



FALCN

“Adventure without limits”

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Business Plan

Executive Summary

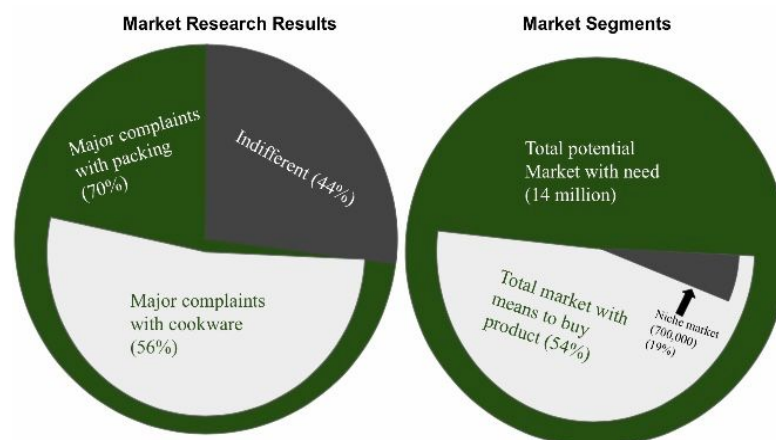
At Falcn, we aim to empower people to "adventure without limits", by providing fully collapsible metal pots that expand when heated, making carrying camping cookware far more convenient. Using the nitinol, a smart metal that expands and contracts in response to heat, we hope to provide consumers with a high-tech solution that combines the best features of our competition into one product. We have a potential market of 14 million people, however, we will start out targeting a niche market, high adventure campers in the New England area. Using this smart metal and a strategic revenue model, Falcn will provide campers with an eco-friendly all-in-one solution.

After conducting more than 50 interviews, we found that a common complaint from the camping market was how inconvenient it was to carry cookware. In fact, when talking to campers we found that 56% of our interviews involved a complaint about the bulkiness of traditional camping cookware. That's why we are designing a product that is more portable, durable, and efficient than any other camping solution on the market.

Market Research & Customer Profile

Our team made sure to listen to our customers even before we started to build our product. First, we brainstormed possible locations where we would find people in our target market; this included camping stores (Dick's and REI), college camping clubs, and recreational camping clubs. After conducting over 50 interviews, we gathered some reassuring statistics. 70% of our interviewees complained about packing due to the lack of space. And 80% of that 70% mentioned cooking materials specifically. By listening to our customers we found common complaints of "never having enough space" or having to pack "those pesky pots." Additionally, we reached out to Kendra Stritch, an Olympic climber, who only validated these concerns. With this enormous consensus, our team was ensured that Falcn was serving a burning problem for our customers.

Our customer profile is high adventure campers that travel frequently and for longer periods of time. This includes college adventure camping clubs, professional climbing athletes, and competitive camping clubs. Using our market research and a study conducted by the International Federation of Sports Climbing, we estimate our market cap at 14 million people[1]. However when considering other factors such as cost, that will affect consumer behavior, we realistically hope to serve 9.1 million customers ultimately[2]. In order for our company to be feasible, we will start by serving the 700,000 potential customers in the New England area[3].



The Problem

From our market research, we found that our customers look for two main features in camping cookware: durability and portability. Our competition in the camping space seems to only fulfill one of these important considerations. The first type of competitors are companies like Trekkin that make collapsible cookware using silicone. While this does serve as a compact solution, many campers don't use their products. In our interviews, we found that campers are health and environmentally conscious and dislike the idea of cooking with plastic. Additionally, these pots are extremely unreliable as they frequently break at the plastic's rivets. The second type of competitors are companies like Coleman that make typical camping cookware, such as nesting pots. While these traditional pots are durable, they are heavy and take up a lot of space. Our last competitors are companies such as OpSak that make plastic bags for campers that can rehydrate food. These competitors use dangerous chemicals such as Bisphenol A (BPA)[4], their product is harmful to the environment(non-recyclable), and they break frequently. It is evident that companies in the camping industry are neglecting to satisfy both of a camper's basic requirements with cookware.

According to our market research, 70% of campers complained about packing. And 56% specifically mentioned camping cookware. Heavy materials can have adverse effects on health as well. According to studies 12.6% of climber experience excruciating back pain. This pain can cause limb numbness and in some cases scoliosis[5]. The main culprit for this is heavy, bulky camping materials. With the majority of campers facing the struggle of bulky cookware, we know there is a burning problem that needs to be solved.

The Solution

Throughout our interviews, our customers voiced two main concerns with cookware: that it takes up too much space and that it is too heavy. Our product alleviates both of these problems for our customers. Our collapsible metal pot is estimated to take up 65% less space than traditional camping cookware on the market, clearing valuable room for our customers. This also allows camping groups to carry a single pot, as it can expand to their largest requirements while taking up far less space. The second problem our pot solves is weight. Our product is estimated to be 40% lighter than our competitors, who use stainless steel. This allows our customer to reduce the overall weight they carry, which is vital in scenarios where "every ounce counts"

a. **Materials**

We will use two metals in our pot. Nitinol, in areas around the folding parts of our product, and aluminum in other areas, to minimize costs. Because Nitinol and aluminum are easily found in large quantities, we can benefit from economies of scale by buying in bulk. Nitinol is a metal alloy of nickel and titanium, that has incredible elasticity (20 times more than that of any ordinary metal). Because of this, nitinol can expand and collapse at a specific pre-programmed temperature.

b. **Building**

1. The process of building our pot, once finalized, will be a standardized process. Because of this, we can outsource production in the future, leaving a high potential for scalability.
2. Before we begin physically building, we use computer-aided design programs to digitally design our iteration first. This allows to run analyses, such as a stress

analysis of durability, to optimize our design.

3. Measured out portions from the CAD design of both aluminum and Nitinol are cut from rolls of the metal.
4. The two metals are then welded together. Lastly, the Nitinol areas are coating with fluoropolymer an FDA approved food safe coating.

c. **Proof of Concept**

1. We have created 4 iterations of our design, 3 of which have successfully expanded when heated. This expanding process proved to be quick and didn't require a large amount of heat. *(See extra documents for demonstration).*
2. We also tested our product to see if it would expand prematurely due to hot weather conditions. We tested our product in 100-degree heat and found that it won't prematurely expand in hot conditions. Lastly, we tested it's cooking abilities by boiling water in it, which was successful.

Unique Value Propositions

Our product offers our customers a durable, portable, lightweight, and food safe solution all in one product. Our competitors, such as Coleman and Trekkin, offers only one of these sought-after benefits while neglecting the others.

a. **Durable**

- The enclosure of our pot will be made out of Nitinol (smart metal) and aluminum. Aluminum's tensile strength, a common marker to measure durability, is about 90 MPa[6]. Nitinol's is 140 MPa[7], and according to NASA researchers, can "undergo significant reversible strain (up to 10%)"[8]. Due to nitinol's shape memory properties, it will always self heal if damaged. Other collapsible pots use silicone which has mere MPa of 70[9]. Our use of nitinol and aluminum will ensure that our pot can withstand the wear of camping.

b. **Portable**

- Based on our current CAD (computer-aided design) prototypes and models, our pot will save campers nearly 65% more space per ounce of carrying capacity, and further research is indicative of up to 90% savings. This is valuable space for campers.

c. **Lightweight**

- Density, a measurement used to determine the weight of materials, gives us insight into which materials are heavier relative to one another. The materials our pot uses have a density of 6.4 g/cm³ (Nitinol)_[2] and 2.7 g/cm³ (aluminum)[7]. Our competitors use stainless steel which has a density of 7.7 g/cm³[10]. Using these densities our pot will be roughly 40% lighter than our stainless steel competitors.

d. **Food safe**

- Many of our competitors use plastics, such as siclone, to make their cookware collapsible. Because our target market is health conscious many of them dislike the idea of cooking with plastics. Cooking with plastic can release BPA and phthalates which are known as "endocrine (hormone disruptors); these chemicals can potentially cause life treating diseases [11]. Our product is made completely out of metal and will be coated with an FDA approved food safe coating to uphold high safety standards.

Revenue Model

a. Primary Revenue Streams

- We will sell direct to consumers via our website to start out, however as we gain business connections and experience we hope to expand into specialty camping stores such as Dick's and REI. Additionally, we will also set up booths at popular camping events and trade shows to gain brand awareness and sell additional products.

b. Unit Variable Cost

- The cost for the amount of Nitinol we are using will be \$15. The cost for the amount of aluminum is \$10. The cost for external tools, such as soldering irons, will be \$13 per pot. Overall, the cost to produce our pot will total \$38. However, with more iterations of our design, we plan on reducing our unit cost by using less nitinol. Additionally, after we begin selling, we will benefit from the economies of scale and reduce our production costs.

c. Unit Selling Price & Profit Margins

- We plan on retailing our 1-liter expandable pot for \$85. This will give us a profit margin of 55%. We chose this number because it is in the range (\$57-\$90) of other high-end camping cookware. In monopolistic competitive space, having a reasonable price range will ensure customers consider our product.

d. Developmental Costs

- We will spend the first year prototyping and kickstarting our company. We have filled for a provisional patent (\$130) to make sure larger companies cannot mimic our design. We will spend less than \$50 dollars on marketing initially because we will use direct selling tactics which yield a lower customer acquisition cost. The bulk of our developmental costs will come from product development. We estimate to spend about 2,000 dollars in prototyping. We plan on entering competitions and possibly taking out a bank loan to fund this.

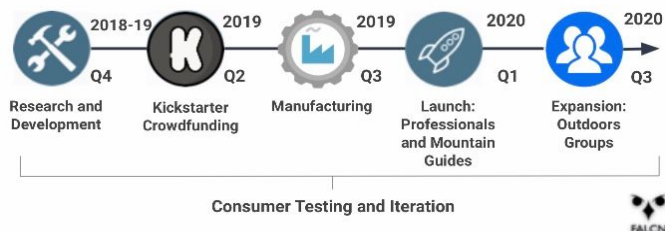
c. Philanthropic Initiative

- We plan on donating pots to rescue teams that help refugees and communities affected by natural disasters. Because these teams serve secluded and hard to reach areas, they need to transport lots of supplies in a limited amount of trips. Our pots are collapsible, therefore easily transportable in large quantities. This means that rescue teams, such as the Red Cross, will be able to take less trips to deliver cooking supplies. While this initiative will be initially costly, in the long run, it ensures that we will be a socially responsible company and helps us build a positive brand image.

Growth Plan

We plan to spend the first half of 2019 (Jan-Jun) finalizing our product's design. This includes working with a material science professor and continuing the development process. Simultaneously, we will launch our product on Kickstarter, submit our idea in contests, and look for potential investments to acquire money to help cover development costs. After we finalize a design, we plan on outsourcing manufacturing in order to decrease costs. Next, we will launch our product in the New England Area, using direct-marketing efforts and informing our customers through trade shows and camping events in the area. After the launch in New

England, we plan on diversifying into the outdoor camping group market this includes college camping clubs and recreational camping clubs.



Our Team

Our team is comprised of two motivated high school students, both interested in using their skills for the common good. The first member of the Falcn team is Om Deshmukh. Om has been fascinated with mechanical engineering since fourth grade. Om's 6 years of experience on his award-winning robotics team sparked his interest in materials science and prompted him to worked with nitinol, the metal used for our pot, on several projects. His passion for creating and relentless work ethic will help us create our product. The second member of the Falcn team is Neha Subrahmanyam. Neha's experience with marketing through her various school clubs will help retain the funding and support Falcn needs to create its product. Neha also has experience with coding and computer-aided design, which can help with engineering the pot and creating a company website. The last member is Andrew Yu. Andrew has experience with management and financials through his experiences with DECA. Additionally, all of the Falcn members love the outdoors and frequently camp with their families.

Sources

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