

UBC Social Ecological Economic Development Studies (SEEDS) Student Report

Melt Collective: Becoming a Profitable and Recognized Social Enterprise

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University of British Columbia

COMM 486M

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Moving Melt Forward

Prepared for: Melt Collective

April 1, 2017

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Melt Collective – Strategic Initiative

Executive Summary:

The purpose of this report is to address issues that are currently restricting Melt Collective from becoming both a profitable and recognized social enterprise. Together, our group has developed a strategic plan that outlines specific recommendations aimed at addressing Melt Collective's lack of sustainable liquid cash flows, creating a plan to increase community engagement, and a holistic marketing plan.

About the Clients:

Melt Collective is a blend between a social venture and a non-profit organization. Their focus pertains to effective methods of repurposing plastic waste and raising awareness within the community. Melt Collective is investing their resources towards finding new methodologies to effectively change the narrative surrounding plastic waste. Their current goals are specifically targeting UBC where they are committed to becoming a key contributor in UBC's goal of becoming a waste free campus by 2020. Melt Collective is a small organization with a core group of volunteers' who are working to drive this business towards becoming globally recognized within the conversation surrounding global sustainability.

Decision Making:

The decision making process we faced while developing the scope of this project began with a thorough micro and macro-economic analysis regarding the current strengths and weaknesses of both the market as well as the business. This aided our understanding of Melt Collective's specific needs, and gave us a foundation on which to build upon. Through our analysis we were able to identify three core deliverables:

- 1) Identifying outlets that will generate stable liquid cash flows
- 2) Developing a plan to increase community engagement
- 3) Implementing a holistic marketing plan that will both increase Melt Collective's brand awareness and will also provide Melt will an outlet to share their vision

Our report is designed to address these specific deliverables and to provide Melt Collective with relevant research and information towards our recommendations of how to attain these goals.



Melt Collective @ UBC

QNDC Consulting

Team Intro

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Analyst

Candace Formosa

Focus:
• Micro Environment Analysis
• Macro Environment Analysis
• Risk & Mitigation Strategy



Research Associate

Duncan Findlay

Focus:
• Primary Product Research
• Financial Analysis
• Strategy Research



Analyst

Quentin Clark

Focus:
• Marketing Analysis
• Social Media Analysis
• Secondary Product Research



Research Associate

Nicholas Lin

Focus:
• Project Structure Research
• Primary Edit/Format
• Implementation Research

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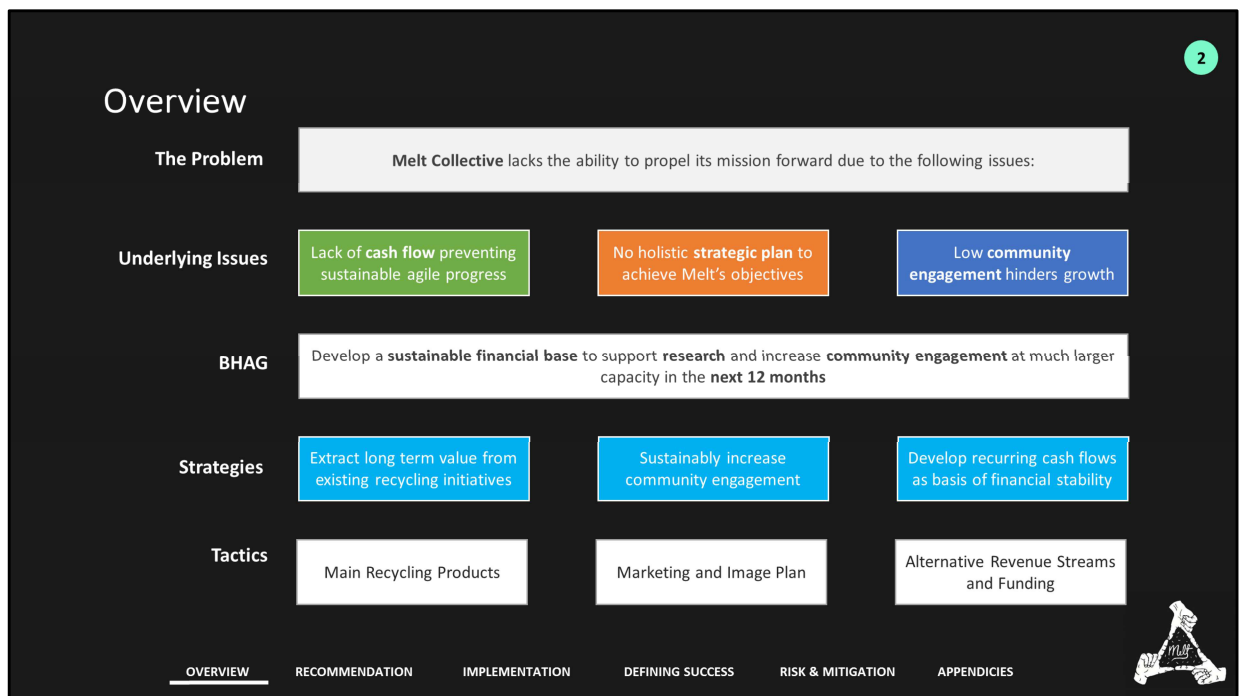
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Team Introduction: QNDC Consulting was commissioned to create a comprehensive business plan for Melt Collective moving forward in the next 12 months as well as some direction for up to 5 years. We took a bottom up approach starting from the major issues and opportunities facing Melt then figuring out what would be the most optimal solution for the problem.

- Candace was tasked with focusing on the macro and micro environment analysis. She developed many of the strategic tools in the appendix. Additionally, she focused on putting together the risks & mitigations for the plan in order to make sure the plan can move forward reliably.
- Duncan was vital to the design of the strategy as well as the underlying financial and feasibility calculations. He spent a lot of time gathering primary research in order to have the most up to date information so that we could propose the proper strategic recommendations.
- Quentin was integral to the development of the marketing and brand image plan. He was able to contribute a lot of secondary product research to further hone our product recommendation and flush out which products not to recommend. Additionally, he was able to map out a post 12 month plan (years 2-5) for Melt Collective.
- Nicholas focused on project management and macro issue overview, as well as overarching research on the project. He contributed a lot in editing and the delivery of the report in a professional manner. Additionally, he focused on project implementation and metrics in order to ensure Melt will have the ability to easily implement the plan and measure their success.



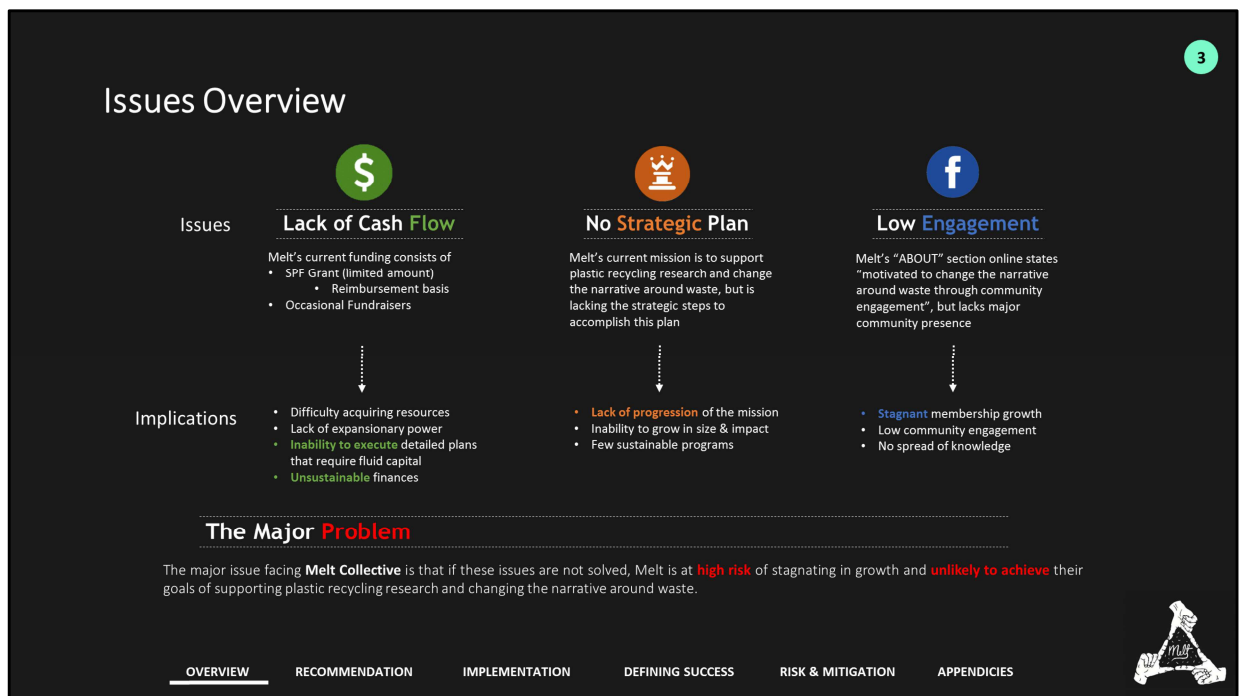
Looking at Melt Collective currently, it is clear that the program has a very dedicated leadership team as well as motivated team members. Its bold mission to support plastic recycling research and change the narrative around waste through community engagement sound great, but there is a lack of execution in pursuit of those objectives. It is also clear that there is a lack of long term strategy stemming from a lack of cash flows and low engagement outside of the club.

Through extensive research and analysis, we were able to create a recommendation for Melt that will solve their major issues as well as layout a long term plan. The strategy has 3 main parts that include:

- Extracting long term value from existing recycling initiatives
- Sustainably increasing community engagement
- Developing recurring cash flows as a basis of financial stability for Melt

We will employ the following tactics to achieve these strategies:

- Having two main products made from recycling
- Developing and deploying a marketing and brand image plan
- Finding alternative revenue streams and funding



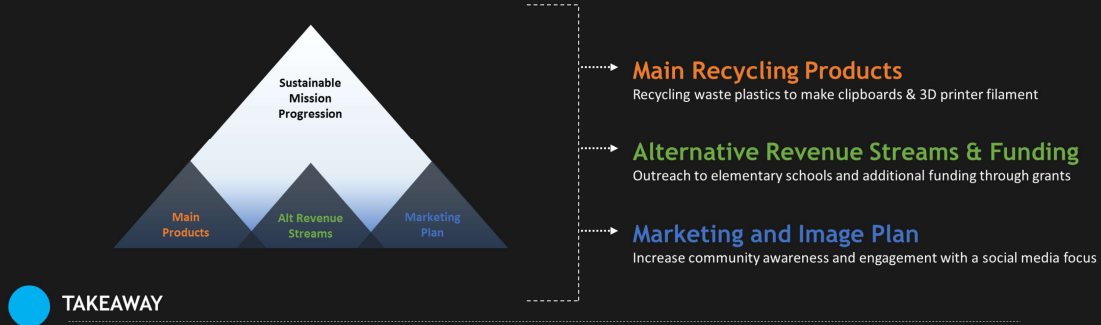
The major issues facing Melt are:

- Lack of Cash Flow
 - Solving this issue is vital to the longevity of Melt Collective. Currently, their only funding consists of a limited SPF Grant from the AMS that is illiquid capital and occasional fundraisers to raise a little bit of capital. The implications of this issue include the inability to quickly execute plans due to applications for reimbursement and a limited liquid capital. Secondly, the unsustainable finances hamper Melt from expanding in the future.
- No Strategic Plan
 - The lack of a strategic plan prevents Melt from progressing towards their mission objectives. This leads to a misuse of resources and time, which hurts Melt in the long run because that is time and resources that could've been spent growing Melt and running more sustainable programs.
- Low Engagement
 - The engagement from Melt to the community is low currently. There is stagnant membership growth as well little social media presence. This offers lots of opportunity for Melt to meet its mission objectives and spread knowledge about plastic recycling in the community

Lastly, we expect that if these issues are not solved, Melt will be at high risk of stagnating in growth and is unlikely to achieve their mission objectives.

Recommendation: Strategy Overview

We recommend implementing a **three part strategy** in order to attack the major issues facing **Melt Collective** in **next 12 months** in order to achieve sustainable progression towards Melt's **core mission objectives**.



These three strategic developments will advance sustainable progression towards Melt's core mission objectives because it will create a **sustainable financial base** for Melt to support **research** as well as **engage the community** in a much larger capacity.

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Strategy: Ensure long term sustainable mission progression for Melt through the establishment of a financial roadmap as well as ramping up community engagement.

We broke down the recommendation into three main strategies. Firstly, we have the main recycling products which is using waste plastics to make clipboards & 3D printer filament, which will both be used to generate recurring revenues for Melt. Secondly, we planned outreach to elementary schools in order to both increase financial health as well as spreading community engagement and plastic recycling education. The 2nd part of alternative revenue streams is funding through grants, which is a low effort way for Melt to ensure future funding. Lastly, we have a marketing and image plan for Melt to implement through the use of booths and increasing social media presence.

Using these three strategies, we will be able to create a sustainable financial base to support community engagement activities and allow Melt move forward in sustainable mission progression.

Main Products: 3D Printer Filament



Initial Investment and Throughput

- Purchase of ProtoCycler will cost \$899.99
- Will allow Melt to produce filament at a rate of **10ft/hr**



Cost Analysis

- Prices per 175ft of filament ranges between \$12.99-\$24.99
- We estimate our selling prices to range from \$10-\$15, after incorporating hourly wages we can turn an hourly profit between \$10.75-\$27.75
- With these profit margins, we will **recover** fixed cost investment **within 5-14 days** depending on selling prices



3D Printing Outlets on Campus

- At UBC alone, we have identified **7 locations** where 3D printers are available for public use
- Of which there are over 20 available 3D printers

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3D Printing is gaining traction within the technological realm. Currently the industry is valued at over \$5.1billion (Forbes) with an expected compounded annual growth rate of 28.9% between the years of 2016 to 2022.

We wanted to highlight this as one of our most exciting product recommendations for Melt Collective. Currently there is a UBC company, ReDeTec, that has designed a product that spearheads how we can turn plastic waste into 3D printing filament. This ProtoCycler currently costs \$899.99 and will allow us to begin producing the 3D printing filament that we want to sell.

There is a gap in the market and companies are not willing to acquire the amount of plastic required to create enough filament that would sustain their needs. This is an ideal opportunity for Melt Collective to step in and enter the conversation.

We have identified that per 175ft of 3D printer filament, market prices fluctuate between \$12.99 and \$24.99. We have estimated our selling prices to be between \$10-\$15 and have projected the potential profit and capacity levels that would surround this type of product innovation. What we have found is that if we were able to work at full capacity which we consider a 5 day work week at 6 hours a day we would be able to earn positive returns after factoring in the investment cost of the printer within 5-14 working days dependent on the decided selling price.

In order for this product to be successfully implemented, it is imperative that we are able to identify key partners that would be interested in purchasing the filament. On UBC alone we have identified 7 different locations which collectively possess over 20 3D printers. These locations are:

- ECE Engineering Services – 12 3D printers
- School of Architecture and Landscape Architecture:
- 3 Tinkerino Dito Pro's (third floor of the lassere studio space) filament for sale in the workshop
- Engineering team design
- UBC bookstore
- Vancouver Hackspace
- UBC Rapid

And are also listed in our appendixes section.

Main Products: Clipboards



Demand

- First year students receive a **clipboard** from their respective faculty
- Growth of student enrolment rates estimated to be 3%
- Demand for clipboards is therefore **approximately 9000 units**



Feasibility

- Production capacity estimated at 432 clipboards per 6 hour day
- Requiring **22 working days** to meet initial demand



Cost Analysis

- Estimated selling prices range between \$3-\$1.5 per unit
- Fixed cost investment totalling to \$3250
- **Profit** levels ranging between \$22,000 - \$8000

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Every year, respective faculties invite new students to participate in Imagine Day. Every year, over 9000 clipboards are given out to these new incoming students. This equates to 1097kg of unnecessary plastic being added into the system. (See Quant Analysis for information about our calculations)

Melt Collective has the capacity to supply UBC with enough clipboards to meet this rising demand. By doing so Melt will be able to remove over a ton of plastic being added into the system while also making a healthy profit.

The justification behind why we chose clipboards was very logical, we wanted a product that was simple enough to produce that there would be little to no production issues as well as where we could find a sustained healthy demand. First year orientation provides us with a perfect outlet for this.

By partnering with UBC towards their goal of becoming sustainable by 2020 we believe this is an ideal opportunity that is not worth looking over and would be able to provide Melt with a healthy profit that could sustain their operations throughout the year.

Alt Revenue: Community Involvement – Elementary School Project

Initial Engagement

- Communicate with school liaisons and gain information about getting the schools involved with this project
- Leverage past networks, contacting elementary schools where current and past employees used to attend

Presentation

- Visit schools delivering a short presentation about Melt's vision towards the importance of reducing waste derived from plastic
- This is an opportune moment to demonstrate how beauty can be derived from plastic waste and sell the experience of creating something from start to finish

Invite Classes to our Site

- Invite students to participate in this event generating community involvement in the recycling process
- Design a workshop that allows incorporates students at the site, allowing them to examine the recycling process and be able to create their own product

Cost Benefit Analysis

Student Cost	\$10	\$15	\$20	\$25	\$30
Students Per Class	20	20	20	20	20
Profit Per Class	\$200	\$300	\$400	\$500	\$600
Incorporate 4 Classes	\$800	\$1,200	\$1,600	\$2,000	\$2,400
Incorporate 8 Classes	\$1,600	\$2,400	\$3,200	\$4,000	\$4,800
Incorporate 12 Classes	\$2,400	\$3,600	\$4,800	\$6,000	\$7,200

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The elementary school project we have developed is one of our most exciting ideas. This is directly in line with Melt Collective's vision of engaging the community and involving them in the narrative surrounding repurposing used plastic.




How we envision this idea taking place begins with members of Melt's organization reaching out to any contacts they have or had within elementary schools and then potentially taking this further and approaching the Vancouver School Board. This is one of the most important stages in order for this idea to become a reality.

Moving forward, the next pivotal stage revolves around the specific delivery of the information. In order for this event to be successful, the information must be delivered in an exciting way. The ideas we had for this was through incorporating an art show into the presentation which would allow a visual representation of the beauty that can be derived from the waste created through plastic.

Following this, we would invite elementary classes to visit the sites on campus. Here we would need to design stages in which we could demonstrate the processes involved in the recycling process as well as how the products are created. At the end of the trip, we would create an interactive environment where the students would be able to design and create their own products. We believe by doing so this would allow us to increase the excitement surrounding recycling and would aid in changing people's perspectives towards the importance of recycling.

We believe the on site visits would be a method in which we would be able to establish a revenue stream for Melt Collective. By charging the students between \$10-\$30 a head, we would be able to generate profits ranging from \$200-\$600 per site visit. If you direct your attention to our cost benefit analysis, we have also incorporated different scenarios in which we host 4-12 site visits per year and the effect this would have on cash flows.

Alt Revenue: Grant Funding

	Mitacs Research Grant <ul style="list-style-type: none"> • Up to \$15,000 	Apply before: No deadline (Anytime)
 Government of Canada	IRAP Grant <ul style="list-style-type: none"> • Up to \$50,000 	Apply before: No Deadline (Anytime) Recommend by getting in touch ASAP
	SPF Grant <ul style="list-style-type: none"> • Up to \$10,000 	Apply before: April 17 th , 2017

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There are a number of grants available to growing enterprises. Currently, these three grants are the most viable option for Melt Collective as they are focused on small growing business and their innovative projects. The SPF grant as you may already know is focused on sustainable projects.

Sources:

<http://www.ams.ubc.ca/sustainability/ams-sustainability-projects-fund/>

<https://www.mitacs.ca/en/programs/accelerate>

<https://www.creative destructionlab.com/program/>

<https://boastcapital.com/everything-you-need-to-know-about-irap-funding/>

Marketing Plan: Brand Image



How we **Perceive** Recyclable Waste

- Educate and create sustainable products
- Control how the brand is perceived
- Attract like minded individuals



Website **Improvements**

- Establish core beliefs
- Create weekly posts
- Update calendar



Review Marketing Plan



Update Information



Increase Media Presence



Sharing Sustainability

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Brand Image

Melt collective is a relatively new sustainability initiative looking to change the way that we perceive recyclable waste – it is also a valuable resource which we can use to educate and create beautiful, waste free products. Because Melt is relatively unknown across campus, they have the opportunity to shape and possibly rework how their brand is perceived by consumers. Rather than allowing consumers to form their own beliefs about the brand, it would be extremely advantageous for Melt to clearly define their values and beliefs. This would allow Melt to attract waste conscious consumers as well as like-minded individuals who share a similar passion for waste education and sustainability to join Melt's growing team of volunteers.

All of this can be done through minor improvements and additions to their website. Establishing their core beliefs would allow UBC students to easily identify with Melt, and hopefully become a part of the initiative. Creating weekly posts about waste demonstrates that Melt is constantly looking to improve the waste loop and educate students. It would also be advantageous for Melt to update its website calendar, allowing students and volunteers to stay up to date with Melt's events and initiatives.

Marketing Plan: Event Booth & Social Media

Event Booth

- Showcase Melt Collective
- Educate and engage
- Like the page to stay up to date



Twitter

94 Followers -> 300 Followers

Social Media

- **Facebook**
 - Share events on Facebook
 - Increase page traffic via boothing
- **Instagram**
 - Following spree
 - Content marketing
 - Waste facts + upcoming events
- **Twitter**
 - No posts
 - Focus efforts on other platforms



Instagram

170 Followers -> 2,000 Followers



Facebook

384 Page Likes -> 3,000 Page Likes

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Boothing during club days

- Showcase their club, website + upcoming events
- Educate students about closing the plastic waste gap through games or trivia
give away Melt Collective swag – tee shirts, recycled plastic products
- Urge them to like Melt's Facebook page to stay up to date on all things Melt Collective

Social media

- Facebook page
 - 384 likes – 0.7% of UBC population (54,601 students)
 - Boost number of likes by creating awareness via Boothing
 - Events – have Melt's volunteers share the events on Facebook
 - Avg of 500 friends per team member, 40 students = reach of 20,000

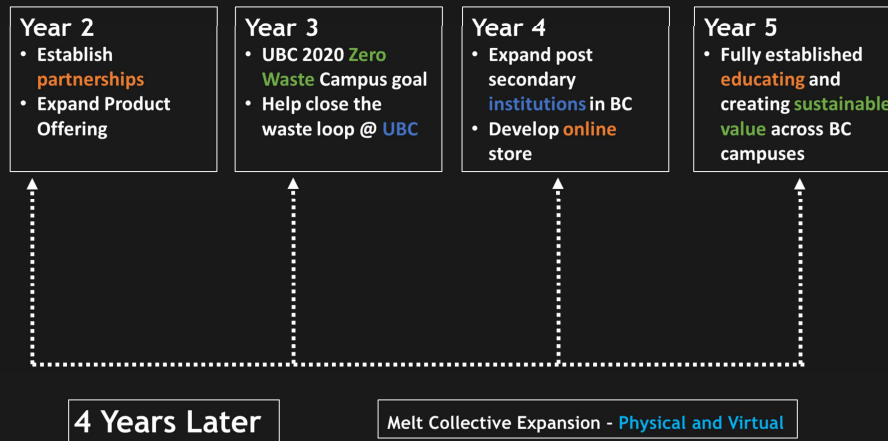
Instagram

- Low outreach with 170 followers
- Increase the number followers by going on a "following spree"
- Post content about upcoming events to potentially increase event turnout

Twitter

- Melt's page was created in January 2017
- No posts have been made
- Better to focus social media marketing efforts on the other platforms

Future Recommendations: Year 2 to Year 5



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Year 2

- Establish ties with other Vancouver sustainability initiatives
- Expand product offerings

Year 3

- Contribute to UBC's goal of becoming a zero waste campus
- Help divert 80% of waste from landfills closing the waste loop

Year 4

- Begin expanding Melt to other Vancouver universities/institutions
 - Branded as Melt Collective @ SFU, @UBC, @BCIT
- Work in partnership with other universities to close the waste loop
- Develop an online store and begin selling Melt products to the public
 - Ex using Shopify

Year 5

- Be fully established across various campuses, educating and creating

Source:

https://sustain.ubc.ca/sites/sustain.ubc.ca/files/uploads/CampusSustainability/CS_PDFs/RecyclingWaste/Zero_Waste_Action_Plan%202014%2010%2003%20final.pdf

Implementation: Fin Analysis/Capacity analysis

Capacity - 3D Printing Filament (ft)

Hourly	600 ft/hr
Daily	3600 ft/day
Weekly	18,000 ft/week
Monthly	72,000 ft/month

Capacity – Clipboards (units)

10 Minutes	12
Hourly	72
Daily	432
Weekly	2,160 units

Financials – 3D Printing Filament

Sales Per Unit	\$15	\$12.5	\$10
Weekly Revenue	\$1543	\$1286	\$1029
Variable Cost	\$697.50	\$697.50	\$697.50
Net Income (Weekly)	\$845.50	\$588.5	\$331.07

Financials - Clipboards

Sales per Unit	\$3	\$2.5	\$1.5
Revenue	\$27,978	\$23,315	\$13,989
Variable Cost	\$2,644.50	\$2,644.50	\$2,644.50
Fixed Cost	\$3,264.10	\$3,264.10	\$3,264.10
Total Cost	\$5908.60	\$5908.60	\$5908.60
Net Income (contract)	\$22,069.40	\$17,406.40	\$8080.40

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Key numbers to be aware of:

- Daily output
- Net Income differences between 3D printing filament as well as for clipboards

Important thing to note:

- Within the 3D printing analysis, we have not included our fixed cost recovery period, this is included within the appendixes

Implementation: Timeline

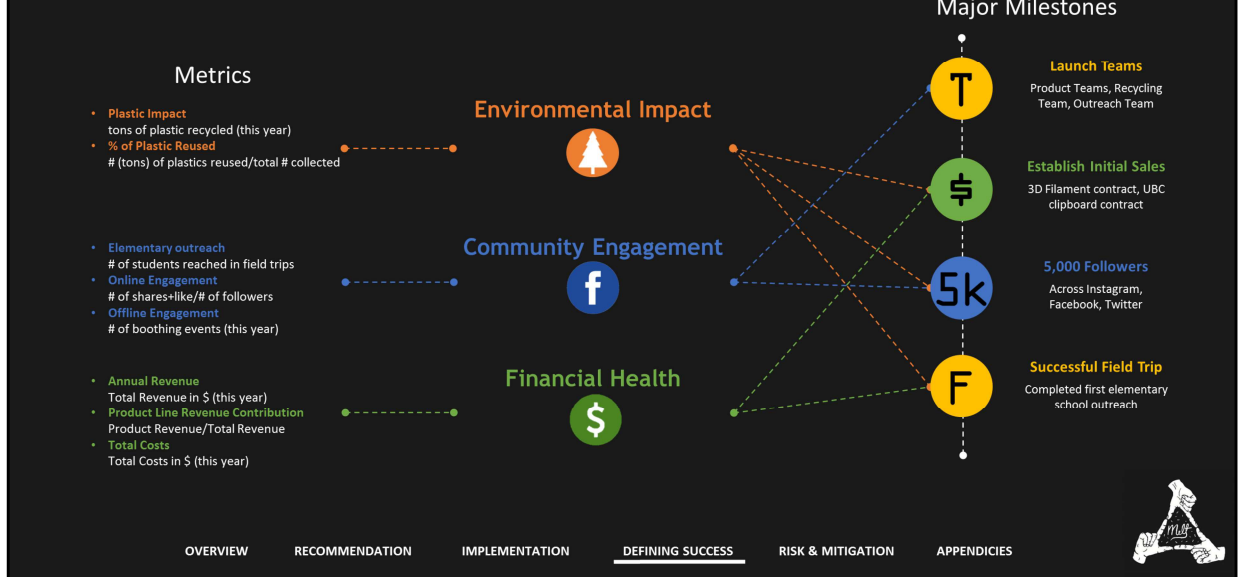
As Of Date: April 1, 2017		WEEK OF												Est.	Task Start Date	Task Deadline	Status
TASK LIST	WHO / LEAD	1-May	1-Jun	1-Jul	1-Aug	1-Sep	1-Oct	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr				
MELT COLLECTIVE - QNDC CONSULTING PROJECT IMPLEMENTATION																	
Main Recycling Products - 3D Printer Filament																	
Purchase Protocycler using remaining SPF Grant	Product Lead 1														1-May-17	1-Jun-17	0%
Establish and train Recycling team & Product 1 team	Product Lead 1														1-May-17	1-Jun-17	0%
Establish contract with UBC for collection of recycling	VP Sales														1-May-17	1-Jun-17	0%
Connect with customers and establish contracts	VP Sales/PL1														1-May-17	1-Jul-17	0%
Begin collection and test production	Product Lead 1														1-Jun-17	1-Aug-17	0%
Scale production & deliver to sales partners	Product Lead 1														1-Jul-17	1-Apr-18	0%
Main Recycling Products - Clipboards																	
Build machines (heating & molds) to recycle plastics	Engineer Lead														1-May-17	1-Jul-17	0%
Establish and train Product 2 team	Product Lead 2														1-Jun-17	1-Aug-17	0%
Establish contract with UBC for first year clipboards	VP Sales														1-May-17	1-Jul-17	0%
Test production	Product Lead 2														1-Jul-17	1-Aug-17	0%
Scale production & deliver to UBC	Product Lead 2														1-Jul-17	1-Oct-17	0%
Alt Revenue Streams - Elementary Schools & Grants																	
Apply for Grants	VP Finance														1-May-17	1-Oct-17	0%
Reach out to elementary schools	Outreach Lead														1-May-17	1-Oct-17	0%
Establish and train Outreach team	Outreach Lead														1-Sep-17	1-Nov-17	0%
Plan a field trip suitable for elementary students	Outreach Lead														1-Sep-17	1-Nov-17	0%
Execute field trips	Outreach Lead														1-Oct-17	1-Apr-18	0%
Marketing and Image Plan - Social Media & Boothing																	
Plan boothing events	VP Marketing														1-May-17	1-Jun-17	0%
Update Website and Calendar	VP Marketing														1-May-17	1-Jun-17	0%
Establish social media team and posting rules	VP Marketing														1-May-17	1-Jun-17	0%
Execute	VP Marketing														1-May-17	1-Apr-18	0%



For the proposed timeline, most of the projects will begin immediately in May and sales & production will both continue throughout the year.

The outlier in terms of implementation is elementary schools and grants because both of these have different deadlines and timelines. Elementary students are out of school during the summer, so the plan is to focus efforts on the other parts until school starts up again in September and move forward from there.

Defining Success: Metrics/Milestones



Metrics are important in defining the success of the strategy and execution by Melt. We focused on three main categories of metrics that align with Melt’s mission objectives:

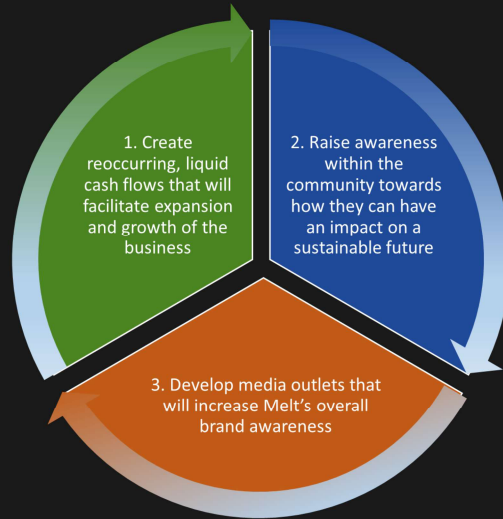
- Environmental Impact
 - Plastic Impact will show the quantitative results of Melt’s environmental impact
 - % of Plastic Reused will measure the level of success in plastic recycling in the communities that Melt operates
- Community Engagement
 - Elementary Outreach will measure the range of Melt’s impact on elementary students
 - Online Engagement and Offline Engagement will both measure the degree of engagement Melt has in these realms
- Financial Health
 - Annual Revenue and Total Costs will measure Melt’s financial pulse and allow Melt to track any major changes
 - Product Line Revenue Contribution will allow Melt to understand which areas provide financial benefits that may be used to support other areas

On the right side, you can see the major milestones in the implementation of the strategy:

- Launching all the teams will be the initial hurdle for Melt because it may require restructuring
- Establishing initial sales contracts will be the major hurdle in establishing financial health for Melt
- The major milestone for the brand image/marketing plan is to gain 5,000 followers/page likes across its social media platforms (over 10x increase)
- Finally, is the completion of a successful elementary school outreach workshop, which is a major step forward in engagement and financial stability for Melt

An explanation of the triple bottom line can be found in the appendix.

Defining Success: Action Plan Benefits



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How we define success relates directly back to our key outcome pillars:

1. Creating sustainable, liquid cash flows that will facilitate growth and expansion
2. Raising awareness within the community and involving Melt Collective in the conversation on how the average consumer can make an impact on a sustainable future
3. Finally, we define success on how much traction we are able to develop from the improvements within the social media outlets

Risks & Mitigation

Risk	Level of Control	Mitigation
Products are low quality	High	There are many types of plastics you can use to melt and mold. Collect and try more than one type to mitigate strength of product
Economies of Scale of other companies	Low	Other companies can produce at lower costs. By keeping our relationship with UBC it will allow Melt Collective to grow in a condensed market before competing directly with larges companies
Lack of Funds	Medium	Applying to more than one grant and diversify product portfolio will help ensure cash flows
Unknown Brand and Lack of Traction	Medium	People tend to use products from brands they trust. By creating social media ads and promoting through friendships at UBC it will allow people to trust the brand such as Blue Chip Cookies
School Boards Reject Offer	Low	If they school boards reject the offer to educate children, we can have workshops offered on UBC Campus and in the community for free to establish brand before trying to re-enter
Equipment is not adequate	Medium	If the method to melt plastic is failing, they are creating 3D printer filament. As they gain funding and cash flows they will be able to purchase a high quality 3D printer.



Overview: Review

The Problem

Melt Collective lacks the ability to propel its mission forward due to the following issues:

Underlying Issues

Lack of cash flow preventing sustainable agile progress

No holistic strategic plan to achieve Melt's objectives

Low community engagement hinders growth

BHAG

Develop a sustainable financial base to support research and increase community engagement at much larger capacity in the next 12 months

Strategies

Extract long term value from existing recycling initiatives

Sustainably increase community engagement

Develop recurring cash flows as basis of financial stability

Tactics

Main Recycling Products

Marketing and Image Plan

Alternative Revenue Streams and Funding

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Conclusion



Any Questions?

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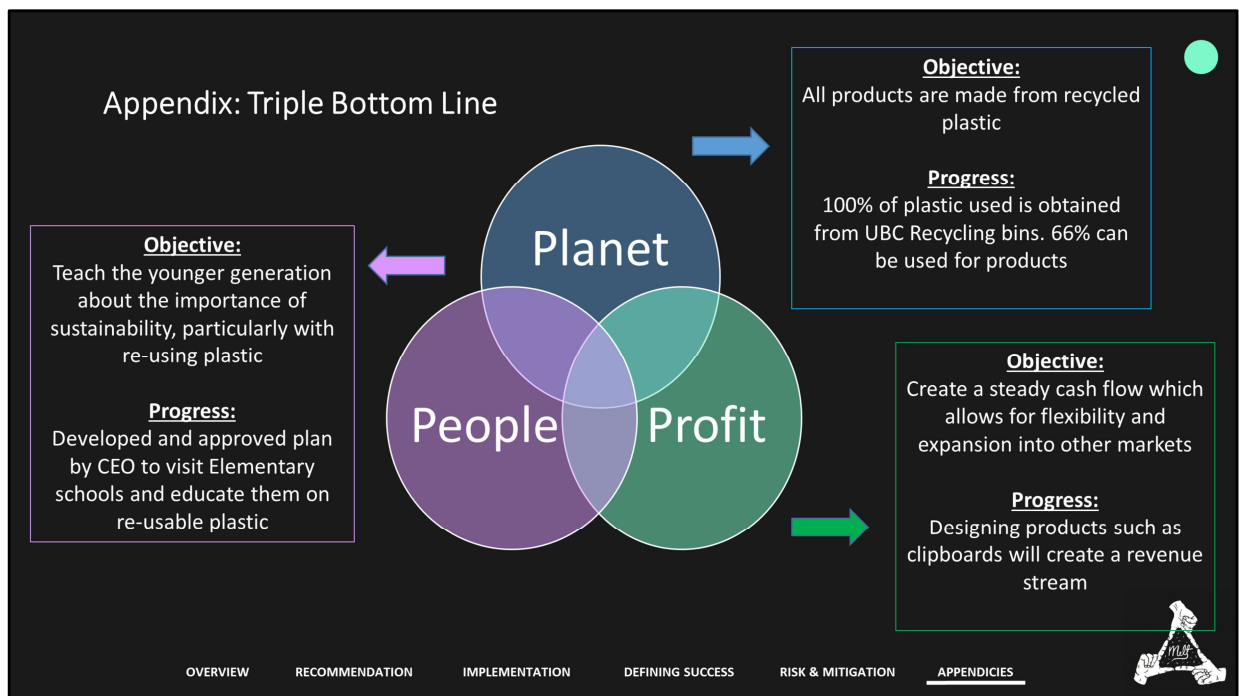
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Triple Bottom Line:

Planet:

Melt Collective is aiding UBC in their overall goal to have 0 waste on campus. They are doing this by providing a method that allows consumers to re-use the plastic they discarded in new ways. Hence, reducing the waste generated each day. This is helping the environment by saving new materials for other products unable to be produced from recycled goods.

People:

Although Melt Collective is trying to help UBC have 0 waste on campus, they need the help of the community to keep this vision alive. By presenting to students in elementary school, it alerts the new generation to the importance of re-using products. Moreover, by showing the children what the plastic can be made of, it gives them a tangible representation of the importance to reduce their garbage.

Profit:

Melt Collective values the environment, but in order to continue to expand and grow their vision, they must generate revenue. By producing products such as clipboards, and 3D filament, it allows MC to earn revenue. This profit can be invested into the company, eventually allowing them to compete against firms with economies of scale. It also gives the employees incentive to work.

Appendix: PEST

Political

Melting plastic is toxic

Hard to get more funding and grants

Lacks regulations currently

Economic

Clipboards demand is seasonal

End users want high quality products

Low income

Social

Students have less income

New Brand

3D printers makes it easier to reuse plastic

Technology

Large companies have expensive equipment

No patents on clipboards

This product is in the development phase

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Appendix: Business Model Canvas

Key Partners

UBC, SPF, Vancouver School Board, Elementary Schools

Value Proposition

Provide consumers with products and knowledge about the benefits of reusable plastic that leads towards a 0 waste community

Key Resources

Recycled Plastic, SPF Grant, Plastic melting machine, molds

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Business Model Canvas:

Out of the business model canvas we chose to highlight 3 sections we feel are key to the success of Melt Collective.

Key Partners: As a start up, it is essential to build relationships with people and companies that can help grow your idea. UBC is a huge asset because they are searching for ways to become a 0 waste community. Melt Collective offers a solution to part of their problem by re-using plastics to produce new products. Therefore, UBC can sell products on campus (bookstore) or other locations. Furthermore, they would be interested in allowing students to make products from plastic instead of a third party removing it because it reduces waste. Since UBC is providing openings for Melt Collective to reach a large market, this partnership is essential to their growth.

Value Proposition: As a start-up, the one thing that attracts consumers is to offer them a solution to a need that is currently not being met. There are limited products made from only reusable plastic on the market. Melt collective offers clipboards completely made of recycled plastic as well as educating youth about the benefits. Hence, this is an important section to remember and follow when making decisions for the company.

Key Resources: With the grant from SPF, Melt Collective would not be able to begin. Hence, this financial aid is an important resource for the company to continue. Moreover, the recycled plastic from UBC bins is necessary for Melt Collective to achieve their value proposition-contributing towards a 0 waste community-and is the main input of making the products. Finally, with out the machine and molds to melt and set the plastic, the company would not be able to produce the goods.

Appendix: SWOT

<p><u>Strength</u></p> <ul style="list-style-type: none">• Motivated Employees• UBC endorses Melt Collectives Idea• Plastic waste from UBC is currently not used for products at UBC	<p><u>Weakness</u></p> <ul style="list-style-type: none">• High start up costs• Employee's lack business knowledge• Lack of cash flows to invest in materials
<p><u>Opportunity</u></p> <ul style="list-style-type: none">• UBC wants to have a 0 waste community, thus a create market to capture• Clipboards are popular student purchases	<p><u>Threat</u></p> <ul style="list-style-type: none">• Companies in Vancouver that reuse plastics already have economies of scale• 3D plastic printers are becoming easier to obtain

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SWOT:

Strength: Right now Melt Collective is the first reusable plastic company to start up at UBC. Since UBC wants to become 0 waste, they are a huge asset for Melt Collective to use as a key partner. Secondly, the plastic is currently be disposed of by an outside company. No one else at UBC is using the plastic waste to recreate products in this community. This is a unique idea to occur on campus

Weakness: The start up costs are high. Many companies in this industry have 3D printers and other highly advanced technology Melt Collective can not afford. They currently do not have any cash flow coming in, and SPF will be running out soon. Finally, the employees lack business knowledge and thus need direction from outside sources.

Opportunity: UBC wants to have a 0 Waste Community therefore, they are a create market to start in. Secondly, clipboards are popular for students, thus will be an easier market to enter since it accomplished UBC's goal and meets a need of their consumers.

Threat: Companies in Vancouver already use plastic for other materials such as carpet. Since they have economies of scale, they could easily enter the UBC market at a lower cost. In addition 3D printers are becoming easier to obtain which allows more people to enter the market of reusable plastic to make products.

Appendix: Fin Breakdown

Clipboard - Throughput				
Production Rates		Demand		
10 Minutes	12	Total Demand	9326	
Hourly	72	Hours Required	129.5	
Daily	432	Days of Work	21.6	
Clipboards - Financial Analysis				
	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Unit Cost	\$3	\$2.50	\$2	\$1.50
Units Sold	9326	9326	9326	9326
Total Revenue	27978	23315	18652	13989
Variable Cost				
Wages	\$10.25/hr	\$10.25/hr	\$10.25/hr	\$10.25/hr
Labour Producing	1322.25	1322.25	1322.25	1322.25
Labour Collecting	1322.25	1322.25	1322.25	1322.25
Total VC	2644.5	2644.5	2644.5	2644.5
Fixed Cost				
Clip Cost Per Unit	\$0.35	\$0.35	\$0.35	\$0.35
Total Clip Cost	\$3,264.10	\$3,264.10	\$3,264.10	\$3,264.10
Total FC	3264.1	3264.1	3264.1	3264.1
Profit	22069.4	17406.4	12743.4	8080.4

Enrolment Stats:			UBC Undergrad Population Growth:		
		1st Year Students			
AS			2011	38,282	
	Faculty of Applied Science:	838	2012	39,155	2.28%
ARTS			2013	39,935	1.99%
	Faculty of Arts	2859	2014	41,287	3.39%
	BIE	96	2015	42,969	4.07%
	Media Studies	49			
	Music	48	Average Growth Rate	0.02933	
COMM					
	Comm	726	First Year Population 2017/2018 expectation	9326,758	
DENTISTRY					
	Dentistry	60			
	Dental Science	24			
EDUCATION					
	Education - Elementary	308			
	Education - Secondary	375			
KIN					
	Kinesiology	255			
FORESTRY					
	Forestry	53			
	Resource Conservation	91			
	Wood Products	37			
	B.S.F	111			
	Urban Forestry	56			
IFS					
	Applied Biology	163			
	Food Nutrition/ Health	257			
LAW					
	Law	187			
MED					
	Doctor of Medicine	288			
	Bachelor of Midwifery	21			
PHARM					
	Entry-to-Practice	230			
SCIENCE					
	Science	1929			
	Total First Year Students	9061			

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Appendix: Fin Breakdown

3D Printing Filament			
Throughput: 10ft per minute			
Throughput Rates:			
Hourly:	600 ft/hr		
Daily:	3600 ft/day		
Weekly:	18000 ft/week		
Monthly:	72000 ft/month		
Profitability: Filament is sold at prices between \$12.49 - \$24.99 per 175ft			
	Scenario 1	Scenario 2	Scenario 3
Sales			
Selling Price per 175ft	\$10	\$12.5	\$15
Hourly Units Produced	600	600	600
Total Weekly Revenue	34	43	51
Variable Cost			
Labour Using Printer	13.00	13.00	13.00
Labour Collecting	10.25	10.25	10.25
Total VC	23.25	23.25	23.25
Hourly Profit	10.75	19.75	27.75
Initial Investment Recovery Period			
ProtoCycler	899.99	899.99	899.99
Total Fixed Cost	899.99	899.99	899.99
Hours Until Recovered	83.72	45.57	32.43
Days Until Recovered	13.95	7.59	5.41
With one person working on the machine because we consider him an expert we are operating under the assumption that he will be earning a larger wage, \$13 where the individuals collecting the materials will be making \$10.25			

Elementary School Field Trip					
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Student Cost	\$10	\$15	\$20	\$25	\$30
Students Per Class	20	20	20	20	20
Profit Per Class	\$200	\$300	\$400	\$500	\$600
Incorporate 4 Classes	\$800	\$1,200	\$1,600	\$2,000	\$2,400
Incorporate 8 Classes	\$1,600	\$2,400	\$3,200	\$4,000	\$4,800
Incorporate 12 Classes	\$2,400	\$3,600	\$4,800	\$6,000	\$7,200

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Appendix: Shopify Example

	Basic Shopify All the basics for starting a new business	Shopify Everything you need for a growing business	Advanced Shopify Advanced features for scaling your business
Monthly price	\$29	\$79	\$299
ONLINE CREDIT CARD RATES			
Canadian cards	2.9% + 30¢	2.7% + 30¢	2.4% + 30¢
International/Amex	3.5% + 30¢	3.4% + 30¢	3.3% + 30¢
IN PERSON CREDIT CARD RATES			
All cards <input type="radio"/>	2.7% + 0¢	2.6% + 0¢	2.4% + 0¢
TRANSACTION FEES			
Using Shopify Payments	None	None	None
Using external payment gateways	2.0%	1.0%	0.5%

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Appendix: Honorable Mentions

- Table tops/Chairs
 - Highly competitive market – economies of scale
 - High price point - \$400-\$1200
 - Super durable product – no need for replacement
- Penny Boards
 - Reinforced design
 - Specialized plastic blend
 - High cost of hardware
- Melt, The Experience
 - Variable demand
 - Limited product variety
- Recycled plastic thread
 - Economies of scale
 - High up-front cost of machines

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The outdoor furniture market is extremely competitive with a large number of firms who specialize in recycled plastic furniture as well as large massive chains such as Costco who carry recycled plastic furniture. They have already developed economies of scale, and due to the longevity of the product it is unlikely that consumers will need to purchase a replacement in the next decade. The products also have a high market price, on average table tops range from \$400 to \$1200 depending on the quality, colour and design. A number of companies have also developed a recycled plastic lumber which can be fashioned just like regular wood which is extremely durable and rot resistant. Outdoor chairs made of this material are priced between \$200 and \$400.

“Pennyboards” are an inefficient use of resources for a number of reasons. Beginning with the design of the board, it must have a reinforced design that is able to withstand the weight of its rider – industry standard is between 180 to 200 pounds. In turn Melt would also have to develop a special plastic blend, allowing the board to flex and bend while retaining its shape. This development process could take a variable amount of time which could be used on other projects. Skateboard hardware is another cost that Melt would have to take on. At a retail price point: trucks, bearings and wheels cost a total of \$75. Added to the 50% mark-up that the UBC bookstore would place on our product would simply put it out of reach for the majority of students. It’s simply an unrealistic price point for students when the market is already heavily saturated with small and large companies who provide a wide array of boards that come in all shapes, sizes and materials.

Selling consumers the Melt experience; the recycling process from plastic bottle to an end product would allow for the public to become involved with the initiative and make them aware of the abundant resource that is plastic. The main issue is the variability of demand as well as getting the word out to the public. Additionally, due to Melt’s use of injection moulds which are made well in advance, the end product that our consumers would be able to make would lack in variety or creative input from the consumer. The high price point of this experience is also difficult to justify if it were to be a key source of revenue keeping the above in consideration.

There are huge manufacturers who have developed efficient processes to collect, melt and furnish recycled plastic thread, such as Foss Manufacturing. With such a massive output, companies like Foss have been able to create economies of scale. There are also high barriers to entry into this market due to

the multi-step process that requires a number of heavy duty and very expensive machines. Another issue is that this thread can only be made of PET, which makes up only 15.3% of the waste collected in melt's initial waste audit.

Appendix: 3D Printing Locations

ECE Engineering Services

(e) 3d@ece.ubc.ca

(e) dfeixo@ece.ubc.ca

School of Architecture and Landscape Architecture:

(t) 604 827 7252

Engineering team design

(e) team.engineering@ubc.ca

UBC bookstore

UBC Rapid

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