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GNG2101[D] - Introduction to Product Development and Management

Business Model and Economics Report

Project Deliverable G

Group 2.4
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1. Introduction

Deliverable F (our previous deliverable) was based entirely on our Prototype II. It explained the features and their functionality along with how they were designed and actually implemented. The next stage required in order to create our final product is to come up with an effective business model that is well suited to commercialize our product. This deliverable will encompass both our chosen business model and our economics report. In addition to the aforementioned, we also discuss a forecasted income statement based on our business model.

2. Business Model

To effectively come up with a business model that is ideal for our company and suited for our specific needs we used the triple bottom line business model canvas. It demonstrates the economic, social and cultural value of our final product. This is shown below in *Figure 2.1a*.

2.1 Triple Bottom Line

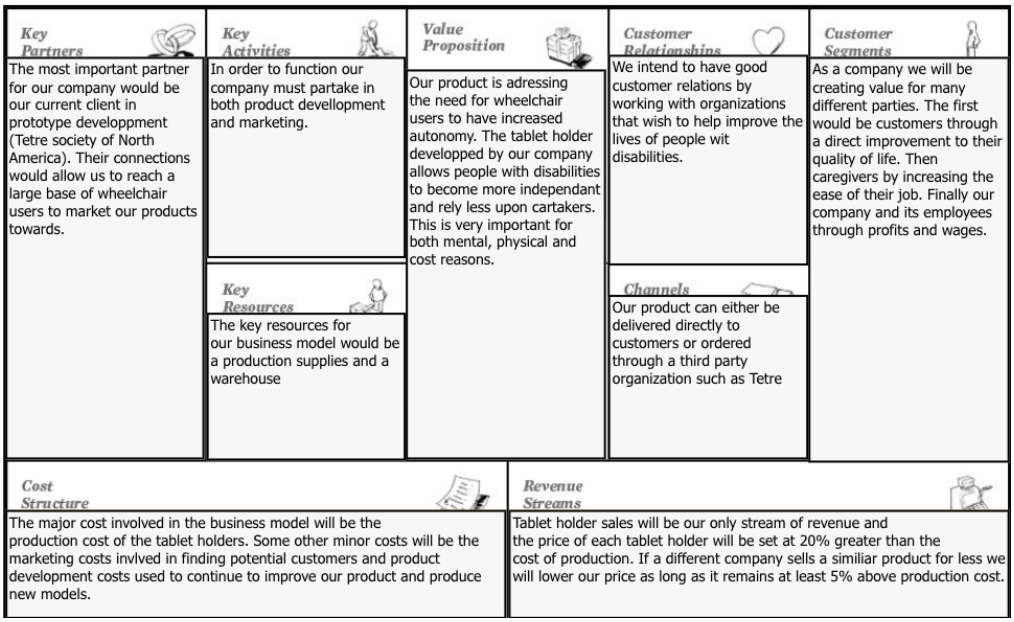

Figure 2.1a) Business Model Canvas

2.2 Core Assumptions

In order to make sure that we chose a business model that is well suited to our product, we came up with a list of core assumptions and came up with ways to validate/invalidate them to test whether or not they were potential risks.

Table 2.2) Core Assumptions and Testing

	Hypothesis	Test Method	Uncertainty*	Validated
1.	The target audience is primarily disabled youth that attend school	Interview our clients, Tetra	0	Yes
2.	Current target audience is unhappy with currently existing products in the market	Interview our target audience, see what their thoughts are on pre-existing tablet holders for wheelchairs and gain feedback	1	Yes
3.	Other companies would be interested in collaborating with us to expand our customer base	Meet with many organizations (like Tetra and doctor's offices, physio offices, etc.) and see if they are open to the possibility of collaborating or helping with marketing	5	No
4.	Company must be involved in production and advertising	Come up with economics report and see if its feasible by comparing to similar companies	2	No
5.	Primary partner: Tetra	Understand how their business model works to see if its a good fit	1	Yes
6.	Our customer base will grow steadily with good customer service even after purchase	Find people in our target audience to test the product and get feedback	3	No

7.	Feasible production costs: including machinery, trademarking, human capital and financial support	Come up with economics report and see if it's feasible by comparing to similar companies	4	No
8.	Target audience finds currently existing tablet holders awkward to set-up and use	Interview people from our target audience, get their feedback on pre-existing tablet holders for wheelchairs	2	Yes
9.	Target audience loses autonomy with currently existing tablet holders	Interview people from our target audience, get their feedback on pre-existing tablet holders for wheelchairs	2	Yes

*Uncertainty is based on a scale of 1 to 5: 1 is the least uncertain and 5 is the most uncertain

As seen in the table above, the riskiest assumptions are respectively number 3, number 7 and then number 6. These assumptions must be tested according to their criteria in order to validate them and consider them not to be risky.

3. Economics Report

Table 3.1: Cost and Classification

Costs	**Classification**
Production Materials	Variable, Direct
Marketing	Fixed, Indirect
Overhead	Fixed, Indirect
Salaries	Semi-Variable, Direct & Indirect
Rent	Fixed, Indirect
Utilities	Fixed, Indirect

3.1 Income Statement

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Income Statement

		2022		2023		2024
Revenue						
Tablet Holder Sales		$1,000,000		$1,200,000		$1,380,000
Cost of Goods Sold						
Overhead	90,000		91,800		93,636	
Production Mats	616,667		740,000		851,000	
Total Cost of Goods Sold		706,667		831,800		944,636
Gross Profit on Sales		$293,333		$368,200		$435,364
Operating Expenses						
Utilities	100,000		100,000		100,000	
Marketing	75,000		75,000		75,000	
Rent	50,000		50,000		50,000	
Salaries	200,000		200,000		200,000	
Total Expences		425,000		425,000		425,000
Operating Income		-$131,667		-$56,800		$10,364
Net Income		-$131,667		-$56,800		$10,364

Figure 3.1a) Income Statement

3.2 NPV Analysis

As seen in the graph, the break even point occurs around the 34th month.

Figure 3.2a) Income - Expense Comparison

Year 2				Year 3			
Cash Flow							
Cash In		**Cash Out**		**Cash In**		**Cash Out**	
Cash Sales	1,200,000	Overhead	91,800	Cash Sales	1,380,000	Overhead	93,636
		Production Mats	740,000			Production Mats	851,000
		Utilities	100,000			Utilities	100,000
		Marketing	75,000			Marketing	75,000
Total Cash In	1,200,000	Rent	50,000	Total Cash In	1,380,000	Rent	50,000
		Salaries	200,000			Salaries	200,000
Net Cash Flow	-56,800	Total Cash Out	1,256,800	Net Cash Flow	10,364	Total Cash Out	1,369,636

The values used for this deliverable are all educated assumptions. For example, the price for the revenue comes from the fact that about 0.5% of kids in Canada are in wheelchairs. The population of kids in Canada is about 2 million. If we sold our product at a price of $180 to every child who is in a wheelchair, our product will produce $1,800,000 in sales each year. For a more realistic approach, we assumed that in the first year we would sell around 5,555.5 tablet holders. In the second year, we would sell 6,666.67, in the third year we would sell 7,666.67. Since we will be producing this many products each year, the costs will be $1,110,000 on production materials for the first year, $1,142,190 on production materials for the second year, and $1,175,313.51 on production materials for the third year assuming 2.9% inflation per year. For the other expenses, they are based on the expenses of similar sized companies that manufacture smaller products such as ours.

Fixed costs:

$100,000 on marketing each year

$90,000 on overhead each year

$200,000 on salaries each year

$50,000 on rent each year

$100,000 on electricity each year

5. Project Plan Update

Due to several setbacks and complications related to our project, the timeline for our project plan has changed a considerable amount. The Makerspace which we have been using to construct our prototypes has changed its hours on a weekly basis, setting our group back when we have planned to meet up however found it to be closed. Another delay our group has had to modify our schedule for is the time it is taking to receive certain parts, such as the tray which we are using as a base to construct our final product. Since the tray is so crucial to our project and the measurements found on the internet regarding it are not 100% accurate or covering all of the measurements needed, our group is stuck waiting for the tray to arrive. Due to the tray being expected to arrive anywhere from March 18th to March 26th, our group has decided t shift our focus onto what work we can complete without the tray, so all of our efforts can be directed towards it once it arrives. We are moving now to try and refine our third prototype, and prepare the other materials required along with anything else which can be done before it arrives.

The Wrike which our group has been using to document these changes and additions to the timeline can be seen here.

6. Conclusion

Using the triple bottom line business model canvas, our group has specified several important details for our final product and how we plan to move forward with the technical aspects of development. Following this, our group decided on several core assumptions to make regarding our client and the key components to our project and its development economically. Ranking each on uncertainty while specifying how the uncertainty of each core assumption was

determined, the level of uncertainty was then graded on a scale of red to orange to yellow, with red meaning the highest level while yellow meaning lower. Following this, the economics report detailed whether various costs of our project were variable or fixed, and which were paid for directly or indirectly. An income statement was made regarding our bill of materials and sales and several other expenses, and a chart specifying when we would break even was made and reported to be in 2 years and ten months. Several assumptions were made to generate the numbers involved in these charts and tables, and the justifications for these assumptions were explained thoroughly right after. Our project plan was then updated to accommodate for the parts we are receiving and the delays due to parts taking time to arrive and changes in our work space.