

Shifting Mainstream Consumption Patterns Towards a Circular Economy Transition

by

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Abstract

This Major Research Project (MRP) explores how we might shift mainstream consumption patterns as we transition towards the Circular Economy. The research methodology combined primary and secondary research.

The research identifies essential circular consumption behaviour patterns, motivating drivers for choosing the behaviours, and barriers that may hinder adoption if not addressed. Strategies and case studies for cultivating and accelerating new social norm conditions and external contexts necessary to foster and support circular patterns of consumption are also examined. Finally, consumer engagement strategies and recommendations are proposed as guidance for organizations transitioning into circular modes of value exchange or business models, and for policy makers and advocates looking to support the circular economy transition.

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Dedication

To visionaries, changemakers, and enablers. Thank you for your relentless pursuit in creating a better world.

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I. Culture of Overconsumption

"Individual behaviours are deeply embedded in social and institutional contexts. We are guided as much by what others around us say and do, and by the 'rules of the game' as we are by personal choice. We often find ourselves 'locked in' to unsustainable behaviours in spite of our own best intentions".

- Timothy Jackson, 2005, Motivating Sustainable Consumption: A Review of Evidence on Consumer Behaviour and Behavioural Change.

"Consumption is not just the way of life, it IS life," writes Jonathan Chapman (2005). In today's 'unlimited growth' oriented societies and economic systems, the on-going consumption of material goods is an essential economic driver, the measure of our living standards and prosperity expectations, and is closely integrated with our deepest desires and notions about who we are, and how we reach our 'ideal identity'.

The modern paradigm of unlimited economic growth is fueled by a system of continual consumption of new goods and services by households, and continual production of goods and services by firms, collectively creating two self-reinforcing processes (Jackson, T., 2009).

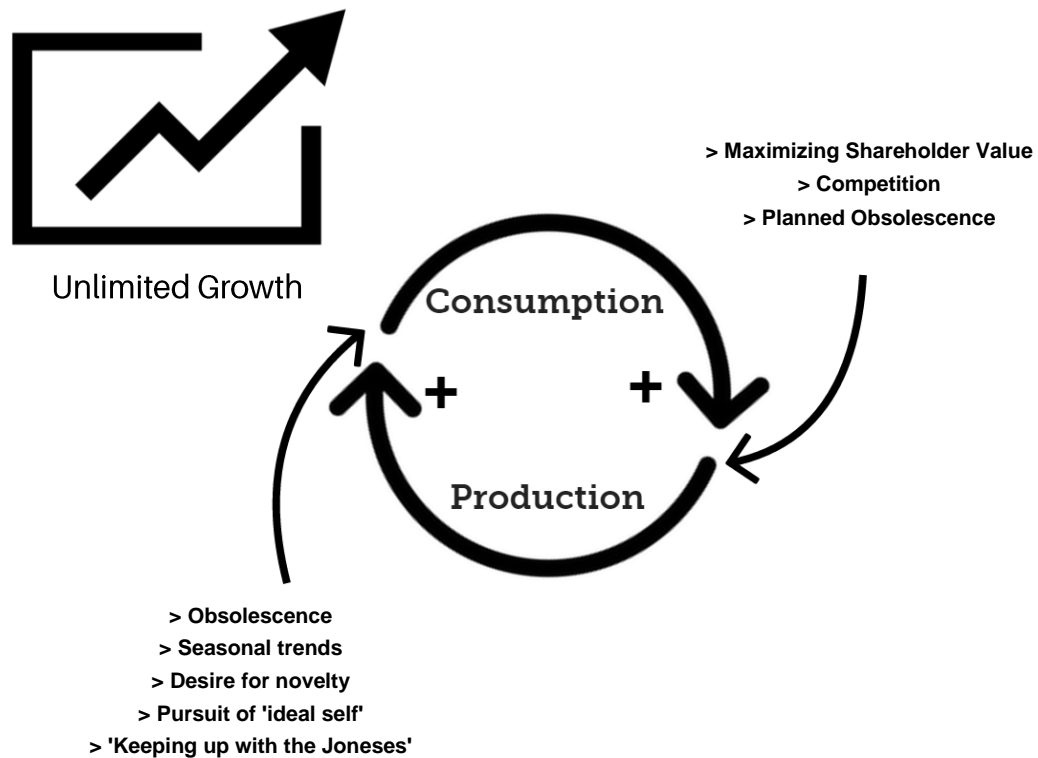


Figure 1 - Modern Paradigm of Unlimited Economic Growth

Desire for novelty has a dual role - helping consumers signal our social status as we use novelty to tell stories, develop identity, and create meaning; as well as fueling economic growth (Jackson, T., 2009). New technologies and products continually emerge and overthrow existing technologies and products. Due to shorter product life spans and an increasing speed of product innovations, timescales of consumption cycles are steadily decreasing (Cooper, T. 2005).

Designing, producing and marketing new products to keep up with the pace of innovation is vital for a company's health and the health of an economy. So as a growth strategy, select industries choose to design out product durability and design in obsolescence, encouraging rapid cycles of consumption to keep up with new or perceived product innovation and to replace broken goods.

1.1 History of Consumption

Our desire and glorification for material possessions has deep ideological and emotional roots. The symbolic role of material commodities has been identified by anthropologists in every single society for which records exist (Capra, F., & Luisi, P. L., 2014).

Until the middle of the 20th century consumer durables were generally viewed as investments and within reasonable cost boundaries, were designed to last as long as possible (Cooper, T., 2005). However, planned obsolescence, the deliberate curtailment of a product's life span, became commonplace after World War II, driven by competition, the convenience of disposability, and by the appeal of changing fashion (Cooper, T., 2005).

After the 1950's it was not the functionality of the object that became the key issue, but its meaning (Newbery, P., Farnham, K., 2013). "Products became icons, symbols or signs". Objects were designed and marketed as a way to provide the buyer with new properties; i.e. Prada bag became a meaning of sophistication (Newbery, P., Farnham, K., 2013). Advertising companies were hired by corporations to develop campaigns to make consumers feel inadequate and create a false sense of security and hope by linking one's identity with products (Sachs, J., 2012).

Looking back at the history of consumerism shows that there is a relationship between changes in culture and changes in consumption patterns away from communal values towards individualism and materialism (Newbery, P., Farnham, K., 2013).

1.2 Role of Consumption Today

There are many reasons why we consume: to improve ourselves and to extend or enhance our knowledge through expanding our experience in the world (i.e. travelling and education); to improve either perceived or real functional aspects of our lives (i.e. buying gadgets, cars, etc. to save time), improve our “convenience, comfort, and cleanliness”; because we like the look & feel of something and it allows us to express who we are in relation to others (i.e. clothing, gifts); and to “update” as we feel it socially necessary according to our sense of what is a “reasonable standard of decency” (Croker, R., 2013).

Consumption, in its social role, facilitates a process where meaning and connections between people and things are forged. Material goods provide a symbolic language in which we communicate continually to each other - our values, who we are, or aspire to be, how we feel about someone else (Chapman, J., 2005).

1.3 Drivers of Consumption Behaviours

The role of agency in consumer choice has been a topic of much debate (Edmonds, 2013; Seyfang, 2009; Jackson, 2005). People are not always able to exercise a deliberate choice, and 'lock-ins' occur in part through the architecture of institutional structures such as market mechanisms, options of available goods and services, geographical accessibility; cultural and social norm expectations; as well as values and beliefs - influencing habits and routines.

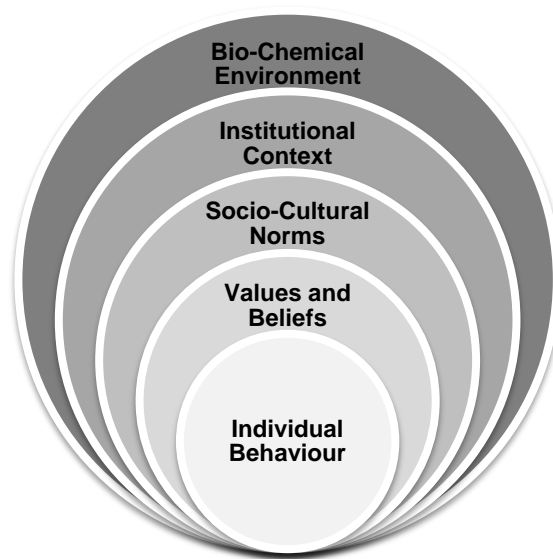


Figure 2 - Individual Behaviours Nested in Other Conditions

Behaviours Rooted in Culture

Culture is a co-created and a co-evolving process. As individuals, our behaviours and actions are signals to others within our social sphere, and our social sphere in turn provide us with continuous feedback or the 'rules of the game', which work to limit, self-correct, or nudge our behaviours.

Capra & Luisi (2014) elucidate the dynamic relationship between culture and individual with an anthropological definition of culture as: *"the integrated system of socially acquired values, beliefs, and rules of conduct that delimit the range of accepted behaviours in any given society. The social structures or rules of behaviour, constraining the actions of the individuals are produced and continually reinforced by their own network of communications."*

Deep social needs to belong to a group drives our tendency for 'conspicuous consumption' - a term coined by Thorstein Veblen in 1899, as a way to describe the behavioural characteristics of the new rich social class who applied their great wealth as a means of publicly manifesting their social power and prestige. The term is used today to portray the act of purchasing luxury items to indicate social status not because the good is needed or because it is useful.

In fact, cultural and social norms are so pervasive, on March 25, 2015 in an article titled *"Dressing down" is only a status symbol for the elite*", Harvard Business School researchers Bellezza, Gino, & Keinan, warn readers that although there are potential benefits to non-conformity in social situations, in most situations, deviation from the norm results in disapproval and punishment rather than increased status (Bellezza, S., Gino, F., & Keinan, A., 2015).

Institutionalizing the "Throw-Away" Society

Driven by the paradigm that unlimited growth is good, planned obsolescence is a business strategy where obsolescence of a product is planned and built into its design from its conception. This is done so that the consumer has a continuous need to purchase new products and services that firms bring out as replacements for the old ones (Hindle, T., 2008).

Manufacturers find that the most direct way to speed replacement demand is to shorten the usable life of a product through various obsolescence mechanisms: such as limited functional life design ("death dating" - where firms have to plan and "design in" a product's obsolescence); design for limited repair; or design aesthetics that lead to reduced satisfaction (Guiltinan, J., 2009).

With institutionalized obsolescence, waste becomes a symptom of a failed relationship (Chapman, J., 2005). Driven by our desire to engage in meaningful relationships with material objects, consumers purchase a product with an expectation that *“this will be the last time I will ever need X”*, but when the product fails, our expectations also fail. (Chapman, J., 2005).

1.4 Hitting the Limits to Growth

The consumer society is rapidly becoming a global society.

The Global Footprint Network, a non-profit organization working to measure the global ecological footprint, calculates that today we are currently 150 percent above the capacity of our planet to replace essential “services” such as clean water, clean air, arable land, healthy fisheries and stable climate (Global Footprint Network, 2015).

If current income trends continue by 2030, the global middle class will more than double in size, from 2 billion today to 4.9 billion (Rohde, D., 2012). Moderate UN scenarios suggest that if current consumption trends continue, by the 2030, we will need “the equivalent of two Earths to support us” (Global Footprint Network, 2015).

Linear Economy

Today’s dominant linear “take, make, and dispose” production model is no longer working to support our material needs. Commodity prices are expected to continue to rise over the long term, volatility is increasing dramatically and supply is becoming more and more uncertain. (Stephenson, B., 2014)

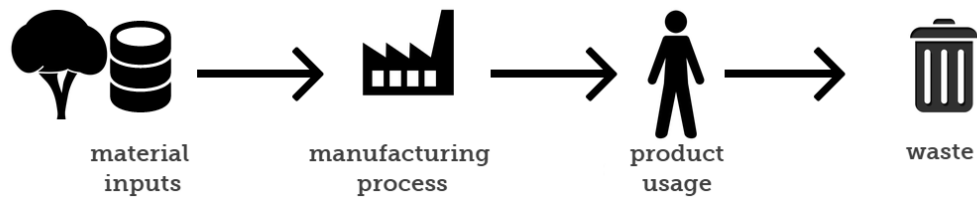


Figure 3 - Linear Economy (Take-Make-Waste)

Variable resource costs and supply chain disruptions expose companies to risk, and within the current waste management model, as well as business practices it is difficult to extract the embedded costs of labor and materials at the end of a product's lifecycle (Ellen MacArthur Foundation, 2013).

90% of the raw materials used in manufacturing become waste before the product leaves the factory; while 80% of products made get thrown away within the first six months of their life (Perella, M., 2014) ending up in incinerators, landfill and wastewater (Ellen MacArthur Foundation, 2013). Linear Economy is expensive. Presenting at Davos 2015, Dominic Barton, Managing Director of McKinsey, stated that: *"Every day we are losing the equivalent of \$3-4 billion worth of materials."* (Stephenson, B., 2014).

1.5 Consumer Culture as a 'Cage Within'

And yet, the material consumption lifestyle is not making us happier. According to researchers at the University of Essex, our modern material lifestyles are failing to make us happier, damaging our health, are no longer sustainable, and is costing the UK economy alone tens of billions of pounds every year (University of Essex, 2015).

Helga Dittmar (2007) compares the consumer culture to a 'cage within' because of its unrealistic ideals leading many people to experience identity deficits and negative

emotions. She argues that consumer culture is possibly entrapment of the worst kind because "*people are often unaware of its pervasive influence.*" (Dittmar, H., 2007).

Social Comparison Theory states that people implicitly or explicitly compare themselves with idealized images which can lead to a negative view of oneself (Dittmar, H., 2007). And so, material consumption has become "*an endless personal journey toward "the ideal" or the desired self that by its very nature has become a process of incremental destruction.*" (Chapman, J., 2005).

II. The Circular Revolution

“Like all major transitions in human history, the shift from a linear to a circular economy will be a tumultuous one. It will feature pioneers and naysayers, victories and setbacks.

But, if businesses, governments and consumers each do their part, the Circular Revolution will put the global economy on a path of sustainable long-term growth - and, 500 years from now, people will look back at it as a revolution of Copernican proportions.”

- Frans Van Houten, CEO, Royal Philips, 2014

2.1 The Opportunity

There is a new way of thinking about material flow management, production and consumption, labeled Circular Economy. A Circular Economy is restorative by design and aims to design out waste by ensuring that products, components and materials are at their highest utility and value at all times.

The Ellen MacArthur Foundation, an independent charity working to accelerate the transition to a circular economy, recently outlined and defined the economic opportunity in shifting to a circular economy as saving \$1 trillion in materials each year by 2025, and preventing 100 million tonnes of waste globally.

Frans Van Houten, CEO of Royal Philips, one of the pioneering companies driving circular economy, eloquently defines what it would take to transition:

Building a circular economy would require a fundamental restructuring of global value chains. Instead of selling products, businesses would retain ownership, selling the use of the goods they make as a service. Selling a product's benefits instead of the product itself would create a powerful incentive for producers to design for longevity, repeated reuse, and eventual recycling, which would enable them to optimize their use of resources.

- Frans Van Houten, CEO, Royal Philips, “The Circular Revolution,” Project Syndicate,

Jan. 21, 2014

Countering Obsolescence - Circular Product Design

Circular product design and eliminating planned and perceived reasons for product obsolescence is a vital aspect of a circular economy. Design within a circular economy is about keeping a product as close as possible to its original state over time, through longer use, repair, upgrades, refurbishment, and remanufacturing (The Ellen MacArthur Foundation).

Extending the useful life of products is an important element as it effectively slows down the pace at which products are put through recycling loops and counters material entropy.

Conny Bakker and Marcel den Hollander of Delft University of Technology introduce principles for circular product design which include the importance of countering emotional and functional obsolescence; designing for ease of care and upgradability and adaptability (Bakker, C., & Hollander, M. den., 2015).

Greater intrinsic durability or better care and maintenance, indicates the need for a shift to more highly skilled, craft-based production methods. This increased repair and maintenance work would provide employment opportunities to offset the effect of reduced demand for new products. (Cooper, T., 2005)

Cradle-to-Cradle Design

In the early 2000s, pioneering thinkers William McDonough and Michael Braungart laid the intellectual groundwork for a circular economy by developing and defining the cradle-to-cradle design framework which: “refocuses product development from a process aimed at limiting end-of-pipe liabilities to one geared to creating safe, healthful, high-quality products right from the start” (McDonough, W., and Braungart, M., 2002).

Cradle-to-cradle design principles recognize the dynamic nature of material where biological materials go back into nature; whereas durable, or technological, materials stay in use for as long as possible. (The Ellen MacArthur Foundation)

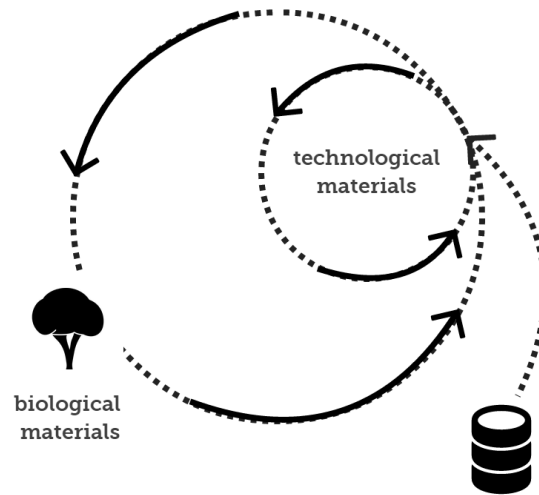


Figure 4 - Cradle-to-Cradle Principle

2.2 Circular Business Models

Extending the Useful Life of Products

Bakker and Hollander (2015) identified five business model archetypes that help to extend the useful life of products, including: facilitating sales of high-grade products with a long useful life; combining durable products and short-lived consumables; helping to exploit leftover value in product systems; providing product access rather than ownership; and delivering product performance rather than the product itself. The refurbished goods model (second life assets model), is another business model that has been cited as an important element in a circular economy transition (Stephenson, B., 2014). These models create opportunities for designing and marketing additional value adding services, demonstrating to be even more profitable than sales of additional units of product (Bakker, Hollander, 2015).

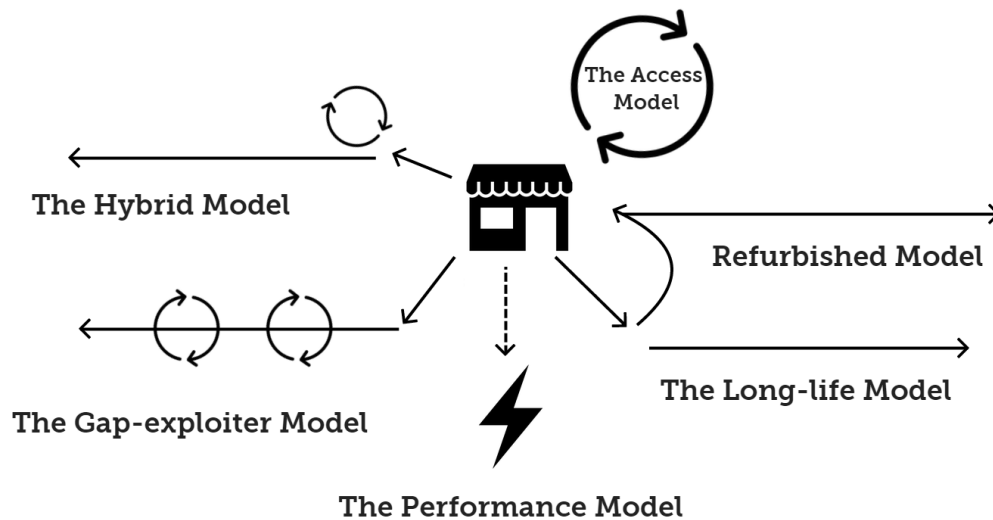


Figure 5 - Bakker and Hollander's Five Business Model Archetypes with Additional Refurbished Model Diagram

End of Product Life - Closing the Materials Loop

A vital element of circular economy is finding new ways to reuse materials across the value chain, and turning what was once seen as waste into a commodity of value. As manufacturers become responsible for designing products that can be reused or remanufactured in a non-toxic closed loop, product-service business models, where users pay for service instead of ownership play a key role in ensuring the manufacturer retains proprietorship of the material (The Ellen MacArthur Foundation).

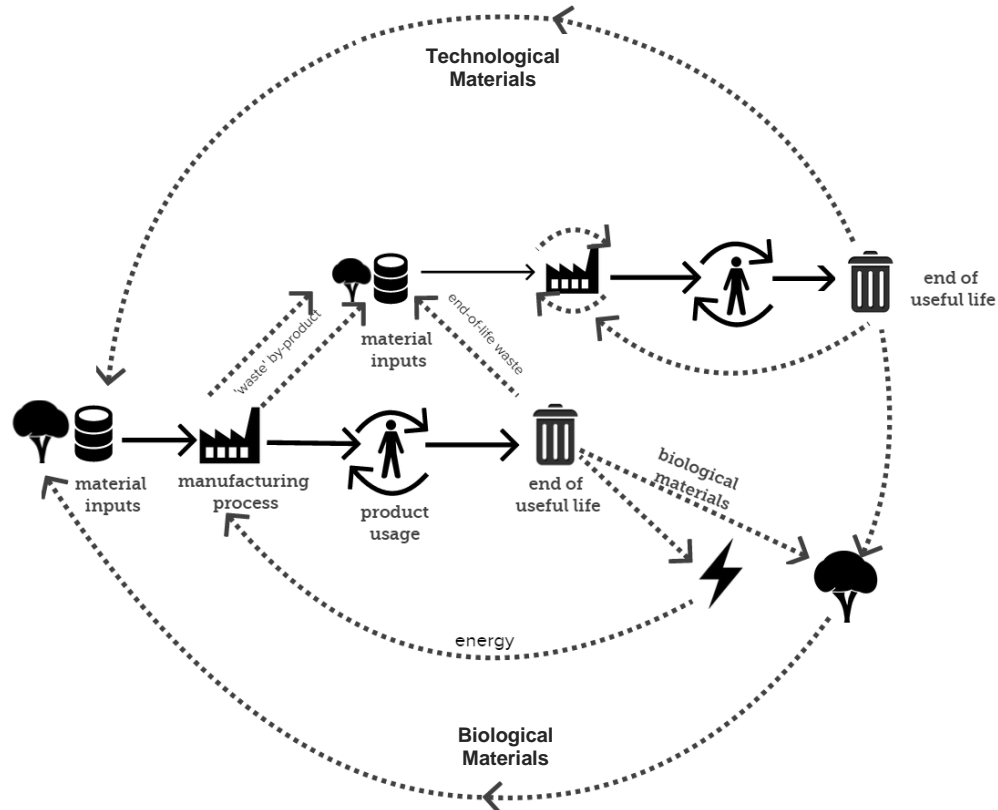


Figure 6 - Creating Value from Waste in a Circular Economy

2.3 Research Question

As companies embark on rethinking elements of the status quo and instituting new ways for customers to access and use goods, the shift to a circular economy will require overcoming the pervasive cultural conditioning of overconsumption and catalyzing new behaviours that can help people change the lens through which we see the world.

Consumer behaviour change has been cited numerous times as one of the most challenging aspects of sustainability for consumer brands within the existing sustainability mandates (Bonini, S., & Oppenheim, J., 2008; and Ariely, D., 2014). In his recent article

“Zero Waste World”, Marc Gunther, editor at large of Guardian Sustainable Business and writer on business sustainability, stated that “How consumers feel about all of this [Circular Economy] is unclear” (Gunther, 2014).

The research question being explored in the remainder of this paper is:

How might we shift mainstream consumption patterns as we transition into a Circular Economy?

The objective of this research is to identify:

- 1) Essential consumer behaviours and motivating drivers in choosing circular modes of consumption.
- 2) Barriers that may hinder circular modes of consumption adoption if not addressed.
- 3) Develop strategies and recommendations for cultivating and accelerating Circular Economy consumption patterns.

Scope of the research:

Although the circular economy is global in its nature, the scope of this research focuses on consumption behaviours in urban neighbourhoods across the City of Toronto, Ontario, Canada.

2.4 Research Methodology

The predominant methodology used for this research project is the Design Thinking method developed at the Stanford d.school. The research project began with intent to empathize, define, and finally ideate. The prototyping and testing phases have not been undertaken in this phase of the research.

The project began by examining business models and modes of value exchange that have emerged internationally that are helping to extend useful product life cycle, reduce or eliminate waste, and close the materials loop through design. Circular modes of consumption and drivers of behaviour were then identified to help shift from traditional consumption patterns to new ways of consuming and accessing goods. In addition, existing social norms were identified that can help in the transition.

The research methodology uses both secondary and primary research. Secondary research was comprised of examining industry reports, articles, business models, and academic literature on circular economy framework, models, and patterns of consumption.

Primary research was comprised of expert interviews with organizations providing circular market solutions, as well as researchers, industry associations, non-profits, and public policy advocates.

A consumer survey was then developed and conducted to identify motivating drivers in choosing circular modes of consumption, and potential perceived or real institutional, social norm and values-based barriers that may hamper circular consumption behaviours adoption (*See Appendix B for full methodology details*).

2.5 Circular Modes of Consumption

New models of value exchange are dependent on new consumer behaviours that in some cases are markedly disparate from our long standing patterns and culture of consumption as reviewed in Part I.

The following consumption behaviours have been identified for shifting into the circular economy¹:

- ☐ Slowing down consumption in the first place and instead taking care of items by repairing and maintaining these on a regular basis to extend the useful product life.
- ☐ Choosing to rent and borrow to satisfy short-term needs and leasing to satisfy longer-term needs instead of product ownership.
- ☐ Choosing second-hand or used offers; and swapping, donating and exchanging used goods.
- ☐ Properly recycling and returning used products at the end-of life stage back to the manufacturer at a proper retail location or proper recycling containers.
- ☐ When buying new to check labels and choose products made out recycled materials.

¹ Consumer behaviours listed were identified after conducting business model analysis and interviewing twenty seven industry experts asking: "What consumer behaviours are necessary to transition into Circular Economy?"

III. Circular Consumption Patterns in Toronto – an Urban Case Study

“The world doesn't need more 'stuff.' We need to redistribute and share what we have in efficient ways. I share pants with my friends, I have one pair of legs, and can only wear one at a time. There is no need for excess and I love sharing. It generates joy and community.”

– Anonymous Respondent from Consumer Survey, February, 2015

Select leaders in business, technology, design and policy are embracing the circular economy approach and are envisioning smarter, more restorative ways to design and facilitate longer use of products.

As discussed in Part I; individual behaviours are deeply embedded in social and institutional contexts. As individuals, we are guided as much by the external context of what is available to us and the social structures around us shaping “the rules of the game”, as we are by personal choices. Therefore, as external context and social norms vary across different locations, it was important to choose a focus area for this research.

About The City of Toronto

Toronto is home to many organizations, both in the for-profit and non-for-profit sector, that are offering products and services that help to extend the lifetime of products and facilitate sustainable consumption behaviours.

The City of Toronto is developing a Long Term Waste Management Strategy² for Toronto to provide a framework for solid waste management policy decisions over the next 30 to 50 years, and is looking at new approaches to reduce waste at the source (City of Toronto).

Consumers and citizens of Toronto are also shifting to circular modes of consumption - some driven by waste reduction and environmental responsibility, others to save money and to enjoy the convenience some of these new solutions offer. Many are even shaping new social norms, helping to scale and normalize these behaviours amongst their friends, families and communities.

3.1 Circular Business Offers and Solutions

Extending the Useful Life of Products

Select brands and manufacturers are leading in ways of extending the useful life of products by instituting better design, facilitating repair services and developing consumer engagement strategies that inspire users to take better care of products.

One of the Canadian consumer brands leading the way in durable product design and consumer engagement for better product maintenance, with a location in Toronto, is Mountain Equipment Co-op (MEC). MEC has launched a “Care and Repair” program; teaching users how to repair tears and rips, how to tighten and replace zippers, and how to maintain water repellency treatments for garments (Mountain Equipment Co-op).

Several new mission-based organizations have also spawned globally with a mission to intervene before product disposal and are helping users repair their broken items. In

² Each Torontonians generates about 15 pounds (or 6.8 kg) of waste per week (including recyclables, garbage and organic waste), and the City is running out of capacity to deal with increasing waste.

Toronto, the Repair Café - a volunteer-based repair service hosted their first event in May of 2013 and since then has offered more than twenty repair cafes in 6 different neighbourhoods across Toronto; extending the life of more than 1,000 household items, diverting them from landfill. The repair volunteers have taught more than 1,200 people how to repair their broken items (Toronto Repair Café).

Globally, repair service is a \$1.4 billion-a-year market and growing at about 5% a year (Trefis Team, 2014). RadioShack has recently launched 'Fix It Here' initiative which they claim is helping this retailer to “lure back old customers as well as attract new ones to its stores” (Trefis Team, 2014).

Facilitating Access instead of Ownership

Organizations are creating new ways for consumers to access products on a need-to-use basis. Solutions include temporary (short-term) access to products, and longer-term access (via leasing and renting). The temporary access solutions are also known as “collaborative consumption” or “sharing economy” – and include durable products that are used infrequently and have a high upfront investment and maintenance cost.

Toronto offers many options for accessing goods on a need-to-use basis such as cars, tools, infrequently used kitchen appliances, luxury clothing items, and many others. For instance: Car2Go - a Smart Car sharing company, owned by Daimler, is providing access to over 350 vehicles across Toronto, with 40,000 members across Toronto.

Second-Hand/Used Goods Sales Facilitation

Facilitating second-hand sales to drive consumers' product re-use also helps to extend the useful life-cycle of products. Global brands such as Patagonia, IKEA, Best Buy and others are now facilitating the resale of their goods, turning this practice into a brand-

building experience (Vaughn, J., 2014). Refurbished goods – known as second life assets – help manufacturers achieve higher margins for these assets compared to new products (Stephenson, B., 2014).

In addition to firms selling refurbished goods, peer-to-peer online marketplaces are also helping to extend product lifespans. In 2014, Craigslist (a digital peer-to-peer marketplace) diverted an estimated 5 million tons from waste globally in helping users sell or trade unwanted goods (Hansen, M., 2015).

In Canada, the annual sales of second-hand durable and semi-durable goods is estimated to be \$30 billion per year, or about 15% of the value of new goods purchased. The average family of four in Canada currently saves approximately \$1,150 per year by buying second-hand goods (Durif, F., Arcand, M., & Ertz, M. (2015).

Cradle-to-Cradle Design

Companies such as Interface, Herman Miller, and PUMA are closing the loop for their own products, ensuring that from creation to disposal, products are holistic or regenerative for the production system as a whole (Vaughn, J., 2014). For instance: PUMA launched a Cradle-to-Cradle certified “InCycle” line of footwear, clothing and accessories in 2013. The products are manufactured in a closed-loop system, with any waste generated during production returned for reuse; items are also biodegradable or recyclable. (Vaughn, J., 2014).

Finding New Product Uses for Waste

As companies evaluate their production chains to discover any points at which waste could be turned into a commodity of value, they seek out resource management or reverse logistics partners in a bid to retain used materials.

IKEA Canada is helping customers to properly dispose of their old mattresses, by offering a mattress recycling service, for those who purchase delivery of a new IKEA mattress. IKEA takes your old mattress away, disassembles it into components, and repurposes the components for future use. IKEA discovered that people do not have time to drop off their old mattresses at a recycling depot; however by providing the service of home pick-ups, it makes it easier for people to participate in circular consumption.

Other companies are using what was traditionally considered waste or “devalued” resources for new product development.

R3VOLVED, a Canadian company based in Toronto, uses plastic waste instead of virgin material to manufacture consumer products. R3VOLVED has partnered with Walmart Canada and will be launching their product in the fall. They aim to divert 360,000 500 ml plastic bottles from landfills, incinerators and the ocean in 2015.

Swapping

Brands such as H&M are facilitating “Swaps” – helping customers exchange their used clothing for discounts on new clothing. H&M has partnered up with I:CO a non-profit to ensure the clothing is resold, reused or recycled; keeping it out of landfills. H&M is also using some of the recovered clothing to create a denim collection that recently went on sale (Vaughn, J., 2014).

Toronto also has non-profit swapping options such as Fashion Takes Action clothes swap, and SwapSity who have developed an online swapping site, and organize large swap meets in Toronto. In 2014, SwapSity events have saved Torontonians \$200,000, recycled 30,000 items and swapped more than 25,000 items. (SwapSity, 2015)

3.2 Evidence of Circular Consumption Behaviours

Consumers and citizens of Toronto are starting to shift to circular modes of consumption. They are participating in swaps, buying used goods, taking their broken items to Repair Café and other repair services to get fixed, using car sharing services, and borrowing tools, kitchen appliances, and other items.

It is difficult at this point to provide the exact percentage of the population of Toronto that has participated in or is continuously participating in circular consumption behaviours without conducting larger scope research.

However, as the scope of this research seeks to identify motivating drivers (why are people choosing circular modes of consumption) and to identify potential perceived or real institutional, social norm and values-based barriers that may hinder adoption; a survey was conducted to include the voice of the user/consumer in this research.

Having identified (in Part I) that consumption is a set of social practices, influenced on the one hand by social norms and on the other by external context such as available offerings, geography, policy, and product design; the survey design took on a multi-dimensional view which incorporates both internal and external conditions in seeking to understand drivers and barriers of behaviour.

Inspired by the integrated attitude-behaviour-context model developed by Stern (2000) to make sense of user behaviour (Jackson, T., 2005), the survey questions were developed in an attempt to measure the extent of influence driven by attitudes and values; contextual or situational factors; social influences; and personal preferences.

Deployment

The survey was deployed with the help of four organizations: The Toronto Tool Library; Toronto Repair Café; Fashion Takes Action; and Collaborative Consumption Toronto, and was available on-line and conducted in-person at pre-selected locations. (See *Appendix B for full description of methodology*).

Behaviours Tested

Five circular consumption behaviours were tested. These behaviours were selected because they are options that are currently available in urban areas across Toronto and were identified as behaviours required for circular economy transition.

- Repairing items instead of buying new
- Leasing, renting and borrowing instead of buying new
- Choosing to buy second-hand or used instead of buying new
- Choosing to swap or engage in product exchange instead of buying new
- When buying products, choosing to check labels and choosing those made out recycled materials.

Motivating Behaviour Drivers

The nine motivating³ drivers were chosen based on expert interview findings and inspired by Stern's attitude-behaviour-context model, testing the following variables:

- Saving money
- Being part of a community

³ For each of the five behaviours tested, participants were asked: "On a scale from 1-5 (where 1 is LEAST and 5 is MOST) please rate what motivated you to take part in <behaviour being tested> instead of buying a new product?" Eight options were provided for each participant to rate (an additional ninth option was provided for "repair" only).

- Convenience (location proximity)
- Reducing waste and for environmental responsibility
- Reducing hassles of purchasing new products
- Trying something new
- Behaviour was recommended by friends/family/colleagues
- Fits with respondents' personal beliefs and values
- Item has sentimental value (*tested for "repairing" only*)

Participant Description

70 participants completed the survey in total. Out of all participants, 63 indicated they are residents of Ontario living within an urban neighbourhood. The remaining 7 participants reside in other provinces, out of the country, or within suburban and rural areas. For the purpose of this study, the analysis was conducted based solely on the responses of participants residing in Ontario in urban neighbourhoods – 63 people in total⁴.

Out of the 63 participants: 46 completed the survey on-line and 17 completed the survey in person (at The Tool Library Danforth East location and at the Repair Café, taking place at the 'Skills for Change' Community Center, St. Clair West location). Both groups (on-line and in-person) were analyzed together.

On-Line Survey Completion	In-Person Survey Completion	Total
46	17	63

Table 1 - Survey Completion Breakdown

⁴ Although comparing urban residents with suburban and rural residents would be beneficial to gaining more holistic insights, at this point there lacks to be statistically significant number of responses to make meaningful comparisons of the data.

Participant Age Range

The age of the 63 participants ranges from 18-74 years old. The survey was designed to be age agnostic. Participants were chosen not because of their age, but because they have participated in at least one of the five behaviours being studied. The median participant age is 35-44.

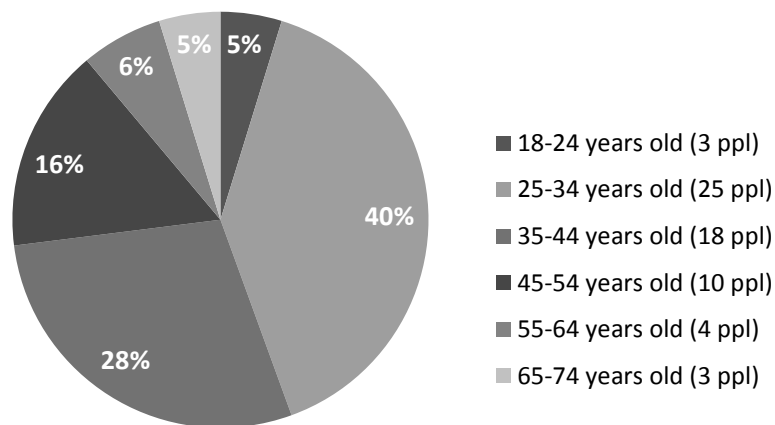


Figure 7 - Participant Age Range

Frequency of Participation in Behaviours

Survey respondents were instructed to rate the frequency of their participation for each one of the 5 behaviours tested. The frequency options included: 'Never', 'Once', 'A Few Times', 'Approximately Monthly', 'Approximately Weekly', and 'As Much as I Can'.

Out of the five behaviours tested, "repairing" has been cited as behaviour that a majority (N=61) participants have participated in more than once; and "buying products made out

of recycled material” has been cited to be the least participated in (N=46). The chart below summarizes the overall participation frequency for each of the behaviours.

Activity Frequency	Never	Once	Few Times	Monthly	Weekly	As Much As I Can ⁵	Total Participation More Than Once
Repairing	0	2	26	8	1	26	61
Buying Used	3	1	17	12	1	29	59
Leasing, Renting and Borrowing	6	3	21	14	2	17	54
Swapping	9	4	31	9	0	10	50
Buying Products Made with Recycled Material	15	2	16	5	1	24	46

Table 2 - Frequency of Participation

3.3 Finding Patterns – Three Consumer Segments

As part of data analysis, survey respondents were sub-divided by the self-reported frequency of participation in the five behaviours, and the kinds of activities they self-reported to have performed for each of the behaviours.

A qualitative analysis of the responses was used to subdivide the groups.

The purpose of this analysis was NOT to try and match the respondents against the rest of the population, but to gain a deeper understanding of what drives users to participate in circular patterns of consumption, and identify barriers (whether

³ ‘As much as I can’ option was provided to acknowledge that it is not always possible to participate in an activity as the environmental context is not fully there to support it. In addition to multiple choice frequency questions, survey respondents could also comment on the specific activities for each behaviour. For the purpose of the analysis, both comments as well as multiple choice answer options were considered to gain a holistic perspective of participation.

perceived or real) in preventing them to try new behaviours, if they are not already doing so.

Three distinct user profiles emerged as part of the analysis, providing deeper insights about the kinds of people that are choosing to engage in circular (sustainable) consumption patterns: revealing unique motivations and values, reasons for their choices, and in some cases providing a glimpse into their lifestyles and personal values. All the responses are anonymous and responses are blended to ensure privacy of the survey respondents. (See Appendix C for full segmentation criteria details)

Segment One – The ‘Occasional Enthusiast’

Number of respondents in segment: N=15 (9 from in-person surveys ~60%)

Age Range: 18-74 years old; median age range is 35-44.

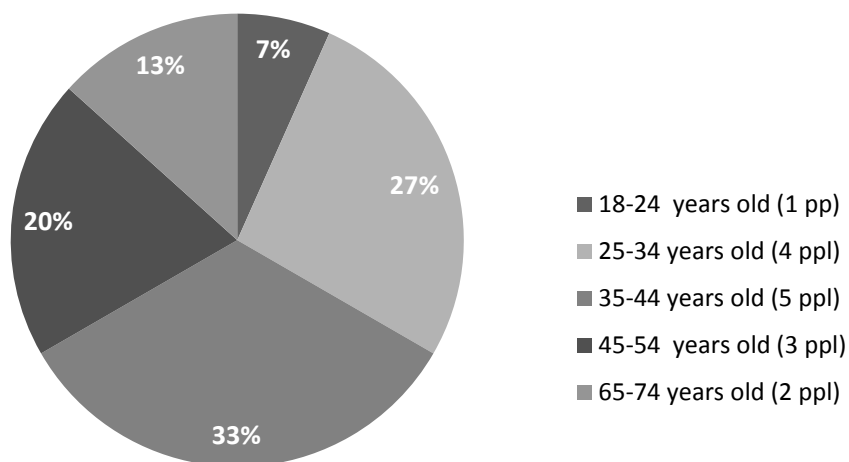


Figure 8 - Segment One Age Range

Description: The 'Occasional Enthusiast' exhibits the lightest frequency of activities in the five behaviour areas tested. Mainly driven by cost savings and reducing the hassle of purchasing new products, this group is not significantly (if not at all) driven by waste reduction and environmental responsibility. When they do participate in circular consumption behaviours, it only extends to one or two activities or few select product categories (i.e. when buying used, they will do so only with clothing or furniture). They have expressed a sense of pride in taking care of their things and repairing, and also an interest in learning how to fix things themselves.

Activity Frequency Rates: This is blended data of participation rates frequency within this data set for each behaviour, where survey respondents participated more than once. Total response N = 15.

Activity	Repairing	Buying Used	Renting and Borrowing	Swapping	Buying Made with Recycled Material
Number of responses indicating participation more than once	14	12	8	7	5

Table 3 - Segment One - Activity Frequency Rates

Table 4 on the next page shows median values for motivating drivers for each of the behaviours tested⁶.

⁶ For each of the five behaviours tested, participants were asked: "On a scale from 1-5 (where 1 is LEAST and is 5 is MOST) please rate what motivated you to take part in <behaviour being tested> instead of buying a new product?" Eight options were provided for each participant to rate (an additional ninth option was provided for "repair" only).

	Save money	Be part of a community	Convenience (location proximity)	Reduce waste and environmental responsibility	Reduce hassles of purchasing new product	Try something new	Recommended by social circle	Fits with my personal beliefs and values	Item has sentimental value
Repair	5.0	2.0	3.0	4.0	4.0	1.0	1.0	4.0	4.0
Buy Used	5.0	2.0	3.0	3.0	4.0	2.0	3.0	4.0	
Rent and Borrow	5.0	3.0	4.0	2.5	4.0	4.0	3.0	4.0	
Swap	5.0	3.5	4.0	5.0	4.0	3.0	2.5	5.0	
Buy Made from Recycled	1.0	4.5	2.0	5.0	2.5	1.0	2.0	5.0	

Table 4 – Segment One - Median Values for Motivating Drivers

Repairing

The kinds of items that participants in this segment have indicated repairing include appliances, cars, electronics, clothes, lamps, shoes, and furniture. They will try to fix items themselves, or will come to the Repair Café to get help. This group repairs to save money, and is motivated to reduce the hassles of purchasing new products. Reducing waste is less of a motivator for this group as compared to the other 2 group segments (by 1 point).

Buying Used

When it comes to buying used, this group segment will sometimes buy clothing, books, furniture, electronics, and sports equipment. They will go on-line to purchase specialty items, or visit a local charity store like Goodwill or a local thrift shop.

Some of the reasons for not buying used more frequently include that “*second-hand products are not hygienic*”, there is “*no product guarantee*”, and it’s “*not very convenient to buy used*”.

Reducing waste and environmental reasons are not significant drivers for buying used for this segment – rated as 3 out of 5.

Renting and Borrowing⁷

The kinds of items rented or borrowed by this group segment include occasional car rentals, or taking part in a car pool (not car sharing), and borrowing tools and books from the library. Those respondents, who have engaged in renting and borrowing activities, are driven by money savings, trying something new and reducing hassles of purchasing new products. Convenience is also an important factor, as those who don't participate cited inconvenience as a major barrier. Reducing waste and environmental responsibility is not a motivator at all for this group (rated 2.5) when it comes to renting and borrowing activities.

Some of the reasons cited as barriers are inconvenience, and a preference for new items: either “*not hygienic*” or perception that “*renting and leasing is akin to throwing away money*”.

Swapping

Respondents indicated that they sometimes have infrequent swaps with friends, or join a formal swap (i.e. Gift Swap at the Tool Library) or simply donate items.

Those who don't participate in swaps and product exchanges cited that their reasoning for not doing so is lack of convenience, laziness, lack of access to either formal swaps or those with friends, and lack of awareness about swaps.

⁷ When describing the specifics of the kinds of activities performed, none of the survey respondents indicated any participating in leasing activities, only renting and borrowing.

Buying Items Made Out of Recycled Materials

Buying items made out of recycled materials seems to be the least priority for this segment. Some of the items purchased include paper, office supplies, cleaning supplies, and bags. Reasons given for not choosing this option include lack of knowledge, not a priority, lack of preference, and not knowing how to even read the labels. A few respondents also cited looking for other product values such as importance of fair trade and overall product quality as important considerations in purchasing decisions.

This group rated 'being part of the community' as an important reason, rating it as 4.5 (1.5 points higher than the full sample). This could be a part of social norm influence, and would be an area for further research and exploration.

Segment Two – The 'Value Conscious Enthusiast'

Number of respondents in segment: 28 (3 from in-person surveys ~10%)

Age Range: 18-74 years old; median age range is 35-44.

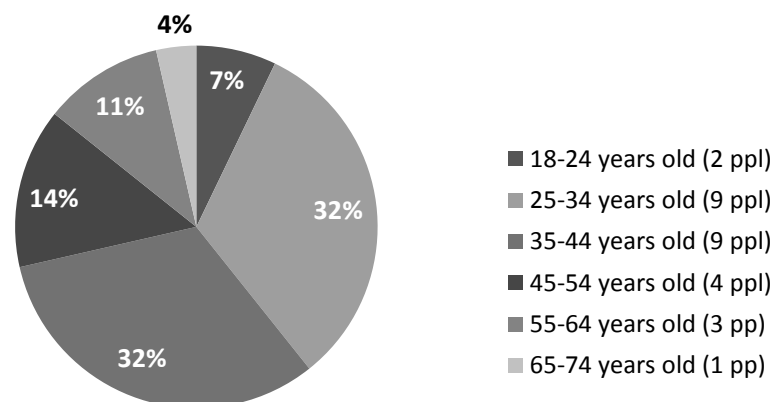


Figure 9 - Segment Two Age Range

Description: The 'Value Conscious Enthusiast' is a 'practical' and value conscious group. They frequently buy second hand and find good value products for good price. They will also borrow items from friends, and may be part of the tool library and one or even two car-sharing services. They are conscious of environmental impact in their decision making, but if an activity is inconvenient and expensive, they won't necessarily pay more or go out of their way.

Each participant indicated that they repair either on a regular or semi-regular basis, many of them purchase used products on an on-going basis; about half indicated that they rent and borrow on a regular basis, and half have rented or borrowed at least several times, and many have participated in swaps at least several times.

Environmental impact is not an afterthought. It is important for this group, but other conditions such as financial considerations, convenience, and product quality have to be met first. They appreciate value in all senses and are practical in their decision making. When they share their lifestyle choices, they do it in a practical way only when "it makes sense", and highlight financial and other benefits gained for participating in these activities. They will post events, but will not talk about the environmental reasoning or importance of reducing waste. It's more about the value that comes with these new activities.

Activity Frequency Rates: This is blended data of participation rates frequency within this data set for each behaviour, where survey respondents participated more than once. Total response N = 28.

Activity	Repairing	Buying Used	Renting and Borrowing	Swapping	Buying Made with Recycled Material
Number of responses indicating participation more than once	28	28	26	25	22

Table 5 - Segment Two - Activity Frequency Rates

Table 6 shows median values for motivating drivers for each of the behaviours tested.

	Save money	Be part of a community	Convenience (location proximity)	Reduce waste and environmental responsibility	Reduce hassles of purchasing new product	Try something new	Recommended by friends/family/colleagues	Fits with my personal beliefs and values	Item has sentimental value
Repair	5.0	2.0	3.0	5.0	3.0	1.0	2.0	5.0	4.0
Buy Used	5.0	2.0	3.5	5.0	3.0	2.0	2.0	5.0	
Rent and Borrow	5.0	3.0	4.0	5.0	3.5	2.0	3.0	5.0	
Swap	4.0	4.0	3.0	5.0	3.0	3.0	2.0	5.0	
Buy Made from Recycled	2.0	3.0	2.0	5.0	2.0	2.0	2.0	5.0	

Table 6 - Segment Two - Median Values for Motivating Drivers

Repairing

This group repairs their items on a regular and semi-regular basis. They repair clothes, shoes, electronics, phones, home appliances. They will sometimes repair themselves; repair at a local dry cleaners; find someone to help them or attend the Repair Café. A few have mentioned some of the specific items that they have fixed by looking up how to repair on-line *“I try to sew up any rips in my clothes and try to do my computer maintenance myself. Most other things I try to look up how to repair it on the internet”*. Some of the frustrations that have been voiced by this group for not repairing more

frequently are the high cost of repair and difficulties: *“I would love to have electronics repaired, but manufacturers have made that difficult to impossible.”*

Buying Used

This group buys used items on a frequent or semi-frequent basis. They will buy clothes, kitchen appliances, books, furniture, hobby equipment, and electronics. They go to vintage shops to look for deals, use Kijiji to find good quality items, and go to thrift shops and charities. They look for good “value” and good “quality” and *“better quality for less money”*.

A concern for the group is that they can't always find what they want. *“I try to buy used for myself, but I can't always find what I want. For instance, I bought a brand new jacket as I couldn't find a second-hand jacket warm enough”*.

Renting and Borrowing

This group rents and borrows on a semi-frequent basis (n=14) or have tried to rent or borrow a few times (n=12). They belong to one or even two car sharing services, and borrow tools, clothes, and sometimes kitchen or other items (to be only used once or twice) from friends (“borrowing from friends” was mentioned in almost fifty percent of the responses in this group). Some of the barriers for not renting and borrowing more frequently were “lack of locations and options”; existing options being too costly and not meeting existing needs; hard to find community outlets to facilitate borrowing: *“I’ve been asking my neighbours to borrow a sewing machine, it’s much easier in Mexico.”* Saving money is just slightly less important a driver than reducing waste for this group - perhaps because many of the respondents are borrowing from friends, and so money savings is not as big a consideration.

Swapping

Most of the group segment has engaged in swapping a few times, and some are swapping on a monthly basis. Sometimes formally and sometimes informally with friends: *“3 of us get together and swap” and “book swaps with friends”*. Some of the items swapped include books, clothing, tools, kids toys, DVDs, cookware, food, two respondents mentioned swapping their services for other services: “legal services for sponsorship exposure”.

Buying Items Made Out Of Recycled Materials

This segment purchases products made out of recycled materials more frequently than segment one, where half of the Group responded “as much as I can” and almost half responded with “a few times”. Respondents who provided answers to the question of what kinds of items they purchase made out of recycled materials have included 2-4 different kinds of items: “paper, plastics, and clothing”; or “my helmet, some clothing, some household supplies”; “kitchen countertop, toilet paper, jewelry, and flooring” Some of the hesitations and barriers from this group segment included: *“it’s very expensive”; being “less driven by the inclusion of recycled material than by the quality of the goods and how long they will last and their end of life impact on the environment”; “I don’t buy specifically to look for recycled items, though I will pay attention to this now. It’s more important for me to know that clothing is made of natural fibres”*.

The respondents segmented in this Group are making informed choices and considering their impact. They look for quality, as well as other attributes when purchasing products, and saving money is an important component to them.

Segment Three – The ‘Circular Lifestyler & Advocate’

Number of respondents in segment: 20 (5 from in-person surveys – 25%)

Age Range: 25-64 years old; median age range is 25-34 (Note: there is a slightly younger median skew in this group segment).

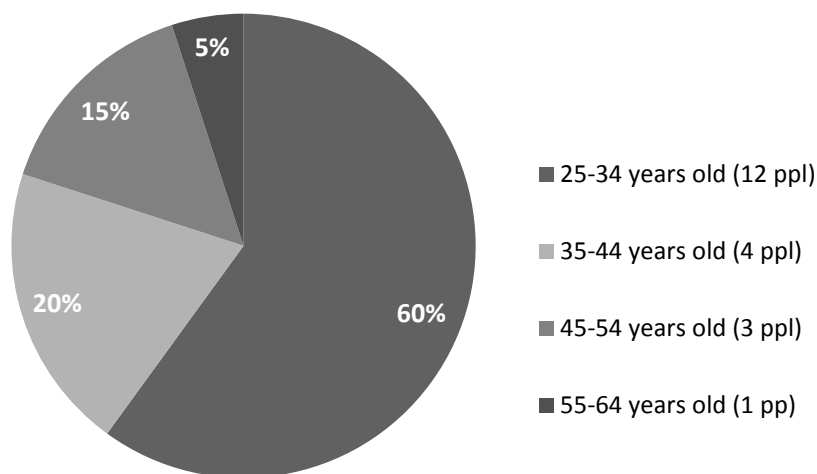


Figure 10 - Segment Three Age Range

Description: Participating in circular consumption behaviours for the ‘Circular Lifestyler & Advocate’ segment is deeply connected to their values and permeate majority of decision making, career choices, and volunteer activities. This group segment will go above and beyond to reduce waste and live sustainable lifestyles. They “*live it and breathe it*”.

For the five behaviours measured, reducing waste and environmental responsibility was cited as the primary motivator for participating, in every instance, more so than saving money. They are not just passive participants; this group is playing an active role in enabling waste reduction and normalizing circular economy. They realize that “*There is a heavy burden on the earth to constantly produce and digest the waste of the 'stuff' we*

think we 'need.'" and that *"Buying new things all the time is not sustainable and everyone can do a little"*.

They will stop purchasing certain brands because these brands are not allowing them to repair and extend the lifetime of products: *"I don't like throwing things out. I no longer buy MacBook because I can't take it apart and replace parts."* They engage in *"DIY projects at home: fixing shelves instead of buying new ones, making candles instead of expensive toxic paraffin candles"* They learn how to repair just so they can extend the lifecycle of products: *"I learned sewing, carpentry, and electronics so that I could fix more of my broken possessions"*.

They understand that *"The world doesn't need more 'stuff.' We need to redistribute and share what we have in efficient ways"* Some of them will *"virtually never buy anything new – except for socks and underwear"*, they will use product access services like Rent frock Repeat, Kitchen Library, Tool Library, organize their own community swaps, make hand-made gifts, volunteer, share with families and friends, invite their friends to participate, and even share their choices with clients *"I give a Tool Library membership to clients when they buy new homes."*

They are also *"...very vocal about how [they] live [their] values and encourage others to shift to more sustainable practices as well."* Many (50% of this segment) indicated that they proactively organize formal or informal swaps, run businesses or non-profits that help to repair or re-use; volunteer their time, or sit on non-profit boards that help to promote a zero waste mission.

Activity Frequency Rates: This is blended data of participation rates frequency within this data set for each behaviour, where survey respondents participated more than once. Total response N = 20.

Activity	Repairing	Buying Used	Renting and Borrowing	Swapping	Buying Made with Recycled Material
Number of responses indicating participation more than once	20	20	20	20	18

Table 7 - Segment Three - Activity Frequency Rates

Table 8 shows median values for motivating drivers for each of the behaviours tested.

	Save money	Be part of a community	Convenience (location proximity)	Reduce waste and environmental responsibility	Reduce hassles of purchasing new product	Try something new	Recommended by friends/family/colleagues	Fits with my personal beliefs and values	Item has sentimental value
Repair	4.0	2.0	3.0	5.0	3.5	2.0	2.0	5.0	4.5
Buy Used	4.0	3.0	2.5	5.0	2.0	1.0	1.0	5.0	
Rent and Borrow	4.5	4.0	4.0	5.0	3.0	2.0	2.0	5.0	
Swap	4.0	4.0	3.0	5.0	2.0	3.0	3.0	5.0	
Buy Made from Recycled	1.0	3.0	1.0	5.0	1.0	1.0	1.0	5.0	

Table 8 - Segment Three - Median Values for Motivating Drivers

Repairing

This group repairs their items instead of purchasing new products on a mostly regular basis (n=14). They look things up on the internet if they don't know how to repair, they'll use *"superglue and duct tape"* to fix their travel coffee mug, sew patches and rips in pants and backpacks. They learn *"sewing, carpentry, and electronics so they could fix their broken items"*, attend Repair Café so that they could learn how to repair, and be better equipped to fix things around the house. They *"hate throwing stuff out"* and like to *"upcycle"*.

They have different “go-to” places for different repair items – *“I repair my own clothing. I take my footwear in to a small business for repair. Most other things I try to repair or see if someone I know can, and may go to the Repair Cafe as well.”*

They repair jeans, shirts, backpacks, shoes, electronics, phones, home appliances, kitchen chairs, bed frames, bikes, rewire lamps: *“anything and everything that needs to be repaired”*. It's not a one-off; it's on-going. They hold off purchasing new things and try to repair broken items first. *“I always try to repair. My iPhone has had new glass 3 times and is 5 years old; new soles on shoes I have had since I was 20 (for 23 years) - they were new and \$300 a pair then”*.

“If I have to replace it, I try to repair it first, and I am generally able to fix it. So, I hold off buying new, includes garments too.”

They also do DIY projects at home – fixing shelves instead of buying new ones. Several respondents also mentioned that they do it so well; they have started a business helping others repair their broken items.

Buying Used

This group consistently buys second hand and many have even indicated that they *“virtually never buy anything new – except for socks and underwear”*.

“I have tried to stop my consumption of products almost entirely if/where possible. I participate in swaps mostly to get rid of things I have acquired in order to have a minimalist amount of 'things' so that I am actually making use of resources that I have and not merely keeping a collection of 'things'. My house was entirely furnished with freecycle/found/free kijiji items.”

They acquire all furniture, clothes, kitchen counters, doors, etc., second-hand or reclaimed. They “will always” try to buy from thrift store, from friends, antique shops,

garage sales, Play It Again sports, on-line marketplaces (Craigslist or Kijiji), and even *“furniture from the curb”* before buying new.

This is so important to this group that several have mentioned that they have clothing lines *“almost entirely made from reclaimed or upcycled materials.”*

Reducing waste is extremely important, evident not only in the rating system but by their actions. Being part of a community came up a point higher (3) than measuring against the rest of the group (2), so it's possible that social norm is important here as part of second-hand buying.

The only barrier and hesitation that came up in this group for buying used is someone mentioned getting issues with bugs from buying second-hand, so because of this, they now buy new. However, this person is still *“pretty much borrowing as much as they can”* and going to swaps on a regular basis.

Renting and Borrowing

This group rents and borrows on a regular basis instead of buying new products (n=18). Whether it's children's clothing & gear swaps between moms, renting tools and appliances, dress rentals (from Rent frock Repeat), using Bike Share, Car Share, Kitchen Library and Tool Library, or renting shared space for business, the responses in this group indicate that renting, borrowing and sharing is something that they engage in consistently and this behaviour spans many different activities and life situations. There are times when they borrow from neighbours or social circle, and times where they use external Service Providers such as Tool Library, Kitchen Library and etc: *“I lend my car freely. I borrow tools and lend them. I give a tool library membership to clients when they buy new homes.”*

The respondents in this segmentation are more motivated by being part of a community

(scored 4) than the other 2 groups, and are more motivated by reducing waste and environmental responsibility (scored 5) than by saving money (scored 4).

Swapping

The respondents in this group segment have indicated that they partake in formal or informal swaps and product exchanges on a regular basis, and something that is a part of their lifestyle. Some even organize the swaps.

Some of the informal swaps mentioned include clothing swaps with friends, providing a haircut for sewing repairs, being part of alternative gift fairs, use barter systems within the community, are part of neighbourhood exchange communities on Facebook, and attending garage sales.

Some of the more formal swaps cited include swaps at the Toronto Kitchen Library, Fat Girl Food Squad, Seed Swaps, and swapping home-made preserves at Well Preserved. Several have indicated that they barter at work (in lieu of payment) for instance “*food for event space*”. This group is driven to swap by reducing waste: “*I always try to pass along items to friends instead of discarding*”. Being part of a community is also an important driver, similar to saving money. This group is also more open to and act on recommendations to attend swaps from their friends and family. This could be because they are already connected to a community that provides access to these events.

Buying Items Made Out Of Recycled Materials

Several respondents (n=7) have indicated that they especially buy products made out of recycled material, when the products are non-durable goods requiring disposal: such as paper, toothbrushes, deodorant, cleaning supplies packaging, children’s products. Another area that was frequently mentioned was the importance of building materials

made with recycled content (i.e. drywall, paint). Some of the other items mentioned were clothes, fabrics, furniture.

Only two respondents in this group segmentation had indicated that they never buy products made out of recycled materials. The reasoning for this was that they rarely buy brand-new products, and with second hand products, it is not so important to check that they are made with recycled material. A few mentioned that the high price of some of the items made out recycled materials such as clothing is preventing them from buying more.

This is something that has come up as important to their core values: *“This is hugely important to me - I try to refuse, reuse, reduce...and the recycle, but if I do buy, I try to at least buy something recycled or with high recycled content”*.

3.4 Shifting Social Norms in Toronto

As we transition into circular modes of consumption, shifting social norms from a throw-away material culture to one that values experiences, sharing, taking care of their possessions, repairing and etc. will play a vital role in consumer behaviour adoption. As individual behaviours are nested in social norms and cultural values, it is important to consider how existing social norms are being re-defined. Looking at the City of Toronto as a case study, this section will examine how social norms are being shifted and redefined by organizations, citizens, consumers, media, non-profit advocacy groups and the City itself.

Organizations Shifting Social Norms

For-profit and non-profit companies providing products and services that facilitate circular consumption behaviours are also actively socializing these new behaviours by

developing very focused value propositions that target their unique customers' pain points. To get the message out, they leverage social media, host events, build user communities that connect to their customers' passions, and work with existing communities to provide value for their users and customers.

Rent frock Repeat, a first-of-its-kind designer dress rental service in Canada, is innovating a new way to think about fashion, by promoting the idea that *"fashion isn't just about owning stuff: it's about walking into a room knowing you look good"* - Kristy Wieber, Co-Founder, Rent frock Repeat. Their slogan: *"Less stuff. More Life"*, signals to their customers and potential customers that fashion doesn't have to be about ownership, it is about creating experiences. They are also building a community and are encouraging women across Canada to share their stories about their unique experiences wearing various outfits, each story helping to embed unique meaning to each outfit.

The Kitchen Library is working to get connected with Toronto's existing and well established 'foodie' community, as well as the nutrition and wellness community. Many of the Kitchen Library users have a specialty diet such as gluten-free or vegan, and are the kinds of people who want to be in charge of the ingredients of their food. The Kitchen Library hosts workshops where foodie enthusiasts come to learn new recipes, and also learn about the option to borrow kitchen appliances, while interacting with other members who are already doing so. The Kitchen Library is tapping into an already socially acceptable norm – cooking classes, to introduce a new norm – borrowing appliances.

Car2Go Toronto works with local community groups, Business Improvement Associations, Boards of Trade, and local businesses to improve neighbourhoods. They realize that in Toronto, culture is developed by word of mouth, and partner with other businesses helping to cross-promote each other's offers if they are aligned with the values of their customers.

Repair Café takes pictures of all the items they have repaired with the owner of the item and post these on social media. By creating this culture, they are also inviting their users to share these pictures as well. Several of the survey respondents interviewed at the Repair Café mentioned that they will “post a picture of [their] repaired item on Facebook”.

Media Shifting Norms

Media is slowly starting to pick up and publish stories about some of the new consumption behaviours and existing offers that can help to reduce material throughput.

Blog.TO, Toronto's self-proclaimed “most-visited web site for local news and culture, best of lists, restaurant reviews and events” published a blog called: “The top 10 things you can borrow in Toronto” (2015). Framing it from the perspective of cost savings, “*Money's tight. We get it. So why buy stuff when you can borrow them for free or rent them for super-cheap?*” the blog lists various ways Torontonians can access car sharing, tool sharing and other services.

CBC Radio's “Under the Influence” with Terry O'Reilly recently (March 2015) ran a segment on the Sharing Economy connecting it to environmental benefits: “*Sharing economy helps make the environment better without sacrificing. Less stuff is manufactured, fewer products are purchased, less waste.*” (O'Reilly, T., 2015)

Pop Culture Impact

Increasingly, pop culture is also influencing consumption behaviours that are helping to reduce material throughput. In 2012, American hip hop duo Macklemore & Ryan Lewis released a pop song “Thrift Shop”, which reached No. 1 on the U.S. Billboard Hot 100 chart, and has surpassed 688 million views by the time of this writing and has allegedly had an impact on increasing thrift shop sales and customers (Weaver, R., 2013).

The City of Toronto

The City of Toronto is involved in engaging citizens in reducing waste. The Solid Waste Management team has launched several initiatives including: Recycling Ambassador Volunteer Program encouraging citizens to engage in education and outreach campaigns within their neighbourhoods and residential buildings; The Waste Wizard, an on-line tool helping residents to find proper waste management solutions; as well as launching The Waste Education speaker series, in April, 2015.

The City is also engaging citizens in helping to shape the City's Long Term Waste Management Strategy with the goal to provide a framework for solid waste management policy decisions over the next 30 to 50 years (City of Toronto, 2015).

Non-Profit Groups

There are also several non-profit organizations working in Toronto to help engage citizens reduce waste and advance sustainable consumption patterns. Several organizations are mentioned here.

Formed in 1988, Toronto Environmental Alliance (TEA) is a Canadian non-profit environmental organization. TEA runs the Waste Free Toronto Challenge campaign educating citizens of Toronto about the importance of reducing waste, and encouraging citizens to buy less, share things, or buy second-hand things to reduce the waste impact of what we own; choose to reuse and choose to buy recycled (Toronto Environmental Alliance, 2015).

Recycling Council of Ontario (RCO) is a not-for-profit organization involved in policy, education, and project work around the issues of consumption, waste generation, reduction and diversion, and recycling. Since 1984, RCO has been running a Waste

Reduction Week across Canada to inform and engage Canadian citizens about the environmental and social ramifications of wasteful practices. RCO also runs the Ontario Waste-Free Lunch Challenge (WFLC) is to help schools reduce garbage (Recycling Council of Ontario, 2015)⁸.

In addition, Toronto also has a Collaborative Consumption Meetup group curated by Lucy Gao, helping citizens learn more about opportunities to rent, borrow, and swap to minimize their ecological impact.

3.5 Toronto Citizens Shifting Social Norms

An additional purpose of the consumer survey was to measure how individuals participating in circular behaviours influence others by looking at frequency, messaging, and methods they use for sharing their choices with their social circles⁹. The following responses are also broken down by the three group segments identified in Section 3.4.

Segment One - Social Sharing and Peer Influence

In Segment One, about half of the respondents (n=7) will share “only if they are asked” or “once in a while” and a little less than half of the respondents (n=6) indicated sharing as much as they can and even encouraging others to participate. 2 people have indicated “never” sharing with others.

⁸ Additionally, RCO hosted a conference on Progressing Extended Producer Responsibility in Ontario: Moving Toward a Circular Economy in February 2015, more information can be found here - https://www.rco.on.ca/event/?event_id=195

⁹ Survey respondents were asked: *Have you ever mentioned to your friends, family, colleagues, and/or social circle about your choices to partake in any of the activities you mentioned above?* And then participants were asked to “*please elaborate*”.

Half of the segment one respondents don't feel comfortable sharing their partaking in any of the activities described and will do it *"only in discussions about the topic"* in a *"less passive aggressive and holier-than-thou manner"*. They feel that they *"don't need to encourage anyone"* and *"would only share it in passing as I don't wish to 'preach' for a certain ethical choice."*

Those who indicated frequent sharing will tell their families and friends about specific events happening and/or the benefits of attending: *"I told my cousins I am coming to Repair Cafe today"*; *"I tell everyone about Repair Cafe. I will post a picture of this item on Facebook"*; *"I discuss the TTL with others to share about available tools and friendly volunteers"*. *"For instance if a friend is looking to buy a table, I say 'hey, let's build a table together at the Tool Library'."*

Segment Two - Social Sharing and Peer Influence

Segment Two is more open to sharing their lifestyle choices and experience than Segment One. Many respondents (n=18) have indicated that they share as much as they can and encourage others to participate. They post upcoming events (i.e. Repair Café, Swap events) on social media, and will share event information in person at certain work situations and with friends. They may also mention specifics about what was repaired or purchased second hand including the cost savings and value gained as part of the discussion:

"I mention how easy and affordable it is to fix my Samsung phone. I'll show off furniture built from recycled materials."

"I emphasize the cost (i.e. free)."

"I talk about the importance of repairing good old shoes, bags rather than buy a cheapie for the same cost only for it to fall apart later. I talk about getting great vintage shopping buys for clothes".

"Proud to display environmentally friendly products in my home when people visit. Tell friends and colleagues about a good deal when buying used".

Some will even invite their friends to join them at swaps and potlucks as social events, or *"arrange second-hand shopping dates with friends".*

However, some have also mentioned a hesitation:

"I am happy to share if asked where I get things, but I don't announce my shopping/ consumer choices. I think it gets preachy and annoying to do so."

"I make social media posts about such things but I don't try and actively convince those around me to join. I figure talking enthusiastically about it is promotion enough."

"I only share with people I think would understand the value rather than labelling me cheap."

"I try not to proselytize too often. It bores people."

Segment Three - Social Sharing and Peer Influence

Segment Three (Lifestylers and Advocates) proactively shares their participation in the activities mentioned as much as they can and try to encourage others to participate. Only 3 out of 20 respondents segmented within this group share "only when they are asked".

They share "how to reduce waste and go natural", their *"philosophy of not throwing things out"* and the importance of *"getting more life out of things"* and *"talk about buying 'used' and recycling - in all its aspects"*. They self-identify as "Evangelical Zealot", not just passively talking about their lifestyle choices, but going beyond talking by *"offering my*

stuff to others in order to get maximum utility, sharing what I have while not using it, leading by example.”

“With moms we exchange information of where the best swaps are happening. I have promoted the dress rental service to at least 10 of my friends“.

“Usually when I hear others talking about something they are planning to buy I suggest how they may be able to do so second-hand, often including an example of something good which I acquired in the same manner. For some foods and cleaning liquids, I suggest places where they can be purchased in bulk with less packaging. I also suggest places for repair when I hear that something is broken.”

“I feed my friends and family with food made on appliances borrowed from the kitchen library, as well as preserved that I have swapped for. I gift items I make from reused materials.”

IV. Action Plan for Getting Into the Future

"We can't impose our will on a system. We can listen to what the system tells us, and discover how its properties and our values can work together to bring forth something much better than could ever be produced by our will alone."

- Donella H. Meadows, *Dancing With Systems*, 2001

4.1 Pathway Forward - Designing for the System

While the concept of circular economy is gaining traction amongst select groups of organizations and consumers, to successfully transition and normalize circular consumption behaviours, we will need all stakeholders from the private and public sectors to be involved, push for regulatory change, to make investments in new business models and innovations, as well as to work together to develop new social and cultural paradigms that replace our overconsumption driven society.

Jackson (2009) warns that the task of addressing socialization of current consumer culture is "far from simple – mainly because of the way in which material goods are so deeply implicated in the fabric of our lives." "Unravelling the culture – and changing the social logic of consumerism will require the kind of sustained and systematic effort it took to put it in place to start with." (Jackson T., 2009)

In describing individual responsibilities towards environmental change in relation to social structure, Edmonds, A., presents an illustrative example from Syfrang, G., 2009: *"A person might choose one brand of washing machine over another because of energy efficiency, but they cannot easily choose to purchase collectively and share common laundry facility among a group of local residents"*.

Similarly, thinking in the context of additional Circular Economy consumption patterns, if the option is not there to lease the washing machine, or to purchase the machine with parts that can be easily repaired, consumers can only do so much even if they choose to behave more sustainably. In order to transition, the action of business, product designers and legislative bodies becomes paramount in creating greater availabilities for consumers to make better choices.

In planning for shifting consumption patterns, the following approaches include solutions that address external context, social norms, and individual attitudes and beliefs; as well as taking an eco-systems approach in planning for the long-term system transformation.

4.2 Designing the Institutional Context

Institutional Context influencing behaviour can include a wide variety of influences such as financial incentives and costs, physical capabilities and constraints, institutional and legal factors and public policy support - Stern's (2000) attitude-behaviour-context model from (Jackson, T., 2005).

Recommendations for Extending Product Life and Countering Obsolescence

As indicated in Part I of this paper, most consumer products are either fully functioning or partly functioning when they are discarded (Bakker, C., & Hollander, M. den., 2015). Some of the insights from the consumer survey described in Part III provide a glimpse into the external context barriers for why people are not repairing more products:

- *I would love to have products repaired, but manufacturers have made that difficult to impossible.*
- *It costs 10 times as much to repair vs. buying new.*
- *There is a lack of repair options.*

The following are recommended ways to address these constraints.

Designing for Reparability and Ease of Disassembly

As much as 80% of a product's environmental impact is determined at the design stage. In some industries, remanufacturing has long been part of the business model. For example, truck engines and printer cartridges designed to be disassembled and brought back to "new" condition (Lockton, D., 2013). This is also an opportunity to design consumer products that can be easily dissembled and repaired either themselves or at a repair shop.

Incorporating Modular Design

When thinking about whether "design for durability" is appropriate in the context of rapid technological advancements that can help to reduce environmental impacts or improve user experience and utility, designers can incorporate modular design by designing in such a way where parts can be removed or replaced without affecting the whole. If one part happens to break or if there is an innovation that proves to be better, there's no need to replace the whole thing (Cooper, T, 2005). There are really great innovations that are surfacing from the world of fashion, such as easily to disassemble interchangeable high heels, and changing colour shoes (Persad, M., 2015).

Offering Greater Repair Options

Providing greater intrinsic durability and an incentive for better care and maintenance of products, indicates the need for a shift to more highly skilled, craft-based production methods and increased repair and maintenance work. As more consumers and product users have greater accessibility and drivers to repair, this would provide employment opportunities to offset the effect of reduced demand for new products. (Cooper, T., 2005)

Developing Robust Standards to Counter Obsolescence

Often it is difficult for individual consumers to determine how repairable a product is at the purchasing stage. The Toronto Repair Café is also working towards a crowd sourced rating system, a Repair Guide that will help individual consumers make informed choices about the ease of disassembly and repair for consumer products and brands.

This is also an opportunity for governments to step in with legislation. A recent report by the European Environmental Bureau recommends three ways government may legislate for companies to deliver more resource-efficient products:

- 1) Set design requirements that makes products more easily repairable and longer-lasting.
- 2) Ensure that the materials and components of a product can be more easily re-used, refurbished and recycled.
- 3) Ensure that products are free of hazardous or problematic substances, which can hamper re-use or recycling efforts.

Producers need to provide information about their products' components and critical materials, including disassembly or repair instructions, suggesting that the information

could be provided with the product when it is purchased, or be easily accessible in a standardised format (Arditi, S., 2015).

Designing for Desirability to Counter Perceived Obsolescence

The consumer survey revealed that one of the motivating drivers for repairing as indicated by survey respondents is due to sentimental value associated with the item. This was consistent with all three segments – where the median score for group segments one and two was 4, and for segment three the median score was 4.5.

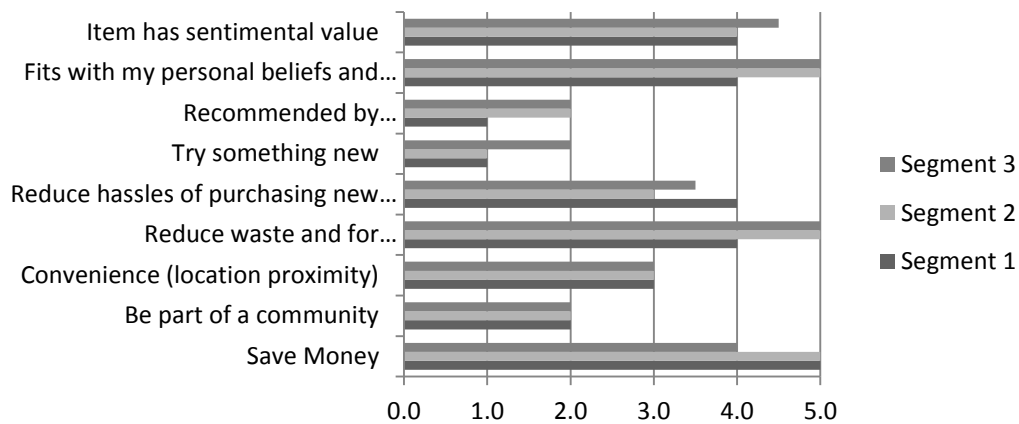


Figure 11 - Motivating Drivers for Repairing

If people are in-fact motivated to repair items that have sentimental value associated with them, it's important to consider the role of product design in creating a stronger bond between the user of the product and the item itself.

Durable product design must evolve to incorporate emotional considerations in order to extend its lifespan (Chapman, J., 2005).

"Waste is a symptom of expired empathy and a failed relationship that leads to the dumping of the product by the user." (Chapman, J., 2005). However durability design doesn't often incorporate the emotional aspect and as a result a functional or semi-functional product is discarded. Designing to foster empathy, meaning, and desire can influence the duration of a product's life (Chapman, J., 2005).

To avoid wasteful obsolescence, products must mutually evolve alongside users revealing their true beauty only through the slow passing of time (Chapman, J., 2005). Cherishability must become a ubiquitous design consideration in the sustainable marketplace of the future.

CASE STUDY A great example of Emotionally Durable Design that also incorporates Modular Design is a futuristic, repairable, hackable lamp named Clyde, designed by Fabule Fabrications Inc. from Montreal. Made with Arduino, Clyde comes with customizable "personality modules". The goal is to extend the useful life time of a lamp by designing empathy into an everyday object. This project recently surpassed its Kickstarter goal and is getting ready for production.

<https://www.kickstarter.com/projects/metamanda/clyde-an-expressive-lamp-for-creative-homes/description>

Improving Accessibility for Renting and Borrowing¹⁰

When analyzing responses from the consumer survey, 'convenience (location proximity)' was indicated as one of the top drivers for renting and borrowing across all of the three group segments.

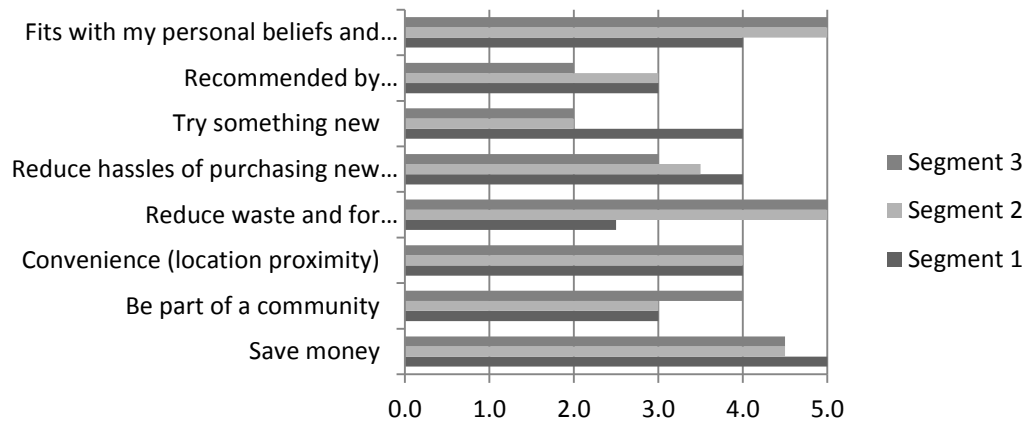


Figure 12 - Motivating Drivers for Renting and Borrowing

Additionally, when analyzing barriers, survey respondents indicated the following:

- *Lack of locations in “my” neighbourhood*
- *Lack of convenience and access*
- *Existing options too costly and do not meet existing needs*
- *Hard to find community outlets that facilitate borrowing*

¹⁰ There is also an opportunity for designing product for the purpose of sharing. <http://www.shareable.net>, award-winning non-profit news, action and connection hub for the sharing transformation, provides several articles on this opportunity.

Widening the Ecosystem with Service Design

Circular design questions what the product should be, how it works and different ways it can be accessed (Church, T., Sherwin, C., Forster, A., 2014).

To help drive and scale ‘renting’ and ‘borrowing’ behaviours, it is important for organizations to facilitate convenience and ease of accessibility. This is an opportunity for designing platforms for service ecosystems, and thinking holistically through value blueprints.

The Toronto Tool Library and The Kitchen Library for instance identified that people will only travel a short distance from their residence to borrow items on a regular basis. To scale the library ideas, they are looking to partner with condominium developers to make borrowing items more accessible. By thinking through their value blueprint and identifying customer pain points, they can scale more effectively by working with developers. Car sharing companies are already doing this, and by partnering with public parking lots and, in some cases, residential parking lots, they are enabling better access.

As part of this project, I (the researcher) facilitated an introduction between Car2Go and The Kitchen Library by showing both organizations an opportunity to partner for mutual benefit.

Working with City Planners to Improve Accessibility

A successful transition will also involve working with City planners and local governments to creatively allocate public spaces for sharing. We need to “revitalize the notion of public goods” for common purpose (Jackson, T., 2009).

City planners and municipalities can act to encourage and invest in more community based sharing, protect public spaces and find ways to set up informal swapping and trading stations and/or events at community centers, schools, and public libraries. The Tool Library for instance has partnered with the Toronto Public Library to enable a wider range and on-going access to tools.

Michael Sandel, Harvard political philosopher and professor, points out the importance of common spaces for the purpose of “common citizenship... so different people from different walks of life encounter one another... that we can meaningfully think of one another as citizens in a common venture” (Jackson, T., 2009).

In the long-term, strengthening communities can help to coordinate individual agency into collective action to address some of our biggest social and environmental challenges (Edmonds, A., 2013).

End of Product Life – Closing the Materials Loop

When survey respondents were asked how frequently they check product labels and choose items made out of recycled material, only 46 out of 63 have indicated that they have done this more than once, representing the lowest participation frequency of the five behaviours tested. When describing their perceived or real barriers, respondents indicated that recycled material label alone is not enough to attract them to buy products made out of recycled materials. The respondents have stated that their purchasing decisions are also driven by:

- *The quality of the goods and how long they will last and their end of life impact on the environment.*
- *Importance of fair trade*

- *Ensuring that product is not associated with child labour*
- *More important that clothing is made of natural fibres*
- *Looking for “other qualities and values” that fulfill needs more so than products made out of recycled materials.*
- *It’s easier to buy used*

They also pointed out expense and lack of selection as reasons for not choosing these products more frequently.

Designing Products that Fulfill Multiple Criteria

As more companies launch product offerings that include recycled material, using waste materials from other value chains, or with the goal of closing the material loop within their own production cycle, it is important to consider all of the drivers that shape consumer purchasing decisions.

Whether the product is a durable item – such as an item of clothing or furniture, or a consumable with packaging made out of recycled material, it must fulfill wide criteria desired by consumers.

CASE STUDY R3VOLVED, located in Toronto, uses existing plastic waste to manufacture office supplies, and incorporates other design strategies to help people reduce overall product consumption. For example, one of the products R3VOLVED sells is “Recycled Plastic + Rubber Sharpeneraser” which combines a sharpener and eraser in one – all made from recycled materials. R3VOLVED has partnered with Walmart and will be launching their product in the fall.

<http://www.r3volved.com/products/recycled-plastic-rubber-sharpeneraser>

4.3 Normalizing Circular Behaviours

As discussed in Part I, our social sphere shapes behaviours we perceive as desirable. To change behaviours in transitioning to circular economy, we need a multi-dimensional approach to influence culture. People are producers as well as products of social systems (Capra, F., Luisi, P. L., 2014). Our behaviours and decisions signal to others how to behave; and in-turn as we see others behave, we get “permission” that nudges us into certain behaviours too, and so on.

“Progress towards greater sustainability only occurs when socialization of behaviour change occurs; and when social normalization of desired behaviour becomes habitual and structural or behavioural barriers are either minimized or removed” (Crocker, R., 2013).

When analyzing the consumer survey responses (described in Part III) to understand how social norms are impacting behaviour, it was discovered that Segment One and Segment Two have both expressed social hesitations when it comes to either performing certain behaviours or talking about them.

This hesitation is reflected in the following survey responses:

- *My friends don't participate, so I don't participate.*
- *I don't want to be labeled “cheap”.*
- *There's a horror in my family that if I buy second hand I must not be leaving enough for those who really need it.*

In addition, respondents indicated the following hesitations when trying to get others within their social circle to partake in circular consumption behaviours:

- *I don't actively try and convince others to join.*
- *I try not to proselytize too often – it bores people.*
- *It's annoying and preachy to announce specific shopping and consumer choices.*
- *I don't want to sound "holier than thou".*
- *I don't wish to "preach" for a certain ethical choice.*

This is where companies and cities can effectively step in to help strengthen social norms at the macro level, alleviate some of the social concerns expressed by consumers, and encourage a stronger culture of circular modes of consumption.

The following are recommended ways to address these social norm constraints.

Modeling Desired Behaviour – Show, Don't Tell

Social learning theory states people can learn new behaviours by observing and imitating others (Crocker, R., 2013).

Information campaigns (which are widely used by policy makers in trying to promote new behaviours) are less effective than other forms of learning (Jackson, T., 2005). Learning by trial and error, observing how others behave and modelling our behaviour on what we see around us provides more effective and more promising avenues for changing behaviours than information and awareness campaigns (Jackson, T., 2005).

This is also supported by Reno, Cialdini, and Kallgren (1993) who in their research uncovered that descriptive norms, which motivate behaviour through saying or showing what action is most adaptive or effective in a particular situation, are more effective in activating behaviour change than proscriptive norms which aim to motivate by telling people what behaviours are most likely to receive rewards or avoid punishments.

According to social learning theory, we learn most effectively from people who are attractive to us or influential for us, or from people who are simply 'like us' (Crocker, R., 2013). The success associated with a social behaviour depends on the behaviour of others in the population.

“Socialization of a more sustainable behaviour is often to be found based on schemes that have potential to develop face-to-face relationships & localized elements” (Crocker, R., 2013), organizations must also architect ways for individuals to feel welcomed in communities that might at first feel different.

CASE STUDY Metro Vancouver developed "Create Memories, not Garbage" campaign using humour or unusual visuals to “model the desired behaviour” – giving gifts of time, experiences or long-lasting gifts. Their objective was to show that traditions can be upheld while reducing the garbage we generate. The results of the campaign show that after 2 years, 50% of residents recalled the campaign. Of those who recalled it, 40% said the advertisements influenced the types of gifts they gave.

<http://www.nzwc.ca/NationalCommunicationCampaigns/Pages/CreateMemories.aspx>

Fitting Circular Consumption Behaviours into Existing Social Norms

The Maker Culture

Several of the consumer survey respondents referenced their culture as a driver for engaging in circular consumption behaviours. Some also mentioned that they attend the Repair Café to learn how to fix things:

- *“I grew up in an environment where I used to fix things, coming here [to Repair Café] brings me back to my roots.*
- *“I’m from a country where we never throw anything out, and there is no such thing as packaging.”*
- *“I am here [Repair Café] to learn how to fix.”*

Personal choices are affected by the cultural environment in which people are brought up. One can expect definitions of the quality of life concept to be culturally dependent as well. (Hofstede, G., 1984) For example, in some cultures the quality of life is strongly associated with the degree of satisfaction of material needs. In others, it is associated with the degree to which people succeed in subduing and reducing their material needs. (Hofstede, G., 1984)

There is a growing global grassroots maker culture that values problem solving and fixing broken items instead of throwing these away and wasting them. Many makers are hobbyists, enthusiasts or amateurs, and there are places such as Maker Cafes and Maker Faires that facilitate learning of new skills, peer-to-peer community development, and celebrate the Do-It-Yourself (DIY) culture (<http://makerfaire.com>, 2015). Fixing items also makes people feel good, and they want to share with others what they accomplished (Lockton, D., 2013).

Designing Experiences

The notion that objects and possessions will make us happier is being debunked by researchers at Cornell University who have been studying the question of money and happiness for over two decades. They discovered that we buy things to make us happy, but once the novelty wears off and we adapt to them; they are no longer exciting. Their research suggests that a person will get more happiness by spending money on

experiences. They acknowledge that although our identity is connected to material possession, nonetheless objects remain separate from us. In contrast, experiences really are part of us: “We are the sum total of our experiences.” (Gilovich, T., 2015)

More people are beginning to value immersive experiences over material objects. A study conducted by JWT Canada (2014) discovered that: seven out of ten Canadians agreed they would rather spend money on an experience than a material item. 75 percent of respondents said they like it when brands make an active attempt to capture their imagination.

Engaging Millennials

JWT Canada (2014) suggests that millennials¹¹ are a driving force behind the movement as they’ve become used to being at the centre of experiences and not just passive observers.

When analyzing the survey responses, to determine the age range of those indicating their highest frequency of renting and borrowing behaviour, the median age range was skewed to 25-34, which is within the World Economic Forum (WEF) definition of millennials. (Overall response N=33, criteria included monthly, weekly, and “as much as I can” frequency rates.)

¹¹ Millennials are people born between 1981 and 1995, representing 25% of the global population (and will still represent 20% of the global population in 2030) (World Economic Forum, 2013).

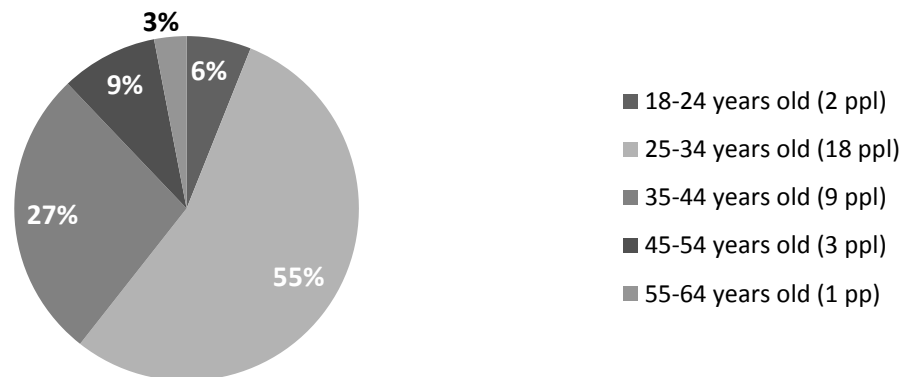


Figure 13 - Age Range of Participants Indicating Highest Frequency of Renting and Borrowing Behaviour

World Economic Forum's report "Engaging Tomorrow's Consumer" (2013) also finds that "millennials are the world's most influential shoppers", and have the potential to shape the behaviour of other people and consumer markets. The report also finds that millennials believe in their power to be agents of change (WEF, 2013). In the consumer research described in Part III, segment three 'Circular Lifestyler & Advocate' is also skewed to 25-34 age group.

Re-framing Messaging from Environmental to Other Benefits

As noted from Segment One survey responses; not everyone is participating in circular behaviours is motivated by reducing waste. Saving money has come up as a primary motivator for four out the five behaviours tested. For instance in examining drivers for leasing, renting and borrowing – 'Convenience', 'Reducing the Hassles of Purchasing New Product' and 'Trying Something New' scored significantly higher than 'Reduce Waste and Environmental Responsibility'.

	Save money	Be part of a community	Convenience (location proximity)	Reduce waste and environmental responsibility	Reduce hassles of purchasing new product	Try something new	Recommended by social circle	Fits with my personal beliefs and values
Rent and Borrow	5.0	3.0	4.0	2.5	4.0	4.0	3.0	4.0

Table 9 - Motivating Drivers for Segment One Renting and Borrowing Behaviours

This insight was also confirmed during interviews with Kitchen Library, The Tool Library, and other organizations. *“We made borrowing tools affordable and have removed the barrier to access... people respond to cost savings, being part of the community, and learning new skills... even though people don’t look at it from saving the earth point of view.”* – Lawrence Alvarez, President, The Institute for a Resource-Based Economy, Co-Founder, Toronto Tool Library.

The World Economic Forum and Accenture Report (2013), finds that sustainability is in “desperate need of a makeover”. Only 28% of people know what terms such as “sustainable,” “responsible,” “eco-friendly” and “green” really mean (World Economic Forum & Accenture, 2013).

This is an opportunity to reframe how we talk about circular consumption to certain segments of the population. There will be instances where instead of trying to promote environmental benefits, the framing can be more effective in incentivising behaviours by including cost savings and convenience benefits. For instance, Car2Go’s slogan is: “Simply. Always. Everywhere.” and their value proposition is “Affordable Drive for the City”.

Signaling Social Status and Relatedness

Our purchasing decisions seem to be closely tied with our sense of identity and our place in the world. We consume things in order to express ourselves and to experience who we think we are or who we want to become, and to position ourselves in relation to others we know (Croker, R., 2013).

In the survey, several respondents indicated how they signal their purchasing decisions to others:

- *I'm proud to display environmentally friendly products in my home when people visit.*
- *I'll show off furniture made out of recycled materials.*
- *When anyone compliments me on my clothes, I tell them about swaps.*

The latest research by BBMG and GlobeScan confirms the rise of more than two billion consumers globally who are “uniting style, social status and sustainability values to redefine consumption” (BBMG and GlobeScan, 2014). The characteristics of this consumer group they call “Aspirationalists” include a love of buying new things (78% as compared to 58% of all respondents); willingness to pay more for sustainably-produced products (91% versus 64%); and a desire to stand out for their personal style (73% versus 53%). *“Aspirationalists are materialists who define themselves in part through brands and yet they believe they have a responsibility to purchase products that are good for the environment and society,”* Eric Whan, Sustainability Director of GlobeScan (2014).

During the interview for this project, Jacquelyn Cyr, co-founder of R3VOLVED, said:

“People really care about the journey towards the ideal or the desired self. It's an attempt for personal branding, attention, and social capital. Beautiful things are beautiful... everyone should have access to nice things... We can't change this, as people care very much what other people think. However, what we care about

needs to change. There are mechanisms that exist to tell the story, and help people build social capital. "

CASE STUDY RAW is a fashion line spawned out of The Vortex Project, an initiative growing a new fashion market by transforming plastic waste found in oceans into high quality yarn called Bionic and making high quality clothing. The project partnered with Grammy Award winning musician Pharrell Williams to launch the first clothing line with a denim collection – launching at the New York Fashion Week; and infused this line with easily identifiable logo and patterns on the fabrics. Raw for the Oceans includes both a men's and women's collection comprised of jeans, tees, hats, sweats, and jackets.

<http://www.rawdenim.com/2014/09/g-star-x-pharrell-williams-raw-for-the-oceans-collection/>

4.4 Shifting Individual Values and Beliefs

In conducting an analysis of the survey responses across the three group segments, it became evident that when it comes to behaviours fitting with personal beliefs and values, Segment One, the 'Occasional Enthusiast' is the least likely to identify their personal beliefs and values as the primary driver for their chosen behaviours (median score of 4 as opposed to score of 5 for Segments Two and Three) regardless of how frequently they indicated they engage in any particular behaviour.

For the purpose of this analysis, The New Penguin English Dictionary definitions are used to define 'beliefs' and 'values'; where "belief: to consider something to be true, and use it as a guide for action"; "value: a moral principle or standard of behaviour"; relative worth, utility or importance. Some of the positive values and beliefs expressed by all three segments include:

Segment One: 'Occasional Enthusiasts'

- *Importance of being able to take care of things by repairing*
- *Helping others to learn how to repair and build*
- *Desire to learn how to fix things*
- *Repairing brings me back to my roots*

Segment Two: 'Value¹² Conscious Enthusiast'

- *Pride in displaying and showing off environmentally friendly products*
- *Frugality – looking for a great deal is important*
- *Feeling good in finding good value - good quality for good price*
- *Helpfulness in sharing deals and shopping tips with friends*

Segment Three: 'Circular Lifestyler & Advocate'

- *Leading by example*
- *Encouraging others to shift behaviours*
- *Living 'my' values*
- *We need to share*
- *Generate joy and community*
- *Concerned about... planet, fair trade, etc.*
- *Hate throwing things out*

Tapping into Existing Individual Values

As organizations transitioning to various circular business models and developing new offerings go about generating a value proposition that connects with their future consumers, it is important to consider how the values expressed by different segments of the population will fit into existing propositions. The Value Proposition Canvas developed by Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2014) expresses the importance of analysing customer jobs, customer gains, and customer pains, and in that

¹² Value in this context means "fair return or equivalent for something exchanged; the worth in money or commodities of something" (The New Penguin English Dictionary)

analysis, the importance of addressing not only functional jobs, but also social and emotional factors.

In fact, in expert interviews with organizations providing offerings within circular business models, businesses have also shared how they developed their value propositions as they gained a deeper understanding of their customer.

CASE STUDY During the interview Rent frock Repeat shared how their value proposition evolved as they better understood the existing needs of their customer:

“Our first model was focused on fashion, where we targeted ‘fashionistas’. But we realized that traditional fashionistas are only about 5% of our market. The kinds of customers attracted to our offer are busy women who hate shopping. These women are also looking for next level service, and while they don’t normally take risks with fashion, are willing to, due to the fact that they don’t have to keep the dress in their closet. So we transitioned into a new framing of our service which is about having less stuff and more experiences. Less stuff more life! First we focused on fashion, but now our value proposition has evolved to be about encouraging less stuff and more experiences.”

Rent frock Repeat is helping their customers feel good about finding great deals, save money, and share their experiences with friends. Their website cover page states: “Let us find the perfect dress for YOU for up to 90% off the retail cost.”

Identifying Decisional Points for ‘Unfreezing’ Behaviours

The difficulty lies not in the new ideas but in escaping from old ones, which ramify into every corner of our minds. - John Maynard Keynes, 1935

A vital ingredient for changing habits is to ‘unfreeze’ existing behaviour – by identifying natural transition times (i.e. moving, having a baby, going to college, graduating, getting married, etc.) At such pivotal points, behavioural economic theorists suggest solutions

can be applied to encourage more sustainable behaviours in the moment, thus locking in environmentally friendly behaviour over the long term (Ariely, D., 2015)

In the expert interview with IKEA Canada, Brendan Seale, Sustainability Manager, commented about transition times: *“When people make a decision, about a new couch or kitchen, these are the opportunities for engagement. There is an opportunity to suggest, “change the cover for example, but don’t necessarily buy a new sofa”. We need to figure out this transition.”*

Determining natural transition times would be one of the next steps for continuing the consumer research.

Shifting Values from Materialism to Relationships

In addressing limits to growth challenges as described in Part I, we need to shift from quantitative to qualitative growth (Capra, F., Luisi, P. L., 2014) which will require deep changes at the social, economic levels, and individual levels. Capra and Luisi (2014) eloquently illustrate the extent of the transformation:

“It will mean overcoming the evasive cultural conditioning of materialism and turning from finding satisfaction in material consumption to finding it in human relationships and community. For most of us, this value shift is anything but easy, as we are bombarded daily with a stream of advertising messages assuring us that the accumulation of material goods is the royal road to happiness, the very purpose of our lives.”

Just as consumer culture took a sustained and systematic multi-stakeholder effort to put it in place as described in Part I, we need to be prepared to engage in a similar magnitude of effort to unravel it.

In analyzing the survey responses to determine how much of an impact being part of a community has been self-reported by the respondents, Segment Three - ‘Circular

Lifestyler & Advocate' respondents' responses appear to be slightly skewed to being influenced by "being part of community".

	Segment 1 (N=15)	Segment 2 (N=28)	Segment 3 (N=20)
Repair	2.0	2.0	2.0
Buy Used	2.0	2.0	3.0
Rent & Borrow	3.0	3.0	4.0
Swap	3.5	4.0	4.0
Buy made from recycled	4.5	3.0	3.0

Table 10 - 'Being Part of a Community' Motivational Driver from Survey Responses

In addition, when totalling the number of times 'community' and 'neighbours/neighbourhood' were mentioned in the responses, it was interesting to discover that Segment One, the number of mentions = 0; Segment Two, the number of mentions = 4; and Segment Three, the number of times 'community' and 'neighbours/neighbourhood' were mentioned = 16.

Segment 1 (N=15)	Segment 2 (N=28)	Segment 3 (N=20)
0	4	16

Table 11 - Number of times 'Community' and 'Neighbours/Neighbourhood' mentioned in the responses

The technology, the business model, the offer could be there, but if people are unwilling to participate, because the social norms are not supporting the transition, there is a threat it will remain niche. Although we can tap into immediate cost savings realized in participating in some of the behaviours measured in this research, – to avoid a ‘rebound’ effect¹³ - we need to shift the goal of the system which includes a shift of perspective from objects to relationships (Capra, F., Luisi, P. L., 2014).

This is an opportunity for strengthening our social networks and community bonds for shifting consumption behaviour.

¹³ In conservation and energy economics, the rebound effect (or take-back effect) is the reduction in expected gains from new technologies that increase the efficiency of resource use, because of behavioural or other systemic responses. Frequently used when talking about energy efficiency. (Herring, H., 2008).

V. Parts of the Present to Strengthen

As we transition into circular consumption behaviour patterns, there are parts of the present which can act as valuable arbiters in order for us to have a flourishing future.

Treasuring Possessions and Heirlooms

"Owning tangible things is an undeniable human need. Products provide symbols of identity to users and people around them. They carry meaning and are a constant reminder of who we are, where we are, our activities, and our future." – Jonathan Chapman, Emotionally Durable Design.

In his brilliant book, *The Comfort of Things*, Daniel Miller (2008) reveals the private and intimate lives of thirty residents living on a busy a street in modern London. He places the focus upon the things that really matter to the people he meets, which quite often turn out to be material things: the house itself, CDs, Christmas decorations, old jewelry and outfits, greeting cards, photos.

One of the stories shared is about a man named George, who lives in empty surroundings. Miller (2008) reflects on this empty apartment in the following way: "... there is violence to such emptiness. Faced with nothing, one's gaze is not returned... There is loss of shape, discernment, and integrity."

Throughout the stories Miller shows the importance of "the aesthetics of care" as applied to objects and persons. He posits that applied equally, "one turns out to be the vehicle for the other".

We develop emotional attachment with objects, because they play an important role in memorable events in our past. Treasured personal possessions can play an important

and positive role for identity maintenance & continuity particularly during periods of change or crisis. Objects become extensions of ourselves, functioning as our external memories, assuring us of persistence of our identity and integrity of our being over time (Chapman, J., 2005).

‘Slow’ Movements

With its philosophical origins in the 17th-century writings of Francesco Angelita, who considered slowness a virtue, the “slow” movement was first applied to food and adopted a snail as its symbol, noting that the creature is “of slow motion, to educate us that being fast makes man inconsiderate and foolish” (Slow Food 2002).

The slow concept is now being applied as a prefix in other contexts. Slow Cities is a network of towns and cities formed in 1999 with the aim of taking the speed and stress out of urban life. Slow Fashion is characterized by longer life products and new definitions of luxury, quality and appreciation of craftsmanship becoming heirlooms of the future, and contributing to a lower consumption rate (Black, S., 2008). There are even “The Slow Design Principles” developed by Slow Lab Inc., which provide guidance for interrogative and reflexive tools for design research and practice (Strauss, C., Fuad-Luke, A., 2008).

Social Networks and Community Trust

In thinking about the longer-term goal of “overcoming the evasive cultural conditioning of materialism and turning from finding satisfaction in material consumption to finding it in human relationships and community” (Capra, F., Luisi, P. L., 2014), it is important to consider the role of trust and community relationships.

Social networks have existed in all human communities throughout history (Capra, F., Luisi, P. L., 2014). In a social network, people are empowered by being connected to the network, where the success of the community depends on the success of individual members, while the success of each member depends on the success of community as a whole.

However, a political scientist, Robert D. Putnam, reports that although social trust rose from the mid 1940's to the mid 60's, in the late 60's, this trend was reversed initiating a decline in social trust (Edmonds, A., 2013). This poses an issue, as he finds that "we are withdrawing from networks of reciprocity that once constituted our communities" (Edmonds, A., 2013).

Dr. Doug McKenzie-Mohr also writes extensively on the importance of 'community-based social marketing' for fostering sustainable behaviour change emphasizing direct, personal contact among community members and the removal of barriers to more sustainable actions and behaviours.

Strengthening our social networks and community trust is key in moving forward in the transition.

VI. Personal Journey - Autoethnography

My desire to understand drivers of behaviour towards sustainable consumption came about in 2010, through my work in carbon footprint management and reduction. I worked on several campaigns engaging citizens and consumers in reducing their carbon footprint. Through my work, I realized that behaviour change is complex and is influenced by many dynamic elements. This desire to understand behaviours has led me to undertake the Strategic Foresight and Innovation program to have the opportunity to gain tools to enable me to conduct this research.

As I began to learn more about the circular economy, I realized that although I was already leading a lifestyle to minimize my energy footprint, there was still much more I could do personally to reduce my material consumption and minimize my overall ecological impact. I also realized that as an advocate for a circular economy transition, I must walk the talk and practice the behaviours that I am looking to measure. As part of my effort to gain a deeper understanding of circular consumption behaviours, I chose to personally buy second hand, swap with others, fix, rent, and borrow instead of buying new durable goods. In addition, I chose to only buy items made with recycled materials whenever I had to buy consumables (if the option was there). I also decided to share my experience in a blog <http://sharingiscaringeconomy.tumblr.com> as a way to reflect on my journey and share my experiences with others.

As I began this journey, I at first felt constrained, as some of the brands that I normally choose to purchase all of the sudden were no longer an option – they do not yet participate in a circular economy. I also felt very vulnerable as I began to deconstruct how the items that I purchase shape my identity, and how much of my identity was rooted and

influenced by my surroundings. At first, I especially felt uncomfortable shopping second hand, in part because of my personal stigma associated with used clothing shopping, and in part because I was now faced with new options that I normally wouldn't choose. I also realized how much easier it is in the current system to buy new, than it is to repair or find something second hand. For instance, I realized that in order for me to repair certain furniture items and appliances, I need to learn how to repair them myself, or pay a hefty fee to get someone else to do it. At a time when anyone with a credit card can order almost anything they want with one click on-line, these new behaviours require effort and dedication. (My coffee table is still broken, waiting for me to complete this research, so I can take a course at the Tool Library to learn how to repair it. I could have already bought a brand new coffee table on-line and had it shipped directly to my home). Shifting behaviours on a large scale requires systemic solutions to increase accessibility on par with the current system.

Interestingly, imposing these constraints for almost a year (I began this experiment in June of 2014) have induced a deeper appreciation for the material goods that I already possess (I really want to learn how to fix that coffee table), and opened up new possibilities when I do need something new. I noticed that now when I think I need something, instead of the conventional reaction to buy something brand new, I take a new approach: I first consider if I even need it. Then, I consider, can I rent it or borrow it? Then, can I buy it second hand? And finally, if none of these options are available, I look for something that is made to last, can be repaired, and when possible made with recycled content.

I also realized that the most important aspect for me personally throughout this research and this personal journey are the great people I have met and the new relationships I have created. After attending several Repair Cafes, spending some time at the Tool Library and the Kitchen Library, I really appreciate being part of the community of people who are also engaged in circular consumption behaviours. The people whom I have met while conducting my expert interviews and in-person surveys have really inspired me to keep pursuing this lifestyle and to work even harder to scale and mainstream the circular economy.

VII. Recommendations for Action in Toronto

Bottom-Up Community Engagement

Toronto has been shown as one of the most multicultural cities in the world with immigrants making up over 50 percent of the residents (City of Toronto). This is an opportunity to learn from different cultures that already value repairing, sharing, swapping, and not wasting resources. By igniting change agents within local community groups and helping them share their stories, we can help them in effect model existing behaviours and values to affect larger social norms around us.

I will be running a workshop exploring collaborative consumption at the community level to further explore this topic at the Urban Ecologies Conference, on June 18th 2015 in Toronto. The workshop will be conducted using World Café method, where participants will have a chance to explore solutions and generate new ideas for the questions being explored including: how might we create formal or informal networks of reciprocity; and how might we foster community engagement within and across residential towers; as well as others.

Enabling Greater Accessibility

In Ontario, our Living Standards¹⁴ fell by almost 23% since the 2008 recession even as GDP recovers (Canadian Index of Wellbeing, 2014). Bottom-up engagement that helps to create opportunities for borrowing, renting, and swapping behaviour patterns can create a

¹⁴ Living Standards are measured by the Canadian Index of Wellbeing (CIW) in poverty rates; income fluctuations and volatility; and economic security.

perfect solution for not only reducing waste at the source, but also nurtures stronger community bonds, and helps to alleviate financial pressures by scaling sharing behaviours across communities and neighbourhoods.

The City can also work with the Toronto Community Housing Corporation (TCHC) and build public housing that provides infrastructure to allocate spaces for sharing libraries. Toronto Community Housing Corporation's housing portfolio includes more than 350 high-rise and low-rise apartment buildings (TCHC, 2015), with potential enabling spaces for sharing libraries stocked with durable items that are used infrequently that can be shared amongst the residents.

Advocating for Legislation to Counter Product Obsolescence

In Canada, waste management legislation falls under the jurisdiction of individual provinces. The Government of Ontario recently renewed commitment to waste reduction legislation (Ontario.ca, 2014) recognizing that robust waste diversion programs are critical to protecting the environment, recovering economic value in the waste stream, and realizing GHG reduction benefits.

This is an opportunity for setting robust eco-design policy to counter obsolescence, where as recommended by the European Environmental Bureau the government could set design requirements that makes products more easily repairable and longer-lasting; ensure that the materials and components of a product can be more easily re-used, refurbished and recycled; and ensure that products are free of hazardous or problematic substances, which can hamper re-use or recycling efforts (Arditi, S., 2015).

Creating Value Networks for Shifting Social Norms

In examining how we can enable the shift towards a circular economy, Forum for the Future identified the need for establishing value networks. Forum defines a value network as a “network of relationships, which creates both tangible and intangible value through a complicated dynamic exchange between individuals, groups and organisations”. Forum also suggests that a value network approach is about considering the wider web of relationships, and including the flow of intangibles like trust and knowledge (Forum for the Future, 2014).

I believe this approach can be used in shifting socio-cultural norms in Cities and communities.

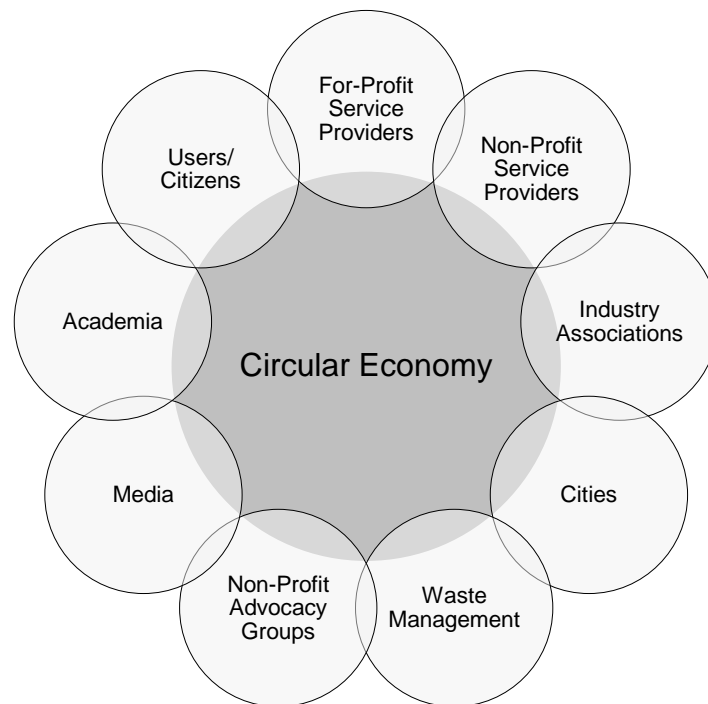


Figure 14 - Multi-Stakeholder Value Network for Shifting Social Norms in a Circular Economy

As we work to shift from defining ourselves by what we have, to defining ourselves by who we are, this new identity construction will involve the need for modeling behaviour, creating multiple social feedback loops to reinforce the behaviour, and leveraging traditional and new media platforms to mainstream these new norms.

I believe there is an opportunity for a large scale multi-year public-private collaborative partnership with an objective to conduct on-going consumer research, and work to prototype and develop localized as well as national campaigns to normalize circular consumption behaviours & value shifts in the transition. This Value Network could be incubated within an existing organization or be its own entity. A feasibility study would need to be conducted to determine a model that is viable, and clearly defined with the participating stakeholders.

Connecting Circular Economy Shifts with an Existing Cultural Movement

As there are transition moments to unfreeze individual behaviours, we must also identify transition moments within the society at large. In 2017, Canadians across the country will celebrate Canada's 150th anniversary.

As an important moment in Canadian society, this could be a time to launch a national initiative that helps citizens to reimagine a new narrative about how we define ourselves, and shift the national conversation from a consumer culture to a new identity that accelerates circular modes of consumption.

VIII. Concluding Remarks

Material consumption plays an important role in shaping and reinforcing our individual identity and facilitating our connection and relatedness to others. However, production and consumption of materials and energy at today's rate is a significant factor in driving climate change and resource depletion. With the middle class projected to double over the next 15 years, we will need "the equivalent of two Earths" to support us (Global Footprint Network). The Circular Economy proposes a viable way forward, with a projected opportunity of \$1 trillion in yearly savings in reduced material costs, and preventing 100 million tonnes of waste globally (The Ellen MacArthur Foundation).

As leaders in business, technology, design and policy embrace a circular economy approach and envision smarter, more restorative ways to design and facilitate longer use of products; consumers will have an important role to play across the entire product lifecycle - from helping to extend the useful life of a product, to properly recycling and returning used products at the end-of-life stage at the appropriate retail location or disposal facility.

Many of the ways that consumers access and use products in a circular economy vary from conventional consumer behaviours prevalent today, and will require behaviour changes. Individual behaviours are deeply rooted into external contexts, with individual habits shaping and constraining our choices and actions. Strategies for shifting consumer behaviours must empathize and recognize the various external contexts and identify decisional points for unfreezing behaviours.

Some of the approaches introduced in this research for helping to shift behaviours towards a circular economy include strategies for designing institutional contexts, shifting social norms, and shifting individual values and beliefs. The strategies and

recommendations described are not exhaustive and are meant to be guiding principles for taking action.

Recommendations for changing institutionalized context to help users extend useful product life and counter obsolescence include:

- Designing for reparability and ease of disassembly,
- Incorporating modular design,
- Offering greater repair options,
- Developing robust standards to counter obsolescence,
- Designing for desirability to counter perceived obsolescence.

Recommendations for improving user accessibility for renting and borrowing behaviours include:

- Widening the ecosystem with service design,
- Working with city planners to improve accessibility.

Recommendation for engaging consumers in choosing products made out of recycled materials, or products that are upcycled includes:

- Designing products that fulfill multiple design and usability criteria.

Recommendations for shifting social norms and normalizing circular behaviours include:

- Modeling Desired Behaviour – ‘Show, Don’t Tell’,
- Fitting Circular Consumption Behaviours into Existing Social Norms,
- Designing Experiences,
- Re-framing Messaging from Environmental to Other Benefits,
- Signaling Social Status and Relatedness.

Recommendations for shifting individual values and beliefs include:

- Identifying Decisional Points for 'Unfreezing' Behaviours,
- Tapping into Existing Individual Values and Beliefs,
- Shifting Values from Materialism to Relationships.

As we transition into circular consumption behaviour patterns, there are also existing behaviours and values such as treasuring possessions and heirlooms; slow consumption movements; and valuing community social capital that can act as valuable arbiters in order for us to successfully move into a flourishing future.

We have reason to be hopeful. People are starting to transition to circular modes of consumption: taking care of their items and repairing when needed, using car sharing services, borrowing tools and appliances, renting outfits, participating in swaps, and choosing items made out of recycled materials when shopping. Most importantly, social norms are also changing in part driven by people themselves, who are sharing their circular consumption activities with their social circles and are encouraging others to do the same.

Ultimately, as we work to overcome the evasive cultural conditioning of materialism and overconsumption, and work to mainstream circular consumption behaviours and values we need to remember – in the words of Capra and Luisi (2014) - “effective change needs to be a living process”. This is a time for critical and provocative debate surrounding the way in which we intend to live with our planet. We have to holistically understand how our system works, work collaboratively across boundaries, and be open to radical new ideas to be born in order to stimulate and enable positive future change.

IX. Next Steps for the Research

After conducting this contextual inquiry to better understand behavioural drivers for circular economy consumption patterns, it is evident to the researcher, that although some valuable insights were gained, the research conducted so far is only scratching the surface. The next proposed steps to continue consumer research includes:

- ❑ Scaling the research to understand how it fits into the Canadian population – what percentage of the population in Canada (or Ontario) fits into each of the segments, as well as what percentage of the population does not participate in any of the behaviours tested and why.
- ❑ Compare urban populations with suburban and rural populations to identify unique opportunities for engagement.
- ❑ Once a statistically significant sample of the population is gathered, explore different ways to segment the population once there is additional data.
- ❑ Measuring the specific antecedents of behaviour to understand what the social and environmental context is for each group segment to choose consumption behaviours. For example, it was discovered that cultural upbringing is driving some people to repair, additional research could help to uncover what some of the other cultural drivers are.
- ❑ The next stage of the research would also include transitional points for ‘unfreezing behaviours’, as well as drivers for sustaining behaviours.

The goal would be to make any additional research findings publicly available for change makers, organizations and policy makers.

Next Steps for Taking This Work Forward

- ☐ Host a workshop with organizations and individuals interviewed for this research, as well as others that have expressed an interest in sustainable consumption and circular economy to share findings, gauge interest in continuing this research, as well get input on further research funding.
- ☐ Host a workshop at the Urban Ecologies conference on Collaborative Consumption at the Community level with the purpose of engaging audience to prototype solutions.
- ☐ Conduct a feasibility study on how continuing this research could be funded. Determine if this research could be funded through a foundation or incubated within an existing think-tank, get funded by industry association, etc.
- ☐ Conduct a feasibility study on what it would take to establish a multi-stakeholder value network that develops and pilots solutions for cultural shifts in transitioning to circular economy; as well as acts as an advocacy/PR firm to promote circular behaviours - working with media to share circular consumption stories.

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Appendices

1. Appendix A: List of All Experts Interviewed
2. Appendix B: Research Methodology Details
3. Appendix C: Survey Segmentation Criteria
4. Appendix D: Glossary

Appendix A: List of All Experts Interviewed

The following individuals were interviewed as subject matter experts for this research:

Annette Synowiec, Manager, Waste Management Planning, Solid Waste Management Services, City of Toronto

April Rinne, Co-founder, Chief Strategy Officer, Collaborative Lab

Brendan Seale, Sustainability Manager, IKEA Canada

Bridget Croke, Director, Partnerships and Communications, Closed Loop Fund

Brock Macdonald, Vice-chair, National Zero Waste Council, Co-Lead, Circular Economy Working Group

Catherine Leighton, Program Manager, Recycling Council of Ontario

Daniel Bida, Executive Director, Zooshare

Dayna Boyer, Founder & Executive Director, The Kitchen Library

Emily J. Alfred, Waste Campaigner, Toronto Environmental Alliance

Eric Whan, Sustainability Director, GlobeScan

Jacquelyn Cyr, co-founder of R3VOLVED

Jessica Vaughn, Senior Trend Strategist, JWT

Jo-Anne St. Godard, Executive Director, Recycling Council of Ontario

Jodi Tomchyshyn London, Manager of Policy & Planning, Waste Diversion Ontario (WDO)

Kelly Drennan, Founder, Executive Director, Fashion Takes Action

Kristy Wieber, Co-Founder and President, Rent frock Repeat

Lauren Bellamy, Lead Stylist, Rent frock Repeat

Lawrence Alvarez, President, The Institute for a Resource-Based Economy, Co-Founder, the Toronto Tool Library

Louise Armstrong, Principal Sustainability Advisor, Forum for the Future, UK

Lucy Gao, Global Curator, Collaborative Consumption, Canada

Mark Latchford, Location Manager, Car2Go Toronto

Nathaniel Magder, Co-Founder, The Toronto Repair Café

Peter Hargreave, Director, Policy & Strategy, Ontario Waste Management Association

Peter Victor Ph.D., Professor, Faculty of Environmental Studies, York University

Torah Kachur Ph.D., Host, What a Waste, CBC Radio One

Vanessa Timmer, Ph.D., Executive Director and Co-Founder, One Earth

Appendix B: Research Methodology Details

The predominant methodology used for this research project was the Design Thinking method developed at the Stanford d.school. During the 'Empathize' stage, and environmental scan was conducted, as well as observations, expert interviews, on-line survey, in-situ (in-person) survey, and auto-ethnography.

To analyze the research findings, the Value Proposition Canvas developed by Strategyzer was used. Additional methods used were qualitative analysis, pattern analysis, and Attitude-Behaviour-Context Model developed by Stern (2000).

Semi-structured Expert Interviews

In this phase of the research semi-structured interviews with subject matter experts were conducted. The subject matter experts included researchers, waste management industry experts, sustainable consumption and circular economy experts; as well as representatives from for profit and non-profit organizations that are transitioning to or operating circular economy business models in Canada. The interviews were conducted in order to better understand what it would take to transition into circular modes of consumption and help to identify behaviours of consumers actively participating in new modes of consumption. The interviews were also conducted to gather case studies and strategies for developing an action plan for scaling circular models of consumption. Although not all the material gathered was used in the final report, the expert interviews have been critical in shaping this work.

Consumer Survey

A consumer survey was developed to gain a deeper understand of why users are engaged in circular patterns of consumption behaviours. Inspired by the integrated attitude-behaviour-context model developed by Stern (2000) to make sense of user behaviour (Jackson, T., 2005), the survey questions were developed in an attempt to measure the extent of influence driven by attitudes and values; contextual or situational factors; social influences; and personal capabilities. Survey respondents were asked to self-assess the frequency of participating in behaviours, to quantify their personal motivational drivers for choosing to participate in a behaviour, and to identify potential perceived or real institutional, social norm and values-based barriers that hinders their participation.

PARTICIPANT CRITERIA

The survey criteria includes people who chose to participate in at least one of the following modes of consumption instead of buying a new product: leasing/renting/borrowing (exemplifying temporary ownership); buying second hand (reusing); swapping and re-gifting (also reusing); buying items made out of recycled/reused material; and repairing (extending the lifetime of products). No other demographic characteristics were obligatory in the participant criteria.

METHODOLOGY

The survey was deployed with the help of four organizations: The Toronto Tool Library; Toronto Repair Café; Fashion Takes Action; and Collaborative Consumption Toronto, and was available on-line and conducted in-person at pre-selected locations.

The on-line survey was hosted on the limeservice.com, a survey service-platform, and deployed by participating organizations to their member/customer base with the

compliance to the federal digital privacy act (companies had previously obtained permission to contact the potential participants through email) or posted on their organizational Facebook accounts for their members/customers to see. Before accessing and completing the survey, each participant was presented with the consent form describing the project and about data confidentiality and anonymity. At any point, during this experience, the participants had the option to email the researcher their questions or requests for clarification. Before starting, participants provided their consent by clicking on a check mark.

The in-person intercept interviews took place at a Repair Café event located at the 'Skills for Change' Community Center, St. Clair West location in Toronto and at The Toronto Tool Library, Danforth East location. The survey participants had a chance to review the consent form and ask any clarifying questions before answering any survey questions. Both the on-line survey and the intercept survey specified in the consent form that the participants had to be 18+ to do the survey, and part of their consent was to confirm that they are in fact 18 years of age or above.

Neither the names of the participants nor any of their personal identifiers such as email or address were asked nor recorded. The organizations providing their store locations for the intercept survey will not have access to individual data. Participants did not share their names nor contact information, unless they specifically requested to be contacted with the final research report.

PARTICIPATING ORGANIZATIONS

The Toronto Tool Library: is an initiative of The Institute for a Resource-Based Economy (IRBE), a registered Canadian non-profit. The Toronto tool library allows anyone with a membership to sign-out tools for home and/or community initiatives. Since opening in March 2013, the Toronto Tool Library space has opened two locations, and is

in the process of opening a third location as part of a collaboration initiative with the Toronto Public Library.

The Toronto Repair Café: a volunteer-based repair service hosted their first event in May of 2013, and since then, has offered more than twenty repair cafes in 6 different neighbourhoods across Toronto; extending the life of more than 1,000 household items, diverting them from landfill. The repair volunteers have taught more than 1,200 people how to repair their broken items.

Fashion Takes Action: Canada's premier non-profit organization that focuses on sustainability in the fashion industry; working with both industry and the general public, with the goal to shift behaviour toward more positive social and environmental impacts.

Collaborative Consumption Toronto: is a meet up for anyone passionate about the sharing economy and collaborative consumption, welcoming entrepreneurs, those working for collaborative consumption organizations, users and early adopters.

Appendix C: Survey Segmentation Criteria

As part of data analysis, survey respondents were subdivided by the frequency of participation in the five behaviours, as well as kinds of activities performed for each of the behaviours to gain additional insights. Colour patterns, as well as qualitative analysis of the responses were used to subdivide the groups.

SEGMENT ONE – THE ‘OCCASIONAL ENTHUSIAST’

Selection Criteria: This category represents participants exhibiting the lightest frequency of activity in the five behaviour areas tested; where the respondent may have either never participated in 2 or more activities being tested, and/or has indicated infrequent participation (tried a few times) in 3 or more activities.

Number of respondents in segment: N=15 (9 from in-person surveys ~ 60%)

SEGMENT TWO – THE ‘VALUE CONSCIOUS ENTHUSIAST’

Selection Criteria: This category represents survey respondents who have indicated a participation in at least 3 out of the 5 behaviours semi-frequently or frequently; provide a range of activities in at least 3 areas (i.e. multiple kinds of items or activities cited for each behaviour). This group is not going above and beyond to participate in every one of the five behaviours, and if they have it may only be with one or two activities (i.e. buying recycled paper, repairing clothes and using car sharing on a monthly basis).

Number of respondents in segment: 28 (3 from in-person surveys ~10%)

SEGMENT THREE – THE ‘CIRCULAR LIFESTYLER & ADVOCATE’

Selection Criteria: This category represents survey respondents who have indicated a frequent on-going participation in at least 3 behaviours with multiple activities. Reviewing the frequency and open-ended responses indicates that these behaviours are lifestyle choices, and permeate majority of decision making, career choices, and volunteer activities.

Number of respondents in segment: 20 (5 from in-person surveys – 25%)

Appendix D: Glossary

> **Circular Economy** - an industrial economy that is by design or intention, restorative and in which material flows are of two types: biological nutrients, designed to re-enter the biosphere safely, and technical nutrients, which are designed to circulate at high quality without entering the biosphere.

> **Circular Business Models** - services and solutions that help to extend the useful life of products and/or find new ways to reuse materials across the value chain, and turning what was once seen as waste into a commodity of value.

> **Circular Consumption Patterns** - sustainable consumption patterns occurring in Circular Economy.

> **Collaborative Consumption** - An economic model based on sharing, swapping, trading, or renting products and services, enabling access over ownership.

> **Cradle-to-Cradle Framework** - seeks to create production techniques that are waste free, where all material inputs and outputs are seen either as technical or biological nutrients.

> **Lock-In** - an act or instance of becoming unalterable, unmovable, or rigid; can hamper innovation diffusion rate.

> **Obsolescence** - is the state of being which occurs when an object, service, or practice is no longer wanted even though it may still be in good working order.

> **Sharing Economy** - An economic model in which individuals are able to borrow or rent assets owned by someone else.

