Serious homogenization of auto apps

It is inevitable that auto apps in the intelligent mobile terminal replace computers as a main pattern of automobile marketing and after-sales service. But in the meanwhile, the hot market will see more intense competitions between like products, and gaining share is not an easy task though there is a great temptation. Any enterprise or group attempting to introduce a new auto app has to "pour much money" into marketing, which has no essential difference from the traditional marketing. Such a marketing mode of "splashing cash" for auto apps will be bound to become a trend, but it does not mean that it will bring benefits. In the era of intelligent mobile terminals, consumers have more self-choice rights, but it cannot determine whether the consumer experience and demands irregularly change or maintain immutable. In the mobile Internet era when materials are greatly satisfied, consumers need more spiritual and psychological satisfaction; any product with this era feature cannot be active in the context of consumer concerns for a long time if it is developed aiming at meeting the basic needs of consumers. As regard to the current market, most enterprises or teams developing auto apps do not have a long objective on their operations, and they only want to "earn some money" from the flow of mobile Internet. Take car wash apps as an example, it can be said that they are "overwhelming", which is closely related to the characteristics of car wash.

Firstly, car wash is rigid demand of car owners; secondly, it is related to the geographical location, and easily associated with other needs of the owners; thirdly, in the fields of after-sales service, it is a field requiring relatively low access qualification of practitioners and low technical requirement. Based on these conditions that can be easily met, such apps "inevitably" make the market with serious homogenization. Most car wash apps are similar in functions and design, which is the commonly referred product homogenization.

Since the birth of the auto apps, homogenization has always been an inevitable issue. Compared with the traditional auto marketing and after-sales service mode, auto apps have a low access threshold and short development cycle, most apps are not clear in business model, and the profit channel is relatively single, all of which are factors causing the serious homogenization of auto apps. Such as car wash apps mentioned above, compared with the launching of a physical wash shop that requires a lot of fund and time and subjects to many unstable factors, a car wash app for offering door-to-door service would require less money and less time, in addition, it does not need any professional equipment; as long as the car owner makes an order on the app, the service provider will go and offer service in a short period of time. It is said that many similar apps have "grabbed" the business of physical wash shops. Due to the convenient mode, there is serious homogenization of auto apps. In the market of auto apps with serious homogenization, consumers will be dazzled and cannot identify which one is better; for the market, the homogenization can avoid monopolization to a certain extent; and for the development teams or enterprises, they shall constantly improve their products to be invincible in the fiercely competitive market.

5.2.2 The way out of homogenization for auto apps

In view of all industries throughout the history, all products that could be active in the market have the major feature of "being novel and innovative", such as "Facebook", one of the most popular social platforms in the United States, "WeChat" in China, and "Miitomo" in Japan. The reasons why these products are popular include: first, they can excavate the potential psychological needs of consumers under the era background, and it can also be understood as "innovation" of products; the so-called era background is actually the sum of degree of development in all aspects of society, and consumers in different eras may have different demands; therefore, era background is important, and psychological demands of consumers is more important. For example, mobile phones have experienced the changes of era, as well as the changes of consumers' consumption psychologies during time variation, in the process of their transferring from basic communication tools to "universal keeper" at present. Meanwhile, it can be understood that the potential psychological demand of consumers is the source of product innovation. The second one is also the most critical point in this era – "individuality". After entering the 21st century, it becomes a prominent feature of this era to highlight individuality; being different from the pursuit of product practicability in the past, individuality has become the thing that most people chase after, especially in the virtual world of the Internet. Therefore, only the products meeting individual demands of consumers can win in the homogenization.

As the product of the mobile Internet, homogenization of apps is an inevitable result, and auto apps cannot be spared either. In the mobile Internet era today, "innovation" and "individuality" shall be the important directions for development of auto apps. As regard to the successful cases of auto apps, such as MINI Stockholm APP and RepairPal APP mentioned above, they take the lead in the trend of the times,

or bring different experience to the consumers. Regardless of innovation or individuality, the products shall be eventually developed on the basis of meeting the consumers' demands, for blind imitation will make the products engulfed by the tide of homogenization, other than achieving success. It can be seen that both automotive marketing related apps and after-sales service related apps can better meet the era demands of consumers with the marketing mode established on the basis of 4I marketing theory in the mobile Internet era; and the meeting of era demands of consumers is the foundation for the existence.

5.3   Summary and discussion

The most influential saying in this era is "Technology changes lives". App, as the technological product which rises sharply and rapidly with heightened "developing capacity", is more popular than any other technological product in the past. In addition to convenience to people's life, it brings significant influence on the automobile industry. Auto apps, as branch products of apps, have both the positive and negative impacts on marketing mode and after-sales service channels. When there is an innovative product in any era, only the merchants who can catch up and hold the leading technology under compact can transfer impact into positive impetus, while those who cannot acclimatize to it will be eliminated in the fiercely competitive market. For the impact on automotive industry, auto apps make auto IT industry a new member in the field, and a big winner "having a finger in the pie". Meanwhile, it is also determined by the science and technology nature of auto apps.

6 Conclusion

As resulted through discussion and confirmation, apps developed on the basis of features of intelligent mobile terminal (mobile Internet) have become winners in the era highlighting individuality, and the marketing mode of auto apps is becoming the forerunner in the fifth era of automobile marketing. The reasons why it is considered as being becoming the forerunner (other than having become) are: firstly, although the era of auto apps has come, it has not reached its peak, and the traditional automobile marketing and after-sales service mode still occupies a certain proportion of the performance. Secondly, although the traditional automobile marketing and after-sales service mode appears to be powerless and has no strength to strike back under the impact of the marketing mode of apps, the traditional mode is not replaced by the marketing mode of apps in the full sense, and will not be fully replaced, just like the fact that the "online store" mode and traditional physical store mode cannot be fully replaced by "O2O" mode after the rise of mobile Internet. However, it is an undeniable reality and fact that mobile Internet is replacing Internet to become the supremacy of marketing. Therefore, auto apps will replace the Internet marketing and traditional marketing, and become the main channel and mode of automobile marketing and after-sales service, which is also an undeniable fact. At present, however, auto apps are experiencing an accelerating phase, and have not reached the peak of the era, so it can be concluded that auto apps will be developed more rapidly in the years to come, and will play a critical role in marketing of automobiles.

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Questionnaire for Dongfeng Peugeot App Users

Dear App User of My Peugeot,

Thank you for participating discussions eagerly on the forum of My Peugeot and showing your support continually to Dongfeng Peugeot. We sincerely invite you to take part in the internal test of My Peugeot App and please fill in this questionnaire in accordance with your real experience and feelings after using. And as a return, we will give you a nice gift. Thank you!

Q1: What's your gender?

A Male B Female

Q2： How old are you?

A Under 20 B 20-29   C 30-39   D 40-49   E More than 50

Q3: Whether the site information you queried includes your favorite site?

A Yes   B No

Q4: When binding the information of your automobile for the first time, whether the process is too cumbersome and how is the passing rate of the information verification?

A The process is not cumbersome with high passing rate of the information verification.

B The process is not cumbersome with low passing rate of the information verification.

C The process is cumbersome with high passing rate of the information verification.

D The process is cumbersome with low passing rate of the information verification.

Q5: Does the online consultation meet the requirement of the question you

described?

A Yes   B No (Please describe items in your opinion need to be added or deleted.)

Q6: Whether the locating for accident spot is accurate?

A Yes, there is little locating error.   B No, the locating is not accurate.

Q7: Are the descriptions of accident photos clear and whether they have reference significances?

A Yes, the descriptions are clear with reference significances

B No, the descriptions have little practical use.

Q8: Whether the rescue phone and site are the nearest to the accident spot or whether it is the dedicated service site you set up?

A Yes   B No

Q9: Is there any other rescue phone (whether the arrangement is reasonable)?

A Yes   B No

Q10: Whether the setting of module contents is reasonable?

A Yes   B No (your advice)

Q11: Comparing the paper edition and electronic edition of the User Manual, which one is more convenient?

A Electronic edition   B Paper edition

Improvement suggestions for electronic edition

Q12: Whether the contents of Automobile Care Forum have any reference significance?

A Yes   B No (your advice)

Q13: Being a prospective owner of an automobile, in your opinion, whether the

information to the filled out in the column of "Recommended Automobiles" is reasonable?

A Yes   B No (your advice)

Q14: Being an owner planning to change your automobile, in your opinion, whether the information to the filled out in the column of "Automobiles Exchange" is reasonable?

A Yes   B No (your advice)

Q15: Whether the site information displayed is comprehensive?

A   Yes   B No (your advice)

Q16: What do you want to be included in the Image-Text Push on the top of the App? (Multiple choices)

A Brand information B My Peugeot activities C Introduction of automobile type

D Promotion information   E Other

Q17: What is more valuable to you in activities of Image-Text Push? (Multiple choices)

A Activity form   B Activity theme (such as target automobile type)

C Activity gifts   D Other

Q18: Whether are you willing to complete the social information?

A Yes   B Yes, but only partially.   C No