**Customer Lifetime Value**

**Customer lifetime value (CLTV)** is one of the most important metrics to measure at any growing company. By measuring CLTV in relation to **cost of customer acquisition (CAC),** companies can measure how long it takes to recoup the investment required to earn a new customer - such as the cost of sales and marketing.

If any business wants to acquire and retain highly valuable customers, then it's essential for them to learn what the customer lifetime value is and how to calculate it.

CLTV tells companies how much revenue they can expect a customer to generate over the course of the business relationship. The longer a customer continues to purchase from a company, the greater their lifetime value becomes. Businesses use this metric to identify significant customer segments that are the most valuable to the company.

**One way to calculate CLV:**

To calculate ***customer lifetime value* (CLV),** first we need to calculate ***average purchase value (APV)*,** and then multiply that number by the ***average purchase frequency rate (APFR)*** to determine ***customer value (CV)***. Then we will have to calculate ***average customer lifespan (ACL)***, which we can multiply that by customer value (CV) to determine customer lifetime value (CLV).

**Customer Lifetime Value Model**

1. **Calculate average purchase value (APV):** Calculate this number by dividing company's total revenue in a time period (usually one year) by the number of purchases over the course of that same time period.
2. **Calculate average purchase frequency rate (APFR)**: Calculate this number by dividing the number of purchases by the number of unique customers who made purchases during that time period.
3. **Calculate customer value (CV):** Calculate this number by multiplying the average purchase value (APV) with average purchase frequency rate (APFR).
4. **Calculate average customer lifespan (ACL)**: Calculate this number by averaging the number of years a customer continues purchasing from your company.
5. **Calculate CLTV**: Multiply customer value by the average customer lifespan. This will give you the revenue you can reasonably expect an average customer to generate for your company over the course of their relationship with you.

Using data from a [Kissmetrics](https://www.businessinsider.com/lifetime-value-of-a-starbucks-customer-2016-1) report, we can take Starbucks as an example for determining CLTV. Their report measures the weekly purchasing habits of five customers, then averages their total values together. By following the steps listed above, we can use this information to calculate the average lifetime value of a Starbucks customer.

1. **Average Purchase Value = Total Revenue/ # of Orders**

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In Starbucks case, it is

(3.5\*4 + 8.5\*3 + 5\*5 + 6.5\*6 + 6\*3) / (4+3+5+6+3) = 14+25.5+25+39+18/21 = 121.5/21 = $5.78

1. **Average Purchase Frequency Rate = # of Purchases/ # of Unique Customers**

= 21/5 = 4.2

1. **Customer Value = Average Purchase Value \* Average Purchase Frequency Rate**

= 5.8 \* 4.2 = 24.4

1. **Average Customer Lifespan = Sum of all Customers Lifespan/# of Customers**

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In Starbucks case it is 20 years = 20 \* 52 = 1040 weeks

**Simple Customer Lifetime Value = Customer Value \* Average Customer Lifespan**

**=** 24.4 \* 1040 = $25,376

This was Simple CLV.

If we want custom CLV. We can include Profit Margin.

In Starbucks case, the Profit Margin per customer is 21.3%

**Custom Customer Lifetime Value = Customer Value \* Average Customer Lifespan \* Profit Margin**

**=** 24.4 \* 1040 \* 0.213 = $5,405

**There are other methods to calculate CLV and the choice depends on the type of business and resources available.**

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1. **Historical Approach -** The historical approach is based on the gross profit sum from purchases the customers have made in the past

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Let’s suppose 20 customers brought $1,240 in profit over a three-month period.

**ARPU (3 months) =** $1240 / 20 = $62

Let’s see what these customers will bring us in one year.

**ARPU (12 months)** = ARPU (3 months) × 4 = $62 × 4 = $248 per year per customer

The historical approach is valid only if the customers have similar preferences and stay with the company for the same period of time. It doesn’t consider changes in customer behavior. So, if a company’s customers change their interests and the way they purchase, it will affect the outcome.

1. **Predictive Approach**

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* First, we’ll calculate the average number of transactions per month(T):

Period: 6 months

Total transactions: 120

T = 120 / 6 = 20

* AOV is the average value of an order, or the average revenue from each order.

Total revenue (November): $12,000

Number of orders: 20

AOV = $12,000 / 20 = $600

* AGM is the average gross margin, it tells us that which part of each sale is the actual profit and which part is the cost (expressed as a percentage).

We need to perform a two-step calculation to get AGM.

Determine the gross margin (GM) percentage per month:

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Total revenue (November): $12,000

Cost of sales: $8,900

Gross margin (%) = (($12,000 - $8,900) / $12,000) × 100 = 26%

Take a six-month period to get an average:

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Total gross margin: 1.64

AGV = 1.64 / 6 = 0.27, or 27%

* ALT represents the average lifespan of a customer, which tells you how long the average customer has been with your company.

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Churn rate (%) = (200–150) / 200 = 50 / 200 = 0.25, or 25%

ALT = 1 / 25% = 1 / 0.25 = 4 months

**Finally, we have all the metrics for our CLV prediction formula:**

Average number of transactions per month (T) = 20

Average order value (AOV) = $600

Average gross margin (AGM) = 27%

Average customer lifespan in months (ALT) = 4 months

CLV (total) = 20 × $600 × 27% × 4 = $1,296,000

**Now, we should take into account the total number of existing customers at the end of the latest month, November, which was 150.**

**Predicted CLV = $1,296,000 / 150 = $8,640**

Although this approach is better than the historical model, you still need to consider that the predictions may be misleading. We’re just guessing the customer lifespan based on monthly data.

1. **Traditional Approach**

If you don’t have flat yearly sales, you can rely on a traditional CLV formula. It’s possible to consider the discount rate, average gross margin per lifespan of a single customer, and retention rate.

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* GML is the average profit you receive from a customer during their lifespan.

GML = Gross Margin (%) × Average Total Revenue per Customer

Gross margin: 27% ( from the example above)

Average total revenue: $900 (from the example above)

GML = 0.27 × $900 = $243

* R is the monthly retention rate.

The retention rate, R, is the percentage of clients who made a repeat purchase over a particular period, compared to the previous period. To calculate monthly R, you’ll need these numbers:

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Let’s suppose that in November you had:

CE = 250

CN = 50

CB = 220

R = ((250–50) / 220) × 100 = (200 / 220) × 100 = 0.9 × 100 = 90%

* D is the discount rate. We’ll take a standard 10% discount rate.

Now we have all the figures needed to calculate traditional CLV:

CLV = $243 × (0.9 / (1 + 0.1–0.9)) = $243 × (0.9 / 0.2) = $243 × 4.5 = $1,093.50

This formula covers all possible changes in revenue during a particular period. In order to take into account inflation, each subsequent year should be adjusted by a discount rate.