

Data Fundamentals

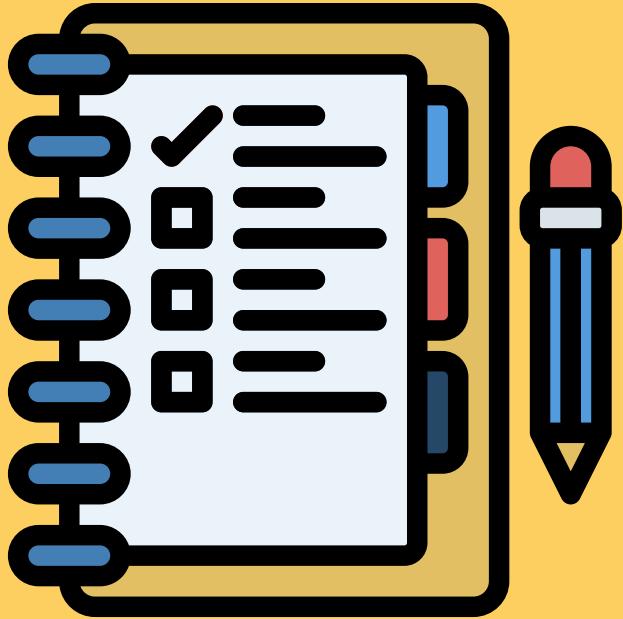
Business Metrics
&
Excel Modeling



GOALS



- Provide an understanding of various metrics, including KPIs. we will grasp the importance of KPIs and gain knowledge on analyzing data distribution. Metrics such as CTR, CPC, CPL, CAC, CPA, LTV, stickiness, churn rate, and financial metrics will be explored.
- Introduce learners to financial modeling. We will learn about modeling approaches, the components of a forecast model, and how to utilize Excel functions and tools to simplify and enhance financial forecasting, making it more interactive.



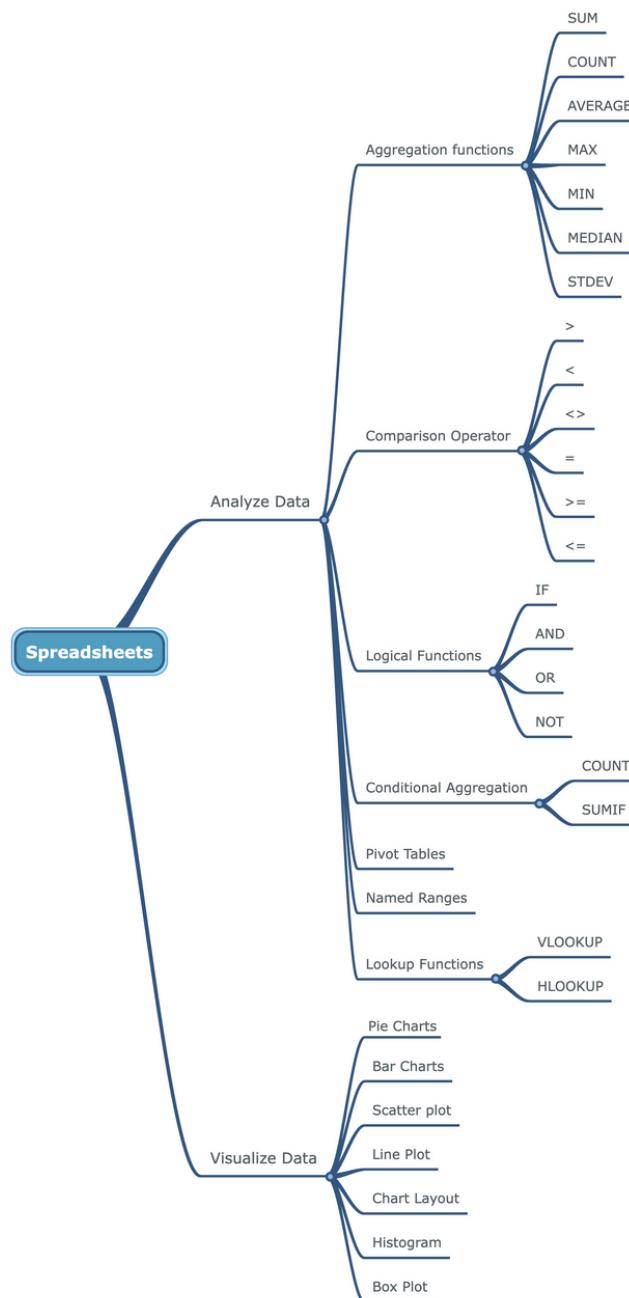
AGENDA

- Welcome
- Review & Roadmap
- Business goals
- Comparison Operators
- Business process flow
- Introduction to Modeling
- Approaches to Modeling
- Data validation
- INDEX,MATCH,OFFSET Functions
- Q&A

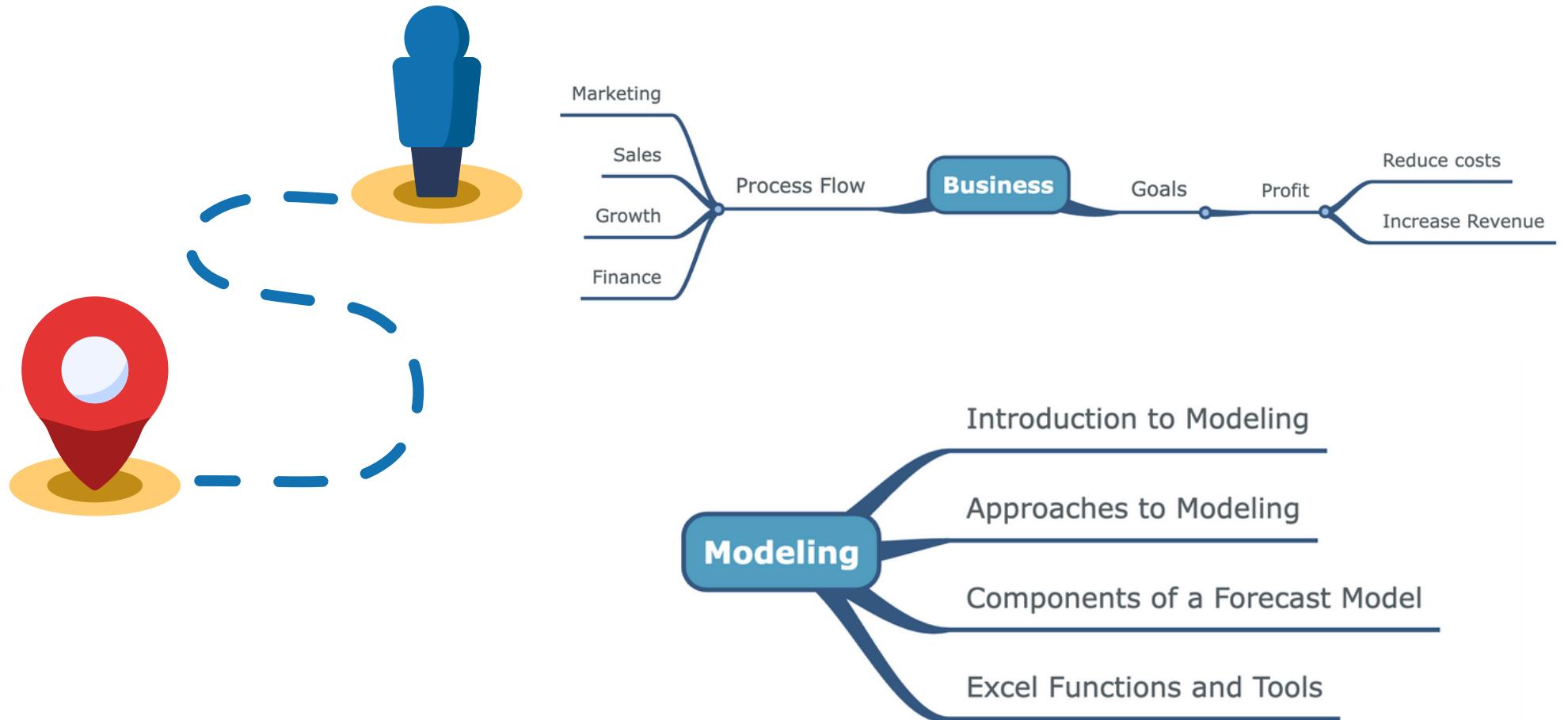


Behind every data point, there's a story waiting to be told.

REVIEW



ROADMAP



GOALS



ECONOMIC OBJECTIVES OF BUSINESS

The main objective of any business is to earn a profit.



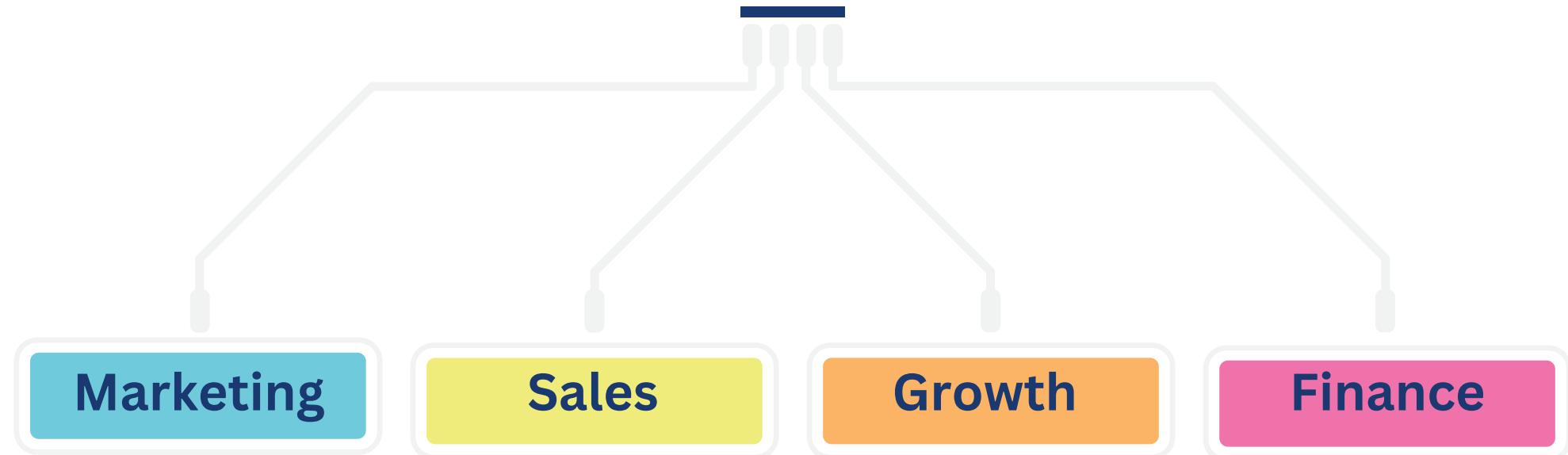
- Website & Engineering
- Staff Salaries
- Supplies & Payment System
- Legal Contracts
- Rent



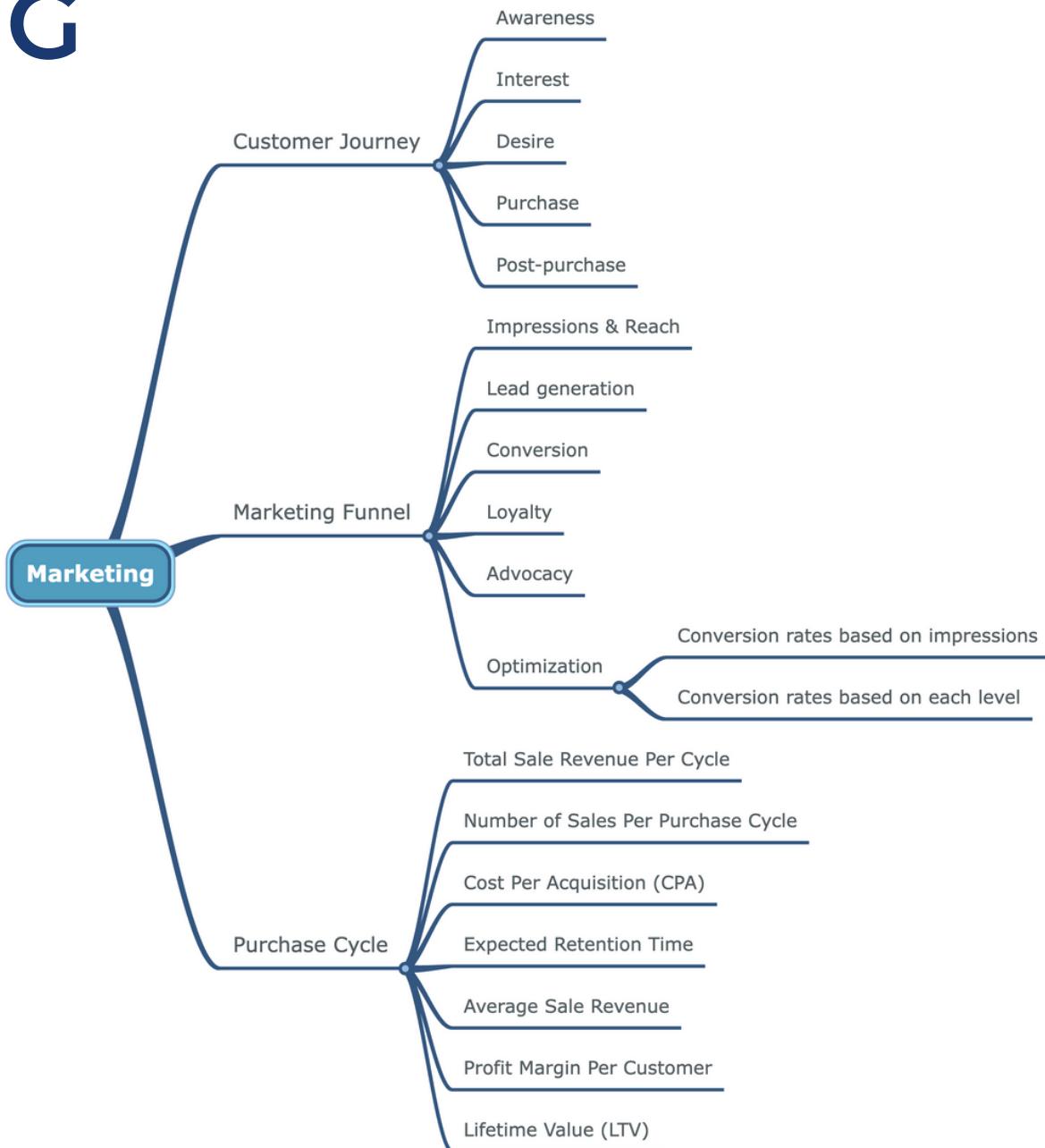
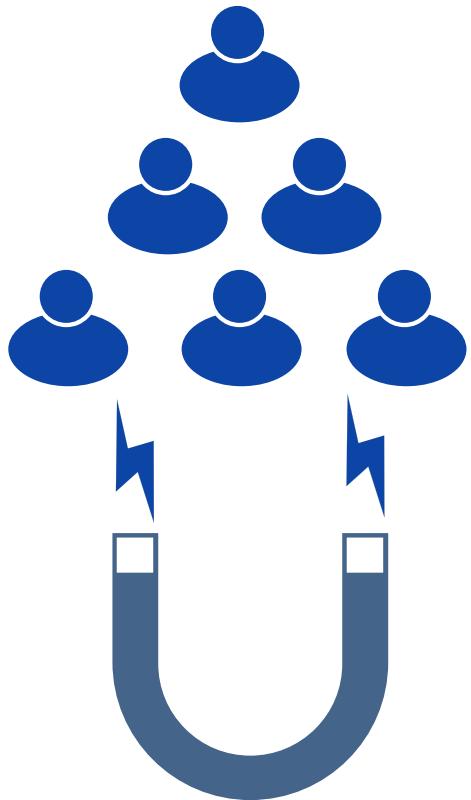
- New Customers
- Marketing



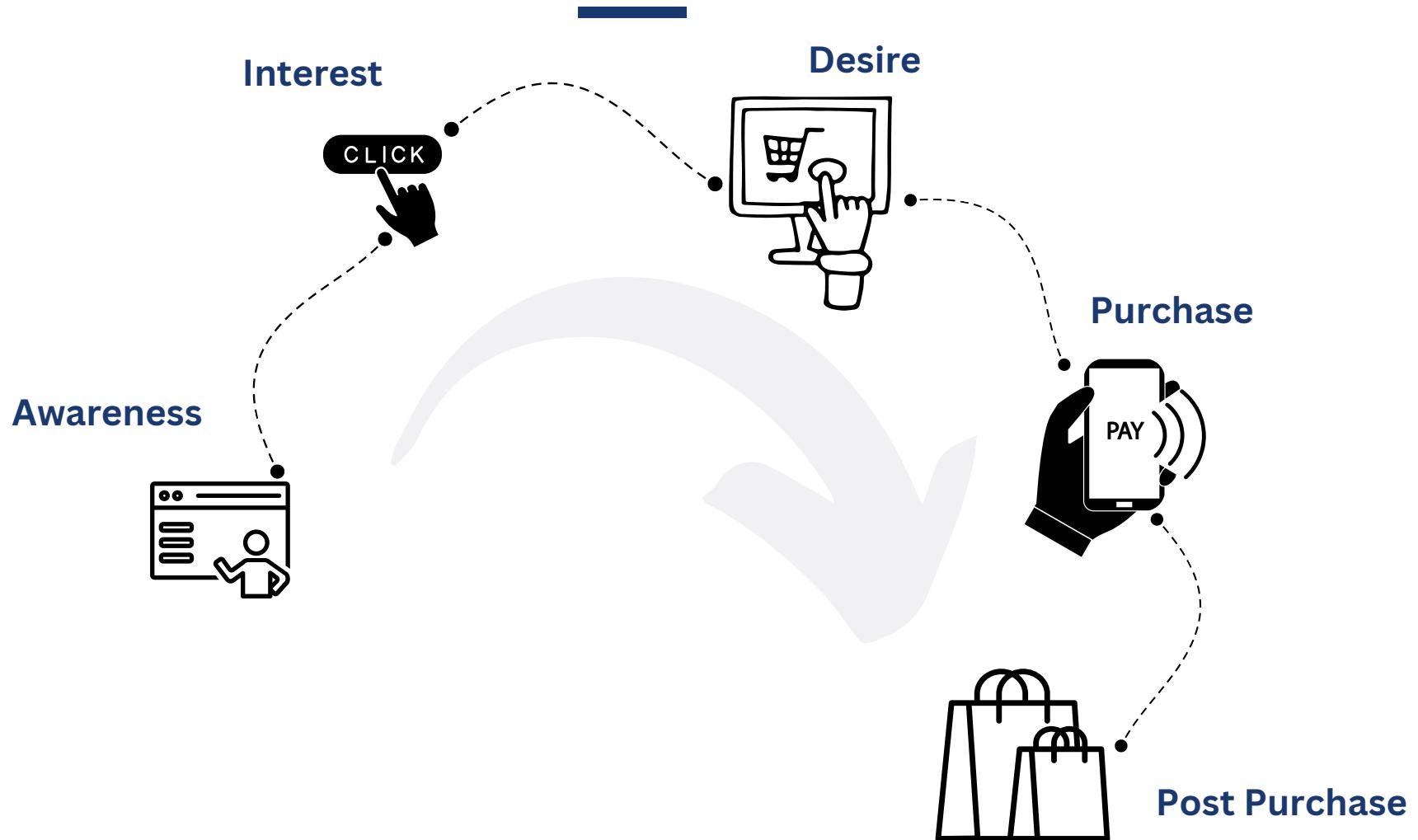
BUSINESS PROCESS FLOW



MARKETING



CUSTOMER JOURNEY



MARKETING FUNNEL

Levels

Impressions & Reach

Lead generation

Conversion

Metrics

An ad appears when a visitor views a website.

Click: Every time a website visitor views the ad and clicks it.

Cost Per Click (CPC): is the cost of advertising divided by ad clicks.

Click Thru Rate (CTR): Number of users that clicked an ad or clicked a link sent via email (Clicks/ Impressions) * 100

Cost Per Lead (CPL): Signifies user interest through actions like downloading, signing up, or sharing contact info.

Customer Acquisition Cost (CAC): Total sales & marketing costs/Number of converted customers paid.

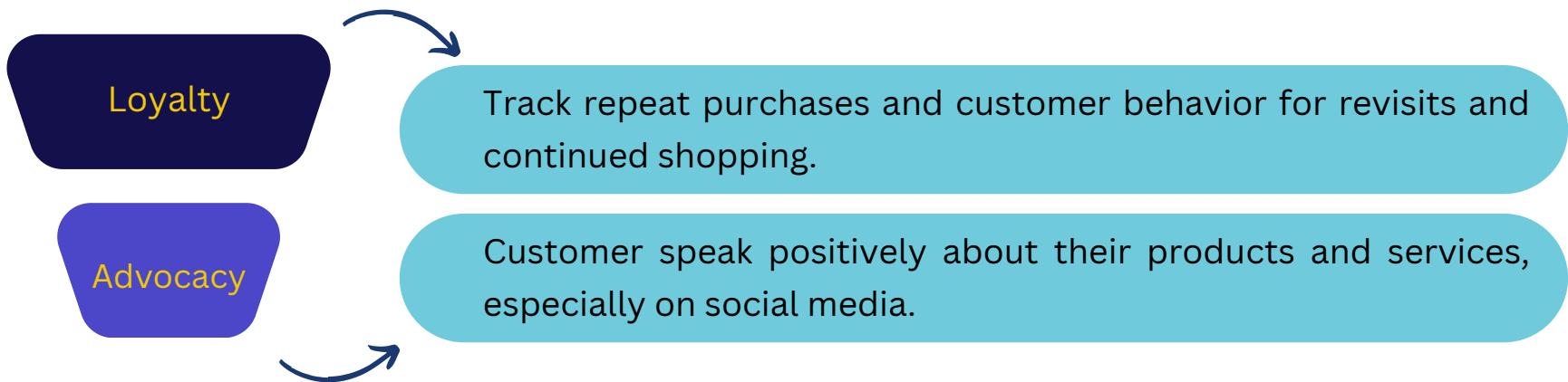


A **lead** is an individual or potential customer who has shown interest in a product or service and has the potential to become a customer.

MARKETING FUNNEL

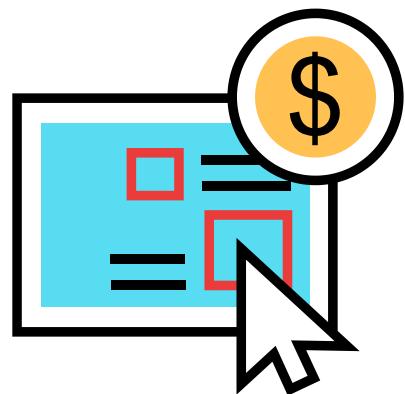
Extra Levels

Metrics



CPC

Cost Per Click



Source_platform	Facebook Ad	Google Search	Google Display
Spend	\$ 1,500.00	\$ 3,000.00	\$ 5,000.00
Clicks	700.00	2900.00	4995.00
Cost Per Click (CPC)	\$ 2.14	\$ 1.03	\$ 1.00
CPC Formula (Spend/Clicks)	=B2/B3	=C2/C3	=D2/D3

CTR

Click Thru Rate



AD platform	Impressions	Clicks	Click Through Rate CTR %	CTR Formula (Clicks/ Impressions)
Facebook Ad	1100	15	1.36	= (C2/B2)
Google Search	2000	67	3.35	= (C3/B3)
Google Display	1500	25	1.67	= (C4/B4)

CPL

Cost Per Lead



Source_platform	Facebook Ad	Google Search	Google Display
Spend	\$ 1,500.00	\$ 3,000.00	\$ 5,000.00
Leads	16.00	63.00	112.00
Cost Per Lead (CPL)	\$ 93.75	\$ 47.62	\$ 44.64
CPL Formula (Spend/Leads)	=B2/B3	=C2/C3	=D2/D3



Overhead costs for sales and marketing are the indirect expenses that support the functioning of these departments.



Customer Acquisition Cost

Method #1

	August	September	October
Marketing Costs	\$ 9,500.00	\$ 12,000.00	\$ 5,000.00
Sales & Marketing Salaries	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00
Overhead costs for Sales and Marketing	\$ 10,000.00	\$ 8,000.00	\$ 8,500.00
Total Sales & Marketing Costs	\$ 44,500.00	\$ 45,000.00	\$ 38,500.00
Total Sales & Marketing Costs Formula	=SUM(B2:B4)	=SUM(C2:C4)	=SUM(D2:D4)
Number of Paid Customers	300	325	350
Customer Acquisition Cost (CAC)	\$ 148.33	\$ 138.46	\$ 110.00
Customer Acquisition Cost (CAC) Formula (Total Sales & Marketing Costs/Number of Paid Customers)	=B5/B7	=C5/C7	=D5/D7



Customer Acquisition Cost

Method #2

	August	September	October
Marketing Costs	\$9,500.00	\$12,000.00	\$5,000.00
Sales & Marketing Salaries	\$25,000.00	\$25,000.00	\$25,000.00
Overhead costs for Sales and Marketing	\$10,000.00	\$8,000.00	\$8,500.00
Number of Paid Customers	300	325	350
Weighted Average Costs (60 days/2 months) Prior & Current Month		\$34,000.00	\$33,250.00
Weighted Average Costs (60 days/2 months) Prior & Current Month Formula ("Sales & Marketing Salaries"+"Overhead costs for Sales and Marketing")*0.5)		=(\$SUM(B3:B4)*0.5)+ (\$SUM(C3:C4)*0.5)	=(\$SUM(C3:C4)*0.5)+ (\$SUM(D3:D4)*0.5)
Customer Acquisition Cost (CAC)		\$133.85	\$129.29
Customer Acquisition Cost (CAC) Formula (Total Sales & Marketing Costs/Number of Paid Customers)		=(B2+C6)/C5	=(C2+D6)/D5

OPTIMIZING



Optimizing Marketing Funnel (based on impression)

Level	Numbers	Conversion rates	Conversion rates Formula (Numbers/Arrived on site Numbers)
Arrived on site	1000		
Downloaded brochure	430	43%	=B3/B2
Added item(s) to cart	193	19%	=B4/B2
Purchased item(s)	75	8%	=B5/B2

OPTIMIZATION



Optimizing Marketing Funnel (based on each level)

Level	Numbers	Conversion rates	Conversion rates Formula (Numbers/ Prior Level Numbers)
Arrived on site	1000		
Downloaded brochure	430	43.0%	=B3/B2
Added item(s) to cart	193	44.9%	=B4/B3
Purchased item(s)	75	38.9%	=B5/B4

PURCHASE CYCLE



- **Total Sale Revenue Per Cycle:** Revenue earned from a customer per purchase cycle
- **Number of Sales Per Purchase Cycle:** Number of times customer buys during the purchase cycle
- **Cost Per Acquisition:** (Cost of marketing and sales)/ number of new leads
- **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) OR Average revenue received from the customer per transaction during the cycle
- **Profit Margin Per Customer:** ((Average Sale - Average Cost of Sale) / Average Sale)

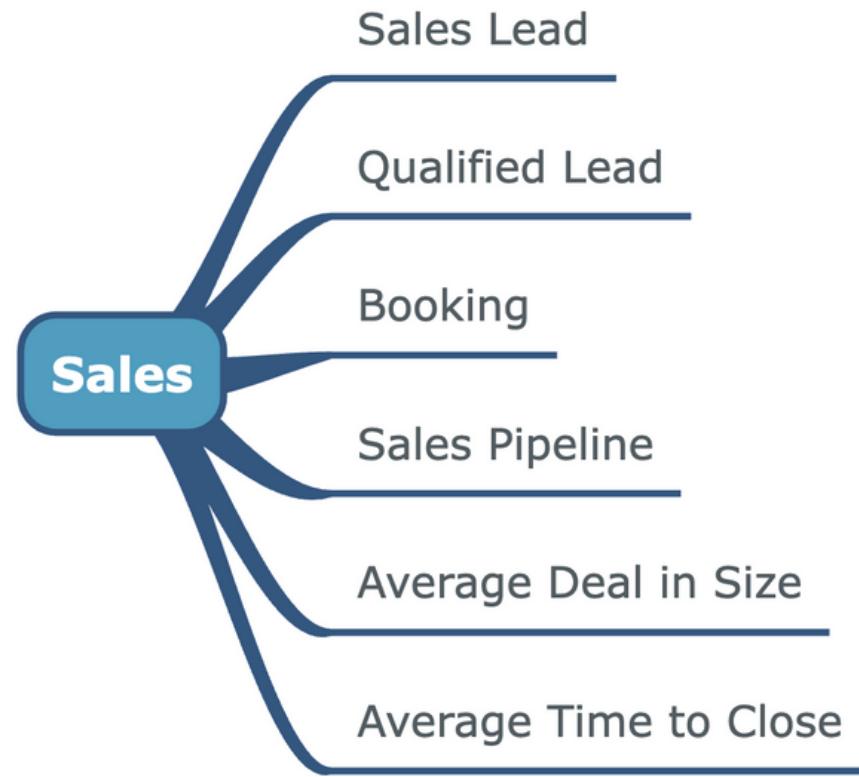
LIFETIME VALUE (LTV)



LTV is the predicted net revenue a business expects to generate from a customer over the entire duration of their relationship.

$$\text{Lifetime Value (LTV)} = \frac{\text{Average Sale} \cdot \text{Number of Repeat Sales} \cdot \text{Expected Retention Time}}{\text{Average Sale}}$$

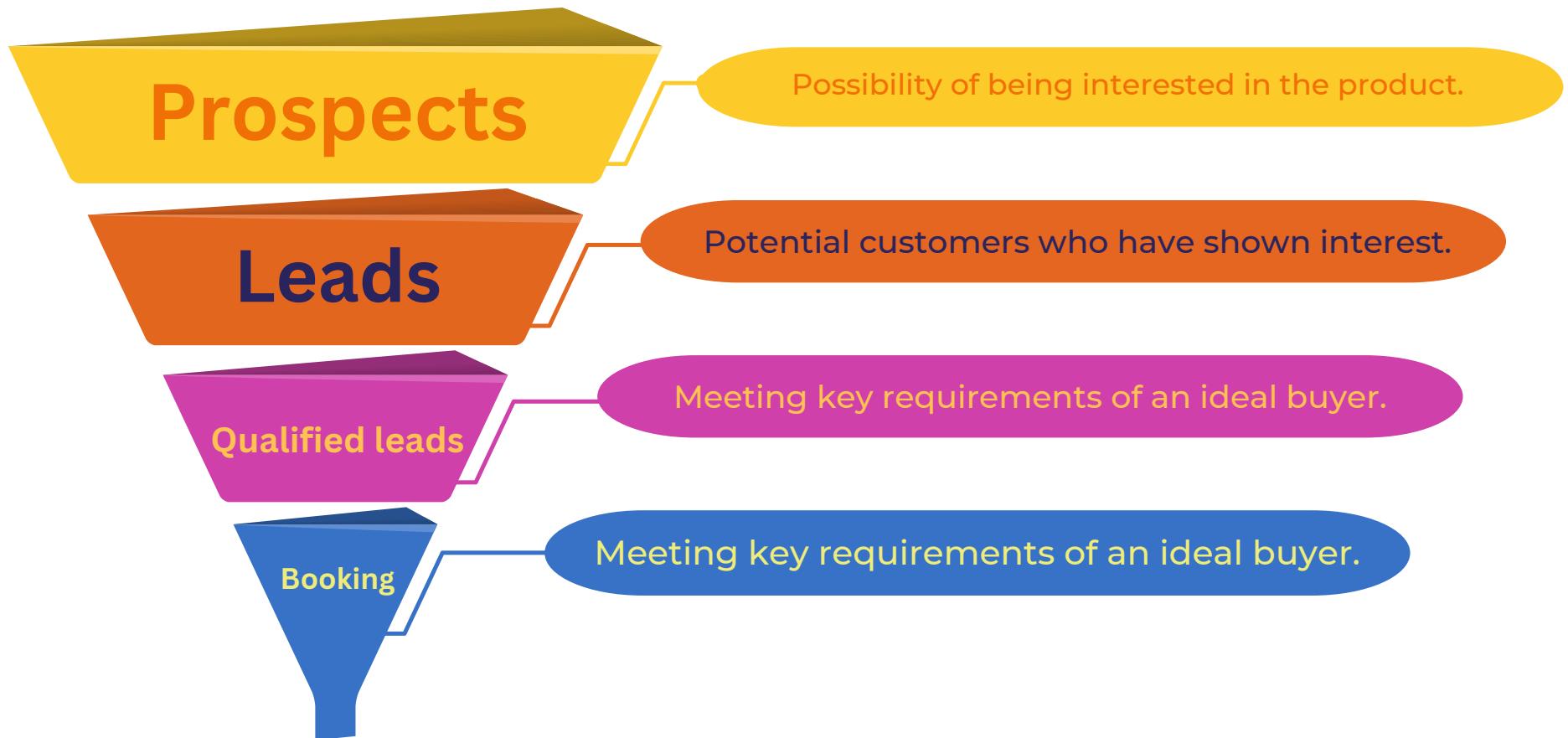
SALES



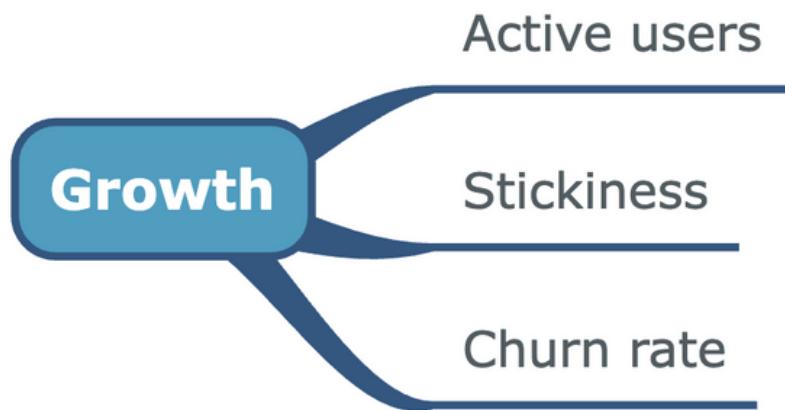
SALES FUNNEL

Levels

Metrics



GROWTH



GROWTH



Active users

Monthly Active Users: Number of unique active users in the previous month

Daily Active Users: Number of unique active users the previous day

Daily Active Users/ Monthly Active Users

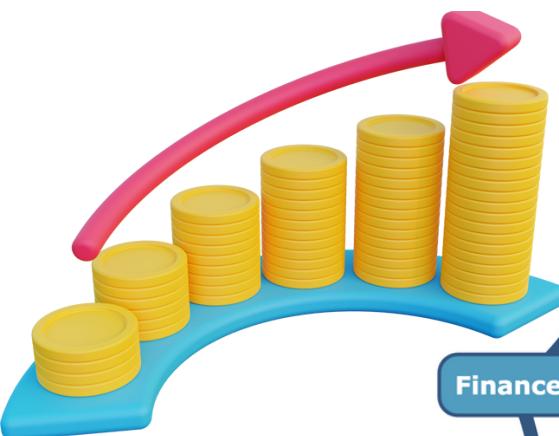


Stickiness

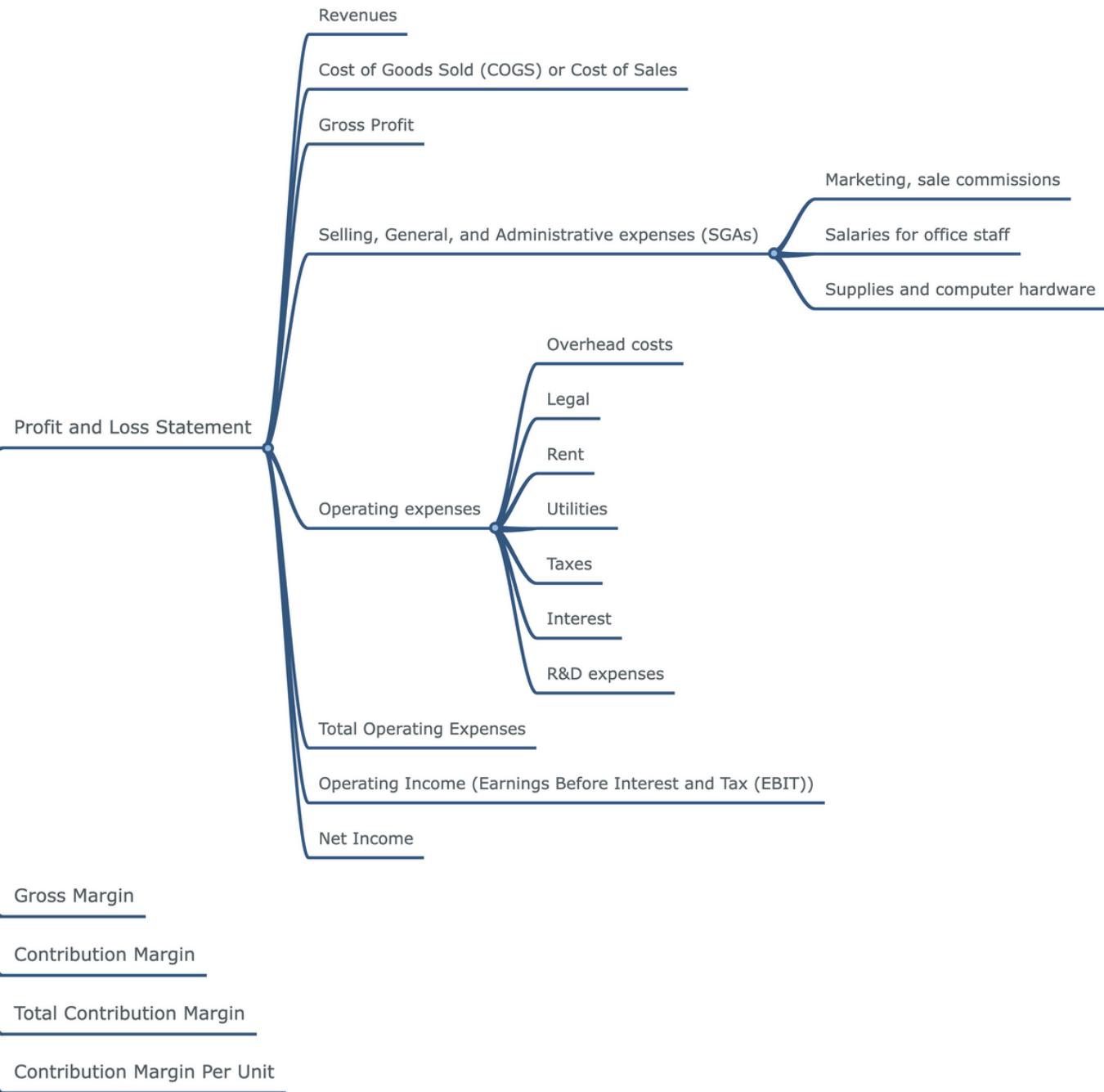


$$\text{Churn Rate} = \frac{(\text{Customers at start of usage interval} - \text{Customers at end of usage interval})}{\text{Customers at start of usage interval}}$$

FINANCE



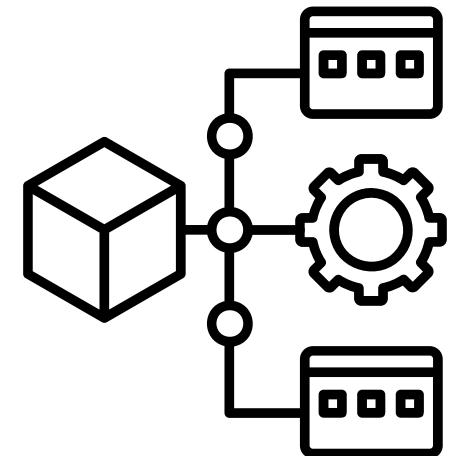
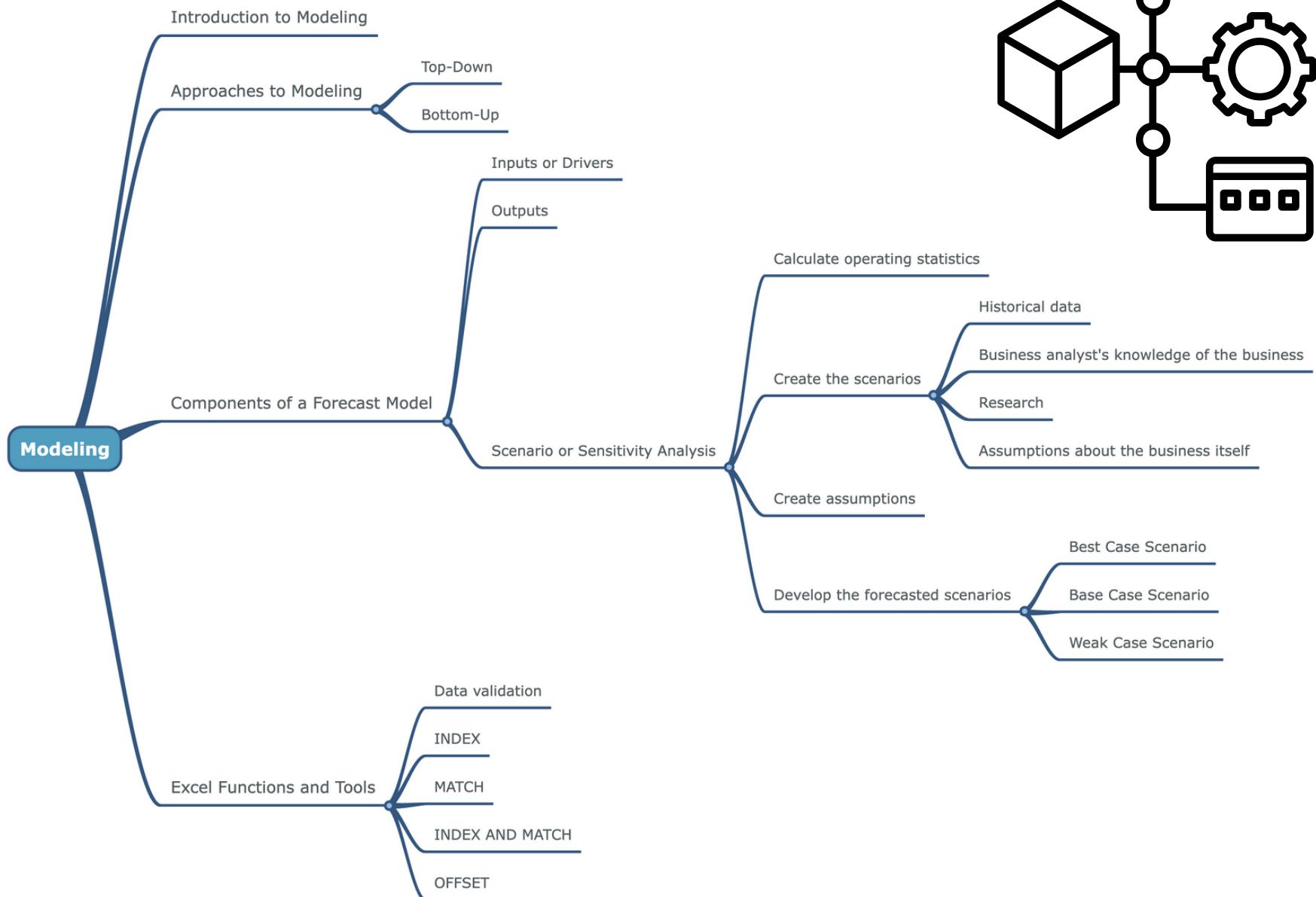
Finance



FINANCE METRICS

- **Revenue:** Money that a company makes from the sales of its products and services
- **Cost of Goods Sold (COGS) OR Cost of Sales:** Direct costs the company incurs to develop and build the product or service being sold
- **Gross Profit** = Revenue - Cost of Goods Sold
- **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 excludes research and development expenses.
- **Total Operating Expenses:** Expenses incurred outside of direct manufacturing costs
- **Operating Income/ Operating Profit/ EBIT** = Gross Profit - Total Operating Expenses
- **Net Income/ Net Profit** = Operating Income - (Interest expense + Tax expense)
- **Gross Margin** = $(\text{Total Sales Revenue} - \text{Cost of Goods Sold}) / \text{Total Sales Revenue}$
- **Total Contribution Margin** = Total Sales Revenue - Total Variable Cost
- **Contribution Margin Per Unit:** Total Contribution Margin / Number of Units Sold

MODELING



INTRODUCTION TO MODELING

Modeling refers to using certain inputs and using those inputs to predict how a business metric will perform. The time duration of your forecast will depend on the type of business and the business metric:

- Startups – usually forecast 6-12 months out
- Established companies – usually forecast out a few years
- Sales bookings – a few months out

APPROACHES TO MODELING

Top-Down Approach

Global Economy

Local Economy

Sector

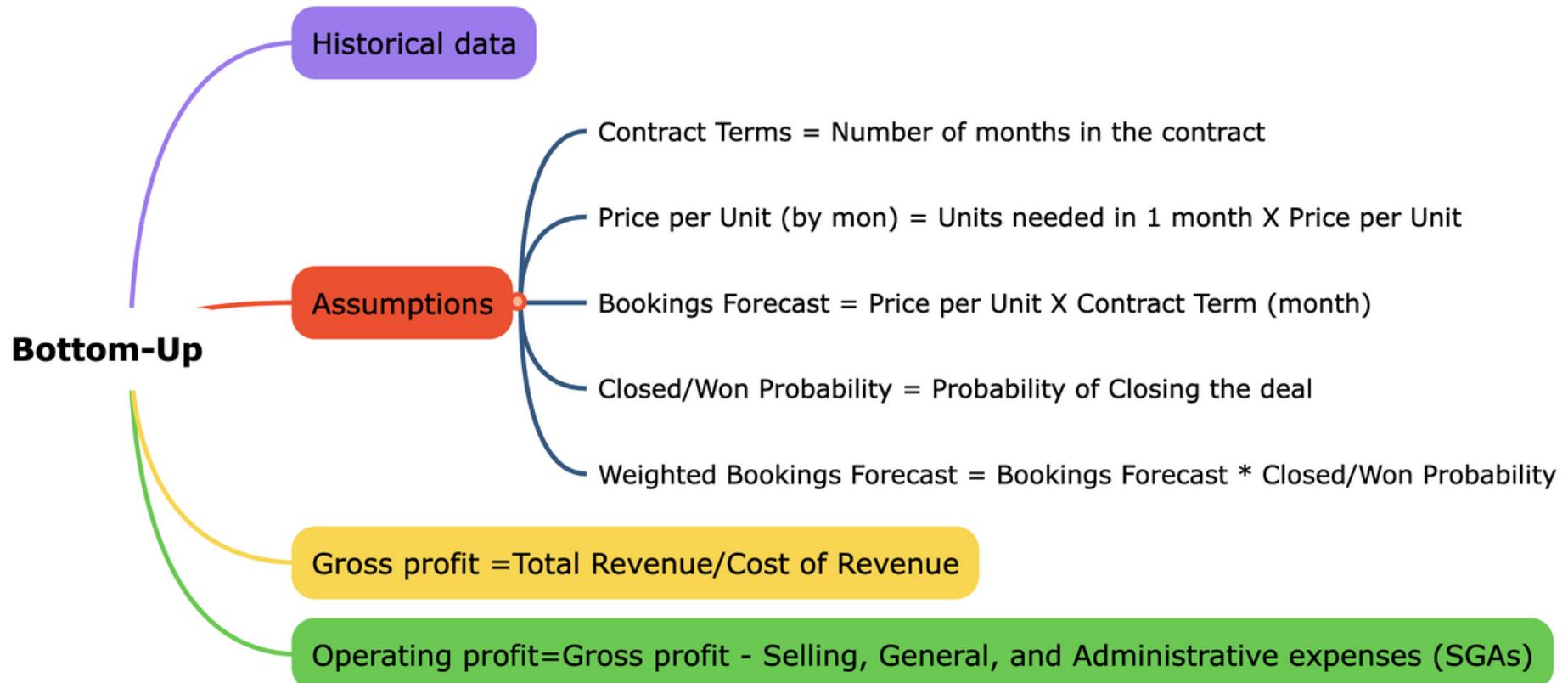
Industry

Business

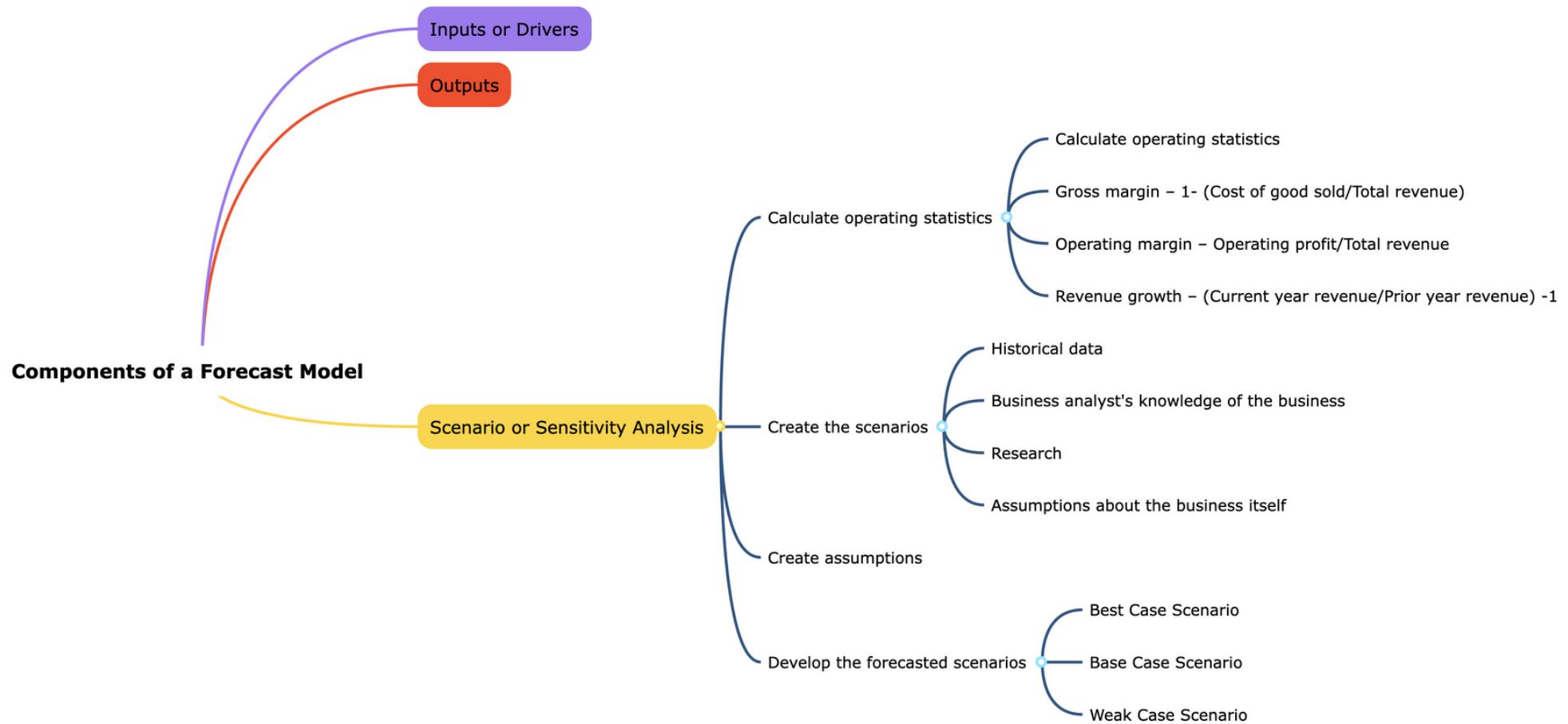
Assumptions & KPIs

- **Average price per unit** : the average price per unit or product for manufacturing.
- **Average units per opportunity** : the average number of units you can expect to sell per opportunity.
- **Average contracts month per opportunity** : the average length of time in months that sales contract can be for.
- **Average opportunity size**: the average booking size we expect this salesperson to create on an annual basis

APPROACHES TO MODELING



COMPONENTS OF A FORECAST MODEL



EXCEL FUNCTIONS AND TOOLS

Data validation

The screenshot shows a Microsoft Excel spreadsheet with the following data:

Salesperson	Department	Target (min=5 max=25)	Total Sales	Date	Initials (3 letters)
Adrian	B	10	500		
Ben	B	12	600		
Claire	C	8	400		
David	C	15	750		
Emily	C	6	300		
Frank	C	5	250		
Graham	C	2	100		
Henry	C	5	250		
Ingrid	B	7	350		

The total sales for all employees is 3,500.

The Data Validation dialog box is open, showing the following settings:

- Allow: List
- Source: =\$I\$3:\$I\$15
- Ignore blank
- In-cell dropdown

A red arrow points from the "Source" field in the dialog box to the range I3:I15 in the spreadsheet. Another red arrow points from the "List" dropdown in the dialog box to the "Approved List" column on the right, which contains the same names as the "Salesperson" column.

Red boxes highlight the "Salesperson" column (A3:A11), the "Approved List" column (I3:I15), and the "Data Tools" button in the ribbon.

EXCEL FUNCTIONS AND TOOLS

Data validation

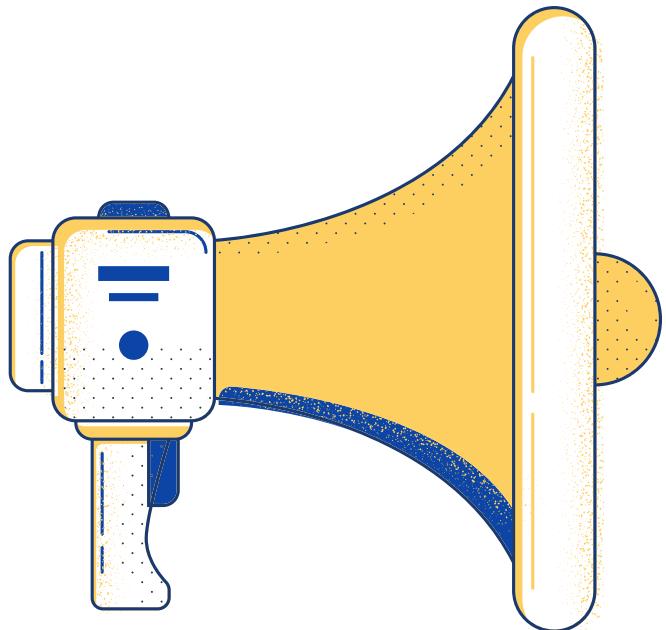
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Frank	C	5	250		
Graham	C	2	100		
Henry	C	5	250		
Ingrid	B	7	350		

The cell range A3:A11 is selected. A red arrow points from the Data tab in the ribbon to the Data Tools button in the Validation group. Another red arrow points from the Data Tools button to the "Approved List" column (L3:L11). A third red arrow points from the "Source" dropdown in the Data Validation dialog box to the "Approved List" column.

Data Validation Dialog Box (Visible in the foreground):

- Validation criteria:** Allow: List
- Data:** between
- Source:** = \$I\$3:\$I\$15
- Buttons:** Clear All, OK, Cancel



Q&A Session:
Let's explore and
understand
together

RESOURCES

- [Descriptive statistics](#)
- [Spreadsheets](#)
- [WeCart Business](#)
- [Excel Modeling](#)



Your presence today has added value
to our shared learning journey. Thank
you for joining us!