

Holy Sheet!

An ode to the beauty of plastic



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1. Executive Summary

The concept of circular economy is becoming increasingly known as an alternative to the linear model of production and consumption prevalent since the industrial revolution. The circular economy aims to shift from a pattern of “take-make-consume and dispose” to a system where products last for as long as possible and waste is eliminated. Worldwide awareness of the waste problem is also growing, as waste is affecting humans, animals and the environment like never before.

The key to moving to circular models of production is to eliminate the concept of waste as part of the lifecycle of products and start seeing materials as a resource that can be used again and again. Since 2015, the European Commission is pushing the transition to the circular economy through an ambitious plan, and one of the first specific targets is plastics. More precisely, the “EU Strategy for Plastics in a Circular Economy” sets a clear vision that by 2030 all plastics packaging placed on the EU market needs to be reusable or recyclable.

The research of the Everyday Plastic project shows that approximately 67% of the plastic waste that each person produces comes from food industry packaging and films. Similarly, they show that each person throws away approximately 4,490 pieces of plastic in a year - an average of 12 pieces a day, shocking numbers. This shows the importance of changing our consumption behavior from the consumer side, but also the need for the industry to change.

We are Alicia and Henry and together we are Holy Sheet. We aim to showcase how post-consumer plastic waste can be transformed into an innovative raw material that can be used to craft new beautiful products. In this way, we want to create consciousness around the plastic waste problem and show that each of us has the responsibility to transform our throwaway consumer culture and reduce the use of single-use plastic.

2. Mission

According to the Everyday Plastic project, the average European produces 32 kgs of plastic waste per year. Around 93% of that plastic waste produced is single-use items and 70% is potentially recyclable. These numbers show the

massive potential of plastic recycling. However, we are not doing enough to solve the huge problem of plastic waste.

The European Commission is aware of the plastic pollution problem and the need for steering consumption to more circular patterns. As a result, the first EU-wide policy framework for a specific material life cycle (plastic) has been introduced to increase circular design, use, reuse and recycling activities in the value chain of plastics.

Unfortunately, most people and companies don't see plastic pollution as such a problem. Many people are unaware that the material can last for over 500 years in the environment without breaking down. As a result, the majority of plastic is used for a matter of minutes and then discarded, ending up in the incinerator, the landfill or even worse, in nature. This is why we want to be part of the solution and join the movement towards creating a circular economy.

Holy Sheet! Is a partnership between designer Alicia Koenig and engineer Henry Jameson, created from a passion for recycling and sustainability. Together we have been working for 2 years in the design industry developing sustainable solutions for the interior design industry through a project called 100% Re-Decorate. After seeing the value from reusing materials, we started researching waste streams and we discovered the untapped potential of recycled plastic. We started testing different processes to turn waste plastic into new products through recycling. This is when we discovered the Precious Plastic community and learned about the sheet press machine. We are now teaming up to create beautifully coloured 1m² sheets out of recycled plastic.

Holy Sheets are made with the purpose of conveying the true value of plastic and tell a story through the material. The sheets can be simply hung on the wall as a piece of art or transformed into beautiful furniture and other useful objects. They will also be used by Hetland's (our city) top designers and manufacturers as a raw material for beautiful design objects or in the construction industry.

Our hope is that by transforming post-consumer waste from something that is seen as ugly and dirty to something beautiful and valuable, we can communicate the true value of plastic and prove the value of circular business

models. In this way, we will inspire people to change their attitude towards plastic, start using less single-use plastic items, and to recycle the plastic that they do use.

3. Team



Name: Alicia Koenig

Role: Designer, Administration and Marketing

Experience:

2 years of experience working in an interior design studio designing and building unique pieces of furniture. Another 2 years working in an independent sustainable design project called 100% Re-Decorate which aims to re-use 100% of the materials and furniture to give a new look to houses and spaces.



Name: Henry Jameson

Role: Production, Logistics and Sales

Experience:

5 years of experience working in the construction sector producing wooden furniture. Degree in sustainable product design at the Design Academy of Hetland. Participation in research and development of new materials for the construction industry. 2 years collaborating with 100% Re-Decorate project.

4. Market Analysis

a. Products & Services

Holy Sheet will offer colourful plastic sheets showing the beautiful patterns of recycled plastic. The sheets will be made of 100% plastic waste collected from Hetland's households and businesses.

The sheets can be made with a single colour of shredded plastic or multiple colors to create interesting patterns and designs. The main types of shredded recycled plastic we will use are PP, PS and HDPE. Each type has specific properties and characteristics that are better for different uses (bendability, texture, transparency, etc). The sheets can be used to make beautiful furniture, design objects or construction material.

Initially we will start making sheets of 1m² with three main thicknesses: 6mm, 12mm and 20mm. We aim to incorporate a wider range of options once we see that the use of the sheets start gaining traction in the design and construction industry. We will offer customization options with regards to dimensions, shape and thickness for large orders of over 40 sheets.

The advantages that plastic sheets have in comparison to other materials are the interesting color patterns with marble-like effect, bendability for molding into different shapes, and waterproof quality for exterior uses. These characteristics justify the premium price point over competitor materials like plywood. The price of the sheets ranges from €60 to €100 depending on the thickness. We will set up collaborations with companies to use the plastic waste they generate and deliver large orders of personalized sheets at a wholesale price to them in return.

Product Photos:



Our sheets are highly differentiated from currently available alternatives because they can be recycled into new sheets after the end of its useful life. Moreover, our sheets have an aesthetic quality that is simply unachievable with a mass production process - industrial machines can't recreate the patterns made from small batches of recycled plastic. Furthermore, the material is much more durable and more flexible than wooden sheets of the same size.

b. Target Groups

Our Holy sheets will mainly be sold to furniture designers, green builders, and manufacturers from the city of Hetland who are interested in environmental sustainability.

The designer community in Hetland is very active. There are several design businesses and collectives that work with innovative materials to create new products. We believe that these designers are the perfect customer group as they can use our sheets to create products that really convey the story of local plastic recycling. We've already spoken with several designers that want to incorporate our sheets into their furniture items as table tops, stools, and accent pieces. We've also seen examples of jewelry designs that use Precious Plastic sheets to make earrings and necklaces, which we expect to also have a high demand in Hetland.

Green Builders in Hetland are always looking for new materials to incorporate into their work. These will mostly be custom projects like home construction, retrofit of a retail store, or even large scale building and retrofit projects of schools, universities, and office buildings. Holy sheets can be incorporated into buildings in many ways. For example as countertops, wall paneling, or facades.

We will also work with manufacturers that need a solution for their production waste. Many industrial processes working with plastic have offcuts or items that don't match the company's quality standard. These usually end up going to the landfill. However, in light of the currently tightening waste regulations and environmental sustainability goals, manufacturers are seeking ways to reduce their product waste as much as possible. We will offer a circular solution for these businesses by turning their waste into new, high-value products, and including them in our story. Through finding new uses for their production waste, they can set an example for the entire industry and start investigating what else can be done to value waste streams.

Hetland's government has been pushing the local community to move to a more sustainable way of life. To this end, the Hetland Circular Businesses Association has been created. The goal is to unite private entities that want to collaborate to disrupt traditional business models. This association is a key network, allowing us

to set up collaborations with different businesses across the field of design, green building, and manufacturing.

The association provided us with interesting data that shows the willingness of Hetland's community to recycle and change their habits. Hetland has a population of 590.000. We can see that around 32% of the population is willing to somehow or strongly make a change in their habits through reducing waste or buying more durable products that are not for a single use (Appendix 1).

As we expect to target manufacturers, design firms and green builders, we conducted a survey to 100 companies in the Hetland's commercial district. These companies together represent an estimated market value of €24.8 million in material inputs. Our survey addressed their willingness to use more durable and sustainable raw materials. We find that 21 companies are totally or to some extent willing to use our materials (Appendix 2). We will target at least 10% of the companies we contacted and that are willing to work with circular resources, so we aim to collaborate with 2-3 companies initially. We expect to increase the amount of collaborations to 10-15 as more companies see that a circular partnership can generate added value for them.

c. Engagement

We intend to engage with our target groups mainly through direct channels like phone calls, email contacts, networking and client meetings. Our sales are mainly business-to-business, meaning we don't create the end products for customers, but instead focus on the raw materials. The Hetland's Circular Businesses Association will be key for creating a network of businesses that share similar values and goals with Holy Sheet. We will primarily attract clients by networking at association meetings and giving presentations to share our story and mission.

Additionally, we will use social media channels like Instagram, Facebook and Twitter to create content and share information related to the project. Through these platforms we will create awareness about the plastic pollution problem and present our circular solutions. Furthermore, this channel allows us to reach not only the target groups we focus on, but also related groups that are the final customers of our business partners.

Our website will help us showcase the sheets and inform people about the project and our values. This channel will be key to allow interested people to contact us directly and to get additional information after they have first heard about the project.

The Precious Plastic community and Bazar will help us connect to connect with people from the local network as well as the global network of Precious Plastic. It will be a good place to showcase our products, expand sales outside Hetland and connect with designers and builders in other countries.

d. Sales Channels

Our primary strategy is to sell to B2B (Business to Business) customers. Designers, builders and independent manufacturers will buy and add value to our product by using the sheets for the production of new products and objects. These companies will handle the further processing and retailing stages of the supply chain. For example, retrofitting a retail store. In this case the designer will order a custom batch of sheets in a certain color and thickness. Depending on the amount, these sheets can be produced and delivered within a few days.

For our B2B clients we will utilize direct sales channels like phone calls, emails, and meetings. For businesses that need larger amounts of sheets, our sales administration will take into account the logistics of distribution. For these clients we need to take into account that we will charge a lower price per sheet to compensate for the higher volume, and also the logistics of delivering the sheets to the customer will be more complicated. One important aspect to consider is that sometimes businesses buy on credit (receive the sheets first, pay later), which affects the amount of money that we have available to buy materials.

The Precious Plastic Bazar will be one additional sales channel that allows us to expand our operations towards the international market. The advantage of using an online channel is that it allows us to reach clients that are interested in reusable materials and sustainable production outside the Hetland's market.

5. Operations

a. Key Resources

A Precious Plastic sheet press workspace has some specific requirements for producing efficiently. The main resources needed are the sheet press system (Hot press, cold press, rolling table), the employees, and a large workspace. Without these things it is impossible to produce, store, and manage the sheets. As for a continuous production process it is key to have a large source of shredded plastic. This is because the sheets use a higher amount of plastic than the other Precious Plastic products.

Equally important is to have enough moulds to produce the sheets in specific sizes and thicknesses. Having just one mould of each type would make the production process inefficient and slow, so it is important to have a set of each size of moulds. These moulds can also wear out quickly, so we need to have backup moulds on hand.

Working with plastic at high temperatures produces fumes that can harm the employees if they are exposed for a long time without the appropriate ventilation and masks. Furthermore, hot plastic can be a safety hazard without the appropriate gloves. To prevent any type of accidents and negative effects in the health of the employees, it is key to have a good ventilation system and a safety kit in the workspace.

b. Key Tasks

Operating an efficient production process is key for outputting a consistent number of sheets produce per day and maintaining production capacity. To achieve this, we will systematize production process step-by-step in a clearly defined way. That means optimizing each part of the production process, to reduce the overall time needed, while keeping quality high. Additionally, servicing the machine on a weekly basis will be key to ensure continuous operation, keeping breakdowns to a minimum.

Throughout our business operations we aim to maintain a good relationship and close collaboration with our clients. This collaborative approach will allow us to spread our effect and eventually move the entire Hetland community to more circular business models. To achieve this we need to have a good management of key partner and customer relationships.

c. Running Costs

The main running costs are the rent of our workspace and the basic utilities like electricity, water, gas and internet. In addition, paying ourselves a wage are crucial running costs as we need to sustain ourselves to be able to manage the business.

Shredded plastic makes up the main share of variable costs since the production of our sheets requires a large amount of plastic. We source shredded plastic from three main shredding workspaces that are part of the wider Precious Plastic community of Hetland. The main type of plastic that we use to produce the sheets is PP due its favorable material characteristics. PS and HDPE are also used but for more specific purposes, which may be requested by our customers. We will buy shredded plastic that is sorted by colour as much as possible so we can create specific color patterns according to the wishes of the client. We plan to buy a large amount of basic white, transparent and black flakes, and then add accent colors to create unique color patterns.

With our suppliers, we agreed on a price for the plastic flakes of €2 per kilogram. One sheet will contain between 8.5 and 11.5 kilograms of plastic depending on the thickness. Unfortunately, since recycled material is not subsidized and virgin plastic producers do not pay the full social cost of their production, our material cost is higher than what it would be if we sourced our material from industrial plastic companies. Moreover, the small scale of production does not give us the economies of scale industrial producers benefit from. However, the hand-crafted localized production process, beautiful design, and engaging story more than make up for the price premium. By offering a sustainable alternative to traditional materials we align our process with the values we are trying to communicate and support a local network of precious plastic workspaces.

d. Collaborators

As stated previously, one of our key collaborators is the Hetland 'Circular Business Association. The association gives us access to an existing network

that unites businesses with our common values and goals to explore how businesses can be agents of building the circular economy. We believe that participating in their events and connecting with the companies that are part of the association will be key for expanding our customer and partnership base.

Similarly, the local Precious Plastic network has been key for us as they provide important knowledge about the sheet press system. The shredder workspaces are critical partners because they provide a source of recycled plastic flakes. Moreover, the Precious Plastic community builder is a key collaborator as it facilitates the local Precious Plastic community through monthly meetups.

A logistics partner will be key in delivering our products to the customer. Depending on the distance and the size of the shipment, different logistics partners may be chosen, but our goal is to build up a relationship with a trusted partner over time. We will be inquiring with several freight forwarders to see who can best serve our needs.

Additionally, green design and architecture studios as well as independent craftspeople are not only key customers, we also see them as important collaborators. This is because they create value through their product and are an important link in conveying our story to the final user. Through close collaboration we will make sure these collaborators are aligned with our values of sustainability and circularity. We also would work with these customers to get the materials back if one of their projects ends and the material needs another application.

6. Impact Measures

a. Community

First, we want to showcase to our community how an economy can be designed in a regenerative way to eliminate waste from the system. By changing the production model of some businesses and the way in which just a few habitants see plastic, we will be already making an impact in Hetland's population. From this humble starting point, and from many others, eventually we can change the mindset of an entire generation.

b. Planet

Through our business model we want to decrease the demand of virgin plastic and other virgin materials. We will maintain plastic waste inside a circular cycle where it will be reused into durable and beautiful products over and over again instead of ending up burned or in the environment.

Additionally, as we will demand large amounts of plastic flakes, we will motivate the local collectors, inhabitants and shredders to increase the rate of plastic recycled and reused into new valuable products. All in all, these measures will help clean Hetland from plastic waste and cultivate the idea that plastic is not waste but plastic is precious.

c. Income Streams

Holy Sheet will have one main income stream, namely the sales of the plastic sheets. The sales of the different types of sheets will produce a profit margin that will vary from 5% to 57% depending on the cost and the number of units sold. By collaborating with businesses we aim to produce and sell large quantities raising our volume of sales.

Selling large orders of sheet results in lower profit margins on a per unit basis, but is justified through the increased quantities of sales. We will charge a fair price at all times to justify the environmental and social benefits we create. Offering wholesale prices will increase our competitiveness.

After estimating our initial investment, costs of operations and monthly costs, we expect that our initial investment will be recovered after 10 months of operations (Appendix 3). After a few more months of operations, we will have the financial capabilities to independently invest in expanding our operations.

7. Financials

Below we prepared some projections for Holy Sheet's financial situation. Our objective is to pay living wages, grow our sales, and expand team over time. Despite a somewhat high initial investment, we are confident these investments will be recovered within a reasonably short time.

Our calculations show that the initial investment needed to start operations is around €18,469.84. If we breakdown this value, we can see that €13,744.00 corresponds to one time investment costs that will allow us to set up the workspace (see table below). The monthly fixed costs are around €960.00 and the cost of two full time employee salaries is €3,969.00.

Investment Costs	
Initial Investments	Cost
Sheet Press System	7,500.00
8 Moulds	800.00
Business license and permits	300.00
Workspace Renovation	800.00
Tools	400.00
Van	3,000.00
Table	100.00
Chairs	80.00
Coffee Machine	20.00
First Aid Kit	50.00
Office Supplies	100.00
Computer	250.00
Speaker	25.00
Ventilation System (Fan, Filter and ducting)	130.00
Shredded plastic storage shelf	15.00
Mould trolley	12.00
Sheet storage	20.00
Workbench	25.00
Scale	20.00
Bucket	5.00
Scoop	5.00
Oiling cloth	2.00
Spreading beam	2.00
Filter mask	50.00
Heat resistant gloves	15.00
Work gloves	8.00
Boxcutter	5.00

Timer	5.00
Total	13,744.00

We expect to cover the initial investment with a small bank loan through the program launched to accelerate small- and medium-sized businesses in Hetland. The loan we apply for includes a maximum payback period of three years with favorable terms and low interest rates.

The projection of the Profit and Loss table below shows that Holy Sheet will be financially sustainable and profitable within the next 3 years. Furthermore, these numbers assume a low growth rate to allow for uncertainty in scaling our operations. Nonetheless, after our calculations we are highly confident we will have full capacity to pay back an initial investment within the given time period.

Profit & Loss			
	Year 1	Year 2	Year 3
<i>Revenue</i>	130,896.00	143,985.60	158,384.16
<i>Cost of Sales</i>	53,520.00	58,872.00	64,759.20
<i>Net Revenue</i>	77,376.00	85,113.60	93,624.96
<i>Fixed Costs</i>	11,520.00	11,520.00	11,520.00
<i>Gross Income from Operations</i>	65,856.00	73,593.60	82,104.96
<i>Business Taxes</i>	13,171.20	14,718.72	16,420.99
Net Income	52,684.80	58,874.88	65,683.97

The projected cash flow statement below shows that we will have enough money on hand to meet our financial obligations throughout the first year of operations.

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 (Beginn ing of Month)	21,970	13,714	19,202	24,690	30,178	35,666	41,154	46,642	52,130	57,618	63,106	68,594
Initial Investm ent	21,970											
Revenu e	10,908	10,908	10,908	10,908	10,908	10,908	10,908	10,908	10,908	10,908	10,908	10,908
Total Cash In	32,878	10,908	10,908	10,908	10,908	10,908	10,908	10,908	10,908	10,908	10,908	10,908
Investm ent Costs	(13,744)											
Variable Costs	(4,460)	(4,460)	(4,460)	(4,460)	(4,460)	(4,460)	(4,460)	(4,460)	(4,460)	(4,460)	(4,460)	(4,460)
Fixed Costs	(960)	(960)	(960)	(960)	(960)	(960)	(960)	(960)	(960)	(960)	(960)	(960)
Total Cash Out	(19,164)	(5,420)	(5,420)	(5,420)	(5,420)	(5,420)	(5,420)	(5,420)	(5,420)	(5,420)	(5,420)	(5,420)
Net Cashflo w	13,714	5,488	5,488	5,488	5,488	5,488	5,488	5,488	5,488	5,488	5,488	5,488
Money In Bank (End of Month)	13,714	19,202	24,690	30,178	35,666	41,154	46,642	52,130	57,618	63,106	68,594	74,082

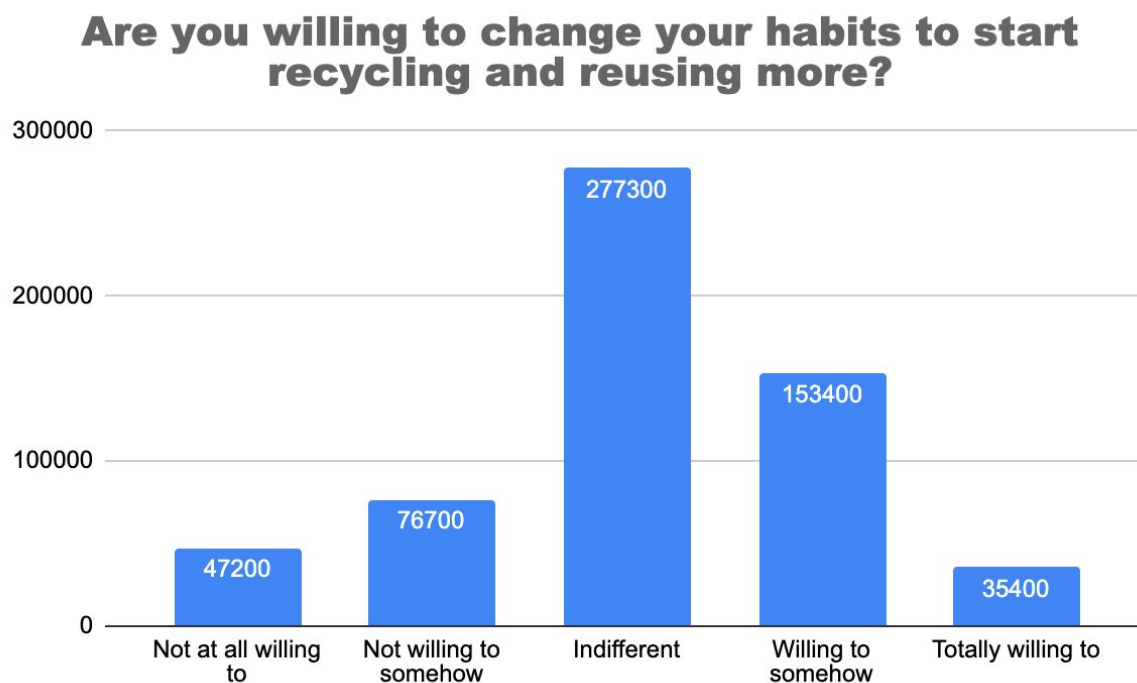
Some additional figures that help understanding and analyzing the financial statements can be found in the Appendix 4.

8. Legal Structure

Holy Sheet is a for profit entity, meaning it has the duty to be registered in the Hetland's chamber of commerce. Initially we have agreed on an equal ownership structure between the two founders, each with a 50% ownership share. To notify this and enroll Holy Sheet as a company in the chamber of commerce we will write a formal declaration of consent signed by a lawyer to prove that both partners agree in the legal structure.

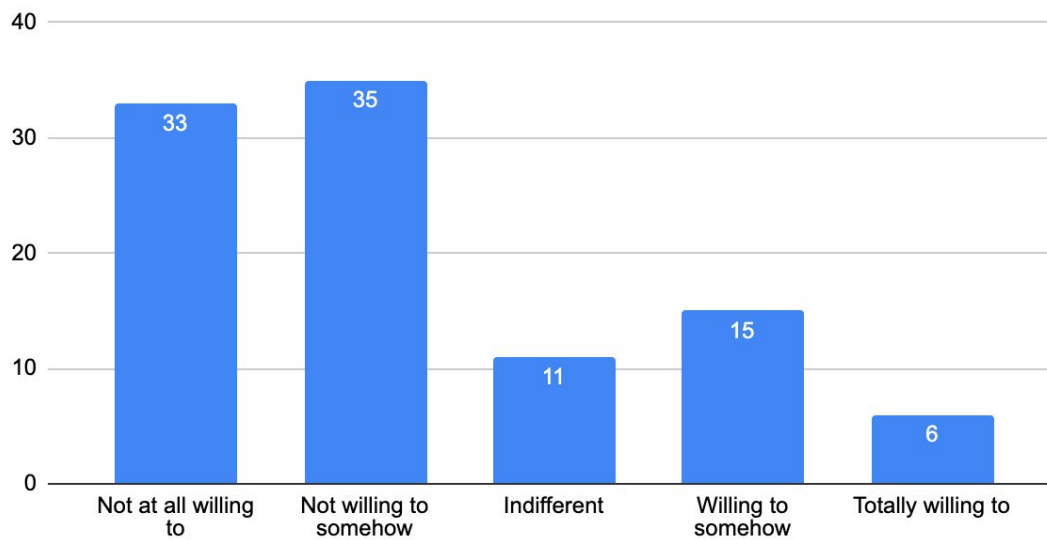
9. Appendixes

Appendix 1:



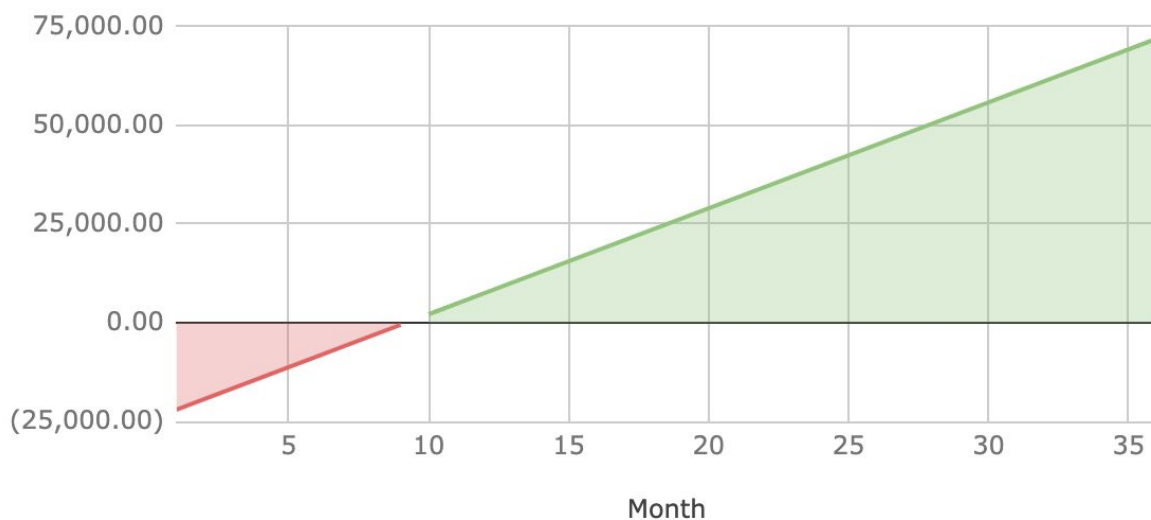
Appendix 2:

Is your company willing to use more durable and sustainable raw materials?



Appendix 3:

Payback Analysis



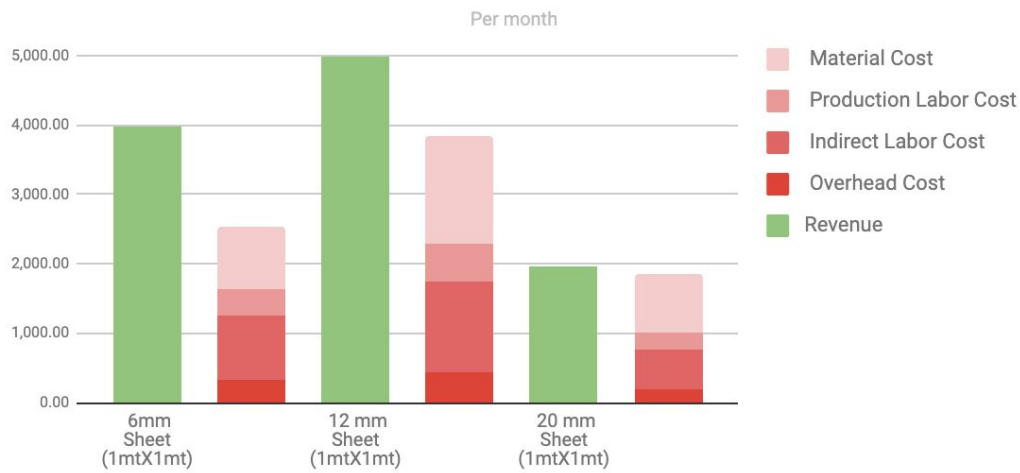
Appendix 4:

Summary	
Money Needed to Start	21,969.84
Months to Pay Back Investment	10

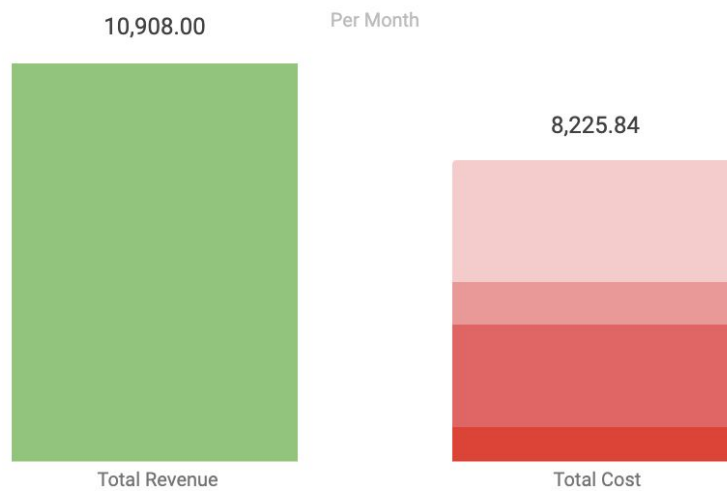
Full Time Employees Needed	2.0
Revenue Earned Per Month	10,908.00
Fixed Costs Per Month	960.00
Material Costs Per Month	3,296.00
Total Wages Paid Per Month	3,969.84
Total Profit Earned Per Month	2,682.16

Sales				
Products & Services	Selling Price Per Unit	Number of Expected Sales Per Month	Total Product Cost	Profit Margin
6mm Sheet (1mtX1mt)	62.00	64.0	39.41	57.31%
12 mm Sheet (1mtX1mt)	83.00	60.0	64.12	29.45%
20 mm Sheet (1mtX1mt)	98.00	20.0	92.82	5.58%

Per Product Revenue Vs. Costs



Total Revenue Vs Costs



Total Monthly Profit by Product

