TRAINING & PLACEMENT DEPARTMENT
180 DEGREES CONSULTING
DELHI TECHNOLOGICAL UNIVERSITY

CASEBOOK

2020-21

Disclaimer

First Edition: September 2020

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From the Vice Chancellor's Desk

"Delhi Technological University has continued on the path of excellence in education for nearly 80 years, producing extremely capable and competent professionals. With the onset of a new academic year, and given the difficult times we are facing, it is a delight to see how students are persevering to make the most of their abilities.

Looking back at the last academic year, students' accomplishments have been exemplary in a multitude of disciplines, including commendable performances in various exams, exceptional achievements at international and national level competitions, and securing positions at some of the finest organisations in the world. I hope that we keep pursuing our path of excellence with the persistent efforts of the students, faculty, and the administration working towards the vision of being a world-class university through education, innovation, and research for the service of humanity.

I extend my heartiest congratulations to the high-spirited individuals of the 180 Degrees Consulting team and the placement team for their incessant efforts in publishing this Casebook. I also applaud the achievements of the team in securing podium positions at numerous national competitions in such a short span and their work in consulting projects assisting social enterprises. I wish the students excel in all their endeavours and hope that they take the university to new horizons. "

Prof. Yogesh Singh,
Vice Chancellor, Delhi Technological University

Preface: Head, Training & Placement

"DTU has a rich legacy and a wide alumni network across a plethora of industries throughout the world. The placement records for last year have been stellar with several students bagging job and internship opportunities at organizations of inordinate importance. The Training & Placement Department along with the student coordinators tirelessly works year round to ensure a productive recruitment experience for companies and help the students find the best match to their needs & capabilities.

Our students are abundantly talented and go beyond the curriculum to excel in diverse fields. Over the past several years, there's been a steady rise in the number of students vying for consulting and analytics roles during the on-campus placement process. With the presence of top firms and international conglomerates recruiting both undergraduate and postgraduate students for multiple profiles, a centralised repository of resources will prove to be extremely beneficial for those aiming for these positions.

I congratulate the members of 180 Degrees Consulting and the placement team for developing a one-stop solution for case interview preparation and streamlining their efforts to harbour a culture for case enthusiasts at the university. I'm sure this will prove to be tremendously worthwhile and further inculcate holistic problem-solving skills among the students of DTU, Delhi School of Management and University School of Management & Entrepreneurship alike. I wish the students the best for the upcoming placement season and hope they continue to bring glory and be a connected and proud alumnus of this prestigious institution."

Prof. Rajesh Rohilla,
Head, Department of Training & Placement, Delhi Technological University

Foreword

It gives me immense pleasure in bringing to you the first edition of the **'Delhi Technological University Casebook'** prepared by **180 Degrees Consulting DTU and T&P.**

Cases, guesstimates and puzzles are perhaps the most appropriate way to assess the problem-solving skills of prospective candidates and form a significant portion of the recruitment process in consulting companies. This casebook aims to provide an extensive range of comprehensively solved cases and guesstimates.
With an increasing number of students inclined towards the analytics and consulting domain, a subset of 'non-core' placement opportunities, a comprehensive and well-built university casebook was the need of the hour. The problem that we faced during our placement preparation was that most of the resources that were circulated by our seniors were severely outdated and not **contextually appropriate for interviews at DTU**. They contain the same cliched problem statements that aren't asked anymore - even the recruiters are fed up of them - carry abstruse explanations and have confusing answers and plenty of mistakes. However, I would also like to express my gratitude to all the casebook compilations that I have come across in all these years, as they've served as a great starting point and motivated me to explore this area in depth.

Through this Casebook, we've tried to fill this void by making it easy to understand, with flow diagrams to represent both the qualitative and quantitative course of ideas. We have also meticulously curated **8 Frameworks** that ensure a simplified and structured approach on how to tackle cases of each kind, along with helpful protips, in a layout that is easy to understand, remember and revise. Just perusing through these frameworks will give you enough clarity on how to confront any case in general, irrespective of its categorisation. The solved problems will give you an exact idea of what to expect and prove to be the most important preparation material for cracking case interviews. I'd also like to highlight that the interview transcripts are not to be treated as the single, correct way of solving a problem, but rather an attempt to outline the most suitable approach in each problem statement. We have adopted a **unique style of presenting** solutions that enhances readability while maintaining the width and depth of the problems.

The **coronavirus pandemic** has disrupted industries irreversibly and unequivocally. We've tried to keep our cases extremely relevant to the current scenario, having included major factors of tremendous change across an array of industries due to the Covid crisis, the New Education Policy 2020, Delhi Electric Vehicle Policy 2020, along with several recent trends in the industry.

Our team has put in heaps of effort over the past six months into making this endeavour possible. We hope this Casebook will serve as a **one-stop solution** for both beginners foraying into this field and students with some background in case studies who are looking to bolster their knowledge, and will foster more students from DTU and beyond, in the case solving culture!

Shivam Jha
President, 2019-20

Acknowledgements

We'd like to express our heartfelt gratitude to Hon'ble Vice Chancellor Prof. Yogesh Singh, Prof. Rajesh Rohilla, Head, Department of Training & Placement and Dr. Anil Parihar, Associate Head, Department of Training & Placement, for providing us an opportunity to build and release a university casebook. We are also thankful to the faculty advisors of 180 Degrees Consulting DTU, Dr. Vikas Gupta & Dr. Sonal Thukral of Delhi School of Management, for being constant pillars of support through our many endeavours.

We are grateful to all the people who have helped in the development of the casebook by sharing their interview insights and experiences that have enabled us to put together a comprehensive preparation resource for future batches. We are also immensely grateful to various go-to resources that served as an introduction to this field for most and helped us learn case solving, such as the workshops by Victor Cheng, Case In Point by Marc Cosentino, several B-School casebooks and all the compilers before us for serving as inspirations to undertake this initiative.
We would like to thank DTU Studio and DTU Times for providing the photographs used throughout the book.

Any resemblance of a case here to any real-life problem elsewhere is purely coincidental. We have taken utmost care to ensure a book free of errors and conceptual ambiguities. However, if there are any issues, please do reach out and let us know. We'd love to hear your feedback and review of the casebook and how we can make it more reader-friendly for the next edition.

Team

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About: 180 DC DTU

180 Degrees Consulting is the **world's largest university-based consultancy** providing affordable yet high-quality strategic & operational assistance to socially conscious organizations across the world. It has over 10,000 carefully selected and trained volunteer consultants worldwide, who develop innovative, practical and sustainable solutions to ensure that organizations can achieve their full potential.

Why are we called 180 Degrees?

"It's because we work to turn good organizations into great organizations, challenges into opportunities, ideas into reality. We're focussed on positive transformation.

Transforming organizations, and – in turn – transforming lives."

Present with 150+ Branches operating in 35 countries.

Over 3 Million hours of consulting provided.

40,000+ future leaders trained to date.

3000+ Organisations assisted to date.

About the DTU Branch: Established in April 2019 with the vision of filling the opportunity gap between untapped capabilities of top university students and the unmet needs of social enterprises, while pushing the envelope of knowledge transfer at the undergraduate level.

In just one year, we have successfully completed **7 client projects** and our members have won **25+ podium positions** at several prestigious case competitions - at both undergraduate & postgraduate level - across the nation. We're proud to be a part of an international community of go-getters and changemakers committed to meaningful social impact.

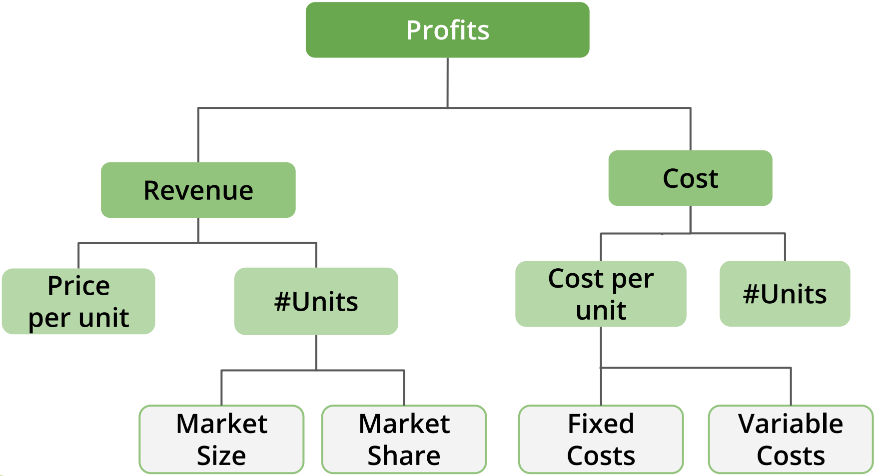
CASE FRAMEWORKS

Framework: **Profitability**

Profitability cases are the most common type of cases and their importance stems from the fact that profit-making is the ultimate goal of every business problem.

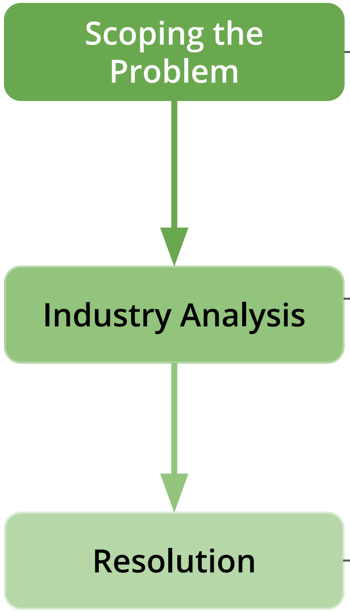
These deal with revenue issues, cost issues or both. One needs to identify the key revenue and cost parameters, deconstruct the problem into components and isolate the cause for a poor bottom line.

To be solved effectively, a profitability problem requires proper scoping and isolation using the **drill-down approach**.



Solution Structure

Key Parameters



Scoping the Problem
- *Magnitude of Loss/Profit*
- *Trend History*
- *Affected: Profits or Profitability*
- *Operating Margin*
- *Industry-wide or Company-specific*
- *Product Mix & Revenue Streams*

Industry Analysis
- *Market Disruption*
- *Customer Priority Shift*
- *Change in Regulatory Policies*
- *Price War*

Resolution
- *Target Profit & Timeline*
- *Raw Material Substitution*
- *Agile Manufacturing*
- *Opportunistic Sourcing*
- *Backward Integration*
- *Machine Utilization vs Downtime*
- *Outsourcing Decision*

Framework: Value Chain

This type of case is usually implemented in a cost reduction case where a company is aiming to reduce their bottom line. The best way to reduce cost is to follow the journey of a product/service through its lifetime.

The fundamental idea behind the value chain analysis is to understand different steps that add value to the product and identify the abnormalities/inefficiencies arising in any of them.

One is expected to identify various cost components and validate them, identify major cost drivers and then recommend how the company can change its ways to become more cost efficient.

After identifying a problem within the profitability framework (Cost/Revenue/Both), it is generally effective to delve into the value chain and to drill down for RCA (Root Cause Analysis) of the stated problem.

R & D	Sourcing	Warehousing	Storage	Manufacturing	Transportation	Distribution	After Sales Service
Equipment	Raw Materials	Plant Rent	Inventory	Technology	Mode	Sales Channel	Accessibility
Human Capital	Procurement	Machinery	Labour	Overhead Cost	Negotiation	Sales Force	Service Time & Cost
Finance Cost	EOQ	SKU Visibility	Capacity Utilization	Automation	Network Optimization	Training	Repairs & Returns
	Make/Buy			Process Efficiency	Turnaround Time	Penetration	Customer Satisfaction
					Retailer Rationalisation	Shelf Space	

Framework: Pricing

The objective, in these cases, is to develop a method for pricing any product.
One has to identify the kind of pricing problem in the case, consider the objective of the company, understand the product features and market environment. Finally, one should conduct market sizing analysis where required and apply a relevant method to price the product.
The crucial part is to justify the pricing recommendation not just with numbers but also with industry awareness.

Cost-Based Pricing

- Considers all activities involved in the production process:
  - Research & Development
  - Manufacturing Costs
  - Distribution/Logistics Costs
  - Service Costs
- Determine the break-even point and payback period.
- Add the margin on the top of total costs.
- Define the lower/minimum limit of pricing.

Competitive Pricing

- Occurs when a similar product exists in the market.
- Requires information about the industry structure (Consolidated/Concentrated).
- Supply/Demand trade-off analysis.
- If a competitor product is unavailable, price the product according to the NPV of a substitute.

Value-Based Pricing

- Identify the customers' willingness to pay.
- Select and focus on the target customer segment.
- Factor in the opportunity cost of no product.
- Supply/Demand trade-off analysis.
- Define the upper/maximum limit of pricing.

Revised Pricing

- Used in rare cases where an old product needs to be priced.
- Consider the utility of existing product w.r.t a new product
- Factor in the depreciation or salvage value need
- Estimate the additional revenue considering the supply/demand trade-off.

Framework: Pricing

PROTIPS

1. Many pricing cases are coupled with **market size estimation** problems. Ensure to clarify the need to calculate the market size before pricing the product.

2. **NEVER give a single price point – Always offer a price range.** Mentioning the *price sensitivity* metrics in calculations would fetch brownie points.

3. Visualise the **competitive reaction** in the market and incorporate it for a comprehensive solution.

4. Formulate your **price range** as *lower than Value Based Pricing* and *above Cost Based Pricing* calculations due to customer switching costs, market fluctuations etc.

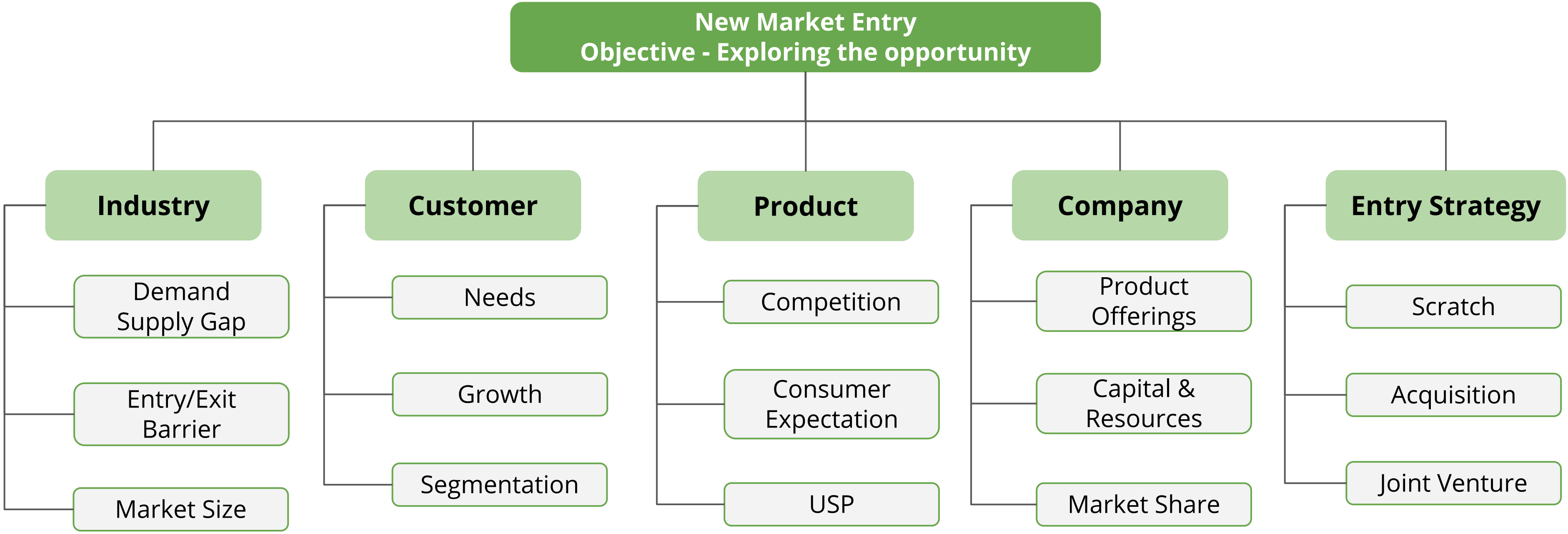
5. **Innovative solutions** like product bundling and discount schemes will fetch bonus points as well.

Approach	Evaluation Factors
Identify the Problem(s)	*Bidding* *Auction* *Straightforward Pricing*
Understand the Product	*Singular Product or Product Line* *Commodity or Differentiated Product* *Luxury or Necessity* *Patent and Technological Expertise* *Imitability & Substitutability*
Understand the Company	*New Entrant or Existing Player* *Growth Objective - Market Share or Top Line* *Willingness to play Price Wars*
Structure the Solution	*Consider policies & regulations* *Calculate lower & upper limits of pricing* *Choose a feasible range* *Offer a rational explanation*

Framework: Market Entry

In market entry cases- be it a new product launch, entering a new geography or both- there are two basic considerations –
a) Is it a good idea? ***b) How to enter?***

The first step is to understand and explore the opportunity by thoroughly analysing the following 4 parameters: Industry, Customer, Product and Company. This is followed by metric evaluation and finally a mode of entry is chosen.



Framework: Market Entry

- Whenever you are required to make a decision - develop a **choice rule or a mathematical metric of evaluation** - as the choice cannot be made entirely based on qualitative analysis and quantitative metrics need to be developed in order to exercise the choice.

- This evaluation is a function of **4 parameters:**
  Motivation, Profitability Targets, Investment Constraints and Competitive Positioning.

- This approach helps one answer the two fundamental questions associated with market entry:
  a) ***Where to invest:*** Geographically and in value chain
  b) ***How to Invest:*** Mode of entry

- **Protip 1:** Not every aspect of the framework mentioned will be applicable to all cases, but try to cover as much as you can, so that you get a good idea of the industry and the client current status.

- **Protip 2:** It is very important to identify where the client would stand in the industry compared to the existing competitors and the measures to be taken to **mitigate competitive edge of incumbent.**

Evaluation Parameters — **Evaluation Metrics**

- **Motivation**
  - *To enter a new industry*
  - *Reason of choice of chosen industry*
  - *Strategic Intentions*
  - *Economic Intentions*
  - *Cost-Benefit Analysis*
- **Profitability Target**
  - *Cost of Capital and R&D involved*
  - *Target Rate of Return*
  - *Target Market Share*
  - *Target Revenues and Profits*
  - *Target Payback Period*
- **Investment Constraints**
  - *Levels of investment (Upfront/Residual)*
  - *Geographical Feasibility*
  - *Opportunity Cost of Investment*
  - *Synergy with existing product lines*
- **Competitive Positioning**
  - *Brand Equity*
  - *Economies of Scale*
  - *Supply chain/Distribution Synergies*
  - *Patent/Proprietary Technologies*
  - *Organization Design/structure*

Framework: New Product Entry

A subset of Market Entry case, here, the company aims to introduce a completely new product, expand its existing product line or extend reach in a new geography.

One has to analyse the viability of success and feasibility of entry, followed by identification of the correct price point and target segment and finally recommend levers that can drive product success in the market.

New Product

- **Initial Investment**
  - Self Financed
  - Debt Financed
  - Equity Financed
- **Value Chain Challenges**
  - Production
  - Distribution
  - Marketing
- **Break-even Point**
  - #Units Sold
  - Price/unit
  - Fixed Cost
  - Variable Cost/Unit

Evaluation Parameters	Evaluation Metrics
Product Analysis	*Value Proposition* *Target Customer Segment* *Substitutes* *Cannibalization* *Product Segment*
Industry Analysis	*Growth Opportunities* *Size* *Competition* *Entry/Exit Barrier* *Distribution*
Economical Analysis	*Financial feasibility of market entry* *Production cost* *Launching cost* *Pricing (Refer to Pricing Framework)* *Break-even volume/ period*
Strategic Fit	*Existing product line* *Company resources/capabilities* *Technology disruption risks*

Framework: Growth Strategy

In this subset of Profitability Cases, the company aims for **XX% YoY growth in Z years,** and you are expected to brainstorm ideas that align with the growth target and then validate them by identifying pillars to support it.

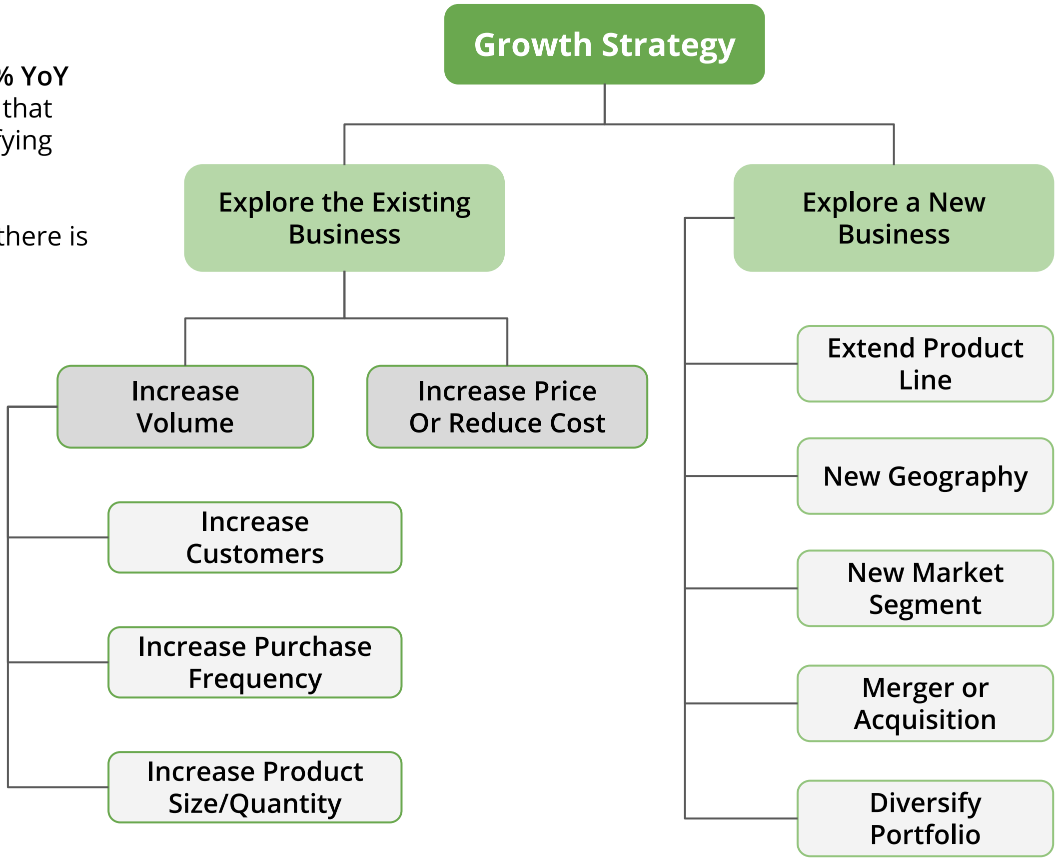
A company can grow either in its existing business (provided there is scope), or explore new business opportunities.

Protips

Always clarify the objective(s), especially growth % and time period.
There is a significant creativity component attached to the brainstorming, so keep options open while checking operational feasibility.

Key Questions

- Expected growth of the industry?
  Are we targeting growth more/less/at par with that?
- Existing capacity in the plants/services to meet the increased volume or investments required?
- Price elasticity in the market?
- Effect of substitutes and complements?



Framework: Mergers & Acquisition

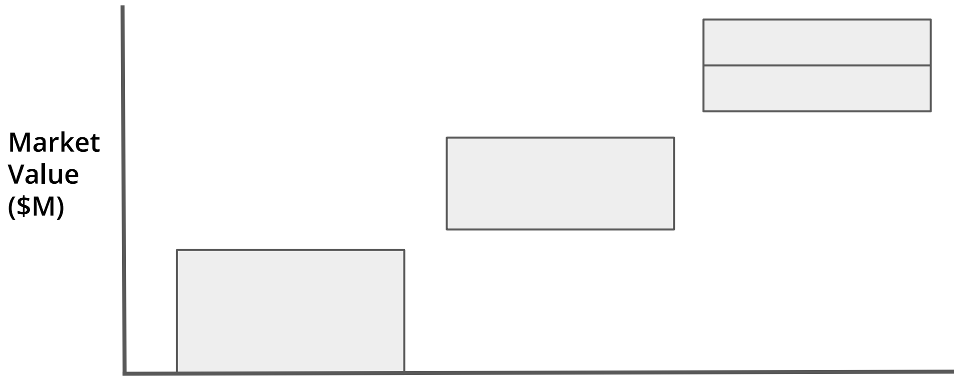
The ultimate objective of a target and market assessment is to determine the value of the target.

In order to understand value, we need to understand the three primary value components..

Value Components

Will volumes/prices increase or decrease?	Revenue
Will costs rise faster or slower than sales?	Cost Margins
What investments in plant and working capital are required going forward?	Investment Requirement

Revenue, Cost Margins, Investment Requirement → Future Cash Flow → Value



	Baseline Value	Standalone Upside	Synergies
Definition	Value of existing earning stream with: -No Growth -No Changes in margins	Value of possible improvements from: -Market Growth -Share Gain -Margin Improvement	Value of benefits from relationships between target company and acquirer.
Issues	How secure is the business?	What upsides exist for the standalone business?	What added value does the acquisition bring?

Framework: Mergers & Acquisition

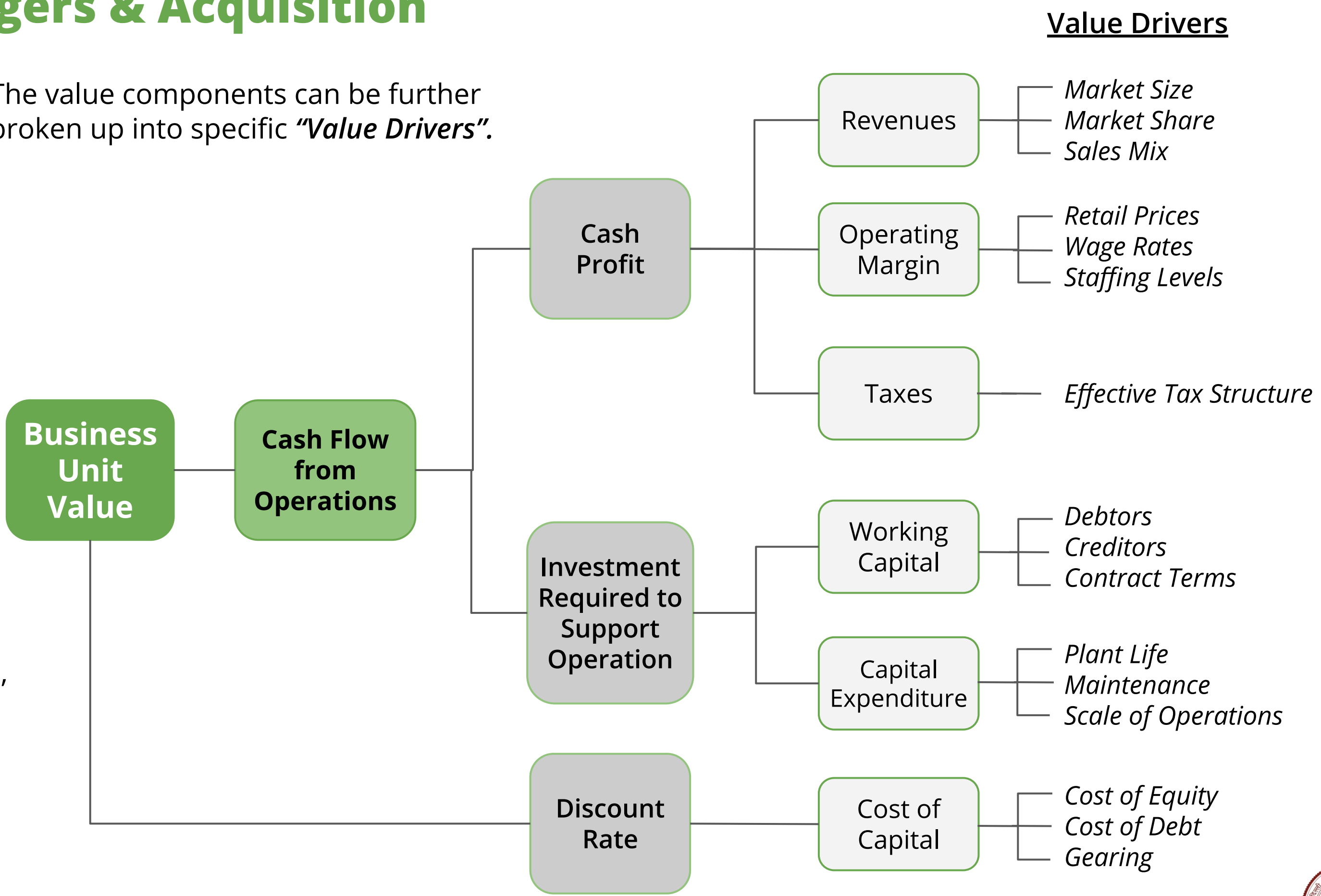
The value components can be further broken up into specific ***"Value Drivers"*.**

Risk Analysis

- **Cultural Fit**
Cultures of the merging entities should be coherent and complementary.

- **Strategic Fit**
The long-term strategies should be in sync for both entities.

- **Organizational Fit**
Degree of similarity in org structures. Matrix, functional, divisional etc.
Management overlap and talent



Framework: Private Equity Investment

These cases discuss investment into a business for financial gain .Whenever asked to evaluate an investment it is essential to understand the objective first.

- *Why? – Objective of investment: direct return from investment, incentives in the current business, synergies, etc.*
- *What? – What is the target rate of return from investment*
- *When? – Timeline of investment*

Once the expectation setting is done, the rationale to make an investment can be evaluated by these factors:
Only if the industry is attractive, target has high potential and expected return from the investment (from all sources) exceeds target ROI, investment is justified.

P E Firm Characteristics	Industry Attractiveness	Target Specifics	Sources of Returns
Fund Size	*Market Size/Growth*	*Business Model*	*Operational Efficiency*
Fund Style	*Profitability*	*Valuation*	*Unlock Potential*
Portfolio	*Barriers to Entry*	*Management Capability*	*Use Leverage*
IRR	*Competition*	*Product Services*	
Exit Period	*Customers*	*Willingness to Sell*	
	Costs & Risks	*Market Share & Growth*	
	Suppliers	*Suppliers*	

GUESSTIMATES

Guesstimates: Structure & Approach

'Guesstimates' are an interview staple not just for consulting firms, but across industries, to evaluate the candidate's reasoning acumen. For analytics/consulting domain companies, market sizing questions are a precursor to the business case problems later in the interview process, which is followed by an HR/fit interview round in the end.

Any guesstimation problem should be thought of with an open mind. Initiate your approach by asking preliminary questions and stating your assumptions as a primer and then lay out the structure of your solution. In guesstimates, the primary objective of the interviewer is to observe your logical reasoning process and general awareness of your surroundings in life. The key is not necessarily to get the right answer, but to show your ability to tackle a problem logically, approach assumptions sensibly and perform simple back-of-the-envelope calculations quickly.

A four step methodology should be followed to tackle guesstimates:

Ask preliminary questions (even if they sound silly!), clear out any assumptions and always let the interviewer know your overall approach before delving into the problem solving stage.

Attempt to break down your approach into smaller, workable demographic segments like income, age, geography, gender etc. This makes your overall solution easy to explain and holistic.

CLARIFY → **ANALYSE** → **STRUCTURE** → **CONCLUDE**

Always look at the problem from a larger perspective. Use everyday knowledge to make sense of the information provided in the problem statement and preliminary questions.

Try to make sense of your answer mentally before saying it out loud . If the answer seems too out-of-scope, re-check your calculations. Always perform a general sanity check after giving your final answer.

Guesstimates: Structure & Approach

PROTIPS

- ➔ The most important aspect of your approach are your **assumptions**, which should be reasonable and realistic.
- ➔ Take **well-rounded numbers** that are easy to work with for further calculations and should lie within your assumed range.
- ➔ It is always better to **think out loud,** even when you're not sure if you're going in the right direction, they will help you with **course correction** if necessary (but don't rely on them to do all the heavy lifting).
- ➔ Talk through your steps, any assumptions you take into account and calculations. Avoid awkward silences, and make it an **engaging dialogue.**
- ➔ If you are not sure about a number, say the GDP of New Delhi, just **ask for it.** Avoid generating data from thin air based on your hunch.
- ➔ It's always good practice to ask your interviewer if they would like you to perform a **sanity check** (based on general awareness and common sense) after coming up with a final number.
- ➔ Remember that guesstimates, like cases, also involve elements of **creativity** and **out of the box problem solving.**

SOME FUNDAMENTAL CONCEPTS

(1) The **market size** for a product is the **# products sold in a year**, i.e.
the **growth in market size** (additional demand for new products)
\+ the no. required to **replace** old products.

Market size = Demand due to growth in market size + Replacement Demand

= (# products in market) x (Growth rate) + (# products in market) / (avg. life of the product)

(2) If the **life cycle** of a product is Y years on average, then in Y years' time each of these products would be replaced by newer ones. Thus the average replacement demand for any particular year is **(Current # Products/Y).**

Avg. Replacement Demand = Current # Products / Avg. Life cycle of product

(3) In absence of any other information, take the **market growth rate** as the GDP growth rate or **10%** for simplicity.

Schools in Delhi

Preliminary Questions

Should I consider both private and public schools?
- *Yes*

Can we eliminate dummy schools that are used by private coaching centers?
- *Yes*

Should I include play schools?
- *No, senior-secondary and primary schools only.*

Assumptions

- School going age would be 6 to 19 years
- Population of Delhi ~ 2 Cr
- There are 10% large sized schools (Private)
  40% medium sized schools (Govt + Private), and
  50% small sized schools (Govt + MCD)

Overall Strategy

(1) We can estimate the number of students in a school:
Number of Grades x Avg Number of sections x Avg Students per class

(2) Calculate the total number of students in Delhi by age segregation

1) Large Sized School: 14 Grades (Nursery-12th) x 10 x 40 **~ 5.5k Students**
2) Medium Sized School: 12 Grades (1st-12th) x 3 x 30 **~ 1k Students**
3) Small Sized School: 10 Grades (1st-10th) x 2 x 20 **~ 400 Students**

Therefore, Average number of students in a school in Delhi:

(0.1 x 5,500 + 0.4 x 1,000 + 0.5 x 400)
= 550 + 400 + 200 = **1150**

Now, Delhi's population can be segregated on the basis of age demographics-

Total Population 2 Cr
- 0-5 yrs 10%
- **6-19 yrs 30 % = 60L**
  - Population with access to Education (85%) = 52 L
  - Population without access to education (15%)
- 20-45 yrs 40%
- 45+ yrs 20%

Here, we consider 15% of population to be without access to education as they might come under BPL or child labour.

Therefore # schools in Delhi = Total number of students in Delhi / Average number of students in a school in Delhi

52,00,000 / 1,150 ~ 4500 Schools

Cars crossing Delhi-Gurugram Toll everyday

Preliminary Questions

Should I consider taxis/cabs as well?
- *Yes*

Should I consider a weekday or weekend?
- *Weekday*

May I consider number of unique cars or just number of cars crossing toll taking into account the fact that the same car may cross the toll more than one time in a day?
- *No just consider the number of cars crossing the toll.*

Assumptions

- It takes around 15 seconds for a car to pass through the toll.
- Considering the density of traffic from Delhi to Gurugram and from Gurugram to Delhi to be same at a given point of time.
- There are 8 lanes in the toll.

Overall Strategy

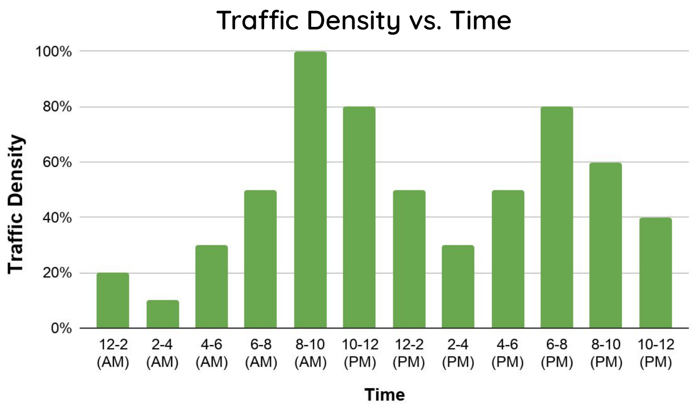
Considering different traffic density at different hourly intervals in a day (24 hours), we benchmark it with the maximum possible cars crossing in an hour. Using the varied density assumptions, we will find the number of cars crossing in each interval to get the total.

 # cars crossing toll = (Maximum # cars per hour) x (ΣTraffic Density in a day) x (# hours in the interval considered)

Maximum possible # cars crossing in 1 minute = 60/15 = 4 cars/minute/lane

= 240 cars/hour/lane = 240 x 8 = **1920 cars / hour**

Creating a traffic density distribution over 24 hours of a weekday, using 2-hour long intervals, based on general awareness and traffic trends.



cars = 1920 x [2 x (0.2 + 0.1 + 0.3 + 0.5 + 1 + 0.8 + 0.5 + 0.3 + 0.5 + 0.8 + 0.6 + 0.4)]

= 1920 x 12 = 23,040 ~ 23,000 cars

Marlboro Reds sold in New Delhi daily

Preliminary Questions

Should I consider only packs or loose cigarettes as well?
- Consider both.

Overall Strategy

First, we'll find the population of New Delhi that smokes, followed by finding the market share of Marlboro and the share of Red among the product portfolio along with smoker-type classification to find the demand.

75% of population is of legal smoking age (only adults) = 1.5 Crore

Since Marlboro is a premium brand and as most of the BPL and Lower Middle Class rely on bidi or cheaper cigarettes, only the Upper Middle Class (40%) and Upper Class (20%) meet the affordability requirement.

 # people who can afford Marlboro Cigarettes
= 1.5 crore x 0.6
= 90 lakhs

- **Adults**
  - **Males 50%**
    - Smoke 40%
    - Do not smoke 60%
  - **Females 50%**
    - Smoke 20%
    - Do not smoke 80%

So the average number of cigarette smokers in Delhi
= 90 lakh x (0.5 x 0.4 + 0.5 x 0.2) = 27 lakh

- **Cigarette Brands Market Share**
  - Gold Flake 35%
  - **Marlboro 20%**
    - **Red 25%**
    - Gold Original 20%
    - Gold Advance 35%
    - Others: Clove mix, fine touch etc. 20%
  - Classic 25%
  - Others-Dunhill, Benson etc. 20%

Therefore, **Marlboro Red Smokers: 27 Lakh x 0.2 x 0.25 = 1.35 Lakh**

Chainsmokers (20%): 2 packs a day = 1.35 Lakh x 0.2 x 40 = 10.8 Lakh cigs

Regular Smokers (60%): 0.5 pack a day = 1.35 Lakh x 0.6 x 10 = 8.1 Lakh cigs

Occasional Smokers (20%): 2 cigs a day = 1.35 x 0.2 x 2 = 54,000 cigs

Daily Demand of Marlboro Reds in New Delhi
= 19.3 Lakh
~ 20 Lakh Cigarettes

Tea sold in DTU today

Preliminary Questions

Which day should I assume it to be?
-Consider it to be today (Monday).

Which consumption unit should I proceed with? (Quantity, Value etc.)
-Estimate in terms of number of tea cups.

Assumptions

- A standard 100 ml paper cup is considered.

Overall Strategy

(1) Amount of tea sold in a day in DTU is equal to total # tea cups consumed in one day.

(2) If Y is the average time between two successive orders and Z is # tea orders per 100 orders, then total # tea orders at a particular food joint is (service hours in a day/Y) x Z.

Tea sold in a day = # people who consume tea in DTU
x Average #tea cups consumed by an individual.

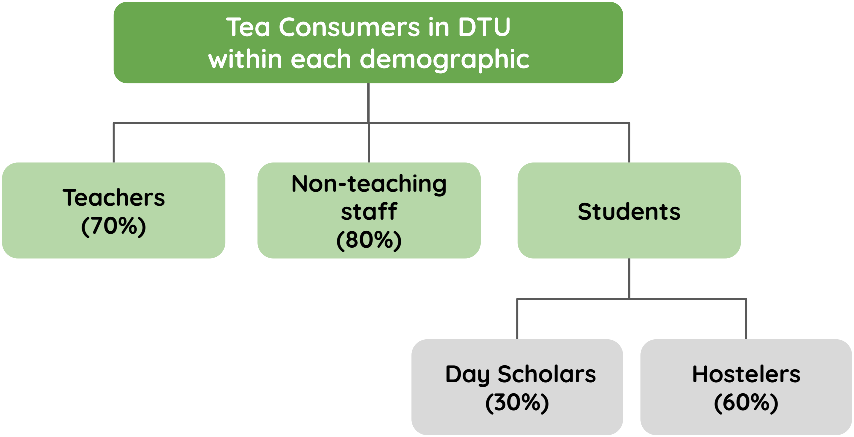
Avg. # of tea cups consumed by an individual =
Σ(i cups) x (%age of people consuming i cups)

Tea Consumers

The crowd in DTU can be broadly divided into three categories - Students, teaching staff and non-teaching staff which includes security guards, clerks, hostel attendants etc.

% people who consume tea in each of these categories varies.
For example: tea consumption among students (because of higher preference for coffee) is lower compared to teaching and non-teaching staff.

 # Tea consumers = Σ(# People in each category) x (%age of people who consume tea)



20% have tea at home.

Tea sold in DTU today

For finding out the # people in each demographic:

 # students in DTU = 10,000
Day-Scholars : Hostellers = 80:20

Students Teacher ratio ~ 30:1
 # teachers = 10000/30 = ~330

Non teaching staff to student ratio ~ 20:1
 # Non teaching staff = 10000/20 = 500

The tea consumption among hostlers is higher than day scholars because they spend more time in the campus.

Therefore, # Tea Consumers =
(330 x 0.7) + (500 x 0.8) + (8000 x 0.3 x 0.8) + (2000 x 0.6)

= 231 + 400 + 1920 + 1200 **~3750**

<u>Tea consumption per individual</u>

Since tea consumption capacity varies from person to person it can be classified as:

MechC and Mic-Mac are the most preferred tea points in the college which sell tea in two different sizes of cups.

- half sized cup (50ml)
- standard cup (100ml)

Whereas, the hostel mess, Nescafe and Maggi Baba have a standard size cup only. Thus, we find out the average consumption per individual on campus.

Consumption Capacity

Low (40%)	Medium (30%)	High (20%)	Very high (10%)
0.5 cup	1 cup	2 cups	3 cups

Avg. # of tea cups consumed by an individual = Σ(i cups) x (%age of people consuming i cups)
where i is # tea cups

= (0.5 x 0.4) + (1 x 0.3) + (2 x 0.2) + (3 x 0.1) = **1.2 cups**

Tea sold in a day = # people who consume tea in DTU x Average # tea cups consumed by an individual.

= 3750 x 1.2
= 4500 cups of tea in a day

Crocin Tablets sold in Delhi in one day

Preliminary Questions

Which day should I consider?
- Today, 20 October.

Shall I include all the types of crocin tablets:: Advance, Fast Relief and the basic 650 mg crocin tablet
- No. Just consider the basic 650 mg crocin tablet.

Which unit do you prefer - tablets or crocin strip packings consisting of 10 tablets each?
- Give the answer in the no. of strips.

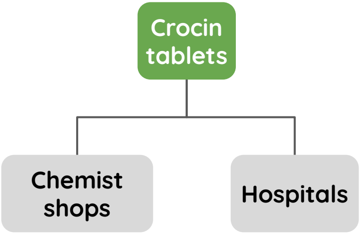
Assumptions

- Among the other paracetamol brands present such as Calphol, Saridon etc. 75% of people prefer Crocin tablets.
- Crocin is primarily used for treating fevers, headaches.

Overall Strategy

(1) Crocin is primarily sold at chemist shops and hospitals.

(2) Considering only a single strength of medicine of crocin for each patient



Chemist shops

Delhi has 7 Parliament constituencies, 70 legislative constituencies and 235 wards.
Assuming equal population distribution across all the wards, each ward has ~85,000 people.

Based on experience, there are roughly 30 chemist shops in a ward.
Thus the **total number of chemists in Delhi** = 30 x 272 = 8160 **~8000**

Now, each shop on average sells around **10 strips a day.**

However, given that this is October, due to sudden weather changes, the probability of catching a cold/fever or falling ill is slightly higher than rest of the year.
Hence the sale of crocin during these months is slightly more than average. So considering each chemist shop sells **12 strips a day in October.**

Thus, **# paracetamol strips sold by Chemists** = 8000 x 12 = **96,000**

Hospitals

Population of Delhi = 2 crore Assuming there is 1 bed for per 2000 people in Delhi
 # beds = 2 crore/2000 = **10000 beds**

Assuming 40 beds per hospitals, the **# hospitals in Delhi** = 10000/40 = **250**

Since people usually visit hospitals for serious ailments and paracetamol is easily available at chemists, in a given day, a hospital sells ~100 paracetamol strip packings.

 # paracetamol strips sold by Hospitals = 250 x 100 = **25,000**

Thus, with 75% market share, # Crocin strips sold in Delhi in one day = (96,000 + 25,000) x 0.75 = 93,000 strips

Emojis sent in India each day

Preliminary Questions

Shall I consider only smartphones for the use of emojis?
-Yes
Can I consider only the emojis that are sent as messages?
-Yes

Assumptions

- Whatsapp, Messenger and Instagram are the major social media platforms with daily usage of emojis.
- Only the Middle and Upper Class has access to smartphones.
- The emoji usage varies across different demographics of age groups in India

Overall Strategy

(1) Segmenting the demographics by age - Teenagers, Young Adults, Adults & Senior Citizens to segregate their social media and emoji usage.

(2) The total Number of emojis used in the country in a day= Number of social media users x Average number of emojis sent by a user on messages daily

Population (130 Crores)

- BPL (20%)
- LMC (40%)
- MC (30%)
- UC (10%)

Market Size of Smartphone Users

Considering only the Upper (10%) and Middle class (30%) people have access to smartphones.

Therefore, 130 Crore x 0.4 = 52 Crore.

Out of these, 2 Crores refrain from any kind of Social Media Usage. Therefore we get **50 Crore potential users** with access to social media messaging platforms.

Now, we find the average number of emojis sent by different age groups on a daily basis by estimating the number of texts sent per day on any of the social media platforms.

Demographic Segregation of the 50 Cr Users

Teenagers 20% - 10 Cr	Young Adults 30% - 15 Cr	Adults 40% - 20 Cr	Senior Citizens 10% - 5 Cr
200 texts per day	150 texts per day	100 texts per day	30 texts per day
50 Emojis per day	25 Emojis per day	20 Emojis per day	Negligible Emojis

Thus, number of emojis sent in a day in India =

(10 x 50) + (15 x 25) + (20 x 20) Cr

= 1275 Crore

Annual Revenue of Cinepolis, Rohini

Preliminary Questions

Shall I consider the revenue from ticket sales only or other streams of revenue too?
-Consider substantial revenue streams.

Assumptions

- Given the difference in ticket price between weekday and weekend, an average price is assumed.
- There are 4 cinema screens.
- Footfall is averaged on a daily basis.
- Weekend includes Friday, Saturday and Sunday.

Overall Strategy

(1) The substantial revenue streams are chosen to be : Ticket sales, revenue from parking, food and beverages and advertising.

(2) Advertising revenue primarily comes from billboards and digital ads between the movies. It is assumed to be 10% of the total revenue.

(3) Average Footfall/Show =
[(Capacity) x (% Occupancy on weekdays) x 4 + (Capacity) x (% Occupancy on weekends) x 3]/7

Considering the difference in occupancy on weekday vs weekend,

Average daily footfall per show
= (180 x 4 + 225 x 3)/7 = **200/Show**

Footfall	Weekdays	Weekends
Seating Capacity	300	300
% Occupancy	60%	75%
Average Footfall	180	225

Revenue/Day
(Revenue per show) x (Number of shows) x (No. Of screens)

Ticket sales
(Average footfall/Show) x (Average price/Show) x (No. Of shows/day)
(200 x 300 x 4)
= ₹ 2,40,000

Food & Beverages
(Average footfall/show) x (No. of shows) x (% of people buying edibles) x (Price of one coke + one medium popcorn)
200 x 4 x 0.3 x 200
= ₹ 48,000

Parking
(Average footfall/Show) x (No. of shows) x (% of people using parking) x (Price of 1 parking ticket)
200*4*0.5*30
= ₹ 12,000

Advertising
It is assumed to be 10% of the total revenue
0.1 x Revenue
= ₹ 30,000

Total Revenue/Day/Screen = 3,00,000 + 30,000 = ₹ 3,30,000
Total Revenue/Day = 3,30,000 x 4 = ₹ 13,20,000
Annual Revenue = 13,20,000 x 365 = ₹ 48,18,00,000

Market Size of Chewing Gums in India

Preliminary Questions

Which market sizing unit should I consider? (Quantity, Value etc.)
- Estimate in terms of value.

Which kind of chewing gum are we considering, the sweet gums or the nicotine gums or both?
- Consider only sweet chewing gums.

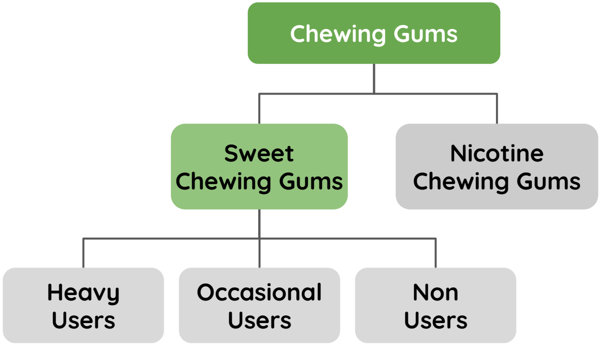
Should I consider the sales of chewing gums in packets or loose?
- No just consider the sales of loose chewing Gums.

Assumption

- Infants & toddlers, senior citizens are considered to be non consumers.
- And the consumption purposes are identified for a person on a weekly basis.
- Population of India is 140 Cr.

Overall Strategy

Since the chewing gum consumption pattern varies with age groups and according to the purpose, we'll first do an age segmentation of the demographic and then a parallel consumption segmentation into heavy, occasional and non users.



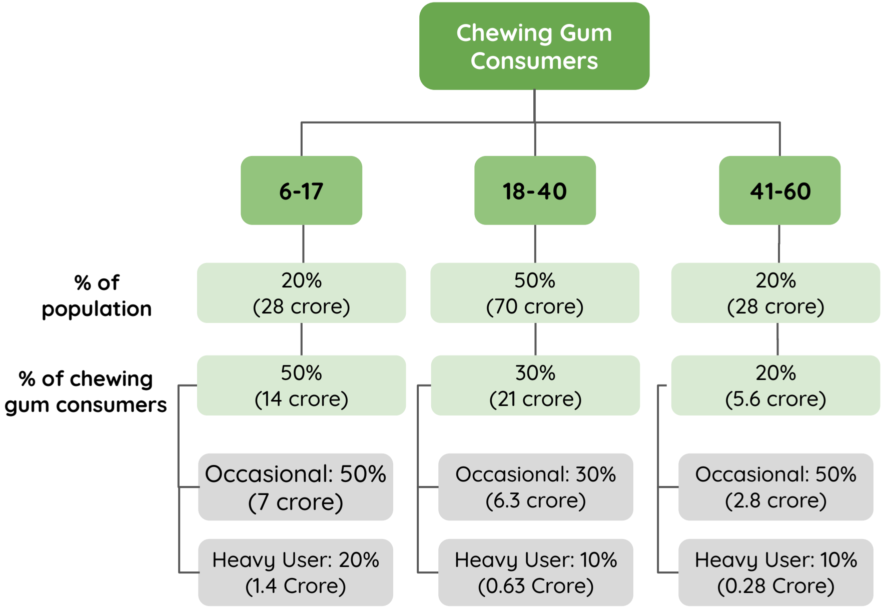
The overall market for chewing gums can be broadly divided into sweet gums and nicotine-based gums used by people who are quitting smoking. The general chewing gum consuming population is segmented based on their consumption rate. Since this is a fairly cheap commodity, the affordability doesn't come into the picture.

It is more reasonable to estimate the weekly consumption value rather than daily, depending on the consumer's behavior over a week.

Total number of Chewing Gums consumed in a week = (# heavy consumers X # units consumed in a week) + (# occasional consumers X # units consumed in a week)

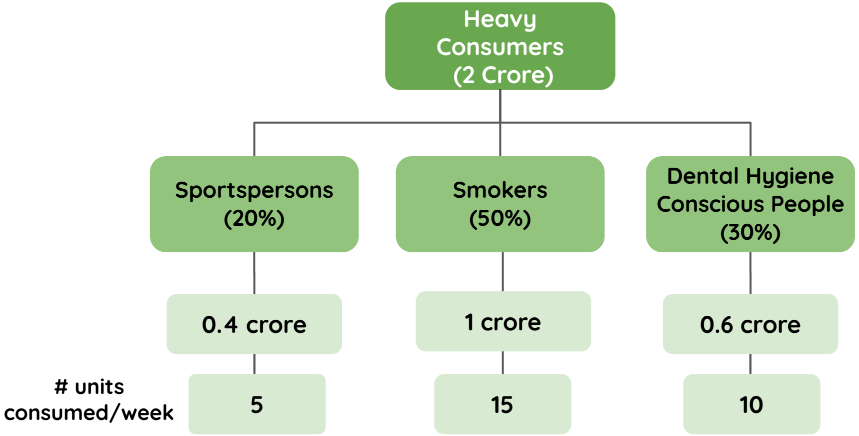
The weekly figure can then be used to find the annual market size.

Market Size of Chewing Gums in India



Total **# Occasional consumers** of chewing gum = ~ **16 Crore**
Total **# Heavy consumers** of Chewing Gum = ~**2 Crore**

To estimate the number of chewing gums consumed by heavy users weekly, we can divide the users into broad categories of Sportsperson, Drinker, Smoker, and Dental hygiene-conscious people and then assess their daily consumption levels.



Thus average # chewing gums consumed by heavy users on weekly basis = **12 Units**
Assuming average # chewing gums consumed by an occasional user on weekly basis to be **3 Units**

Total **# units consumed by heavy users** annually
= (0.4x5 + 1x15 + 0.6x10) x 52 weeks ~ **1200 Crore**

Total **# chewing gums consumed by occasional users** annually
= 16 crore x 3 units x 52 weeks ~ **2500 Crore**

Annual market size of sweet chewing gums in India (in units) = 3700 Crore

Cabs in Delhi

Preliminary Questions

Shall I include app based taxi services like Ola and Uber?
- Yes.

Is it fair to assume that every person using cabs, uses them for both sides of their journey?
- Yes, go ahead.

Assumptions

- A taxi driver works for 12 hours a day (excluding breaks for meals)
- The traveling populace is even across the income demographic
- Average no. of passengers in a taxi = 2

Overall Strategy

(1) First we find the population that commutes daily and then the segments that can afford to and prefer to travel in cabs among the other means.

(2) Then we find the total trips completed by a driver daily to find the number of cabs in Delhi.

 # cabs = total # trips completed /avg # trips by each driver

Considering the people who travel daily to college, office or for other work would be mostly people within the age bracket of 15-60 i.e. about 60% of the total population.

 # people who travel daily = 0.6 x 2 crore = 1.2 crore

Out of these people, let's find out the people who prefer cabs as their mode of commute, using income segmentation and their proclivity to avail cabs.

Taking different forms of transportation as: Public Transport (Buses + Metros + Gramin Seva), Autos + Rickshaws, Personal Vehicles and Cabs. Most middle class working people would prefer using the buses or metro over an auto or cab. Whereas, the upper class would prefer travelling in their personal vehicles when available and hailing a cab otherwise.

Commute Options	BPL	LMC	UMC	UC
Public Transport	100%	75%	40%	10%
Autos/Rickshaws	-	25%	10%	-
Personal Vehicles	-	-	25%	40%
Cabs	-	-	25%	50%

Cabs in Delhi

Traveling Populace (120 lakh)

- BPL (20%) → Cab users (0%)
- LMC (40%) → Cab users (0%)
- MC (30%) → Cab users (25%) → 120 x 0.3 x 0.25 = 9 lakh
- UC (10%) → Cab users (50%) → 120 x 0.1 x 0.5 = 6 lakh

Total # people availing cabs daily = 15 lakhs

Number of trips

Assuming that the average no. of passengers per trip = 2
And each person uses cabs to commute both to and fro in their journey.

Total # trips = # people using taxis / avg # passengers in a taxi = (15/2) x 2 = 15 lakh

Building further on our assumption that a taxi driver works for **12 hours** a day and the average duration of a trip is 40 mins. Reasonably, most cab drivers don't get their next trips instantaneously and there is delay involved in finding a customer. Let the time spent between two consecutive trips be of 20 mins.

So on an average a cab driver spends 40 + 20 = 60 mins = **1 hour to complete one entire trip**. (Here a trip is defined as the time between finding two customers.)

Thus, **# trips completed in a day** = total working time/time taken to complete 1 trip
= 12 hours/1 hour = **12 trips/day**

 # cabs = total # trips completed daily/avg # trips by each driver
= 15 lakh/12
~ 125,000 cabs

Daily Revenue of the Metro Walk McDonald's Outlet

Preliminary Questions

Which day should I assume it to be?
-Consider it to be a weekday.

Shall I include sales from takeaways as well?
-No, just dine-in and delivery.

Assumptions

- The outlet has 30 seats.
- Timings are from 10 AM to 11 PM
- Every person eats at McDonalds for 20 minutes.
- Thus, there are 3 (60/20 min) different people occupying a seat every hour at max.

Overall Strategy

(1) Average order value per person varies.

(2) The number of people eating at the outlet varies across different hours.

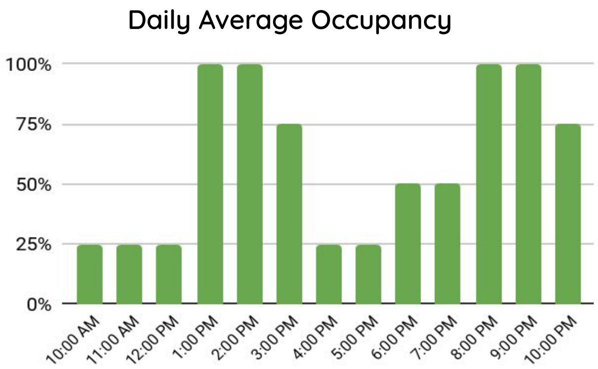
(3) Revenue from Deliveries is ~20% of Dine-In Revenue.

(4) Daily revenue = (# hours) x (# people per hour) x (average order value)

We assume that the average order value for one person = ₹ 80 (for 30% of the population) and ₹ 150 (for 50% of the population) and ₹ 250 (for 20% of the population)

That is an average of
0.3 x 80 + 0.5 x 150 + 0.2 x 250 = ₹ 149
~ ₹ 150 per person per sitting

Since the occupancy of the outlet varies throughout the day, considering this distribution of the customer traffic of people at McDonald's on an hourly basis, the average number of people dining-in at a given hour can be found.



Daily revenue from dine-in
= (# hours) x (# people per hour) x (avg order value)

= (# hours) x ((30) x (avg % occupancy) x (3)) x (150)

= (5 x (0.25) + 2 x (0.5) + 2 x (0.75) + 4 x (1)) x 13500
= ₹ 1,04,625 / day ~ **₹ 1 Lakh/day**

We have assumed that for every 5 dine in orders, 1 delivery takes place. Thus, the revenue from delivery is 20% of the revenue from dine-in.

Total revenue of the outlet
= Revenue from dine in
+ Revenue from delivery

= 1.2 x 1 Lakh
= ₹ 1.2 Lakh /day

Sales of the Indian Express in Delhi

Preliminary Questions

Should I consider the sales on a weekday or weekend?
- *Weekday*

Should I consider the sales of digital subscription too?
- *No just consider the sales of physical copies.*

Assumptions

- Average number of people in a family = 4
- Household market share of Indian Express = 10%
- # copies subscribed by each family = 1
- Average # people per institution = 120
- Institutional market share of Indian Express = 50%
- # copies subscribed per institution = 4

Overall Strategy

Only two sources of physical sales are considered:
a) Subscription based and b) Non subscription based

Subscription Based Sales = 2 x Non-Subscription Based
Total Sales = 1.5 x (Subscription Based Sales)

The subscription based sales are further divided into household and institutional.

- The Indian Express Sales
  - Subscription Based (67%)
    - Household
    - Institutional
  - Non-Subscription Based (33%)

Subscriptions By Households

Since the Indian Express is an English newspaper with multiple competitors in the print media industry, we do a demographic segmentation of the households. This will allow us to understand the literacy status, spending ability and the propensity to spend on an English newspaper.

people in an average family = 4
families = 2 Crore/4 = 50 lakh

- Families in Delhi
  - BPL (20%)
    - No subscription of English newspapers
  - LMC (40%)
    - 30% of families with subscription of English Newspapers
  - UMC (30%)
    - 80% of families with subscription of English Newspapers
  - UC (10%)
    - 100% of families with subscription of English Newspapers

Sales of the Indian Express in Delhi

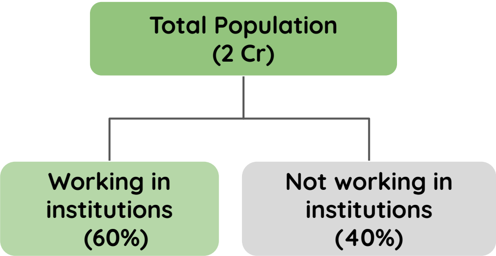
Total # families with subscription of English newspapers =
50 lakh x [(0.2 x 0) + (0.4 x 0.3) + (0.3 x 0.8) + (0.1 x 1)]
= 50 x 0.46 = 23 lakh

 # families with subscription of Indian Express
= 23 lakh x 0.1 = 2.3 lakh families

Total Household Sales =
(# households with Indian Express subscription) x
(Average # copies sold per household)

Daily household sales = 1 x 2,30,000 = **2,30,000**

<u>Subscriptions By Institutions</u>



Population working in institutions = 2 Crore x 0.6 = 1.2 Crore

institutions = 1.2 Crore/120 = 1,00,000

Assuming 80% of institutions have subscription of English newspapers
institutions subscribed to English newspapers = 1,00,000 x 0.8 = 80,000

Institutions with subscription of Indian Express = 80,000 x 0.5 **= 40,000**

Total Institutional Sales =
(# institutions with Indian Express Subscription) x
(average # copies sold per institution)

= 40,000 x 4 = **1,60,000**

Total Subscription-Based Sales = 2,30,000 + 1,60,000 = 3,90,000 = 4,00,000

Total Sales = Subscription Based Sales + Non-Subscription Based Sales
= Subscription Based Sales/0.67 = 1.5 x (Subscription Based Sales)
= 1.5 * 4,00,000 = 6,00,000

Crows in Delhi

Preliminary Questions

Can I consider that the number of crows will be equal during the day and night?
- *Yes*

Can I assume that all the crows rest on trees and not on buildings and residential complexes at night?
- *Yes*

Assumptions

- Area of Delhi = 1500 sq km
- Estimated forest cover and subsequently, the trees in Delhi

Overall Strategy

(1) The number of crows in Delhi at any particular time are equal to the number of crows resting in the trees at night assuming that the outflow and inflow of crows in the city is same.

(2) The number of crows can be calculated by estimating the number of trees by taking into account the overall forest cover and other factors like number of trees, nests and number of crows per nest

Number of crows in Delhi can be given by =

Area of forest cover x (Trees/Area) x (Nests / Tree) x (Crows / Nest)

Here, all the numerator values can be approximated based on the type of forest cover area they belong to.

Therefore, higher forest cover has a positive correlation with the number of

- number of trees.
- nests per tree
- crows per tree.
- overall crows.

Area of Delhi (1500 Sq. KM)

- High forest cover (10%) = 150 Sq. KM
- Medium forest cover (20%) = 300 Sq. KM
- Low forest cover (70%) = 1050 Sq. KM

Area Type	Low Forest Area	Medium Forest Area	High Forest Area
Area	1050 Sq. KM	300 Sq. KM	150 Sq. KM
Trees/ (Sq.km)	200	500	1000
Nests/ Tree	0.1	0.15	0.20
Crows/ Nest	4	4	4
# crows	**84,000**	**90,000**	**1,20,000**

Number of crows in Delhi =

Sum of number of crows in low, medium and high forest areas

= **2,94,000 Crows**

Books in DTU

Preliminary Questions

Shall I include DSM and USME as well?
- No, Just consider books in DTU Main Campus.

Should I consider books only in DTU Library or also include books in residential and faculty rooms too?
- Include all the books in the campus at this point of time.

Do I also include magazines and photocopied books?
- No, Just printed books

Assumptions

- DTU Library has 2 floors with identical arrangement of bookshelves with each shelf stacked along the other to form a book wall.
- Each Book Wall has 8 bookshelves in a row and each bookshelf has 5 rows.
- Each row in a bookshelf has 15 books on an average.

Overall Strategy

Total books in campus on a regular working day =

Books in DTU Library + Books in Residential Areas + Books in Faculty Rooms + Books carried by Day Scholars + Bookstore

DTU Library

No. of Books in DTU Library =
 # Books in one book wall x # Book walls in a department x # Departments

 # books in one shelf = # books in a row x # rows in a book shelf
= 15 x 5= 45 books

books in a book wall = 8 x 45 = 600 books

DTU library is divided into **different departments** as shown, with book walls in both the first floor and the book bank. The miscellaneous section consists of novels and competitive exam preparation books.

Total # Book walls in Library =
9 x 5 + 6 x 5 = 75 book walls

Total # Books in DTU Library
= # books in book wall x # book walls
= 600 x 75 = 45,000 books

DTU Library

- **Smaller Departments**
  - **Bookwalls**
    1st Floor: 4
    2nd Floor: 2
  - Computer & IT
  - Civil
  - Electrical & Electronics
  - Mechanical
  - Management
- **Larger Departments**
  - **Bookwalls**
    1st Floor: 6
    2nd Floor: 3
  - Biotechnology
  - Chemistry
  - Mathematics
  - Physics
  - Miscellaneous

Books in DTU

- Total # of Books
  - DTU Library
  - Residence
    - Student Hostels
    - Faculty Residences
  - Faculty Room
  - Day-Scholar
  - Bookstore

Residential Areas

Student Hostels:
There are 6 Girls Hostels with an occupancy of 60 girls on an average and 9 Boys Hostel with average occupancy of 150 boys.

- # students in Hostels = 6 x 60 + 9 x 200 = 2160 ~ 2100
- *Assuming that each student in hostel has 10 books including both academic and non-academic*
- **Total # books in student hostels = 21000 books**

Faculty Residences:
There are 26 faculty flats in a block and there 8 blocks
Therefore, Total # faculty flats = 8 x 26 = 208 ~ 210
Assuming one faculty lives in a single flat and each faculty has an average 20 books in their homes.
- **Total # books in faculty residences = 210 x 20 = 4200 books**

Faculty Rooms

There are 30 and 20 faculty rooms in bigger and smaller departments respectively (including humanities)
Faculty Rooms = (5 x 30) + (5 x 20) = 250

Assuming that each faculty room has 2 bookshelves = 2 x 30 = 60

Total # books in Faculty Rooms = 60 x 120 = 7200 books

Day Scholars

Total # day scholars = Total # students in DTU - Hostellers
= 10,000 - 2100 = ~8000 students

Assuming that each day scholar carries 0.5 books on an average, since books aren't utilised much in classrooms, and an attendance of 70% on an average day.

Total # books carried by Day Scholars = 0.7 x 0.5 x 8000 = 2800 books

Campus Bookstore

Bookshelves in the store= 15
Books in each bookshelf = 50
Total # books in bookstore= 15 x 45= 750 books

No. of books in DTU on a regular day =
= 45000 + 21000 + 4200 + 7200 + 2800 + 750
~ 81000 books

Money Withdrawn from ATMs in Delhi in a day

Preliminary Questions

Should I assume that all ATMs are open for 24 hours?
-*Yes*

Should I assume that all cards have the same daily withdrawal limit?
- Yes, assume that the limit is ₹ 10,000

Assumptions

- Delhi's area ~ 1500 sq. km (approx)
- Minimum denomination withdrawn = ₹ 500
- People withdraw in multiples of 500 only.

Overall Strategy

(1) Total no. of ATMs can be calculated as a function of the ATM density in different areas

(2) Total amount withdrawn in one day = (# of ATMs) x (# of daily withdrawals) x (average amount withdrawn)

ATM density	High	Medium	Low
Percentage	30%	50%	20%
# ATMs/sq. km.	8	4	1

Considering the ATM Density in various areas in New Delhi,
No. of ATMs in Delhi = 1500 x (0.3 x 8 + 0.5 x 4 + 0.2 x 1) = 6900 **~ 7000**

% of people	5	10	40	30	15
Amount withdrawn	10,000	5,000	2,000	1,000	500

Most people withdraw from an ATM in small amounts, only when they run out of cash or require immediate money for transactions or payments.

Average amount withdrawn = 0.05 x 10000 + 0.1 x 5000 + 0.4 x 2000 + 0.3 x 1000 + 0.15 x 100
= ₹ 2175 **~ ₹ 2200**

Average time to withdraw money from an ATM = **2 minutes**

Maximum possible withdrawals in 1 hour = 60/2 = **30 withdrawals.**

Average occupancy of the ATMs

Time	Occupancy	Withdrawals
12 am - 6 am	10%	18
6 am - 10 am	20%	24
10 am - 5 pm	50%	105
5 pm - 9 pm	60%	72
9 pm - 12 am	30%	27

Total Withdrawals in a Day = 246 ~250

Therefore, total amount withdrawn daily

= (# of ATMs) x (# of daily withdrawals) x (average amount withdrawn)

= 7000 x 250 x 2200
= 385 Crores

Daily Global Revenue of Starbucks

Preliminary Questions

Do you mean Global Revenue for any given day?
-Yes, Calculate global revenue for starbucks for today.

Should I also include revenue generated by eatables sold along coffee too?
-Yes, consider eatables and coffee both for your analysis

Should I consider special locations such as airports and offices?
- We're looking for an overall ballpark figure.

Assumptions

- Since Starbucks is US-based, we consider that it generates 50% of its global revenue from its home country.
- Operating Hours are 6 AM to 10 PM.
- Average time to make a regular starbucks coffee is 5 minutes
- At maximum efficiency, 3 orders can be processed simultaneously in a normal store
- Average price of a normal coffee in Starbucks is $3
- For takeaways, people only take coffee.

Overall Strategy

Revenue Generated in USA =
Average revenue of a store x # Stores in USA

Global Revenue of Starbucks = 2 x Revenue generated in USA

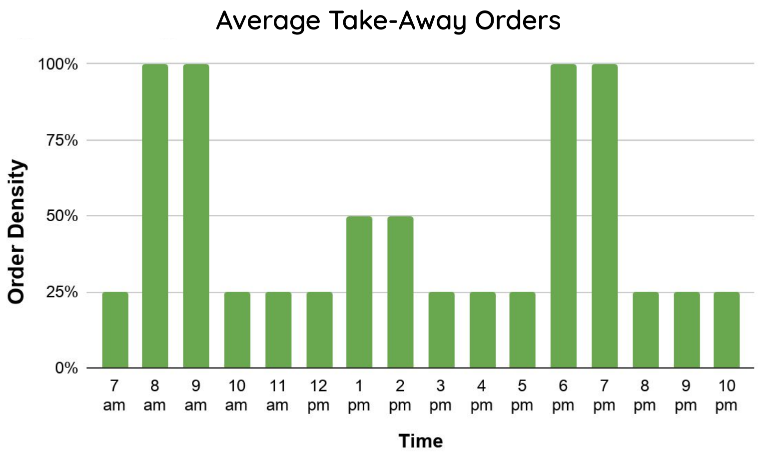
Average revenue of a Starbucks outlet in USA

The revenue stream is divided into two types- Takeaway and In-Store Orders

Takeaway Orders
Order density can be segmented as - Peak (100%), Medium (50%) and Low (25%).
Peak time for takeaways are in the morning and evening as the working population grab coffee while commuting. Density is medium around lunch and low for the rest of the day.

During Peak Time, store works at maximum efficiency;
3 coffees are prepared in 5 Minutes during peak time.
Therefore, **36 Coffees/hour.**

Coffees sold in Medium Time - 18/hour
Coffees sold in Low Time - 9/hour



Daily Global Revenue of Starbucks

Total Takeaway Orders in a day on average =
36 x 4 + 18 x 2 + 9 x 10 = 270 Coffee Orders/Day

Revenue Generated from Takeaways
= No. of orders in a day x Average price of a takeaway order
= 270 * 3 ~ **810$**

In-Store Orders

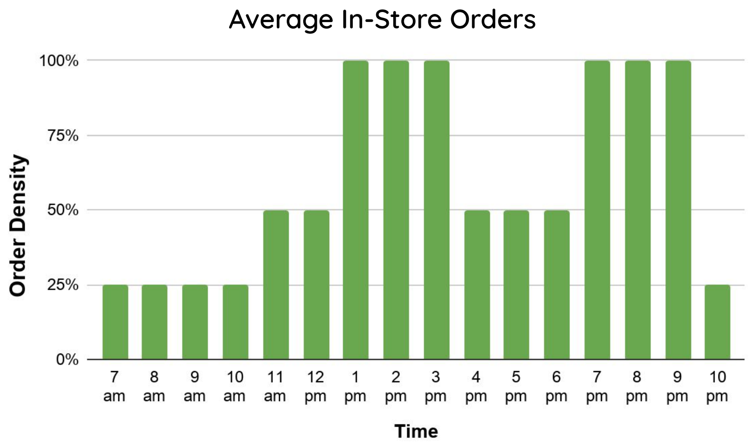
For these, the peak time is usually after noon, when most people take breaks from their work and after office timings.

Total In-Store Orders in a day in a normal store
= 36 x 6 + 18 x 5 + 9 x 5 ~ 350 Orders/Day

Average In-Store Order Cost = $5 *(including eatables)*

Revenue Generated from In-Store Orders
= No. of orders in a day x Average price of an in-store order
= 350 x 5 = ~ **$1700**

Total Revenue generated by an average store in a day
= $810 + $1700 = $2510/day ~ $2500/day



Starbucks stores in the USA

Population of the United States = 300M = 30 Crores
Assuming that each Starbucks location caters to 2000 people in that locality,

Total # starbucks stores in USA = 30 crores/2000 = 15,000 Stores

US Revenue of Starbucks = Total Number of stores x Average Store Revenue
= 15,000 x $2500 ~ 37,500,000$

Global Daily Revenue = 2 x US Revenue = $75,000,000

The Market Size of ACs in Delhi

Preliminary Questions

Shall I include both window and split air conditioners?
-Yes.

Which market sizing unit should I proceed with? (Quantity, Value etc.)
-Estimate in terms of tonnage.

Air conditioning is used for residential and commercial purposes. Commercial areas would include office space, mall, hospital, restaurants, school, buses etc. Shall all these be included?
-Calculate only for residential and office buildings.

Assumptions

- Average life of an AC = 10 years
- Market growth rate = 10%

Overall Strategy

(1) The overall market size in tonnage can be calculated with the demand due to market growth and replacement demand.

(2) Income segmentation for residential household demand.
(# Families who can afford ACs) x (Avg tons of ACs per family)

(3) For office buildings, air conditioning per unit area approach.
(Total office area) x (Tons required per unit area)

Market size in tons = Demand to replace old ACs + Demand due to growth in market size
= (# ACs in tons) / (Avg. life of an AC) + (# ACs in tons) x (Growth rate)

Avg. Replacement Demand = Current # Products/ Avg. Life cycle of product

Assuming the average life of an AC to be 10 years, and taking the growth rate as 10%. We have to calculate the # ACs in Delhi presently, based on our segmentation.

Residential Segment

#ACs in tons = (# Families who can afford ACs) x (Avg tons of ACs per family)

An AC ranges from ₹ 20,000 to 40,000 depending on the tons.
To determine the affordability, we do an income-based segmentation as a flow diagram.

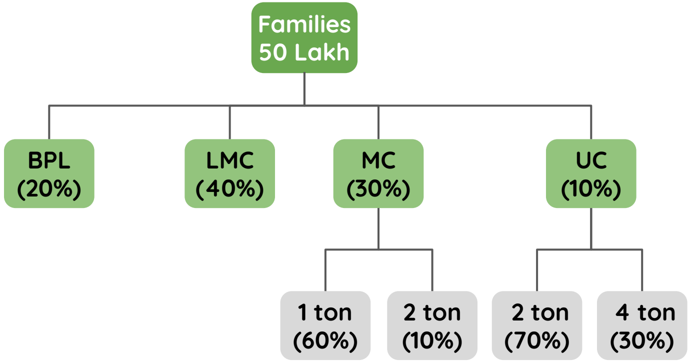
Considering that BPL and Lower Middle Class can't afford due to their income range, we focus on the Middle Class and the Upper Class. For the MC, most of the households will have a 1 ton AC and some would have a 2 ton AC.

However, for the UC segment, there would be some families which can even afford up to 3ACs, two 1 ton ACs for each bedroom and a 2 ton AC for the living room.

Tons in residential segment =
50 Lakh x [(0.3 x 0.6 x 1) + (0.3 x 0.1 x 2) + (0.1 x 0.7 x 2) + (0.1 x 0.3 x 4)]

= 900,000 + 300,000 + 700,000 + 600,000 = **25 Lakh tons.**

The Market Size of ACs in Delhi



Office Space Segment

For the Office Space Segment, since offices typically have centralized ACs and the tonnage of the Central AC decides how much area can be cooled.

 # ACs in tons = (Total office area) x (Tons required per unit area)

Typically, only white-collar employees work in air conditioned office spaces. So, neglecting exceptions, these would belong to MC and UC (40% of population) in the age group of 22-60.

Assuming an equal spread of the population from 1-80 years, roughly 50% of the population will lie in the 22-60 bracket. This is the total working-age population (1 Cr).

Assuming that all men and nearly half the women would be working.
Therefore, **no. of white-collar employees** = 20 L men + 10 L women = **30 Lakh** people.

An office space would consist of cubicle area, and common areas such as receptions, washrooms, lunch areas. Dividing the total area of an office with the total number of employees, area per person would roughly be the same as a 'bedroom' of 2 people, typically having an area of 200 sq. ft.

Hence each employee is equivalent to 100 sq. ft. area in an office.
Also we will require a 1 ton AC to cool a room of 200 sq. ft.

Hence, # ACs in tons = (# People working in air-conditioned offices) x (Office area per person) x (Tons required per unit area)

= (3MN) x (100 sq. ft.) x (1 ton / 200 sq. ft.) = **15 Lakh tons**

Combining both the segments, we get **40 Lakh tons.**

Market Size in tons = (# ACs in tons) / (Avg. life of an AC) + (# ACs in tons) x (Growth rate)

= (40 Lakh tons) / (10 year) + (40 Lakh tons) x (10% per year)
= 800,000 tons / year

Annual Profit of SBI Branch at DTU

Preliminary Questions

Should I Consider all sources of Profits to a Bank?
-No, consider only profits generated from saving accounts.

Is bank accessible only to DTU fraternity or outside public too?
-Consider both.

Assumptions

\# students in DTU = 10,000
Day-Scholars : Hostellers = 80:20
Students Teacher ratio ~ 30:1
\# teachers = 10000/30 = ~330
Non teaching staff to student ratio ~ 20:1
\# Non teaching staff = 10000/20 = 500
- All non-teaching staff have a bank account.
- There are ~3 SBI banks in a ward.
- Bank revenue sources are

Overall Strategy

(1) The total money withdrawn is a function of the amount of money withdrawn by each family as a whole.

(2) The families have been divided on the basis of money withdrawn by families in different income brackets.

Annual Profit = Interest on loan - Interest on saving - Operational Expense

Revenue from Savings Account (SBI-DTU)

Hostellers
Given the 80:20 split between day-scholars:hostellers, there are 2000 hostellers. Most students open a new account only after starting their graduation degree. However, as most of these are students outside Delhi, some might already have bank accounts in their hometowns or in other banks. Considering 40% of them have accounts in SBI DTU,
Student account holders = 0.4 x 2000 = 800

Faculty
Consider that 75% of the faculty opt for on-campus accommodation and 80% of them have a bank account here because of the convenience of proximity and ease of administration.
Faculty account holders = 0.75 x 0.8 x 330 = ~200

Staff
For the non-teaching staff, it is preferable to have an account in a public sector bank and at the proximity of their workplace. Considering 90% of them have an account here,
Staff account holders = 0.9 x 500 = 450

Day-scholars
Most day-scholars would prefer to open their account near their homes only. So considering only 5% of them have an account here.
Day Scholar Account Holders = 0.05 x 8000 = 400

Locals
Delhi has 272 municipal wards with a population of 2 Crore. Assuming nearly equal distribution across all the wards, each ward has an population of approximately 85,000. Out of these, 70% would be eligible to have a bank account (adults).
Assuming that there are 3 SBI banks in a ward, and with the market share of 60% each bank caters to (0.7 x 0.6 x 85000)/3 = **11,900 people locally ~ 12,000 people locally**

Annual Profit of SBI Branch at DTU

Customers of SBI - DTU

- Staff
- Hostellers
- Faculty
- Day-Scholar
- Locals

Total saving accounts in SBI-DTU
= 800 + 200 + 450 + 400 + 12000 = ~14000

Account Balance	Lower Class	Lower Middle Class	Upper Middle Class	Upper Class
Percentage of people	20%	40%	30%	10%
No. of people	2800	5600	4200	1400
Avg. savings account balance	2,000	10,000	30,000	50,000
Total	56,00,000	5,60,00,000	12,60,00,000	7,00,00,000

Total sum of all savings accounts balance = ₹ 25,76,00,000

Considering,
- CRR = 4% (Nil Interest)
- Repo rate = 6.5
- Reverse Repo Rate = 6.0
- Interest rate on saving accounts = 4%
- Average interest on loan = 15%
- Asset Quality Ratio

Quality asset = 0.96 x 25,76,00,000 = ~ 24.72 crores = 25 Cr

Suppose only 80% of it is lent as loan (0.8 x 25 = 20 Cr),
with an average rate of interest as 15%.
Revenue from loans = 0.15 x 25 = 3.75 Cr
Revenue from reverse repo = 0.06 x (25-20) = 0.3 Cr

Cost incurred on **savings account interests** = 0.04 x 25 = 1 Cr
Let us assume the **annual operational expense** = 70 Lakh = 0.7 Cr

Annual Profit = Interest on loan - Interest on saving - Operational Expense
= 3.75- 1 - 0.7 crores
= 2.05 Cr = ₹ 2 Cr (per annum)

Thus, the total profit made by the SBI Branch at DTU in one year = ₹ 2 Cr

Traffic Lights in Delhi

Preliminary Questions

May I assume the roads are straight and rectangular with no curves?
-Yes.

Should I consider just Delhi or the entire NCT region?
-Just Delhi is fine.

Assumptions

- Area of Delhi is taken as 1500 km^2.
- Motorable area of Delhi that is two-thirds, which is 1000 km^2.

Overall Strategy

(1) The number of traffic lights on a stretch of road depends on the type of road and its vicinity.

(2) After segmenting the area of Delhi on the basis of infrastructure, we can find the total area of roads.

(3) Using the average width of the roads, we can find the cumulative length of roads and subsequently, using the average distance between two consecutive traffic lights, the total number can be found.

The area of Delhi can be broadly divided infrastructurally into the following:
1. Residential (40%)
2. Commercial (40%)
3. Industrial (10%)
4. Outskirts (10%)

We shall segment the area of Delhi that is built up into the area occupied by the roads with traffic lights on them.

	Residential	Commercial	Industrial	Outskirts
Percentage of area of Delhi	40%	40%	10%	10%
Percentage of area for roads with traffic lights	1%	2%	4%	4%
Average distance between lights	1 km	1 km	2 km	2 km
Average Width of Roads	10m	16m	20m	25m

Traffic Lights in Delhi

Area of Delhi with motorable road 1000 km²

	Residential 400 km²	Commercial 400 km²	Industrial 200 km²	Outskirts 100 km²
% Area of Roads	1%	2%	4%	4%
	4 km²	8 km²	8 km²	4 km²
Avg Width Of Road	10 m	16 m	20 m	25 m
Road Length	400 km	500 km	400 km	320 km
Avg Distance b/w lights	1 km	1 km	2 km	2 km
# Traffic Signals	400	500	200	160

After computing the areas of roads with traffic lights on them for each infrastructural segment, the length of the roads can be found from the area computed using the assumed width for each road.

Total length of roads = Area of roads/Average width

Therefore, the length for each of the following classification will be:

1. Residential = **400 km**
2. Commercial = **500 km**
3. Industrial = **400 km**
4. Outskirts: **320 km**

Now, we divide the distance of roads by the average distance between consecutive traffic lights, to find the number of traffic junctions within each category.
400 + 500 + 200 + 160 = **1260 Traffic Lights**

Finally, we need to consider that at most traffic junctions, there are multiple traffic lights for each side of the traffic flow. There are a minimum of 2 traffic lights and a maximum of 4 at a crossroad. This assumption will also take into account the presence of multiple traffic lights at a single side of the road as well. Particularly for main roads and highways, there is a series of 3-4 traffic lights to cover the width of such roads to ensure adequate visibility for all vehicles.

Therefore, considering one-third in each segment to find the total number of traffic lights at junctions, we arrive at our final number.

Therefore, the total number of traffic lights in Delhi is estimated as:

(1260/3) x (2 + 3 + 4) = 3780 traffic lights

Light bulbs Used in DTU

Preliminary Questions

Shall I include both tube lights and CFL/incandescent bulbs?
-No. Only CFL/incandescent bulbs should be taken into account

Should I calculate the no. of light bulbs bought in an year or the total no. of light bulbs present in working condition in that campus in that year?
-Estimate in the no. of lights bulbs used in a particular year.

Shall I include student hostels, faculty residences as well?
-Yes

Assumptions

- No new departments/buildings come up in the particular year.
- Tube lights are the primary source of light, bulbs are secondary
- 1 light bulb lights up a built up area of 4 square meter

Overall Strategy

The campus is broadly divided into Departments and SPSs, Residential Area, Miscellaneous (Canteen, Library, Audi, Admin etc.)

light bulbs = # rooms x avg # bulbs per room

For large areas, # light bulbs = (proportion of bulbs x built-up area x avg bulb required per unit area)

Departments

DTU has 14 SPSs and 7 major department buildings.
Assuming the distribution of rooms across all the departments to be more or less equal.
Each department can be segregated into various types of rooms.

- Departments (3 floors)
  - Classrooms (3x8=24)
  - Labs (3x4=12)
  - Faculty Rooms (45)
  - Washrooms (2x3=6)
  - Corridors (3)

Each classroom has 6 tube lights and 2 bulbs, on an average.

Labs with an area approximately twice that of regular classrooms have an average of 10 tube lights and 6 incandescent bulbs.

Each faculty room has 1 bulb and 1 tubelight

SPSs are larger in area than regular classrooms with a seating capacity of 100+ students and hence have 12 tube lights but no bulbs

3 bulbs are present in each washroom.

 # light bulbs (Departments and SPSs) = (24x2 + 12x6 + 45x2 + 3x10 + 3x6) x 7
= 1806 ~ 1800 bulbs

Light bulbs Used in DTU

<u>Residential Areas</u>

students in DTU = 10,000
20% students live in hostels = 2000
Going with a generalised flat-system in both girls & boys hostel where each flat is shared by 4 students.
hostel flats = 500
A hostel flat consists of 2 rooms, one common room, a kitchen, and one bathroom. Thus a total of 5 rooms with 5 bulbs in total (including the study table lamp bulb).

DTU has 4 boys messes & 1 common girls mess having around 10 light bulbs each

Student to Teacher ratio is 30:1
=> # teachers = 10000/30 ~ 330

Considering 75% of the faculty members opt for on-campus residences, # residential flats = 250

A residential flat consists of 2-3 bedrooms, a kitchen, a living room, 1 or 2 bathrooms. Thus a total of 6-8 rooms with an average of 2 bulbs per room

Total # light bulbs in residences
= 400 x 5 x 1+ 248 x 7 x 2+25 x 5 = 5600

Miscellaneous

- Library
- Auditorium and Sports complex
- Street Lights and Canteens
- Administrative block and health centre

DTU Library
Built-up Area = 5000 Sq.m (all 4 floors)
Built-up Area lightened by one bulb = 4 Sq.m
Considering 80:20 distribution of tube lights & bulbs,
light bulbs = (5000 x 0.2)/4 = 250
[Refer Assumption #3]

DTU Auditorium
Built-up Area = 1000 Sq.m
Considering 90:10 distribution of tube lights & bulbs
light bulbs = (0.1 x 1000)/4 = 25

Admin Block
There are about 40 small rooms and 10 conference rooms in administrative block and 20 rooms in health centre.
light bulbs = 40x2+10x8+20x4= 240 bulbs

Sports Complex
Built-up Area = 500 Sq.m
light bulbs = (0.2 x 500)/4 = 25

Street Lights
Assuming 10% of road area in 160 acres land, the road area = (160 x 4050) square metres = 648000 sq.m.

Taking the avg width of road as 10m and since a street light is needed at a distance of every 50m, as per the regulations.

street light bulbs = 64800/50= 1300

Canteens
There are 3 major canteens in DTU and only one of them has indoor seating with around 10 bulbs. And for cooking area, on an average 5 bulbs/canteen.

Total no. of bulbs thus becomes 5 x 3 + 10 = 25

Total Misc Bulbs = 250 + 25 + 240 + 25 + 1300 + 25 = 1865 ~ 1850

Total light Bulbs used in DTU in one year = Department bulbs + Residential Area bulbs + Misc bulbs = 1800 + 5600 + 1850 = 9250 Bulbs

People Wearing Blue Shirt on Monday in Delhi

Preliminary Questions

Shall I include both formal blue shirts and casual ones?
-No. Include only formal shirts

Shall I include the elderly?
-No

Shall I include blue shirts worn as a part of school uniform?
-Yes

Assumptions

- Professionals and School students majorly wear formal blue shirts to school
- 40L School Students in Delhi (Already calculated in G #1)
- 40% school students wear blue formal shirts to their schools
- College students wear casual shirts and would rarely wear any formal shirts on a given monday.

Overall Strategy

People who would wear a formal blue shirt can broadly be categorized by:

- Professionals [segmented by age (22-60) & income]
- School and college students [Segmented by age (5-22 yrs) and income (excluding BPL)]

Number of people wearing a blue shirt on Monday in Delhi = (# professionals + # school students) who wear a blue shirt

- **Probability of wearing formal shirt:** Some popular colours in formal shirts are blue, white, pink, green and grey. Assuming 80% of the people wear these colours and 20% wear other colours. Probability of wearing blue formal shirt 80/5 = 16% so, **P (formal | blue) = 16%**

People who wear a blue formal shirt

I) Professionals: Neglecting exceptions, these would belong in the age group of 22-60. Assuming an equal spread of the population from 1-80 yr, roughly 60% of the population lie in this bracket. This is the total working-age population (1.2 Cr).

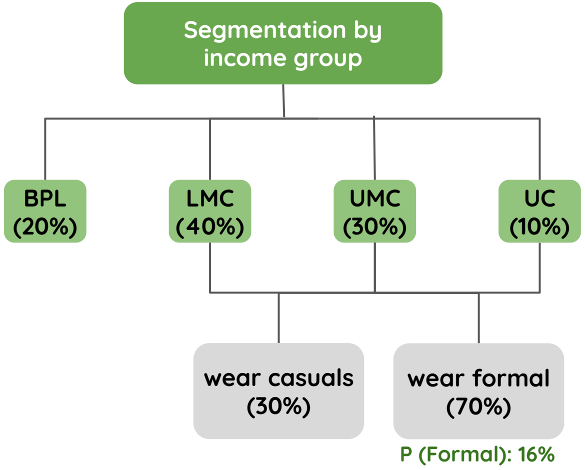
Considering those belonging to the BPL group do not wear formal, we do an **income based segmentation** to determine the likelihood of wearing a formal shirt for the rest of the population. .
Blue collar employees (LMC such as drivers, security guards) wear a formal shirt as a part of uniform.
White collar employees (UMC, UC) wear formals because of dress code at workplace. Some of them have to mandatorily wear formals while for the rest, it's optional.

Some people are not able to go to work because of illness or any other reason.
Hence, 90% of the people go to work on a given day.

Strategy used

Population of Delhi (2 Cr) → Segmentation by age group (1 Cr) → Segmentation by income group x P(wearing blue) → %age of people who went to work (90%)

People Wearing Blue Shirt on Monday in Delhi

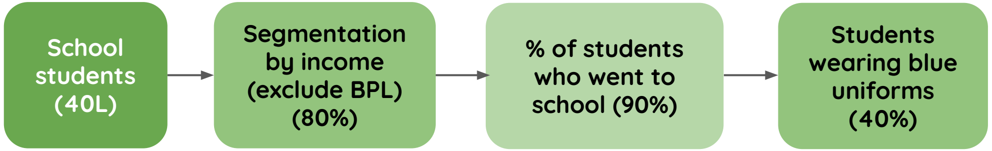


Therefore, 80% of the income group can afford to wear blue formal and 90% of the people go to work on a particular Monday

Number of professionals who wear a formal blue shirt =
1 Cr x { (80%) x [(70%) x (16%)] x (90%) } Professionals wearing formal blue
= 1 Cr x 0.0806 =

= 8.06L ~ 8L

II) School and College students: Assuming an equal spread of the population from 1-80 yr, roughly 20% of the population will lie in the 5-22yr bracket which is 40L.



Number of students who wear a blue shirt:

= 40L x (80%) x {40%} x (90%) School students wearing formal blue

= 11.52L ~ 12L

Number of people wearing a blue shirt on Monday in Delhi =
(# professionals + # school students) who wear a blue shirt
= 8L +12L
= 20L

CASES

Cases: Structure & Approach

The case interview round is an integral part of the interview process for most consulting/analytics firms. It is often a part of the ‘fit’ interview as well where the candidate is usually judged upon analytical thinking, business acumen, problem solving skills and creativity.

A case can simply be thought of as a business problem that has to be solved by you. You would need to analyse the situation, isolate the problem and then move on to suggest your solutions. You must remember that solving a case in front of a stranger, while talking them through it, is completely different from reading through case interview transcripts at your comfort or even attempt it by yourself while taking the help of the interviewer’s text. So always make it a point to practice case-solving with another person.

The key here is to understand the situation on multiple levels and identify the pain points using a mutually exclusive & collectively exhaustive breakdown, while simultaneously engaging the interviewer and explaining your approach.
Discussing your numbers, thoughts, questions will help the interviewer understand your thought process and will also allow him/her to guide you through it. Listen to their feedback, they usually drop hints and help you navigate through the intricacies of the problem, provided you are asking the right questions!

Summarise your understanding of the case and company in question and clear out any doubts regarding the problem statement. Get the basic understanding of the situation before proceeding to drill down into the other factors.

It is always better to customise the structure for your case using the essential frameworks and not saying that you’re using them directly. Once you have finalised an overview, take your interviewer through it. Always, fall back upon this while going back and forth on segmentation.

The devil is in segmentation. Make sure while you are trying to isolate the problem that you properly segment each branch and ask relevant questions. Use the 80:20 rule to prioritise the branch you want to drill through. After the problem has been isolated, suggest innovative solutions to it.

CLARIFY → EXTRACT → STRUCTURE → SEGMENT → SUGGEST

Cases: Structure & Approach

PROTIPS

- ➔ While navigating through the case, first try to have a **clear picture of the structure** in your mind, and then try to elucidate that with the same clarity.
- ➔ It's okay to stumble onto a wrong path and try to retrace your steps back to a point. Don't let this derail your train of thought, **maintain composure.**
- ➔ The best way to go around the case preparation phase is to **practice with a friend**, or a case buddy. Pair up with your friends who have the same level of preparation as you and take turns of attempting cases being in the roles of interviewer & candidate. In this scenario, the interviewer must have read the case beforehand, understood the problem analysis and the kind of answers that should be given to the questions.
- ➔ Do not miss out of the creative aspect of any business problem and compel yourself to think innovatively as well. It's always recommended to apply your insights from the **current industry trends** and real-life examples to earn **brownie points**.
- ➔ Regularly read the business news, keep up with the market trends and familiarise yourself with the different factors unique to each industry. Refer to: **Business Insider, CNBC, Mint, Finshots, r/consulting**
- ➔ Practicing **vocal delivery of your analysis** > Practicing analysis itself.
- ➔ While reading the casebook, you should try to apply the learnings and insights from one case to another and try to form your **personalised analysis structure** that best suits your way of thinking and naturally comes to you while approaching problems.
- ➔ Do follow the **frameworks** shown in the earlier section as a generic layout of how to approach any given case, **inculcate them** but do not memorise.
- ➔ Lastly, **do not overdo the preparation.** Just practice a diverse set of cases enough to equip you to walk through your thinking aloud and explain your analysis in succinct sentences.

CASES

PROFITABILITY

The client is a canned juice manufacturing company which has recently diversified its product flavours, and their profitability has taken a hit. You are tasked to identify, and analyse the root causes for the same.

- Okay. First of all I would like to know about the client company, its position in the market, product mix and customers it targets. Do we have data on this?

Yes, we do. The company is well positioned in the market in canned beverages segment. You can assume it has only one in canned beverages for the analysis.

- So, as the profitability has taken a hit recently after the introduction of new flavours, I suppose this is a company specific problem, and not industry wide. Since profit is a function of revenues and costs. I would like to know whether the decline in profits is a result of increase of costs or decline in revenues or both?

It is mainly due to an increase in the costs.

- The various costs usually involved in juice manufacturing include the sourcing of fruits from the farms, inbound logistics, warehousing and storage, processing and manufacturing, and lastly outbound logistics. What is the current approach in the value chain process?

We use a third party logistics provider for the delivery of fruits from the farmers to our warehouses. Several fruits get spoiled during inbound logistics which leads to further expenditure. After processing and manufacturing, the same transportation facilities are used to reach the retailers.

- I see. So one cause of the issue is the lack of careful material handling from the 3PL provider. Could you please expand on your processing and manufacturing methods. Is there a way to compare them to your competitors?

Our brand utilises higher quality infrastructure which costs more but in return, it also provides us with higher throughput. Although, despite the higher throughput, our average cost per unit of juice is higher than our competitors, because we've invested in better pasteurization infrastructure so that our juice concentrates are of better quality and the aroma of our product is better.

- Okay. I suppose the machines are not being used optimally to maximise the production and meet the demand, which explains the higher costs per unit and lower profits. To fully leverage the superior juice product, they should amp up the production by utilising their high quality infrastructure to its maximum capacity to cut the average unitary cost.

Very good. So the problem lies in the manufacturing and processing departments. Is there any way we can work on this?

- I have thought of two ways we can try improving on this.

To improve handling of raw materials during inbound logistics, the company can start transacting with the farmers directly, by establishing their own transportation in the chain. They can backward integrate and form a symbiotic relationship with the farmer. This would help them get fresher products directly upon harvest at cheaper prices, and cut the logistics middlemen out.

To reduce the under-utilization of manufacturing equipment, they must increase the production quantity to reduce average price per unit. This should be coupled with advertising of their new flavours and marketing to drive the consumer interest and grow the demand for the product. They should also explore partnering with e-retail platforms to further increase market penetration. So should I proceed with the cost feasibility check of these ideas?

No this is enough. Good job.

- Thank you

Chips Producer

Your client is a chips manufacturer. Over the past couple of months it has seen a decline in profits. You've been hired to diagnose the problem and suggest mitigation measures.

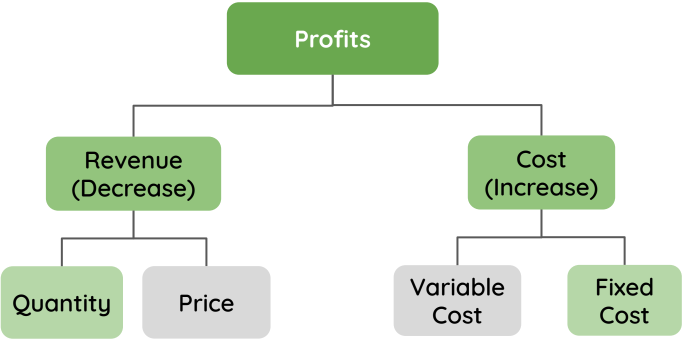
- Before beginning with the analysis, I'd like to know more about the client. How many types of chips does the company make?

The company predominantly makes only 1 flavour of chips.
- Which country is the client based out of and how many factories do they have? I want to understand the scale of business and extent of coverage.

The company has its factories and warehouses across the country. They are facing a decline in profits within three of their old warehouses spread uniformly across a specific state.
- That's helpful. Splitting this further to understand the problem, are they observing rising costs or declining revenues?

Both.
- Okay, I will first delve into the value chain analysis, where on the cost side the factors involved are manufacturing, supply chain, retail & distribution costs and other marketing costs. And within the supply chain, storage & transportation may be the areas of concern. Should I take both into consideration moving forward?

Take both into consideration and move forward.
- Firstly, on the transportation side, I would like to ask if the distance between the warehouses and factories is on similar lines as our competitors?



No, the average distance between the warehouses and factories is in excess of 200 km while the same is <100 km for our competitors.
- This is definitely a major issue. Their factories may be located at remote locations, away from the main manufacturing units. On the storage side, is the overall cost of storage per unit at par with the competitors?

No, it's a tad bit higher as compared to the competitor
- So the storage cost may be higher because of various factors - pilferage, spoilage of chips due to pests, higher rent, inefficient inventory management etc. In fact, due to the higher transportation time, the distribution may be delayed and the chips may expire before they reach the retail stores. This affects the shelf life directly and thus the overall sales.

That's right. Explain your approach for an efficient inventory management system.
- Thank you. The inventory management system can be of LIFO (Last in first out) or FIFO (First in first out) type. The problem arises if it's of LIFO type, leading to a further delay in supply and early expiration of products.

Yes. You are correct. At present the cartons which enter the warehouse last are the ones which are sent to the retailers first. The company has employed two different transportation companies for moving biscuits from factory to warehouse and then from warehouse to the retailers. Due to the lack in coordination between these two entities, a lot of biscuits were getting spoilt. How can we solve this issue?

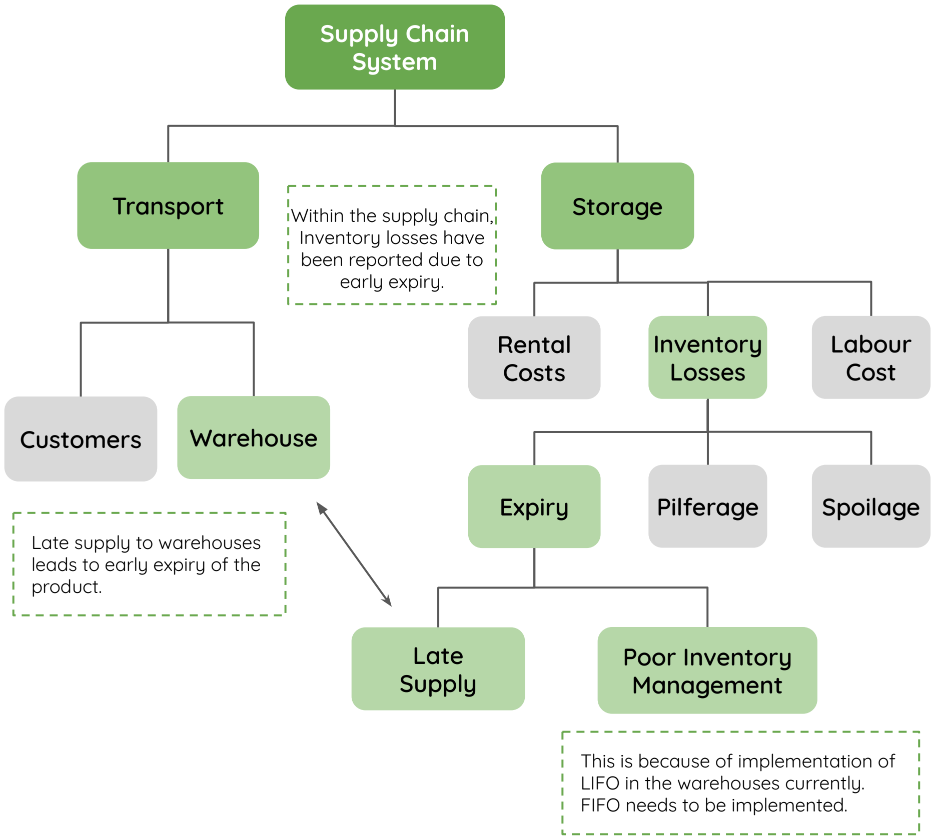
- I see. The cartons that come in last must be placed near the entry gate of the warehouse and the transportation company which takes them to the retailers just picks it up from there. Is that correct?

Yes that's right. What are your final recommendations?

(1) An extra entry/exit should be created within the warehouse which can help streamline the entire process. The cartons that would first come in could be picked up directly from the second exit thus ensuring FIFO is being followed. They can even have the same transportation company for both the tasks to be free of any lapses in communication.

(2) In addition to higher costs, the greater distance between warehouses and factories is also a reason for the expiry of chips. So it is recommended to move the factory to closer locations or adopt a central warehousing model currently on a rental basis.

Good analysis. Let's end the discussion here. Thank you!



Dunder Mifflin Paper Company

The client is a major paper company - Dunder Mifflin which is facing declining profits at one of its branches. You have been approached to find the problem and suggest changes.

- So the key problem I need to focus on is finding the issue with declining profits of our client. Is there any other objective?

No, please go ahead.
- Is the problem plaguing most of the client's branches or is it specific to a particular category (metro, urban, rural) of branches?

It's being faced by only a specific branch located in a metropolitan region - Scranton.
- Given the problem is specific to a particular branch, I suppose the issue is not industry wide. Are the competitors located in that region also facing similar issues?

No, the problem is only being faced by our client.
- So , could you let me know by how much the profits have declined and for how long the client has been experiencing this decline?

There has been a decline of 15% in profits. And the issue has been around for 2 years, ever since the inauguration of this branch
- Alright. Since the issue is that of profitability, could you help me with the trend in revenue and cost of the Scranton branch over the last four quarters?

Revenue has grown at a steady rate since inauguration, but the costs have increased at a much higher rate.
- Alright, in that case, I'd like to delve into the cost structure of a typical paper company branch. The fixed costs would be the leasing or rent and employee salaries and variable costs would include customer handling costs and sales commission % or employee bonus.

The sales commission % and employee bonus is similar to comparable branches and the client handling costs are also at par with other branches.
- Okay, so the issue must lie with the fixed costs of the branch. Further segmenting, these include employee salary, rent, utilities, stationery & postage, maintenance and depreciation expense. So, do we have any information of where the costs have been increasing specifically in comparison to our competitors in the area?

Most of these have remained constant over the 2 years and even the rent and maintenance per square foot for our warehouse is at par with the competition.
- Alright, while the rent and maintenance per square foot have been at par in that area, the overall charges might be higher compared to other branches of Dunder Mifflin. This is perhaps due to a larger size of this branch warehouse. Is there any extra unutilised space in the warehouse which is unaccounted for and is adding to the rent and maintenance charges?

Yes, in fact, there's a large area near the entry that has been unutilised due to lack of demand in the area.
Probably that is the major factor influencing higher overall costs. So in order to optimise the space utilisation and cut the costs, I would like to suggest the following:

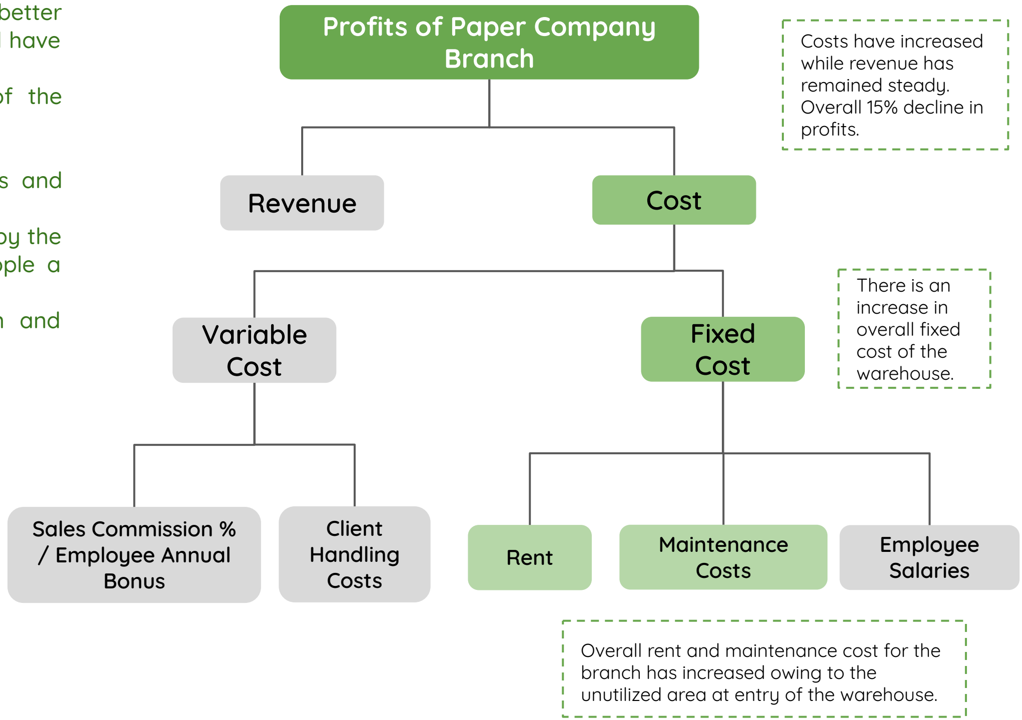
C #3 Dunder Mifflin Paper Company

A larger warehouse size directly impacts the amount spent on maintenance, driving the overall costs further higher. Since it is a part of the warehouse, they can not obviously choose not to include it in their leasing to cut the costs. So the better approach would be to efficiently utilise that space to cover the expenses and have higher revenues to offset these costs.
The extra space can be used optimally to increase the productivity of the workforce

- Team building and training exercises
- Ramp up additional services for the region to attract customers and increase sales.
- Set up a stationery shop for the general public, which would be run by the warehouse workers and at the same time, provide the local people a cheaper alternative.

These would work effectively in demand shaping for the target region and eventually drive the sales.

These are reasonable recommendations. Thank you.



The client is a television manufacturer with nationwide presence who is facing decline in profits. You have been hired to find out the reasons and provide suggestions for the same.

- First of all, I would like to know about the client company, its position in market, product mix and target customer segment.

The company is one of the market leaders in the television segment. It has a product in every price range to target vast variety of customer segments. However, one model enjoys maximum proportion of sales in the portfolio (upto 80%).

- Okay. So I would like to know whether it is an industry wide problem or company specific problem?

It is a company specific problem. There is no decline in profits of our competitors.

- Since the profit is a function of revenue and cost, I would like to know whether the decline in profits is a result of increase in costs or decline in revenues or both.

So the decline in our profits is due to decline in revenues whereas costs have remained more or less stagnant.

- Okay so is the decline in revenues uniform across the segments from lower middle class to upper class, or is it solely due to the model that sells the most?

The middle class segment has faced the most decline, while the revenues from all other segments remain unaffected.

- Alright, since revenue is directly dependent on the number of units sold and the price per unit, I would like to know which of these factors have changed, or both, that has led to the decline.

It is mainly because of lesser number of units sold.

- Okay, and I would also like to know whether this decline is in all the regions or some specific regions since the company has a nationwide presence.

There's a decline across the nation, however the western India region is much more affected than others.

- So I believe the problem is prevalent across the country and the western region has some additional factors that have amplified the decline. Since you mentioned this isn't an industry-wide issue, may I know what they are doing differently than their competitors?

Correct. The competitors' product is very similar in terms of price and features, but the competitors have gained a stronger footprint in the middle class segment due to their aggressive advertising.

- Okay. Since there are no significant differences in price and features, the root of the problem must lie in either the insufficient capacity to cater to the increased demand in the western region or in the distribution chain of the client. It may be because the competitors are offering a higher margin to the distributors or retailers.

Good. There is no problem with the production capacity and the distributors have gradually reduced the stock offered to retailer because of lower margins. What would you do next?

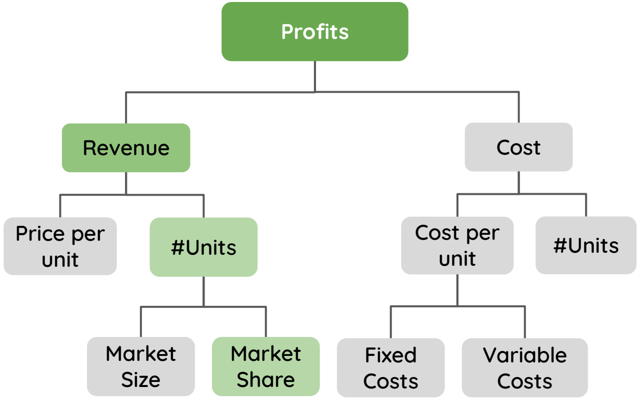
- So, we can assume that the company is at par with its competitors in other costs. Do we have some comparative data on margins offered?

C #4 Television Company

Profitability | Revenue Decline | Moderate

Revenue decline is due to lower sales in the middle class segment, due to losing market share to competitors.

The decline is nationwide, but more significant in the Western region, due to lower distributor margins



We offer 20% margin whereas some competitors offer 25-30% margins.

- I do not feel they should consider increasing the margin for distributors and absorbing the increased expense because even though, it may increase sales, the revenue would be undercut due to higher costs. It might even be worse than the present situation. I would like to focus on expanding the distribution channels, rather than relying on these conventional distributors. Is the company well-established in the e-commerce space?

The company itself has minimal presence on e-commerce portals. The products are often sold by our retailers on such portals.

- So, the core issue behind the decline in sales nationwide is due to lack of aggressive digital advertising to the target consumer base which has allowed other players to gain a foothold here. And the steeper decline in western region is due to lower margins, leading the distributors to prefer sales for other companies. Am I on the right track to proceed with the recommendations?

Right on point.

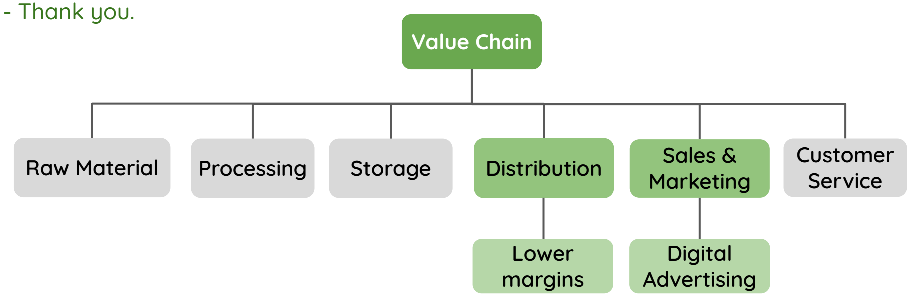
- Alright, I would like to give two main recommendations:

One, the company should start transacting with retailers directly, overhaul their current supply chain, and expand the distribution channels. Through this, they'll be able to surpass the distributors' issues and the logistics costs involved. They should hire a factoring agent who can take up the task of collections from retailers and invoicing them regularly.

Secondly, company can start selling its products directly on e-commerce portals, and not through the retailers on these platforms, in order to cut the cost on margins. Likewise, they'll be able to offer a better deal to the price-sensitive customers as well and thereby move lost sales from distributors on such portals.
In conjunction with this, they need to reform their marketing team and focus on expanding their digital presence, especially for the lower middle class segment. They should explore new advertising avenues and reach out to bolster consumer engagement in this highly competitive market
Should I proceed with feasibility check of the recommendations?

No this is enough. Good Job.

- Thank you.



Hotel Owner

The client owns a hotel and is pondering whether to increase the room rental from ₹6000 to ₹7500 per night to increase profits and wants your recommendation on how to approach this.

- Is ₹7000 the average room rate, or do they have standardized rooms with a uniform rate?

Uniform rate across all our rooms. They are all similar.

- Could you provide me more information about the hotel, like its location and facilities?

It is located in a commercial area in Gurugram. The hotel also has a banquet hall and facilities for business customers such as lounges and conference rooms.

- As far as room rental is concerned, does the hotel offer any extra paid services to customers?

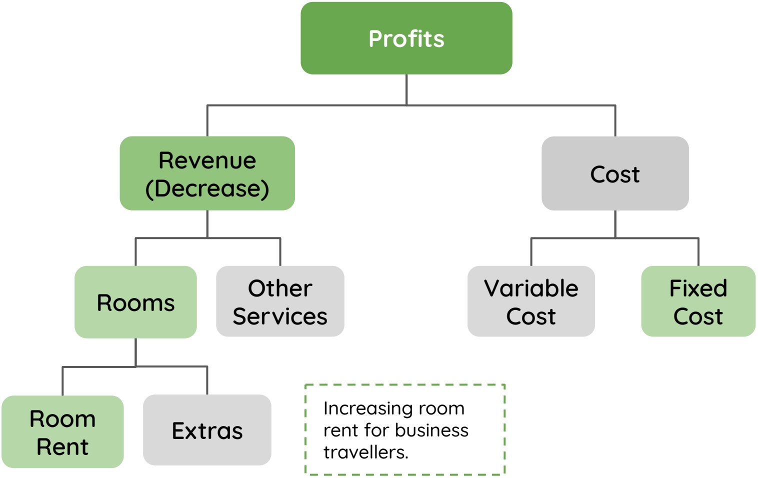
Customers have the option to spend on food, beverages and premium TV channels etc. by paying extra charges.

- Okay, I would like to begin by understanding the profit structure of the company. Then I'll proceed to calculate the additional new revenue and costs to check if we are more profitable than status quo.

Since the profit is directly dependent on the revenue, increasing rent may increase the revenue if it yields well with the price elasticity of the customers. Do we also plan to increase our costs by providing additional facilities in order to justify the increase in rent.

Yes we can also consider the possibility of that.

- Okay. To understand the impact of increase in rent in the revenue, these two would be our primary parameters for making the decision.



1. Occupancy rate: The price sensitive customers may go for the cheaper alternatives nearby, which may hit their occupancy rate.
2. Spending on services: To offset the higher rent, customers may scale back on this expenditure on other amenities.

To understand this price elasticity, I'd like to know the split in the type of customers that visit the hotel.

Mainly business (60%), tourists (20%) and guests (20%) via banquet hall bookings. Most guests usually book the rooms along with banquet hall as it is normally used for special functions.

- Since the major bookings are for business purposes, it's interesting to note that most business customers often don't pay from their own pockets but rather bill their company for the stay, usually on a fully-sponsored business trip. Does the company also cover for the extra expenses?

Yes. So, some of the companies whose employees typically stay at our hotel have a cap for room rentals at ₹10,000 per night. And also, there is no restriction on the employees' billing of extra services.
- That's great! This means that we can expect similar occupancy and expenditure since the employees are unaffected and their spending is in line with company policies. Moreover, given that the cap is ₹10,000, they may potentially increase room rentals even more to maximize profits, but that would severely hamper the other customer segments of tourists and guests.

Good suggestion, we will look into that later.
The second factor that I'd like to analyse is the nearby competition, since the hotel is located in a commercial area. What kind of alternative options are available for the companies and do they prefer cheaper options with similar facilities?

In the same area, there is one other hotel which has rate of around ₹7000 per room per night. However, it is not preferred by business travellers as we have better corporate facilities such as conference and waiting rooms.
- How important are these facilities for business customers?

They are used to conduct client meetings and corporate events hence, it's of significant value to them.
- This means we have an edge over the competitor which will make our business customers stick with us and they will be largely unaffected by the rent hike.
Now, when it comes to the other customer segments, I think that tourists and guests would definitely be more price sensitive. But since most of the guests come through banquet hall bookings, do they have a special provision for such group bookings?

No we do not. But, the banquet hall is one of the finest in the area and our in-house catering service is also regarded well by the customers.
- Okay so despite the increase in rent, the occupancy may not be affected as much because the banquet booking charge remains the same and customers would be willing to spend a little more for their convenience and quality.

Good point. Let's proceed with you recommendations.
- I would like to put forward the following recommendations:

1. Introduce a two tier room structure with 'Executive Suites' for business users and 'Regular Rooms' for others. This way, they can provide business customers with slightly better ambience/facilities such as smoking rooms, access to business lounges and more additional facilities that would justify a further hike upto 10,000 for the price elastic business segment, to maximise the revenue stream.

2. Keep the price at 6,000 for 'Regular Rooms' but encourage tie ups with tourist agencies and venue booking platforms to provide group discounts to guests.

These are good points. Thank you! You may end this here now.

The client owns 4 petrol pumps in Haryana. The profits have been constant for the past few years for one of them, and the client wants them to grow steadily. Investigate the issue and recommend solutions

- Okay. First of all I would like to know the location of the petrol pump that has seen decline in profits and have any nearby pumps shown a similar trend?

The petrol pump is located on a highway between Delhi and Chandigarh. We have one nearby pump that has also seen decline in general but is better off than us.
- Okay. so how long have the profits been stagnating for?

We have seen this happen for the past 3 years.
- So, I presume that the costs must haven't changed much because oil is a highly government regulated industry with a well established supply chain and the local demand has a higher tendency to stagnate or fluctuate. Thus, the problem must be due to a saturated market or lack of proper expansion. The revenue sources can be broken down into fuel sources and non-fuel sources. Among the fuel sources, do well sell only petrol or have other products as well? And is a particular product not doing well?

The client sells both petrol and diesel, premium & standard. Profits from both the products has not been growing.
- Among the non fuel sources, the possible revenue streams would be convenience store, value added services (paid air filling station, servicing etc). First I would like to start with the revenues from fuel sources. So the revenue from petrol pump can be written as:
(# transactions/visiting customers) x purchase quantity x (fuel price)
How have these numbers changed in the past 3 years?

The prices are not a differentiating factor and the purchase quality has also remained constant. However, they haven't witnessed the expected growth customers.
- The # transactions/visiting customers can be further written as:
(Vehicles in the area or passing through the area) x (% filling fuel) x (% coming to the client's petrol pump i.e. local market share).
The issue could lie in any of these three factors due to a change in circumstances.

Vehicles in general have reduced near our area and we have also lost some potential customers to our competitor.
- So that explains the overall decline in profits in general and better off condition of our competitor due to an increased market share. Have there been any recent incidents that allowed the competitor to expand their market share?

Yes there has been a construction of a restaurant closer to their petrol pump location. The restaurant also provides some discounts to truck/bus drivers.
- I see. This explains the decline for both the fuel products in terms of market share, but we have also seen a decline of vehicles in the area generally. This can either be because of a decline in the number of vehicles travelling between these two cities or the percentage of vehicles taking the highway route.

Good inference. A new expressway has been inaugurated which cuts the travel time considerably.
- Okay, that's a major pain point then. Has the possibility of either increasing or decreasing the prices to understand their effect on the customer inflow to the petrol pump been explored?

Based on the market research, we have found that on every 5% increase in price, the number of customers decrease by 15% and for every 10% decrease in price, the number of customers increase by 5%

Haryana Petrol Pump

- Okay. So there would be decrease in revenue in each case. So the price cannot be increased. And as far as non-fuel revenue streams are concerned, what is their relation with the number of customers?

So 40% of people visiting petrol pump end up visiting the convenience store as well. The other non-fuel revenue sources can be neglected for this analysis.
- So this means we can explore the combined effect of higher price and increased revenue from convenience store. Do we have any numbers related to revenue per person from the convenience store?

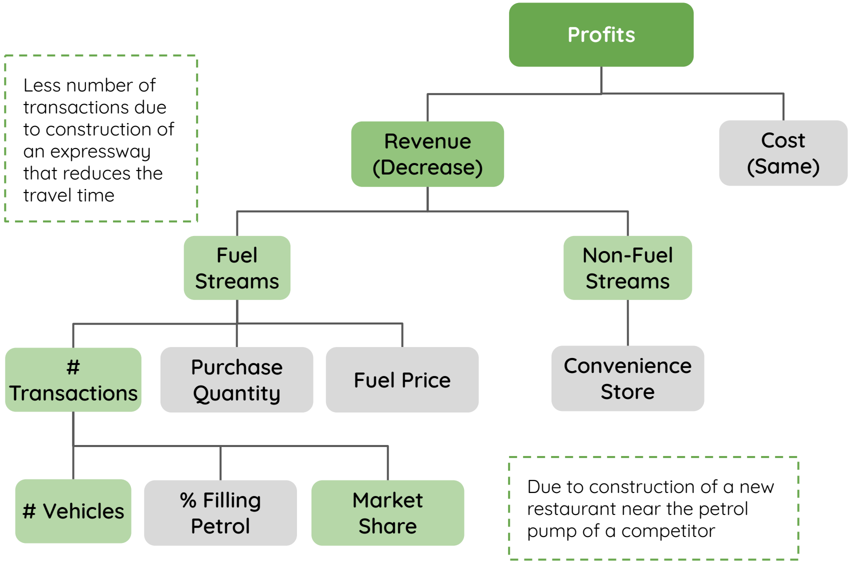
That won't be necessary. What would you suggest to improve the situation?

Okay so looking at the situation the client has faced reduction in number of customers due to decrease in the percentage of people taking highway as their main route as they have a shorter new freeway available. The client has also faced a decrease in the market share due to construction of new restaurant near the petrol pump of competitor. I would suggest the following:

1) Due to the price sensitivity, keep the prices the same. However, an option for providing discounts to the trucks that frequently cross the highway can be explored.

2) Explore the opportunity of opening a new petrol pump on the expressway that would offset the stagnation or losses from here in the long run.

3) Invite a fast-food chain or a local eatery to set up a restaurant adjacent to the convenience store, that will drive more customers in and undercut the competitors.



4) Offer additional value-added services for the vehicles, to increase the non-fuel revenue streams. And also stock the more in-demand items in the convenience store since almost half our customers visit it.

5) Encourage tie-ups with state transportation and tour services buses to halt at their pump which would increase sales through both revenue streams.

Great points. That'd be all. Thank you!

Whiskey Manufacturer

Your client is an Indian whiskey manufacturer. Lately, they have experienced a decline in profits. They are seeking your help in devising a turnaround strategy.

- Okay, is whiskey manufacturing the only business of the company and what exactly is the product?

Yes, it is the only business. The product is a standard bottle of blended whiskey.
I see. I would like to further investigate the reasons for this decline. How much decline are they facing and since when? Also, where does the client primarily operate?

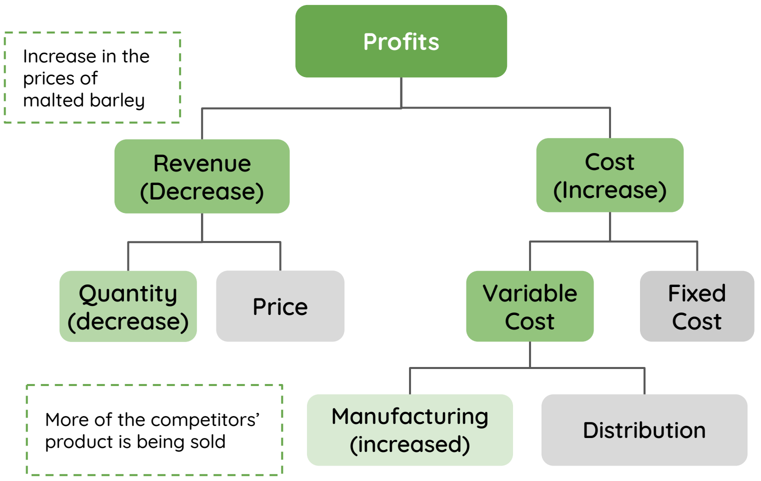
There has been a constant decline for the past 10 years and a rather sharp one last year. The client operates in the metropolitan cities of India.
Have sales declined in a particular region?

No, all over India sales have uniformly declined.
Okay, and how is the rest of the industry doing?

They are also facing lower profits but their case is not as bad as that of our client.
So where do we lie in the value chain? Do we manufacture it and sell it to distributors?

That is correct.
First, I would like to study the profit structure of our client to understand what is causing the problem and then proceed to suggest recommendations. Has there been any increase in distribution cost or higher margins?

No, only the manufacturing cost has increased.



Alright, I would proceed by addressing the problem in two phases:
- Increasing manufacturing cost
- Decreasing Sales

Since this is an industry wide problem, has the manufacturing cost per unit increased for our competitors too, or is there an external factor involved?

Actually due to increase in the taxes, the prices of malted barley (ingredient used to brew whiskey) have gone up across the country since last year.
Okay, that explains the sharp dip in profits last year. So in order to mitigate the high manufacturing cost, they should try to negotiate a better deal if possible or reach out to a new supplier, or adopt a diversified supplier approach. As far as sales are concerned, has the market size decreased overall or are they losing market share to competitors?

While the market size has stayed more or less the same, the sales have steadily increased for our competitors.

Then I'm sure the core problem must be intrinsic to our value chain. Production: Has our production capacity taken a hit or have the distribution channels reduced?

We're producing the same as before. And we sell our goods to retail liquor stores and bars, so do our competitors.
- Alright, what is the revenue division among both these streams, and how does that compare to our competitors?

We earn 80% from retail stores and 20% through restrobars. Whereas, the competitors have a 50-50 split between the two.
- May I know the reason for focusing significantly more on retail than bars?

The retail sales have stayed more or less the same, through the years, but our orders from clubs have gone down due to lower consumer demand. Our competitors have not lost sales in clubs, it has increased in fact.
That explains where we are losing market share. Are the bar-owners pushing the competitors' products more aggressively? Is there any incentive for them too?

No, according to them, it's the end customers who are preferring our whiskey less.
- I see. So in this stream, it is the lack of consumer push and demand. This may be due to better bulk deals or higher margins that incentivises the bars to stock more of their products, or more effective advertising strategy that drives a higher consumer interest. What is the difference in price and modes of marketing?

Our product is more expensive but the quality is better. In addition to our marketing channels, the competitors have tie ups with music festivals and concerts that has allowed them to shape demand.

It looks like our client hasn't kept up with the current youth and lost visibility and eventually preference. The competitors have positioned themselves as a youth whiskey brand by setting a cheaper price, marketing it through digital avenues and collaborating with music festivals.
I would like suggest the following steps for the client to improve their market positioning and initiate a turnaround.

1) Look to diversify the distribution channels from just two conventional modes to airport lounges, airplanes, premium hotels, and events where people are likely to spend more on drinks.
2) Since the product is of a higher quality, they should market it as a gentleman's drink or a vintage drink, because the youth are more price-sensitive and exhibit less brand loyalty.
3) They should come up with a new product variant, in a slightly cheaper range to target the youth. The packaging for this range should be attractive and funky, along with co-branding with youth festivals, fashion shows, corporate parties etc.
4) Since liquor advertising is restricted, they should explore indirect brand perception building though subsidiary products such as music CDs, soda, and non-alcoholic drinks segment.
5) They can also encourage exclusive tie-ups with certain bar owners to use our whiskey in their cocktails, and give them better margins.

Okay. These ideas make sense. That will be all. Thank you.

C #8 Indian Airline Operator

Profitability | Revenue Decline | Difficult

The client is a low cost airline operator in India. Over the past 2-3 years, they have observed reduced profitability and have been burning cash to maintain competitive pricing. How should they mitigate this?

- Before analysing the industry, I'd like to know more about the client. What kind of flights does the company run?

The company operates short flights across India and some international flights as well, including both direct and connecting flights. The profitability issue is largely domestic only. .

- Okay, coming to the domestic commercial aviation market, how many competitors are there and are they facing similar issues?

They do have 2 major competitors but unfortunately none of them are facing such a problem, as per their information.

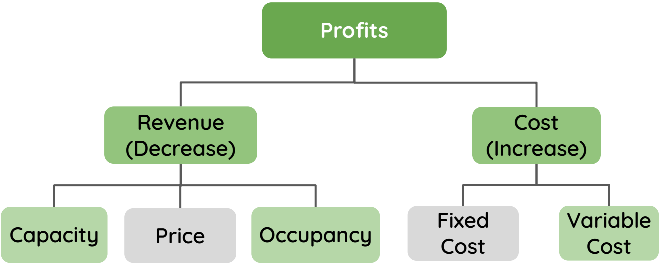
- Alright then. Given that this is a highly competitive market with aggressive pricing, in case of either increasing costs and decreasing revenue, the profitability will be severely hit. The main revenue streams would be domestic ticket sales, cargo services, and tours & packages. May I know in which revenue stream we have seen a decline?

The decline has been majorly in domestic ticket sales.

- Okay. The revenue from ticket sales is directly dependent on the following factors: Price x Capacity x Occupancy. Since pricing has to be aligned with the demand, I suppose the occupancy or capacity have declined.

Yes, in fact, both have shown a downwards trend.

- In case of occupancy has the decline been on some specific routes or overall in general? And in case of capacity has there been a decrease in number of flights on routes due to higher air traffic congestion or decrease in fleet size?



Okay to answer first question, the client recently ventured across some niche routes and the occupancy in those routes has been dismal. In case of capacity, the client had to ground certain aircrafts due to some technical snags and the new airplanes that were ordered to increase the fleet size will be delivered only next year.

- Do any of our competitors operate on these new niche routes? And have they faced any problems due to grounding of airplanes, maybe they were procuring aircrafts from the same manufacturer?

No, we are the only ones on these routes right now and our competitors are not facing much problem due to these grounding of airplanes due to their agreements with different companies.

- So let us first analyse the occupancy problem. I would break the entire value chain: booking the flight tickets, reaching the airport, security procedure, boarding, in-flight services, deboarding. Since the flight booking system is consistent across platforms, I would like to focus on the airports - particularly in the niche routes. Since these are operating between Tier 2 and 3 cities, the airports must be located on the outskirts. So the increased time and effort that passengers have to put in makes air travel a less desirable option compared to railways. It also suggests that the people in these routes are very price sensitive and do not have an inherent preference for air travel, as reflected in the lack of demand, which also justifies lack of competitor.

Those are solid conclusions. Do you have any suggestions?
- Is there any other reason for higher costs apart from the distance which impacts accessibility to airports?

The number of taxis in this area have gone down. Now the taxis being less in number, it further increases the difficulty in reaching the airport.
- Okay. I understand. So I have two suggestions:

1) The client should start its own shuttle service or collaborate with bus transit startups, providing them added incentives. Further, the client can launch a bundled deal that includes transportation cost to and from the airport in the ticket price itself, that is cheaper than the next best alternative and also convenient for the passenger in terms of connectivity.

2) Since the customers are very price sensitive there would be only a few people regularly travelling through flights, which makes customer retention the key focal point to leverage their first-mover advantage on these routes. So, loyalty points to frequent travellers redeemable through on-flight food/beverage, ticket discounts and additional services should be introduced for these routes specifically..

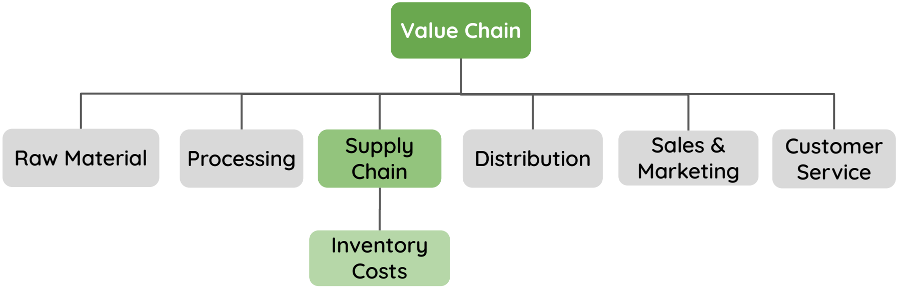
To further improve the occupancy, they should have new flights on the regular serve as connecting flights to multiple cities. They may also schedule their domestic flights to maximise the efficiency of niche routes.

Good and how will you tackle the problem of capacity?
- In order to address this, I would suggest overhauling the current flight scheduling formula to maximise the air time of available aircrafts. Whereas on the other hand, recompensation offers from the aircraft manufacturing company can yield us a long term deal for snag-free aircrafts. In order to alleviate the current demand the airline can lease aircrafts for short term for the most profitable routes.

Good. Let's now analyse the costs problem the company is facing, mainly inventory costs.
- Okay, so inventory costs can be split into types and number of inventory parts and cost of carrying which would include pilferage & warehouse rent. The reasons for higher costs could be poor demand forecasting, inefficient inventory management & late supply costs. Is the cost higher across all these components as compared to competitors?

The cost is high specifically due to the types of inventory held. The airline operates with a varied fleet whereas most the competitors have one standardised fleet. Due to this, we need to hold more inventory. What will be your suggestions?
- I would like to recommend the following points:

1) Standardisation of fleet purchases - to reduce the carrying cost.
2) Renting agreements with suppliers – alternative to expensive inventory
3) Hub & spoke model - Have a central warehousing instead of maintaining inventory at every airport.
4) Strict Inventory control - Order on a need basis instead of maintaining excess.



C #9 Drug Mafia in Punjab

Profitability | Revenue Decline | Difficult

Your client is a drug lord in based in Punjab whose cartel is reporting a drop in profits in the last 2 years. He has hired you and you have no choice but to formulate a turnaround strategy for him.

- Firstly, my ethics would not approve of associating with any illicit business and hence, I would decline if I have the ability to.

Good. In this scenario, you have no other option but to advise him.
- Okay. So, how does this business work? What part of the drug supply chain does our client operate in?

They illegally manufacture cocaine in large quantities in rural Punjab and then supply it to various states and countries. Here, the local drug cartels purchase the cocaine from them and sell it to the end consumer.
- And are there any other revenue streams, such as kidnapping, selling bootleg alcohol, human trafficking etc?

Interesting options, but no.
- Okay, well are there any competitors in this business and have they witnessed similar losses?

They have some moles in other cartels who have informed that there is no serious hit to their profits.
- Is the decline in profits specific to a particular geographic?

Yes, the eastern states and Myanmar have reported lower profits.
- I would like to study the profit structure of the client and identify drivers of lower profit. We shall then address them in the latter half of the case.

So, here we have two reasons for low profits. I would like to deep dive into each of them one by one.
Starting with the reduced sales in eastern states - the problem must be at some stage in the supply chain where the cocaine is not getting pushed forward. To identify the driver of the issue, I'd like to draw the value chain.

Production → **Transportation** → **Distribution** → **Local Cartel Demand**

Has the production decreased or are they unable to transport the required amount of cocaine to this region?

The production has taken a slight hit, but they have been able to cover that up.
- Well, I suppose the demand for cocaine wouldn't have decreased significantly, so are the distributors not able to push the product to the local cartels?

Yes, despite the steady demand, the product is not reaching the customers.
- That means either the product is either lying unsold in the stock or it is probably suffering from pilferage during transit while shipping. It is possible that the product is being stolen by some of the distributors.

Unfortunately, that is not the case.
- Then the most plausible reason would be that it is being confiscated by the police during transshipment.

Precisely. It so happens that the product is being confiscated before it reaches the end consumers. Why could this be happening?
- Well, either the law enforcement against drugs has become stricter in these states or the security measures around the sale with local cartels has slackened, or maybe even both.

That is true, In light of stricter enforcement, the conventional routes have become risky and alternates to reach the cartel haven't been beneficial.

- Interesting, so it seems they have not adapted to this new development. I have a few suggestions on how they can work their way around this.

1. Enhance the security of consignments around the old route.
2. Explore new regions for supply and ramp up production to the extent that losses due to security lapses are made up for from these.
3. Exploit our political connections through bribery to ease the restrictions.
4. If there is suspicion of the presence of a mole among the cartel plotting against our client and giving information to the police, they must investigate all their members and have a stricter hiring process.

Is it possible to bribe the cops at the local level to ease the movement of product or can they pay the distributors more to amp up security?

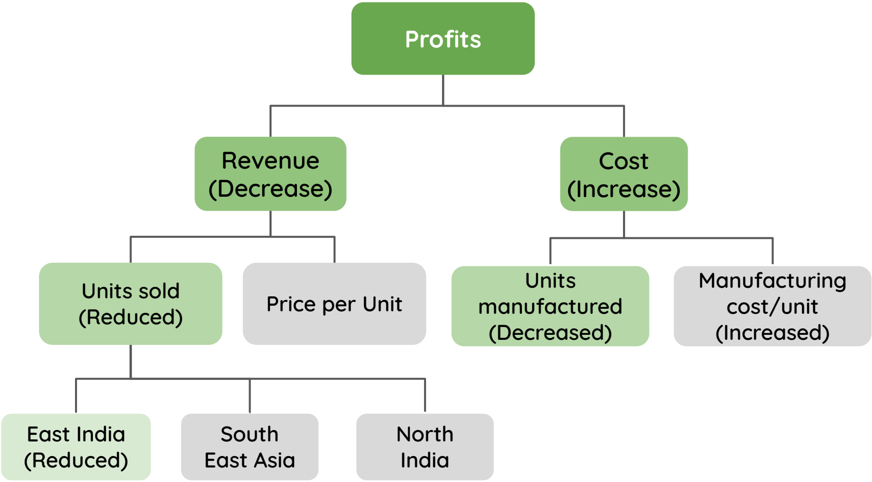
Nice points. But they will be unable to do either of these.
- Then it looks like we are going to have to settle with shifting our trade route as well, to get back the business they have lost to competitors. I want to understand how badly this affects their profits. It might not make sense if they go into greater losses.

That makes sense. Shifting trade routes will increase our cost, but would be more than offset through the restoration of our sales volume, leading to better profits.
- You had also mentioned that the production had taken a slight hit, was this also a result of strict enforcement near the production units?

That makes sense. Shifting trade routes will increase our cost, but would be more than offset through the restoration of our sales volume, leading to better profits.
- You had also mentioned that the production had taken a slight hit, was this also a result of strict enforcement near the production units?

Yes, one of their primary manufacturing units was raided by the police and had to shut down.
- I believe setting up a new manufacturing unit outside Punjab, in a region where they can influence the law and order through connections could help in mitigating the production problems. Shall I analyse the factors involved in setting up new unit?

No, that's fine, we can close the case here. You're free to go.



The client is a restaurant owner in New Delhi and their sales have plummeted significantly in the past few months. Identify the reasons and suggest measures to mitigate the issues.

- Okay. That's an interesting question! I would like to ask a few background questions to get better understanding of the problem. How many restaurants does the client have, where are they located, what cuisines do they offer, and what is the average price per meal for two people in the restaurants?

Those are quite a few questions! So, the client owns 5 restaurants spread across different regions of New Delhi. They mostly serve Indian Cuisines and the average price for a meal for two is ₹700.

- Okay, It means our client caters mostly to the middle class segment. Do they have deliveries as well, or partnerships with any platforms?

They do not have minimal online presence as of now, and dine-in is the major source of revenue.

- Noted. Since when are they facing this issue and by how much have the sales declined so far?

They are facing 80% decline in sales since March.

- That's a huge decline! I assume this is due to the Covid-19 crisis and the nation-wide lockdown that we have witnessed..

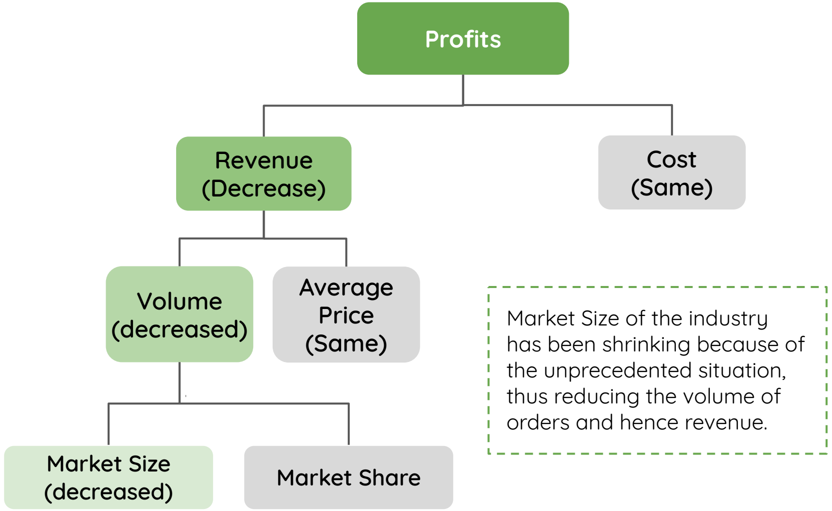
Yes, in fact, they had to shut their restaurants completely for the month of April and May because of it.

- Okay, now I would like to study the profit structure of our client's restaurant thoroughly.

Obviously, the major reason for the drop in sales is the shrunk market for eating outdoors due to the fear of contagion during the pandemic. It's safe to assume that this situation will persist for a while. So, to overcome this for the long term, they will be have to overhaul their operations process. would have to bring a few changes in their processes. Do you want me to think of ways to do that?

Yes. We would be interested to know what we can do right now to better the business situation and what further steps we should take to evolve with the changing times.

- Fair enough. So, there are three kinds of people they have to target, based on their inclination to eat at restaurants.



Target Customers

- Not going out at all. Take only deliveries.
  - People who've been severely affected, children and elderly, who avoid outdoors completely. 40%
- Going out only for essential work, take both deliveries and take-away
  - People going out after taking the necessary precautions, only for essential activities. 40%
- Willing to dine-in at restaurants occasionally
  - Some of the privileged working populace who own private vehicles, take extra precautions. 20%

For the first segment, the best option would be to focus on home deliveries and partnering with online platforms like Zomato and Swiggy. In the competitive mid price range segment, the restaurant must leverage their brand reputation to gain a foothold and offer discounts/coupons to move up the listing algorithms of these platforms. It may be a loss-making exercise initially, but it will yield results very soon. Secondly, they should launch packaged ready to cook meals for people who are not able to step out for a long time or in quarantine.

For the second segment, they must make efforts to market their hygienic practices for preparing and packaging the food to allay the worries about sanitation and encourage more people to take safe delivery and take-away options.

For third segment, they should step up the sanitation at the restaurant by means such as providing hand sanitizers at all tables. The seating layout of the restaurant should also be transformed to align with the social distancing practices by increasing the space between individual tables and removing community tables, unless for a single family. They can explore introducing e-menus, and minimise the contact between the waiters and customers. Online payment options are a must as well.

Great Suggestions. What more can they do to adapt to the new normal in the long run?

1. Since diners will be more concerned about the hygiene conditions of the kitchen along with the restaurants, they can install a transparent glass between the dining area and kitchen to alleviate these concerns.
2. They can implement new sanitation technology to clean the tables and cutlery after each use more effectively.
3. Focus on a balanced combination of take-away, deliveries and dine-in, because the psychological fear is bound to persist for a while. Capitalising on various online modes of delivery would be the best option to survive.

These changes can be help them adapt to the new normal but will also increase costs. Do you want me to do a break-even analysis?

That will be all. We may close the case now.

CASES

MARKET ENTRY

Furniture Company

A 50-year old company that sells office furniture wants to diversify and enter the home furniture space. You have been hired to decide whether to enter the segment or not.

- Before I start, I would like to know a little about the company - specifically the kind of office furniture it sells, their target consumer base.

The company caters majorly to the multinational corporate offices where a lot of standard furniture is used with minimum customisation from a few options..
- Apart from a potential business opportunity and higher profits, are there any other objectives for entering the segment? Is the office furniture segment saturating or not profitable?

Quite the contrary - the office furnishing segment has been growing at a very good rate, and margins are also generally high for office furnishing. You can assume the they just want to explore this opportunity.
- Interesting. As for the home furnishing industry, what do the market dynamics look like - size, competitors, demand-supply gap?

The market is growing, but slower than the office furnishing space. The margins are also typically lesser and are shrinking because of many mass-producers and high labour costs. There is always a supply gap when it comes to customized furniture but we have no estimates of whether existing retail supply is enough to account for the demand.
Okay but is the client company in a position to invest, or do they have any labour or supply constraints?

Yes, the client in good shape to make any investment in such a project, provided, that it is profitable in the long run. That's where you step in.

- So the major differences between the two industries are: scale, customisation and distribution. Fundamentally, people want their home furniture to stand out and align with their social status, whereas office furniture is mostly stock, generic design. As per my understanding of both the aspects, office furnishing usually happens in large volumes with low customization options. However, in case of home furnishing, customization is typically higher and more importantly, a wide variety of designs and styles are required to cater to unique customer demands. In addition, volume of each design sold will be low and unpredictable. This explains why the profit margins are lower. Am I going on right track?

Yes, that is the main reason for low margins. Go on?
- In terms of distribution, I will assume, the client won't go for custom-made furniture which is manufactured at households, So it will need either it's own outlets, or contracts with existing outlets. In case of the former, real estate costs will eat into the company's profits and in case of the latter, margins will reduce even further. In addition, they will have to design an entire supply chain from production to the retail outlet. This can be a costly affair too. And what about the labour, are they trained and easily available?

The existing labour in itself is scarce and unskilled. How do you know wish to go about it?
- Securing more skilled labour and training them for this purpose will not be easy. It will take considerable time and investment. Considering the margins, the condition of the industry and their lack of expertise in this segment, coupled with the labour sourcing problems, the company might suffer a loss in this division for at least the first few years. But since the company already has a reputation for itself in the industry and is in good shape to make an investment like this, I would suggest it explores the opportunity.
And given their expertise in the furnishing industry in general, since this is a horizontal expansion, it is better for them to start from scratch as it will provide the client with an opportunity to explore and expand independently, something they are familiar with.

Those are quite good points. Good job, you may leave now.

Furniture Company

- **New Market Entry**
  - **Market Attractiveness**
    - Is demand large & growing?
      - Yes, even though lesser as compared to the office furnishing market
    - Market Demographics
      - The margins are in fact lower due customisation demands and are reducing even further
  - **Feasibility**
    - Are we in a position to invest?
      - Yes, the client is in a good shape to invest
    - Value chain
      - The client already has its distribution set up but might need to hire or skill up existing labour
  - **Strategy**
    - Joint Venture
      - Joint venture might be considered if there is a requirement of capital, which is not the case
    - Acquisition
      - Lack of resources might have led to considering acquiring a firm which is not the scenario
    - Scratch
      - Since we have the required resources and a brand equity in the market, it would be better to start off in the industry from scratch

European Electric Bus

The client is an international manufacturer of Electric Buses based out of Europe. They are impressed by the initiatives taken by the Government of India to promote the usage of Electric Vehicles. You have been hired to find out if the client should introduce these buses in India.

- So, according to my understanding, our client is an electric bus manufacturer who has a substantial presence in other markets, so I am assuming that their buses are beyond the technical feasibility stage. We need to see if this product can be feasibly launched in India, right?

That is correct, given that the client does not face any regulatory barriers in India, how would you proceed now?

- Let's start by looking at the strengths of the client and the needs of the Indian market and how well they align together. To start with, can you tell me something more about these electric buses, their efficiency and their environmental impact.

The major factor is that these buses cut the greenhouse gas emission by nearly 90% as compared to traditional buses. These run on electric batteries, which allow the bus to cover 180-200 KM on a fully charged battery.

- And at how has the client priced the buses, as of now?

They are selling these buses at approx 50% higher than the fuel-based buses.

- Because of the battery limitations, the buses can only be used for intra-city travel. Since, they are short to medium distance buses, bus operators would not accept such a high cost if they are not presented with some incentives. However due to levying of heavy environmental taxes on old BS models, many companies may prefer buying electric buses for the long run, if they are provided with the right incentives at an early stage.

Fair point, let us say that the government is providing a 5 year tax break to companies investing in electric public transportation vehicles and also tax breaks to private operators who invest in the same.

- That gives us a good chance to make the customers both private and public sector receptive to our product. And what do we know about the competitors?

The personal electric vehicle segment is already quite crowded, however there are only a few competitors in the heavy vehicles segment such as - Tata, Ashok Leyland, Mahindra.

- With the advent of e-rickshaws, and a significant rise in significant R&D investment for personal EVs, the general public is quite prepared for an e-bus as well. Plus the market is growing and far from saturation. Moving in at this time, in a developing country will give the client a considerable early-mover advantage.

So how would you propose the market entry plan?

- As the client has the requisite experience to manufacture and customize these buses, coupled with the favourable govt. policies and the associated financial incentives, this is definitely a good time to expand into India. The growing concern for vehicular pollution and overcrowding of the current public transit infrastructure lay down a solid groundwork for adaptability. The client must begin by entering the capital of New Delhi, which had recently announced a new Electric Vehicle Policy 2020, that has provisions for waiving registration fee and road tax along with tax incentive. In order to tackle the problem of securing tenders, I would suggest considering a joint venture with a local player.

Why would a local company want to enter into a joint venture with us?

As client's company is a well established name in the Euro market, they can leverage their superior expertise to assist the rapid scaling of manufacturing within the country. Besides, that there's the 'European Tech' tag that will induce a sense of reliability among the govt officials. Whereas, the local company is familiar with the Indian industry standards and will aid manufacturing an e-bus that can survive the Indian roads and conditions for a long time.

Thank you! That would be it for this interview.

European Electric Bus

- New Market Entry
  - Market attractiveness
    - Incentives
    - Size
    - Profit
  - Market Barrier
    - Infrastructural Needs
    - Short/Medium Distances
  - Market Entry Strategy
    - Scratch
    - Acquisition
    - Joint Venture

The Indian Market has a large population which uses public transport, while the GoI is also providing incentives.

Infrastructural needs are already in place because of the pre existing players, the only barrier is that the bus can travel intra city and not inter cities!

With our expertise in technology and experience, a local new entrant would make for a good partner providing us with the much required understanding of the local market

Laboratory Chain

A diagnostic laboratory chain based in USA wishes to enter the Indian market. You have to help them with this decision and advise them on various aspects of this move.

- Okay, I would like to know more about the kind of operations this lab undertakes, if it is a general-purpose or an R&D laboratory.

They specialise in general testing of patient's blood and urine samples for disease as wide-ranging as cancer, AIDS, diabetes, and hepatitis. So, you can refer to it as being fairly general in operations.
- Okay, so is the lab using advanced technology or primitive methods?

They use the latest ones, the very cutting edge.
- Understood, may I know their mode of operations, as in, do they advertise independently or are they prescribed to patients in hospitals by doctors?

These labs are fairly high end, so the main source of revenues in USA is the hospitals which recommends patients to us.
- Okay, to analyse the market entry prospects, first I have to look at the nature of health services in India and compare it with that of USA. I would need to examine and compare the demographics, purchasing power and health infrastructure of the two markets.

That sounds right, all I want from your side is the enumeration of the various factors you will consider while analyzing.
- I would look into the demographic segmentation and since the lab operates at the advanced end of the spectrum, it would be catering to the urban middle and upper class only. After this, I will try and understand the patient referral process from hospitals and clinics and what the tie-up opportunities are with these.

Okay, what are the other things?
- I will also look into the prevailing competition from the point of view of the nature of the services that they offer. This will help us in figuring out the competitive advantage our client enjoys by ways of test. We have to also figure out whether they want to establish as high volume based on low margins or low volume based on high margins, to implement the major revenue structure.

That sounds good. What other factors should the company consider while launching services in India?
- I think tie ups with big hospitals will need to be explored as the first step towards gaining a foothold in the diagnostic laboratory industry. As most of the government and existing private healthcare infrastructure has been overwhelmed by the COVID crisis, this has opened the floodgates for high quality foreign private services. They must aggressively advertise their technology-enabled, digital-driven services to the segment that does not mind paying a premium for superior doorstep services.

What about the rural areas?
- Indian Rural areas has huge scope for such labs, but affordability will remain a major issue as largely the rural and lower class population is dependent on government facilities, even though they are meagre and substandard. Secondly, the nature of health service that is in demand will vary as compared to that in USA. Typically, the nature of the health ailments people face will be significantly different and for general testing, the people will prefer the cheaper alternatives. So the best course of action would be to target specialised tests for the upper class segment and start with tie-ups with well reputed multi-speciality hospital chains that would yield an initial footprint in the segment.

Alright. That makes sense. Let us wrap it up here. Thank you

C #13 Laboratory Chain

- **New Market Entry**
  - **Market Attractiveness**
    - Is demand large & growing
      - Yes, current Indian laboratory chains are fairly adequate in urban areas and close to crisis in rural, not enough to cater to demands
    - Is competition reactive to price.
      - Not as such, patients obey the doctor’s prescriptions
    - Market Demographics
      - Private sector mainly controls laboratory chains. Govt labs are only present in hospital campuses.
  - **Market Barrier**
    - Existing competition
      - Laboratory chains are controlled by a limited number of players
    - Regulations
      - Stricter regulations during licensing but no regular auditing leading to malpractices.
  - **Feasibility**
    - Investment Pay Off
      - High initial investment is required in the Health sector but once supply chains get in place it starts returning to the Indian market
    - Distribution Channels
      - Mapping could be done ensuring dedicated channels near hospital clusters. Later on, a franchise system could be incorporated.

British Bank

A UK based banking giant wants to enter the Indian market. You have to advise them on various aspects of this move.

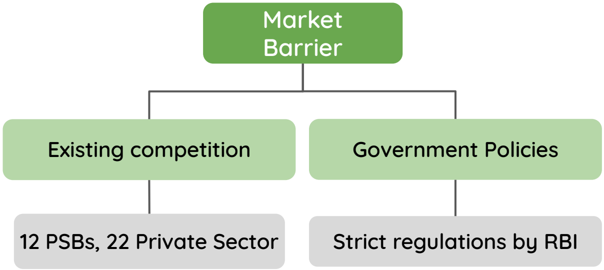
- Okay. First of all I would like to know about the client company, their market position, banking areas and target demographic. Do we have data for this? Also, is the client an investment bank or a retail bank?

Yes, we do have certain data. The client is into Universal Banking, they have both investment and retail banking arms
- Okay., may I know about the core competencies of the bank?

The client has a strong presence in the retail banking business. It is the market leader in retail banking in UK, Belgium, Netherlands, Luxemburg, Germany and Austria.
- Alright, can you also give me some details on the growth segmentation?

Personal loans and commercial loans for small and medium enterprises contribute to 70% of its businesses and hence, have been a big driver for growth globally.
- Okay , this seems to be positive point for the client to plan Indian market entry. MSMEs contribute a significant percentage in growth here.

Okay, but how would you ascertain the attractiveness of the market? .
-There are many factors to consider.
Foremost, the banking sector should have attractive growth prospects in the near future, the product should be compatible to local demands, the entrant should have a sustainable advantage over existing banks and finally, the investments should pay off. Can you help with an estimate of the growth projections in the Indian retail industry?



The retail banking industry is booming ever since the liberalization of the economy was initiated. The industry is expected to grow at a CAGR of 28% and the demand is expected to increase in coming years.
- The industry shows quite promising growth prospects, as per my understanding. Can you tell me about degree of competition in the market?

The industry is characterized by significant competition from 12 public sector banks, domestic private banks and other international banks like the client; besides the numerous smaller scheduled and co-operative banks throughout India.
- I believe that may not be very encouraging, given fierce competition and significant entry barriers. However, this does not necessarily pervade through all banking services. We have witnessed banks like Citibank, RBS, HSBC, Deutsche and Barclays make successful entries.

I feel the best way to go for the client would be to explore the presence of untapped opportunities in services. As you had mentioned earlier, they have a strong presence in the personal and business loans business for medium enterprises. However, the other banks in the Indian banking sector lend heavily which later default into NPAs, and hence are under great distress. Can you let me know the financial health of our competitors - Public Sector Banks and Cooperative banks in India?

Currently, Indian PSBs account for 9.5% of NPAs and this is bound to increase.

- This means that the client can strongly leverage its core competency and tap into the market of SME enterprises leveraging their credit expertise. Also, the public sector banks have been bleeding money for years and the govt. is inclined to merge some of them.

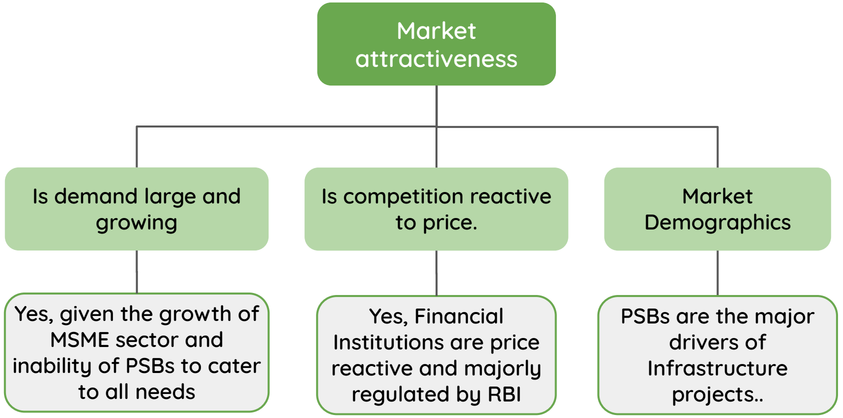
Okay, I understand. Do you see any other roadblocks besides competition for the client's growth prospects?

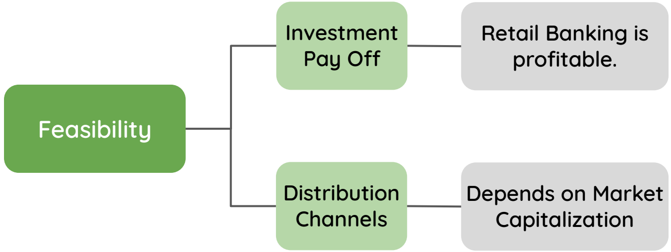
- I believe the existing regulations in the banking sector significantly restrict the number of branches foreign banks can operate and it's quite difficult to get the authorization for every new branch. This would pose a serious bottleneck to the client's growth.

So would you recommend the client to enter Indian banking sector?

- Yes, I believe the Indian retail banking business holds immense potential and based on this discussion about the market, the competition and the client's existing core businesses and strengths, I'd make a favourable recommendation. The regulatory restrictions exist but the presence of numerous other international banks is enough evidence to believe the opportunities surpass the threats. Also, I might sound too pragmatic but given the pace of India's liberalization and development, I would definitely expect the regulatory restrictions to get relaxed in the near future, in a shift towards non public sector undertakings from the govt.

Alright. Those are good points. Let us wrap it up here. Thank you.





CASES

PRICING

Cardiac Drug

A leading multinational pharmaceutical corporation has developed a drug that would make any patient free of risk from cardiac arrests. You must determine the appropriate price for drug.

- I would like to know more about the client company, their core competencies and their goals from this new drug.

The company is known for its technical expertise and R&D capabilities in the pharma sector. They want to maximize revenues from the drug, with a minimum of 40% profit margins from market sale of the drug.
- Alright. Could you tell me more about the type of the drug, how it's consumed, the frequency and duration? Are there any side effects to consuming the drug?

The drug is a capsule that has to be had thrice a month, for 4 years in order to fully mitigate the risk of cardiac arrests. And no, there aren't any observable side effects so far.
- Great! May I know the R&D and manufacturing cost per unit and the associated distribution cost in transferring the drug to retailers?

You can take the combined R&D and manufacturing cost to be ₹8000 per unit. The distribution cost is ₹2,00,000 per box and each box contains 100 capsules.
- Okay, so combining the manufacturing and distribution cost, the each unit will cost ₹8,000 + ₹2,00,000/100= ₹10,000. Given the client's objective of 40% margin, the drug should be priced with a lower limit of ₹8,000 + ₹3,200 ~ ₹11,000 upwards to retail partner. The ceiling price would depend on the competitors, substitutes, regulations. Are there other competitors who currently sell equivalents or substitutes of the drug, and have they been awarded a patent?

No, there are no current equivalent competitors, and yes, they have a patent. As far as substitutes are concerned, you can consider pacemaker to be one.

- Okay, I'd like to estimate the amount a patient spends currently for prevention of cardiac risks, to determine the consumer affordability. For that I'd like to know the average market price and average life of a pacemaker?

You may assume it costs around ₹7,00,000 and has to be replaced once every 5 years.
- So, assuming that an average heart patient starts using a pacemaker by the time they turn 50, and their average lifespan to be 80 years, that amounts to six cycles of pacemaker usage. Therefore, the total cost of mitigating a cardiac risk with the next best alternative is ₹7,00,000 x 30/6 = ₹35,00,000.

Whereas, with the new pill, thrice a month amounts to 48 times a year. For four years, this amounts to 192 pills., let's round it to 200 pills. And with ₹11,000 for each drug, that amounts to ₹20L. For a customer to value the pills as much as a pacemaker, the ceiling theoretically sums upto ₹35,00,000/200 = ₹17,500

Is that the final price?
- No, considering that this is a radical invention and much superior to all substitutes, I will go ahead with a value based pricing. Since willingness of the customers to pay a higher price for the drug would be significant, a ceiling price can be estimated. Assuming they are willing to pay 20% more, the upper limit of the price is 1.2 x ₹17,500 = ₹21,000
Considering the client's objective and the market scenario, the client should price the drug in the range of ₹17,500 to ₹21,000.

Those are reasonable figues. Thank you!

The company, EverLight, has invented a new tube light that never fuses. It could function for more than 500 years and would never fluctuate. The CEO of the company has asked you to price this. What would you tell him?

- Alright, before we figure out the appropriate price for this new tube light, I would like to ask a few questions about our company, about this product, about the potential customers and the competition. What is the objective of the company regarding this product?

To gain as much profit as possible.

- Okay, so since this is a new invention, has our company or any other company introduced something similar in the past? If so, do they have a patent?

No this is a completely new product that we have developed. We have a patent pending, and no one else is trying anything similar.

- Do we have information on if the product has any disadvantages? Does it use more energy or is it harmful to the customers in any way?

No, as per our trials so far, it is a safe product, ready for the market. It also doesn't use more energy than regular tubelights.

- I see. I was thinking we could either price the product comparable with the competition or base it on the costs that we have incurred. Also, we can look at the price the consumers might be willing to pay. Since you have mentioned there is no competition I shall rule that out and focus on what costs we have incurred for this. May I know the R&D expense and the costs of a regular tube light manufactured by your company?

We've spent ₹ 120 Cr. on development of this tube light and each piece costs ₹ 400 to manufacture. For a conventional tube light, it costs us ₹ 4 to manufacture, we sell it to the distributor for ₹ 10, the distributor sells to retail outlets for ₹ 14 and he sells it to the customer for ₹ *20.*

- Ok so if the manufacturing cost is 100 times, then accordingly the customer will have to pay ₹ 2,000 for this tube light. On the upside, this is a tube light that will never burn out, so say the people will buy it once for the next fifty years and are essentially paying for 100 tube lights that they would have used in the next 50 years or so, considering a tube light is changed twice in a year.

So? Will the customers agree?

- I do not think so. This is improbable since customers would not shell out a huge amount for a tube light and the longevity benefits are difficult to be perceived by the average customer. However we have spent ₹ 120 Cr. on the project and it is a very pertinent invention. Let us broaden the scope for the product a little and think more about the customer. I think various city civil bodies are our customers too as they need to provide lighting for public places. There may be around 5000 tube lights at various public places like stations, hospitals etc.

Ok, what are you proposing?

- These buildings incur a significant, additional expense of changing of the tube lights and on staff for maintenance. If we target this product to them, they will save heavily on these additional costs and will not have to worry about maintenance at all. Estimating that these tube lights are available for ₹ 15 per piece to the govt. Officials who buy in bulk, upon which they need to pay labour charges of ₹ 5 each to workers needed to change the tube light, it still costs them ₹ 1 lakh+ for 5000 tube lights, twice a year. We can have a mark-up over this and sell each tube light at ₹ 3,000 each.

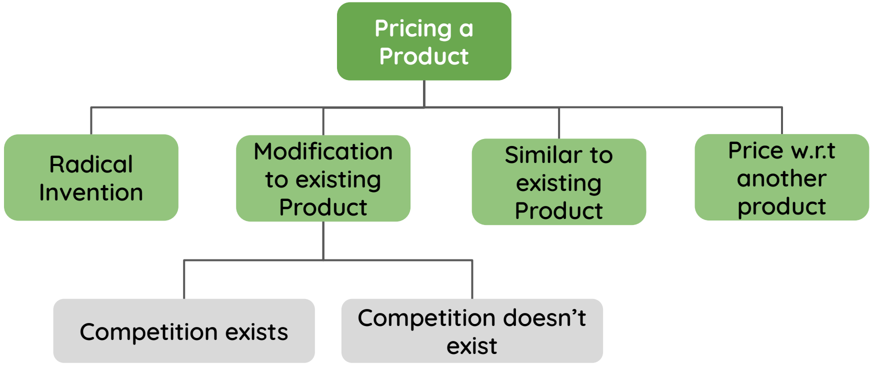
They would recover the amount in less than five years and we can use this price based costing to get a very good profit.
However, I'd like to highlight that the new tubelight will be cannibalizing the sales of the conventional tube lights of the company, so it is important to charge a premium on this product as for every sale of the new tube light, we are losing the sales for 100 regular tube lights. Hence, I've chosen a higher price point.
Good point , thank you.

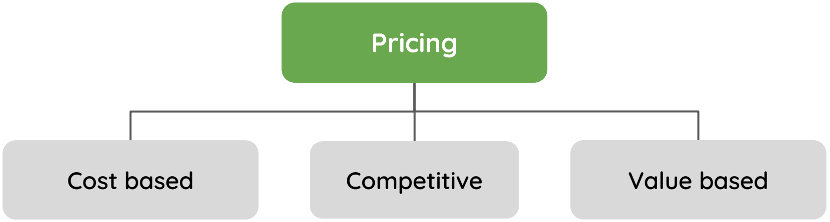
What are your recommendations?
- Since the manufacturing cost is 100 times that of a conventional tube light, customers would ideally have to pay ₹ 400 for us to recoup costs. This is improbable since customers would not shell out a huge amount for a tube light and the longevity benefits are difficult to be perceived by the average customer.

- However, this innovation can be useful for public places such as streets, stations, hospitals etc. where additional staff is required for maintenance. A long-life tube light in such areas would be extremely useful as maintenance costs would be largely reduced. Hence, such customers should be targeted for this product.

Any closing comments from you?
- This case is for pricing of radical invention. The student should be able to approximately determine the price based on manufacturing and R&D costs. In this case, the price estimate leads us to carefully consider the customer segments, their willingness to pay for the product and carefully tailor the segment to achieve the company objective.

Okay, Thank You.





SpaceX Space Tour

SpaceX has developed a rocket-boosted shuttle for India that can take passengers on a space tour upto 300 KM from Earth's surface, while the take-off and landing are like a conventional airplane. SpaceX wants to take passengers on a six-hour tour. Determine what price they should charge for a ticket in the Indian market.

- I'm assuming they want to build a profitable business to break-even first. Any other objectives that I should be aware of?

No.

- Are there any competitors and do we have a patent on this technology?

There are currently no competitors and we have a patent which should safeguard us for around 3 years.

- Okay, brilliant! How many passengers can the plane accommodate and how many trips per day are we planning?

100 passengers and 2 trips.

- So, I will first try to estimate the market size which would majorly depend on the price. For example, if we charge ₹ 10000 the market size will be almost the whole of India, but if we charge ₹ 1 Cr. the market will be much smaller. Before I figure out the price, I will also try to estimate how much it will cost us per passenger. How long is the life of the plane?

The life of the shuttle is around 20 years and the costs can be allocated uniformly. What do you think the major costs are?

- I think the major costs would be cost of R&D (including on-board and administrative costs), maintenance, fuel, airport fees, insurance and marketing.

Okay, 3000 Cr have been spent on developing the shuttle and the total operational costs incurred per year would be ~₹ 200 Cr, excluding the fuel costs, which I would like you to estimate. You may assume that the rocket fuel which costs ₹ 50,000 per kilolitre and consumes 10 litres of fuel per km.

- Alright, since the highest point of the space tour is around 300 km from the surface of the earth, so I'll take a rough estimate of 600 km as the total length of the trip. So 10 litre per km times 600 km equals 6000 litres, times ₹ 50 per litre is ₹ 3 Lakh. per trip. Since there would be 2 trips daily, taking 320 working days, ~ ₹ 200 Cr per year is what the fuel costs would round up as. So the total costs are ₹ 400 Cr. Further, assuming 640 flights per year with 100 passengers per flight, the cost per passenger would be ~₹ 62,000.

Ok, so how much would you charge per trip?

- In this case I could follow a cost-based pricing and hence ₹ 1 lakh would probably be a good margin. However, this is a special invention offering customers a travel close to fantasy, hence, I think value-based pricing would be a more prudent approach.

Fair enough, how would you proceed with that method?

- I would like to figure out the market for ticket price of ₹ 4 lakhs. Realistically, only the top ~2% of 130 crore Indians would be able to afford such an expensive trip. So that is approximately 2 crore people. Out of these, only ~20% would be interested i.e. ~40 Lakh customers Also, we can carry around 72,000 customers a year. Hence for 3 years, before competitors set in, there's potential to maximise revenue with ample demand and fixed costs, which is a great profit opportunity for such an innovative offering.

What are your recommendations?

- The cost-based approach indicates that charging ~₹ 1.6 lakh per trip will give us enough profit margin. However, this is a radical innovation and hence the perceived value for the customer can be much higher than what the cost suggests. Hence a value-based approach with a price of ₹ 4 lakh can help us gain a good potential of this innovation until competitors arrive and there needs to be a reduction in prices.

Any closing comments from you?

- Since this is a radical invention, estimating the costs is critical to arrive at a lowest price threshold. However, the nature of the benefits offered to the customer also need to be taken into consideration and in this case it allows us to gain a tremendously high profit margin. Of course, the passenger carrying capacity and timing of competition arrival are critical to keep in mind.

Okay, Thank You.

CASES

GROWTH & STRATEGY

Sports Apparel & Equipment

The client is a sports apparel and equipment company in India, and is facing a decline in its market share. The market is dominated by big, international players and wants you to frame a revival strategy.

- I would like to confirm the objective before I proceed. The client is seeking suggestions to revive its business. Is there any other objective? And do we have a target envisioned?

Yes and the company wants a 5% increase in their market share by the next FY.
- Okay, I would like to understand the client a little more. Specifically, Could you elaborate a little on their product portfolio and the price points to get a sense of the consumer segment they deal with?

Alright. They manufacture high quality sportswear products for people who are at the lower end of the spectrum when it comes to cost.
- That helps. You mentioned about the presence of big players in the market, can I get more information as to who are these big players? Also, have sales figures dropped along with the market share?

Sure. So the market is dominated by players like Adidas and Nike. These companies, due to an array of local franchises across the country, global supply chains and a strong historic brand positioning have gained a solid presence in sportswear market in India. The actual sales have not dropped, but rather stagnated.
- So, I understand that the company is growing less as compared to the industry. The reason behind this could be a lack of proper marketing strategy because of which the company struggles to reach out to a larger audience.
In order to improve this aspect, I would split the whole strategy into two main divisions: refining the existing business model and exploring new opportunities.
Within existing business, I'll look at options to increase the no. of customers or increasing revenue per customer and within new business I will be considering M&A, entering a new geographical market or introducing a new product.

Sounds good. Can you please elaborate on what exactly can be done to improve the existing business?
- Sure. So we can increase the revenue per customer by tweaking the price depending on price elasticity or by increasing the buying frequency of the customer. Buying frequency can be increased by reducing the shelf life of our products, however given that our products are known for their quality and low cost, this is not a good idea. We can strengthening its position to acquire more customers. This could be done through effective marketing and advertising. Here, I am assuming that we are not trying to redesign the product because of the significant costs involved. The company can target government schools/colleges for supplying sports kits through an exclusive partnership and provide them with bulk discounts or can introduce loyalty programs for the same students.

Okay. Tell me some ideas that will help the company in effective marketing and strengthening their position?
- The budding sports enthusiasts in schools/colleges and youth involved in various sports activities look for affordable and good quality products and hence fall within our target audience. The company can sign rising sports players at an early stage for brand endorsement deals and share the stories about their journey through advertisements to inspire sports enthusiasts.
The company can leverage social media platforms to reach out to the young, budding talent in the country. It can also collaborate with one of the leading gym chains in India (cure.fit, Anytime Fitness etc.) and associate with fitness influencers to maximise the reach into the core segment.
Another option is to launch their own marathon for female runners that will get the attention of media outlets and materialize social support as well.

Alright. How else can the client maximise their foothold against the international brands?

- So the biggest USP of the company while competing against the likes of Nike and Adidas is its 'Made-in-India- tag. They can seek benefits and rebates from the government to promote the recent *'Aatmanirbhar'* initiative by keeping the entire supply chain within the country and providing jobs to locals. The same can be advertised to capitalize on public sentiment and drive more customers towards them.

How do we go forward with capturing new customer segments?

- People with higher spending capacity often take into consideration the brand value of a product. It would be difficult to capture this segment under the same brand name, so we can launch a new, exclusive product line under a different name at a premium price point to be sold in limited stores only. This brand will be showcased as a high-end alternative catering to the upper class segment looking for product innovations and variants.

That may be a good idea but what exactly do you mean by a new product?

- The company can venture into the product segment related to the up-and-coming sports (Zumba, Yoga, Aerobics etc.). It can focus on improving the design of the existing market products, introducing an element of innovation and enabling high customization at a premium.

Acquiring fitness or health startups that are currently leveraging technology can help the company diversify its product range and bring in the much needed boost to the market share.

Sounds good, Is there any other alternative in which the company can benefit from exploring new business.

- The company can carry out extensive market research to understand the evolving markets. It can target these markets by increasing its distribution channels and enabling a chain of local franchises in these new cities.

Alright. That makes sense. Let us wrap it up here. Thank you

EdTech Company

The client is an Indian Edtech Company. The global pandemic has had a tremendous impact on the education sector with edtech companies facing a huge surge in their subscriptions. They have requested your advice on a medium-term strategy to maximise on this increasing demand.

- Are there any particular objectives that I need to keep in mind?

The company has a dual objective of growth and also improving profitability.
- Understood. Before we begin, I would like to understand the client's product.

Okay, so the client has a mobile app and an online website providing educational content mainly to school students from class 1 to 12. The educational content consists of topic-wise videos and quizzes on all subjects with a special focus on Maths and Science.
- Understood. Do we have any information on the industry scenario?

You can assume that we have only one major competitor. As of now the company has 30% market share in terms of registered users on our platforms.
- Okay, I would like to break down the problem into the following three parts:
  1) Increasing customer acquisition
  2) Increasing customer retention
  3) Analysing existing costs

Let us begin by analysing the customer base. Do we have any information about the existing customer base demographic?

90% of our users are in urban areas which account for 97% of our sales. Within urban areas, 80% of our users are from metro cities.
- Interesting. Our customer base is highly concentrated in urban areas. Is there a particular reason for this? Why have we not expanded in semi-urban and rural areas?

The company has been trying but has been unsuccessful. Can you figure out the reason?
- Some of the reasons I can understand may be:
  1) Limited importance given to education in rural areas
  2) Digital divide- limited/no access to electricity and internet
  3) Unavailability of computers/smartphones
  4) Lack of regional content or state board material
  5) Affordability of subscription

Okay. So what can the company do to overcome these challenges and the digital divide prevalent in our country?
- Since the pandemic has thrust education in the digital space, this is the right time to capitalise on the market footprint. To overcome the first three challenges, the company can partner with stakeholders at different levels (state and central government, schools, telecom companies etc.) for setting up education centres within each district with shared desktops and internet facilities.
Apart from this, the company can look to expand their product offerings to cater to rural and semi-urban customers, who have not had a prolonged exposure to the industry and will give us the first-mover advantage. Given how the government has put an emphasis on learning in regional languages/mother tongue till class 5, in the New Education Policy of 2020, they must develop content in various regional languages to gain a strong presence in the rural market.

Interesting Ideas. Let's move to the next aspect.
- Sure, before I move on to the customer retention strategy, do we have any information on whether we are comparable to our competitor in terms of user-friendliness, educational content and overall learning experience?

You may assume that we are similar to them in almost all aspects, with no platform having a clear superiority advantage. We are currently competing primarily on our subscription renewal rate.
- In order to understand the reason behind low subscription renewal rate, I would like to know about the performance of the students enrolled with us compared to those enrolled with our competitors.

EdTech Company

Despite excellent content quality, our results have not been able to match the competitors' leading to a sizeable customer attrition.
- Okay, given that results are a significant parameter in differentiating our product, I'd like to understand the kind of analytics and support we offer to students not performing well in their weekly tests and quizzes.

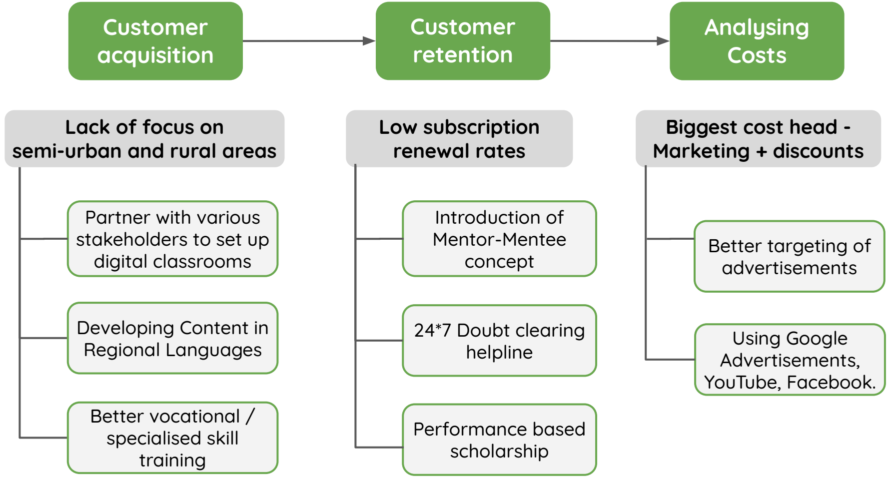
Currently, the student can view his/her progress on the dashboard in the various tests/quizzes attempted along with solutions and their critically weak areas.
- So, to further enhance that, the company can provide live 24x7 support for the students' doubt clarification through a chat box and also weekly expert sessions from guests that can bring a new wave of conceptual understanding of the same topics. Along with this, they may introduce a personalised journey map for each student that uses their previous progress to map an ideal study routine to follow that helps in accelerating their knowledge graph. In K-12 education, it becomes difficult for the students to deal with the drastic transition to an online-only learning, so appointing mentors or buddies to every student that enrolls with us in the initial understanding of the product features and how to maximise your output will help provide a personal touch in the whole process and encourage a sense of belongingness with the brand. The mentor will maintain a constant contact with the student/parent to track the progress of the student and to help in keeping the student motivated throughout their learning journey. In order to tackle the affordability, we can provide performance-based scholarships to talented rural students and keep them motivated through additional help if they perform well.

Good points. Lets move to profitability now. How will you reduce costs?
- What are our biggest cost heads?

Our biggest cost head is Marketing, including discounts. This accounts for about 60% of our total spend.
- Okay. I would like to understand the various marketing channels that the company employs in order to reach the target audience.

The major costs come from offline marketing. The company conducts various events in schools across cities in order to increase word of mouth about the company and then works on the leads generated. For online marketing the company relies on the website only as of now.
- Okay. Firstly, the company must rapidly adapt to the new 5+3+3+4 structure for K-12, along with multidisciplinary subject stream options, and this should reflect in the new product offerings from next FY. The key selling point should be on the emphasis on the learning platform that is aligned with NEP 2020, giving a huge differentiation boost to the brand. They can look improve their ad targeting for better outreach & will help in bringing down the marketing costs. This can be done by employing a diverse set of platforms like Google Ads, Facebook groups, Instagram stories ads etc.

Great suggestions. Thanks.



CASES

UNCONVENTIONAL

The client, a well known production house based in India, has hired you to read a script and provide inputs on how they can perform well at the box office and maximise collections.

- I would like to begin by understanding the details of the film project.

Sure. The film addresses the unspoken truths of mental health through a middle-aged man who has been suffering from an internal struggle caused by the death of a loved one, and peer neglect in his work. After attempting to seek help through unorthodox ways, he ultimately commits suicide.
- Alright. Before moving ahead, I would like to ask if you have finalised the cast for the roles and hired a director?

No, not as of yet, the idea is very raw and we would like to get your inputs before we proceed.
- Considering the lack of films that tackle such sensitive issues, this film will definitely stand out, however, the audience hasn't been very receptive of films with a social message generally. Also, given the sensitivity of the theme, it has to be well crafted to receive critical acclaim as well.

Yes that is our aim of producing such a film. As majority of our films have only eyed monetary benefits and targeted the larger audience, we have consistently faced backlash by the critics and award juries. Considering the pervasive presence of such societal issues like mental health, we hope a film of this caliber will bring us under the good light of critics
- What is the tentative duration and budget of the film, and the platform?

The film would be roughly 1 hour and 30 minutes, and the budget somewhere between 30-35 crores. We're planning on a box office release as of now.

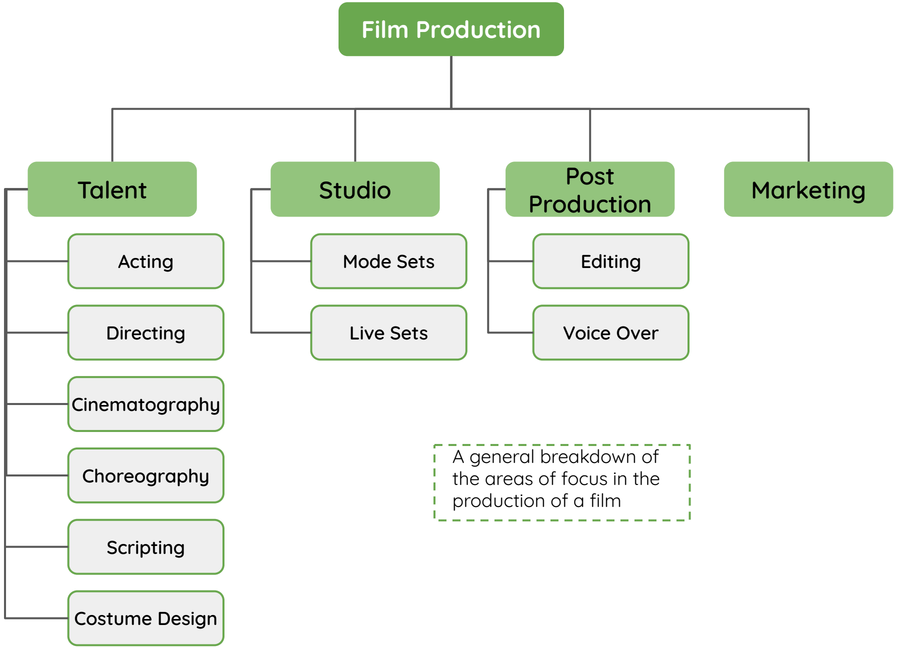
- Alright, that is most of the information I require. Moving on to the strategy. There are primarily 2 types of films made in the industry, the first, commercial films, which are typical Bollywood masala movies, primarily produced for securing monetary success, and the second, indie films, produced for securing critical success. Since this movie is not intended as a box office blockbuster, the overall budget should be low so that it can be successful both critically and commercially.

Okay, sounds right.
- In order to ensure maximum success, we would aim primarily for critical appreciation, and also gain considerable revenues.
The most important for this case would be securing great talent: screenwriting, acting, direction, music and cinematography. Since the film will be essentially venturing into a dark and troubling subject, there will be negligible choreographic or large set requirements.

That makes sense, go on.
- With your great ties into the pool of actors within the industry, the best way to go about casting is securing a famous but talented A-list actor for the lead role, and casting new talent through agencies in the supporting roles. It is imperative that most of the cast should be debutants or actors with prior theatre experience and acclaim, that would help in boosting the lead performance as well.

This would be a good approach
- Additionally, the scriptwriting of such a film is of paramount important. The story should be compelling enough to pique the interest of the people, and also deal carefully with the depiction of such an issue. Therefore, I would suggest reviewing the script once again in order to further refine the story and make it relatable for the millions of Indians that may be going through mental health issues but aren't able to seek help. Furthermore, hiring a famed director who will be be able to recreate the script on film with perfection should prioritise filmmakers with some indie experience.

Film Production



A general breakdown of the areas of focus in the production of a film

I would urge you to go ahead with more shooting at live locations across the country and less on artificial sets, as a key component of success will be the realism of the narrative.
It is also extremely important for the team to have an expert psychologist to help them with the sensitivity of the issue and also bring to light a nuanced way to depict suicide without crossing the moral line. We can take a lesson from the controversy around *13 Reasons Why* and handle this in a mature manner.

Yes that is our ideology too.
- Considering the marketing of the film, the film should be marketed carefully with both the lead actor and director, alongside with the new performers going on publicity drives to lay emphasis on the idea and collective performance behind the film, and not rely on the star power of the lead only.
The marketing should not only be through traditional means like TV and newspapers but also through digital mediums and in partnership with content creators who are also mental health advocates.

The accompanying trailer should demonstrate the tragedy with hints of the ethos the protagonist faces through his journey. This film would also serve as creating a discourse for the mainstream conversation around mental health, which gained attention particularly after Sushant Singh Rajput's death. It is also important that both the trailer and film have an attached trigger warning at the beginning.

This is a good direction for marketing.
- Onto a cost breakdown, about 20 crore of the budget should be allocated to the cast fee, as well as the compensation for the other talents such as the directors, scriptwriters etc. Approximately 2 crore of the movie could go towards the production of the studio, as the sets would not require a high amount of budget expenditure and some shots could be taken to the public streets. Additionally, another 1 crore could be put for the post production.

Finally, a film that speaks about such prevalent topics should be ideally marketed. We suggest a marketing budget of approximately 8 crores, which puts the overall budget of the movie to 31 crores. This budget, along with the carefully curated script and hiring, should aid the success of the film in the box office.

This seems like an ideal solution to the problem, we value your inputs. Thank you.

Razor Blade

Your client is a well known razer blade manufacturer. Recently, 7% of a factory's output has been defective, which is much higher than the usual. The company has hired you to figure out why.

- Could you please tell me since when have you faced this issue?

For the past two months we have been facing issues of a higher number of defective products, which is far more than usual.
- Before we try and figure out the issue in the manufacturing, I'd need more details about the nature of the defect.

The defect has been observed in some cartridges, where the blades that are to be inserted into them do not fit, and extend beyond the plastic casing.
- How much is the overfit of the blades and what is the standard?

The protrusion of the blades is approximately 0.5mm beyond the front plastic casing, which is usually supposed to be fixated about 0.2 mm behind the casing.
- Okay, so what is the process of manufacturing these cartridges?

You're from Mechanical, you should know this already. The cartridges are made using a sophisticated assembly line. First, the stainless steel is shaped into a blade by pressing, heating and edging. The output is then inspected and coated. The mould for the heads of the razor are then produced, which are fed I into another insertion line where the blades are positioned into their respective heads.
- In order to understand the scope of the problem, what is the usual percentage of defects produced by the factory and what kind of defects are usually noticed?

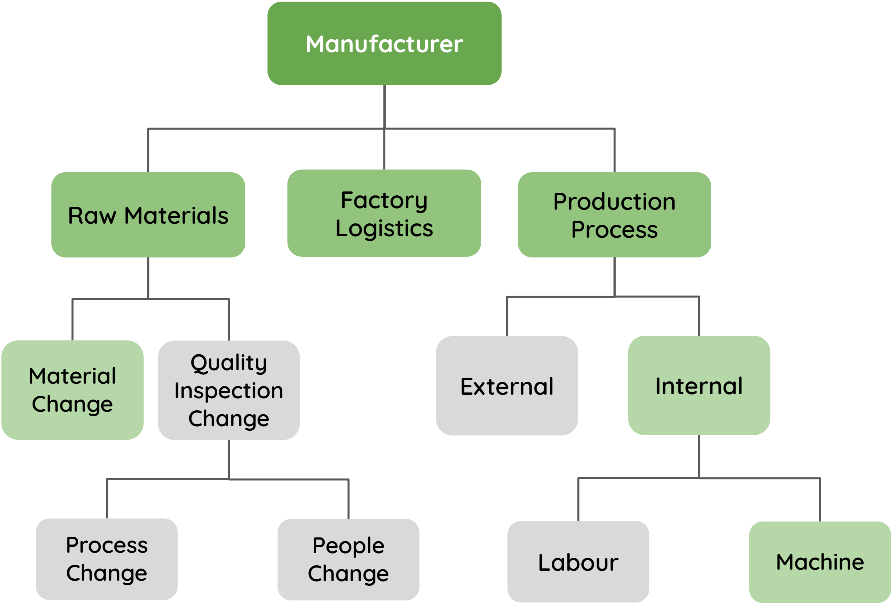
The usual defect percentage is approximately 2%, and these defects range from faulty dimensions of the blade or cartridges to the assembly of the two, which is the major issue in this case etc.
- Since there's a sharp rise in only one particular kind of defect out of these, I suppose there's been an issue with the production equipment of this specific part of the assembly line. Has the assembly line been thoroughly inspected and evaluated, post the observation of excessive defects?

Yes, the primary machines being used for each part of the procedure have been evaluated, barring the machines in the earlier section of manufacturing as they're not involved in the dimensioning of the blades or the casing.
- Okay, since it has been verified that there are no internal issues in the manufacturing, let's move on to the external factors. Have there recently been any changes in the factory, or any undesirable effects?

There have been changes made to the factory. There was a change to the power supply section last month as a routine inspection helped us discover some faulty machines. We have attempted to investigate that as a lead, however it was all clear. Additionally, there was an unfortunate incident, where one of workers unintentionally meddled with one of the sections of the mobile fixtures in the assembly line, but this issue was immediately rectified.
- So all pertaining problems regarding manufacturing machines have already been taken care of. I suspect then the issue may have been cause due to some changes in the externalities to the factory. Has there been any recent incidents around the area of the factory?

Yes, in the past 8 months construction work of another plant nearby has begun, which has affected some of our transportation of raw materials and final output in and out of the factory.

Razor Blade



A breakdown of the investigation into the origin of the rise in defects, from the issue occurring in the machines.

- So after analysing the information we have thus far, I have a slight hint of where the issue arises from. So I initially felt that the changes in power supply may have had an effect. However the new implemented power supply works perfectly, which led me to understand that this was not the root cause. The external factors indeed had a role to play here, but as you said, the construction began 8 months ago but in the 6 months the production had faltered only marginally, as compared to last two months.

Hence, the incident with the worker must have been the trigger for the defects to rise. I suggest going over the assembly line once again, there may be a particular fixture that is not positioned properly after being damaged and fixed. If a fixture is above of below their required positioning, it causes the overfit and underfit defects. Moreover, some other defects such as cracks in blades and cartridges may also be offset because of this.

This seems like a rather simple issue then. Could you provide us with some resolution?

- I believe this issue can be fixed by simply installing mobile fixtures for your assembly line, that adjust according to the This will also be a cost effective measure, rather than replacing the entire line.

Thank you. That’d be it from our side.

APPENDIX

Appendix: Glossary

Assets
A company's physical or intellectual property that has financial value.

Agile Manufacturing
A modern approach or strategy used by manufacturers to respond quickly to the changing customers' needs and market demands.

Attrition Rate
It is a calculation of the number of individuals or items that vacate or move out of a larger, collective group over a specified time frame. Aka churn rate.

B2B & B2C
Business-to-business, and Business-to-consumer.

Backward Integration
When a company expands its role to fulfill tasks formerly completed by businesses up the supply chain. It often involves buying or merging with another company that supplies its products.

Bank Rate
Bank rate is the rate charged by the central bank for lending funds to commercial banks.

BCG Matrix
A portfolio assessment tool developed by The Boston Consulting Group. Also called a growth-share matrix.

Benchmarking
Measuring a value, practice or other quantity (such as costs) against those of other companies in the industry.

Brand Equity
It refers to a value premium that a company generates from a product with a recognizable name when compared to a generic equivalent. Companies can create brand equity for their products by making them memorable, easily recognizable, and superior in quality and reliability.

Break-even Point
The break-even point is the level of production at which the costs of production equal the revenues for a product.

Bottom Line
Company's profits after deducting the following expenses from the total gross revenue: Cost of goods sold, including direct labor and materials.

Cannibalization
In marketing strategy, cannibalization refers to a reduction in sales volume, sales revenue, or market share of one product as a result of the introduction of a new product by the same producer.

Capital
Capital is the financial investment required to start and/or run a business.

Appendix: Glossary

Cash Flow
Cash Flow is the movement of money into and out of a company. When more comes in than goes out, it is said to be a positive cash flow. A negative cash flow is when more goes out than comes in.

Cost-Benefit Analysis
A cost-benefit analysis is the process used to measure the benefits of a decision or action minus the costs associated with taking that action.

CRR
The RBI mandates that banks store a proportion of their deposits in the form of cash so that the same can be given to the bank's customers if the need arises. The percentage of cash required to be kept in reserves, vis-a-vis a bank's total deposits, is called the Cash Reserve Ratio.

Discounted Cash Flow
Discounted cash flow is a sophisticated technique used by financial analysts. Despite its complexity, discounted cash flow analysis is based on a simple idea - that cash today is worth more than cash promised in the future.

EBITDA
EBITDA is an abbreviation for Earnings before Interest, Tax, Depreciation and Amortization. It reports what the company would have earned during the period if it did not have to pay interest on its debt; didn't have to pay taxes; and had depreciated the full value of all assets at their acquisition.

Fiscal Deficit
Fiscal Deficit is the difference between the total income of the government (total taxes and non-debt capital receipts) and its total expenditure.

Gearing
It refers to the relationship, or ratio, of a company's debt-to-equity (D/E). Gearing shows the extent to which a firm's operations are funded by lenders versus shareholders—in other words, it measures a company's financial leverage.

Hedging
It is a risk management strategy employed to offset losses in investments by taking an opposite position in a related asset.

Inventory EOQ
Economic order quantity (EOQ) is the ideal order quantity a company should purchase to minimize inventory costs such as holding costs, shortage costs, and order costs.

IRR
The internal rate of return (IRR) is a metric used in capital budgeting to estimate the profitability of potential investments. The internal rate of return is a discount rate that makes the net present value (NPV) of all cash flows from a particular project equal to zero.

Appendix: Glossary

Just-in-time
JIT is a concept that relates to obtaining materials or required items “just in time” for their introduction into the assembly or process, reducing response time from suppliers to customers.

Kanban
Kanban is a lean method to manage and improve work across human systems. It aims to manage work by balancing demands with available capacity, and by improving the handling of system-level bottlenecks

Lead time
It is the latency between the initiation and completion of a process.

Lean Manufacturing
It is a methodology that focuses on minimizing waste within manufacturing systems while simultaneously maximizing productivity. Waste is seen as anything that customers do not believe adds value and are not willing to pay for.

MECE
Mutually Exclusive and Collectively Exhaustive.

NPA
A non performing asset (NPA) is a loan or advance for which the principal or interest payment remained overdue for a period of 90 days.

NPV
Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time.

Outsourcing
This means when a company decides to contract out a business process because it may be cheaper (lower cost) and result in better outcomes.

Operating margin
It measures how much profit a company makes on a dollar of sales, after paying for variable costs of production, such as wages and raw materials, but before paying interest or tax. It is calculated by dividing a company's operating profit by its net sales.

Opportunity Cost
This is an economic principle that refers to the cost of an activity measured in terms of the value of the next best alternative that is not chosen.

Price War
It is a competitive exchange among rival companies who lower the price points on their products, in a strategic attempt to undercut one another and capture greater market share.

Purchasing Power Parity
It is a measurement of prices in different countries that uses the prices of specific goods to compare the absolute purchasing power of the countries' currencies. In many cases, PPP produces an inflation rate that is equal to the price of the basket of goods at one location divided by the price of the basket of goods at a different location.

Appendix: Glossary

R&D
R&D is the abbreviation for Research and Development. This refers to the line on an income statement showing the amount of money a company has re-invested during the period to find and develop new products.

Repo Rate
It is the rate at which the central bank of a country (Reserve Bank of India in case of India) lends money to commercial banks in the event of any shortfall of funds. Repo rate is used by monetary authorities to control inflation.

Revenue
It is money generated by a company's operations, before deductions for expenses.

Safety Stocks
Safety stock is an additional quantity of an item held in the inventory to reduce the risk that the item will be out of stock.

Sunk costs
Those costs which have already been incurred and which are unrecoverable.

Stakeholder
A person who has a stake in the outcome of a particular situation. Most commonly, the stakeholders in a case are the shareholders, creditors or employees.

Statutory Liquidity Ratio
In India, the Statutory liquidity ratio (SLR) is the Government term for the reserve requirement that commercial banks are required to maintain in the form of cash, gold reserves, RBI approved securities before providing credit to the customers.

Top Line
The top line is a company's gross revenues, or total sales, before subtracting any operational costs.

Turnaround Time
It is the time interval from the time of submission of a process to the time of the completion of the process.

Value migration
The flow of economic and shareholder value away from obsolete business models to new, more effective designs.

Venture capital
A particular form of private equity (i.e., equity in privately held businesses) where the funded entity is a new, early-stage business venture.

WACC
The weighted average cost of capital (WACC) is the rate that a company is expected to pay on average to all its security holders to finance its assets.

Appendix: Datasheet - India

India Demographics	
Total Population	135 Crore
Area (L x B)	3214 km x 2933 km
Density	382 people/Sq.km
Lok Sabha Constituencies	543
Life Expectancy	70 Years
Sex Ratio (F:M)	933 : 1000
Average Household Size	4.9
Urban : Rural (Population)	30 : 70
Literacy Rate	74.04%
GDP (Nominal)	$ 320,000 crore
GDP Growth Rate (2018)	6.8%
Internet Penetration	56 Crore (40%)

Age Spread	Population %
0-14 yrs	30%
15-24 yrs	20%
25-34 yrs	15%
35-44 yrs	10%
45-54 yrs	10%
55+ yrs	10%

Income Group	
Class	Composition
BPL	20%
Lower-Middle	40%
Middle	30%
Upper	10%

Religion	Hindu	Muslim	Christian	Sikh	Others
Population	80%	14%	2.5%	1.5%	2%

Area Distribution of India	
Cultivated	60%
Forest Cover	20%
Built Up Area	10%
Misc	10%

Sector	GDP Growth Rate (as of 2019)	Distribution of workforce
Agriculture	16%	42.4%
Industries	25.2%	25.6%
Services	48.8%	32%

Appendix: Datasheet - Delhi NCR & DTU

DTU Demographics	
Student Teacher Ratio	30:1
Student Staff Ratio	20:1
Area of DTU	165 Acres
Perimeter of DTU	2.5 KM
Boys Hostels	8
Girls Hostels	5
Enrollment in DTU	10,000
No of Hostellers	2000
No. of Departmental Blocks	5 + DSM + 14 SPS
No. of Canteens	4
Girls : Boys	1:5

Demographics of Delhi	
Total Population	2 Crores
Literacy Rate	86%
Work Participation Rate	32%
BPL Household	18%
GDP	₹7.80 lakh crore

Delhi Metro	
Number of lines	10 (6 major)
Average Stations	30 per line
Number of Trains	310
Coach length	20 m
Daily Ridership	30 Lakh
Average distance Between 2 stations	2 KM
Average distance between 2 pillars	100 m

Delhi Constituencies	
Lok Sabha	7
Districts	11
Assembly	70
Wards	272

Area Distribution (1600 Sq. KM)	
Residential	25%
Commercial	20%
Roads	20%
Green Cover	25%
Misc	10%

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