Identifying gaps and opportunities adopting circular economy practices in the B.C. textile industry

Prepared by:
Maria Thorlakson, MBA, B.Sc., UBC Sustainability Scholar, 2020

Prepared for:
Sara Blenkhorn, Founder, Textile Lab for Circularity

March, 2021

TLC TEXTILE LAB FOR CIRCULARITY

Disclaimer

This report was produced as part of the UBC Sustainability Scholars Program, a partnership between the University of British Columbia and various local governments and organisations in support of providing graduate students with opportunities to do applied research on projects that advance sustainability across the region.

This project was conducted under the mentorship of the Textile Lab for Circularity staff. The opinions and recommendations in this report and any errors are those of the author and do not necessarily reflect the views of the Textile Lab for Circularity or the University of British Columbia.

Acknowledgements

I would like to thank Sara Blenkhorn and the rest of the Textile Lab for Circularity team (Emily McGill, Megan Bourassa, and Oliver Lane) for the time that they contributed to this project and their support throughout. Their suggestions and guidance have been invaluable. They embody what it means to work with an innovative, agile, supportive, and encouraging team. The Textile Lab for Circularity has shown me the impact of meaningful work that is at the forefront of the local circular economy in Vancouver.

Special thanks to the Sustainability Scholars Program at UBC Sustainability for creating this wonderful opportunity. An additional thanks to Karen Taylor, Sustainability Scholars Program Coordinator, for all of her hard work behind the scenes making this project and all others come to life. Her dedication to sustainability and the success of all scholars is instrumental in the advancement of sustainability related research and careers.

INTRODUCTION

The Textile Lab for Circularity (TLC) is a social innovation lab with a mission to divert textile waste from landfills in BC and move the regional textile industry towards a circular economy. The TLC operates out of Vancouver, BC and their operating region is British Columbia. The problems that the apparel industry is facing with apparel waste are not new and were brought to light through previous work conducted by the B Corp, Leverage Lab. With the Leverage Lab's experience conducting social innovation labs over the past five years, they realized the need for an organization with a strong backbone to tackle this challenge. This evolved into the TLC, a collaborative project between the Leverage Lab and the non-profit charity Society Promoting Environmental Conservation (SPEC).

Social innovation labs tackle complex societal challenges requiring deep systems change through multi-stakeholder engagement, research, experimentation, prototyping and testing solutions (McConnell Foundation, 2021). Through a two year lab with quarterly sessions (the Lab), the TLC will facilitate collaboration between unlikely allies throughout the regional apparel industry to prototype market solutions for textile waste and promote circularity (Figure 1). This process helps competitors overcome barriers to collaboration and work alongside government and academic institutions on innovative solutions to capitalize on the market potential within the growing circular economy.

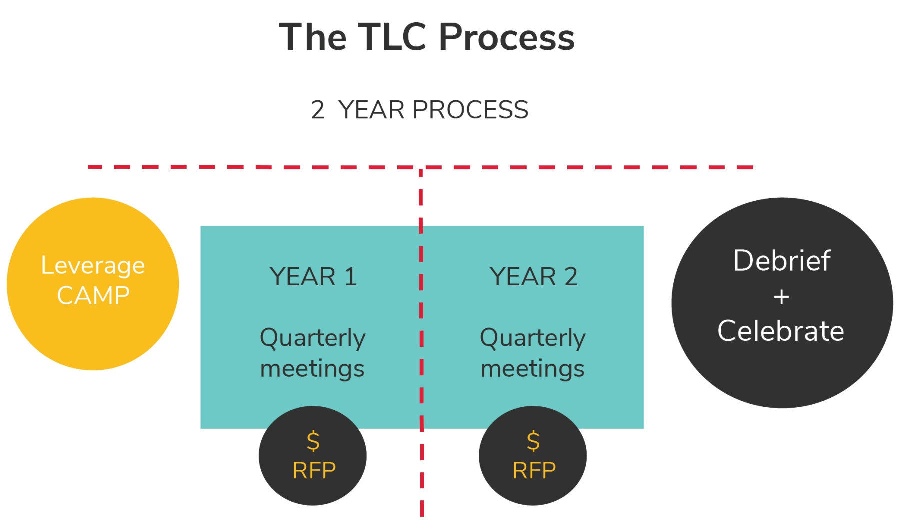

Figure 1. The TLC Social Innovation Lab Process

This report will explain the problems that the textile industry is facing, why there is urgency to create systems level change and how the TLC is positioned to do this. Through network mapping and primary market research, this report presents data to identify gaps and opportunities adopting practices of the circular economy in the B.C. textile industry. This report also presents the landscape going forward and provides action items to build on the TLC's existing work.

What came before

Prior to the creation of the TLC, the Leverage Lab facilitated the Leverage Lab Collaborative for Textiles in 2016-2017, which brought together the textiles and apparel industry alongside government participants for a series of three workshops focusing specifically on apparel waste management in the Greater Vancouver area. Through facilitated sessions, industry players sat together and mapped out the stocks and flows of textiles, pinpointing the key challenges the regional textile industry is facing. This content evolved into a white paper "Unraveling the Problem of Apparel Waste in the Greater Vancouver Area'', (Storry and McKenzie, 2018). The report defines the problem of apparel waste in the Greater Vancouver area and presents key opportunities that need to be realized within and between the textiles and waste management industries, and government stakeholders to make the transition to circular fashion. The TLC was created to carry forward the action items generated during the Leverage Lab Collaborative for Textiles.

THE WHY

Apparel waste is a global issue that is estimated to be one of the fastest growing waste streams in the world (Niinimake and Hassi, 2011). The fast fashion industry, complemented by consumer confusion about clothing donation, and a lack of viable, scalable closed-loop recycling options is resulting in an increasing amount of apparel reaching landfills. In the Lower Mainland 20,000 tonnes of apparel are disposed of annually, accounting for 2.3% of total garbage disposal (Storry and McKenzie, 2018). 95% of this waste is either repairable, reusable or recyclable (Storry and McKenzie, 2018). Prior to the global pandemic, more than USD $ 500 billion of value globally was being lost annually due to clothing underutilization and lack of recycling (Ellen MacArthur Foundation, 2017).

The COVID-19 pandemic has made consumers and businesses acutely aware of the risks and lack of resilience in our supply chains and economic structures. Now more than ever, the interconnectedness of the global economy and the effectiveness of collaboration is recognized .

By stimulating jobs and expanding customer bases, circular business models have the potential to meet both public and private sector needs, leveraging emerging trends in the apparel industry to build a resilient, low carbon, and prosperous recovery.

TLC's Role

For the TLC, the onset of the global pandemic created the need to re-assess the priorities of the apparel industry through this turbulent time and understand how their needs have changed since 2017. The TLC conducted a preliminary Needs Assessment, surveying the industry in the summer of 2020. Results indicated that rather than diverting attention from the apparel waste problem, the global pandemic and recent social unrest highlighted the need for systems level change.

As we collectively look to build our economy back better, the TLC is positioned to provide a platform that leverages, creates, and curates industry networks which ignite collaboration and innovation between competitors and unlikely allies. The TLC has developed a proven method for collaboration, pooling R&D costs, accessing economies of scale and building the fabric of connections necessary to make circular fashion business models mainstream practice. To do this effectively and ensure that the TLC provides what organizations need to overcome the challenges they face when eliminating textile waste and implementing circular textiles initiatives, primary market research is needed, which is the purpose of this report.

THE HOW

With the increasing pressure to solve the problems around textile waste in the BC textile industry, there was a need to build a robust organizational structure to facilitate a future social innovation lab. With seed funding from the McLean Foundation and Vancouver Foundation, the TLC has spent the last year building out their core team, creating a governance Charter, building expert advisory and governance oversight panels, and seeking additional funding. With the organizational structure developed, the TLC is now prepared to put together future programming to pick up where the previous Leverage Lab left off. Scheduling the first Lab for the beginning of Q2 2021, the TLC sought out to map their network and conduct market research to inform future programming.

Methodology

This project followed three core stages, discussed in more detail below, which are:

1. Stakeholder Database Creation — defining the TLC's stakeholder groups and distilling the TLC's client relationship management database into these groups to focus in on the core stakeholders impacting the Lab, analyzing for gaps, and enhancing.
2. Market Research Survey — designing questions, distributing, and capturing data from stakeholders to uncover self-identified gaps and opportunities within the textile industry.
3. Customer Journey Mapping — translating the needs of the market into actionable, repeatable steps for the TLC to build strong relationships.

Stakeholder Database

The first step was to map the overarching system with the aim to conduct a baseline assessment of which stakeholders are regionally involved in textile circularity. This stakeholder map was created by interpreting and building on the TLC's existing client relationship management (CRM) database. Key stakeholder groups were identified (Appendix A), then the existing network was categorized by these groups within the CRM database. In scenarios where organizations appear across multiple groups, the most representative group was selected. Note that organizations were not placed into multiple groups. From there, a gap assessment was conducted to evaluate representation across stakeholder groups, aiming for a minimum of four stakeholders per group. Gaps were filled by first scanning the TLC's existing network and social channels for missed contacts, then reaching out and inviting suggestions from key partners. The gap assessment was then revisited to compare representation with the new contacts included. The goal of this work was to gain a comprehensive understanding of stakeholder representation within the TLC's network and ensure a minimum level of representation when consulting stakeholders for future programming.

Market Research

The next phase of the project was to use a market research survey to uncover self-identified gaps and opportunities within the textile industry when implementing circular strategies and diverting textile waste from landfills. With a comprehensive stakeholder database categorized by key groups, the objective was then to understand the needs, motivations, and pain points of these groups to inform the Lab and future TLC programming.

A survey was designed for businesses, institutions, associations and nonprofits in BC's Lower Mainland and Vancouver Island currently working in, on and around textiles and apparel. The questions asked in the survey aimed to:

- Understand how circular initiatives are being developed and executed within the textile industry
- Understand successes and challenges faced when implementing circular initiatives
- Identify the types of circular initiatives the industry would like to see the TLC working towards
- Identify how organizations would like to participate in the TLC's initiatives (sponsorship, membership, and/or lab participant)

Research was conducted on survey best practices and the survey questions went through three internal revisions, with specific edits made to improve unbiased question framing and cater to different audiences being included in the assessment. The list of survey questions can be found in Appendix B. The survey was sent to a curated list of 80 organizations within the TLC's stakeholder database and shared on all of the TLC's social channels. The organizations selected had either previously engaged with the TLC and/or Leverage Lab, and ensured minimum representation across stakeholder groups. Survey responses were collected between January 28 and February 16, 2021 using Google Forms. A prize draw from Butcha Brew, Anian Manufacturing, The Soap Dispensary, and NADA Grocery was included as incentive to improve response rate.

Customer Journey Map

Informed by the results of the market research, customer journey maps were generated to map out a repeatable process for the TLC to engage with their primary user groups: sponsors, donors, lab participants, one time event attendees, and TLC members. The stages of the journey include awareness, consideration, decision-making, engagement, and maintaining and building relationships. The objective of this work is to identify TLC touch points and resources — both existing and required — to support this journey. Ideally these customer journey maps can be used to extrapolate key metrics for future customer acquisition strategies and related budgeting.

THE RESULT

Stakeholder Database

The TLC stakeholder database for the baseline assessment consisted of 139 stakeholders spanning 21 different groups across the circular textile value chain. A list of all stakeholder groups and associated definitions is included in Appendix A. A life cycle diagram was generated to map out these stakeholder groups (Figure 2). This diagram shows the BC textile life cycle in its current and near-future state, with room to grow further towards the aspirational cycle where waste streams are drastically reduced and feeding back into the supply chain. The existing waste streams demonstrate that the current system is far from circular, but some feedback loops such as consignment and resale do exist.

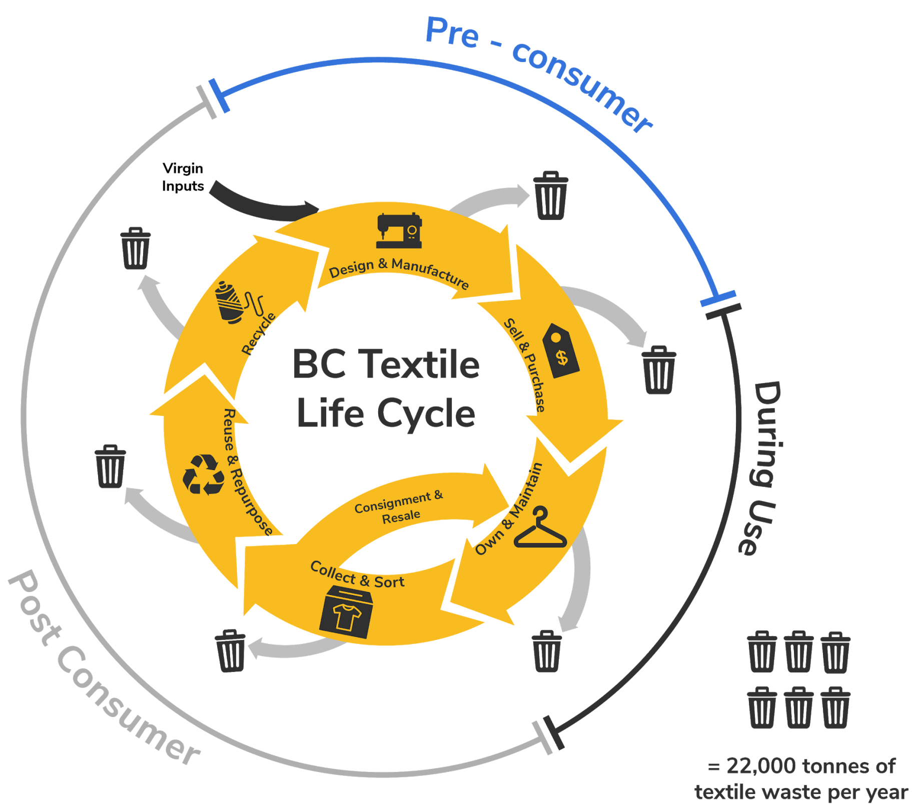

Figure 2. TLC Network Life Cycle diagram

Gap Assessment

In conducting the gap assessment, 139 stakeholders were categorized into the stakeholder groups and reviewed for representation. The results of this assessment are included in Table 1.

Table 1. TLC Initial Stakeholder Database Gap Assessment

Major Lifecycle Stage	Lifecycle Substage	Stakeholder Group	Number
Pre-consumer	Design and Manufacture	Apparel manufacturing	13
		Fabric finishing and printing	
		Fabric wholesalers and retailers	
		Educational institutions	5
		Subtotal	18
		Total Pre-consumer	18
During Use	Sell and Purchase	Apparel wholesalers	
		Apparel brands	73
		Consulting Service	1
		Subtotal	74
	Own and Maintain	Consumer	
		Corporate consumer	
		Non-profit network support	1
		Repair and maintenance	
		Subtotal	1
		Total During	75
Post-consumer use	Collect and Sort	Donation	1
		Sorter graders	3
		Hauling	3
		Certified destruction	
		Clothing provider charity	1
		Discount retail	2

		Consignment and resell	13
		Subtotal	23
	Reuse and Repurpose	Repurpose markets	4
		Consumer swaps	
		Subtotal	4
	Recycle	Global recycling markets	5
		Government bodies	4
		Non-profit network support	5
		Consulting Services	2
		Educational Institution	1
		Subtotal	17
		Total Post-Consumer	44

Note: definitions of stakeholder groups are provided in Appendix A.

This assessment concluded that the TLC was lacking representation (fewer than four) in the following stakeholder groups:

- Fabric finishing and printing
- Fabric wholesalers
- Apparel wholesalers
- Consulting service
- Corporate apparel consumers
- Repair and maintenance
- Donation
- Sorter graders
- Haulers
- Certified apparel destruction
- Clothing provider charity
- Discount retail
- Consumer swaps

Many of these gaps are a result of the local industry lacking representation in these stakeholder groups. However, it was also identified that the TLC's current network recruitment methods were not reaching these missing groups. In seeking new recruitment methods and leaning on the TLC's existing network, 23 contacts were added to the database for a total of 160. Four of the groups identified gained representation, and four remained with zero representation; namely apparel wholesalers, corporate apparel consumers, certified destruction, and consumer swaps. The resulting representation is presented in Table 2. The TLC has plans to engage under -and unrepresented stakeholder groups in Q1 and Q2 2021.

Table 2. TLC Stakeholder Database Representation with New Contacts

Major Lifecycle Stage	**Lifecycle Substage**	**Stakeholder Group**	**Previous Number**	**New Number**	**%change**
Pre-consumer	Design and Manufacture	Apparel manufacturing	13	14	8%
		Fabric finishing and printing		1	100%
		Fabric wholesalers and retailers		1	100%
		Educational institutions	5	5	0%
		Subtotal	18	21	17%
		Total Pre-Consumer	18	21	17%
During Use	Sell and Purchase	Apparel wholesalers			0%
		Apparel brands	73	82	12%
		Consulting Service	1	1	0%
		Subtotal	74	83	12%
	Own and Maintain	Consumer			0%
		Corporate consumer			0%
		Non-profit network support	1	1	0%
		Repair and maintenance		3	300%
		Subtotal	1	4	300%
		Total During	75	87	16%
Post-consumer use	Collect and Sort	Donation	1	1	0%

		Sorter graders	3	3	0%
		Hauling	3	5	67%
		Certified destruction			0%
		Clothing provider charity	1	1	0%
		Discount retail	2	2	0%
		Consignment and resell	13	13	0%
		Subtotal	23	25	9%
	Reuse and Repurpose	Repurpose markets	4	7	75%
		Consumer swaps			0%
		Subtotal	4	7	75%
	Recycle	Global recycling markets	5	8	60%
		Government bodies	4	4	0%
		Non-profit network support	5	5	0%
		Consulting Services	2	2	0%
		Educational Institution	1	1	0%
		Subtotal	17	20	18%
		Total Post-Consumer	44	52	18%

Market Research

Of the 80 contacts that the network market research survey was specifically sent to, the TLC received 34 responses (“n”), resulting in a relatively high response rate of 43%.

No data was collected on the respondents’ motivations, and it is a tangible recommendation from this study that future surveys should incorporate a question on the respondents motives in responding, so that data can be captured to assess what improves response rate. Internal consideration speculates that this response rate could be demonstrating a confluence of influences, such as that (1) a prize draw incentivizes participation, (2) one-on-one survey invitations enhance responsiveness, (3) the strength of existing relationships and the carry-over reputation of the TLC from previous work improves response rates, and (4) the industry is eager to engage in such topics.

Demographics of Respondents

Survey respondents consisted of organizations varying in size from 1-5 employees to more than 500 employees. Figure 3 depicts the breakdown of organization size.

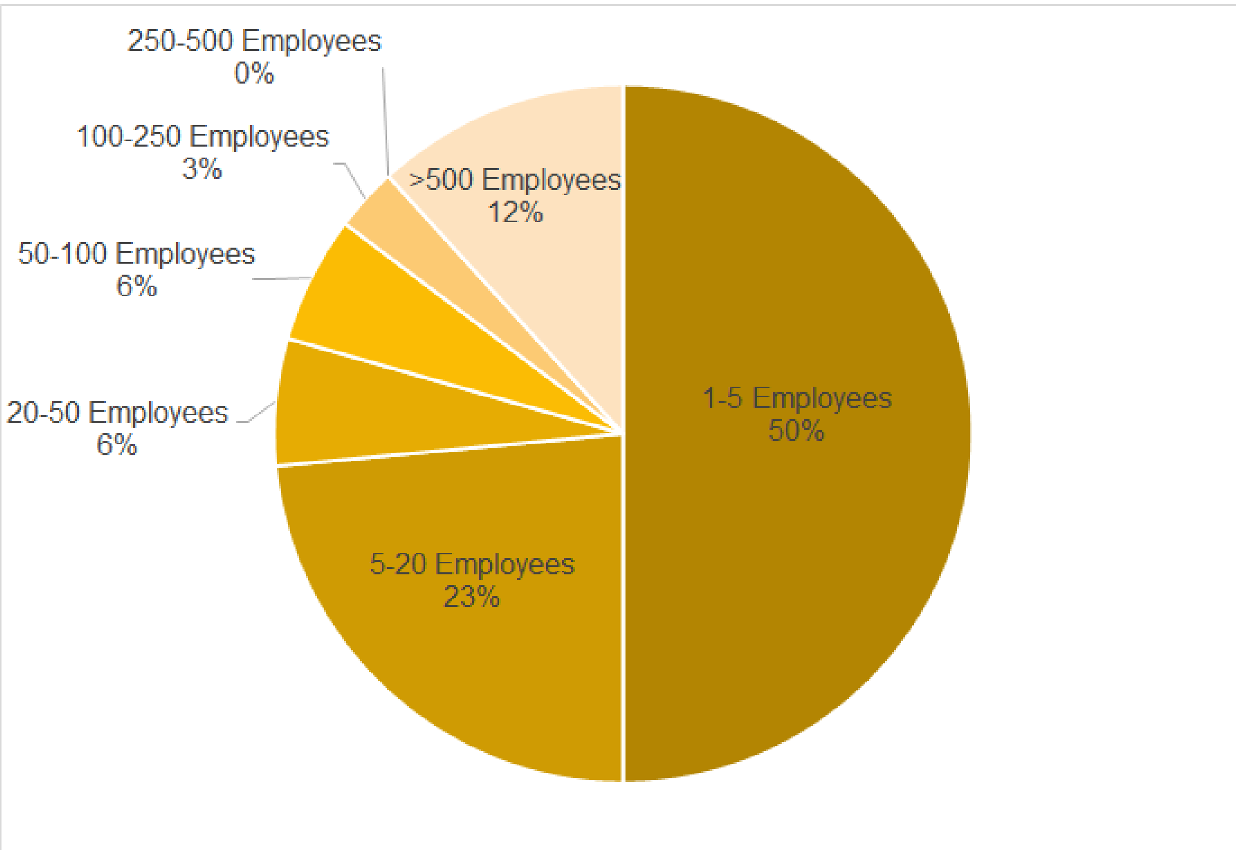

Figure 3. Breakdown of organization size for survey respondents (n=34)

Respondents represented the entire circular economy value chain from design and manufacture to recycle. Several respondents represent multiple stages of the life cycle. Figure 4 provides the breakdown of respondent representation for each lifecycle stage.

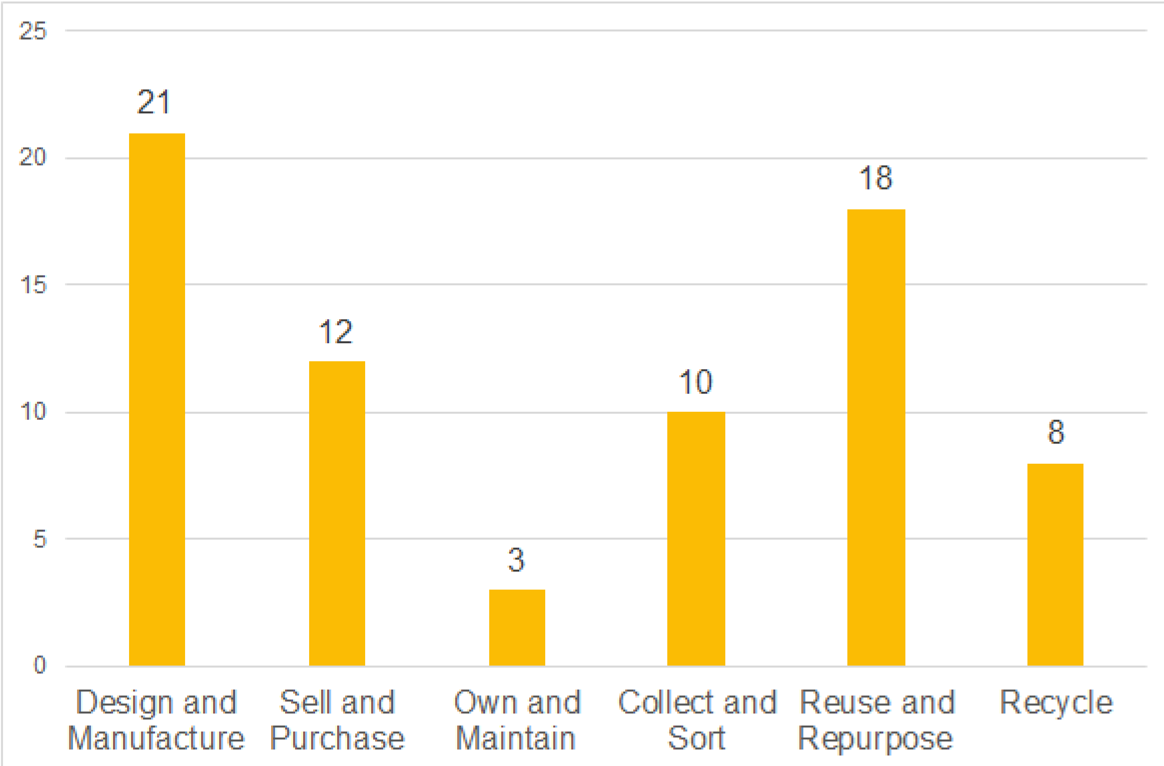

Figure 4. Breakdown of lifecycle stage representation for survey respondents (n=34, incorporating 'select all that apply')

Existing Circular Initiatives

67% of organizations surveyed have either implemented a circular strategy or have one in the planning stages. Figure 5 highlights the breakdown of respondents' answers to this question.

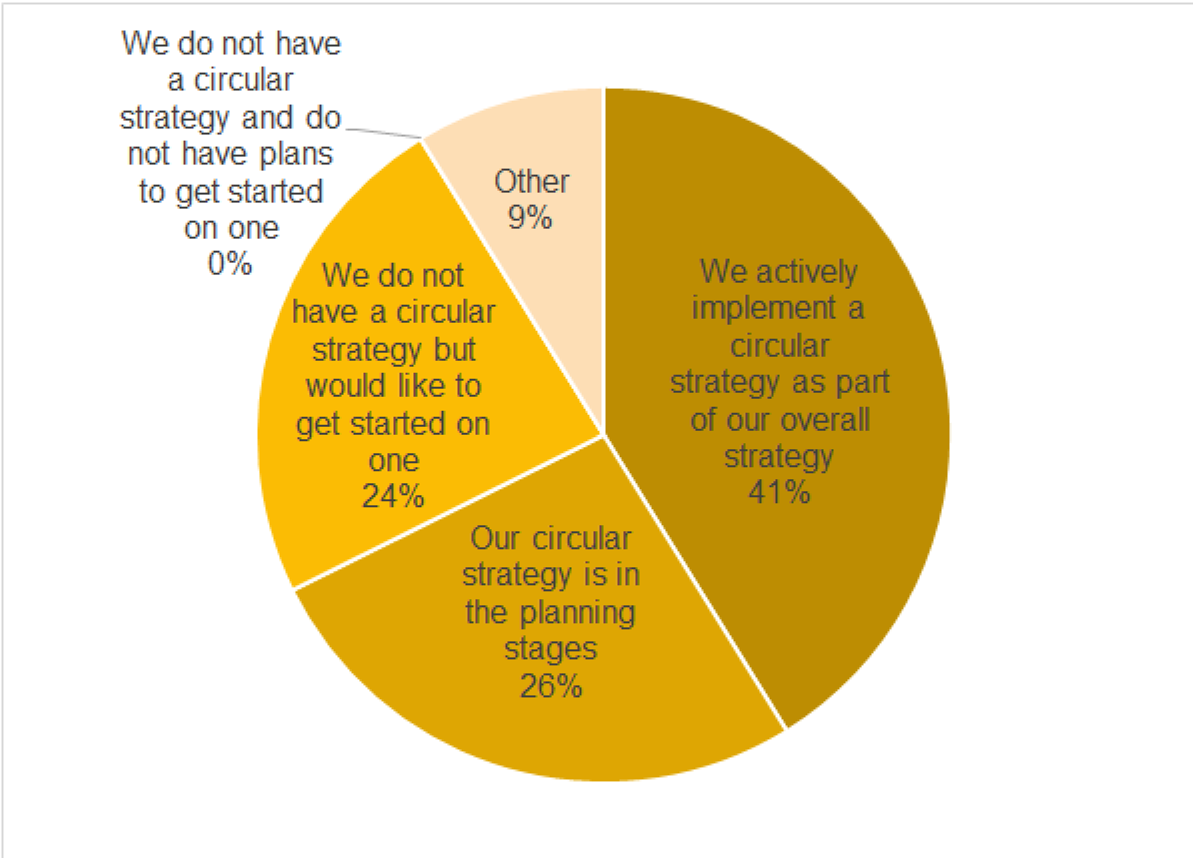

Figure 5. Breakdown of the implementation of circular business strategies among survey respondents (n=34)

Of respondents with circular initiatives implemented or in the planning stages, 58% have implemented reverse logistics, 55% capitalize on the value of apparel at end of life, and 42% invest in circular products. Figure 6 further breaks down this data and highlights what initiatives respondents are currently implementing.

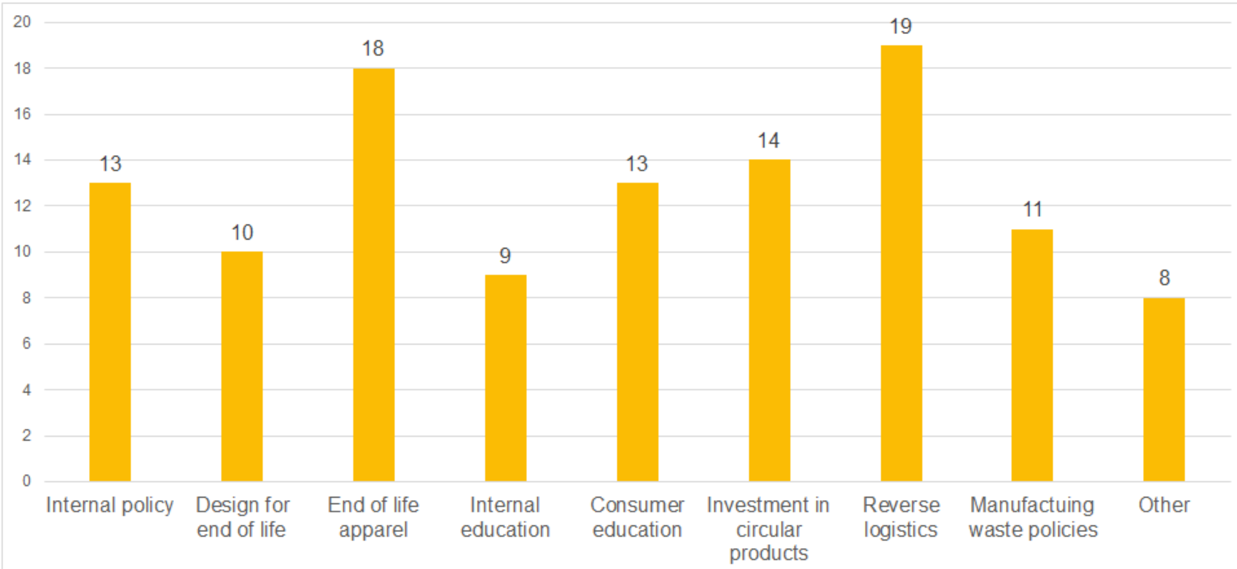

Figure 6. Circular strategies that are implemented or in the planning stages among respondents (n=33, incorporating 'select all that apply')

Respondents indicated that marketing to conscious consumers (85%) and senior leadership (38%) are the main rationales or approaches behind building the business case for circular initiatives within their organizations. Respondents who selected 'other' indicated that corporate values, revenue opportunity, and available recycled inputs also helped to build the business case. Figure 7 breaks this down further.

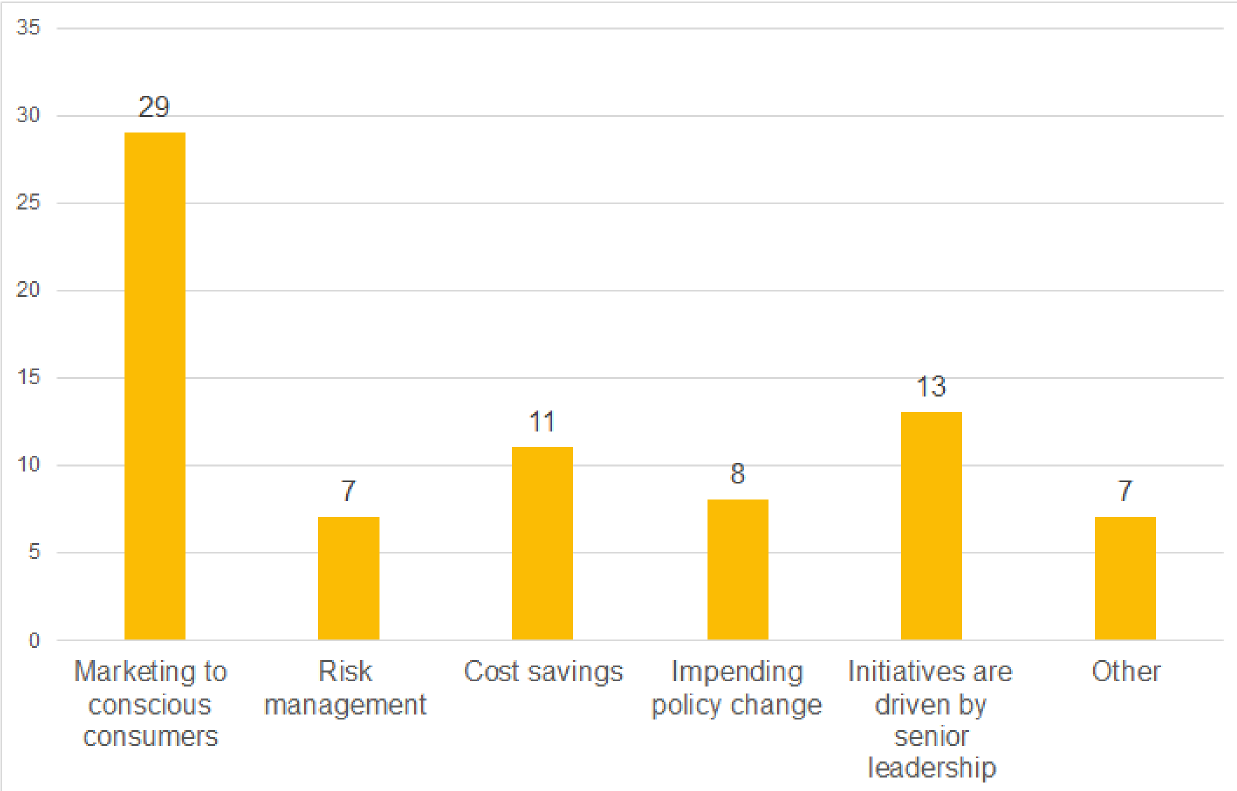

Figure 7. How respondents are building the business case for circular initiatives within their organizations (n=34, select all that apply)

When it comes to challenges with implementing circular initiatives within their organizations, of 9 options presented, respondents indicated that financial support (59%) and supply chain coordination (50%) were the top two challenges. Other responses include consumer behaviour, lack of internal alignment, and lack of direction to be other barriers. Figure 8 breaks this down further.

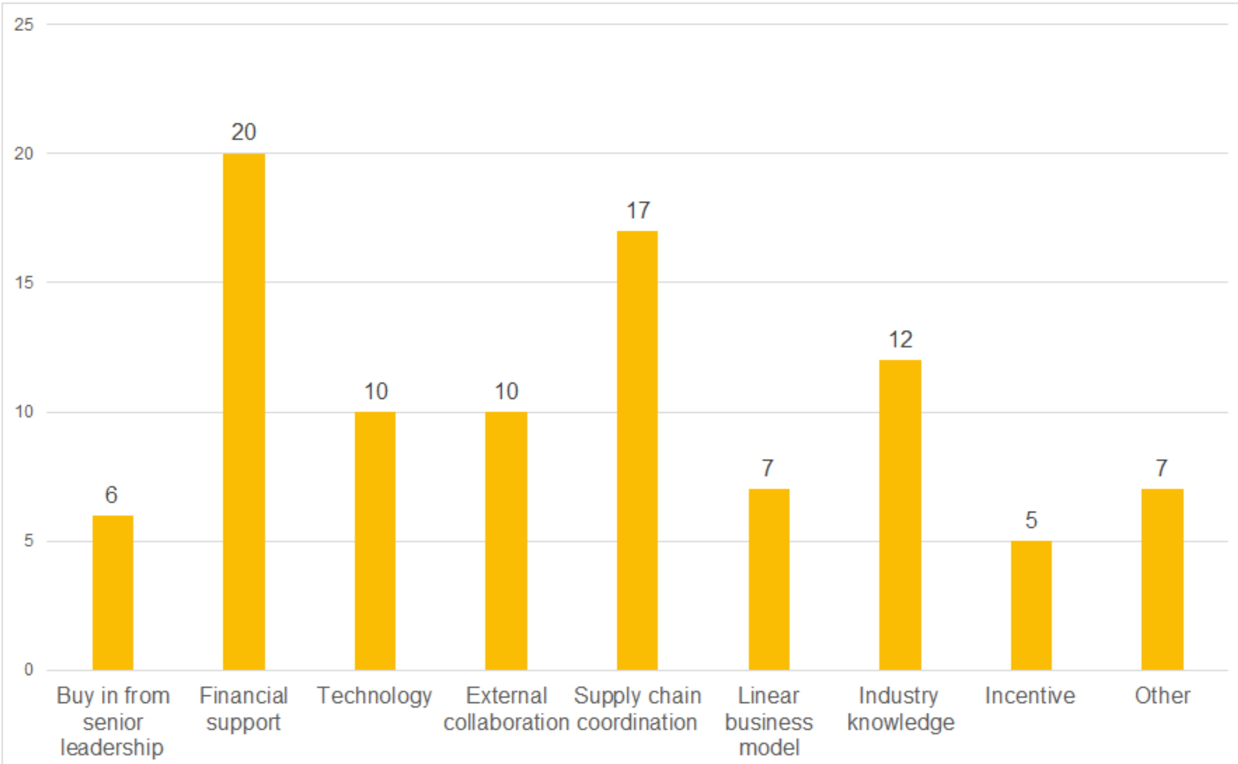

Figure 8. Respondents' core challenges when it comes to implementing circular initiatives (n=34, incorporating 'select all that apply')

With regards to how closely the organizations were implementing their initiatives — more internal resources or securing external support — the majority of respondents' circular initiatives are being developed and executed internally (56%) with the remainder a combination of internal and external development and execution (Figure 9).

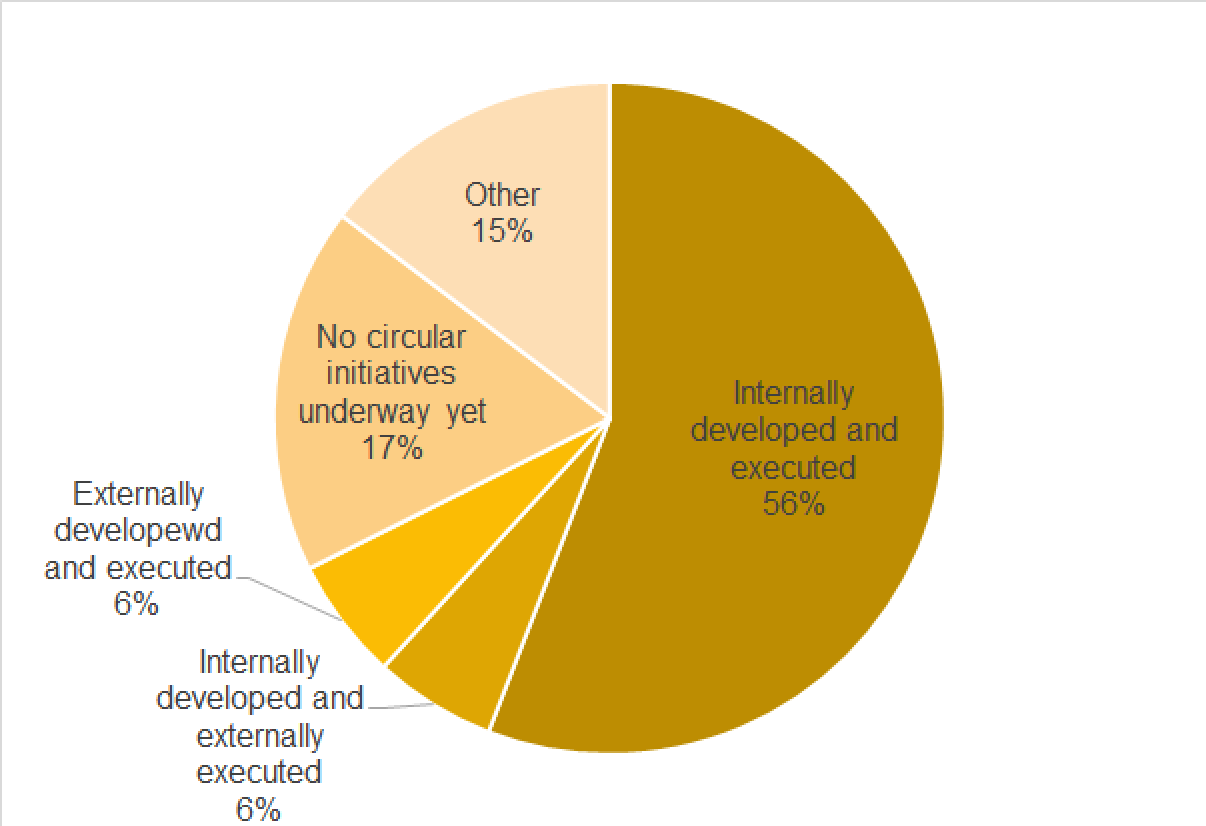

Figure 9. Internal vs. external development and execution of circular initiatives (n=34)

Engagement with the TLC

Respondents were asked how their organization would most likely engage with the TLC. Options included lab participant, membership, sponsorship, participating sponsor, under consideration, and not interested. 35% said that they would engage through membership, 18% said they would be interested in being a lab participant, and 3% said sponsorship. 41% of organizations indicated that they will consider it, and of those, 64% indicated they would consider being a member, 29% would consider being a lab participant, and 7% a participating sponsor. Figure 10 highlights the engagement options presented and Figure 11 shows how respondents selecting “I’ll consider it” indicated that they would likely engage. Respondents were also asked who within their organization would have the authority to make budget decisions to participate in TLC initiatives and CEO was by far the highest response (59% of respondents).

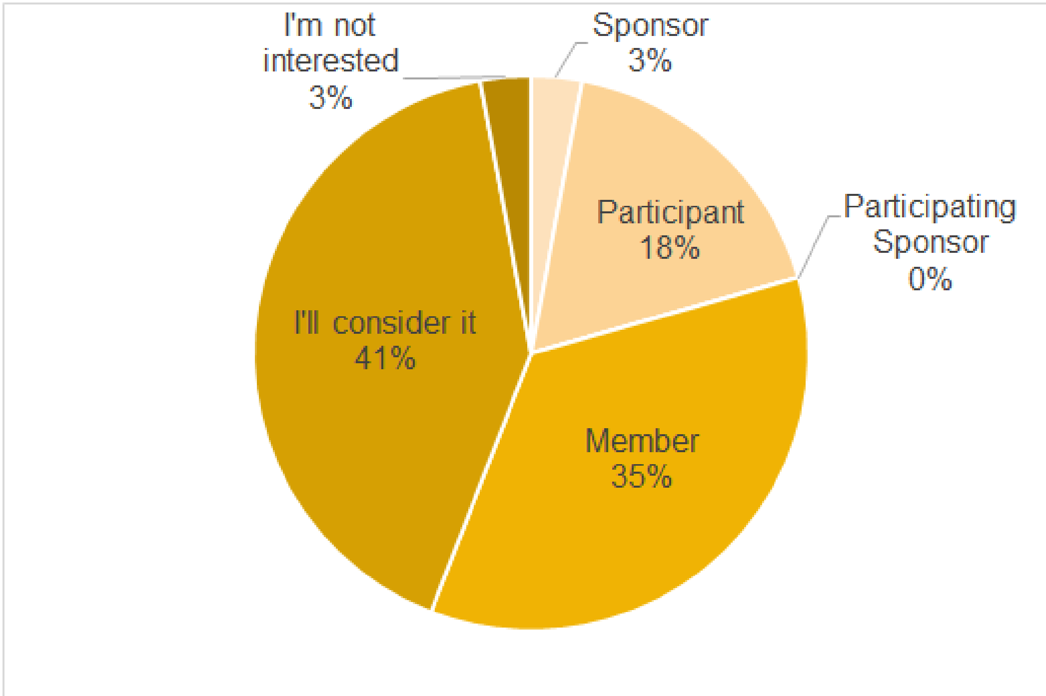

Figure 10. How organizations would like to engage with the TLC (n=34)

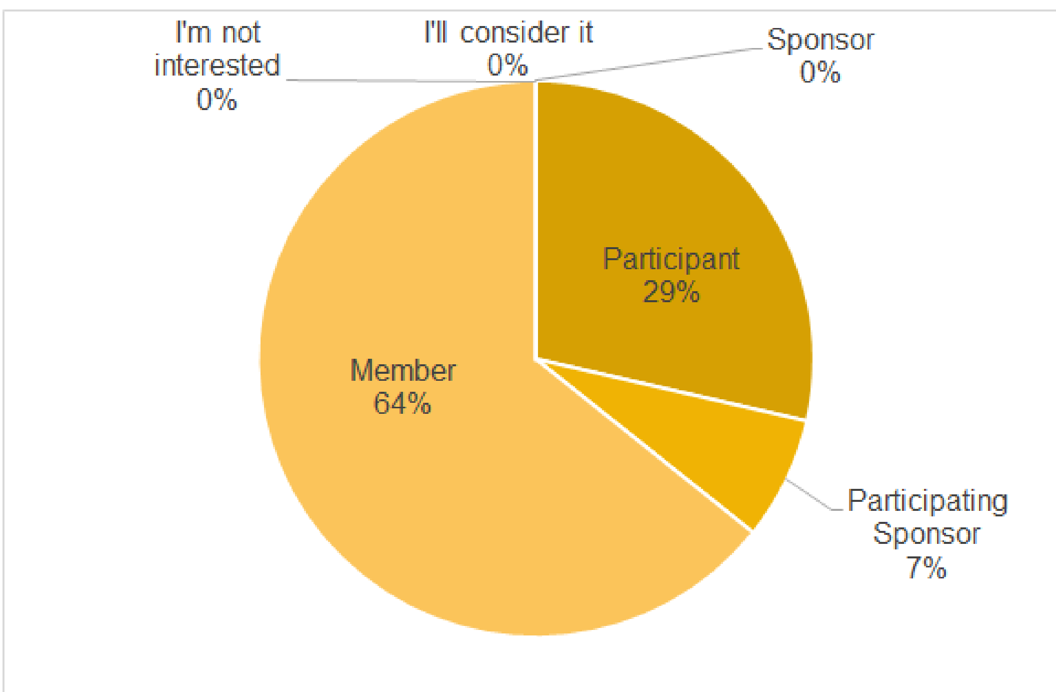

Figure 11. Breakdown of how organizations that are considering their engagement with the TLC would likely engage (n=34)

The outcomes of the Engagement portion of the Market Research survey were compelling and encouraging for the TLC. This resulted in new pathways of engagement which fed into the development of the Customer Journey Maps, and the TLC securing its first sponsorship with Kendor Textiles Limited.

TLC Development Priorities

Respondents were asked which initiatives they would categorize as their top three from the following list:

- R&D for textile recycling technology
- R&D for textile collection infrastructure
- R&D for a pilot apparel takeback program
- R&D for circular fibers development
- Education program for designers

Responses were separated into the main self-indicated engagement categories of sponsorship, lab participants, and membership.

Table 3. Prioritization of incentives for potential members, Lab participants, and sponsors.

Option	**Member**	**Lab Participant**	**Sponsor/ Participating Sponsor**
R&D for textile recycling technology	6/22 (27%)	4/10 (40%)	2/2 (100%)
R&D for textile collection infrastructure	3/22 (14%)	3/10 (30%)	
R&D for a pilot apparel takeback program	5/22 (23%)	2/10 (20%)	
R&D for circular fibers development	5/22 (23%)		
Education program for designers	3/22 (14%)	1/10 (10%)	

Customer Journey Map

The TLC's initial customer framings included four categories of engagement: sponsors, donors, participants (subcategory of participants who are also sponsors), and members. After the market research, while the customer journey map was applied to these groups, a fifth engagement pathway of one-time event attendees (for public events) was identified and their journey to engagement also mapped.

In the Customer Journey Map, each of these customers' journeys was articulated according to five defined stages of increasing engagement and trust building:

1. Awareness — peripheral knowledge of the existence of the TLC
2. Consideration — the initial stages of knowledge-gaining
3. Decision-Making — weighing the benefits of engaging with the TLC and determining how best to engage
4. Engagement — practical engagement with the TLC
5. Maintaining and Building Relationships — the post-engagement stage where the TLC continues with relationship-building

The facets of the journey are broken down into the TLC and the External Party.

TLC:

1. Touch points - how the TLC is connecting with the external party
2. Internal Resources - what tools the TLC has to inform taking the next step

External Party:

1. Actions - actions that the external party takes at each stage
2. Motivations - what motivates the external party at each stage and drives them from moving from stage to stage
3. Questions - what questions the external party might have at each stage
4. Pain points - what issues might arise at each stage

A template of the Customer Journey Map is provided in Appendix C. If readers are interested in better understanding this process and its application to the TLC, the TLC team invites questions to connect@labforcircularity.com.

KEY TAKEAWAYS

Stakeholder Database

It is noteworthy that the following key takeaways are limited to the information gathered for the TLC database and may not capture the complete picture of the regional industry. The TLC is committed to continuing to build this database.

- Most manufacturers within the region represent vertically integrated apparel brands . Larger manufacturing needs are typically outsourced internationally.
- There is a lack of fabric finishing and printing as well as fabric wholesalers and retailers within the region.
- Apparel brands make up the largest portion of the circular textile life cycle within the region (51% within the TLC database). Although not counted in additional categories, many of these apparel brands span additional stakeholder groups including apparel manufacturing, repair and maintenance, and consignment and resell.
- Consignment and resell is considered well represented at 8% of the TLC CRM database but repair and maintenance and sorter graders only represent <2% each. Sorter graders in the region may be larger in size, and could explain these smaller numbers. Research should be conducted to confirm this. This also represents a nascent opportunity for expanding the repair and maintenance and sector.

Market Research

- Most organizations surveyed within the regional textile industry either have a circular strategy implemented or one in the planning stages and the majority of these are developed and executed internally.
- Of these strategies, most have implemented reverse logistics and capitalize on the value of apparel at the end of life.
- Majority of respondents are small businesses (74% of respondents have 20 people or less working at their organizations).
- Organizations have successfully built the business case for circularity in textiles by marketing to conscious consumers and through initiatives led by senior leadership.
- Fewer organizations are currently designing products with end of life in mind, educating and incentivizing their designers to design circular products, internally communicating circular strategies, and implementing policies to address manufacturing waste.

- Financial support, supply chain coordination, and industry knowledge are the main barriers that organizations currently face when implementing circular initiatives.
- Majority of respondents would like to see the TLC prioritize R&D for textile recycling technology in the Lab.

Customer Journey Map

- There are five pathways to directly engage with the TLC: sponsorship, donation, participation in the Lab (subcategory of participants who are also sponsors), membership, and attending one-time events.
- Applying five stages of engagement with seven considerations per stage assisted the TLC team in mapping existing resources, identifying resources to develop, and building out work plans to reach the target audiences.
- This exercise confirmed the importance of understanding the customer journey and building a repeatable engagement model.
- The TLC will be incorporating the five stages of engagement into their virtualized CRM platform-in-development.

GOING FORWARD

With retail brands representing the majority of the organizations within the regional textiles industry (extrapolated from TLC stakeholder database), the perspective and input of these organizations has the potential to greatly influence the direction of regional circular textile initiatives. The majority of existing circular initiatives are developed and executed internally by these organizations. This indicates both a strong internal drive for circularity, and a notable lack of collaboration among brands as they try to tackle these challenges individually. Reverse logistics appears to be the most consistent circular strategy that is actively implemented, often with the help of external consultants. This survey confirms the TLC's hypotheses that time is being spent duplicating efforts and re-inventing the wheel. It also confirms that the region has yet to establish a collective movement to advance the circular textile agenda, and that, by bringing the right strategic players on board from across the textile life cycle, the TLC provides a much-needed platform to curate the connections and collaborative ideation to take steps towards collective action.

Opportunities

Build on what is working and what organizations are already doing:

- Marketing to conscious consumers
- Reverse logistics
- Capitalizing on apparel at end of life
- Investing in circular R&D
- Consumer education around circularity

Advance what organizations are struggling with:

- Designing products with the end of life in mind
- Internal communication around circular strategies
- Education and incentives for designers
- Policies to address manufacturing waste

Support organizations overcoming barriers to implementing circular initiatives:

- Financial support
- Supply chain coordination
- Industry knowledge

The TLC's Role

Survey respondents would like to see the TLC focus on R&D for textile recycling technology. Addressing the recycling gap was also identified in the white paper, along with the need to assess the feasibility of building local apparel recycling apparel capacity (Storry and McKenzie, 2018). However, the challenge of textile recycling is not new to the industry. There are several questions that need to be explored among industry players to facilitate implementation of greater recapture, upcycling and recycling. Some questions include:

1. Which material should be prioritized?
2. How will material be collected, sorted, graded, and stored?
3. Which industry players should be involved?

These questions will be key to address in the TLC CAMP occuring March 30, 2021, which is the precursor to the Lab. The TLC can build upon the outcomes of the CAMP and recruit the necessary industry players to participate in the Lab

The stakeholder database and results of the market research should be used to ensure that the TLC continues to consult organizations from across the circular textile lifecycle. Small businesses are most interested in engaging with the TLC through membership, while larger businesses are interested in engaging through lab participation and sponsorship. This is likely due to the higher costs associated with participation and sponsorship. A foundational practice of the TLC states that, to effectively enable systemic change, everyone needs a seat at the table. Therefore, the TLC should continue to explore options to support organizations that may be facing barriers to participation, such as subsidized participation through donors and sponsors' support.

The TLC is an expert in systems change and can demonstrate the potential of collaboration. The opportunity to change existing linear systems is there, but it's up to organizations to engage and demonstrate leadership. The time has come for organizations to step up to the challenge so real change can be created, together.

REFERENCES

Ellen MacArthur Foundation. (2017). *A new textiles economy: redesigning fashion's future.* Cowes: Ellen MacArthur Foundation .

Kirsi Niinimaki, L. H. (2011). Emerging design strategies in sustainable production and consumption of textiles and. *Journal of Cleaner Production*, 1876–1883.

McConnell Foundation. (2021, February 23). *Social Labs*. Retrieved from McConnell Foundation: https://mcconnellfoundation.ca/social-labs/

Storry, K., & McKenzie, A. (2018). *Unravelling the Problem of Apparel Waste in the Greater Vancouver Area.* Vancouver: Metro Vancouver.

APPENDICES

Appendix A: Stakeholder Group Definitions

Major Lifecycle Stage	Lifecycle Substage	Stakeholder Group	Definition
Pre-consumer Use	Design and Manufacture	Apparel manufacturing	Process where fabric is manufactured into a finished product designed to be worn.
		Fabric finishing and printing	Chemical and mechanical value add processes which improves the look, performance or feel of a textile.
		Fabric wholesalers and retailers	Assemble, sort, and grade textiles and repackage and sell in smaller quantities to retailers, commercial, and institutional businesses.
	Design and Manufacture	Educational institutions	R&D initiatives around circular fibre, mechanical and chemical recycling, and automated sorting.
During Use	Sell and Purchase	Apparel wholesalers	Apparel that is sold in bulk quantities at lower cost than retail.
		Apparel brands	Design, produce, and source apparel to sell to retailers or sell within their own retail chains.
	Own and Maintain	Consumer	Individual purchasers of apparel.
		Corporate consumer	Corporate purchasers of apparel.
		Repair and maintenance	Retailers, third parties, and individuals who repair and maintain apparel for repurposing and prolonged use.
Post-consumer Use	Collect and Sort	Donation	Placing garments in donation bins located throughout the region operated by bulk collectors, thrift stores or sorter-graders.
		Sorter graders	Purchase large quantities of used clothing or unwanted clothing and sort them into various categories based on demand from global second hand clothing and recycling markets.
		Hauling	Transport of donated apparel from donation bins, residential pick-ups and clothing drives to

			bulk-textile collector storage and sorting facilities.
		Certified destruction	Destruction process whereby branded and proprietary products, including those that pose a security risk, are disposed securely.
		Clothing provider charity	Charitable organizations that distribute collected apparel directly to persons in need, typically at no cost to the recipient. Clothing provider charities may only accept specific items to support their charitable mission (e.g. winter coats, professional work wear, prom dresses).
		Discount retail	Discounters who sell unsold or damaged/defective apparel or fabric to consumers at a lower price than brand or full price retailers via sample or warehouse sales.
		Consignment and resell	Second-hand stores that purchase clothing directly from consumers for resale or to sell on a consignment basis (includes e-commerce). Also includes upcycled resell, which is the use of secondary products and materials that results in a higher economic value of that material.
	Reuse and Repurpose	Repurpose markets	Alternative use of apparel such as wiping rags, typically overseas markets in Europe, Asia, Central America, and Africa.
		Consumer swaps	Passing or selling garments to family, friends and others, sometimes facilitated by social media.
	Recycle	Global recycling markets	Recycling used apparel into fibres, yarns, and materials that can be transformed into new apparel and/or other uses.
		Government bodies	Municipalities, provincial and federal bodies who set policy associated with recycling and solid waste disposal as well as funding for circular economy and sustainability initiatives.
		Non-profit network support	Non-profit organizations whose mission is to advance sustainability in fashion and circular business models through education, awareness

			and collaboration.
		Consulting Services	Organizations that provide consulting services to the fashion industry for the purpose of launching sustainable brands and help apparel brands incorporate sustainable practices and circular business models.

Appendix B: Network Survey Questions

TLC Textiles and Apparel Network Survey

Thank you for participating in our survey! For the TLC to provide what you need to overcome the challenges you face when eliminating textile waste and implementing circular textiles initiatives within your organization we need to hear from you!

This survey consists of 15 questions and should take 10 minutes. Once you submit, you will be entered to win one of four locally sourced prizes from The Soap Dispensary, NADA Zero Waste Grocery, Bucha Brew, and Anian! The data gathered will be used to inform TLC's programming, and only anonymized, high-level aggregate observations will be shared.

The Textile Lab for Circularity (TLC) is a joint venture between the non-profit charity SPEC and the B Corp, Leverage Lab, with support from Vancouver Foundation and MacLean Foundation. Our mission is to divert textile waste from landfills in the Lower Mainland, and move the regional textile industry towards a circular economy by leveraging, creating and curating professional networks that ignite collaboration between competitors.

There are many ways to get involved in the TLC, through membership, sponsorship, and/or participation in our leading edge social innovation lab. This lab engages 25 industry participants over 2021-2023 to collaborate on strategic circular initiatives in our region, chosen by the participants. More information on the lab process can be found on our website: https://www.labforcircularity.com/.

We appreciate you taking the time to fill out this survey and look forward to collaborating with you.

* Required

Is your organization implementing a circular business model? See next question for examples. *

A circular business model is how a company creates, captures, and delivers value by extending the useful life of products (e.g. through long-life design, repair and remanufacturing) and closing material loops.

- ◯ We actively implement a circular strategy as part of our overall strategy
- ◯ Our circular strategy is in the planning stages
- ◯ We do not have a circular strategy but would like to get started on one
- ◯ We do not have a circular strategy and do not have plans to get started on one
- ◯ Other: ______________________

If you have or are planning a circular strategy, please select all that apply:

- ☐ We have an internal policy promoting circular business practices
- ☐ Our designers are incentivized and educated to consider end of life in the design process
- ☐ We capitalize on the value of apparel at end of life (i.e. take-back, repair, reuse and/or resale program)
- ☐ We have internal education around circularity for leadership, designers, and marketers (we understand our products' end of life and share that information internally)
- ☐ We have consumer education about circularity (we understand our products' end of life and share that information externally)
- ☐ We invest in circular products (R&D spending directed towards designing circular products and research)
- ☐ We have implemented reverse logistics (we divert our textile waste from landfill, whether managed internally or through a third party)
- ☐ We have policies to address manufacturing waste (e.g. offcuts)
- ☐ Other: ______________________

Challenges and Successes

Which rationales or approaches have helped you build the business case for circular initiatives within your organization? Please select all that apply: *

- [ ] Marketing to conscious consumers
- [ ] Risk management
- [ ] Cost savings
- [ ] Impending policy change
- [ ] Initiatives are driven by senior leadership
- [ ] Other: ____________________

What are your organization's core challenges when it comes to implementing circular initiatives? Please select all that apply: *

- [ ] Buy in from senior leadership and/or investors
- [ ] Financial support
- [ ] Technology
- [ ] Lack of collaboration external to our organization
- [ ] Supply chain coordination
- [ ] Linear business model
- [ ] Industry knowledge
- [ ] Incentive
- [ ] Other: ____________________

Are your circular initiatives being developed and executed internally, externally, or both? *

- ◯ Internally developed and executed
- ◯ Internally developed strategy, working with an outside party to execute
- ◯ Outside party brought on to develop and execute on strategy
- ◯ No circular initiatives underway yet
- ◯ Other: ____________________

TLC Opportunities

The Textile Lab for Circularity is based on a thriving network of textile-related organizations and companies working together. Here are three ways to engage with the TLC, helping us move the region towards being a global hub for circularity in textiles:

How would your organization most likely engage with the TLC? *

If unsure please select the best fit for your organization, keeping in mind this is just for information purposes.

- ◯ Sponsor
- ◯ Participant
- ◯ Participating Sponsor
- ◯ Member
- ◯ I'll consider it
- ◯ I'm not interested

Sponsor

Sponsors support the TLC's objective to divert textile waste from landfill and gain access and exposure to the TLC's audience.

Which of these initiatives would be your top three priorities for the TLC to develop on? *

	R&D for textile recycling technology	R&D for textile collection infrastructure	R&D for a pilot apparel takeback program	R&D for circular fibers development (recycled/reused)	Education program for designers
First Choice	○	○	○	○	○
Second Choice	○	○	○	○	○
Third Choice	○	○	○	○	○

How much would your organization want to invest in this sponsorship? *

Note that promotional opportunities vary with sponsorship level.

Where could you see this contribution being covered in your budget? Select all that apply. *

- ☐ Marketing
- ☐ Strategic initiatives
- ☐ Charitable contributions
- ☐ Reallocation of budgets due to COVID-19 (ie. travel and or trade show budgets that are not being used as planned)
- ☐ Other: ____________________

Who at your organization has the authority to make budget decisions to sponsor TLC initiatives? *

- ◯ CEO
- ◯ CFO
- ◯ Controller
- ◯ Sustainability Manager
- ◯ Other: ____________

Participant

Participants commit to collaborating in the TLC's Lab Sessions to identify opportunities for circular initiatives, select and seed initiatives to allocate TLC funding towards.

Which of these initiatives would be your top three priorities for the TLC to develop on? *

	R&D for textile recycling technology	R&D for textile collection infrastructure	R&D for a pilot apparel takeback program	R&D for circular fibers development (recycled/reused)	Education program for designers
First Choice	◯	◯	◯	◯	◯
Second Choice	◯	◯	◯	◯	◯
Third Choice	◯	◯	◯	◯	◯

How much would you be willing to pay to participate (annually for 2 years)? *

The TLC's overall funding will multiply this contribution towards a collective research funding pool.

Where could you see this participation fee being covered in your budget? Select all that apply. *

- [ ] Marketing
- [ ] Strategic initiatives
- [ ] Charitable contributions
- [ ] Reallocation of budgets due to COVID-19 (ie. travel and or trade show budgets that are not being used as planned)
- [ ] Other: ____________________

Who at your organization has the authority to make budget decisions to participate in TLC initiatives? *

- ○ CEO
- ○ CFO
- ○ Controller
- ○ Sustainability Manager
- ○ Other: ____________________

Participating Sponsor

Participating sponsors support the TLC's objective to divert textile waste from landfill and gain access and exposure to the TLC's audience. They also commit to collaborating in the TLC's Lab Sessions to identify opportunities for circular initiatives, select and seed initiatives to allocate TLC funding towards.

Which of these potential initiatives would your organization want to sponsor the TLC working towards and participate in? *

	R&D for textile recycling technology	R&D for textile collection infrastructure	R&D for a pilot apparel takeback program	R&D for circular fibers development	Education program for designers
First Choice	○	○	○	○	○
Second Choice	○	○	○	○	○
Third Choice	○	○	○	○	○

How much would your organization want to invest in this sponsorship and participation? *

Note that promotional opportunities vary with sponsorship level.

Where could you see this sponsorship/participation being covered in your budget? Select all that apply. *

- ☐ Marketing
- ☐ Strategic initiatives
- ☐ Charitable contributions
- ☐ Reallocation of budgets due to COVID-19 (ie. travel and or trade show budgets that are not being used as planned)
- ☐ Other: ______

Who at your organization has the authority to make budget decisions to sponsor and participate in TLC initiatives? *

- ◯ CEO
- ◯ CFO
- ◯ Controller
- ◯ Sustainability Manager
- ◯ Other: ____________

Member

A member wants to join the network and engage in activities at a marginal cost without committing to participating in the Lab sessions.

Which of these initiatives would be your top three priorities for the TLC to develop on? *

	R&D for textile recycling technology	R&D for textile collection infrastructure	R&D for a pilot apparel takeback program	R&D for circular fibers development (recycled/reused)	Education program for designers
First Choice	◯	◯	◯	◯	◯
Second Choice	◯	◯	◯	◯	◯
Third Choice	◯	◯	◯	◯	◯

How much would you be willing to pay to be a member? *

Where could you see this membership fee being covered in your budget? Select all that apply. *

- [ ] Marketing
- [ ] Strategic initiatives
- [ ] Charitable contributions
- [ ] Reallocation of budgets due to COVID-19 (ie. travel and or trade show budgets that are not being used as planned)
- [ ] Other: ______

Who at your organization has the authority to make budget decisions to be a member of TLC initiatives? *

- ○ CEO
- ○ CFO
- ○ Controller
- ○ Sustainability Manager
- ○ Other: ______

Consideration

Thank you for your consideration!

What we can offer to get you more excited about engaging with the TLC? *

Your answer

If we were able to accommodate this offering how would you most likely engage with the TLC? *

- Sponsor
- Participant
- Participating Sponsor
- Member

Not Interested

Thank you for indicating your desired level of engagement!

What can we offer to get you more excited about engaging with the TLC? *

Your answer

If we were able to accommodate this offering how would you most likely engage with the TLC? *

- Sponsor
- Participant
- Participating Sponsor
- Member

Demographic Information

Thank you so much for your time, just five more questions left!

What is the name of your organization? *

Your answer

What is your title? *

Your answer

Which lifecycle stages does your organization fall under? *

- [ ] Design and manufacture
- [ ] Sell and purchase
- [ ] Own and maintain
- [ ] Collect and sort
- [ ] Reuse and repurpose
- [ ] Recycle

What is the size of your organization (number of employees)? *

- ○ 1-5
- ○ 5-20
- ○ 20-50
- ○ 50-100
- ○ 100-250
- ○ 250-500
- ○ >500

Would you like to be added to our mailing list to receive updates on our events and receive our newsletter? *

- ◯ Yes
- ◯ No

Thank you!

Thank you for taking the time to complete our survey! We look forward to collaborating with you to make Vancouver a global hub for circularity.
Join us on our social channels to keep up to date @textilelabforcircularity and we will keep you posted on the results of the Prize Draw!

Is there anything we haven't covered that you would like to add?

Your answer

Appendix C: TLC Customer Journey Map Template

TLC TEMPLATE — THE JOURNEY FROM AWARENESS TO EXPERIENCE AND MAINTAINING RELATIONSHIPS FOR EXTERNAL PARTIES

	Stage	Aware *We're on their radar*	Consider *Thinking about fit*	Decide *Making their choice*	Engage *We're actively engaged*	Maintain and Build *Continued enrollment*
TLC	**Touch Points** *How we're connecting with them*	•	•	•	•	•
TLC	**Internal Resources** *What tools the TLC has to inform taking the next step*	•	•	•	•	•
EXTERNAL PARTY	**Actions** *The actions the external party takes*	•	•	•	•	•
EXTERNAL PARTY	**Motivations** *What motivates them, drives moving from stage to stage*	•	•	•	•	•
EXTERNAL PARTY	**Questions** *What questions they have at each stage*	•	•	•	•	•
EXTERNAL PARTY	**Pain Points** *What issues might arise at this stage*	•	•	•	•	•