

Executive Summary

Every day, people are using reusable drinking bottles, from infants to adults. While the bottles may differ in size, contents and intended use, they all have one thing in common: they must be cleaned. Cleaning reusable drinking bottles can be a nightmare. Brushes oftentimes do not work, and it can be impossible to reach the bottom corners of a bottle. Additionally, dishwashers take a lot of time to clean the bottle and are rarely full when you want to clean your bottle.

Team J₂O is a reusable bottle company offering a new type of bottle, the *Dream Steam*, which solves the problem of difficult & inconvenient cleaning. The *Dream Steam* is a reusable water bottle that can be easily and quickly steam cleaned in a microwave using its integrated steaming lid. It also contains all of the same features which are expected by consumers and found on other competitive bottles.

Throughout our ethnography, we were able to gain several key insights into the behavior of reusable bottle users. Almost all users have a dedicated bottle for drinking water and another for other various drinks (coffee, tea, smoothies, etc.). Most displayed this behavior because of a previous bad experience where their bottle developed a bad aftertaste upon using it with a flavored beverage (often from an alcoholic beverage or coffee). They also expressed frustration at how many times a bottle must be rinsed to remove the taste of soap when cleaning, and agreed that it was environmentally wasteful to have to fill the bottle in excess of three times just to clean it. Many of them were delighted at the thought of a bottle that they could put anything in without fear of flavors left behind while simultaneously being easier to clean.

Based on the needs identified in our ethnography and the current competitive landscape, we believe there is both a need and market for a reusable bottle that is easier to clean. Our main user persona is that of an active, environmentally friendly female in her late 20s or early 30s. She is a middle to upper middle class college graduate who owns a reusable water that she uses almost exclusively for water. She doesn't use her dishwasher often enough to make it her only bottle cleaning mechanism, and she looks to save money on her bills wherever she can. She is generally thrifty but is willing to spend a little more for a product that will stand the test of time.

Based on our environmental impact analysis of existing LCAs, we were able to determine that the use phase is the most impactful part of a bottle's lifecycle. Most of this is due to the large amounts of water, heat and detergent required to clean most bottles. Our concept generation focused on developing bottles with novel cleaning methods that could save on resources and energy. The final concept we selected is a bottle that can be steam cleaned in a microwave using a small amount of water and an integrated steaming base. It scored similarly to our baseline bottles relative to the customer needs and uses a fraction of the water and energy of a dishwasher or hand washing without needing any detergent.

Based on feedback from our alpha design, we have now created our final design. We also surveyed potential customers and, out of the 48 responses we received, 65% of people would pay \$15 or less, while 72% of respondents would pay \$10 or less.

Now that we have selected our final design, the next steps include creating preliminary bottle prototypes, validating the operation of the bottle, continued design improvements based on consumer feedback, and creating short run tooling to get the first Dream Steam bottles into the marketplace, allowing for continued customer development leading into full scale production.

Based on our market projections and sales estimates, we expect the Dream Steam to be profitable with a payback period of 1.9 years, assuming we began work full time today.