

**GNG2101**

**Product Deliverable G: Business Model and Economics Report**

Submitted by

TalkBox, C23

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## **Abstract**

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This report will identify a business model that is well suited to the commercialization of the finished product of our team: TalkBox. The team will identify a business model canvas and will also include a forecasted income statement for our company, of which will be based on the chosen business model. By developing the business model canvas, we understand almost all aspects of the business model that are relevant and important. An economics report will follow to illustrate the exact economic situation of our products and as well as future development.

We choose our business model based on some of the major assumption we made based our product and our design team. With the business model determined, we can further develop our plan. Along with economic report, we have included the cost of making the product, and we did a marketing forecast on our project regarding the profitability of our product and the break-even point.

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# **1 Introduction**

The commercialization of products is a crucial step above the development of any product. As accessibility devices are a niche market, without a proper sales strategy and a business model, it would be very difficult to let our product reach to those who need it the most. This is why both economics and business models, and reports, are imperative and essential to the proper analysis, planning, and operation of any organization.

This report includes a look into our selected business model by using a business model canvas and predetermined core assumptions. This will provide readers with an idea of the intent behind the company and the potential operation of the company. It will, as well, offer the reader an idea of who our customers are and what our plans are to maintain them, as well as our plans to attract more.

Also included in the report is an economic plan which includes: a cost profile, a three-year business income statement, and a break-even statement. This provides readers with a sense of the costs and incomes for the TalkBox product, as well as an overview of potential losses and gains over the next three years' time.

Finally, included in this report is an update of the status of the current project, and a plan of action for the next two weeks. This will provide the reader with an update on our current progress of prototyping.

## **2 Business Model**

### **2.1 Selected Business Model**

When selecting a business model, one of the most important factors to be considered is the target audience. The TalkBox targets towards a niche group of people with a small population. Individuals with physical disabilities represent a small proportion of our society, and individuals with speech impediments make an even smaller part of that group.

The niche audience TalkBox is targeting means that traditional retail sales channels will not be appropriate for our product. Retail stores will unlikely be interested in a product such as TalkBox as it is not targeted towards the general public and sales volumes are likely to be low. The alternative is to choose more specialized retailers that are providing services for people with physical disabilities. Most of these retailers operate exclusively online as it is much less expensive to sell low volume specialized hardware this way. Stores such as Amazon or Shopify are prominent online retailers that could be a good partner for TalkBox. It would be beneficial to garner as many partners as possible to maximize volume of devices sold.

Finally setting up an online store, either through a custom website or through an online retail service provider such as Shopify would also be beneficial. A private online store has many benefits to the company that uses it, with a relatively small investment. The online store would allow the company to retain most of the profits generated through the online sale and launch its advertising campaigns.

This concludes our business model to be “Click and Mortar”. The bulk of the TalkBox sales will be through online retailers, whether partnered or owned by the TalkBox corporation. This business model is best suited for the TalkBox due to the low expected volumes of devices sold and how niche the TalkBox target audience is.

## 2.2 Business Model Canvas

Table 2.2-1 Business Model Canvas

<b>Key Partners:</b>  Online Retailers (The Access Store)  Online Retail service Providers (Shopify)  Electronic Hardware Providers (Digikey)  Raspberry Pi  Hospitals  Schools	<b>Key Activities:</b>  Development of Software  Development of Hardware  Assembling of product.  Product Testing.  Software Maintenance.  Product packaging.  Product Distribution	<b>Value Proposition:</b>  We give the ability of speaking back to our customers using a TalkBox.  We provide easily navigable software for users with limited dexterity.  We give personalization options to users so that they can make the product tailored to their personal needs.  Autonomy		<b>Customer Relationships:</b>  Website Interaction  Product  Social Media  Customer Service  Customer Surveys	<b>Customer Segments:</b>  Families of people with speech impairment.  Individuals with speech impairment.  Schools who can provide speech assistance devices.  Hospitals who can provide speech assistance devices.
	<b>Key Resources:</b>  3D Printer  Access to Raspberry Pi  Software Developers  Engineering and design  Accessibility Technology  Employee knowledge and skills			<b>Channels:</b>  Through mail services such as Canada Post, Fed-Ex, Purolator, UPS, DHL Express.	
<b>Cost Structure:</b> Hardware, Software Development Advertising Salaries Freight, Storage, Distribution			<b>Revenue Streams:</b> Product sale		

## 2.3 Core Assumptions

There are three core assumptions we made in the development of our business model.

The first major core assumption is that our product will be demanded. This is a very simple assumption any product developer makes, but it is a necessary one. As we were contracted to develop the TalkBox solution it is safe to assume that there is demand for it.

The second assumption is that our customers will have access to the internet. Click and mortar in its nature requires the costumers to be connected to the internet. It is hard to do market research in this area, however it is not a reasonable assumption that a person with a speech impediment or someone close to them will have access to the internet.

Finally, the last core assumption is that we will be able to partner with existing online retailers. Getting partnered with a retailed could be a challenging process. It is our job as the manufacturer/product designer to convince retailers to buy stocks of our product. Retailers are businesses so they will not buy stocks of products which they are not certain to sell. We believe that the TalkBox is a solid product, with demand in the market. Knowing that the TalkBox will hold on its merit, it should be possible to convince retailers to partner.



### 3 Economics Report

#### 3.1 Costs Assessment

**Table 3.1-1 TalkBox Cost**

<b>Cost Type</b>	<b>Amount</b>	<b>Classification</b>
Office Space (Wi-Fi and Internet Included)	\$600/month	Indirect, Fixed, Expense
Website Design	\$500	Indirect, Fixed, Expense
Online Store	\$30/month	Indirect, Variable, Expense
3D Printer	\$1049	Direct, Fixed, Expense
Labor Costs	\$15 (unit/hour)	Indirect, Direct, Labor
Product Materials Cost	\$151.95	Direct, Variable, Expense
Depreciation of 3D Printer	10%/year	Fixed, Indirect, Expense
Marketing	\$4200/month	Fixed, Indirect, Expense

**Table 3.1-2 Product Material Costs**

<b>Product Material</b>	<b>Cost</b>
Speaker	\$16.01
Raspberry Pi 3 Model B	\$59.99
LCD Screen (3.5 inches)	\$29.98
Joystick (USB and Linux Compatible)	\$19.99
Gooseneck	\$22.99
Adhesive Pads	\$12.99
USB Cable	\$2.99
3D Printing Filament	\$10.00
<b>TOTAL</b>	<b>\$151.95</b>

#### **Indirect Costs**

Office Space (hydro and WIFI included) - \$600 per month in Ottawa.

Source: <http://www.rentmyspace.ca/>

Website Design - \$500

Online store cost: \$30 per month

Source: <https://www.amazon.ca/start-selling-online/b?ie=UTF8&node=13653458011>

3D Printer: \$1049

Source: [https://www.idesignsol.com/Afinia-H400-3D-Printer-1yr-limited-warranty-31917?gclid=CjwKCAjwgOGCBhAlEiwA7FUXkmM3AkSINBL5-7l5wwTV66zrY5Baxt4Jj7vT8PYMDFoYkK7KUcd1ERoCJXAQAvD\\_BwE](https://www.idesignsol.com/Afinia-H400-3D-Printer-1yr-limited-warranty-31917?gclid=CjwKCAjwgOGCBhAlEiwA7FUXkmM3AkSINBL5-7l5wwTV66zrY5Baxt4Jj7vT8PYMDFoYkK7KUcd1ERoCJXAQAvD_BwE)

## **Variable, direct Costs**

### **-Labour cost:**

\$15 (unit/hour)

Every unit takes approximately one hour to assemble. The company would pay a contract employee (one of our group members) to assemble units. This would equate to approximately \$15 every unit produced.

**-Production materials:**

-Speaker: \$16.01

-Raspberry Pi 3 Model B: \$59.99

[https://www.amazon.ca/Raspberry-MS-004-00000024-Pi-Model-Motherboard/dp/B01LPLPBS8/ref=sr\\_1\\_9?dchild=1&keywords=raspberry+pi&qid=1616431775&s=electronics&sr=1-9](https://www.amazon.ca/Raspberry-MS-004-00000024-Pi-Model-Motherboard/dp/B01LPLPBS8/ref=sr_1_9?dchild=1&keywords=raspberry+pi&qid=1616431775&s=electronics&sr=1-9)

-Raspberry Pi Touch Screen: \$29.98

[https://www.amazon.ca/gp/product/B07P3GBWGL/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o02\\_s00?ie=UTF8&psc=1](https://www.amazon.ca/gp/product/B07P3GBWGL/ref=ppx_yo_dt_b_asin_title_o02_s00?ie=UTF8&psc=1)

-Joystick: \$19.99

<https://acgamesonline.com/products/n-accpc-0055>

-3D Printing Filament: \$10

<https://www.amazon.ca/Filament-Dimensional-Accuracy-Printing-Material/dp/B08JTX742F>

**Total material cost: \$155.96**

**Total cost per unit: \$170.96**

**Unit price: \$400 (234% of the material cost)**

## 3.2 Income Statement

According to [healthofchildren.com](http://healthofchildren.com) every 1 in 1000 people is born mute. This could be extended as a conservative estimate of the general population mute proportion, as some people acquire speech impediments later in life. This means that in Canada, with a population of 38 million according to StatsCan, there are about 38000 mute people. With some marketing efforts optimistically, we can equip about 1% of that population with Talkbox. This would mean that we could optimistically sell 380 units per year.

With the information from the marketing website <https://www.sisu.media/blog/how-much-does-a-marketing-agency-cost>, our choice for marketing is paid social that costs \$4200 per month, and total sum of 151200 over 36 months period.

Most of the 3D printers lasts up to 10 years according to the information from <https://3dprinterly.com/how-long-does-a-3d-printer-last-creality-ender-3-others/#:~:text=With%20proper%20use%20and%20maintenance,how%20of%20you%20use%20it>. So the depreciation rate is 10% in this situation, which is going to result in total \$284.279 cost over 36 month period.

From the search over <http://www.rentmyspace.ca/>, it takes about \$600 per month to rent a place big enough to be used as an office that has hydro and wifi included.

Mutism statistic source - <http://www.healthofchildren.com/M/Mutism.html>

Canadian population source - <https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2018005-eng.htm>

Estimate sales per year: 380

Sales revenue estimate: Michael will add this

Production materials estimate:  $(\$170.96/\text{unit} * 70\text{unit}/\text{year} * 3\text{years})$

Operating expenses:  $(\$600/\text{month} * 36\text{month})$

**Sales Revenue:**

Talkbox sales	\$456000
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**Cost of Goods:**

Production materials	\$194894.4
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<b>Gross Profit:</b>	<b>\$261105.6</b>
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**Operating Expenses:**

Marketing (paid social)	\$151200
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Rent (hydro and WIFI included)	\$21600
Depreciation(10%)	\$284.279
<b>Operating Income:</b>	<b>\$88021.321</b>
<b>Net Income:</b>	<b>\$88021.321</b>

### 3.3 Break Even Assessment

Investment:

First 3 month of marketing cost=\$12600

First year rent cost =  $\$600 \times 12 = \$7200$

Afinia H400+ 3D Printer=\$1049

Material enough of producing 100 units=  $\$170.96 \times 70 = \$17096$

**Total investment:** \$37945

Profit for each unit sold: \$229.04

**Breakeven point**

$37945 / 229.04 = 166$

$166 / 380 = 2.6 \text{ years} \sim 5 \text{ month}$

With \$37945 investment, it's going to take 5 months to cover it with \$229.04 profit for each unit sold.

### **3.4 Other Assumptions**

- 1.The assembly staff is skilled enough to assemble 1 product in less than 1 hour.
- 2.Our online store will be approved on time.
- 3.The 3D printer we ordered will last for at least 10 years.
- 4.At least 380 of our products will be sold annually
- 5.The initial investment amount is enough to keep the company operating for at least 6 months.

## 4 Conclusion and Recommendations for Future Work

Through this report, a business model has been developed regarding profitability and customer satisfaction. It has expanded upon the basis of a “click and mortar” business plan, provided a business canvas model and any core assumptions made. An economic report was also provided and provided a cost analysis, a three-year income statement and a break-even assessment. The economic analysis of our product within 3 years of operation is an income of \$, if the sales requirements are met every year.

For future work, we are aiming to fully finish our final prototype, complete the user manual and provide a short video tutorial to help our customer understand the use of our product.

## 5 Bibliography

- Amazon. (n.d). *Hows to start selling on Amazon.ca*. Retrieved March 22, 2021, from <https://www.amazon.ca/start-selling-online/b?ie=UTF8&node=13653458011>
- Amazon. (n.d). *Raspberry Pi 3 Model B Board*. Retrieved March 22, 2021, from [https://www.amazon.ca/Raspberry-MS-004-00000024-Pi-Model-Motherboard/dp/B01LPLPBS8/ref=sr\\_1\\_9?dchild=1&keywords=raspberry+pi&qid=1616431775&s=electronics&sr=1-9](https://www.amazon.ca/Raspberry-MS-004-00000024-Pi-Model-Motherboard/dp/B01LPLPBS8/ref=sr_1_9?dchild=1&keywords=raspberry+pi&qid=1616431775&s=electronics&sr=1-9)
- Amazon. (n.d). *For Raspberry Pi 3 B + 3.5 inch Touch Screen with Case*. Retrieved March 22, 2021, from [https://www.amazon.ca/gp/product/B07P3GBWGL/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o02\\_s00?ie=UTF8&psc=1](https://www.amazon.ca/gp/product/B07P3GBWGL/ref=ppx_yo_dt_b_asin_title_o02_s00?ie=UTF8&psc=1)
- Amazon. (n.d). *VOXELAB 3D Printer Filament, 1.75mm PLA PRO Filament*. Retrieved March 22, 2021, from <https://www.amazon.ca/Filament-Dimensional-Accuracy-Printing-Material/dp/B08JTX742F>



A & C Games. (n.d). *Atari Style Black USB CTRL For PC/MAC*. Retrieved March 22, 2021, from <https://acgamesonline.com/products/n-accpc-0055>

Encyclopedia of Children's Health.(n.d.). *Mutism*. Retrieved March 22, 2021, from <http://www.healthofchildren.com/M/Mutism.html>

RENTmySPACE. (n.d). *Rental Properties*. Retrieved March 22, 2021 from, <http://www.rentmyspace.ca/>

Statistics Canada. (n.d). *Canada's Population Clock (real-time model)*. . Retrieved March 22, 2021, from <https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2018005-eng.htm>

## **APPENDICES**

### **APPENDIX I: Project Plan Update**

The link for the project plan is provided below:

<https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=0HikIRd3r4ebPckf1XfsAFZ17KGGYIjO%7CIE2DGNBUHAYDALSTGE3A>