How can a Business Best Dealing with Profitable Customers? Analysis a New Model for Customer Lifetime Value

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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 transaction data, has led to an interest in understanding and estimating customer lifetime value (CLV). Furthermore as marketing endeavors to be more accountable, the need of tools and models for measuring and evaluating efforts and investments that accomplish in marketing extent, is felt. The purpose of this research is presentation a new model for Customer Lifetime Value measurement for financial services sector with focus on retail banking. For this purpose, by using the full literature review, a novel model for calculating and measuring the CLV will be presented. After that by using the interview with experts and focus group, the validity of the presented model will be verified. At the final section of the paper, the applied and theoretical recommendation will be provided.

Index Terms—customer relationship management, customer lifetime value (CLV), strategic issues, marketing.

I. 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 loyal and valued customer relationships. Therefore, it is essential to build refined strategies for customers based on their value [1]. 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' [2]. 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 [3, 4]. 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) [5, 6].

The core parts of CRM activities are understanding customers' profitability and retain profitable customers [7]. To cultivate the full profit potentials of customers, many companies already try to measure and use customer value in their management activities [6, 8, 9]. 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 [10]. This move towards 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 [11]. Knowing the CLV of individual customers enables the decision maker to improve the customer segmentation and marketing resource allocation efforts [12, 13] and this in turn will lead to higher retention rates and profits for the firm [7].

II. 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 [14]. 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 [14].

In the late 1960s, Levitt suggested that the goal of businesses was to "create and maintain customers" [15]. 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 [16]. 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, favoring the relationship with their customers [14].

To achieve the CRM objective, there is a series of aspects involved [14, 17]:

• The **Processes** through which the customer relates with the organization, according to Thompson, are: marketing, sales, and service. 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.

A. Redefining CRM

Many businesses today realize 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 maximize 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 organized along product or channel lines as opposed to customer. Similarly, the concept of mass customization has been in the literature for nearly a decade [18]. However, all have remained essentially theoretical concepts; aspirations rather than a 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 customization 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 [19].

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 every 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 [20] through to the abandonment of unprofitable customer relationships [21].

Intuitive appeal: Because in theory it 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.

III. 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 [22]. The basic formula for calculating CLV for customer i at time t for a finite time horizon T [23] is:

$$CLV_{i,t} = \sum_{t=0}^{T} \frac{profit_{i,t}}{(1+d)^t} \quad ,$$

$$CLV_i = \sum_{t=1}^{T} \frac{Re\,venue_{i,t}}{(1+d)^t} - \sum_{i=1}^{T} \frac{Cost_{i,t}}{(1+d)^t}$$

where d is a pre-determined discount rate. In multi-service industries, Profit$_{i,t}$ is defined as:

$$profit_{i,t} = \sum_{j=1}^{j} Serv_{ij,t} * Usage_{ij,t} * M\arg in_{ij,t}$$

Here J is the number of different services sold, Serv$_{ij,t}$ is a dummy indicating whether customer i purchases service j at time t, Usage$_{ij,t}$ is the amount of that service purchased and Margin$_{ij,t}$ is the average profit margin for service j [24].

Also, CLV may consist 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.

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

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

where the following is true:

m = margin or profit 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 [24, 25, 26]. 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 behavior [27]. Moreover, some research considers an even shorter time horizon [22].

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 the variety of modeling procedures that were used in search for answers to the key questions [25, 28, 29, 30]. 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 up. 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 [9]. 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 [31], 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 [24, 32].

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) [5, 6]. 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 [24, 29]. 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 [24, 33, and 34].

A. Overall Requirements for Defining CLV

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

Acquisition cost - *Churn rate - Discount rate - Retention cost - Time period Periodic Revenue - Profit Margin.*

- **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.

IV. RESEARCH DESIGN AND METHODOLOGY

For achieving the research model, with focus of the full literature review and also with interview the experts of the field and Focus Group method the final valid model will be provided. Exerts of the field are including both academicians and professionals of banking sector and business expertise.

A. Research Model for CLV measurement

In this section the novel and innovative model of this research for customer lifetime value (CLV) in the financial services with focus on retail banking sector is presented. With respect to the full literature review of the research and essential parameters for CLV model, table 1 introduces the elements of the model. This model is applied in the financial services especially in the banking sector.

TABLE 1. INTRODUCING THE ESSENTIAL PARAMETERS FOR CLV MODEL OF THE RESEARCH

CLV parameters	Descriptions
P_t	The probability of continues interaction of customer with the bank; retention rate; or loyalty rate of customers. This rate will calculated from the following formula: $P_t = 1 - C.R$, and also C.R is the amount of churn rate of customers, as follow: C.R = Churn Rate
S_t	The average amount of customer's accounts after subtracting by legal and liquidity saving rate; this amount of accounts inventory is the free deposits for retail banks.
M_t	The marginal profits for S_t; or in the other hand, marginal profits for free deposits practices and activities.
d^t	Discount rate that is equal to: 1 + inflation rate.
D_t	This is the first group of costs that associated with the direct costs about the accounts.
R_t	This is the first group of costs that associated with the indirect costs. This group are including of costs such as: advertising and marketing costs, depreciation costs, administrative costs, other personnel costs, etc.
n	Number of periods.

Here is the mathematical model for CLV measuring of the research.

$$CLV = \sum_{t=1}^{n} \frac{P_t(S_t \times M_t)}{d^t} - \sum_{t=1}^{n} \frac{(P_t \times D_t) + (R_t)}{d^t}$$

The above model is the novel model for the calculation the

CLV in the financial services with focus on the banking sector.

V. CONCLUDING REMARKS AND RECOMMENDATIONS

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 [1, 35, and 36].

The presented model in this research is very useful for customer segmentation. This model provides a good basis for the segmentation on the customer based on the real values. 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 new model for measuring the CLV that was applicable and much simpler that previous model for CLV calculation. This is the ultimate contribution of this paper. And also customer segmentation based on customer lifetime value and by using the segments banks can management the profitability of each segment of customers and implement the marketing strategies efficiently and effectively.

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.

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