

## **Comparison of CRM Programs Basing on Improving Customer Profitability: Using the AHP Method**

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**ABSTRACT:** In this paper, we generalize the cause-related marketing (CRM) methods that used by most current enterprises. And then, we probe into the difference of the effects of different types of CRM programs aiming at improving customer profitability by analytic hierarchy process (AHP). Consequently, we find out the sequencing results and provide some reference to the enterprises while performing CRM programs.

**Keywords:** analytic hierarchy process; customer profitability; cause-related marketing

**JEL Classifications:** M3

### **1. Preface**

With the rapid development of economy and people's life, the voice from people asking corporations to undertake the social responsibility is getting higher and higher. When natural calamities like earthquake occur, millions of entrepreneurs stretched out support hands to help the victims. Therefore, numerous enterprises with rich sense of responsibility emerged in the society.

As far as corporations are concerned, cause-related behavior is not only a good behavior of the company, but also a positive influence to the stakeholders in order to improve the financial performance. Thus, the managers of companies will consider cause-related activity as a promotion method to improve their image and reputation. Baker (2007) believes that when a company cooperates with a non-profitable organization, binds products sale with social issues or cause-related activities and donates to the activities for economic purposes, such as improving sale, gaining profit and enhancing image, it can be considered as cause-related marketing (CRM). Therefore, many enterprises began to use cause-related marketing method to stimulate purchase and improve their performance.

### **2. Literature Review**

#### **2.1 Cause-related marketing**

The definition of CRM can be traced from 1986 when Varadarajan and Menon (1988) first defined it as a selling method, in which the company works together with non-profitable organizations like charities. Thereafter, some scholars had revised and extended this definition. One of them is taking CRM as a kind of charity activity which increases profitability of a company, but it needs no relations between the sale and this activity (Barnes and Fitzgibbons, 1991). In this paper, we take CRM as a complicated utilitarian exchange among customers, companies and non-profitable organizations, in which companies perform charities and sales promotion in the same time.

The literatures concerning cause-related behaviors' influence on consumers mainly focus on the perception of customers on charitable activities, the reaction and the change of purchase intention, etc. Moreover, Pracejus and Olsen (2004) proves charity has marked influence on customers' loyalty by studying the relativity between corporations and charities. Furthermore, some study indicates that the higher the family income is, the more positive they react to the charities. In the meanwhile, the professional background of consumers is also remarkably relevant to their response to charity activities (Cui et al., 2003). Obviously, CRM can affect customers purchase behavior so as to improve customer profitability.

## **2.2 Customer profitability**

Learn from existing research results, CLV is widely considered a reliable indicator to determine profitability of customers, also is a more intuitive expression of corporate profits. Gupta et al. (2004) concluded that CLV could replace the corporate value by using the data of five corporations. But Petersen et al. (2009) prove the CLV highly correlated with the value of company by using vertical analysis of a company's data. Kumar and Rajan (2009) argues that CLV could help managers to choose valuable customers and realize personalized management; also points out enterprises should focus on the measurement and improvement of CLV because it contributes to improve marketing functions. Jain and Singh (2002) even argue that CLV also could be called customer assets or profitability of customers. Currently, measurement of CLV has evolved a lot. However, there is still no consensus on the measuring method. In this paper, we will define customer profitability indicators basing on the studies above.

## **3. Model Construction**

### **3.1 The definition of customer profitability indicators**

In order to enhance the precision of CLV measurement, Depeng and Shaoxia (2010) analyzed existing CLV model and found out that it is affected by several factors, such as the distribution of customer purchase process, purchase amount, customer satisfaction, WOM behavior, price sensitivity and so on. Therefore, we can re-divide CLV into four ingredients: purchase behavior, WOM behavior, customer satisfaction and price sensitivity. In this paper, we use these four ingredients as CLV evaluating indicators to study the priorities of different CRM methods while a firm wants to improve customer profitability.

### **3.2 Division of CRM methods**

Since the contents and objectives of cause-related activities are different, not only should CRM have diverse types, but also the ways to perform CRM strategies should be various. Many scholars categorized CRM types from different perspectives. An early classification method suggested by Barnes and Fitzgibbons (1991) was according to the category of time and divided them into two tupes: ongoing CRM and one-shot CRM. Thereafter, some scholars divided CRM by the cooperative modes between companies and non-profitable organizations. Andreasen (1996) held that CRM should be divided into promotion basing on exchange, joint advocacy activities and licensing three types. However, his conclusion was incomplete. CRM should include advertising, sponsorship and some other types. Baker (2007) pointed out that CRM should have advertising, promotion, publicity, sponsorship, licensing and direct marketing six categories.

According to the circumstance in China, we classify CRM into advising, purchase-triggered donation, publicity, sponsorship and licensing five different kinds. Advertising means to show cause-related advertisement on the media, such as internet, newspaper, TV and so on, in order to establish a positive image of the company. Purchase-triggered donation means to extract a part of revenue from sales and donate them to the relevant non-profitable organization. Publicity means to cooperate with non-profitable organizations and send out products or materials in order to prevent or solve certain social issue. Sponsorship means to finance the non-profitable organization or cause-related activity to ensure its normal operation. Licensing means to pay non-profitable organization to use its logo or name in order to stimulate sales.

### **3.3 Hierarchy analysis model**

CRM is a kind of sale promoting method of corporations. It has two objectives: one is to improve financial performance; the other is to bind the welfare of non-profitable organization and the sales of product or service together (Varadarajan and Menon, 1988). And Barone et al. (2000) believes that customers are willing to purchase the product of a company which usually conducts charity. That

is to say, company can improve purchase intention of customers by performing CRM.

When price is concerned, as a return of cause-related behavior, customers are willing to pay a higher price during the process of studying the impact of cause-related behavior on customer purchase behavior (Creyer, 1997). In other words, the customer will be less sensitive to the price promotion. So, we know that if a company performs CRM, the price sensitivity of customers will decrease.

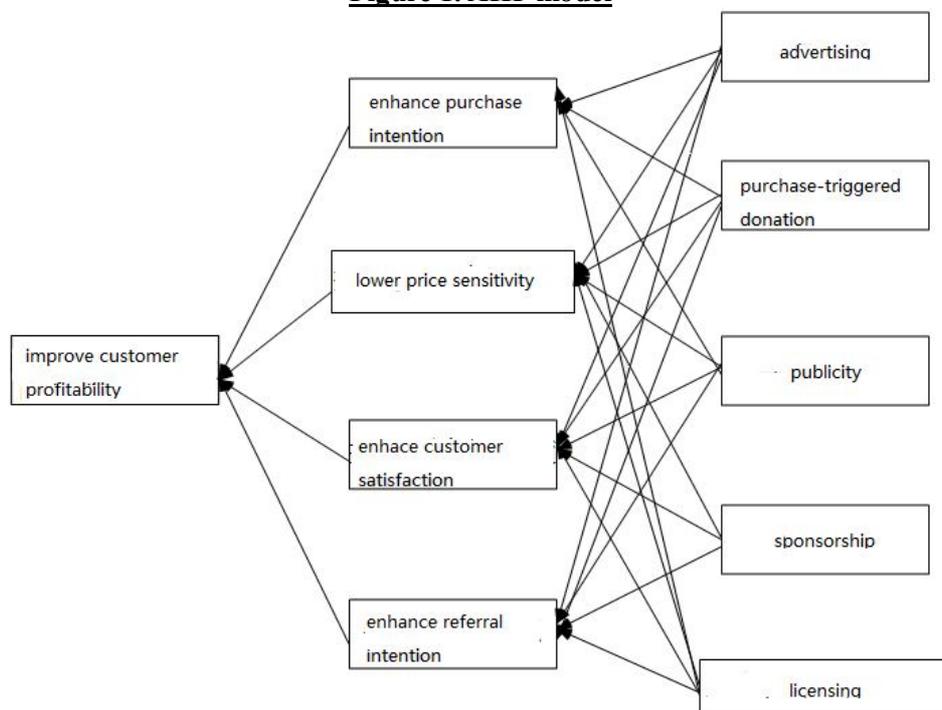
In terms of customer satisfaction, the criterion to measure it is his expectation. For example, a customer hopes the price of a product fluctuate in a certain range, if it exceeds this range we can consider he is satisfied. According to prospect theory, a customer usually expects that a company should perform cause-related behavior, it should be consider as a reference point. If the company do more charity, they will be more satisfied; the less charity be conducted, the less satisfaction they will have (Elizabeth, 1997). Therefore, we think CRM is a way to improve customer satisfaction.

Furthermore, if an enterprise can resume its social responsibility its image will enhance, which will bring it good reputation in society. Thus, Lee (2011) used empirical analysis and proved that CRM might bring positive WOM effect to companies. Obviously, CRM performance can be a way to improve customer referral intention for corporations.

According to the argument above, we know that a company can improve its customer profitability by enhancing customer purchase intention, price sensitivity, customer satisfaction and referral intention. Using the analytic hierarchy process proposed by American Professor Saaty, we establish the AHP model below.

The target layer A is the total target of CRM programs, which is to establish the corporation's image, thereby to improve customer profitability. Criteria layer B is four sub-goals for achieving the total target, which refer to enhance purchase intention, lower price sensitivity, enhance customer satisfaction and enhance referral intention. The alternative layer C is five types of CRM programs, which refer to advertising, purchase-triggered donation, publicity, sponsorship and licensing. All of these are widely used in daily life.

**Figure 1. AHP model**



#### **4. Data Acquisition and Processing**

##### **4.1 Survey design**

Basing on the influence of five types of CRM performance on customer purchase intention, we design ten items in the form of modified fine scales in order to obtain a judgment matrix data, which can determine the importance of one CRM method to improve purchase intention compared to the other types. Similarly, when it comes to lower price sensitivity, improve customer satisfaction and

enhance referral intention, we use the same items for measurement.

At first, experts divided evaluations into integers X from one to nine. Later, Ma and Zheng (1991) argued that it should use 1/X to replace the inverse judgments in Saaty’s scale. However, there are apparently extreme cases in the region 1/9-9. When evaluating, we always unconsciously use some intermediate levels to judge whether the object is better or worse than the average state. So, we use 1/5,1/3,1,3,5 five scales in our questionnaire, which represent strongly disagree, disagree, neither agree nor disagree, agree, strongly agree.

In order to ensure the validity of the survey result, we sort out the original design questionnaires to 55 undergraduate and postgraduate students in our campus for pre-survey, and then ask them to give suggestion to revise the questions. After that, we receive 52 valid questionnaires. Data analysis shows that all the consistency test in the ranks of total and separate layers have passed, which indicates  $CR < 0.10$ . According to the revising suggestion, we modify the questionnaire and get the final one.

#### 4.2 Data acquisition

According to the model shown above, we have two kinds of respondents here. One kind is the business operators. They know well about the difference of significance between different evaluating indicators to improve customer profitability. The other kind is the business customers. They know more about how different these CRM programs are when we judge their importance to the indicators above. Therefore, in terms of the survey about business operators, we target our respondents at the managers and staff representatives and send out questionnaires in their firms. At a total of 80 questionnaires sent out, 61 useable are returned, yielding a respond rate of 76.25%. In terms of the survey about students in campus, we target our respondents at students in Guangdong University of Technology and send out questionnaires in the flesh or by email. At a total of 250 questionnaires sent out, 205 valid are returned, yielding a respond rate of 82.4%.

#### 4.3 Data processing

For the convenience of analyzing the demographic characteristics of the sample, we descriptive statistical analyze their features, such as gender, age and so on, by SPSS. The result is shown in the Table 1 and Table 2.

**Table 1. The results of descriptive statistics (for business operators)**

project		frequency	Effective proportion (%)	Cumulative proportion (%)
Gender	male	32	52.5%	52.5%
	female	29	47.5%	100.0%
Age	Under the age of 18	0	0%	0%
	18~25 years old	12	19.7%	19.7%
	26~35 years old	33	54.1%	73.8%
	over the age of 35	16	26.2%	100.0%
Approval of CRM	yes	59	96.7%	100.0%
	no	2	3.3%	100.0%
Experience of CRM	yes	35	57.4%	57.4%
	no	26	42.6%	100.0%
Monthly income	<RMB 2000	1	1.6%	1.6%
	RMB 2000~4000	35	57.4%	59%
	RMB 4000~7000	19	31.1%	91.1%
	>RMB 7000	6	8.9%	100.0%

Before we perform analytic hierarchy process, we need to deal with the data. At the process of determine a judgment matrix, we ask the opinion from a large number of respondents. All the respondents are anonymous, so they cannot reach an agreement. Ishizaka and Labib (2011) proposed that mathematical aggregation is needed when consensus is hard to reach. And we usually use geometric mean method (GMM) in calculating the final score of an item (Saaty and Vargas, 2005). Geometric mean performs better than arithmetical means because the positive and negative scores can be neutralized (Aczel and Saaty, 1983). After we got the judgment matrix by using the geometric means, we conducted “R language”. The results are shown in the Table 3 and Table 4.

**Table 2. The results of descriptive statistics (for customers)**

project		frequency	Effective proportion (%)	Cumulative proportion (%)
Gender	male	121	59.0%	59.0%
	female	84	41.0%	100.0%
Age	Under the age of 18	2	1.0%	1.0%
	18~25 years old	176	85.9%	86.9%
	26~35 years old	24	11.7%	98.6%
	over the age of 35	3	1.4%	100.0%
Approval of CRM	yes	197	96.1%	96.1%
	no	8	3.9%	100.0%
Experience of CRM	yes	118	57.6%	57.6%
	no	87	42.4%	100.0%
Monthly income	< RMB 2000	111	54.1%	54.1%
	RMB 2000~4000	62	30.2%	84.3%
	RMB 4000~7000	37	13.2%	97.5%
	>RMB 7000	10	2.5%	100.0%

**Table 3. Each index level single-sort and consistency test results**

Matrix	$\lambda_{max}$	CI	RI	CR	The weight vector of Single-sort
A-B	4.2165	0.07022	0.90	0.0802	(0.309,0.181, 0.298,0.212) <sup>T</sup>
B1-C	5.0245	0.0061	1.12	0.0055	(0.212,0.336,0.168,0.124 ,0.160) <sup>T</sup>
B2-C	5.0691	0.0173	1.12	0.0154	(0.220,0.309 ,0.136, 0.183,0.152) <sup>T</sup>
B3-C	4.0604	0.0201	1.12	0.0224	(0.246,0.287 ,0.122, 0.183,0.162) <sup>T</sup>
B4-C	5.0289	0.0072	1.12	0.0064	(0.244,0.269,0.205, 0.130 ,0.152) <sup>T</sup>

**Table 4. Total-sort and consistency test results**

Aspects B \ Criteria C	B1	B2	B3	B4	Total-sort of C level to B' last level	Ranking result
	0.309	0.181	0.298	0.212		
C1	0.212	0.220	0.246	0.244	0.2304	2
C2	0.336	0.309	0.287	0.269	0.3023	1
C3	0.168	0.136	0.122	0.205	0.1563	4
C4	0.124	0.183	0.183	0.130	0.1535	5
C5	0.160	0.152	0.162	0.152	0.1575	3
CI	0.0061	0.0173	0.0080	0.0072	CR=0.0080	
RI	1.12	1.12	1.12	1.12		

## 5 Analysis Results

### 5.1 Data analysis

We can see from Table 1 and Table 2 that descriptive statistic analysis shows us most respondents are in favor of CRM (96.7% and 96.1% respectively) no matter they are business operators or customers. It indicates that CRM programs can arouse sympathy in the whole society. Moreover, the total amounts of those who have experience of CRM are similar to those without, but the former account for more proportion. That is to say, the usage rate of CRM is still low in China although most of the public value it. In the statistics of business operators, most of the responders (54.1%) are between 26 and 35 years old, and most of their incomes are between 2000 and 7000 RMB a month. It is obviously that low-level employees are the majority. In the statistics of business consumers, most of them (85.9%) are between 18 to 25 years old, and most of their incomes are below 1000 RMB a month. So we can see the majority is the student group. Apparently, the sample is correspondent with the social environment, so the study result should be typical. Judging from the single-sort results in Table 3 and total-sort results in Table 4, we can see all consistency tests have passed, which indicates  $CR < 0.10$ .

## **5.2 Comparisons of different CRM programs**

Analyzing the total-sort weights, we know that purchase-triggered donation (0.302) is the best way to improve customer profitability, and then it sequentially follows advertising (0.230), licensing (0.158), publicity (0.156) and sponsorship (0.154). Judging from the single-sort results, we surprisingly find out that purchase-triggered donation and advertising should be similarly the first and second choice respectively to achieve the four sub-goals, which is related to the excitation intensity. When we donate according to our purchase spending, we know that the more we buy, the more the enterprise will donate to the charity, which can bring more sales to the company. Publicity ranks the third in improving the purchase intention (0.168) and enhancing the WOM (0.205), because it is helpful in building the image of the firm and easy to bring reputation. Sponsorship ranks at the third place in lowering price sensitive (0.183) and enhancing customer satisfaction (0.183) for the reason that it makes customer know their spending on the product or service of enterprise will more or less end up in charity activities. Licensing basically ranks the fourth in each CRM programs, which indicates that it is an intermediate method for improving customer profitability.

## **6. Implications and Limitations**

### **6.1 Implications**

In summary, purchase-triggered donation has the most effective impact on improving customer profitability, followed by advertising at the second place. Purchase-triggered donation should be the first choice of CRM programs to improve customer profitability. The main reason is that it has bound the donation with the business sales. The more they purchase, the more money will go to charity. Thus, customers will be driven by their intrinsic motivation of doing well and increase their amount of purchase. Such a purposeful, long-term accumulative behavior, enable them to obtain a "delayed satisfaction" and will also strengthen their customer satisfaction. In terms of cost, purchase-triggered donation has an advantage over other forms of CRM, ensuing every penny donate to charity is a part of revenue in order to avoid loss resulting from investing CRM programs. When it comes to CRM advertisement, it is very effective for an enterprise to draw attention from customers. It helps the firm establish a glorious image, and stimulate consumers the desire of purchase in the meantime. What's more, advertisement has a broader radiant area in the respect of audiences. Therefore, a company can use these two methods flexibly under the consideration of its characteristics.

Besides the methods mention above, we can choose the CRM programs according to the priority order, which is licensing, publicity and sponsorship. The merit of licensing is that it combines the enterprises with cause-related activities and successfully transfers customers' attention from cause-related event to the products or brands. Moreover, compared with sponsorship, licensing is a better way to maintain the CRM effects in an on-going and long-term cause-related program until it ends. In contrast, publicity and sponsorship are usually one-shot, short-term and unrepeated, so their effect on customers is soon but not lasting. They can attract attention from customers but have less effects comparing to the three methods above. Publicity can have a quick result, although the influence is comparatively less. But most importantly, as a one-time opportunity to send out the product and conduct propaganda, it helps companies to introduce the usage of their products to customers and even let them have a try, in order to promote the sales of those goods. Sponsorship can ensure the cause-related programs to have enough money for operation, but it doesn't do well in terms of customer profitability. Its cost is usually more expensive as well, so we can say that its disadvantages are very obvious. Although these three methods have their own advantages, they seem pale in front of the former two programs. Therefore, enterprises should not place them in priorities to improve customer profitability.

As far as business managers are concerned, it is most importantly to get to know the object of performing CRM programs and how they can do to benefit their cooperate partners, by which they make the strategy of the corporation. While maximizing the utility of CRM programs, we should consider it as a long-term development strategy, so all the related groups will invest their time, energy and money to gain the most profitable revenue. In the practice of business management, we should use only one or several types of CRM programs in the meanwhile according to the situation. Not only can a company resume its social responsibility but also it can improve its performance.

## **6.2 Limitations**

In this paper, we use empirical method and establish a AHP model. From the perspective of improving customer profitability, we compare different kinds of CRM method and find out their priority rank. However, we still have some limitations in this study.

First, scholars have not reached an agreement on the classification of CRM, although we use some foreign literature as reference and make decisions under China's domestic circumstance. Therefore, there might be different classification in different countries, which should be a meaningful research subject.

Second, AHP is only a method to provide proof for strategic decision, and it has deficiency such as over workload in evaluation, ignorance of negative score, lack of consideration of rationality of judgment matrix, problem of reverse order and so on. In future study, we should try different methods to compare CRM programs in order to examine the conclusion we draw here.

At last, we mostly select low-level employee in business operators and young people in customers at the selection of respondents. However, CRM programs should have various effects on people with diverse demographical statistical characteristics (Lois et al., 2001). Furthermore, they should have different priorities in different kinds of industries. Therefore, future study should include all kind of factors that influence the effects of CRM so as to attain a more realistic conclusion.

## **References**

- Aczel, J., Saaty, T. (1983). Procedures for synthesizing ratio judgments. *Journal of Mathematical Psychology*, 27, 93-102.
- Andreasen, A.R. (1996). Profit for Nonprofits: Find a Corporate Partner. *Harvard Business Review*, 74(6), 47-59.
- Baker, M. (2007). *The Marketing Book*, Sixth Edition, Butterworth Heinemann, pp.676-678.
- Barnes, N.G., Fitzgibbons, D.A. (1991), Business-Charity Links: Is Cause Related Marketing in Your Future *Business Forum*, 16(4), 20-23.
- Barone, M.J., Miyazaki, A.D, Taylor, K.A. (2000). The influence of cause related marketing on consumer choice: Does one good turn deserve. *Journal of the Academy of Marketing Science*, 28(2), 248-262.
- Creyer, E.H. (1997). The influence of firm behavior on purchase intention: Do consumers really care about business ethics. *Journal of Consumer Marketing*, 14(6), 421-432.
- Cui, Y., Elizabeth, S.T., Pauline, M.S., Grace, N.M. (2003). Cause-related marketing: How generation Y responds. *International Journal of Retail & Distribution Management*, 31(6), 310-320.
- Depeng, Z., Shaoxia, C. (2010). Research on the Value of Experiential Marketing Based on CLV. *Managerialist*, 11, 12-27.
- Gupta, S., Lehmann, D., Stuart, J. (2004). Valuing Customers. *Journal of Marketing Research*, 41, 7-18.
- Ishizaka, A., Labib, A. (2011). Review of the Mian Developments in the Analytic Hierarchy Process. *Expert Systems with Applications*, 38(11), 14336-14345.
- Jain, D., Singh, S.S. (2002). Customer lifetime value research in marketing: a review and future direction. *Journal of interactive marketing*, 16(2), 34-46.
- Kumar, V., Rajan, B. (2009). Profitable customer management: measuring and maximizing customer lifetime value. *Management Accounting Quarterly*, 10(3), 1-18.
- Lois, A., Deborah, J., Webb, K.E. (2001). Harris. Do Consumers Expect Companies to be Socially Responsible. *The Impact of Corporate Social Responsibility on Buying Behavior. Journal of Consumer Affairs*, 35(1), 45-72.
- Lee, M.T., Greef, L.M., Fraedrich, J. (2011). Increased Word-of-Mouth via Strategic Cause-Related Marketing. *International Journal of Nonprofit and Voluntary Sector Marketing*, 16(1), 36-49.
- Ma, D., Zheng, X. (1991). 9/9-9/1 Scale method of AHP. In *Second International Symposium on AHP*. Pittsburgh, 1, 197-202.
- Petersen, A.J., McAlister, L., Reibstein, D.J., Winer, R.S., Kumar, V., Atkinson, G. (2009). Choosing the Right Metrics to Maximize Profitability and Shareholder Value. *Journal of Retailing*, 85(1), 95-111.

- Pracejus, J.W., Olsen, G.D. (2004). The role of brand/cause fit in the effectiveness of cause-related marketing campaigns. *Journal of Business Research*, 57(6), 635-640.
- Varadarajan P.R., Menon, A. (1988). Cause-Related Marketing: A Coalignment of Marketing Strategy and Corporate Philanthropy. *Journal of Marketing*, 52, 58-74.
- Saaty, T.L., Vargas, L.G. (2005). The possibility of group welfare functions. *International Journal of Information Technology and Decision Making*, 4, 167-176.