



# IMSA

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## Circular Business Models

Part 1:  
An introduction to  
IMSA's circular  
business model scan

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### Preface

Throughout the world more and more companies have started to develop and apply circular business models. These are business models fitting in a circular economy, i.e. an industrial system that is restorative or regenerative by intention and design. In our view, the essence of a circular economy lies in new types of economic transactions, which focus on performance rather than ownership. This is why we present a scan for circular business models. The combined effect of these business models is an economy with a biotic circle consisting of cascades of biomass (biotic resources) and closed circles of other (abiotic) resources. The latter means that abiotic resources are constantly reused in products and do not end up as waste in nature.

In the EU alone, a circular economy can save valuable resources by avoiding hundreds of millions of tons of waste, create millions of jobs, and strengthen businesses and our economy with opportunities worth € 250-600 billions of euros. Through the concept of the circular economy, Europe can become less dependent on raw materials and energy from outside the continent. Both society as a whole as well as forward-looking businesses will benefit. In addition, IMSA attaches great value to the capacity of a circular economy to reduce negative environmental impacts and the use of toxic substances.

The transition towards a circular economy is far from happening by itself. Many circular businesses are currently succeeding in spite of, rather than because of, the regulatory framework. But that is not the central question in this report. Here, we investigate the question: what circular business models are there? How many are there, and what are their characteristics? From which of these circular business models could a company choose if it decides to pursue circular business?

To our knowledge, such a list of circular business models does not yet exist. Pioneering work of professor Jan Jonker has extensively described the process of how to develop a circular business model. Accenture has identified five circular business models. Others circled around the theme with publications about new business models. What we did was integrating existing knowledge to produce a new list containing 19 circular business models in six categories.

In addition, following a suggestion by our CEO Max van der Sleen, we have developed a circular business model scan for companies. This scan will provide an analysis of your existing business and identify opportunities for creating circular business. While existing scans focus on material flows, mapping of which can involve a lot of work, our approach starts with following the money. That is, we look at the process of value creation, which lies at the heart of the circular economy. Contrary to what you might expect, some of the money flowing through your company will probably already be circular in nature. The scan is completed with a roadmap for implementation.

Part 1 of this report contains an introduction to the circular business models we identified and IMSA's circular business model scan. Part 2, which can be freely obtained by contacting IMSA, describes the circular business models in more detail, along with examples.

We hope this report will inspire you to look into the business models underlying the revenue in your own company and makes you curious to find out what circular opportunities are out there, waiting for you to turn them into real value.

Arthur ten Wolde & Douwe Jan Joustra



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## 1. Circular economy and business model innovation

### 1.1 Introduction

Circular economy is most commonly described as a system that is regenerative by design. Put simply, it aims to minimize the input of new materials in the production system, as well as the amount of waste that is created throughout the entire process. It is a holistic perspective that holds that waste does not exist, since products and abiotic materials cycle in closed loops. The Ellen MacArthur Foundation<sup>1</sup> is currently seen as the leading, global organization on circular economy.

The circular economy theory is based on various schools of thought including cradle-to-cradle, blue economy, regenerative design, sustainable development, performance economy and industrial ecology. From these various disciplines key principles have been derived such as ‘design out waste’, ‘build resilience through diversity’, ‘renewable energy’, ‘think in systems’, and ‘think in cascades’.<sup>2</sup> A new economic system, the circular economy, is needed in order to deal with current trends. Growing resource scarcity, volatile price markets, societal unrest and emerging environmental problems such as pollution and rising global temperatures are challenging businesses today and in the near future.

In a circular economy we need circular business models. A business model depicts how an organization creates, delivers and captures value. It is a conceptual tool to understand how a firm does business.<sup>3</sup> It’s a simplified rendering of reality.

In the current, linear economic system a take-make-waste approach is apparent, in which natural resources are used to create a product, which ends as landfill after use. This linear system uses certain, well-known, business models, generally described as ‘transactional business models’. The most recognized example is selling, where a product changes ownership from manufacturer to consumer upon sale.

In a circular economy we are looking at fundamentally different business models that organize business outcomes based on performance, and where ownership remains with the producer or service provider. Switching from product selling to service provision is not easy.<sup>4</sup> Nonetheless, we see successful examples already taking place.

100% circular business models do not exist (yet). Not creating any waste at all is difficult to achieve for physical and practical reasons. In contrast, fossil fuel consumption for example comes very close to pure waste creation. A business model does not necessarily need to close the loop all by itself to be circular. As part of the bigger system, one business model can be adding to other business models (and companies), which together create a closed loop system.<sup>5</sup>

This document will introduce you to business model innovation, to nineteen circular business models IMSA has identified, and to the scan we have developed to create insight into your costs and revenue streams generated by circular business activities. With the outcomes of the scan you can focus on business model innovation in order to prepare your company to be competitive in the circular economy.<sup>6</sup> In case you would like to know more, an elaborated report on the nineteen circular business models, is available by contacting IMSA.

### 1.2 Business model innovation

Business model innovation offers a potential approach to deliver the required change (in this case, the move from linear to circular) through re-conceptualizing the purpose of the firm and the value creating logic, and rethinking perceptions of value.<sup>7</sup> An important aspect of circular business models is that the consumer often becomes user, instead of owner of a product, which is summarized under the term 'product service system', 'performance based contracting', or 'product as a service'. The transition towards a circular economy requires systematic change, because the current system does not allow for the required behavioral change.<sup>8</sup>

Interesting observations on business model innovation are:<sup>9</sup>

- Every exchange in the value chain provides an opportunity for innovation and impact.
- Business model innovation does not happen in a vacuum but depends on surrounding conditions.
- What starts as product innovation, can potentially lead to business model innovation.
- Companies that have demonstrated a business model innovation have often done so by shifting incentives in the value chain.
- Business model innovation is necessary since current business models are only able to exist because of mispriced resources and market distortions that make them competitive.
- Opportunities for circular business models lie in linear threats (supply risk of resources; increased governmental intervention) and in societal trends (circular procurement; multiple value creation; co-creation of value propositions).<sup>10</sup>

Business model innovation in general is often initiated by start-ups, where existing companies have the capacity and capability to scale them.<sup>8</sup> In contrast, we observe that start-ups as well as large companies develop new circular business models. This is illustrated by the examples provided in part 2 of this report, which is available by contacting IMSA.

Since the transition from a linear to a circular economic system will require transition management and systems thinking, operational processes as well as the company's vision need to be taken reconsidered. The implementation of circular business models can be obstructed by various factors. The main barriers for implementing circularity with businesses currently present are indicated below.<sup>11</sup>

#### **Vested interests & culture**

- Vested interests by companies with linear business models;
- Lack of cultural acceptance that ownership by the user is not a requirement;
- The dependence of companies on external suppliers.<sup>12</sup>

#### **Wrong incentives**

Resource prices do not create the right incentives due to the insufficient internalization of externalities. This results in non-alignment of power and incentives between actors to improve cross-cycle performance.<sup>13</sup> A related obstacle is the occurrence of split incentives, when actors have different, individual incentives to operate circular. E.g.: Redesigning for re-use might be more beneficial for the recovery company than the original manufacturer. Adding to this, it leads to mispriced risks, since the sunk costs of resource extraction are not taken properly into account.<sup>14</sup>

### Supply chain co-operation

Co-operation in the supply chain often proves difficult due to complex, international supply chains and low levels of trust among companies.<sup>15</sup> A related barrier is inadequate recovery infrastructure. Without the proper infrastructure in place, and willingness to arrange this, circular activity is hard to organize.<sup>13</sup>

### Barriers for SMEs

- Hindering regulations;
- The requirement of investment costs;
- Accounting systems deal with linear economy;
- Convincing customers through marketing;
- Finding partners to cooperate with;
- Customers do not realize that circular economy is the way forward;
- Scientific knowledge on circular economy issues does not match knowledge demand of SMEs.<sup>16</sup>

In spite of these obstacles we have already witnessed successful circular economic activity, ranging from small businesses, to large multinational corporations. This is illustrated by multiple examples throughout the more detailed business model overview in Part 2 of this report.

## 1.3 Transition and systems thinking

Business model innovation, in a changing economic system from linear to circular, implies transition thinking. Therefore, it is important to understand this process. When we speak about transition models we use a timeframe that crosses generations, around 25-30 years. By means of transition management we aim to accelerate the transition and guide the process towards desired outcomes. The transition path towards a circular economy is shown in Figure 1.

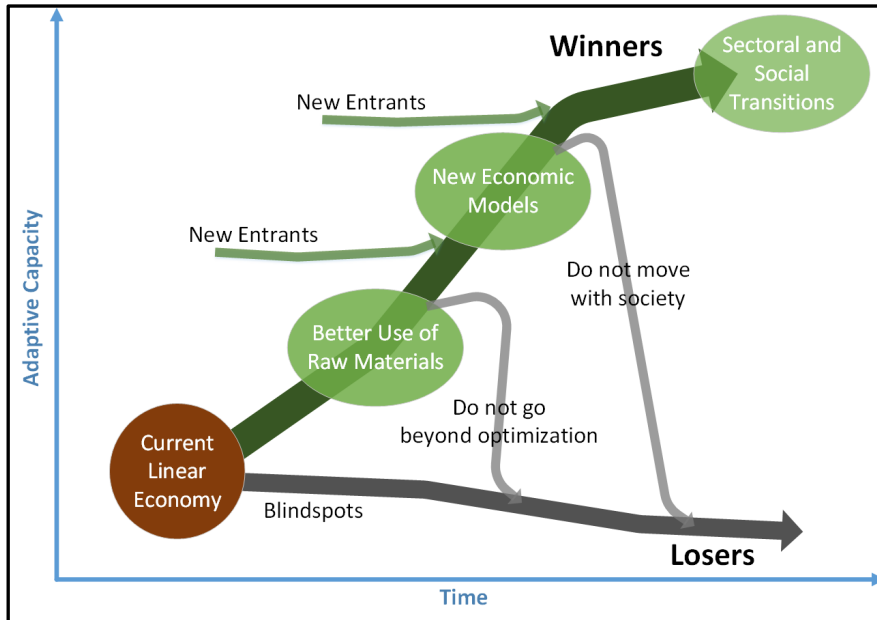
To accomplish a transition, three levels of a business need to be considered and understood (see Figure 2). Most importantly, the relation and interconnectedness between the different levels is crucial to understand. Inside out (process-product-business model), as well as outside-in (business model-product-process) approaches are necessary to understand the system. Systems thinking is the key principle of a circular economy. It is the ability to understand how parts influence one another within a whole, and the relationship of the whole to the parts, in place and in time. Comprehension is needed within your company to have everybody on board when dealing with change, and this is created when taking all relations into account. The inside-out process is reviewed through an evaluation of business processes; the outside-in process by developing a desired vision for the company.

Systems thinking also implies that we take the effects of your business into account. For example, your business has a direct effect on its suppliers, customers, and other value chain partners. Beyond the value chain you are looking at societal and ecological effects that should be taken into consideration. On the other hand market analysis will need to take place to understand the influence of the system on your business, and which role you can play. Understanding the relation between the company's behavior and other processes is what systems thinking is about.



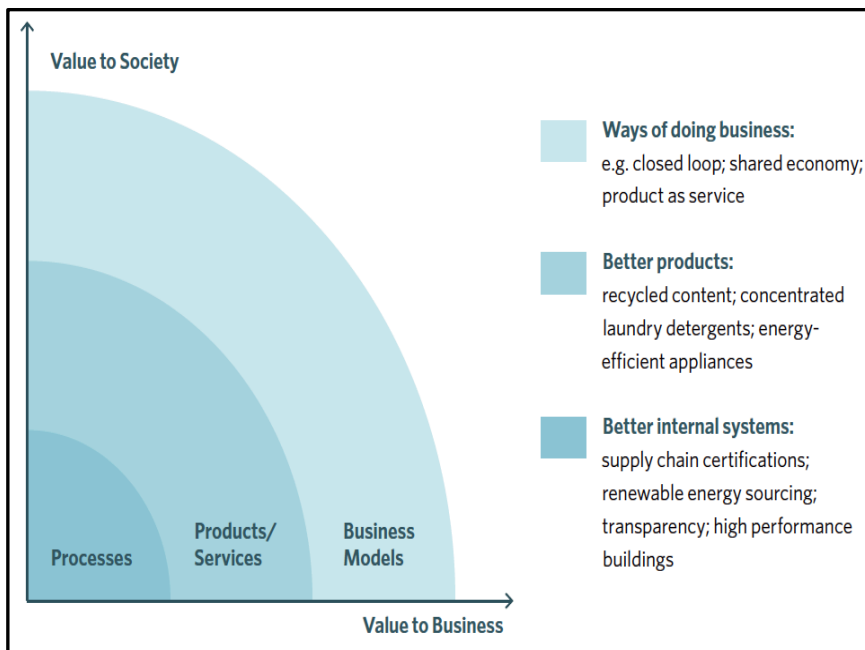
**Figure 1. Transition path towards a circular economy**

Source: OPAi & MVO Nederland (2014)<sup>17</sup>



**Figure 2. Three levels of business practices**

Source: SustainAbility (2014)<sup>18</sup>



### 1.4 Value analysis and categorization of circular business models

What is the value of a circular business model? In which stages of a product development process do you apply certain business models? Which business models are applicable for what product categories? Can I apply multiple circular business models in my company? These are all valid questions that will be dealt with below.

In our view, a circular business model ideally has the following characteristics:

- Ownership (and thus responsibility) of items remains with the producer;
- Functionality is intended;
- It is a holistic systems perspective;
- It holds social and organizational aspects;
- Resource inputs and waste creation is minimized.

In practice, most circular business models fulfill these criteria only partially. We can illustrate this with our list of business examples, where we see for example, that most circular business models do not lead to a zero footprint business operation.

Accenture has presented a first analysis, which identified five different circular business models.<sup>19</sup> Using a different approach, we have analyzed the value and prospects of using circular business models in different market segments to create insight in business opportunities.

Four cycles, as discussed in 'Ondernemen in de circulaire economie'<sup>20</sup>, are useful for circular business model segmentation. The Ellen MacArthur Foundation describes these cycles as 'four ways of circular value creation'.<sup>21</sup> These four cycles are:

1. The power of short cycle: maintenance, repair and adjustment of existing products and services.
2. The power of long cycle: extending lifetime of existing products and processes.
3. The power of cascades: creating new combinations of resources and material components, and the purchasing of upcycled waste streams.
4. The power of pure circles: 100% reusing resources and materials.

We believe that a fifth and sixth cycle could be added to the list, namely:

5. The power of dematerialized service: shifting physical products to virtual services. This implies resource savings and productivity gains.
6. Produce on demand. Only produce when demand is present.

Based on these 6 cycles, IMSA has categorized nineteen existing circular business models. An overview is created in Table 1. A more detailed overview of these nineteen business models including real life examples is freely available by contacting IMSA.

Table 1. Circular business models (IMSA, 2015)

<b>1. Short cycle</b>		
1	Pay per use	One time payment to use product or service
2	Repair	Product life extension by repair services
3	Waste reduction	Waste reduction in the production process
4	Sharing platforms	Products and services are shared among consumers
5	Progressive purchase	Pay periodically small amounts before purchase
<b>2. Long cycle</b>		
6	Performance based contracting	Long term contract and responsibility with producer
7	Take back management	Incentive to ensure product gets back to producer
8	Next life sales	Product gets a next life
9	Refurbish & resell	Product gets a next life after adjustments
<b>3. Cascades</b>		
10	Upcycle	Materials are re-used and its value is upgraded
11	Recycling (waste handling & repurpose)	Materials are cascaded and reused, recycled or disposed
12	Collaborative production	Cooperation in the production value chain leading to closing material loops
<b>4. Pure circles</b>		
13	Cradle to cradle	Product redesign to 100% closed material loops
14	Circular sourcing	Only sourcing circular products or materials
<b>5. Dematerialized services</b>		
15	Physical to virtual	Shifting physical activity to virtual
16	Subscription based rental	Against a low periodic fee consumers can use a product or service
<b>6. Produce on demand</b>		
17	Produce on order	Only producing when demand is present
18	3D printing	Using 3D printing to produce what is needed
19	Customer vote (design)	Making customers vote which product to make

## 2. Value generation of circular business models

In this report, IMSA distinguishes six advantages of using circular business models. Some businesses pioneering in the circular economy already benefit, see Box 1.

### 2.1 Innovation and competitive advantage

Switching to circular business models will strengthen your competitive position in the short- and long term because the above-mentioned arguments will accumulate and translate to a stronger competitive business. It is rather evident that the economic system will be changing, and early adaptors of the new system will gain a competitive advantage. As Ban Ki-Moon already expressed during the World Economic Forum 2011 in Davos: ‘The global economic growth model is a global suicide pact.’<sup>22</sup> Furthermore, for laggards, the concept of creative destruction will apply, what means that new business models will rise, at the expense of existing business models.<sup>23</sup>

### 2.2 Additional revenue streams

Additional revenue streams are likely to occur, since new or next life markets become available, from retaining existing customers to servicing new ones. Besides, many circular business models will deliver your company with a preferred sustainable image, which can result in additional customers and premium pricing.

### 2.3 Long term contracts

Since consumers no longer buy a product, but become users of a product, they do not obtain the ownership. Therefore, they are in a permanent contract with the manufacturer, who can retain his customers for a longer period of time.

### 2.4 Customer loyalty and feedback

Maintaining longer relationships with your customers provides ample opportunity to receive product feedback. Besides, by providing additional and personalized services during a contract, like maintenance or refurbishment, you create longer-term customer relations and can strengthen customer retention.

### 2.5 Multiple benefits of internal resource management

When materials (resources) come back to the company, major benefits are threefold.

- You can secure your business from resource scarcity;
- You become more resilient against volatile market prices as well as against changing law and regulation concerning natural commodities;
- Cost reductions are most likely to occur.

### 2.6 Beneficial partnerships throughout the value chain

Since circular economy requires systems change, we can no longer focus solely on individual businesses, but we have to consider the entire value chain. Opportunities arise for strengthening strategic partnerships and cooperation with other business in the value chain. Overall, this will strengthen the entire chain, making all partners, and most importantly your company, more resilient in a competitive world.

**Box 1. Benefits of circular business models****Ricoh**

*“Now on the theme of business creation and integration, we were able to shift to a new profit model that provides customers with greater value by transforming a traditional product-based business into a new model composed of both products and services—solutions that address our customers’ needs. In addition, we were able to expand business in emerging markets, grow our new production printing business, and create new businesses, with an emphasis on industrial products.”<sup>24</sup>*

**Unilever**

*“Eliminating waste has avoided more than €200 million of cost and created hundreds of jobs. In Egypt, for example, the local team has launched a programme which gives disabled employees the opportunity to earn extra income by recycling waste material from production lines.”<sup>25</sup>*

### 3. Circular business model scan

#### 3.1 Why a scan

The scan will deliver concrete outcomes that make the transition from a linear to a circular business model possible. It will deliver insights that provide direction and enable your company to deal with implementation burdens presented earlier. The scan outcomes provide insight in which business models can be used.

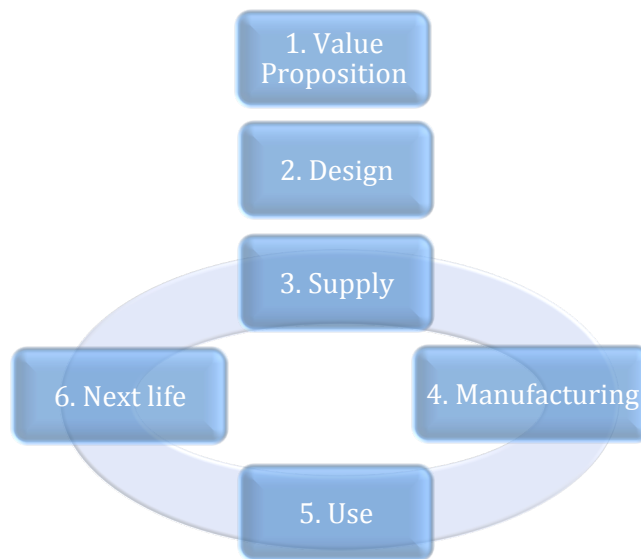
#### 3.2 How does the scan work

The scan consists of a methodology that is developed by IMSA around the business processes that take place in a company. It will provide all the necessary information that is required to move your company ahead into the circular economy. An objective evaluation of business processes is executed, that will provide clear direction towards circular business models.

The company’s activity will be mapped and reviewed. This inside-out approach evaluates the technical aspects of your company; its processes and behavior, while also taking a close look at your current business model. To do so, a systematic design is created that breaks the organization down into 6 process stages along the value chain. Revenue streams and costs are also mapped.

The value proposition and design stage are held out of the ‘grey circle’ (see Figure 3) since there are no physical materials moving around in these two stages. Once materials and resources are entering the process during the supply stage it becomes relevant to keep these resources cycling within the system. Thus not having virgin materials entering and no resources ‘leaving’ the system as waste.

**Figure 3. The six process stages of the value chain (IMSA, 2015)**



For the scan an extensive list of questions is developed around these 6 stages. To give you an idea, we challenge you to think about the following questions.

1. Have you considered a performance based value proposition?
2. Do you know how the design of your product can support the realization of your value proposition?
3. Do you know with which materials you supply your business?
4. Have you considered how much waste is created during manufacturing?
5. Are you interested in what happens with your product once it's in use?
6. Do you know what happens with your product after use?

### 3.3 Outcomes of the scan

The outcomes from the scan are twofold.

1. Linear activity and revenue streams.
  - Where do opportunities for innovation show?
  - Where are the opportunities for new, circular business models?
2. Circular activity and revenue streams.
  - On which circular fundamentals can we continue building a stronger business case?

In both outcomes obstructions and obstacles will be included, as well as revenue- and cost streams, which provide ample opportunities to move forward with.

From this analysis prospects for the use circular business models will come forward that are applicable for your business, accompanied with examples and strategies that provide helpful tools for action. In case you believe that the circular economy is the economy you want to operate successfully in, a second scan is available. This scan will deliver a roadmap to implementation for circular business models specified to your business.

## 4. Roadmap for implementation

A second scan can take place as follow-up after first scan has been embraced and there is decisiveness to move forward with the outcomes, towards actual implementation of circular business models. Therefore three more steps are required. First, a market analysis will be conducted. Secondly, the development of a desired vision for your company is guided, including stakeholder perspectives. Thirdly, a roadmap for implementation will be created.

### 4.1 Market analysis

Important to understand what is happening in the market your business is active in. Therefore a market analysis will be performed in close cooperation with your company, to create a better understanding of the dynamics that shape the current business landscape of your sector.

### 4.2 Company vision review

When developing a vision we are looking at an outside-in approach, and have to take into consideration where the company wants to be in the future. A shared vision is needed to provide the company with direction. In which way do you want to conduct business? What is your reason for existence? What are the desired economic and societal achievements your company wants to deliver?

### 4.3 Stakeholder analysis

Your vision cannot solely be achieved by your company, but has to be taken towards the entire value chain. Ultimately, when you intend to achieve certain results, your chain partners should not neglect this. In other words, their actions should be in line with yours, making cooperation inevitable. Therefore a stakeholder analysis is part of the development process of your company's desired vision. The outcomes of the first scan will be used to find fields for synergy and cooperation, in order to bring chain partners closer together. This process can lead to supply chain negotiations.

### 4.4 Roadmap

What follows from the business model scan, the market analysis, the vision and the stakeholder analysis are business models and a roadmap for implementation that allow your company to become successful in the circular economy. This roadmap will plot the desired changes over time and will indicate which action is required.

Business model scan + Market analysis + Vision + Stakeholder perspectives

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Roadmap for circular business models

## 5. Summary

### 5.1 Overview

Circular business models are crucial for resilient companies in the economy of the future. Designing and implementing them is not easy. IMSA has identified 19 circular business models and developed a two-step scan delivering concrete outcomes that make the transition from a linear to a circular business model possible. The first scan yields the company’s linear and circular activities and revenue streams. The second scan provides a roadmap for implementation of circular business models.

### 5.2 Deliverables of the scan

- Revenues and activities based on linear business models
- Revenues and activities based on circular business models (insofar already present)
- Focus areas for revenue generation and cost reductions
- Market analysis
- Company vision review
- Stakeholder analysis
- Options for promising circular business models
- Roadmap for implementation and innovation
- Strengthened relationships with chain partners
- Increased innovation, competitiveness and resilience.

### 5.3 Brainstorm

Figure 4 depicts a little game to get you thinking about circular business models and systems thinking. Indicate the perception of business performance on three issues: circularity, profitability, and sustainability. Outcomes are subjective, but can be used to benchmark the perception of your business towards these three themes, as well as their relation to one other.

**Figure 4. A little game**

Please indicate where your company stands on each of the three scales:		
	Circularity	
Linear		Circular
0-----		100
	Profitability	
Loss		Profit
0-----		100
	Sustainability	
Unsustainable		Sustainable
0-----		100



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