

Project Title:

Perfect Air: Intelligent Air Purification for Modern Homes

Exercise I: Product Concept Document

Market Problem or Opportunity: Indoor air quality has worsened significantly due to increased urbanization, allergens, and environmental pollutants. Families seek smarter, more efficient air purification systems that adapt to real-time conditions. Current solutions are either too basic or too expensive.

Market Segments (Prioritized):

- Health-conscious families with children and pets (Primary Segment)
- Urban apartment dwellers seeking compact solutions (Secondary Segment)
- Small businesses prioritizing customer air quality (Tertiary Segment)

Initial Financial Projections:

- Projected first-year revenue: \$2.5 million
- Projected first-year net profit margin: 18%

Market Window: Ideal launch window: Q2 next year, aligning with allergy season and Earth Day promotions.

Competitive Landscape:

- Dyson: Premium brand, strong in multifunction devices but expensive.
- Levoit: Affordable, good features but lacks smart automation.

Features and Functionality:

1. Real-time air quality monitoring with mobile app integration.
2. HEPA 13 filters combined with activated carbon technology.
3. Whisper-quiet sleep mode and energy-efficient performance.
4. Auto-adjust fan speeds based on room pollution levels.

Market Logistics: Product to be manufactured domestically with strategic distribution through Amazon, major retailers (Target, Best Buy), and direct DTC website.

Two KPIs:

1. Customer Satisfaction Score (CSAT) of 90%+ within 6 months post-launch.
2. Capture 5% market share within the first 12 months.

Exercise II: Initial Project Charter

Team Members:

- Product Manager

- Lead Engineer
- Marketing Manager
- Supply Chain Coordinator

Team's Purpose: Design, build, and successfully launch an innovative air purifier that meets evolving customer expectations for smart, affordable air purification.

Objectives:

1. Complete working prototype within 4 months.
2. Finalize manufacturing partnerships within 6 months.
3. Launch product nationally within 9 months.

Team KPIs: 90% of project milestones met on time.

Product Sponsor and Role: Laura Jameson, VP of Product Strategy — provides executive guidance, approves major project funding, and supports strategic partnerships.

Team Deadlines:

1. Prototype due by month 3
2. Market launch preparation begins month 6
3. Public launch by Month 9

Resources and Funding Requirements:

- Initial R&D funding: \$400,000
- Marketing and PR budget: \$200,000

Team Meeting Requirements:

1. Weekly sprint reviews every Thursday
2. Monthly full project status review with all stakeholders.

Exercise III: Market Requirements Document (MRD)

Two Market Segments: Families with health sensitivities/allergies, and young professionals living in urban apartments.

Three Market Problems:

1. Lack of affordable purifiers with high-end smart features.
2. Devices that are noisy or bulky, unsuitable for small spaces.
3. Difficulty in maintaining and replacing filters easily.

Three Functions or Features Required:

1. Intuitive mobile app for remote control and monitoring.
2. Auto-adjust sensors for hands-free operation.
3. Slim, modern design with easy filter replacement.

Prioritized Market Requirements:

- Smart automation and monitoring.

- Affordable pricing.
- Aesthetic design and quiet operation.

Exercise IV: Business Case

Market Situation: Growing consumer demand for cleaner indoor air, with increasing awareness of allergens, viruses, and pollution.

Market Opportunity: Opportunity to dominate the mid-tier smart air purifier segment by offering premium features at an affordable price.

Envisioned Solution: a sleek, app-enabled air purifier that monitors and reacts to real-time air quality changes.

Market Objectives and Business Assumptions:

- Achieve national retail placement within 1 year.
- Assume steady 5% month-over-month sales growth post-launch.

Solution Costs and Resource Requirements:

- R&D: \$400,000
- Manufacturing Setup: \$500,000
- Marketing and Launch Campaign: \$200,000

Strategic Alignment: Aligns with Perfect Purifiers LLC's mission to "Make clean air accessible to every home" and expands smart device portfolio.

Project Timing:

- Development start: September
- Launch: Following June
- Full retail rollout: Following August

Cost vs. Benefit Analysis:

- Projected Break-even: 14 months
- Long-term revenue potential over 3 years: ~\$8M

Three Project Risks:

1. Delays in sensor component supply chain.
2. Overpricing vs. competitive market pressure.
3. Lower-than-expected app user engagement.

Initial Investment and Recommendation:

- Total Initial Investment: \$1.1M
- Recommendation: Proceed with development; high alignment with market trends and competitive differentiation.

Exercise V: Product Roadmap

Two Product Options:

1. Perfect Air NextGen Base Model — Smart air quality monitoring, auto-adjust fan, app control.
2. Perfect Air NextGen Plus Model — Adds voice assistant integration (Alexa, Google) and UV sterilization.

Time Phase:

- Base Model Launch: Q2 next year (Primary launch)
- Plus Model Launch: Q3 next year (Mid-cycle refresh to sustain momentum)