2017

RemBand

Team 5

A4, Fall 2017

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EXECUTIVE SUMMARY

The Product: The RemBand is a new type of slip on wristband designed as simply as possible in order to help caregivers of family members affected by disease, people 50 years of age or older who wish to monitor their health, and caregivers of people suffering from stages 1-4 of Alzheimer's or Dementia.

Key Product Features:

- Heart Rate Monitor
- Location Tracker
- Safety Button
- Audio Reminders

Key Product Benefits:

- Ease of Use
- Affordable
- Longer battery life
- Comfortable
- Reminders

Target Market

1. **"Carebears 1" Segment:** consists of caregivers who have loved ones in the early and middle stages (stage 1-4) of Alzheimer's, household income is greater than $25K. We have targeted stages 1-4 because our product cannot aid users in the advanced stages of the disease.
2. **"Carebears 2" Segment:** includes caregivers of people affected but not immobilized by other types of illnesses, household income is greater than $25K.
3. **"Lone Wolves" Segment:** consists of people without caregivers, 50 years old or older, live alone.

These segments are attractive because the overall population of senior citizens who use technology is increasing in demographic trends.[1] In addition, the market for wearable technology is becoming popular with fashion trends.[2] We have opportunities in the overall consumer electronics market, because wearable technology has become increasingly popular, but often too complicated for all users. These products are usually shaped for younger consumers, and our product takes advantage of this by marketing to the older consumers who also are interested in wearable technology. Our goal for the marketing department is to use our advertising to create as much awareness as possible for our product. Also, we want to show consumers more beneficial our product is for our target market in comparison to others.

Channel Distribution and Pricing

In Years 1 & 2, we plan to distribute our product in the following channels:

- Independent Retailers (Manufacturing Price: $50 / Retail Selling price: $100)
- Online [Own Website & Amazon] (Manufacturing Price: $65 / Retail Selling price: $100)
    - Year 1 Average Weighted Manufacturer's Selling Price: $63.63
    - Year 2 Average Weighted Manufacturer's Selling Price: $62.74
    - Average Weighted Retail Selling Price: $100

In Year 3, the same channels and prices apply with these additional channels:

- Chain Retailer [RadioShack] (Manufacturing Selling Price: $52.25 / Retailer Selling Price: $95)

[1] "An Aging Nation." Www.census.gov, US Census Bureau, 10 Apr. 2017, www.census.gov/library/visualizations/2017/comm/cb17-ff08_older_americans.html.
[2] Marr, Bernard. "15 Noteworthy Facts About Wearables In 2016." Forbes, Forbes Magazine, 18 Mar. 2016, www.forbes.com/sites/bernardmarr/2016/03/18/15-mind-boggling-facts-about-wearables-in-2016/#70c00aaa2732.

    - Average Weighted Manufacturer's Selling Price: $61.22
    - Average Weighted Retail Selling Price: $99.53

In Year 4, the same channels and prices apply with these additional channels:

- Mass Merchandisers [Walmart] (Manufacturing Selling Price: $54 / Retailer Selling Price: $90)
    - Average Weighted Manufacturer's Selling Price: $58.84
    - Average Weighted Retail Selling Price: $96.42

In Year 5, the same channels and prices apply with these additional channels:

- Mass Merchandisers [Walmart & Target] (Manufacturing Selling Price: $54 / Retailer Selling Price: $90)
    - Average Weighted Manufacturer's Selling Price: $58.34
    - Average Weighted Retail Selling Price: $95.80

Operations Development Plan

Operationally, our plan is to lease out an industrial manufacturing facility in Phoenix, Arizona. For our inventory, we will be keeping a level of finished goods safety stock that is roughly 6.5% of our annual demand at all times. Our product requires 11 raw materials to be manufactured, along with 2 materials for its packaging. RemBand will be purchasing 8 of its raw materials and both packaging materials from China through Alibaba, and our other 3 raw materials will be shipping by truck domestically. As far as capacity is concerned, our company intends to employ a chase strategy for our inventory levels. Ensuring quality is a major goal of ours, and in order to do so we will take 4 steps: purchase materials from reliable suppliers, properly train our workers, detailed quality checks, and utilize the Total Quality Management approach for continuous improvement.

Investments & Funding

Financially, by adhering to our expense plans for the first 5 years, we will be able to maximize returns for our stakeholders. By creating detailed financial statements for our firm, we were able to compare our performance to two competitors - Fitbit and Garmin. After analyzing our metrics against our competitors, we see that overall, we experience higher returns, at the expense of slightly lower liquidity ratios. One definitive reason for our high returns is our high gross margin percentage. Since we are able to omit a screen and Wi-Fi and Bluetooth modules, we are able to drastically reduce COGS relative to competitors. Another hallmark of our business is the subscription model; by having users pay $5.00 / month, we guarantee that we can match the costs of providing the location tracking services after our customers' initial purchase. Through diligent adherence to the base case financial statements, RemBand will be a positive NPV project.

- This venture requires $1,159,590 worth of funding to yield an NPV of $811,133 at a discount rate of 26.82% and an IRR of 43.70%.
- Of the $1,159,590, $858,030 will be needed to commence operations in year zero. $250,000 of the $858,030 will be internally raised from founders, and we will issue equity in the remaining amount of $608,030 to angel investors at a share price of $1.00.

- After our initial funding, we will raise equity once more in year 1, where we will need $301,560 in order to finance expansion and future operations. By achieving the total paid in capital needs, our revenues will grow year over year and culminate in sales of $35,153,182 in year 5 and a net income of $1,589,477.
- Our average ROE stands at 38.68%.

Potential Risks

In our analyses, we looked at several important factors that would potentially affect our business. The first was determining preferred features our product should include through a conjoint analysis survey. We found that most participants strongly favored multiple web pages with the additional feature of sending reminders to loved ones and an adjustable band over a fixed one. We also conducted analyses on what variables were most sensitive and had the highest risks for our company. We looked at many variables for sensitivities, but only chose to model the risk of the four most relevant variables: awareness, direct material cost per unit, direct labor cost per unit, and annual lease cost (listed from most to least risky). Our focus should be to mitigate for awareness of the Lone Wolves segment specifically and direct material as they are the variables that affect NPV the most.

- Marketing Risks
    - Running out of marketing budget → Mitigation: Less expensive ads
    - Wrong target market → Mitigation: Adjust the positioning of the product
    - Poorly Positioned Ads → Mitigation: Diversify marketing techniques and raise marketing budget
    - Cure for Alzheimer's (or other diseases) → Mitigation: Position band more towards other target markets
    - Similar Product Released → Mitigation: Accentuate what distinguishes our product from competitors
- Financial Risks
    - Fluctuating exchange rates in China. → Mitigation: Find firms that accept USD directly; Lock in an exchange rate when making supplier contract
    - International Instability → Mitigation: Find domestic suppliers as a back-up
    - Increase in minimum wage in Arizona. → Mitigation: Outsource workers from the assembly line
    - Faulty Supply Shipments → Mitigation: Shipment Quality Checks at Supplier Locations; Have different suppliers on Back-Up
- Operations Risks
    - Natural Disaster → Mitigation: Backup Location; Insurance
    - Website Malfunction (i.e. website crashes) → Mitigation: Code reviews
    - Hardware Malfunction i.e. Safety button not working → Mitigation: Quality check of supplies
    - IT Breach → Mitigation: Higher quality code check; hire stronger programmers

Corporate Social Responsibility Summary

When considering appropriate CSR initiatives to incorporate into our business, we wanted to ensure that our efforts would be relevant to the problem we were trying to solve. Our product allows caregivers to track biometric and locational information of their loved ones. Therefore, we strongly felt that our initiative needed to directly impact people and associations striving to understand and eliminate the debilitating illnesses. Initially, our CSR initiatives consisted of donating 1% of our profits to the Alzheimer's Association and requiring employees at our company to volunteer a certain amount of days a year at a nursing home. However, when we conducted a survey to determine the impact the CSR initiatives have on potential purchases, we found that out of 150 responses we received, 70% indicated that requiring our employees to volunteer would have zero or minimal impact on their likeliness to purchase our product. Therefore, we decided on simply donating 1% of our profits to the Alzheimer's Association. Our hope is that this initiative would not only advance the understanding of memory-related illnesses but also help the Alzheimer's Association to educate our society on the devastating impacts Alzheimer's can have on an individual's life.

The mission of the Alzheimer's Association is aligned with our goals and we believe it would be beneficial for both of us if we establish a connection with the Alzheimer's Association. After conducting online research and interviewing people impacted by Alzheimer's or Dementia, we found that exercise is an effective treatment for these diseases. We hope to help these patients by improving their memory while mitigating caregivers' anxiety about their patient's well-being. The Alzheimer's Association works on providing care and support for those affected by the disease. The association holds community events periodically, including Dementia education sessions, volunteer opportunities, and information sessions specifically for caregivers. As a contributor, we think that asking the Alzheimer's Association to display our product or introduce our company during their events would be a great opportunity to increase the awareness of RemBand.

Establishing a relationship with the Alzheimer's Association will allow us to more strongly justify our existence in the market. By incorporating their research and articles on our website, we will be able to further educate our customers on how to better provide for people diagnosed with the illness. The Alzheimer's Association contributes to research breakthroughs that are life-changing for people with Alzheimer's diseases, and provides research in simple

language on the website. This way anybody, especially caregivers, have free access to this useful information. On our own website, we have a "Health Tips" section which includes helpful tips for Alzheimer's patients and their caregivers.

Based on our surveys, participants indicate that they would be more likely to purchase our product if we embed a CSR initiative into our business. According to the survey results, the purchase intent of consumers in our first segment would increase by 2.41%, 2.21% for segment two, and 2.41% for the third segment. Alongside articles targeted towards caregivers of patients with Alzheimer's and dementia, the Alzheimer's Association also publishes articles regarding various preventative methods on reducing the risk of dementia. We believe that our third segment, which includes people over the age of 50 and live alone, would be most interested in preventing memory-related illnesses. The three segments we are targeting resonate with the groups of people the Alzheimer's Association is providing support for.[3]

In terms of costs and feasibility, our costs will be slightly increased because of the donation. However, the cost is minimal because we only donate 1% of our profits to the association. The costs remain minimal in each year because it is impacted by our profits no matter how the profits increase or decrease. The initiative does not require any costly resources, so we are not expected to pay extra operating costs or cost of materials. Besides, based on our survey, the initiative will increase customers' purchase intent to our product. The increasing sales, and therefore profits, will mitigate our cash outflow due to donation.

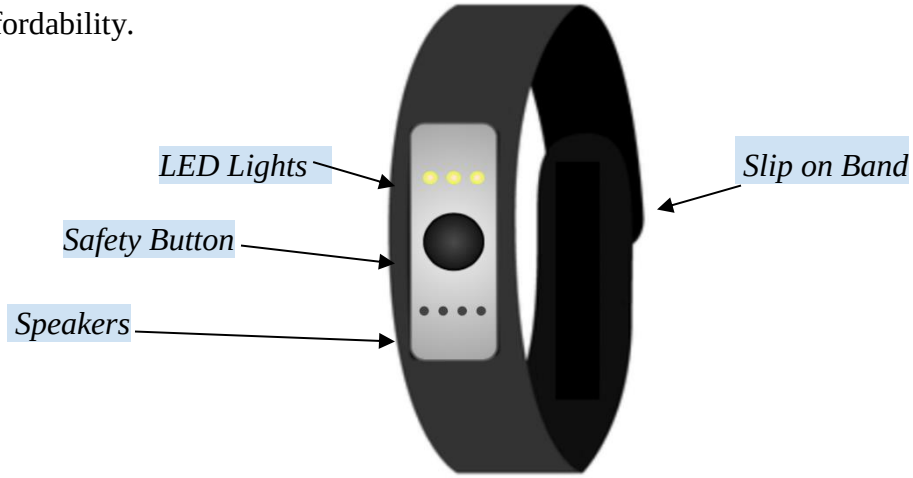
Since supporting nonprofit organizations helps companies build or improve their public image, we will donate to Alzheimer's Association and build a long-term relationship with them, and we consider this corporate social responsibility initiative to be effective and efficient because of the similarity of the association's mission and ours.[4]

[3] "About Us." *Alzheimer's Association*, www.alz.org/about_us_about_us_.asp
[4] "Corporate Social Responsibility: 12 Undeniable Benefits." *Double the Donation*, doublethedonation.com/why-corporate-social-responsibility-is-important/.

Mission Statement

"Our mission is to make people feel more united by helping those individuals feel more independent and secure in who and where they are through the use of technology."

RemBand is a new type of slip on wristband designed as simply as possible in order to help caregivers of family members affected by a disease, people 50 years of age or older who wish to monitor their health, and caregivers of people suffering from stages 1-4 of Alzheimer's or Dementia. This wristband includes an emergency button that allows the wearer to instantly alert an emergency contact when pressed, as well as a speaker and LED lights programmed to give reminders to the wearer. The differentiating qualities of our product are ease of use and affordability.



Our business will face demographic trends, such as an increase in both the number of senior citizens, as well as the number of these citizens that use technology. Other trends include fashion trends with the constantly increasing number of people that use wearable technologies.

RemBand falls under two product categories. RemBand fits the category of wearable technology, and its heart rate tracker classifies the product as medical technology.

Product (Us/Competitors)	Description	Price	Strengths/Weaknesses
RemBand	A smart band designed as simply as possible allowing people with Alzheimer's or other diseases and elderly to remain active while allowing their caregivers to track them and monitor their heartbeat and sleep. The band can also send reminders to the wearer.	$100	+ Ease of use + Affordable + Longer battery life + Comfortable + Reminders - Less known, new to market
Tempo, by CarePredict	CarePredict has developed a sophisticated array of sensors within a stylish, wrist-worn wearable for seniors to detect changes in "Activities of Daily Living" such as eating and sleeping.	$169	+ Ease of use - Big on the wrist - Only features indoor location, cannot track outdoors.
Freedom GPS Locator Watch, Lok8u	LOK8U Freedom™ monitors the location of your loved ones, finding their whereabouts at home, and about, day and night.	$245	+ Ease of use - Only prevents wandering events, does not work as health tracker.
Apple Watch, Apple	The Apple Watch is a smartwatch that operates as a small wearable computing device worn on a user's wrist.	$329	+ Fashionable - Expensive - High learning curve - Not a health device - Not a tracker
Limmex AG Emergency Watch	The Limmex Emergency Watch provides security on the way and at home. In case of an emergency, the watch user is located, thanks to GPS and WiFi.	$406	+ Outdoor tracking + Longer battery life - Expensive - Not a health device

Marketing

Target Market

In order to better define our product, we had to first identify our target market. Our target market consists of three major segments. The first segment we are targeting is our "Carebears 1" segment, which consists of caregivers who have loved ones in the early and middle stages (stage 1-4) of Alzheimer's, and whose household income is greater than $25K. Late stages of the disease are not targeted because the severity of their condition requires constant monitoring from their caregivers.[5] The second segment is our "Carebears 2" segment, which includes caregivers of people affected but not immobilized by other types of illnesses and whose household income is greater than $25K. The third segment is our "Lone Wolves" segment, which consists of people without caregivers, 50 years old or older, and live alone.

We decided to target these segments because they stand to benefit the most from RemBand. Those in the Carebears 1 and 2 segments will be able to track the user, monitor their heart rate, give them audio reminders, and provide a safety button in case of emergency.[6]

Brand

After we identified our target market, we were able to better define our product and to ultimately create our brand. Our key themes and tones for advertising our product is to show understanding, represent independence, motivation, and care. The key goal in these two advertisements is to show that those who wear the RemBand are more productive and more united with their family.

Figure 1.1 - RemBand Logo

Logo

The RemBand logo features the product name, the slogan, an EKG line. The logo is accompanied by three blue circles that represent the product's capabilities. The color of a muted blue was chosen to evoke a vaguely medical and calming connotation, while still being dark enough to be noticeable against a white background. The first of the blue circles under the logo is meant to represent the

[5] "2017 Alzheimer's Disease Facts and Figures" *Alzheimer's Association*, 2017. www.alz.org/documents_custom/2017-facts-and-figures.pdf

[6] "Help End Alzheimer's." *Alzheimer's Association*, www.alz.org/.

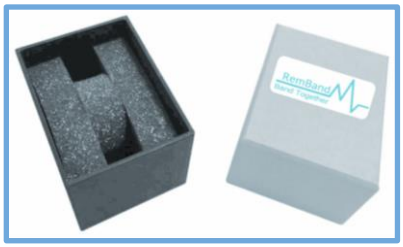
band's heart rate monitor. The middle blue circle simply says "GPS," to highlight the location-tracking capabilities of the product. The final blue circle featuring the outline of a bell signifies the audio reminders that the user may set up on the band.

Slogan

The RemBand's slogan, "Band Together" is a play on words referencing the product itself, and an urge for members of the three segments to connect with their friends, family members, and loved ones. Because the RemBand itself is what "Band Together" refers to, this slogan also implies that the product is part of the process of the aforementioned connection with loved ones.

Packaging

Figure 1.2 - RemBand Packaging



The packaging, much like the product itself, is intended to be sleek and hassle-free. This will be a white box, wherein the RemBand is wrapped around a pillow like a standard watch.

Trade Shows and Events

Figure 1.3 - Location Screenshot

Figure 1.4 - RemBand Booth Tent

The RemBand tent pictured above will be the backdrop of RemBand booths at events and tradeshows. This will provide shelter in outdoor events, and for indoor events it will serve as a visual border for the RemBand banners and tables discussed below. At each event or tradeshow, we will have a laptop to show visitors of the booth how to maneuver through the website and how to specifically use the tracker on the RemBand. This laptop screen displays the location

services the RemBand website provides to users and their caregivers. The screenshot features the exact location of the wearer.

Figure 1.5 - Booth Elements

In addition, trade show and event booths will consist of three key elements. To the far left is a table, for a RemBand representative to sit or stand behind, draped with a banner of the RemBand logo. The middle banner, which will be the backdrop of the booth, consists of an enlarged RemBand logo, with the website and Instagram handle at the bottom, so the text will not be obscured from view by the tent. To the right is an image of a retractable banner, held up by a metal stand, with the general image of the tradeshow flyer, which is discussed in detail below. The RemBand trade show banner is designed simply, with the logo at the top, a list of features in the middle, and the company website and Instagram link at the bottom. The border is mostly the RemBand brand blue, with a white line to break up the block of color. The product features are listed as, "Heart Rate Monitor, Panic Button, Location Tracker,

Figure 1.6 - Trade Show Banner

Figure 1.7 - Events Banner

Vibration Reminders, Audio Reminders, Peace of Mind" without any accompanying text or adornment to reinforce the image of simplicity that the product itself strives to convey.
The RemBand event banner is to attract our consumers and for them to understand the circumstances and need for the RemBand.

Point of Purchase

In a similar fashion to an Apple Watch, the RemBand will be available in stores for customers to try on, so they may better understand the experience of wearing one before purchasing the product itself. To dissuade concerns of theft at storefronts, a wire will be attached to the product so that it will not be removable by any passerby.
The key elements of the physical Point-of-Purchase for the RemBand are the easily accessible shelves, RemBand logo at the top of the display, website information at its base, and accompanying infographic. The infographic, titled "Looking After Your Parents" was designed to inform members of the "Carebears" target markets about challenges they may soon face while watching over their parents. The first blue bar features information about "Relationship

Figure 1.8 - POP Shelf

Figure 1.9 - POP Stand

Dynamics," and is followed by a segment titled "Aging with Grace." The final three sections, "RemBand's Mission," "RemBand Features," and "How we can Help" transition into the value RemBand can provide for people in this new phase of life, and refocuses on themes of understanding and caring. The infographic is pictured here, to complement the Point-of-Purchase

display to emphasize that RemBand's desire to aid its users extends beyond the initial transaction required to purchase the product.

Social Media

Figure 1.10 - RemBand Instagram

RemBand's Instagram page, found @rem_band, is created to be a personal method of interacting with consumers and users. The account currently features advertising-based content, a link to the RemBand website, and an icon featuring the brand's logo.

Advertisements

The Billboard, Transit, & Magazine Ads consistently feature a large photograph, a blue border, a single sentence to suggest the intangible benefits of the product, and finally RemBand's logo, features, and web address.

Figure 1.11 - Billboard Ad

The "Feel Together" Billboard Ad is visually focused, and urges viewers to "Feel Together When [They're] Apart." The dominant image of this ad is a photograph of a woman with a cane, holding the arm of a man as the couple walks down a paved trail among trees and bushes. The couple may be interpreted either as aging parents, or simply two senior citizens out for a walk despite the handicap evidenced by the woman's cane.

The woman with the cane may either represent resilience, which calls out to the "Lone Wolf" segment of the market, or her attachment to the male figure may be interpreted as a relationship of dependence or care, which would resonate more with the "Carebears" segment of the market. The tagline of this advertisement, "Feel together when you're apart," captures both the safety associated with togetherness and the independence of being alone. The duality of this statement captures two conflicting desires, and offers RemBand as a method of reconciliation between them.

Figure 1.12 - Magazine Ad

The "Peace of Mind" advertisement features a woman with white hair, wearing the RemBand, resting in a "hands to heart center" position in a yoga class. The woman meditating as well as the phrase "peace of mind" call to mind a sought-after state of tranquility and possibly focus. This advertisement actually features the RemBand on the wrist of the woman representing "peace of mind," suggesting that the product is directly responsible for her lack of anxiety. This woman, as the only person in the photograph with white hair, represents the "Lone Wolves" segment of RemBand's target market. Although she is likely the oldest person in the photograph, it's important to note that she is actively participating in what seems to be an exercise class. The juxtaposition between stillness and movement implies that this woman may be peaceful, but she is not dormant. This image also capitalizes on the attitudes of older people not identifying with the image of "old age."[7]

[7] "Growing Old in America: Expectations vs. Reality." Pew Research Center's Social & Demographic Trends Project, Pew Research Center, 28 June 2009, www.pewsocialtrends.org/2009/06/29/growing-old-in america-expectations-vs-reality/.

Figure 1.13 - Online Banner Ad

"There for You" targets the "Carebears" segment by drawing on themes of family or close relationships, duty, and compassion. This ad is unique from the others because the use of "we" directly involves RemBand in the relationship between the reader and whoever "them" may signify from their perspective. The picture is of two hands, one with pronounced veins and the other of a size that would suggest youth, in focus against a background of sand, trees, and sky. Like the "Peace of Mind" advertisement, the image is doctored to look like the RemBand is in the photograph. The physical differences and linkage of the two hands suggest a personal relationship, which mirrors the connection the "Carebears" feel to loved ones they now need to monitor. The personal relationship between a caregiver and their loved one is subject to strain over time, and caregivers can struggle with the sense of "duty" they have to their patient.[8] Observations from the focus group highlight the difficulty of an adult keeping track of their parent the way their parent once did for them. Our theme of "understanding" in our advertisements is to show that the RemBand can help alleviate some of the difficulties caregivers may encounter.

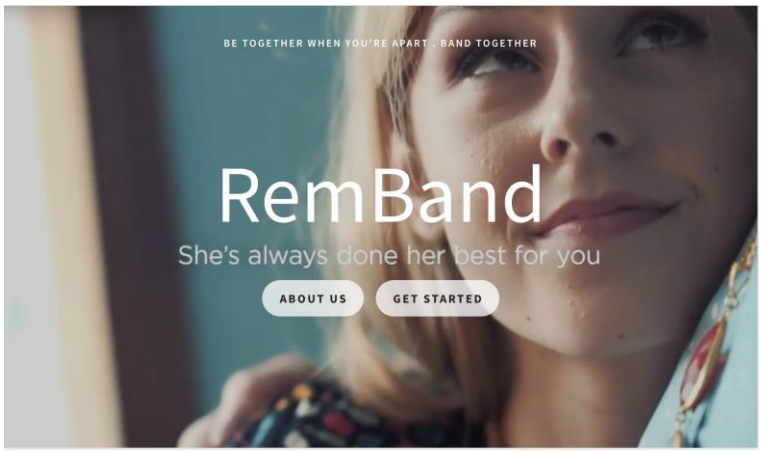
Website

The RemBand website itself, which is hosted through Square Space, is designed to be as sleek and simplistic as possible. With this in mind, the color scheme favors a classic combination of black and white instead of the RemBand logo colors of medium blue and white. While the logo's shade of blue can clearly be seen against a white background, black will always catch the eye more easily when set against white. The dominant purpose of this website is to inform viewers, which is why a minimal color scheme and layout were chosen for its composition.

[8] "Caregiver Statistics: Work and Caregiving." Caregiver Statistics: Work and Caregiving | Family Caregiver Alliance, Family Caregiver Alliance, 2016, www.caregiver.org/caregiver-statistics-work-and-caregiving.

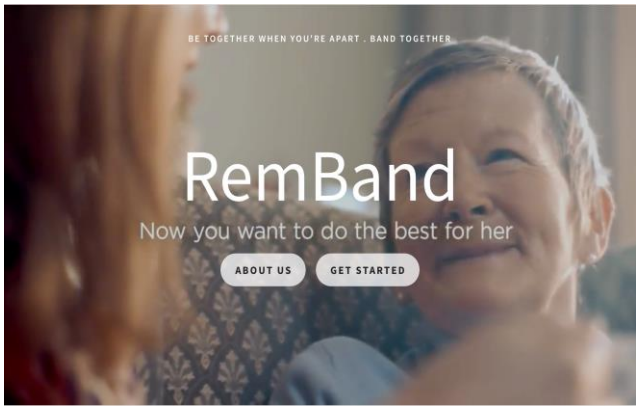
Most of the topics introduced to the reader include links to more information, such as “about us” and “get started.” With that said, the design remains intentionally minimalist to avoid clutter and to keep the viewer’s attention on the information presented rather than the web design.

Figure 1.14 - Website Homepage 1



The home page of the website is a video of two women interacting in a familiar way that leads the viewer to assume a familiar relationship between the two. The small writing at the top of the page says, “Be together when you’re apart. Band Together,” which is essentially an elongated version of the slogan intertwined with some phrasing from the advertisements. When the younger woman is featured, the text “She’s always done her best for you,” on the screen refers to the older woman in the next shot. The phrase is completed with, “Now you want to do the best for her.” Two links are provided underneath the text and logo to provide more information about the company with “About Us” and on the product with “Get Started.” The two women are stand-ins for the relationship between parent and adult offspring, which is why the text switches to reflect the way those relationships shift when the responsibility to look after the parent shifts to the adult child. The text itself refers, without disclosing any details, to the deeper and complex relationship between the “Carebears” segment and the people they wish to look after.

Figure 1.15 - Website Homepage 2



A page is provided in the website for people who wish to reach out to the company with inquiries, feedback, complaints, or for any purposes of communication. The name and email are required to submit the form so that we will be able to contact them if need be.

Figure 1.16 - Contact Us Page

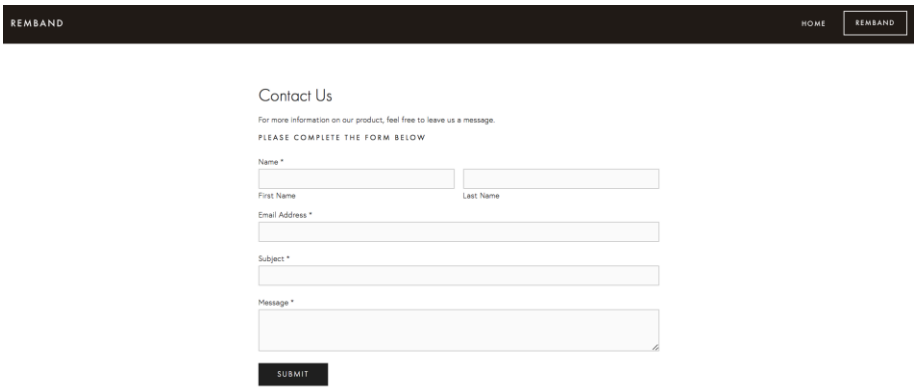
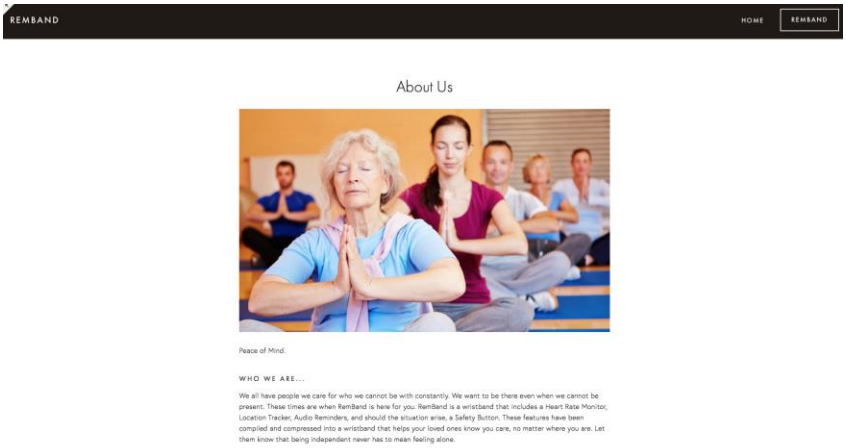


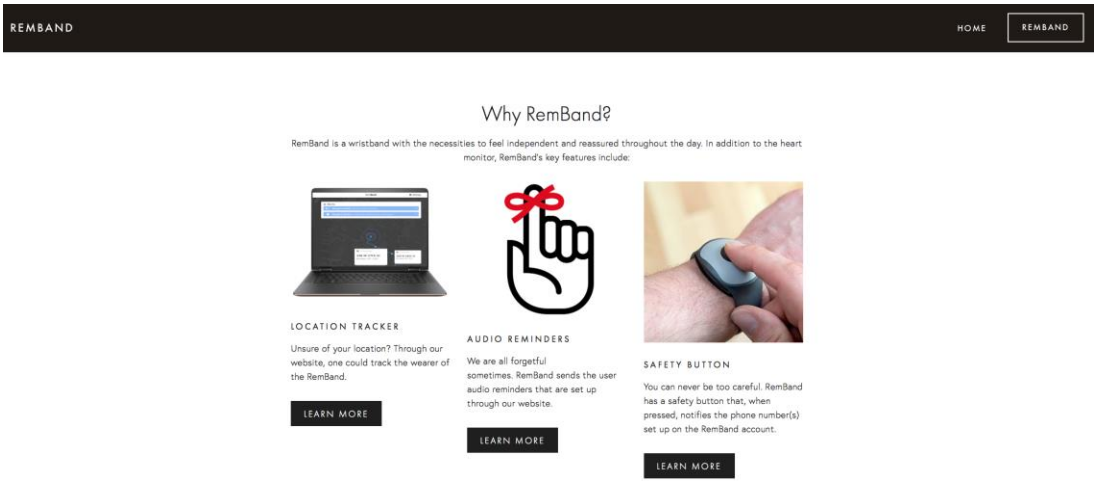
Figure 1.17 - About us Page



In “About Us” the image of a woman meant to represent either the “Lone Wolves” target market or the object of concern in either of the “Carebears” market segments is pictured meditating. This image is discussed in more detail as an advertisement, and the general idea of adding it to the “About Us” webpage is to communicate a message of tranquility, safety and independence. The text under “Who We Are…” reads “We all have people we care for who we cannot be with constantly. We want to be there even when we cannot be present. These times are when RemBand is here for you. RemBand is a wristband that includes a Heart Rate Monitor, Location Tracker, Audio Reminders, and should the situation arise, a Safety Button. These features have been compiles and compressed into a wristband that helps your loved ones know

you care, no matter where you are. Let them know that being independent never has to mean feeling alone."

Figure 1.18 - Why RemBand Page



Website visitors can find more information upon clicking the homepage's "Get Started" button. This web page is headed with "Why RemBand?" with the subtext "RemBand is a wristband with the necessities to feel independent and reassured throughout the day. In addition to the heart rate monitor, RemBand's key features include…" Three key features of the product are listed below. The reason that a heart rate monitor was not listed as a fourth feature is that most people understand its concept and require no further explanation on the matter.

The features listed each have an image to represent them, and a button that visitors may click should they desire more information. Each description of the features is short, and begins with an attempt to connect with the reader on a personal level.

Location Tracker

"Unsure of your location? Through our website, one could track the wearer of the RemBand." The inability to place one's location is an attempt to tactfully refer to the unfortunate habit of Alzheimer's patients to require reminders to prevent getting themselves lost. This is the reason the question is phrased as if the reader has simply forgotten their whereabouts, and not from the perspective of someone who does not know where they are going.

Audio Reminders

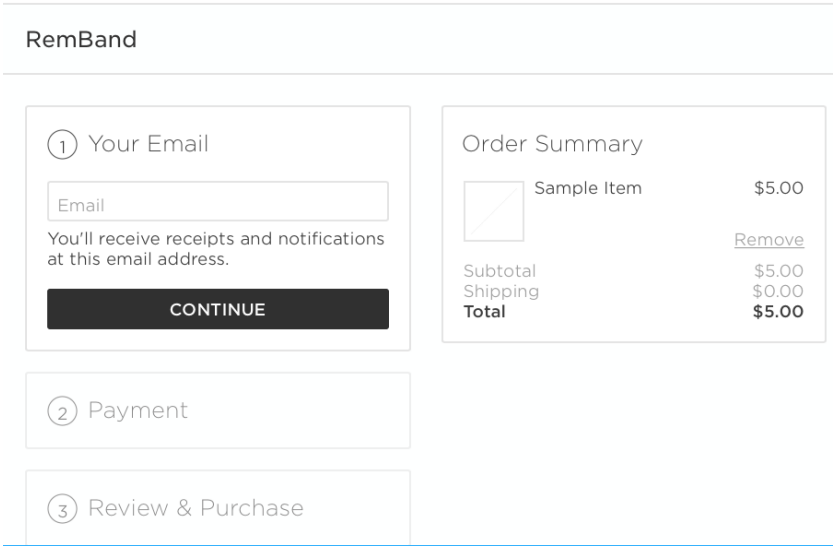
"We are all forgetful sometimes. RemBand sends the user audio reminders that are set up through our website." This can refer either to the aforementioned memory problems of

Alzheimer's patients, a desire of caregivers to set up reminders for their loved ones as a safety measure, or the general forgetfulness most people suffer from.

Safety Button

"You can never be too careful. RemBand has a safety button that, when pressed, notifies the phone number(s) set up on the RemBand account." The concept of a panic button is not alien to the general population, which is why this snippet begins with advice people universally receive to evoke a response of watchfulness.

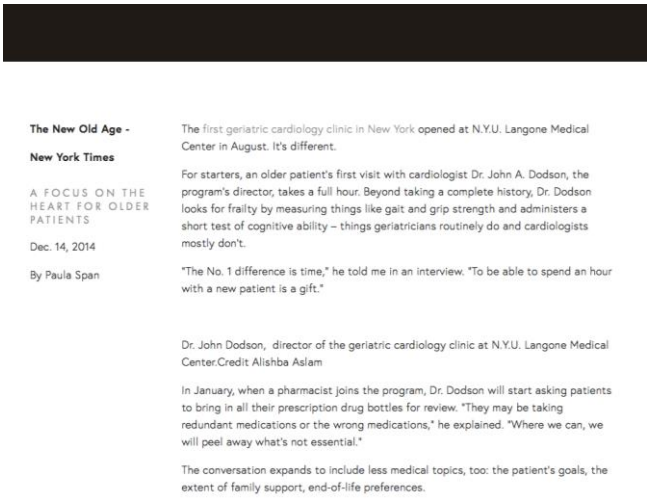
Figure 1.19 - Checkout Page



The online point-of-purchase, like many other aspects of the image RemBand portrays, is sleek and simplistic. An email is required, which grants the buyer access to the information, such as location, that they expect from the product. Once the user clicks "continue," they will enter their payment information. As a final reminder of the purchase the customer intends to make, the "review and purchase" tab shows the product and subscription that the user is buying. Throughout this process, the order summary lists a small picture of their purchase, the order subtotal, the shipping cost added to it, and the overall total of the purchase.

PR Strategy [9]

Figure 1.20 - Health Tips Page



The New Old Age - New York Times

A FOCUS ON THE HEART FOR OLDER PATIENTS

Dec. 14, 2014

By Paula Span

The first geriatric cardiology clinic in New York opened at N.Y.U. Langone Medical Center in August. It's different.

For starters, an older patient's first visit with cardiologist Dr. John A. Dodson, the program's director, takes a full hour. Beyond taking a complete history, Dr. Dodson looks for frailty by measuring things like gait and grip strength and administers a short test of cognitive ability – things geriatricians routinely do and cardiologists mostly don't.

"The No. 1 difference is time," he told me in an interview. "To be able to spend an hour with a new patient is a gift."

Dr. John Dodson, director of the geriatric cardiology clinic at N.Y.U. Langone Medical Center.Credit Alishba Aslam

In January, when a pharmacist joins the program, Dr. Dodson will start asking patients to bring in all their prescription drug bottles for review. "They may be taking redundant medications or the wrong medications," he explained. "Where we can, we will peel away what's not essential."

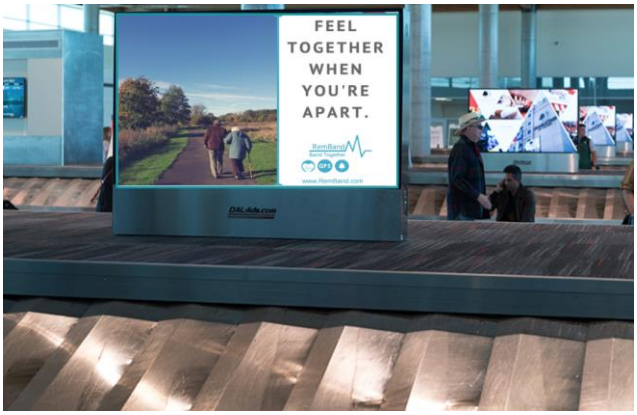
The conversation expands to include less medical topics, too: the patient's goals, the extent of family support, end-of-life preferences.

The goal of RemBand's Public Relations Strategy is to build credibility for the brand, and then use the platform to inform people about Alzheimer's and geriatrics. Our approach to building relationships with a health-positive community is to contact authors of health articles, gain permission to feature their work on our website, and expose our viewers to valuable information regarding their well-being. By featuring content from health-positive writers and bloggers, we hope to ingratiate ourselves to the online community that focuses on health of mind and body.

In our focus group, we learned that people do extensive research when they find out their family member has a disease, especially if it's hereditary. The focus group took place in an earlier phase of the company when the product was geared solely towards people with Alzheimer's, and yet this behavior rings true as universal in an age of information. If RemBand is able to build a working relationship with the writers who create content people read when they research certain conditions, we have opened up a pathway for these anxious researchers to find their way to our website. By partnering with blogs, we can insert ourselves into the process of research people do when they find out a loved one is suffering from a disease. More importantly, if we expose them to the information they need to know, we can help them.

[9] Span, Paula. "The New Old Age: Caring for Aging Parents." The New Old Age: New York Times, The New York Times, 9 Jan. 2015, newoldage.blogs.nytimes.com/.

Figure 1.21 - Baggage Claim Ad



In a more creative element of our strategy, we have decided that we will advertise at baggage claims by starting with the "Feel Together" Ad. This decision is influenced by the Integrated Marketing Communications Schedule and a desire to be more specific with the reach of our communications. One environmental factor that influenced the IMC schedule was the rate and reason for travel in different months of the year. Our findings showed us that 54% of US travelers in 2016 where visiting family and friends.[10] Emotions run high with family members, specifically over the holidays.[11] Whether the sentiment is positive or negative, it is safe to say that families and loved ones occupy the minds of people visiting families over the holidays. The intent of placing RemBand's advertisement on a baggage claim was to plant the idea of buying the product for a family member in the viewer's mind.

Positioning Statements

Carebears 1:

For people with caregivers and stage 1-4 Alzheimer's, and have an income above 25K, who enjoy simple products that will give them reminders, track their location, monitor their heart rate, and provide a safety button for emergencies. The RemBand is a wristband that provides all those functions without it being complicated to use, unlike the Apple Watch & Fitbit, which have similar features, but may be too complicated to use or have unnecessary features for the user.

Carebears 2:

For people with caregivers and an illness that is not stage 1-4 Alzheimer's, and have an income above 25K, who enjoy simple products that will give them reminders, track their location, monitor their heart rate, and provide a safety button for emergencies. The RemBand is a wristband that provides all those functions without it being complicated to use, unlike the Apple Watch & Fitbit, which have similar features, but may be too complicated to use or have

[10] "Travel Research: 2016 Travel Trends." Aarp.org, AARP, 2017, www.aarp.org/content/dam/aarp/research/surveys_statistics/general/2015/AARP-2016-travel-trends.pdf.

[11] "Holiday Stress." Apa.org/News, Greenberg Quinlan Rosberg Research, 12 Dec. 2016, www.apa.org/news/press/releases/2006/12/holiday-stress.pdf.

unnecessary features for the user.

Lone Wolves:

For people without caregivers, 50 years of age or older, and live alone, who enjoy simple products that will give them reminders, track their location, monitor their heart rate, and provide a safety button for emergencies. The RemBand is a wristband that provides all those functions without it being complicated to use, unlike the Apple Watch & Fitbit, which have similar features, but may be too complicated to use or have unnecessary features for the user.

Measurement of Effectiveness of our Communications

We plan on quantifying our successes in terms of website views and sales volume to reflect our goals of increased awareness and sales. Awareness and sales are clearly related, but for the sake of simplicity in our evaluation we have chosen to look at the success of raising awareness in terms of website traffic, and success of increasing sales in terms of spikes in purchases corresponding to our marketing efforts.

To measure increase in awareness as a result of our communications, we will look at metrics relating to website traffic before and after different advertisements are displayed, printed, or before and after attendance at events and trade shows. For example, the first year of our marketing communications schedule states that RemBand will have transit ads up in January, May, August, and November, which means that to measure how effective these ads would be we need to compare the number of unique visits to the website in those months to February, March, April, June, July, September, October, and December. Because we cannot distinguish which advertisement caused each website visit, we will also look into metrics such as the location of the user's access and traffic sources.[12] If we can align the location of the users accessing the website with nearby location of transit ads, billboards, and events, we will have a better knowledge of the effectiveness of the materials we have used to generate awareness.[13] Furthermore, we plan on using Socialmention.com monthly to assess impressions and sentiment of our brand name. However, we will rely more heavily on Squarespace metrics than social mention, because

[12] AllBusiness Editors. "Metrics for Measuring Ad Campaign Effectiveness." All Business, Dun & Bradstreet, 1 July 2010, www.allbusiness.com/metrics-for-measuring-ad-campaign-effectiveness-1415-1.html.

[13] De-Roche Jolet, Dera. "How to Tell if Your Ad Campaign is Working." Alarm Monitoring Services, AMS, www.monitor1.com/Articles/adcampaign.htm.

RemBand searches will likely refer to the band REM and not our product before we gain awareness.

We plan on judging the effect of our communications on sales by looking at sales data both in-stores and online. Our first reason for collecting sales data is to compare our actual results to the planned sales forecasts, and take note of the differences between the two. Looking at spikes in sales over time and trying to connect them to our integrated marketing communications schedule is tempting, but we need to adjust for industry-wide spikes in demand over time by looking at data from our competitors. Unless we cannot find a similar spike in our competitor's sales, or in the overall macro-economy, we cannot conclude that any increase in sales is a result of our communications. With that said, online sales, as tracked on our website by Squarespace can provide more information to us in terms of click paths, revenue per visit, and conversion rates.[14]

With this information in mind, collected from transaction data and online data, we will view sales and predicted sales to find the differences between the two. If predicted sales exceeds our actual numbers, we will readjust our strategy based on the metrics we have found. If sales happens to exceed projected sales, we will review our strategy and different situational factors, such as macroeconomic or social trends, current events, or public perception as measured by socialmention.com, and try to pinpoint the reason for increased awareness and sales.

Purchase Intent (See Appendix 7 & 8*)*

After shaping our brand and product overall, we conducted surveys in order to see who would potentially purchase our product, and at what price they would be willing to purchase it. In our 150 surveys we asked what the respondents would pay for the product. Our three ranges of prices were $80-$94.99, $95-$109.99, and $110-$125. We priced our product at $100, so we took all respondents who chose "Definitely Buy" and "Probably Buy" for the options of $95-$109.99 and $110-$125 in order to conclude our purchase intent percentages. Also, in our first interviews, we asked interviewees what they would pay for our product and most people gave a price that was at least $100, and were surprised if anyone thought it would be priced less. After taking the average purchase intent priced, we calculated that the price should be about $94,

[14] "How To Measure The Effectiveness Of Marketing Campaigns." Cleverism, 5 Sept. 2016, www.cleverism.com/how-to-measure-effectiveness-of-marketing-campaigns/.

which we assumed is relatively close enough to our price of $100. In addition, based on our costs, the best price we can price our product at is $100 because it would later decrease depending on the retailers it is sold at. The price will decrease by $5 when it is entered into chain retailers, and additionally decreases by $5 when entered into mass merchandisers. Therefore, the prices of $100, $95, and $90 are all within relative range of the calculated price of $94. These price fluctuations can be seen in detail in the Average Weighted Manufacturer's Price to Channel.

Awareness

After shaping our types of advertisements we want to use, we were able to get an idea of how many people in our segments would be aware of the product. In the following 5 IMC schedules we use the same 10 cities for our transit and outdoor ads. We chose the following cities because they all include some of not all of the following attributes: metropolitan area, large older population, and heavily used transportation systems such as buses & trains. Through all the IMC schedules, online will be included, which will be advertisements through our website and online ads. On our website, we include some of the same pictures that we include in our advertisements, to maintain consistency and to help people easily identify our products based on the consistent ads.

Year 1 IMC Costs: $167,600.14 / Total Awareness Year 1: 20.5%.

In year 1 our goal is to generate as much awareness as we can without using heavy expenses on marketing. For outdoor and transit ads, we chose to use the month of January because we assumed that when tax returns come out, consumers are more willing to purchase our product. May because it is around the holidays of Mother's and Father's Day, and our product is something that would usually be purchased by the wearers' children. August was chosen as a filler month as a bridge between the advertisement in the beginning of the summer (May) and the advertisement in November. November was chosen because our product may be an item that would be purchased as a Christmas gift for consumers. The transit and outdoor ads are applied equally to all 3 segments. The segment ads differentiate when it comes to the events/fairs. All the events apply to segment one. All the events except the "Alz Music Festival" apply to segment two. All the events except for the "Alz Music Festival" and "Family Caregiver Expo" apply to segment three.

Figure 1.22 - IMC Schedule 1

Year 1 IMC Schedule	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total Cost	CPM	Carebears 1	Carebears 2	Lone Wolves
PULL																	
Online													$27,077.81	N/A	2.0%	2.0%	2.0%
Transit Ads													$14,400.00	N/A	0.6%	0.6%	0.3%
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoenix, AZ																	
Outdoor Billboards													$36,000.00	N/A	1.44%	1.44%	0.7%
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoenix, AZ																	
Fairs/Events														N/A	2.9%	2.5%	1.0%
California - Senior Information Fair													$6,000.00				
Texas - Senior Resource Fair													$6,500.00				
Massachusetts - Elder Fair													$6,500.00				
Georgia - Alz Music Fest													$4,770.00				
Tennessee - Senior Expo													$6,270.00				
Georgia - Family Caregiver Expo													$6,500.00				
Public Relations from Magazines													$15,000.00	N/A	1.0%	1.0%	1.0%
Creative Expenses @ 5%													$6,450.89	N/A			
TOTAL PULL													$135,468.70		7.9%	7.6%	5.0%
PUSH																	
Trade Shows																	
Booth													$5,000.00				
Medical Design Manufacturing West													$1,832.94				
HIMSS Annual Conference and Exhibition													$3,442.50				
Trade Magazine Ads																	
Trade Show Executive													$13,880.00				
Exhibitor Online													$7,976.00				
TOTAL PUSH													$32,131.44				
TOTAL IMC SCHEDULE													$167,600.14		7.9%	7.6%	5.0%

Figure 1.23 - Year 1 Calculations & Assumptions

	Target 1 Aware	Target 2 A %	Target 3 A %	
Billboards %	0.0004	0.0004	0.0002	
Size	2,438,253.00	6,759,463.00	28,131,584.00	
Events %	0.0008	0.0008	0.0004	
Calculations:			**Bus Interior**	
Creative Exp Calc	$129,017.81		**# of Cities**	10
Creative Expense	$6,450.89		**# of Locations in City**	4
Online Calculation	$108,390.89		**Times per Year**	4
Online Costs	$27,097.72		**Cost of Ad**	$40.00
Events Cost Total	$36,540.00		**Total Cost:**	$6,400.00
Year Sales	$4,339,644.00			
Net Income:	-$116,853.42		**Billboards**	
			# of Cities	10
			# of Locations in City	4
Train Interior			**Times per Year**	3
# of Cities	10		**Cost of Ad**	$300.00
# of Locations in City	4		**Total Cost:**	$36,000.00
Times per Year	4			
Cost of Ad	$50.00			
Total Cost:	$8,000.00			
Assumptions:				
One of our CSR Initiatives is 3% of Net Income is donated to the Alzheimer's				
Association, since in Year 1 we are not profitable, nothing will be donated that yr.				
MK Expense % of Sales:	**3.86%**			
Online:	25% of Total Pull			
Creative Expense:	5% of Total Pull			

Year 2 IMC Costs: $125,582.73 / Total Awareness Year 2: 23.7%

In year 2, our goal was to continue the same goal as year 1 with generating as much awareness as we can, but by spending less on the same types of advertising. For transit ads, the same thought process was used to decide on the timing of the ads, but the months were shifted one month to the left, just to diversify the timing of the ads from year 1. For the billboard ads, we chose February as a beginning of the year ad and September as a mid-year check-point. We chose to attend one less event due to the carry over awareness from year 1.[15]

Figure 1.24 - IMC Schedule 2

Year 2 IMC Schedule	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total Cost	CPM	Carebears 1	Carebears 2	Lone Wolves
PULL																	
Online													$21,285.46	N/A	3.0%	3.0%	3.0%
Transit Ads													$10,800.00	N/A	0.4%	0.4%	0.3%
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoenix, AZ																	
Outdoor Billboards													$24,000.00	N/A	0.96%	0.96%	0.5%
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoenix, AZ																	
Fairs/Events														N/A	2.4%	2.0%	0.8%
California - Senior Information Fair													$6,000.00				
Texas - Senior Resource Fair													$6,500.00				
Massachusetts - Elder Fair													$6,500.00				
Georgia - Alz Music Fest													$4,770.00				
Georgia - Family Caregiver Expo													$6,500.00				
Public Relations from Magazines													$15,000.00	N/A	1%	1.0%	1.0%
Creative Expenses @ 5%													$5,071.83	N/A			
TOTAL PULL													$106,427.29		7.8%	7.4%	5.5%
PUSH																	
Trade Shows																	
Medical Design Manufacturing West													$1,832.94				
HIMSS Annual Conference and Exhibition													$3,442.50				
Trade Magazine Ads																	
Trade Show Executive													$13,880.00				
TOTAL PUSH													$19,155.44				
TOTAL IMC SCHEDULE													$125,582.73		8.8%	8.4%	6.5%

[15] "Bus Interior Advertising." *Bus Interior Advertising - Blue Line Media*, www.bluelinemedia.com/bus advertising/bus-interior.

Figure 1.25 - Year 2 Calculations & Assumptions

	Target 1 A %	Target 2 A %	Target 3 A %	
Billboards %	0.0004	0.0004	0.0002	
Size	2,438,253.00	6,759,463.00	28,131,584.00	
Events %	0.0008	0.0008	0.0004	
Calculatiions			**Bus Interior**	
Online Costs	$21,285.46		**# of Cities**	10
Creative Exp Calc	$101,355.46		**# of Locations in City**	4
Creative Exp Costs	$5,067.77		**Times per Year**	3
Year Sales	$5,722,389.00		**Cost of Ad**	$40.00
Net Income:	$203,079.55		**Total Cost:**	$4,800.00
Train Interior			**Billboards**	
# of Cities	10		**# of Cities**	10
# of Locations in City	4		**# of Locations in City**	4
Times per Year	3		**Times per Year**	2
Cost of Ad	$50.00		**Cost of Ad**	$300.00
Total Cost:	$6,000.00		**Total Cost:**	$24,000.00
Assumptions:				
One of our CSR Initiatives is 3% of Net Income is donated to the Alzheimer's Association				
Total donations for year 2 would be:		**$6,092.39**		
MK Expense % of Sales:	**2.19%**			
Online:	25% of Total Pull			
Creative Expense:	5% of Total Pull			

Year 3 IMC Costs: $244,646.63 / Total Awareness Year 3: 44.5%

In year 3, the same assumptions apply for the cities and timing chosen for billboards and transit ads. The same events will be attended, except the event in Texas is replaced by the one in Tennessee, which can be attended for all three segments.[16] Awareness jumps in year 3 due to the ads in magazines.[17]

[16] "Today's Geriatric Medicine - News & Insight for Professionals in Elder Care." *Today's Geriatric Medicine – News & Insight for Professionals in Elder Care*, www.todaysgeriatricmedicine.com/.

[17] "Health, Help, Happiness + Find a Therapist." *Psychology Today*, Sussex Publishers, www.psychologytoday.com/.

Figure 1.26 - IMC Schedule 3

Year 3 IMC Schedule	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total Cost	CPM	Carebears 1	Carebears 2	Lone Wolves
PULL																	
Online													$47,874.24	N/A	6.0%	6.0%	6.0%
Transit Billboards													$7,200.00	N/A	0.6%	0.3%	0.3%
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoniex, AZ																	
Outdoor Billboards													$24,000.00	N/A	0.96%	0.96%	0.48%
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoenix, AZ																	
Fairs/Events														N/A	3.0%	1.9%	1.0%
California - Senior Information Fair													$8,000.00				
Massachusetts - Elder Fair													$8,000.00				
Georgia - Alz Music Fest													$6,270.00				
Tennessee - Senior Expo													$7,770.00				
Georgia - Family Caregiver Expo													$8,000.00				
Magazine Ads													$95,860.00				
Today's Geriatric														$7.55	0.1%	0.10%	0.04%
Psychology Today														$131.11	0.4%	0.50%	0.42%
Life Extension														$28.59	2.6%	2.9%	2.0%
Public Relations from Magazines													$15,000.00		2.1%	2.0%	1.0%
Creative Expenses @ 5%													$11,396.95				
TOTAL PULL													$239,371.19		15.7%	14.6%	11.2%
PUSH																	
Trade Shows																	
Medical Design Manufacturing West													$1,832.94				
HIMSS Annual Conference and Exhibition													$3,442.50				
TOTAL PUSH													$5,275.44				
TOTAL IMC SCHEDULE													$244,646.63		16.7%	15.6%	12.2%

Figure 1.27 - Year 3 Calculations & Assumptions

	Target 1 A %	Target 2 A %	Target 3% A	
Billboards %	0.0004	0.0004	0.0002	
Size	2,438,253.00	6,759,463.00	28,131,584.00	
Events %	0.0008	0.0008	0.0004	
Magazine Calcs:	$19,660.00			
	$46,200.00		**Bus Interior**	
	$30,000.00		**# of Cities**	10
Creative Expense	$11,398.71		**# of Locations in City**	4
Year Sales	$9,893,493.00		**Times per Year**	2
Net Income:	$905,430.42		**Cost of Ad**	$40.00
			Total Cost:	$3,200.00
Train Interior			**Billboards**	
# of Cities	10		**# of Cities**	10
# of Locations in City	4		**# of Locations in City**	4
Times per Year	2		**Times per Year**	2
Cost of Ad	$50.00		**Cost of Ad**	$300.00
Total Cost:	$4,000.00		**Total Cost:**	$24,000.00
Additional Info:				
One of our CSR Initiatives is 3% of Net Income is donated to the Alzheimer's Association				
Total donations for year 3 would be:		**$27,162.91**		
MK Expense % of Sales	**2.47%**			
Online:	25% of Total Pull			
Creative Expense:	5% of Total Pull			

Year 4 IMC Costs: $249,430.08 / Total Awareness Year 4: 47.8%

Figure 1.28 - IMC Schedule 4

Year 4 IMC Schedule	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total Cost	CPM	Carebears 1	Carebears 2	Lone Wolves
PULL																	
Online													**$48,830.93**	**N/A**	**7.0%**	**7.0%**	**7.0%**
Transit Billboards													**$10,800.00**	**N/A**	0.6%	0.4%	0.3%
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoniex, AZ																	
Outdoor Billboards													**$24,000.00**	**N/A**	**0.96%**	**0.96%**	**0.72%**
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoenix, AZ																	
Fairs/Events														**N/A**	3.0%	1.9%	0.6%
California - Senior Information Fair													**$8,000.00**				
Massachusetts - Elder Fair													**$8,000.00**				
Georgia - Alz Music Fest													**$6,270.00**				
Tennessee - Senior Expo													**$7,770.00**				
Georgia - Family Caregiver Expo													**$8,000.00**				
Magazine Ads													$95,860.00				
Today's Geriatric														**$7.55**	0.1%	**0.10%**	**0.04%**
Psychology Today														**$131.11**	0.5%	**0.50%**	**0.42%**
Life Extension														**$28.59**	2.9%	2.9%	2.1%
Public Relations from Magazines													**$15,000.00**		2.0%	2.0%	1.0%
Creative Expenses @ 5%													**$11,623.71**				
TOTAL PULL													**$244,154.64**		17.0%	15.8%	12.2%
PUSH																	
Trade Shows																	
Medical Design Manufacturing West													$1,832.94				
HIMSS Annual Conference and Exhibition													**$3,442.50**				
TOTAL PUSH													**$5,275.44**				
TOTAL IMC SCHEDULE													**$249,430.08**		**17.8%**	**16.8%**	**13.2%**

Figure 1.29 - Year 4 Calculations & Assumptions

	Target 1 A %	Target 2 A %	Target 3% A	
Billboards %	0.0004	0.0004	0.0002	
Size	2,438,253.00	6,759,463.00	28,131,584.00	
Events %	0.0008	0.0008	0.0004	
Creative Expense Calc	$232,530.93		**Bus Interior**	
Creative Expense Cost	$11,626.55		**# of Cities**	10
Magazine CPM Calc:	$19,660.00		**# of Locations in City**	4
	$46,200.00		**Times per Year**	3
	$30,000.00		**Cost of Ad**	$40.00
Year Sales	$14,460,316.00		**Total Cost:**	$4,800.00
Train Interior			**Billboards**	
# of Cities	10		**# of Cities**	10
# of Locations in City	4		**# of Locations in City**	4
Times per Year	3		**Times per Year**	2
Cost of Ad	$50.00		**Cost of Ad**	$300.00
Total Cost:	$6,000.00		**Total Cost:**	$24,000.00
Additional Info:				
One of our CSR Initiatives is 3% of Net Income is donated to the Alzheimer's Association				
Total donations for year 4 would be:		**$433,809.48**		
MK Expense % of Sales	**1.72%**			
Online:	25% of Total Pull			
Creative Expense:	5% of Total Pull			

Year 5 IMC Costs: $249,589.33 / Total Awareness Year 5: 51.2%

We decided to decrease the amount of trade shows and trade magazines we would attend and publish in because we would assume that by the fifth year into our business we would already know where we would be selling our product and would have networked enough to have strong relationships with our retailers.

Figure 1.30 - IMC Schedule 5

Year 5 IMC Schedule	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total Cost	CPM	Carebears 1	Carebears 2	Lone Wolves
PULL																	
Online													**$49,229.37**	**N/A**	**8.0%**	**8.0%**	**8.0%**
Transit Billboards													**$10,800.00**	**N/A**	0.6%	0.4%	0.3%
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoniex, AZ																	
Outdoor Billboards													**$24,000.00**	**N/A**	**0.96%**	**0.96%**	**0.72%**
Boston, MA																	
New York, NY																	
San Francisco, CA																	
Seattle, WA																	
Charlotte, NC																	
Atlanta, GA																	
Las Vegas, NV																	
Jacksonville, FL																	
Denver, CO																	
Phoenix, AZ																	
Fairs/Events														**N/A**	3.2%	2.0%	0.7%
California - Senior Information Fair													**$8,000.00**				
Minnestoa - MAYO Clinic													**$1,500.00**				
Massachusetts - Elder Fair													**$8,000.00**				
Georgia - Alz Music Fest													**$6,270.00**				
Tennessee - Senior Expo													**$7,770.00**				
Georgia - Family Caregiver Expo													**$8,000.00**				
Magazine Ads													$95,860.00				
Today's Geriatric														**$7.55**	0.1%	**0.10%**	**0.04%**
Psychology Today														**$131.11**	0.5%	**0.50%**	**0.42%**
Life Extension														**$28.59**	2.9%	2.9%	2.2%
Public Relations from Magazines													**$15,000.00**		2.0%	2.0%	1.0%
Creative Expenses @ 5%													**$11,717.46**				
TOTAL PULL													**$246,146.83**		18.1%	16.9%	13.3%
PUSH																	
Trade Shows																	
HIMSS Annual Conference and Exhibition													**$3,442.50**				
TOTAL PUSH													**$3,442.50**				
TOTAL IMC SCHEDULE													**$249,589.33**		**19.0%**	**17.9%**	**14.3%**

Figure 1.31 - Year 5 Calculations & Assumptions

	Target 1 A %	Target 2 A %	Target 3 A %	
Billboards %	0.0004	0.0004	0.0002	
Size	2,438,253.00	6,759,463.00	28,131,584.00	
Events %	0.0008	0.0008	0.0004	
Creative Expense	$11,721.47		**Bus Interior**	
Marketing Calculations	$19,660.00		**# of Cities**	10
	$46,200.00		**# of Locations in City**	4
	$30,000.00		**Times per Year**	3
Year Sales	$17,330,362.00		**Cost of Ad**	$40.00
			Total Cost:	$4,800.00
Train Interior			**Billboards**	
# of Cities	10		**# of Cities**	10
# of Locations in City	4		**# of Locations in City**	4
Times per Year	3		**Times per Year**	2
Cost of Ad	$50.00		**Cost of Ad**	$300.00
Total Cost:	$6,000.00		**Total Cost:**	$24,000.00
Additional Info:				
One of our CSR Initiatives is 3% of Net Income is donated to the Alzheimer's Association				
Total donations for year 5 would be:		**$519,910.86**		
MK Expense % of Sales	**1.44%**			
Online:	25% of Total Pull			
Creative Expense:	5% of Total Pull			

All Commodity Volume (See Appendix 9)

Figure 1.32 - Channel Distribution

	Year 1	Year 2	Year 3	Year 4	Year 5
Online	**12%**	**12%**	**12%**	**12%**	**12%**
Chains: *RadioShack*	**0%**	**0%**	**1.52%**	**1.52%**	**1.52%**
Mass Merchandiser	**0%**	**0%**	**0%**	**7.96% *[Walmart]***	**10.61% *[Walmart & Target]***
Independent	**1.21%**	**2.14%**	**2.84%**	**2.89%**	**2.97%**
Total ACV:	**13.21%**	**14.14%**	**16.35%**	**24.36%**	**27.09%**

[18]

Expected Channel Conflict

It is expected that there will not be a huge effect on independent stores selling our product in their stores when we start selling our product in mass merchandisers or chains. When referring to independent stores that sell electronics to consumer, they usually sell the same products that are sold in mass merchandising stores or chains. For example, apple products and Fitbits are not discontinued in independent stores just because they are sold in mass merchandisers such as Walmart, Best Buy, and Target.[19] Therefore, it is assumed that independent stores will usually not discontinue electronics in their stores when sold in other channels, but to be conservative it is assumed that in year 4 when we start selling in mass merchandisers that 10% of independent stores will discontinue selling our product. In Year 5, since we will expand to an additional mass merchandiser, than 15% of independent stores will discontinue. In Year 6 we will also assume an additional 5% decrease in independent stores sales, so we would assume a total of 20% of independent stores discontinuing our product.

[18] Spinale, Laura. "Top 101 CE Retailers." *Dealer Scope*, dealerscope.com.

[19] "Fry's Home Electronics | Computer Parts & Accessories, Software, Games, TVs, Cameras - Frys.com." *Fry's Home Electronics | Computer Parts & Accessories, Software, Games, TVs, Cameras - Frys.com*, frys.com/.

According to our interviews, most people would be willing to pay $100 or more for our product. From the results of the 150 surveys we conducted, most people in each of the three segments would pay $95-$109.99 for our product. Since $100 is the lowest retailer selling price that we are able to produce our products, due to our high costs of materials, we decided to price our product at $100 for independent and online retailers in years 1 and 2. In year 3, we add chain retailers into our ACV plan, which would decrease our price to $95. In year 4, we add mass merchants to our existing channels, which would decrease our price to $90. We decided to offer discounts to the chain and mass merchandising channels due to their competitiveness and overall cheaper prices. Retailers are our only channel intermediaries. By assuming independent retailers' margin as 50%, online retailer margin as 35%, chain retailers' margin as 45%, and mass merchants' margin as 40%, we get our manufacturer's selling prices to each of these channels in the following tables.

Average Weighted Manufacturer's Price to Channel

Figure 1.33 - Years 1-5 Average Weighted Manufacturer's Price to Channel

Year 1	% Manu.Total Units	Manu Selling Price	Retailer Margin	Retail Sell Price
Units into Independent Retailers	9.146%	$ 50.00	50%	$ 100.00
Units Online - Our Website and Amazon	90.85%	$ 65.00	35%	$ 100.00
Units into Chain Retailer	$ -	$ -	$ -	$ -
Units into Mass Merchants	$ -	$ -	$ -	$ -
Average Weighted Manu's Selling Price to Channel		**$ 63.63**		$ -
Average Weighted Retail Selling Price				**$ 100.00**
Year2	**% Manu.Total Units**	**Manu. Selling Price**	**Retailer Margin**	**Retail Selling Price**
Units into Independent Retailers	15.04%	$50.00	50%	$ 100.00
Units Online - Our Website and Amazon	84.96%	$65.00	35%	$ 100.00
Units into Chain Retailer	$ -	$ -	$ -	$ -
Units into Mass Merchants	$ -	$ -	$ -	$ -
Average Weighted Manu's Selling Price to Channel		**$ 62.74**		$ -

Average Weighted Retail Selling Price				**$ 100.00**
Year 3	**% Manu.Total Units**	**Manu. Selling Price**	**Retailer Margin**	**Retail Selling Price**
Units into Independent Retailers	17.27%	$ 50.00	50%	$ 100.00
Units Online - Our Website and Amazon	73.40%	$ 65.00	35%	$ 100.00
Units into Chain Retailer	9.32%	$ 52.25	45%	$ 95.00
Units into Mass Merchants	$ -	$ -	$ -	$ -
Average Weighted Manu's Selling Price to Channel		**$ 61.22**		**$ -**
Average Weighted Retail Selling Price				**$ 99.53**
Year 4	**% Manu.Total Units**	**Manu. Selling Price**	**Retailer Margin**	**Retail Selling Price**
Units into Independent Retailers	11.81%	$ 50.00	50%	$ 100.00
Units Online - Our Website and Amazon	49.26%	$ 65.00	35%	$ 100.00
Units into Chain Retailer	6.26%	$ 52.25	45%	$ 95.00
Units into Mass Merchants	32.67%	$ 54.00	40%	$ 90.00
Average Weighted Manu's Selling Price to Channel		**$ 58.84**		
Average Weighted Retail Selling Price				**$ 96.42**
Year 5	**% Manu.Total Units**	**Manu. Selling Price**	**Retailer Margin**	**Retail Selling Price**
Units into Independent Retailers	10.91%	$ 50.00	50%	$ 100.00
Units Online - Our Website and Amazon	44.30%	$ 65.00	35%	$ 100.00
Units into Chain Retailer	5.63%	$ 52.25	45%	$ 95.00
Units into Mass Merchants	39.17%	$ 54.00	40%	$ 90.00
Average Weighted Manu's Selling Price to Channel		**$ 58.34**		
Average Weighted Retail Selling Price				**$ 95.80**

Based on our ACV plan, we get the percentage of manufacturing total units for every channel in each year. By using those percentages, we have the volumes to each channels as the table below:

Figure 1.34 - Annual Units Sold by Channel

Annual Units Sold					
Year	**1**	**2**	**3**	**4**	**5**
Annual Units Sold	68,212	91,223	161,606	245,757	297,058
Independent Retailers	6,239	13,718	27,917	29,029	32,402
Online - Our Website	30,987	38,753	59,310	60,535	65,793
Online - Amazon	30,987	38,753	59,310	60,535	65,793
Chain Retailer	-	-	15,069	15,380	16,716
Mass Merchandiser(s)	-	-	-	97,040	116,357

BASES Model

After identifying our target market, calculating purchase intent, understanding our awareness and ACV, we were able to predict the expected demand from each target segment, which would later help us predict our yearly sales.

Figure 1.35 - Carebears 1 BASES Model Years 1-5

Carebears 1					
Year	**1**	**2**	**3**	**4**	**5**
Target Market Size	2,438,453	2,536,508	2,636,781	2,732,406	2,821,641
Adjusted Purchase Intent @ $100	33.90%	33.90%	34.27%	36.55%	36.97%
Awareness	7.90%	8.80%	16.70%	17.80%	19.00%
ACV	13.21%	14.14%	16.35%	24.36%	27.09%
Units at Trial	1.0	1.0	1.0	1.0	1.0
Trial Units	8,627	10,700	24,667	43,296	53,683
Repeat Units	0	0	0	0	0
Competition Adjustment	0.00	0.00	4933.50	12988.87	18789.07
Total Units	**8,627**	**10,700**	**19,734**	**30,307**	**34,894**
Average WEIGHTED manufacturer's selling to price channel	$63.63	$62.74	$61.22	$58.84	$58.34
Manufacturer Sales ($)	**$548,919.93**	**$671,364.14**	**$1,208,113.82**	**$1,783,172.24**	**$2,035,638.26**

Figure 1.36 - Carebears 2 BASES Model Years 1-5

Carebears 2					
Year	**1**	**2**	**3**	**4**	**5**
Target Market Size	6,759,463	6,793,275	6,824,771	6,844,443	6,849,161
Adjusted Purchase Intent at @100	19.90%	19.90%	20.18%	22.03%	22.39%
Awareness	7.60%	8.40%	15.60%	16.80%	17.90%
ACV	13.21%	14.14%	16.35%	24.36%	27.09%
Units at Trial	1.0	1.0	1.0	1.0	1.0
Trial Units	13,504	16,057	35,128	61,705	74,364
Repeat Units	0	0	0	0	0
Competition Adjustment	0	0	7,026	18,511	22,309
Total Units	**13,504**	**16,057**	**28,102**	**43,193**	**52,055**
Average WEIGHTED manufacturer's selling to price channel	$63.63	$62.74	$61.22	$58.84	$58.34
Manufacturer Sales ($)	**$859,234.35**	**$1,007,485.42**	**$1,720,402.07**	**$2,541,345.51**	**$3,036,772.79**

Figure 1.37 - Lone Wolves BASES Model Years 1-5

Lone Wolves					
Year	**1**	**2**	**3**	**4**	**5**
Target Market Size	28,131,584	28,282,424	28,415,935	28,501,077	28,528,327
Adjusted Purchase Intent at @ $100	24.80%	24.80%	25.09%	26.85%	27.16%
Awareness	5.00%	6.50%	12.20%	13.20%	14.30%
ACV	13.21%	14.14%	16.35%	24.36%	27.09%
Units at Trial	1.0	1.0	1.0	1.0	1.0
Trial Units	46,081	64,466	142,213	246,082	300,155
Repeat Units	0	0	0	0	0
Competition Adjustment	0	0	28,443	73,824	90,047
Total Units	**46,081**	**64,466**	**113,770**	**172,257**	**210,109**
Average WEIGHTED manufacturer's selling to price channel	$63.63	$62.74	$61.22	$58.84	$58.34
Manufacturer Sales ($)	**$2,932,048.16**	**$4,044,874.83**	**$6,964,989.81**	**$10,135,081.00**	**$12,257,291.21**

Figure 1.38 – BASES Summary Year 1 - 5

BASES Summary						
Year	**1**	**2**	**3**	**4**	**5**	**AVG % Growth**
Total Units Sold in 3 Segments	**68,212**	**91,223**	**161,606**	**245,757**	**297,058**	
Total Sales in 3 Segments	**$4,340,202.44**	**$5,723,724.40**	**$9,893,505.69**	**$14,459,598.75**	**$17,329,702.26**	
% Change		**33.73%**	**77.15%**	**52.07%**	**20.87%**	**45.96%**

Sales Force (See Appendix 6)

After figuring out where we will sell our product, and how many units we predict to sell in each channel, we were able to determine our staff and how many employees we will need in the sales department. For year 1, the CEO is paid $115,000, the CFO $110,000, the MK Manager $85,000, the COO $97,500, the Accountant $56,000[20], our two customer service people $34,780[21] each, and the independent retailers representative commission is $29,087.66 (=$50 (Manufacturer's selling price for independent stores)*10%*68,212 units sold in Year One*9.182% (% units in independent retailers) = $29,087.66). All of the salaries are based on the guidelines to staffing a product firm and national averages for each of the jobs

For year 2, the staff is the same and all of their salaries increase by 3%. For the independent retailers representative commission, we pay $63,926.23 (=50 (Manufacturer's selling price for independent stores)*10%*91,223 units sold in year 2*15.11% (%units in independent retailers)).

For year 3, the salaries that rollover from the previous year increase by an additional 3%. However, instead of a manufacturing sales representative, we now hire our own salesperson that we pay a base salary of $75,000 with an addition of commission which would equal about $100,000. We decided to only hire one salesperson because the number of hours spent selling over the year do not exceed 1,330 hours (based on lecture MK17). Now, the Marketing Manager

[20] "Glassdoor Job Search | Find the Job That Fits Your Life." *Glassdoor*, 25 Oct. 2017, www.glassdoor.com/index.htm.

[21] "Glassdoor Job Search | Find the Job That Fits Your Life." *Glassdoor*, 4 Nov. 2017, www.glassdoor.com/index.htm.

is called the Head of Marketing and we hire 2 people for our Marketing research department, which we paid $72,050 each, and 2 people for our marketing strategy department, which we paid $69,250 each (compensation based on national averages). We also decided to hire an extra accountant, so we will have 2 accountants in year 3.

For year 4, the salaries all increase by 3% again and we add one more MK research person and one more MK strategy person which is the same salaries as the others in those roles.

For year 5, the salaries all increase by 3% again and we hire a new employee responsible for finance & taxes, who will be paid $72,000.00. In the Sales Force Tables in the appendix, the total salaries of each year are displayed.

Operations

We at RemBand have prepared a comprehensive Operations plan, one that is based on capitalizing off our efficient processes and effective strategies. We recognize that at the end of the day, our investors would like to see the largest number on the bottom line as possible, but in order to get there we must incur costs to create a product that functions and is manufactured ethically. Below are the specifics on how we plan to operate as a company, which is entirely consistent with the information presented by RemBand's Marketing department.

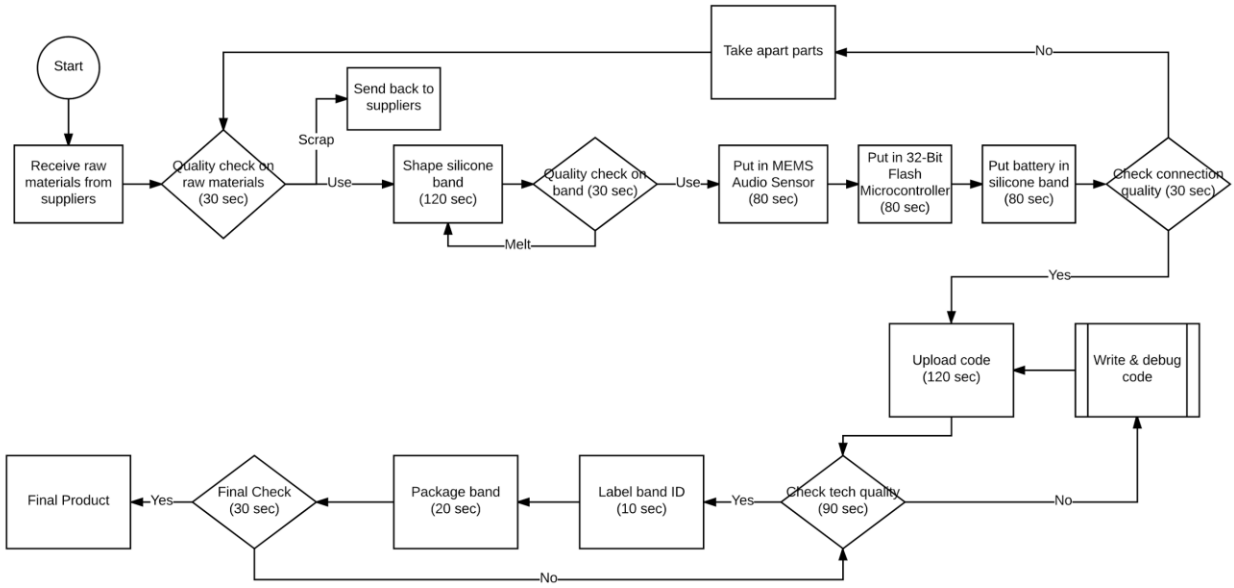
Annual Demand

Figure 2.1-Demand by Year

Year	1	2	3	4	5
Total Units Sold	68,212	91,223	161,606	245,757	297,058

Process Flow

Figure 2.2-Tasks in Process Flows

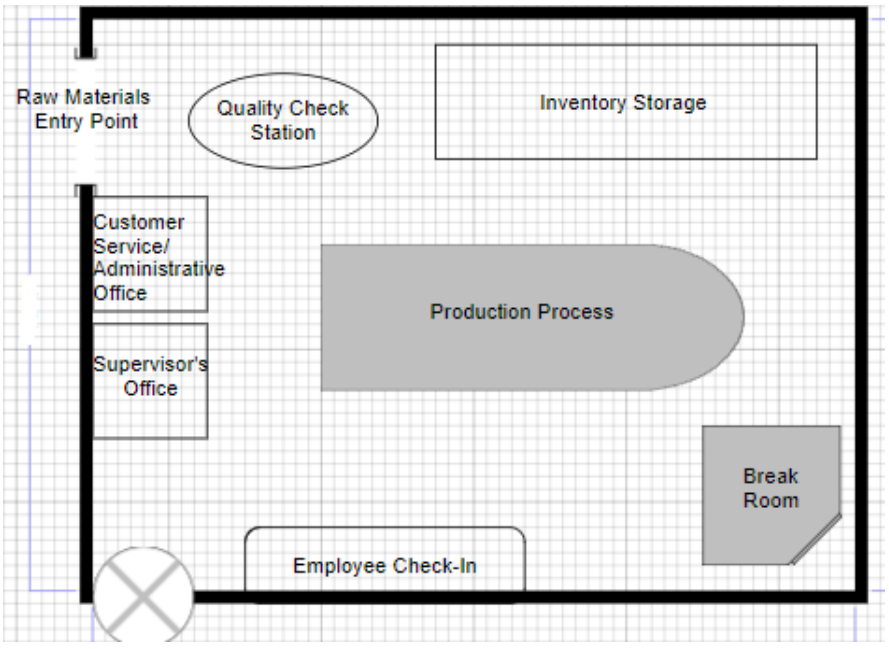


Our process flow begins with receiving our raw materials into our garage door on the side of our facility, where they are instantly inspected for the initial quality check. All raw materials will be inspected strictly on a batch level, where 1% of the batch will be examined for defective parts. Any defective materials will be sent back to the supplier immediately, while the usable goods will be brought over to our inventory storage or placed into a product bin. Each bin is

filled with all the raw materials needed to manufacture a single RemBand, and is pushed along our u-shaped rolling conveyer belt to the silicone shaping station. Here, the RemBand is formed into its o-shape by our silicone injection molding machine which is run by two or three operators at any given time. Next is the second quality check, where all misshapen bands are scrapped and those successfully molded are pushed down to our tech station. At this point, the audio sensor, flash microcontroller, and battery are inserted into the slot left open in the molding of the band, and connected for use. At this point, the RemBand is examined for a third time, and in this case the electronic functions are inspected. If the band will not turn on or there are any type of electronic malfunctions, the band is completely taken apart and brought back to the initial quality check. For the RemBands that appear to be working properly, our workers begin our bottleneck task of uploading the universal code. If done successfully, the process of creating the RemBand is over, but if the code is not uploaded correctly, it must be de-bugged and re-written, and tested again until it is indeed correct. The finished RemBand is now placed around one of our mini-pillows and placed into its packaging, and labeled with a band for identification. Finally, the packaging is given a brief final quality check to ensure it is suitable for shipment, and placed into the shipping section of our facility to be sent out to our distributors.

Facility Floor Plan

Figure 2.3-Facility Floor Plan



Above is a blueprint of our facility floor layout, which contains our entire manufacturing process, our offices, entry points to the building, and where our inventory will be stored. We decided as a team to locate our production process directly in the middle of the facility, so that all other destinations in the building can be reached quickly by our workers. The supervisor's office will be situated directly across from the production floor to give the manager direct oversight on the process. Directly adjacent to the supervisor's office will be our customer service/administrative office, where all important files and data will be stored, and our customers can contact us directly. A key design element to the floor plan is that all materials enter and exit the facility from the same area, to keep the allocation and record-keeping of inventories simple and efficient.

Facility

Figure 2.4-Image of Facility

Location- Arizona

Based on our Center of Gravity calculations, the ideal location for our manufacturing facility would be in central Arizona. This is a promising match for our company's future functionality for a number of reasons. First, the facility is situated in an ideal spot for easy access. There are many major highways in the region. The short distance from the airport will be incredibly beneficial for us, considering that 8 of our 11 raw materials are being shipped in from China. Secondly, Arizona is known nation-wide as one of the cheapest states to incorporate, which is a benefit we will certainly take advantage of. Statutory fees can be as low as $60, as

long as the company is willing to be patient with the process of incorporation.[22] With Arizona being one of the most elderly states in the country (14% of its citizens are seniors[23]), it would be an excellent area to base our business around. Lastly, we at RemBand see the relatively high minimum wage of $10 per hour as a perfect opportunity to ensure steady morale in our workers. While the objective is to keep our labor costs low, we feel that providing our workers with fair compensation will build a positive and mutually beneficial company culture.

Facility (2050 S 16th St Phoenix, AZ 85034)

As far as selecting the specific facility location within the state of Arizona, we were able to search up all the leasable industrial locations within a 50 mile radius of our center of gravity coordinates. Immediately the entire team at RemBand decided that leasing would be the best option, because constructing our own facility would prove to be far too costly in our start-up stages. We chose (2050 S 16th St Phoenix, AZ 85034) specifically because it fits every need for our company and is reasonably priced. The 13,000 square feet available on the lease is plenty of room for our operation. Another promising attribute of this location is that it contains over 52,000 square feet of available space. If in the future we need to expand past the current 13,000 square footage, we would not need to search for a new location. Additionally, this spot provides is its convenience for receiving goods and raw materials. As stated above, this region of Arizona is centrally located amongst multiple major highway systems, and is a mere 5.3 miles from Phoenix Sky International Airport. This is vital to our success, as we plan on receiving 8 out of our 11 raw materials from China. Our transportation costs will automatically be lower to receive our goods. Just like a great hotel, this facility comes with high quality amenities. The building comes provided with all electricity costs paid for, including air conditioning and lighting, along with 5 offices, 3 restrooms, and a conference room. Overall, we decided that this location fits our plan perfectly, as it is easily within our budget range, and provides us with all the essentials along with many key perks to boost our chances at succeeding.

[22] Zwilling, Martin. “Five Great Reasons to Incorporate Your Startup in Arizona” Startup Professionals, Inc. Accessed 10 November 2017.

[23] White, Deborah. “Senior Citizen Population by State” ThoughtCo, Accessed 13 November 2017.

Inventory Management

Figure 2.5-Inventory Management

Inventory Investment Summary					
Years	**1**	**2**	**3**	**4**	**5**
Raw Material Investment	$ 233,069.44	$ 314,761.78	$ 572,966.64	$ 867,554.14	$ 1,049,261.06
Work in process Investment	$ 23,465.48	$ 31,250.31	$ 52,399.43	$ 80,604.26	$ 100,632.75
Finished goods investment	$ 104,624.69	$ 137,294.75	$ 225,289.07	$ 337,242.55	$ 414,937.64
Total Inventory Investment	**$ 361,159.61**	**$ 483,306.84**	**$ 850,655.14**	**$ 1,285,400.95**	**$ 1,564,831.45**

Figure 2.6-Finished Goods Safety Stock

	Finished Goods Safety Stock			
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
4,432	5,931	10,918	16,193	19,019

Figure 2.7-Transportation Costs by Year

	Total Transportation Costs			
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
$ 117,771.23	**$ 139,987.69**	**$ 188,809.02**	**$ 236,531.61**	**$ 260,999.48**

Figure 2.8-Orders by Material

Number of Orders						
Supplier Type	**Product**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
International Suppliers	Silicone Rubber	6	7	9	12	13
	Emergency Button	1	1	2	2	2
	Haptic Vibrator	19	23	31	38	43
	GPS & LTE Module	20	24	32	40	44
	Heart Rate Monitor	5	6	8	10	11
	Battery	18	21	29	36	40
	Micro Screws	4	5	7	9	10
	Soldering Lead	2	3	4	5	5
	Packaging					
	Packing Box	21	25	33	42	46
	User's Manual	10	11	15	19	21
	International Subtotal	**106**	**126**	**170**	**213**	**235**
Domestic Suppliers	LED Lights	5	6	8	10	11
	Microphone & Speaker	15	18	24	29	33
	Arm 32bit Microcontroller	2	2	2	3	3
	Domestic Subtotal	**22**	**26**	**34**	**42**	**47**
Order Total	**Combined Subtotal**	***128***	***152***	***204***	***255***	***282***

We at RemBand plan on purchasing a specific set of safety stock to keep within our raw materials and finished goods inventory based upon our annual demand and sales spike in high-purchase seasons. This level of safety stock will ensure that we always have enough material to keep up with demand. Another important aspect to our inventory management strategy is the fact that our service level is at a value above 96% at all times. This came out to such a high value due to the fact that our shortage costs are much higher than most products (when calculated as an opportunity cost based on revenue-COGS). In order to avoid this situation, we plan to keep a high level of safety stock at all times. This safety stock will be stowed away in our inventory storage space within our facility, and can be accessed by our workers when needed. We calculated order quantities by deriving our EOQ for each raw material, and then converted this value to an amount based on finished goods. After dividing our annual demand by this precision EOQ, we were able to extract an exact number of orders per year for each direct material. The only exception to this calculation would be our GPS/LTE device, in which we doubled our original EOQ so that we would only order the devices a reasonable amount of times in a year.

Capacity

RemBand will not be hiring any employees on a part-time basis, and will pay our manufacturing workers the Arizona $10 minimum wage along with $17 per hour of overtime hours completed.

- Year 1- In year 1, our monthly capacity reaches a level of 6,400 units per month. Luckily, our 3 peak demand months fall short of this number. We will have 12 manufacturing workers, 1 customer service representative, and 1 factory supervisor on staff.

  Figure 2.9-Year 1 Capacity

Monthly Capacity	**6,400**
Annual Demand	68,212
# of months with sales spike	3
Sales Spike Percentage	5%
Monthly Demand for non-sales spike months	5,614
Monthly Demand for sales spike months	5,895
Total	**68,211**

- Year 2- In year 2, we will employ 16 manufacturing workers, 1 customer service representative and continue with 1 factory supervisor. During our peak demand months, our monthly capacity remains at a comfortable margin of 1,717 units above the projected demand.

  Figure 2.10-Year 2 Capacity

Monthly Capacity	**9,600**
Annual Demand	91,223
# of months with sales spike	3
Sales Spike Percentage	5%
Monthly Demand for non-sales spike months	7,508
Monthly Demand for sales spike months	7,883
Total	**91,221**

- Year 3- In year 3, our peak demand comes dangerously close to capacity, but should remain below. Our staff will contain 18 manufacturing workers, 1 customer service representative and still a single factory supervisor.

  Figure 2.11-Year 3 Capacity

Monthly Capacity	**14,400**
Annual Demand	161,606
# of months with sales spike	3
Sales Spike Percentage	5%
Monthly Demand for non-sales spike months	13,301
Monthly Demand for sales spike months	13,966
Total	**161,607**

- Year 4- Once again in year 4 our peak demand runs near our monthly capacity of 21,600 units, but remains short. We will employ 28 manufacturing workers, 1 customer service representative and 2 factory supervisors. In year 4 we decided to hire on a second supervisor due to the 77% increase in demand between years 3 and 4.

Figure 2.12-Year 4 Capacity

Monthly Capacity	**21,600**
Annual Demand	245,757
# of months with sales spike	3
Sales Spike Percentage	5%
Monthly Demand for non-sales spike months	20,227
Monthly Demand for sales spike months	21,238
Total	**245,757**

- Year 5- Year 5 will be the first and only period that contains months where demand exceeds capacity. However, given that these peak months are later in the year, our excess units produced will more than cover the discrepancy. We will have 32 manufacturing workers, 1 customer service representative and 2 factory supervisors on staff.

Figure 2.13-Year 5 Capacity

Monthly Capacity	**25,600**
Annual Demand	297,058
# of months with sales spike	3
Sales Spike Percentage	5%
Monthly Demand for non-sales spike months	24,449
Monthly Demand for sales spike months	25,671
Total	**297,054**

Ensuring Quality

Based on past surveys and questionnaires, we found that the three most important attributes of our product were: the band's material (comfort), the simplicity of our website/app, and the emergency button.

We plan on ensuring quality in four different ways:

1. Using our quality as a competitive advantage

   Since our product is made up of the most rugged and durable material that comfort allows, we will outperform our competitors with a band that will not damage over time. One of our main suppliers, STMicroelectronics, is a member of the EICC. This will ensure that the raw materials we receive are always high quality.

2. Worker Training and Job Design

   All employees will receive general training in all aspects of the manufacturing and coding process, as well as intensive training within each individual's specific job task. There will also be a comprehensive education for our workers in quality check, most importantly on the initial check on raw materials received.

3. Foolproof Quality Checks

   In our process flow, we have incorporated five different quality checks (raw materials, silicone shaping, connectivity, technology, and final) in order to assure our products are not defective in any way. The only instance where damaged or imperfect parts are expected are in the raw materials phase, where we plan to instantly send back these damaged goods to our suppliers.

4. Total Quality Management[24]

   We decided as a company to implement the Total Quality Management continuous improvement strategy because of how well it aligns with our core values. With this approach, we are able to educate all of our workers on every aspect of the production process. That way, all employees are knowledgeable enough to substitute in the absence of another. TQM is also favorable for RemBand's process because it focuses on customer needs and feedback, which are vital to our success. Lastly, we decided to go forward with Total Quality Management practices because of its incorporation of fact-based decision

[24] Westcott, Russell. *The Certified Manager of Quality/Organizational Excellence Handbook*. ASQ Quality Press, 2013.

making. We at RemBand plan to utilize data analytics and statistics in order to constantly make our process more efficient.

Cost of Goods Sold

Figure 2.14-Cost of Goods Sold

Cost of Goods Sold					
Year	**1**	**2**	**3**	**4**	**5**
Quantity produced	68,212	91,223	161,608	245,757	296,845
Number of workers	12	16	18	28	32
Wage per hour	$ 120.00	$ 160.00	$ 180.00	$ 280.00	$ 320.00
Wage per Year	$ 230,400	$ 307,200	$ 345,600	$ 537,600	$ 614,400
Regular direct labor	$ 3.38	$ 3.37	$ 2.14	$ 2.19	$ 2.07
Overtime direct labor	$ -	$ -	$ -	$ -	$ 3.58
Direct Labor per unit	$ 3.38	$ 3.37	$ 2.14	$ 2.19	$ 2.83
Direct material per unit	$ 11.57	$ 11.88	$ 12.16	$ 12.42	$ 12.70
Annual utility cost	$ 22,886.21	$ 30,684.49	$ 54,190.26	$ 82,294.29	$ 99,489.19
Annual lease cost	$ 103,813.32	$ 106,553.99	$ 109,026.04	$ 111,402.81	$ 113,931.66
Number of supervisors	1	1	1	2	2
Salary per supervisor	$ 60,404.20	$ 61,998.87	$ 63,437.24	$ 64,820.18	$ 66,291.59
Supervisor cost	$ 60,404.20	$ 61,998.87	$ 63,437.24	$ 129,640.35	$ 132,583.19
Transportation cost	$ 139,771.23	$ 165,287.69	$ 224,009.02	$ 279,431.61	$ 309,399.48
Total manufacturing overhead	$ 326,874.95	$ 364,525.04	$ 450,662.57	$ 602,769.06	$ 655,403.51
Manufacturing overhead per unit	$ 4.79	$ 4.00	$ 2.79	$ 2.45	$ 2.21
COGS per unit	**$ 19.74**	**$ 19.24**	**$ 17.08**	**$ 17.06**	**$ 17.74**

Our cost of goods sold is calculated entirely based on our annual demand, where we begin with our labor costs. We derived the number of workers needed per year by incorporating

a trial and error approach amongst our various tasks to figure out what the least number of workers would be necessary to keep our target cycle time below our required cycle time (which comes from the total amount of time available in the year versus number of units we must produce). We input the Arizona minimum wage of $10 per hour to each employee, and multiplied that wage by the total number of hours we expect them to work per year (1920 hours). It is also vital to note that the minimum wage applied to our workers remains constant at $10, as Arizona legislation appears to have no plans of raising that figure in the near future. Next, our direct material cost per unit was calculated simply by adding together the amount of raw materials needed to create a single RemBand, and multiplying the portion of that material by its cost in total. Our manufacturing overhead costs were all conducted through online information and receiving quotes from actual companies. First off, a notable fact to keep in mind is that all of our manufacturing overhead costs are increased annually by the projected inflation rates provided.[25] Our utilities costs were based on an average of Arizona manufacturing plants[26], while scaling the cost down to a facility of our size. The cost of our annual lease was given in the ad we discovered online, where the price is determined by the square footage leased. Lastly, our transportation costs were determined by calculating the Economic Order Quantity (EOQ) of a finished good for each of our raw materials, and dividing our annual demand by each EOQ to get the optimal number of orders placed per year. From here, we utilized the assumption that each order placed internationally would cost $1,100. For our domestic orders, we called our shipping company, *FreightCenter,* and received quotes stating that a full truckload would cost $5,200. Of course, we do not plan on using entire truckloads for our orders, so we incorporated an assumption that we will only be using up a small percentage of these trucks to determine our total domestic cost, and these were added to the international for total transportation costs. Finally, our total manufacturing overhead, direct materials, and direct labor costs were converted to a per unit (annual demand) basis, and added together to calculate our final cost of goods sold per RemBand.

Relative to our many costs and prices for the product, RemBand projects to be an incredibly profitable project going forward. The manufacturer's selling price of RemBand is $100, so one could note that our overall cost of goods sold per unit is fairly low relative to its

[25] "Projected annual inflation rate in the United States from 2010 to 2022." *The Statistics Portal,* 2017

[26] Source: U.S. Energy Information Administration, *2016 Monthly Average Bill-Industrial*. U.S. Energy Information Administration, Forms EIA-861.

selling price. Originally, we established a target cost of goods sold of $20.28 per unit for our first year. The fact that we were able to lower it to below $20 is a testament of our over-estimated manufacturing overhead costs (originally they were $6.08 per unit) despite a slight increase to direct materials and direct labor per finished unit. Overall as a company, we can confidently say that we are tremendously positive about the prospects of our profitability given these low costs.

Finance

We have prepared a comprehensive financial statement workbook, that is synthesizes all of the efforts from Marketing and Operations into a concrete base case from which our investors can evaluate our performance. Below is an analysis of our performance over our first 5 years, consistent with the information presented by RemBand's Marketing and Operations departments.

Funding Needs

The total funding needed for this project is $1,159,590. In order to launch the product during the startup phase, we will need to acquire $858,030. The first $250,000 of our funding will come from the founders; we will then issue equity in the amount of $608,030 to outside investors at a share price of $1.00. In one year, we will need an additional $301,560, bringing us to a cumulative paid in capital of $1,159,590. We will then issue an additional 301,560 shares in year one in order to meet these needs.

The startup phase is our peak paid in capital, so our funding requests will decrease with the growth of the project. Investors should not be concerned about having to invest increasing amounts of capital with the continuation of the project, since our funding requirements decrease significantly every year and are obsolete after year 1. As our company continues to expand and perform at expectations through five years, we will be able to formulate debt contracts with lenders, preventing us from having to continue to increase paid in capital.

Figure 3.1- Cumulative Paid in Capital

Year	0	1	2	3	4	5
Paid in Capital (Cumulative)	$858,030	1,159,590	1,159,590	1,159,590	1,159,590	1,159,590

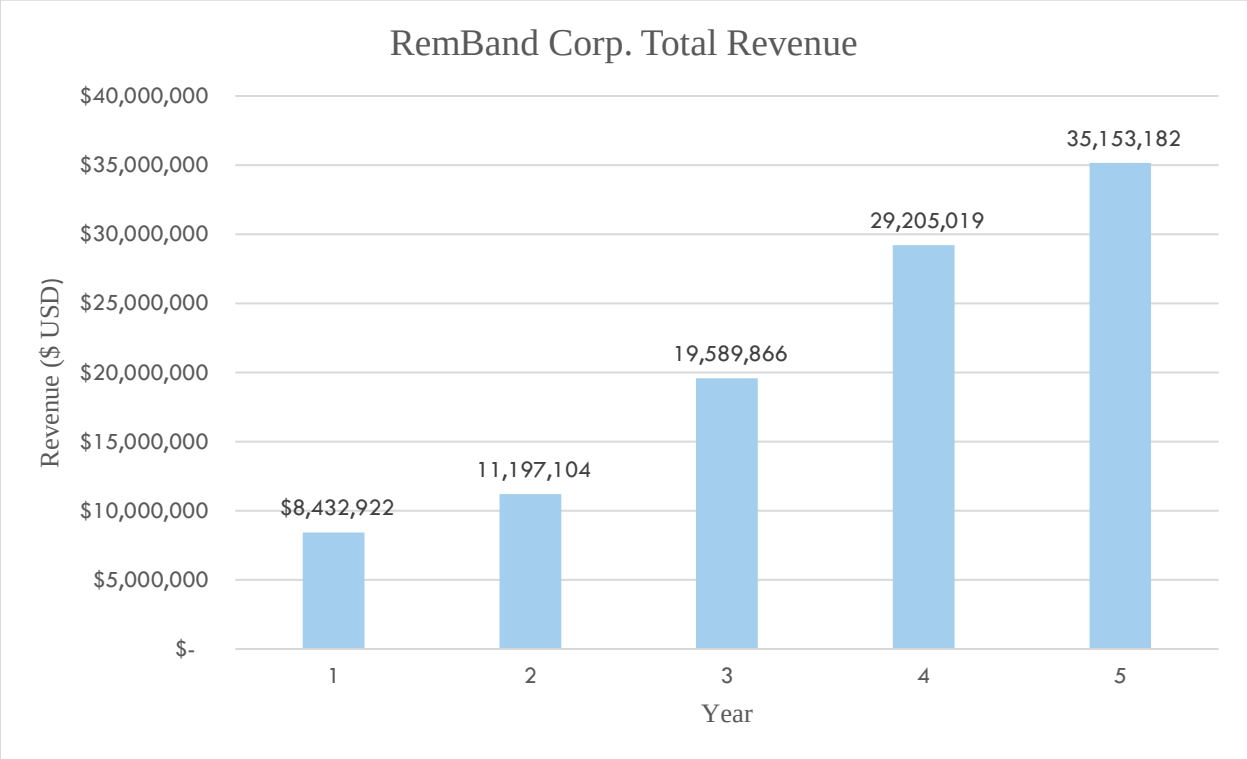
Revenue Growth

Marketing efforts are our main driver of revenue. As our marketing budget increases over the first five years, our customer awareness in our target markets (Carebears 1, 2, and Lone Wolves) increases, with year 3 being the largest jump in sales at 77.12%. This growth is directly attributed to two new initiatives we start in year 3: magazine advertising and selling at chain retailers. Our ads in *Today's Geriatric, Psychology Today*, and *Life Extension* double our

awareness from 8.80% to 16.70% and are the main cause of our jump in sales. In addition, by moving into the chain retailers RadioShack and GameStop, we slightly increase our point of sales. Since awareness and demand are directly proportional, the number of units sold increases when awareness does. In year 1, we begin with 68,212 units. However, by year 3, this increases by nearly 100,000 units. By year 5 we have nearly 300,000 units sold. In addition, cost of goods sold stays within 4% of our initial price through the first 5 years, ensuring that our margins remain high.

As our revenue growth increases due to awareness, we also see a match in the growth of our subscription model. Since a subscription is essential for the use of our product, we guarantee that every user will continue to provide revenue after they purchase the hardware components.

Figure 3.2 – Total Revenue Growth



Profit Growth

RemBand's high gross margin enables us to quickly turn into a profitable company. While cost of goods sold tends to grow with revenue accordingly, fixed costs such as SG&A grow at a much lower rate than revenue, which in turn allows net income to increase each year. Our profit is mainly determined by the large margins on our physical product. Our adjusted gross margin (not including the subscription) is 71.05% on average, which is significantly higher than Fitbit's

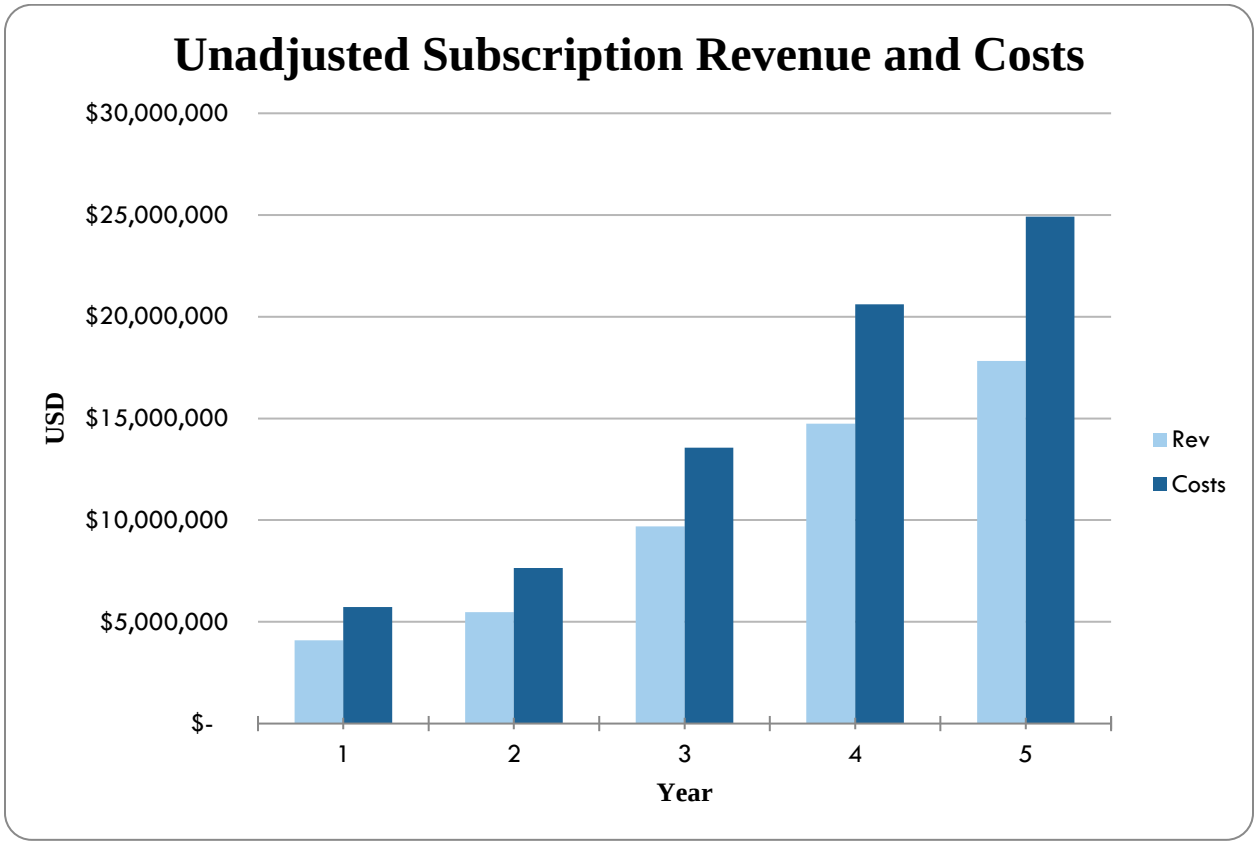
38.42% and Garmin's 54.98%. Since our product does not contain expensive screens, Wi-Fi, or Bluetooth modules, our cost of goods sold remain competitively low.

Figure 3.3 – Gross Margin % of Sales

Year	1	2	3	4	5
Gross Margin % Sales	17.67%	16.21%	16.89%	15.21%	14.27%

In addition, our subscription model allows us to maintain revenue streams that counteract the cost of service for our customers. The physical and service components are required for RemBand to fully function. The subscription service provides cellular connection through a SIM card and our servers, allowing the user to successfully reach their designated emergency contacts when the safety button is pressed. In addition, the servers communicate with each device to monitor the user's location for monitoring purposes. We are not concerned with making a profit on our subscription service model. Rather, we want to ensure that we can continue to fund the operations of our tracking and cellular services and match our scaling costs of our web servers and programming needs as we aggregate more users. Our price of $5.00 per month is a competitive market price that also serves as a way to ensure we can match costs with future operations. At the same time, it also guarantees that our users will purchase the subscription. Since our pricing structure is 83% cheaper than Life Alert's similar service (priced at $30 per month), we can confidently say that every user will pay for this subscription.

Figure 3.4 – Unadjusted Subscription Revenue and Costs



As seen in the graph above, our unadjusted subscription costs exceed subscription revenue. However, the large gross margin on our physical product compensates for the small loss in the subscription service. With the combination of these revenues and costs, our company still achieves a substantial profit margin overall. SIM card costs were calculated via standard monthly charges through a network carrier, and our AWS costs were derived from the server that best met our needs.

The reason we did not include the server costs associated with our subscription in IT Costs is two-fold. First, we wanted to correctly identify what costs are solely associated with the subscription, as these scale up to match the number of users we have each year. This model differs from our IT cost template. In addition, since IT costs are generated for internal company needs, it is logical to include external server costs in cost of goods sold. Further, since we are a startup company, we are not able to secure debt contracts with lenders in our first 5 years. If we place our subscription costs in IT Costs, then they would be included in SG&A. As a result, our NWC skyrockets. This is because accounts payable solely makes up our current liabilities, which

would decline as a result of a lower cost of goods sold balance. If investors become apprehensive about the current costing model, we would be open to repositioning the server costs to SG&A once we are able to secure debt contracts in the future.

Figure 3.5 – Adjusted Subscription Revenue and Costs

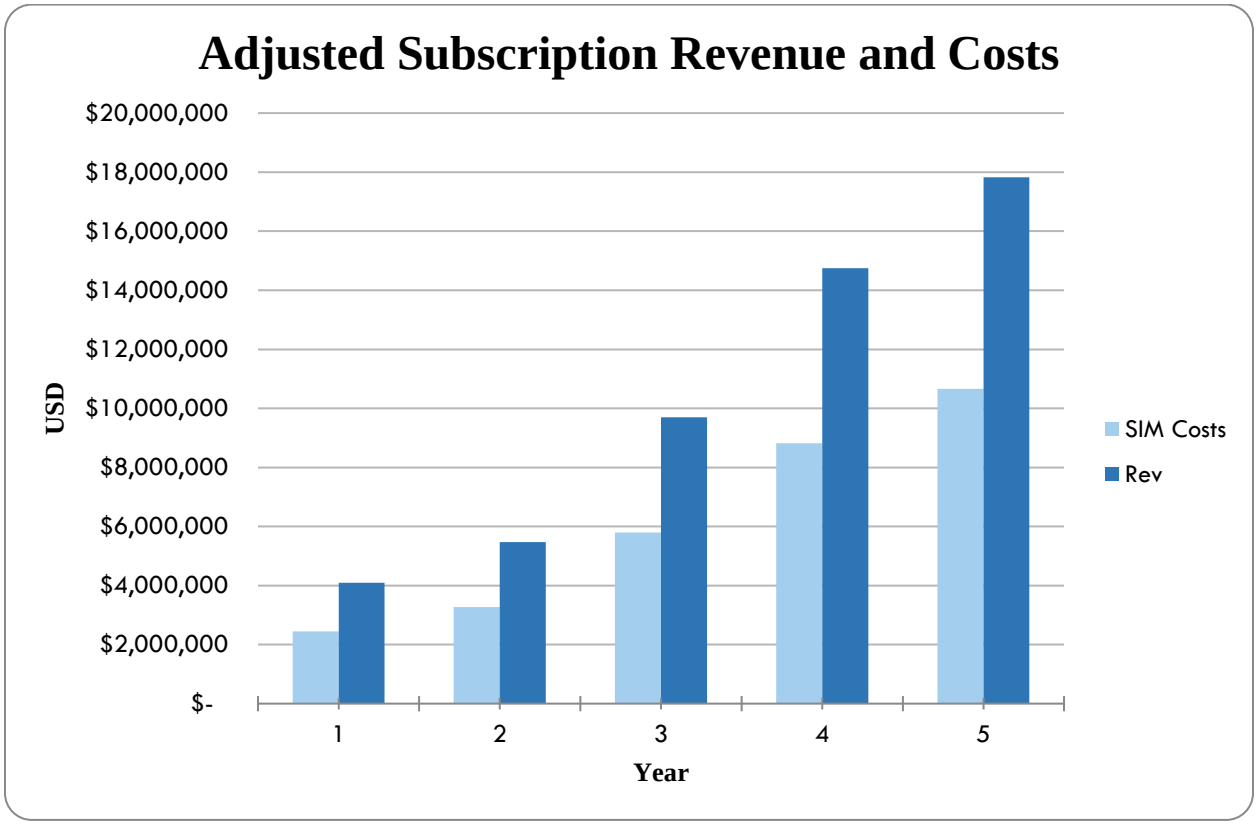


Figure 3.6 – Subscription Service COGS

Costs of Operating	Year 1	Year 2	Year 3	Year 4	Year 5
SIM Card Provider	$2,447,447	$3,273,081	$5,798,423	$8,817,761	$10,658,441
Servers	$3,274,176	$4,378,704	$7,757,088	$11,796,336	$14,258,784
Cost Per Subscription	**$5,721,623**	**$7,651,785**	**$13,555,511**	**$20,614,097**	**$24,917,225**

EBIT Breakeven and Investor Payback

The investor payback period for this project is approximately 3.3 years, and EBIT breakeven will occur just before the seventh month that our product has been launched at the start of year 1. The reason that the payback period is longer than achieving EBIT breakeven is because investor payback period corresponds with the forecasted net free cash flow schedule. The net free cash flows stay negative until year 2, so initial investors will not see full payback until after three years of being fully invested.

EBIT breakeven will happen much faster than project payback because the only time when EBIT will be negative is during the startup phase, where our one-time startup expenses of $286,777 are incurred. We are also not incurring any revenue because our product has not been launched yet. The ending balance of EBIT in year one is $508,161, which means that our earnings have exceeded the amount of startup expenses. This will have surpassed the point in time where earnings will match the amount we incurred in startup.

Figure 3.7 – EBIT Year 0 - 5

Year	0	1	2	3	4	5
Earnings Before Tax	$(286,777)	$508,161	$781,377	$1,715,073	$2,520,979	$2,969,149

Internal Rate of Return

The forecasted internal rate of return for this project is 43.70%. This percentage is a relatively optimistic projected calculation of our net free cash flows in years 1 through 5, with the addition of our terminal value in year 5. This value is relatively high due to the 114.78% change between year 4 and year 5 cash flow. Because the IRR calculation is based only on 5 years, it does not account for the long term forecast. We believe that cash flows after year 5 will begin to follow a flat trend, due to the financial stabilization and maturing of the company. This is also the reasoning behind why we chose to estimate our year 6 cash flow as the same value as year 5, and calculate our perpetuity valuation with no rate of growth or decline.

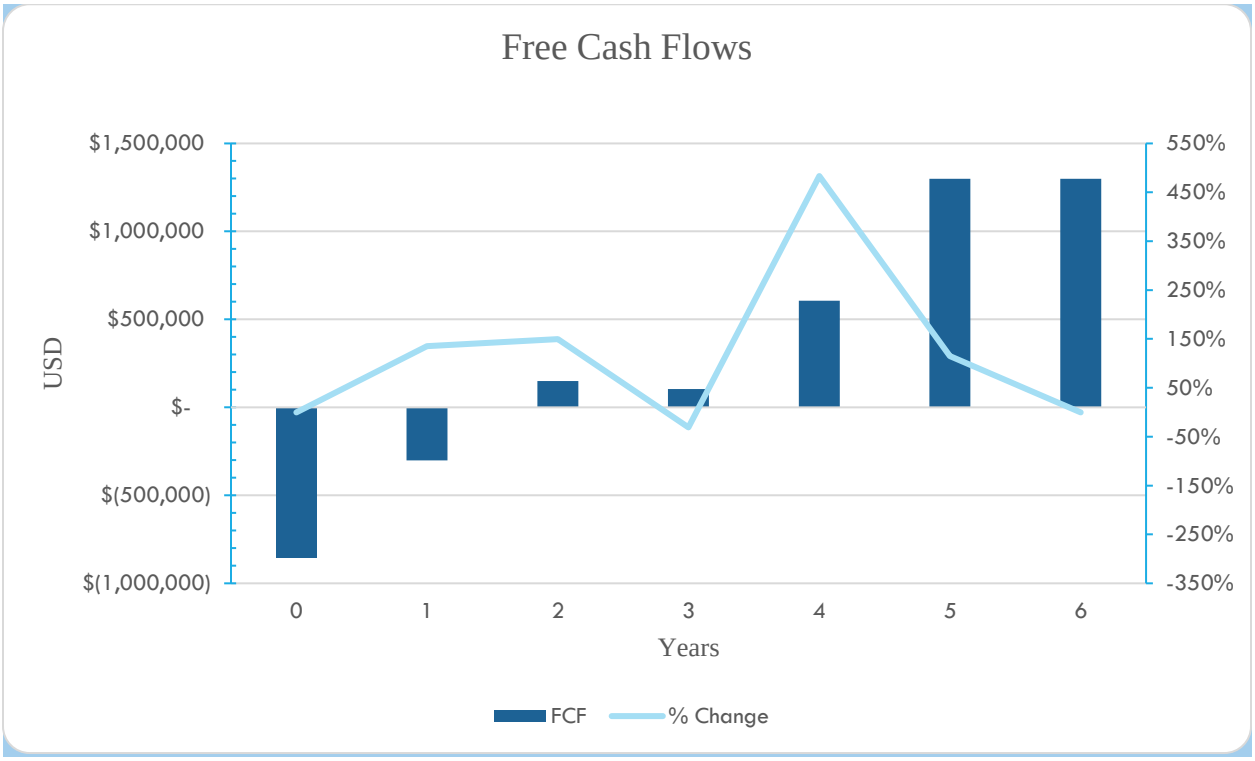
Figure 3.8 – Net Free Cash Flow % Change

Year	1	2	3	4	5
Net FCF % Change	135.15%	149.82%	-30.93%	483.23%	114.78%

Figure 3.9 – Internal Rate of Return

Internal Rate of Return: including TV	43.70%

Figure 3.10 – Total Cash Flows



NPV Profile

As seen in our NPV profile, our NPV is $811,133 at a discount rate of 26.82%. Beyond that discount rate, the net present value of our company is negative at a cost of capital between 43% and 44%. This affords us a margin of safety of roughly 60% when considering potential increases in any of the rates utilized in calculating our discount rate.

Figure 3.11 – NPV Profile

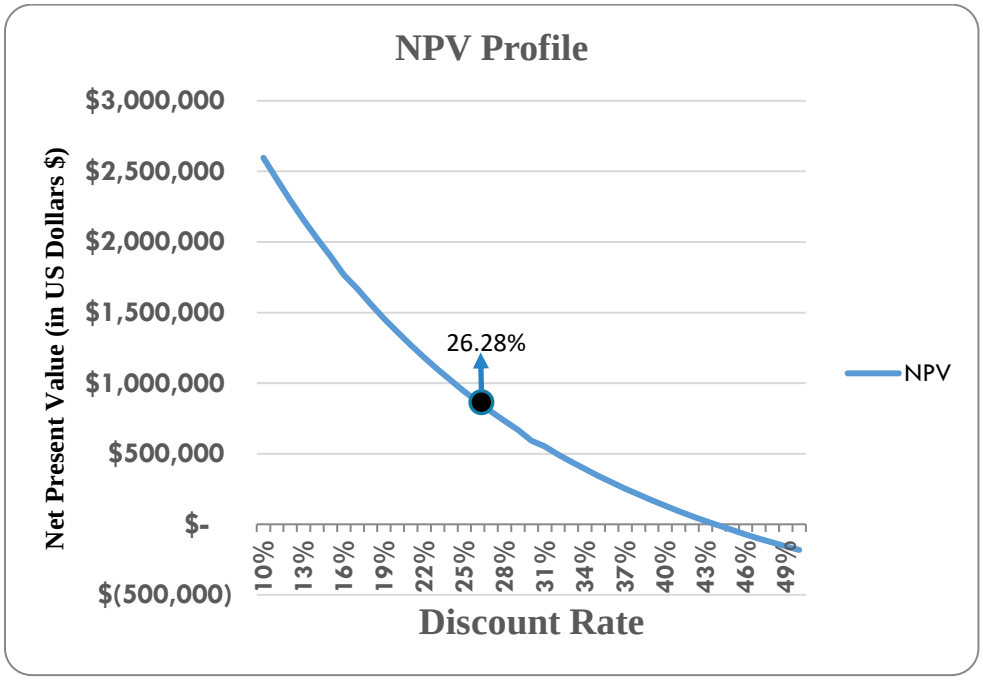


Figure 3.12 – NPV at a Range of Discount Rates

Discount Rate	NPV
10%	$2,596,739
11%	$2,442,458
12%	$2,296,161
13%	$2,157,369
14%	$2,025,637
15%	$1,900,547
16%	$1,766,703
17%	$1,668,768
18%	$1,561,377
19%	$1,459,223
20%	$1,362,010
21%	$1,269,460
22%	$1,181,314
23%	$1,097,330
24%	$1,017,279
25%	$940,949
26%	**$868,138**
27%	$798,659
28%	$732,335

29%	$669,001
30%	$592,175
31%	$550,684
32%	$495,418
33%	$442,569
34%	$392,017
35%	$343,645
36%	$297,344
37%	$253,013
38%	$210,553
39%	$169,874
40%	$130,890
41%	$93,518
42%	$57,682
43%	$23,309
44%	$(9,671)
45%	$(41,321)
46%	$(71,706)
47%	$(100,881)
48%	$(128,905)
49%	$(155,827)
50%	$(181,700)

Discount Rate

We calculated our discount rate using the Capital Asset Pricing Method (CAPM). The CAPM calculation consists of weighing the average Betas of our competitors, multiplying that by our standard equity premium, and then adding the risk-free treasury rate and the small cap premium rate. Through doing this, we arrive at our 26.82% discount rate. The risk-free treasury rate of 1.7% is based on an estimated product life cycle of 3 years. We then used public COMPS of Fitbit and Garmin to determine our comparable Beta. Since Fitbit is more aligned with our company structure, we gave their Beta a higher weight of 70%. We gave Garmin a 30% weight, which produced our weighted average comparable Beta of 2.01. We found the standard equity risk premium of 6.7% that matches our industry. From there, we calculated a discount rate of 15.167% using the capital asset pricing model. Since we are a small startup company, we also added a small cap premium of 11.65% to reach our final discount rate of 26.82%.

One long term goal is to work towards lowering our average Beta so that it falls below 1. Right now, our product is addressing a "niche" market and our customers' reliance on our product has not been established yet. After prolonged market exposure, we hope to create a dependency of our product that will first allow us to serve our customers while establishing a need that outweighs the present macroeconomic trends. By lowering our Beta, we can reduce our cost of capital. This would help us combat our forecasted diminishing growth after year 5. Since our company expands so rapidly in the first 5 years, we feel it is appropriate to be conservative in future growth predictions.

Figure 3.13 – Components of Discount Rate

Treasury Rate (3 years)	**0.017**
Source: US Department of Treasury	
Equity Premium	**Source: Morningstar**
Standard	0.067
Small Cap Premium	0.1165

BETA 5Y	**Source: Capital IQ**	**Weight**
FitBit	2.52	0.7
Garmin	0.82	0.3
Weighted Average	2.01	1

Discount Rate	26.82%

Cash Flows, Terminal Value, and NPV Contributors

We have negative cash flows in our first two years due to initial capital requirements along with a large increase in net working capital due to our limited debt holdings. We are cash flow positive in year 2 thanks to a stabilized change in net working capital, but in year 3 we experience another jump in net working capital that correlates with our new PPE purchase, as well as our awareness doubling. These two factors boosted net income by 54.44%, and decreased cash flows by 30.93%. Even with this decrease, we remain cash flow positive at $103,769; since we have such a large increase in net working capital in year 3, year 4's increase is relatively small, leading to massive growth in our cash flows by 483.23%. Finally, in year 5 we see a

similar growth in cash flow at 114.78%. When adding our weighted average terminal valuation to year 5, we have a total cash flow of $5,014,201.

Our terminal value under the perpetuity method is $4,847,304, which is calculated from our cash flow in year 6, divided by our discount rate of 26.82%. Our forecasted cash flow in year 6 is the same as in year 5 because our overall growth for the first 5 years is exceptionally high, and we determined that a more realistic proposal would be zero growth in order to balance out our expected return as the company matures. We also calculated terminal value using the liquidation method, where we priced our assets at 75% of their book value in order to garner a more realistic valuation. Since terminal value is the largest driver of our NPV, we used a weighted average terminal value of our flat perpetuity valuation and liquidation method to obtain a more accurate terminal value to include in our NPV calculation; our terminal value is rather high due to our overall high growth rates leading up to year 5, and this weighted calculation positioned perpetuity at 70% and liquidation at 30%, to get a weighted average terminal value of $3,714,299.

Figure 3.14 – Terminal Value Components

4,847,304	Perpetuity
1,070,621	Liquidation
3,714,299	Weighted Avg. TV

Competitor Ratios

Our public competitors are Fitbit and Garmin. These are the two closest aligned public companies that offer products similar to ours, yet ultimately do not address our target market the way we do, in accordance with our positioning statement. Their smartwatches and fitness trackers cater towards younger generations focused on sports fitness, as well as middle-aged consumers who are monitoring their health. While our product is intended for those wanting to monitor their loved ones, the nature of Fitbit's and Garmin's technical smartwatches greatly align with our smart band, and we source many similar components that they do for our bill of materials. Fitbit is more aligned with our company as they only offer smartwatch products, whereas Garmin produces smartwatches and other GPS services and products. When we determined our accounts payable percentage, accounts receivable percentage, and Beta, we took

the weighted average of Fitbit at 70% and Garmin at 30% because of their overall structures and alignment with RemBand.[27]

Figure 3.15 – Competitor Ratios

Competitor Key Ratios	FitBit	Garmin	RemBand
Gross Margin	38.42%	54.98%	71.05%
ROE	35.18%	15.28%	38.68%
Current Ratio	1.8x	2.7x	1.5x
EV/EBITDA Multiple	-38.6x	13.7x	2.1x

As touched upon, the first major differentiating measure of our own company is the adjusted gross margin (without subscription costs and revenues) by having a gross margin of 71.05% on average, we more almost double Fitbit's average of 38.42% and greatly outpace Garmin's average of 54.98%. Again, these differences are due to the amount of modules in the smart devices - we do not need Wi-Fi and Bluetooth modules, and also do not utilize a screen. After delving through other ratios and metrics, it is clear that in other dimensions, Fitbit and Garmin are much more aligned with us. Our average return on equity is 38.68%, whereas Fitbit and Garmin have 35.18% and 15.28%, respectively. ROE is an important metric for us because we have limited financing options since we cannot secure debt contracts as a startup, and therefore it is extremely crucial that we use equity as efficiently as possible. Fitbit has a slighter smaller ROE, but Garmin's is less than half of ours. These metrics show that we are doing better than our competition, however, when comparing liquidity ratios, it is clear that we have room for improvement. Fitbit and Garmin have current ratio multiples of 1.8 and 2.7, whereas we only have a current ratio of 1.5. One reason we have a lower current ratio is because our accounts payable percentage of cost of goods sold of 25.07% is higher than our accounts receivable percentage of sales of 23.27%. Our cash reserves increase our current assets, but overall, the large accounts payable percentage lowers our current ratio. One way we could increase our current ratio is increasing cash reserves, but since our competitors had a weighted average cash percent of sales of 4.8%, we decided having 5% of sales as cash reserves was more reflective of our competitors and industry.

[27] S&P Capital IQ [Online]. S&P Capital IQ, McGraw Hill Financial, http://www.capitaliq.com.

Lastly, our EV/EBITDA multiple of 2.12 is healthier than Fitbit, who has struggled to put together consecutive positive cash flows over the years; their EV/EBITDA multiple this past year was -2.4, and prior to that they were -14.2. Garmin, on the other hand, has a significantly higher multiple at 13.2 in 2017, which is slightly lower than their average multiple of 13.7. Garmin is a mature company and has a diversified product portfolio, so it is valid that they should be so far ahead of us and Fitbit. One key takeaway from these multiples is Fitbit's failure to maintain successful positive net income streams each year. If we are diligent with making sure our revenue increases as predicted through our marketing plan, then we can avoid this fate and follow Garmin's footsteps.

Why We Have a Positive NPV

Thanks to our product positioning statements, we can see that unlike our competition, our product's simplicity and intuitive design allows our target market to incorporate RemBand into their daily lives seamlessly. This value provided to our users enables RemBand to easily build awareness and demand, which in turn drives higher sales. Since our gross margin adjusted for the exclusion of our subscription model is extremely high at 71.05% on average, it allows us to quickly become cash flow positive and maintain a competitive advantage in the industry. Because cash flows remain positive after year 2, NPV drives further up. Even with our large increase in net working capital in year 3 due to awareness doubling, our cash flows remain strong and indicate healthy, sustained growth.

Our subscription service model is one of the key reasons we are able to sustain this growth, as it adds continuous revenue beyond the original purchase date. This revenue stream contributes to our bottom line, but also addresses incurred future costs associated with continuing the location tracking services for our users. This model is crucial for our company, and doubles our revenue, allowing us to utilize the best technology for our service, and acts as a cushion during potential down years. Lastly, our NPV is heavily influenced by our weighted average terminal value, which combines our liquidation method and perpetuity valuation into a more accurate prediction. Since we do not have any expected growth in year 6 cash flow, we have a conservative measurement of future profits. With a discount rate of 26.82% calculated through CAPM, we arrive at our NPV of $811,133.

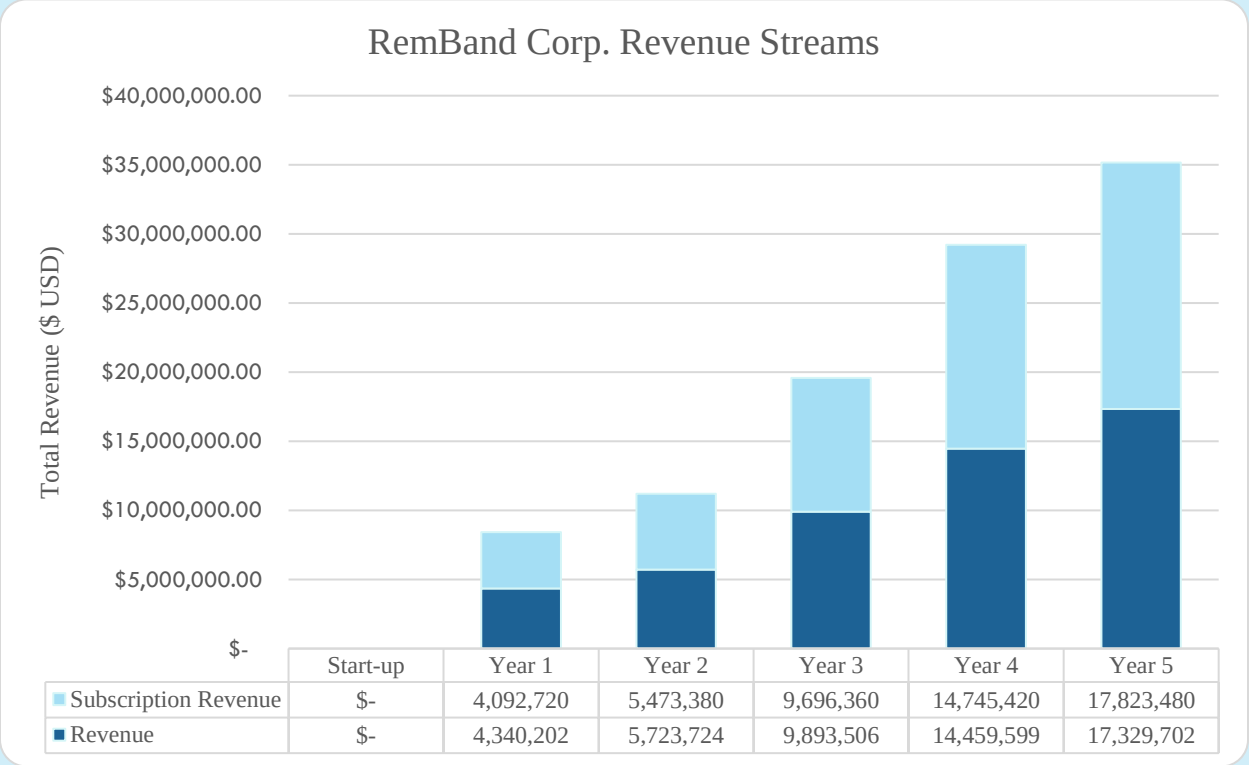
Figure 3.16 – NPV Calculation

Net Present Value: Including TV	$811,133
Discount Rate	26.82%

Evolution of Income Statement and Balance Sheet: Revenue Growth, Expenses, Capital Investment, and Working Capital

With each fiscal year, RemBand heightens its level of financial stability in terms of revenue and profit growth, as well as a declining amount of needed external funding. The graph below shows the five year growth of our two revenue streams combined, which quadruples in size in a four year time span. However, because our revenue is coming from two separate sources, we also have double the amount of cost of goods sold in order to be able to sell our product and provide a subscription service so that it can properly function.

Figure 3.17 – Combined Total Revenue

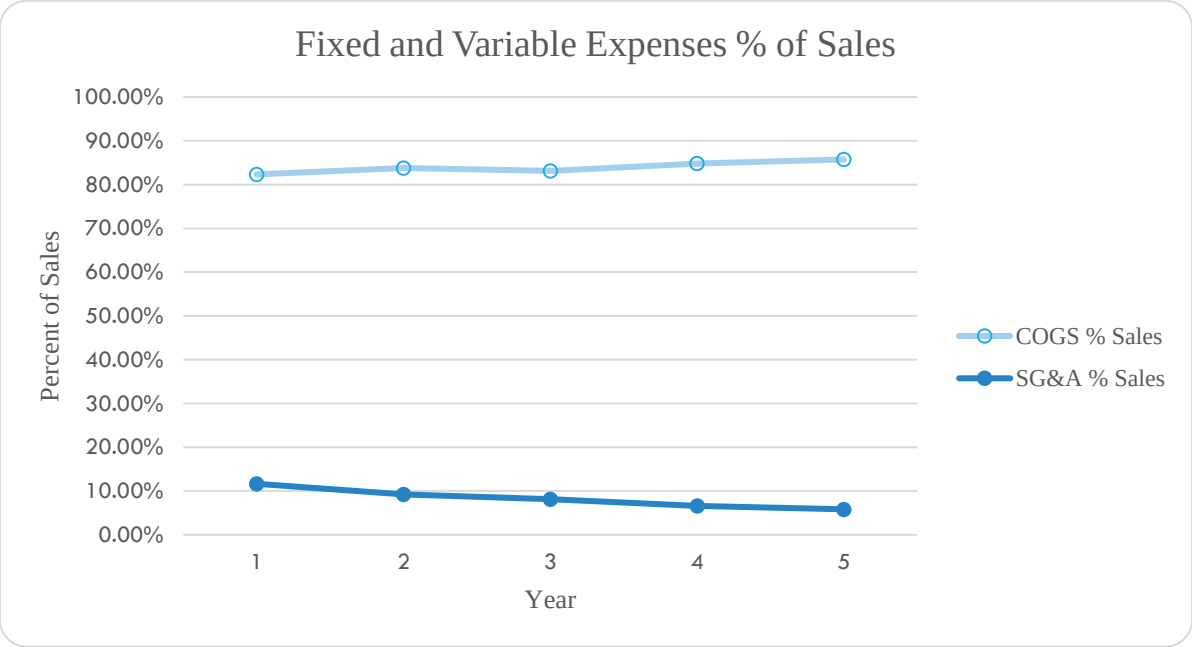


	Start-up	Year 1	Year 2	Year 3	Year 4	Year 5
Subscription Revenue	$-	4,092,720	5,473,380	9,696,360	14,745,420	17,823,480
Revenue	$-	4,340,202	5,723,724	9,893,506	14,459,599	17,329,702

Over time, fixed expenses decrease as a percentage of sales on our income statement, however, variable expenses increase as a percent of sales. This contrast is occurring for a number of reasons. First, we have customer demand growing at a relatively fast pace, so we must accommodate that expected revenue by increasing our spending on costs of goods sold to be able

to produce more of our product and provide the subscription service to a greater number of consumers. Second, our fixed expenses as seen on our income statement only include administrative and salesforce salaries and commission, marketing push and pull expenses from the IMC schedule, as well as depreciation and amortization expenses. These expenses do not grow as closely with sales, therefore while the amount of fixed expenses does increase over time, its percentage of sales actually decreases slightly because variable cost percent of sales is increasing at a higher rate.

Figure 3.18 – Fixed and Variable Expenses % of Sales



In terms of capital investment, RemBand requires paid in capital for the startup phase, and additionally in year 1. Beyond year 1, all cash flows remain positive and 100% of those cash flow amounts will be returned to investors in the form of dividends.

Our net working capital balance increases steadily through the five year forecast. This is mainly due to our increase in current and fixed assets. Our cash reserves balance is 5% of sales, which is in alignment with the 4.8% average of our competitors, Fitbit and Garmin. Accounts receivable and accounts payable balances use percentage assumptions that are based on the same competitors and weighted calculations. Accounts receivable uses a weighted average percentage of 23.27%, which was determined by giving a 70% weight on Fitbit's accounts receivable percent of sales, and weighting Garmin's percentage by 30% since they are not as closely aligned

with RemBand. We also used the same weights and corresponding competitor's accounts payable percentages when determining our accounts payable assumption as a percentage of cost of goods sold. Our raw materials, work in progress, and finished goods inventory increases with each fiscal year because of our steady increase in demand for our product. In terms of fixed assets, we experience an increase in year 3 because we are purchasing an additional injection molding machine to facilitate our production of inventory. Looking at net working capital balance as a whole, there is a steady increase within the five year progression. However, the change in net working capital balance does not have a stabilized trend, and begins to decline from year 4 to year 5, which forecasts that after year 5, net working capital may start to flatten out due to less need for purchases of assets that come with the stabilization of the company.

Figure 3.19 – Net Working Capital Balance

Year	**0**	**1**	**2**	**3**	**4**	**5**
NWC Balance	$252,274	$914,025	$1,296,249	$2,306,318	$3,332,204	$3,945,975
Change in NWC	$252,274	$661,751	$382,223	$1,010,069	$1,025,886	$613,771

Risk Analysis

Conjoint Analysis Description

The team ran a conjoint analysis questionnaire for the product in order to determine which features customers valued most. The population surveyed was 23 adults between the ages of 14-57, with 50% of the participants aged 14-24; 18.18% aged 36-46; and 31.82% aged 47-57. In terms of gender, 41.91% were males while 59.09% were females. Geographically, the participants were from the states: New York, New Jersey, Connecticut, Massachusetts, Rhode Island, Missouri, North Carolina, California, and France. From the House of Quality conducted, team members were able to identify which features were of the highest importance for consumers. These features were price, band type, website features, and emergency response button. The options for price were $80, $100, and $120. The options for band type were adjustable or fixed. The website features consisted of either one single page or multiple web pages. Lastly, the emergency button had the option of being either small or large.

For the band, the team wanted to ensure the user was comfortable and offered two options. Option 1, the fixed band, was a slip-on band offered in sizes small, medium, and large. Option 2 was a fully adjustable band that resembles the strap of a watch. For the website features, the goal was to ensure easy navigation of the website. Two options were considered for how the website is specifically designed. Both websites included the following features: map and location of the wearer, alerts, and heart rate. Option 1 consisted of a single page in which there were no additional features. Option 2 consisted of multiple tabs for the technology savvy who wanted additional functionality of the ability to send reminder messages to the wearer.

The team considered two options as well for the safety alert button. When the safety button is pressed, designated emergency contacts will receive a notification on their mobile device. In addition, the band will function as a phone and call the first contact. Team members gave participants the choice of a small and large button style. Option 1 was a large button which was described as visible to the patient and easier to press. The larger button would be more prone to false alarms and might give the band a medical look. Option 2 was a smaller, unobtrusive button that looks sleeker and fashion forward. However, it would be harder for the patient to press during an actual emergency.

After the team members determined the options of features, a questionnaire was distributed to 23 participants. They were asked to rate the following using a seven-point preference scale. 1 was used to represent strong dislike while 7 was used to represent strong like.

Figure 4.1- Table of Partworths Representing the Favorability of Features

	Intercept	**$80**	**$100**	**Adjustable Band**	**Single Page**	**Small Button**
Average	3.24	0.93	0.76	0.82	0.27	-0.16
Standard Deviation	1.86	1.77	1.30	1.298	1.29	1.61
Min PW	-1.25	-3	-2.5	-2.5	-1.5	-2.5
Max PW	6.25	3.5	3.5	4.25	3	2
Range	7.5	6.5	6	6.75	4.5	4.5

The table above represents the features that were rated of high importance and their favorability amongst questionnaire answerers. We used $120, fixed band, multiple web pages, and large button as the intercept. The values above show the how each opposing variable was favored in contrast to the intercept. The data obtained shows that the top two combinations were: Profile 2: $80, adjustable band, multiple web pages, and large button; and Profile 6: $100, adjustable band, multiple web pages, and small button. 56% of the answerers chose one of these two combinations. As seen above, these were also the features that were favored using their partworths. Therefore, adjustable band and multiple web pages were the clear preference. The team incorporated this into our plan through the design of our product. Price point was gauged and the realization that there was room to change came to fruition. When it came to price for this product, people were not as sensitive to price regarding the change from $80-$100. However, the price shift from $100-$120 was the most sensitive compared to other features, such as size of button and website features. Therefore, the team concluded that people would be willing to pay up to $100 for our product.

The marketing survey showed similar results in that the optimal price ranged from $87.50-$93.99. When the team adjusted the purchase intent to fit those willing to buy at $100, the purchase intent of each segment did not change too drastically. The research showed that people aged 24-45 were more intrigued by the simplicity and purpose of the product and were more likely to buy it than any other segment.

Sensitivity Analysis

Our margins of safety consistently are above 62% after year 1, and climb to over 70% in year 5. This shows that our demand greatly outpaces both accounting and financial breakevens. The variables selected in the sensitivity analysis were: direct materials, purchase intent, ACV, direct labor, awareness, competition, discount rate, price, and rent. The team did not select terminal growth rate as a variable due to the company's exceptionally high growth rate. In Year 3, the demand for the RemBand increases significantly, causing the growth rate to be very high. To counteract this, team members did not grow the terminal value from year 5 to year 6 in order to balance out overall growth. The thought of potential external risks that the project could face is mentioned in the Risk Mitigation section of this plan. After taking external risks into account, the team weighed the effects and noticed that the previously mentioned variables were constantly affected. The team further investigated how these effects could be minimized in order to prevent the potential downfalls of the company.

The team found that rent has the largest breakeven percent change for NPV with a 285% increase (See Risk Analysis Appendix 1.2). Team members also discovered that all of the marketing variables that contributed to demand (ACV, Awareness, and Purchase Intent) all had the same breakeven percent change for both NPV and IRR. However, these were also the most sensitive variables as they were the lowest values, decreasing from 100% to an 85% in order for the net present value to reach zero, and 100% to 70% for the internal rate of return to reach zero (See Risk Analysis Appendix 1.2). Collectively, the team believed that this is due to the fact that demand is calculated through the multiplication of the marketing variables.

When examining the effects that a 1% increase and decrease has on net present value, team members noticed that price had the largest effect, with an elasticity of -14.63% for a 1% increase in net present value (See Risk Analysis Appendix 2.1). This is most likely due to the issue that a higher price might lower purchase intent, which contributes to demand and revenue. Again, ACV, awareness, and purchase intent had the same effect on the net present value and internal rate of return with a 1% increase and decrease.

Risk Mitigation

The team separated these risks into three divisions: financial, operational, and marketing. For the financial division, team members recognized these potentially dangerous situations:

fluctuating exchange rates when buying from China, international instability in Asia, increase in minimum wage in Arizona, and faulty supply shipments. Let us address each situation individually to determine the detrimental effects it could have on the business along with possible mitigation strategies and the cost and benefits of these mitigation strategies. The team will focus and elaborate more on the risks with high probability and a high size of impact. Below are the operational, financial, and marketing risks divided into each category. Those with high impact and high probability are highlighted and elaborated on more throughout this section.

Figure 4.2- Financial Risks that RemBand Corporation Could Potentially Face

Scenario	**Impact**	**Size of Impact**	**Probability**	**Mitigation**
Faulty Supply Shipments	▪ Direct Materials Decreases ▪ Direct Labor Increases ▪ Purchase Intent Decreases	High	High	Shipment quality checks at supplier locations; Have different suppliers as back-up
Fluctuating exchange rates when buying materials from China	▪ Direct Materials Decreases ▪ Purchase Intent Decreases	High	High	Find firms that accept USD directly; Lock in an exchange rate when making supplier contract
Increase in minimum wage in Arizona	▪ Direct Labor Decreases	Low	High	Outsource workers from the assembly line
International instability in Asia	▪ Direct Materials Decreases ▪ Direct Labor Decreases	High	Low	Find domestic suppliers as back-up

Fluctuating exchange rates affect the operational contracts that the team will have with suppliers outsourced from China. These exchange rates can either be a loss or gain, depending on the economy, for the business. The size of this impact would be high as this affects direct material costs. The probability of this happening is also high since China is developing and their exchange rate is growing. One possible mitigation strategy is to find firms that only accept United States Dollars directly and have them as a back-up. The benefit of this strategy is that cost

will not vary. However, the cost of direct materials will increase, which in turn will cause us to increase the price. A higher price may lower purchase intent. Another solution would be to lock in an exchange rate when making the supplier contract. The downside to this solution is that the team can potentially lose money on this deal. However, this would be beneficial if the exchange rate estimates are correct. Team members assumed that these mitigation strategies would result in an increase for the minimum direct material cost per unit because they would most likely want an incentive to do this. However, the maximum parameter would decrease, causing the standard deviation to decrease since the risk range decreases. The team would end up having more control over the direct material cost and there would be less room for it to increase drastically. Doing this would increase the mean NPV from $163,772.60 to $233,561.30 and the decrease the variance from $545,788.73 to $412,524.60.

Another financial situation that the company could possibly face is the international instability in Asia. With Donald Trump as the president, the United States could face possible conflict with the countries that include and surround our suppliers. If this conflict interferes with the shipment of supplies, direct materials will obviously decrease. Without direct materials, direct labor would decrease. The size of this impact is relatively high since without direct materials, there is nothing for the business to sell. However, the probability of this happening is low since all businesses that outsource would be affected. To be prepared, the team decided to find back-up suppliers located within the United States. This would decrease the shipping costs. Unfortunately, this would most likely increase the direct material costs since it is more expensive to produce here. Direct labor also increases because the team would have to pay more in the United States than in China.

A third financial situation that the company could possibly face is an increase in minimum wage. As of right now, the minimum wage in Arizona is $10.00. In 2020, the minimum wage will be raised to $12.00. This will raise the direct labor costs and potentially cause the team to lay off some employees. As each state increases its minimum wage, there is a high probability that this will happen. One solution to this issue is to outsource workers needed for the assembly line. This will lower direct labor costs. Unfortunately, the team will have less control over the assembly of the products. Although direct labor per unit would decrease, the team would also have to lease an extra facility in China and pay managers to go to China to oversee production. Therefore, the team increased lease cost by 150% because they would find a smaller office in

Arizona to receive materials, but have an extra facility in Asia. Also, a 6% raise per year was added to relocate overseas. The team decreased the minimum parameter and maximum parameter, which gave an increase in mean NPV of $89,228.11 and decrease of standard deviation of -$27,040.63 (See Risk Analysis Appendix 5.1).

The final financial risk the company could face is receiving faulty supply shipments, requiring the team to have to send the shipments back for repair. This could cause a delay in the production of the products. This would increase direct labor and decrease purchase intent. The probability of this happening is relatively high. In order to reduce this risk, the team will have shipment quality checks at the supplier locations. Team members will work collectively to send workers overseas to check the shipments before they are sent to the United States. Unfortunately, this will require the team to send workers overseas. It will increase direct labor costs as the team now need to add more workers to the line of production. The benefit of this is that the team will have more control over the products that are sent. The team will also have lower shipping costs since the team can weed out faulty supplies before it ships. The downfall to this solution is that direct labor cost increases. Another mitigation strategy for this risk is to have different suppliers on back-up. This would provide the team with diversification. In case one of our supplies fails on their end of the deal, the team won't have to risk a delay in production. However, this may potentially cost more due to last minute changes along. In a political aspect as well, the team might not have great relationships without this type of loyalty.

Figure 4.3- Operational Risks that RemBand Corporation Could Potentially Face

Scenario	**Impact**	**Size of Impact**	**Probability**	**Mitigation**
IT Breach	▪ Purchase Intent Decreases	High	High	Higher quality code checks; Hire stronger programmers
Website Malfunction (i.e. website crashes)	▪ Purchase Intent Decreases ▪ Competition Increases	Low	High	Higher quality code checks; Hire stronger programmers
Natural Disaster	▪ Direct Materials Decreases ▪ Direct Labor Decreases ▪ Purchase Intent Decreases ▪ ACV Decreases	High	Low	Have a back-up location; Buy building insurance

Hardware Malfunction (i.e. Safety button not working)	▪ Purchase Intent Decreases ▪ Competition Increases	High	Low	Quality check on supplies

The second division that faces potential risks is the operations management division. One of the potential risks for the company is an IT breach. This has a high probability of happening as 55% of new companies face IT breaches.[28] This will cause purchase intent to lower as customers will fear having their personal information stolen. For the first two years, the team is exclusively selling the product online. Therefore, transactions along with data from the use of the bracelet and RemBand website will all be at risk. In order to avoid an IT breach, the team can hire stronger programmers to protect this information. The team can also have frequent and higher quality code check. This will increase direct labor costs as team members have to face hiring new employees, especially employees that specialize in coding.

Another potential risk is the website malfunction. For example, the website may crash when customers use it to monitor their loved one. If the website malfunctions, this will lower purchase intent since the product would not seem reliable. This is worrisome since team members are a new company that has to build a reputation. Some possible mitigation strategies would be to have more frequent code reviews along with hiring more programmers. The risk of an IT breach is a very serious risk for the team as it is high risk and the size of the impact is also large. 55% of start-up companies have IT breaches. This would lower purchase intent as it would tarnish our brand image and cause consumers to lose trust in the company. In order to reduce this risk, the team going to have higher quality code check along with hiring stronger programmers. This will build customer loyalty and allow consumers to trust us with purchases as such. The product requires trust from consumers as they're placing their loved one in team members' hands. The team must secure that trust on all levels. Unfortunately, the cost of hiring stronger programmers is quite expensive.

[28] Drake, Samantha. "Chances Are Your Startup Is Going To Get Hacked--Here's What To Do." Forbes, Forbes Magazine, 3 Feb. 2017, www.forbes.com/sites/samanthadrake1/2017/02/03/chances-are-your-startup-is going-to-get-hacked-heres-what-to-do/#35ec4ae7ce25.

Figure 4.4- Marketing Risks that RemBand Corporation Could Potentially Face

Scenario	Impact	Size of Impact	Probability	Mitigation
Wrong target market	▪ Awareness Decreases ▪ Purchase Intent Decreases ▪ Competition Increases	High	High	Adjust positioning of our product
Poorly positioned ads	▪ Purchase Intent Decreases ▪ Awareness Decreases	Low	High	Diversify marketing techniques and raise marketing budget
Running out of marketing budget	▪ Awareness Decreases ▪ Purchase Intent Decreases ▪ ACV Decreases	High	Low	Use crowdfunding websites; Choose less expensive ways to market
Cure for Alzheimer's (or other diseases)	▪ Purchase Intent Decreases ▪ Awareness Increases	High	Low	Position band as a preventative measure
Well known competitors release similar product	▪ ACV Decreases ▪ Competition Increases	High	Low	Accentuate what distinguishes our product from competitors

The last division that potentially faces risks is marketing. As a new company, this is where the team found the most risks. Marketing is an extremely important branch to get the team off the ground and running. One future risk the team can face as a new company is depletion of the marketing budget. This would decrease awareness and purchase intent since team members do not have enough money to bring enough attention to our new company. The size of this impact is relatively high since awareness is needed to get our company off of the ground. The probability of this is also high since it is a new company.

The second marketing risk the team can face as a new company would be targeting the wrong market. For example, the team is targeting older people with Alzheimer's or that live alone. However, the team might be missing a market segment that team could profit from, such as older people in general. This would result in a lower awareness and lower purchase intent. The size of the impact is relatively high as the team could generate a lot of profit from missing markets. In order to mitigate this situation, the team could adjust the positioning of the product.

This would result in higher marketing costs. However, the team would gain a lot more profit. To mitigate for awareness, the team decided to circulate our ads in another magazine to raise awareness targeting the Lone Wolves segment specifically. The team added the cost of the magazine in marketing expenses and increased the minimum and maximum parameters for awareness. This increased the mean NPV by $344,054.43 and decreased the variance by $16,807.83 (See Risk Analysis Appendix 4.1). Poorly positioned ads could also be a possible risk for this new company. Purchase intent along with awareness decreases due to this risk. The size of this impact is relatively low while the probability is high. A solution to this issue would be diversifying marketing techniques, periodically examining the effectiveness of our communications, and raising the marketing budget if necessary.

The team is currently paying the lease of our building per year, so there is a risk in the cost going up every year. To mitigate for this increase in annual lease cost, the team decided to sign a longer lease 5-10 years long to make the potential cost more predictable. The team assumed a longer lease would be more beneficial to both the company and the landlord, the team decreased our minimum and maximum parameters and made the range between the parameters smaller. By mitigating for this risk, the mean NPV increased from $777,849.52 to $796,869.22 and the variance decreased from $34,123.04 to $26,692.27 (See Risk Analysis Appendix 4.2).

The team then ran another risk simulation with all the variables previously mentioned, which gave a mean NPV of $25,983.07 and a variance of $760,435.22. Once the team accounted for mitigation of the risks and ended up with a mean NPV of $497,179.55 and standard deviation of $690,843.18 (See Risk Analysis Appendix 4.2).

Net Present Value vs. Risk

The team chose to use triangular distribution for all four of our variables: awareness, annual lease cost, direct materials cost per unit, and direct labor cost per unit. The team also decided to simulate risk for the discount rate because it was one of the variables with the highest sensitivities. However, it was not part of the simulation with all variables since the team cannot mitigate against it fluctuating. For awareness, the team assumed that the marketing would have some control over these percentages by increasing the marketing budget. The team believes that our current awareness percentage is on the conservative side, the minimum parameter is 60% of the base and maximum parameter is 150% of the base (See Risk Analysis Appendix 5.1 for all

parameters mentioned). For direct materials and direct labor, the team assumed the minimum cost would not be lowered significantly because we are already purchasing materials at a very low cost and paying assembly line workers minimum wage. It is far more likely for both direct material and direct labor to increase, the team also chose a triangular distribution. The team assumed a minimum of 80% and 95% of the base and a maximum of 140% and 150% of the base for direct materials and direct labor respectively In terms of discount rate, the team assumed a minimum of 13% and maximum of 50% because an investor would not invest in a company in our industry with a cost of capital under 13% and having a cost of capital of over 50% is unrealistic.

Our project is 50.70% to have a positive NPV, which is slightly higher than most other startup companies (See Risk Analysis Appendix 4.2).[29] Depending on the variable, the dispersion of NPV ranges from $34,123.04 to $820,426.00, with annual lease cost being to lowest and awareness being the highest. In our all variables simulation, there is a standard deviation of $760,435.22 in NPV. A rough estimate of the "worst case" NPV for our project is -$2,328,801.40. Awareness, especially the Lone Wolves segment, and direct material per unit have the biggest impact on NPV. Awareness for the Lone Wolves segment is especially high because this is our largest segment with more than double our Carebears segments combined.

Conclusion

The RemBand is a unique product that effectively captures our designated market segments in a manner that is unparalleled by our competitors. With this value creation, we can quickly reach a broad audience of customers who will greatly benefit from using our product. Our goal in creating this product was to help those affected by Alzheimer's, but in addition we recognize the need to make a profit. Our positive NPV project is a concept that is near and dear to many of our team members' hearts, which caused us to work tirelessly on this project. Our numbers have been tested, retested, and analyzed, and we are confident in the analysis we provide above. Operationally, financially, and logically, the RemBand projects to become a tremendous investment for all stakeholders involved. On behalf of the team here at RemBand, we would like to thank you for considering an investment in our product. Band Together!

[29] Mansfield, Matt. "STARTUP STATISTICS – The Numbers You Need to Know." Small Business Trends, 1 Nov. 2016, smallbiztrends.com/2016/11/startup-statistics-small-business.html.

Appendix

Marketing

Appendix 1.1-Interviews

Through interviews we were able to better shape our product to fit our target segments. We learned from both caregivers and potential users of the product that one of the most important features of our product needs to be the ease of use. This is why we designed our product to be as simple as possible with the use of one "safety button" that the wearer can press in case of emergency to call their loved ones or caregiver. Interviewees also suggested that, to cater to an older demographic, the reminder features must capture the attention of people hard of hearing. To combat this, we included LED lights, a speaker, and vibration reminders on the RemBand. Finally, we learned from the interviews that aged skin is more sensitive, which is why the RemBand is made with a soft material to avoid irritating the skin of the wearer.

Appendix 1.2-Focus Group

People in our focus groups were surprised that we could offer such a product for $100. One of the aspects they liked the most about RemBand is the reminders that you can set up so that the wearers do not have to worry about forgetting when to take their medications, the places they are supposed to go to and their schedule. We also learnt that in general, people find their information about Alzheimer's and related products online, which oriented us toward increasing online marketing presence. Finally, they also said that they would be willing to talk about our product to other people only if they were asked for advice. People in the focus groups felt that Alzheimer's and Dementia were sensitive issues, and would not want to bring up the topic unless they were asked for advice.

Appendix 1.3-Online Research

From our online research, we learnt that people suffering from other illnesses were looking for our type of product but were not able to find anything fitting and it is for this reason that we decided to expand our market by targeting new segments. We also found out that similar product existed but realized that most of the negative reviews these products had were concerning the ease of use which comforted our idea of creating the simplest product possible. These alternatives also appeared as expensive and it is why we decided to reduce the cost of our RemBand to as low as we possibly could.

Appendix 1.4-Social Media Listening and Retailer Observations

We did not learn much from our social media listening since our target market is essentially composed of elderly people who do not spend time on social media. Also, topics such as Alzheimer's or other diseases are not commonly mentioned on such platforms unless it is to raise awareness about them.

From our retailer observations, we realized that independent stores are not the most reliable when it came to information search since one of the stores we visited did not want to answer our questions and the other location went out of business. One store notably did not acknowledge the team member we sent in to gather information, refusing even to greet them when they walked in. This research tempered our decision to focus primarily on big-box retailers and chain stores.

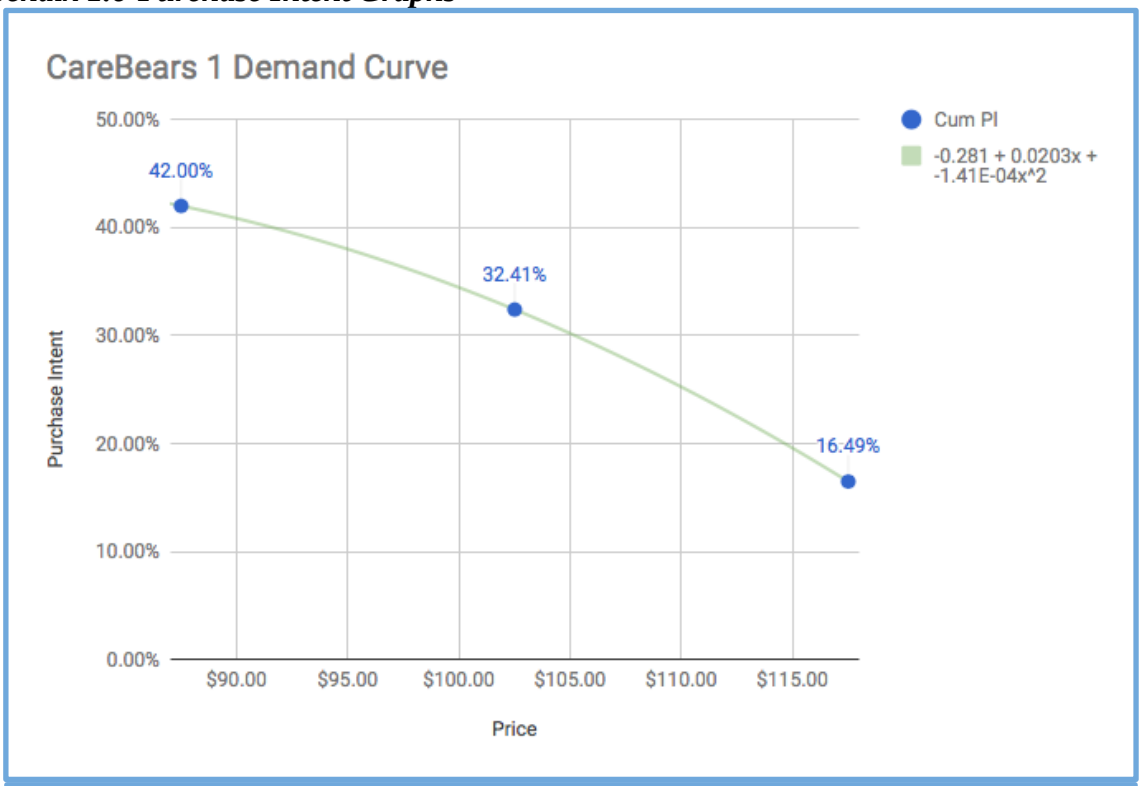
Appendix 1.5- Sales Force Chart Year 1 - 5

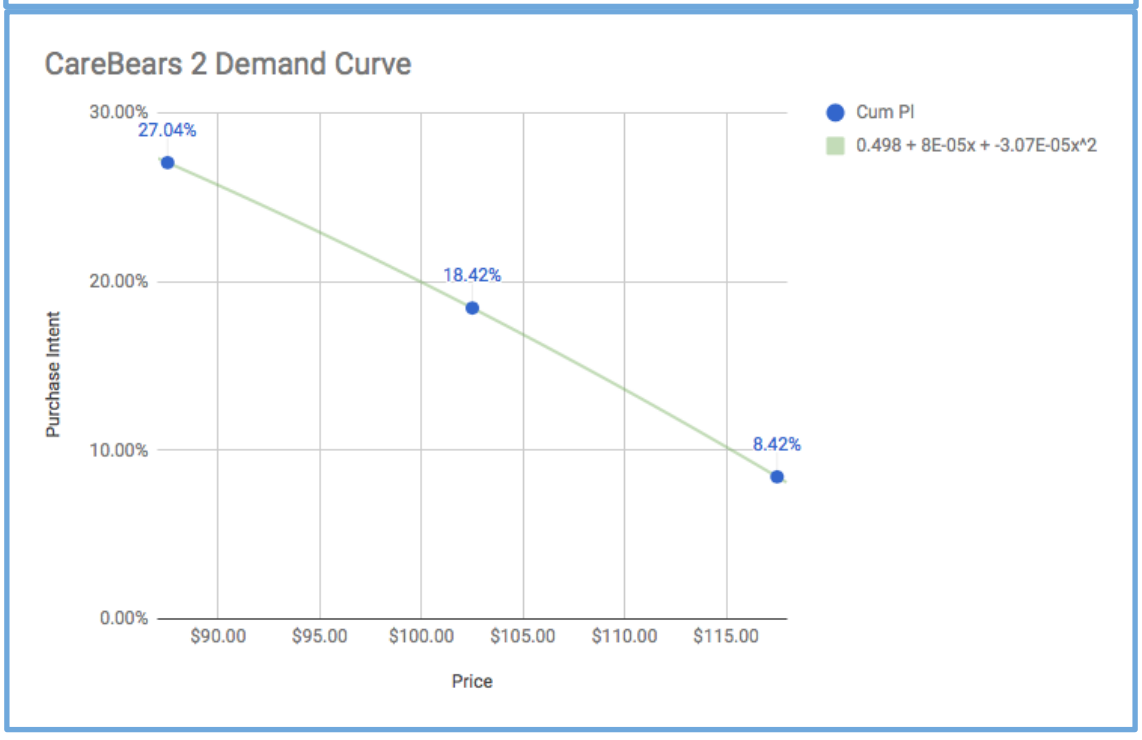
Sales Force		
# People	**Year 1**	
1	**CEO**	$115,000.00
1	**CFO**	$110,000.00
1	**MK Manager**	$85,000.00
1	**COO**	$97,500.00
1	**Accountant**	$56,000.00
2	**Customer Service**	$69,560.00
1	**Independent Retailers Reps Commission**	$31,195.00
8	**Total Salaries**	**$564,255.00**

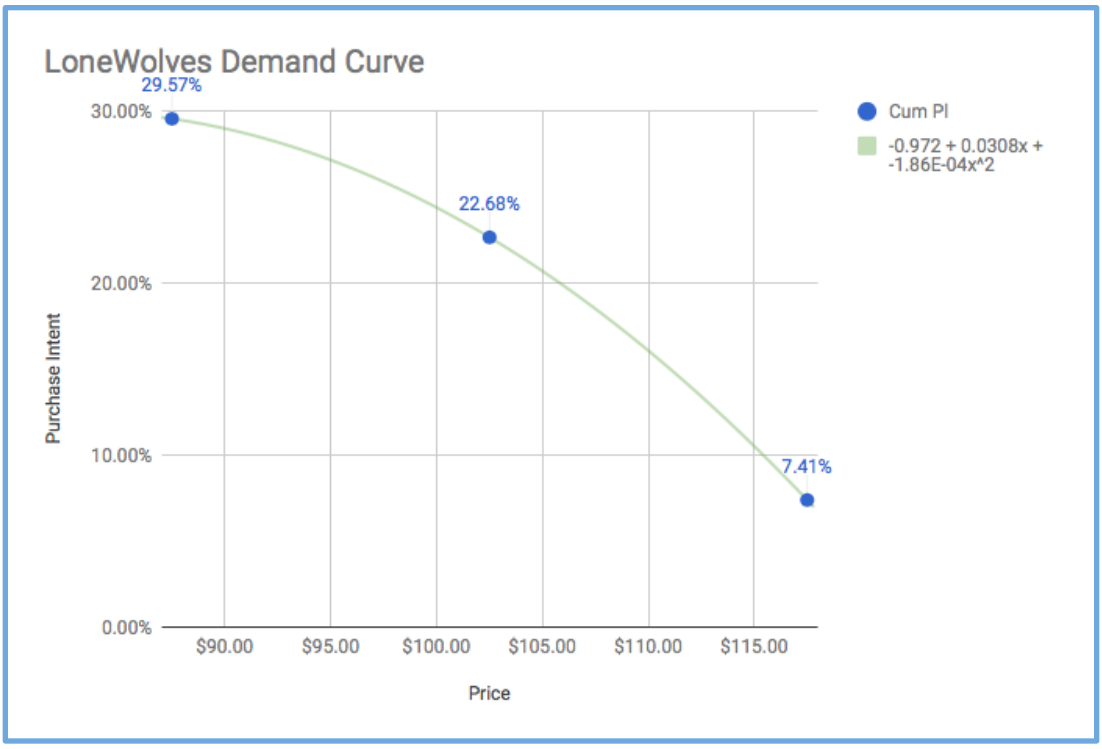
# People	**Year 2**	
1	**CEO**	$118,450.00
1	**CFO**	$113,300.00
1	**MK Manager**	$87,550.00
1	**COO**	$100,425.00
1	**Accountant**	$57,680.00
2	**Customer Service**	$71,646.80
1	**Independent Retailers Reps Commission**	$68,590.00
8	**Total Salaries**	**$617,641.80**
# People	**Year 3**	
1	**CEO**	$122,003.50
1	**CFO**	$116,699.00
1	**Head of MK**	$90,176.50
1	**MK Research Department**	$144,100.00
1	**MK Strategy**	$138,500.00
2	**COO**	$103,437.75
1	**Accountant**	$118,820.80
2	**Customer Service**	$73,796.20
1	**Own Salesperson**	$100,000
11	**Total Salaries**	**$1,007,534**

# People	**Year 4**	
1	**CEO**	$125,663.61
1	**CFO**	$120,199.97
1	**Head of MK**	$92,881.80
3	**MK Research Department**	$222,634.50
3	**MK Strategy**	$213,982.50
1	**COO**	$106,540.88
2	**Accountant**	$122,385.42
2	**Customer Service**	$76,010.09
1	**Own Salesperson**	$103,000.00
15	**Total Salaries**	**$1,183,298.77**
# People	**Year 5**	
1	**CEO**	$129,433.51
1	**Head of MK**	$95,668.25
3	**MK Research Department**	$229,313.54
3	**MK Strategy**	$220,401.98
1	**COO**	$109,737.11
2	**Customer Service**	$78,290.39
1	**CFO**	$123,805.97
1	**Finance & Tax**	$72,000.00
2	**Accountant**	$126,056.99
1	**Own Salesperson**	$106,090.00
16	**Total Salaries**	**$1,290,797.73**

Appendix 1.6-Purchase Intent Graphs







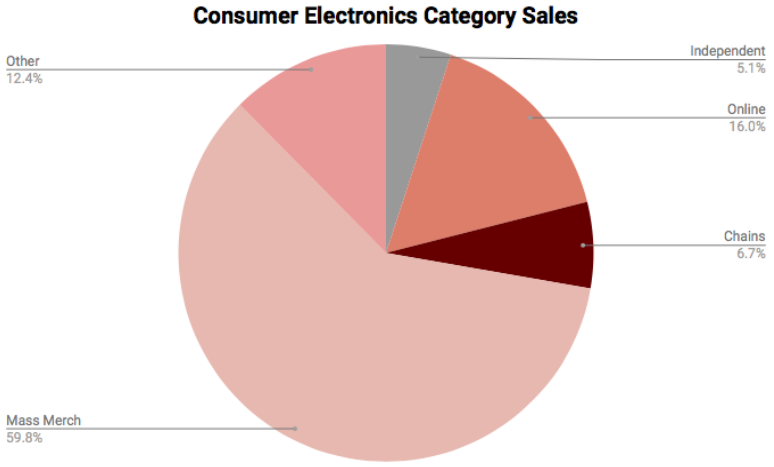
Appendix 1.7- Purchase Intent Pivot Tables

Carebears 1					
Count of Willing Price	**Purchase Likelihood**				
Willing Price	**Definitely Buy**	**Probably Buy**	**2**	**3**	**Grand Total**
$80-$94.99	4	5	3	1	13
$95-$109.99	3	18	2		23
$110-$125	6	7			13
Grand Total	**13**	**30**	**5**	**1**	**49**

Carebears 2					
Count of Willing Price	**Purchase Likelihood**				
Willing Price	**Definitely Buy**	**Probably Buy**	**2**	**3**	**Grand Total**
$80-$94.99	2	3	1		6
$95-$109.99	1	7	5	3	16
$110-$125		6	1		7
Grand Total	**3**	**16**	**7**	**3**	**29**

Lone Wolves					
Count of Willing Price	**Purchase Likelihood**				
Willing Price	**Definitely Buy**	**Probably Buy**	**2**	**3**	**Grand Total**
$80-$94.99	3	9	5	3	20
$95-$109.99	7	19	8		34
$110-$125	2	7	10	1	20
Grand Total	**12**	**35**	**23**	**4**	**74**

Appendix 1.8-Channel Distribution



Category Annual Sales	$ 220,000,000,000	
Consumer Electronics	**Sales Revenue**	**% of Industry**
Mass Merchandisers	**$ 131,675,726,600**	**59.853%**
Best Buy	$ 53,328,000,000	24.240%
Walmart Stores	$ 35,011,922,000	15.915%
Apple Stores	$ 18,326,000,000	8.330%
Target	$ 11,677,804,600	5.308%
Costco Wholesale	$ 8,338,000,000	3.790%
Sam's Club	$ 4,994,000,000	2.270%
Independent	**$ 11,074,800,000**	**5.034%**
Fry's Electronics	$ 1,980,000,000	0.900%
Newegg	$ 2,772,000,000	1.260%
P.C. Richardson & Son	$ 682,000,000	0.310%
Crutchfield	$ 268,400,000	0.122%
ABC Warehouse	$ 220,000,000	0.10%
Microelectronics	$ 2,420,000,000	1.100%
BOSE	$ 594,000,000	0.270%
Other	$ 2,138,400,000	0.972%
Chains	**$ 14,759,382,000**	**6.709%**
Radioshack	$ 6,707,382,000	3.049%
GameStop	$ 8,052,000,000	3.660%
Online	**$ 35,200,000,000**	**16.000%**
Other	**$ 27,357,000,000**	**12.435%**
Total	**$ 220,066,908,600**	**100.030%**

Appendix 2.1-Bill of Materials

Bill of Material						
Material	**Supplier**	**Lat**	**Long**	**Price per unit**	**Quantity Needed per FG**	**Cost per unit of FG**
Product						
Silicone Rubber	Alibaba	36.162124	-79.723209	$ 5.00	0.03004286	$ 0.15
Emergency Button	Alibaba	33.946363	-118.401085	$ 0.01	1	$ 0.01
LED Lights	Mouser Electronics	33.946363	-118.401085	$ 0.11	1	$ 0.11
Microphone & Speaker	STMicroelectronics	32.983423	-97.014215	$ 0.95	1	$ 0.95
Haptic Vibrator	Alibaba	33.946363	-118.401085	$ 1.61	1	$ 1.61
Arm 32bit Microcontroller	STMicroelectronics	32.983423	-97.014215	$ 0.01	1	$ 0.01
GPS & LTE Module	Alibaba	33.946363	-118.401085	$ 6.88	1	$ 6.88
Heart Rate Monitor	Alibaba	33.946363	-118.401085	$ 0.10	1	$ 0.10
Battery	Alibaba	33.946363	-118.401085	$ 1.39	1	$ 1.39
Microscrews	Alibaba	47.674601	-122.395342	$ 0.01	8	$ 0.08
Soldering Lead	Alibaba	33.946363	-118.401085	$ 2.30	0.01	$ 0.02
Packaging						
Packing Box	Alibaba	33.946363	-118.401085	$ 1.90	1	$ 1.90
User's Manual	Alibaba	33.946363	-118.401085	$ 0.20	2	$ 0.40
Total						$ 11.31

Appendix 2.2-OM Assumptions

General OM Assumptions					
Number of hours available per week	40				
Number of weeks available per month	4				
Number of months available per year	12				
Total hours in a year	1920				
Number of seconds per minute	60				
Number of minutes per hour	60				
Total seconds in a year	6912000				
Projected annual inflation rates					
Year	1	2	3	4	5
Projected annual inflation rate from years 1 to 5	2.38%	2.64%	2.32%	2.18%	2.27%

Appendix 2.3-Center of Gravity

Material	Supplier	Latitude	Longitude
Silicone Rubber	Alibaba	36.162124	-79.723209
Emergency Button	Alibaba	33.946363	-118.401085
LED Lights	Mouser Electronics	33.946363	-118.401085
Microphone & Speaker	STMicroelectronics	32.983423	-97.014215
Haptic Vibrator	Alibaba	33.946363	-118.401085
Arm 32bit Microcontroller	STMicroelectronics	32.983423	-97.014215
GPS & LTE Module	Alibaba	33.946363	-118.401085
Heart Rate Monitor	Alibaba	33.946363	-118.401085
Battery	Alibaba	33.946363	-118.401085
Microscrews	Alibaba	47.674601	-122.395342
Soldering Lead	Alibaba	33.946363	-118.401085
Center of Gravity		**47.67**	**-122.40**

Finance

Appendix 3.1- AWS Server Costs

Since our servers are needed to compute locational data, we require the Compute Optimized - Current Generation c4.large server, with vCPU of 2, ECU of 8, with EBS instance storage and 3.75 GiB memory. By taking our demand in year one and dividing that by the factor of the memory fixtures, as well as adding the incremental cost associated with an additional user on memory, we calculated the proper scaling cost multiplier of 3,737.64. This multiple was used on the cost of operating the servers for 24 hours a day, 365 days a year. From year 1 onward, we increased the multiplier by the percent change in revenue in order to match our user base.

Appendix 3.2- Initial Investments

Fixed Assets: Our initial investments in fixed assets are tied to the purchase of equipment for manufacturing RemBand and the hardware from our IT Costs in year 0. Since most of our business is dependant on software and technical expertise, we require every employee to have a laptop, and decided not to include other IT costs in year 0 that aren't hardware, as all of our software modules are subscription based. We also included the cost of developing the software for our product - this software ultimately is put into our balance sheet as an intangible asset, as is customary for proprietary software for a company of our nature. The cost structure for our software is located on our IT Costs tab in the workbook. We amortized this on a 10 year schedule and will re-evaluate the software's value after 5 years.

Initial Startup Costs: Our initial startup costs are one quarter's worth of our initial operating expenses, plus raw materials and work in process for year 0, and finished goods in year 0. The quarter's worth of operating expenses are concurrent with companies in our industry. We calculated this large amount because of the high variability of costs for developing our product

Initial Operating Expenses: operating expenses include the lease payment for year 1 along with a quarter's worth of marketing advertising expenses, and a quarter's worth of manufacturer's sales rep commission and fixed administrative costs.

Appendix 3.3- Net Income Statement

Index!A1	RemBand Corp. Income Statement as of November 21, 2017					
(In US Dollars)	**Start-up**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Revenue	$ -	4,340,202	5,723,724	9,893,506	14,459,599	17,329,702
Subscription Revenue	$ -	4,092,720	5,473,380	9,696,360	14,745,420	17,823,480
Variable Costs	$ -	1,019,905	1,390,915	2,309,990	3,590,010	4,612,603
Manufacturing Overhead	$ -	201,062	339,225	415,463	559,869	607,004
Subscription Costs	$ -	5,721,623	7,651,785	13,555,511	20,614,097	24,917,225
Total Cost of Goods Sold	$ -	6,942,589	9,381,925	16,280,963	24,763,976	30,136,831
Gross Profit	$ -	1,490,334	1,815,180	3,308,902	4,441,042	5,016,351
One-time Start Up Expenses	$ 286,777	-	-	-	-	-
Administrative Overhead	$ -	533,060	549,052	907,534	1,080,299	1,184,708
Marketing Expenses Excluding Sales Force	$ -	167,600	125,583	244,647	249,430	249,589
Sales Force Expense	$ -	-	-	100,000	103,000	106,090
Maufacturer's Sales Reps Commission Expense	$ -	31,195	68,590	-	-	-
IS Expenses	$ -	210,522	250,782	300,025	445,711	465,191
Depreciation on original PP&E	$ -	15,796	15,796	15,796	15,796	15,796
Depreciation on new PP&E	$ -	-	-	1,828	1,828	1,828
Amortization on Intangible Assets	$ -	24,000	24,000	24,000	24,000	24,000
Earnings Before Tax	$ (286,777)	508,161	781,377	1,715,073	2,520,979	2,969,149
Taxes	$ -	177,856	273,482	600,276	882,343	1,039,202
Net income before CSR	$ (286,777)	330,304	507,895	1,114,798	1,638,636	1,929,947
CSR Initiative	$ -	9,909	15,237	33,444	49,159	57,898
Net Income	$ (286,777)	320,395	492,658	1,081,354	1,589,477	1,872,049

Appendix 3.4- Balance Sheet

Index!A1	RemBand Corp. Balance Sheet as of November 21, 2017					
(In US Dollars)	**Time 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Current Assets						
Cash reserves	$ 161,984	421,646	559,855	979,493	1,460,251	1,757,659
A/R Online	$ -	1,782,604	2,213,413	3,345,521	3,347,440	3,622,924
A/R Other	$ -	179,444	391,764	1,212,361	3,447,554	4,556,002
Accounts Receivable	$ -	1,962,048	2,605,178	4,557,882	6,794,995	8,178,926
Raw Materials and WIP	$ 64,134	192,401	346,012	625,366	948,158	1,149,894
Finished Goods Inventory	$ 26,156	78,469	137,295	225,289	337,243	414,938
Total Current Assets	$ 252,274	2,654,564	3,648,340	6,388,030	9,540,646	11,501,416
Fixed Assets						
Gross Fixed Assets	$ 78,979	78,979	78,979	88,118	88,118	88,118
Accumulated Depreciation On Original PPE	$ -	(15,796)	(31,592)	(47,387)	(63,183)	(78,979)
Accumulated Depreciation On New PPE	$ -	-	-	(1,828)	(3,656)	(5,484)
Intangible Assets Software IP	$ 240,000	240,000	240,000	240,000	240,000	240,000
Accumulated Amortization	$ -	(24,000)	(48,000)	(72,000)	(96,000)	(120,000)
Net Fixed Assets	$ 318,979	279,183	239,387	206,903	165,279	123,656
TOTAL ASSETS	$ 571,253	2,933,747	3,887,727	6,594,933	9,705,925	11,625,072
Current Liabilities						
Accounts Payable	$ -	1,740,539	2,352,091	4,081,712	6,208,442	7,555,441
Current Liabilities	$ -	1,740,539	2,352,091	4,081,712	6,208,442	7,555,441
Equity						
Paid in Capital (Cumulative)	$ 858,030	1,159,590	1,159,590	1,159,590	1,159,590	1,159,590
Retained Earnings (Cumulative)	$ (286,777)	33,618	376,046	1,353,631	2,337,893	2,910,040
Total Equity	$ 571,253	1,193,208	1,535,636	2,513,221	3,497,483	4,069,630
TOTAL LIABILTIES AND EQUITY	$ 571,253	2,933,747	3,887,727	6,594,933	9,705,925	11,625,072

Total Assets - Total Liabilities & Equity	**Balanced**	**Balanced**	**Balanced**	**Balanced**	**Balanced**	**Balanced**
	$ -	$ -	$ -	$ -	$ -	$ -

Appendix 3.5- Statement of Cash Flows

IndexIA1	RemBand Corp. Statement of Cash Flows as of November 21, 2017						
(In US Dollars)	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	
Initial Investment in Fixed Assets	$ (318,979)						
Net Income	$ (286,777)	320,395	492,658	1,081,354	1,589,477	1,872,049	
+ Depreciation	$ -	15,796	15,796	17,624	17,624	17,624	
+ Amortization	$ -	24,000	24,000	24,000	24,000	24,000	
less Change in Net Working Capital	$ 252,274	661,751	382,223	1,010,069	1,025,886	613,771	
less Capital Investment	$ -	-	-	9,139	-	-	
Net Free Cash Flow*	$ (858,030)	(301,560)	150,231	103,769	605,215	1,299,902	1,299,902
Net FCF % Change		135.15%	149.82%	-30.93%	483.23%	114.78%	0.00%
Terminal Value of Business *	$ -	-	-	-	-	**4,847,304**	**Perpetuity**
						1,070,621	**Liquidation**
						3,714,299	**Weighted Avg. TV**
Total Cash Flow	$ (858,030)	(301,560)	150,231	103,769	605,215	5,014,201	
NI Percent Change		189.51%	34.97%	54.44%	31.97%	15.09%	
Total Cash Flow % Change		135.15%	149.82%	-30.93%	483.23%	728.50%	

Appendix 3.6- RemBand Ratios

Year	0	1	2	3	4	5	
RemBand Key Ratios	2017	2018	2019	2020	2021	2022	Avg
EV	696,046	2,478,483	2,951,826	4,261,809	5,907,781	6,957,372	**3,875,553**
EBIT	(286,777)	508,161	781,377	1,715,073	2,520,979	2,969,149	**1,367,994**
EBITDA	(286,777)	547,957	821,173	1,756,697	2,562,603	3,010,773	**1,402,071**
EV/EBIT	-2.43x	4.88x	3.78x	2.48x	2.34x	2.34x	**2.23x**
EV/EBITDA	-2.43x	4.52x	3.59x	2.43x	2.31x	2.31x	**2.12x**
ROA		10.92%	12.67%	16.40%	16.38%	16.10%	**14.49%**
ROE*		26.85%	32.08%	43.03%	45.45%	46.00%	**38.68%**
Return on Sales		6.03%	6.98%	8.75%	8.63%	8.45%	**7.77%**
Gross Magin % (Subscription Included)		17.67%	16.21%	16.89%	15.21%	14.27%	**16.05%**
Gross Magin % (No Subscription)		71.87%	69.77%	72.45%	71.30%	69.88%	**71.05%**
COGS % Sales (Subscription Included)		82.33%	83.79%	83.11%	84.79%	85.73%	**83.95%**
COGS % Sales (No Subscription)		28.13%	30.23%	27.55%	28.70%	30.12%	**28.95%**
SG&A % Sales		11.65%	9.23%	8.14%	6.57%	5.82%	**8.28%**
Marketing Expense % Sales		2.36%	1.73%	1.76%	1.21%	1.01%	**1.61%**
Accounts Receivable %		23.27%	23.27%	23.27%	23.27%	23.27%	**23.27%**
Accounts Payable %		25.07%	25.07%	25.07%	25.07%	25.07%	**25.07%**
A/R Days		84.92	84.92	84.92	84.92	84.92	**84.92**
A/P Days		91.51	91.51	91.51	91.51	91.51	**91.51**
Inventory Days		4.13	5.34	5.05	4.97	5.03	**4.90**
Quick Ratio		1.4x	1.3x	1.4x	1.3x	1.3x	**1.3x**
Current Ratio		1.5x	1.6x	1.6x	1.5x	1.5x	**1.5x**
Total Asset Turnover (No Subscription Revenue)		1.5x	1.5x	1.5x	1.5x	1.5x	**1.5x**
Total Asset Turnover (Includes Subscription Revenue)		2.9x	2.9x	3.0x	3.0x	3.0x	**3.0x**
Receivables Turnover		0.4x	0.5x	0.9x	1.3x	1.6x	**1.0x**
Inventory Turnover (No Subscription Costs)		15.6x	12.6x	12.1x	12.3x	12.6x	**13.0x**
Inventory Turnover (Includes Subscription Costs)		88.5x	68.3x	72.3x	73.4x	72.6x	**75.0x**
Accounts Payable Turnover		0.4x	0.5x	0.9x	1.3x	1.6x	**0.9x**
Property Plant & Equip Turnover (No Subscription Model)		15.5x	23.9x	47.8x	87.5x	140.1x	**63.0x**
Cash & Equivalents Turnover (No Subscription Model)		10.3x	10.2x	10.1x	9.9x	9.9x	**10.1x**
Net Current Assets % TA		31.16%	33.34%	34.97%	34.33%	33.94%	**33.55%**
Cash Flow % Of Sales (No Subscription Model)		-19.77%	-5.27%	1.52%	0.72%	3.49%	**-3.86%**
Cash Flow % Of Sales (Includes Subscription Model)		-10.17%	-2.69%	0.77%	0.36%	1.72%	**-2.00%**
Risk Free	1.70%						**1.70%**
Beta	2.01						**2.01**
Market Risk Premium	6.70%						**6.70%**
Additional small cap premium	11.65%						**11.65%**
CAPM projection of cost of equity	26.82%						**26.82%**

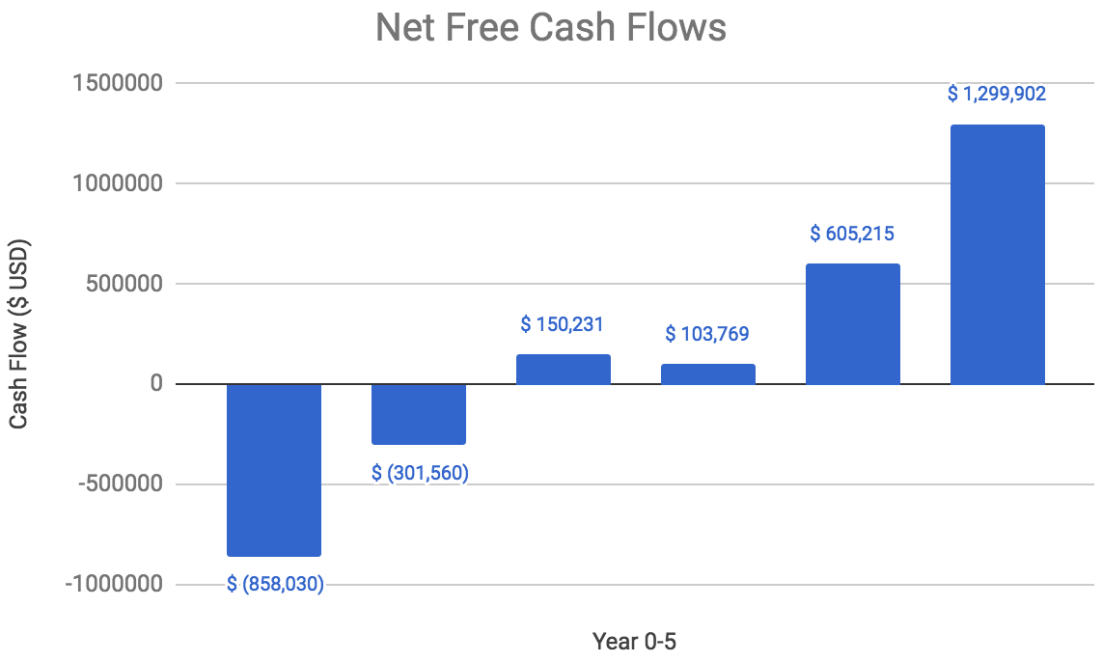
Appendix 3.7- Fitbit Ratios

Fitbit Key Ratios	2017	2016	2015	2014	2013	2012	Avg
EV	768,600,000						768,600,000
EBIT	(362,800,000)	(92,200,000)	336,400,000	161,300,000	(7,200,000)		7,100,000
EBITDA	(317,700,000)	(54,000,000)	356,100,000	167,500,000	(4,200,000)		29,540,000
EV/EBIT	-2.1x	-8.3x	2.3x	4.8x	-106.8x		-22.0x
EV/EBITDA	-2.4x	-14.2x	2.2x	4.6x	-183.0x		-38.6x
ROA	14.40%	3.50%	19.50%	23.30%			15.18%
ROE	-38.80%	-10.40%	30.80%	159.10%			35.18%
Return on Sales	-23.40%	-4.70%	9.50%	17.70%	-19.00%	-5.50%	-4.23%
Gross Margin % Sales	36.30%	39.90%	48.50%	48.00%	22.90%	34.90%	38.42%
COGS % Sales	63.70%	60.10%	51.50%	52.00%	77.10%	65.10%	61.58%
SG&A expense	37.90%	29.40%	22.30%	19.10%	15.20%	18.60%	23.75%
Marketing Expenses % Sales		22.65%	17.91%	15.03%	9.89%	13.35%	15.76%
Accounts Receivable %	16.13%	22.02%	25.26%	32.05%	29.73%		25.04%
Accounts Payable %	17.32%	24.05%	27.25%	50.46%	33.91%		30.60%
A/R Days	58.86	58.86	58.86	58.86	58.86	58.86	58.86
A/P Days	63.21	63.21	63.21	63.21	63.21	63.21	63.21
Inventory Days	62.50	57.30	55.90	80.70			64.10
Quick Ratio	1.8x	1.6x	2.2x	0.9x	0.8x		1.5x
Current Ratio	2.2x	1.9x	2.7x	1.2x	1.1x		1.8x
Total Asset Turnover	1.0x	1.3x	1.7x	1.7x			1.3x
Receivables Turnover	4.5x	4.6x	5.2x	4.7x			4.8x
Inventory Turnover	5.8x	6.4x	6.5x	4.5x			5.8x
Accounts Payable Turnover	1.4x	2.5x	2.1x	1.6x	0.6x	0.0x	1.4x
Property Plant & Equip Turnover	11.7x	18.7x	25.8x	20.6x	25.3x		20.4x
Cash & Equivalents Turnover	5.8x	7.2x	3.5x	3.8x	3.3x		4.7x
Net Current Assets % TA	84.74%	81.34%	89.22%	88.96%	97.18%		88.29%
Cash % Of Sales	-4.58%	-86.50%	45.64%	6.13%	3.16%	-0.10%	-6.04%
Beta	2.52						2.52

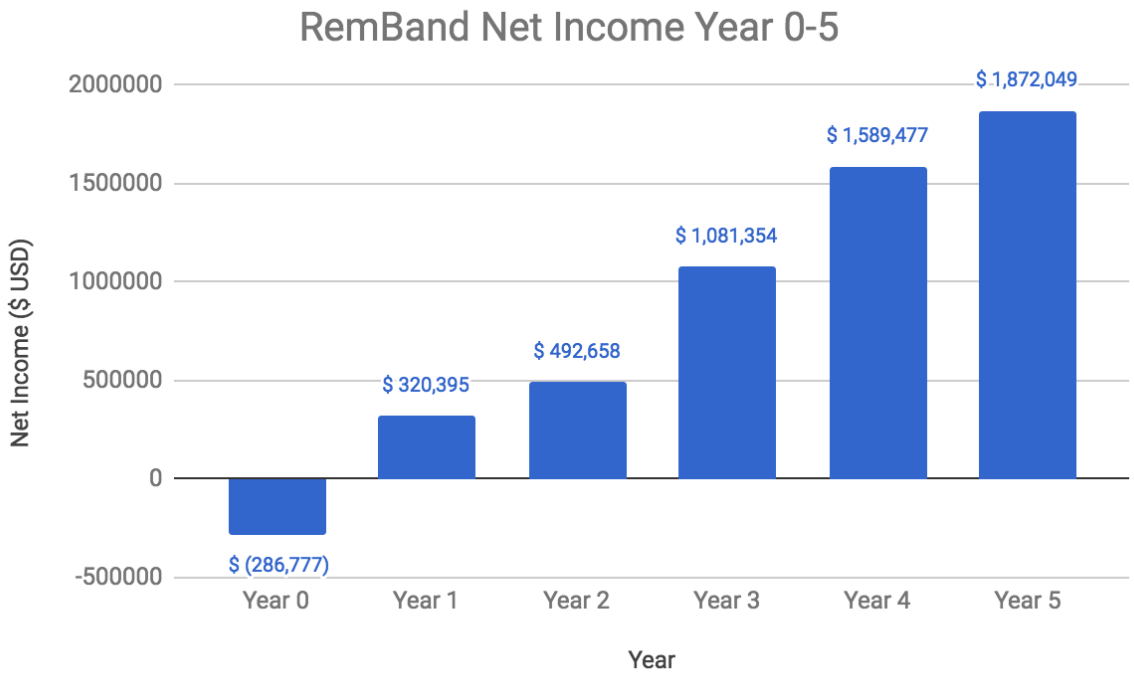
Appendix 3.8- Garmin Ratios

Garmin Key Ratios	2017	2016	2015	2014	2013	2012	Avg
EV	10,245,600						10,245,600
EBIT	649,300,000	623,900,000	549,600,000	690,600,000	574,000,000		617,480,000
EBITDA	736,800,000	710,200,000	627,900,000	767,600,000	652,800,000		699,060,000
EV/EBIT	14.9x	15.2x	15.6x	15.8x	16.5x		15.6x
EV/EBITDA	13.2x	13.3x	13.6x	13.9x	14.5x		13.7x
ROA	8.60%	8.60%	7.50%	9.00%	7.40%	8.10%	8.20%
ROE	19.80%	15.10%	13.50%	10.30%	17.00%	16.00%	15.28%
Return on Sales	22.60%	16.90%	16.20%	12.70%	23.30%	20.00%	18.62%
Gross Margin % Sales	57.30%	55.60%	54.60%	55.90%	53.50%	53.00%	54.98%
COGS % Sales	42.70%	44.40%	45.40%	44.10%	46.50%	47.00%	45.02%
SG&A expense	19.50%	19.50%	19.90%	18.10%	17.80%	18.70%	18.92%
Marketing Expenses % Sales		5.87%	5.93%	5.11%	4.29%	5.11%	5.26%
Accounts Receivable %	14.95%	17.46%	18.85%	19.86%	21.45%	22.23%	19.13%
Accounts Payable %	12.16%	12.87%	13.96%	11.78%	11.97%	10.28%	12.17%
A/R Days	54.57	54.57	54.57	54.57	54.57	54.57	54.57
A/P Days	44.37	44.37	44.37	44.37	44.37	44.37	44.37
Inventory Days	157.80	136.50	130.80	115.40	114.80	112.20	127.92
Quick Ratio	1.9x	2.1x	1.8x	1.9x	2.1x	2.2x	2.0x
Current Ratio	2.8x	2.9x	2.6x	2.4x	2.9x	2.8x	2.7x
Total Asset Turnover	0.6x	0.7x	0.6x	0.6x	0.5x	0.6x	0.6x
Receivables Turnover	6.7x	5.7x	5.1x	5.1x	4.5x	4.5x	5.3x
Inventory Turnover	2.4x	2.7x	2.8x	3.2x	3.2x	3.2x	2.9x
Accounts Payable Turnover	1.1x	1.2x	1.2x	1.0x	1.0x	0.9x	1.1x
Property Plant & Equip Turnover	0.0x	0.3x	0.3x	0.3x	0.3x	0.3x	0.3x
Cash & Equivalents	0.3x	0.3x	0.3x	0.4x	0.4x	0.5x	0.4x
Net Current Assets % TA	48.24%	50.01%	49.14%	53.50%	53.19%	52.63%	51.12%
Cash % Of Sales	-0.78%	0.52%	-12.65%	0.61%	-1.72%	-1.83%	-2.64%
Beta	0.82						0.82

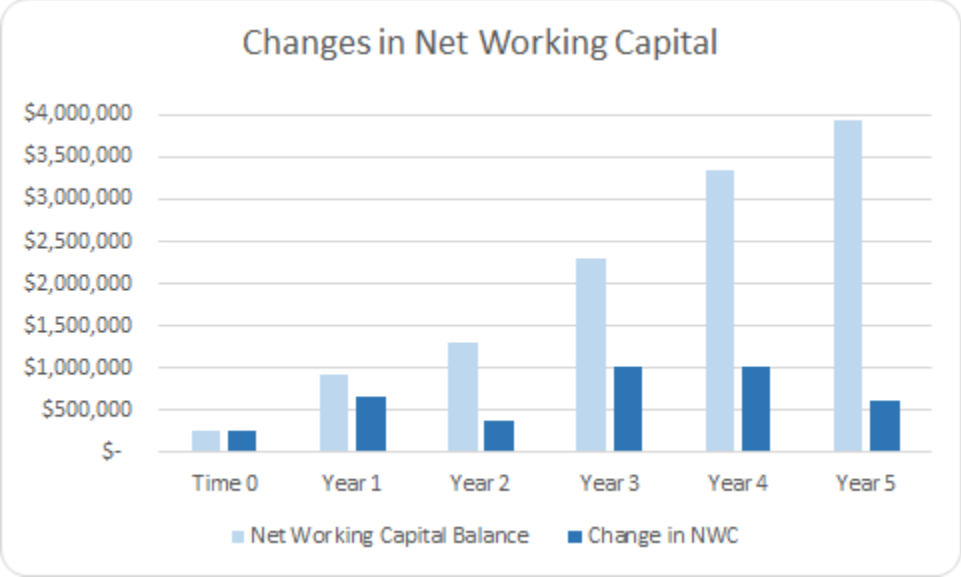
Appendix 3.9- Net Free Cash Flows



Appendix 3.10- Net Income Year 0-5



Appendix 3.11- Changes in Net Working Capital



Appendix 3.12- Workbook Scenario Observation

On the index of the integrated workbook, we have included a scenario observation cell to modify demand. At a value of 0, the workbook will display the Base Case results. At a value of -1, the workbook will display all variables calculated from a 10% decrease in demand. At a value of 1, the workbook displays all variables calculated from a 10% increase in demand. These scenario observations allow us to examine realistic expectations of our results. Even with the Pessimistic Case, our product has an NPV of $266,101. At an Optimistic Case, we achieve an NPV of $1,366,051. This tool allows us to anticipate unforeseen changes in the market.

Risk Analysis Appendix

Figure 1.1 *Influence Chart of RemBand*

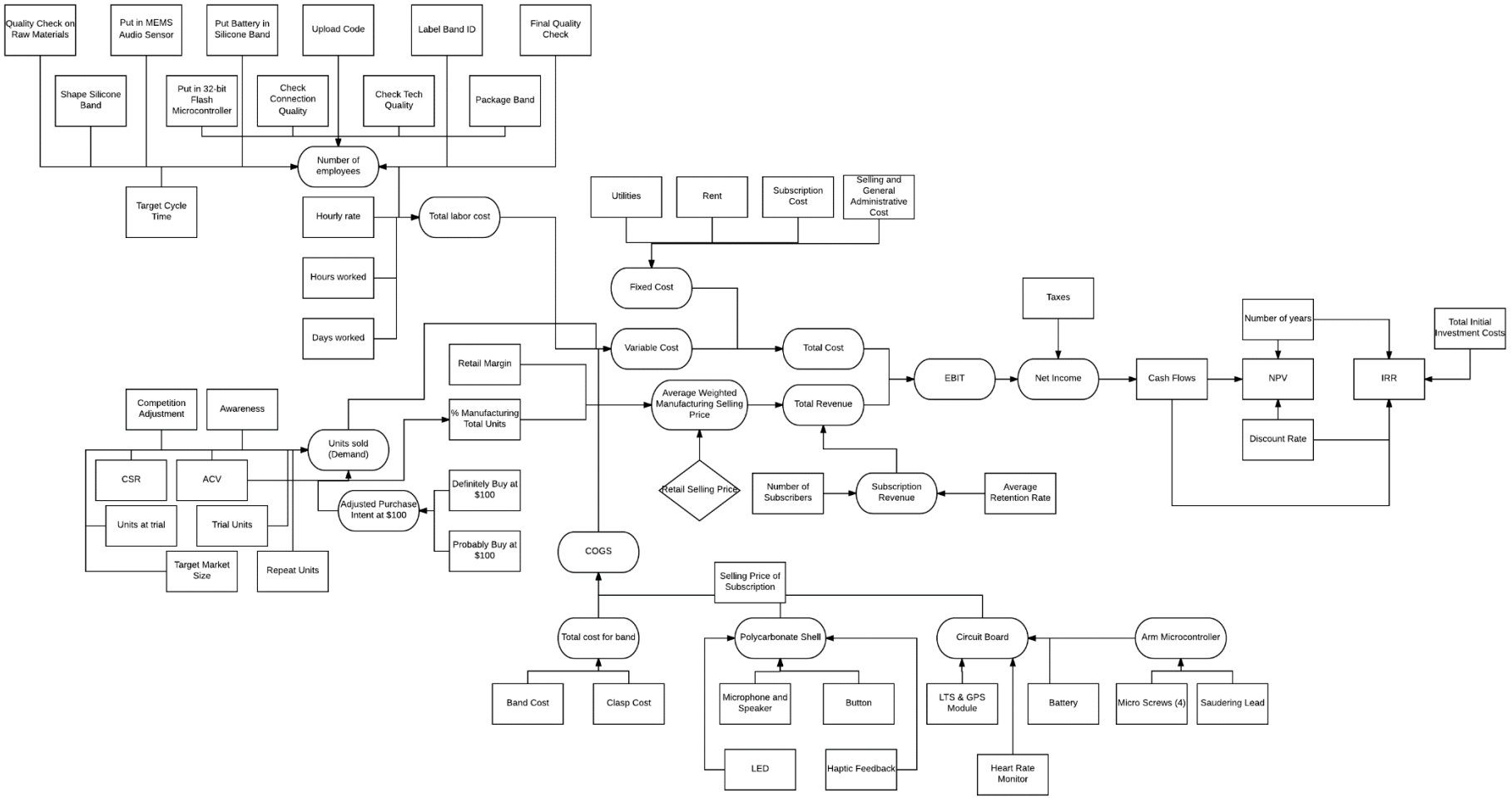


Figure 2.1 *Effect of 1% Increase of Direct Materials, Purchase Intent, ACV, Direct Labor, Awareness, Competition, Discount Rate, Price, and Rent on Net Present Value.*

	Original NPV	NPV with 1% Increase	Change in NPV with 1% Increase	Elasticities (due to 1% Increase)
Direct Material	$811,132.58	$769,180.27	$(41,952.31)	-5.17%
Purchase Intent	$811,132.58	$870,488.08	$59,355.49	7.32%
ACV	$811,132.58	$870,488.00	$59,355.42	7.32%
Direct Labor	$811,132.58	$802,180.65	$(8,951.93)	-1.10%
Awareness	$811,132.58	$870,488.00	$59,355.42	7.32%
Competition	$811,132.58	$797,388.00	$(13,744.58)	-1.69%
Discount Rate	$811,132.58	$782,755.00	$(28,377.58)	-3.50%
Price	$811,132.58	$692,500.62	$(118,631.96)	-14.63%
Rent	$811,132.58	$808,281.38	$(2,851.20)	-0.35%

Figure 2.2 *Effect of 1% Decrease of Direct Materials, Purchase Intent, ACV, Direct Labor, Awareness, Competition, Discount Rate, Price, and Rent on Net Present Value.*

	Original NPV	NPV with 1% Decrease	Change in NPV with 1% Decrease	Elasticities (due to 1% Decrease)
Direct Material	$811,132.58	$853,125.39	$41,992.80	5.18%
Purchase Intent	$811,132.58	$761,156.32	$(49,976.26)	-6.16%
ACV	$811,132.58	$761,156.00	$(49,976.58)	-6.16%
Direct Labor	$811,132.58	$820,087.03	$8,954.44	1.10%
Awareness	$811,132.58	$761,156.00	$(49,976.58)	-6.16%
Competition	$811,132.58	$829,288.00	$18,155.42	2.24%
Discount Rate	$811,132.58	$840,165.00	$29,032.42	3.58%
Price	$811,132.58	$935,678.78	$124,546.20	15.35%
Rent	$811,132.58	$813,988.69	$2,856.11	0.35%

Figure 3.1 *Breakeven Percent Change for Net Present Value and Internal Rate of Return to Reach Zero.*

	Breakeven % Change NPV	Breakeven % Change IRR
Direct Material	19.00%	41.00%
Purchase Intent	-15.00%	-30.00%
ACV	-15.00%	-30.00%
Direct Labor	92.00%	203.00%
Awareness	-15.00%	-30.00%
Competition	51.00%	92.00%
Discount Rate	38.24%	449,914,525.90%
Price	6.00%	11.00%
Rent	285.00%	814.00%

Figure 3.2 *Values for Direct Materials, Purchase Intent, ACV, Direct Labor, Awareness, Competition, Discount Rate, Price, and Rent for Net Present Value and Internal Rate of Return to Reach Zero for Year 1.*

	NPV		IRR	
Year 1	Starting Value	Breakeven Variable Value	Starting Value	Breakeven Variable Value
Direct Material	1,157.00%	1,383.00%	1,157.00%	1,637.00%
Purchase Intent Carebears 1	33.90%	28.86%	33.90%	23.71%
Purchase Intent Carebears 2	19.90%	16.94%	19.90%	13.92%
Purchase Intent Lone Wolves	24.80%	21.11%	24.80%	17.35%
ACV	$0.13	$0.11	$0.13	$0.11
Direct Labor	338.00%	647.78%	338.00%	1,022.27%
Awareness Carebears 1	7.90%	6.72%	7.90%	5.53%
Awareness Carebears 2	7.60%	6.47%	7.60%	5.32%
Awareness Lone Wolves	5.00%	4.26%	5.00%	3.50%
Competition Carebears 1	-	-	-	-
Competition Carebears 2	-	-	-	-
Competition Lone Wolves	0.00%	0.00%	0.00%	0.00%
Discount Rate	$0.27	$0.38	$0.27	$4,499,146.26
Price	$100.00	$105.84	$100.00	$110.81
Rent	$103,813.32	$400,102.54	$103,813.32	$948,953.91

Figure 3.3 *Values for Direct Materials, Purchase Intent, ACV, Direct Labor, Awareness, Competition, Discount Rate, Price, and Rent for Net Present Value and Internal Rate of Return to Reach Zero for Year 2.*

	NPV		IRR	
Year 2	**Starting Value**	**Breakeven Variable Value**	**Starting Value**	**Breakeven Variable Value**
Direct Material	1,188.00%	1,420.00%	1,188.00%	1,680.00%
Purchase Intent Carebears 1	33.90%	28.86%	33.90%	23.71%
Purchase Intent Carebears 2	19.90%	16.94%	19.90%	13.92%
Purchase Intent Lone Wolves	24.80%	21.11%	24.80%	17.35%
ACV	$0.14	$0.12	$0.14	$0.12
Direct Labor	337.00%	645.83%	337.00%	1,019.20%
Awareness Carebears 1	8.80%	7.49%	8.80%	6.16%
Awareness Carebears 2	8.40%	7.15%	8.40%	5.88%
Awareness Lone Wolves	6.50%	5.53%	6.50%	4.55%
Competition Carebears 1	-	-	-	-
Competition Carebears 2	-	-	-	-
Competition Lone Wolves	0.00%	0.00%	0.00%	0.00%
Discount Rate	$0.27	$0.38	$0.27	$4,499,146.26
Price	$100.00	$105.84	$100.00	$110.81
Rent	$106,553.99	$410,665.25	$106,553.99	$974,006.29

Figure 3.4 *Values for Direct Materials, Purchase Intent, ACV, Direct Labor, Awareness, Competition, Discount Rate, Price, and Rent for Net Present Value and Internal Rate of Return to Reach Zero for Year 3.*

	NPV		IRR	
Year 3	**Starting Value**	**Breakeven Variable Value**	**Starting Value**	**Breakeven Variable Value**
Direct Material	1,216.00%	1,453.00%	1,216.00%	1,719.00%
Purchase Intent Carebears 1	34.27%	29.17%	34.27%	23.97%
Purchase Intent Carebears 2	20.18%	17.18%	20.18%	14.12%
Purchase Intent Lone Wolves	25.09%	21.36%	25.09%	17.55%
ACV	$0.16	$0.14	$0.16	$0.14
Direct Labor	214.00%	410.12%	214.00%	647.22%
Awareness Carebears 1	16.70%	14.22%	16.70%	11.68%
Awareness Carebears 2	15.60%	13.28%	15.60%	10.91%
Awareness Lone Wolves	12.20%	10.38%	12.20%	8.53%
Competition Carebears 1	49,335.00	7,451.08	49,335.00	9,489.97
Competition Carebears 2	7,026.00	10,611.00	7,026.00	13,514.00
Competition Lone Wolves	2,844,300.00%	4,295,700.00%	2,844,300.00%	5,471,100.00%
Discount Rate	$0.27	$0.38	$0.27	$4,499,146.26
Price	$99.53	$105.84	$99.53	$110.81
Rent	$109,026.04	$420,192.68	$109,026.04	$996,603.24

Figure 3.5 *Values for Direct Materials, Purchase Intent, ACV, Direct Labor, Awareness, Competition, Discount Rate, Price, and Rent for Net Present Value and Internal Rate of Return to Reach Zero for Year 4.*

	NPV		IRR	
Year 4	**Starting Value**	**Breakeven Variable Value**	**Starting Value**	**Breakeven Variable Value**
Direct Material	1,242.00%	1,484.00%	1,242.00%	1,757.00%
Purchase Intent Carebears 1	36.55%	31.11%	36.55%	25.56%
Purchase Intent Carebears 2	22.03%	18.75%	22.03%	15.41%
Purchase Intent Lone Wolves	26.85%	22.86%	26.85%	18.78%
ACV	$0.24	$0.21	$0.24	$0.21
Direct Labor	219.00%	419.52%	219.00%	662.06%
Awareness Carebears 1	17.80%	15.15%	17.80%	12.45%
Awareness Carebears 2	16.80%	14.30%	16.80%	11.75%
Awareness Lone Wolves	13.20%	11.24%	13.20%	9.23%
Competition Carebears 1	12,988.87	19,617.14	12,988.87	24,985.12
Competition Carebears 2	18,511.00	27,958.00	18,511.00	35,608.00
Competition Lone Wolves	7,382,400.00%	11,149,700.00%	7,382,400.00%	14,200,700.00%
Discount Rate	$0.27	$0.38	$0.27	$4,499,146.26
Price	$96.42	$102.05	$96.42	$106.84
Rent	$111,402.81	$429,352.88	$111,402.81	$1,018,329.19

Figure 3.6 *Values for Direct Materials, Purchase Intent, ACV, Direct Labor, Awareness, Competition, Discount Rate, Price, and Rent for Net Present Value and Internal Rate of Return to Reach Zero for Year 5.*

	NPV		IRR	
Year 5	**Starting Value**	**Breakeven Variable Value**	**Starting Value**	**Breakeven Variable Value**
Direct Material	1,270.00%	1,518.00%	1,270.00%	1,797.00%
Purchase Intent Carebears 1	36.97%	31.47%	36.97%	25.86%
Purchase Intent Carebears 2	22.39%	19.06%	22.39%	15.66%
Purchase Intent Lone Wolves	27.16%	23.12%	27.16%	19.00%
ACV	$0.27	$0.23	$0.27	$0.23
Direct Labor	283.00%	541.82%	283.00%	855.06%
Awareness Carebears 1	19.00%	16.17%	19.00%	13.29%
Awareness Carebears 2	17.90%	15.24%	17.90%	12.52%
Awareness Lone Wolves	14.30%	12.17%	14.30%	10.00%
Competition Carebears 1	18,789.07	28,377.21	18,789.07	36,142.27
Competition Carebears 2	22,309.00	33,694.00	22,309.00	42,914.00
Competition Lone Wolves	9,004,700.00%	13,599,800.00%	9,004,700.00%	17,321,000.00%
Discount Rate	$0.27	$0.38	$0.27	$4,499,146.26
Price	$95.80	$101.39	$95.80	$101.39
Rent	$113,931.66	$439,099.19	$113,931.66	$1,041,445.26

Figure 4.1 *Statistical Summary of Risk Simulation on Variables Direct Material, Direct Labor, and Awareness Pre and Post Mitigation.*

	Direct Material	Direct Material with Mitigation	Direct Labor	Direct Labor with Mitigation	Awareness	Awareness with Mitigation
Min	$(1,217,364.09)	$(826,503.97)	$369,077.35	$546,783.93	$(1,874,666.79)	$(1,245,663.34)
Max	$1,350,880.72	$1,123,272.88	$854,590.69	$943,346.36	$2,293,131.01	$2,783,300.42
Mean	$163,772.60	$233,561.30	$677,264.50	$766,492.61	$437,105.90	$781,160.33
Std. Dev	$545,788.73	$412,524.60	$110,654.56	$83,613.93	$820,426.00	$803,618.17
Median	$213,516.31	$273,050.23	$695,638.54	$775,163.81	$496,241.69	$761,598.53
5th Percentile	$(801,202.36)	$(499,620.82)	$470,112.40	$616,619.73	$(1,008,060.37)	$(540,519.73)
95th Percentile	$1,005,132.62	$866,154.96	$822,692.77	$893,449.31	$1,720,497.82	$2,140,660.11
% Losses	37.00%	29.00%	0.00%	0.00%	29.50%	17.80%
% Profitable	63.00%	71.00%	100.00%	100.00%	70.50%	82.20%

Figure 4.2 *Statistical Summary of Risk Simulation on Variables Discount Rate Without Mitigation and Lease Cost and All Variables Pre and Post Mitigation.*

	Lease Cost	Lease Cost with Mitigation	Discount Rate	All Variables	All Variables with Mitigation
Min	$684,058.37	$726,107.40	$(386,831.18)	$(2,328,801.40)	$(1,499,749.30)
Max	$839,612.14	$853,620.04	$4,018,718.12	$2,553,215.54	$2,834,348.78
Mean	$777,849.52	$796,869.22	$726,023.59	$25,983.07	$497,179.55
Std. Dev	$34,123.04	$26,692.27	$766,957.64	$760,435.22	$690,843.18
Median	$783,103.12	$799,664.76	$571,772.67	$14,661.47	$473,195.47
5th Percentile	$714,492.16	$748,959.87	$(205,726.83)	$(1,215,285.63)	$(616,447.38)
95th Percentile	$824,706.89	$837,354.65	$2,272,637.71	$1,270,897.87	$1,661,087.58
% Losses	0.00%	0.00%	16.10%	49.30%	25.00%
% Profitable	100.00%	100.00%	83.90%	50.70%	75.00%

Figure 5.1 *Variable Parameters Pre and Post Mitigation*

	Parameters Pre-Mitigation	Parameters Post Mitigation
Direct Material	Min: 80%, Max: 140%	Min: 85%, Max: 130%
Direct Labor	Min: 95%, Max: 150%	Min: 80%, Max: 140%
Awareness	Min: 55%, Max: 130%	Min:65%, Max: 140%
Lease	Min: 90%, Max: 145%	Min: 85%, Max: 130%
Discount Rate	Min: 13%, Max: 50%	

Note: This means that the minimum parameter for direct material cost per unit is 80% of our base value and the maximum parameter is 140% our base value.

Figure 6.1 *Probability Distribution of Risk Awareness has on Net Present Value Prior to Mitigation.*

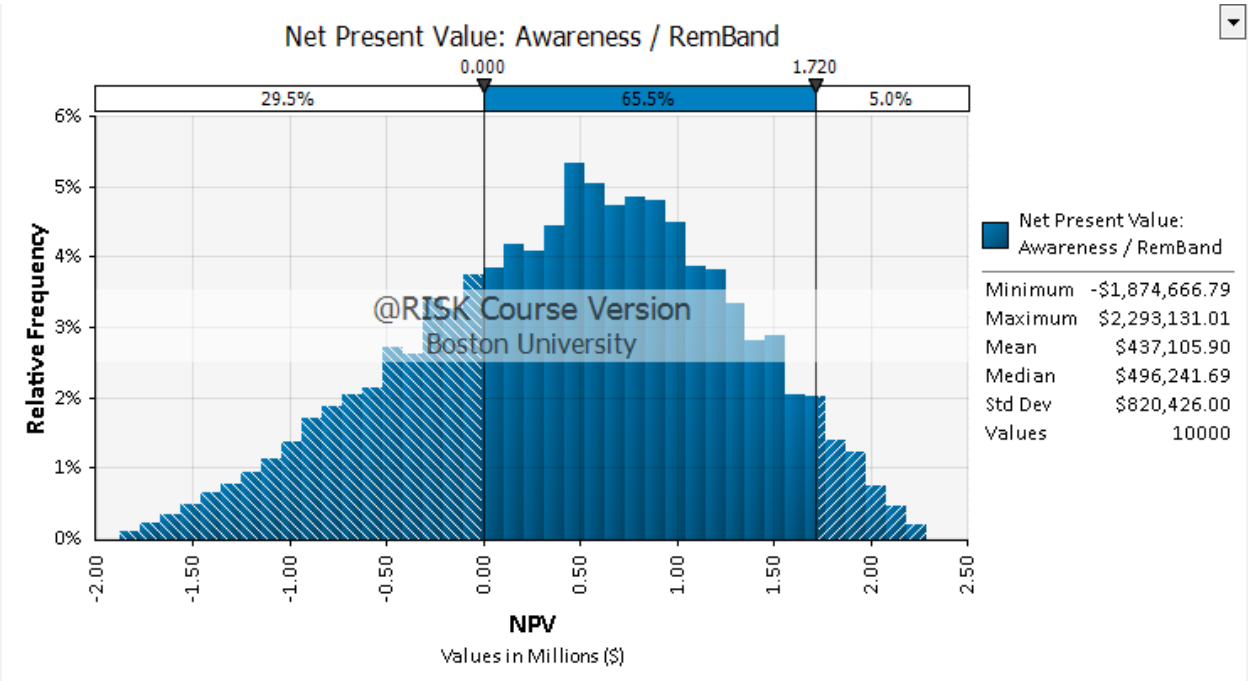


Figure 6.2 *Probability Distribution of Risk Awareness has on Net Present Value Post Mitigation.*

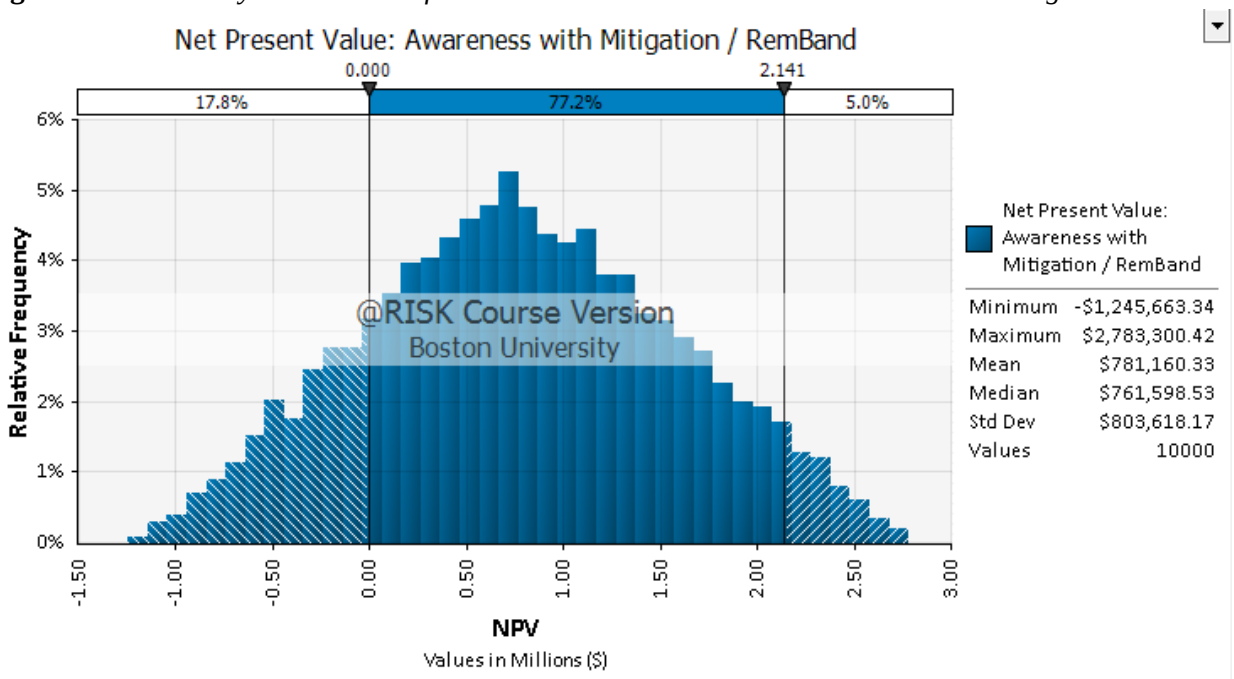


Figure 6.3 *Probability Distribution of Risk Direct Material Cost per Unit has on Net Present Value Prior to Mitigation.*

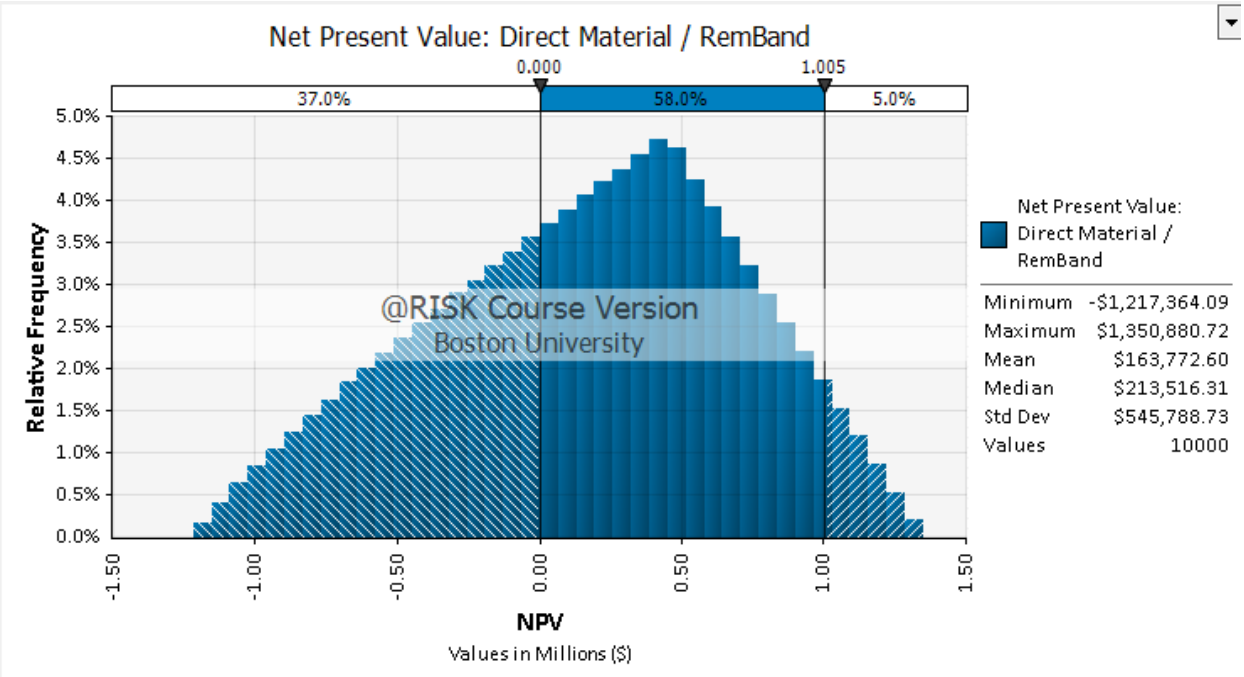


Figure 6.4 *Probability Distribution of Risk Direct Material Cost per Unit has on Net Present Value Post Mitigation.*

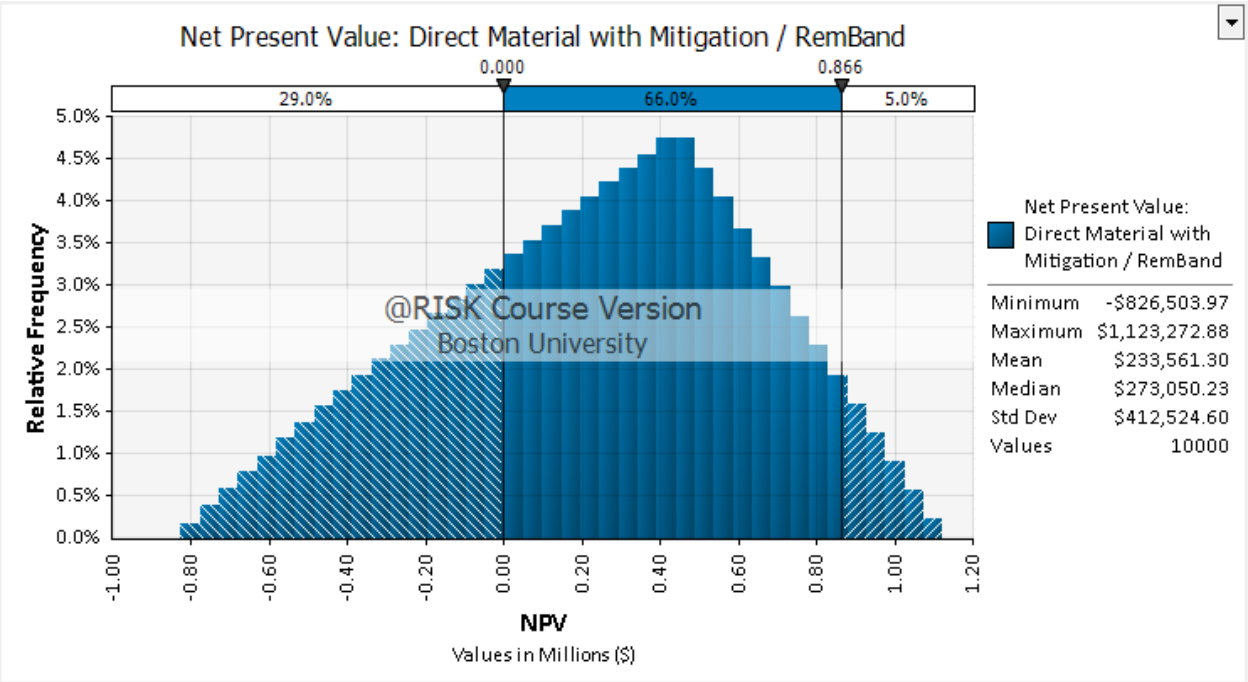


Figure 6.5 *Probability Distribution of Risk Direct Labor Cost per Unit has on Net Present Value Prior to Mitigation.*

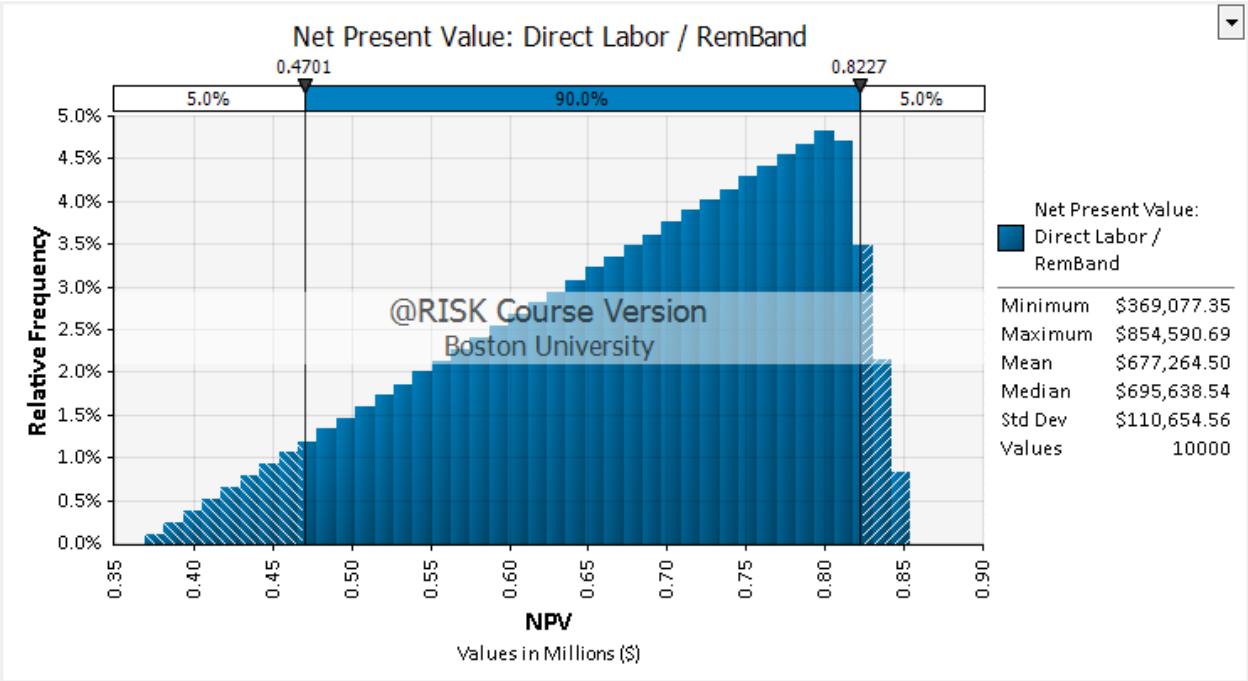


Figure 6.6 *Probability Distribution of Risk Direct Labor Cost per Unit has on Net Present Value Post Mitigation.*

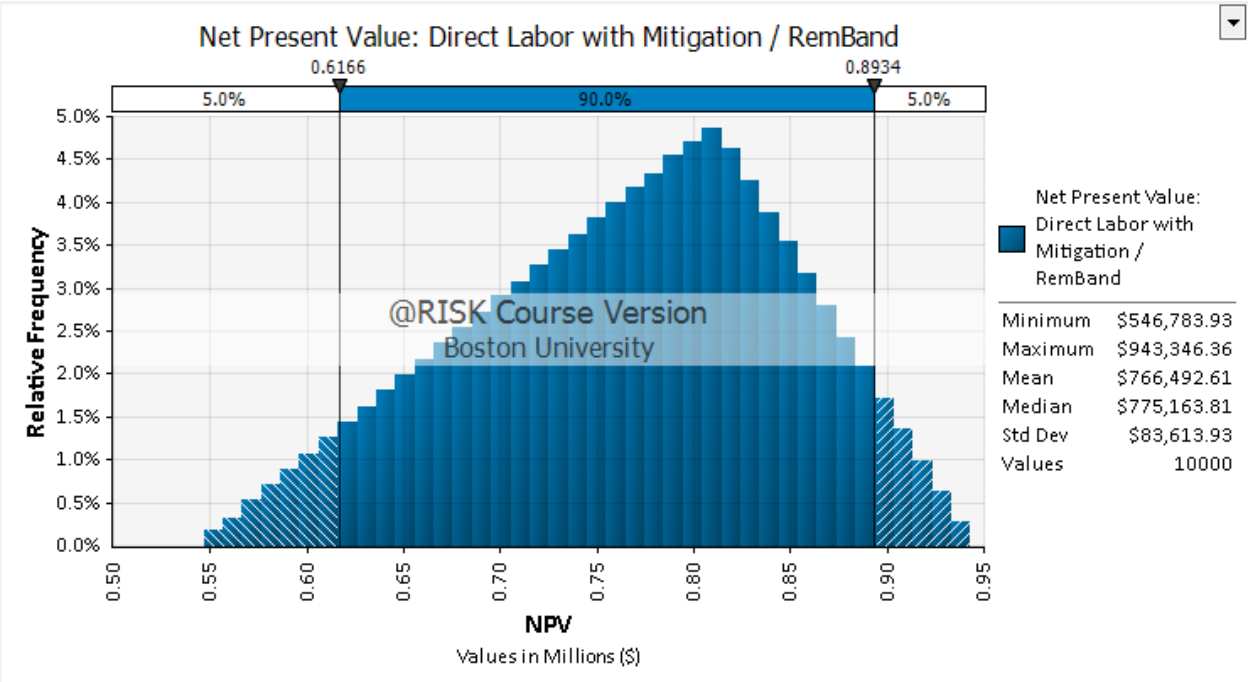


Figure 6.7 *Probability Distribution of Risk Annual Lease Cost has on Net Present Value Prior to Mitigation.*

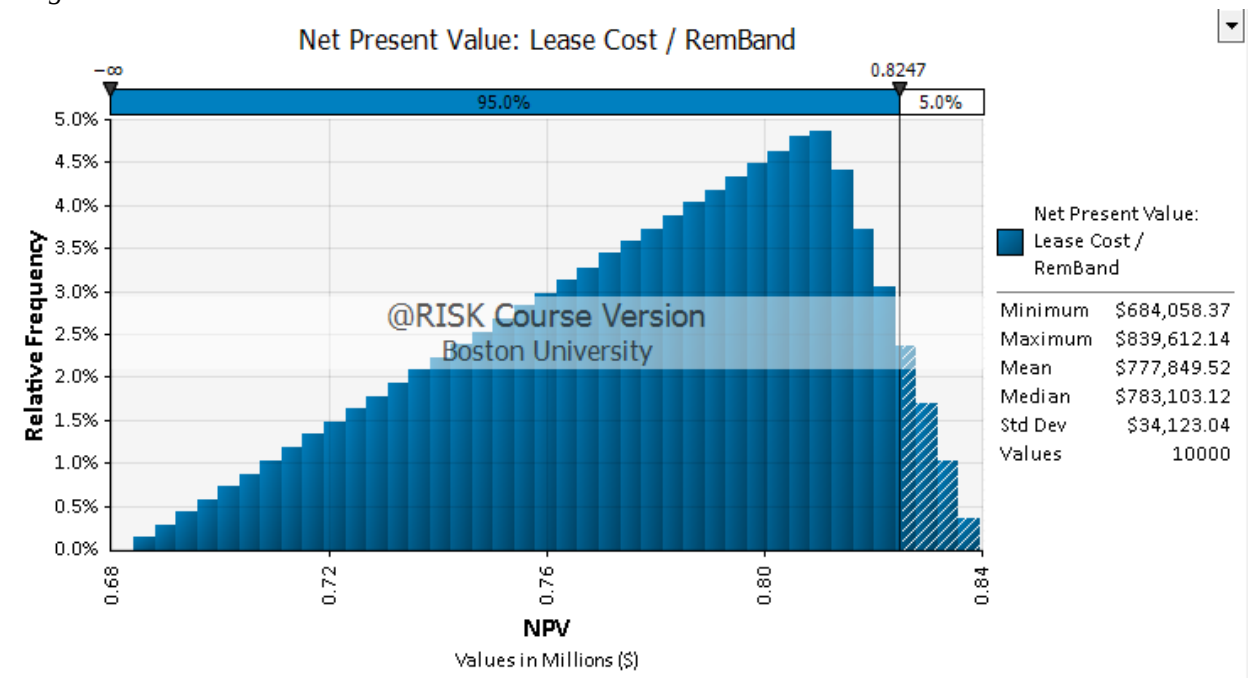


Figure 6.8 *Probability Distribution of Risk Annual Lease Cost per Unit has on Net Present Value Post Mitigation.*

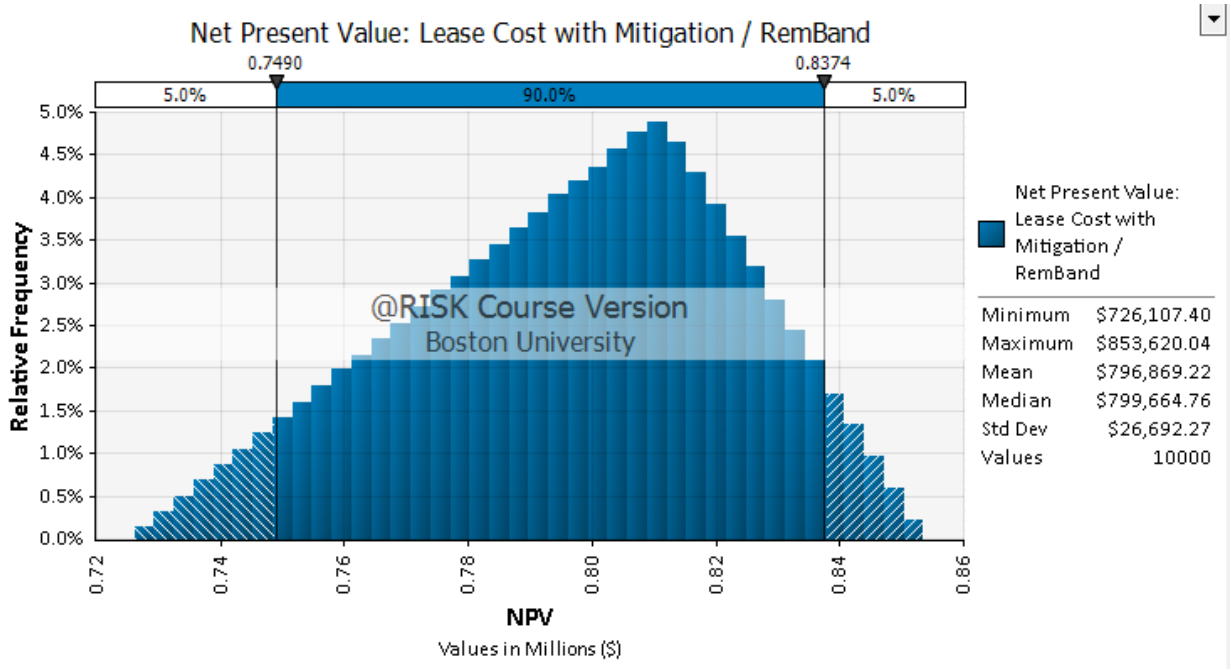


Figure 6.9 *Probability Distribution of Risk Discount Rate has on Net Present Value.*

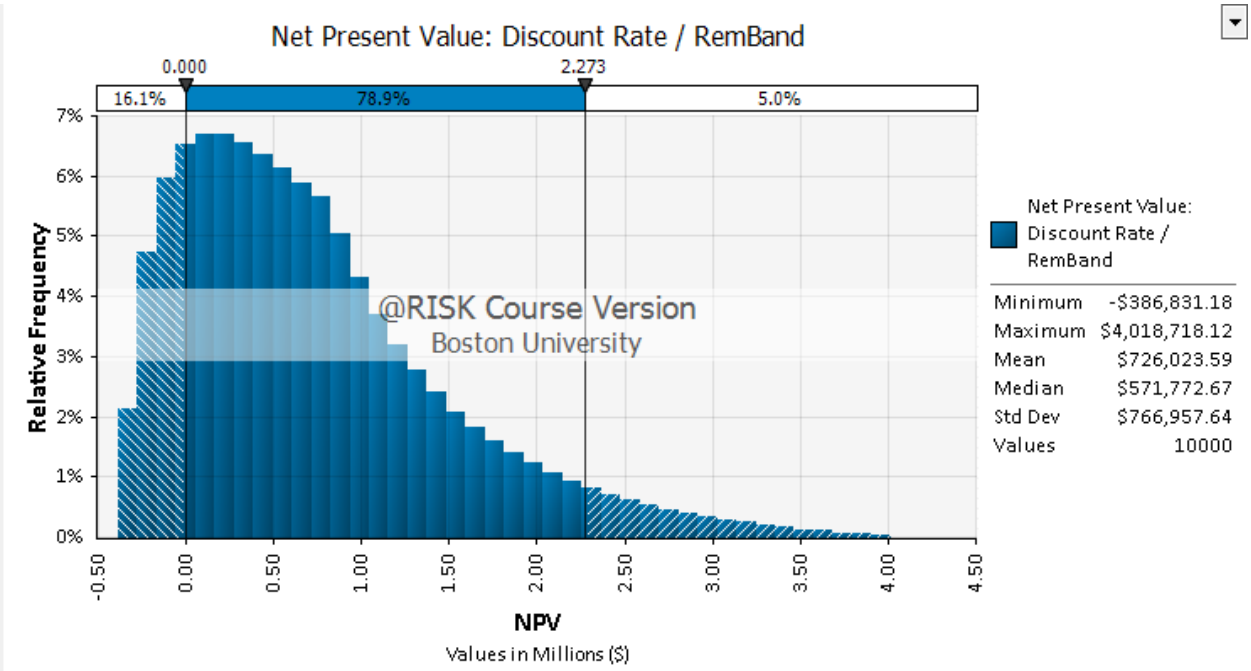


Figure 6.10 *Probability Distribution of Risk All Variables have on Net Present Value Prior to Mitigation.*

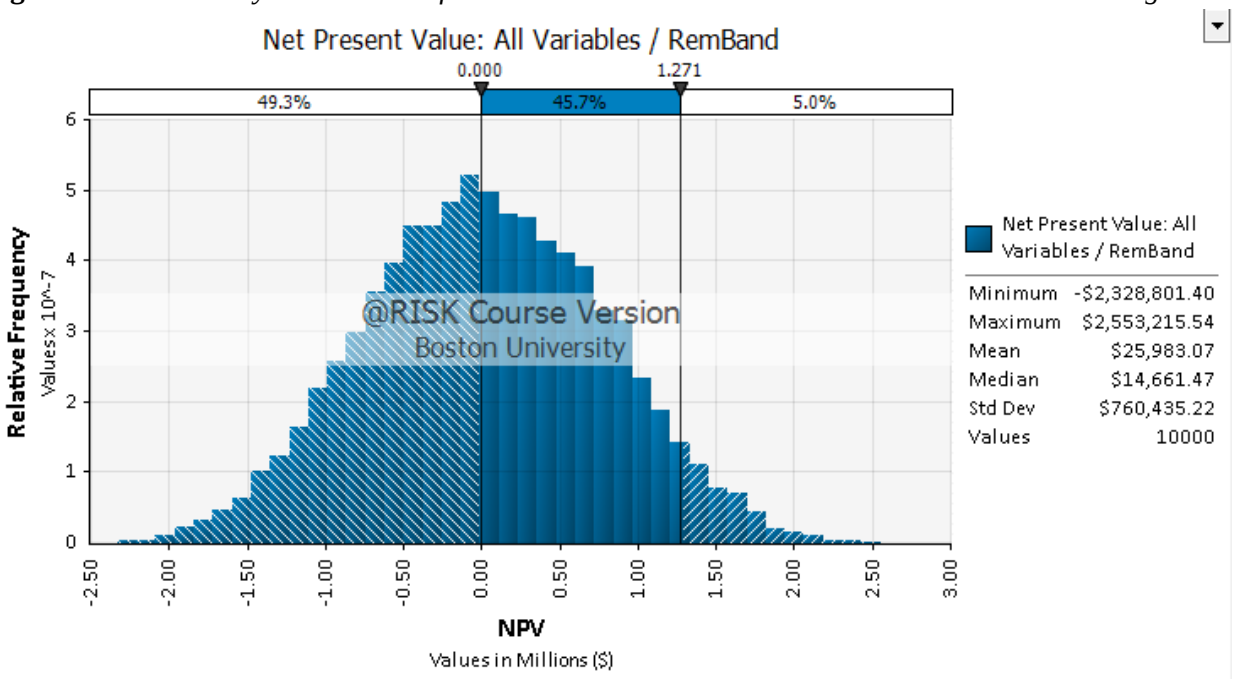


Figure 6.11 *Probability Distribution of Risk All Variables have on Net Present Value Post Mitigation*

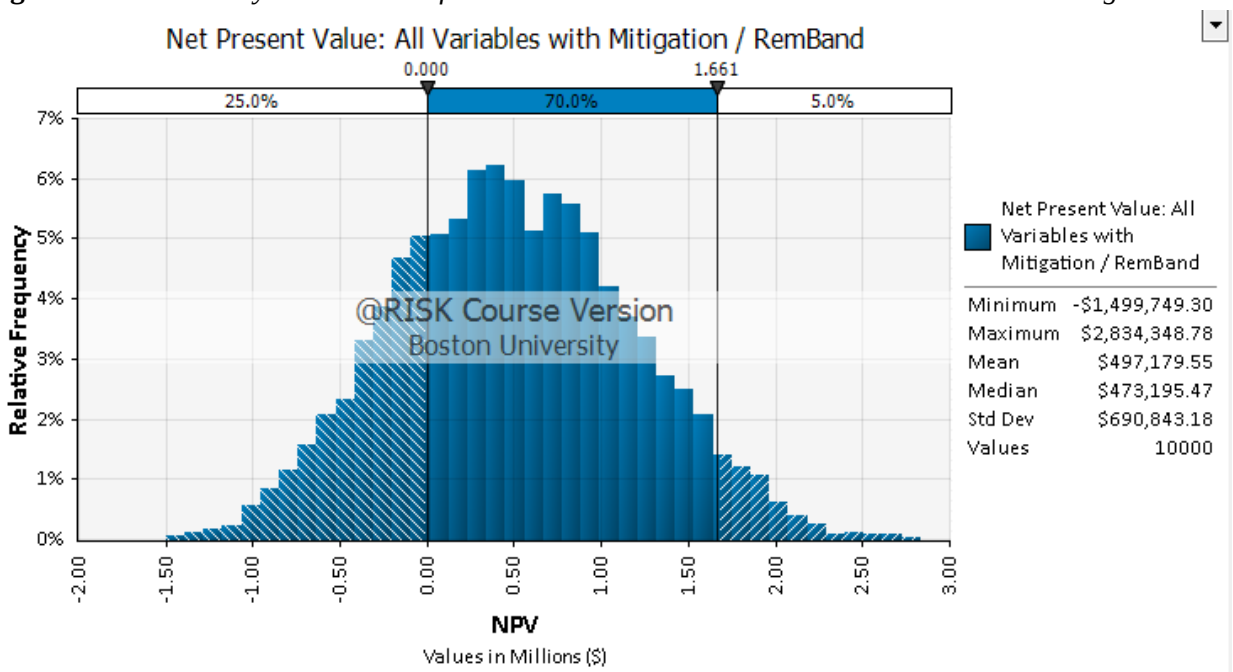
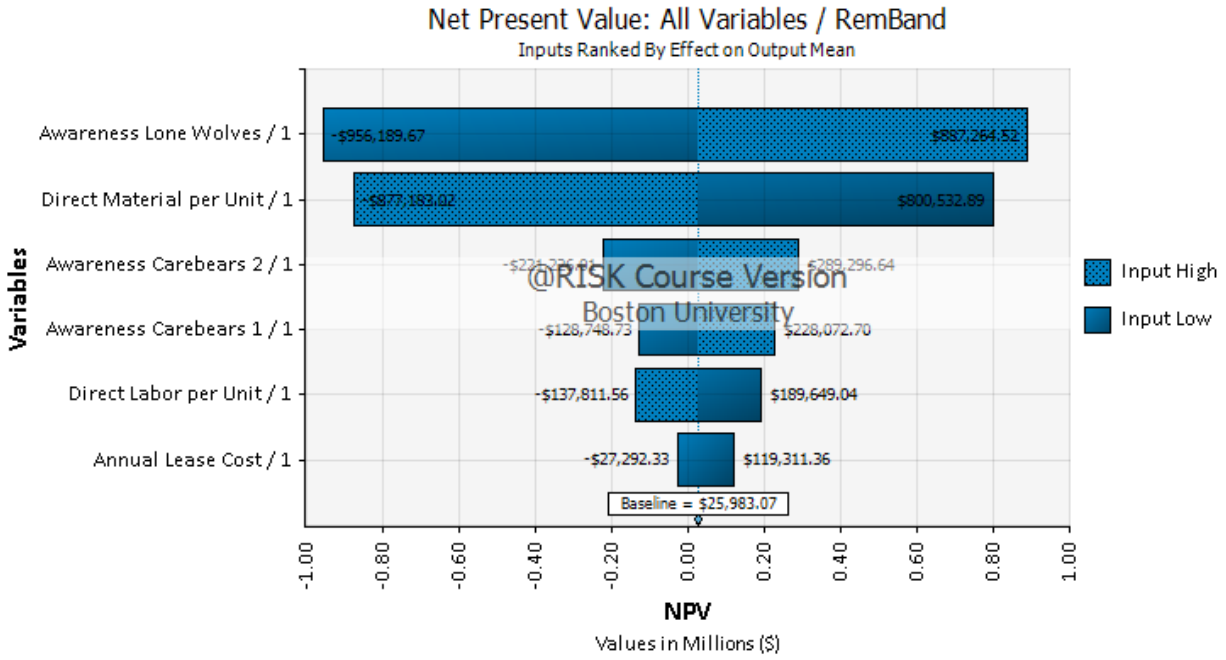
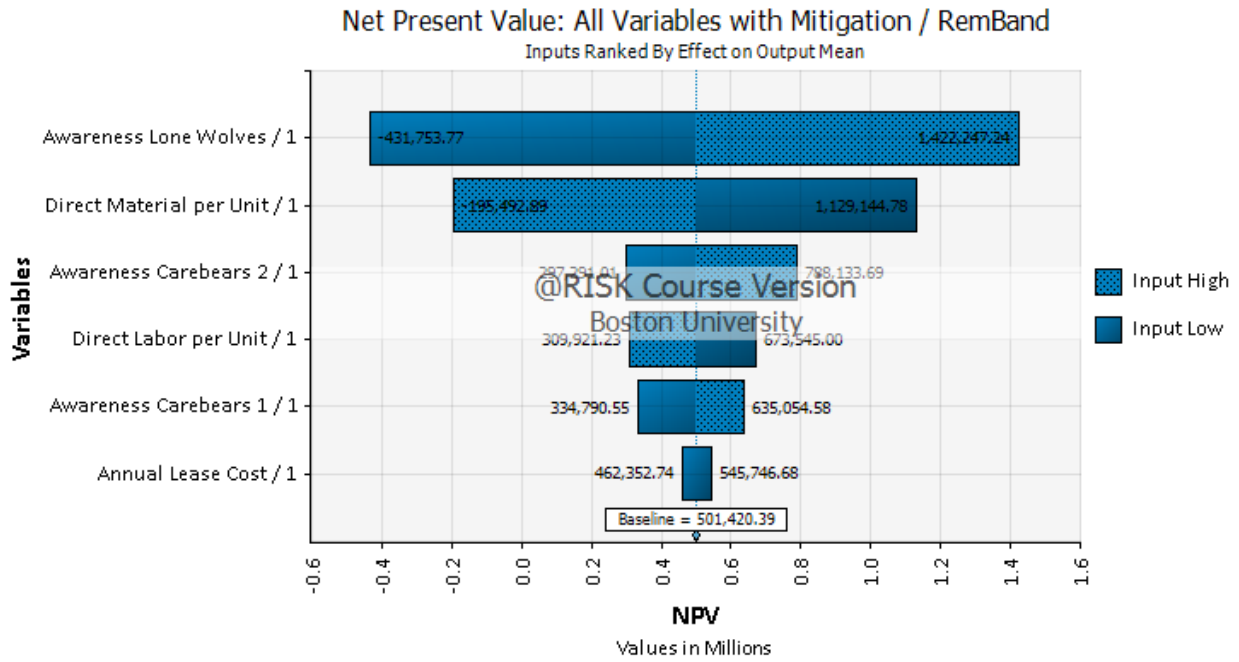


Figure 7.1 *Tornado Chart of All Variables on Net Present Value Prior to Mitigation*



The tornado chart above shows the different variables we decided to simulate and analyze how they could potentially affect RemBand's net present value. We found that awareness, especially that of the Lone Wolves segment, had the strongest relationship with NPV. Awareness also varies the most in both positive and negative directions from the mean NPV of $25,983.07. It has the largest effect on NPV and as a company, we should focus our time and resources into ensuring a high awareness. Another significant variable is direct material cost per unit as it follows awareness in the Lone Wolves segment closely as the second most impactful to our NPV. On the other hand, annual lease cost shows the lowest variance and weakest relationship with NPV. Although still important, we should focus on the variables with stronger relationships first.

Figure 7.2 *Tornado Chart of All Variables on Net Present Value Post Mitigation*



After mitigation, the significance of the variables and their relationship with NPV stayed fairly consistent with the exception of direct labor cost per unit moving slightly ahead of awareness for the segment Carebears 1. This is most likely because the awareness for Carebears 1 is already comparatively high to the other segments since our product has a strong connection with Alzheimer′s and Dementia. They are also the smallest segment out of the three, which means there is a limit to how much awareness in that segment could increase or decrease to impact sales. Another thing to note is that our baseline NPV increased from $25,983.07 to $501,420.39 after mitigation. With our mitigation tactics in place, are variance also decreased and we are far less likely to lose money.

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Team 5 Survey

We are a team of Boston University business students working on a new product project. Please answer the questions as carefully and honestly as possible. We will keep your responses confidential. This questionnaire is designed to gather information regarding the design, features, and pricing of our product, as well as the overall purchasing process and intended use. Information from this questionnaire will be used to further develop our band, and tailor it towards our markets.

1. On a scale of 1-7 (1 meaning the least, 7 meaning the most), please rate the following:

Questions	1	2	3	4	5	6	7
Exercise is very important in my life							
I find technology useful in my daily tasks							
I like to be reminded of important tasks							

2. Choose which option best describes you:

Questions	Yes	No	Prefer Not to Answer
I live alone			
I know someone with Alzheimer's or Dementia			
I have Alzheimer's or Dementia			
I am close with one or more of my grandparents			
I have a (medical) caregiver			
I know someone who has a (medical) caregiver			

Our product is a smart band designed to monitor patients with Alzheimer's or Dementia. This band allows loved ones to monitor the patient's location and biometric data to ensure their safety. Biometric data includes heart rate, activity, and sleep. From the website, caregivers can send audio notification reminders to the patient that will be announced on the band through a vibration and/or sound. A press of the safety button on the band allows patients to immediately contact their loved ones in case of emergency In addition, it also is suitable for adults who are concerned with monitoring their health, and having quick access to an emergency button in case of any unforeseen issues.

3. What would you expect to see this product sold for at retail?

- ❑ $80-$94.99
- ❑ $95-$109.99
- ❑ $110-$125

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

- ❑ Definitely Buy
- ❑ Probably Buy
- ❑ Probably Not Buy
- ❑ Definitely Not Buy

5. If the company selling this product were to donate a percentage of our profit to help with Alzheimer's research, 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

6. If employees at our company were required to volunteer a certain amount of days a year at a nursing home, 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

7. How important is each function to you if you or someone you care for uses our product? (Check one box for each row)

Attributes	Not at all important	Not very important	Somewhat important	Very important	Extremely important
Comfortable to wear					
Website Ease of Use					
Speed of Emergency Response					
GPS Tracking					
Heart Rate Tracking					
Audio reminders					

8. Where would you expect this product to be sold?

- ❑ Specialty Stores ex. Medical, pharmacy
- ❑ Catalogs
- ❑ Superstore ex. Target, Walmart
- ❑ The Internet
- ❑ Other

9. Where would you expect to learn about this product? (Select all that apply)

- ❑ Television
- ❑ Catalogs/Magazines
- ❑ Newspaper
- ❑ The Internet
- ❑ Social Media
- ❑ Public Transportation
- ❑ Billboards

10. Gender:

- ❑ Female
- ❑ Male
- ❑ Other
- ❑ Prefer to Not Answer

11. Age:

- ❑ 16-23
- ❑ 24-30
- ❑ 31-45
- ❑ 46-60
- ❑ 61+

12. Personal Income:

- ❑ <25k annually
- ❑ > or = 25k annually

13. State you are from:

_____

14. Number of people living in your household: (Including yourself)

_____