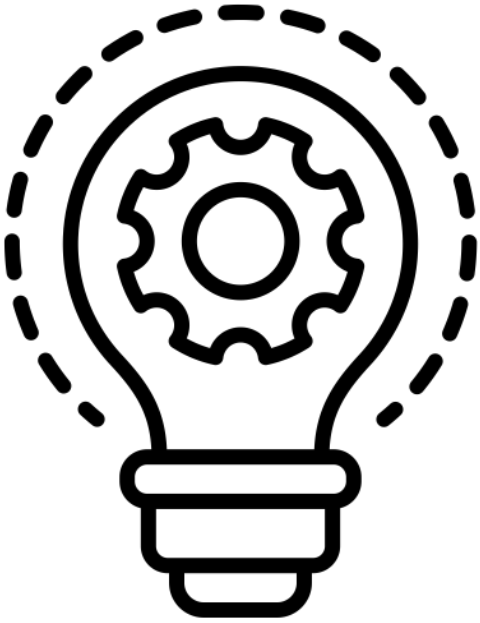
East-Side Machine Lab

Building the tools for DIY circularity



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1. Executive Summary

Plastic waste is rapidly becoming a growing issue facing our planet and society. We are living in a world that's used to discarding most of the materials after a few minutes or days of use. In addition, the consumption levels per person for disposable products is rising and generating huge amounts of waste. Approximately one tenth of the waste produced in one year ends in the oceans and a big part of the other 90% is burned, buried, littered or ends contaminating the environment.

We are Carl and Matteus, and together we are East-Side Machine Lab. We aim to help solving the plastic waste problem with tangible solutions developed by Precious Plastic, a huge international community based around open source recycling machines. After some time experimenting and using Precious Plastic machines in workshops, we decided to start a machine builder workspace to provide high-quality machines to the Eastern European community. Our goal is to boost more local recycling projects using Precious Plastic machinery and methodology.

Through the four different machines we will offer (Shredder, Injection, Extruder, Sheet Press), we believe we can help expanding the Precious Plastic community and jumpstart an alternative recycling system. We want to help more workspaces to start recycling plastic waste and producing products. East-Side Machine Lab wants to play an active role in the local Precious Plastic community and in the whole Eastern European region.

2. Mission

The production of plastic is rising every year due to its convenient characteristics, such as being lightweight, versatile, flexible, moisture resistant, strong and relatively cheap. Also, the rise of over-consumption and discarding of materials is leading to plastic waste being a growing problem worldwide. Consequently, more organizations are trying to fight the negative effects that plastic has on our environment and ecosystems.

East-Side Machine Lab wants to be an alternative solution to industrial-scale recycling companies in Eastern Europe, providing a high-quality recycling systems that can

empower communities to recycle plastic locally. We want to make sure that plastic waste from single-use packaging and households can be turned into new durable products. In order to provide the Precious Plastic Community in Eastern Europe with a local solution, we will provide high-quality machines that enable the Precious Plastic network to shred plastic, as well as process it to produce new products. Why is high-quality so important for us? It's because we want to enable Precious Plastic workspaces to process as much plastic as they can and make their operations efficient and continuous. We strongly believe that if the global network of Precious Plastic continues growing and expanding to new places, real improvements in the ecosystem will be realized.

3. Team

Name: Carl Dragwoski

Role: Assembler, Electrician, and Project Manager

Experience:

Electrical technician and industrial designer. 8 years of experience working on machines for agricultural operations. He started building Precious Plastic machines

Name: Matteus Siemek

Role: Assembler and Welder

Experience:

6 years of experience welding metals in the construction industry. In addition, worked as an independent welder and collaborating with Carl in the last 4 years

by collaborating in workshops with the local Precious Plastic community builder. in different freelance projects.

4. Market Analysis

a. Product and Services

East-Side Machine Lab aims to build and sell a mix of the Precious Plastic version four machines that will allow new businesses to shredd and process plastic waste into new products. In addition, we will offer machines kits with all the main parts and components of the machines ready to assemble, which makes it easier to ship them when traveling a long distance. Delivering high-quality machines will be our main goal so new Precious Plastic workspaces can process plastic continuously and improve their operations.

The machines that we will build are the shredder pro machine, injection machine, extruder pro machine, and sheet press machine. The last three machines process mainly HDPE (2), PP (5) and PS (6) plastics due to their melting temperatures and prevalence in household waste. All of these machines can be delivered to any of the Eastern European countries within 1-2 weeks after they are built. For other countries, the delivery might take longer due to the distance and borders policies.

The shredder will allow the workspaces to shred plastic, and will include a set of two sieves that allow obtaining the three different sizes (large, medium and small) of shredded plastic. This machine has the capacity of processing around four times more amount of plastic a day than the Precious Plastic version 3 shredder, allowing to shred on average 20-30 kilograms of plastic per hour. Additionally, the input area is bigger, allowing it to shred larger plastic objects. The shredder price will be around €5300, and we expect it to be in high demand in 2020 and 2021.

The injection machine processes shredded plastic into new products with small dimensions. It uses moulds to melt the plastic into the shape of the desired

product. This machine is often used for workshop sessions because it is relatively easy to show how it works, people can help injecting, and it's easy to transport compared to the other machines. The injection machine price is around €1000.

The extruder pro machine is also able to process the three main plastics (HDPE, PP, PS) into new products. One of the main new uses of the extruder machine is the production of construction materials like bricks and beams. The price of this machine is €5500 approximately.

The sheet press machine is one of the new innovations from Precious Plastic that creates sheets for large products from large amounts of plastic. The plastic sheets can be used as a raw material to create furniture, cabinetry, or various other objects that you would normally create with plywood. The price of the sheet press is higher than the other machines, being around €7500.

b. Target Groups

East-Side Machine Lab targets mainly Precious Plastic workspaces from the Eastern European region. This enables us to serve a large enough market to sustain our business, while also not shipping our machines too far and creating unnecessary carbon emissions.

New and existing shredder machine workspaces, injection machine workspaces, extruder machine workspaces, sheet press machine workspaces, as well as mixed machines workspaces will be our main target groups. Many people with existing Precious Plastic workspaces will want to upgrade to the version 4 machines in 2020 and 2021. In addition, we are expecting a wave of plastic waste entrepreneurs that see the business opportunity of starting a Precious Plastic workspace and will want to purchase machines to get started.

Our clients can be categorized as social entrepreneurs that are business minded and cost sensitive. They often want to do something about the plastic problem, but don’t have a lot of capital to spend on the machines or starting their workspace. They are also maker / craftspeople types, but don’t have all the skills or

tools needed to build the version 4 pro machines themselves. They then look for the option of buying Precious Plastic machines from machine shops like us.

c. Engagement

East-Side Machine Lab will use mostly direct engagement channels as our products are targeting businesses or organizations. The main channels to connect with our target groups and the Precious Plastic Universe will be the Precious Plastic Community Platform, Map, and Bazar. In our case, these are really useful platforms because we can target and connect directly with people that have the intention to start a project or has already has an existing project. As well, we can receive feedback from the community members and provide technical assistance to workspaces nearby.

Another way to show our machines will be by performing workshops in the region to create more education and consciousness about plastic waste. We want to show how we can create an alternative solution rather than industrial recyclers. We will use a small shredder and injection machine to run these workshops. Showing people the simplicity of the Precious Plastic machines and teaching them how to use them will motivate more people to start their own workspaces.

Our website will be used as an informative place to showcase the characteristics of each machine, pictures, and how they work. We will also communicate our mission and link it to the Precious Plastic mission.

Finally, we will also use social media as Instagram, Facebook and Twitter to create content showing the use and impact that the machines can create. We will announce the workshops there and post any updates and innovation we create.

d. Sales Channels

The main sales channel we expect to use will be the Precious Plastic Bazar. Many of the people interested in creating their own workspaces or that they already run an existing one are active on the Bazar, as well as the community platform and

map. There is a big group of community members that interact through the forums and bazar selling specific spare parts of the machines, used machines, new machines, and others. Consequently, this is the perfect place for us to sell the East-Side machines, as we will easily find our target clients and require less marketing.

Lastly, we will also have the option to sell the machines by direct sales. Some clients prefer to come by the workspace to see the machines and how they work. This builds their confidence that we build the high quality machines that will help them launch a successful Precious Plastic workspace.

5. Operations

a. Key Resources

To optimize our operations and achieve our mission, we need a few key resources. First, a big workspace with two different areas separated is necessary to maintain the flow of production and quality conditions. One of the main areas is for welding activities that usually produce more dust and a lot of noise. In the second area we need a clean area for electrical work and assembling the components of the machines. It is important to have these two separate areas in order to deliver high quality machines.

In addition to our workspace setup, we need to make sure we have certain skill sets to successfully build the machines. Having people who are skilling in welding and electrical work is important to be able to produce all the parts and processes that we are not going to outsource.

As important as the employees are, having the right machines and tools to work with is going to play a key role in the quality of the production. As a result, East-Side Machine Lab needs a good quality chop saw and welder machine. In addition, a tool kit for the electricity activities is important to keep the process smooth and clean.

b. Key Tasks

Here are some important activities and actions that are key to successfully providing our mission.

First, having excellent project management is going to be critical to ensure that the whole production process can flow efficiently. This requires sourcing the right components and materials with enough time and the right quantities. In addition, planning each step of the whole production chain is really important.

Likewise, managing the activities that will be outsourced it is going to be of great importance. The main activities that will be outsourced are the machinist (lathe work), laser cut parts and general parts. All of these parts are crucial for the machine building, so we need to establish good partnerships with them, proper communication channels and contract conditions.

Equally, our employees need to be really precise and careful machine builders. We want to provide the highest quality and standards from the Precious Plastic machines. In order to achieve this, we need to be detailed in every step of production and choose quality materials for our components.

Finally, customer relationship management will also be highly important for us as machine builders. We want the type of business relationships where customers can contact us with questions about their machines and come back to us for their next purchase. Our biggest aim is to help the Eastern European region to tackle the plastic waste problem, so we think that providing an excellent service and product to our clients is key to confronting the problem directly.

c. Running Costs

In order to make the business sustainable over time, we need to identify and control the costs that are fundamental to running our business. These costs would include our wages, the rent of the workspace, and the main utilities that will allow us to produce such as electricity, gas, water and internet.

Additionally, the costs of the outsourced activities are really important as they are a key part of the value chain, and without them it is not possible to deliver our machines. The outsourced parts can be quite expensive, so looking for the best supplier is key.

d. Collaborators

Collaborating with people and organizations in the Precious Plastic community as well as from outside will be key. As mentioned before, being involved in the Precious Plastic community can help us to establish direct sales and engagement channels. Therefore, one of the key collaborators for East-Side Machine Lab are the community points of Precious Plastic in Eastern Europe countries. Having an open channel of communication with them can help us become the supplier for new workspaces in their areas.

Moreover, the companies that provide us with the services that we are going to outsource, such as the laser cut shop and the machinist shop are important to us in order to complete our production chain. If we can establish partnerships and provide them frequent orders, they can provide us with more competitive prices and make our margins more sustainable and profitable. For example, with the laser cut shops we could establish partnerships were we connect them with our clients to produce moulds for the Precious Plastic machines.

6. Impact Measures

a. Community

East-Side Machine Lab aims to produce machines that can create a positive impact to the environment and help solving the plastic waste problem. As we will participate in workshops in the region to show how the machines work and the impact they can create, we will create more awareness concerning the plastic pollution problem.

On the other hand, our desire is to build high quality machines that allow to create local alternatives to the current recycling systems at a lower investment. We believe that it is important that each local community take charge of the waste they produce, especially single-use plastics that can remain in the environment for hundreds of years if they are not recycled or processed. We want to stop shipping waste and contaminating the environment and growing landfills, so motivating our nearby community to create more workspaces and process plastic will help achieving our goal.

b. Planet

The environmental impacts that East-Side Machine Lab will be increasing the plastic waste recycled and reused by the machines we build. Similarly, as plastic pollution is growing, we want to grow the solutions, so we can balance the whole cycle of these materials. In this sense, more machines will result in more plastic recycled and reused, and finally, less plastic waste.

c. Income Streams

East-Side Machine Lab will need to generate income to sustain our operations and be able to grow the production capacity. Thus, to generate incomes we will generate sales by selling the machines fully equipped. This option has the advantage that reduces the chances of the machine breaking down or not working, because our assemblers are highly experienced. The profit margins expected for the different machines will vary from 11% for the extruder machine to 16% for the extruder machine.

7. Financials

In this section we will provide estimations for our investment costs, the profits and loss analysis and the cash flow for the first year.

Below is a summary of the main initial investment costs to get started with the machine lab. The estimated total to start is €7,025 , which includes the tools needed to produce the Precious Plastic machines and the workspace set up. As it

can be seen in the summary table, there is total cost of €25,075 which includes the initial investment and one month of production costs and the monthly fixed costs. On the one hand it is relatively a high starting cost, but it is expected to be recovered in only 12 months of operations, quite a short period of time (appendix 1).

Additionally, we will start as two full-time employees with the main tasks of welding, electric work, assembling and projects management. However, we will need to hire a part-time employee that can help us with the administration, logistics and some of the project management tasks.

Investment Costs

These are the machines, tools, and other expenses you need to set up your workspace. These costs are also known as your "investment costs" and are only paid once.

Initial Investments	Cost
Welder Machine	1,000.00
Grinder	100.00
Chop Saw	500.00
Small Lifting Bridge	500.00
Drill Press	500.00
Manual Drill	200.00
Basic Tool Box	250.00
Welding Table	100.00
Marble Table	200.00
Selection of Drill Bits	50.00
Taps	50.00
Torq Spanner	100.00
Set of Callipers and Gauges	100.00

Business license and permits	300.00
Van	2,000.00
Coffee Machine	20.00
First Aid Kit	30.00
Office Supplies	100.00
Computer	200.00
Speaker	25.00
Workspace Renovation	700.00
Total	7,025.00

Summary	
Money Needed to Start	19,985.84
Months to Pay Back Investment	12
Full Time Employees Needed	2.0
Revenue Earned Per Month	14,800.00
Fixed Costs Per Month	780.00
Material Costs Per Month	8,250.00
Total Wages Paid Per Month	3,930.84
Total Profit Earned Per Month	1,839.16

Initially we want to cover the initial investment applying for funding from the European Commission directed to climate action. They are managing a €864 million programme to develop and implement innovative ways to respond to climate challenge. As plastic pollution is increasingly becoming a problem worldwide and the Precious Plastic Community is tackling the problem internationally we would like to represent the Eastern European region and apply for this funding. We will aim to receive funding of between €40,000 and €50,000.

Additionally, we have projected how much money we could generate in the next three years with a low yearly growth rate. The preliminary estimation shows that we will have positive numbers (see table below). Considering that we will grow and accumulate profit, we would like to expand in the next few years and grow an average of 10%.

Profit and Loss			
	Year 1	Year 2	Year 3
Revenue	312,000.00	343,200.00	377,520.00
Cost of Sales	189,168.00	208,084.80	228,893.28
Net Revenue	122,832.00	135,115.20	148,626.72
Fixed Costs	9,360.00	9,360.00	9,360.00
Gross Income from Operations	113,472.00	125,755.20	139,266.72
Business Taxes	22,694.40	25,151.04	27,853.34
Net Income	90,777.60	100,604.16	111,413.38

In the same way, below you can find the cash flow projection for the first year of operations. This shows that East-Side Machine Lab will be able to cover the financial obligations throughout our first year. These numbers reinforce that we can create a business that will benefit the environment and community, while at the same time creating strong economic benefits.

CashFlow

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Money In Bank (Beginning of Month)	19,986	16,307	19,653	22,999	26,345	29,691	33,037	36,383	39,729	43,075	46,421	49,767
Initial Investment	19,986											
Revenue	14,800	14,800	14,800	14,800	14,800	14,800	14,800	14,800	14,800	14,800	14,800	14,800
Total Cash In	**34,786**	**14,800**	**14,800**	**14,800**	**14,800**	**14,800**	**14,800**	**14,800**	**14,800**	**14,800**	**14,800**	**14,800**
Investment Costs	(7,025)											
Variable Costs	(10,674)	(10,674)	(10,674)	(10,674)	(10,674)	(10,674)	(10,674)	(10,674)	(10,674)	(10,674)	(10,674)	(10,674)
Fixed Costs	(780)	(780)	(780)	(780)	(780)	(780)	(780)	(780)	(780)	(780)	(780)	(780)
Total Cash Out	**(18,479)**	**(11,454)**	**(11,454)**	**(11,454)**	**(11,454)**	**(11,454)**	**(11,454)**	**(11,454)**	**(11,454)**	**(11,454)**	**(11,454)**	**(11,454)**
Net Cashflow	16,307	3,346	3,346	3,346	3,346	3,346	3,346	3,346	3,346	3,346	3,346	3,346
Money In Bank (End of Month)	**16,307**	**19,653**	**22,999**	**26,345**	**29,691**	**33,037**	**36,383**	**39,729**	**43,075**	**46,421**	**49,767**	**53,113**

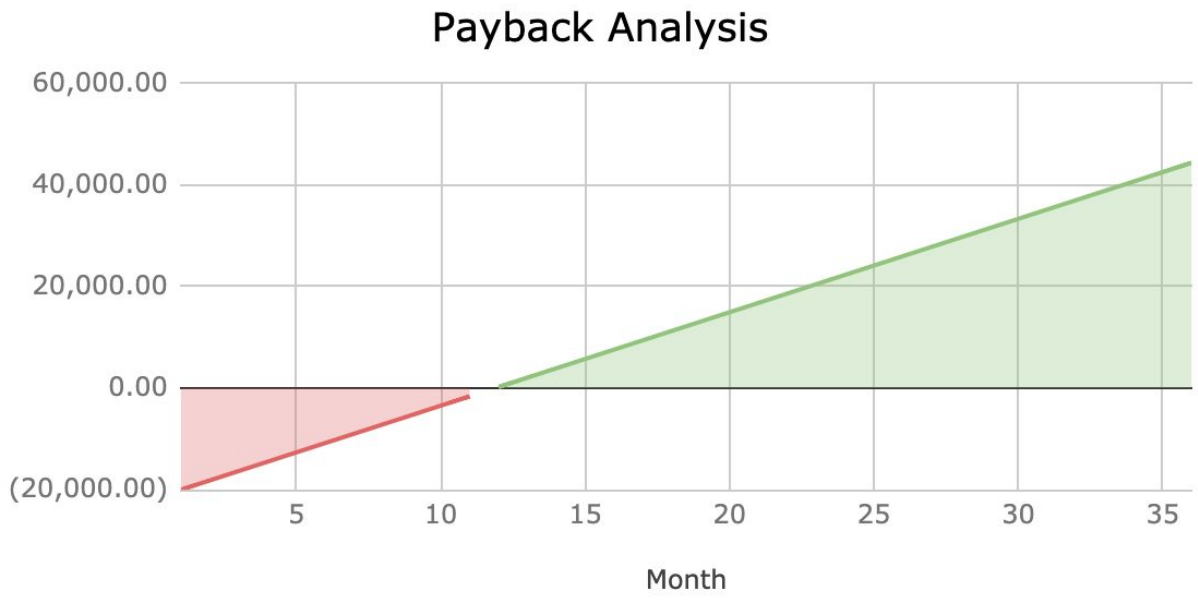
8. Legal Structure

As East-Side Machine Lab aims to have a cooperative legal structure. This means that every member of the enterprise will be equally owned by every participant and democratically controlled. We envision more people joining our project in the short-run, so we would like to provide equal responsibilities and decision power to every member.

Cooperative businesses are typically more economically resilient than other enterprises structures. Additionally, they usually have social goals and invest more of their profits back into their communities. In our case, we would like to help our region to start creating more workshops and workspaces, so we would like in the future to sponsor some of them or provide lower prices for the machines.

9. Appendixes

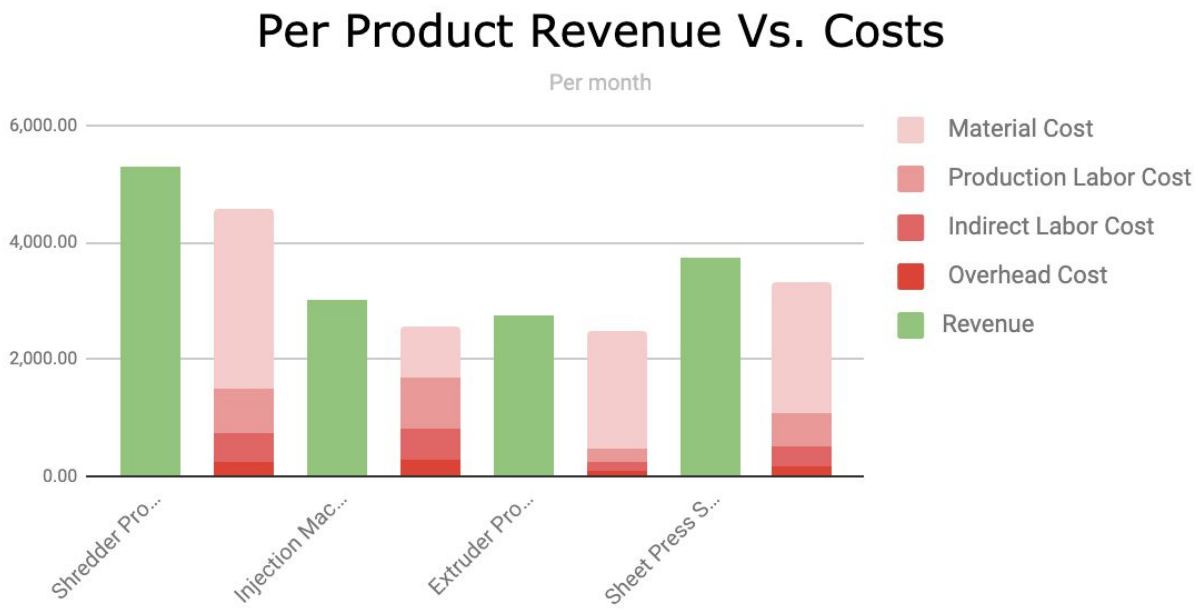
Appendix 1:

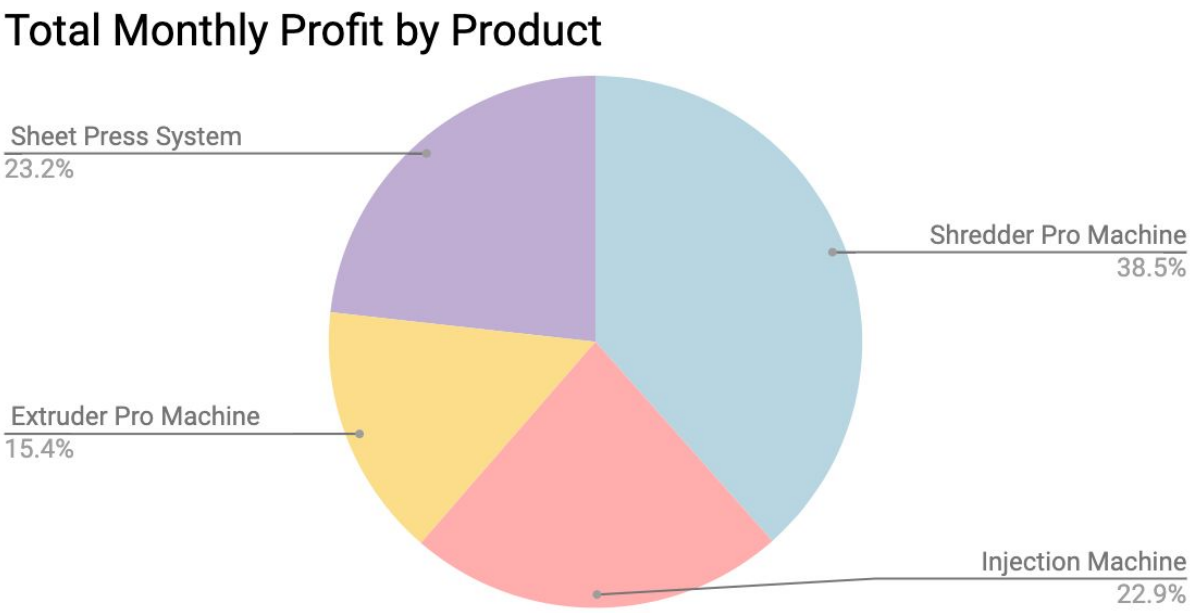


Appendix 2:

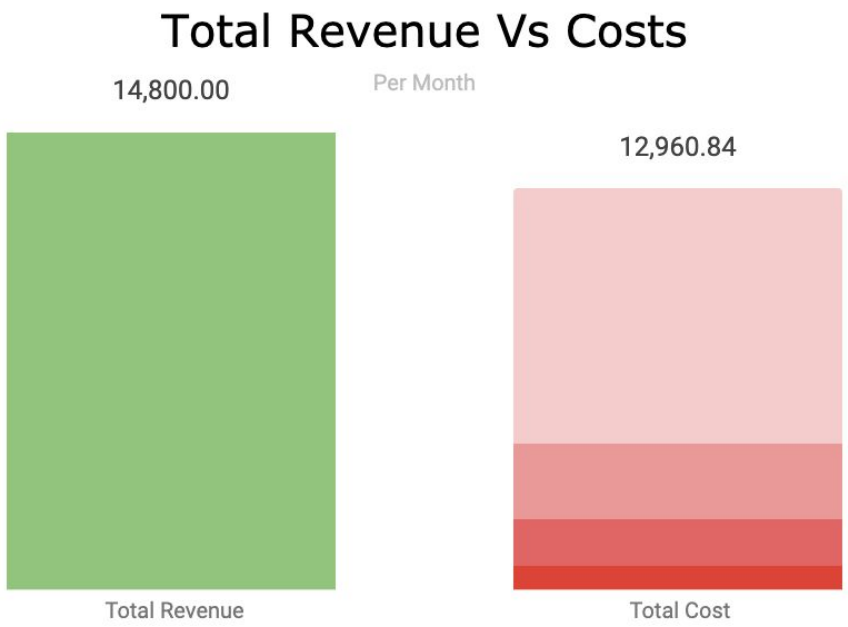
Sales Overview				
Products & Services	**Selling Price Per Unit**	**Number of Expected Sales Per Month**	**Total Product Cost**	**Profit Margin**
Shredder Pro Machine	5,300.00	1.0	4,592.54	15.40%
Injection Machine	1,000.00	3.0	859.70	16.32%
Extruder Pro Machine	5,500.00	0.5	4,932.84	11.50%
Sheet Press System	7,500.00	0.5	6,645.53	12.86%

Appendix 3:




Total Monthly Profit by Product
Sheet Press System
23.2%
Shredder Pro Machine
38.5%
Extruder Pro Machine
15.4%
Injection Machine
22.9%

Appendix 4:


Total Revenue Vs Costs
14,800.00
Per Month
12,960.84
Total Revenue
Total Cost