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# Measuring Customer Acquisition Value: A Comprehensive Approach to Customer Equity

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**Abstract.** In information technology era, databases are known as one of the most valuable resources for organizations, especially used in database marketing. Customer Equity is a key concept in Database Marketing which integrates customer acquisition, retention and development. From the perspective of customer equity, customers are the primary source of both current and future cash-flows. Customer equity models emerge as powerful tools to maximize the return on marketing investments, and to guide the allocation of the marketing budget. Because of the importance of customer acquisition as a key dimension of customer equity, this paper focused on the measurement of customer acquisition value. By studying different research papers on customer acquisition and comparing them, we address the gaps especially in quantifying the customer equity and propose some suggestions for more comprehensive assessment of acquisition value.

**Keywords:** Customer acquisition, customer equity, value measurement, database marketing.

## 1. Introduction

Due to the dramatic increase in computing power and rapidly declining data storage costs on one side, and considering networking advances

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and the internet and progresses in data analysis techniques on the other hand [1], studying database marketing has become an important topic for organizations towards more profitability. Growth and evolution of database marketing can be classified into four main courses, changing role of direct marketing, changes in cost structures, technology innovation and changes in market conditions. Database marketing is an interactive approach of marketing that uses marketing channels which have the capability of addressing individual (phone, email, sales force) in order to extend target audience of organization, stimulate their demands and interact closely with them by storing electronic databases include all customers and business contacts [2].

Database marketing emerged for the first time in 1980s as a new and improved form of direct marketing. The first definition of database marketing was published in 1988 by Shawn and Stone in their book [3]. A key concept in database marketing is customer equity that customers' behavior is analyzed in acquisition, retention and development periods. However, over 30 years of emerging database marketing, more than half of studies done in recent years. It points out that the majority of issues in this area are new. Also, the concept of customer equity has received much attention during the last 6 years.

According to importance of database marketing and central role of customer acquisition in it, we study customer equity and customer acquisition value and especially measurement of customer acquisition value. For this purpose, first in Section 2 review customer equity concept, in Section 3 introduce customer acquisition value in customer equity framework. According to importance of measuring customer acquisition for future improvement, we study measurement of customer acquisition value in Section 4. With a new and comprehensive look to measurement of acquisition value, analyze researches in this field and present the gaps in them in Section 5. Finally in Section 6, conclude the discussion.

## 2. Review on Customer Equity

In third millennium managers and researchers focus on customer management rather than product management [4]. Researches on customer equity (CE) can provide necessary tools for the relationship between CRM and long-term financial performance of organization. The customer equity paradigm recognizes customers as the primary source of both current and future cash-flows. In this framework, the firm is interested in maximizing the net present value of both current and future pools of customers. Thus, CE models emerge as powerful tools to maximize the return on marketing investments, and to guide the allocation of the marketing budget [2].

The literature on CE has two well-defined objectives [5]: (I) the economic measurement of customer relationships; and (II) the identification of strategies that build profitable relationships. Thus, CE models are about guiding resource allocation with the objective of maximizing the value of a firm. Early work on the economic measurement of customer relationships introduced the customer lifetime value model, measures the discounted stream of cash flows of an existing customers [6, 7, 8]. Recently, however, more interesting models have been developed, For example, to guide optimal resource allocation between the acquisition of new customers and the retention of existing ones, or to measure the value of a firm through the value of both its current and future relationships [9, 10, 11]. Eventually, the maximization of CE can be decomposed into smaller problems through the optimization of the acquisition, retention and add-on selling processes. In today's competitive, information-intensive and ROI-oriented business environment, in order to customer equity analysis, customers' behavior analyzes in acquisition, retention and development periods [2].

Research on customer equity and customer lifetime value is particularly promising because it can help management practice in the following areas [5]: (I) allocating marketing spending for long-term profitability, (II) understanding the connection between marketing spending, marketing metrics and financial performance, (III) providing a customer focused approach for measuring firm value, (IV) providing much needed frameworks, tools and metrics for enhancing the productivity of CRM platforms.

Put differently, managers who do not embrace a CE view of the firm, are at risk in several ways, they may allocate resources (e.g., management focus, money) to marketing actions that produce larger short-term gains at the expense of long-term performance, for instance, investing in acquisition channels that generate lots of new customers who subsequently defect at the first opportunity. Thus, they may invest in expensive CRM platforms without careful consideration of how these platforms will be used to grow customer equity [5].

We will first define three different concepts that can be used when looking at the future cash flows of customer relationships over time:

(a) Customer Lifetime Value (CLV): CLV is the discounted sum of cash flows generated over the lifetime of an individual customer, or of a segment of customers within the firm. Therefore, CLV metric does not account for indirect effects that an acquired customer has on other customer segments (e.g., generating referrals). A more comprehensive concept of CLV is based on the following four value components. The base potential, cash flow from products and services that form the core of the relationship; the growth potential, cash flow from cross-selling and up-selling; the networking potential, cash flow from new relationships through customer's word-of-mouth, referrals; the learning potential, cash flow from knowledge created through interaction within the relationship [12].

(b) Static Customer Equity (SCE): Static CE is the sum of the CLVs of a specific cohort of customers. For instance, a firm might be interested to discount the expected future cash-flows of the pool of the customers acquired at time t. Models that estimate the CLV of each individual in a cohort, can be used to estimate the SCE of that cohort. On the contrary, there are SCE models that cannot estimate the individual CLV but just the "average" CLV [5].

(c) Dynamic Customer Equity (DCE): Dynamic CE can be defined as the discounted sum of both current and future cohorts' CE. It has been suggested that this metric is a good proxy for the value of a firm because it accounts for both current and future relationships [13]. DCE treats the customers as renewable resources and hence it is useful for firms interested in the long-term equilibrium of their strategies [14].

## 3. Customer Acquisition Value

Acquiring customers is at the heart of customer equity concept. Since there is always a proportion of defectors, a company that does not acquire new customers will see its market share gradually declining over time. The following factors are suggested as enhancers of the importance of customer acquisition:

(a) High switching costs. When firms realize that customers will present switching costs in the future, they compete more fiercely for acquisition before the customer has attached herself to a supplier. This happens because, once a customer has been acquired, the company can benefit from the switching cost in later periods [15, 16].

(b) Low switching costs with undifferentiated products. When switching costs are low and products are undifferentiated, it is relatively easy to induce customers to switch by small price cuts. In those scenarios, we would expect firms to compete aggressively both for customer acquisition and customer retention [2].

(c) Infrequently purchased products. For some products the purchase cycle is so large and the retention rates are so difficult to increase (e.g., housing market) that most of the marketing budget goes into customer acquisition, without making a distinction between new and existing customers [17].

(d) New entrants. New entrants into a market have to steal customers from the incumbents. They have to manage their costs of acquisition very well and their future probability of retention, while at the same time considering the incumbents' competitive reaction [2].

According to customer acquisition, strategies for increasing number of customers acquired included [2]:

(I) Increasing Market Size. Obviously, the larger the number of prospective customers, the greater the market potential is. For increasing the potential target market, the first and most obvious is to suggest or develop new usage occasions. It is often easier to target new segments of customers.

(II) Increasing Marketing Acquisition Expenditures. By increasing marketing expenditure for direct marketing campaigns, general media advertising and word-of-mouth marketing, can increase acquired customers.

(III) Using Lead Products. In this case, the firm uses lead products to acquire customers. Once the firm has acquired the customer, other products/services are sold to the customer. So after acquiring a customer, the firm then focused on selling other products. Lead product is a type of product or service that may be sold without profit (or even at a loss) and is designed to generate new customers.

Consider increasing the importance of customer acquisition, towards comprehensive measurement of customer acquisition value, some recent researches in this area was studied. For instance, an application to a Web hosting company reveals that marketing induced customers add more short-term value, but word-of-mouth customers add nearly twice as much long-term value to the firm [18]. Also, a research has examined the customer value in acquisition mode by differentiating customers into two groups, referral customers versus customers recruited through advertising, overall, referral customers are somewhat more satisfied, recommend the brand more and have superior retention when compared to customers recruited through advertising [19]. In another research, acquired customers divided into two groups, customers who acquired through marketing versus customers who acquired through WOM, and showed acquired customers through marketing contributed more short-term value and acquired customers through WOM contributed nearly twice as much long-term value to the firm [18]. In order to predict customer profitability during acquisition, almost 3000 companies which had a website address or e-mail address was examined, and investigated the predictive performance of two types of data: web data and commercially available data. The result showed that web data is better in predicting profitability than commercial data, but combining both is even better [20]. Main researches about customer acquisition value and their results are presented in Table 1. An organized comparison is made through authors, publishing time, methodology, selected sample and vision research.

## 4. Customer Acquisition Value Measurement

In order to measuring and predicting the customer acquisition value, database marketing firms compute the cost of acquiring a customer and then trade it off versus the lifetime value of the customer. For analyzing the acquisition costs, assume the firm uses a two-step acquisition process in which the firm advertises in a targeted publication to attract prospects and then mails the catalog to those who respond. The process enables the firm to identify the names of prospects, and then acquire or convert them [2].

Authors Year Main Focus Methodology Sample Overall View Mark D. Uncles, Robert East, Wendy Lomax 2013 The value of customers in acquisition period Qualitative and quantitative The database comprises 6578 records and covers 15 product/service category groupings. Referral customers are more valuable than customers recruited through advertising/promotion. Referral customers are somewhat more satisfied, recommend their brand more, and have superior retention. Jeroen D'Haen, Dirk V. Poel, Dirk Thorleuchte 2013 The prediction of customer profitability during acquisition Qualitative 2911 companies in Germany which have website. The predictive performance of two types of data: web data and commercially available data was investigated to find out which of these two have the highest accuracy as input predictor for profitability. Results show combining both is even better. Julian Villanueva, Shijin Yoo, Dominique M. Hanssens 2008 The effect of customers acquired through WOM on customer equity Qualitative An internet firm that provided free web hosting to registered users during a 70-week observation period. The impact of marketing-induced versus word-of-mouth customer acquisition on customer equity. Marketing induced customers add more short-term value, but word-of-mouth customers add nearly twice as much long-term value to the firm.

1) The Breakeven Approach

A first heuristic approach has been to spend on acquiring a customer as long as the cost of acquisition is lower than the expected CLV [21]. The point in which the cost of acquisition equals the CLV reflects the breakeven at which the firm is indifferent between acquiring the customer or not.

For example, illustrate this approach with an example which a company wants to acquire new customers by mailing a solicitation package to a pool of prospects. They first develop a response model that estimates a prospect's probability of acquisition as a function of some individual predictors. ssuming an average CLV per customer and a constant acquisition cost, they calculate the breakeven response rate as,

$$r^* = \frac{c}{CLV} \tag{1}$$

In this formula, c is the cost of containing a prospect. Customers with a predicted probability of acquisition lower than r* will not be contacted. For extension this approach, it is possible to target consumers with different packages and where customers have different expected CLVs [22].

2) The Acquisition Response Function Approach

The previous breakeven approach is valid whenever individual customers are addressable and when the firm has enough individual information so that their response likelihood is estimated with no much error, two conditions that do not exist in many business situations. Usually, the breakeven point only tells the manager the maximum he can spend to avoid long-run losses but not the optimal spending amount. In these situations, an objective profit function that depends on the acquisition rate and spending level should be built and maximized. An interesting approach has been that of in which an acquisition response function is estimated using managerial judgment, and then the first-year value of a customer is maximized [7]. This approach, however, underestimates the value generated from customer acquisition and results in under spending. However, their CE specification can easily be maximized to simultaneously find the optimal level of acquisition and retention spending.

Table 1. Comparison researches in customer acquisition value

| Authors | Year | Main Focus | Methodology | Sample | Overall View |
|---|---|---|---|---|---|
| Mark D. Uncles, Robert East, Wendy Lomax | 2013 | The value of customers in acquisition period | Qualitative and quantitative | The database comprises 6578 records and covers 15 product/service category groupings. | Referral customers are more valuable than customers recruited through advertising/promotion. Referral customers are somewhat more satisfied, recommend their brand more, and have superior retention. |
| Jeroen D'Haen, Dirk V. Poel, Dirk Thorleuchte | 2013 | The prediction of customer profitability during acquisition | Qualitative | 2911 companies in Germany which have website. | The predictive performance of two types of data: web data and commercially available data was investigated to find out which of these two have the highest accuracy as input predictor for profitability. Results show combining both is even better. |
| Julian Villanueva, Shijin Yoo, Dominique M. Hanssens | 2008 | The effect of customers acquired through WOM on customer equity | Qualitative | An internet firm that provided free web hosting to registered users during a 70-week observation period. | The impact of marketing-induced versus word-of-mouth customer acquisition on customer equity. Marketing induced customers add more short-term value, but word-of-mouth customers add nearly twice as much long-term value to the firm. |

In this approach, Customer Equity Equation is defined as below [2]:

$$CE(t) = N_t\alpha_t(AS_t - C_t) - N_tB_{\alpha,t} + \sum_{k=1}^{\infty} N_t\alpha_t(\Pi_{j=1}^{k}P_{j,t+k})\times$$

$$(RS_{t+k} - C_{t+k} - B_{r,t+k} - B_{AO,t+k})(\frac{1}{1+d})^k \qquad (2)$$

Where $N_t$, the number of prospective customers available at time $t.\alpha$, the acquisition probability at time $t.AS_t$, acquisition sales at time $t.C_t$, cost of goods sold at time $t.B_{a,t}$, acquisition marketing investment at time $t.P_{j,t+k}$, retention rate at time t+k for customers acquired at time $j.RS_t$, sales from retained customers at time t (including add-on-sales). $B_{r,t}$, investment in retaining customers at time $t.B_{AO}$, t, and investment in selling additional products to retained customers at time $t.d$, the discount rate.

The first part of the expression shows the acquisition costs and initial benefits; the second represents customer retention and how much is sold to customers and the profit margins obtained. We will concentrate on acquisition. Equation 2 shows that the critical factors driving the contribution of acquisition to customer equity are: the market size (N), the acquisition rate or probability of acquisition ($\alpha$), the cost per customer contacted (B) and the profit margin of sales to the acquired customer (AS-c). So for increasing the number of acquired customers and for decreasing acquisition costs, strategies should be used to influence these factors and enhance customer equity in acquisition period. For example: using less expensive methods for acquiring, targeting more potential customers and targeting customers which has more acquisition probability.

## 5. Comprehensive Appraoch to Measuring Customer Acquisition Value

Considering researches on customer acquisition value and according to different approaches to measurement of customer acquisition value, although there are diverse strengths and perspectives, but there are gaps that we propose to present solutions for them. In the case which has examined the customer value in acquisition mode and concluded referral customers are somewhat more satisfied, recommend the brand more and have superior retention when compared to customers recruited through advertising [19]. In this case customers divided into two groups, referral customers versus customers recruited through advertising. In addition to dividing in first layer, customers in a group can be divided in subgroups in the next layer. For instance, advertising customers can be acquired from different channels. It is important that a customer acquired from which channel, since acquisition probability for variant channels (television advertising, advertising banners in sites, advertising banners in streets, advertising by telephone, advertising by email) are different and these varieties are so meaningful that presented in equation 3. In this equation, CEA (t) refers to acquisition value or customer acquisition equity in time t. Also, in second layer, referral customers can be divided based on referral channel, or based on motivation which is influenced by advertising or is because of consumption. It seems that the probability of referral and the number of referral in virtual space is more, that influence on Nt, the number of potential customers available in time t, and ?t, acquisition probability in time t, in equation 2. Also the authors believe that referral because of consumption is more effective than referral influenced by advertising.

$$CEA(t) = [N_t\alpha_t(AS_t - C_t) - N_tB_{\alpha,t}]Advertising+$$

$$[N_t\alpha_t(AS_t - C_t) - N_tB_{\alpha,t}]Referral(wom) \qquad (3)$$

In another research to predict customer profitability during acquisition [20], two types of data: web data and commercially available data were examined. In this case sources of data types were not defined. For instance, web data can be divided into profile, demographic, behavioral, transactional, relational and psychographic data, that according to data type, prediction of performance would be different. So we can differentiate based on source of data and express equation 4.

$$CEA(t) = [N_t\alpha_t(AS_t - C_t) - N_tB_{\alpha,t}]webAdvertising+$$

$$[N_t\alpha_t(AS_t - C_t) - N_tB_{\alpha,t}]TraditionalAdvertising$$

$$+[N_t\alpha_t(AS_t - C_t) - N_tB_{\alpha,t}]Referral(wom)+$$

$$[N_t\alpha_t(AS_t - C_t) - N_tB_{\alpha,t}]ewom \qquad (4)$$

In another research, acquired customers divided into two groups, customers who acquired through marketing versus customers who acquired through WOM and examined the customer equity for both [18]. In this paper showed that acquired customers through marketing contributed more short-term value and acquired customers through WOM contributed nearly twice as much long-term value to the firm. So according to customer equity in equation 2, can define t* as a boundary between short-time and long-time, so for all t that $t < t^*$ (for short-term) customers acquired through marketing increase more the customer equity and for all t that $t > t^*$ (for long-term) customers acquired through WOM increase more the customer equity. These leads to equation 5 as below:

$$CEA(t) = [N_t\alpha_t(AS_t - C_t) - N_tB_{\alpha,t}]Advertising+$$

$$[N_t\alpha_t(AS_t - C_t) - N_tB_{\alpha,t}]Referral(wom)$$

$$ift < t^* \alpha_{t[Advertising]} > \alpha_{[Referral(wom)]}$$

$$ift \geqslant t^* \alpha_{t[Advertising]} \leqslant \alpha_{[Referral(wom)]} \qquad (5)$$

## 6. Conclusion

According to growth and development of database marketing included four aspects: changing role of direct marketing, changes in cost structures, technology innovation and changes in market conditions, and since the customer equity is a key concept of database marketing, we study customer equity and acquisition value in this framework. By considering different paths of approach to measurement of customer acquisition value, we review studies in this field and identify some gaps. Differentiating customers acquired through advertising based on acquisition channel or differentiating customers acquired through referral based on reference source that is related to use or not used organization's products; could help measuring acquisition value precisely and allocate resources efficiently between acquisition channels which not considered in previous works. Also, prediction of profitability of customers in acquisition period by splitting data sources based on profile, demographic, behavioral, transactional and relational data, would lead to more accurate calculation and better prediction that not considered before. As a result, we can present a comprehensive measurement of customer acquisition value in customer equity equation framework. In future research we purpose to investigate topics discussed in this paper by examining real-world examples and assay comprehensive measurement of customer equity by separating the main group into suggested subgroups.

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