HALO HELMET

INNOVATION PLAN

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I. Overview

1st affordable smart snow-sport helmet designed specifically to detect head impacts caused by harsh falls on the slopes.

$199.99 price point achieves 67% gross margins while remaining accessible to the average family.

$80,000 funding to finance injection molding (NRE) and ASTM safety certifications

II. PROBLEM

A TBI Epidemic

TBI rates for young snowboarders are increasing despite an increase in helmet use. Technology must be integrated into helmets to battle this epidemic.

2X

higher head injury risk in snowboarders than skiers.

40%

of snow sport concussion cases involve children and adolescents.

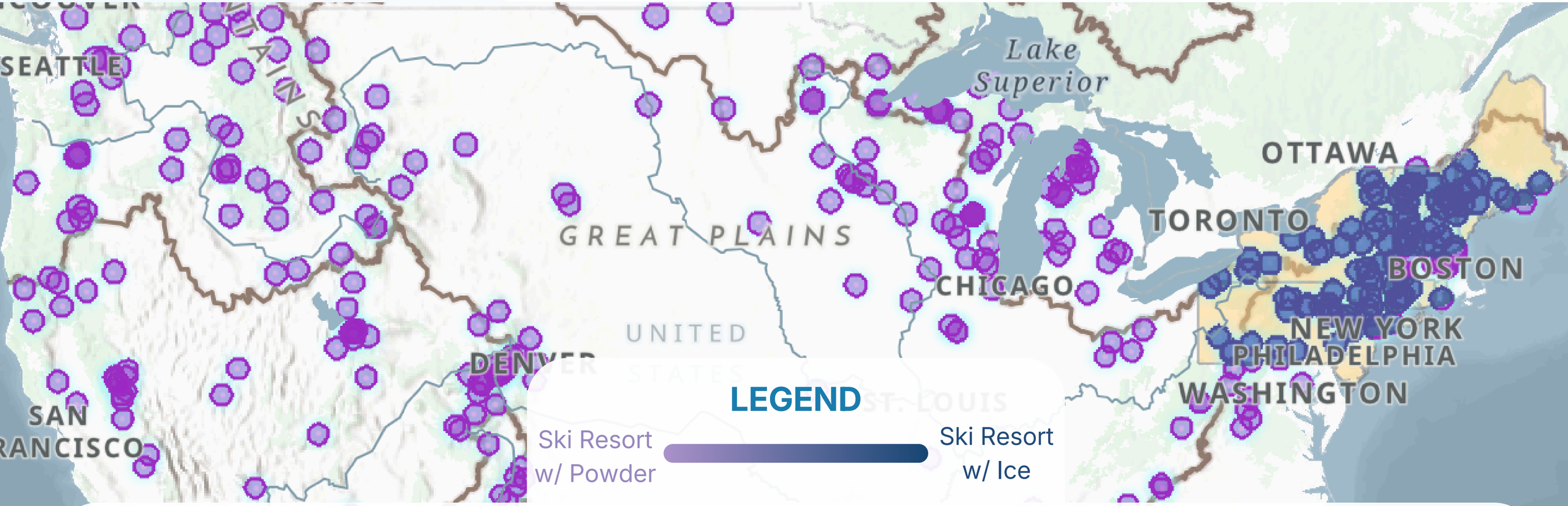
+80%

Helmet Use

50%

of fatal snow-sport injuries are TBIs.

The “Ice Coast”



Ski resorts in the Northeast are experiencing icier surfaces, which can lead to more severe TBIs.

- Warm spells melt snow, followed by sudden freezes that turn surfaces to ice
- Winters warm ~2.5× faster, shortening stable cold periods
- Increased precipitation falls as rain or heavy snow, bonding easily into ice

Mechanics of Injury

Snowboarders are prone to backward falls caused by "catching an edge"

When an edge catches, the rider is whipped backward, generating massive rotational acceleration, as the back of the head strikes the snow

Snowboarding's rotational forces directly cause Diffuse Axonal Injury (DAI) and Subdural Hematomas (SDH) by shearing brain tissue

Skiers typically suffer injuries during high-speed forward falls or collisions with obstacles (trees, towers)

Skiers are more likely to tumble, which dissipates energy over time and distance

The linear forces common in skiing are the primary drivers of skull fractures and focal contusions, not brain injuries

The User

Primary Profile:

- Male Snowboarders, Ages 15–29.

The "Invincibles":

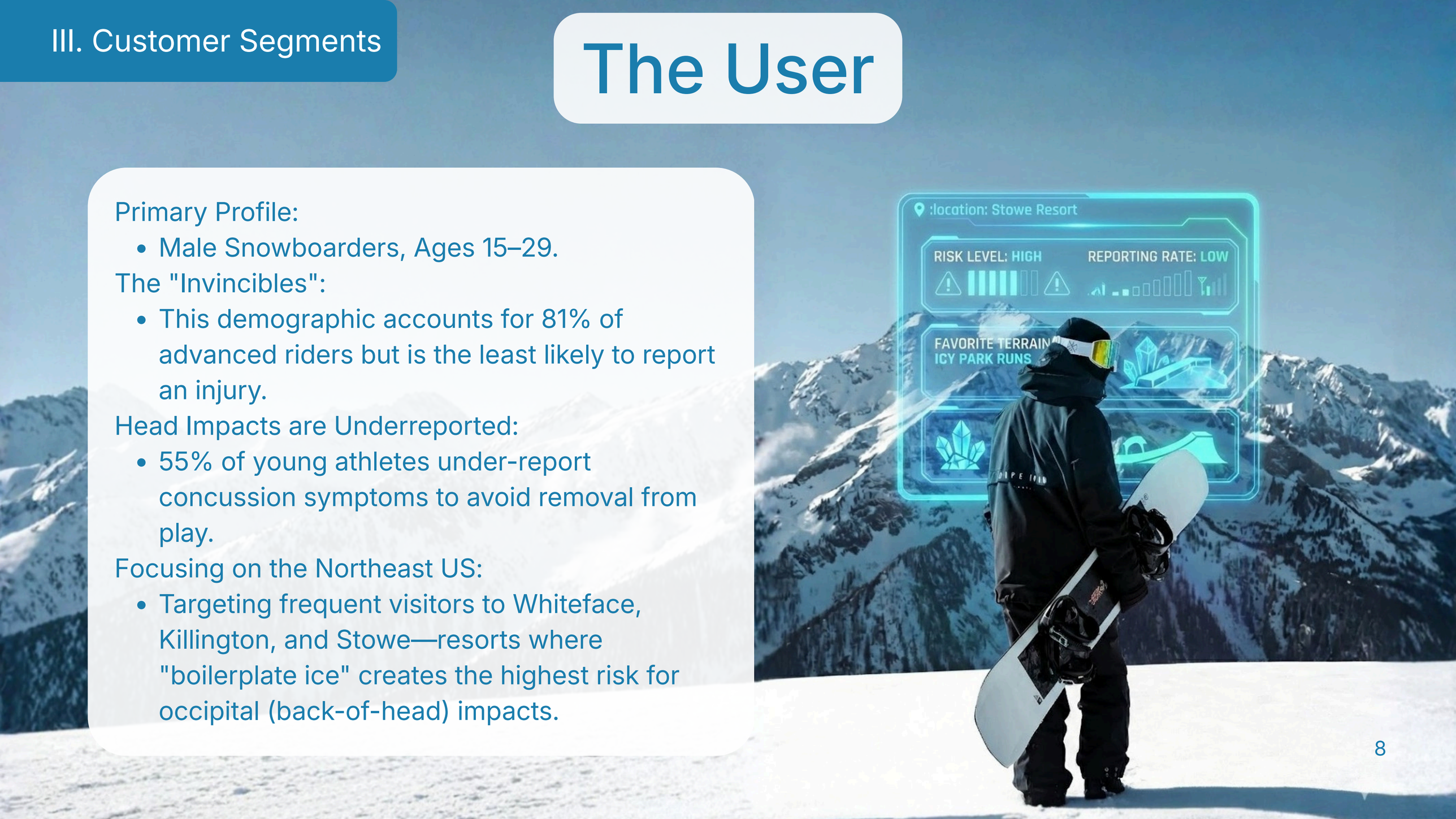
- This demographic accounts for 81% of advanced riders but is the least likely to report an injury.

Head Impacts are Underreported:

- 55% of young athletes under-report concussion symptoms to avoid removal from play.

Focusing on the Northeast US:

- Targeting frequent visitors to Whiteface, Killington, and Stowe—resorts where "boilerplate ice" creates the highest risk for occipital (back-of-head) impacts.



The Buyer

Primary Profile

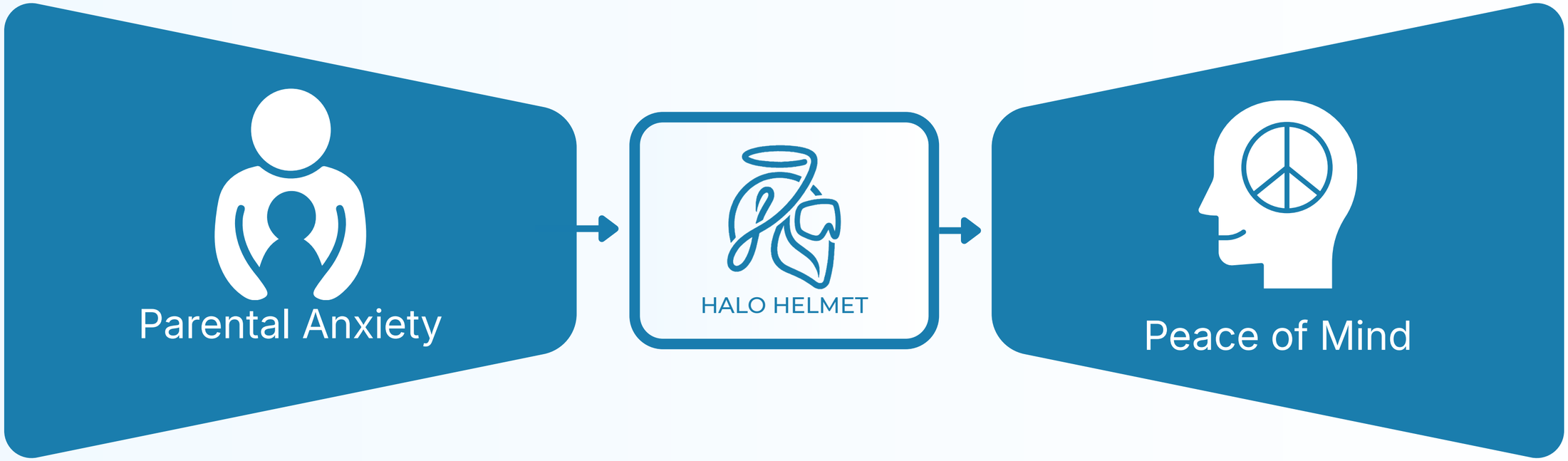
Parents of skiers/snowboarders aged 15-25.

The Buying Trigger

We are not selling a helmet; we are selling emotional regulation. Our helmet enables a “Peace of Mind” for parents.

Psychological Drivers

1. Ambiguity Aversion: Parents hate "not knowing." The Halo Helmet resolves the diagnostic void ("Is he okay?") with binary, objective data.
2. Intolerance of Uncertainty (IU): High-anxiety parents pay a premium to "outsource vigilance" to the app when they cannot physically be on the slope.
3. Anticipated Regret: Purchasing is "emotional insurance." Parents buy it to prevent the future guilt of a missed diagnosis ("I should have done more").



IV. Unique Value Proposition

Impacts were happening. Data wasn’t. Halo Helmet chose to

A.C.T.

Accessible

At $199.99, we are the only biometric solution priced for the middle-class family. Other competitors only provide the sensor with our price.

Comprehensive Care

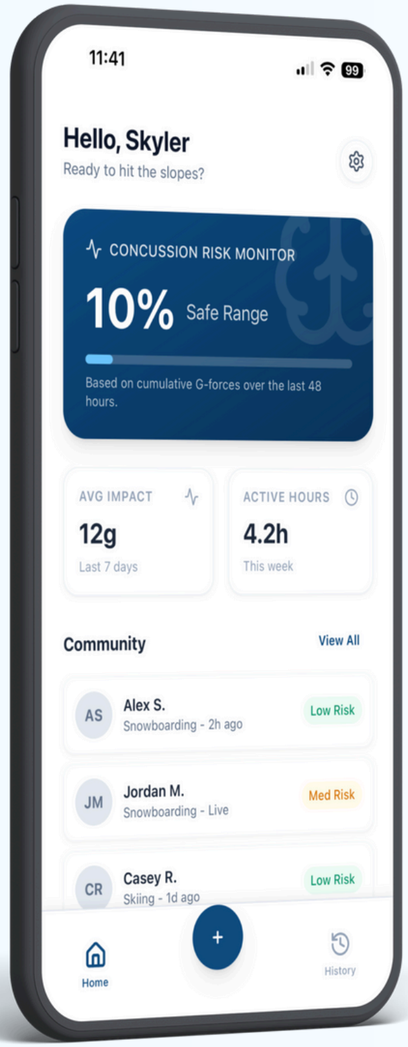
We use Dual Triple-Axis Accelerometers to specifically measure the "whiplash" effect of a rotational fall, providing the only complete safety picture for snowboarders.

Transparent

We give users a simple Red/Yellow/Green "Brain Health" score & comprehensive diagrams for clear communication on their health.

The Halo Helmet

- An embedded custom Tekscan Force Sensing Resistor (FSR) creates a full-skull pressure map to detect impact location.
- Dual LIS3DH Triple-Axis Accelerometers measure 3-axis linear and rotational acceleration.
- Powered by the Nordic nRF52 BLE SoC for low-energy Bluetooth connectivity in freezing temps.
- Housed in a flexible PCB that fits seamlessly between the helmet shell and liner, maintaining comfort.
- Convenient USB-C charging for 15+ hour battery life



App Ecosystem

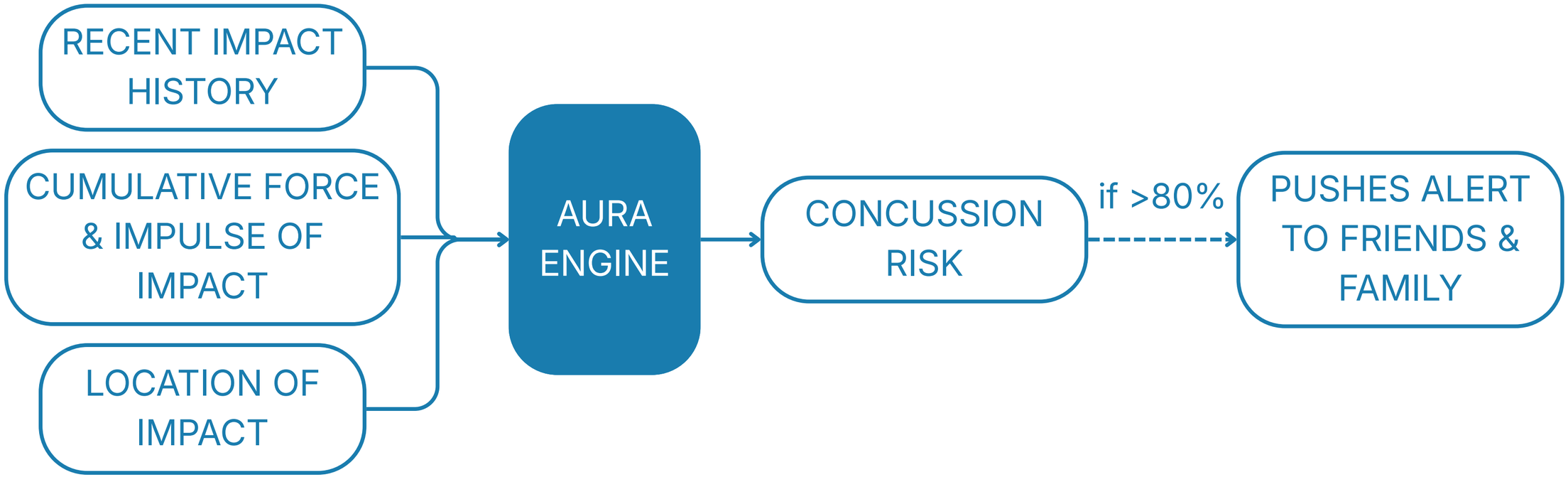
- The "Concussion Risk Monitor" aggregates G-force data over 48 hours to display a simple "Brain Health" score.
- Uses phone GPS to map where impacts occur, helping users identify dangerous icy patches on specific runs and local Ski Patrol locate injured skiers/snowboarders.
- Records total active hours, average impact force, and slope difficulty to help riders understand their personal risk profile.
- Social features allowing friends and family to track each other’s brain health

Interactive Brain Map

- Users can rotate a 3D Brain Model to see exactly where impacts occurred (e.g., Frontal Lobe, Occipital).
- Tapping an impact zone reveals specific telemetry: Impact Count, Max G-Force, and Risk Level.
- Transforms complex raw data into an intuitive visual that parents and non-experts can instantly understand

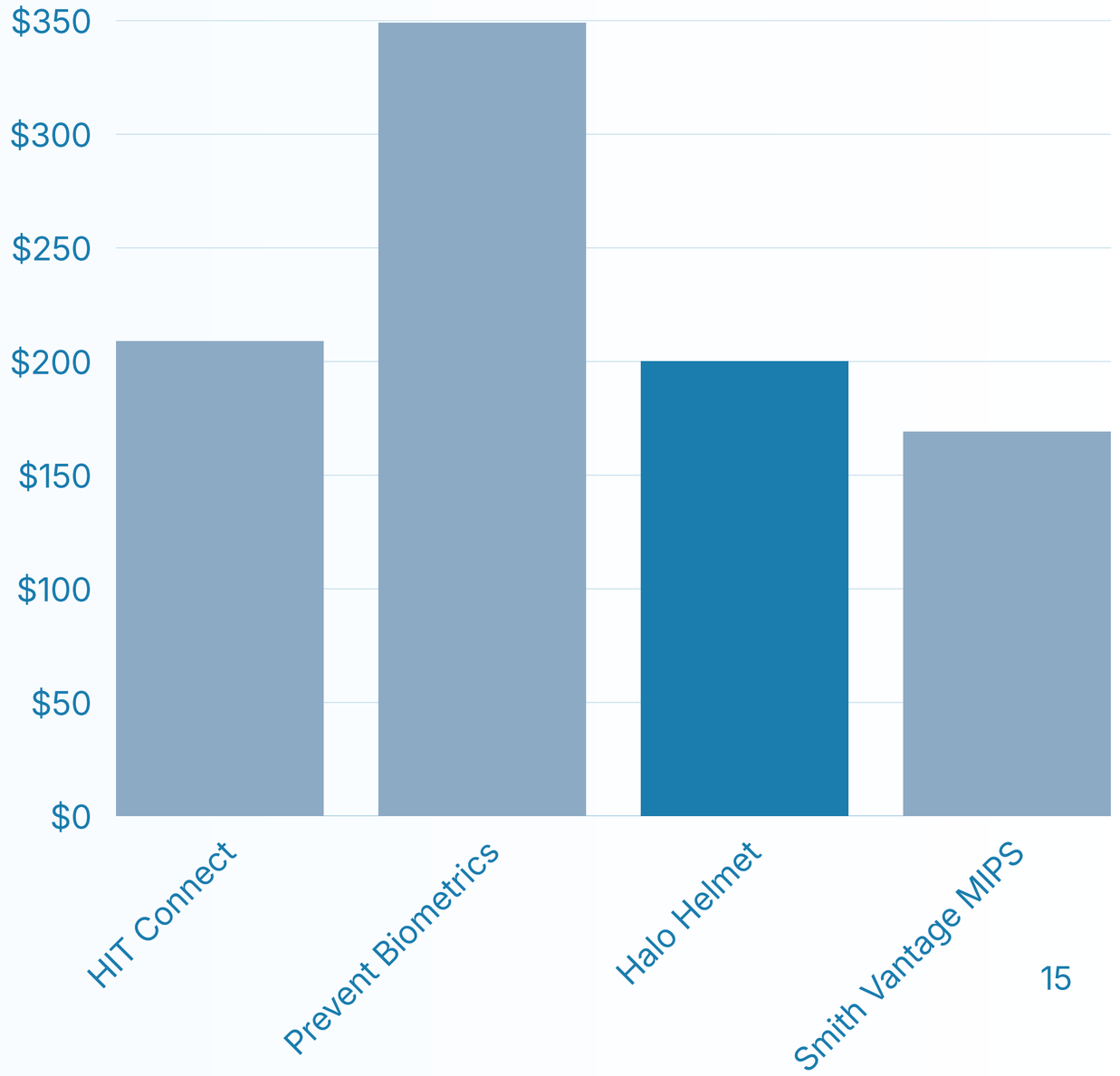
Halo’s Aura Protection

Every Halo Helmet acts as a node in a global safety network. We collect anonymized impact telemetry from thousands of runs to build the world's largest head injury dataset. This data powers Halo’s Adaptive User Risk Analysis (AURA) Engine. After a thorough dataset is collected, the Aura machine learning algorithm can be commercially implemented.



Competitive Edge

- At $199.99, Halo is accessible to the middle-class family, unlike other systems that cost more without the inclusion of the helmet (HIT & Prevent Biometrics).
- Offers smart diagnostics that $290+ premium helmets lack completely (Smith Vantage MIPS)
- Specialized for snowboarders and skiers for all ages



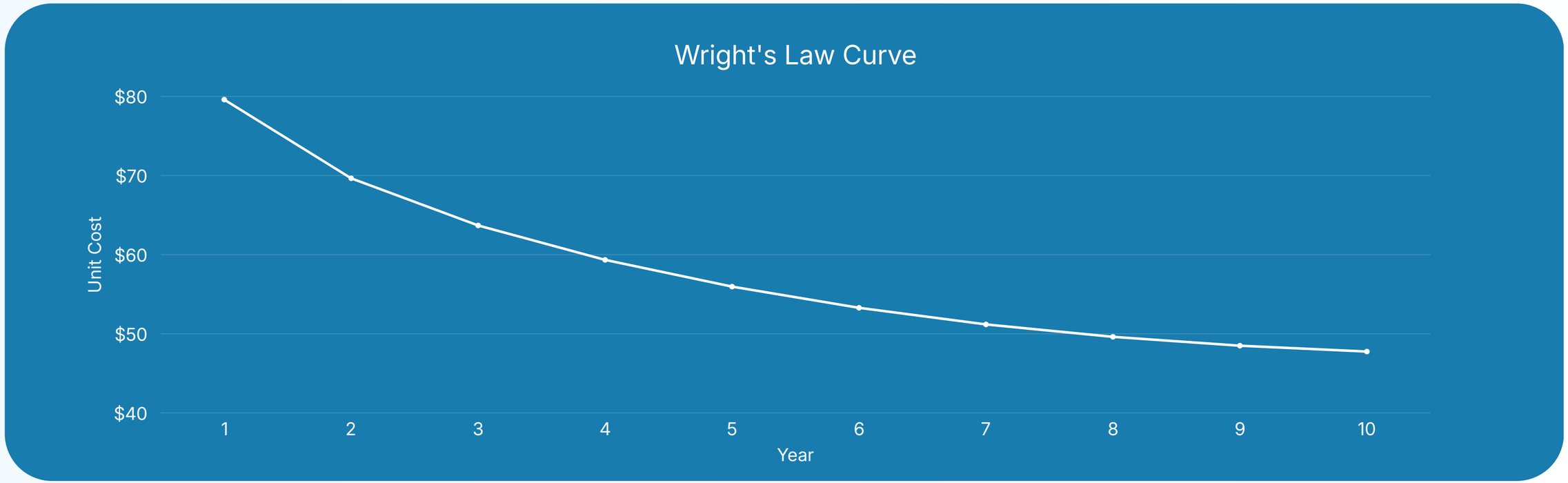
Financial Viability

Unit Economics

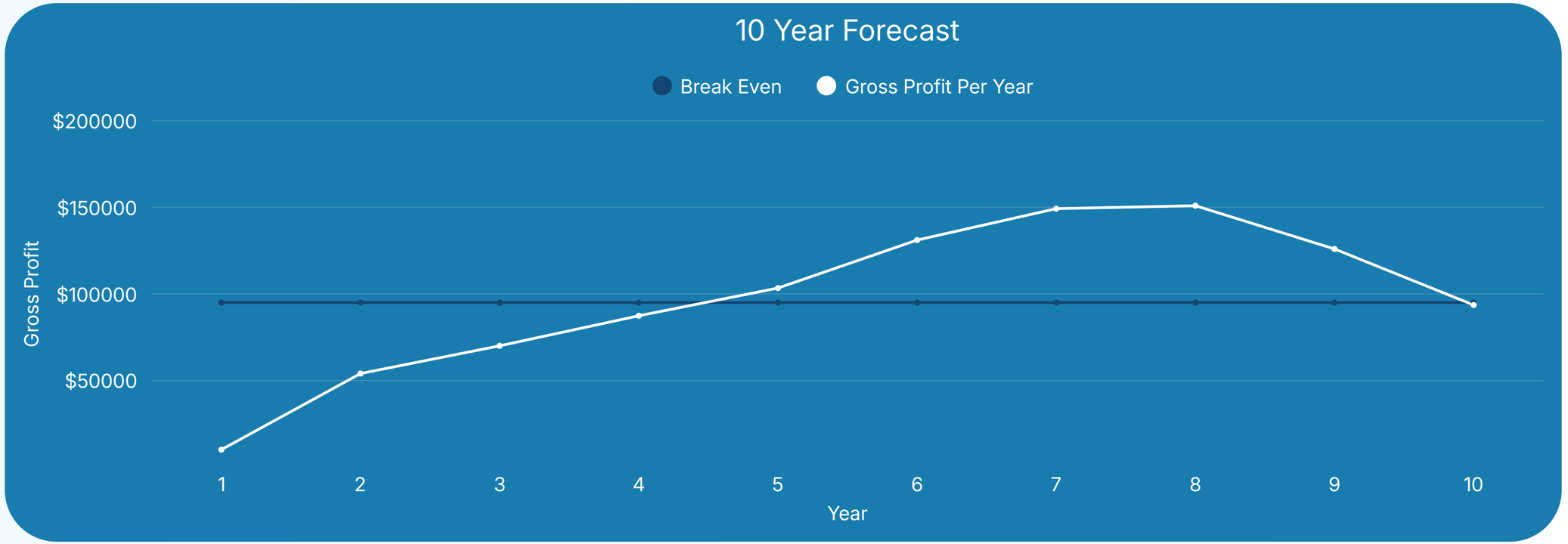
- Unit Production Cost: $66.29.
- DTC Price: $199.99
- Wholesale Price $100.00

Cost Reduction Strategy using Wright's Law

- For every doubling of cumulative production volume, unit costs decrease by ~10% due to manufacturing efficiencies and bulk component purchasing.



Growth & Scale



Years 1-3

- Pilot program at NE resorts; target 700 units to reach break-even.

Years 4-7

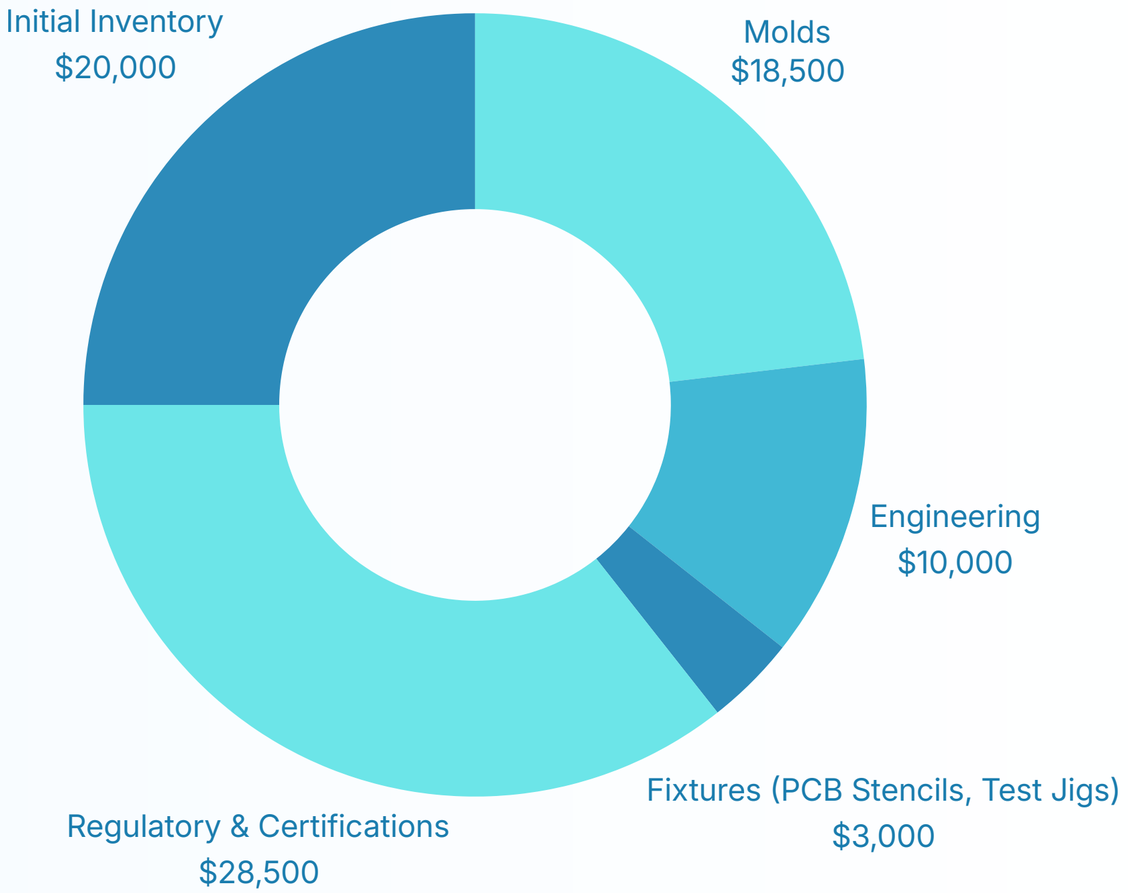
- Expand to e-commerce & regional ski shops
- Implement wholesale retail to other vendors

Years 8-10

- International expansion to the Swiss Alps and Japan
- Full implementation of ML algorithms to counter imitation rates & drop-off

The Ask

- Total Funding Required: $80,000
- Use of Funds:
  - Machinery for the custom helmet shell and battery enclosure.
  - ASTM F2040 (Impact) and FCC/CE (Bluetooth) compliance testing for necessary certifications.
  - Finalizing the flexible PCB integration and app development.
- Return on Investment:
  - Investors enter at the ground floor of the first scalable, biometric safety platform for winter sports.
  - Gain 23% equity



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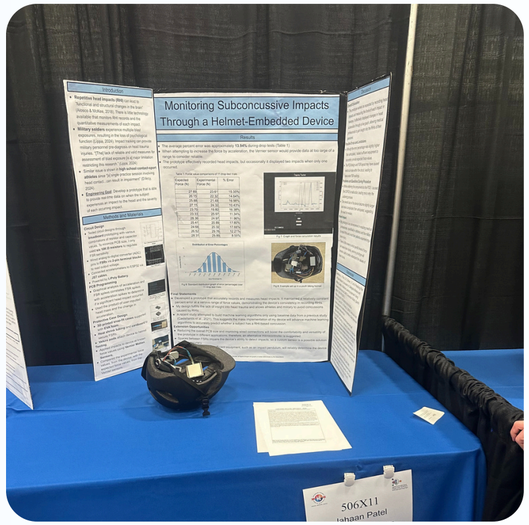
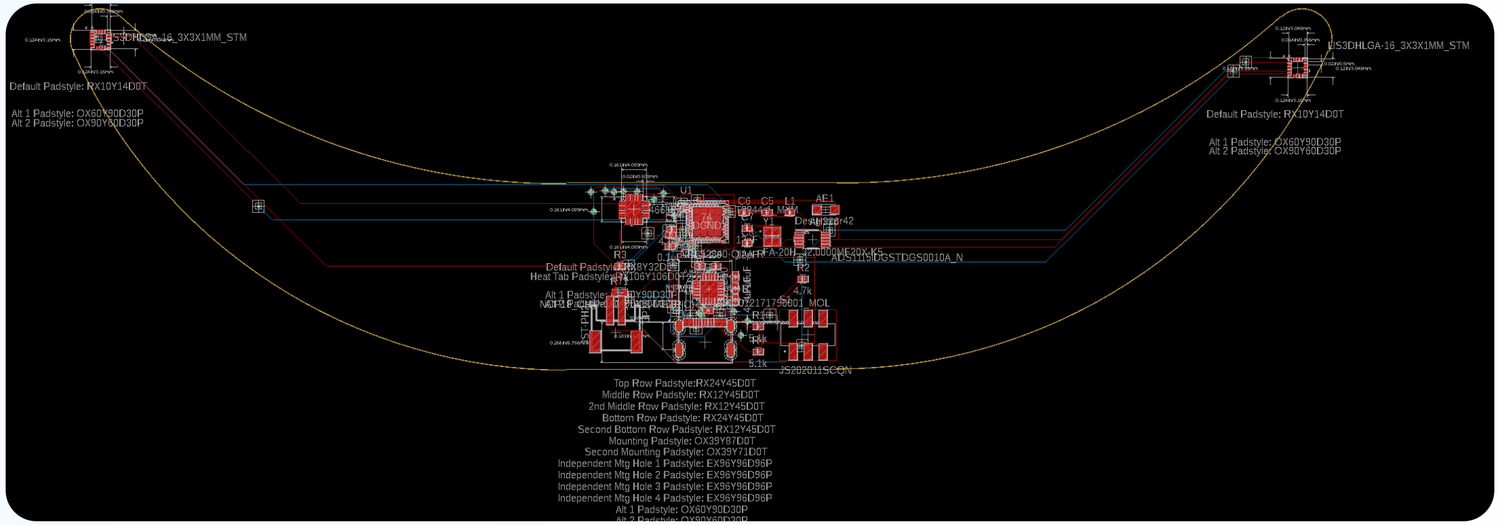
VIII. Appendix

Feasibility prototype that includes accelerometers & FSRs



Award winning pitch to medical professionals



Commercialized prototype electrical schematic