National Zero Waste Council
Circular Economy Business Toolkit

Steps to
Starting Your
Circular Journey

zeroWASTE
NATIONAL ZERO WASTE COUNCIL
An initiative of Metro Vancouver

Introduction

The circular economy is an alternative to the predominant linear "take-make-dispose" economy of production and consumption, which relies on large quantities of relatively cheap materials and inputs, and produces a lot of waste. Regenerative by design, a circular economy keeps products, components and materials at their highest utility and value, at all times. It offers fresh opportunities for businesses and communities to more effectively compete in a resource-constrained world and provides a systems-based approach to preventing waste.

This toolkit is a how-to guide for businesses of all sizes, and sectors, beginning to explore the opportunities of circular modes of production and service.

The guide draws on a wide range of existing resources and research to define key terms, outline how businesses can benefit, and present case studies from around the world. References adapted for each chapter of the toolkit are listed at the back; additional resources are provided in each chapter. The toolkit covers three key areas:

- **BUSINESS STRATEGY:** how to develop a circular business strategy
- **DESIGN INNOVATION:** steps to include circular concepts in the innovation process;
- **STAKEHOLDER ENGAGEMENT:** how to engage top stakeholders in the circular initiative

NOTE: While circular business practices often conserve water and energy, this guide targets the flow and use of materials up, within, and downstream of businesses.

The Council recognizes the contribution of Cora Strandberg Consulting in the preparation of this report and the guidance of the Circular Economy Working Group in its development.

What is the circular economy?

An alternative to the conventional, linear "take-make-use-dispose" economy of production and consumption which relies on the availability of large quantities of relatively cheap materials and inputs in the production of goods and services and that produces significant volumes of waste. By contrast, the circular economy keeps products, components and materials at their highest utility and value, at all times. In practice this means:

- preventing waste through innovative business models or improved design – either for disassembly or durability;
- lengthening a product's life through enhanced re-use, repair or remanufacture; and
- improving end-of-life processing and resource recovery.

A circular business makes greater use of its physical assets, prolongs their life and draws more on renewable sources.

Why is the circular economy important?

The linear approach to industrialization is under immense strain. A growing and urbanizing global population is driving resource price volatility and resource scarcity. **Accenture** research shows that today's business practices will generate a global resource gap of eight billion tons between the supply and demand of natural resources by 2030. Forward-looking companies are looking for novel ways to maintain control over key resources while reducing risks and enhancing competitiveness.

Many believe that the circular economy, which de-couples growth from the consumption of natural resources, is shaping the next industrial revolution. Accenture predicts this shift to equal $4.5 trillion globally by 2030 across four types of waste in the linear economy.

Growth potential to 2030 in four linear economy waste streams*

Replace wasted resources

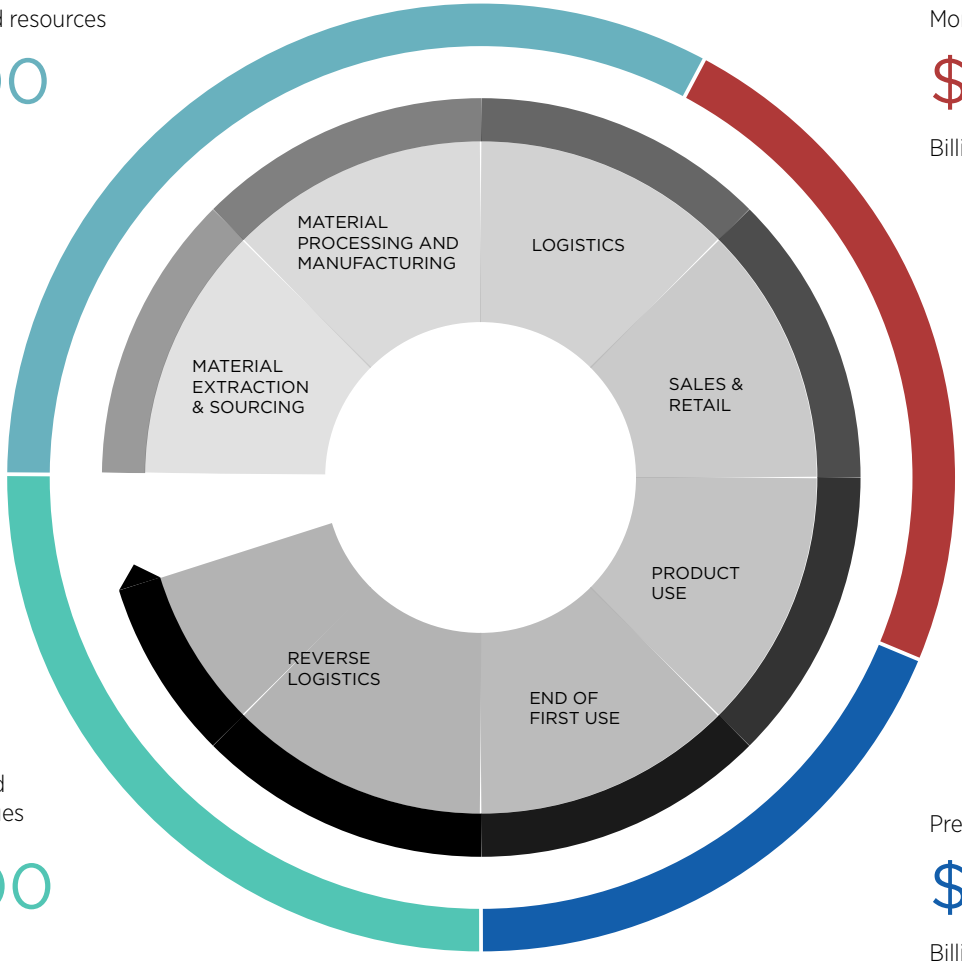
$1,700

Billion

Monetize wasted capacity

$600

Billion



Recover wasted embedded values

$1,300

Billion

Prevent wasted lifecycles

$900

Billion

- **REPLACE WASTED RESOURCES** – materials and energy that cannot be continually regenerated, but are consumed and forever gone when used.
- **PREVENT WASTED LIFECYCLES** – products with artificially short working lives or that are disposed of even if there is still demand for them from other users.
- **MONETIZE WASTED CAPACITY** – products that sit idle unnecessarily.
- **RECOVER WASTED EMBEDDED VALUES** - components, materials and energy that are not recovered from disposed products and put back into use.

*Adapted from: Peter Lacy and Jakob Rutqvist, Accenture Strategy, "Waste to Wealth: The Circular Economy Advantage" (page 30), September 2015, Palgrave Macmillan

How can business benefit from a circular economy?

Pursuing a circular economy model future-proofs a company, improving its ability to predict its future and positioning it for further growth. Circularity is a trigger for continuous innovation, enabling a company to deepen its engagement with its business and customer base ahead of competitors.

A circular business model can reduce risks and costs and increase revenues and profits through the following advantages:

- Developing new markets and customer segments, retaining and growing existing ones
- Satisfying changing customer needs and expectations
- Saving your suppliers, business and customers money
- Increasing security of supply and maintaining access to resources
- Improving price stability and predictability of inputs
- Attracting, retaining and engaging employees – and new partners
- Building company brand and reputation
- Getting ahead of government and investor requirements

Becoming circular is essential to long-term competitiveness and may be critical for a company's social license to operate and grow. The next three sections guide business leaders through a strategic approach to becoming circular, in these areas:

1. **BUSINESS STRATEGY**
2. **DESIGN INNOVATION**
3. **STAKEHOLDER ENGAGEMENT**

Business Strategy

This section will help your business develop a circular strategy, by:

- Identifying strategic risks and opportunities for becoming circular
- Analyzing value chain opportunities
- Understanding and choosing business model options

There is no one-size-fits-all circular solution. Your approach will depend on a number of factors including your business model, sector, value chain, available resources and location. Start anywhere, but take a strategic approach to selecting your options. Here are some steps to tailor to your circumstances.

Examine risks and opportunities

Hold a workshop with senior management and operations to uncover ideas for new business model applications. Organize your workshop around five questions:

- **LINEAR ECONOMY RISK:** What is the risk of continuing to operate in a linear fashion? What is our exposure to resource scarcity, a rise in commodity prices and environmental regulation over 3 – 5 years and 10 – 15 years? How can we diversify away from the increasingly scarce resources? What circular options will become available in future? What would our business look like in a circular world?
- **VALUE CHAIN OPPORTUNITIES:** What opportunities exist for adopting circular economy approaches in our value chain? Are there inefficiencies and waste in the value chain we can minimize or eliminate? What value could we recover from products we have sold for the last 5 years? If we had to take back all the products we sold, how would that affect design and production?
- **CUSTOMER VALUE CREATION:** What's the real value of what we deliver to customers and how can we create more value while rethinking how we deliver it? Can we reimagine how customers use our products or services? Can we help our customers increase the lifetime and utilization of our products? How does our business model need to change to capture the largest opportunities?
- **TECHNOLOGY AND INDUSTRY INNOVATION:** What is the potential to disrupt our business model through technology trends including science, engineering and digital technologies? If our industry standardized and shared as much non-competitive material and infrastructure as possible, how much could our industry save?
- **BUSINESS BENEFIT:** What benefits can be realized in the short and long term? Considering the list of business benefits from the prior section, which are most relevant to our future prospects?

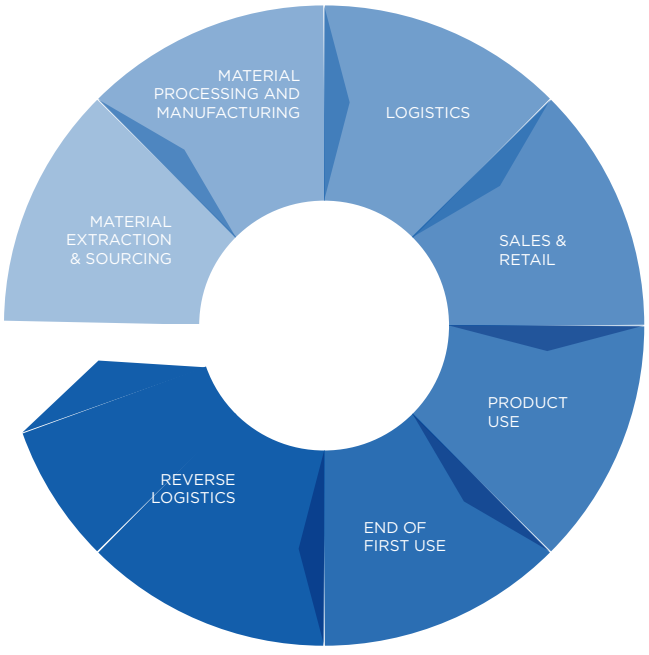
After exploring these questions your leaders could be sufficiently engaged to want these concepts developed further.

For a detailed case study of a global company's circular journey, check out **Philips**, the Amsterdam-based global tech company in the lighting, electronics and healthcare industry. While the company has operated refurbishment and recycling programs for over 25 years, it is now fast-tracking circularity - embedding the concept in its corporate strategy, rethinking its business models, and closing material loops.

Analyze value chain opportunities

An important step is to understand your value chain and the monetary value of your existing waste stream. Analyze the lifecycle of your product or service, or conduct a waste audit of your operations. A cost-effective approach is to conduct a high-level assessment of material flows in and out of your building or operations, looking upstream to source inputs and downstream to the customer use of your product and how the product is disposed of after use.

Here is a simplified value chain model to help with this exercise:



AT EACH STAGE IN YOUR VALUE CHAIN ...

- Determine the physical inputs required, inventory chemicals and materials, and assess the nature and volume of the waste generated and whether it could be useful to others, or monetized.
- Find out what materials are going to landfill and assign the cost of raw material inputs and the cost of disposal to each element. This will help prioritize the biggest impacts and financial opportunities. Consider if there is a procurement alternative or if the surplus could be creatively reused or upcycled.
- For products that are landfilled, find out why. Has the user lost interest? Are there visual defects? Does it no longer function? Understanding why a product is thrown out will give you insights into what improvements can be made.

Now, go back to the drawing board and review every element of your design, manufacture, supply and packaging process to close important loops, including selecting the right source materials and designing for repair and disassembly. Set up an internal group to meet regularly to explore ways to minimize waste and ensure waste that is generated is put to the best possible use.

Not all loops are as easy or as important to close as others, so choose the products and loops where the impact is the greatest. This might mean prioritizing your own brand products, where you have responsibility for end-of-use management, or prioritizing loops with higher-value materials and sufficient volumes to make it efficient to close them.

If you are investigating a new use for material streams make sure you have sufficient volume and purity, two critical factors in developing a viable reuse plan. For materials and products not available in sufficient volume, consider partnering with companies through existing relationships or industry associations to increase total volumes. Or look to third party services to manage that aspect of the closed loop supply chain for you. For example:

- Belgian company **Umicore** leases rare elements to customers, for use in their products. After use, Umicore recovers the elements and leases them to others.
- German company **I:CO**, short for I Collect, uses infrastructure to help retailers manage the collection of discarded clothing, shoes and accessories, at end-of-use. The company turns the collected textiles into valuable products such as insulation, carpet underlays, stuffed toys and shoe insoles.

Document your existing circular practices and see how you can build on and scale your prior knowledge and experience. For example, even before setting a circular intent, **TELUS**, a Canadian telecommunications company, diverts surplus office furniture and reuses network equipment from decommissioned operations, and provides take-back and pre-owned cell phone and TV equipment services for its customers.

Launch collaborative projects to understand the causes of waste across your value chain and operations. **Marks & Spencer**, a global UK retailer, took this approach early in its circular economy journey. The company set an initial goal to complete a review of circular economy opportunities across all parts of the business to identify the commercial viability of re-using waste materials. It set a second goal to conduct a series of collaborative projects to address the causes of food waste across its supply chain and operations and eventually set a 2020 reduction target. An internal project group meets regularly to explore ways to minimize unsold food and ensure that it is donated or put to the best possible use.

Company pivots business strategy, becomes closed loop

Novelis, the world's largest rolled aluminum company, announced a dramatic business shift in 2011. The U.S. firm expressed its intention to adopt an almost entirely closed-loop manufacturing system in which 80% of the aluminum it uses in its beverage cans, automobile parts and specialty products would be recycled material. This meant investments of more than $2 billion over four years, and has implications for every aspect of its business, from the basic design of its products and portfolio mix, to the structure of its supply chain and its customer relationships. When reached, the company will cut its absolute lifecycle greenhouse gas emissions in half, even with significantly increased production, and achieve its objective to be the lowest-carbon aluminum producer.

Source

Analyze business model options

Value chain research will likely reveal immediate opportunities and suggest new business models. Seize those immediate opportunities to generate enthusiasm among employees and customers, then build momentum and support for more transformative changes to your business model.

Below are five business models which **Accenture** suggests underlie most circular business innovations. They can be pursued singly or in combination. Determine which are relevant and will help your business achieve resource productivity gains, enhance differentiation and customer value, generate new revenue and reduce risk.

If developing a new circular business model, your company will need to decide whether to establish this by acquisition or joint venture, collaboration with partner companies such as suppliers, customers or haulers, or by organic growth and investment.

1. **CIRCULAR SUPPLY CHAINS** are where recycled, recyclable or renewable materials are used as inputs instead of non-renewable resources, lessening dependence on scarce resources and reducing waste. (**Case study**)
2. **PRODUCT AS A SERVICE** replaces ownership models with usage models, such as selling driving time instead of cars. This encourages companies to maintain products for longer and offers new services, such as long-term repair and maintenance. (**Case study**)
3. **PRODUCT LIFE EXTENSION** refers to extending the lifecycle of products and assets through repair, upgrade, remanufacture or remarketing. (**Case study**)
4. **SHARING PLATFORMS** use digital technologies to maximize the use of underused assets and increase the utilization rate of products by making possible shared use, access or ownership. Hotel rooms, vehicles and consumer goods are examples. According to Accenture, 80 percent of typical household items are used only once a month. (**Case study**)
5. **RECOVERY AND RECYCLING** recovers useful resources from disposed products or by-products. Some companies already re-use 100 percent of the waste generated at their manufacturing plants. (**Case study**)

What does the circular economy mean for companies that make products?

Product brand-owners have an important role to play. They can ensure products are designed and manufactured with minimal impact to the environment throughout the product's life cycle. They can also offer value-added services such as repair/maintenance, reuse/redistribution, refurbishment/remanufacture and selling products as a service.

What does the circular economy mean for retailers and distributors?

Product retailers and distributors have the opportunity to sell the best products initially and also deliver added-value services such as those described above. These foster closer relationships with the customer and opportunities at every lifecycle stage of the product. See more implications for sectors here.

INVESTING IN IMPLEMENTATION - Senior management needs to invest in implementation. Responsibility should be assigned to a senior leader, with goals and targets identified, measured and monitored. These should encompass business and societal goals such as waste diversion, greenhouse-gas emissions reduction, and job creation (entry level and professional). You may also wish to define the new skills, roles and jobs needed for effective execution. For example, the company's waste manager may become a commodity manager with a mandate to find alternative value from manufacturing by-products.

CIRCULAR CULTURE - Your company's leadership and culture must embrace and reward circular innovation because circular models requires a fundamental rethink of how companies create value. Include creative thinkers in your innovation teams - people who look at large systems from a fresh point of view. These should be people who can spot underutilized assets, cost inefficiencies, systemic malfunctions, negative consequences, externalized costs, constraints and the solutions to be found in nature's approach to design. It will be necessary to challenge conventional business models, and entrenched behaviours.

Resources for Business Strategy

Waste to Wealth: The Circular Economy Advantage. Peter Lacy and Jakob Rutqvist, 2015. Introduction to circular economy business benefits and strategies.

Products that Last: Product Design for Circular Business Models. Bakker et al., 2014. Practical guide to understanding a product's afterlife and opportunities to develop circular business models.

Circular Economy Toolkit: Resources for an Evolving World. University of Cambridge, 2013. Online assessment tool to help businesses prioritize circular economy opportunities.

The Business Opportunity of Closed Loop Innovation. Kingfisher, 2013. Practical resource on closed loop thinking with product innovation examples.

Design Innovation

This section will help your business understand how to embed circularity into design, with guidance for:

- Including designing for circularity
- Next generation design methods
- Using reverse logistics in the design phase

Designing for circularity

Design and product development are different in a circular economy. The focus shifts to designing for many lifecycles and users while optimizing the positive environmental effects of the materials used and minimizing or eliminating the negative environmental effects. Products can be adapted to generate revenues not only at point of sale but also during use. A low-cost return chain and a standard approach to reprocessing and tracing product chemicals and parts is needed.

By applying a circular lens to all stages of production and consumption, up and down the value chain, new opportunities for innovation can be spotted and realized. One single circular innovation can be a gateway to many add-on customer benefits and features, whether sustainable or not. For more on this, see the National Zero Waste Council's **Circular Economy Case Study Analysis**.

TO MODIFY YOUR PRODUCT DEVELOPMENT FOR CIRCULARITY, CONSIDER THE FOLLOWING:

- Begin design with the end in mind. Embed circular principles in the design brief, and as criteria in your innovation processes to encourage thinking about end-of-use recovery from the start.
- Hold workshops with designers, business strategists, and suppliers to map the entire value proposition of a product to see what needs to change and how.
- In material selection, use simple mono-material components. Assess which materials can be recycled, taken back as nutrients or phased out.
- Determine which business partners are needed and engage them in your design process.

DESIGN QUESTIONS

- What would nature do in designing this product? (See **Biomimicry**)
- What do our customers value? (See **Human Centred Design**)
- How can our product provide a net benefit to society? (See **Social Innovation**)

Inspired by Nature Design - PureBond® Plywood

PureBond® Plywood, manufactured by Columbia Forest Products, uses a chemical-free adhesive inspired by the way mussels adhere to rocks. This innovative alternative replaces urea formaldehyde resin – a chemical that is typically used to treat wood but that also limits post-use composting and recovery. By using chemical-free wood today, a wood waste problem is being avoided in the future.

Source

DESIGN PRINCIPLES

The National Zero Waste Council's **Design Guide** is a tool for businesses to consider design for circularity across a product's life-cycle – breaking design principles down into pre-use, during use, and post-use. The Design Guide reflects industry design principles, which can work individually or in combination:

- Durability
- Customer attachment and trust, so products are loved, liked or trusted longer
- Standardization and compatibility
- Ease of maintenance and repair
- Adaptability and upgradability
- Disassembly and reassembly
- Reuse, remanufacturing and remarketing
- Recyclability

NATIONAL ZERO WASTE COUNCIL DESIGN PORTFOLIO – CELEBRATING CANADIAN DESIGN FOR WASTE PREVENTION

Want more design inspiration? Check out this growing **portfolio** of products and packaging that prioritize waste prevention while showing what a successful market solution looks like. Assessed by an expert design panel, these products demonstrate that businesses can find cost-savings, reduced environmental impacts, and increased consumer appeal by designing differently.

Keilhauer

Viva

Steelcase

Next generation design

Consider whole systems when innovating. As you assemble your design team include those sourcing, designing, making, selling, using and recovering your materials and products, as well as your business strategists. Your materials scientists, physicists and engineers and operations and logistics staff could have valuable contributions to make to the new design.

Consider establishing a collaborative innovation lab, which brings together stakeholders to develop a common understanding of a problem and co-create solutions.

Some companies use open innovation platforms to crowd-source ideas from employees, suppliers, customers or the broader public. **Unilever**, a global consumer goods company, for example, maintains an Open Innovation Portal of its "challenges and wants". Packaging is one of twelve sustainability challenges and the company has posted technical details about the weight, quantity and waste of their product packaging. Universities, research institutes, entrepreneurs, small businesses and multi-national corporations are encouraged to submit ideas online.

Once a potential circular product or process has been identified, it may be necessary to undertake product development trials, initially at a demonstration scale and then at a commercial scale, to test the solution in the marketplace.

Try shortening the time to market and validate consumer preferences through rapid prototyping—a cost-effective demonstration and scaling process. This provides quick feedback from customers, stakeholders and employees, honing an innovation over several rapid cycles of design. Conventional approaches often involve heavy up-front investment, a big launch and little room for experimentation. Rapid prototyping starts with a simple "good enough" version of the product or process and invests in rounds of learning, development and fine-tuning based on feedback.

Closed Loop Innovation at Kingfisher

Kingfisher brought together its production, manufacturing, retail and logistics expertise into one team with a chemistry research centre, waste recycler and composite wood manufacturer to create a new engineering process called "ReMade". This helped them develop a composite material out of waste wood from their stores and end-of-life products for new kitchen and bathroom counters. This product is 30% lighter than similar products and is easier to handle and install, reducing breakages. The worktop's wood composite structure is more water resistant than traditional particle boards which are often damaged by steam and surface water. By replacing the use of virgin source material and harmful chemicals, the new engineering also reduces the product's carbon footprint and preserves natural resources.

Kingfisher aims to produce 1,000 products with closed loop credentials by 2020 and believes closed loop innovation will drive its next generation of business growth.

Source

Reverse logistics

For some business models it is necessary to determine how to get the material back via reverse logistics. Reverse logistics refers to the movement, collection, treatment and redeployment of used or surplus resources, including hauling, sorting, warehousing, de-packaging, disassembly, end-of-use segmentation and related infrastructure. Reverse chains must be effectively conceived early in the design process to manage take-back and buy-back.

Quality control is central when determining the optimal return and reprocessing chain. Collection systems must be user-friendly, accessible to consumers, and able to maintain material quality. Having the right relationships in place will bring your circular venture to life. Talk to your end-processors early in the design phase to get their perspective, insights and buy-in.

New relationships and processes need to be developed, such as return through long-term contracts, customer incentives, mail back, pay per use, etc. For example, **Rent Frock Repeat**, an online dress rental service, uses a mail-back service to facilitate formal dress rental across Canada.

These models create valuable opportunities to develop loyal customers, moving from one-off transactions to deeper relationships, with more customer interactions and new opportunities to do business. **Mud Jeans**, a Dutch denim company, are pioneering a leasing model for jeans which is also nurturing a long-term relationship with the customer. The user benefits from use of the jeans but the company retains ownership of the raw materials, getting the jeans back for reuse and recycling via mail-back using RePack - a returnable and reusable packaging solution.

Retailers of new products can offer take-back services so that when a customer buys a new product he or she can drop off their old one, either free of charge or in return for a credit on the new product. The retailer then sends the old products back to the distribution hub for collection by a recycler. Fashion store **H&M** encourages customers to drop off used garments in store for recycling, offering a coupon for future purchases.

Another option is to mark products with a web link that connects the last owner to a central collection hub via a drop-off point or a freepost return service. Mobile phones and toner cartridges are collected in this way, fostering a profitable and environmentally beneficial remanufacturing industry.

Reverse logistics essential to circular business model innovation

Enviro Image Solutions is a Canadian company that converts spent printing blankets used by printers from one-time consumables into multi-use assets. The company is extending the life of printing blankets by as much as 400 percent by maintaining ownership and utilizing reverse chains to get the blankets back after their first useful life.

Once a printer determines that a blanket can no longer be used it is crated and sent to the company for treatment. The company then ships the press-ready renewed blankets back to the plant. The printer retains ownership of the blanket throughout this process.

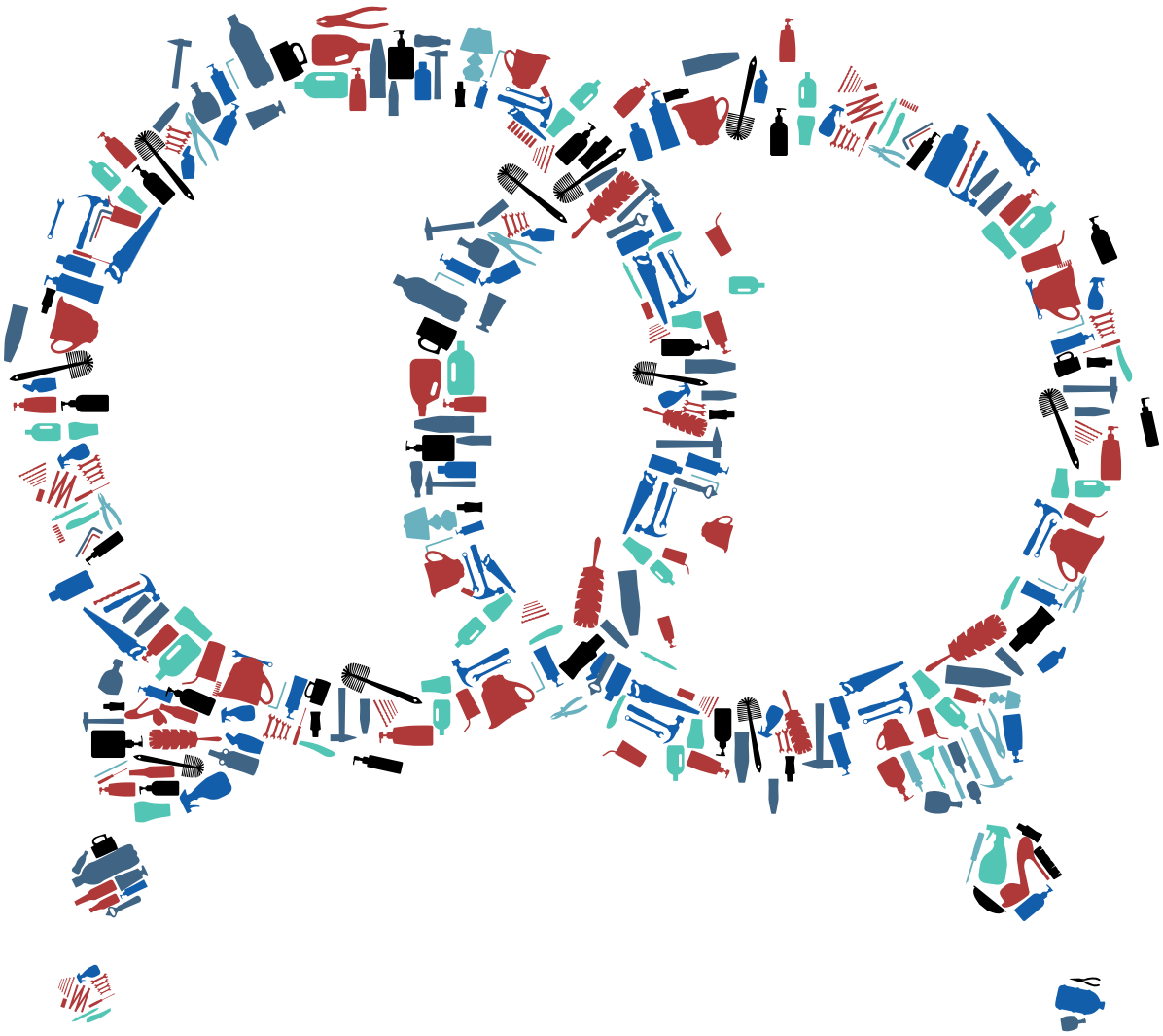
Source

Resources for Design Innovation

Products that Last: Product Design for Circular Business Models. Bakker et al., 2014. Practical guide to understanding a product's afterlife and opportunities to develop circular business models.

Biomimicry Resource Handbook: A Seed Bank of Best Practices. Baumeister et al., 2013. Instructional book on how to do biomimicry, including case studies.

Cradle to Cradle: Remaking the Way We Make Things. W McDonough & M Braungart, 2002. Seminal book on ecologically intelligent design and Cradle to Cradle design principles.



Stakeholder Engagement

This section will help your business engage stakeholders with tips on:

- Understanding the importance of engaging stakeholders
- Prioritizing stakeholders
- Engaging employees, customers, suppliers and industry partners

> A circular business model requires everyone involved in the product supply chain to become involved practically in 'stewarding' the materials used in the product, from 'cradle to cradle'.*

Mapping the value chain and the material flows in and out of your business will identify parties that can help bring your products to the market. You may also have included internal and external stakeholders in your processes to design new circular products and services. This section builds on these ideas, emphasizing the importance of stakeholder engagement in shifting to a circular economy and looking at key stakeholders to engage. This collaboration will help your stakeholders benefit from your circular innovations too — creating another virtuous cycle.

Why engage stakeholders?

Engaging stakeholders builds buy-in, creates the conditions for effective collaboration, and helps you gain insights, while fostering new habits and processes. Collaboration with suppliers, distributors, retailers, waste managers, customers and others is needed to keep used products, components and materials in circulation.

Circular businesses engage internally to tap into expertise, resources and networks, and to foster support. And they engage externally across value chains and sectors to help build systems to repurpose or reprocess technological, mineral and biological elements.

Often the circular expertise exists beyond your walls. You may need to look outside to other businesses, suppliers, inventors, scientists, etc. to identify the skills, techniques and systems you need.

Research on circular business models reveals that collaboration is essential. **Enterra Feed Corporation**, a Canadian company that has found an innovative solution to food waste, realized success through a partnership model, including collaboration with governments, universities, customers and suppliers.

* Source: Environmental Scientist, New Materials and the Circular Economy, Volume 24 (No. 1), March 2015, The Institution of Environmental Sciences.

Range of stakeholders brings Enterra's product to market

Enterra uses the larvae of black soldier flies to turn recycled food products into ingredients for fish and poultry feedstock, diverting organic food waste. Founded in 2007, Enterra engaged with diverse partners in its start-up phase, including:

- The City of Vancouver to find a suitable site for a demonstration plant.
- Canada's National Research Council, which provided $450,000 in financial support 2009-2013.
- Agriculture Canada and Kwantlen University to field test its natural fertilizer product.
- Skretting, the largest feed manufacturer for the aquaculture industry, to test its product on fish.

Enterra had to determine where and how to acquire its feedstock, how to move it, and how to pay for it. To assist grocery retailers – a key stakeholder – in overcoming waste food diversion challenges, Enterra set up a full service concierge service for traceable, pre-consumer waste food diversion, collection and up-cycling.

Moving forward, the company expects to also collaborate with two private equity investors, sought out for their strategic focus, expertise and networks. These partnerships create possibilities for joint venturing, driving innovation, scale and growth.

Source

Prioritizing stakeholders

Depending on your business model, you will need to choose from a range of stakeholders in planning your engagement strategy: staff, suppliers, manufacturers, retailers, customers, processors and haulers, government, industry peers, researchers, investors, etc. Relationship-building with everyone in your value chain will be necessary over the long-term but prioritizing top stakeholders in the short-term will enhance impact.

Using the five business models identified earlier, here are some possible top stakeholders to engage.

Business model	Sample top external stakeholders
Product as a Service	Suppliers and customers
Product Life Extension	Customers, suppliers, retailers and distributors
Circular Supply Chains	Suppliers
Recovery and Recycling	Recycling plants, regulators, landfill operators, haulers
Sharing Platforms	Users, insurers, governments

A value-chain analysis may reveal other stakeholders to bring your vision to life.

An engagement plan will help clarify objectives and guide implementation – setting out the purpose of your engagement, articulating your pitch or call to action, and ensuring that the relationships you champion create value for all parties. Benefits have to accrue to everyone for the innovation to work.

The typical hierarchy of stakeholder engagement starts at inform, advances to consult, before moving to involve and collaborate.

- **INFORM:** one-way engagement to inform or educate stakeholders
- **CONSULT:** modest two-way engagement to gain information, opinions and feedback
- **INVOLVE:** two-way or multi-way engagement where you work directly with stakeholder to ensure that their concerns inform decision-making and actions
- **COLLABORATE:** two-way or multi-party engagement for joint learning and action

The more you advance on this continuum, the more effort you need to invest and the more results you will notice. Your approach should be tailored to the scale and priorities of your business and initiative, with a focus on those stakeholders critical to your success.

As circular economy models can disrupt conventional linear approaches your efforts may encounter resistance. Draw on change-management literature which advises companies to invest time in developing a powerful pitch, one that demonstrates to stakeholders the business case or rationale for their products and services.

Suggestions are offered below for engaging four stakeholder group important to circular projects: employees, customers, suppliers and industry peers.

Employee engagement

As your company adapts the activities it already performs to the circular business model, employees in product development, marketing, logistics and procurement need to understand your motivations, goals and desired outcomes.

Measures to build internal support and participation include:

- Demonstrating the commitment and buy-in of senior management
- Building circularity into corporate strategy, policies, guidelines and procedures (e.g. procurement)
- Including circularity in job descriptions, reward and recognitions systems
- Training employees in aspects of circular production
- Communicating regularly and highlighting success stories

Internal communications will underpin your success. Employees need to know the “what, why and how” of your strategy and progress, throughout the initiative.

Customer engagement

Circular businesses often move from one-off customer transactions to ongoing and value-added customer relationships. Customer loyalty will grow as you introduce ongoing service models, take-back programs and access over ownership solutions. Businesses can spend a lot of money acquiring new customers; so, good stewardship of customers at regular touch-points is critical to ensure repeat business and sell additional products and services.

Incentives for the return and reuse of products or components at the end of their primary use
Cash rebates
Discounts on future purchases
Convenient return of product at company locations
Pre-paid shipping for returned products
Turn-key packaging (ready for immediate use) and pick-up service
Producer or distributor physically reclaims product
Manufacturer commitment to refurbish product and return for continued use

Your sales and marketing staff will be important internal partners in your customer engagement effort. As well as generating demand and fulfilling customer requirements, they will now need to boost revenues from the use of products and services rather than the simple purchase of them. Think of **Car2Go**, for example. Your sales and marketing teams will also need to figure out how to engage and incentivize customers to use and dispose of their products properly, especially if adopting service-based models where customers no longer have direct ownership of products. After-sales service staff will need to sell spare parts and manage channel partners, and become more active in managing the lifecycle of the product to maximize its retained value. Increasingly, sales and marketing will be driven by a keener understanding of the use-phase of products and services, to inform continuous improvement for circular use.

As you develop your customer engagement plan think about:

- Co-innovation, experimenting, testing and piloting with early adopters
- Customer research and education to overcome habitual barriers and advance new ways of thinking and acting
- Adding product extensions and value-added benefits after initial launch
- Developing strategies to turn customers into suppliers

Continuous customer engagement will help create a receptive market for circular products and enhance your competitiveness.

Value Village launches Rethink Reuse consumer campaign - landfills shouldn't be laundry piles

Value Village, a global thrift retailer, launched a Rethink Reuse consumer campaign in response to a troubling upward trend – an increase in the amount of clothing North Americans send to landfill each year. The initiative promotes rediscovering a "culture of reuse" by increasing awareness of the environmental impact of clothing, and encouraging repair and reuse alongside increased recycling to keep textiles out of landfill.

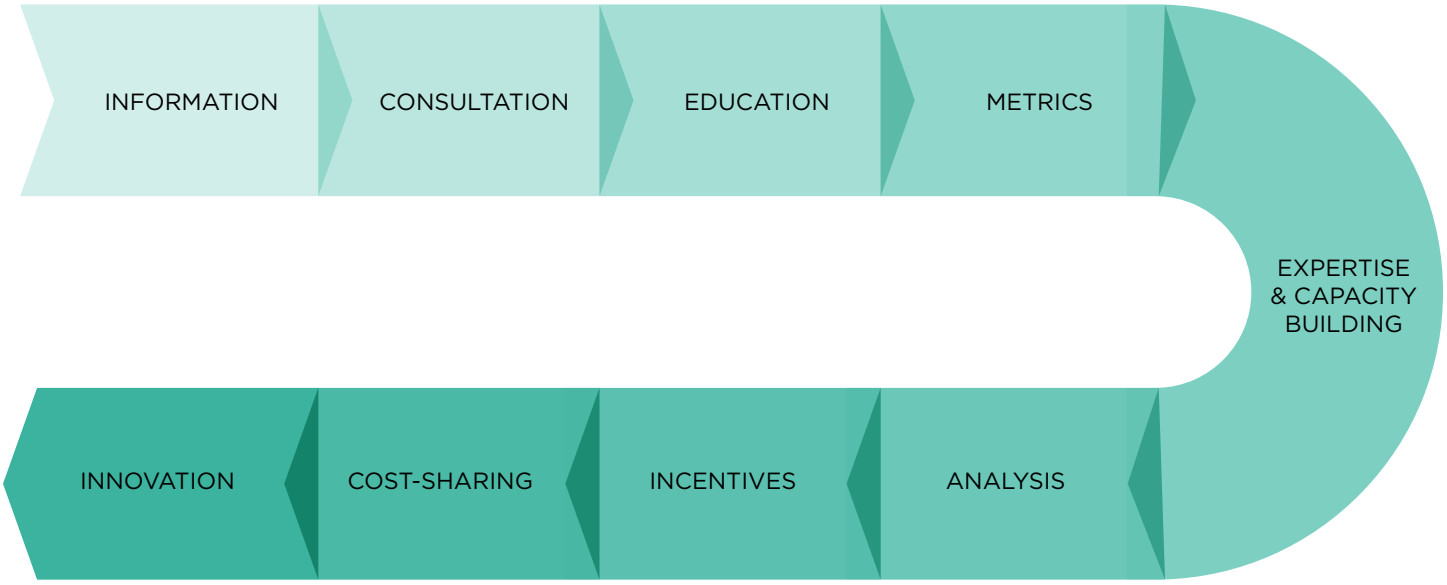
Source

Supplier engagement

To advance your circular innovation you may need to co-innovate with suppliers. This calls for a more engaged and collaborative relationship. Your business model options, value chain analysis and design process will already have identified whom to approach.

In some cases, your approach may be to specify your circular requirements in your bidding documents; in others, a more engaged and collaborative style may be appropriate. Here is a continuum of supplier-engagement practices to help develop your approach:

Supplier Sustainability Engagement Continuum



Source

There are many routes to supplier engagement. A possible first step is informing your main suppliers of your circular objectives. Subsequent steps include consulting them about your planned approach and providing information on how they can become a circular business themselves.

Developing and sharing metrics—about waste diversion for example—can help communicate progress. You may also fund or support measures to build the circular expertise and capacity of suppliers, conduct joint research on potential innovations, provide financial or preferred supplier incentives, share the costs of your supplier's innovation or jointly pursue other circular innovation.

As you roll out your venture consider whether material inputs for product designs are renewable or fully restorable, as well as their environmental footprint and toxicity. To maintain adequate volumes of inputs you might also need to reconfigure your supply chain from a few large-scale suppliers to many different small-scale suppliers.

Closing product loops might lead your company to think differently about how its supplier relationships work. For example, you might move to rental agreements with suppliers, an approach being explored by **Kingfisher.** Expect an explosion of new supplier-relationships in the coming years as businesses transition to the circular economy.

Industry engagement

It may be desirable to engage with industry peers, even competitors, to realize your goals. This is something to consider and manage carefully owing to intellectual property or collusion risks; however, economies of scale are a powerful rationale for joining forces with industry partners.

Industry engagement benefits

- Opportunities to co-fund research, while sharing or reducing risks and costs
- Opening up access to new expertise, competencies and perspectives
- Enabling logistic and infrastructure solutions for collection, transport, sorting, reuse and recycling
- Extending your reach and influence with customers, suppliers and governments
- Assisting with government outreach and standards development, and advocating generally for circular economy policy (e.g., to shape new regulations governing extended producer responsibility and product stewardship requirements)
- Fostering product and service innovation through cross-fertilization and joint venturing

A general process for industry collaboration includes: bringing parties together, creating mutual understanding, finding common ground, undertaking R&D to define and analyse risks and opportunities, defining the vision of a circular sector, setting baselines, goals and targets, and implementing and refining plans. Options include collaborating with sustainability leaders in your industry locally for local initiatives or nationally for national projects; collaborating through your industry association, or – for small business – working with a chamber of commerce or board of trade on collaborative projects.

Industry engagement success factors

- Contacts at the collaborating companies are empowered to make decisions and marshal resources
- Collaborative ventures do not breach rules or codes of competition
- Participating companies are committed, with common goals and objectives
- Transparent exchanges of information
- Clear, agreed-upon list of deliverables with long term system-wide goals alongside short-term quick wins

Industry collaboration to tackle supply chain issues

In 2014 competitors Target and Walmart co-hosted a Beauty and Personal Care (BPC) Products Summit, bringing together industry stakeholders to accelerate product sustainability. Pre-conference research was done to design a value-chain map of the "BPC system", and the Summit goal was to prioritize collaboration opportunities.

At the Summit participants identified innovation areas for further collaboration, which were further prioritized post-Summit to three areas where pre-competitive work with more than one player in the wider system would create the most benefits:

- Streamlined information-sharing across the value chain
- Science-based assessment criteria for evaluating product sustainability
- Pre-competitive development of new preservatives

As each action is developed, the ambition is that it will be adopted and driven by different players in the supply chain to drive sustainable innovation and benefit all the actors and customers.

Source

CO-LOCATION AND MATERIALS EXCHANGE - Co-located businesses can be a driver of circular innovation – enabling businesses to overcome challenges through collaboration. Sometimes called industrial symbiosis or industrial ecology, opportunities exist to establish relationships between two or more businesses in which the materials, energy, water or by-products of one business become the raw materials for another. Tire-shred, plastic pellets or waste steam from a factory are examples of outputs that can be sold to other businesses. This can also extend to the shared use of assets, logistics and expertise.

In Canada, the **National Industrial Symbiosis Program** (NISP) is seeking funding to launch the first pilot phase of a national program. Local industrial symbiosis projects, like the Brome-Missisquoi example, are also emerging (see text box). Platforms such as the **US Materials Marketplace** also exist to facilitate business to business material exchange over wider geographic areas.

Co-location and material exchanges can help companies:

- Reduce raw material and waste disposal costs
- Earn new revenue from residues and by-products
- Divert waste from landfill and reduce carbon emissions
- Open up new business opportunities

Synergie Québec – Industrial symbiosis success in Brome-Missisquoi

Initiated in 2014 by the Brome-Missisquoi Centre for Local Development, this regional industrial symbiosis project began by taking an inventory of possible items to be exchanged. Through this exercise 60 potential exchanges were identified for the 15 companies participating. In 2015, 20 synergies were implemented and the number of participating countries rose to 24. By reducing waste and the cost of raw materials, companies realized reductions in waste management and supply chain costs as well as:

- Economic gains of $200,000
- Recycling of nearly 15 tonnes of residual waste
- Reduction of 10.5 tonnes of greenhouse gases related to transportation
- Creation of 4 jobs related to environmental business management
- Training of 231 employees – with participants sharing expertise and training costs

Since the beginning of 2016, 18 new exchanges have been established and the number of participating businesses has grown to 32. Future areas of focus for new synergies include wood, chemicals, plastics and organic matter.

Source

Resources for Stakeholder Engagement

The Transformational Company Guide, Quality #13 – Stakeholder Accountability and Transparency. Canadian Business for Social Responsibility, 2015. Brief on why and how to engage stakeholders.

The Transformational Company Guide, Quality #15 – Industry Standards. Canadian Business for Social Responsibility, 2015. Brief on why and how to collaborate with industry partners, with examples.

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