CONSULTING CLUB
AT THE TEXAS MEDICAL CENTER

CASE GUIDE

2023 Edition

MEDCENTERCONSULTING.COM

PREFACE

The Consulting Club at the Texas Medical Center (CCTMC) is pleased to present the 2023 Case Guide. CCTMC is the joint graduate consulting club of 7+ institutions of the Texas Medical Center located in Houston, Texas - the largest medical center in the world. Our core member institutions include Baylor College of Medicine, Rice University, MD Anderson Cancer Center, and UT Health.

Breaking into consulting is especially challenging for advanced degree candidates who don't have the same business training as our MBA peers. Resources tailored to address the specific needs of PhD students seeking to break into consulting are lacking - thus, this case guide was conceived. This guide is authored by PhD candidates and graduates to serve as an outline of essential business concepts. We also encourage you to explore our additional resources and join our community at **medcenterconsulting.com.**

While we have made every effort to include the most important and high-yield content, it will not be possible to prepare you for every scenario you will encounter. Use the knowledge and tools included in this guide and apply them broadly to adapt to various circumstances. We wish you great luck and success in your journey. Finally, to students of other graduate programs that may be using this case guide as they prepare, we give you a warm Texas greeting, welcome to #TeamCCTMC!

This guide is not intended to be a comprehensive resource for case preparation, but created to provide a roadmap. We include resources we recommend and ways to get connected to our career development community. This guide includes best practices that you can refer to as you use additional case preparation materials, like case books.
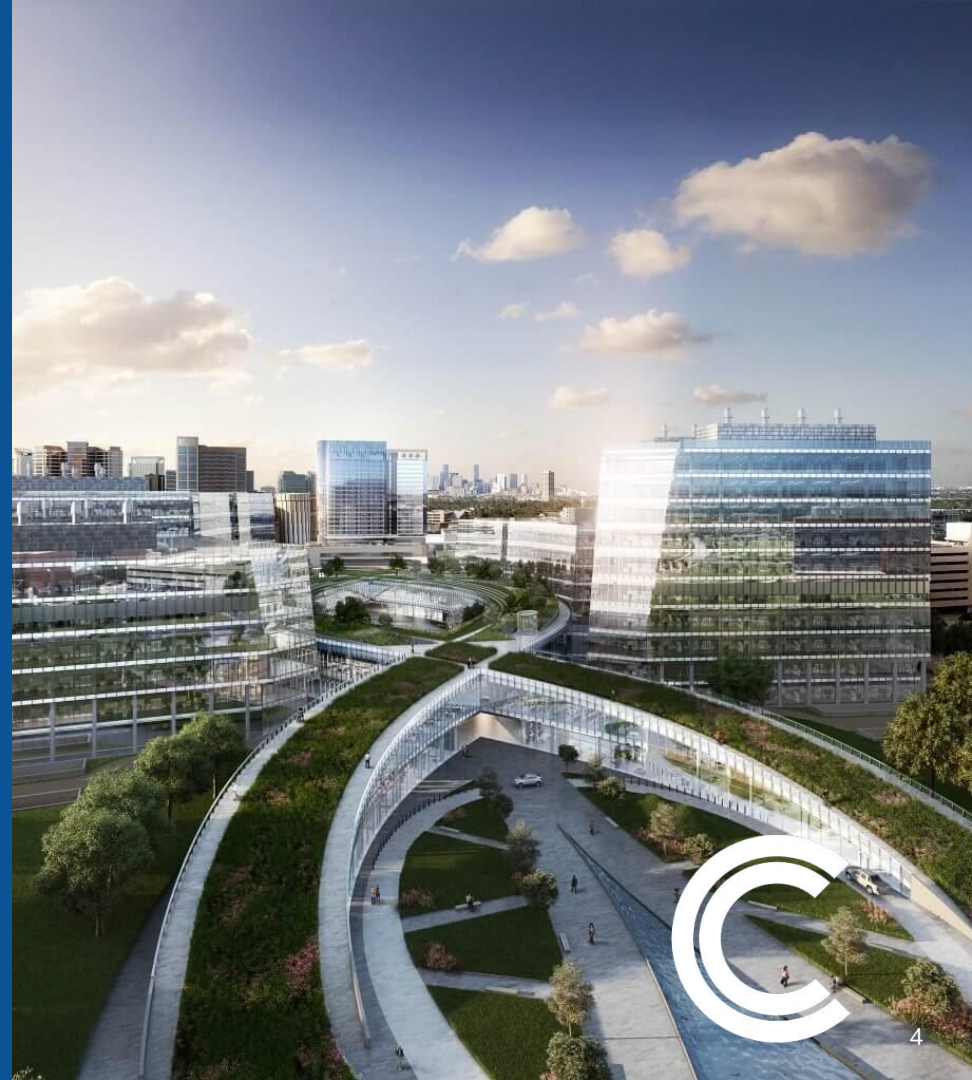
*For additional resources, we encourage you to explore our offerings available to all learners at **medcenterconsulting.com.***

OUTLINE

4

THE INTERVIEW

THE INTERVIEW: FIT AND CASE

3-5 minutes	10-15 minutes	2-3 minutes	3-5 minutes	5-10 minutes	3-5 minutes	2-3 minutes	5-10 minutes

Introduction **Fit Questions** **Prompt** **Framework** **Analysis** **Brainstorming** **Conclusion** **Q&A**

Prompt
Case overview and clarifying questions.

Framework
Develop and structure your framework, formulate hypothesis to solve the case.

Analysis
Ask probing questions and receive data that either support or reject your hypothesis.

Brainstorming
Conceptualize risks, alternative steps, or other considerations.
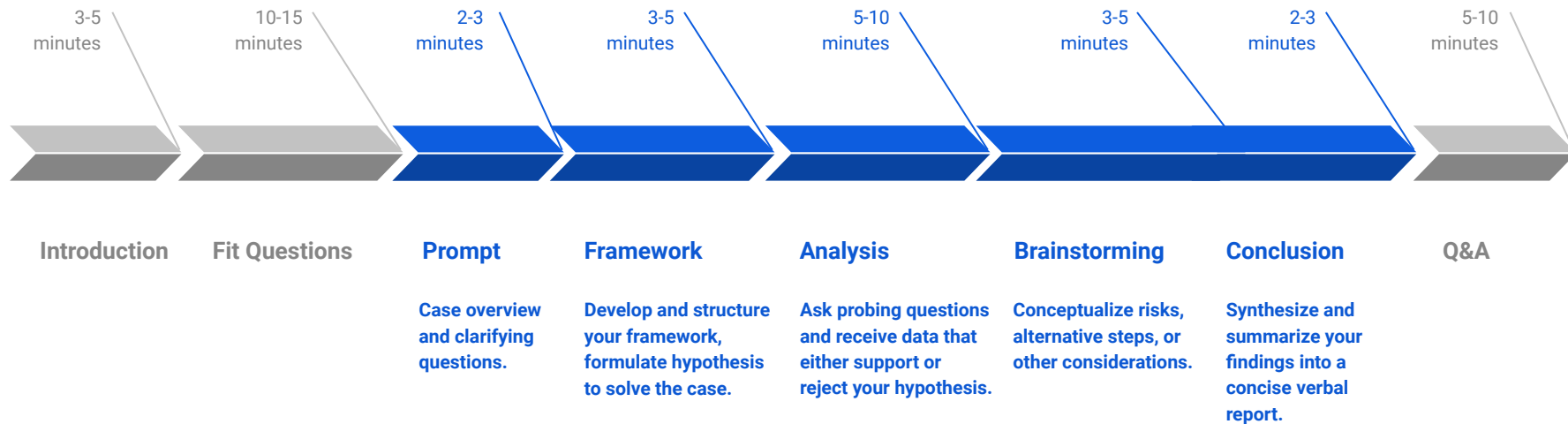
Conclusion
Synthesize and summarize your findings into a concise verbal report.

* The order of fit and case interview may vary. Some firms may prefer to conduct the fit portion of the interview after the case portion of the interview.

FIT INTERVIEW

While each consulting firm may structure the order of the fit and case portions of the interview differently, you will certainly be asked questions about your experiences, motivation, and commitment. Here are some questions that you should be prepared to answer:

1. **Tell me about yourself**
2. **Why are you interested in consulting/life science consulting/our firm?**
3. **What experience are you most proud of?**
4. **What experience do you wish you could do over, and how would you do it differently?**
5. **What is a difficult decision you've made in the last year?**
6. **What is an example of a time when you showed initiative and leadership?**
7. **Describe a role where you changed the direction of a team. How did you do it?**
8. **Describe a time you set up credibility**
9. **Tell me about a time when you had to convince someone to your way of thinking**
10. **Tell me about a time you had to deal with ambiguity in the workplace**

FIT INTERVIEW

Question list continued:

11. **What aspects of your internship did you especially enjoy?**
12. **What aspects of your internship did you like less?**
13. **What do you most like to do in your free time?**
14. **What attributes would you bring to a case team?**
15. **Tell me about a time you have received a tough piece of feedback. How did you respond?**
16. **Tell me about a time you worked with a difficult team member and how you resolved it**
17. **Tell me about a time that you've had to lead a diverse team**
18. **What are your strengths? What are your weaknesses?**
19. **Walk me through your resume**
20. **Tell me something that is not on your resume**

FIT INTERVIEW

The above questions are not an exhaustive list of possible fit interview scenarios (in fact, such a list would be impossible to compile). In addition to specific questions, remember to think about general themes that fit interviews may cover, such as:

1. **Motivation** for joining the specific firm you are interviewing with, the specific office, or the industry in general: E.g., *What do you want to get out of a consulting experience?*
2. **Leadership** and **teamwork** experiences: E.g., *Tell me about a time that you've had to lead a diverse team. / Tell me about a time when you had to work with a difficult client or team member.*
3. **Challenging** experiences (e.g., failure, conflict, ambiguity, negotiation): E.g., *Tell me about a time you failed and what you learned. / Tell me about a time that you had to convince someone senior. / Tell me about a time you had to deal with ambiguity in the workplace.*
4. Experiences driving **results** (e.g., with creativity or using data): E.g., *Tell me about a time you solved a problem with a creative solution / made a decision using data or analytical problem-solving.*
5. **Your resume:** E.g., *What is on it? What is* not *on it?*
6. **Your personality** or **goals:** E.g., *What would your former supervisors say you do well? / What do you consider to be your greatest accomplishment? / Where do you see yourself in 5 years?*

FIT INTERVIEW

Responding to case interview questions should be structured and concise, and the fit interview is no different. A commonly used approach to answering questions is **A-STAR**.

A: ANSWER the question directly. Always employ an answer-first mindset!

S: Describe the **SITUATION**

T: What was the **TASK** or goal, was there tension or an obstacle you had to overcome?

A: What was the **ACTION** to achieve your goal or resolve your tension?

R: What was the overall **RESULT** and what did you learn from this?

Your responses should be structured, short, and to the point. The answer-first should be a one-sentence tagline. You do not want to go over 2 or 3 minutes in these responses or else you risk losing the attention of your interviewer. Once you respond, they will be able to dig deeper if they hear something that peaks their interest. Be prepared to tell your stories from different angles!

FIT INTERVIEW

Finally, it is not uncommon that the interviewer asks if you have any questions for them towards the end of the interview. Be prepared to ask the interviewer informed questions. For example, ask your interviewer about their experiences at the company - e.g., their favorite project, their experience in the office that you are applying to, or other aspects of the company that you care about (strength of mentorship, team bonding activities, etc.).

Note: Do not ask about something that easily could have been answered by reading the company's website.

CASE INTERVIEW: PREPARATION

What is a case interview? A live problem-solving interview usually involving a business strategy problem.

We can break preparation down into a few phases:
1. Know what a good case interview looks like! Watch solved cases and note the characteristics and components of a strong performer.
2. Finding the right material: using relevant and top quality practice material will be essential to your preparation. We recommend:
   a. Case Coach
   b. Peter K
   c. Business School Case Books (Duke, UVA Darden, Northwestern Kellogg)
      ■ Note: For life science & healthcare cases, the 2014 YGCC Life Sciences Case Book is a great resource. It also contains a list of "Additional Life Sciences Cases" at the end.
3. Self-practice: walk through solving a case on your own. Complete structuring, chart interpretation, and numeracy drills to improve your individual skills.
4. Practice with partners: find quality case partners who will give you detailed feedback. Once you improve at this level, find current consultants at the firm and office you are interested in for mock interviews.

CASE INTERVIEW:CORE COMPETENCIES

There are four core competencies you need to refine and demonstrate during case interviews. These are learnable skills that, with practice, can be improved.

1. **Structuring:** the case, and responses should be clearly structured and communicated.
2. **Numeracy:** demonstrate your mastery with numbers and ease with calculations, without a calculator.
3. **Brainstorming**: be able to create a list of structured ideas quickly to demonstrate business acumen and creativity.
4. **Interpretation and insights:** be able to make meaningful interpretations from the presented data and draw insights when presented with new information to drive your recommendations.

Refine these skills as you practice and make sure to integrate all these competencies seamlessly as you solve the case. Drive the case at every step, make sure your responses are structured, demonstrate ease with numbers, and make meaningful interpretations while drawing new information back to answering your key questions.

CASE INTERVIEW:CORE COMPETENCIES

Within the core competencies, consultants will evaluate you in 5 key areas. Our training in science has helped us hone a hypothesis driven and evidence-based mindset - apply this to solving cases. Demonstrate your logic through structuring, ask probing questions, and synthesize complex concepts into distilled responses. You use these skills everyday in science, apply them to casing!

1. **Client-first mindset:** Is your framework targeted, specific, and unique to the client at hand? The client should always be at the top of your mind. How do new data impact the client?
2. **Structure:** Did you set up clear, simple, and memorable structures? Did you understand the question and address the problem? Did you ask the clarifying questions you needed?
3. **Drive and inquiry:** Were you in the driver's seat? That is, did you ask probing follow-up questions based on new information provided? Did you continue to adjust your hypothesis or suggest new directions along the way? Did you continue to incorporate information back to solving the problem?
4. **Business acumen:** Did you demonstrate that you have basic business knowledge? Did you share your understanding of business concepts, risks, and concerns throughout the case?
5. **Synthesize:** Did you have a succinct, clear response and recommendation backed by answers? Is your conclusion evidence-based?

PROMPT

The prompt will give you a broad and often ambiguous overview of the problem. There are two things to take note of here: what **industry** does the problem take place in and what **type** of a problem is it. These key things will help inform your insights and allow you to better tailor your response to directly address the question at hand. You need to ask clarifying questions to further understand the scope of the work. Once you have a better understanding of what the client needs help with, you will be better prepared to structure a framework that directly addresses these needs.

Common industries: Oil/gas, consumer packaged goods (CPG), manufacturing, financial services, healthcare, private equity investments, pharmaceuticals, airlines, media, technology, government, and nonprofit.

Common problem types: profitability, market entry, market sizing, growth, acquisition/sale, industry assessment.

PROMPT

DO: **ASK CLARIFYING QUESTIONS**
- **Define objective:** What is the client's core goal? What is the metric of success?
- **Context on products:** What is the product offering?
- **Business model:** How does the client make money? Do they sell B2B or B2C?
- **Time frame:** What is the expected time horizon for return?
- **Capabilities:** Are there restrictions and limitations of investment?
- **Geography:** What is the geographic location?

DON'T: **ASK SPECIFIC QUESTIONS RELATED TO FRAMEWORK**
- What are the profitability drivers?
- What is the size of the market?

A strong sign that you should move on and stop asking clarifying questions is if the interview continues to respond to your questions with:
- We don't know at this time
- We'll see later on

FRAMEWORKS

Once you you've received your prompt and asked the necessary clarifying questions, you should have a better understanding of the problem at hand. You will then need to break down this problem into areas that, once answered, will be able to help you drive the case towards a recommendation. These should be structured into mutually exclusive and collectively exhaustive (MECE) areas.

This sounds obvious, but make sure you framework **directly answers the question**. If you received the answers or more information about XYZ, will this allow you to solve the case?

Outlined in this section are basic do's and don'ts, two general overarching concepts that can be commonly applied to multiple business scenarios, and 12 major types of frameworks. These 12 frameworks will help you solve the highest yield scenarios but **do not memorize them**. All frameworks should be unique to the business and the problem, use these as a guide to set up your own.
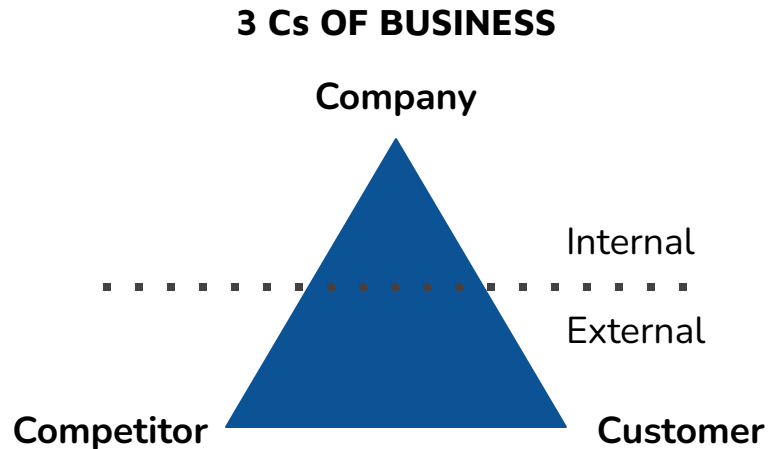
FRAMEWORKS

DO: DEFINE, STRUCTURE, AND MECE
- Have the key question as the central driver of the framework and identify key drivers that will help answer this question.
- Break down the question into component parts that are MECE: mutually exclusive and collectively exhaustive.
- Structure into key categories and prioritize the ones that are most important.
- Apply concepts to make it unique and tailored to the case.

DON'T:
- Use stock frameworks, instead adapt your framework to the problem.
- Have overlapping categories, instead make sure they are MECE.
- Have branches that don't actually answer the question. Instead, do a quick test: *If I had more data here, would it help me make a decision about the central case question?*

PROMPT | FRAMEWORKS | ANALYSIS | BRAINSTORMING | CONCLUSION

FRAMEWORKS: USEFUL CONCEPTS

3 Cs OF BUSINESS

Company

Internal

External

Competitor   **Customer**

COMPANY: Internal factors that impact a company. *What are the capabilities of our company? Capital capabilities?*

COMPETITOR: An external factor encompassing competing companies. *What is competitors' product offering? Are there alternatives to our product?*

CUSTOMER: An external factor encompassing what the market wants. *What are market trends?*

FRAMEWORKS: USEFUL CONCEPTS

PROCESS FRAMEWORKS: These are common questions that surround the production of a product that is ultimately consumed or purchased by a customer.

1. The first thing you want to do is map out the process from beginning to end. From conception, production, delivery, to consumption by the customer.
2. Look at each step and think:
   a. Eliminate
   b. Reduce costs
   c. Increase speed
   d. Increase quality
   e. Anticipate need.
3. Once you have done this, you can go back and eliminate or improve on certain steps when you receive more information.

FRAMEWORKS: COMMON STRUCTURES

DECLINING PROFITABILITY - Root Cause Analysis

1. Segment the profit to narrow down the problem
   a. Per store, pre product, per divisions, et.
2. Analyze revenue drivers
   a. Volume
      - External
        - Market/industry
        - Competitor
        - Customer
      - Internal
        - Product
        - Distribution channel
        - Marketing
   b. Price
      - Suboptimal product mix?
3. Analyze cost drivers
   a. Variable
   b. Fixed

GROWING A BUSINESS

1. Current: Grow core business
   a. Within current segments
      i. Acquire
      ii. Retain
      iii. Increase spend per customer
   b. Fastest growing segment
      i. Geography
      ii. Customer types
2. New: Grow outside core business
   a. Sell new products to existing customers
   b. New business

FRAMEWORKS: COMMON STRUCTURES

REDUCING COSTS

1. Need: Reduce the need
   a. Eliminate need
   b. Reduce service level
2. Less: Use less resources
   a. less waste
   b. Improve productivity
3. Costs: Reduce cost of resources
   a. Find cheaper alternatives
   b. Renegotiate costs

MARKET ENTRY

1. Market: attractiveness:
   a. Market size
   b. Market growth
   c. Market trends
   d. Average profit margin
   e. Regulations
   f. Barriers to entry
2. Competitive landscape:
   a. Competitor strength and concentration (fragmented/consolidated)
   b. Customer needs
   c. Market share
3. Profit: what is the potential earning
   a. Our offerings
   b. Investment
   c. Running costs
   d. Revenue
4. Capabilities and risk
   a. Access to distribution channel
   b. Ability to capture market share (differentiate with current competitors)

FRAMEWORKS: COMMON STRUCTURES

PRODUCT LAUNCH

1. Target segments
   a. Size /growth
   b. Competition
   c. Customer needs
2. Marketing Strategy: (4ps)
   a. Define product mix
   b. Pricing
   c. Place (distribution)
   d. Promotion
3. Financial considerations
   a. Revenue
   b. Cost
   c. Upfront investment
   d. Profit/payback

PRODUCT PRICING

1. Cost-based Pricing
   a. Variable
   b. Fixed
   c. Investment costs
2. Benchmarking (Competitor-based Pricing)
   a. Competitors or substitutes
3. Value-based Pricing
   a. Customer willingness to pay
   b. Customer needs / Survey
   c. Customer price sensitivity
   d. Value provided to customers *(e.g. increased life expectancy)*

FRAMEWORKS: COMMON STRUCTURES

CONSIDERING AN INVESTMENT

1. Revenue: Impact on revenue
2. Cost: Impact on costs
3. ROI, Breakeven
4. Implementation:
   a. Risks?
   b. Capabilities? *(e.g., operational - setup and maintenance, distribution channels, suppliers)*

BUSINESS ACQUISITION

1. Market attractiveness
2. Target company: Standalone value
   a. Future revenue
   b. Future costs
   c. Profit/NPV
   d. Valuation multiples/acquisition cost
3. Synergies
   a. Revenue growth
   b. Cost reduction
4. Capabilities and risks
   a. Funds
   b. Company culture/language barrier

THREAT OF COMPETITION

1. Impact: on our business
   a. Segment affected
   b. Estimated loss
2. Opportunity: pursued by competition
   a. Size
   b. Profitability
3. Possible responses
   a. Do nothing
   b. Mitigate
   c. Align
   d. Replicate
   e. Collaborate

FRAMEWORKS: COMMON STRUCTURES

ORGANIZATIONAL TRANSFORMATION

1. People: Integration of human resources
   a. Culture
   b. Expertise
2. Process: Integration of structure
   a. Leadership
   b. Tech
   c. Compensation
3. Business: synergies?

LIFE SCIENCE MARKET ANALYSIS
(See also Life Science Cases *section of this guide)*

1. Market: Size of addressable market
   a. Prevalence of disease
   b. Disease segmentation
   c. Diagnosis rate
   d. Penetration/adoption: treatment rate
   e. Dose schedule
2. Competitive Landscape
   a. Competitors
   b. Share of market
3. Company/Drug
   a. Profit
      i. Revenue: (treatment schedule and dose x price)
      ii. Cost: per dose, R&D
   b. Regulatory process or clinical trial approval
   c. Capabilities of company or efficacy of drug
   d. Risk

FRAMEWORKS: COMMON STRUCTURES

PRIVATE EQUITY

1. Attractiveness of market
   a. Market size, growth, profitability
   b. Competitive profile per segment
   c. Barriers to entry
   d. Key trends that shape the market
2. Strength of target company
   a. Performance relative to market players
   b. Health of customer relationships
   c. Product base and pipelines
   d. Strength of the management team
   e. Fit with portfolio
3. Feasibility of exit prospects
   a. Purchase price
   b. Potential to increase value in short-term
   c. Probabilities and values of various exit pathways
      - Strategic buyers
      - Financial buyers
      - IPO

ANALYSIS: NUMERACY

Numeracy is more than just getting the numbers correctly and quickly. The best practice is to:

1. **Structure your math**: walk your interviewers through your steps before plugging in specific numbers, communicate key numbers with interviewer to get a sense of whether you are on the right track.
2. **Identify insights from your numbers:** so what? what does it mean for the client (any abnormality, whether client's goal is reached, what are the risks, etc.)?

Practicing quick mental math will be key to succeeding through numeracy. You need to focus your brain power, and time, on the case, insights and strategy.

For example, there will be many times when fractions and percents are involved in your calculations. Thus, it will be good to memorize various mental math tricks so you don't waste any precious time. Once you are comfortable with commonly found fractions, you can quickly solve the rest of the problem. You are not expected to keep complex decimals and can round.

Included in this section are just a few tips and tricks. Each person will start a different level of proficiency in their mental math ability, and refreshing on some basics will go a long way here.

ANALYSIS: FRACTIONS TO DECIMALS

Fractions, decimals, and percentages are very frequently used in cases. It will be well worth it to memorize these basic and high yield numbers. Once you are familiar with these basic ones, you can simplify more complex ones into these core numbers.

For example:

1/15 can be broken up into

⅓ x ⅕ which is = .333 x .20

= .066 or 6.6%

Fraction	= Percent	= Decimal
1/2	= 50%	= .5
1/3	= 33.33%	= .33
1/4	= 25%	= .25
1/5	= 20%	= .20
1/6	= 16.67%	= .1667
1/7	= 14.29%	= .1429
1/8	= 12.5%	= .125
1/9	= 11.11%	= .11

ANALYSIS: DIVIDING BY DECIMALS

A common equation is determining the value of an investment. This requires two numbers, solving for profit, and determining the discount rate. For example, if profit is $70 million, and discount rate is 20% you will set up the equation like so:

Investment Value = $70 M / .20

Shortcut to dividing by decimals:

Dividing by decimals can be quite easy, if you know this simple trick. Simply move the decimal to the right in both the numerator and denominator until your decimals are whole numbers, and then divide! In our example:

Value = $70 M/.20

Value = $700 M/2

Value = $350 M

ANALYSIS: MARKET SIZING

Market sizing are often ambiguous and nebulous questions that can feel overwhelming. Where do you even start?
The questions can range widely. Some examples include:

- How many people have peanut allergies in the United States?
- What is the coffin market size in Germany?
- How many school buses in the United States will adopt a new GPS technology?
- What is the market size for cable TV in semi-urban Taiwan?

These types of problems require practice and familiarity. You want to lay out your structure first, typically starting from a top-down approach with overall population, and then start filtering out members of the population in a methodical way. The interviewer may be able to provide key data points for you, but you may have to also make a reasonable estimate based on your own best judgement.

ANALYSIS: MARKET SIZING

At the end of your market sizing, it is important to "sanity check" your answer - i.e., make sure your number seems reasonable. Consider and talk through the following:

1. Which of the assumptions that you made is most likely to be wrong?
2. What is subject to change?
3. Benchmark your answer against something known. For example, the size of another market or a population size.
   a. If you cannot think of a number to compare against, you can say what you would like to compare against - e.g., the size of another market (another similar product or the same product in a different geography)

Lastly, as with all numeracy questions and analysis, comment on the implications of the numbers that you arrived to. Market sizing is often only one part of your case, so do not forget to contextualize how your analysis here ties back to the rest of your case.

ANALYSIS: COMMON MARKET SIZING

Life Sciences and Healthcare

Top down:

1. Total population
2. # with illness
3. Number diagnosed
4. Market share of drug
5. Dosage per time frame **x** price per dosage
6. Market size per time frame

Technology and Information Technology

Top down:

1. Total population
2. Number of users
3. Market share
4. # units per users
5. Price per unit

ANALYSIS: COMMON MARKET SIZING

Additional factors to consider:

- ❏ Replacement rate or purchasing frequency:
    - ❏ For Durable goods: Durability of the product (replacement rate)
    - ❏ For Non-durable goods or CPG: Purchasing frequency
- ❏ Growth rate of the market or of the population
- ❏ If segmenting population by <u>age</u>: in most cases, you can assume life expectancy of ~80 yrs and an equal distribution across all ages. For example:
    - ❏ Number of 4 year-old and younger children in the US: 4 years x 1/80 years x 320M = 20M
    - ❏ Number of in the US births per year: 1 x 1/80 x 320M = 4M/year
- ❏ Households: usually, you can assume 2 people / household
- ❏ Ability to pay (for luxury products)
- ❏ Awareness of the product/problem

ANALYSIS: COMMON EQUATIONS

- **Revenue:** The total amount of money generated by a business and is a factor of the number of units you sell and how much each unit costs.
  - **Revenue = (volume of units sold) x (price per unit)**
- **Profit:** The money a company takes in after accounting for cost of a product. It is a formula derived from (revenue - costs). Remember, the cost of producing a product is also known as direct costs, which is also known as variable costs.
  - **Profit = revenue - costs**
  - This is derived from: Profit = (volume x product price - variable costs or cost of producing the product) - fixed costs
- **Profit margin:** The % of the price of a product that you will keep as profit when you account for cost.
  - **Profit margin = profit / revenue**
  - This is derived from = (revenue - cost of goods and services) / revenue
- **Break even point:** This allows you to determine typically how many units or products you have to sell to breakeven on your fixed costs. You will need to know the fixed costs, and the profit per unit or contribution per unit.
  - **Break even point = fixed costs or cost of investment / contribution per unit**
  - For example, if the fixed costs of running a small tech company is $5M, the product they sell is $600 each, and the cost of the product is $400 per product. Then your formula is:
  - Break even point = $5,000,000 / ($600 - $400) = $5,000,000 / ($200) = 25,000 units must be sold to recover the $5M.

ANALYSIS: COMMON EQUATIONS

- **Payback period:** This is the amount of time it would take you to reach break even point on the initial investment cost. That is, the amount of time it takes to recover the cost of an initial investment.
  - **Payback period = (initial investment cost / profit per period)**
  - Example: if the initial investment is $1M and the project profit is $200K per year, the payback period will be = $1M/200k per year = 5 years
- **Return on investment:** The factor by which your investment is multiplied over the period you're interested in.
  - **Return on investment (ROI) = (profit of entire period) / initial investment cost**
- **Net Present Value (NPV):** This is a metric used to calculate the total value of any future income, payments, or an investment. If the NPV is positive, it means the investment is attractive.
  - **NPV* = (profit / discount rate) - investment or upfront costs**
  - *assumptions: profit remains the same throughout the period and expected life of investment is in perpetuity
- **Value of an investment**: If you would like to calculate the value of an investment, you need to determine the profit over the period of time and discount rate over the same period of time. You'll notice that this formula is the same as part of the NPV formula.
  - **Value of investment = (profit / discount rate)**

ANALYSIS: COMMON EQUATIONS

- **Depreciation:** A given asset may decrease in value over a given period. This must be factored when calculating total costs.
    - **Depreciation for given period = (value lost) / (time period)**
    - For example, if a car is valued at $100,000 and you want to calculate the cost of depreciation over four years. You need to find out the "scrap value" of the car after your period, four years. If the scrap value is $0, then $100,000/4 = $25,000. Thus, depreciation will cost you $25,000 per year.
    - However, if the scrap value is $20,000. Then $100,000 - $20,000 = $80,000 value lost. Then you can calculate the yearly cost of depreciation: $80,000/4 = $20,000 annually.

- **Rule of 72:** A simplified investment formula commonly used to determine the years it will take to double an investment given the annual rate of return.
    - **Years to double = 72 / (interest rate or rate of return for an investment)**
    - For example, if you want to determine how long it will take for revenue to double for a company whose revenue is growing at a rate of 4% annually you can apply the rule of 72.
    - Years to double = (72/4) = 18 years.

ANALYSIS: COMMON EQUATIONS

- **Replacement rate:** Often a consideration in market sizing, if market sizing for a good that is regularly replaced / non-durable. You can multiply market size by the replacement rate to get the total no. of products bought in one year.
    - **Replacement rate of a product = 1 / average lifetime of the product**

- **Market share:** Can be used to calculate the % a company claims out of the total addressable market.
    - **Market share = (total sales of company / total sales of market) x 100**

BRAINSTORMING

You will often be asked to come up with some ideas for a certain consideration to test you on your creativity. Sometimes, your interviewers will push you to your boundaries by continuing to ask "And what else?", to see how many novel ideas you can generate. Even when they ask a broad question, you must structure your response. Everything in the case must be structured, even if it doesn't seem this way. If someone is asking for a list of potential risks, alternatives, or options - structure it. It's often easiest to group ideas into at least two distinct MECE categories like:

- Financial vs non-financial
- Internal vs external
- Long term vs short term
- Steps in a supply/value chain
- Stakeholders: impact to each.

BRAINSTORMING: COMMON CONSIDERATIONS

Risks and Challenges (FOMO)

1. Financial
   a. Revenue (Vol. x Price)
      i. Cannibalization
   b. Cost (Dir. vs Ind.)
      i. CapEx: startup costs
2. Organizational
   a. Core competency/expertise
   b. Organizational complexity
   c. Scalability
   d. Quality control
3. Market Outlook
   a. Change in customer desire
   b. Consolidation
   c. New entrants
   d. Competitive response
   e. Risk of substitutes

Revenue Growth (MSG)

1. Market (4Ps)
   a. Product: better value proposition, introduce new products
   b. Price: optimize pricing (lower/higher)
   c. Place: better distribution channel
   d. Promotion: better marketing
2. Segments
   a. B2B vs B2C
   b. Behavioral: frequency, bargain
   c. Demographic: Age, Gender, Race
   d. Socioeconomic: income/education
   e. Family: married or single
3. Geography
   a. Increase presence in existing regions
   b. Expand to new regions
   c. New countries
   d. Franchise or license

Investment Comparisons*

1. Financial
   a. Revenue (Vol. x Price)
   b. Costs (Dir. vs Ind.), CapEx
   c. Investment considerations: ROI, NPV, breakeven, *etc.*
2. Strategic / Capabilities
   a. Timeline to implement
   b. Synergies
   c. Customer alignment
   d. Expertise
   e. Strategic value: new geographies, new segments
3. Risks
   a. Financial, e.g., cannibalization
   b. Organizational
   c. Market Outlook

*FOMO structure may also be adapted for this.

BRAINSTORMING: COMMON CONSIDERATIONS

Positive Synergies
1. Financial
   a. Revenue (function of volume x price)
      i. Product: Value proposition
      ii. Price
         - Bundle options
         - Pricing power (greater market share)
      iii. Place: Distribution channels
         - Geographical footprint
      iv. Promotion (marketing/sale)
   b. Cost
      i. Negotiation power with raw material sources
      ii. Shared distribution channels (economies of scale)
      iii. Shared overhead cost
      iv. Shared marketing/promotion campaigns
      v. Share technology advancements/R&D
2. Non-financial
   a. Organizational
      i. HR
      ii. Capabilities
      iii. Financing
      iv. Bigger brand
      v. Better risk tolerance

Negative Synergies
1. Financial
   a. Increased costs due to redundancy
2. Non-financial
   1. Brand dilution
   2. Cannibalization
   3. Cultural clash
   4. Anti-trust laws

CONCLUSION

You made it to the end! Hopefully by now, you've looked at some data, brainstormed various considerations and can now make a recommendation for your client. There are usually two types of cases here:

1. **Binary:** The decision is binary where you need to decide yes or no
2. **Ambiguous:** You are comparing various options and need to make your best judgement where there is no clear right or wrong answer. Make a decision based on your best judgement with the client's best interests in mind.

CONCLUSION

A case will most often conclude with something along the lines of… "You run into the CEO in the elevator and they are eagerly awaiting some updates, what do you say?". Keep in mind, as you present to a senior executive, they don't have time to hear all the little details - get to the point. Unlike in scientific presentations where you build your case, show the data, and then discuss your findings, in business it's the opposite. Use an **answer-first approach**. Tell us what you found, and then shortly outline your supporting points. It is reasonable to take 15-30 seconds to collect your thoughts but you will get better and quicker at this, with practice. Obviously, your conclusions must be structured and outlined. Structure it like this:

1. **Objective:** Quickly re-state the major problem, question, or objective
2. **Answer:** What is your answer to this problem? And you are recommending this for X reasons.
3. **Findings:** Outline the major findings of your core reasons.
4. **Risks:** What are the risks that the company should keep in mind?
5. **Future directions:** What do you suggest they immediately do next? If given more time, what would you want to look at more closely?

CONCLUSION

Examples of risk and future directions considerations:

Risks:
1. Supply (the company) vs demand (customers) side:
    - Supply: **financial risks** *(e.g., cannibalization, lack of funding, high investment cost, unfavorable ROI, unfavorable typical or expected profitability, competitive response, taxes or fees)*; **non-financial risks** *(e.g., operational challenges, long timelines, cultural challenges/fit, management capabilities)*
    - Demand *(e.g., customer trends/needs/paying power/willingness to pay that may influence customer behavior such as adoption rate or customer churn)*
2. External: *e.g., government / other regulations*

Future directions:
1. Analyze:
    a. Financial factors *(e.g., scope of future revenue, build a financial model to test a solution that you recommended)*
    b. Operational considerations *(e.g., does client have all the resources to proceed, what is the plan for integration)*
    c. Competition *(e.g., check if XYZ is a threat, benchmark with competitors, is there a dominant player that will make it difficult to win share, how will client differentiate from competitors)*
2. Develop a risk mitigation plan or an implementation plan *(e.g., client's go-to-market or product launch strategy, patent client's product / process)*
3. Address any pain points

LIFE SCIENCE & HEALTHCARE CASES

FRAMEWORK

Market
1. Size*
   - Prevalence
   - Diagnosis rate
   - Treatment rate
   - Adoption rate
   - Penetration rate
2. Patient / disease segmentation
3. Trend in market size
4. Patient & physician preferences: the effect of price/efficacy/convenience/size/side effects
5. Competitors
   - Existing:
     - Standard of care
     - FDA-approved drugs
     - Alternative treatments/management drugs
   - Future: Current drugs in development pipeline
6. Regulations & chances for FDA approval

For market sizing, you must also know the drug dosage, frequency, and price.

FRAMEWORK (cont.)

Finances: Profit / payback for R&D
- **Factors that influence revenue**
  - Pricing/insurance coverage
    - Different stakeholders' willingness to pay: providers', payers', and patients'
  - Marketing
- **Factors that influence cost**
  - Cost/dose factors:
    - Raw material costs
    - Supply chain costs: e.g., storage (*does it need to be frozen?*), distribution, sales, packaging, and labor costs
  - Clinical trial costs

Risks
- Regulatory: FDA and foreign laws and regulations
- Competition
- Capability and implementation, time to market

Possible commercialization routes
(optional, only for relevant cases)
- In house
- Partnership
- Licensing
- Selling IP

FRAMEWORK

Additional buckets for **life science acquisition** cases

Client capabilities
- Experience with acquiring biotech companies
- Experience in the disease / field of study
- R&D

Intangible acquisition considerations
- Brand name
- Patent
- Expertise

BRAINSTORMING

THE FOUR P'S OF HEALTHCARE

In life science or healthcare cases, you will often be asked to think of a few ideas that may affect the adoption, penetration, or success of a particular treatment. As always, you should structure your recommendation. The 4 P's of healthcare can serve as a powerful framework and guide your considerations that highlight the four major stakeholders.

1. **Patients**: How does the new drug effect patients? Side effects? Tolerability? Convenience?
   ○ Patient awareness: Are patients educated/aware of treatment option? Can we target patient advocacy groups to increase education?
   ○ Patient interest: Do patients want treatment, e.g., if disease severity is low?
2. **Providers**: What do healthcare providers think of this new drug compared to standard of care? Efficacy?
3. **Payers**: Will health insurance companies pay for this new treatment?
4. **Players** (Competitors): What is the current standard of care? What are competing treatment options? What are alternative or substitute therapies?

CONCLUSION

Structure for final recommendation in life science cases

1. **State the answer**
2. **Give your reasons**
3. **Possible risks** *(pick 2 most relevant risks)*
   a. Ability to obtain regulatory approval, clinical trial failure
   b. Competitive response
   c. Physician adoption rate
   d. Changes in standard of care, or the launching of other drugs
4. **Next steps**
   a. Increase marketing for physicians/patients (e.g., working with patient advocate groups)
   b. Maintain market awareness
   c. Explore global market or other at-risk populations
   d. Commercialization route (i.e., in-house, partnership or licensing, selling IP or the company)
   e. Acquisition logistics
      i. Corporate culture fit
      ii. Management adjustment
      iii. Financing the deal
   f. Perform price sensitivity analysis
   g. Lower the costs
   h. Examine risk of competitors' drugs (e.g., can look at patents to assess future risk)

Additional clarifying questions and considerations

1. **The product / drug**
   - Method of administration (topical/oral/IV/IP/subderm)
   - Number of doses needed
   - Frequency of administration (treatment schedule)
   - Side effects
   - Is the drug a cure, preventative, or a treatment?
   - Onset of action
   - Biologic variability
   - Regulatory stage
   - Is the drug is the 1st of its kind (first-in-class)? Best in class?

2. **The disease**
   - Symptoms
   - Severity
   - Age of onset
   - Prevalence
   - Risk factors
   - Most easily infected population/disease segmentation

If a <u>med device</u>: Is it disposable / how long is its life cycle? Will insurance cover it?

If a <u>diagnostic</u>: What is its accuracy?

LIFE SCIENCE & HEALTHCARE CASES

Additional clarifying questions and considerations

3. **Competitors**
   - Standard of care
   - Similar drugs
   - Substitutes
   - Are the competitors' drugs cures, preventatives, or treatments?

4. **Company** *(usually not relevant unless it's a commercialization case)*
   - Capabilities (capital and operational)
     e.g., manufacturing infrastructure, experience

BUSINESS BASICS

COMMON TERMS

- **EBITDA:** Earnings Before Interest, Taxes, Depreciation, and Amortization. This is a common financial metric to look at a company's overall performance. *In lay terms, EBITDA refers to earnings or profits before accounting for all the other stuff.*
- **CAGR:** Compound Annual Growth Rate. This is the rate at which you can expect a given investment to grow or decrease annually.
- **Top line (revenue):** colloquially refers to the top line of an income statement, which would be the total revenue. If a company wishes to increase their top line, they would like to increase total revenue or sales, which can be through increasing price or increasing volume of goods and services.
    - **Bottom line (profit):** colloquially refers to the bottom line of an income statement, which would be the revenue of the company less expenses giving you the profit. If a company wishes to increase the bottom line, they can increase revenue or decrease costs.
- **Direct/Variable costs:** Cost of producing a good or service like materials, labor, manufacturing supplies, wages for production staff/direct labor, etc. Direct costs are also known as **variable costs** because they are expenses that vary based on production volume.
- **Indirect/Fixed costs:** These are general and extraneous expenses such as facility fees, utilities, equipment depreciation, insurance, legal fees, accounting fees, employee health insurance and vacation/sick leave, etc. Indirect costs are also known as **fixed costs** because no matter how much you scale up, there is no discount for volume.

COMMON TERMS

- **Value Chain:** Each step that a company will apply to a product or service adding value to it along the way. This is the full range of activities needed to create a product or service. These are broken down into 5 key considerations. To provide context, we will consider McDonalds (McDs) as a case example in each step.
  - **1. Inbound logistics:** receiving, warehouse, inventory management.
    - Ex: raw supplies, ingredients, packaging.
  - **2. Operational:** procuring raw materials.
    - Ex: McDs operates as a franchise with central corporate support.
  - **3. Outbound logistics:** distribution channels.
    - Ex: Instead of a sit-down restaurant, McDs focuses on counter service, takeout, and drive through.
  - **4. Marketing and sales:** advertising, promotions, pricing.
    - Ex: McDs promotes through social media, sponsorships of major events, and others
  - **5. Service:** customer service, repair, maintenance, refunds.
    - Ex: strives to achieve high-quality customer service and rigorous employee training.

COMMON TERMS

- **Barriers to entry:** Encompass potential difficulties specific to a market that make it difficult for new players to enter. For example, high fixed costs or investment / setup costs, high customer switching costs (due to customer loyalty to existing brands), government or other regulations, *etc*. This is typically considered in **market entry** cases.

Additional terms to learn about

While the following terms are outside of the current scope of this guide, you may find it helpful to familiarize yourself with them as you practice:

- **Go-to-market strategy**
- **Franchising**
- **Licensing**
- **Joint venture**
- **Product mix**
- **Service level**
- **Turnover rate**
- **Value proposition**
- **Cannibalization**

- **Brand dilution**
- **Insourcing** and **Outsourcing**
- **Economies of scale**
- **Synergies**
- **Market saturation**
- **Consolidated** vs. **Fragmented market**
- **Price sensitivity** and **Price elasticity**
- **Shelf space**
- **Customer churn**

CONTRIBUTORS

Oscar Truong | Author & Senior Editor
PhD Program in Molecular Virology and Microbiology, Baylor College of Medicine
Incoming Consultant at Bain & Company - Houston, TX

Carlo Cristobal | Editor
PhD Program in Integrative and Biomedical Sciences, Baylor College of Medicine
Consultant at Boston Consulting Group - Washington, D.C.

Lauren Cheng | Editor
PhD Program in Bioengineering, Rice University
Consultant at Boston Consulting Group - Dallas, TX

MEDCENTERCONSULTING.COM

CONTRIBUTORS

Xinye Qian | 2023 Edition Editor
PhD Program in Biochemistry and Molecular Biology, Baylor College of Medicine
Incoming Consultant at Charles River Associates - San Francisco, CA

Cheryl Jiang | 2023 Edition Editor
PhD Program in Cancer Immunotherapy, MD Anderson Cancer Center UTHealth GSBS
Incoming Consultant at Boston Consulting Group - Houston, TX

Matea Paveskovic | 2023 Edition Editor
PhD Program in Neuroscience, Baylor College of Medicine
Incoming Consultant at Bain & Company - Houston, TX

MEDCENTERCONSULTING.COM