

GNG 2101 C - Intro. to Product Development

Deliverable F - Business Constraints

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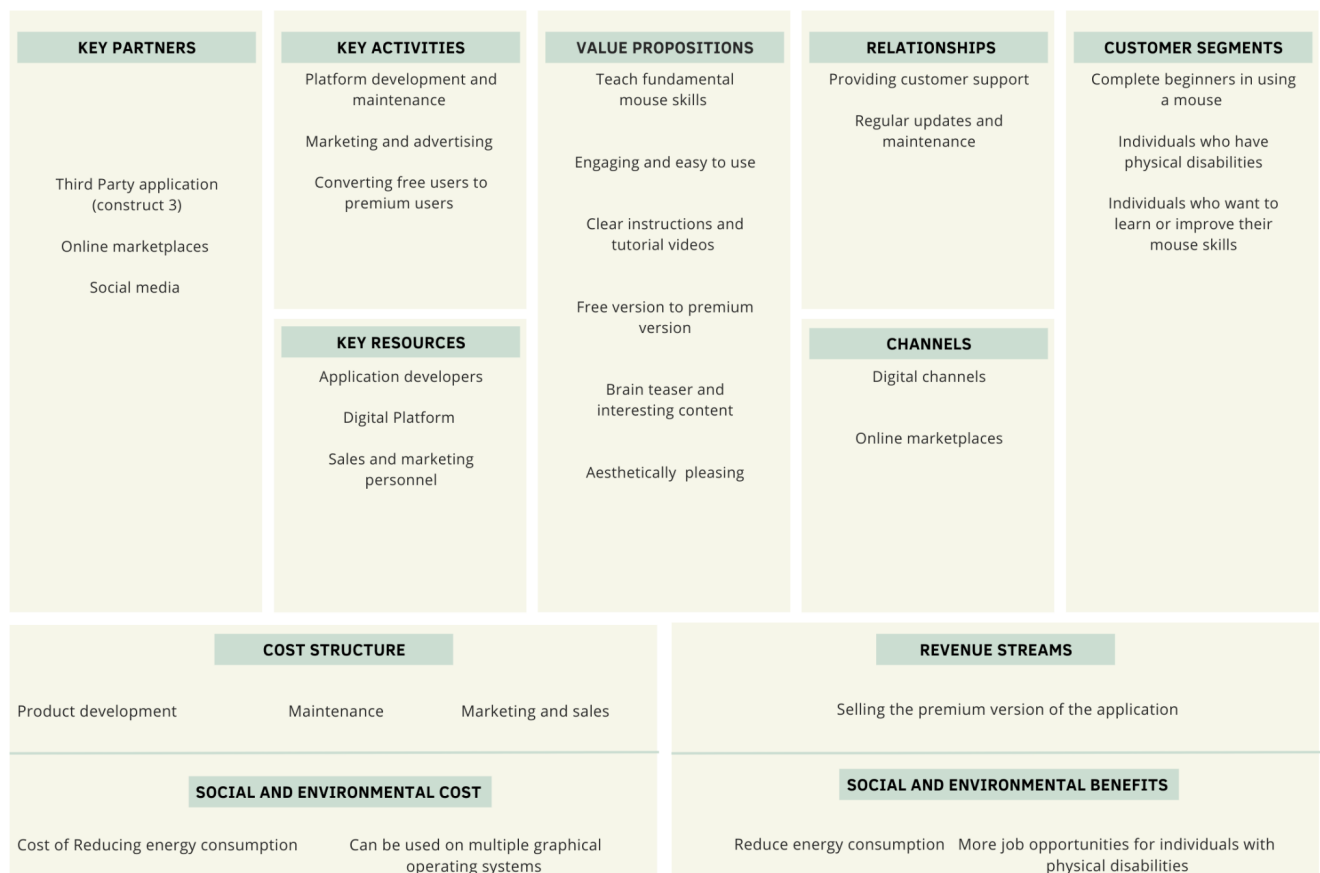
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Business Model and Sustainability Report	3
Economics Report	5
Preliminary Market Research	11
Intellectual Property Report	
Project Plan Update	14

Business Model and Sustainability Report

A freemium business model would be well suited to commercialize our product because our application is a mouse skills application. We think it's better to let the user try a free version first, for instance the first levels only, before paying to access more advanced levels. Our company's goal is to provide a product with value to the customer which is why we decided to let the customer test the product first by accessing the first level and then judge for themselves whether they want to buy it or not. Our company focused on the customer needs during the product development process. Through multiple iterations and testing, we think our product meets the customer needs and we think they will find value in buying our product after trying out the free version which is why we decided to go with the freemium business model. Another reason we chose this business model is that we might not be adding new content in the future so a traditional subscription wouldn't be ideal. On the other hand, selling our products directly to customers might affect our sales negatively as the customers might be hesitant to buy a product they are not sure will meet their needs, which can be very risky for us as a business.



Core assumptions in developing our business model canvas

- The company will be able to sell the premium version of the product which will generate enough revenue to cover the marketing expenses and any other expenses.
- A third party application will be sufficient to implement all the features that our product requires and will allow for any new content or updates in the future.
- The customers will find value in our product.
- Our company will generate enough revenue to hire marketing, sales and applications developer personnel.
- The company will find an investor to start the business or get a loan from the bank to start the business.
- Application will receive enough traction to have consistent number of user using the application

We think these assumptions are realistic because our product has been tested multiple times with different types of users who found our product engaging and educational which is why we think the customers will find value in it and will buy the premium version. This should generate enough revenue to cover the company expenses as well as provide salaries to the employees. In the future, if the third party application doesn't allow for specific new updates, our company will either find another third party application or develop one of its own if the business is doing well and the company has more and more customers. We're also planning on creating different applications in the future not only to teach mouse skills but for multiple other purposes. If the business goes well, our company strives to become a major application development company.

As described above, there are a few social & environmental impacts, both negative and positive. This application can help provide job opportunities to individuals who would like to work to assist the users and help them navigate the application. This can also be a chance for internships and volunteer opportunities to younger students. Since this is a software application, there aren't many environmental factors implied. This is a great learning platform that could potentially expand to different demographics such as schools and universities. The energy to run this program is quite low since only a PC is required to run it and the files are not very big. Electricity is environmentally friendly

Economics Report

	Variable	Fixed
Indirect	<ul style="list-style-type: none">- Electricity- Water- Heating- Maintenance	<ul style="list-style-type: none">- Rent(Office)- Labour Cost (developer, HR, customer service, accounting, legal, admin)- Wifi
Direct	<ul style="list-style-type: none">- Marketing	<ul style="list-style-type: none">- office supplies (computers, notepad, pencils, chairs- Web hosting fees- Third-party application

Two business models presented. The two models, freemium and licensing are not viable models long term if our business only consisted of the mouse skill app as our only source of income.

Model 1 : Freemium

Assumptions:

Investment

- Investment of 100,000\$ with 0% shares

Sale revenue

- 7000 premium users and goes up by 1000 every year after
- 60\$ cost premium subscription (yearly) then increasing price to account for inflation

Cost of goods

- 20\$/hr (37.5 hour work week) + 6 full time employee 1st year
- 23\$/hr for 2nd year, 3rd year hire a part-time worker (18.75 hr/ week)
- Only 6 construct subscription, assumption not all employee are “developers”

Operating Expenses

- Rent increasing to account for inflation (+ 4k\$ each year)
- Wifi +30\$ increase per year (inflation)

- Utilities bill calculation taking into account consumption during summer and winter (+100 increase per year for inflation)
- Office supplies(basic office supplies + writing supplies) , amount account for “new employee” that year
- Fixed budget for marketing, decrease 3000k after 1st year, since it might be easier to market with already a presence online)
- Maintenance constant amount

	Freemium Model		
	Year 1	Year2	Year 3
Investment	\$100,000.00		
Sales revenue	\$420,000.00	\$503,920.00	\$593,910.00
Cost of goods			
Contrust 3 subcription	\$1,200.00	\$1,200.00	\$1,200.00
Web hosting	\$720.00	\$720.00	\$720.00
Labour cost	\$249,600.00	\$309,764.00	\$375,180.00
Total: Cost of goods	\$251,520.00	\$311,684.00	\$377,100.00
Gross Profit	\$168,480.00	\$192,236.00	\$216,810.00
Operating expenses			
rent	\$24,000.00	\$28,000.00	\$32,000.00
wifi (80\$/mth)	\$960.00	\$990.00	\$1,020.00
utilities bill(electricity, hydro, heating)	\$4,080.00	\$4,180.00	\$4,280.00
office supplies	\$12,770.00	\$4,240.00	\$1,500.00
marketing	\$8,000.00	\$5,000.00	\$5,000.00
Maintenance	\$1,500.00	\$1,500.00	\$1,500.00
Total: Operating expenses	\$51,310.00	\$43,910.00	\$45,300.00
Operating income	\$217,170.00	\$148,326.00	\$171,510.00

Model 2 : Licensing

Assumptions:

- Same assumption as Model 1 for the operating expenses,investment and cost of goods

Sale revenue

- Selling 1st year to 10 big business (government institutions) at 50k \$ and 25 smaller business at 5000\$
- Increase in 500\$ after the 1st year for each business type to account for inflation

Based on our literature review, our team assumed that the company will be able to sell its goods to at least 7000 clients during the first year. We also assumed that the customers will increase by 1000 every year. However, these are only assumptions. Therefore, we need to know the break-even number of clients to make sure our business is profitable and that we can cover all the expenses. The assumptions for the expenses were judged to be reasonable which is why we'll perform an NPV analysis using the determined expenses in the table above. We assumed a 10% interest rate compounded yearly. The present total expenses represent all the payments that we had to make right at the beginning of the business. They are deducted from the first year expenses. They include the first month rent, office supplies, web hosting, etc.

	Present	Year 1	Year 2	Year 3
Total expenses including the costs	24 770 \$	278 060 \$	355 594 \$	422 400 \$
Total operating Income based on the assumptions	100 000 \$	117 170 \$	148 326 \$	171 510 \$

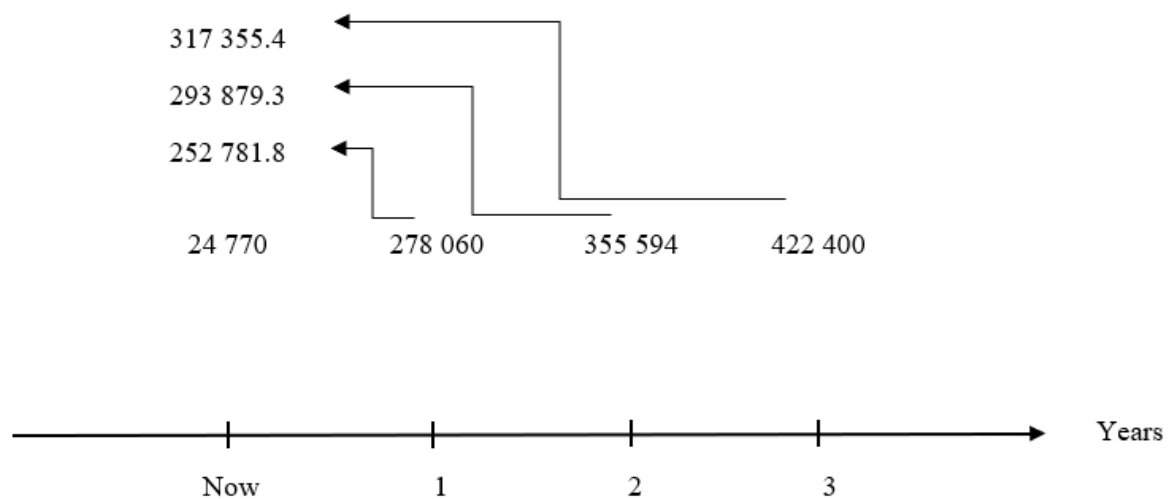


Figure 1 : Expenses cash flow over 3 years

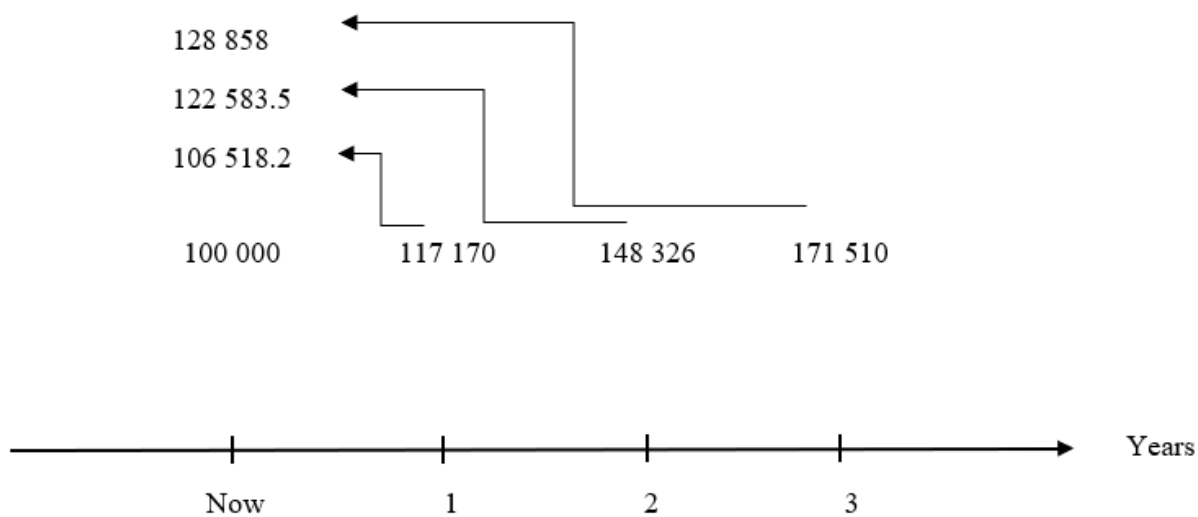


Figure 2 : Assumed operating income cash flow over 3 years

Based on our assumptions, the expenses NPV = 888 786.5 \$ and the operating income NPV = 457 959.7 \$. With our assumptions, the business is profitable as the company not only covered all the expenses but generated an important revenue. However, what if we only managed to get

3000 clients the first year and an increase by 500 of the clients every year with the same expenses amount assumed. Then the NPV will be different and our business might not be profitable.

	Present	Year 1	Year 2	Year 3
Total expenses including the costs	24 770 \$	278 060 \$	355 594 \$	422 400 \$
Total operating Income based on risk	100 000 \$	-22 830 \$	-125 594 \$	- 152 400 \$

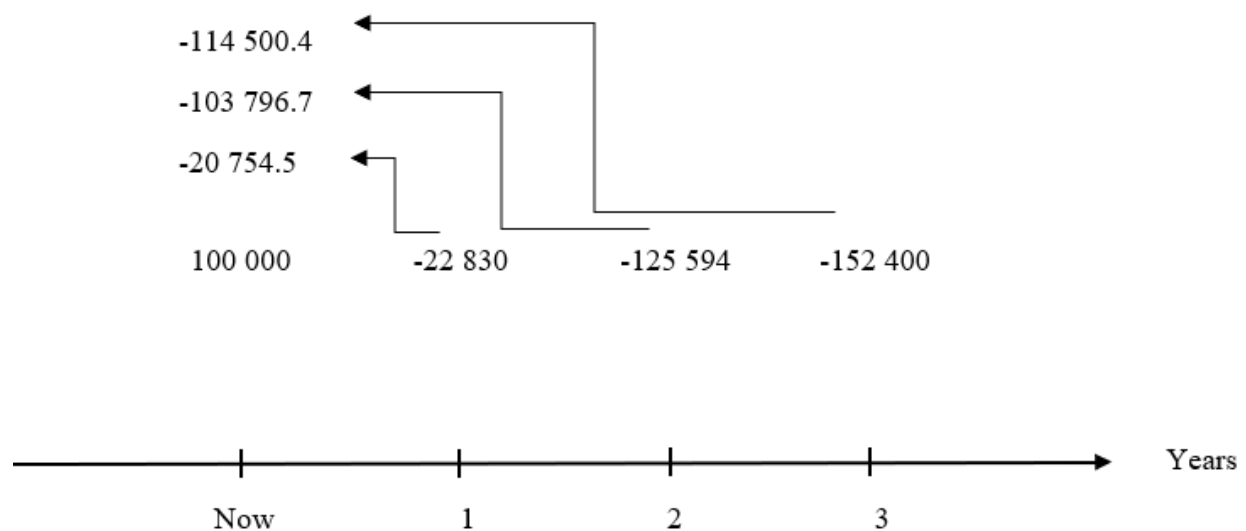


Figure 3 : Risk based operating income cash flow over 3 years

The NPV becomes -139 051.6 \$ which means the business is not profitable at all as the sales decrease and the company's debt increases considerably. We could redo this NPV an infinitely many times with different scenarios but that won't tell us much about how to make the business profitable. Therefore, we need to find the break-even point to at least cover the expenses which means for an operating income of at least 0 with a unit cost of 60\$.

	Year 1	Year 2	Year 3
Total expenses including the costs	302 830 \$	355 594 \$	422 400 \$
N units to cover the expenses (break-even)	$60 \times N \geq 302\,830$ $N = 5048$	$60 \times N \geq 355\,594$ $N = 5927$	$60 \times N \geq 422\,400$ $N = 7040$
Number of customers needed	5048	Additional 879	Additional 1113

Based on this analysis, we need at least 5048, 5927 and 7040 clients during the first, second and third year respectively just to be able to overcome the expenses. Having these numbers of clients won't generate any profit. Therefore, the business won't be profitable unless we get more clients. Depending on how much profit we want to make to be able to improve our products and expand the company, the number of clients needs to increase.

Licensing Model (government business,schools ect..)			
	Year 1	Year2	Year 3
Investment	\$100,000.00		
Sales revenue	\$625,000.00	\$642,500.00	\$660,000.00
Cost of goods			
Contrust 3 subcription	\$1,200.00	\$1,200.00	\$1,200.00
Web hosting	\$720.00	\$720.00	\$720.00
Labour cost	\$249,600.00	\$309,764.00	\$375,180.00
Total: Cost of goods	\$251,520.00	\$311,684.00	\$377,100.00
Gross Profit	\$373,480.00	\$330,816.00	\$282,900.00
Operating expenses			
rent	\$24,000.00	\$28,000.00	\$32,000.00
wifi (80\$/mth)	\$960.00	\$990.00	\$1,020.00
utilities bill(electricity, hydro, heating)	\$4,080.00	\$4,180.00	\$4,280.00
office supplies	\$12,770.00	\$4,240.00	\$1,500.00
marketing	\$8,000.00	\$5,000.00	\$5,000.00
Maintenance	\$1,500.00	\$1,500.00	\$1,500.00
Total: Operating expenses	\$51,310.00	\$43,910.00	\$45,300.00
Operating income	\$322,170.00	\$286,906.00	\$237,600.00

Aforementioned, the application goal is to provide a solution for people with difficulty learning and using a mouse. So they can be used for everyday tasks involving internet activity. We believe that this business is economical based on our report previously shown above.

Preliminary Market Research

While researching for this project, several other mouse skill web applications were found to be potential contenders but none target the specific population we are reaching out to.

Unfortunately, there is a lack of data on the overall impact neurological condition on according

to GBD (Global Burden Disease) estimates, with a 95% IU (uncertain interval). For this reason, for the purpose of this report we will extrapolate data from Canada and apply them to the context of the US market visa versa, to provide estimates and proofs.

This application was designed for people with little or no mouse skill. At this moment, the target clientele are adults with disabilities (neurological condition and physical disabilities) with difficulty using the mouse or in need of practicing the application. According to a survey from the *Census Bureau of America*, about 19.9 million people have difficulty lifting and grasping, affecting their mouse skill and impacting their computer use. Approximately, 62% of them own a digital device with internet access. Similarly in Canada, approximately 18.6 million people aged between 25-64 years have a disability. Given that in this age using a computer and internet is considered a basic skill, the data shows that several million people are looking to improve their skill, or lack of to increase their access to. We concluded that there exists a need and a market for such an application.

The web application market was valued in the US and Canada at \$4.88 billion dollars, according to a recent study conducted by Statista. Assuming that the target market is about 0.04% of the total market value our business is estimated to have a market value of about \$24.4 million. Given the market the market value, we would own approximately 2% of the market — according to TxZhuo, Karlin Venture 1-5 % is a realistic plan when it comes to a reasonable estimate of the market share — we would own approximately 488,000\$ of the market.

Intellectual Property Report

- a. <http://cipo.gc.ca>
- b. <http://www.freepatentsonline.com/>
- c. <http://patft.uspto.gov/>
- d. <https://patents.google.com/> or other

One intellectual property related to our business is copyright. CIPO provides a good legal protection for things like original works including software programs. Software programs are often protected by copyright law to prevent copy and illegal distribution without permission. This can also be a source of income, if the company considers licensing. Another intellectual property we can relate to our product and business is trademarks. Trademarks include, name, logo and phrases that help us identify our business. This would allow us to prevent others from using similar marks and prevent confusion. This would include but it not limited to our brand colors and our logo

There are several other reasons why laws and regulations are placed on a business when developing a product or business. Firstly, to foster economic growth in the particular country. Intellectual property laws, or IP and can create a safe environment for people to create and pursue their ideas, knowing that they will be protected and their resources (time, money, resources) will not be wasted while developing.

Additionally, it is used to protect innovation. These laws are often made to protect innovation and creative work, against unauthorized reproduction. This is especially important in software where patents are not typically given. However, a software can be protected as intellectual property as a copyright.

It's important that all businesses confine themselves to the legal obligations and law enforced on them by the government. Businesses must also be aware of potential infringement by others. As a result they must take steps to avoid infringing on the right or others while making their own protection. Failing to follow the requirement provided in this intellectual property and legal constricta and result in legal action , and loss of the ability to do business.

Intellectual property refers to any creation of the mind, that includes invention, design, and phrases used to diatingeus a good or service ect. According to the government, businesses that manage their intellectual reports are 4 times more likely to export and 64% more likely to grow. Given these two things, there is an economic advantage in following the intellectual and properties and legal constraints.

Project Plan Update

Wrike Snapshot Link:

<https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=rBihOkIHgqkM3lmYfputEkJqrVzWKxOd%7CIE2DSNZVHA2DELSTGIYA>

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