

Expert Group

Circular Economy

Toward Circular-Economy Retail

Takeaways

1. Design thinking provides a framework for taking targeted steps toward building a circular economy. The challenge here is to think big and take small steps.
2. Since supply-chain partnerships are essential in order to create a circular system, you should aim to join forces with partners and design a circular model together.
3. The innovation involved in creating a circular system is very time-consuming and requires that you abandon old ways of thinking and start adopting new practices. You must be fully committed to making this into a success.

Host



Chair



How Your Organization Can Use Design Thinking to Achieve Success in the Circular Economy

Earth Overshoot Day marks the date when humanity has used up more resources and produced more waste than the planet can regenerate or absorb in a year. The day occurs earlier every year – while in 2018 it fell on August 1st,¹ in 2019 it is expected to be recorded in July. This means that, with each consecutive year, we consume more than the Earth is able to provide. So what is the solution to this problem? The answer is that we need to start changing the way we consume and produce by adopting a circular rather than a linear approach.



The story of 'stuff'

The Circular Economy Expert Group – comprised of various stakeholders in the supply chain, including retailers, manufacturers, waste-processing companies, freight forwarders, and academics – examined what steps the retail sector could take in order to move toward adopting a circular model. In order to tackle this challenge methodically and systematically, we used an approach known as “*design thinking*.” This approach helps to tackle issues for which no readymade solutions are available, as is the case with the transition toward a circular economy. We hope that this paper, in which we describe our approach and share our lessons learned, will inspire you to take a fresh new look at your business.

Unfortunately we are unable to discuss all the practical examples that we explored as a team in this blue paper. If you would like to learn more about our experts' findings, we recommend that you read the full blue paper published by the Circular Economy Expert Group on the ShoppingTomorrow website.



Circular Economy on ShoppingTomorrow

1. The Circular Economy Action Plan

1.1 Circular Economy

A circular economy is an economy where everyone makes maximum use of products and materials and minimizes the destruction of resources, so as to eliminate waste.² This concept is illustrated in the image below, courtesy of the Ellen MacArthur Foundation, a UK-based organization that is one of the main proponents of the circular economy.³

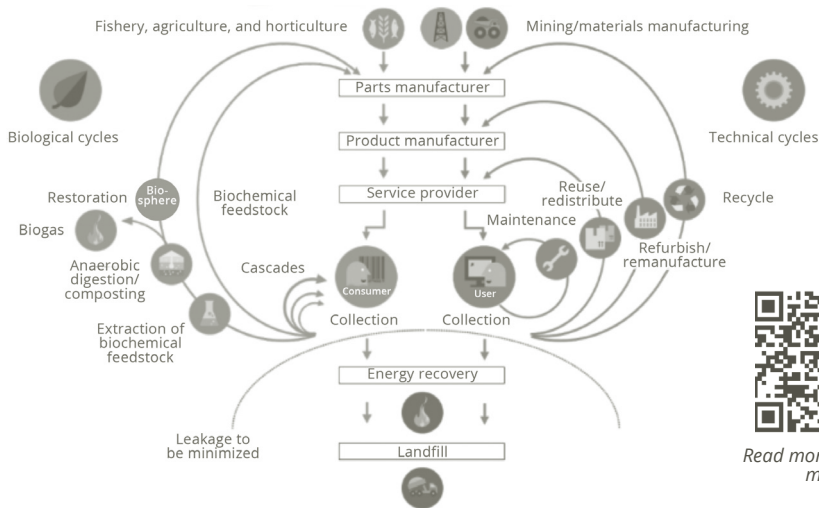
¹ WWW.OVERSHOOTDAY.ORG/

² WWW.MVONEDERLAND.NL/DOSSIER/WAT-DE-CIRCULAIRE-ECONOMIE-0

³ WWW.ELLENMACARTHURFOUNDATION.ORG/CIRCULAR-ECONOMY/INFOGRAPHIC

In a circular economy, products are reused as part of a regenerative design system and fully reintegrated in either a biological or a technical cycle. For technical products such as phones, the cycle would look something like this: the phone is manufactured, after which the parts are reused or repaired, and the residuals are recycled only after maximum value has been extracted from the product. In the biological cycle (which applies, for example, to food products), the product is first offered for use a second time (e.g., to a food bank), after which the biochemical components are extracted and the remaining product is fermented into biogas or composted.

Not all manufacturers can use their own recycled materials, nor is this the ideal way of preserving value. This is why, in a circular economy, the concept of the system takes center stage. In other words, it is not about several separate cycles running parallel to each other, but rather about looking within the system for the company that can recover the most value from semi-finished goods, technical or biochemical components, or recycled materials. In order to achieve this, labor becomes increasingly important and natural resources, materials, and parts increase in value, both financial and otherwise.



The circular economy⁴

1.2 Challenges for Retailers

The Dutch government aims to have fully transitioned to a circular economic model by 2050. This means that retailers, too, will be asked to rethink their business models. Existing regulations – including a ban on disposable plastics – will be expanded.

Like their counterparts elsewhere, Dutch consumers are becoming increasingly aware of the ecological footprint of their purchases and, when given the choice, no longer choose to buy new products as a matter of course. Market research reveals that 74% of Dutch consumers are willing to change their purchasing behavior either completely or in part.⁵ Numerous companies have already embraced this trend by redesigning their supply chain, business models, and production processes to become more circular. Several examples from our expert group:

⁴ ELLEN MACARTHUR FOUNDATION

⁵ WWW.INSIGHTS.ABNAMRO.NL/2018/01/WAAROM-NIEUW-KOPEN-ALS-HET-ANDERS-KAN/

- Signify, a manufacturer of LED lighting systems, provides a service model ('Light-as-a-Service') for lighting based on a circular approach.
- Euretco, a provider of retail, wholesale and franchising services, recycles old athletic shoes and uses the materials to create playground surfaces and test tracks for stores.
- Online retailer bol.com resells returned items through third parties.
- E-commerce company Coolblue offers its own repair service.
- Peerby is an online sharing community where people can share and borrow items (like power tools) from people nearby.
- Mail company PostNL is doing pilot projects with reusable packaging materials.
- Excess Materials Exchange is a marketplace for selling used materials.

Beyond our expert group, there are numerous other examples of companies that have embraced circular-economy practices – including fashion label MUD Jeans, which offers a leasing model for jeans, the In Stock chain of restaurants, which uses unsold fresh produce from grocery stores in its kitchens, and Van Hulley, which recycles your used button-down shirts into new boxer shorts. If you take a good look around you, you'll discover many other examples – for starters, check out the New Business Models database. It is our responsibility to provide guidance and inspiration for future formats.



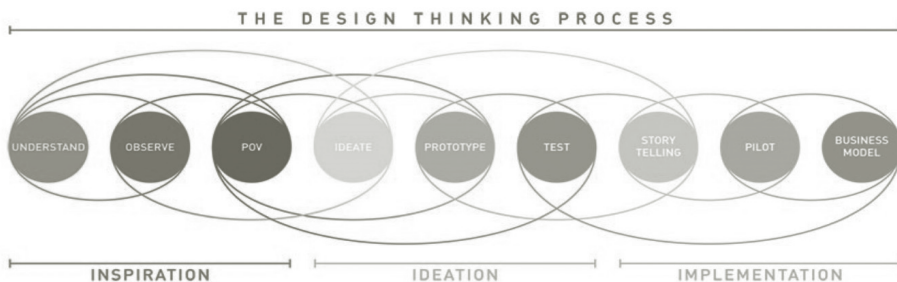
Go to New Business Models



Read more about the design thinking process

1.3 The Use of Design Thinking

The approach known as "design thinking" has its roots in innovative product development. During our sessions, we found this model to also be useful for an iterative approach to implementing a circular economy. Our expert group used the methodology to focus on the central question, prove what works, and subsequently start thinking about implementation. The model is suitable for learning purposes, as it allows you to jump back to previous stages in the process should this turn out to be necessary. The diagram below shows the version we used, developed by the design school d.school Paris⁶



The Design Thinking model that served as the basis for the Circular Economy Action Plan presented in this blue paper

1.4 Expert Cases

In order to add focus, we decided to home in on four cases: Smart Lighting, Fashion, Plastics, and

⁶ WWW.DSCHOOL.FR/EN/DESIGN-THINKING/

Electronics. Working in teams, we went through the different steps of the design thinking process for these cases. The lessons we learned from this process are described in the chapters below. We will start by providing a brief outline of each of the cases.

Case 1: Smart Lighting

The majority of retailers update their store design once every 5 to 10 years. During the remodeling, most systems, installations, and building materials are demolished and removed from the store. Would it not be preferable to give these materials a second life or recycle them as efficiently as possible? In this case, we explore potential ways of giving these systems and materials a second life, focusing on lighting systems.

Case 2: Fashion

The purpose of this case is to support consumers in making responsible choices when purchasing clothing by providing a benchmark they can refer to. Comparison of the sustainability of items is facilitated by colored labels attached to clothing items, where red denotes "room for improvement" and green indicates a high level of sustainability.

Case 3: Plastics

This case focuses on plastic waste. Online retailers regularly make home deliveries to consumers, providing a unique opportunity for creating a closed loop. Used plastic packaging materials can be collected and supplied to recyclers as ingredients for new products, generating zero pollution.

Case 4: Electronics

We all have old appliances sitting around the house. The government targets for returning electronics are currently not being met. We provide consumers with contact points where they can register their old products for pick-up. The platform creates economies of scale and improves cooperation in recycling.

2. Inspiration

The main purpose of the *Inspiration* stage is to identify the problem we are looking to solve or the situation we intend to change. The first step is to look at the individuals and situations involved in this issue as it manifests in everyday reality. Only after that do you proceed to exploring potential solutions. This way of going about things can be described as an "outside-in" approach.

2.1 Understand

In the *Understand* stage, we first look at what is needed in order to grasp the problem we are looking to solve or the opportunity we intend to seize. We did this based on a number of questions, starting out by analyzing all aspects of the problem and then reducing it to manageable proportions.

We used the following questions:

- Where and when does the problem most clearly manifest?
- How can we best convey the size and scope of the problem?

- Why does this constitute a problem?
- Which stakeholders would benefit the most from a solution?
- How can the problem be reduced to manageable proportions?

The most difficult step turned out to be the last one: boiling the problem down to something for which there is actually a solution available. This process really brought home the complexity of the circular economy.

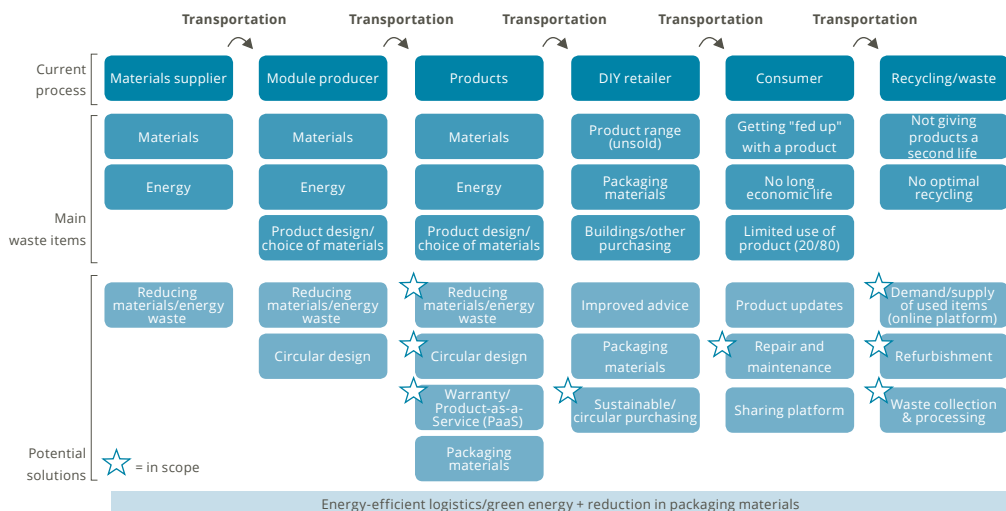
2.2 Observe

The *Observe* stage is when the situation is experienced so that all of its aspects become apparent. Ideally this is done by experiencing the situation in real life. The members of our expert group got a clear handle on the problem using the Value System Game. The pertinent question in this exercise is where in the supply chain value is lost (e.g., due to production inefficiency, waste production, or failure to use people's talents). How can this be turned around so that value is created instead (e.g., by selling products, recycling waste, or creating jobs)? Potential aspects to explore include packaging materials, the process and procedures used, transportation, the design and furnishing of buildings (stores and distribution centers), product returns, unsold products, and the end of life of products once they have been purchased by consumers.



View the information video on the Value Systems Game

An important lesson learned from this game was that circularity is a complex system involving a large number of players and processes. This requires that you learn to think bigger and get a clear sense of the flows and benefits of your supply-chain players. The generic process is shown below, including the typical waste items that come into play.



Generic retail process and typical waste items

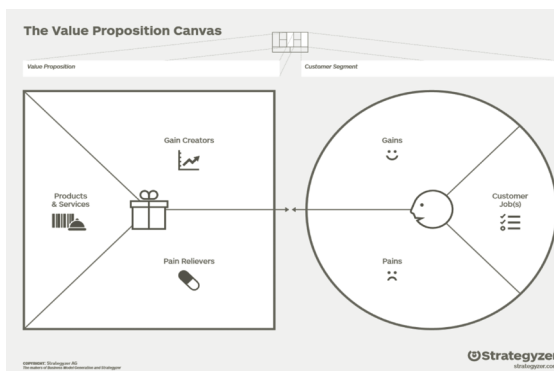
2.3 Point of View

The "point of view" (PoV) describes whose problem we will be solving and why it is worth solving. We used the table below, developed by the Interaction Design Foundation.⁷

Stakeholder	Need	Insight
The number-one stakeholder whose problem we will be solving.	The most essential need to be met. Use active sentences (including verbs).	The main insight you have obtained. This is usually not the reason behind the need, but rather an insight you can use to design the solution.

The second step was to sum up the PoV in single sentence using the following template:
"[Stakeholder] needs a way to [need], because [insight]. However, taking this step requires a genuine customer-centered focus on the problem in order to gain a valuable insight."

We also used a different method to identify the characteristics of the problem that we were looking to solve: completing the Customer Profile, the right half of Strategyzer's Value Proposition Canvas.



The Value Proposition Canvas helps you to first define the end user's current situation, followed by the potential solution to the issue they are facing. The Customer Profile is the circle on the right-hand side of the canvas and is filled out clockwise, starting with Customer Jobs.



View the video explaining the Value Proposition Canvas

3. Ideation

During the *Ideation* stage, we brainstorm about potential solutions to the problem that we explored, and start looking more closely into these solutions and trying them out.

3.1 Ideate

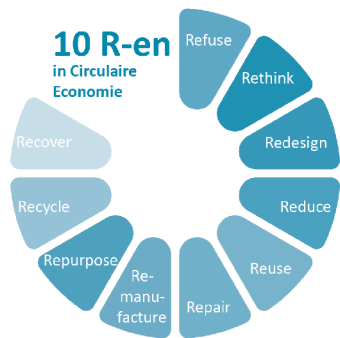
This is the stage in which we exchange ideas about possible solutions and eventually decide which idea has the most potential.

⁷ WWW.INTERACTION-DESIGN.ORG/LITERATURE/ARTICLE/DEFINE-AND-FRAME-YOUR-DESIGN-CHALLENGE-BY-CREATING-YOUR-POINT-OF-VIEW-AND-ASK-HOW-MIGHT-WE.

In order to structure the brainstorming sessions, we used the left-hand side (the square) of Strategyzer's Value Proposition Canvas (see the previous chapter), which examines the value created for the customer.

To make sure the solutions help to facilitate the transition to a circular economy, we drew on the 10-R model, which can be used to figure out how products can be recycled as efficiently and effectively as possible. This specifically also involves looking at businesses, manufacturers, and designers, in order to find alternative production and design methods and ways to structure business models.

In its position paper *Dit is het moment voor de circulaire economie*³ ("Now Is the Time for the Circular Economy"), *Thuiswinkel.org* included examples for all levels of the model. These examples demonstrate how the circular-economy concept can be implemented in the world of retail. In addition to playing a facilitating role between manufacturers and consumers, retailers may also be able to find ways to use their own resources more effectively.



1. **Refuse:** Rejecting superfluous products and/or product parts, including packaging materials.
2. **Rethink:** Changing your mindset/adopting a different approach to waste. For example, sharing platforms can increase product usage.
3. **Redesign:** Adapting the design of products in order to extend their economic life, give them a modular structure, and use sustainable materials.
4. **Reduce:** Reduce the use of natural resources during the production process, e.g., use a different packaging method that requires less air.
5. **Reuse:** Full reuse of products for the same purpose by another consumer.
6. **Repair:** Product repair and maintenance. Retailers join forces with other companies to provide repair services.
7. **Remanufacture:** Manufacturing new product from old products or product parts.
8. **Repurpose:** Reuse of products for a different purpose.
9. **Recycle:** Processing and reusing materials from products (generally resulting in depreciation in value). Retailers can collect and subsequently provide packaging materials, which are then recycled into new packaging materials.
10. **Recover:** Incineration of materials, with energy recovery.

The 10 Rs describe the changes that can be implemented to transform linear into circular processes

3.2 Prototype



The *Prototype* stage involves creating a prototype for the solution selected. The prototype is perfect for the purpose of assessing the main assumption behind our idea.

The first step the expert group took for our cases was to identify the assumptions that needed to be correct in order for the solution to be successful. This involved creating a test to verify that our main assumption was accurate. This was the first of the prototypes we designed. We used Strategyzer's Test Card to develop this test.



View the Test Card

3.3 Test

The next step is to use our prototype in a test situation in order to collect feedback. If the test is successful, we can continue to build on the prototype in order to test our next assumption. If this assumption turns out to be inaccurate, we need to return to the "Ideate" stage in order to come up with a new solution that could potentially work.

The experts did some basic testing of the prototype they designed on the other members of the group. They recorded their outcomes on the Learning Card, which was also designed by Strategyzer.



[View the Learning Card](#)

4. Implementation

The *Implementation* stage refers to the moment when we really want to incorporate our product into our business model.

4.1 Storytelling

The first step is to persuade our decision-makers and other stakeholders that it is a good idea to roll out our solution in practice. We found that *storytelling* is a powerful tool for this purpose.

The experts summarized their solution to each other in an elevator pitch,⁹ using the "Pixar in a Box" course for inspiration.



[Pixar in a Box](#)

4.2 Pilot Project

In addition to the requirement that the solution work in practice, the rest of the company also has to be assessed in terms of how it is faring with the new solution, and whether there is broad-based support for the solution. During the *Pilot Project* stage, we allow all of the organizational units, processes, and individuals who will be using the new solution to experiment with it on a limited scale.

⁹ WWW.OCW.MIT.EDU/COURSES/HEALTH-SCIENCES-AND-TECHNOLOGY/HST-921-INFORMATION-TECHNOLOGY-IN-THE-HEALTH-CARE-SYSTEM-OF-THE-FUTURE-SPRING-2009/LECTURE-NOTES/MITHST_921S09_LEC07_TU_PCH.PDF

We described our plan based on the following structure:

- Purpose of the pilot project
- Criteria for success
- Core approach of the pilot project
- Design:
 - * Technology (including tools, resources, software, and hardware)
 - * Processes & organization (including primary processes, support processes, roles, and teams)
 - * People (including training, communication(s), and change management)
- Time frame

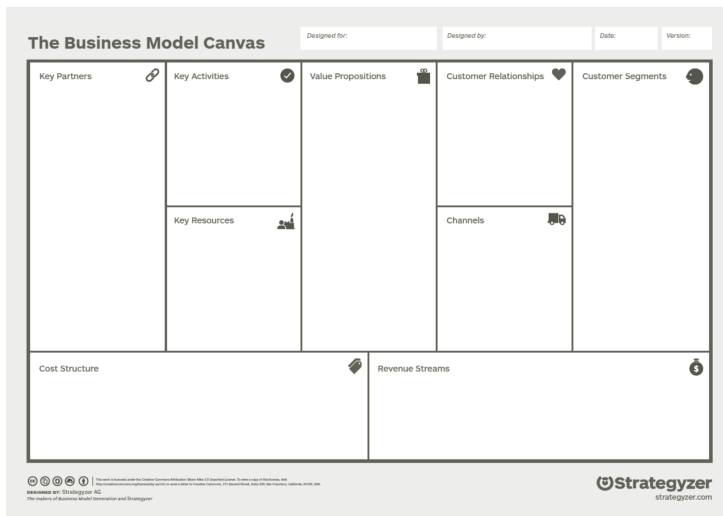
4.3 Business Model

In the final stage, *Business Model*, we integrate the new solution into the company's day-to-day processes. We once again used a

Strategyzer tool for this: the Business Model Canvas (BMC). This model allows you to map out all of the processes, stakeholders, kinds of value creation, and costs involved. For the segments on the right and in the center, you can use the outcomes of the Value Proposition Canvas from the "Ideation" stage.



View the video explaining the model



When developing the business models, we noticed that our initial points of view had evolved to a significant extent. The main idea remains to keep the problem we are attempting to solve as small as possible, with the challenge then being to assess how it might grow in a more complex environment. The small steps we took in each of these projects were further refined in each separate case.

One thing to keep in mind in relation to the business model is that it does not factor in the environmental and social costs and benefits of a company and its ecosystem, even though these aspects are key parts of a circular approach. We learned at a later stage that the "cloverleaf" model developed by Jan Jonker does meet this requirement.



More information about the cloverleaf model

5. Conclusion

The expert group's main goal was to find out whether design thinking is suitable as a framework for transitioning to a circular economy. We are pleased to report that the conclusion is overwhelmingly positive. The design thinking model we used enabled us to take a systematic and methodical approach to venturing into an area in which we had only limited experience. What worked especially well was that design thinking forced us to start by gathering a wide range of information before taking small steps ("*Think big, act small*").

The methods used in the various stages of the design thinking process can be implemented as required and also leave ample room for experimentation. While some methods served us well (including the Value Proposition Canvas and the elevator pitch), others proved to have their limitations, such as the Business Model Canvas, which is designed mainly for use as a financial tool.

Since the circular economy depends to a significant extent on supply-chain partnerships, it was advantageous that our group included representatives from a wide range of companies. Our recommendation, therefore, is for companies to seek cooperation with partners in order to develop a circular model together. This can be hard to square with the "Think big, act small" principle, as a partnership can easily make things complex. It is important to find the right balance in this regard.

Innovation and research are both very time-consuming. During our meetings, we learned many valuable lessons about the approach to be used and, to some extent, about implementation. While design thinking is an iterative approach, which can be used to achieve minor successes within a short period of time, it will take a while before more high-impact results are achieved, particularly where a complex issue such as the circular economy is concerned.

As it turns out, there are numerous areas in which retailers can adopt circular-economy practices, including product range, building(s) and stock/inventory, logistics processes, providing information to consumers, improving packaging quality, and so on – the list is endless. It is recommended that you start out on a small scale in one of these areas and then expand from there.

In the final section of this paper (on the next page), we will provide a brief summary of our four cases. Needless to say, we hope these innovations will be implemented in the near future.

	Case 1 Smart Lighting	Case 2 Fashion	Case 3 Plastics	Case 4 Electronics
What is the problem?	The majority of retailers update their store design once every 5 to 10 years. During the remodeling, most systems, installations, and building materials are demolished and removed from the store.	It is very difficult for consumers to make responsible choices when buying clothing.	While plastics serve a functional purpose, they also pose an environmental problem that it seems can only be solved if more plastics are recycled.	We all have old appliances sitting around the house. Many items spend years collecting dust in consumers' homes. The government targets for returning electronics are currently not being met.
So what is your solution?	A platform where used construction products (such as lighting fixtures) can find new owners and that also offers warranties and/or leasing models. This gives construction materials a second, third, or fourth life, while materials are no longer 'owned' but rather 'used.'	Helping consumers to make responsible choices by offering a benchmark. Facilitating the decision-making process by enabling consumers to compare between clothing items featuring colored labels (similar to the colored labels used for food products sold in grocery stores).	Freight forwarders and online retailers regularly deliver items to people's homes; this provides unique opportunities for creating a closed loop. High-quality used plastic packaging materials can be collected and then supplied to recyclers as ingredients for other products.	We provide consumers with contact points where they can register their old items for pick-up. All the relevant parties can join a central platform, which creates economies of scale and improves cooperation in recycling.
How do you win consumers' trust?	Suppliers of construction materials are best placed to gauge the technical life of products and can design products that are compatible with the circular economy.	By using existing, familiar, and reliable certification. Transparency (e.g., using QR codes on labels, which allow consumers to find more information on things like the production process).	The e-commerce sector has strong logistics capabilities and already interacts closely with customers.	The platform is independent and records relating to returned items are transparent (especially where data-storing devices are concerned).

	Case 1 Smart Lighting	Case 2 Fashion	Case 3 Plastics	Case 4 Electronics
Describe your value proposition	Retailers that lease used products are more sustainable; it also tends to enable them to cut costs. Where lighting is concerned, retailers have access to up-to-date services and software that can be used to have lighting enhance the shopping experience and boost sales.	A two-pronged approach: consumer education and an agreement that leads to various initiatives. This sets in motion a shift toward a more sustainable world for suppliers, retailers, and consumers.	Convenience is one of the major draws of online shopping. This likely applies not just to the purchasing process, but also to offering to take superfluous items such as packaging materials off consumers' hands. This enables consumers to contribute to creating a circular economy without too much effort, while recyclers can derive even more value from plastic flows.	This is valuable, because it will encourage consumers to return their old products, which they are currently not doing to the extent required. Products are returned to manufacturers, who can then re-use parts, thereby meeting the statutory requirements.
Provide a Call to Action (CTA)	Encourage retailers looking to make progress toward building a circular economy to get involved in innovation!	Appeal to consumers' conscience: know what you buy!	E-commerce companies and plastics recyclers need to establish partnerships in order to be able to offer this service.	Join the platform and return your old electrical appliances!

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