

Case Interviews: An Overview



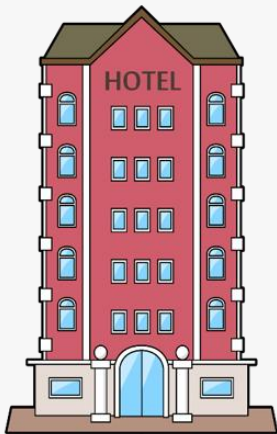
Agenda

Overview

- Case Strategies

What is a case interview?

A case interview is an interactive problem-solving exercise where your interviewer will present you with a business challenge, such as...



How profitable was a hotel chain's branch remodel?



Should a restaurant chain offer a promotion on their sandwiches?



What's the impact of launching a new credit card?

Why do companies use case interviews?

Case interviews help illustrate the necessary skills to thrive in client situations

1. The interview can evaluate your full 'skill-set'

- The interview is an opportunity to demonstrate your business intuition, numerical abilities, and analytical mindset

2. Candidates can demonstrate confidence and composure under pressure

- Clients need to trust your answers as you deliver recommendations and think on your feet

3. Mastercard can showcase our work

- Many of Mastercard's cases are based on real business problems that we help our clients navigate

Generally, there are three main types of case interviews

Strategy

Recommend how a company should act given a scenario

Market Sizing

Estimate the demand for a particular product or service

Brainteasers

Solve an abstract puzzle

At Mastercard, many of the cases will be focused on **business strategy**:
Given a certain business problem, what is our recommendation?

What exactly are interviewers looking for?

When interviewing, keep in mind that there are several characteristics you want to demonstrate:

1. Problem Solving

- Can you easily structure a problem to work towards an answer?
- Can you draw insights from everyday information?
- Are you comfortable with numbers and calculations?

2. Communication & Impact

- Can you clearly articulate a complicated concept?
- Are you composed in situations where you don't know the right answer?
- Can you absorb information and guidance from your interviewer?

3. Professionalism & Drive

- Are you able to maintain a positive and confident attitude?
- Can you articulate that you're motivated, and can drive to results?

What's the structure of the interview?

While this is a general guideline, keep in mind that every interviewer's case may follow a different structure!

Before your interview

- Bring paper & pencil
- Bring a copy of your most recent resume
- Dress in business attire
- Research the company



Getting to know you

- Show your personality
- Articulate your interest in consulting and Mastercard



The Case

You'll know it when you see it!



Company Q&A

- Your chance to learn about the company (it should be a two way street)
- Be sure to leverage this opportunity!

Case in Point – Helpful, but not a Silver Bullet

Case in Point by Consentino is regarded by many as the de facto case prep book. While it's not a prerequisite by any means, it can be a helpful starting point, especially for candidates not already familiar with case interview formats.



While some of the material doesn't align with Mastercard's approach for tackling cases, the following chapters may be helpful to become familiar with the general format and etiquette:

Chapter 3: Case Questions

- Provides a helpful introduction to cases
- Note that we often avoid market sizing, brain teasers, and group cases

Chapter 4: The Ivy Case System:

- The Ivy Case system emphasizes economic and industry trends, while we often focus on the company itself
- Common types of Mastercard cases:
 - Entering a new market
 - New Product
 - Pricing Strategies
 - Competitive response
 - Increasing Sales
 - Reducing Costs
 - Increasing Profits

Chapter 5: Practice cases

- Practice is important, but don't go crazy!
- Mastercard cases will be quantitative, so make sure you can handle that component of the practice cases



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● **Case Strategies**

● **General guidelines**

- Profit calculations
- Incrementality

What does a case look like?

This is a very general guideline of a case's structure – your interviewer may have something different in mind!

Case Intro

- The interviewer will give a broad summary of the case
- Gather information to drive towards an answer to the key business question



Business Question #1

- Using the information you have, get to a quantitative answer
- This will be the bulk of the interview, where your quantitative and communication skills will be tested



Considering Other Factors

- Your interviewer may provide additional information to drive you towards a more nuanced answer
- You may also be asked to think about broadening the scope of your investigations



Final Recommendation

- Time's up!
- Concisely and clearly summarize your final recommendations
- Leave your interviewer with a clear answer to the business question and next steps

Up-front questions for your interviewer

Ask clarifying questions up front, so that you will have all the information necessary to solve the case.

- Understand what the initiative or event you are analyzing is
- Clarify what type of answer you must provide
 - Are you providing a recommendation? A dollar value? A breakeven quantity?
- Determine the *impacted* sources of revenues and costs, and ensure that your list is exhaustive
- Confirm the baseline you should compare result to (see the Incrementality Mentality section)
- If necessary, establish the timeframe for analysis, particularly if there are high additional fixed costs

Planning the Case

Before you dive in to solving your interviewer's problem, take some time to plan your approach

1

- Make sure you know exactly what problem you're trying to solve

2

- Ask for the info you think you will need to solve the problem.
 - Interviewers might give you information only if you ask for it
 - Make sure you know how you would use anything you ask about

3








- Write down how you plan to solve the case
- An equation or a grid/chart might be helpful!

4

- Walk your interviewer through your plan, and see if they have any pushback

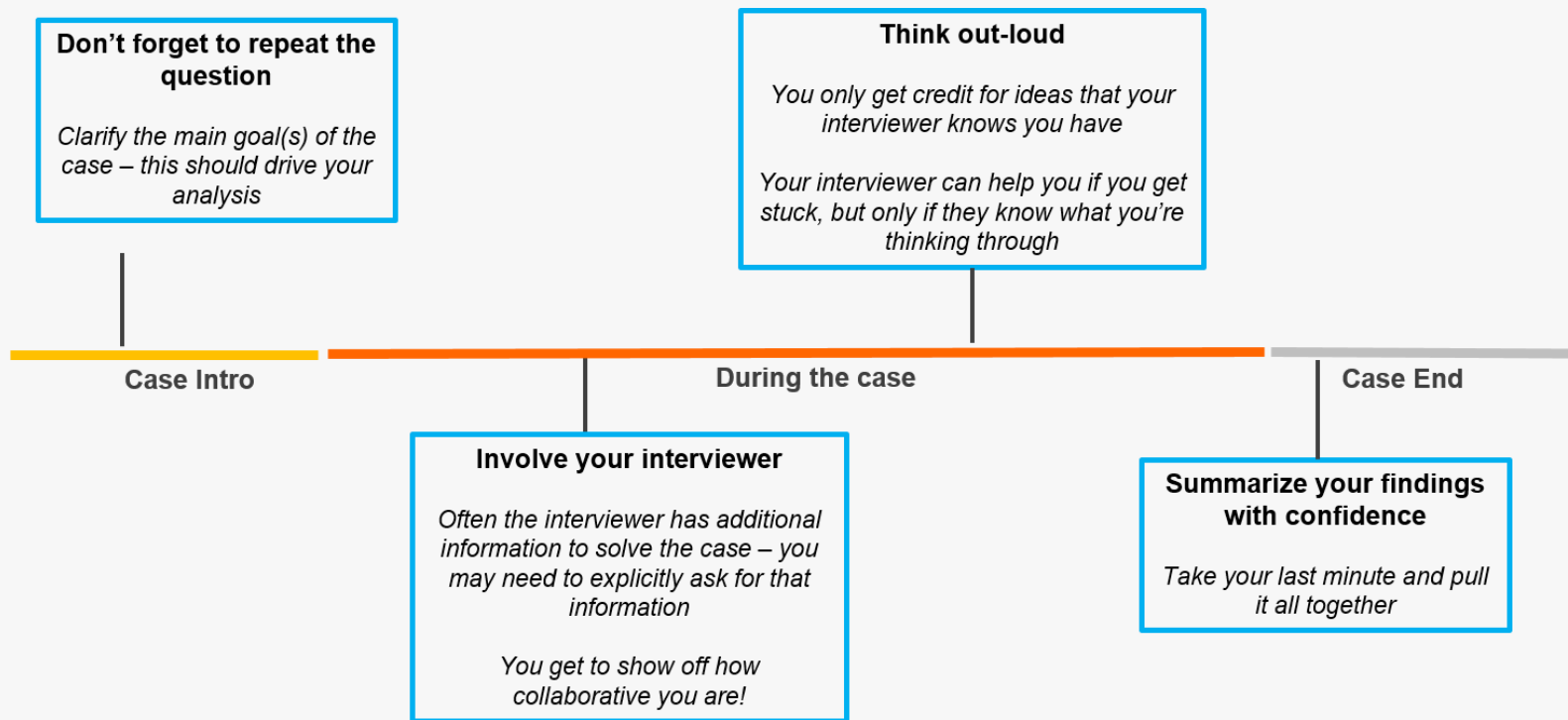
Taking notes during the case

Your notepad is your friend!
Use it to track the following items:

-  The overarching question / goal
-  Clarifying questions and the corresponding answers
-  Any equations you lay out to solve the case
-  Math and calculations (don't forget units!)
-  Any charts or tables to organize information
-  Hypotheses for qualitative questions you receive
-  For in-person cases, use your notepad to convey your approach, and help your interviewer track your math. Making sure they are engaged and following along is essential

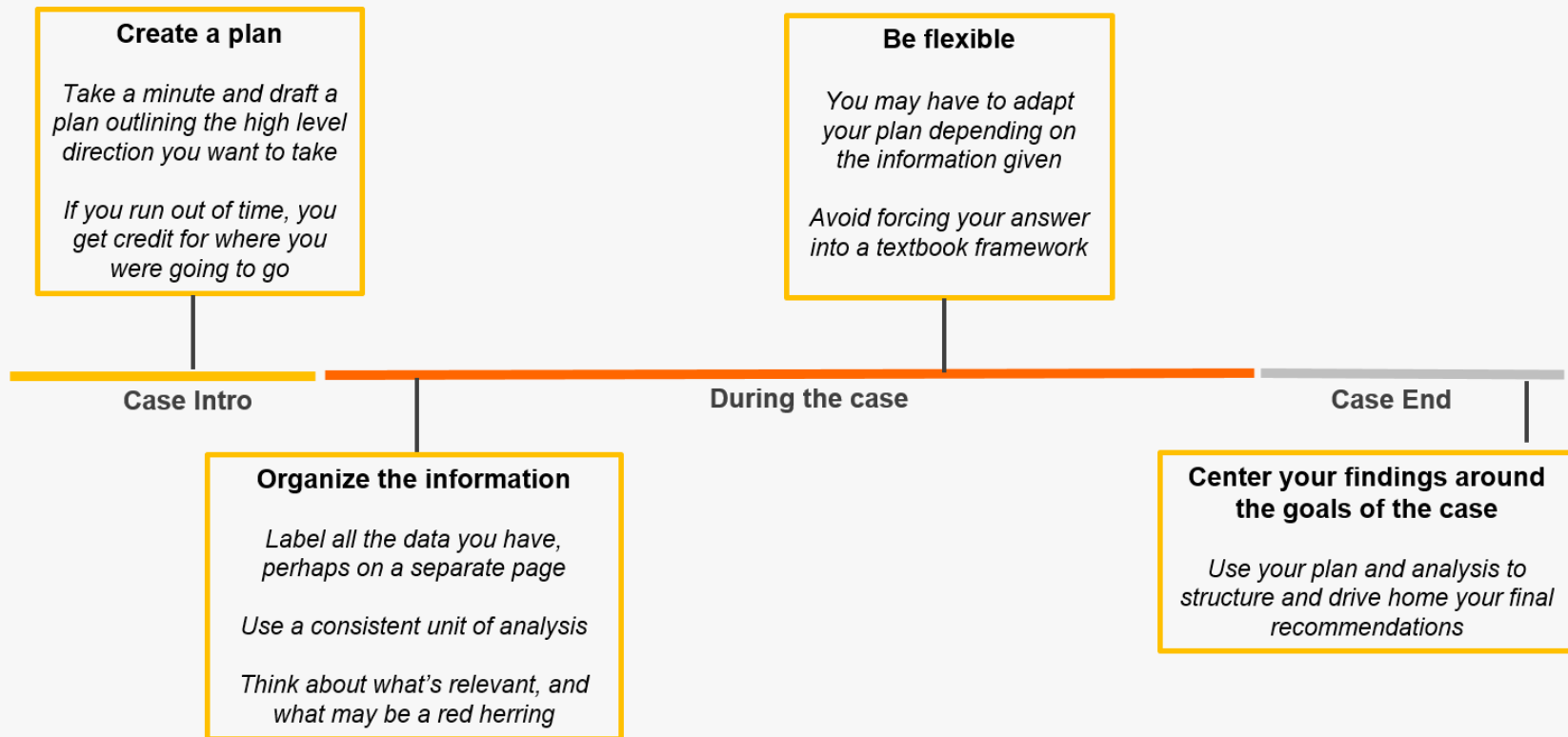
General guidelines

To succeed in any case interview, you'll need to make sure that you're **communicating clearly**, organizing your thoughts, and maintaining a positive attitude:



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General guidelines

To succeed in any case interview, you'll need to make sure that you're communicating clearly, organizing your thoughts, and **maintaining a positive attitude**:

Have confidence in your personal experience

You have more relevant experience than you think – you've spent the past two decades as a consumer!

Case Intro

Prepare your mindset

Rather than thinking of the case as a gauntlet, tackling it as a collaborative, analytical challenge will make it more energizing for you and interviewer

During the case

Don't give up!

We understand that these are questions you've likely never seen before, and we don't expect you to be familiar with the subject matter

We want to see how you approach a complex problem

Case End



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Profit – Know the Terms

Many cases will revolve around profit, but there are a few terms you should know to get there

Margin

Difference between a product's selling price and cost of production

Margin Rate

Margin as a % of retail price
(margin / price)

Markup Rate

Margin as a % of cost of goods sold
(margin / COGS)

Profit

Financial gain; difference between amount earned and amount spent

Revenue

Amount of money the business receives

Costs: Fixed

Business costs that are constant, regardless of the quantity produced

Costs: Variable

Costs that vary with production volume
(e.g. Cost of Goods Sold; COGS)

Profit Calculations

**Many case preparation materials teach that
 $\text{profit} = \text{revenue} - \text{variable cost} - \text{fixed cost}$**

While that's technically true, it's rarely an optimal structure for solving business cases in either Mastercard interview cases or in the real world.

- For example, revenue can't occur without the associated variable cost (e.g. Cost of Goods Sold, or COGS), and so it doesn't often make sense to separate in that way.
- Applying the $\text{profit} = \text{revenue} - \text{cost}$ formula too rigorously often results in candidates going through the case more slowly than necessary and making mistakes
- Again, the "standard" formula isn't *wrong*... but it's often cumbersome, unhelpful, and time-consuming

Profit Calculations: An example

Consider a shop that begins selling neon t-shirts, and wants to know if they made a profit in the first year. While the first calculation below results in the technically correct answer, the second calculation is

- A) closer to how real-world calculations are done (especially in retail)
- B) faster, since it avoids some unnecessary calculations, and
- C) much easier to manipulate once the problem becomes more complicated

Shirt selling price: \$25
Units sold: 50

Shirt margin per unit: \$15
Cost of clothing rack: \$400

1	Revenue - Cost	Revenue	= 50 x (\$25)	= \$1250
		Costs	= 50 x (\$25 - \$15) + \$400	= \$900
				<u>\$350 = Profit</u>

2	Margin - Fixed Cost	Margin	= 50 x \$15	= \$750
		Fixed Costs	= \$400	= \$400
				<u></u>

There's no single formula for profit!

However, even within retail, the optimal way to calculate profit can vary widely. For example:

Profit

=

- Quantity * (margin per unit) - fixed costs
- Quantity * (average price - average cost) - fixed costs
- Margin rate * price * quantity - fixed costs
- Hours worked per person * Labor sales productivity * # of people * margin rate
- Etc...

Sometimes you might even be given profit and asked to solve for another variable, for example, a quantity that must be sold to justify a large fixed cost (profit = 0)

The point is that **there is no one formula to memorize!** You will have to derive one yourself, based on the information provided and based on your understanding of the fundamentals of calculating profit

Profit Calculation Example - Restaurant

The same principles apply to restaurants. For example:

How profitable would it be for a pool snack bar to sell fried Broccoli?

- Quantity: 8 orders a day for 90 days
- Margin per broccoli: \$4.50
- Cost of oil: \$6.00 per day
- Cost of deep fryer: \$2,500

How would you solve this with revenue – costs?

You aren't given the information to back out total revenue, since you only know the *margin* per item. You could ask for revenue, but it might be a waste of precious time. As a result, you have to calculate:

- total margin from all the broccoli sales,
- variable cost of the oil (increases each day), and
- fixed cost of the fryer (one time cost).

Try answering the question! We'll walk through the answer next...

Profit Calculation Example - Restaurant

Using the information from the previous slide, we can determine if the pool snack bar should expand into fried broccoli.

First, compute the daily margin from broccoli

- 8 units per day x \$4.50 margin per unit = \$36 margin per day from broccoli

Next, account for the daily cost of oil

- \$36 margin per day from broccoli - \$6 per day of oil = \$30 margin per day

Then, aggregate for the whole summer

- \$30 margin per day x 90 days = \$2700 margin per summer

Finally, subtract the fixed cost of the fryer

- \$2700 margin per summer - \$2500 cost of fryer = **\$200 profit**

Looks like the fried broccoli is a good idea!*

*If there are no other factors we should consider

Profit Calculation Example - Restaurant

Notice that we basically filled in this equation:

$$\begin{aligned} & ((8 \times \$4.50) - \$6.00) \times 90 - \$2500 \\ & = \$200 \end{aligned}$$

We could have multiplied the broccoli margin and the oil by 90 days ***separately***, but combining them to get a daily margin saves us time and math, and makes business sense!

Also, even if you were given item price and cost, it would be faster (and make more business sense) to calculate item margin, and perform the calculation above

Profit Calculation Varies by Industry

Until now, we've focused on restaurants and retail, but Mastercard's clients (and cases) span many industries. Depending on the type of company, the terminology and profit calculation formulas will vary because of the types of problems they face.

As a thought experiment, how would you calculate profitability, or other success metrics, in these industries?

Insurance



Hospitality



Telco



Financial Services





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● Incrementality

The Incrementality Mentality

Counterfactual [koun-ter-fak-choo-uh l]

n. Outcome that would have followed had the actual sequence of events or circumstances been different

When companies make decisions, they consider all the alternatives

To determine which is the best, they assess each of them relative to some benchmark or default

In evaluating an initiative in a case, you **must** compare expected performance to what would have happened if this change was not made

The counterfactual could be a number of scenarios, including business as usual, last year's performance, or another initiative. You might even have multiple counterfactuals, so make sure you understand what you're comparing to



Incrementality Example – Jewelry Store

For example, say a jewelry store is considering doubling the amount of money they spend on advertising for 30 days

- You need to consider:
 - How many *additional* customers will purchase from the store?
 - To make calculations shorter, only focus on the **incremental** change
 - Will existing customers see any increase in their purchasing behavior?
 - What is the margin of the average purchase from these new customers?
 - What *additional* advertising costs are incurred as a result?
- Unnecessary information:
 - Anything that does not change, e.g., rent, utilities, sales of existing customers, advertising spend in the status quo.

While calculating total profitability “before” and “after” is technically correct, it’s generally faster and easier to just focus on incremental changes

Incrementality example – Jewelry Store

Let's solve the problem from the previous slide the long way, and the short way:

Daily Customer count w/o advertising	40	Status quo advertising spend	\$50,000
Daily Customer count w/ advertising	50	Labor costs per day	\$800
Average total margin per transaction	\$200	Monthly rent	\$18,000

No change to existing customer sales

Full Version

Profit before

$30 \text{ days} \times 40 \text{ customers} \times (\$200 \text{ margin}) -$
 $(\$800 \text{ labor} \times 30 \text{ days}) -$
 $\$50,000 \text{ ads} - \$18,000 \text{ rent}$
 $= \$240,000 - \$24,000 - \$68,000$
 $= \$148,000$ Profit before

Profit after

$30 \text{ days} \times 50 \text{ customers} \times (\$200 \text{ margin}) -$
 $(\$800 \text{ labor} \times 30 \text{ days}) -$
 $(2 \times \$50,000 \text{ ads}) - \$18,000 \text{ rent}$
 $= \$300,000 - \$24,000 - \$118,000$
 $= \$158,000$ Profit after

Doubling advertising increases profit by \$10,000

Incremental version

$30 \text{ days} \times 10 \text{ new customers} \times \$200 \text{ margin} - \$50,000 \text{ additional advertising}$
 $= \$60,000 \text{ incremental margin} - \$50,000 \text{ incremental fixed costs} = \$10,000 \text{ profit}$



Broadening Your Scope

While ignoring unnecessary information is important, it's also important to account for potential spillover effects:

Halo effect – Temporary changes can spillover to other products or after reverting to business as usual
e.g., Advertising a service might cause an incremental increase to the number of people signing up for it, even after the media ends

Cannibalization – Initiatives like store openings and product introduction can pull sales away from existing parts of the business

Basket impact – Changing the prices or product offerings can affect the sales of other items that get purchased in the same transaction

Pull forward – Customers can shift their purchasing date to the promotion period instead of before or after the promotion
As a result, the promotion causes the business to give away money to customers who would have purchased the product anyway

Opportunity cost – Business changes might entail forgone earnings
e.g., When analyzing a remodel you should account for the sales sacrificed while the store closed for renovations

Remember, these are merely some factors to consider
Don't make them the focus of your case or go too broad too soon
You still have to give a numeric answer!



Done!

- ✓ Overview
- ✓ Case Strategies
 - ✓ General guidelines
 - ✓ Profit calculations
 - ✓ Incrementality