

GNG2101 Deliverable F.1

Business Model and Sustainability Report

Introduction to Product Development and Management

GNG 2101

July 2nd, 2023

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Abstract

In this deliverable, we will create a business model and sustainability report for our final product as if we have begun our company and are about to sell our product. Creating a business model and determining its core assumptions will help us evaluate the feasibility of our company and if our product will be marketable and profitable in the long run. In our sustainability report, we will include the positive and negative impacts of our product environmentally, economically, and socially. This will help determine if our product is sustainable in the long run and what sustainability constraints we must solve.

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Introduction

In this deliverable, we will identify potential business models for their possible product or service offerings. We will use the Triple Bottom Line Business Model Canvas to propose a business model suitable for the commercialization of our products. We will then describe the core assumptions and comment on their feasibility. Finally, we will provide a sustainability report related to our products.

Business Model Type

After conducting extensive research on various business models, we have determined that the manufacturer business model aligns best with our product [1]. Since we focus on a single product, this significantly narrows down the range of suitable business models for our case. Additionally, due to the specific requirements of our product, such as custom-made parts, our company must handle the manufacturing process. For instance, we need to cut the aluminum bars of our clamping system to size and employ various machining techniques like drilling holes and tapping them. Meanwhile, our plastic cup holder will be produced using injection moulding.

The manufacturer business model perfectly suits our needs, as we will be responsible for producing our product from start to finish. This entails sourcing the raw materials and utilizing our internal labour, machinery, and equipment to create the final cup holder system. Once manufactured, we can then distribute our product to various channels, such as distributors, companies, or retailers. For example, we can target companies that specialize in selling equipment for individuals with disabilities, as a mountable cup holder would prove beneficial to many of their customers. Moreover, our product holds potential in multiple

niches, such as gamers who desire a cup holder on their desk or fishermen who require this product for their small boats. The possibilities are endless!

Triple Bottom Line Business Model Canvas

Table 1. Business Model Canvas for Secure Cup Holders

Key Partners: - A manufacturing company to make the holder - Wheelchair or stroller companies so they can sell them with their products	Key Activities: - Securing a cup to a wheelchair tray - securing a bowl or round object to a flat surface	Value Proposition: - Hold a cup in place on a wheelchair or tray in order to prevent spillage - Customizable top to allow for the clamp to be used as more than just a cup holder	Customer Relationships: - Offers part to help improve the life of wheelchair users - Offer custom clamp dimensions for users	Customer Segments: - Wheelchair users - Cupholder users - Stroller or cart users - fishermen to attach the cupholder to their boat - any market where people have beverages that need to be secured
	Key Resources: -Machine shop to manufacture the parts -Injection molder to make the plastic pieces		Channels: -Through the wheelchair companies, in stores, online	
Cost Structure: - Rent for machine shop - Purchasing of machines/equipment - Marketing and sales - Product development - Administrative costs - General costs (material, salaries, etc.)		Revenue Streams: - Sale of product		
Social & Environmental Cost: - Making of the product generates heat and can add to pollution - There is a use of plastic which is bad for the environment - To maintain the cup holder, responsibilities are required such as installing it, cleaning it, and making sure the parts don't get lost		Social & Environmental Benefit: - Product can last a lifetime and it is not necessary to throw it away - Majority of the materials which make the product are recyclable - Use of the cup holder means that users won't have to worry about any spills and hence cleaning of the spills		

Core Assumptions

To develop our business model canvas, many assumptions needed to be made. First of all, we assumed that we would be able to form partnerships with companies related to our product to help us sell our product as a complementary one to their product, such as wheelchairs and strollers. Another assumption we made was that our manufacturing capabilities enable us to produce the same product in different sizes to suit different needs, to enhance the relation we have with customers in different markets (a baby stroller might require a different size clamp than one for outdoor or fishing boat use). We are also assuming that we will sell our product through many different streams such as retail stores, directly to the customers online, or through a complementary product's company.

The fourth assumption is that our product has a place in many different markets. The use, as mentioned earlier, is versatile and can be used on a variety of surfaces. An assumption that has a negative effect on our company included in the business model canvas is the social and environmental cost. Our product can be associated with certain levels of pollution due to manufacturing, and the proper use of the product must be ensured as to not negatively affect social wellbeing. Our last set of assumptions was based on the positive social and environmental impact. Our product is very rugged and built from quality materials meaning it can last a long time. It is also made of materials that are easily recyclable such as plastic and aluminum. These two facts along with their associated assumptions mean our company does in fact have sustainable qualities.

Sustainability Report

Table 2. Environmental, Social, and Economic Impacts of our Product

	Positive	Negative
Environmental Impact	<ol style="list-style-type: none"> 1) PLA which is the material of the cup holder is biodegradable, hence it can safely return to the environment [2] 2) The product is a non-perishable good (as long as it's not deliberately broken) so it's not necessary to throw it away to the environment 3) Aluminum which forms part of the clamp subsystem of the cupholder is recyclable [3] 	<ol style="list-style-type: none"> 1) PLA takes plenty of years to biodegrade, in the meantime PLA will contribute to land pollution 2) Machines like the 3D printer and the mill which are used to create the cup holder generate heat
Social Impact	<ol style="list-style-type: none"> 1) Helpful to customers who have uncontrolled movements because they can drink peacefully from their trays 2) Helpful for gamers and for babies who are susceptible to knocking off their drinks from their trays 	<ol style="list-style-type: none"> 1) Will require installation, uninstallation, and cleaning 2) Parts can get lost which will cause an inconvenience to customers
Economic Impact	<ol style="list-style-type: none"> 1) Helpful to generate revenue and might provide a sustainable business model and might promote financial growth and stability. 2) Helpful for economic growth. The process from production to sales can create some employment opportunities and generate tax revenue to promote economic growth. 	<ol style="list-style-type: none"> 1) Cost related to the production might present financial risks. 2) Market competition may result in lower profit margins than expected.

It is important to note the sustainability impacts of our product in terms of the environment, the society, and economics. Environmentally, our product is sustainable overall and has a net environmental benefit because our product is mostly made from materials which are recyclable and biodegradable. Furthermore, even though the making of our product

generates unnecessary heat added to the environment, this can be compensated by the fact that our product can last a lifetime. We are assuming that the majority of our customers will not throw the product away hence, it will be unnecessary for any of the materials our product is made out of to decompose and contribute to pollution.

Socially, our product has no net benefit or net harm because the fact that our product helps customers in need is equally compensated by the fact that it takes responsibility to maintain and use the product. Economically, the overall advantages outweigh the disadvantages, it can provide a sustainable business model that promotes fiscal growth and stability, and also it will be possible to provide more job opportunities. On the economic side, the thing we need to note is the risk of investment in upfront cost, as well as the ultimate profit.

Conclusion

In this deliverable, we created a business model related to our product, we developed a business model canvas and listed the core assumptions based on the business model we have chosen. The analysis of the business model gave us a clearer understanding of our product. The sustainability reports we provided in this deliverable reflect both positive and negative impacts, including environment aspects, social aspects, and economic aspects. This deliverable is an important part in our overall design process, the final goal of our team is to complete the final prototype and have it become fully functional.

References

- [1] *What is a Business Model with Types and Examples*. (n.d.). Investopedia. Retrieved June 28, 2023, from <https://www.investopedia.com/terms/b/businessmodel.asp>
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- [3] *How are cans recycled?* (n.d.). Recycle Now. Retrieved June 28, 2023, from <https://www.recyclenow.com/how-to-recycle/can-recycling>