TIC PROTECTION

Project Deliverable G: Business Model and Economics Report

Intro. to Product Dev. and Mgmt. for Engineers

GNG 2101 A02

Group A6

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G.1 Business model:

1. Identify and describe a type of business model that would be well suited to commercializing your team's product. Discuss the reasons for your choice.

Our team's product would be best suited for the manufacturer business model. This model will allow us to go for a business-consumer model. We would take the raw materials needed to produce our product and then market and sell to our consumers. The reason this business model works best is because we are a very niche product, manufacturing the glove ourselves will allow us to easily create modifications and take customizations from our clients and implement them to our product. In addition, a second-hand seller will not be needed as sales aren't expected to reach highs.

2. Fill in a business model canvas by answering the how, what, who and how much of your chosen business model.

<table>
<tr>
<td rowspan="2">Key Partners

-Material company (Kevlar)

-Foam/padding company

-Shipping company (Canada Post, UPS.. Etc)

- Tourette Syndrome Foundation of Canada</td>
<td>Key Activities

-Production
-Designing gloves
-Designing customizations
-Sales
-Shipping</td>
<td rowspan="2">Value Propositions

Providing hand protection against physical tics</td>
<td>Customer Relationships

Personal assistance</td>
<td rowspan="2">Customer Segments

Individuals struggling with tic's/Tourette's and need hand protection against injury</td>
</tr>
<tr>
<td>Key Resources

-Materials for production
-Efficient employees
-Website to intake orders
-Space for manufacturing and shipping</td>
<td>Channels

Online webstore, allowing custo-mers to interact with us firsthand</td>
</tr>
<tr>
<td colspan="2">Cost Structure

Fixed
-Rent of manufacturing space
-product development
Variable
-shipping cost
-materials cost
-marketing</td>
<td colspan="3">Revenue Streams

-Sale Price
-Set pricing off customization and demand (not a huge market)
-Prices are set to make gloves affordable and useful – not trying to make as much money as possible</td>
</tr>
</table>

3. Describe the core assumptions that you have made in developing your business model canvas and comment on its feasibility. Important: These core assumptions should be based on the business model you have chosen and not on your prototype (e.g. what type of clients do you assume your product will attract?).

The assumptions that were made to develop the business model are that our clients will be ones struggling with physical tics. These clients will have the option to purchase our general glove (one designed for this project) or request customizations and interact with our team to develop a more suitable glove. This is believed to be feasible due to not expecting LOTS of clients. Starting just in Canada we will gain exposure with our "partnership" with Tourette Syndrome Foundation of Canada.

G.2 Economics report:

1. Include a list of variable, fixed, direct and indirect costs associated with your business, based on the manufacturing and sale of your product. Make sure that you distinguish between price and cost and realize that prototyping and higher-volume manufacturing costs will probably be different.

Fixed:

- Rent of manufacturing space
- Rent/purchase of manufacturing equipment
- Product development

Variable:

- Shipping
- Materials
- Marketing
- Wages/benefits for employees (if/when any are hired)

All costs listed above are direct costs as they pertain directly to the manufacturing and sale of our product. Because of the small scale of our business, there will be very little overhead costs if any at all.

2. Develop a 3-year income statement, which includes sales revenue and costs of units sold for each year, gross profit, operating expenses and operating income (no need to include interest and taxes).

The general models used for developing our income statements.
Sales revenue - costs of goods sold = gross profit.
Gross profit - operating expenses = operating income.

Income statement prediction for year 1

It is likely that our sales revenue during the first year will not be significant enough to result in a positive operating income value. Therefore we predict the following.

Sales revenue
50 units at $50 dollars per glove.
50 x 50 = $2500
Sales revenue = $2500

Costs of goods sold
Considering the average rate of $15 shipping cost per package our size (calculated via Canada post).
Material cost + shipping cost = cost of goods
(20 + 15) x 50 = $1750

Gross profit
Gross profit = sales revenue - costs of goods sold
Gross profit = $750

Operating expenses
Assuming we will be manufacturing the gloves by ourselves for the first year. We will focus our resources on marketing the gloves in order to ramp up production for the second year
Wages/benefits for employees + Rent/purchase of manufacturing equipment + Rent of manufacturing space + marketing cost = Operating expense
0 + 2000 + 2000 + 1000 = $5000
Operating expenses = $5000

Net Income = Gross profit - Operating expenses
Net income = -$4250

Income statement prediction for year 2

Our marketing efforts would have paid off and we will see an increase in sales revenue but still not a need for official employees nor official workspace.

Sales revenue
200 units at $50 dollars per glove.
50 x 200 = $10000
Sales revenue = $10000

Costs of goods sold
Considering the average rate of $15 shipping cost per package our size (calculated via Canada post).
Material cost + shipping cost = cost of goods
(20 + 15) x 200 = $7000

Gross profit

Gross profit = sales revenue - costs of goods sold
Gross profit = $3000

Operating expenses
Wages/benefits for employees + Rent/purchase of manufacturing equipment + Rent of manufacturing space + marketing cost = Operating expense
0 + 2000 + 2000 + 1000 = $5000
Operating expenses = $5000

Net Income = Gross profit - Operating expenses
Net income = -$2000

Income statement prediction for year 3

This year we will see our business become self-sustainable and generate positive cash flow. We expect our marketing efforts the last two years to pay off exponentially.

Sales revenue
1000 units at $50 dollars per glove.
50 x 1000 = $50000
Sales revenue = $50000

Costs of goods sold
Considering the average rate of $15 shipping cost per package our size (calculated via Canada post).
Material cost + shipping cost = cost of goods
(20 + 15) x 1000 = $35000

Gross profit
Gross profit = sales revenue - costs of goods sold
Gross profit = $15000

Operating expenses
We will hire part-time workers and rent manufacturing equipments when we hire workers.
Wages/benefits for employees + Rent/purchase of manufacturing equipment + Rent of manufacturing space + marketing cost = Operating expense
2000 + 2000 + 2000 + 1000 = $7000
Operating expenses = $7000

Net Income = Gross profit - Operating expenses
Net income = $7000

3. Using a NPV analysis, determine the break-even point (i.e. number of units that must be sold for your business to become profitable). Note: It is highly unlikely that your operating income will be positive in the first year because of fixed costs. Therefore, you must use a NPV analysis to compare costs and profits over multiple years based on present value. Draw two cash flow

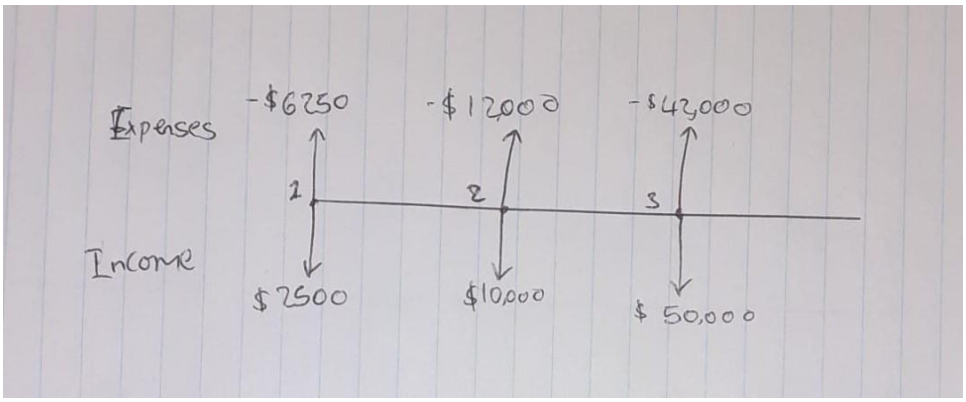
diagrams of the expenses and incomes for the next three years. Calculate the NPV value of each expense/income and determine the differences and then the break-even point.

NPV Analysis			
	Price in first year ($)	Price in the second year ($)	Price in third year ($)
Sales price per unit	50	50	50
Variable Cost	2750	8000	38000
Variable Cost per unit	55	40	38
Fixed cost	4000	4000	4000
Fixed cost per unit	80	20	4
Break-even point	800	400	333.33

Break-even point = (Fixed cost)/ (selling price per unit-variable cost per unit)

Variable cost = shipping + materials + marketing + wages

Fixed cost = purchase of machines + rent



Year 1 difference: $3750

Year 2 difference: $2000

Year 3 difference: $8000

4. Describe and justify all assumptions that you have made in developing your economics report. The assumptions must be factual based on a preliminary market research that you conduct in order to determine the amount of demand in your target market, the expected % of the market that you would own, the unit price of your product based on a sound pricing strategy.

We scouted online shopping sites that offer similar products and project our first-year sales based on the number of reviews shown.

We expect that around $1000 dollars of marketing cost invested into a marketing team will net us significant increase in sales the second and third year. This is based on what we have researched about marketing teams and their capabilities

We assume that shipping each product will cost us around $15 dollars, we came to this conclusion by using the Canada post website which lets you calculate shipping costs based on package sizes.

We are assuming rent of manufacturing space and cost of product development will be our fixed cost, this is based on researching other companies and their income statements.

We assume that our gross profit will overtake operating profits, this is assuming that our media efforts will net us annual increase in customers.

We believe that Shipping, Materials, Marketing, and Wages/benefits for employees (variable costs) will all be market standard, we assume this from looking at a var

PROJECT PLAN UPDATE. (Found on CEED Makerlab's Wrike)