

Automobile Dealers' Customer Relationship Management based on Customer Value

Daiyue Sun^a, Xu Wang^{a,b,c,}, and Yingbo Wu^d*

^aCollege of Mechanical Engineering, Chongqing University, Chongqing 400030, China

^bState Key Laboratory of Mechanical Transmission, Chongqing University, Chongqing 400030, China

^cChongqing Key Laboratory of Logistics, Chongqing University, Chongqing 400030, China

^dCollege of Software Engineering, Chongqing University, Chongqing 400030, China

*Corresponding author: Xu Wang, professor, wx921@163.com

Abstract

With the increasing competition between enterprises, customer relationship management becomes more and more important. In order to distinguish quality customers, it is significant to calculate customer lifetime value. This paper proposes a customer lifetime value evaluation model to analyse the customer value. After ranking customers based on the customer value, automobile dealers can take measures to attract quality customers. Automobile dealers' profitability earning power can be improved by making customers loyal.

Key words: *customer life value; automobile dealer; customer relationship management; quality customer; loyalty.*

1 Introduction

Nowadays, all companies have identified the need to become more customer oriented in the strategic management. The enterprises that own more customers can get more benefits. In this case, enterprises must take effective measures to manage customers. Automobile industry is no exception¹. Customer relationship management (CRM) is an effective means to be widely used. Although there are many researches on CRM of automobile manufacturers, they are not on the standpoint of dealers. Automobile dealers and manufacturers are not in one interest community. Moreover, researches on customer value of automobile dealers are rare².

At present, researches on customer value focus on three different aspects. One is the value offered to customers by enterprises. That is, from the point of view of the customer to perceive the value of enterprise products and service. The second is the value that customers provide for enterprise. That is to say, from the business of view, based on customer behaviours and features enterprises can measure the value created by customers. The value indicates the relative importance to enterprise of this customer. Third, enterprises and customers are mutual subject and object, called customer value exchange³. In this paper, it's research about the second situation.

2 Customer value

According to the 80/20/30 principal, it is known that 80 percent of a company's profits come from 20 percent of the customers while 50 percent of the profits are lost by 30 percent of the non-profit customer. However, it's not enough for just knowing the principal, the key is how

to identify and define these quality customers. It requires quantifying customer value, and then to find out quality customers based on classification. Above is a typical application of customer lifetime value (CLV).

Customer lifetime value is the sum of customer value provided to enterprise during the entire life cycle. It can be divided into three parts according to the time interval: history value (HV), current value (CV) and potential value (PV).

$$CLV=HV+CV+PV \quad (1)$$

History value occurs because customers and enterprises make a deal before. These values have been produced when the cost has occurred, so it's sunk costs. It can only be counted as a reference, and it does not help to make actual decision⁴. So the formula of customer lifetime value should be:

$$CLV= CV+PV \quad (2)$$

3 Conceptual model

In order to assess and quantify customer value, it needs to establish an applicable valuation model. 1995, Angus Jenkison proposed a general model that represents CLV research before 1996.

$$CLV = \sum_{i=1}^n C_i(1+d)^{-i} \quad (3)$$

C_i : net profit from customers every year;
 n : the length of the customer life cycle;
 d : discount rate.

Although Angus Jenkison's model is the classical model of customer value, it is clearly not realistic to be used in calculating customer value of automobile dealers. Therefore, it is necessary to use another method to assess customer value indirectly, to build model from another angle, as shown in Fig. 1. Reference⁴ is in the form of graphics to draw the following customer value evaluation model. This model uses indicators to describe the current value and potential value of the customer indirectly. Compared with the customer value model described previously, it is more operational. So it is chosen to be the reference model.

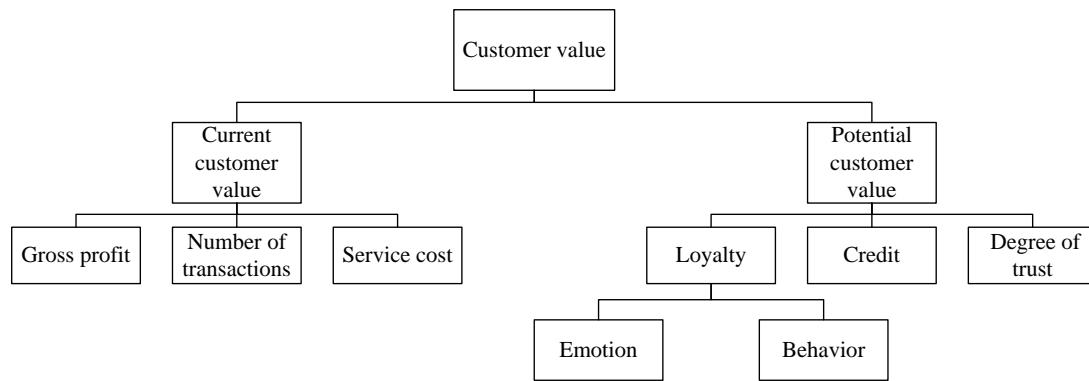


Fig.1-Customer value model from Customer Value Evaluation, Modeling and Decision-making

4 Discussion

4.1 Indicators transformation

According to the model above, it needs to transform each of the indicators to make it suitable for automobile dealers.

4.1.1 Indicators of current customer value transformation

As an automobile dealer, if they want to calculate the individual customer's gross profit, they need to calculate the sum of gross profits of all business. It relates to dealers' value chain.

Each activity of the value chain will increase the value of the product or service. As an automobile dealer, its value chain includes sale, spare part, service and survey. In particular, customers' contribution to gross profit consists of six parts: vehicle purchase, maintenance, repair, spare parts sales, decoration and claims.

For automobile dealers, "transaction amount" in the reference model is a cumulative number of the sum of individual customer transactions.

As for "service costs", it is usually a statistical data. There is no difference between individual customers, so this paper removes the "cost of service" section out of calculation.

4.1.2 Indicators of potential customer value transformation

Because most customers pay money immediately, it is considered all customers have the same credit. On the other hand, there are varieties of methods calculating degree of trust. So for potential value, this article only counts loyalty.

4.2 Formulas

In order to solve the problem that dimension of different types cannot be added, it needs to do 0-1 normalization.

$$x'_i = \frac{x_i - x_{\min}}{x_{\max} - x_{\min}} \quad (4)$$

x_i : variable needs to be processed;

x'_i : variable after 0-1 normalization;

x_{\min} : the minimum variable;
 x_{\max} : the maximum variable.

Based on the reasoning above, We can get the formula of gross profit(GP).

$$GP = \sum_{t=0}^n \frac{\sum_{i=1}^6 P'_i}{(1+r)^t} \quad (5)$$

P'_i : gross profits from customers of six business parts after 0-1 normalization;
 n : the length of the customer life cycle;
 r : discount rate;
 t : time.

Then we can get the formula of Current Value (CV).

$$CV = w_1 \bullet GP + w_2 \bullet T' \quad (6)$$

w_1, w_2 : weight;
 T' : transaction amount after 0-1 normalization.

In this paper, using the following indicators calculates loyalty: customer satisfaction, times of customer repurchase behaviours and recommendation, sensitivity of product price. Based on the indicators above, this paper uses fuzzy evaluation methods to calculate loyalty. Fuzzy evaluation model customer loyalty:

$$\bar{P} = \bar{C} \bullet \bar{R} \quad (7)$$

\bar{P} : vector of evaluation value;
 \bar{C} : matrix of weights;
 \bar{R} : matrix of evaluation.

Setting corresponding weights for P_i , we can get:

$$V = \sum_{j=1}^n P_j \bullet f_j \quad (8)$$

Do 0-1 normalization for V , it is just potential value (PV).

5 Conclusion

To sum up in conclusion, we can get customer value based on the model above. Then we can rank customers to distinguish quality customers. Aimed at quality customers, automobile dealers can develop targeted marketing strategies and carry out care activities, thereby customers will be more loyal.

Acknowledgements

This research is supported by National Natural Science Foundation of China under Grant No. 71301177, National Science and Technology Support Program of China under Grant No. 2015BAH46F01 and 2015BAF05B03, the Research Fund for the Doctoral Program of Higher Education under Grant No. 20130191110045, the Fundamental Research Funds for the Central Universities Project under Grant No. CDJZR13110048 and No. 022500520201-3, CDJZR14110001 and 106112015CDJSK02JD05, and the Chongqing City Key Science Program Project under Grant No. cstc2014yykfA40006 and cstc2015yykfC60002.

References

1. *H. Ding*, Customer relationship management based on customer value in the automotive industry. Capital University of Economics. 2014.
2. *Z.J. Chen*, Automobile dealers customer lifetime value model, Journal of Zhejiang University(Science Edition). 39 (2012) 361-366.
3. http://baike.baidu.com/link?url=3McisnPtFbGWOjgv8OTdIaauZUoYzXpwlEXDbWkKlmdOXP-IqnOZyLFB8hPU_CRziI-hkUrHfEQkM1FJToerK
4. *J.J. Qi, H.Y. Shu*, Customer value evaluation, modeling and decision-making. Beijing University of Posts and Telecommunications Publ., Beijing, 2005.
5. *W.F. Ren, L. Lu*, Research of logistics enterprise customer relation management based on The Life Cycle, China Journal of Enterprise Operations Research. 9(2014).