

Project Deliverable G

Business Model and Economics Report

[A2.2 - One-Handed Walker Steering]

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Abstract

Our client, Janice, is an individual with a variety of health issues leading to mobility impairment, including hypermobility syndrome, myopathy, and epilepsy. This combination has left Janice dependent on a walker, but due to frequent dislocations of both her shoulders and spine, as well as other appendages, this fix alone is insufficient as she is often unable to steer with complete control, which poses a risk to her safety. She requires a system that will allow her to steer the walker efficiently with only one arm, that is transferable to be used with either arm and is easy to install and use. This deliverable is focusing on the business and economics side of our project. We produced a business plan, projected income statements and break even point analysis for a fictional organization that would manufacture and sell our product.

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1. Introduction

Our recently built factory is ready to start production and we have developed a sales plan to reach potential customers. For commercialisation purposes for the first 3 years we have adopted a non profit business model. This model is suited for our product since there are very limited customers to use the product. Our business model will change thereafter upon gaining high market penetration covering many places in the world.

Since we expect to sell less product in the first three years, we set an initial target to sell one thousand units per year for the first three years. The sales price is fixed according to our business model. We have developed a detailed marketing plan to reach a high number of customers to avoid any loss of revenue during this period of time. We have also minimized our operating expenses to include the strict minimum requirement.

2. Business Model

2.1. Business Model Identification

Our product is an empathetic design aimed at walker users. While discussing what business model would fit best, we had to consider a myriad of key factors to reach the best fitting model for our product. First, as previously established, we considered who our customer base is; our product is an attachment that allows walker users to be able to function their walker one-handed, and therefore, any person that uses a walker is considered a potential customer. With our customer base identified, we then began further analysis of that specific market and how to best satisfy the customers. Through the analysis, we concluded that a non-profit business model would be the best approach for two main reasons. First, our product is a simple attachment to an already existing and high-quality product therefore it will be harder to market as a standalone. Additionally, it does not require a great amount of profit since the bar, which is the core component of our product, will be purchased already machined in addition to the rubber coating and other features, meaning we will simply be assembling the product which will erase any machining costs that might be involved. Secondly, since our customer base consists of people who use walkers, a great portion of them are already spending money on walkers, wheelchairs, and/ or medical procedures which can be expensive. Since our product is an attachment to make walkers more accessible and is not directly required for the regular functionality, customers may not be inclined to spend money on it. Moreover, our main purpose is to make the daily takes of walker users more comfortable, not the profit. With the best fitting business model for our customer base decided, we then began discussing how we would reach this customer base. We decided that our business would be B2C, this is because our product is an empathetic design, hence, we need to maintain a strong relationship with our customers to best answer their needs as that is our main goal. B2C would ensure that we and the clients are in direct contact to best understand our customers and improve accordingly to their feedback. Finally, our customers will be able to reach us through the company website. The website will allow customers to be informed about our non-profit, the products we sell, order it, and it will allow customers to directly reach us if needed. Additionally, as we are a nonprofit, we will also be relying on volunteer work and working hand in hand with charities and other nonprofits that work for the

same cause. Our website will also allow anyone interested in volunteering or any other charities to reach us.

2.2. Business Model Canvas

Key partners	Key Activities	Value propositions	Customer relationships	Customer segments
<p><u>-Diversified ulbrich:</u> aluminum tubing supplier, canadian based business that operates nationwide</p> <p><u>-Rubber coating canada :</u> rubber coating supplier that sells a great range of products , does not specifically sell to other manufacturers but this should not be an issue as our operation is small</p> <p><u>-FedEx :</u></p>	<p>-Development and management of the platform(website)</p> <p>-Manufacturing and assembly of the devices</p> <p>-Promotion of the organization through caritative events (fundraisers)</p>	<p>-Provides accessibility solutions for walker users</p> <p>-Makes accessibility devices for a small price</p>	<p>-Client’s need at the center of the service offered</p> <p>-All devices and designs are open source meaning that anybody can adjust or improve our designs to their needs</p>	<p>Walker users</p>
	<p>Key resources</p> <p>-the organization’s website</p>		<p>Channels</p> <p>-Website</p> <p>-Charitable</p>	

provides courier services to ship out product to customer	-Suppliers		events	
Cost structure Web hosting fees , marketing and sales , product development , cost of raw material , general and administrative		Revenue streams Sales revenue from the devices , Government Grants , Donations		
Social and environmental cost: -Supply chain to acquire the raw material and distribute the product is polluting		Social and environmental benefit -Provides cheap devices to make the life of disabled people easier		

2.3. Core Assumptions

The main assumption made was that we would already have an initial investment in our company and hence we would have enough startup money to make and market the product. Secondly, we are assuming that there is an existing market for our product as it is specific and aimed at a certain case. Additionally, we are assuming that we would have volunteers working with us and a good standing relationship with similar existing charity organizations to help us market our product and reach our audience.

3. Economics Report

3.1. Cost Identification

Variable cost	Fixed cost	Direct costs	Indirect cost
-Aluminium tubing usage	-Salaries	-Salaries of technical personnel(technicians , engineers)	-Salaries of administrative personnel(accounting , HR , Safety officers)
-Rubber coating usage	-Building rental	-Cost of raw material	
-shipping costs	-Web services costs	-Shipping cost	
-electricity usage	-marketing	-Electricity usage of the machinery	-General and administration
-Product development		-Product development	

3.2. 3-year income statement

3-year Income statement	
Number of units sold per year	1,000
Sales price per unit	\$150
Cost per unit	\$98.64
Sales (revenue) for 3 years	$(3,000 \times 150) = \$450,000$
Cost of goods sold for 3 years	$(3,000 \times 98.64) = \$295,920$
Gross profit	$(450,000 - 295,920) = \\$154,080$

Marketing campaign for 3 years	\$27,000
Electricity for 3 years	\$15,000
Rental for 3 years	$(10.44 \times 1971) = (\$20,600) \times 3 = \$61,800$
General expenses for 3 years	\$15,000
Operating Expenses	\$118,800
Operating Income	\$35,280*

* This operating income is used to recover other miscellaneous expenses and reinvested in R&D (Research and development) to further develop and improve our product.

3.3. NPV analysis and Breakeven point

Year	0	1	2	3	4	5	6	7	8	9	10	Discount rate	10%
Discount Factor	1	0.90909091	0.82644628	0.7513148	0.68301346	0.62092132	0.56447393	0.51315812	0.46650738	0.42409762	0.38554329		
Undiscounted Cash flow	\$ 35,280.00	\$35,280.00	\$35,280.00	\$35,280.00	\$35,280.00	\$35,280.00	\$35,280.00	\$35,280.00	\$35,280.00	\$35,280.00	\$35,280.00		
Present Value	\$ 35,280.00	\$32,072.73	\$29,157.02	\$26,506.39	\$24,096.71	\$21,906.10	\$19,914.64	\$18,104.22	\$16,458.38	\$14,962.16	\$13,601.97		
NPV	\$ 252,060.33												

Fig1, NPV analysis

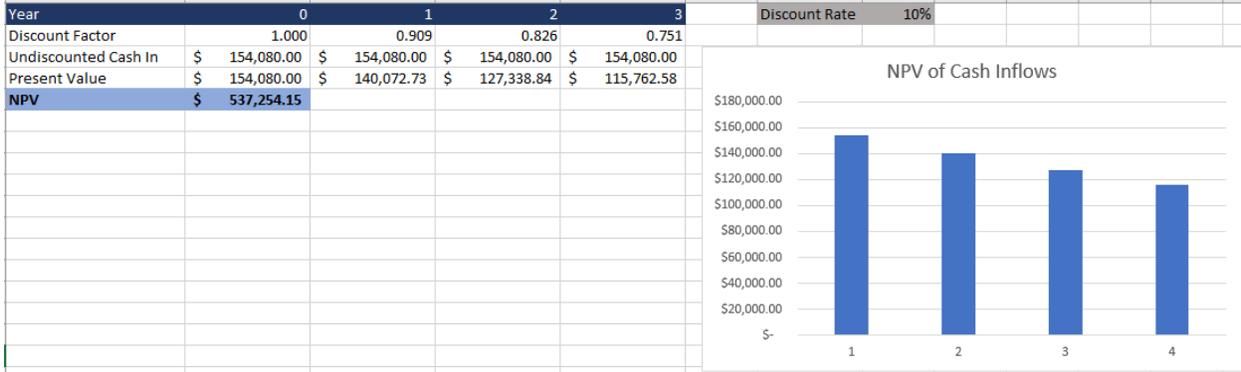


Fig2, Cash Inflow NPV analysis



Fig3. Cash Outflow NPV analysis

From our NPV analysis of our business and projected 3-year cash inflows and outflows, we arrived at the conclusion that the business would become profitable within a year of launch. This is largely due to the large profit margin per unit (152%) that our product carries. Additionally the costs commensurate with our business plan are relatively cheap and were assumed to scale linearly with expansion. This helps keep costs low, while maximizing profits.

3.4. Core assumptions

A core assumption we made was that we would own 100% of the market, this was justified through market research. In doing this, it was readily apparent that our product was the only one of its kind at this price point offered to the consumer. As such we felt it was reasonable to assume we would have 100% market share or within a reasonable margin of error of that for the first several years. With these years of being the sole offering on the market, we also felt it was reasonable to assume that our brand and product would develop some market resilience to competitors and new products of our kind as they made their way to market. The COGS was based on a BOM derived from our prototype. Labour costs were rolled into the COGS; these were projected from third party market analysis on labor cost in low cost markets. Manufacturing would be done in China where labor costs would be as low as \$USD 3.80/ hour. For this reason and the ease of conducting manufacturing related business, the decision was made to do manufacturing overseas in China. Our target market is individuals with movement inhibiting medical conditions which require an apparatus to utilize a walker with either arm at a time. Due to the low availability and prohibitive cost of available solutions, our solution targets the majority of people who cannot afford multi-thousand dollar custom walkers. Since we are the

only product fulfilling this niche, we felt that a price point of \$150 per unit was a reasonable price point, and would easily enable us to sell our projected 1000 units/year.

4. Conclusion

Following the lecture material regarding business marketing and economics presented in class, our group has developed a hypothetical business model and economics report. We have identified our market, walker users, and analyzed how to best satisfy our customers. As a group, we decided to use a non-profit business model and that our business would be B2C, as we feel that this combination would be optimal for customer satisfaction and ensuring that our company would be able to give back to the community. Each aspect of our business model was further broken down using a business model canvas, and our core assumptions regarding the market and the process to launch our company were stated. We then identified our predicted variable, fixed, direct, and indirect costs, based on which we created a hypothetical 3-year income statement, beginning in the first year of our business launch. We then completed an NPV analysis of our business, and projected hypothetical 3-year cash in-flows and out-flows, to ensure that our business plan could be successful. Finally, we stated our core assumptions regarding the market we were planning to enter, and the economic state of our company itself. We are currently working on our final design of the one-handed walker steering device, based on the feedback from the two previous prototypes. As we have many goals and much to accomplish to create this final prototype, we have divided the tasks according to each group member's strengths to optimize efficiency, as described on our Wrike.

5. Project Plan Update

Wrike link: <https://www.wrike.com/open.htm?id=963685589>

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 - Deliverable J
 - Collapsible Clothing Rack

Deliverable G

List Gantt Chart Files

All tasks By Predecessors Expand all Collapse all

Name	Start date	Due date	Predecessors
Deliverable G			
Business Model and ...	06/11/2022	19/11/2022	
Business Model	06/11/2022	19/11/2022	
Business Model	06/11/2022	08/11/2022	
triple bottom...	09/11/2022	14/11/2022	4FS
Assumptions	15/11/2022	19/11/2022	5FS
Economics Report	06/11/2022	19/11/2022	
Costs	12/11/2022	14/11/2022	
Income State...	15/11/2022	18/11/2022	8FS
Item			

Snapshots

Weeks