

## **Analysis on the Model of Daimler’s Car Sharing Project: car2go in Chongqing**

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**ABSTRACT:** *In recent years, the concept of sharing economy has become more and more popular, which has been promoted to the car sharing industry. Car sharing services can effectively solve the problems caused by excessive private vehicles, including traffic congestion, air pollution and waste of resources. Daimler's car sharing program car2go launched in Chongqing on April 15, 2016, which brought new transportation model and convenience to the local residents. But car2go was short-lived and withdrew from Chinese market on June 30, 2019. What has car2go experienced from a high-profile appearance to a gloomy exit? This paper will make a comparative analysis between car2go and other competitors' car-sharing projects, and summarize their differences and the management problems car2go faced, then conclude experience for the development of the car-sharing industry.*

**KEY WORD:** *Car Sharing, Free Floating, Periodic Renting, car2go, Chongqing*

Date of Submission: 17-08-2019

Date of Acceptance: 31-08-2019

### **I. INTRODUCTION**

In April 2016, Daimler's car sharing project car2go opened its first Asian location in Chongqing in south western China and offered totally 600 two-passenger vehicles for customers within 60 square kilometres operative area in Chongqing, including Yubei District, Jiangbei District, Yuzhong District, Nanan District, etc. As a free-floating car sharing program, car2go is a breakthrough for the traditional car sharing model, which is more flexible and convenient. (Frederik&Stefan; 2015) At the early stage, car2go acquired highly attention. But not for long, it announced to suspend its daily operations in Chongqing and withdrew from the Chinese market on June 30, 2019.

As an innovative model service, car sharing can fundamentally improve the problems caused by excessive number of private vehicles. However, due to the lack of experience, there are many problems in actual operation, which needs more detailed research and discussion. This paper will discuss the obstacles which car2go faced and analyse the differences between 3 car sharing projects, including car2go, PAND-AUTO and EVCARD. Finally, it will summarize the lessons-learned for car sharing industry.

### **II. PROJECT CHARACTERISTICS**

Comparing with other competitors in Chongqing, including EVCARD and PAND-AUTO, it's obvious to see that there are both similarities and differences between them. Comparisons are made in the following five aspects, including sharing model, service model, service location, vehicle types, power edition and service platform. Detail differences as shown in the table 1.

**Table 1: Project Comparison**

Project	car2go	PAND-AUTO / EVCARD
Aspects		
Sharing Model	Periodic renting	Periodic renting
Service Model	Free floating	Station-based
Service Location	Municipal parking spaces	Charging station
Vehicle Types	Single type (Smart for Two)	Multiple types
Power Edition	Gasoline-powered	Electric-powered
Service Platform	APP / WeChat	APP

First of all, car2go, PAND-AUTO and EVCARD all belong to periodic renting sharing models, which divide the rental time into minutes. (Li Ming;2015) Compared with traditional rental models, users have no limit on the minimum rental time and can freely decide how long to rent a car according to their own needs. This model improves not only flexibility, but also the utilization rate of vehicles.

Secondly, based on the limitation of location for customers to pick up and drop off, it can be divided into four kinds of service models, including return from the same point, return from the different point, semi-

freefloating and free floating. (Xie Zhiwei; 2019). There are also some scholars divided into three kinds of models, including free-floating, one-way station and round-trip. (Wu Jingjing; 2019) car2go is the free-floating service model. (L.L.J, etc; 2019) car2go paid municipal parking fees to the government every year and ensured their customers could use the municipal parking spaces freely. By cooperating with the government, car2go transformed the public parking resources into its own service station, which got more flexible and reduced the cost to expand the service stations. In contrast, both PAND-AUTO and EVCARD are both station-based models. Their customers need to rent or return a car at charging stations which company built. Sometimes it may be away from their destination, which will bring inconvenience to customers.

Thirdly, car2go only offered single-type vehicles 'Smart for Two', all gasoline-powered. While PAND-AUTO and EVCARD offers multiple types vehicles, all electric-powered. At the early stage, car2go was similar with PAND-AUTO and EVCARD, offered technical supports via APP. At the late stage, car2go moved to WeChat for daily operation. In general, Customers could serve themselves in each project above. Before renting, users could find the cars online via a cell phone. After per renting, users could finish payment online. Compared with the traditional model, the whole process achieve self-service, and greatly reduce the cost of human cost.

### **III. PROJECT DIFFICULTIES**

#### **3.1 Vehicle Management Difficulties**

Compared with charging-station model, there are many differences in free floating model about vehicle management, which include daily cleaning, maintenance, vehicle refuelling or charging. (Michele, etc; 2019) In a word, although the free-floating model is innovative, it's more difficult to operate.

Firstly, there is no need for PAND-AUTO and EVCARD to refuel vehicles offline because all of their vehicles are electric-powered, which will start charge in the station after customers return the car. However, car2go's vehicles are all gasoline-powered, which need staff to monitor the fuel data online every day and refuel the vehicles offline.

Secondly, In the free-floating model of car2go, all of the vehicles are floating in operative area, no any fixed sites. Before cleaning or maintenance, car2go's staff or their third-party service providers needs to locate and find vehicles which could be at every corner in operative area. In contrast, PAND-AUTO and EVCARD could finish this vehicle management in their fixed charging stations, which has less work than car2go. As a result, it's more difficult for car2go to expand the scale than competitors because of the high human cost.

#### **3.2 Lack of Parking Space Resources**

Although car2go cooperated with Chongqing government and acquired the right to use municipal parking spaces, the spaces were always occupied by private vehicles and not enough. As a result, car2go can't achieve the goal 'free to go and stop' because there may be no space to stop. On the other hand, sometimes the fee collectors refused the customers of car2go to park for free, which would reduce their private profit. We can see that though car2go paid for the parking spaces but didn't make effective use of the resources.

#### **3.3 High Frequency Negative Phenomena**

Different customers, different qualities. Some high-quality users obey traffic rules, with rarely violations or accidents and high utilization rate. But there is also a part of users who not only break traffic rules frequently, but also pay the rent passively. The customers of car2go are generally younger and with less driving experience and awareness, which usually cause a high incidence of traffic accidents or violations. Beyond that, they also lack the experience to deal with the traffic accident, which will have bad effect on the process.

#### **3.4 Less Active Users and High Churn Rate**

The big amount of car2go's members in Chongqing is unrealistic which is not good as it looks like. There are a lot of customers just tried it once due to curiosity or free registration, instead of using car2go frequently. Moreover, the churn rate increased significantly after an accident or violation. The reason may be that customers has dissatisfaction with the company's rules or ways. For example, according to the rules of car2go, there are two solutions for customers to choose to deal with the violations. Firstly, customers could choose to pay 200 RMB per violation to car2go for help. The other choice is that customers deal with the violations by themselves, but car2go just offered two places to choose. The first solution will cost more money and the other one will take more time.

#### **3.5 Profit Problem**

Before registering as a car2go member, Customers need to agree the term of Alipay free payment password. Therefore, car2go would have the right to deduct money from customers who owe money. But it couldn't work if there is no money in customers' account. On the other hand, the operation cost of car2go is very high, including vehicles purchasing, vehicle maintenance, vehicle damage loss and labour cost. Meanwhile

the source of profit is relatively single, just including rent and membership fees. In a word, the overall profitability of car2gowas not optimistic.

#### IV. CONCLUSION

Through the above analysis, firstly we can see that part of the difficulties are facedby the whole car sharing industry, (Huo Zhengqi, 2019) not only car2go itself, such as high frequency negative phenomena and profit problems. Secondly some difficulties arecaused by the unique free-floating model of car2go, such as the management difficulties. Lastly other difficulties are caused by car2go's management problems, such as the lack of active users and high churn rate. In view of some problems, this paper puts forward the following suggestions for car sharing industry reference.

##### 4.1Set Customer Level System

Considering the different quality of users, it is suggested that enterprises should manage customers in different levels and treat them differently. What enterprises need to do is developingaassessment standard system, and giving different treatment to customers according to their levels.Reference criteria of assessment as shown in table 2.

Table 2: Reference Criteria of Assessment

Content	Detail
Violation	Deduct points based on severity of violations, such as fines and penalty points
Accident	Deduct points based onseverity of accidents, such as maintenance amount
Consumption	Bonus pointsbased onconsumption amount
Payment	Deduct points based on the delay days in payment
Assist in operation	Bonus points if customers actively tell company about abnormal vehicles' information

##### 4.2 Developing Profit Point

Firstly, as free-floating model, car2go's vehicles have been always moving in the market. The vehicles are the carrier of advertisement, which have many opportunities to reach customers. Advertising revenue can be a new profit point.Due to the strict brand management of car2go, advertising revenue isless developed.Advertising inside cars can be a way to increase revenue without damaging brand image. For example, add online ads in the vehicles' display screen. It will appear on the screen after users start the car, which could improve user experience and promote relative products. Secondly, Add "no deductible insurance" purchase option for customer. Users can be exempted from fines within a certain range of vehicle damage if they buy the insurance before using cars. For customers, it will reduce the potential risk of paying a fine. For companies, the purchase option could be a new profit point.

##### 4.3Strengthen Cooperation with the Government

It is important for car sharing project to obtain the resources, which not only include the capital dimension, but also the scarce resources such as charging piles and parking spaces. Whoever can get scarce resources will have greater advantages.car2go in Chongqing seems to hadsuccessfully taken the first step and acquired the parking spaces resources, but it didn't go far enough. Firstly, car2gosould further strengthen cooperation with the government to implement the effective use of municipal parking spaces. Meanwhile, it is necessary for car sharing project to expand its own exclusive parking spaces for customers.

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Liuyang" Analysis on the Model of Daimler's Car Sharing Project: car2go in Chongqing"International Journal of Business and Management Invention (IJBMI), vol. 08, no. 08, 2019, pp 14-16