





# Project Deliverable G – Business Model and Economics Report

Submitted by  
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## **1. Business model**

The business model that has been selected for company procurement is the e-commerce business to consumer model, along with private labelling and manufacturing [1]. There are several reasons for why e-commerce integration has been selected over in-person sales. First, e-commerce offers lower prices than in-person sales since it eliminates the costs associated with operating a store front. When running a physical store, one must account for rent, salesperson salaries, electricity, among other types of costs. Second, e-commerce is a much more convenient and safer than visiting a business in store. Not only does online shopping remove the need to practice safe COVID-19 precautions, but also reduces the time of commute for a customer and eliminates the in-store face to face interaction that some more socially anxious individuals may be dreading. Not to mention e-commerce allows our company to reach a global audience and enables users to make more informed decisions when purchasing our product due to product specifications being listed online. With regards to the advantages presented for our business, e-commerce allows for customer data collection, eliminates geographical boundaries, and sales can be open 24/7, all of which lead to increased sales. Business to Consumer interaction, along with private labelling and manufacturing, on the other hand, eliminates the middleman entirely and allows the business to be self-reliant on its procurement and decreases external costs.

## 1.2 Business Model Canvas

### *The Business Model Canvas*

<p><b>Key Partners</b></p>  <p>Materials will be outsourced from a company branded Made in China. This ensures that the materials can be bought in bulk at a reduced price, as opposed to expensive local manufacturing. The company also aims to work in partnership with the Canadian Federation of the Blind (CFB). The CFB is a non-profit, entirely volunteer based company that hopes to improve the lives of those that are visually impaired. They are also known to promote independent sellers of tools and technology useful for blind people.</p>	<p><b>Key Activities</b></p>  <p>Key activities include R&amp;D of future products as well as marketing, sales, shipping, labelling, packaging, and assembling products.</p>	<p><b>Value Proposition</b></p>  <p>Our company's cane is intended for use by anyone that is visually impaired. This person can be located anywhere in the world, is of any gender, and is within the skilled working class to upper middle class. The reason for why the individual must at least be of working class is due to the cost of the product being over \$100. This is rather expensive, and therefore whoever wishes to purchase the product must have the funds to do so. We also envision that the person purchasing this cane is social, and active. The person must be social if the product is to be used among two people. The customer should also be active since the product is intended to be used while walking or running.</p>	<p><b>Customer Relationships</b></p>  <p>To build strong relationships between the customers and the company we will put a strong emphasis on communication and seek feedback from our valued customers on ways to develop our cane. We will show genuine care for our customers and treat them with respect in all aspects of the business. The key to this will be by modeling good behaviours from management to employees to customers.</p>	<p><b>Customer Segments</b></p>  <p>During the current pandemic safe social distancing is a practice that has been suggested from the government for the health of the public. For the case of visually impaired individuals however, the act of being guided usually includes breaking the 6ft social distancing regulation. The product that has been designed addresses the issue and enables the user to be guided from afar.</p>
<p><b>Cost Structure</b></p>  <p>Types of costs have been explained in further detail within section 2. They include marketing, electricity, salaries, materials, over head, rent, and depreciation.</p>	<p><b>Revenue Streams</b></p>  <p>Money will be made once at the time of purchase. The main company revenue will be from sales of our product to individuals or visual impairment rehabilitation corporations (sold in bulk). Additionally, when the company can go public on the stock market another source of revenue would be from dividends. Our business will set pricing based off our market competition, customer value, and cost of production/ materials.</p>			

**Figure 1:** Business Model Canvas (Adapted from Lecture 10 slides) [2]

## **1.2 Core Assumptions and Feasibility**

The core assumption that we have made in developing our business model canvas is that we are a product-driven business that targets a niche group of users. Our targeted niche users are those who are visually impaired, so our business model was designed taking this into consideration. Our business model was designed assuming that there will be a large market for our product due to its uniqueness. Another core assumption taken into consideration when designing our business model canvas is that spreadable diseases such as COVID-19 will be relevant for the foreseeable future, and this will result in there always being a need for our company. Further, our business model canvas is feasible since various factors such as material availability, cost of goods, available product market, and key resources were all considered when it was being developed. The feasibility of this business model will primarily rely on the company's ability to produce a quality product at low production costs to maximize revenue. It will be plausible to minimize production costs since the business model states material production will be outsourced to Chinese manufacturers.

## 2. Economics Report

### 2.1 List of Costs

**Table 1:** List of Categorized Business Costs

<i>Cost</i>	<i>Amount</i>	<i>Type of Cost</i>
<i>Marketing</i>	\$20 000	Fixed Indirect
<i>Electricity</i>	\$20 000	Variable Indirect
<i>Salaries</i>	\$500 000	Fixed Direct (Labour Cost)
<i>Materials</i>	\$300 000	Variable Direct (Material Cost)
<i>Overhead</i>	\$20 000	Fixed Indirect
<i>Rent</i>	\$25 000	Fixed Indirect
<i>Depreciation</i>	\$10 000	Fixed Indirect

These values were chosen as reasonable costs based on the economics assignments and lectures seen in class, as well as further research. Firstly, as previously mentioned, this company will mainly run and sell its products online. This also means digital marketing, which happens to be cheaper, allow for global reach, as well as target those who are more likely to be interested in the product [3]. Overall, this allows for a cheaper marketing cost, with a more guaranteed return on investment [3]. Next, electricity costs are considered for a medium sized business. In the United States, the average monthly electricity bill for a commercial property is \$647.61 USD [5]. This value was doubled to account for the size of our company. The yearly cost amounts to around \$20 000 CAD. Next, salaries are considered. As a medium sized business, there would be a fair amount of employees, each earning around the average salary in Ontario, leading to a cost of \$500 000. In terms of production materials, the creation of our prototype costs \$97.43. However, when producing on a larger scale, we would be able to reuse some of the waste, such as the length of the pipe that must be cut off. Additionally, manufacturers offer bulk discounts



and certain deals when purchasing large amounts of materials. Therefore, the materials cost ends up around \$300 000. In terms of rent, the average rate in Canada in 2020 was \$20.07 per square foot per month [8]. Since this is an online business, the amount of office space can be drastically reduced, leading to a yearly cost of \$25 000. Note that the depreciation and overhead costs account for the reduction in value of our product over the years, and any unpredictable costs, respectively.

## 2.2 Income Statement

**Table 2: 3-Year Income Statement**

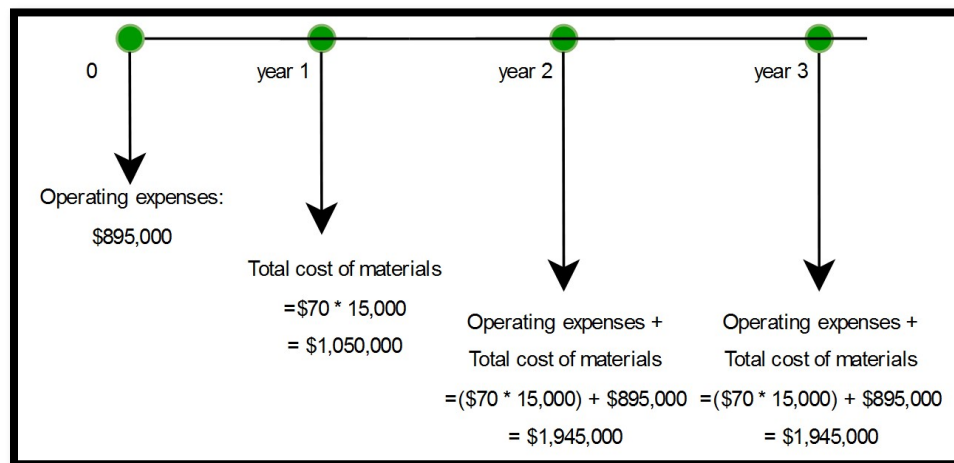
<b>Income Statement</b> [CAD \$ thousands]	<b>Year</b>			
	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>Total</b>
Sales Revenue	<b>5,250</b>	<b>5,250</b>	<b>5,250</b>	<b>15,750</b>
Cost of Units Sold	<b>(1,050)</b>	<b>(1,050)</b>	<b>(1,050)</b>	<b>(3,150)</b>
<b>Gross Profit</b>	<b>4,200</b>	<b>4,200</b>	<b>4,200</b>	<b>12,600</b>
Marketing	20	20	20	60
Electricity	20	20	20	60
Salaries	500	500	500	1,500
Materials	300	300	300	900
Overhead	20	20	20	60
Rent	25	25	25	75
Depreciation	10	10	10	30
Operating Expenses	<b>(895)</b>	<b>(895)</b>	<b>(895)</b>	<b>(2,685)</b>
Operating Income	<b>3305</b>	<b>3305</b>	<b>3305</b>	<b>9915</b>

## 2.3 NPV Analysis

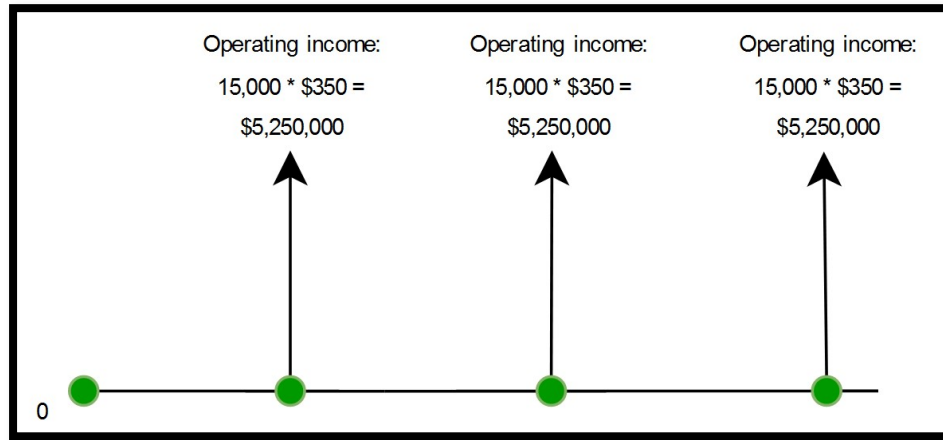
	Year 1	Year 2	Year 3
<b>Projected Sales</b>	15,000 units	15,000 units	15,000 units
<b>Total Direct Material Cost</b>	\$1,050,000	\$1,050,000	\$1,050,000
<b>Operating Expenses</b>	\$895,000	\$895,000	\$895,000
<b>Operating Income</b>	$15,000 * \$350 =$ \$5,250,000	$15,000 * \$350 =$ \$5,250,000	$15,000 * \$350 =$ \$5,250,000

**Break-even point** = total cost / selling price per unit =  $(\$1,050,000 + \$895,000) / \$350 = 5557.1$   
= **5558 units**

Therefore, in each year, assuming that costs stay the same, our company would need to sell at least **5558** units in order to break even.



**Figure 2:** Cash flow diagram showing projected expenses for the next 3 years



**Figure 3:** Cash flow diagram showing projected income for the next 3 years

## 2.4 Assumptions

The assumptions made in this report include that our group is now a complete company, producing guiding canes on a large scale to appeal to our target market. We are assuming that we are a new company, forcing us to take into account reputation when doing our market research on well-known white cane brands. We are also assuming that we can ship worldwide, due to our cane's ability to collapse to a sturdy, compact size. For this reason, the market research is conducted on global statistics. Additionally, we assume that COVID is still a large-scale problem, encouraging customers to want to socially distance, as well as shop online. This target market essentially includes all blind or visually impaired people, in need of a cane, more specifically, a smart cane, allowing them to guide themselves or to be guided. In 2021, there are 43 million people living with blindness, and 295 million people living with some other form of visual impairment [6]. Within this group, it is assumed that only 2-8% use a white cane, as the rest prefer a guide dog or sighted guide [10]. Luckily, our product combines the use of, and appeals to those who, desire a smart white cane, and/or a sighted guide thank to the interchangeable cane tip/additional handle. With COVID requirements still prevalent, it is

essential for strangers to remain 6ft apart as a safe social distancing measure. This makes our cane more of a “need” than a “want”, as it eliminates any worries or discomfort that the user may have regarding safety in choosing a guide.

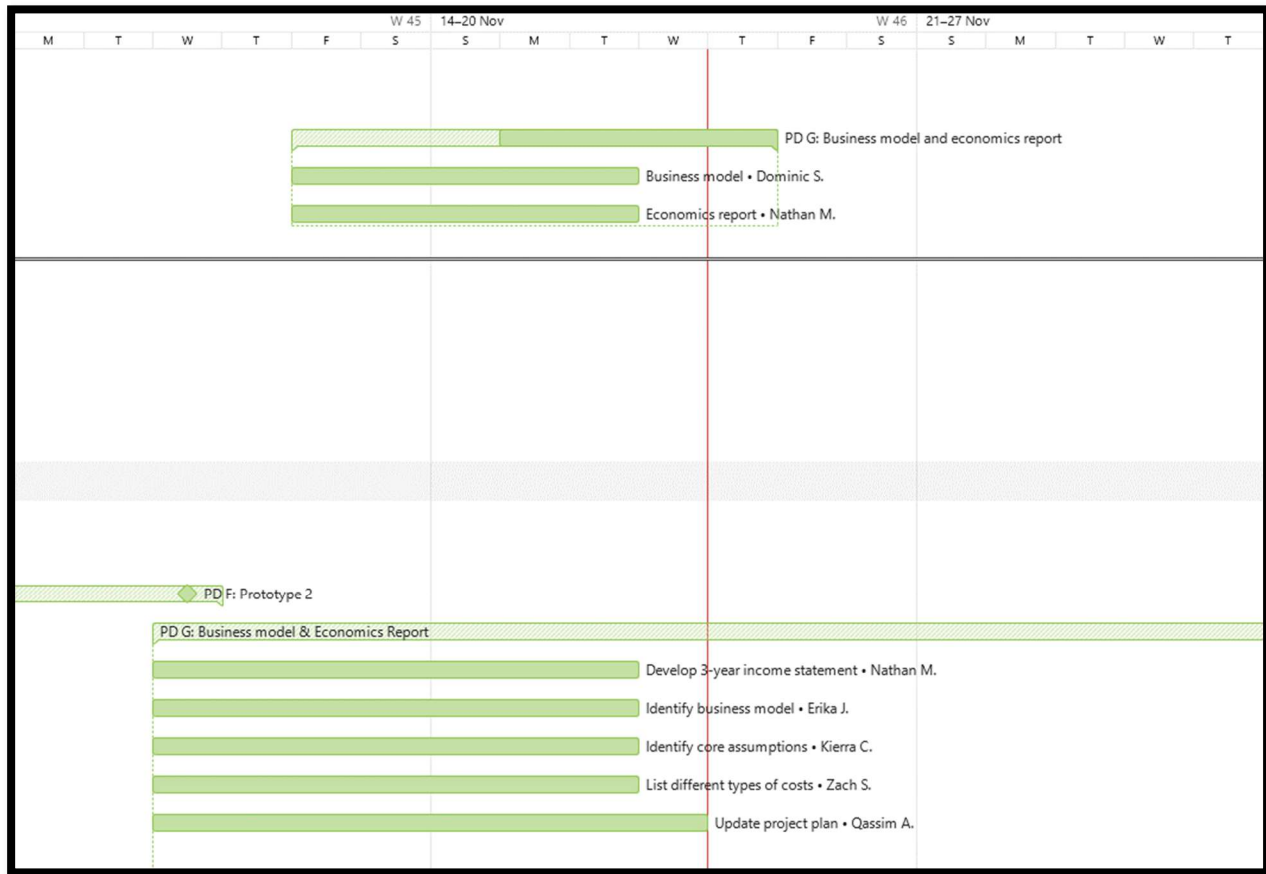
Based on this research and these assumptions, a cane, or guiding method, is very clearly necessary for those living with a visual impairment. Since it is more of a necessity, we can assume that our product appeals to 50% of those requiring assistive devices, with the other 50% being those using a guide dog or a sighted guide without any distancing measures. The price also narrows down the percentage of the market our company owns, as the smart features of the cane make it slightly more expensive than a basic white cane. In 2015, the average salary for a visually impaired individual was \$40,134.12 USD [4]. When the inflation and exchange rate is taken into account, this amounts to around \$58,242.21 CAD in 2021. This analysis demonstrates that the average blind person has the necessary budget to purchase our product. It should, however, be noted that although the average blind person has the means to purchase our product, not all those with a visual impairment fit into this “average”. The percentage of the market is therefore reduced.

From this, it is deduced that we would own about 15-20% of the market, when considering individuals that don’t want a smart cane or can’t afford the product. Visually impaired individuals that require custom features on their cane are also considered and eliminated from potential clientele if our cane does not meet their requirements.

Finally, as mentioned, the average blind person should have the means to purchase not only the most basic, necessary guiding cane, but one with assistive features, like our product, to make their life much easier. To determine the cost of our product, an analysis was done based on value, cost, and competition. Firstly, our cane acts as a 2-in-1 due to the interchangeable

handle/cane tip. This means the cost of a typical white cane can be doubled to be around \$60. We must also consider the value of the assistive technology. The electrical components tend to be far more expensive, so this part is valued at around \$250. Next, we compared our design to similar products on the market. The WeWALK Cane, priced at \$749, is a very close comparison, with the electrical components and technology aspect [9]. This cane, however, has the advantage of a reputable brand name. The cane developed by Stanford researchers, however, has a self-navigating system, another component integrated into our design. Their cane is priced at \$400, again from a very reputable school [7]. Since our design integrates most of these functions, as well as a vibrating motor, interchangeable ends and variable lengths, our company is able to price our product at a similar price point, despite being a newer company. Finally, the cost-based analysis is conducted. When taking into account the reduction in cost when producing in bulk, the production of a single cane costs our company roughly \$70. Through the value, cost and competition-based analysis, a reasonable price per unit of our cane would be \$350.

### 3. Project Plan Update



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