OTM 452: *Snow Hawk* Business Case-Phase II



Badgers & Leaders

Status: *In Development*

Roles:

Procurement [redacted]

Sales [redacted]

Marketing & Product Management: Micheal Vitale

Engineering/Operations [redacted]

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Recommendations for Phase 3

Recommendation:

Go/No Go Decision

We recommend that the firm continue with the Snow Hawk Project (GO decision) as there is a substantial market in need of such a niche product. The premium and snow safety focused e-scooter will fill a gap in the market that other competitors have yet to capture. Based on our analysis, our market size is estimated to be around 9,800,000 individuals for our target customer segment: young professionals and college students in the Midwest and Northeast regions of the US.

On the low end, if we capture approximately 0.09% of the estimated market and induce purchases from approximately 20% of market participants, we expect volume of 1718 units per. At the high end, we expect to capture .18% of the high end of market estimations and increase purchases from 25% of market participants with a volume of 4295 units per year.

Significant Decisions:

Target Customer Segments

We are targeting young working professionals and college students in colder climates (Midwest and Northeast United States). Specifically, we define “young professionals” as working 23-27 years old and “college students” as 18–22-year-olds who are currently enrolled in university.

Total Non-Recurring Expenses

We estimate that our non-recurring expenses will total to $254,675 to get our production started. This estimate includes expenses for the ambassador’s program, tooling and parts testing, research and development (R&D), legal fees, and consultant fees. The ambassador’s program is meant to help us get last minute feedback from ambassadors and do some early marketing with some actual college students and young professionals. Our expense for tooling and parts testing will cover the cost of tool dies and test our sourced parts in our prototypes. R&D expenses are the expenses related to product design, prototyping, vehicle testing, safety testing, data analytics, and materials research. This includes industrial design, CAD software, and rapid prototyping. The legals fees are related to filing a patent for our product design. The consultant fees include the fees paid to consultants to help design and set up the assembly line. Since we lack subject matter expertise in this aspect, which is why we believe consultants will be able to aid us in executing the production.

Total Timeline of Snow Hawk

We anticipate, after this Phase II, setting up the warehouse, small production, and product testing will take around 1 year. The process to begin Snow Hawk's large-scale production will take an additional 3-6 months.

Key Success Factors

We are focused on 3 categories for the Snow Hawk project: requirements/specifications of the scooter, financials, and new phase deliverables.

- **Requirement/Specifications**: headlights, battery life, detachable windshield, tired treats, handlebar warmers
    - We focused on these features specifically because these features allow our Snow Hawk to stand out against our competitors
- **Financials**: cost of goods sold (COGS), price to end consumer, payback period
- **Phase III Deliverables**: total capital invested before launch, concept build CV1, non-recurring expense (NREs)

Key Success Factor	Goal	Variance
Headlights	750 lumens	-50 lumens / +100 lumens
Battery Life (Li-ion Battery)	500 charge cycles	-25 cycles / +30 cycles
Detachable Windshield	17 inches x 16.5 inches	-.5 in x .5 in / +1 in x 1 in
Tire Tread	10/32 inches	-2/32 inch / +3/32 inch
Handlebar Warmers	95 degrees Fahrenheit	-5 degrees / +10 degrees
COGS per unit	$467.56	-$15 / +$20
Price to Consumer	$750	-$10 / +$15
Payback Period	4.57 years	-1.16 years / +1.16 years
Margin per unit: DTC	$329	-$10 / +$15
Margin per unit: Amazon	$217	-$10 / +$15
Total Capital Invested (before launch)	$960,000	-$5000 / +$5000
Concept Build CV1 – 10 units	12/18/2024	-2 days / +2 days
Non-Recurring Expense (NREs)	$254,675.60	-$10,000 / +5,000

Pricing and Profit Margins

Our price for the end customers to purchase the Snow Hawk is $750. Although $750 is above the average price range for a typical e-Scooter ($300-$600), the Snow Hawk is a premium e-Scooter with several distinct features, specifically meant to handle extreme cold climates.[1] Our target

[1] https://fluidfreeride.com/blogs/news/how-much-do-electric-scooters-cost#:~:text=How%20much%20an%20electric%20scooter,scooter%20is%20between%20%24300%2D600.

margin is about 30% (including the 15% Amazon fee), various scenario analysis supports that we are averaging around 27-33% profit margins over the course of our product.

Utilizing Subject Matter Experts (SMEs)

We plan on hiring a firmware developer to assist in the production of our proprietary braking system and the chip for our scooter. By outsourcing to a subject matter expert, we will ensure our scooter is dependable for our customers. As our safety features are the

What initial capital do we need for our NPV?

We require an initial capital of $960,000. We plan on raising this capital through a mix of internal funds and external funding from T-Bone Investments. We will raise $100,000 each, and request $560,000 from T-Bone Investments. We plan on spending our initial capital on:

- **Year 1**: Designing, market investigation, product testing
- **Year 2**: Inventory space for scooter, purchasing the assembly line

Background Information

We offer a solution for convenient transportation for college students and young working professionals in colder climates. We offer several unique features:

1) Detachable plastic windshield to shield our customers from cold air when traveling at fast speeds
2) Unique tire set—we all-terrain tires, with spikes to grip in cold climates, which can also be used in the warmer months, so our customers won't worry about commuting in any conditions.
3) Braking System – our braking system can withstand Icey/snowing climates, to ensure our customers have full control when riding our scooter.
4) Heaters for hands – our handlebars have a state of art heating system to keep our customers' hands warm.
5) Lighting – we have attached a light to the front of our scooter, so even when there is decreased visibility because of snow, our customers can still push forward to their destination.

Our Niche in Scooter Market

We intend to target college students and young professionals in colder climates. Our scooter is differentiated from our competitors in several ways.

Cold Climate Adaptation: Snow Hawk scooters are tailored to thrive in cold climates, addressing the unique needs of customers navigating snowy and icy conditions. With features like all-terrain snow tires with spikes for extra grip, heated handlebars, and a plastic windshield, our scooter offers unmatched reliability and comfort in harsh weather.[2]

Rising Popularity in Winter Sports: There is a growing enthusiasm for recreational winter sports in regions with heavy snowfall increases demand for snow-capable scooters that cater to both utility and leisure.[3]

Durability: Our scooter is built to last. We build our scooters to be durable, to withstand weather and rough terrain. Our scooter is built from high grade aluminum, strong enough to withstand harsh climates. In addition, our scooter is waterproof to keep our software safe in the sludge and snow. This durability sets our product apart in a market dominated by lighter, less robust products.[4]

Safety: Incorporating safety features into our model will be a strong selling component for consumers. Our advanced braking system ensures full control in icy and snowy conditions, and our integrated front lighting provides visibility in snowy/hazy environments.

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[2] https://www.marketresearchfuture.com/reports/snow-scooter-market-32045

[3] https://www.marketresearchfuture.com/reports/snow-scooter-market-32045

[4] https://www.polarismarketresearch.com/press-releases/snow-scooter-market

Urban Mobility Solutions: Our scooter is designed with urban commuters in mind. We plan on addressing urban commuters' needs by providing reliable and efficient transportation in the winter. Additionally, our scooter provides a year-round mobility solution, being a viable transportation solution not only in the cold winter months, but also in the warmer months.

Overall Market Evaluation

The overall electric scooter market in North America market has the potential to grow to 2.35 billion dollars by 2025.[5] Such projects clearly outline the rapid growth of the industry, largely driven by consumer awareness of sustainable transportation, government incentives for electric vehicles, and advancements in technology.[6]

To further break down the segments in our market it's worthwhile to break down the customer segments we are going after:

1) College Students in Colder Climates
    a. We estimate 3,990,000 customers in the Midwest, and 3,187,470 customers in the Northeast for a total of 7,177,470 college students in colder regions.
    b. ~$300 * 7.18 million customers = $2,154,000,000

2) Younger Working Professionals in Colder Climates
    a. We estimate 1,522,678 customers in the Midwest, and 1,059,710 customers in the Northeast, for a total of 2,582,388 young working professionals in colder climates.
    b. ~$300 * 2.5 million customers = $774,716,400

These estimates assume we have complete market share of all our customer segments. We recognize this is unrealistic but…

By taking even 1% of the total electric scooter market: 23.5 million dollars (2.35 B * .01)

By taking even 1% of our target customer demographic: 29.3 million dollars (2.927 B * .01)

Competitive Analysis

The scooter market is highly competitive, which is an indicator of recent market growth. There are existing established players like Segway-Ninebot, Razor, and Bird which dominate the

[5] https://www.skyquestt.com/report/north-america-electric-scooter-market#:~:text=North%20America%20Electric%20Scooter%20Market%20size%20was%20valued%20at%20USD,period%20(2024%2D2031).
[6] https://electronwheel.com/electric-scooter-statistics/
https://www.fortunebusinessinsights.com/electric-scooter-market-102056

market share. Gaps exist in catering towards cold climate. Our focus is on a durable, snow capable, and customizable scooter to address gaps in the market.

Feature	**Snow Hawk**	**Segway**	**GoTrax**	**Bird**
Target Market	College students and young professionals in cold climates	Urban commuters and general riders	Kids, teens, and general riders	Urban commuters and general riders
Weather Adaptation	Designed for cold climates (heated handlebars, snow tires, windshield)	Limited adaptability to extreme weather	Not specialized for cold weather	Limited adaptability to extreme weather
Durability	High-grade aluminum, waterproof, and rugged construction	Durable but not weather-specific	Durable for light use; not for harsh weather	Durable but focused on urban roads
Safety Features	Advanced braking system, front lighting	Standard braking and lighting	Basic braking system and minimal lighting	Standard safety measures
Price Range	Mid	Mid to High	Low to Mid	High

- **Direct Competitors:**
  - **Segway Ninebot MAX Electric Kick Scooter**
  - **Segway Ninebot E22 Electric KickScooter**
  - **Bird G6 Electric Scooter**
  - **Razor C45 Electric Scooter**
  - NIU Electric Scooter for Adults
  - ESMAX 500W Electric Scooter
  - Hover-1 Journey
- **Indirect Competitors:**
  - 3.5-10 snow tires – snow tires to add to your scooter
  - Hand Gloves – warming hand gloves for a scooter
  - * there is also opportunity for partnership in these areas as we expand down the line into partnerships

Barriers to Entry in The Scooter Market

- Regulatory Challenges: Navigating diverse safety standards and vehicle regulations may present a problem when we plan on entering the market.[7]
    - To mitigate this concern, our design is produced with these regulations in mind. For example, there are maximums in how fast a scooter can be able to travel depending on the laws in each state. We are aware of this concern and our snow hawk model falls below this maximum.
- Competition: there are several established brands that hold a significant market share. We recognize that but believe with the combination of our specific niche and branding, we can overcome these challenges. We plan on being transparent, keeping our customers engaged through marketing, and encouraging early adopters to leave positive reviews to build credibility.[8]
- Capital requirements: there are high upfront costs associated with materials, setting up a manufacturing system, and developing some of our intended features.
    - We have a thorough and complete plan in place to reach our target revenue and pay back our investors promptly. See below for a more complete breakdown of our intended funding allocations and launch process.

Sales and Distribution Strategy

1) **Direct-to-Consumers (DTC):** by leveraging online platforms, we can focus on minimizing costs and expanding our reach to the most consumers possible.

   We plan on developing a website to market our specific snow-scooter. Our focus will be on creating a platform that is…
    a. User Friendly
    b. Showcase the effectiveness of our design in different climates
    c. Showcase how efficient our scoter is in getting people where they need to go
2) **Leveraging Amazon and Other Online Platforms:** Amazon offers unparallel reach and visibility, especially for tech-savvy consumers. We plan on enrolling in the amazon professional seller plan to have complete access to tools and analytics we can use for the success of our product. By using amazon, we can minimize the associated costs with partnering with a larger retail store, retain a large margin (amazon only takes 15% relative to a higher ~30% FRM larger retailers)

Upside Potential Opportunities

After our initial launch there are several areas 4-5 years down the line we see as opportunities for growth of the company which are also accretive to our core business concept.

1) Expanding into warmer climates (Desert Hawk)
    a. Expanding our market size

[7] https://www.lucintel.com/portersfiveforcesanalysis.aspx?repid=320
[8] https://www.lucintel.com/portersfiveforcesanalysis.aspx?repid=320

        i. Broader demographic reach will lead to our target demographic more than doubling in size.
    b. More consistent Revenue
        i. If we can offer a scooter that is specific to very warm climates, we can have consistent demand year-round, as warm weather climate users will be eager to purchase a scooter in the warmer months, and cold weather climate users will look to purchase our scooter in the colder months
    c. Brand Diversification
        i. Expanding into colder climates will lead to further diversification of our market, reducing the dependence on cold-weather regions
2) Expanding into accessories
    a. Our e-scooter company will consider selling accessories to our scooters, and modular add-ons. This will serve to supplement our primary revenue streams from scooter sales. There is potential for
        i. Weather specific accessories
            1. Hand warmers
            2. Weather resistant scooter covers
            3. Heated seating
        ii. Safety Accessories
            1. Reflective strips
            2. Helmets with insolation
            3. Anti-theft system
        iii. Convenience add-ons
            1. Storage bags
            2. Foldable scooter stand
            3. Cup holder
        iv. Performance upgrades
            1. Extended-range batteries
            2. GPS tracking devices
            3. USB Charging ports
3) Expanding into retail partnerships
    a. We recognize the risk in approaching retailers early in the product's lifecycle. Once we have a strong proof of construct and the infrastructure to provide our product to retailers there are a few segments we will consider approaching for partnerships:
        i. Outdoor and Recreational Retailers
            1. REI (recreational equipment, inc)
            2. Dicks
            3. Bass Pro Shops / Cabela's
        ii. Tech and electronics retailers
            1. Best Buy
            2. Micro Center
        iii. Big Name Retailers

1. Target
2. Walmart
3. Costco

iv. Local Stores with specialties
    1. Local stores specializing in cold-weather apparel or electronics

Conclusion

Snow Hawks unique focus on cold-weather adaptations, durability and safety make for a strong foundation to enter the electric scooter market. By targeting our intended customer segment, college students and young working professionals in colder regions, and leveraging our distinct features such as heated handlebars, all-terrain snow tires, and durable waterproof design, Snow Hawk is poised to address significant gaps in the market.

Sales and Marketing Plan

Prototypes



Target Audience:

Midwest/Northeastern commuters:

- Young professionals who live in cities with harsh winters need a reliable way to navigate the snowy sidewalks and streets, getting them to their desired locations quickly and safely despite the frigid temperatures, traffic backups and expensive ride share surge pricing.
- We will use google ads and email campaigns.

Students in cold regions:

- College students in cold climates: Students looking for a portable solution to the discomfort of walking long distances across campus in cold, icy, or snowy climates.
    - We will leverage campus events, social media campaigns and content marketing to reach a wide range of college students.
- International students: International students who are struggling to navigate the wintery climate and the complications of public transportation.

These two younger demographics are also likely interested in sustainability, and fuel efficiency—two traits inherent in electric scooters.

Brand positioning

Brand promise: Conquer winter effortlessly. Safe, eco-friendly, and fun transportation for every snowy journey!
Brand Values: Sustainability, safety, comfortability, and reliability

Tone & Voice: Tech-forward and adventurous

Sales Channels:

Direct to Consumer (DTC)- E-commerce website:

- Customers may buy our product from our easily accessible and user-friendly site
- Price point: $750

Online Marketplace- Amazon:

- Customers may buy our products from Amazon: giving them access to faster shipping and exclusive bundle deals.
- Selling through Amazon will give our company a broader reach and more visibility.
- Price point: $750
  - Amazon takes 15%

Future Sales Channels: Upside Potential Opportunities

Retail:

- Target, Walmart, REI, Dicks Sporting Goods, and more
- Our products will be sold at featured retail spaces, allowing customers to get in-person access to exclusive products.

Subscription-based: Subscription service, which allows customers to rent or lease our electric scooters monthly.

- It provides students with less upfront and daunting costs, catering to their limited financial availability.
- Encourages new customers to try the product, find satisfaction, and eventually purchase their own.

Sales Forecast: Low Volume

Year	Total Units	Amazon Units	DTC Units	Free Cash Flow
3	1718	1,203	515	$253,547
4	1895	1326	568	$289,591

5	2090	1463	627	$329,347
6	2305	1614	692	$480,991
7	2543	1780	763	$540,461
8	2805	1963	841	$606,057
9	3094	2166	928	$678,409
10	3412	2389	1024	$758,214

Sales Forecast: High Volume

Year	Total Units	Amazon Units	DTC Units	Free Cash Flow
3	4295	3007	1289	$633,868
4	4737	3316	1421	$723,978
5	5225	3658	1568	$823,368
6	5764	4034	1729	$1,202,476
7	6357	4450	1907	$1,351,152
8	7012	4908	2104	$1,515,142
9	7734	5414	2320	$1,696,023
10	8531	5972	2559	$1,895,534

Sales Process:

Lead: utilize digital marketing as well as social media to create a lead

- Instagram and TikTok have ad options that provide great ways to reach a high volume of users in various demographics, with little to no work.
- The amount of people we can reach using these social media marketing methods will begin Snow Hawk with a great lead on initial buzz/interest.

Focus on interactive/personable content:

- Videos demonstrating the various features
- Customer testimonies
- Behind-the-scenes of the production process

- Street Interviews

Mock interactive social media post: Customer Testimony



Demos: Provides real-time demonstrations of the product, allowing the customers to see and test the product's features in person. This personal satisfaction with the product makes the customers feel more confident in their purchase, reinforcing their initial interest in making the purchase

- **Test ride stations:**
  - These will be set up around various college campuses in the Midwest/Northeast and facilitated by our college ambassador program.
  - These will also be placed around general cities like Chicago and will be facilitated by our young professionals in the ambassador program.
  - This will expose our product to both of our primary demographics and desired geographical locations. Using this test ride station opportunity with our campus ambassadors, this essential demographic will be able to test out our new product, creating buzz and interest around various college campuses regarding the new product launch. Moreover, events with young professionals will increase our reputation and reliability as a company while also giving us real-time feedback from company executives on future improvements they would like to see in our product.

Mock test ride station event targeted towards young professionals in Chicago



Follow-up: Email campaigns and directed ads will be circulated to the devices of these customers who have shown great interest in our product. This emailing list will send exclusive offers, reminders of upcoming sales, and incentives to buy our product. In these email campaigns there will also be a customer service and feedback form, creating a sense of reliability and transparency between our customers and services.

Marketing Strategies

Social Media:

- Run ads on TikTok, Instagram, Facebook, Google, etc., that are targeted towards people in affluent urban locations in the Midwest/Northeastern areas.
- **Exclusive YouTube & video content:** The website is attached to videos exploring our product; demo videos, customer testimonials, educational videos, unboxing videos from paid influencers, and behind-the-scenes videos of production. This video insight ensures that the viewers feel more than just a customer, they feel as if they are part of the company while experiencing detailed insights into the company. This creates a feeling of transparency and reliability.

Cost: 50k per year

Our digital marketing strategies will be predominantly based on free advertising on social media platforms such as TikTok or Instagram, allowing us to reach various audiences and viewers at minimal cost. This use of social media to market will be cost-effective and effectively reach the young, technology-driven market we want to enter. However, this use of social media will require us to hire a marketing position within the company, costing us around 50k per year to cover their salary.

Snow Hawk Ambassador Program

Ambassadors all over Midwest/northeastern will represent and promote the Snow Hawk. These ambassadors can be...

- College students on university campuses, promoting the Snow Hawk to fellow students, professors, or student organizations
- Young professionals at a big corporation, promoting exclusive deals to executives with incentives, encouraging their company to explore our product and purchase bulk orders for employees. They can also advertise the Snow Hawk to other colleagues and connections working at other companies in the city.

This will allow us to directly target our number one user, college students. This ambassador will be our connection not only to individual students but also to sporting teams and other student organizations.

Cost: 4,675.60 NRE

Our ambassador program

An ambassador will serve as a more reachable and approachable representative for our product, encouraging students to engage in our product while educating them on the benefits of the Snow Hawk. A digital and minimally interactive website can feel impersonable and less desirable, so our ambassadors will work to give our customers shopping experience face to face and more personable.

- Example: An ambassador could be a student-athlete, such as a Football player. Many students follow these athletes, who have gained a reputation for respect and reliability. A student-athlete representing and promoting our scooter will encourage other athletes and general students to explore and purchase our product. When someone of higher power and respect is encouraging others to purchase something, they are more influential and trustworthy than a random influencer online with no basis of respect or reputation.

Mock ambassador Program for UW-Madison Campus



Promos:
Offer limited-term promotions to our target audiences.

- Snow Hawk Group Sale: People feel more inclined to purchase if other people are doing so, especially their closest friends or colleagues. This promo would encourage people to order our scooters in bulk, whether a company in a city purchasing for their newest employees or a sports team at a university purchasing for their athletes. With this promo, if someone purchases X number of scooters, they get X off the next purchase. This promo may be used on accessories or future launches, incentivizing customers to make big purchases and follow-up purchases in the future.

Mock Promo for Group Purchase Deals



Cost Breakdown- Sales and Marketing

Marketing position	$50k per year

According to ZipRecruiter the average salary of an entry level marketing position is 44k in the 25th percentile and 55k in the 75th percentile. Our marketing position will be in charge of social media marketing, campaign designs, and all jobs encapsulating our marketing/sales tactics.

Ambassador Program	$4,675.60

Our ambassador program requires our electric scooters to be distributed to 10 ambassadors. Meaning 10 electric scooters will need to be allocated to this program. No other salaries or financial benefits are given to these ambassadors.

Demo Ride Event		Total:
	Electric Scooters	$2,337.8
	Food + Refreshments	$1,250
	Printed Material: flyers, decor, banners	$150
	Event Staff	$15/hour
	Insurance	
	Local Permits- dependent on location	

Overview: Pre-Launch Activities

- **Digital Campaigns:** Start generating teaser ads, sneak peeks, and countdowns across social media accounts. Engage potential customers with interactive polls on Instagram and give insight into the target market's early responses.
- **Early Access:** Offer early access to a select group of ambassadors who can help promote the scooter in designated locations once it's launched. Utilize feedback from ambassadors to improve the product before mass-market release. These ambassadors can be students at a university, executives at companies, etc.
- **Pre-Orders or Early Bird Discounts:** Run a pre-order campaign with early-bird discounts or bonuses (example: discount on future services) to gauge initial demand and build excitement. This can be done through companies or university organizations.

For example: Hawk group ride promo. If you order 15 scooters or more, you will receive X off the total of your next purchase. This encourages early purchases of our product in mass amounts. This promo appeals to companies providing transportation for their employees as well as student organizations (sports) providing transportation for their students.

Overview: Post-Launch Strategy

Loyalty Programs: Create loyalty programs that reward customers for repeat purchases, referrals, or social media mentions.

For example…

- Loyalty points towards your next purchase if you leave a review on our website.
- Loyalty points towards your next purchase if you refer a friend, family member or colleague to our product

These promos will help increase our reputation while also extending our market

- **Customer Support & Feedback Loop:** Ensure you have a strong customer support team. Offer live chat on your website and respond quickly to customer queries or issues. Encourage customer reviews and feedback to build trust and improve your product.
- **Cross-Selling & Upselling (future upside potential):** Introduce complementary products like helmets, lock systems, or portable chargers. Upsell add-ons such as extended warranties or service plans.

COGS Estimations

Parts	Tooling?	Tooling Cost	Price/part
Main Platform (fixtures for welding and bending of Aluminum)	Yes	$12,000.00	$52.15
	80,000pc/die	$0.15	
Set of folding of steering/stand-up pole with handle bars	No		$26.95
2-pc casting set for connecting/locking in folding position	Yes	$7,000.00	$12.07
	100,000pc/die	$0.07	
Front wheel fork	No		$20.00
Front Fender	No		$2.50
Rear Fender	No		$2.00
Throttle control (right side)	No		$24.95
Brake controller (left side) (**ebrake**)	No		$24.95
PCB (Printed Circuit Board)	No		$11.80
Battery (Li-Ion)	No		$59.95
Battery Housing	Yes	$12,000.00	$11.20
	10,000pc/die	$1.20	
Charger	No		$29.95
Electric Motor	No		$42.59
Motor Controller	No		$24.95
Display	No		Incorporated into sourced handles
Front light (brights and low beam)	No		$9.95
Rear light/brake light	No		$12.95
Wiring assembly	No		$19.95
Snow Tires	Yes	$40,000.00	$53.33
	12,000pc/mold	$3.33	
Windshield	No		$6.49
Handwarmers	Yes		$6.20
	10,000pc/die		
		Parts Total	**$447.56**
		Direct Labor	**$20.00**
		COGS	**$467.56**

**Estimates*

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	12,000pc/mold	$3.33	
Windshield	No		$6.49
Handwarmers	Yes	$10,000.00	$6.20
	10,000pc/die	$1.00	
Packaging	No		$12.95
		Parts Total	**$467.83**
		Direct Labor	**$28.50**
		COGS	**$496.33**

Financials

Assumptions:

To determine the percentage of market share Snow Hawk will capture, we figured out how much of the market the top 3 key competitors (Bird, Segway, Razor) have obtained in the US e-Scooter market (56%) and subtract the percentage from 1.[9] Of the remaining market share (44%), we estimate that there's about 250-500 e-scooter companies in the market because the e-Scooter market is very saturated and the barriers to entry are low. If the market share of the remaining 250-500 companies is equally distributed, Snow Hawk is predicted to capture 0.09% to 0.18% of the e-Scooter market.

Key US Competitors Market Share	
Bird	16%
Segway-NineBot	10%
Razor	30%
Total Mkt Share	56%
Remaining Mkt Share	44%

Figure 1

Snow Hawk Market Share Calculations		
	Low	High
US Market (Revenue)	$1,400,000,000	$13,300,000,000
CAGR	10.30%	13.30%
Remaining US Companies	500	250
Snow Hawk Mkt Share	0.09%	0.18%

Figure 2

[9] https://www.precedenceresearch.com/electric-scooters-market#:~:text=across%20the%20globe.-,Key%20Takeaway,10.6%25%20from%202022%20to%202030

Next, we needed to analyze various scenarios of units we would sell. We determined 3 types of scenarios (break-even, low volume, and high volume). To determine how many units to produce each scenario, we focused on our 2 main target market segments: young professionals (23-27) and college students (18-22) in the Midwest and Northeast US region.

We found the number of young professionals from ages 23-27[10] by multiplying the Midwest/Northeast's workforce participation rate with the percentage of 23-27 years olds from the respective regions.[11] We were able to determine the total number of college students in both the Midwest and Northeast region based on 2023 actuals.[12] We then multiply the estimated likelihood of our target market segment purchasing our product (**market penetration rate**) by total target segment (MID: 5,512,678, NE: 4,247,180) and by the percentage of the market we expect Snow Hawk to capture (low: 0.09%, high: 0.18%). Lastly, we combined both age groups for both the low/high volume range and multiplied the number based on our low/high market capture (see Figure 4).

Key Assumptions:					
	Midwest Region		Northeast Region		
	Low Volume Scenario	High Volume Scenario	Low Volume Scenario	High Volume Scenario	
Percentage Living in Urban Areas	75.90%	75.90%	85%	85%	
Workforce Participation Rate	21%	21%	17%	17%	*holding even based on last month actuals*
Likely Adopters:					
Young Professionals (23-27)	1,522,678	1,522,678	1,059,710	1,059,710	*assumption based off of age range * workforce part %*
College Students (18-22)	3,990,000	3,990,000	3,187,470	3,187,470	https://educationdata.org/college-enrollment-statistics
Total	**5,512,678**	**5,512,678**	**4,247,180**	**4,247,180**	
Market Penetration Rate	20%	25%	20%	25%	
Potential Market Capture	970	2426	748	1869	
Total Low Volume	1718				
Total High Volume	4295				

Figure 4

Constants in Our Scenario Analysis:

Price/Profit Margin:

We wanted to target a 30% profit margin for our e-Scooter. The typical profit margin range within the market is between 25-30%, since our scooter can be considered a premium product due to its unique features, 30% seemed reasonable. To achieve this margin, we priced our

[10] https://statisticalatlas.com/region/Midwest/Age-and-Sex
https://statisticalatlas.com/region/Northeast/Age-and-Sex

[11] https://www.bls.gov/regions/northeast/data/xg-tables/ro1xg02.htm
https://www.bls.gov/regions/midwest/data/xg-tables/ro5xg02.htm

[12] https://educationdata.org/college-enrollment-statistics

incorporated the 30% profit margin into our retail price, especially since we know that Amazon was going to take 15% from the retail price (just from selling on their platform).[13]

Interest Rate:

Since the e-Scooter market is saturated, the probability of making a substantial amount of revenue is low. We assume a 7% interest rate in the low volume scenario and an 8% interest rate on the high-volume scenario, accurately reflecting the current riskiness of the e-Scooter market.

Initial Investment Captial:

We estimate that our initial investment for Year 1 would be $320,000 that would account for research & development (R&D), initial design, and market investigation. For Year 2, our capital will increase to $640,000 due to the one assembly line, prototype testing, and marketing/sales readiness.

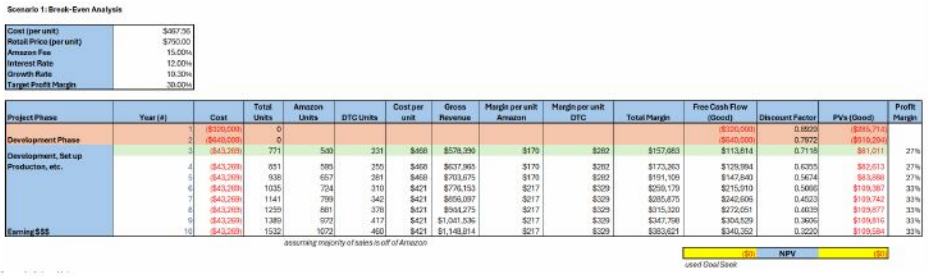
Ongoing Costs:

In Year 3 (launch), we anticipate maintenance repairs for e-Scooter will be around 12% of the total units' costs because we are a new company within the market, and we don't have connections/information to decrease our maintenance costs just yet.

Cost of Goods Sold (per unit):

For all our scenarios, we decided to keep our COGS stagnant until Year 5 as our company is still relatively "new" to the market. Until Year 5, Snow Hawk will not have a lot of leverage to reduce COGS. However, after Year 5, our COGS will decrease about 10% as our production in volume begins to increase. After the cost reduction, COGS will remain at $421 as we can't accurately predict the market's conditions, and we want to remain conservative with our predictions.

Scenario 1: Worse Case (Break-Even)



Scenario 1: Break-Even Analysis

Cost (per unit)	$467.56
Retail Price (per unit)	$750.00
Amazon Fee	15.00%
Interest Rate	12.00%
Growth Rate	10.30%
Target Profit Margin	30.00%

Project Phase	Year (#)	Cost	Total Units	Amazon Units	DTC Units	Cost per unit	Gross Revenue	Margin per unit Amazon	Margin per unit DTC	Total Margin	Free Cash Flow (Good)	Discount Factor	PVs (Good)	Profit Margin
	1	($320,000)	0								($320,000)	0.8929	($285,714)	
Development Phase	2	($640,000)	0								($640,000)	0.7972	($510,204)	
Development, Set up Production, etc.	3	($43,269)	771	540	231	$468	$578,396	$170	$282	$157,683	$113,614	0.7118	$81,011	27%
	4	($43,269)	931	585	255	$468	$637,965	$170	$282	$173,263	$129,994	0.6355	$82,613	27%
	5	($43,269)	938	657	281	$468	$703,675	$170	$282	$191,109	$147,840	0.5674	$83,888	27%
	6	($43,269)	1035	724	310	$421	$776,153	$217	$329	$259,179	$215,910	0.5066	$109,367	33%
	7	($43,269)	1141	799	342	$421	$856,097	$217	$329	$285,675	$242,606	0.4523	$109,742	33%
	8	($43,269)	1259	881	378	$421	$944,275	$217	$329	$315,320	$272,051	0.4039	$109,877	33%
	9	($43,269)	1389	972	417	$421	$1,041,536	$217	$329	$347,798	$304,529	0.3606	$109,815	33%
Earning $$$	10	($43,269)	1532	1072	460	$421	$1,148,814	$217	$329	$383,621	$340,352	0.3220	$109,584	33%

assuming majority of sales is off of Amazon

($0)	NPV	($0)

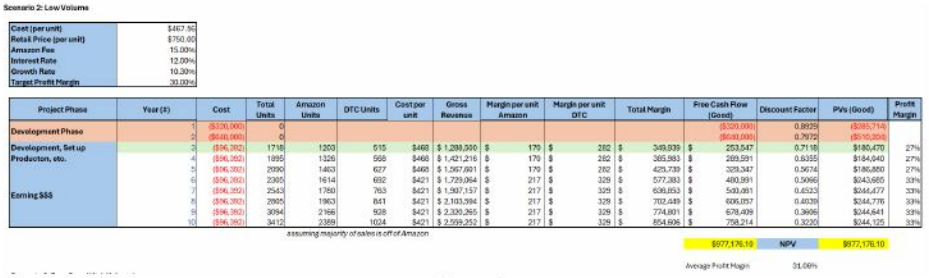
used Goal Seek

Figure 5

[13] Amazon Selling Price

To accurately simulate worst case scenario, we used the low-end CAGR for the e-Scooter market (10.3%).[14] We used Goal seek to determine just how many units we needed to produce to break even (aka NPV equals 0).

Scenario 2: Low Volume



Scenario 2: Low Volume

Cost (per unit)	$467.56
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Amazon Fee	15.00%
Interest Rate	12.00%
Growth Rate	10.30%
Target Profit Margin	30.00%

Project Phase	Year (#)	Cost	Total Units	Amazon Units	DTC Units	Cost per unit	Gross Revenue	Margin per unit Amazon	Margin per unit DTC	Total Margin	Free Cash Flow (Good)	Discount Factor	PVs (Good)	Profit Margin
	1	($320,000)	0								($320,000)	0.8929	($285,714)	
Development Phase	2	($640,000)	0								($640,000)	0.7972	($510,204)	
Development, Set up	3	($96,392)	1718	1203	515	$468	$ 1,288,500	$ 170	$ 282	$ 349,939	$ 253,547	0.7118	$180,470	27%
Production, etc.	4	($96,392)	1895	1326	568	$468	$ 1,421,216	$ 170	$ 282	$ 385,883	$ 289,491	0.6355	$184,040	27%
	5	($96,392)	2090	1463	627	$468	$ 1,567,691	$ 170	$ 282	$ 425,739	$ 329,347	0.5674	$186,880	27%
	6	($96,392)	2305	1614	692	$421	$ 1,729,064	$ 217	$ 329	$ 577,383	$ 480,991	0.5066	$243,665	33%
Earning $$$	7	($96,392)	2543	1780	763	$421	$ 1,907,157	$ 217	$ 329	$ 636,853	$ 540,461	0.4523	$244,477	33%
	8	($96,392)	2805	1963	841	$421	$ 2,103,394	$ 217	$ 329	$ 702,449	$ 606,057	0.4039	$244,776	33%
	9	($96,392)	3094	2166	928	$421	$ 2,320,265	$ 217	$ 329	$ 774,801	$ 678,409	0.3606	$244,641	33%
	10	($96,392)	3412	2389	1024	$421	$ 2,559,252	$ 217	$ 329	$ 854,606	$ 758,214	0.3220	$244,125	33%

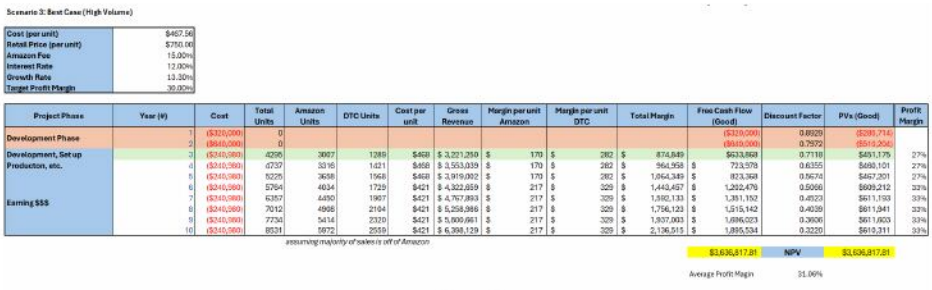
assuming majority of sales is off of Amazon

$977,176.10	NPV	$977,176.10
Average Profit Margin	31.06%	

Figure 6

We changed the base units for Year 3 to 1,718 units, which we pulled for low-end volume calculations (see Figure 4) with CAGR remaining the same.

Scenario 3: Best Case (High Volume)



Scenario 3: Best Case (High Volume)

Cost (per unit)	$467.56
Retail Price (per unit)	$750.00
Amazon Fee	15.00%
Interest Rate	12.00%
Growth Rate	13.30%
Target Profit Margin	30.00%

Project Phase	Year (#)	Cost	Total Units	Amazon Units	DTC Units	Cost per unit	Gross Revenue	Margin per unit Amazon	Margin per unit DTC	Total Margin	Free Cash Flow (Good)	Discount Factor	PVs (Good)	Profit Margin
	1	($320,000)	0								($320,000)	0.8929	($285,714)	
Development Phase	2	($640,000)	0								($640,000)	0.7972	($510,204)	
Development, Set up	3	($240,989)	4295	3007	1289	$468	$ 3,221,250	$ 170	$ 282	$ 874,849	$633,868	0.7118	$451,179	27%
Production, etc.	4	($240,989)	4737	3316	1421	$468	$ 3,553,039	$ 170	$ 282	$ 964,958	$ 723,978	0.6355	$460,101	27%
	5	($240,989)	5225	3658	1568	$468	$ 3,919,002	$ 170	$ 282	$ 1,064,349	$ 823,368	0.5674	$467,201	27%
	6	($240,989)	5764	4034	1729	$421	$ 4,322,859	$ 217	$ 329	$ 1,443,457	$ 1,202,476	0.5066	$609,212	33%
	7	($240,989)	6357	4450	1907	$421	$ 4,767,893	$ 217	$ 329	$ 1,592,133	$ 1,351,152	0.4523	$611,159	33%
Earning $$$	8	($240,989)	7012	4908	2104	$421	$ 5,258,986	$ 217	$ 329	$ 1,756,123	$ 1,515,142	0.4039	$611,941	33%
	9	($240,989)	7734	5414	2320	$421	$ 5,800,661	$ 217	$ 329	$ 1,937,003	$ 1,696,023	0.3606	$611,603	33%
	10	($240,989)	8531	5972	2559	$421	$ 6,398,129	$ 217	$ 329	$ 2,136,515	$ 1,895,534	0.3220	$610,311	33%

assuming majority of sales is off of Amazon

$3,636,817.81	NPV	$3,636,817.81
Average Profit Margin	31.06%	

Figure 7

For our best-case scenario, we used the 13.3% as our CAGR to accurately simulate the ideal growth rate of the e-Scooter market (see Figure 2). We also adjusted our Year 3 base units to 4,295 units, which was calculated from our predicted high-end volume (see Figure 4).

Other Analysis:

Payback Period/IRR

[14] https://www.grandviewresearch.com/horizon/outlook/electric-scooters-market/north-america#:~:text=The%20North%20America%20electric%20scooters,electric%20scooters%20market%20in%202022

Scenario 1: Break Even										
Year	1	2	3	4	5	6	7	8	9	10
Free Cash Flow	($320,000)	($640,000)	$113,814	$129,994	$147,840	$215,910	$242,606	$272,051	$304,529	$340,352
Cumulative Cash Flows	($320,000)	($960,000)	($846,186)	($716,193)	($568,353)	($352,443)	($109,837)	$162,214	$466,743	$807,095
Payback (years)	5.51		IRR	12.00%						

Scenario 2: Low Volume										
Year	1	2	3	4	5	6	7	8	9	10
Free Cash Flow	($320,000)	($640,000)	$253,547	$289,591	$329,347	$480,991	$540,461	$606,057	$678,409	$758,214
Cumulative Cash Flows	($320,000)	($960,000)	($706,453)	($416,862)	($87,514)	$393,476	$933,937	$1,539,994	$2,218,403	$2,976,617
Payback (years)	4.57		IRR	32.75%						

Scenario 3: High Volume										
Year	1	2	3	4	5	6	7	8	9	10
Free Cash Flow	($320,000)	($640,000)	$633,868	$723,978	$823,368	$1,202,476	$1,351,152	$1,515,142	$1,696,023	$1,895,534
Cumulative Cash Flows	($320,000)	($960,000)	($326,132)	$397,846	$1,221,214	$2,423,690	$3,774,843	$5,289,985	$6,986,008	$8,881,542
Payback (years)	3.32		IRR	69.02%						

Figure 8

Key Success Factors (KSF)

Key Success Factors
Project Badgers & Leaders – Snow Hawk

Date: 11/10/24

Phase Gate: 2

Project Element	Description
Core Team Lead	[redacted]
Project Description	Launch electric scooter @$750 retail price point
Objectives	Expand electric scooter market to Northeastern areas: redefining electric scooters' reliability in winter seasons
Key Assumptions	Line will be launched in mid 2025

Event	Goal	Variance
Next Gate Review (Phase 2)	12/09/2024	- 1 Day / + 1 Day
Design Finalization	12/10/2024	- 1 Day / + 1 Day
Go/No go Scale Production	1/31/2025	N/A

Category		Key Success Factor	Goal	Variance
Requirements / Specifications/ Attributes		Head Lights (High and Low Beam)	750 lumens	-50 / +100 lumens
		Battery Life- Li-ion Battery	500 Charge Cycles	-25 cycles/+ 30 cycles
		Detachable wind/snow shield	17 in x 16.5 in	-.5 in x .5 in/+ 1 in x 1 in
		Tire Tread	10/32 inch	-2/32 inch / +3/32 inch
		Handlebar Warmers	95°F	-5°F/ + 10°F
Financials	COGS	Cost of Goods Sold per Unit (main SKU)	$467.56	-$15/+$20
	Price	Price to consumer	$750	-$10/+$15
	Payback	Payback period (# of years)- Low Volume	4.57 years	-1.16 years
	Capital	Total Capital Invested Before Launch	$960,000	-$5,000 / +$5,000
Next Phase Deliverables		Concept Build CV1 – 10 Units	12/18/2024	-2 days/+Days
		Non-Recurring Expenses	254,675.60	-$10,000/+$5,000

Risk Mitigation Strategies

Risk(s)	Impact Potential	Mitigation Plan
Threat of Future Increase in Tariffs by 25%: Sourcing of battery, motors, injection molding will be outsourcing from countries outside the US	Cost of Goods Sold (COGS) will significantly increase and negatively affect profit margin by 25%	To accommodate for the increase in COGS, Snow Hawk will increase the retail price Alternative country to outsourced BOM for cheaper Buy batteries, motors, injection moldings in bulk to anticipate for the price increase
Competitive Threat: BushLeague eScooter plans to launch similar e-Scooter at a lower cost	Negative affect sales forecasting by 25% due to price-sensitivity	Highlight premium features and value proposition to end customers via marketing (customer testimonials, testing results, etc.) Offer brand loyalty programs to incentive more price-sensitive customers
Seasonal Mismanagement: If completion of production isn't aligned with the winter season (colder climates) in the Midwest and Northeast, there will be excess inventory.	Significant holding costs to hold inventory.	Use demand forecasting to estimate inventory and avoid overproduction Implement "Just-In-Time" production to minimize inventory holding costs

Key Decisions into Phase 3

Recommendation:

Go/No Go Decision

We recommend that the firm continue with the Snow Hawk Project as there is a substantial market in need of such a niche product. The premium and snow safety focused e-scooter will fill a gap in the market that other competitors have yet to capture. Based on our analysis, our market size is estimated to be around 9,800,000 individuals for our target customer segment: young professionals and college students in the Midwest and Northeast regions of the US.

On the low end, if we capture approximately 0.09% of the estimated market and induce purchases from approximately 20% of that market share, we expect volume of 1718 units per. At the high end, we expect to capture .18% of the high end of market estimations and increase purchases from 25% of that market with a volume of 4295 units per year.

Significant Decisions:

Target Customer Segments

We are targeting young working professionals and college students in colder climates (Midwest and Northeast United States). Specifically, we define “young professionals” as working 23-27 years olds and “college students” as 18–22-year-olds who are currently enrolled in university.

Total Non-Recurring Expenses

We estimate that our non-recurring expenses will total to $254,675 to get our production started. This estimate includes expenses for the ambassador’s program, tooling and parts testing, research and development (R&D), legal fees, and consultant fees. The ambassador’s program is meant to help us get last minute feedback from ambassadors and do some early marketing with some actual college students and young professionals. Our expense for tooling and parts testing will cover the cost of tool dies and test our sourced parts in our prototypes. R&D expenses are the expenses related to product design, prototyping, vehicle testing, safety testing, data analytics, and materials research. This includes industrial design, CAD software, and rapid prototyping. The legals fees are related to filing a patent for our product design. The consultant fees include the fees paid to consultants to help design and set up the assembly line. Since we lack subject matter expertise in this aspect, which is why we believe consultants will be able to aid us in executing the production.

Total Timeline of Snow Hawk

We anticipate, after this Phase II, setting up the warehouse, small production, and product testing will take around 1 year. The process to begin Snow Hawk’s large-scale production will take an additional 3-6 months.

Key Success Factors

We are focused on 3 categories for the Snow Hawk project: requirements/specifications of the scooter, financials, and new phase deliverables.

- **Requirement/Specifications**: headlights, battery life, detachable windshield, tired treats, handlebar warmers
    - We focused on these features specifically because these features allow our Snow Hawk to stand out against our competitors
- **Financials**: cost of goods sold (COGS), price to end consumer, payback period
- **Phase III Deliverables**: total capital invested before launch, concept build CV1, non-recurring expense (NREs)

Key Success Factor	Goal	Variance
Headlights	750 lumens	-50 lumens / +100 lumens
Battery Life (Li-ion Battery)	500 charge cycles	-25 cycles / +30 cycles
Detachable Windshield	17 inches x 16.5 inches	-.5 in x .5 in / +1 in x 1 in
Tire Tread	10/32 inches	-2/32 inch / +3/32 inch
Handlebar Warmers	95 degrees Fahrenheit	-5 degrees / +10 degrees
COGS per unit	$467.56	-$15 / +$20
Price to Consumer	$750	-$10 / +$15
Payback Period	4.57 years	-1.16 years / +1.16 years
Margin per unit: DTC	$329	-$10 / +$15
Margin per unit: Amazon	$217	-$10 / +$15
Concept Build CV1 – 10 units	12/18/2024	-2 days / +2 days
Non-Recurring Expense (NREs)	$254,675.60	-$10,000 / +5,000

Pricing and Profit Margins

Our price for the end customers to purchase the Snow Hawk is $750. Although $750 is above the average price range for a typical e-Scooter ($300-$600), the Snow Hawk is a premium e-Scooter with several distinct features, specifically meant to handle extreme cold climates.[15] Our target margin is about 30% (including the 15% Amazon fee), various scenario analysis supports that we are averaging around 27-33% profit margins over the course of our product.

Utilizing Subject Matter Experts (SMEs)

We plan on hiring a firmware developer to assist in the production of our proprietary braking system and the chip for our scooter. By outsourcing to a subject matter expert, we will ensure our scooter is dependable for our customers. As our safety features are the

[15] https://fluidfreeride.com/blogs/news/how-much-do-electric-scooters-cost#:~:text=How%20much%20an%20electric%20scooter,scooter%20is%20between%20%24300%2D600.

What initial capital do we need for our NPV?

We require an initial capital of $960,000. We plan on raising this capital through a mix of internal funds and external funding from T-Bone Investments. We will raise $100,000 each, and request $560,000 from T-Bone Investments. We plan on spending our initial capital on:

- **Year 1**: Purchasing office space, designing market investigation, product testing
- **Year 2**: Inventory space for scooter, purchasing the assembly line