

Business Model Canvas + DFX Plan

Group 2.3

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Abstract

This document describes a business model for the commercialization of our product by including a business model canvas that takes into consideration social, environmental, and cost factors. Then, the document lists five important design for x factors based on the client meet.

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Introduction

To determine the success of our product we will do a value proposition and a business model canvas. This will help us with identifying who our customers will be, what value they get out of the product, and what type of relationship we have with our customers. Then, we will investigate the sustainability of our product by evaluating the social, environmental, and cost of the business. By doing these steps we will have a better understanding of what we need to improve upon for our business model to ensure success of our business.

Value Proposition for Ergonomic Clipping Device for Renal Clips

Product Name: ProClip

Value Proposition: "ProClip stands as a beacon of innovation, ensuring the unmatched safety, ergonomics, and efficiency of medical professionals. It is specifically engineered to mitigate thumb injuries by providing a seamless and safer alternative to traditional blood tubing clip and unclip processes. Our meticulously crafted device promises excellent ergonomics, enduring durability, and assured reliability, making it a dependable companion in the fast-paced medical environment. Beyond the functional brilliance, ProClip champions easy sanitization and unparalleled maneuverability, ensuring its suitability for diverse and demanding medical settings while upholding the highest standards of hygiene and patient care."

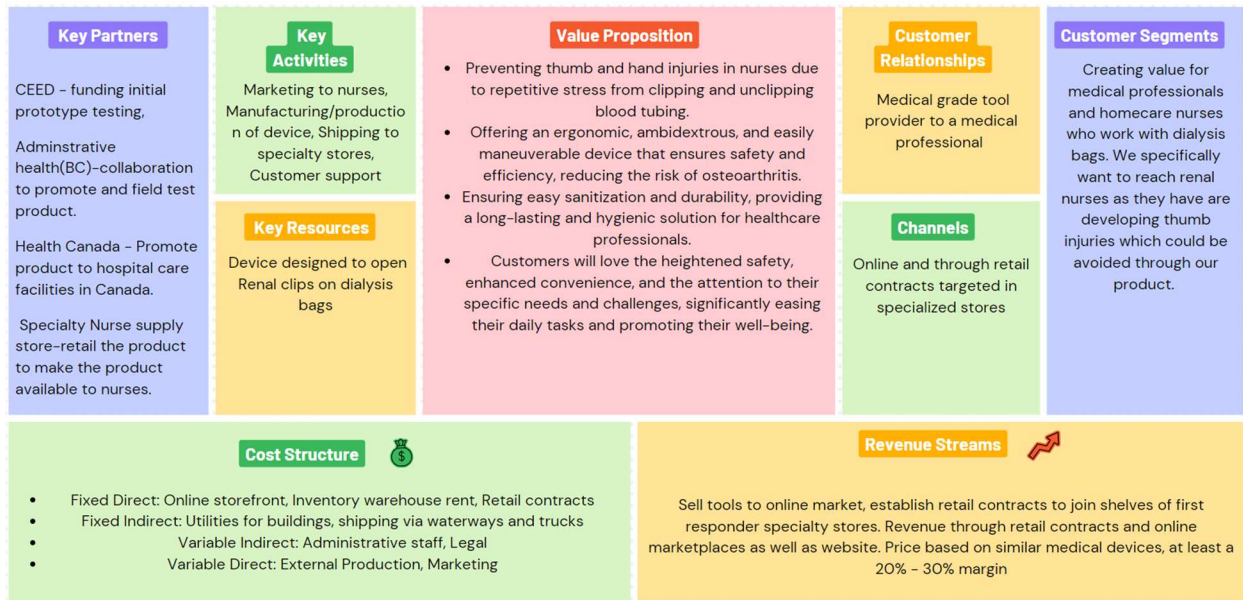
Our Goals with our product, and reasoning for choice of product:

1. **Safety & Ergonomics:** Prioritize an ergonomic design that minimizes the use of the thumb to prevent stress and potential osteoarthritis due to repetitive motions, replacing the traditional side pinch motion with a safer alternative. This directly addresses the main concern presented.
3. **Key Features Emphasized:** The value proposition emphasizes the most crucial product features: ergonomic design, ambidexterity, maneuverability in tight spaces, and sanitization. These features not only make the product stand out but also assure the potential user (nurses) that the product will cater to their specific needs. The following goes deeper into the features that our initial client (nurses at an arthritis clinic in BC) wants:
 - Maintain the ambidextrous feature for universal use and ensure easy maneuverability in confined spaces to enhance the clipping process speed or maintain the same speed.
 - Portable and adaptable: The device is compact and portable, potentially keychain or pocket-sized, adaptable to diverse tubing and clip sizes without time-intensive adjustments.

- Understanding that there are varying clip sizes, ensuring universal compatibility while focusing on standards initially in BC.
4. **Hygiene & Durability:** By underlining the product's easy sanitization, we are considering the environment in which it will be used - medical facilities where hygiene is paramount. Durable during all types of sanitation processes. Additionally, highlighting the product's durability showcases its longevity and reliability during medical use.
- The device endures regular and intensive use, handling between 250-500 clips daily, with a long lifespan to avoid frequent replacements.
 - The device is compatible with typical sanitization agents (involving alcohol), allowing for easy cleaning and consistent sterilization without damage.
5. **Targeted Audience:** The value proposition focuses on the needs of medical professionals, particularly nurses, and medical students working at clinics/ hospitals in North America initially, but this can be applied to clinics/ hospitals globally. Their daily tasks and challenges (potentially forming osteoarthritis due to regular joint stress) form the core of this product's purpose.
- We plan a targeted initial rollout, potentially to a specific group or clinic, with a structured strategy for broader, extensive implementation later.
 - The ergonomic nature of the product can also indirectly benefit arthritis patients (better patient care) or medical professionals who might suffer from similar ailments (reduced joint stress).

In conclusion, the value proposition of the ProClip positions the product as a vital tool for medical professionals who aim to prioritize their health and efficiency while ensuring high standards of patient care, and not slowing down patient care.

Business Model Canvas



Assumptions in Developing Business Model Canvas

Key Partners

Current Key Partners would include CEED and Administrative Health (BC). All our current tools, materials, and training come from CEED. Once we conclude our design, Administrative Health (BC) will be the initial recipient of the product. Future partners include Health Canada and a specialty nurse supply store. We imagine that once the product has been completely integrated into Administrative Health (BC), we will expand all across Canada via Health Canada. If our product succeeds, it should be very simple to acquire this partner. The same goes for specialty nurse stores, where we would directly sell our clips to, for them to sell to nurses outside of hospitals.

Key Activities

Our primary activity would be to market our product to nurses. This would ensure that nurses become aware of a device that would prevent arthritis and make them more inclined to purchase and use the product. This could be achieved with simple advertising. Manufacturing, production, and shipping. These are basic requirements and can be completed by commission and a delivery company at the beginning, and can be accomplished by the company itself in the future. Customer support can be provided by company staff.

Key Resources

Our Key Resources include the materials that are used to create the clips. These materials will most likely be some kind of strengthened plastic. This should be very easy to obtain.

Value Proposition

Preventing thumb and hand injuries in nurses due to repetitive stress from clipping and unclipping blood tubing. The device exterminates the key motion which causes arthritis in nurses' hands. Offering an ergonomic, ambidextrous, and easily maneuverable device that ensures safety and efficiency, reducing the risk of osteoarthritis. Our device will be made out of a easy to clean material that is environmentally friendly ensuring easy sanitization and durability. Customers will love the heightened safety, enhanced convenience, and the attention to their specific needs and challenges, significantly easing their daily tasks and promoting their well-being. The product is a solution to a problem in healthcare that has not been addressed. The product will offer solutions to nurses to allow them to perform their job without fear of injury.

Customer Relationships

Our relationship with our customers is as medical grade tool provider to medical professionals. We simply provide the tools they require in a professional manner.

Channel

We will channel our product online and through retail contracts targeted at specialized stores. This should be very easy to accomplish as there are many different companies that offer these services.

Customer Segments

The goal of our product is to create something of value for medical professionals and homecare nurses who work with dialysis bags. Nurses are not only our most important customers, but our only customers so they are very important to our success. However, since we are creating a device that will be very important for them, gaining their support shouldn't be very difficult.

Revenue Streams

Our revenue will come from selling tools to the online market and establishing retail contracts to join shelves of first responder specialty stores. After selling our products with a significant markup (price based on similar medical devices, at least a 20% - 30% margin), we will be making a profit.

Sustainability Report

Social Impacts

Positive Impact - Improved Occupational Health and Safety: The use of a renal device significantly reduces the risk of thumb injuries caused by using blood tubing clips. By addressing this issue, the device will improve the health and safety of renal care nurses. In addition,

preventing injuries in the workplace means that nurses can perform their duties without hurting themselves, resulting in productivity and job satisfaction. This would also result in better social lives as the nurses will not have to face the social aspects related to developing arthritis (ie. insecurities). As a result this can contribute to overall improvement in the quality of patient care.

Negative Impact - Resistance to Change: While the main objective of the project is to address the physical challenges faced by renal care nurses, it is important to consider potential negative social impacts that could arise. By introducing a new device/tool to healthcare workers, there can sometimes be resistance and reluctance to change. Nurses may have become accustomed to the existing method and may need time to adapt to the new device. This resistance could cause initial disruptions and may initially slow down productivity.

Environmental Impacts

Positive Impact - Reduction of Plastic/Chemical Waste: Consideration of the device's requirements, could allow for easy cleaning and sanitization to reduce the use of harsh cleaning chemicals. By choosing materials and design features that are easy to clean, healthcare facilities can minimize the amount of cleaning agents required, leading to a lower environmental impact. Incorporating these environmental considerations into the design can contribute to a more eco-friendly approach. In addition, this product aims to eliminate arthritis in medical professionals, so all the expenses and damage done to treat the condition (splints, creams, etc.), will simply cease to exist, resulting in less carbon emissions and waste.

Negative Impact - Production and Materials: The clamp device involves the use of raw materials and energy. Because nurses previously used their hands to open the clips, this tool will increase environmental emissions. However, the scope of the environmental emissions will depend on the type of materials used and the manufacturing processes. For this reason environmentally friendly materials and sustainable manufacturing practices should be used to minimize the tools environmental footprint (i.e.. buying in bulk, using sustainable methods, biodegradable material, etc.).

Economic Impacts

Positive Impact - Healthcare Cost Savings: By reducing the number of thumb injuries, the renal care device can help lower healthcare costs. Thumb injuries result in worker compensation claims, medical treatment, and paid leave. The clamp device's ergonomic considerations will reduce employee injury lead to cost savings for healthcare facilities.

Negative Impact - Initial Investment and Maintenance Costs: The use of the clamp device in a healthcare setting creates an initial investment cost for healthcare facilities. The device will also require funding for manufacturing and setting up suppliers. Additionally, the device's maintenance and cleaning requirements will produce a slight increase in cost to medical facilities. However, it is essential to consider these costs in relation to the potential long-term benefits, such as reduced healthcare costs and improved worker productivity.

Business Model Canvas with Triple Bottom Line



Design for X

Based on the information that we learned from the client meet we choose the following 5 design considerations.

Ergonomics

A recurring topic that the client brought up was her concern for renal nurses getting arthritis from the strain on their thumbs from using these clips. Our final design must be ergonomically friendly since the intent of the project is to reduce injury. The client suggested that a good working position for the thumb would be if the thumb and index finger form a circle.

Safety

Ensuring the safety of healthcare workers is the primary goal of this project. Hence, it is critical that our final design in no way threatens the safety of renal nurses. By making safety a DRX requirement we need to ensure that our device eliminates improper thumb manipulation and prevents risk of developing osteoarthritis. Additionally, the usability and design of the device should enable quick and efficient clipping to maintain the required workflow without compromising safety.

Durability/Reliability

Renal nurses' dependence on this device requires that it performs efficiently without loss of function. The device should be designed with materials that can withstand frequent use, repetitions, and daily sanitization. The device should have a reasonable lifespan to reduce the need for constantly replacing or repairing the device. The client stated that they may perform up to 250-500 clips per day.

Speed

If our device is less efficient than the nurses using their thumbs, then our device will likely fail since the nurses will see the device as a time restraint regardless of its health benefits. Thus, the device should enable a fast-clipping process, reducing the time and effort required for each clip. The client stated that nurses often move down the tubing quickly without many pauses, so the device should be designed to allow for a smooth and efficient workflow.

Sanitization

In healthcare environment, sanitization is a requirement and is important to avoid infections. Because of this, we chose sanitization as one of our DFX which implies we must ensure that our device can withstand cleaning chemicals and that it doesn't have any hard spots to clean. In the client meet, we learned that the common sanitization methods for such a tool would be the use of alcohol wipes and Lysol solutions.

Conclusion

By doing a value proposition and a business model canvas we were able to evaluate potential customers, revenue streams, partners, and sustainability of the business. We learned that most of our partners will be based in the medical industry. To ensure the success of our product we need to educate health organizations on the benefits of our products. Our business model indicates that our primary customers will be renal nurses. Finally, we performed a sustainability model which helped identify where our business could improve in prevent negative social and environmental effects.

Resources

Business model canvas was copied from GNG2101 – Introduction to product development and management for engineers and computer scientists.