PÁX

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Executive Summary

Think back to a time when you were on an airplane. You're glancing at the number of hours you have left on the plane, dreading every second that passes. The heat becomes unbearable and cabin odors start to intensify—it's an all too familiar feeling. This is where PAX comes in.

We believe that traveling should be an enjoyable experience. We created PAX to ensure that every person gets to experience the joy of traveling in comfort and luxury. Our aim is to optimize the way people travel by providing them with their own personal sanctuary, regardless of how hectic and uncomfortable their surroundings may be.

Every one of PAX's features has been designed to enhance the travel experience.Our distinctive aromatic diffusers are crafted to tackle the unwanted odors and dryness on airplane cabins. The internal cooling function prevents overheating, while the ear shaped cut outs allow for seamless headphone compatibility. Moreover, internal pockets located towards the front of the pillow offer storage space for small items, which will ensure a convenient travel experience. We at PAX believe that our product is the ultimate travel companion that will revolutionize your traveling experience.

PAX is targeted at frequent travelers who value comfortability and multifunctional products. Individuals who fly business and first class, and have a household income of at least $50,000. The retail asking price for PAX is $135, and we estimate the ACV to be 14% in the first year and 33% in the fifth year. Our projections predict rapid growth over the first five years and steady growth for the following few years.

Here at PAX, sustainability is integrated in our everyday operations. Our pillow's exterior is made of bamboo lyocell. This is not only a soft and breathable fabric, but it is also biodegradable and easily recycled. Our packaging is meant to be reused or repurposed.

We plan to source all of our raw materials from China in order to be cost-efficient. Our base of operations will be located in Wichita, Kansas in a 15,000+ square foot factory that will serve as both a production facility and warehouse. As for staffing in year 1, we have 4 admin managers and 6 workers. This will be scaled over the next 5 years so that we end up with 12 office workers. This growth will also apply to our production line workers starting at 7 workers in year 1 and being scaled up to 29 workers by year 5. We aim to prioritize operational efficiency

and setting quality standards especially as demand grows.

To kickstart our vision for PAX to become a leading product in the travel industry, we require an external investment of $2.80 million for years 0,1, and 2. This is broken down into $2.55 million for equity holders and additional $250k from friends and family. This would fund our $1,566,331 initial investment for capital expenditures, purchasing raw materials, and information systems that are necessary for PAX's initial launch. In addition, we will use excess funding leftover from these investments in order to create risk mitigation plans that will help us overall reduce risk and lower expenses throughout the years. When we become cash flow positive in year 4, we will begin to reimburse our investors in the form of a $810,000 dividend. We predict a 3.2 year payback period.

Based on our 12-year product life cycle, we calculated a terminal value of $9.4 million in year 5. With a WACC of 20.88%, this project will have a net present value of $2.25 million and an IRR of 39%. With our high IRR and positive NPV, we believe that our investors will earn a worthwhile return on their investment.

At PAX, we acknowledge the inherent risk that comes with any investment. That is why we have taken both quantitative and qualitative risks into account at every step of our journey and have developed strategies to mitigate them. One potential risk is that our target market or segment may not be as receptive to our product than we anticipate. To mitigate this risk, we plan to foster strong relationships with airlines and airports to increase the awareness of our product amongst travelers. This strategy would help to ensure our product has a wide reach and limit a reduction in segment size. Another quantitative risk is a decrease in our ACV and awareness due to a lack of effective communication about the value of PAX to consumers. To mitigate this we will focus our attention on partnering with social media influencers and online advertising using social media platforms such as Facebook Meta and YouTube. Qualitative risks also exist in the market such as supply chain disruption and entry of competition into the market. To combat supply chain risks, we focus on building strong relationships and clear communication with our current overseas suppliers and tap into local supplier markets. We anticipate high levels of competition due to the fragmented nature of our market, therefore we will continuously monitor the market landscape so we can react accordingly. Furthermore, this strategy will help us to have continuous innovation in PAX as well as establishing strong brand loyalty with our customers to maintain our position as a leading brand. We recognize that mitigating all these potential

problems can be costly and time consuming, but we are committed to maintaining these strategies so that both our business and our investors are well protected from uncertainty and risks during our early years of operation. PAX will always remain vigilant of potential risks that may come into the market and quickly address them as the market grows.

The team is committed to delivering value to our various stakeholders. Further details of our finance, marketing, and operations can be found in the PAX pitch book.

Thank you,
Team PAX

English | Ship to: United States | www.PAX.com Search

"PÁX is committed to revolutionizing travel by
delivering respite and relaxation, one pillow at a time."

B1T2

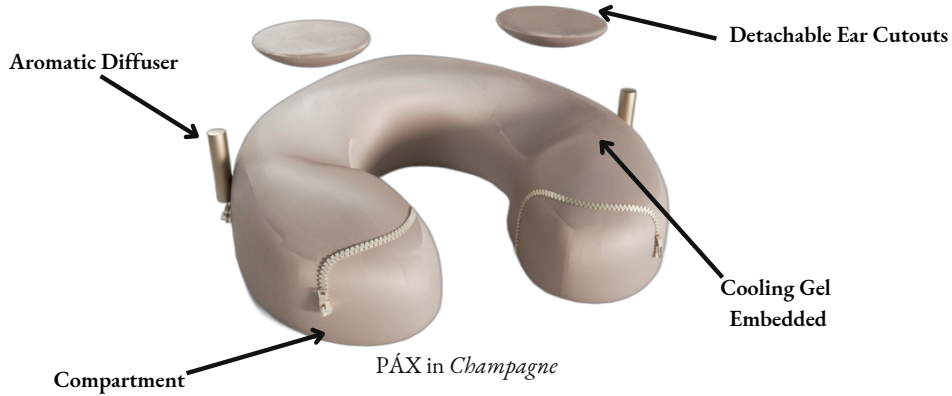
Product Overview

PÁX is the first multi-functional travel pillow on the market

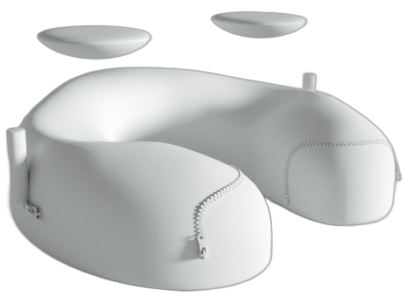
The PÁX pillow is the epitome of comfort, convenience, and serenity. It is the first multi-functional travel pillow on the market. Our key attributes include two aromatic diffusers, ear-shaped cutouts, a cooling function, and internal storage compartments. These multi-functional features create a sanctuary for customers in public.

Our built-in aromatic diffuser releases a soothing scent that will help a customer unwind and relax throughout their travel journey, while the embedded cooling gel keeps them cool and refreshed. Our memory foam body ensures the utmost comfort by providing neck and head support, while our internal storage compartments eliminate the hassle of locating essential personal belongings in confined spaces.

Ultimately, PÁX transforms a customer's travel journey with its unique "spa-like" features and its luxurious look; customers will never dread a flight again.



PÁX in *Champagne*



PÁX in *Frost*

PÁX in *Noir*

Monitoring political and environmental trends allow us to stay ahead of competitors; as well as integrating sustainability in our everyday operations

- There is a growing consumer demand for eco-friendly products. Consumers have become more sensitive to the environmental implications of their purchases, and our competitors are responding accordingly.[1]
- Geopolitical tensions involving the US and China have to be monitored closely as rising tariffs could severely impact our operations. We have to strengthen existing relationships with suppliers, as well as consider sourcing raw materials both locally and from other countries.[2]

- Bamboo lyocell is a sustainable material.
- Raw materials are ethically sourced from China.
- Workers are compensated fairly.
- PÁX can be easily disassembled into its component parts.
- Aromatic diffusers can be salvaged for reuse.
- Cotton packaging meant to be reused or repurposed.
- Quality inspectors help improve our scrap rate thereby decreasing waste.

1. Olga V. Mayorova and Ekaterina N. Lytkina, "Virtual Reality in Education: A Review of the Research," Educational Technology Research and Development 69, no. 6 (2021): 2715-2742, https://doi.org/10.1080/21681015.2021.1950227.
2. Shudong Sun, Shuaian Wang, and Yongjian Li, "Social Network Analysis in Supply Chain Management Research: A Review," International Journal of Production Research 57, no. 7 (2019): 2113-2135, https://doi.org/10.1080/00207543.2019.1605225.

The Industry In Which We Operate is Highly Fragmented with Low Barriers to Entry

- New competitors can easily enter the market. This further intensifies competition as it increases the number of firms vying for market share. We have to be aware of changing consumer needs and continually work on improving our product.

- Highly-price sensitive market, thus our company has to offer competitive pricing in order to attract and retain customers.[3]

- Easily replicated product due to low barriers to entry.

- Products in our industry have relatively shorter life cycles. This will be discussed in depth during our terminal value analysis.

3. "Travel Retail Market Size, Share & Analysis | Forecast [2029]." Accessed April 24, 2023. https://www.fortunebusinessinsights.com/travel-retail-market-104620.

We will Implement #PÁXForPlanet in Year 1 to establish a Positive Reputation

- PÁXForPlanet is a relatively low-cost initiative to implement so we aim to implement it despite the fact that we're not profitable nor cash flow positive in years 1 and 2.

- Every person who purchases a PÁX pillow will have the option to donate 99 cents. Should they choose to make a donation, they will automatically be enrolled in a raffle to potentially win a free PÁX pillow at the end of the year. All the proceeds will go to Greenpeace.

- Our priority in the first 2 years is to expand our reach and awareness as cost-efficiently as possible. This venture is feasible because not only does it require little to no losses on our end, but it also will give us a 1.5% boost in awareness.

- We chose to work with GreenPeace because we recognize the importance of offsetting carbon emissions, particularly in the travel industry.

We will implement School Girls Unite in Years 4 & 5 When we Become Cash Flow Positive

- For this second initiative, we at PÁX are committed to donating 1% of our profit to School Girls Unite, a non profit justice organization that empowers underprivileged girls through education and leadership. We chose this organization because it's closely aligned with our commitment to ethically sourced labor.

- Out of our survey respondents, about 63 people said implementing School Girls Unite would significantly increase their purchase intention. 54 people said it would slightly increase, and 38 people said there would be no change in their purchase intention.

- When running an analysis on these numbers, we found that after implementing School Girls Unite in year 4, our purchase intention would increase from 20.92% to 24.27%. In year 5 our purchase intention will increase from 24.42% to 28.04%.

- Overall, implementing School Girls Unite would improve our purchase intention, helping to drive our revenues and give back to young girls in need around the world.[4]

4. "School Girls Unite." School Girls Unite. Accessed April 24, 2023. https://schoolgirlsunite.wordpress.com/.

Marketing

B1T2

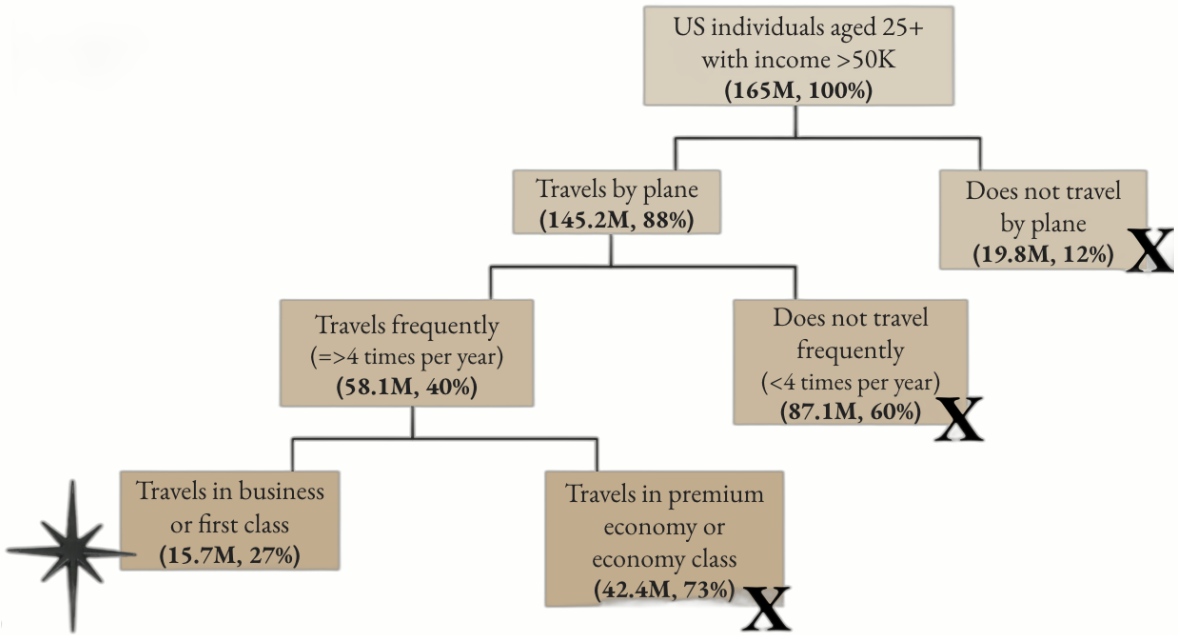
PÁX Target Segment: U.S. travelers aged 25+ who fly Business/First Class four or more times per year and have over $50K annual income

PÁX Segmentation Analysis

- After performing a survey on 200+ respondents, we segmented out our target market to analyze the receptiveness of PÁX from the total survey respondents.
- We found that PÁX had a great receptiveness towards people who fly business and first class having a high probability for both definitely and probably buy. (MK Appendix 18)
- Another variable we considered was comparing willingness to buy with age range and found that for all ages there is still a high receptiveness to buy PÁX. (MK Appendix 18)

Other Variable Considerations

- Other variables we considered are education level, domestic or international travel, duration of flights, and whether or not they already own a neck pillow.
- We ended up not using these variables as we felt that they were less impactful than the ones on our current segmentation tree, and also did not want to limit ourselves to a smaller segment size than intended.



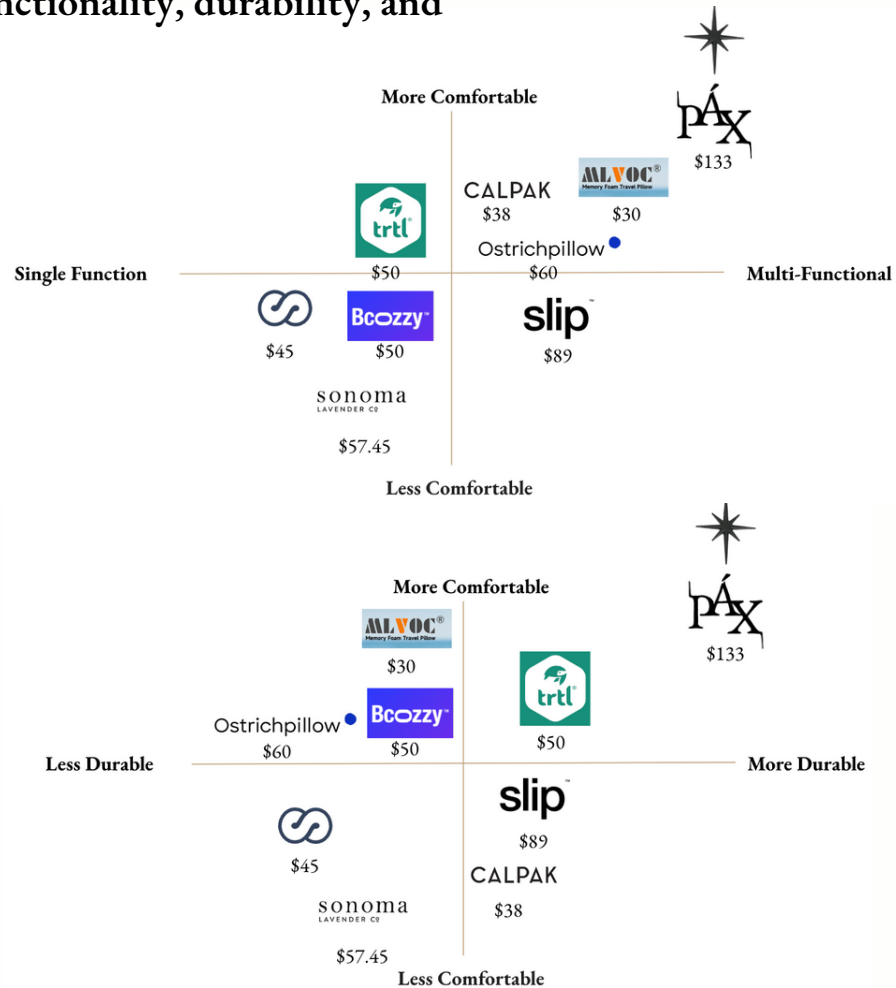
MK Exhibit 1. Segmentation Tree

PÁX outshines the competition in terms of multi-functionality, durability, and comfortability

- According to data gathered from interviews, social media, online, and expert interviews, we found aspects that people value the most in travel pillows on the current market are comfortability, appearance, and durability (MK Appendix 7)
- We assessed our level of comfort and durability on the spectrum by comparing the materials of PÁX with those of our competitors and the feedback from reviews. Memory foam is the major component of our product, making the pillow body malleable and firm for neck and head support; and the bamboo lyocell cover is more breathable.
- We also found that PÁX is the first multi-functional travel pillow on the current market because of its innovative features, including the aromatic diffusers, ear cut-outs, cooling system, and compartments.

PÁX Positioning Statement

- "For business travelers who value comfort, the PÁX is a multifunctional travel pillow which eliminates the dreariness of flights and aids in creating a sanctuary for personal space in public through coziness and scent. It is unlike the uni-functional neck pillows on the market."



MK Exhibit 2. Perceptual Maps

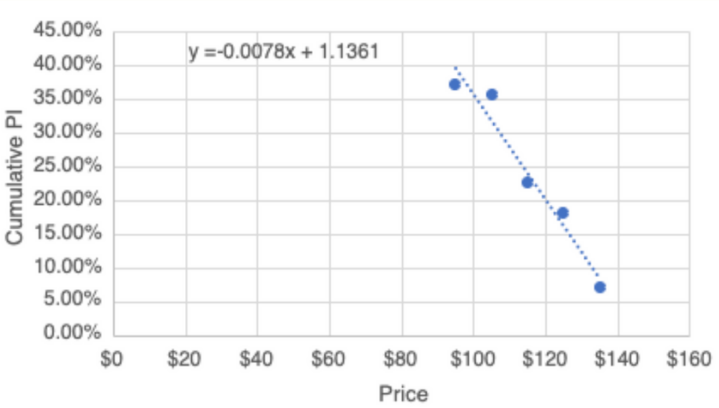
We found that Purchase Intent Was Extremely Sensitive to Changes in Price

Purchase Intent Analysis

- Our steep demand curve shows that at a retail price of $95, our cumulative purchase intent will be at 37.24%. At an adjusted price of $133, cumulative purchase intent drops to 6.93%
- We found that PAX is extremely price elastic, hence incremental increases in price resulted in large decreases in purchase intent and demand.
- With these considerations in mind, we decided on a retail selling price of $133 for independent stores as they are our smallest distribution channel.
- In Year 3, we will decrease the price to $128 when we move into chain stores, thus our purchase intent will go up to 13.29%. When we expand into mass merchants in Years 4 and 5, our retail price decreases to $114, which results in a purchase intent of 24.42%.

Demand Curve Table	
Price	**Cumulative PI**
$95	37.20%
$105	35.61%
$115	22.74%
$125	18.05%
$135	7.07%

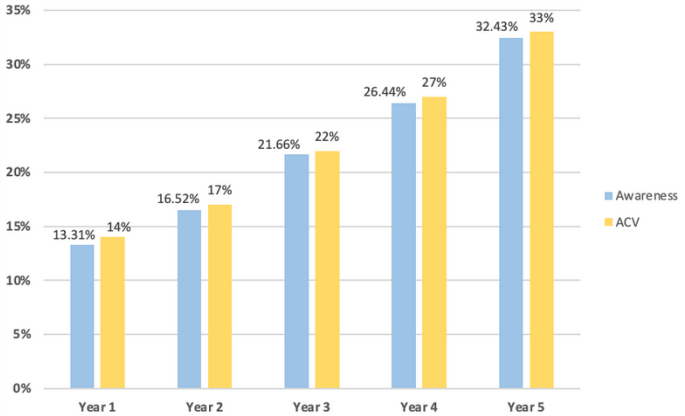
MK Exhibit 3. Demand Curve Table



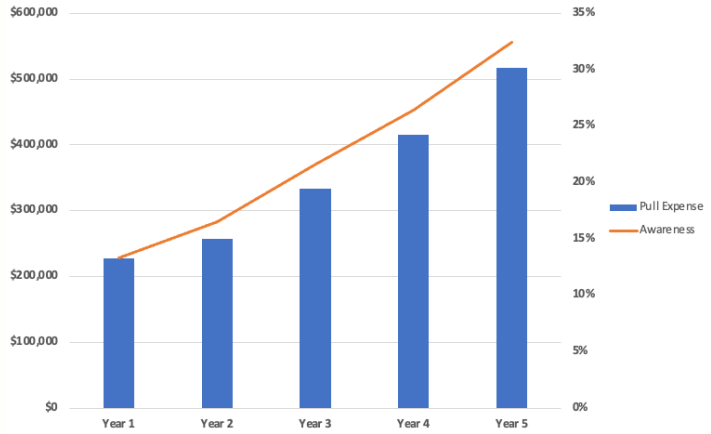
MK Exhibit 4. Demand Curve

IMC and creative executions will target our segment and generate awareness

- Our advertising strategy is designed to convey our company's innovations along with brand aesthetics. The goal of our IMC is to communicate our positioning statement to our target customers and build awareness for our product. We aim to demonstrate to potential channel partners our commitment to marketing efforts through nationwide advertising.
- **Marketing Objective**: Our primary marketing objective is to establish PÁX as the preferred travel pillow for modern business and first-class travelers who value comfort and personal space during their journeys. Our IMC is designed to creatively highlight the multi-functionality and unique benefits of our product, with the aim of increasing our brand awareness and demand through paid, earned, and owned media, as well as collaborations with channel members. Our ultimate objective is to achieve our sales goals by reaching the target audience, meeting our projected distributions across all channel members, gaining and improving awareness through IMC, fostering strong customer loyalty, and building a unique brand image that resonates with our target market.



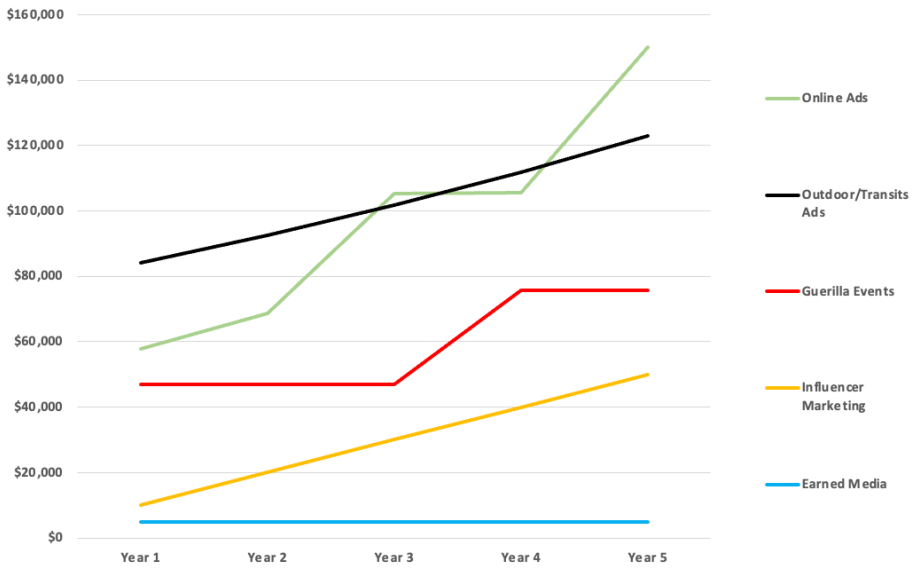
MK Exhibit 5. Awareness Growth vs. ACV Levels



MK Exhibit 6. Awareness Growth vs. Increase in Pull Marketing Expenses

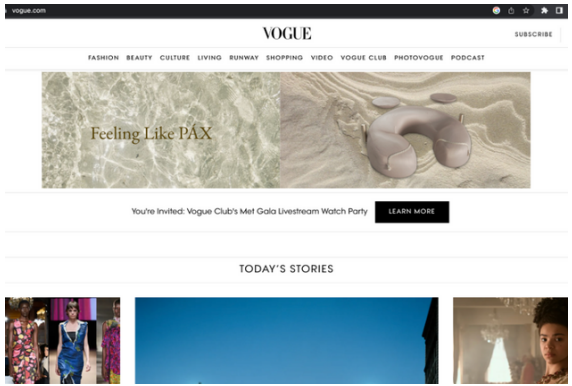
- As shown in Exhibit 3 and 4, our awareness level is expected to surpass the increase in pull marketing expense starting at Year 2, while the growth in awareness closely aligns with the growth in ACV.
- We plan to implement a concentrated targeting strategy for the first 5 years, which allows us to allocate resources more efficiently as a start-up. The company will adopt product development to enrich the company's long-term growth. (MK Appendix 2 - 6)

Pull marketing depends heavily on digital platforms that generate awareness and maintain engagement



MK Exhibit 7. Pull Marketing Expenses by Activities

MK Exhibit 7. Packaging Design



MK Exhibit 8. Online Advertisement

- We invested heavily on online advertisement as it has been proven to significantly influence customer purchasing behaviors.[5]
- As shown in Exhibit 7, the **online advertising** budget and total awareness steadily increase with the biggest jump occurring in Years 3 and 5, corresponding to the increasing competition rate. We will develop and sustain visual content that portrays a sophisticated brand identity and integrate slogans into the visuals to ensure customers easily recall seeing our advertisements with minimal exposure, as seen in Exhibit 6 and 7.
- **Influencer marketing** is expensed at capacity over 5 years with a steady increase of $100K each year. We will collaborate with influencers whose profiles align with PÁX's brand image.
- **Earned media** expenses stay the same over 5 years while we expect to see the awareness level grows at a consistent rate each year, as result of a more established track record, larger company presence, and higher brand exposure (MK Appendix 9)
  - **Public relations** will account for our partnership with magazines and blogs, including The Luxury Editor and Haute Living
  - The **carryover** represents a consistent level of awareness each year.

5. Jonathan D. Linton and J. Markham Collins, "Digitalization, Disintermediation, and Efficiency in the Delivery of Services," Journal of Product Innovation Management 34, no. 2 (2017): 200, https://doi.org/10.1111/jpim.12475.

Offline advertising and push marketing sustain brand exposure to the market

MK Exhibit 9. Billboard Advertisement

MK Exhibit 10. Guerilla Marketing

Public Advertisement

- We invest heavily in outdoor advertisements along high-traffic highways and public transit routes to airports, in order to reach and raise awareness among our target audience.
- The expense for outdoor ads increases by 10% each year, as we expect to see the awareness grows at a consistent rate.
- Across 10 different U.S. cities, bus stop ads will be held in 5 US cities for 2 months each. Additionally, medium-sized airport ads will be held in March, May, and October in the remaining 5 cities . We chose this schedule to target traveling and holiday seasons. (MK Appendix 2 - 6)

Guerrilla marketing

- In Year 1-3, we will implement the same guerrilla event, *Polar PÁX*, where the model demonstrates our product's features. We chose top-tier shopping malls to reach target audience and draw in-person and social media attention. (MK Appendix 8)
- In Year 4-5, we will adopt an additional guerrilla event, *Flying PÁX*, in response to the growing competition rate. This event will locate in populated cities on two coasts, targeting high traffic in transits to airports. (MK Appendix 8)

Push Marketing

- We will participate in trade shows and trade magazines each year to maintain presence with channel members.
- We increase expenses starting Year 4 and start collaborating with more high-end magazines in Year 5, including Vogue, corresponding to the growing competitive market.

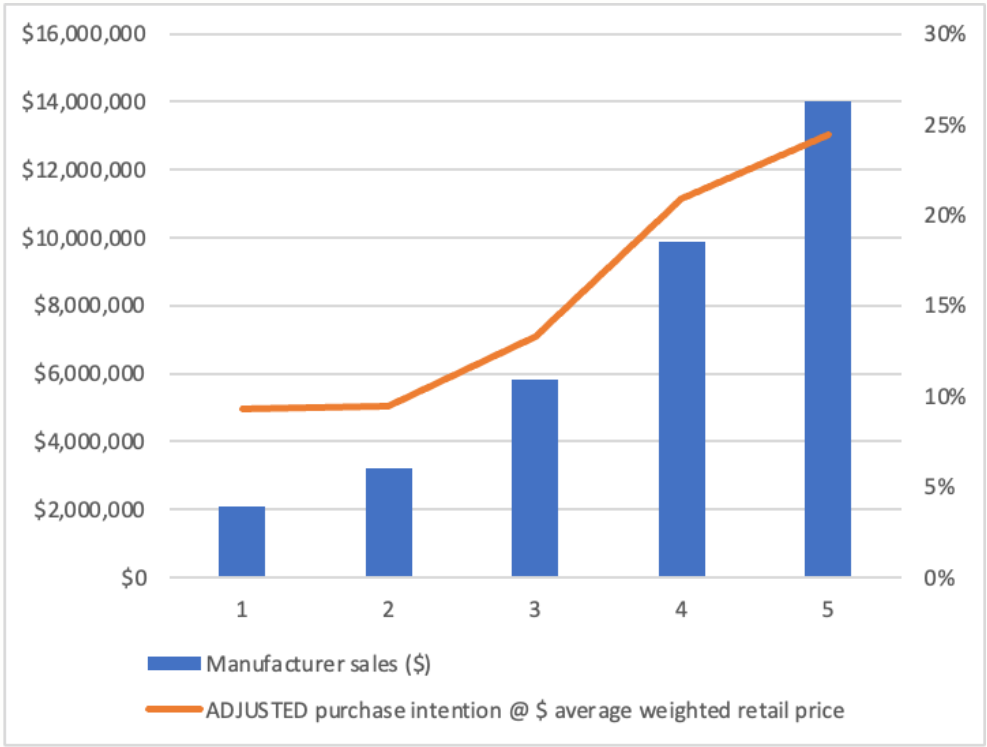
We project for PÁX to have strong growth in sales throughout our first 5 years

Sales Projection Overview

- PÁX's sales sees a positive growth rate through the span of 5 years rising by 569% in total manufacturing sales as shown in MK Exhibit 8.
- The big rise in sales is also due to our market size increasing throughout the 5 years as well as awareness of PÁX grows as well. (MK Appendix 11)
- The manufacturer sales are expected to increase at an increasing rate from years 1 - 3 but a decreasing rate after Year 3, in response to the competitive market, where we expect to see a competition rate of 20% in Year 3 and a big increase in Year 5 at 50%. (MK Appendix 11)

Sales Analysis

- We find that our purchase intent increase per year which in result increase our sales for PÁX as shown in MK Exhibit 8.
- We suspect a slow decrease in purchase intent growth starting in year s as competition enters the market moving into Year 5.
- However, even with competition we still see a big increase in sales due to our pricing strategy keeping prices low as we break into different retail chains. (MK Appendix 10 and 11)



MK Exhibit 11. Purchase Intent and Sales per Year

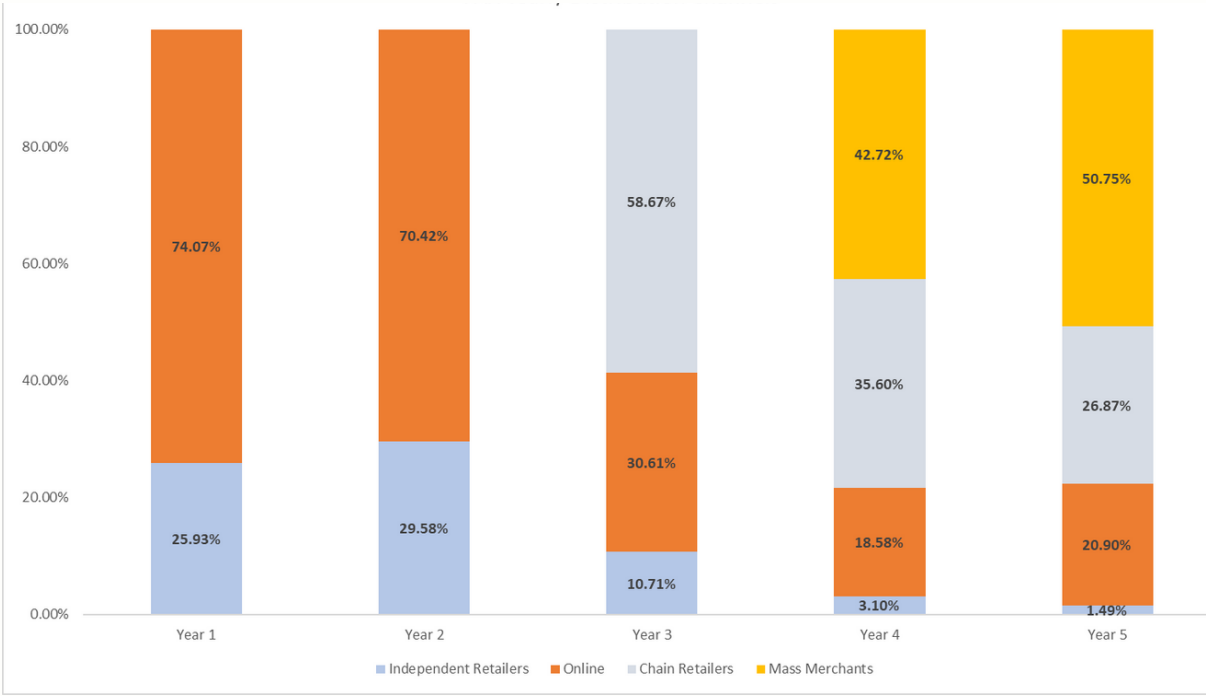
PÁX distribution channel & strategy: shift from independent and online retail to chain retail and mass merchants

Distributions Strategy

- PÁX's main distribution strategy will be focused on distributing directly to the retail chains and not using a secondary source of distribution.
- PÁX will keep exclusive contracts with specific retailers and mass merchants which then brings the added benefit of clear communication with PÁX and its retailers as well as tight control over distribution.

Distribution Channels

- Our main retailers will consist of small independent boutiques, online, chain retail, and mass merchants.
  - EX: Costco, Target, Neiman Marcus, Amazon, Trader's Blue Sky
- In Year 1 our distribution channels will be only independent retail and online have a distribution of 74.07% independent and 25.93% online of our total manufactured units.
- By Year 5 PÁX will heavily focus its distribution strategy towards mass merchants, chain retail, and online. A majority of our manufactured units will go toward these distribution channels. (MK Appendix 10)



MK Exhibit 12. PÁX's Yearly Distribution Channels

Pricing Strategy: Focusing on reducing prices as PAX breaks into different retail chains within the 5 year business plan

Pricing Strategy

- PÁX will focus on a variable pricing strategy by lowering the retail price in the span of the first 5 years as we break into different retail chains.
- We expect competition to enter the market starting Year 3 and grow. PÁX will focus on being price competitive by lowering our retail price and mass merchant prices all the way through year 5 (MK Appendix 10)
- Our price strategy is reflected in MK Exhibit 10 as PÁX's average retail selling price decreases at a rate of -3.08% (CAGR) per year, starting from Year 1 at $133.70 and ending at Year 5 at $114.33.

Pricing and Effect on Demand

- PÁX was found to be very price elastic as small changes in price can greatly affect purchase intent which is a result of PÁX being positioned as a luxury commodity.
- This leads us to believe that by lowering prices for retail chains and mass merchants in Years 4 and 5, PÁX will be able to maximize both revenue and consumer reach.

MK Exhibit 13. PÁX's Average Retail Selling Price Over 5 Years

Operation Management

B1T2

Transportation costs varies based on how inventory is sold

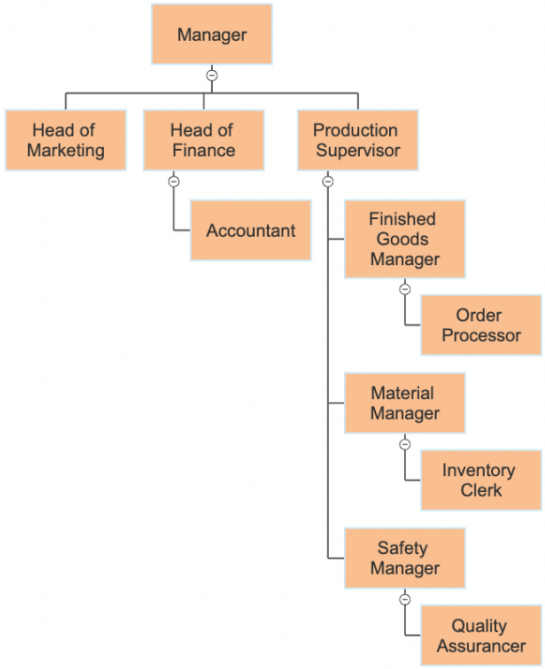
Channel	% of Annual Sales	Annual # units	Transportation Cost per Unit ($)	Total Annual Shipping Cost ($)
Online	3.10%	5,526	7.73	42,713
Independent Retail Stores	18.58%	33,118	2.00	66,110
Retail Chains	35.60%	63,455	1.47	93,390
Mass Merchants	42.72%	76,146	1.76	133,900
			Grand Total:	**336,112**

OM Exhibit 1. Year 4 Outbound Logistics

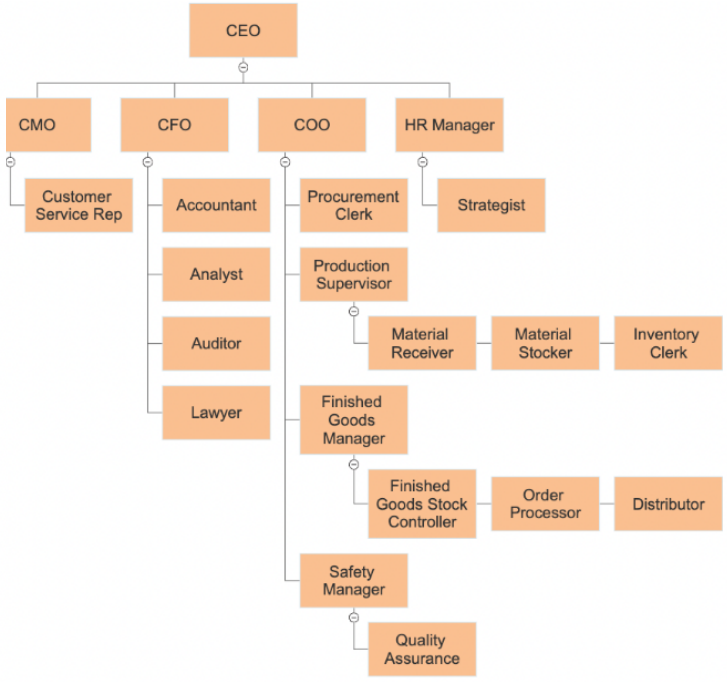
- PAX's overall annual shipping cost is high since at year 4, we have over 175,000 Pax units sold.
- The transportation cost for the online (Amazon) channel was found on the FBA revenue calculator through by comparing competing products that have similar dimensions to PAX.[6]
- The transportation costs per unit of the other 3 channels were found on the FedEx freight shipping website to calculate the total cost it would take to ship Pax to our channel location based on its weight and dimensions.[7]
- PAX does not have any inbound logistics costs as everything is sourced from China.
- PAX annual units will also increase due to entry into larger markets and bigger segment size.

6. Mayer, Martin, and Quirin Empl. Amazon. Helmholtz Zentrum, 2011. https://sellercentral.amazon.com/hz/fba/profitabilitycalculator/index?lang=en_US&ld=NSGoogle.
7. "System Down." FedEx. Accessed April 24, 2023. https://www.fedex.com/en-us/shipping/freight/ltl.html?&cmp=KNC-1001816-13-10-950-1110000-US-US-EN-BDZ0001Z01ZLTLF&gclid=a0bad57837ed1d0908b1b13de17829e5&gclsrc=3p.ds.

The staffing structure expands to meet the needs of our evolving operations



OM Exhibit 2. Year 1 Staffing Plan

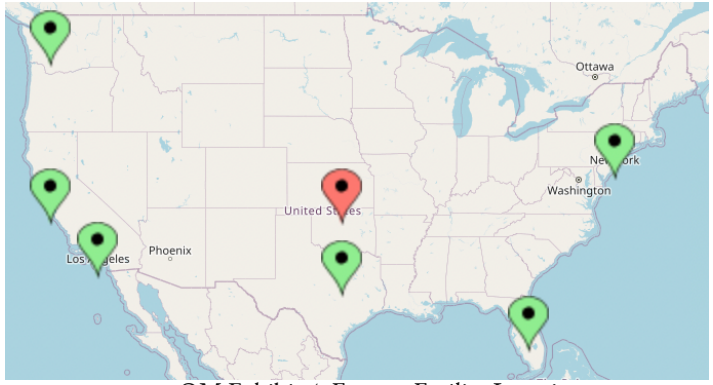


OM Exhibit 3. Year 5 Staffing Plan

- We choose to forgo C-level executives Years 0 and 1 to be cost-effective. A head of marketing, head of finance, and a production supervisor will report to a general manager.
- In Year 3, PÁX's operations will expand to include a Chief Executive Officer (CEO), Chief Financial Officer (CFO), Chief Operating Officer (COO), and Chief Marketing Officer (CMO). Our C-suite will be crucial in providing strategic direction, securing funding from investors, and providing expertise on our industry.
- Middle management will be onboarded based on production growth. In Years 0 and 1, we will have an accountant who will report to our head of finance. Our production supervisor will manage our finished goods manager.
- In order to prioritize customer satisfaction, we will introduce a customer service representative in Year 5, who will assist the CMO. Our finance department will also expand with the introduction of an analyst, auditor, and lawyer. Year 5 will also see the introduction of a human resources manager who will ensure that our staff is compensated fairly and receive the proper training to be successful in their roles.[8]

8. "What Is a Human Resources Manager?: Your 2023 Guide." Coursera. Accessed April 24, 2023. https://www.coursera.org/articles/human-resources-manager.

Center of Gravity findings show the best factory location would be in Wichita, Kansas, where the distribution costs are lowest and it is easiest for us to find capable workers



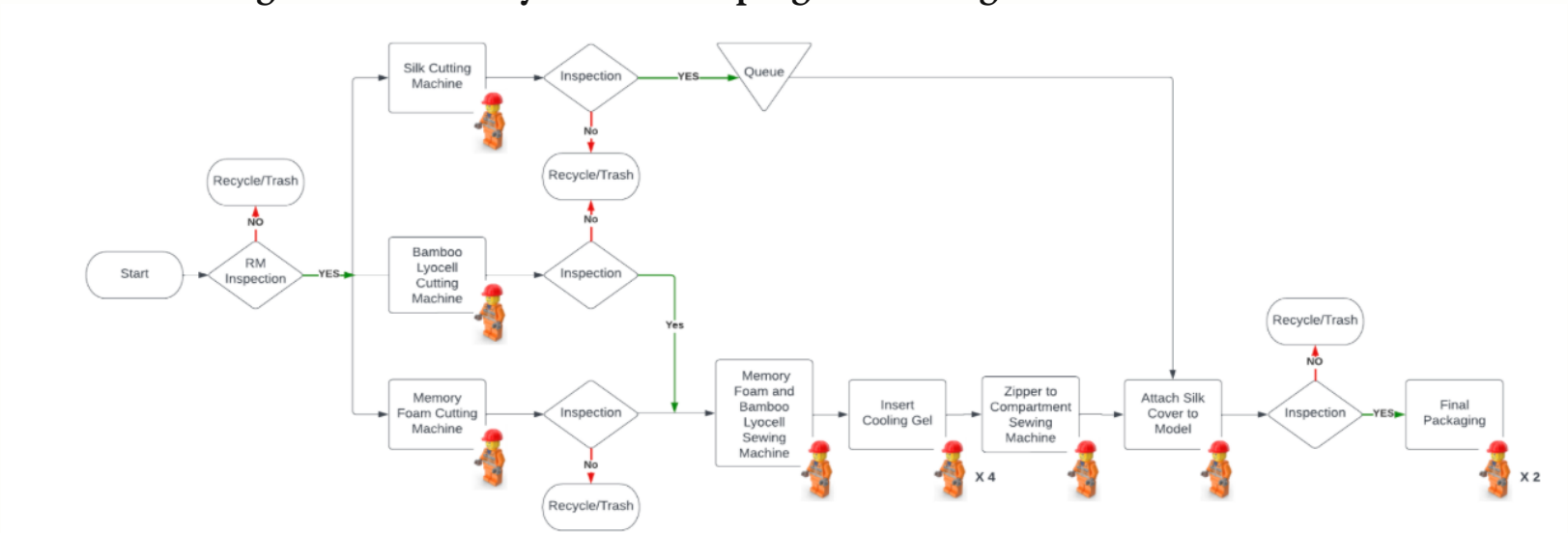
OM Exhibit 4. Factory Facility Location

OM Exhibit 5. Factory Photo

- The center of gravity was calculated by finding the busiest US airports including, the longitude, latitude average # of passengers of each airport. (OM Appendix 25)
- The facility is located in Kansas because it is the most optimal location for distribution costs to be reduced.[9]
- Kansas has access to many resources including oil and natural gas which supports many manufacturing processes.[10]
- Furthermore, Kansas has a business-friendly environment with relatively low taxes, and a low cost of living, and the Kansas government is, focused on trying to boost economic growth.
- Kansas is also a prime location for finding skilled workers in manufacturing, thus making it easier to hire potential employees.[11]
- Through factors such as distribution costs, labor costs, proximity to suppliers, and ability to attract employees, out of Wichita, Kansas City, and Overland Park, our factored rating analysis ultimately resulted in Witchita having the highest rating. (OM Appendix 27)

9. McLean, Caitlin. "What Is the Busiest Airport in the US? Expect the Biggest Crowds at These Destinations." USA Today. Gannett Satellite Information Network, October 15, 2022. https://www.usatoday.com/story/travel/news/2022/10/15/what-is-the-busiest-airport/10341892002/.
10. "Kansas State Energy Profile." Kansas Profile. Accessed April 24, 2023. https://www.eia.gov/state/print.php?sid=KS. https://www.kansascommerce.gov/living/
11. "2021 Kansas Manufacturing Facts." NAM. Accessed April 24, 2023. https://www.nam.org/state-manufacturing-data/2021-kansas-manufacturing-facts/

Process Flow shows an efficient layout of operations that minimize bottleneck time and risks of defects, while creating a sustainable system of scraping and selling unused materials to lower costs

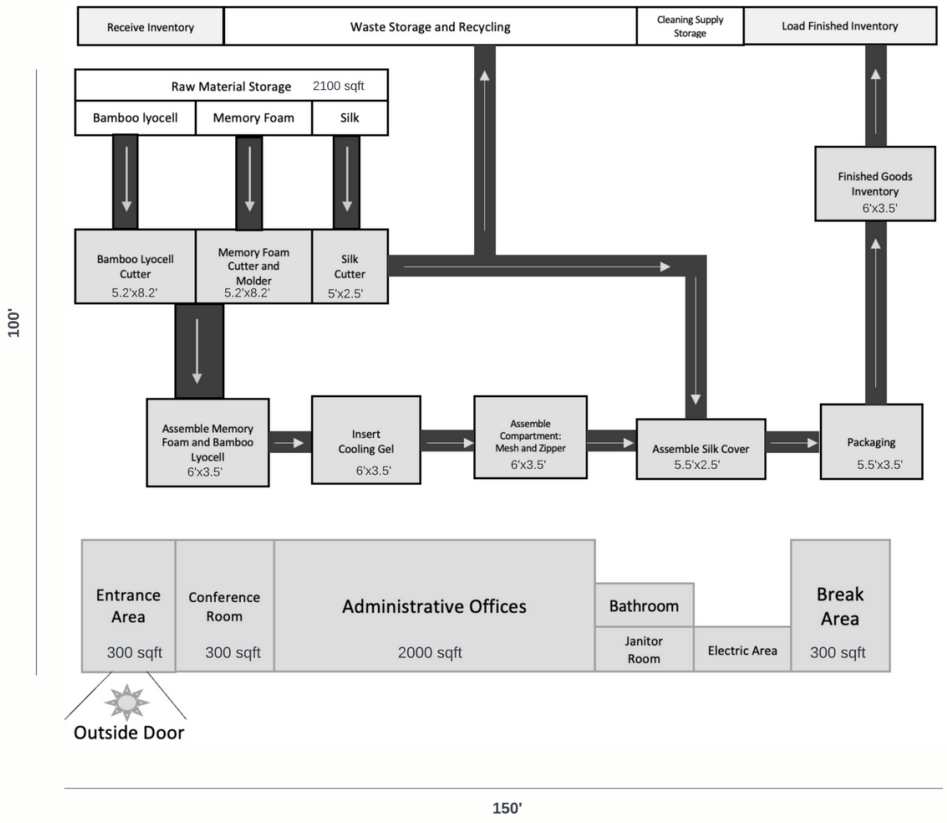


OM Exhibit 6. Process Flow Diagram

- Having a recycle station after every inspection station efficiently reduces our waste and allows us to scrap and sell materials that were not used reducing costs.
- Inspections have been placed after major workstations in the process of making PAX to decrease the rate of faulty designs.[12]
- The cutting workstations split into three paths and meet at their next respective workstation which is out of the way of the others in order to reduce PAX's throughput time.[13]
- We have placed for workers at the inserting cooling gel workstation because their task time is the longest so we decrease the time for the bottleneck.

12. Fuller, Brandon. "Ways to Reduce Product Defects in Manufacturing." Eagle Technologies, June 17, 2022. https://eagletechnologies.com/2012/04/10/ways-to-reduce-product-defects-in-manufacturing/.
13. "Reduce, Reuse, Recycle." EPA. Environmental Protection Agency. Accessed April 24, 2023. https://www.epa.gov/recycle.

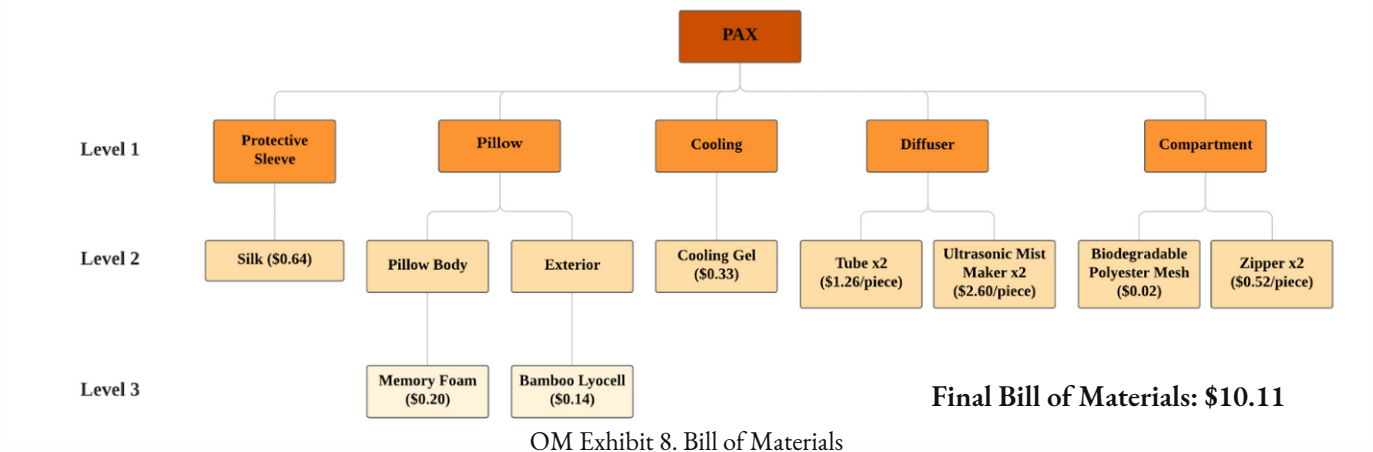
U-shaped production line improves production efficiency



OM Exhibit 7. Facility Layout

- Our 15,000 square foot factory provides sufficient space for production, offers flexibility in production processes, and ensures sufficient space for yearly expansions. (OM Appendix 5)
- Our U-shaped production process begins with receiving raw material inventory and ends with loading our finished goods.
- Furthermore, our U-shaped layout helps maintain a streamlined inventory workflow; reducing the chances of congestion between production stations.
- Overall, this layout aids in reducing labor costs, material handling costs, and lowers production costs.

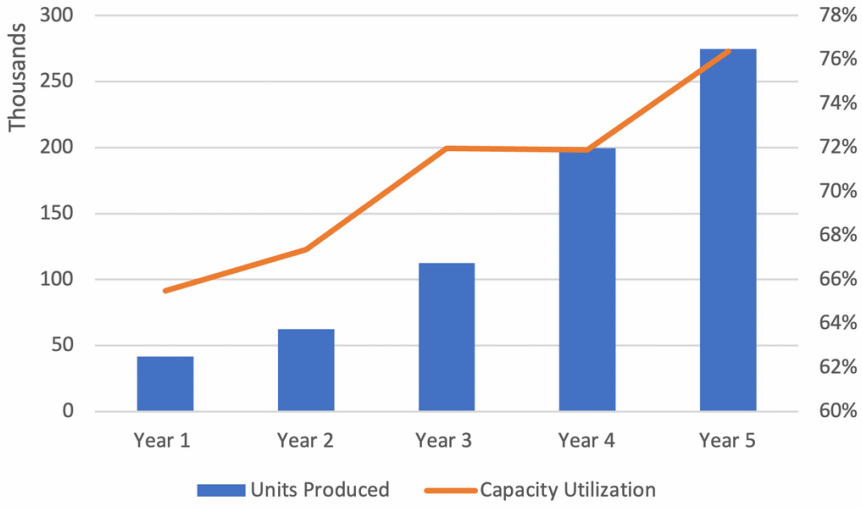
Incorporating lean supply chain tactics to efficiently source raw materials



OM Exhibit 8. Bill of Materials

- We will be cutting the memory foam, bamboo lyocell, and silk to create the shape of PAX; however, all of our raw materials are being sourced from China as the lower prices help to decrease our COGS and help drive our top line growth.
- In terms of our suppliers, we are sourcing our silk from Suzhou Yasha Silk Tech Co., memory foam from Donguan Change Industrial Co., bamboo lyocell form Yi Lei Ya Fang Zhi, cooling gel from Jiangsu Yishan Medical Equipment Co., tubes from Guangzhou Hengge Plastic Products Co., ultrasonic mist from Shenzhen Baoan Shajing Sixiang Electronic Firm, biodegradable polyester mesh frm Hebei Ginzoe Trading Co., and zippers from Guangzhou XiTuo Commerce Development Co. (OM Appendix 2)
- Our suppliers were thoughtfully chosen based on their lower lead times and costs. Thus, maximizing efficiency and minimizing waste.
- We plan on increasing our cross-collaboration with these suppliers to further reduce our direct materials and become a more lean supply chain.
- In emphasis of sustainability PAX will be donating our memory foam, silk, and bamboo lyocell scraps to a textile recycling center called Planet Aid. PAX will restock any returns and refurbish any defective neck pillows to be resold at the original price.

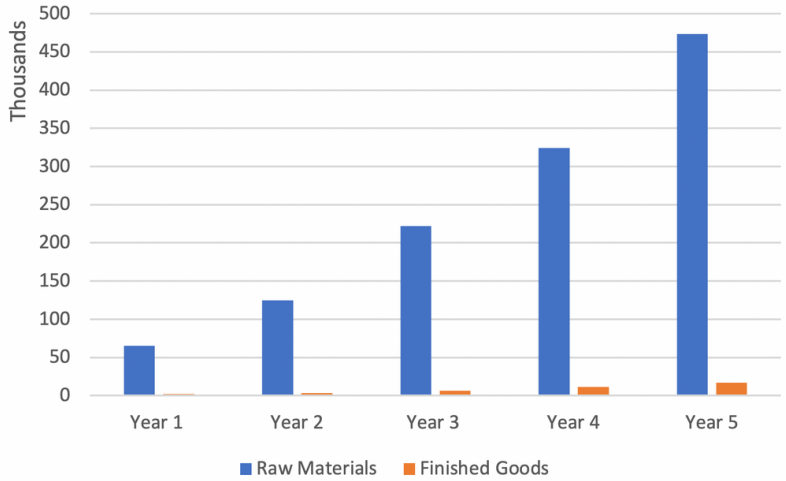
Capacity Utilization becomes more efficient as more investment is made into new machinery to help maximize overall utilization, peaking at 76% in year 5



OM Exhibit 9. Capacity utilization

- Capacity starts at around 65% in year 1, increasing steadily until about year 3 and year 4 where it stays constant at 72%. This is because in year 4 our competition increases along with our units lost. In year 5, we rebound from this increased competition and our capacity increases to 76%. (OM Appendix 15)
- In order to keep up with our increasing demand and continually strive for increasing capacity utilization, we are continually investing in more machinery and workers each year. The effectiveness of our investments is shown through our cycle times and takt times (refer to OM Exhibit 10).
- We determined the number of workstations we would have by analyzing our cycle time. In year one, our cycle time is 3 minutes. This decreases in years 2, 3, 4, and 5 to 2 minutes, 1.1 minutes, 0.63 minutes, and 0.45 minutes respectively.
- Takt time decreases every year as well, demonstrating how our pace of production is consistently matching our increased demand. Additionally, the decrease in takt time proves the lean production system that PAX is committed towards.

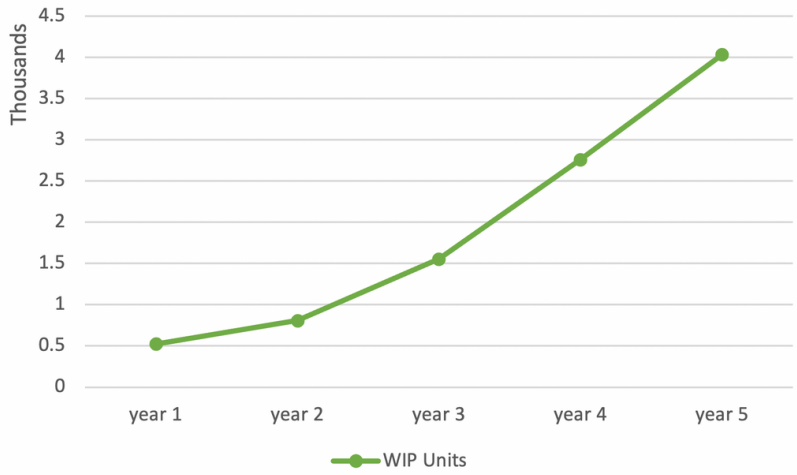
Inventory increase over five years matching our demand



OM Exhibit 10. Safety Stock Over Time

- In year 0, we are sourcing our raw materials before the expected demand year.
- As demand increases exponentially, our safety stock for both raw materials and finished goods increase to match this. (OM Appendix 10)
- Our raw materials safety stock is much larger than our finished goods. Since we are sourcing all of our materials from China, our lead times for our raw materials range from 4 to 6 weeks. This large lead time is a risk of uncertainty and our safety stock for raw materials must be increased to ensure inventory is always available and mitigate the risk of a potential stockout.

- Our Work in Process increases exponentially to meet our units demanded each year. (OM Appendix 9)
- This increase ensures that we have enough inventory currently in production of our neck pillow.



OM Exhibit 11. Work in Process Over Time

Manufacturing the body of the pillow is more cost efficient than buying it

Fixed Cost	$2,805,355
Variable Cost Per Unit	$102.97
Purchase Cost Per Unit	$150.00
Quantity @ Indifference Point	59,656

NPV (Make all 5 yrs)	$(25,282,376.15)
NPV (Buy all 5 yrs)	$(36,828,218.44)
NPV (Buy Yr 1-3/Make 4-5)	$(29,846,484.87)

OM Exhibit 12. Make vs Buy Analysis

- The component of our make vs. buy analysis is the body of our pillow, which is made of memory foam and bamboo lyocell, and combined with our cutting and sewing machines. (OM Appendix 14)
- It is less expensive to make the pillow compared to buy when operating at full capacity of 27,243 basis units.
- Our indifference point is 59,656 units which will be reached in Year 4; this means that disregarding the time value of money, it would be less expensive to buy in years 1-3, as the forecast is lower than the indifference point.
- Our NPV analysis tells us that making for all 5 years is the least expensive option at $(25,282,376.15) and be the best financial option for the company.

Finance

B1T2

Steady Trend of Growth and Productivity Across All 3 Financial Statements

- Our revenues grow significantly from years 1 through 5 at a CAGR of 61%, with the biggest jump in year 3 as our distribution intensifies.

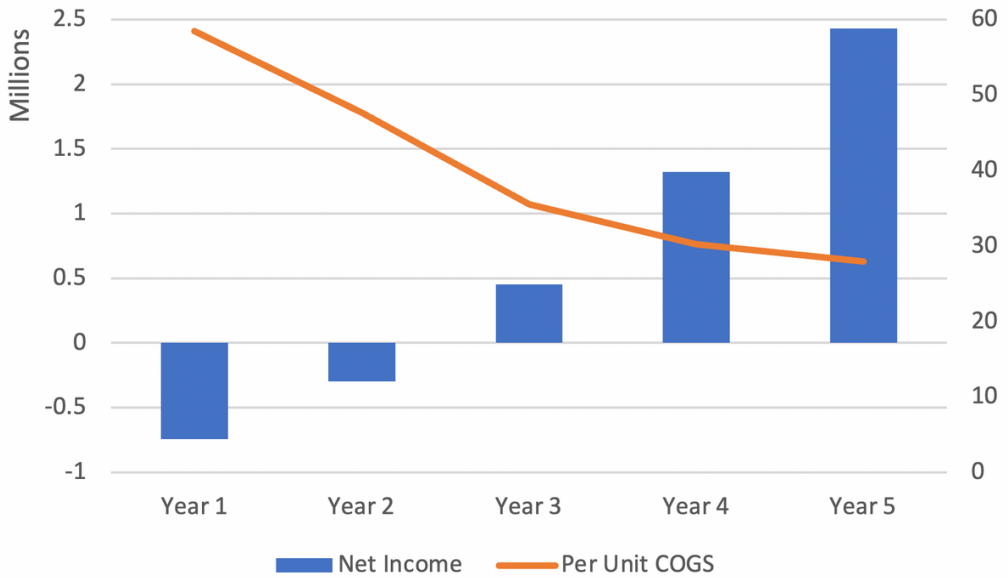
- From a profitability standpoint, as our cost of goods sold levels out and we attain production efficiency, our gross margins grow at a CAGR of 101% from year 1 to year 5. This is aligned with our goal to reduce our variable costs per unit throughout the years by taking advantage of economies of scale and improved supplier relationships.

- Our growth in selling, general & administrative expenses is a key factor in our company's success. To boost our revenues, we increase our spend on marketing and advertising from years 1 to 5 in order to expand our reach. That said, our operating margins widen from -60% to 83% in year 5 when we attain operational efficiency. (FE Appendix 12)

- According to our forecast, we become profitable in year 3 as our net margins widen. We become cash flow positive in year 4 and start reimbursing our investors in the form of dividends.

Achieving economies of scale in Year 3 accelerates our margins

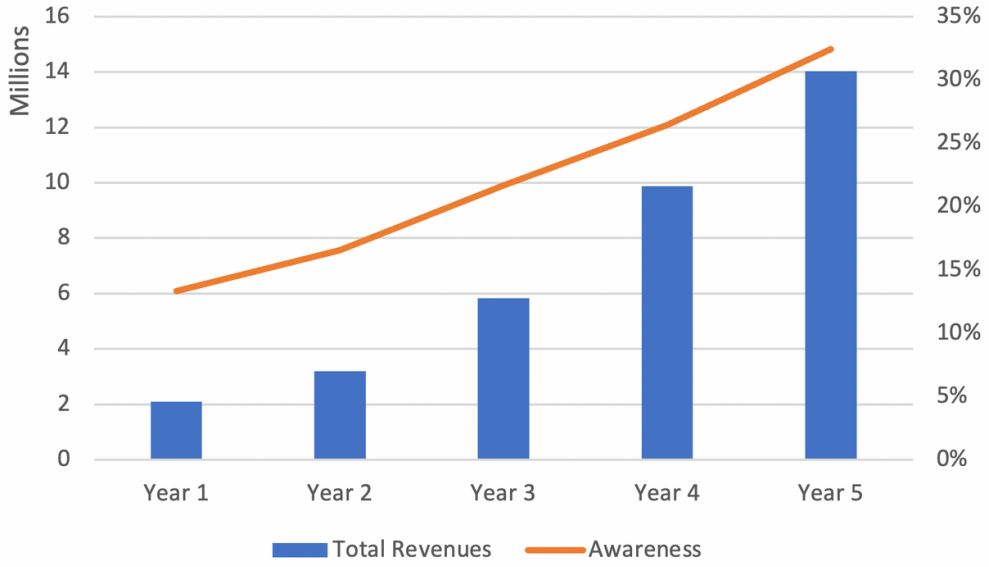
- Decreasing our cost of goods sold per unit as we expand production was one of our main growth strategies.
- In Year 1 and 2 we are operating at a loss, with our COGS per unit at $58.43 and $47.64 respectively. (FE Appendix 12)
- Our units sold increases rapidly from Years 3 to 5, thus our COGS per unit decreases at a steady rate.
- Our COGS levels out due to achieving economies of scale, improved supplier relationships and the standardization of inputs.



FE Exhibit 1. Net Income vs Unit COGS

Awareness & ACV drive our top line

- We found that awareness and ACV are key drivers of revenue growth. We forecast that for the first 7 years of our product life cycle, ACV and awareness grow in tandem with our revenues.
- Increasing our reach and expanding distribution will be vital in our growth
- Breaking into chain stores and mass merchants in Years 3 & 4 will see awareness and ACV grow at around 22%, while our units sold almost doubles. Correspondingly, our revenues will see its most rapid grow at 70%, before it levels out in year 5. (FE Appendix 12)



FE Exhibit 2. Revenue vs Awareness

PAX has an approximated 12-Year Product Life Cycle according to industry trends and comparables

- To start, we performed industry analysis and found that PAX has a relatively short product life cycle due to the luxury travel industry being highly fragmented.

- Since the industry has low barriers to entry and numerous players competing for market share, companies in our space would have to expand our product mix or improve existing products in order to stay competitive for long periods of time.[14]

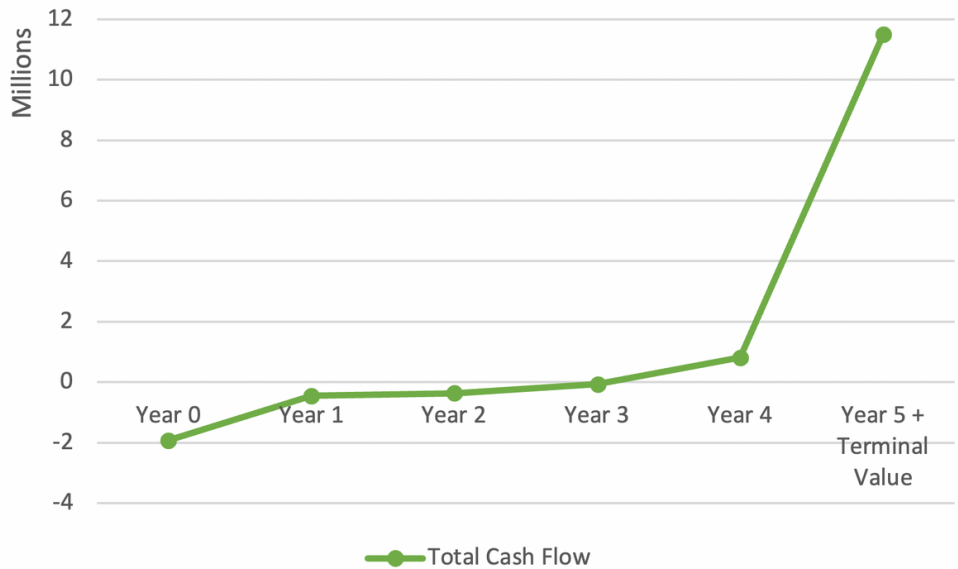
- Next, we looked at our comparables. We chose to look at Samsonite International S.A in particular as they are also in the intersection of luxury and travel. [15]

- Using the aforementioned metrics, we arrived at a 12 year product life cycle for PAX.

14. Dalrymple, Melissa, Ryan Mann, Melinda Peters, and Nathan Seitzman. "Make It Better, Not Just Safer: The Opportunity to Reinvent Travel." McKinsey & Company. McKinsey & Company, June 15, 2020. https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/make-it-better-not-just-safer-the-opportunity-to-reinvent-travel.
15. "Choose Your Location." Samsonite luggage, suitcases, travel bags, laptop bags, backpacks. Accessed April 24, 2023. https://www.samsonite.com/home/home.html

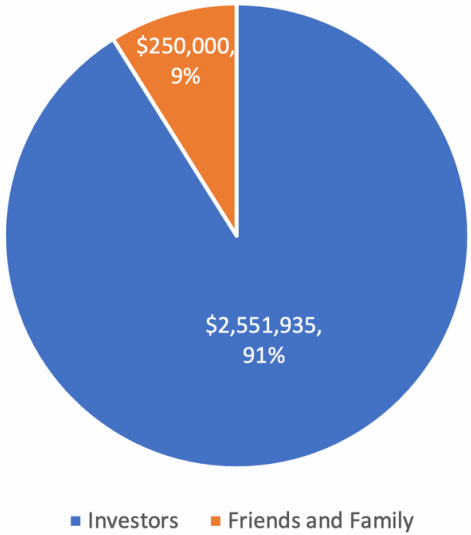
We Are Cash Flow Positive in Year 4 as our Fixed Assets Start Generating Revenue

- We are cash flow negative in year 0 at -$1.93 million due to our initial investment in raw materials, capital expenditure, product development, and pre marketing expenses. (FE Appendix 3&5)
- Our cash flows gradually increase yearly.
- We become cash flow positive in year 4 at $0.81 million when our capital expenditures start generating cash. (FE Appendix 3)
- Though we are profitable in year 3, we are not cash flow positive because our receivables are high.
- We projected a 12-year product life cycle where cash flows begin to decrease in year 8.

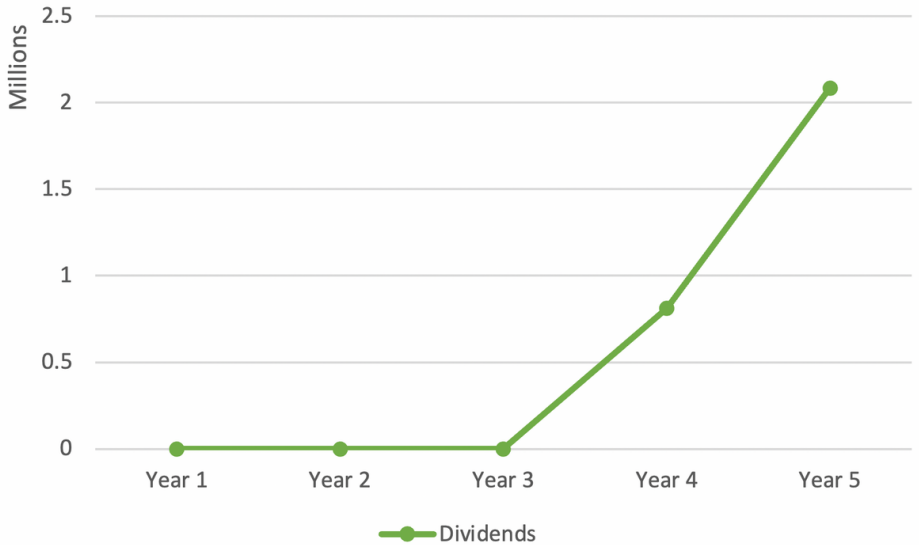


FE Exhibit 3. Annual Cash Flow

We Require External Financing From Years 0 to 3



FE Exhibit 4. Funding Distribution



FE Exhibit 5. Dividend Payout Schedule

- We will need a total amount of $2.80 million to fund our operations. (FE Appendix 2)
- $250,000 will come from friends and family and the remaining $2.55 million from investors.
- The majority of our funding will go towards our initial start-up investment. This includes capital expenditures and other startup operating expenses.
- Our stock will be priced at $1 per share.
- External investors will hold 91% of our company, while the other 9% will be owned by friends and family.
- We become cash flow positive in year 4 and will begin reimbursing our equity holders through dividends. The dividend payout will start off at $811K in year 4 before increasing to $2.08 million in year 5. (FE Appendix 6)

PAX is a Worthy Investment because we have a high NPV and an IRR greater than our WACC

- PAX is a worthwhile investment for investors as the project is NPV-positive.
- Our Net Present Value based on our cash flows and the year 5 terminal value is $2.25 million. (FE Appendix 3 & 7)
- Based on our net cash flows, our Internal Rate of Return is 39%. (FE Appendix 3)
- Since our NPV is positive and our IRR of 39% is greater than our 20.88% WACC, PAX is a great investment opportunity. (FE Appendix 4)

FE Exhibit 6. Discount rate scales out well with NPV and IRR

PAX performs at higher profitability levels compared to competitors

Company	Gross Margin	Operating Margin	Profit Margin	ROA	ROE	DOH	DSO	DPO
Samsonite International S.A [16]	55%	15%	11%	6%	37%	75	40	176
Tapestry, Inc.	70%	17%	13%	9%	32%	215	29	104
Capri Holdings Limited [17]	66%	16%	13%	7%	29%	175	28	102
Burberry Group plc	71%	19%	15%	10%	29%	185	19	69
PAX	58%	24%	17%	83%	93%	27	37	21

FE Exhibit 7. Comparable Companies

- Our company's profitability ratios are on par if not higher than those of our competitors, thus we are generating profit from our core operations.
- We have much higher ROA and ROE compared to other companies, this can be due to the low amount of assets and equity we own.[18]
- Our inventory days are substantially lower than our competitors, thus we're incurring less inventory costs. Our accounts payable days are also significantly lower than our competitors, which signifies strong supplier relationships.

16. "Capri Holdings LTD CPRI Operating Performance." Morningstar, Inc. Accessed April 24, 2023. https://www.morningstar.com/stocks/xnys/cpri/performance.
17. "Samsonite International S.A. Announces Final Results for the Year Ended ..." Accessed April 24, 2023. https://corporate.samsonite.com/on/demandware.static/-/Sites-InvestorRelations-Library/default/dw06e4c9d3/PDF/press release/2023/E%20Samsonite%202022%20Results%20Press%20Release%20%282023-03-15%20Final%29.pdf.
18. Stock.us. Accessed April 24, 2023. https://stock.us/stock/us/TPR/ratios/operation.

Analytics

B1T2

Identifying the potential state of risks and level of impact on our business allows us to anticipate and prepare solutions to hinder impact implications; hence increases efficiency, increases cost control and maximizes customer satisfaction.

- One of the travel industry's main risks is the possibility of another global pandemic halting overall air travel and causing demand for the industry to decline drastically. While we cannot directly control this, we will consider expanding PAX beyond just air travelers so that we are not limited to just one channel of the travel industry.
- Operational conflicts such as increased material costs, channel issues with our distributors, and supply chain problems are more preventable and less risky for us, and we will have mitigation strategies focused on maintaining strong relationships with our operation partners overseas and domestically so that we build a strong network of partners for PAX (QM Appendix 3).

	Low Probability	High Probability
High Impact	• Severe weather halting operations • Travel strikes • Global pandemic • Lack of innovation • Inaccurate product dimensions • Channel conflicts with retail and independent stores	• Increase in supply cost from China • Change in Consumer preferences • Delay in supplies arrival from China • Heavy surge in competition due to travel growth • Economic Recession
Low Impact	• Inadequate employee training • CEO overcompensated • Estimation in production time is wrong • Low quality or damaged raw materials • CSR initiative lacking in effect • Product recalls	• Worker calls in sick • IT failures • Delay in customers receiving products • Consumer knowledge uncertain about features of product • Machinery breaks down

QM Exhibit 1. Qualitative risk matrix

- Although some risks such as IT failures, delays in customers receiving their products, and uncertainty regarding consumer knowledge of PAX are categorized as low impact, we will still strive to prevent these from occurring so that they do not add up and become high impact once they all frequently happen. Some mitigation strategies include investment in strong IT infrastructure, high service level, and targeted marketing campaigns
- While travel growth would be a benefit overall to PAX, the industry itself will become more attractive. Since the travel goods industry already has relatively low barriers to entry, this means that PAX will face more competition for market share. In order to combat this, PAX will strive to innovate continuously while spreading awareness so that we are the leading travel product that our target segment desires to have. Furthermore, we will closely monitor our competitive landscape so that we are conscious of any potential current threats to PAX and have strategies prepared to defend against them.

The variables we chose for simulation are segment size, awareness, and administrative salaries, as these have the highest elasticity effect on NPV, meaning we should focus on mitigating risks for these parameters.

High Impact	• Tax Rate • Total SGA Expenses • Rent • ACV	• Segment Size • Purchase Intent • Awareness
Low Impact	• Units Lost to Competition • Other Costs • Transportation Cost • Manufacturing Rent and Utilities • Cost of Capital • Direct Material Reduction Rate	• Segment Growth Rate • Direct Labor • Direct Material • Marketing Expenses • Administrative Salaries
	Low Probability	**High** Probability

QM Exhibit 3. Quantitative risk matrix

- We chose segment size as a variable because it had the highest elasticity percent out of all of our variables. This indicates that segment size has a high impact on our NPV, and should be analyzed in terms of risks for our company. (QM Appendix 2)
- Even though segment size is a difficult variable for us to control, qualitative risks such as economic and travel trends have a high impact on the change in our segment size. Therefore, segment size has a high probability of changing and a large impact on our NPV, making it a pressing variable to mitigate.

- Admin salaries was our second choice for variable analysis as it had the highest elasticity and impact out of all of the operations variables.
- Even though our admin salaries do not have a large impact on our NPV, they have the potential to change a lot making it an important variable to mitigate risk. (QM Appendix 3)

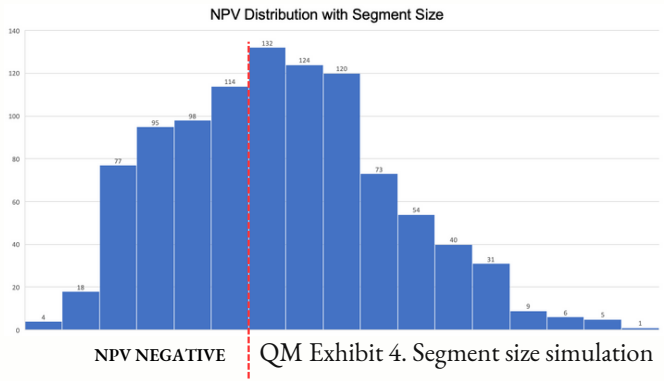
- We chose to run another scenario analysis on awareness, as it would be more insightful to our company than admin salaries which had a very low impact on NPV.
- Both PI and Awareness had the same impact on NPV, but we thought awareness was more appropriate to analyze as we have more control over the change in awareness.

Simulations ran on individual variables' effect on NPV indicated that segment size and awareness had the greatest impact on NPV, whereas administrative salaries had minimal impact.

Simulation 1
Segment Size

- Our segment size was **calculated using historical data from surveys to specify our target market within the US population.** Due to this reason, segment size will follow the same normal distribution as population. The average used for our simulations is from the bases model, with a standard deviation of 0.25 from the average (QM Appendix 4).

- After conducting the scenario, our data was somewhat symmetrical, with a slight skew to the right. About 35% of our data is NPV negative, indicating that segment size is a very high-risk variable compared to the remaining variables.



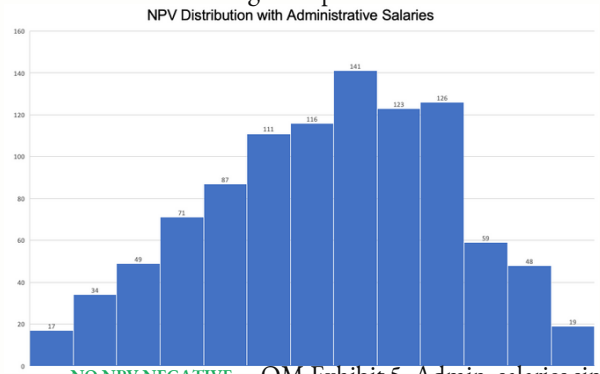
NPV NEGATIVE

QM Exhibit 4. Segment size simulation

Simulation 2
Administrative Salaries

- Our administrative salaries were calculated using online research to find average **admin role salaries in Kansa**s. Triangular was determined to be the best distribution for this variable because of the maximum and minimum salaries our company can withstand. The average used for our simulation is from the bases model, with a maximum of 1.5 times the average, and a minimum of 0.7 times the average (QM Appendix 6).

- After conducting the scenario, our data was skewed left and had no NPV negative chances. This makes sense given the elasticity % was very low with a very low impact on NPV. Even though administrative salaries had the highest impact on our operations variables, it has very little effect on our NPV and will not be considered in our risk mitigation plan.



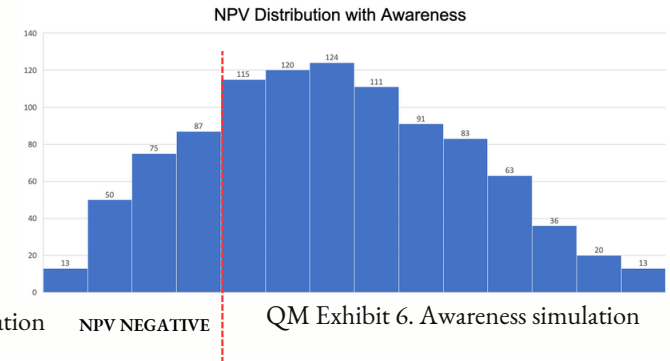
NO NPV NEGATIVE

QM Exhibit 5. Admin. salaries simulation

Simulation 3
Awareness

- Our awareness was calculated using our research and our costs into our marketing expenses, consisting mostly of paid digital media and outdoor advertising. Triangular distribution was determined to be the best distribution for this variable because of the maximum and minimum awareness that our budget could withstand. The average used for our simulation is from the bases model, with a maximum of 1.15 times the average, and a minimum of 0.8 times the average (QM Appendix 8).

- After conducting the scenario, our data was skewed right and had around an 18% chance of a negative NPV. Not only is awareness a key factor in driving our revenue, but its higher risk fluctuation than administrative salaries makes it an important variable that should not be ignored in our risk mitigation.



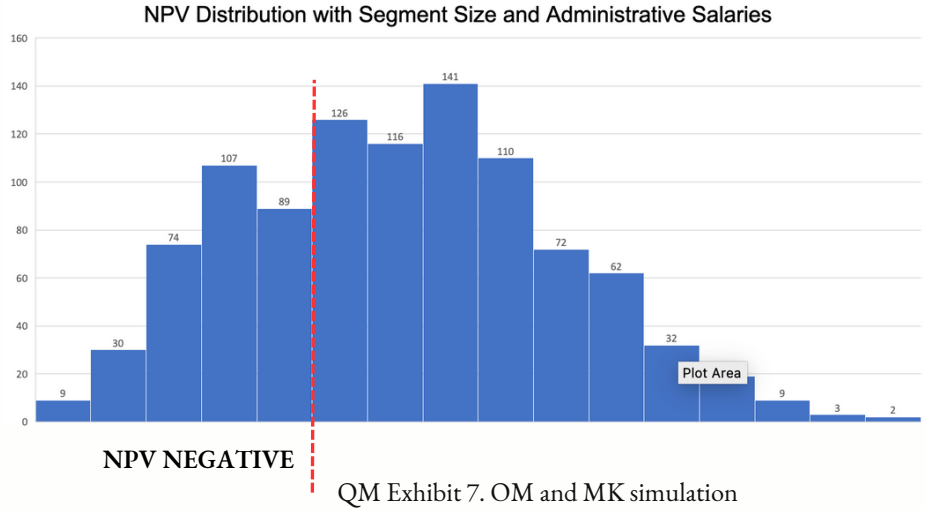
NPV NEGATIVE

QM Exhibit 6. Awareness simulation

Both sets of double variable simulation showed that segment size would always cause a high % of negative NPV scenarios, and simulation 5 confirms that MK parameters are the riskiest ones for PAX.

Simulation 4
Segment Size and Administrative Salaries

- The results of the combined risk analysis of segment size and administrative salaries is not insightful as it shows very little difference from simulation 1.
- This can be explained by the admin salaries having very little effect on NPV. Therefore, this scenario is not an accurate risk simulation for our company, and should not be analyzed further in terms of risk mitigation.

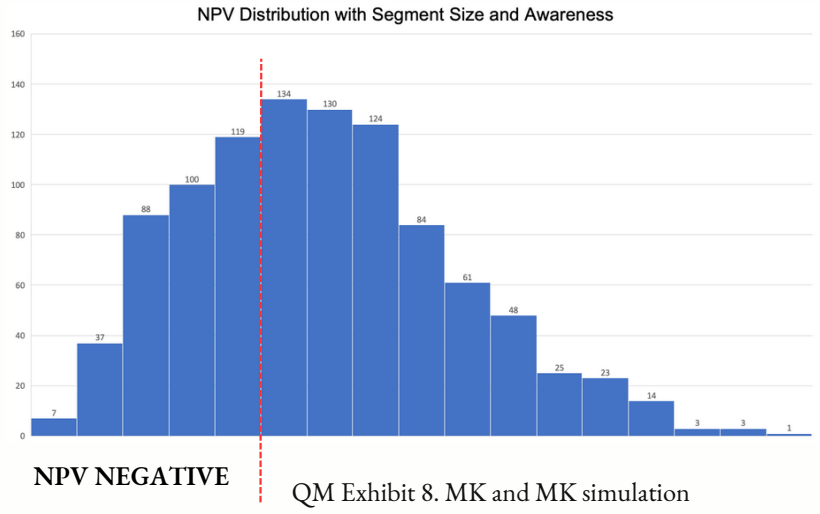


QM Exhibit 7. OM and MK simulation

Simulation 5
Segment Size and Awareness

- Overall, these two variables ran together in a risk simulation have a very high risk fluctuation of 30.1%. This is due to the fact that segment size still has a larger effect on the NPV than awareness.

- Even though the percent of NPV negative values was higher in Simulation 4 with administrative salaries, it is essentially a simulation that only shows the risks of segment size and is not a good measure of risk for our company. Simulation 5 is more insightful as it demonstrates that both segment size and awareness have a high risk and would have a bigger impact if mitigated.



QM Exhibit 8. MK and MK simulation

Segment size is the riskiest variable for us to consider due to the high fluctuation it can cause toward our NPV. Awareness was another consideration while administrative salaries was a nonfactor.

QM Exhibit 9. Tornado chart of three variables

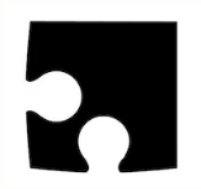
- Segment size has the greatest spread out of all 3 variables, indicating that it has the largest impact on our NPV.
- Awareness also had a significant spread in NPV and although not as great as the segment size, the downside in the worst-case scenario is also a cause of concern.
- Administrative salaries has the shortest length on the tornado chart in comparison to segment size and awareness. This demonstrates how administrative salaries is not a determined risk, and awareness + segment size paint a more accurate picture of the risks that our company faces.
- Therefore, we will mainly focus our risk mitigation strategies on maintaining strong awareness and being within our target segment to prevent to potential risks caused by ignoring these significant risks.

Segment size and awareness risk can be mitigated through partnerships and targeted marketing tactics while establishing brand loyalty and competitive advantage will help prevent operational issues

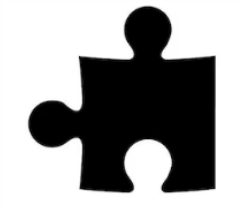
Partnership with Airlines	Targeted Marketing Campaigns	Establish Strong Supplier Relationships	Monitor Competitive Landscape
• Partnering with airlines will help us specifically target our customer market of business fliers and ensure our segment size does not decrease. • In addition, this will also help increase awareness so that our product is known to potential customers who are interested.	• Implementing targeted marketing campaigns will allow us to maximize our awareness and ensure that it does not fall towards the lower-bound risk area that we have set. • If this tactic ends up succeeding, we could very well end up with a much higher awareness than our base case which would help increase our NPV substantially.	• Strong supplier relationships will help us establish a steady supply chain that is safe against shortages, uncertainty, and delays while allowing us to gain a wide network of suppliers so that we have the necessary materials needed to provide Pax to our segment size. • Although we will use mainly overseas suppliers, we are also open to establishing connections with domestic ones to help reduce shipping costs and time if a partnership works out in our favor.	• By monitoring the competitive landscape, we will be able to accurately determine what our segment size is and how our awareness compares to competing products. • We will focus on building brand loyalty and becoming a leading product in terms of customer satisfaction so that we are above industry standards and can outperform competing products in this area. We will also continue to innovate PAX so that we differentiate ourselves from other travel products.

QM Exhibit 10. Risk Mitigation Strategies

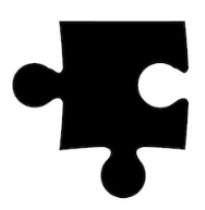
In Conclusion,
Help Us PAX The World!



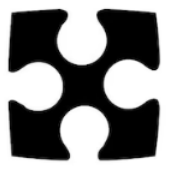
Powerful Marketing Tactics:
Gives us opportunities to always grow and strengthen our company



Effective Operational Strategies:
Helps us to run as efficiently and effectively as possible to keep us ahead of our competitors



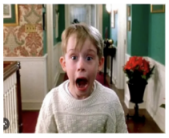
Compelling Financial Projections:
With a strong 39% IRR and $2.25 million NPV, we promise investors our company is worth every penny



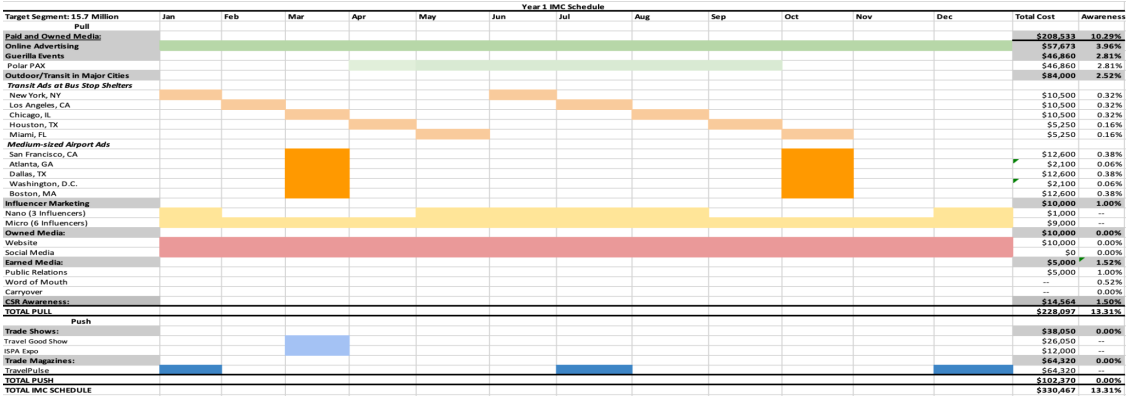
Vigorous Risk Mitigation Tactics:
Allows for us to reduce the impact of potential risks for both investors and the company

Marketing Appendices

MK Appendix 1: Segmentation Grid[1]

	Targeted Segment	Non-targeted Segment	Non-targeted Segment	Non-targeted Segment
Segment Name	Boujee Paxers	Chill Personal Carers	unPersonal Carers	Stay at Homers
Image of Identified Target Customer				
Segment Size	15.7 million	40.7 million	87.1 million	19.8 million
Demographics	25+ individuals with yearly income >$50,000	25+ individuals with yearly income >$50,000	25+ individuals with yearly income >$50,000	25+ individuals with yearly income >$50,000
Psychographics	Value prestige, social status, luxurious lifestyle/experience	Does not value prestige but enjoys personal care	Does not value prestige or personal care, travels without comfort	Do not travel by plane so would see no use for it
Maximum Retail Price Will Pay	$100.00	$60.00	$30.00	$0.00
Key Influencers	Social circle, magazines, celebrities	Social circle, families,	Families, convenience stores	Families
Other Products Segment Buys	High-end facial treatments, eye masks, jewelry	Moisturizers, accessories	Snacks, body wash, clothes	Food, toothpaste
Key Product Attributes & Benefits Sought by Segment	Aesthetics, comfortability	Comfortability, portability, functionality	Convenience	NA
Segment's Information Sources	Blogs, social media, high-end magazines	Social media, TV ads	TV ads, posters, convenience stores	Cable TV, social media
Best Distribution Outlets to Reach Segment	Saks, SSENSE, Nordstrom	Macy's	Target	CVS, Walmart

MK Appendix 2: IMC Schedule Year 1



[1] Xiang, Zheng, "Assessing the impacts of COVID-19 on international tourism industry: evidence from city-level data in China." *Tourism Management* 81 (2020): 104108. https://doi.org/10.1016/j.tourman.2020.104108.

MK Appendix 3: IMC Schedule Year 2

Year 2 IMC Schedule

Target Segment: 15.7 Million	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Cost	Awareness
Pull														
Paid and Owned Media:													**$229,513**	**12.21%**
Online Advertising													**$68,753**	**4.63%**
Guerilla Events													**$46,860**	**2.81%**
Polar PAX													$46,860	2.81%
Outdoor/Transit in Major Cities													**$92,400**	**2.77%**
Transit Ads at Bus Stop Shelters														
New York, NY													$11,550	0.35%
Los Angeles, CA													$11,550	0.35%
Chicago, IL													$11,550	0.35%
Houston, TX													$5,775	0.17%
Miami, FL													$5,775	0.17%
Medium-sized Airport Ads														
San Francisco, CA													$13,860	0.42%
Atlanta, GA													$2,310	0.07%
Dallas, TX													$13,860	0.42%
Washington, D.C.													$2,310	0.07%
Boston, MA													$13,860	0.42%
Influencer Marketing													**$20,000**	**2.00%**
Nano (5 Influencers)													$3,500	--
Micro (11 Influencers)													$16,500	--
Owned Media:													**$1,500**	**0.00%**
Website													$1,500	0.00%
Social Media													$0	0.00%
Earned Media:													**$5,000**	**2.81%**
Public Relations													$5,000	1.00%
Word of Mouth													--	0.81%
Carryover													--	1.00%
CSR Awareness:													**$22,472**	**1.50%**
TOTAL PULL													**$256,985**	**16.52%**
Push														
Trade Shows:													**$38,050**	**0.00%**
Travel Good Show													$26,050	--
ISPA Expo													$12,000	--
Trade Magazines:													**$64,320**	**0.00%**
TravelPulse													$64,320	--
TOTAL PUSH													**$102,370**	**0.00%**
TOTAL IMC SCHEDULE													**$359,355**	**16.52%**

MK Appendix 4: IMC Schedule Year 3

Year 3 IMC Schedule

Target Segment: 15.7 Million	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Cost	Awareness
Pull														
Paid and Owned Media:													**$285,294**	**15.70%**
Online Advertising													**$105,294**	**6.84%**
Guerilla Events													**$46,860**	**2.81%**
Polar PAX													$46,860	2.81%
Outdoor/Transit in Major Cities													**$101,640**	**3.05%**
Transit Ads at Bus Stop Shelters														
New York, NY													$12,705	0.38%
Los Angeles, CA													$12,705	0.38%
Chicago, IL													$12,705	0.38%
Houston, TX													$6,353	0.19%
Miami, FL													$6,353	0.19%
Medium-sized Airport Ads														
San Francisco, CA													$15,246	0.46%
Atlanta, GA													$2,541	0.08%
Dallas, TX													$15,246	0.46%
Washington, D.C.													$2,541	0.08%
Boston, MA													$15,246	0.46%
Influencer Marketing													**$30,000**	**3.00%**
Mid Tier (2 Influencers)													$10,000	--
Macro (2 Influencers)													$20,000	--
Owned Media:													**$1,500**	**0.00%**
Website													$1,500	0.00%
Social Media													$0	0.00%
Earned Media:													**$5,000**	**4.46%**
Public Relations													$5,000	1.00%
Word of Mouth													$0	1.46%
Carryover													$0	2.00%
CSR Awarenss:													**$43,205**	**1.50%**
TOTAL PULL													**$333,499**	**21.66%**
Push														
Trade Shows:													**$38,050**	**0.00%**
Travel Good Show													$26,050	--
ISPA Expo													$12,000	--
Trade Magazines:													**$64,320**	**0.00%**
TravelPulse													$64,320	--
TOTAL PUSH													**$102,370**	**0.00%**
TOTAL IMC SCHEDULE													**$435,869**	**21.66%**

MK Appendix 5: IMC Schedule Year 4

Year 4 IMC Schedule

Target Segment: 15.7 Million	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Cost	Awareness
Pull														
Paid and Owned Media:													**$334,396**	**18.74%**
Online Advertising													**$105,507**	**6.85%**
Guerilla Events													**$75,585**	**4.54%**
The Flying Pax													$38,430	2.31%
Polar PAX													$37,155	2.23%
Outdoor/Transit in Major Cities													**$111,804**	**3.35%**
Transit Ads at Bus Stop Shelters														
New York, NY													$13,976	0.42%
Los Angeles, CA													$13,976	0.42%
Chicago, IL													$13,976	0.42%
Houston, TX													$6,988	0.21%
Miami, FL													$6,988	0.21%
Medium-sized Airport Ads														
San Francisco, CA													$16,771	0.50%
Atlanta, GA													$2,795	0.08%
Dallas, TX													$16,771	0.50%
Washington, D.C.													$2,795	0.08%
Boston, MA													$16,771	0.50%
Influencer Marketing													**$40,000**	**4.00%**
Midtier (2 Influencers)													$10,000	--
Macro (3 Influencers)													$30,000	--
Owned Media:													**$1,500**	**0.00%**
Website													$1,500	0.00%
Social Media													$0	0.00%
Earned Media:													**$5,000**	**6.20%**
Public Relations													$5,000	1.00%
Word of Mouth													$0	3.20%
Carryover													$0	2.00%
CSR Awareness:													**$76,753**	**1.50%**
TOTAL PULL													**$416,149**	**26.44%**
Push														
Trade Shows:													**$57,075**	**0.00%**
Travel Good Show													$39,075	--
ISPA Expo													$18,000	--
Trade Magazines:													**$293,052**	**0.00%**
Vogue													$293,052	--
TOTAL PUSH													**$350,127**	**0.00%**
TOTAL IMC SCHEDULE													**$766,276**	**26.44%**

MK Appendix 6: IMC Schedule Year 5

Year 5 IMC Schedule

Target Segment: 15.7 Million	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Cost	Awareness
Pull														
Paid and Owned Media:													**$400,102**	**22.93%**
Online Advertising													**$150,033**	**9.71%**
Guerilla Events													**$75,585**	**4.54%**
The Flying Pax													$38,430	2.31%
Polar PAX													$37,155	2.23%
Outdoor/Transit in Major Cities													**$122,984**	**3.69%**
Transit Ads at Bus Stop Shelters														
New York, NY													$15,373	0.46%
Los Angeles, CA													$15,373	0.46%
Chicago, IL													$15,373	0.46%
Houston, TX													$7,687	0.23%
Miami, FL													$7,687	0.23%
Medium-sized Airport Ads														
San Francisco, CA													$18,448	0.55%
Atlanta, GA													$3,075	0.09%
Dallas, TX													$18,448	0.55%
Washington, D.C.													$3,075	0.09%
Boston, MA													$18,448	0.55%
Influencer Marketing													**$50,000**	**5.00%**
Mid-Tier (2 Influencers)													$10,000	--
Macro (4 Influencers)													$40,000	--
Owned Media:													**$1,500**	**0.00%**
Website													$1,500	0.00%
Social Media													$0	0.00%
Earned Media:													**$5,000**	**8.00%**
Public Relations													$5,000	1.00%
Word of Mouth													$0	5.00%
Carryover													$0	2.00%
CSR Awareness:													**$112,093**	**1.50%**
TOTAL PULL													**$517,195**	**32.43%**
Push														
Trade Shows:													**$57,075**	**0.00%**
Travel Good Show													$39,075	--
ISPA Expo													$18,000	--
Trade Magazines:													**$439,578**	**0.00%**
Vogue													$439,578	--
TOTAL PUSH													**$496,653**	**0.00%**
TOTAL IMC SCHEDULE													**$1,013,848**	**32.43%**

MK Appendix 7: Research Summary

Research Source	Takeaways
Online Research	● There is a growing trend among manufacturers to prioritize the production of pillows that incorporate sustainable natural components, which is aimed at reducing energy usage during pillow production and enhancing their biodegradable characteristics.[2] ● The slim design of the travel pillow, durability, and its lightweight and portable nature are significant features to customers.[3] ● People who choose to fly business or higher when they travel tend to value social status, exclusive shopping experience, quality lifestyle, high-quality products, and user experience more.[4] ● Airline rules vary with Neck Pillows but a general consensus is if they fit in your carry on bag then it's ok or can be worn around the neck when boarding. ● Avg. weight of neck pillow 1 pound - 0.5 pounds.
30 In-Depth Interviews	● Comfortability is the first priority, followed by design, durability, portability and adjustability. ● Main consumers are people who travel a lot and enjoy high-end experiences when traveling. ● Major problems with existing products are lack of aesthetics and easy exposure to dirt. ● For regular neck pillows, people are less likely to pay over $35; respondents show a high willingness to pay ~$100 for a PÁX pillow. ● Customers prefer a simpler design and a cooling system. ● Concerns include TSA restrictions for the

[2] Fortune Business Insights, "Travel Pillow Market Size, Share & COVID-19 Impact Analysis 2020-2027," *Fortune Business Insights*, accessed April 23, 2023, https://www.fortunebusinessinsights.com/travel-pillow-market-104437.
[3] Fortune Business Insights, "Travel Pillow Market Size."
[4] Chatterjee, Swagato, and Prasenjit Mandal, "Traveler Preferences from Online Reviews: Role of Travel Goals, Class and Culture," *Tourism Management* 80 (2020): 104108. https://doi.org/10.1016/j.tourman.2020.104108.

	diffusers and the replacement of embedded cooling gel.
Shopper Observations	● User Comfort (Amazon and Competitor Brands Reviews of Neck Pillows) ○ Customers with longer necks have a harder time using neck pillows and can lead to neck pain ○ A strong pillow that supported by the inside filling but malleable so its doesn't feel like your getting choked ○ Conforms to all neck and face sizes ○ Would like for the pillow to stay in place and no fall off or move around ○ Adjustment is also important ○ Breathable ● At Logan International Airport (Boston), LaGuardia Airport (New York), and Los Angeles International Airport, we observed that many passengers tend to bring a travel pillow with them instead of purchasing ones at the airport convenience stores. ● Shoppers at airport convenience stores, which include *Air Essentials* and *International Shoppes* at Boston Logan International Airport, tend to purchase cheaper travel pillows in store. ● People who purchase travel pillows at airport convenience stores tend to view their purchase as an "one-time use."
Social Media Listening	● The American Academy of Sleep Medicine estimates about 25 million adults in the United States have obstructive sleep apnea. 70 million suffer from sleep disorder, and 10% of people have long lasting insomnia, joint pains, stiffness, arthritis, and neck strain.[5] ● Increasing awareness in orthopedic and personal care pillows are promoting the growth rate of the neck pillow market.[6] ● The humidity of an aircraft's cabin dips

[5] ltd, Market Data Forecast, "Neck Pillow Market Size, Share, Growth Report: 2023 to 2028," Market Data Forecast, accessed April 23, 2023. https://www.marketdataforecast.com/market-reports/neck-pillow-market.
[6] ltd, Market Data Forecast.

	below 20% while the typical humidity in a home is more than 30%, according to the World Health Organization (WHO). When skin is exposed to low ambient humidity it becomes dehydrated leading to dull and tight dry skin.[7]
Expert Interviews	• No specific age range of target customers; yet, people who are middle-aged to older tend to purchase more. • Customers value comfortability and portability. • Many neck pillows are purchased for traveling use.
Creative Execution	• Heating system is less practical compared to a cooling system, which could be more dangerous to produce and use. • Make the pillow cover and batteries easy to take off so the customers can wash the pillow easily. • Find a position for the aromatic diffusers where the mist will not be sprayed onto the seat and people sitting next to the user.

MK Appendix 8: Guerrilla Marketing Locations

Polar PÁX

City	Mall Location	Time of Use
New York, NY	The Shops & Restaurants[8], 20 Hudson Yards	Year 1-5, April to September
Los Angeles, CA	The Bloc[9], 700 W 7th St	Year 1-5, April to September
Chicago, IL	Water Tower Place[10], 835 Michigan Ave	Year 1-5, April to September
Houston, TX	CITYCENTRE[11], 800 Town and Country Blvd	Year 1-5, April to September
Miami, FL	Miami Design District[12]	Year 1-5, April to September

[7] ltd, Market Data Forecast.
[8] "Hudson Yards New York," Hudson Yards New York, accessed Apr. 23, 2023, https://www.hudsonyardsnewyork.com/shop.
[9] "Home Page," The Bloc, accessed April 23, 2023. https://www.theblocla.com/.
[10] "Shop Water Tower," Water Tower Place, accessed April 23, 2023, https://www.shopwatertower.com/.
[11] "CityCentre Houston," CityCentre Houston, accessed April 23, 2023, https://www.citycentrehouston.com/.
[12] "Miami Design District," Miami Design District, accessed April 23, 2023, https://www.miamidesigndistrict.net/.

San Francisco, CA	Union Square[13]	Year 1-5, April to September
Atlanta, GA	Lenox Square[14], 3393 Peachtree Rd NE	Year 1-5, April to September
Dallas, TX	NorthPark Center[15], 8687 N Central Expy	Year 1-5, April to September
Washington, D.C.	CityCenterDC[16], 825 10th St NW	Year 1-5, April to September
Boston, MA	Prudential Center[17], 800 Boylston St	Year 1-5, April to September

The Flying PÁX

City	Transit Lines	Time of Use
New York, NY	Long Island Rail Road[18]	Year 4-5, April to September
Los Angeles, CA	Metro C Line (Green)[19]	Year 4-5, April to September
San Francisco, CA	Bay Area Rapid Transit[20]	Year 4-5, April to September
Miami, FL	Miami Metrorail[21]	Year 4-5, April to September
Boston, MA	Blue Line[22]	Year 4-5, April to September

MK Appendix 9: PR Partnerships

Blog/Website Name	Description
The Luxury Editor[23]	An online magazine that focuses on luxury travel, lifestyle, and fashion. The site offers a variety of

[13] "Visit Union Square SF," Union Square Business Improvement District, accessed April 23, 2023, https://visitunionsquaresf.com/.
[14] "Lenox Square," Simon Malls, accessed April 23, 2023, https://www.simon.com/mall/lenox-square.
[15] "NorthPark Center," NorthPark Center, accessed April 23, 2023, https://northparkcenter.com/.
[16] "CityCenterDC," CityCenterDC, accessed April 23, 2023, https://www.citycenterdc.com/.
[17] "Prudential Center," Prudential Center, accessed April 23, 2023, https://www.prudentialcenter.com/.
[18] "Long Island Rail Road," Metropolitan Transportation Authority, accessed April 23, 2023, https://new.mta.info/agency/long-island-rail-road.
[19] "Los Angeles Metro," Los Angeles County Metropolitan Transportation Authority, accessed April 23, 2023, https://www.metro.net/.
[20] "San Francisco International Airport (SFO) Station," Bay Area Rapid Transit (BART), accessed April 23, 2023, https://www.bart.gov/guide/airport/sfo.
[21] "Miami-Dade County," Miami-Dade County, accessed April 23, 2023, https://www.miamidade.gov/global/home.page.
[22] "MBTA Blue Line Schedule," Massachusetts Bay Transportation Authority, accessed April 23, 2023, https://www.mbta.com/schedules/Blue/line.
[23] "The Luxury Editor," The Luxury Editor, accessed April 23, 2023, https://theluxuryeditor.com/.

	articles and guides on luxury travel destinations, hotels, resorts, and experiences.
Luxe Digital[24]	Luxe Digital focuses on technology and how it intersects with the luxury lifestyle. The site features reviews and features on luxury tech products.
Haute Living[25]	A luxury lifestyle magazine that focuses on high-end fashion, travel, real estate, and entertainment.
Luxpresso[26]	The site offers in-depth guides on luxury fashion and beauty, as well as articles on the latest trends and styles. The site also covers luxury travel destinations and experiences, offering insider tips and recommendations.

MK Appendix 10: Year 5 Retail Price and Distribution Strategy

Year 5	% Man Total Units	Man selling price	Retailer Margin	Retail Selling Price
Units into independent retailers	1.49%	$ 65.00	50%	$ 130.00
Units Online (Amazon)	20.90%	$ 81.00	40%	$ 135.00
Units into chain retailer	26.87%	$ 63.25	45%	$ 115.00
Units into mass merchants	50.75%	$ 57.00	40%	$ 95.00
Average WEIGHTED manufacturer's selling price to channel		**$ 63.81**		
Average WEIGHTED retailer selling price		**$ 109.25**		

MK Appendix 11: 5 Year Sales Projection

Sales Projection Forecast					
Year	Year 1	Year 2	Year 3	Year 4	Year 5
Target Market Size	15,700,000	15,829,757	15,946,018	16,024,661	16,041,337
ADJUSTED purchase intention @ $ average weighted retail price	9.31%	9.45%	13.29%	20.92%	24.42%
Awareness	13.31%	16.52%	21.66%	26.44%	32.43%
ACV	14%	17%	22%	27%	33%
Units at trial	1	1	1	1	1
Trial Units	27,243	42,036	101,022	239,284	419,351
Repeat Units (most Core product teams have no repeats)	0	0	0	0	0
BASES Sales Units (before competition)	27,243	42,036	101,022	239,284	419,351
*Competition adjustment (units lost to competition)			20.00%	40.00%	50.00%
TOTAL UNITS	27,243	42,036	80,818	143,571	209,676
Average WEIGHTED manufacturer's selling price to channel	$ 76.85	$ 76.27	$ 72.10	$ 68.76	$ 66.86
Manufacturer sales ($)	$ 2,093,697	$ 3,205,985	$ 5,826,829	$ 9,871,252	$ 14,018,543

[24] "Luxe Digital," Luxe Digital, accessed April 23, 2023, https://luxe.digital/.
[25] "Haute Living," Haute Living, accessed April 23, 2023, https://hauteliving.com/.
[26] "Luxpresso Magazine," Luxpresso, accessed April 23, 2023, https://www.luxpressomagazine.com/.

MK Appendix 12: New Product Survey Pre-Test Key Takeaways

- Shorten the gaps between prices.
- Add product pictures under the question “How much would you expect to see this product sold for at retail?”
- Add more psychographic questions.
- Add more details to the CSR initiatives.

- Segments with a higher annual income tend to show more interest in our product.
- Respondents who travel frequently show a higher purchase intent in our product.
- Respondents prefer the name “PÁX” over the other options.
- Higher income households are more likely to be attracted to the price of the product.

MK Appendix 13: New Product Survey Key Insights

	What does this [visual] communicate to you?	**Are there elements (e.g., colors, font, visuals) of this execution you think could be improved?**	**If PAX were a person, what would s/he be like?**
1	sleeping on the clouds	logo and website don't match, website looks forestry	angel vibes, kiddish, very clean
2	calm, peace, tranquil	packaging isn't consistent, only white not flowery	masseuse
3	relaxing, calm, sleep	no it's perfect	Baymax
4	giving boujee, not everyone can have access to, exclusive	maybe more clear its a neck pillow	devil that wears prada
5	exclusive highlight	more explanation, differentiation	private jet flyers
6	luxury vibes, people that travel a lot	brighter colors, but they match luxury, more for adults	rich person
7	going on a trip, first class	pretty good for what we are going for	kris jenner
8	really comforting vibes, luxury, silky, calm	background is too much, focus strays from pillow	kourtney kardashian, zen vibe

MK Appendix 14: Interview Grid: Creative Visuals Responses

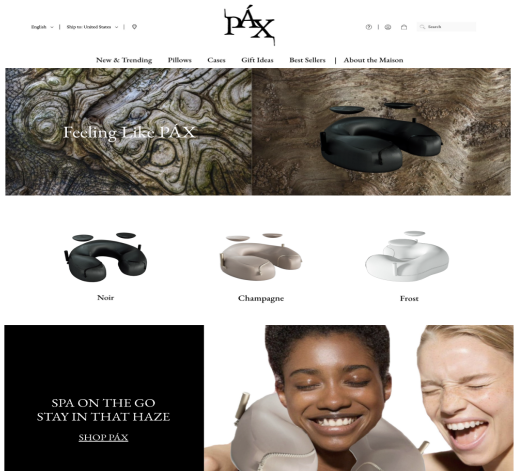
9	aesthetic, clean, audience is early 30s, gives sustainable	font and everything goes together	avatar blue people, environmental
10	boujee, if its luxury i expect silk but i see rocks, diamonds but i expect pearls	ads don't match website, website is sleek, ads are looking casual	blue bottle vibes, bougier than starbucks and way out of dunkins lead
11	not luxury, ordinary neck pillow	good color scheme, wouldn't add brighter colors	kris jenner/kardashian
12	luxury elegance	i like it	jessica alba
13	modern, beverly hills, travel first class	i would buy	gweneth paltrow
14	clean, relaxation, tranquility	visually too much, more simple	tiktok influencer, connect with nature find peace, believes in chakras
15	peace, minimal	lighter rather darker, looks like you copied and pasted	yoga mom/instructor/influencer
16	luxury, aesthetic	more of the actual products, i want to see features	rich calm, connected with earth, LA hippie, wellness retreats

MK Appendix 15: Potential Brand Extension

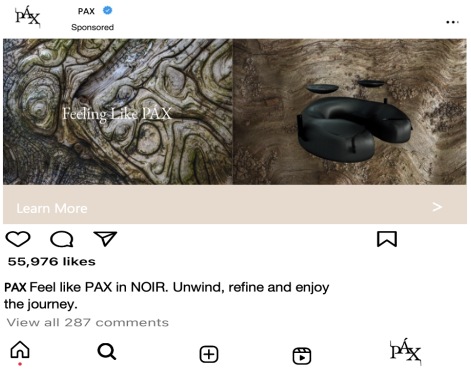
PÀX Lounge is a worldwide airport lounge offered to all fliers. Current PÀX users are given complimentary access at all locations. Our target segment for this extension service is First class and Business class fliers taking long flights and layovers. Unlike most lounges that have time limits and constraints, PÀX Lounge offers unlimited stay duration and has various amenities such as special offers on PÀX, massage chairs, and free food/drinks. Access will cost $50/hr for most locations, but popular

areas such as JFK and LAX will increase to $100/hr. PÀX Lounge will be available at all major domestic airports.

MK Appendix 16: PÁX Official Website



MK Appendix 17: PÁX Official Instagram



MK Appendix 18: Questionnaire Pivot Tables

	Definitely Buy		Probably Buy		Not Sure		Probably Not Buy		Definitely Not Buy		Grand Total	
25 - 34	32.65%	16	53.06%	26	10.20%	5	4.08%	2	0.00%	0	100.00%	49
35 - 44	25.86%	15	58.62%	34	3.45%	2	10.34%	6	1.72%	1	100.00%	58
45 - 54	27.45%	14	45.10%	23	17.65%	9	5.88%	3	3.92%	2	100.00%	51
55 - 64	41.67%	5	25.00%	3	16.67%	2	16.67%	2	0.00%	0	100.00%	12
Grand Total	**29.41%**	**50**	**50.59%**	**86**	**10.59%**	**18**	**7.65%**	**13**	**1.76%**	**3**	**100.00%**	**170**

	Definitely Buy		Probably Buy		Not Sure		Probably Not Buy		Definitely Not Buy		Grand Total	
Business	26.85%	29	53.70%	58	12.96%	14	5.56%	6	0.93%	1	100.00%	108
First	33.87%	21	45.16%	28	6.45%	4	11.29%	7	3.23%	2	100.00%	62
Grand Total	**29.41%**	**50**	**50.59%**	**86**	**10.59%**	**18**	**7.65%**	**13**	**1.76%**	**3**	**100.00%**	**170**

Pivot table willingness to buy for all ranges for people who only travel business and first class

Based on our survey data, we have found that apart from frequency of travel, **segmentation variable analysis** had little to no impact on our target segment.

PÁX Survey

We are a team of Boston University students working on a new product project for our business class. Please answer the questions as carefully and as honestly as possible. We will keep your responses confidential.

1. **Do you travel by plane?**

   Yes ☐ No ☐

2. **Is comfort an important part of your travel experience?**

   Yes ☐ No ☐

Traveling on a plane can be stressful, long and tiring. While travel pillows are intended to make traveling more comfortable, they are often one dimensional. Introducing PÁX, a high end travel pillow designed for consumers who desire comfort on the go. Crafted from bamboo lyocell with a memory foam interior, PÁX has a soft and smooth finish and offers a compact design that makes traveling more comfortable. PÁX features built-in diffusers that allow travelers to enjoy their favorite essential oils while on the go, creating a relaxing and soothing experience within the cabin. PÁX also offers ear-shaped cutouts to accommodate headphone wearers, along with an internal storage compartment for added convenience. No matter the length of your journey, PÁX is the go to option for those seeking comfort and convenience.

3. **What class do you normally fly?**

   ☐ Economy
   ☐ Premium economy
   ☐ Business
   ☐ First

4. **Now that you have reviewed our product concept, how interested would you be in this product if it were available to you?**

   Not at all Very Interested

☐ ☐ ☐ ☐ ☐

5. **How much would you expect to see this product sold for at retail?**


☐ $90.00-$99.99
☐ $100.00-$109.99
☐ $110.00-$119.99
☐ $120.00-$129.99
☐ $130.00-$139.99

6. **At the price you just indicated, what is the likelihood that you will buy the product?**

Definitely Not Buy	Probably Not Buy	Not Sure	Probably Buy	Definitely Buy
☐	☐	☐	☐	☐

7. **All customers who purchase PÁX and make a social media post raising awareness for sustainability with the hashtag *#PÁXForPlanet* gets enrolled in a raffle for a free PÁX pillow. Would this affect your likelihood of purchasing?**
   ☐ I would be significantly more likely to buy this product
   ☐ I would be slightly more likely to buy this product
   ☐ My purchase intention would not change

8. **If the company selling this product donates $0.5 of profit to School Girls Unite for every pillow sold, would this change your intent to purchase?**
   ☐ I would be significantly more likely to buy this product
   ☐ I would be slightly more likely to buy this product
   ☐ My purchase intention would not change

9. **Which of the following names do you think would best fit a product like this? (Check one)**
   ☐ PÁX(PillowMax) ☐ TravelPlus ☐ ComfyNeck
   ☐ SpaPillow ☐ SpaToGo ☐ Other: _____

10. **How often do you travel by airplane per year?**
    ☐ Once
    ☐ 2-3 times
    ☐ 4-5 times
    ☐ 6 times or more

11. I often seek out multi-functional travel products.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

12. Do you travel with a neck pillow?

☐ Yes
☐ No

13. My headphones get in the way of wearing my neck pillow comfortably.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

14. I get uncomfortable being in the cabin for prolonged periods due to unwanted odors.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

15. I get uncomfortable being in the cabin for prolonged periods due to the warm temperature.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

16. I am willing to pay extra for a sustainably made product.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

17. Age range:

☐ < 24
☐ 25 - 34
☐ 35 - 44
☐ 45 - 54
☐ 55 - 64
☐ 65 - 74
☐ > 75

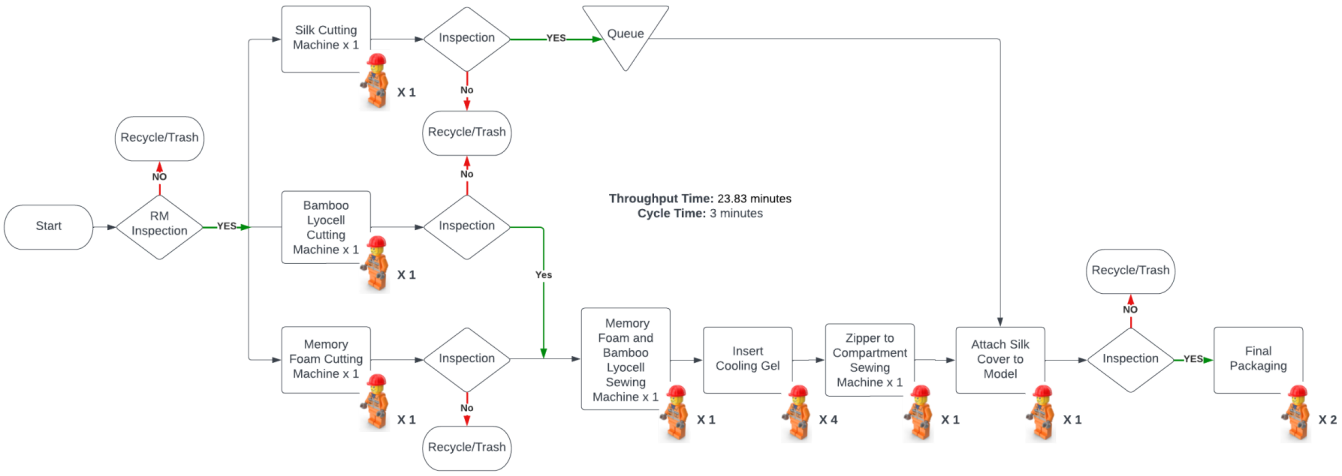
18. Annual Personal Income:

☐ < $50,000
☐ $50,000 - $79,999
☐ $80,000 - $109,999
☐ $110,000 - $139,999
☐ $140,000 - $169,999
☐ $170,000 - $199,999
☐ $200,000 +

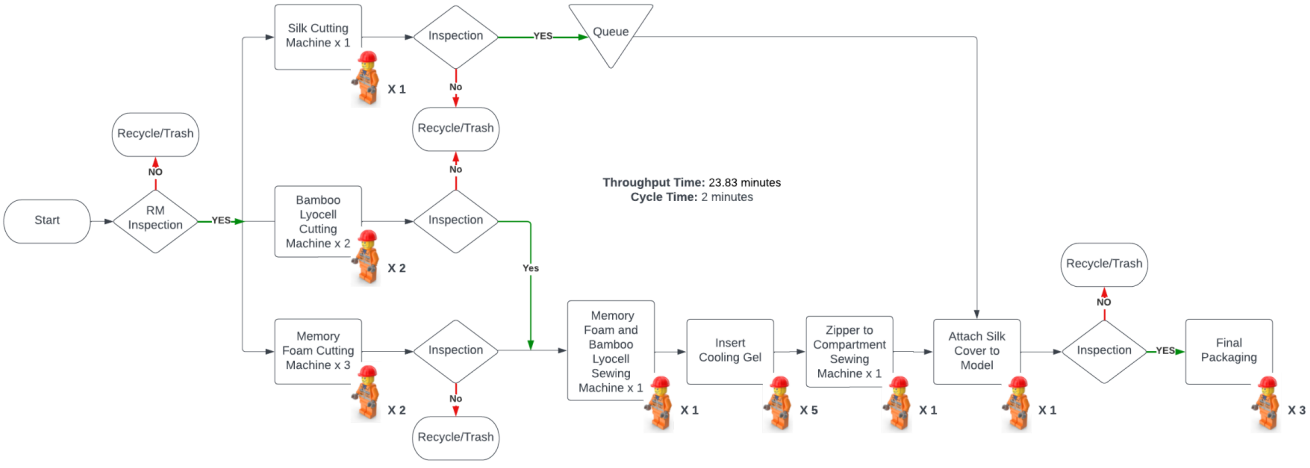
19. Place of residence: _____ (US Zip Code)

Operations Appendices

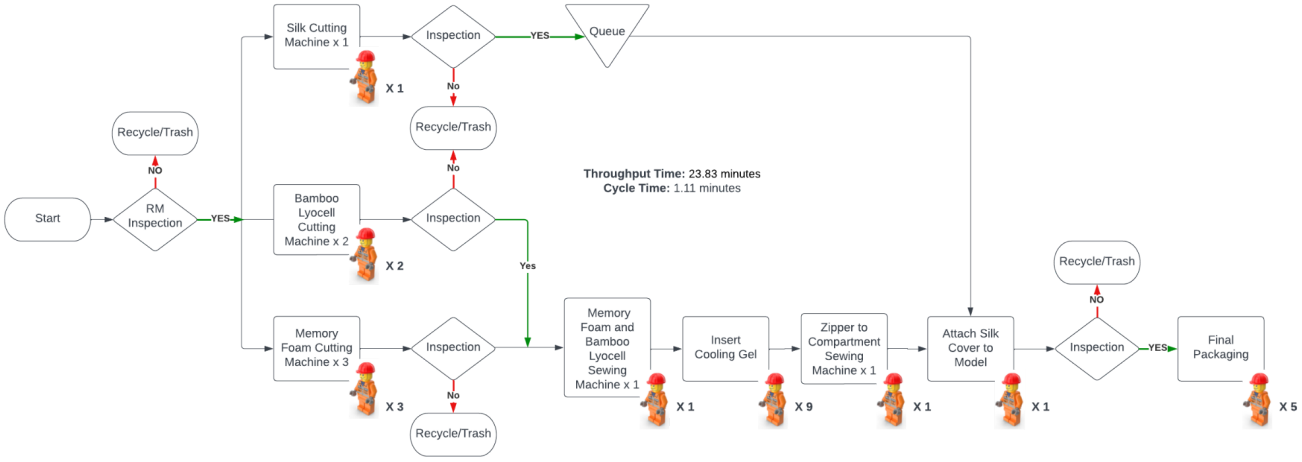
OM Appendix 1.1: Process Flow Diagram Year 1



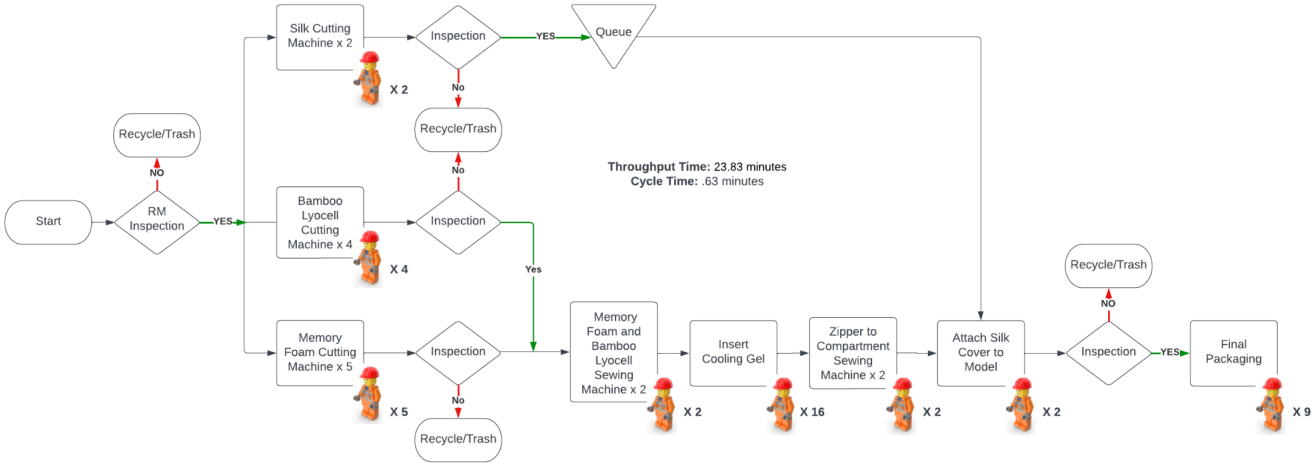
OM Appendix 1.2: Process Flow Diagram Year 2



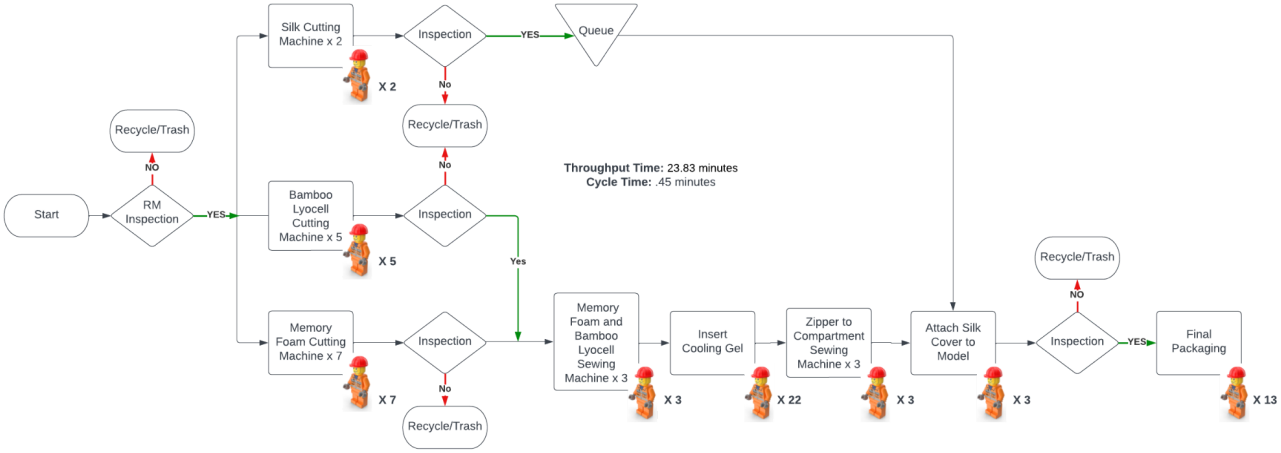
OM Appendix 1.3: Process Flow Diagram Year 3



OM Appendix 1.4: Process Flow Diagram Year 4



OM Appendix 1.5: Process Flow Diagram Year 5



OM Appendix 2: Task Description

Workstations

1 - Silk Cutting Machine
Silk arrives at the factory in sheets. Automated cutting machine cuts the sheets into designated dimensions.

2 - Bamboo Lyocell Cutting Machine
Bamboo Lyocell arrives at the factory in sheets. Automated cutting machine cuts the sheets into designated dimensions.

3 - Memory Foam Cutting Machine
Memory foam arrives at the factory in bulks. Automated cutting machine cuts the material into designated sizes.

4 - Combine Memory Foam and Bamboo Lyocell
Workers combine the modeled memory foam and bamboo lyocell together.

5 - Insert Cooling Gel
Workers insert cooling gel into the model.

6 - Assemble Compartment
Workers insert mesh and assemble zippers for the compartment area.

7 - Assemble Silk Cover to the Model
Workers attach the cutted silk cover to the assembled model.

8 - Final Packaging
Workers put the wrapped assembled pillow in sustainable paper wrap. Place the product inside the customized cardboard packaging and seal. Ready to distribute.

OM Appendix 3: Capital Expenditures From Year 0-5

Years 1				
Machine	**#**	**Cost**	**Additions**	**$ Additions**
Memory foam cutting	1	$19,500		
Silk cutting	1	$15,999		
Bamboo Lyocell cutting	1	$16,000		
Sewing memory foam with bamboo loycell	1	$7,115		
Sewing zipper to the compartments	1	$3,050		
Vehicle				
Semi truck	1	$70,950		
			CapEX	$132,614

Year 2				
Machine	**#**	**Cost**	**Additions**	**$ Additions**
Memory foam cutting	2	$39,000	1	$19,500
Silk cutting	1	$15,999	0	$0
Bamboo Lyocell cutting	2	$32,000	1	$16,000
Sewing memory foam with bamboo loycell	1	$7,115	0	$0
Sewing zipper to the compartments	1	$3,050	0	$0
Vehicle				
Semi truck	1	$70,950	0	$0
			CapEX	$168,114

Year 3				
Machine	**#**	**Cost**	**Additions**	**$ Additions**
Memory foam cutting	3	$58,500	1	$19,500
Silk cutting	1	$15,999	0	$0
Bamboo Lyocell cutting	2	$32,000	0	$0
Sewing memory foam with bamboo loycell	1	$7,115	0	$0
Sewing zipper to the compartments	1	$3,050	0	$0
Vehicle				
Semi truck	2	$141,900	1	$70,950
			CapEX	$258,564

Year 4				
Machine	**#**	**Cost**	**Additions**	**$ Addition**
Memory foam cutting	5	$97,500	2	$39,000
Silk cutting	2	$31,998	1	$15,999
Bamboo Lyocell cutting	4	$64,000	2	$32,000
Sewing memory foam with bamboo loycell	2	$14,230	1	$7,115
Sewing zipper to the compartments	2	$6,100	1	$3,050
Vehicle				
Semi truck	3	$212,850	1	$70,950
			CapEX	$426,678

Year 5				
Machine	**#**	**Cost**	**Additions**	**$ Additions**
Memory foam cutting	7	$136,500	2	$39,000
Silk cutting	2	$31,998	0	$0
Bamboo Lyocell cutting	5	$80,000	1	$16,000
Sewing memory foam with bamboo loycell	3	$21,345	1	$7,115
Sewing zipper to the compartments	3	$9,150	1	$3,050
Vehicle				
Semi truck	4	$283,800	1	$70,950
			CapEX	$562,793

OM Appendix 4.1: Capacity Analysis Year 1

		Year 1						Index
task #	task	# of workers	# of machines	test time (minutes)	cycle time (minutes)	capacity utilization	capacity	
1	cut silk	1	1	0.83	0.83	27.78%	72	
2	cut and mold memory foam	1	1	3.00	3.00	100.00%	20	
3	cut bamboo lyocell	1	1	2.00	2.00	66.67%	30	
4	assemble memory foam with bamboo loycell	1	1	1.00	1.00	33.33%	60	
5	insert cooling gel	4	0	10.00	2.50	83.33%	24	
6	assemble mesh and attach zipper to the compartments	1	1	1.00	1.00	33.33%	60	
7	assemble silk cover to the model	1	0	1.00	1.00	33.33%	60	
8	final packaging	2	0	5.00	2.50	83.33%	24	
		total workers		throughput time	bottleneck		units per hour	
		12		23.83333333	3		20	
							units per day	demand
							160	27,243
							units per year	capacity utilization%
							41,600	65%

OM Appendix 4.2: Capacity Analysis Year 2

Year 2								
task #	task	# of workers	# of machines	test time (minutes)	cycle time (minutes)	capacity utilization	capacity	
1	cut silk	1	1	0.8	0.20	10.00%	300	
2	cut and mold memory foam	2	2	3.0	1.50	75.00%	40	
3	cut bamboo lyocell	2	2	2.0	1.00	50.00%	60	
4	assemble memory foam with bamboo loycell	1	1	1.0	1.00	50.00%	60	
5	insert cooling gel	5	0	10.0	2.00	100.00%	30	
6	assemble mesh and attach zipper to the compartments	1	1	1.0	1.00	50.00%	60	
7	assemble silk cover to the model	1	0	1.0	1.00	50.00%	60	
8	final packaging	3	0	5.0	1.666666667	83.33%	36	
		total workers		throughput time	bottleneck		units per hour	
		16		23.83333333	2		30	
							units per day	demand
							240	42,036
							units per year	capacity %
							62,400	67%

OM Appendix 4.3: Capacity Analysis Year 3

Year 3								
task #	task	# of workers	# of machines	test time (minutes)	cycle time (minutes)	capacity utilization	capacity	
1	cut silk	1	1	0.83	0.83	75.00%	72	
2	cut and mold memory foam	3	3	3.00	1.00	90.00%	60	
3	cut bamboo lyocell	2	2	2.00	1.00	90.00%	60	
4	assemble memory foam with bamboo loycell	1	1	1.00	1.00	90.00%	60	
5	insert cooling gel	9	0	10.00	1.11	100.00%	54	
6	assemble mesh and attach zipper to the compartments	1	1	1.00	1.00	90.00%	60	
7	assemble silk cover to the model	1	0	1.00	1.00	90.00%	60	
8	final packaging	5	0	5.00	1.00	90.00%	60	
		total workers		throughput time	bottleneck		units per hour	
		23		23.83333333	1.11		54	
							units per day	demand
							432	80,818
							units per year	capacity %
							112,320	72%

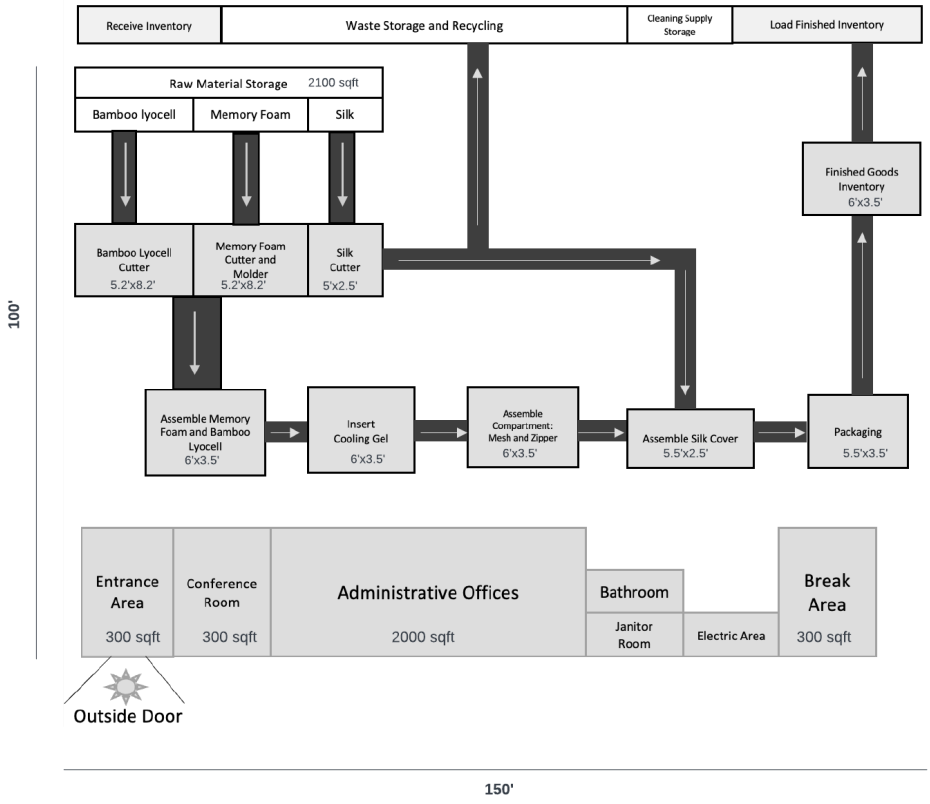
OM Appendix 4.4: Capacity Analysis Year 4

Year 4								
task #	task	# of workers	# of machines	test time (minutes)	cycle time (minutes)	capacity utilization	capacity	
1	cut silk	2	2	0.83	0.42	66.67%	144	
2	cut and mold memory foam	5	5	3.00	0.60	96.00%	100	
3	cut bamboo lyocell	4	4	2.00	0.50	80.00%	120	
4	assemble memory foam with bamboo loycell	2	2	1.00	0.50	80.00%	120	
5	insert cooling gel	16	0	10.00	0.63	100.00%	96	
6	assemble mesh and attach zipper to the compartments	2	2	1.00	0.50	80.00%	120	
7	assemble silk cover to the model	2	0	1.00	0.50	80.00%	120	
8	final packaging	9	0	5.00	0.56	88.89%	108	
		total workers		throughput time	bottleneck		units per hour	
		42		23.83333333	0.63		96	
							units per day	demand
							768	143,571
							units per year	capacity %
							199,680	72%

OM Appendix 4.5: Capacity Analysis Year 5

Year 5								
task #	task	# of workers	# of machines	test time (minutes)	cycle time (minutes)	capacity utilization	capacity	
1	cut silk	2	2	0.83	0.42	91.67%	144	
2	cut and mold memory foam	7	7	3.00	0.43	94.29%	140	
3	cut bamboo lyocell	5	5	2.00	0.40	88.00%	150	
4 (3 work	assemble memory foam with bamboo loycell	3	3	1.00	0.33	73.33%	180	
5	insert cooling gel	22	0	10.00	0.45	100.00%	132	
6 (2 work	assemble mesh and attach zipper to the compartments	3	3	1.00	0.33	73.33%	180	
7 (2 work	assemble silk cover to the model	3	0	1.00	0.33	73.33%	180	
8	final packaging	13	0	5.00	0.38	84.62%	156	
		total workers		throughput time	bottleneck		units per hour	
		58		23.83333333	0.454545455		132	
							units per day	demand
							1056	209,676
							units per year	capacity %
							274,560	76%

OM Appendix 5: Facility Layout



OM Appendix 6: Administrative Labor Costs Year 1

Office Year 1	Index						
# of Workers	Role	Hourly Wage	Hours per Week	Weeks per Year	Salary		
1	Manager	$130	40	37	$192,400		
1	Finance	$110	40	37	$162,800		
1	Marketing	$110	40	37	$162,800		
1	Accounting	$110	40	37	$162,800		
4						Total	$680,800
						Per Unit	$16.37

OM Appendix 7: Direct Labor Costs

	Year 1	Year 2	Year 3	Year 4	Year 5
Total Workers	12	16	23	42	58
Wage per Hour	$15	$15	$15	$15	$15
Hours per Day	8	8	8	8	8
Days per Year	260	260	260	260	260
Total Labor Cost	$374.000	$499,200	$717,600	$1,310,400	$1,809,600
Labor ost Per Unit	$9	$8	$6.39	$6.56	$6.59

OM Appendix 8: Indirect Labor Costs

Efficient labor processes shown through an increase in laborers and salaries

Warehouse Year 1							
# of Workers	Role	Hourly Wage	Hours per Week	Weeks per Year	Salary		
1	Production supervisor	$40	40	37	$59,200		
1	Material Manager	$40	40	37	$59,200		
1	Finished Goods Manager	$40	40	37	$59,200		
1	Inventory Clerk	$40	40	37	$59,200		
1	Quality Assurance	$40	40	37	$59,200		
1	Safety Manager	$40	40	37	$59,200		
1	Order Processor	$40	40	37	$59,200		
7						Total	$414,400
						Per Unit	$9.96

Warehouse Year 5							
# of Workers	Role	Hourly Wage	Hours per Week	Weeks per Year	Salary		
3	Production supervisor	$40	40	37	$177,600		
3	Material Receiver	$40	40	37	$177,600		
3	Material Stocker	$40	40	37	$177,600		
3	Finished Goods Stock Controller	$40	40	37	$177,600		
3	Finished Goods Manager	$40	40	37	$177,600		
3	Inventory Clerk	$40	40	37	$177,600		
3	Quality Assurance	$40	40	37	$177,600		
2	Safety Manager	$40	40	37	$118,400		
3	Order processor	$40	40	37	$177,600		
3	Distributor	$40	40	37	$177,600		
29						Total	$1,716,800
						Per Unit	$6

OM Appendix 9: Work In Process

Work in Process	year 1	year 2	year 3	year 4	year 5
average demand	524	808	1,554	2,761	4,032
production lead time (week)	1	1	1	1	1
WIP units	524	808	1,554	2,761	4,032
direct materials cost	$10	$10	$10	$9	$9
COGS	$33	$30	$26	$24	$23
WIP $	$11,176	$16,186	$27,416	$45,878	$64,623

OM Appendix 10: Finished Goods Inventory

Finished Goods	year 1		
lead time (weeks)	2		
max	54487		
min	13622		
mean annual demand	29514		
SD per year	6811		
SD per week	944		
weekly product demand	568		
scrap rate	15%	In $	
cycle stock	241		$1,219
shortage	41		
excess	1.63		
service level	0.95		
z score	1.645		
safety stock	2,197		$22,214
finished goods	2,438		$23,434

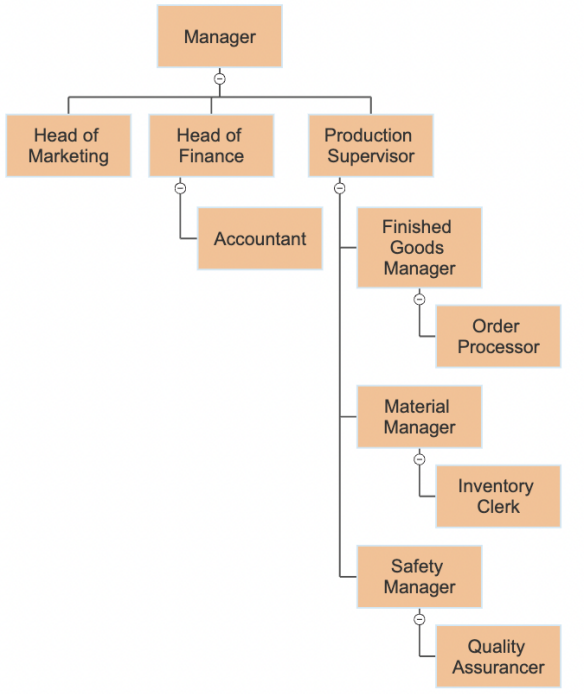
OM Appendix 11: Raw Materials Inventory

Direct Materials				
Level	**Material**	**Quantity**	**Unit Cost**	
1	Silk	1	$0.64	$0.64
2	Memory Foam	1	$0.20	$0.20
2	Bamboo Lycocell	1	$0.14	$0.14
1	Cooling gel	1	$0.33	$0.33
1	Tube	2	$1.26	$2.52
1	Ultrasonic mist	2	$2.60	$5.20
1	Biodegradable Polyester Mesh	2	$0.02	$0.04
1	Zipper	2	$0.52	$1.04
			Unit Cost	$10.11

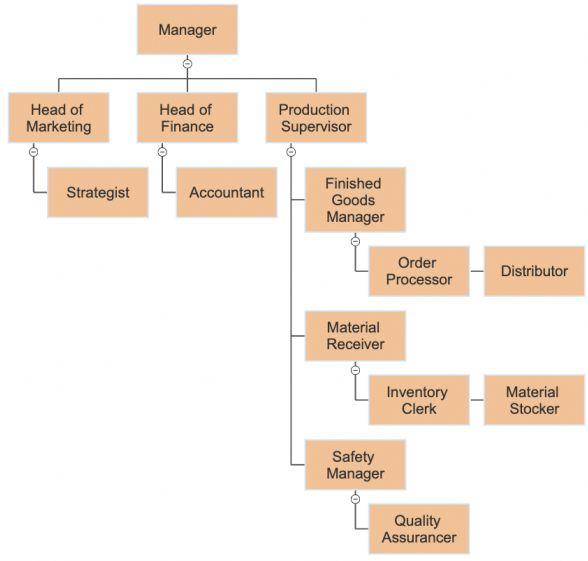
OM Appendix 12: Manufacturing Overhead Costs

Fixed Production											
Year 1		**Year 2**		**Year 3**		**Year 4**		**Year 5**	
Utilies	$300,000	Utilies	$300,000	Utilies	$300,000	Utilies	$300,000	Utilies	$300,000
Insurance	$12,000	Insurance	$12,000	Insurance	$12,000	Insurance	$12,000	Insurance	$12,000
Factory	$250,000	Factory	$250,000	Factory	$250,000	Factory	$250,000	Factory	$250,000
	total		**total**		**total**		**total**		**total**
	$562,000		$562,000		$562,000		$562,000		$562,000
	unit cost		**unit cost**		**unit cost**		**unit cost**		**unit cost**
	20.63		13.37		6.95		3.91		2.68

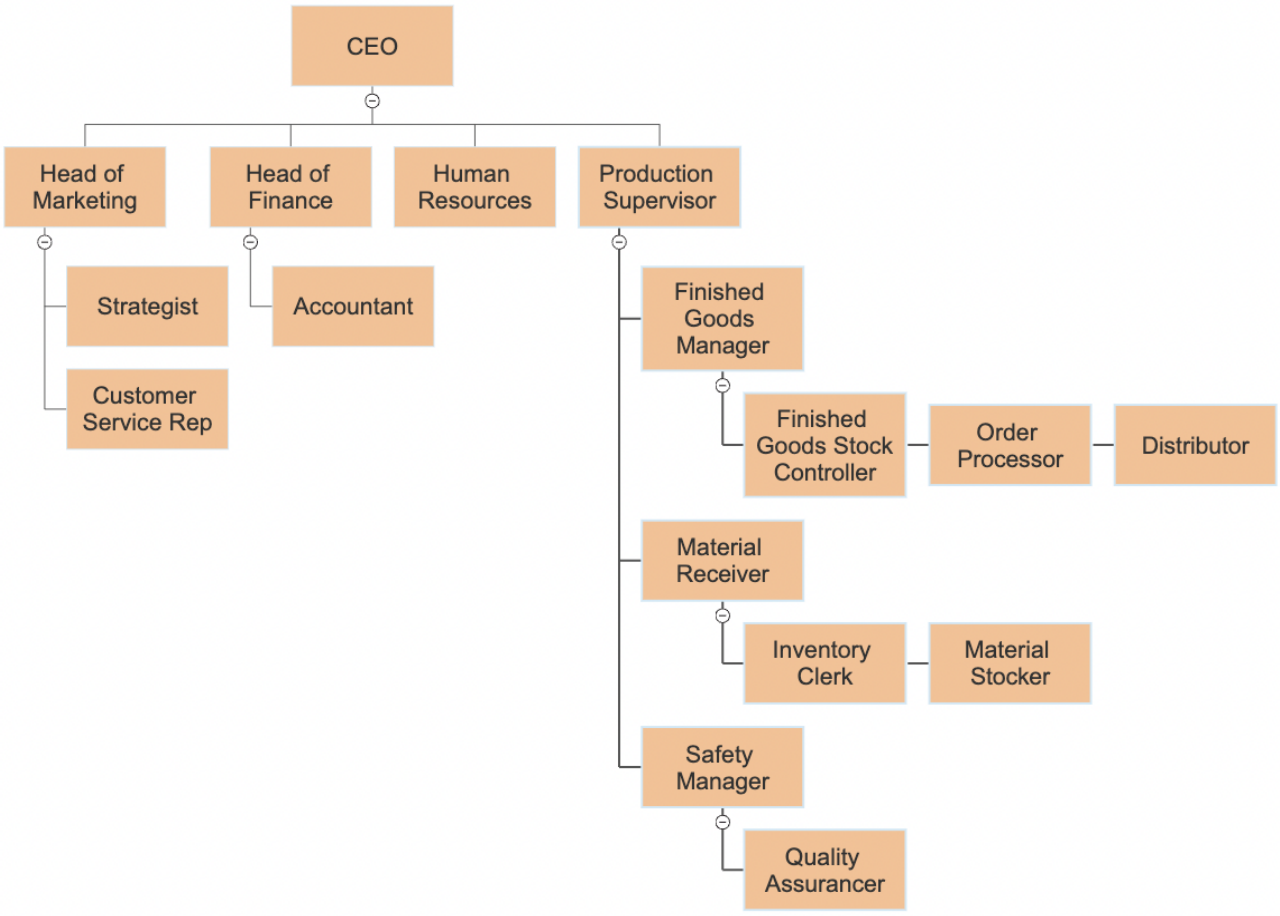
OM Appendix 13.1: Office workers Year 1



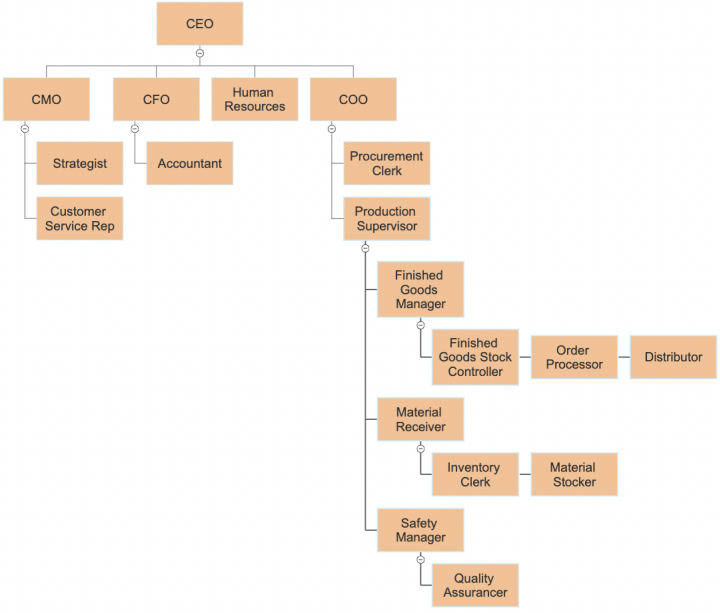
OM Appendix 13.2: Office workers Year 2



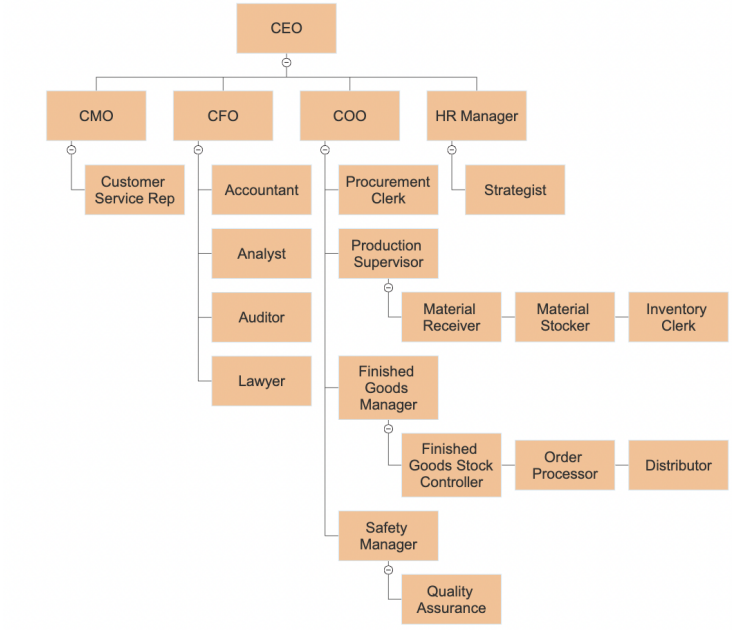
OM Appendix 13.3: Office workers Year 3



OM Appendix 13.4: Office workers Year 4



OM Appendix 13.5: Office workers Year 5



OM Appendix 14: Make vs. Buy

Make		Basis	27,243
Materials		Cost Per Unit	Total Cost
	Memory Foam	$0.20	$5,449
	Bamboo Lyocell	$0.14	$3,814
	Total Materials	$0.34	$9,263
Production Equipment	Memory foam cutting machine	$0.72	$19,500
	Bamboo Lyocell cutting machine	$0.59	$16,000
	Sewing memory foam with bamboo loycell	$0.26	$7,115
	Total Equipment	$1.56	$42,615
Facilities	Leased Space	$9.18	$250,000
15,607 sq. ft @ $30 per sq. ft	Utilities	$11.45	$312,000
	Total Facilities	$20.63	$562,000
Labor	Direct Assembly	$13.74	$374,400
	Supervision	$15.21	$414,400
	Total Labor	$28.95	$788,800
Grand Total		$102.97	$2,805,355

BUY		Basis	27243
		Cost Per Unit	Total Cost
	Pillow	$150.00	$4,086,493
	Total	$150.00	$4,086,493

Indifference Point						
Fixed Cost	$2,805,355					
Variable Cost Per Unit	$102.97					
Purchase Cost Per Unit	$150.00					
Quantity @ Indifference Point	59656					
NPV Analysis	Discount Rate	20.88%				
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Demand	0	27243	42036	80818	143571	209676
Cash Flows (Make all 5 years)		($2,805,355)	($4,328,624)	($8,322,163)	($14,784,061)	($21,591,190)
Cash Flows (Buy all 5 years)		($4,086,493)	($6,305,401)	($12,122,691)	($21,535,580)	($31,451,358)
Cash Flows (Buy in Yrs 1-3/Ma		($4,086,493)	($6,305,401)	($12,122,691)	($14,784,061)	($21,591,190)
NPV (Make all 5 years)	($25,282,376.15)					
NPV (Buy all 5 years)	($36,828,218.44)					
NPV(Buy in Yrs 1-3/Make in Y	($29,846,484.87)					

OM Appendix 15: Capacity Utilization

		Year 5							
task #	task	# of workers	# of machines	test time (minutes)	cycle time (minutes)	capacity utilization	capacity		
1	cut silk	2	2	0.83	0.42	91.67%	144		
2	cut and mold memory foam	7	7	3.00	0.43	94.29%	140		
3	cut bamboo lyocell	5	5	2.00	0.40	88.00%	150		
4 (3 works	assemble memory foam with bamboo lyocell	3	3	1.00	0.33	73.33%	180		
5	insert cooling gel	22	0	10.00	0.45	100.00%	132		
6 (2 works	assemble mesh and attach zipper to the compartments	3	3	1.00	0.33	73.33%	180		
7 (2 works	assemble silk cover to the model	3	0	1.00	0.33	73.33%	180		
8	final packaging	13	0	5.00	0.38	84.62%	156		
		total workers		throughput time	bottleneck		units per hour		total labor cost
		58		23.83333333	0.454545455		132		$1,809,600
							units per day	demand	labor cost per unit
							1056	209,676	$6.59
							units per year	capacity %	
							274,560	76%	

OM Appendix 16: Information Systems Expense

Software							
ERP - Implementaion		$20,000					
ERP - Connecting Equipment		$450,000					
ERP - Licensing	$7,200		$28,800	$36,000	$43,200	$36,000	$57,600
ERP - Maintenance			$1,440	$1,800	$2,160	$1,800	$2,880
ERP - Training			$5,000	$1,250	$2,500	$1,250	$3,750
Office Software	$150		$150	$150	$150	$150	$150
Cloud Storage	$50		$50	$50	$50	$50	$50
Security Software	$619		$619	$619	$619	$619	$619
Backup & Recovery	$399		$399	$399	$399	$399	$399
Cell Phone Plan			$180	$225	$315	$405	$540
Internet Plan	$249		$249	$249	$249	$249	$249
Website		$55,000					
Systems and Network Administrator	$20,000		$20,000	$20,000	$20,000	$20,000	$20,000
Hardware							
Managers & Executives Laptops			$1,500	$1,500	$1,500	$6,000	$6,000
Other Laptops			$3,000	$4,000	$6,000	$5,000	$8,000
Photocopier		$1,500					
Executives Printer						$750	
Networking Equipment		$350					
Label Printing		$8,799					
Router		$798					
VPN	$192		$192	$192	$192	$192	$192
Security Camera		$1,080					$720
Firewall Security		$400					
Total Cost		**$537,927**	**$61,579**	**$66,434**	**$77,334**	**$72,864**	**$101,149**

OM Appendix 17: Warehouse Labor Expense Year 5

Warehouse Year 5							
# of Workers							
3	Production supervisor	$40	40	37	$177,600		
3	Material Receiver	$40	40	37	$177,600		
3	Material Stocker	$40	40	37	$177,600		
3	Finished Goods Stock Controller	$40	40	37	$177,600		
3	Finished Goods Manager	$40	40	37	$177,600		
3	Inventory Clerk	$40	40	37	$177,600		
3	Quality Assurance	$40	40	37	$177,600		
2	Safety Manager	$40	40	37	$118,400		
3	Order processor	$40	40	37	$177,600		
3	Distributor	$40	40	37	$177,600		
29						**Total**	$1,716,800
						Per Unit	$6.25

OM Appendix 18: Build-out Costs

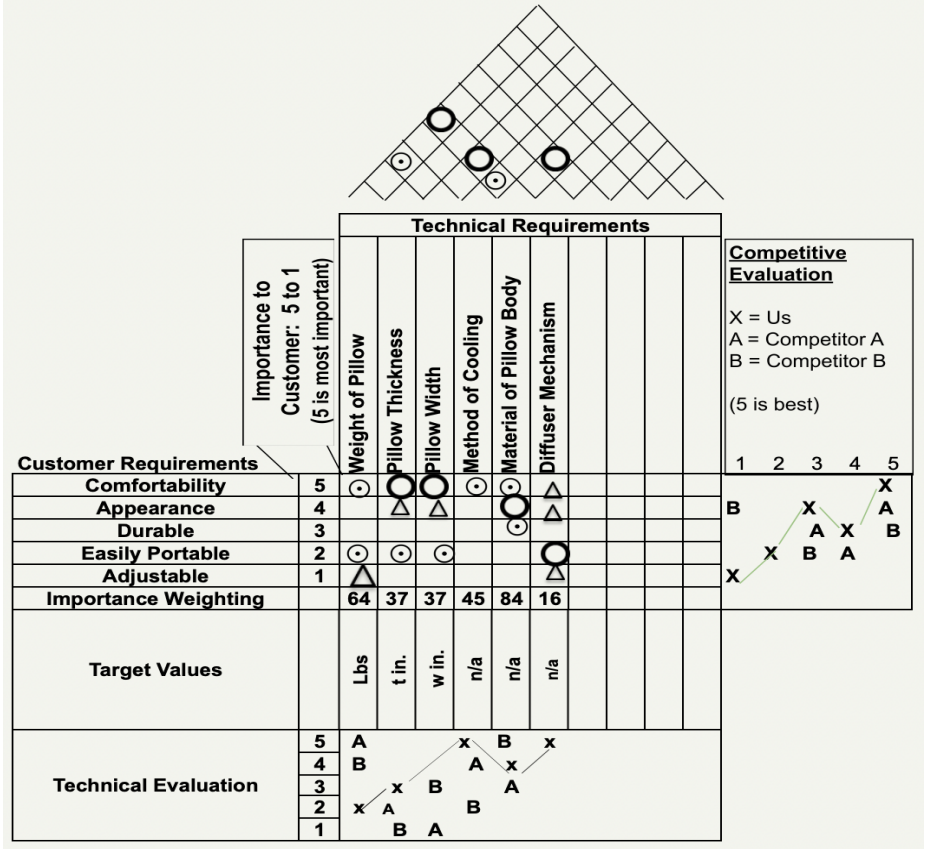
Build-out Costs								
Conversion	**# Of Units**	**Square-footage (sqft)**	**$ amount**			**Assumptions**		
Restrooms	2	100	$ 6,000			Warehouse sqft	15,000	
Chairs	20	10	$ 6,000			Cost/sqft	30	
Tables	10	20	$ 6,000					
Industrial Workbench	6	50	$ 9,000					
Office & Administrative	1	2000	$ 60,000					
Break Area Paint Job	1	300	$ 9,000					
Conference Room Paint Job	1	300	$ 9,000					
Flooring - tile fitout	1	7500	$ 225,000					
Sinage	10	1	$ 300					
Windows	6	20	$ 3,600					
Rooftop HVAC	1	1000	$ 30,000					
Wiring	1	500	$ 15,000					
Lighting & Electrical Fixtures	1	500	$ 15,000				**Total Build-out cost**	$423,900
Insulation & Roofing	1	500	$ 15,000					
Safety Systems	1	500	$ 15,000					

OM Appendix 19: Outbound Freight

Independent Store Location	Distance From Warhouse (Miles)		Year 4
Away (Boston, MA)	1,620		4731
Trader's Blue Sky (JFK/NY)	1,428		4731
Lazar's Luggage (Sherman Oaks, CA)	1,394		4731
Voyage Luggage (Miami, FL)	1,620		4731
Marc Johnson (Houston, TX)	630		4731
Luggage Plus (Arlington, VA)	1,302		4731
Les Ami (Seattle, WA)	1,820		4731
	1,402		**33117**
Chain Retailers			
Saks Location			
Aberdeen Distribution Center (Aberdeen, MD)	1,107		5288
Wilkes-Barre Distribution Center (Wilkes-Barre, PA)	1,022		5288
La Vergne Distribution Center (La Vergne, TN)	736		5288
Martinsburg Distribution Center (Martinsburg, WV)	1,001		5288
Ontario Distribution Center (Ontario, CA)	1,802		5288
Macys Location			
Martinsburg Distribution Center (Martinsburg, WV)	1,001		5288
Goodyear Distribution Center (Goodyear, AZ)	1,147		5288
Portland Distribution Center (Portland, TN)	358		5288
Secaucus Distribution Center (Secaucus, NJ)	1,206		5288
Sacramento Distribution Center (Sacramento, CA)	1,808		5288
Neiman Marcus Location			
Irving Distribution Center (Irving, TX)	482		5288
Longview Distribution Center (Longview, TX)	442		5288
	1,009		**63455**

Mass Merchants			
Costco Location			
West Palm Beach, FL	1,380		5076
Morris, IL	660		5076
Dallas, TX	498		5076
Mira Loma, CA	1,829		5076
Monroe, NJ	1,130		5076
Target Locations			
Albany Distribution Center	1,726		5076
Cedar Falls Distribution Center	613		5076
Chambersburg Distribution Center	1,015		5076
Lake City Distribution Center	1,097		5076
Lacey Distribution Center	1,409		5076
BJ's			
Uxbridge Distribution Center	1,319		5076
Westfield Distribution Center	1,309		5076
Burlington Distribution Center	1,134		5076
Middleburg Distribution Center	1,034		5076
Monroe Township Distribution Center	1,144		5076
	1,153		**76146**

OM Appendix 20: House of Quality

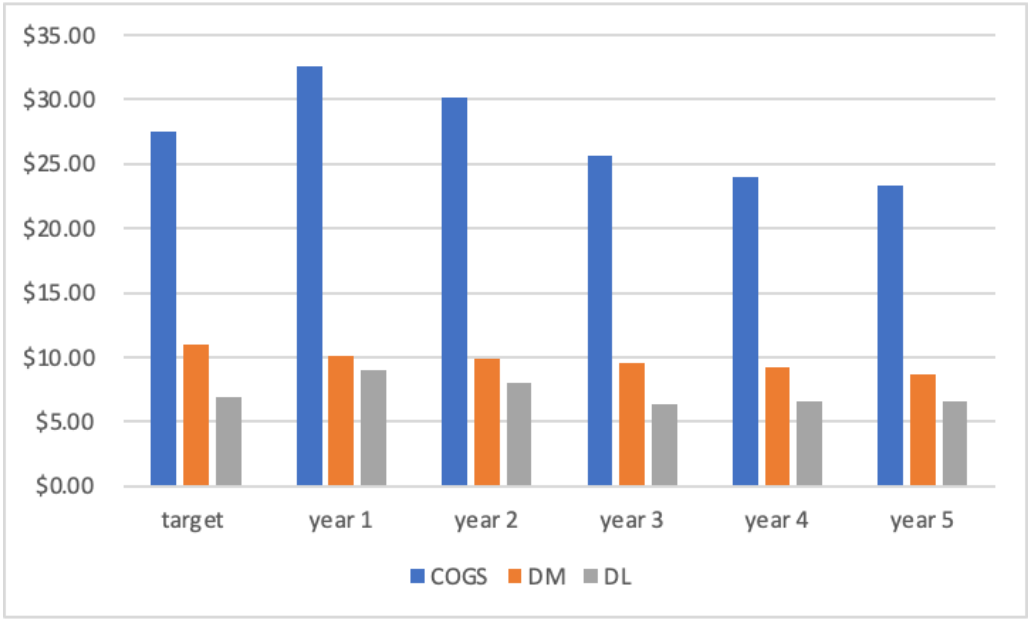


OM Appendix 21: Start-Up Labor Expense

Startup Labor Expense	$/h	# hours/day	# days	Total $ amount			
Painter	$ 7.50	8	31	$ 1,860.00			
Furniture	$ 7.50	8	31	$ 1,860.00			
Flooring - tile fitout	$ 7.50	8	31	$ 3,720.00			
Sinage, windows	$ 7.50	8	31	$ 1,860.00			
Wiring, lighting, electrical	$ 7.50	8	31	$ 3,720.00		Total Build-out Labor	$ 22,320.00
Insulation & Roofing	$ 7.50	8	31	$ 1,860.00			
Safety systems	$ 7.50	8	31	$ 1,860.00			
HVAC	$ 7.50	8	31	$ 1,860.00			
Hardware	$ 7.50	8	31	$ 3,720.00			

OM Appendix 22: Target COGS

Target COGS (Year 1)		
Retail Price	$	125.00
Channel Margin (45%)	$	56.25
Manufacturing Price per Unit	$	68.75
Sales and Marketing (25%)	$	(17.19)
General & Admin (20%)	$	(13.75)
Marginal Profit per Unit (15%)	$	(10.31)
Final Calculated COGS	$	27.50
Costs of Raw Materials Per Unit	$	11.00
Direct Labor Per Unit	$	6.88
Manufacturing Overhead per Unit	$	6.88
Outbound Freight per Unit	$	2.75

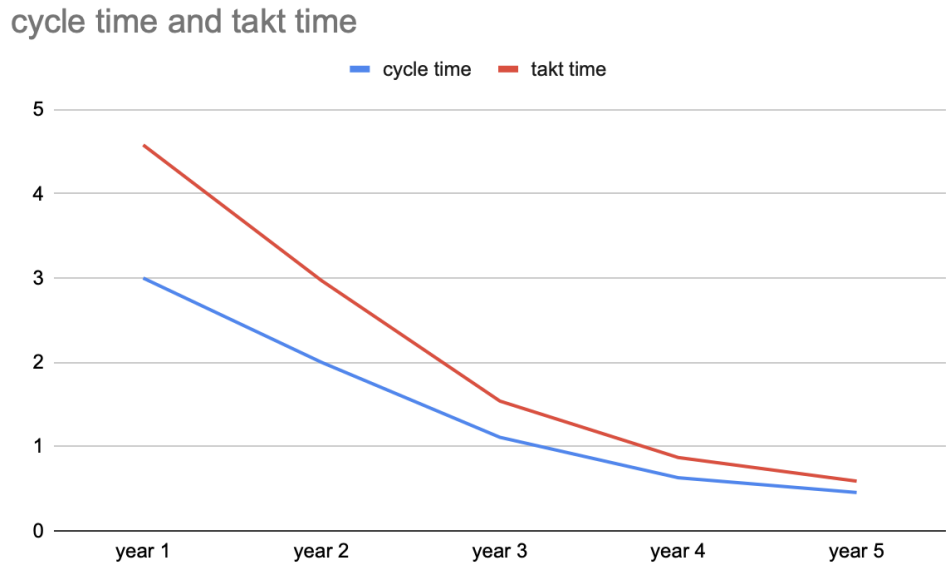


Our target COGS in year 1 was lower than the actual in year 1 but by year 5 our actual COGS decreased because our direct materials cost decreased in unison. Furthermore the direct materials cost was slowly decreasing showing that PAX's efficiency of producing units is increasing. The direct labor costs are decreasing as well because units produced increase projecting productiveness of our process flow.

OM Appendix 23: Machinery

	Year 1		Year 5	
Machine	# of Machines	Total Cost	# of Machines	Total Cost
Memory foam cutting	1	$19,500	7	$136,500
Silk cutting	1	$15,999	2	$31,998
Bamboo Lyocell cutting	1	$16,000	5	$80,000
Sewing memory foam with bamboo lyocell	1	$7,115	3	$21,345
Sewing zipper to the compartments	1	$3,050	3	$9,150
Vehicle: Semi Truck	1	$70,950	4	$283,800

OM Appendix 24: Takt Time



OM Appendix 25: Center of Gravity Analysis

Center of Gravity Analysis						
Major US Airports	**Longitude**	**Latitude**	**Long**	**Lat**	**Number of Passengers**	**% Weight**
SF Airport	37.6213° N	122.3790° W	37.6213	122.379	10,011,502	5%
LA Airport	33.9416° N	118.4085° W	33.9416	118.4085	24,700,000	13%
Seattle Airport	47.4480° N	122.3088° W	47.448	122.3088	17,374,665	9%
Fort Worth Airport	32.8998° N	97.0403° W	32.8998	97.0403	62,500,000	34%
JFK Airport	40.6413° N	73.7781° W	40.6413	73.7781	29,000,000	16%
Orlando Airport	28.4240° N	81.3099° W	28.424	81.3099	40,351,068	22%
					183,937,235	100%
Center of Gravity	34.9096	96.5573	Big Creek, KS			

OM Appendix 26: Factored Rating Analysis

Factored Rating Analysis				
Factor	**Weight**	**Wichita**	**Kansas City**	**Overland Park**
Distribution cost	30%	85	80	70
Facility and labor costs	30%	90	75	70
Proximity to suppliers	20%	80	80	60
Ability to attract employees	10%	70	60	70
Room for future expansion	10%	90	80	70
Sum of Weighted Scores	100%	84.5	76.5	68
Selected Location		**Wichita, KS**		

Finance Appendices

FE Appendix 1: Income Statement

Income Statement (In US Dollars)	Start-up	Year 1	Year 2	Year 3	Year 4	Year 5
TOTAL REVENUES		$ 2,093,697	$ 3,205,985	$ 5,826,829	$ 9,871,252	$ 14,018,543
Variable Costs		615,501	907,975	1,478,663	2,599,157	3,586,661
Fixed Production Costs (allocated Manufacturing overhead)		976,400	1,094,800	1,390,800	1,746,000	2,278,800
TOTAL COST OF GOODS SOLD		1,591,901	2,002,775	2,869,463	4,345,157	5,865,461
GROSS PROFIT		$ 501,796	$ 1,203,211	$ 2,957,366	$ 5,526,095	$ 8,153,082
One-time Start Up Expenses	471,890	-	-	-	-	-
Administrative Overhead (salaries)		680,800	843,600	1,258,000	1,850,000	2,338,400
General operating expenses not already part of COGS		-	-	-	-	-
Marketing Expenses (excluding Mfg Reps Commission)		345,031	381,828	479,075	843,029	1,125,940
Manufacturer's Sales Reps Commission Expense (10%)		45,910	80,816	382,287	771,103	1,078,891
Depreciation on original PP&E		163,237	163,237	163,237	163,237	163,237
Depreciation on new PP&E (purchased after start-up)		$ 12,316	$ 29,153	$ 53,664	$ 85,049	$ 118,890
Earnings Before Tax	$ (471,890)	$ (745,498)	$ (295,422)	$ 621,103	$ 1,813,678	$ 3,327,724
Taxes (27%)		-	-	167,698	489,693	898,485
NET INCOME	$ (471,890)	$ (745,498)	$ (295,422)	$ 453,405	$ 1,323,985	$ 2,429,238

FE Appendix 2: Balance Sheet

Balance Sheet (In US Dollars)	Time 0	Year 1	Year 2	Year 3	Year 4	Year 5
Current Assets						
Cash reserves	$ 321,522	$ 104,685	$ 160,299	$ 291,341	$ 300,000	$ 300,000
Accounts Receivable		88,167	147,835	522,900	1,016,054	1,407,300
Raw Materials and WIP	37,643	68,953	119,293	193,240	241,633	280,866
Finished Goods Inventory		23,434	35,456	66,202	112,860	156,054
Current Assets	$ 359,165	$ 285,238	$ 462,884	$ 1,073,683	$ 1,670,547	$ 2,144,220
Fixed Assets						
Gross Fixed Assets	$ 1,094,441	$ 1,156,020	$ 1,257,954	$ 1,425,738	$ 1,666,716	$ 1,903,980
Accumulated Depreciation (cumulative)		175,553	367,942	584,843	833,129	1,115,255
Net Fixed Assets	$ 1,094,441	$ 980,467	$ 890,012	$ 840,895	$ 833,587	$ 788,725
TOTAL ASSETS	**$ 1,453,606**	**$ 1,265,705**	**$ 1,352,896**	**$ 1,914,578**	**$ 2,504,134**	**$ 2,932,945**
Current Liabilities						
Accounts Payable		$ 108,203	$ 130,380	$ 172,048	$ 248,572	$ 332,253
Current Liabilities		$ 108,203	$ 130,380	$ 172,048	$ 248,572	$ 332,253
Equity						
Paid in Capital (cumulative)	$ 1,925,497	$ 2,374,890	$ 2,735,326	$ 2,801,935	$ 2,801,935	$ 2,801,935
Retained Earnings (cumulative)	(471,890)	(1,217,388)	(1,512,810)	(1,059,405)	(546,373)	(201,244)
Total Equity	$ 1,453,606	$ 1,157,502	$ 1,222,516	$ 1,742,530	$ 2,255,562	$ 2,600,692
TOTAL LIABILTIES AND EQUITY	**$ 1,453,606**	**$ 1,265,705**	**$ 1,352,896**	**$ 1,914,578**	**$ 2,504,134**	**$ 2,932,945**
Check Total Assets - Total Liabilities & Equity	$ -	$ -	$ -	$ -	$ -	$ -
Net Working Capital Balance (Current Assets - Current Liabilities)	$ 359,165	$ 177,035	$ 332,504	$ 901,635	$ 1,421,974	$ 1,811,967

FE Appendix 3: Statement of Cash Flow

Statement of Cash Flow						
(In US Dollars)	Start-up	Year 1	Year 2	Year 3	Year 4	Year 5
Initial Investment in Fixed Assets						
Net Income	$ (471,890)	$ (745,498)	$ (295,422)	$ 453,405	$ 1,323,985	$ 2,429,238
+ Depreciation	-	175,553	192,389	216,901	248,285	282,127
+/- Change in Net Working Capital	(359,165)	182,131	(155,469)	(569,131)	(520,339)	(389,992)
- Change in Fixed Assets	(1,094,441)	(61,579)	(101,934)	(167,784)	(240,978)	(237,264)
Net Free Cash Flow	$ (1,925,497)	$ (449,394)	$ (360,436)	$ (66,609)	$ 810,953	$ 2,084,109
Terminal Value of Business						$ 9,409,581
Total Cash Flow	$ (1,925,497)	$ (449,394)	$ (360,436)	$ (66,609)	$ 810,953	$ 11,493,690
Cumulative cash flow	$ (1,925,497)	$ (2,374,890)	$ (2,735,326)	$ (2,801,935)	$ (1,990,982)	$ 9,502,708
Net Present Value: Including TV	$ 2,250,913					
Internal Rate of Return: Including TV	39%					

FE Appendix 4: Comparable Companies and CAPM

Comparable Company	Profit Margin	Beta
Samsonite International S.A	10.86%	1.92
Tapestry, Inc.	12.69%	1.46
Capri Holdings Limited	12.66%	2.29
Burberry Group plc	15.01%	1.16
Average	12.81%	1.71
Median	12.68%	1.69
Pax	17.33%	1.71
Risk Free Rate (as of 04/07/2023)	3.41%	
Bata	1.71	
Equity Risk Premium	6.70%	
Size Premium	6.03%	
Cost of Equity	20.88%	
Cost of Debt	0.00%	
Equity Weight	100.00%	
Debt Weight	0.00%	
WACC	**20.88%**	

- Our Weighted Average Cost of Capital (WACC) is 20.88%. This is the minimum required rate of return investors will accept given our project's risks.
- We calculated our WACC using the Capital Asset Pricing Model with a risk free rate of 3.41% and a beta of 1.71 from comparable companies.
- Rf + β(Rp) + Sizep
- 3.41% + 1.71(6.7%) + 6.03% = 20.88%. Since our company is unlevered, our WACC is equal to our discount rate.
- At the WACC of 20.88%, we will have a net present value of $2.25 million.

FE Appendix 5: Initial Startup Costs

(In US Dollars)	Start-up
INITIAL INVESTMENT IN FIXED ASSETS	
Long Term Balance Sheet Items (Can be depreciated - includes IS equip & Factory/office buildout costs)	$ 1,094,441
INITIAL INVESTMENT IN NET WORKING CAPITAL	
Cash (Additional Cash required in addition to Start Up costs)	$ 321,522
Raw Materials & Work in Process, Start-Up Period Only (Put Years 1-5 in table Below)	$ 37,643
Finished Goods Start-up Period Only (Put Years 1-5 in table Below)	$ -
INITIAL OPERATING EXPENSES (INCOME STATEMENT, TAX DEDUCTIBLE)	
Product Development (Prototype, engineer, etc.)	$ 400,000
Pre-Marketing Expenses (Marketing expenses before Year 1) See Sales Projection Tutorial	$ 49,570
All Other (Miscellaneous non depreciated expenses, additional salaries, Rent etc.)	$ 22,320
Subtotal Start Up Operating Expenses	$ 471,890

FE Appendix 6: Statement of Retained Earnings

Income Statement						
(In US Dollars)	Start-up	Year 1	Year 2	Year 3	Year 4	Year 5
Statement of Retained Earnings						
Net Income	$ (471,890)	$ (745,498)	$ (295,422)	$ 453,405	$ 1,323,985	$ 2,429,238
minus cash returned to investors (dividends)	-	-	-	-	(810,953)	(2,084,109)
Increase (Decrease) in Retained Earnings	$ (471,890)	$ (745,498)	$ (295,422)	$ 453,405	$ 513,032	$ 345,130

FE Appendix 7: Terminal Value Calculation

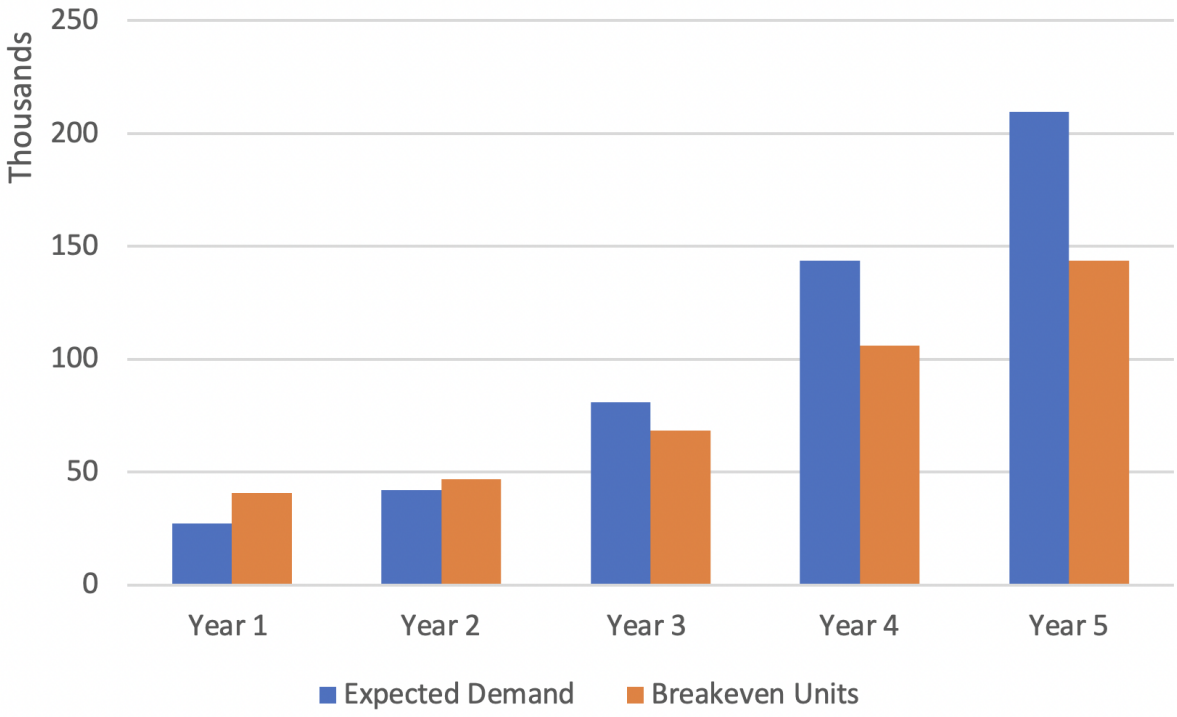
Index	Start-up	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
FCF	$ (1,925,497)	$ (449,394)	$ (360,436)	$ (66,609)	$ 810,953	$ 2,084,109	$ 2,500,931	$ 3,001,117	$ 2,400,893
								$ 5,872,560	
					TV:	$ 9,409,581	$ 11,374,607	$ 8,873,677	
Declining rate	20.0%								
Discount rate	20.9%								

- We used the product life cycle + declining perpetuity method to calculate the terminal value.
- From year 5 to year 7, we forecast that our cash flow will grow at a rate of 20% per year before peaking in year 7.
- After year 7, we project the cash flow will decline at 20% per year in the last 5 years of the product life cycle.
- We calculated the terminal value in year 7, added it to the cash flows in years 6 and 7, and discounted it back to year 5 using a discount rate of 20.88%.

FE Appendix 8: Breakeven Calculation

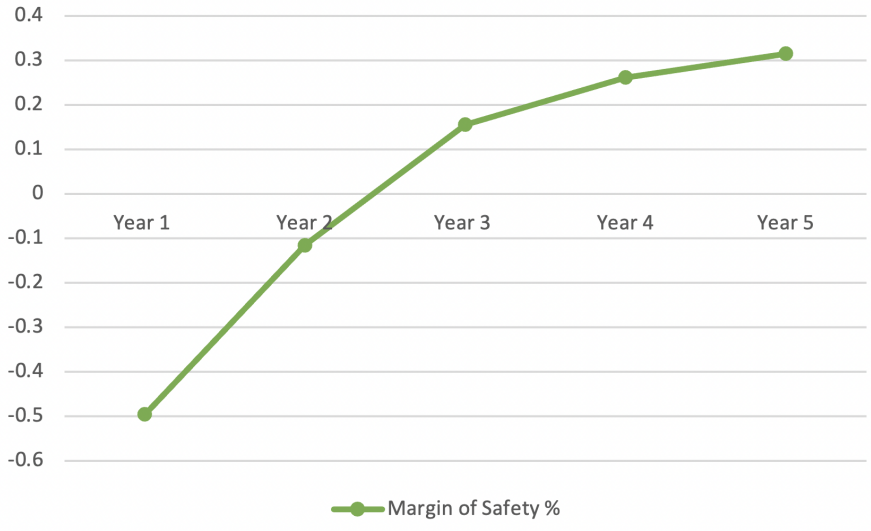
	Year 1	Year 2	Year 3	Year 4	Year 5
Expected Demand	27243	42036	80818	143571	209676
Breakeven Units	40748	46899	68268	106076	143664
Breakeven Sales	$ 3,131,548	$ 3,576,852	$ 4,922,011	$ 7,293,299	$ 9,605,110
Margin of safety % units	-49.6%	-11.6%	15.5%	26.1%	31.5%

FE Appendix 9: Breakeven Units



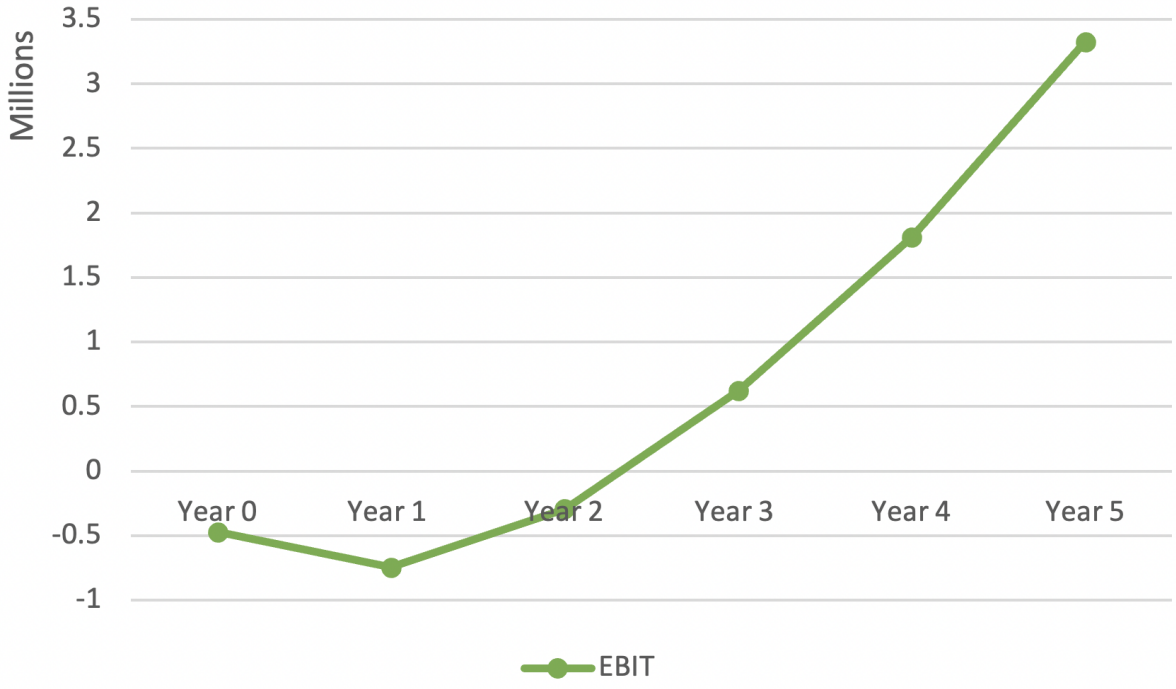
- In years 1 and 2, we will have negative net income because our expected demand is below the break-even unit.
- Beginning in year 3, demand is expected to exceed the break-even point and we will begin to make a profit.

FE Appendix 10: Margin of Safety



- The margin of safety ratio will be positive since year 3 (15.53%) and will increase to 31.48% in year 5.
- This increasing trend in the margin of safety indicates that our company will have more protection against loss of sales.

FE Appendix 11: EBIT



- Between years 2 and 3, we will achieve EBIT break-even. In year 5, we will generate $3.33 million in EBIT.

FE Appendix 12: Growth Rates

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	$2,093,697	$3,205,985	$5,826,829	$9,871,252	$14,018,543
		53%	82%	69%	42%
Price/Unit	$77	$76	$72	$69	$67
		-1%	-5%	-5%	-3%
Gross Profit	$501,796	$1,203,211	$2,957,366	$5,526,095	$8,153,082
		140%	146%	87%	48%
Operating Profit	-$745,498	-$295,422	$621,103	$1,813,678	$3,327,724
		-60%	-310%	192%	83%
Net Profit	-$745,498	-$295,422	$453,405	$1,323,985	$2,429,238
		-60%	-253%	192%	83%
COGS	$1,591,901	$2,002,775	$2,869,463	$4,345,157	$5,865,461
		26%	43%	51%	35%
COGS/Unit	$58.43	$47.64	$35.51	$30.26	$27.97
		-18%	-25%	-15%	-8%

Analytics Appendices

QM Appendix 1: Conjoint Analysis

	Average	Stdev	Min	Max	Range	Importance
Intercept	4.472	1.597	1.000	7.150	- -	- -
120	-0.377	1.246	-4.717	2.433	0.377	23.57%
80	-0.067	1.341	-4.750	3.250		
Patterned	-0.270	0.892	-2.467	2.467	0.270	16.87%
Heating	-0.317	1.159	-4.267	1.900	0.317	19.85%
Bead	0.635	1.259	-2.167	5.133	0.635	39.70%

*Our baseline variables were $100, minimalist design, cooling, and memory foam material.

Potential product users mainly prefer baseline variables of PAX such as price and design over the respective attribute levels, with the exception being the interior material.

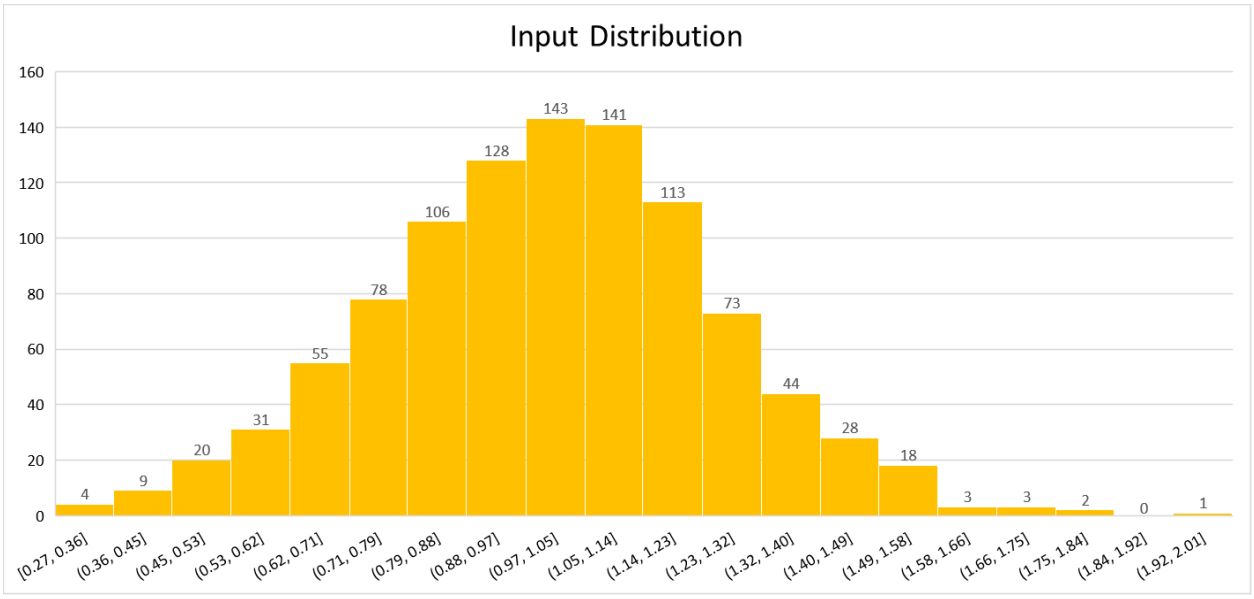
QM Appendix 2: Marketing Sensitivities Analysis

	Year 1 Value (Base case)	Breakeven Value	Breakeven % Change	New NPV	Change in NPV with 1% increase	Elasticities (% change due to 1% increase)	Absolute Value	Impact	Probability or Variability
Segment Size	15,700,000	12,284,975	-21.8%	$2,352,084	$101,171	4.49%	4.49%	High	High
Segment Growth Rate	1%	-9%	-994%	$2,253,356	$2,443	0.11%	0.11%	Low	Low
Purchase Intent	9.3%	7.27%	-21.9%	$2,351,200	$100,287	4.46%	4.46%	High	High
Awareness	13.3%	10.39%	-22%	$2,351,200	$100,287	4.46%	4.46%	High	High
Units lost to competition	20%	28%	42%	$2,200,345	-$50,569	-2.25%	2.25%	Low	High
Retail Price	$76.85	$64.47	-16%	$2,387,645	$136,732	6.07%	6.07%	High	High

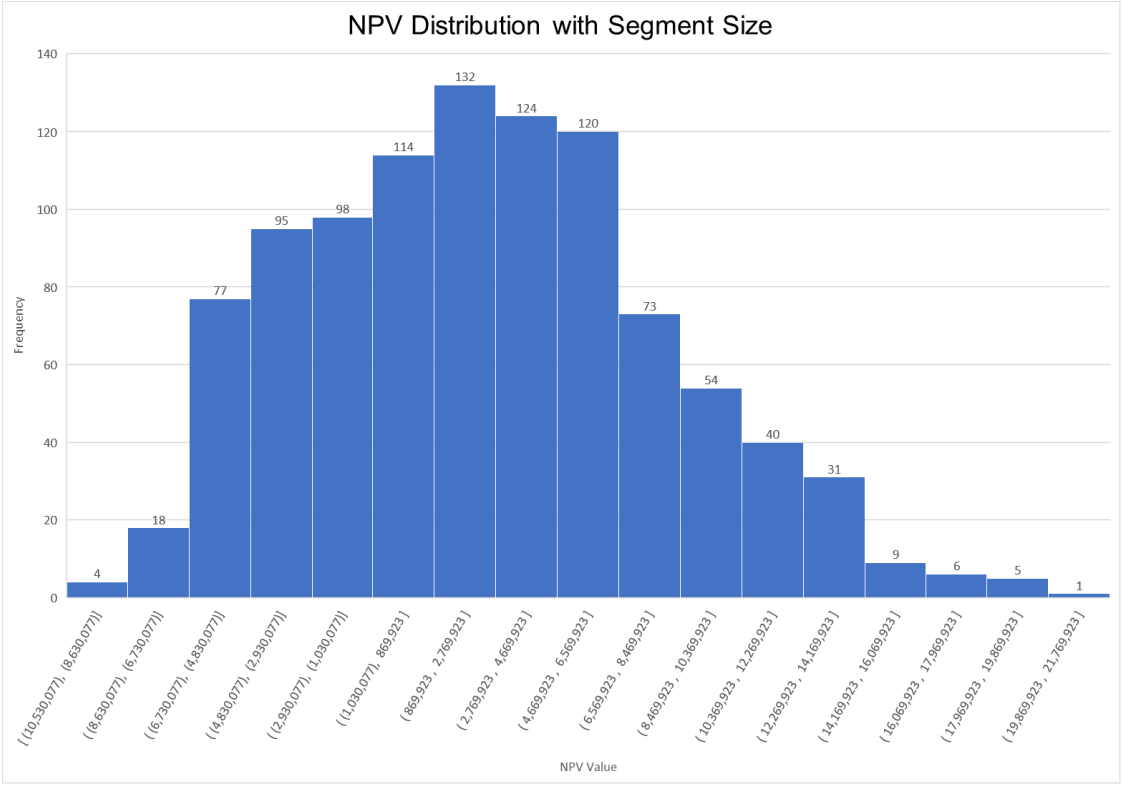
QM Appendix 3: Finance and Operations Sensitvities Analysis

	Year 1 Value (Base case)	Breakeven Value	Breakeven % Change	New NPV	Change in NPV with 1% increase	Elasticities (% change due to 1% increase)	Absolute Value	Impact	Probability or Variability
One time start up expense	$471,890	$2,722,803	477%	$2,246,194	-$4,719	-0.21%	0.21%	Low	Low
Direct Labor Year 1	$9	$23.68	163%	$2,237,320	-$13,593	-0.60%	0.60%	Low	High
Direct Material Year 1	$10.11	$22.47	122%	$2,232,905	-$18,008	-0.80%	0.80%	Low	High
Direct Material Reduction Rate	2%	-26%	-1422%	$2,252,426	$1,513	0.07%	0.07%	Low	Low
Transportation Cost	$3.48	$19.41	457%	$2,246,069	-$4,845	-0.22%	0.22%	Low	Low
Overhead	$414,400	$884,725	113%	$2,231,511	-$19,402	-0.86%	0.86%	Low	High
Utilities and Insurance	$312,000	$1,180,072	278%	$2,242,959	-$7,954	-0.35%	0.35%	Low	Low
Rent	$250,000	$1,118,072	347%	$2,244,539	-$6,374	-0.28%	0.28%	Low	Low
Administrative Salaries	$680,800	$1,188,376	75%	$2,221,372	-$29,541	-1.31%	1.31%	Low	High
Marketing Expenses Excluding Commissior	$345,031	$913,200	165%	$2,237,400	-$13,513	-0.60%	0.60%	Low	High
Marketing Commissions	$45,910	$167,051	264%	$2,242,713	-$8,200	-0.36%	0.36%	Low	Low
Tax Rate	27.00%	117%	335%	$2,244,190	-$6,723	-0.30%	0.30%	Low	Low
Discount Rate	20.88%	39%	85%	$2,211,723	-$39,191	-1.74%	1.74%	Low	Low

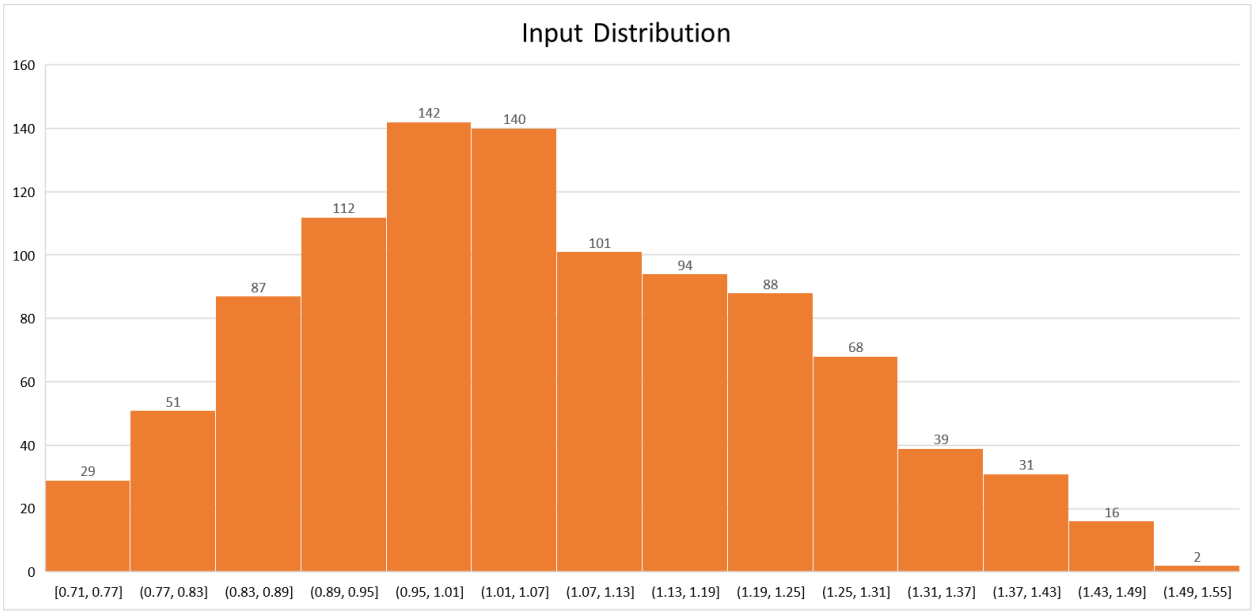
QM Appendix 4: Input of Segment Size for Simulation 1



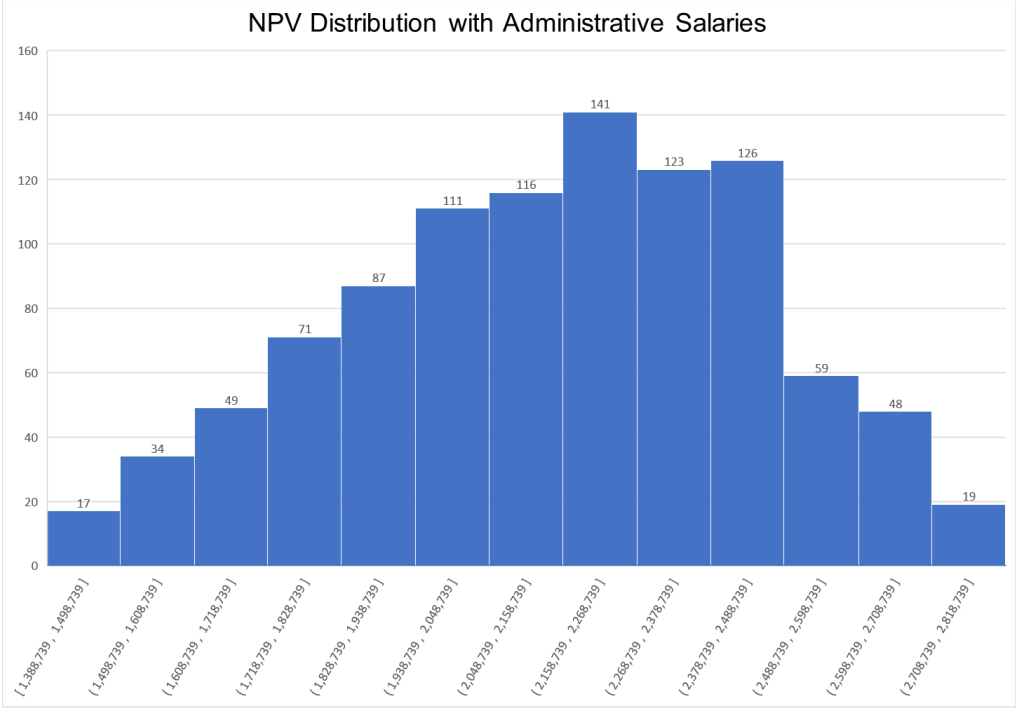
QM Appendix 5: Output of NPV for Simulation 1



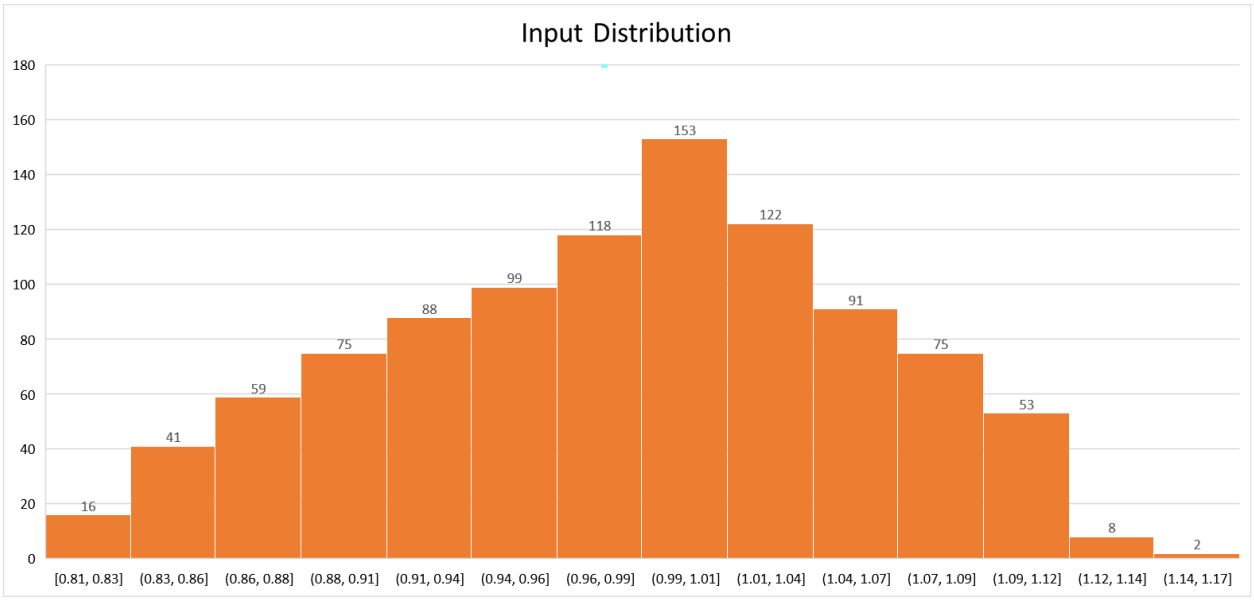
QM Appendix 6: Input of Administrative Salaries for Simulation 2



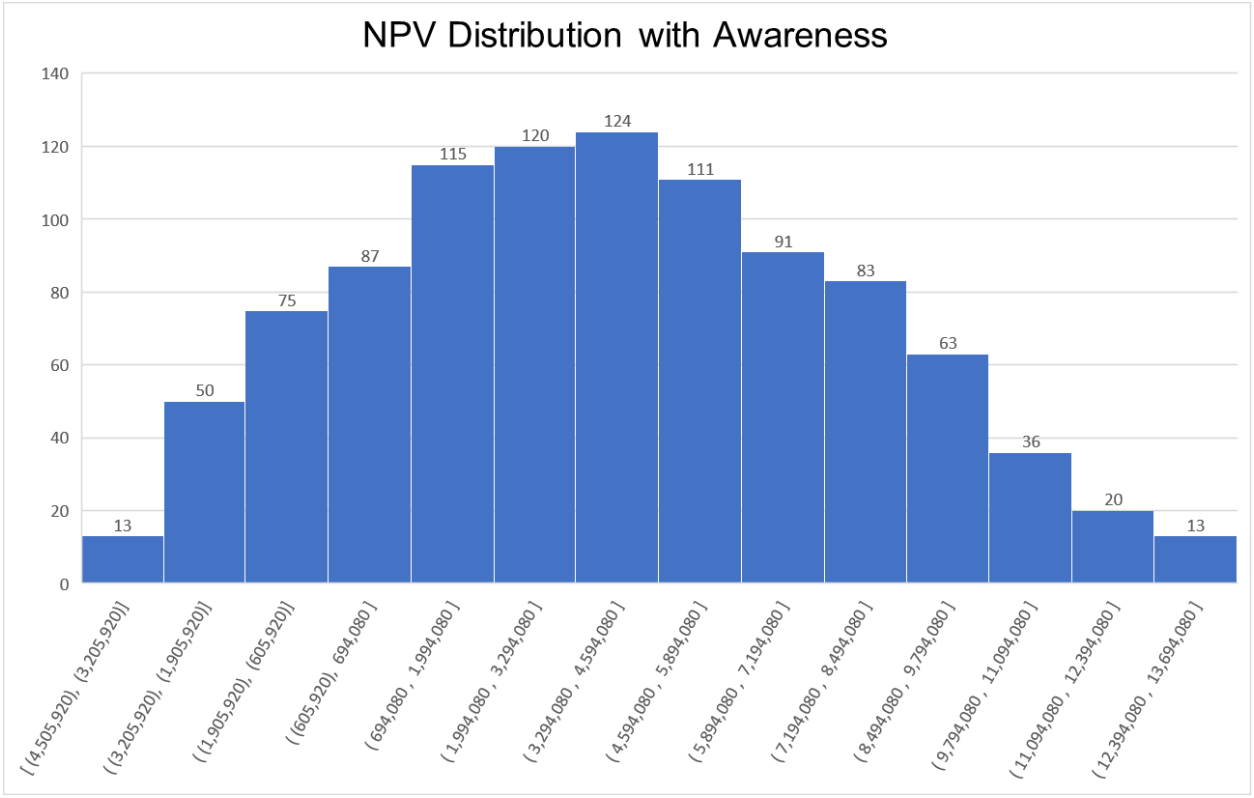
QM Appendix 7: Output of NPV for Simulation 2



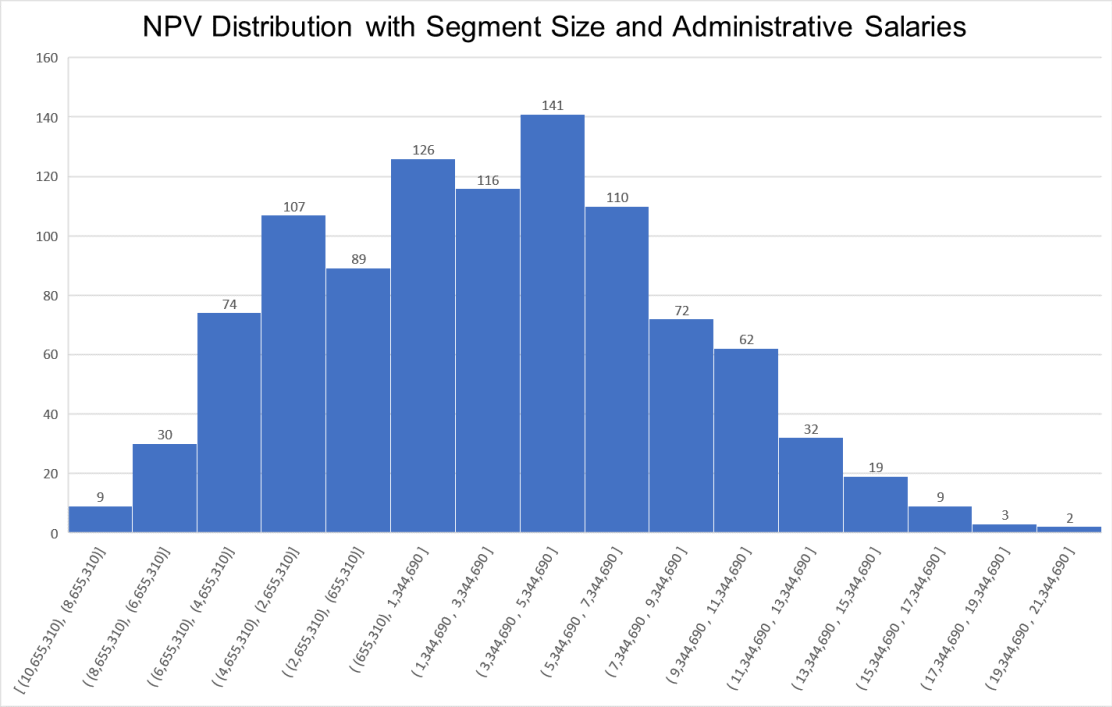
QM Appendix 8: Input of Awareness for Simulation 3



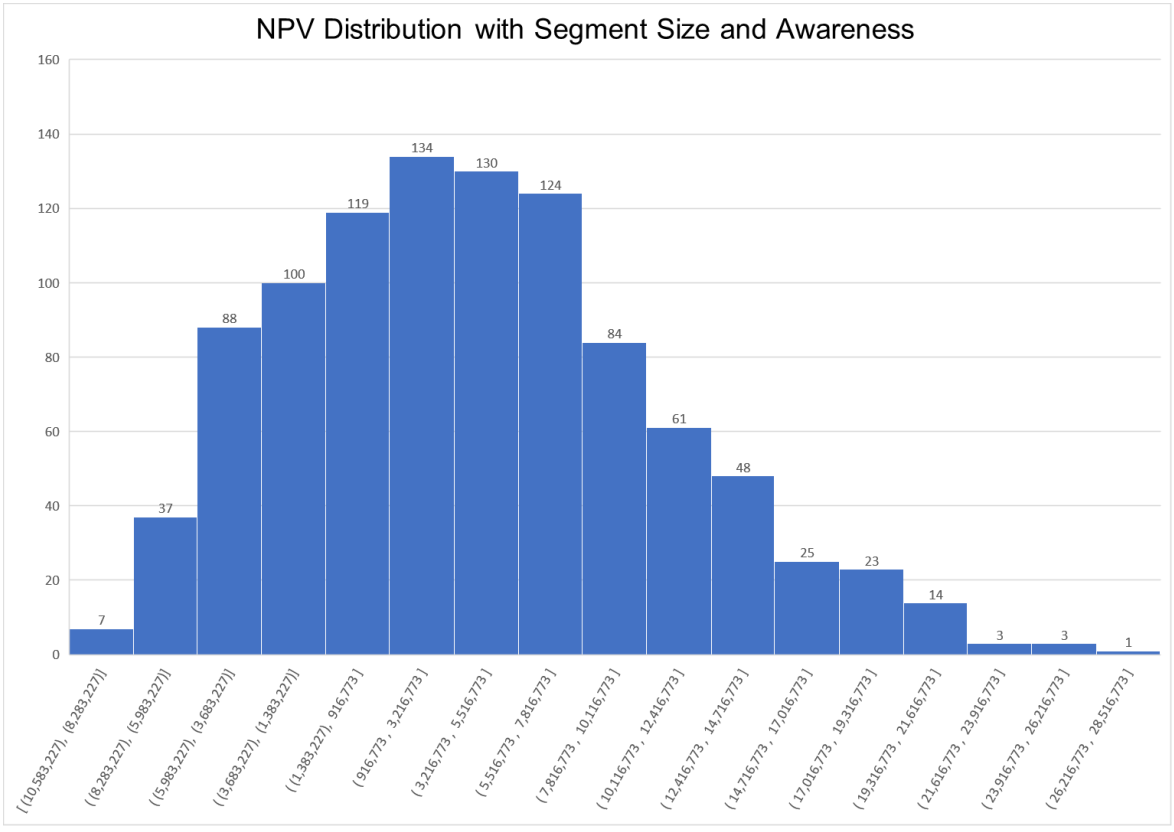
QM Appendix 9: Output of NPV for Simulation 3



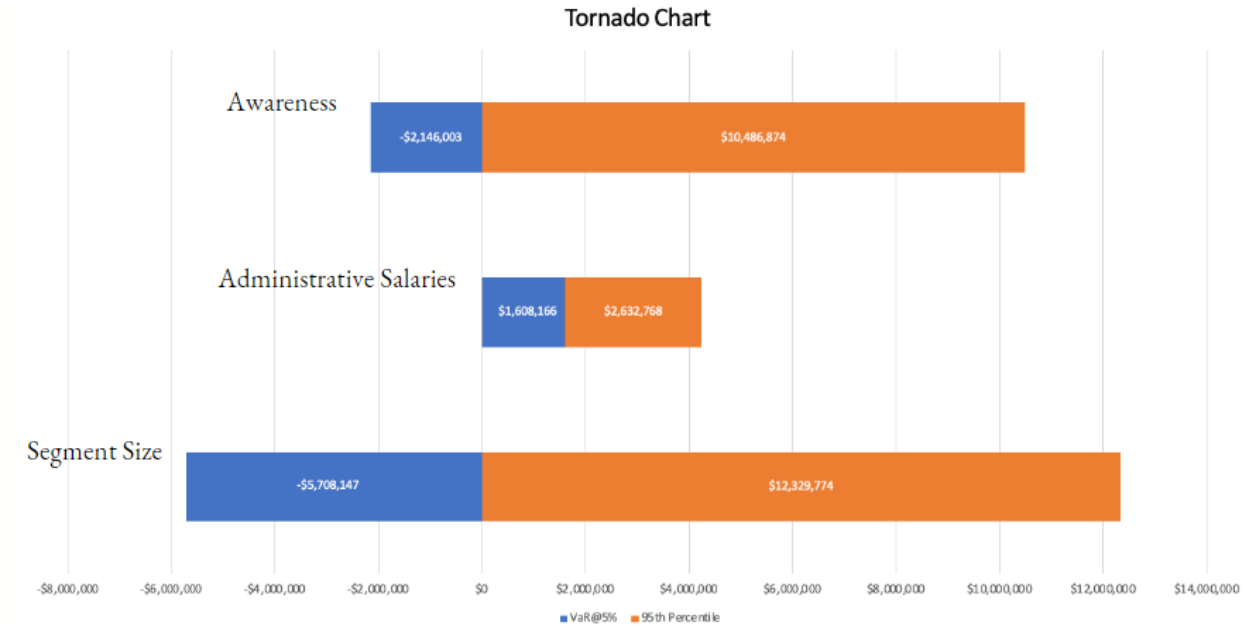
QM Appendix 10: Output of NPV for Simulation 4 (Segment Size + Admin. Salaries)



QM Appendix 11: Output of NPV for Simulation 5 (Segment Size + Awareness)



QM Appendix 12: Tornado Chart of NPV Range of all Parameters



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