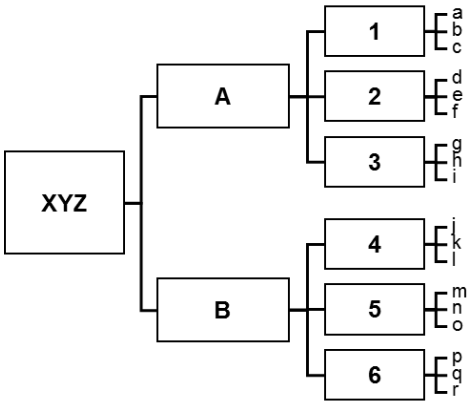
3. Additional Concepts & Frameworks

3.1. Decision Tree

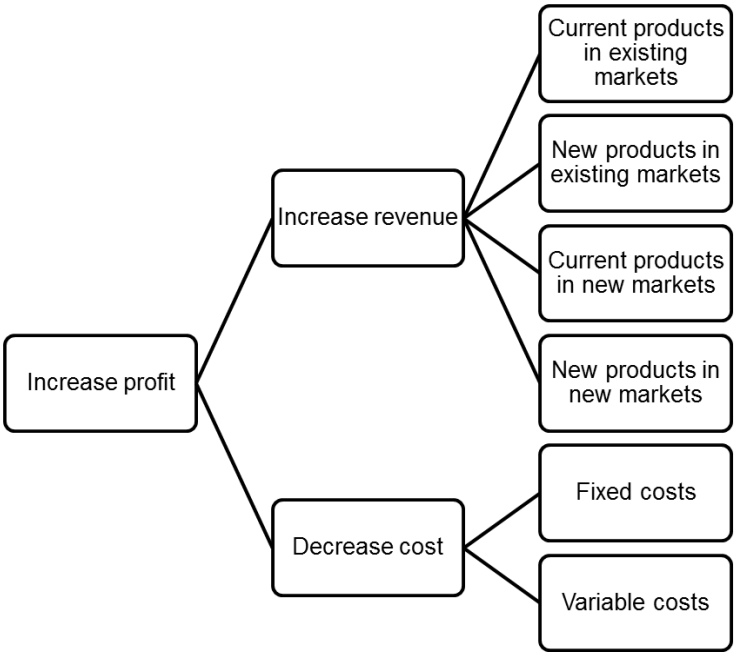
A decision tree is basically a graphical representation to illustrate every possible outcome of a decision. Each branch of this tree therefore shows a possible decision or a possible occurrence. When going from left to right, the decision tree shows how one choice leads to the next choice or occurrence.



When using this structure as decision tree, the probability for each decision can be added to each node of the tree. When multiplying all probabilities until the last branch, the probability of a specific path is shown.

However, apart from the classical use of the decision tree concept, a decision tree is often used more freely in consulting for structuring thoughts. McKinsey has coined the term “MECE” (mutually exclusive, collectively exhaustive) which also has its role in the context of decision trees. Being MECE means that on each level of the decision tree, all items together are completely describing the parent item (thus being collectively exhaustive), and at the same time all items of one level must not overlap (thus being mutually exclusive).

A simple example of applying the decision tree concept for structuring a question like “How can our client increase his profit” is shown in the picture below.



To increase profits, the client can either increase its revenue and/or decrease its cost. When looking at these two items, they are mutually exclusive (because they do not overlap) and at the same time collectively exhaustive (because those two options completely describe the parent issue – in order to increase profits, there are only those two options and not more).

When looking at the next level, the MECE concept still holds true. To increase revenue, the client can use the current products and new products in current and new markets – again those options are mutually exclusive as well as collectively exhaustive. For decreasing cost, he can either reduce fixed costs or variable costs – again being MECE.

Please note: As it is immensely difficult to remain MECE, and especially collectively exhaustive, you will often see a magical category “other issues” which makes the respective level of your decision tree collectively exhaustive in any case.

3.2. Top-Down vs. Bottom-Up

In general, top-down and bottom-up are strategies of processing and ordering information. In case interviews, these concepts are often used in conjunction with market sizing questions.

1) Top-down approach

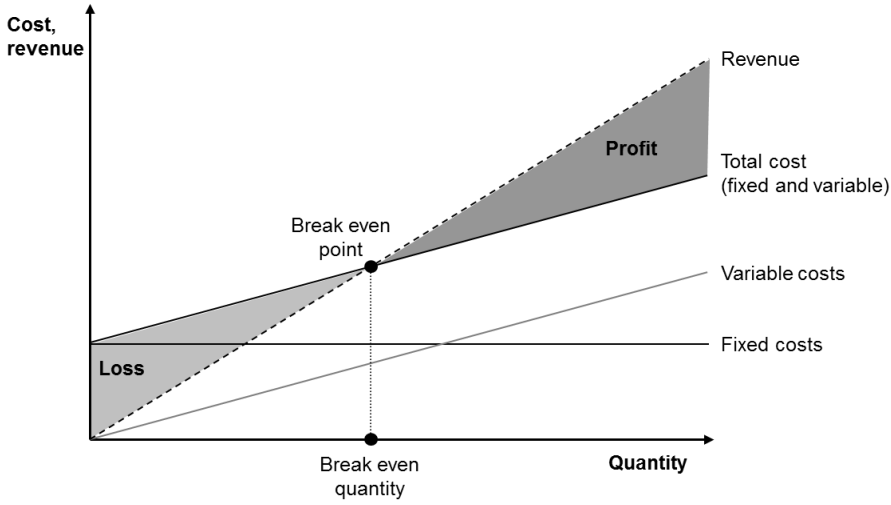
A top-down approach – as the name suggests – starts at the top and breaks items down into components and sub-components etc. For example, wanting to know the market size of red wooden widgets, the top-down approach starts with the overall widget market. In the next level, the overall widget market is broken down into its components, for example wooden widgets and plastic widgets. Again, the wooden widgets are broken down further into red, blue and yellow widgets in order to determine the market size of red widgets.

2) Bottom-up approach

As opposed to the top-down approach, the bottom-up approach starts at the bottom and puts together the single pieces adding up to the red wooden widgets market. For example, the bottom-up approach can start with the population of the respective geographic region, segmenting it into the number of users of wooden widgets, estimating the average number of red wooden widgets per person per time period, and multiplying this figure with the number of people and the average price for the red wooden widget, in order to determine the market size.

3.3. Break-Even Point

The break-even point refers to the intersection of the revenue and total cost curve. At this point, the company (or e.g. a specific product) is break-even, i.e. the revenue equals the total cost, and hence profitability is zero. If the quantity is above the break-even quantity, the company will earn profits; if the quantity is below, the company will make losses.

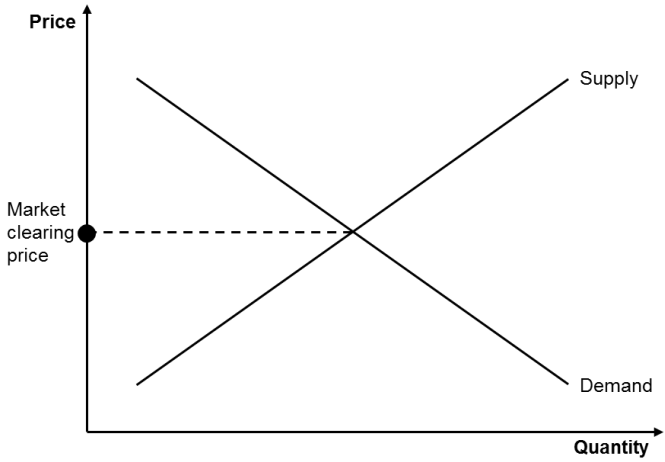


The break-even concept is related to the concept of fixed costs, variable costs and the contribution margin. As can be seen in the chart above, the revenue curve has a steeper upwards slope than the total cost curve, whereas the total costs consist of both variable costs and fixed costs. For the quantity below the break-even quantity, the contribution margin of the units sold is too small to cover the company's fixed costs; for the quantity above the break-even quantity the contribution margin of the units sold outweighs the fixed costs of the company.

3.4. Supply & Demand

The concept of supply and demand is one of the very basic economic concepts and should therefore be understood, even if the concept itself will be rarely discussed explicitly in a case interview.

The supply refers to which quantity the market is offering at which price, leading to the supply curve. At the same time, the demand refers to the quantity desired by buyers at which price, leading to the demand curve. The intersection of the supply and demand curve is also called the market equilibrium and shows the most efficient point where the supply of goods is the same as the demand, leading to the market clearing price. Or in other words, the price reflects both supply and demand.



1) Supply curve

Next, let's have a closer look at the supply curve. The curve shows which quantities will be offered by suppliers for which price, and it typically has an upward slope. This means that the higher the price, the higher is also the quantity which is supplied, because this means more revenue for the supplier (selling quantities for a higher price).

The supply curve depends on:

- Resource costs
- Technology
- Seller's expectations
- Prices of other products
- Number of sellers in the market

2) Demand curve

As opposed to the supply curve, the demand curve has a downward slope. This translates into the fact that the higher the price, the less buyers demand, and the lower the price, the more buyers demand. The higher the price for a specific good, the higher are also the buyer's opportunity costs, thus more buyers will avoid a high-priced product because when buying it they would not be able to consume something different which has more value for them.

The demand curve depends on:

- Buyer income
- Consumer preferences
- Expectations
- Prices of related products
- Number of buyers in the market

3.5. Market Types

The two generally known market types are

- **Competitive markets**: many buyers and sellers are competing, and no single buyer or seller can significantly influence the market prices
- **Monopolies**: in a pure monopoly, there is only one seller in the market and therefore has the power; depending on legislation a monopoly is being considered if one seller has a market share of 25% or more.

Apart from those two well-known market types, the following main types of markets exist:

- **Monopsony**: There is only a single buyer
- **Oligopoly**: There is only small, limited number of sellers
- **Oligopsony**: There is only a small, limited number of buyers
- **Monopolistic competition**: There are many buyers and sellers, market entry is not restricted, and the products are differentiated (and therefore not perfect substitutes)