CUSTOMER LIFETIME VALUE: A NUMERICAL APPROACH

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ABSTRACT

Customer Lifetime Value or CLV is the value accrued from a customer over a period of time. In simple terms, it is the average annual profit times the customer retention period. CLV is calculated using four KPIs – average order value, purchase frequency, gross margin and inverse of churn rate. The numerical value of CLV is very useful for marketing purposes. First, it tells how much one can spend in order to acquire a new customer. Second, it helps to create customer segmentation and thereby telling which should be the focus area. Thirdly, it helps create long term value by focusing on profitable customers and increase revenues from less valuable customers. The CLV can be improved by focusing on KPI which is lower in value as compared to the industry benchmarks.

Keywords: *CLV, Average Order Value, Purchase Frequency, Gross Margins, Churn*

Introduction

Customer Lifetime Value or CLV is the customers value to a company over a period of time. A simple formula for CLV is:
average annual customer profit x average customer retention.

Importance of CLV

1) CLV Informs How Much Business Should Spend on Customer Acquisition: Customer acquisition costs may very well more than the profit from a first purchase, however the business is as yet making money from that customer over the long haul? Sorting out the lifetime value of a customer to the company will give the answer.
2) CLV Allows Segment Customers Based on Value: CLV helps to choose between VIP customers or new customers with similar background. Business can start gradually upselling less valuable customers to increase their CLV.
3) Focusing on CLV is Key for Long-term Company-Wide Growth: CLV is a customer-centric metric, and a powerful base to expand upon to retain valuable customers, increase revenue from less valuable customers, and improve the customer experience overall (Kellett, 2021).

Literature Review

There is ample research on the topic of customer lifetime value (CLV). Below are a few abstracts:
Jasek et al. (2018), have posited that, this article provides an empirical statistical analysis and conversation of the predictive abilities of selected customer lifetime value (CLV) models that could be used in online shopping inside e-commerce business settings. The correlation of CLV predictive abilities, utilizing selected evaluation metrics, is made on selected CLV models: Markov chain model, Extended Pareto/NBD model (EP/NBD), and Status Quo model. The article used six online store datasets with annual sales revenues worth tens of millions of euros for the study. The EP/NBD model outperforms other selected models in a greater part of evaluation metrics and can be considered acceptable and stable for non-contractual relations in online shopping. The ramifications for the application of select CLV models in practice, just as suggestions for future research, are additionally discussed.
Bayanjargal et al. (2018), have argued that, in this paper, we show that it is possible to estimate discount rate or cost of capital in the calculation of customer lifetime value (CLV) for an organization utilizing numerical methods instead of the traditional financial approaches. We propose an estimation equation for retention period that the organization should keep the customers to acquire certain benefit from them. We likewise apply our theoretical approaches to the Mongolian mobile service at organization level utilizing statistical information from 2005 to 2016. Some numerical results are included.
Marisa et al. (2019), have opined that, the CLV model is a measure of customer profit for a company that can be used to evaluate the future value of a customer. This examination aims to

obtain Customer Lifetime Value (CLV) in each customer segment. Gathering uses the K-Means Clustering method based on the LRFM model (Length, Recency, Frequency, Monetary). The cluster formation process applies the SSE and the Elbow Method with the best number of clusters, that is,two clusters. CLV values are generated as a product of the results of the LFRM weight values and normalization of LRFM and are then aggregated, and carried out on each of the cluster that has been formed. The highest ranking among the two clusters is at the second cluster with the CLV value being the highest with reference to the other cluster average of 0.362. Based on the LRFM image, the company can make a strategy to retain customers and acquire customers to become loyal customers with high profitability.

According to Drea et al. (2017), customer lifetime value (CLV) is a generally used metric for assessing marketing performance among businesses; however, there is little evidence of the use of CLV in Major League Baseball (MLB). The authors have given a methodology for calculating the CLV for season ticket buyers so as to properly account for all the direct revenue streams for a fan attending a MLB game, including the ticket, parking, concession, and auxiliary revenues. Applications for customer lifetime value for MLB teams includes measuring the effectiveness of marketing activities, identifying seating that is over or under priced, and assisting in the management of fan experiences.

According to AboElHamd et al. (2019), customer lifetime value (CLV) is the most dependable indicator in direct marketing for evaluating the profitability of the customers. This has motivated researchers to compete in creating models to maximize CLV and as a result, enhancing the firm, and the customer relationship. This review paper analyzes the commitments of using the dynamic programming models in the area of direct marketing, in order to maximize CLV. It initiates by reviewing the basic models that have focused on calculating CLV, assessing it, simulating, optimizing it or - rarely- maximizing its value.

Qi et al. (2020), Yoo et al. (2020), Scriney et al. (2020), Ghosh and Naidu (2020) have dealt with nuances to measure CLV.

How to calculate CLV?

There are four KPIs that determine CLV: Average Order Value (AOV), Purchase Frequency (F), Gross Margin (GM) and Churn Rate (CR).

CLV = AOV x F x GM x (1/CR)

1) Average Order Value (AOV): AOV is total annual sales divided by total number of orders.

AOV = Total Sales Revenue / Total Number of Orders

e.g. If the annual sales is $1 mn and there are 40,000 orders, the AOV will be $25.

2) Purchase Frequency (F): Purchase Frequency is the total number of orders divided by number of unique customers.

F = Total Number of Orders / Total Number of Unique Customers

e.g. If the total number of orders are 40,000 and there are 15,000 unique customers, the Purchase Frequency will be 40,000/15,000 or 2.67.

3) Gross Margin (GM): Gross margin is Sales minus Cost of Goods Sold (COGS) expressed as a % of Sales.

GM = (Sales – COGS) / Sales

e.g. If the annual sales is $800,000 and COGS is $470,000 the GM will be (800,000 – 470,000)/ 800,000 or 41%.

4) 1/Churn Rate (1/CR): It is also known as Customer Lifetime Period.

e.g. if the retention rate is 5%, the churn rate is 95% and 1/CR = 1.05

Calculating CLV:

If AOV is $25, F is 2.67, GM is 41% and CR is 60%, the CLV will be calculated as below.

CLV = 25 x 2.67 x 41% x (1/0.6) = $45.7

Improving CLV: To improve the CLV, focus needs to be on the KPIs as discussed above. It will be worthwhile to compare the KPIs with industry benchmarks. That will provide an idea of the potential scope to improve the KPIs and in turn the CLV.

Conclusion

Customer Lifetime Value or CLV is the value of the customer over a period of time. In simple terms it is the annual profit times the customer retention period. The calculation of CLV includes four KPIs. First, is the Average Order Value of AOV. It is the dollar value of each average order. Second, is the purchase frequency or F. This is the number of times, an individual places orders in a year's time. Third, is the Gross Margin or GM. It is the margin based on sales and cost of goods sold to achieve those sales. It is calculated as a percentage of sales value and expressed in percentage. Last, is the inverse of churn rate. The churn rate is the opposite of retention rate. Using these KPIs CLV can be computed. It has several benefits. Firstly, it provides an indication on how much a business can spend on to acquire the customer. Here, the long-term value provides a guidance even though the initial spend appears more than profits from first few purchases. Secondly, it helps the business to create segments of various customers. The business can then decide the focus area. Thirdly, it helps create long term value by focusing on profitable customers, and increasing revenues from less valuable customers. Given these benefits, the business needs to focus on increasing the CLV. To achieve that, it needs to compare the KPIs against industry benchmarks and then focus on that KPI to improve the CLV.

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