Customer Lifetime Value Analysis to Profitability Management: A framework to strategic marketing

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ABSTRACT
The more a marketing paradigm evolves, the more long-term relationship with customers gains its importance. Nowadays most of corporations and firms in the world, including manufacturers and servicers, increasingly gain their incomes and profits through constructing and maintaining long-term relationship with customers. The move towards a customer-centered approach to marketing, coupled with the increasing availability of customer transactional data, has led to an interest in understanding and estimating customer lifetime value (CLV). Furthermore as marketing endeavours to be more accountable, the need of tools and models for measuring and evaluating efforts and investments that accomplish in marketing extent, is felt. This research aimed to present a framework to analysis customer lifetime value in order to strategic marketing practices.

Keywords: customer lifetime value; customer profitability management; strategic marketing

1. INTRODUCTION
The more a marketing paradigm evolves, the more long-term relationship with customers gains its importance. CRM, a recent marketing paradigm, pursues long-term relationship with profitable customers. It can be a starting point of relationship management to understand and measure the true value of customers since marketing management as a whole is to be deployed toward the targeted customers and profitable customers, to foster customers’ full profit potential. Corporate success depends on an organization’s ability to build and maintain long and valued customer relationships. Therefore, it is essential to build refined strategies for customers based on their value (Kim et al, 2006). Customer Relationship Management (CRM) has become a leading business strategy in highly competitive business environment. CRM can be viewed as ‘Managerial efforts to manage business interactions with customers by combining business processes and technologies that seek to understand a company’s customers’ (Kim, Suh, & Hwang, 2003). Companies are becoming increasingly aware of the many potential benefits provided by CRM. Some potential benefits of CRM are as follows: (1) Increased customer retention and loyalty, (2) Higher customer profitability, (3) Creation value for the customer, (4) Customization of products and services, (5) Lower process, higher quality products and services (Jutla, Craig, & Bodorik, 2001). When evaluating customer profitability, marketers are often reminded of the 80/20 rule (80% of the profits are produced by top 20% of profitable customers and 80% of the costs are produced by top 20% of unprofitable customers) (Duboff, 1992).
The core parts of CRM activities are understanding customers’ profitability and retain profitable customers (Hawkes, 2000). To cultivate the full profit potentials of customers, many companies already try to measure and use customer value in their management activities (Gloy, Akridge, & Preckel, 1997; Rosset, Neumann, Eick, Vatnik, & Idan, 2002). Therefore, many firms are needed to assess their customers’ value and build strategies to retain profitable customers.

Therefore, over the past decade, Customer Relationship Management (CRM) has become a leading strategy in highly competitive business environments. Companies increasingly derive revenue from the creation and enhancement of long-term relationships with their customers (Coussement & Van den Poel, 2008). This move toward a customer-centric approach to marketing, coupled with the increasing availability of customer transaction data, has led to an interest in estimating and understanding Customer Lifetime Value (CLV). CLV is viewed as the present value of the future cash flows associated with a customer (Pfeifer et al., 2005). By understanding the CLV of individual customers enables the decision maker to improve the customer segmentation and marketing resource allocation efforts (Kim and Lee, 2007; Kumar et al., 2006) and this in turn will lead to higher retention rates and profits for the firm (Hawkes, 2000).

2. CUSTOMER RELATIONSHIP MANAGEMENT

Most organizations have perceived the customer relationship management (CRM) concept as a technological solution for problems in individual areas, accompanied by a great deal of uncoordinated initiatives. Nevertheless, CRM must be conceived as a strategy, due to its human, technological, and processes implications, at the time an organization decides to implement it (Mendoza et al., 2006). Within the present business environment, characterized by an increasingly aggressive competence, the battle to win customers is stronger every day. Companies that enter to compete in a new market weaken the already existing and solid ones, due to the new ways of doing and conceiving businesses. One of the factors that have driven all these changes is the constant change and the evolution of technology. Because of this reality, the CRM concept has evolved in such a way that nowadays it must be viewed as a strategy to maintain a long-term relationship with the customers (Mendoza et al., 2006).

In the late 1960s, Levitt suggested that the goal of businesses was to “create and maintain customers” (Fox and Stead, 2000). After more than two generations, it can be appreciated how the CRM concept, and the need to maintain a long-term relationship with customers, is becoming an important issue. The main reason for this customer’s importance return within the company is the change in the way of doing business nowadays (Goldenberg, 2000). In recent years, a study forecasts that for various reasons, and with more or less clarity regarding the subject, the companies have a new trend to implement CRM as a factor that will allow them to survive in these new market conditions, favouring the relationship with their customers (Mendoza et al., 2006).

To achieve the CRM objective, there is a series of aspects involved (Chen and Popvich, 2003; Mendoza et al., 2006):

- The Processes through which the customer relates with the organization, according to Thompson, are: marketing, sales, and service [18]. In addition to these processes, and depending on the area of business, there are other processes which are directly affected and that must also be considered. The latter processes, however, are the most common and, generally, of broader scope.
The **Human factor** (people) with a key role within the CRM strategy, both on behalf of employees within the organization (who must be immersed in a cultural change) as of the customers.

The **Technology** is what facilitates implementing the CRM strategy; thus, it is necessary to know which of these technologies are and how they favour the CRM strategy.

Many businesses today realise the importance of CRM and its potential to help them achieve and sustain a competitive edge. These organizations are already changing their business processes and building technology solutions that enable them to acquire new customers, retain existing ones, and maximise their lifetime value.

Although CRM is a recent concept, its tenets have been around for some time. Marketers have always promoted close relationships with customers. Customer profitability has been touted as significant for many years, but has been difficult to determine as many institutions are organised along product or channel lines as opposed to customers. Similarly, the concept of mass customisation has been in the literature for nearly a decade (Pine, 1993). However, all have remained essentially theoretical concepts; aspirations rather than practical or commercial reality. Today, due to advances in information and communications technology, the promise of one-to-one relationships, customer value analysis and mass customisation are now possible. Yet, despite the role of technology these manifestations are less of a technological phenomenon than a profound change in the economics of information (Peppard, 2000).

Central to the idea of CRM is the assumption that customers differ in their needs and the value they generate for the firm, and that the way customers are managed should reflect these differences. CRM is therefore not about offering each single customer the best possible service, but about treating customers differently, depending on their CLV. Such appropriate treatment can have many faces, starting with offering loyalty programs to retain the most profitable customers (Shugan, 2005) through to the abandonment of unprofitable customer relationships (Haenlein et al., 2006).

**Intuitive appeal:** Because CRM allows companies to know exactly how much each customer is worth in rupee terms, and therefore, exactly how much a marketing department should be willing to spend to acquire each customer. In reality, however, it is often difficult to make such calculations due to the complexity of the calculations and lack of reliable input data, or both.

**Calculation of CLV:** depends on the nature of the customer relationship for example; Companies with a monthly billing cycle, such as retail banks can count on a reasonably reliable stream of recurring revenue from each customer.

### 3. CUSTOMER LIFETIME VALUE

Customer Lifetime Value has been studied under the name of LTV, Customer Value, Customer Equity and Customer Profitability. The concept is defined as the sum of the revenues gained from company’s customers over the lifetime of transactions after deduction of the total cost of attracting, selling and servicing customers, taking into account the time value of money (Hwang et al, 2004; Safari, 2012). The basic formula for calculating CLV for customer \( i \) at time \( t \) for a finite time horizon \( T \) (Berger & Nasr, 2004) is:
\[ CLV_{i,t} = \sum_{t=0}^{\infty} \frac{\text{profit}_{i,t}}{(1+d)^t}, \quad CLV_i = \sum_{t=1}^{\infty} \frac{\text{Revenue}_{i,t}}{(1+d)^t} - \sum_{t=1}^{\infty} \frac{\text{Cost}_{i,t}}{(1+d)^t} \]

Where \( d \) is a pre-determined discount rate. In multi-service industries, \( \text{Profit}_{i,t} \) is defined as:

\[ \text{profit}_{i,t} = \sum_{j=1}^{J} \text{Serv}_{ij,t} \times \text{Usage}_{ij,t} \times M \text{argin}_{ij,t} \]

Here \( J \) is the number of different services sold, \( \text{Serv}_{ij,t} \) is a dummy indicating whether customer \( i \) purchases service \( j \) at time \( t \), \( \text{Usage}_{ij,t} \) is the amount of that service purchased and \( \text{Margin}_{ij,t} \) is the average profit margin for service \( j \) (Beniot and Poel, 2009).

Also, CLV may consist of the following relations:

\[ CLV = \sum_{t=0}^{\infty} m_t \frac{r^t}{(1+i)^t} \]

In this formula assumed that the marginal value of the customers at period \( t \) is \( m_t \), the discount rate is \( i \), the customer retention rate is \( r \) (\( r \) may not be a fixed value, but vary within a range. Here, we make it fixed to simplify the model). Under these assumptions, the sum of the discounted cash flow value is the single equal to customer contribution to the corporate value.

\[ CLV = \frac{mr}{(1+i)^2} + \frac{mr^2}{(1+i)^3} + \ldots = \sum_{t=1}^{\infty} \frac{m.r^t}{(1+i)^t} \]

\[ CLV = m \left( \frac{r}{1+i-r} \right) \]

Where the following is true:
\( m = \) margin on sales from a customer per period
\( r = \) retention rate (expressed as a decimal or percentage, e.g., 0.8 or 80 percent)
\( i = \) discount rate (expressed as a decimal or percentage, e.g., 0.12 or 12 percent).

The factor to which the margin (\( m \)) is multiplied is the margin multiple. This multiple depends on the customer retention rate (\( r \)) and the company’s discount rate (\( i \)). The retention rate depends on product quality, price, customer service, and a host of related marketing activities. For most companies, retention rates are in the range of 60 percent to 90 percent.

The expected profit stream from a customer is computed by explicitly accounting for his/her retention rate. For example, if the retention rate is 90%, at the end of first year there is 90% chance that the customer is still with the firm. Alternatively, of 100 initial customers, only 90 are expected to stay with the firm at the end of first year. Assuming a constant retention rate, this means that at the end of second year we will be left with 90% of 90 customers, i.e., 81 customers. For an individual customer, this means that there is an 81% chance that a customer will be still with the company at the end of second year.
Theoretically, CLV models should estimate the value of a customer over the entire customer’s lifetime. However, in practice most researchers use a finite time horizon of three or four years (Donkers et al, 2007; Rust et al, 2000, Beniot and Poel, 2009). Three to four years is a good estimate for the horizon over which the current business environment would not substantially change and even then, there is significant uncertainty in predicting customer behaviour (Venkatesan et al, 2007). Moreover, some research considers an even shorter time horizon (Hwang et al, 2004).

CLV has been analyzed in a substantial number of different domains, varying from econometric models to computer science techniques. However, the key questions are usually very similar: “What are the drivers of CLV?”, “Which customers are the future most valuable ones?”, “How to address the top customers?”, etc. Several authors give an overview of a variety of modeling procedures that were used in search for answers to the key questions (Berger and Nasr, 1998; Donkers et al, 2007; Gupta et al, 2006; Ngai, Xiu & Chau, 2008; Venkatesan and Kumar, 2004). In general, one can distinguish two broad classes of models in the current contractual setting. First, a large group of models focuses on the choices customers face when buying an additional service or product. A customer’s lifetime value is then seen as the sum of the distinct contributions per service or product. This approach is appealing because of the natural way in which the CLV prediction is built upon. In a first stage, an estimation is made on the probability of a customer buying a given product or service. The second stage is then to combine these probabilities with the margins associated with the product or service into an aggregate prediction of a customer’s lifetime value. This approach also has the advantage of providing more insight into the factors that drive customer value. The main drawbacks are the amount of modeling required and the often poorer predictions. Examples of this approach are found in Venkatesan and Kumar (2004) and Hwang et al. (2004). The second large group of models does not follow the two stage method, but focuses directly on relationship length and total profits. Since the individual-level choice modeling is left aside, the process of producing CLV estimates is much more straightforward and prediction accuracy is higher (Verhoef & Donkers, 2001). As such, this approach turns the disadvantages of the first approach into benefits. However, due to aggregation, insight into the factors that drive consumer profitability is limited compared to the choice-based approach. Examples of CLV research following this direct approach are found in Malthouse & Blattberg (2005) and in Hansotia and Rukstales (2002).

Given that one of the key issues when decision makers use the CLV metric is whether the firm can provide an adequate prediction of the CLV of each customer in the database (Malthouse & Blattberg, 2005; Venkatesan & Kumar, 2004), it is clear that the predictive accuracy of the CLV is of primordial importance. Furthermore, these predictions are often used as guidelines for investments in segments of customers (Zeithaml et al, 2001; Beniot and Poel, 2009).

When evaluating customer profitability, marketers are often reminded of the 80/20 rule (80% of the profits are produced by top 20% of profitable customers and 80% of the costs are produced by top 20% of unprofitable customers) (Duboff, 1992; Gloy et al, 1997). This finding has important implications for both the two-stage approach as well as for the approach that models CLV directly. For researchers using the two-step CLV approach, the problem arises when modeling the choice problem. Since the largest group of customers buys no or only a very limited amount of products or services and only a small group of customers buys many products or services, the researcher should be aware of the fact that he or she is modeling rare events. In this rare-event situation, it is known that parametric choice models easily break down (Gupta et al, 2006; Beniot and Poel, 2009). The other approach, where the
researcher focuses directly on the relationship length and total profits, leaves aside the individual-level choice modeling step. However, the problem of rare events cannot be totally avoided. This is because the underlying process (the 80/20 rule) results in a lifetime value variable that tends to have a strong non-normal distribution and the usual assumption of homoscedasticity is hard to maintain (Fader et al., 2005; Malthouse & Blattberg, 2005; Beniot and Poel, 2009).

4. CLV REQUIREMENTS

Data inputs commonly used when making customer lifetime value calculations are:

- **Acquisition cost**: The amount of money a marketing department has to spend, on average, to acquire a single new customer.
- **Churn rate**: The percentage of customers who end their relationship with a company in a given time period. Churn rate typically applies to subscription services such as long distance phone service or magazines.
- **Discount rate**: the cost of capital used to discount future revenue from a customer. Discounting is an advanced topic that is frequently ignored in customer lifetime value calculations. The current interest rate is sometimes used as a simple (but incorrect) proxy for discount rate.
- **Retention cost**: The amount of money a company has to spend in a given time period to retain an existing customer. Retention costs include customer support, billing, promotional incentives, etc.
- **Time period**: The unit of time into which a customer relationship is divided for analysis. A year is the most commonly used time period. Customer lifetime value is a multi period calculation, usually stretching 3-7 years into the future. In practice, analysis beyond this point is viewed as too speculative to be reliable.
- **Periodic Revenue**: The amount of revenue collected from a customer in the time period.
- **Profit Margin**: Profit as a percentage of revenue. Depending on circumstances this may be reflected as a percentage of gross or net profit. For incremental marketing that does not incur any incremental overhead that would be allocated against profit, gross profit margins are acceptable.

5. CUSTOMER PROFITABILITY MANAGEMENT

Customer profitability management (CPM) is a continuous process to trace and develop a responsive path for obtaining values from customers, as well as creating values for customers, according to changes in industrial conditions. A clear path can guide a firm to make right strategic choices in determining desired marketing outcomes and allocating limited resources to marketing initiatives. Making strategic choices in response to socioeconomic changes from among many possible marketing initiatives is a difficult, yet crucial task for firms. However, an important principle of strategic choice is to select marketing initiatives that can actually rise existing or create new value for customers. Some firms forget this principle and wind up trapped in destructive price wars.
Although price reductions may temporarily attract customers, it fails in CPM because products or services without improvements and differentiation cannot retain profitable customers in the long run. Moreover, the purpose of a responsive path is to respond to unpredictable customer behaviour. Although a customer database might allow a firm to trace changes in the profitability of a given customer, strategies derived from data analysis are often too passive to respond to the rapid changes in the market. This study proposes an alternative approach which effectively monitors shifts in customer profitability to help a firm win back defecting customers, detect potential customers, and evaluate the performance of upgrading customers. Such an approach takes a holistic view of a firm’s marketing efforts, in which the strategic, tactical and operational efficiencies of Customer Profitability Management, along with efficient management of tangible and intangible assets allow firms to continually identify value-creating opportunities for increasing customer profitability (Wang and Yang, 2006). Indeed, based on calculated CLV, and determining the profitable and unprofitable customers to the firm/organization, it is more useful to segment the customers and then implement the most effective strategies for each of the segment of customers in the market.

6. PROPOSED RESEARCH FRAMEWORK

In this section the proposed research framework has been presented. This conceptual framework is a new approach in customer segmentation context. More Customer Profitability Management based on segmented customer sections will explain. In the figure 1, the research conceptual framework has been presented. This framework determines both of steps of this paper and important parameters of the final model of CLV.

![Figure 1. Research conceptual Framework.](image)

7. CONCLUSION

Customer value has been studied under the name of LTV (Life Time Value), CLV (Customer Lifetime Value), CE (Customer Equity) and Customer Profitability. The previous researches define LTV as the sum of the revenues gained from company’s customers over the lifetime of transactions after the deduction of the total cost of attracting, selling, and servicing customers, taking into account the time value of money (Dwyer, 1997; Hoekstra & Huizingh,
1999; Jain & Singh, 2002; Kim et al, 2006). Customer segmentation methods using LTV can be classified into three categories: (1) segmentation by using only LTV values, (2) segmentation by using LTV components and (3) segmentation by considering both LTV values and other information. The main purpose of this research was to present a conceptual framework towards managing the CLV that was applicable for strategic marketing practices especially in the new turbulent world business. For the top and golden customers the satisfaction and loyalty programs are necessary. For this purpose the related researches for maintaining customers and also enhanced the lifetime value may be implemented. Innovative plans such as following is necessary for top customer’s retention and enhance their value for the retail bank:

- Services customization best related to the real customer’s needs and wants.
- Building the Customer Club
- Using the Discount Program just related to the top customers
- Up-Selling programs
- Cross-Selling programs
- Providing the innovative and up-to-date services
- Continues relationship with customers and using the very applicable field studies for customer’s satisfaction and loyalty and then complaint handling just on time.

References


