Justin Yu
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Observations of Year 3 Data for Year 4 Decisions

Recap of my Year 3 Decisions

Units to Produce: 68.0 million
Channel price: $6.25
Formulation: Pods
Product Features and Positions: Odor Elimination
Trade Channel Spend
- Convenience: 45%
- Club: 40%
- Grocery: 10%
- Mass: 5%

Media Spend:
- Print: 5%
- TV: 45%
- Radio: 5%
- Digital Ads: 45%

Target Market Segment
- **Income**: $20,000 and $20,000-$39,999
- No ethnicity focus
- **Household focus**: Household size 1 and 2.
- **Region**: Southeast, Central, West
- **Age**: Under 35, 35-44, 45-54

The analysis of competitors and the outcomes of my Year 3 decisions for Blue will be explored. After analysis, I will make decisions and strategies for Year 4.

Price Elasticity of Demand

Price Elasticity of Demand = Percentage change in demand / Percentage change in price. The companies that changed prices in Year 3 are **Turbo**, **Blue**, **Fresh**, and **Store**

Turbo in Year 3 went from $9 to $8.50. Demand went from 136,438,993 to 137,024,251.

$$\%\ increase\ of\ Demand\ =\ ((137,024,251\ -\ 136,438,993)/136,438,993)\ *\ 100\ =\ \%\ +\ 0.4289$$

$$\%\ decrease\ in\ Price\ =\ ((8.50\ -\ 9)/9)\ *\ 100\ =\ \%\ -\ 5.556$$

$$Price\ Elasticity\ of\ Demand\ =\ \frac{0.4289}{-5.556} =\ -\ 0.077$$

A PED of -0.077 is considered inelastic. So demand does not respond very strongly to a change in price.

Fresh Year in Year 3 went from $8.50 to $9. Demand went from 51,128,793 to 39,101,353.

$$\%\ decrease\ of\ Demand\ =\ ((39,101,353\ -\ 51,128,793)/51,128,793)\ *\ 100\ =\ \%\ -\ 23.5$$
$$\%\ increase\ in\ Price\ =\ ((9\ -\ 8.50)/8.50)\ *\ 100\ =\ \%\ +\ 5.88$$
$$Price\ Elasticity\ of\ Demand\ =\ \frac{-23.5}{5.88}\ =\ -\ 3.99$$

A PED of -3.99 is elastic. Demand responds strongly to a change in price.

Store in Year 3 went from $5.25 to $4.50. Demand went from 61,001,258 to 77,309,436.

$$\%\ increase\ of\ Demand\ =\ ((77,309,436\ -\ 61,001,258)/61,001,258)\ *\ 100\ =\ \%\ 26.7$$
$$\%\ decrease\ in\ Price\ =\ ((4.50\ -\ 5.25)/5.25)\ *\ 100\ =\ \%\ -\ 14.3$$
$$Price\ Elasticity\ of\ Demand\ =\ \frac{26.7}{-14.3}\ =\ -\ 1.9$$

A PED of -1.9 is considered elastic. Demand responds strongly to a change in price.

Blue in Year 3 went from $6.50 to $6.25. Demand went from 48,453,897 to 46,058,538.

$$\%\ decrease\ of\ Demand\ =\ ((46,058,538\ -\ 48,453,897)/48,453,897)\ *\ 100\ =\ \%\ -\ 4.9$$
$$\%\ decrease\ in\ Price\ =\ ((6.25\ -\ 6.50)/6.50)\ *\ 100\ =\ \%\ -\ 3.8$$
$$Price\ Elasticity\ of\ Demand\ =\ \frac{-4.9}{-3.8}\ =\ 1.28$$

A PED of 1.28 is considered elastic. Demand responds strongly to a change in price.

Looking at Trends

Operating Profit from 2020 - 2021
Turbo: $107,881,057 -> $43,121,898. **%60.5 decrease**.
Fresh: $21,848,727 -> -$27,638,102. **%226.5 decrease**.
Blue: $67,534,169 -> $37,034,493. **%45.2 decrease**.
Store: -$3,640,406 -> -$4,136,156. **%13.6 decrease**.

Market Share
In Year 3, Store had a very large increase in market share from %24.8 to %31.9 due to the fact that they drastically reduced their prices from $5.25 to $4.50. All other competitors either increased their price or slightly lowered their prices. Turbo lost %0.1, Fresh lost %5, and Blue lost %0.7. Now the order from highest to lowest is Turbo -> Store -> Blue -> Fresh. Remember that Market Share is not a strong indicator of how much profits a company makes. A company

can lower their prices but still not receive a large amount of profit in return. As seen with Store, they still lost 1 million in operating profits compared to the last year.

- The market shifts based on Region.
- Northeast: Turbo > Fresh > Store > Blue
- Southeast: Store > Turbo > Blue > Fresh
- Central: Store > Turbo > Blue > Fresh
- West: Turbo > Blue > Store > Fresh

Brand Demand and Brand Sales

From my Year 3 decisions, the Brand Demand for Blue decreased from 48,453,897 to 46,058,538. This is because Turbo and Store also decreased their prices.

- **Blue** decreased price by $0.25, resulting in a **2.3 million decrease** in demand.
    - As a result, operating profits for Year 3 went down by %45.
- **Turbo** decreased price by $0.50, resulting in a **small increase of 600k** in demand.
    - Due to decreasing their price and only receiving such a small increase in demand and sales, Turbo's operating profit went down by %60.
- **Store** vastly decreased their price by $0.75 (almost an entire dollar!) and saw an **increase in demand by 16 million**.
    - Unfortunately, Store decrease their prices by too much. They still have a decrease in operating profits by %13 even with a 16 million increase in demand!
    - **Lowering the price has a chance to sacrifice profit despite increasing demand and market share**. This is exactly what happened to Store.
    - The vast decrease in their price drew customers away from Turbo and Blue who only decreased their prices by a small amount.
- **Fresh** increased their prices by $0.50, resulting in a **12 million decrease** in demand.
    - They saw a %225 decrease in Year 3's operating profits from the previous year.
- Changing price is a strong metric in increasing or decreasing demand and sales, however there are other strong factors such as formulation demand, marketing, and brand attribute. It is not a good idea to solely focus on pricing when making business decisions!

Although I overproduced, it is good to note that producing too much will not affect Blue's profitability. Despite this, it is not good practice to continue overproducing so I have to consider this for Year 4!

- In the overall line graph with **no filters**, Blue is now performing better than Fresh.
    - Here are the Brand Demand values
    - Turbo: 137,024,251
    - Store: 77,309,436
    - Blue: 46,058,538
    - Fresh: 39,101,353

- Looking at people **under the age of 35, 35- 44, and 45-54**, Blue has the third highest demand, just 1 million before Store.
- Filtering with a **household size of 4 and 5+** Blue performs better than Fresh. Blue is at 26 million whereas Fresh is at 17 million. Store is at 47 million, Turbo is at 40 million.
- With the filter on **Income under $20,000** and **$20,000 - $39,999** the demand for Blue is higher than fresh but lower than Turbo and Store.

From these observations, it looks like marketing towards these groups have some effect on Brand Demand. However, the **strongest factors that affect Demand are Price, Formulation, and Volume**. So there is some success in my marketing strategy, but I have to focus Blue's decision making in the latter metrics and predict what competitors will do for Year 4.

Media Consumed

There is no significant change in these numbers in 2021.

- Media Consumed heavily changes when filtering on **Age**. I will list them from greater to least media consumed. With no filters it is Print > TV > Digital Ads > Radio
- Under 35: Digital Ads -> Radio -> TV -> Print
- 35-44: Digital Ads = TV > Radio > Print
- 45-55: TV > Print > Digital Ads > Radio
- 55 and Over: Print > TV > Radio > Digital Ads

Deciding which age group I will market towards will also affect which media channel I will invest in. E.g. if I focus marketing for Blue to people under 35 and ages 35-44, then I should put more emphasis into digital ads.

Formulation Demand

There is no significant change in these numbers in 2021.

- **Household Size** has a big change on formulation demand whereas other filters do not. Demand will be listed from greatest to least. The quantity demanded will be listed if the margin between the is very large.
- Household size 1: Pods (27,361,039) >Liquid (13,909,055) >Powder (9,196,209)
- Household size 2: Pods > Liquid > Powder
- Household size 3: Pods and Liquid are of equal demand > Powder
- Household size 4: Pods > Liquid > Powder
- Household size 5+: Pods > Liquid > Powder

Pods are still very popular, despite a %15 increase, I will continue to choose pods as Blue's formula.

Brand Attribute Demand

There is no significant change in these numbers in 2021.

- Playing around with Brand Attribute Demand, the only filter that has a strong effect is **Region**.
- The **Northeast** region prefers Softness and Cold Water
- **Southeast** prefers Scent and Odor Elimination
- **Central** demands Odor Elimination, Cold Water, Scent, Softness (from greater to least demand.
- **West** prefers Cold Water -> Odor Elimination -> Softness -> Scent

Trade Channel Demand

There is no significant change in these numbers in 2021.

- Income heavily affects this attribute. But with no filter, from greater demand to least demand is Convenience -> Club -> Grocery -> Mass
- Income under $20000, there is a much greater demand for shopping in Convenience locations than other channels.
- $20,000-$39,999, there is a much greater demand for shopping in Club locations than other channels.
- $40,000-$59,999, there is a much greater demand for shopping in Mass locations than other channels.
- $60,000 and Over, there is a much greater demand for shopping in Grocery locations than other channels.
- No other filters seem to shift the locations for Trade Channel Demand.

Households

There is no significant change in these numbers in 2021

- A breakdown of how many people (data points) are in Household Size. This can be useful to reference when I am deciding if I should filter on Household Size.
    - 1: 32.8 million
    - 2: 40.9 million
    - 3: 20.1 million
    - 4: 17.9 million
    - 5+: 12.1 million
- For region, the breakdown is as follows
    - Northeast: 21 million
    - Southeast: 47 million
    - Central: 26 million
    - West: 29 million

Price Point Demand

Price point demand are prices at which demand for a given product is supposed to stay relatively high. This metric does not drastically change with any filter and it would make sense a lower price will have a high demand.

The **current prices** as of 2021 are

- Turbo: $8.50
- Fresh: $9
- Blue: $6.25
- Store: $4.50

Competitor Analysis

I have the Unit Costs from 2018, 2019, 2020, and 2021 together so I can compare them. These calculations are in my Excel sheet which I will upload.

Unit Cost of Each Company 2018

Blue: $5.83
Turbo $8.20
Fresh: $5.94
Store: $5.53

Unit Cost of Each Company 2019

Blue: $5.53
Turbo $8.75
Fresh: $6.85
Store: $6.26

Unit Cost of Each Company 2020

Blue: $5.11
Turbo $8.21
Fresh: $8.07
Store: $5.31

Unit Cost of Each Company 2021

Blue: $5.45
Turbo $8.19
Fresh: $9.71
Store: $4.55

I determined the reason for the change in trends for Operating Profits, Market Share, Brand Demand, and Brand Sales of Turbo, Fresh, and Store for 2021. These reasons are stated under the Brand Demand and Sales section in Trends. I will anticipate the business decisions the competitors will make in order to better create my own strategies for Year 4.

- My Year 4 decisions saw losses for Blue as operating profit decreased from $67,534,169 -> $37,034,493. All competitors saw a loss in profit with Store losing the least (the exact numbers are posted below).
    - For Year 4, **I suspect that the competitors will not change their prices** as they have further decreased them in Year 3. Furthermore in each year they decreased their prices, they saw an increase in demand but still an overall decrease in operating profits.
    - **Turbo** decreased their price in Year 3 which increased demand, but lost profit. I suspect that they did not produce enough units to sell to make up for the decrease in price.
        - **In response to this** and that every competitor lost profits in Year 3, I think Turbo will stay with their current price and instead focus on marketing and setting the correct volume to offset the loss in operational profits.
    - **Store greatly** decreased their price in Year 3 and still saw a decrease in operating profits (they are still in the negative values for operational profit).
        - **In response to this** and that every competitor lost profits in Year 3, I think the only way to increase demand and subsequent profits is to maximize their volume and to manage other factors such as marketing, trade channels, and brand attribute for Year 4.
    - **Fresh** increased price in Year 3 and greatly lost demand and profit.
        - **In response to this** and their Blue's success, their best course of action for **Year 4** is to stay at the same price or lower their prices to increase demand and hopefully profits as well.
    - I mentioned that the competitors should focus on marketing instead of just volume and price because of Year 3 results.
        - The Year 3 results demonstrate that if multiple companies reduce prices in an attempt to increase demand, then the positive results they expect to gain will be nullified.
        - Also, it is shown in Year 2 and 3 that competitors are willing to lower their prices. However, each year has shown that this strategy has not worked out for them as they have lost profit.

Operating Profits from 2020 - 2021
Turbo: $107,881,057 -> $43,121,898. **%60.5 decrease**.
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Operating Profit and **Revenue** will be factored in the Decision and Strategy section based on the **Demand Forecast Tool** and my **Income sheet**.

My Decision and Strategy of Year 4

Channel Price

The Channel Price I choose will be $5.50

Strategy

- I have a few reasons for setting the price to $5.50
    - In 2019 (Year 1), I changed the price from $7 to $6.50, which increased demand from 32 million to 55 million
        - In Year 1, no other company changed their prices which greatly help increase Blue's demand
        - In Year 2 I did not change Blue's price, but competitors changed theirs which took demand away from Blue.
        - In Year 3, Turbo, Store, and Blue both decreased Price. All three companies hoped to gain the effects of PED and increase demand to increase profits.
            - However, as all three companies decided to follow the same strategy, they lost what could have been a great leap in profits as the consumers they could have received went to a different competitor (less effects of PED).
        - From my **Competitor Analysis**, I have strong reasons to believe that the competitors **will not make any significant changes to their prices (more than 50 cents)** as the results in Year 2 and 3 of lowering their prices have proved disastrous for them.
        - As a result, I will lower my price in **Year 4** to take advantage of this fact to gain more demand.
- Also by lowering price, I expect to gain the effects from PED (higher demand)
- Porter's 5 Forces Model explains that price is a strong factor in competition and every Year in the simulation proves that.

Formuluation

My choice is Pods

Strategy

- Although Pods will incur a +%15 in variable costs, Pods are still the most popular choice.
    - It is shown in my Year 2 results that Blue had an increase of %74 in Operating Profits from Year 1 to Year 2 since I produced enough units to overcome the increase in variable costs.
    - Since Pods are the most popular choice, they are always in greater demand vs the other formulas.
- No matter the filter, Pods are always in demand with Powder in last place.
- Blue will go with Pods despite the +15% in variable costs due to popularity.

Product Features and Positioning

My choice is Odor Elimination

Strategy

- I chose this because I plan to Market to the Regions Southeast, Central, and West.
    - This is because all of these regions strongly prefer odor elimination

        - Blue is stronger in the Central and West regions now, but I will keep marketing towards these regions.
- Now there are more positive sentiment towards Blue
    - %37.8 positive, %18.9% fairly negative, %16.2 negative.
    - So I'll keep this product's features and position.

Trade Channel Spend

My choice is

- Convenience: 45%
- Club: 40%
- Grocery: 10%
- Mass: 5%

Strategy

- With lower income, Convenience is more in demand as seen in the data.
- Since I also choose to market to people making 20k-39k, I will also spend a similar amount to Club.
- Since I will lower Blue's Price for this year (Year 4), it should still be affordable for people with lower income.

Media Spend

My choice is

- Print: 3%
- TV: 49%
- Radio: 3%
- Digital Ads: 45%

Strategy

- Digital ads are more consumed by people under the age of 35 and 35-44.
    - TV ads are consumed by 35-44 and 45-54 as well so that is why I will choose to spend more money on TV ads.
- I want to allocate more media spend into TV and Digital ads since my target market segments for Age is towards people under 35, 35-44, and 45-54.

Target Market Segment for Decisions

- **Income**: $20,000 and $20,000-$39,999
- No ethnicity focus
- **Household focus**: Household size 1 and 2.
- **Region**: Southeast, Central, West
- **Age**: Under 35, 35-44, 45-54

Strategy

- The most preferred channel for lower **income** people is Convenience. Since I have already chosen to focus on Convenience, I have decided to focus on people with under $20,000 and $20,000-$39,999 incomes.
    - Choosing to spend more money on the Club trade channel is also a reason for me to focus on people with the income of $20,000 - $39,999
- Not focusing on ethnicity is the same decision I made every year.
    - There is no strong indication that ethnicity is a contributing factor
- Examining the population sizes, **Household focus** will be towards 1 and 2 since they make up more than %50 of the households population in this simulation.
- Focusing on the **Regions** Southeast, Central, and West will target the majority of the geographical demand.
    - I will keep the same regions for Year 4 as I plan to focus more on adjusting Price and Volume to increase profits.
    - Northeast was not added because it is by far the smallest region to market towards.
- From the Year 3 data, focusing on **Age** has worked well despite the loss in demand and profits. The demand from under the age of 35 for Blue tops the competitors. Consumers ages 35-44 and 45-54 are within the bottom 2 positions.
    - I am keeping the focus on ages 35-44 and 45-54 as I plan to allocate more resources to TV media spend.

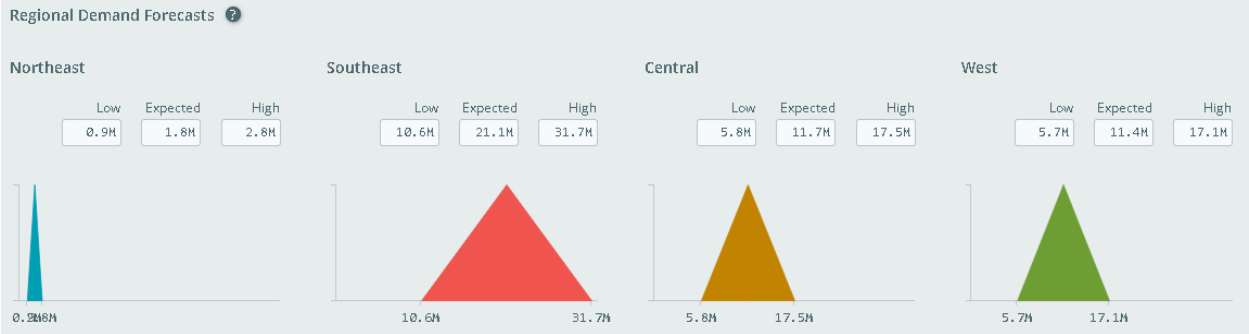
Units to Produce

The amount of units to produce is 64 million.

Strategy

- When I changed Blue's price to $6.50 in Year 1, the demand shot up from 32 million to 55 million. However, in Year 2 I did not change Blue's price but competitors lowered theirs. This increased their demand and took some demand away from Blue (55 million to 48 million). In Year 3, Blue, Turbo, and Store all three lost demand (took demand away from each other) and profits gained could not make up for the decrease in price.
- From the rationale in **Competitor Analysis** and **Price**, I strongly suspect that the competitors will not drastically alter their prices for Year 4 so I have full advantage to lower my prices to gain the most demand and sales
    - I expect them to not lower prices because the results from lowering the Prices in Year 2 and 3 have not created good results for them in terms of operating profits.
    - For these reason, **I project demand and profits for Blue to increase for Year 4**
    - I need to make sure I produce enough units to meet demand, but I do not want to overproduce units.
- In Year 3, the current unit cost for Blue is $5.45. We made an operating profit of $37 million (down from $67 million) due to the reasons described in **Trends** and **Competitors Analysis**
- After playing around with the unit cost calculations and unit cost changes in my Excel sheet, with a **64 million**, Blue will produce their Pods at a **unit cost of $4.26**

- With this number of units, the values I will list from the **Forecast Demand Tool** tab will be the **most likely forecasted average values**
    - From looking at the **regional demand values**, I will keep the same expected values from each region.
    - I increased the expected value of demand from each region for each of the previous years, but I believe that skewed my projections.
    - Adding the **expected values** from each region gives **46 million** and the **highest value is 69.1 million**.
        - **I need to make sure I will produce enough units to meet demand, but obviously I do not expect to reach maximum demand for each region.**
    - Here are the Low, Expected, and High demand values for each region. Southwest, Central, and West are projected to be higher since I plan to focus in those areas.



- Demand: 46,327,166
- Sales: 46,327,166
- Revenue: $289,703,341
- Total Costs: $251,541,371
- Operating Profit: $38,161,969
- On my **Excel** sheet with projects with volume as 64 million and price at $5.50, here are my projected values
    - Revenue: $352,000,000
    - Total Costs: $317,239,872
    - Operating Profit: $34,706,127
    - Comparing these values, my projected values from my Excel sheet are a bit higher than the average values stated from the **Demand Forecast Tool**
        - These values are close enough for me to feel comfortable setting the volume to 64 million.
        - The operating profits from the **Demand Forecast Tool** and my **Excel sheet** are reasonable compared to the results from the previous years.

In conclusion, the Year 3 analysis written in this document has been used to develop a strategy and their rationale for my Year 4 decisions.