

Project Deliverable H: **Economics Report**

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NOTE:

The economics report was submitted as a separate document due to the conflicting forms of digital document types (excel vs. docs.). It is best to review this document in conjunction with the economics report for optimal understanding and references.

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INTRODUCTION

This document reviews a hypothetical scenario for the production and sale of the “FLIP,” a portable, lightweight and integratable ramp for wheelchairs. It is important to note that the final product is not yet constructed and all prices, costs and quantity of materials are speculations on potential demands of the product and the ability to supply.

Before proceeding into the financial details of FLIP INC. a particular point of interest in the hypothesizing of the scenarios at hand is that of the demand and supply of the ramp to potential customers. As expressed in the previous project deliverable G (Business Model), the value proposition in our product is the inexpensive, versatile and well integrated design of the ramp such that it stands out well above leading competitors (more details of this in the 1 minute video pitch). This being said, in Project Deliverable (PD) B, the team conducted a benchmarking analysis, to which 4 particular competitors were reviewed based on their technical specifications. However, a note on the ramp prices was taken down for future reference at the time, to which this has come in useful for this economic analysis. It was noted that the price range for most of the ramps in the market resided between 150.00\$ to 500.00\$, where a reduction in price represented a decrease in quality and functional capacity of the ramp. With this in mind, in the economics report document, it can be seen that in every “OVERVIEW” page, for each hypothesized quarter, the price was established based on the material and operational costs of the production of the ramps (found at the bottom of each page). This price was adjusted with a 15% mark-up value which equated to a total selling price of 382\$, a price suitable for a ramp of good quality and complete versatility. This moderation in pricing was assumed by the team to be a particular driving force in the advertisement and demand of the FLIP to our customer segments (as described in PD G). Thus, the unit production values for each quarter were estimated based on the reasonable price and time required to reach our target audience through marketing methods (low at first and ever increasing with diminishing returns).

Having procured these findings into a well round perspective of the potential market at hand, the economics report was constructed and presented as well perceived as possible.

ASSUMPTIONS

All assumptions can be broken down into their respective classes for costs as most of the hypothesizing stems from the uncertainty of particular costs that accompany the corporation.

To begin, let us review the assumptions made in the variable-direct costs. These are viewed in the “OVERVIEW” portion of the economics report as the material costs and production costs of product. The FLIP ramp design requires that each ramp is made with a galvanized steel surface, aluminum frame, pvc piping connecting segments, respective bolts and nuts for assembly and Nylon for a portable case. With the design of the initial prototype in PD E, a good understanding of the required amounts for each of these materials with respect to production of a single ramp was established. As such, it can be seen in the coinciding columns of the direct material costs that for each ramp 4 units of galvanized steel, 6 units of aluminum, 2 units of Nylon, 6 units of PVC, 36 units of, both, steel bolts and nuts are needed in manufacturing the ramp. Unfortunately, looking into many domestic materials suppliers revealed that volume pricing was effective only in discounting shipping and handling costs. As seen in the economics report “OVERVIEW” pages, next to the direct material costs sections, discounting was provided only for the galvanized steel and PVC pipes. Regardless, volume pricing was administered to the appropriate materials to be acquired.

Likewise, for every ramp produced it was estimated that 35\$ per hour per ramp would be translated as labour costs (direct variable). This labour value was selected based on first hand experience needed to construct the focused-physical prototype seen in PD E (1 hour by one individual).

Moving onto indirect fixed costs, these were classified as monthly payments for a building lease (including factory space), loan repayments and interests on the loan. To better understand the need for a loan, it was assumed that in the first quarter 100 units would be produced and sold. The 100 unit assumption was used to estimate the sum of material costs and operational costs, which came out to be 48 790\$. Therefore, a start-up loan of 50 000\$ was viewed as appropriate for managing the first quarter of business (the assumption of 24% interest per annum, since none of the team members have established an adequate credit history yet).

Additionally, indirect variable costs were hypothesized as equipment depreciation on a quarterly basis. The value for a depreciation rate was constructed using a straight-line method. This can be seen in the economics report “INCOME STATEMENT YEAR 1” page. An important note to keep in mind is that the purchase cost of equipment was deduced to be 500

000\$ primarily due to the need for tools specialized in metal working. The most efficient means for industrial cutting of metal comes from laser cutting machines. Most online suppliers have price ranges from 50 000\$ to 200 000\$. With the assumption that at least 2 or 3 machines would be needed in the factory workspace, the purchase cost of 500 000\$ was established.

With the likes of the assumptions declared above, a financial statement was constructed for each quarter in a 3 year time frame.

NPV ANALYSIS DISCUSSION

The report also delves into the present value (PV) comparisons of each quarterly earnings and how it plays into the net income of the company. Assuming a 6% increase rate per quarter on the value of money across the hypothesized time frame, the associated “NPV ANALYSIS CORRECTED” worksheet was constructed to reflect the sum of earnings throughout the course of the years. Moreover, it was deduced that, in this perceived business scenario, the company would break even only after the end of its third year (Y3 Q4), as can be seen in the colour scheme of the “NET PV ESTIMATION” sequence and the “NPV ANALYSIS CHART” worksheet.

Much like the NPC analysis of the break even point, a break even analysis was also conducted in the perspective of quarterly unit productions, total sales, fixed and variable costs per quarter (see “BREAK EVEN ANALYSIS”). It was made clear that in each quarter, a minimum of 340 units must be sold in order to see a profit. Keeping this in mind and maintaining a realistic approach to each hypothesized scenario, the units sold for each of the segmented time frames in the income statements was adjusted to reflect periods of low performance and high performance (this was a non-supported assumption).

CONCLUSIONS

In summary, the economics report provides an admirable financial story for the possibility of making a business out of the product, but much like all predictions into the future, nothing is ever certain. Particularly when random variables and events are not taken into account (fluctuations in the market, supplier business status, employee performance status... etc.)