Business Metrics Lesson: Terminology and Formulas

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| **Metric** | **Formula** | **Commonly Used Alternate Terms** |
| *Marketing* | | |
| **Click through rate (CTR)** | (Clicks/ Impressions) \* 100 |  |
| **Cost Per Click (CPC)** | Cost of advertising on the source platform / Number of people who clicked on that ad |  |
| **Cost Per Lead (CPL)** | Cost of advertising on the source platform / Total number of leads |  |
| **Customer Acquisition Cost (CAC)** | (Total marketing expenses + total sales expenses and salaries)/ # of customers acquired |  |
| *Marketing & Financial* | | |
| **Cost Per Acquisition (CPA)** | (Marketing and Sales Cost)/ number of new leads customers |  |
| **Life Time Value (LTV)** | Average Sale Revenue x Number of Repeat Sales x Expected Retention Time x Profit Margin |  |
| **Average Sale Revenue** | (Total customer revenue/ Number of purchases in the cycle) |  |
| **Total Sale Revenue Per Cycle** | Revenue earned from customer per purchase cycle |  |
| **Number of Sales Per Purchase Cycle** | Number of times customer buys during the purchase cycle |  |

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| **Cost Per Acquisition** | (Cost of marketing and sales)/ number of new leadsk |  |
| **Expected Retention Time** | Amount of time (measured in purchasing cycles) you expect to retain the customer. |  |
| **Average Sale Revenue** | (Total customer revenue/ Number of purchases in the cycle) |  |
| **Profit Margin (%) Per Customer** | ((Average Sale - Average Cost of Sale) / Average Sale) x 100 |  |
| *Growth* | | |
| **Stickiness** | Daily Active Users/ Monthly Active Users |  |
| **Churn rate** | (Customers beginning of month - Customers end of month) / Customers beginning of month |  |
| *Financial* | | |
| **Revenue** | Money that a company makes from the sales of its products and services |  |
| **Cost of Goods Sold** | Direct costs the company incurs to develop and product the product or service being sold | Cost of Sales Cost of Revenue |
| **Gross Profit** | Revenue - Cost of Goods Sold |  |
| **Selling, General and Administrative expenses** | Selling, General and Administrative expenses Marketing, sale commissions and salaries for office staff, supplies, computers, legal expenses, rent, utilities, taxes and interests on any loans). SG&A typically exclude research and development expenses. | Operating Expenses |

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| **Total Operating Expenses** | Expenses incurred outside of direct manufacturing costs |  |
| **Operating Profit** | Gross Profit - Total Operating Expenses | Operating Income, Earnings Before Interest and Tax (EBIT) |
| **Net Profit** | Operating Profit - (Interest + Taxes) | Net Income |
| **Gross Margin** | (Total Sales Revenue – Cost of Goods Sold) / Total Sales Revenue |  |
| **Contribution Margin** | (Revenue - Variable Costs) / Total units sold |  |

**Overarching Themes**

* Businesses use **Key Performance Indicators** to track how they are performing on key goals or objectives.
* The **Marketing Funnel** captures the various stages in the customer's journey. At the top of the funnel, it captures the impressions, clicks, leads and conversions at the bottom of the funnel.
* **Optimizing the funnel** refers to maximizing the conversion rate at each level of the funnel.
* The **Sales Funnel** captures the various stages in the sales cycle. At the top of the funnel, it captures the prospects, then the leads and qualified leads, and ends with bookings or closed deals at the bottom of the funnel.
* It is important to look at the **distribution of the data** to understand if the measures of central tendency represent a normal distribution. Looking at the distribution and measures of central tendency is a critical step of the data analysis process.
* Data should be examined split across cohorts, business cycles, time, product lines, regions and other **grouping** criteria to fully understand the data. It is critical to slice the data across various factors to make sense of the data and make recommendations.

**Metrics**

*Marketing*

* **Click through rate (CTR)** is an indication of whether the ad campaign is generating enough interest in potential customers. When the CTR increases, it is an indicator of an effective and interesting content in your ad campaign and that maybe you should increase the number of impressions for that ad.
* **Cost Per Click (CPC)** is an indicator of the cost effectiveness of the ad platform and a useful tool to compare and strategize about which marketing platforms is yielding higher impression and reach and resulting in potential leads.
* **Cost Per Lead (CPL)** is an indicator of the cost effectiveness of the ad platform and a useful tool to compare and strategize about which marketing platforms yielded more leads.
* **Customer Acquisition Cost (CAC)** is a useful metric used to get an estimate of how much it cost us to acquire the customer in the period the money was spent to reach out to them.

*Marketing and Financial*

* **Cost Per Acquisition (CPA)** allows a business to gauge whether the marketing campaign is generating enough potential leads.
* **Life Time Value (LTV)** allows you to focus on audiences and potential customers that will generate higher LTVs with minimum customer acquisition cost. There are several ways to calculate the Life Time Value and it is best to calculate the LTV using different ways to arrive at the average LTV for a customer.

*Growth*

* **Stickiness** indicates whether the customers are staying and returning to the website frequently enough. It is a good measure of potential growth of the business.
* **Churn rate** is a measure of declining growth and business aim to have a higher growth rate than churn rate. It is a measure of whether the business is retaining the acquired customers.

*Financial*

* The **Profit and Loss Statement**, also called income statement, is one type of financial statement that shows a company's performance and financial position. needed to create the P&L statement are:
* **Revenue** is the money that your company makes from the sales of your products and services
* **Cost of Goods Sold OR Cost of Sales** are the direct costs the company incurs to develop and product the product or service being sold
* **Gross Profit** is the difference between the revenue and COGS
* **Selling, General and Administrative expenses**capture a wide range of expenses, from administrative, sales commissions, supplies, legal fees, rent, utilities, taxes, and interests. It is used synonymously with **Operating expenses**. SG&A typically exclude research and development expenses.
* **Operating Profit** is the difference between gross profit and total operating expenses.
* **Net Income** is operating profit minus interest and tax expenses.
* **Gross Margin** tells business executives what percentage of each revenue dollar is available to cover operating expenses after the COGS have been accounted for.
* **Contribution Margin** provides the break even point where the pricing of a product will cover fixed overhead costs.

## Formulas for Calculating Historical Financial Metrics

Typically, the historical statistics or metrics used to forecast financial metrics in an Income Statement are:

1. Revenue Growth
2. Gross Margin
3. Operating Margin
4. Historical Tax Rate
5. Historical Interest Expense Rate

The following list provides more information about calculating the historical statistics.

1. **Revenue Growth (in %) = ((Current Year's Revenue / Previous year's revenue) - 1**
2. **Gross Margin = (1- (Current Year's Cost of COGS/ Current Year's Total Revenue))**  
   Keep in mind the two terms COGS and Cost of Revenue can be used interchangeably.
3. **Operating Margin = Current Year's Operating Income / Current Year's Total Revenue**
4. **Historical Tax Rate** is the tax rate from the companies previous year's tax rate.
5. **Historical Interest Rate** is the interest rate coming from the previous year' s Debt Schedule

## Assumptions and KPIs

Here are the formulas used in the sales forecasting example described in the video above.

* **Contract Terms** = Number of months in the contract
* **Price per Unit (by mon)** = Units needed in 1 month X Price per Unit
* **Price for all units in 1 mon =** Price per Unit X no. Of units
* **Bookings Forecast** = Price per Unit X no. Of units X Contract Term (month)
* **Closed/Won Probability** = Probability of Closing the deal
* **Weighted Bookings Forecast** = Bookings Forecast \* Closed/Won Probability