

# Circular Revenue Models

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Required Policy Changes for the  
Transition to a Circular Economy



## Preface

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For the past decade the authors of this paper have gathered practical experience with the implementation of circular revenue models such as lease, pay-per-use and take-back schemes. It is from this experience that we noticed that the current institutional economic framework hinders the transition to the circular economy. If we want to achieve the UN Sustainable Development Goals (SDGs) and the 2016 Paris Agreement, we will have to change the rules that currently govern our economic system. With the white paper that lies before you, we have touched upon a number of the rules that require change in order to increase the impact business can have on our sustainable future. We acknowledge that our research in this field is not all-encompassing, but with this publication we want to contribute to the debate that in our view is necessary in order to actually transition to the circular economy.

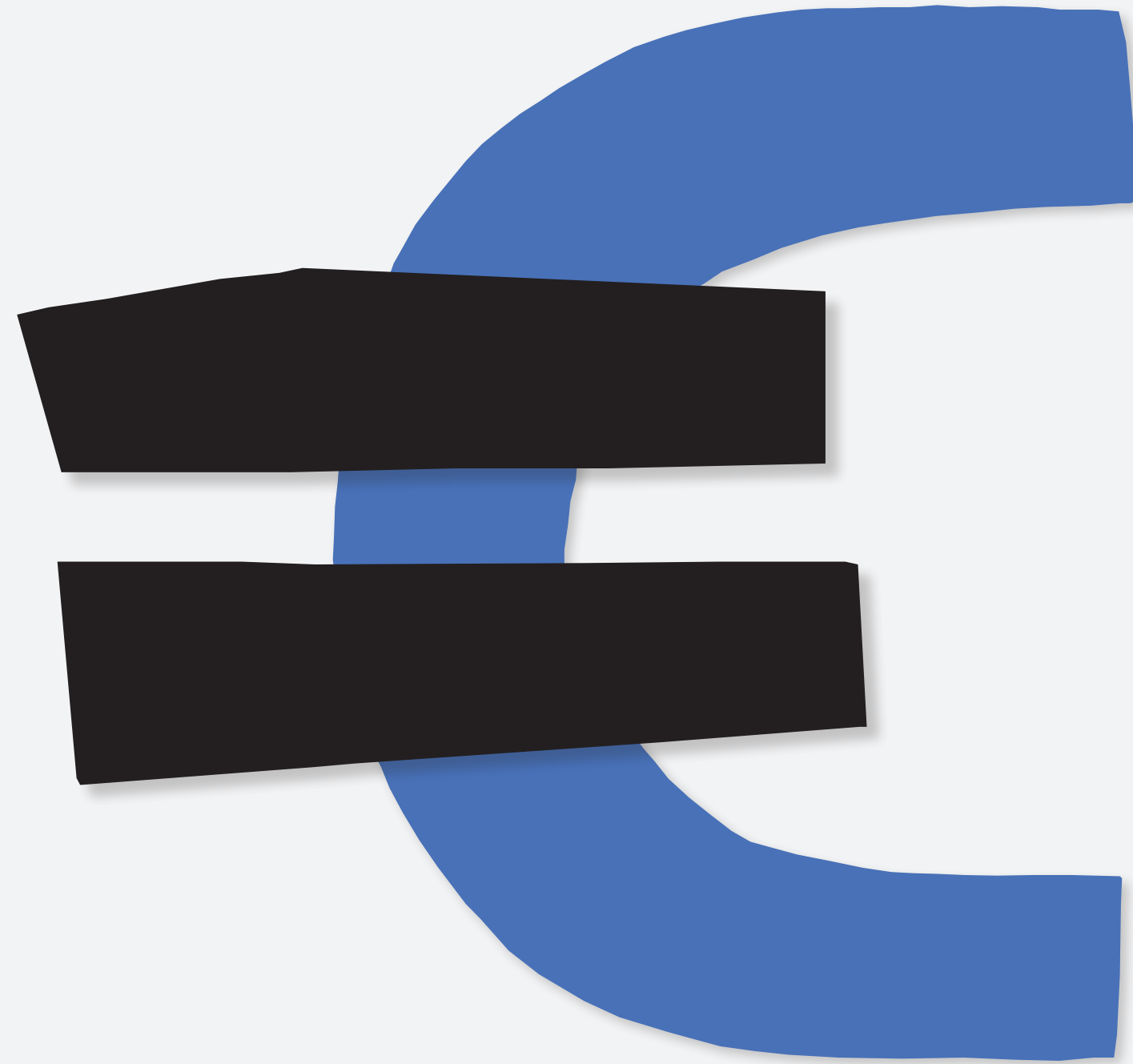


**GROWN**

## Introduction

Whenever we speak about the ‘*Circular Economy*’, we always emphasise it is not a new phenomenon. Since 1972 several academics and practitioners have written about the creation of a ‘*sustainable*’, ‘*green*’ or – increasingly – a ‘*circular*’ economy in which both our ever-rising population as well as our decreasing resources are put to more effective use [1] [2] [3] [4] [5] [6]. Why then, we question ourselves, have we seen so little transformation in business to this circular economic model? We have found that organisations are not financially incentivised to embrace a circular economic model. The biggest challenge of our time is how we can enhance the global level of prosperity within the planetary boundaries that are a given. This challenge requires rethinking the economic rules that were institutionalised at a time that the world was ‘empty’ and resources seemed endless. How can businesses benefit from adopting a circular economic model? And what are the current barriers in terms of implementing this type of model?

# BOUNDARIES



# REASONS

This report will elaborate on the following four barriers:

1. Common depreciation standards in accountancy incentivise organisations to regard a product's value as declining rapidly toward €0 and therefore stimulate a take-make-waste model;
2. VAT favors the traditional sales model over the more circular rent-purchase model;
3. Value added tax (VAT) currently does not favor used products and materials over new ones;
4. Common financial assessment favors linear economic models over circular economic models.

This list is by no means exhaustive, but these are the most striking barriers with respect to the financial incentives that we found from our research among circular frontrunners in the Netherlands. Other barriers relate to accountancy standards for lease (i.e. IFRS), easy access to finance for governments, waste legislation and taxing labour as opposed to taxing resources, but these do not directly relate to the revenue model of businesses. These barriers are discussed shortly on page 18 of this document.

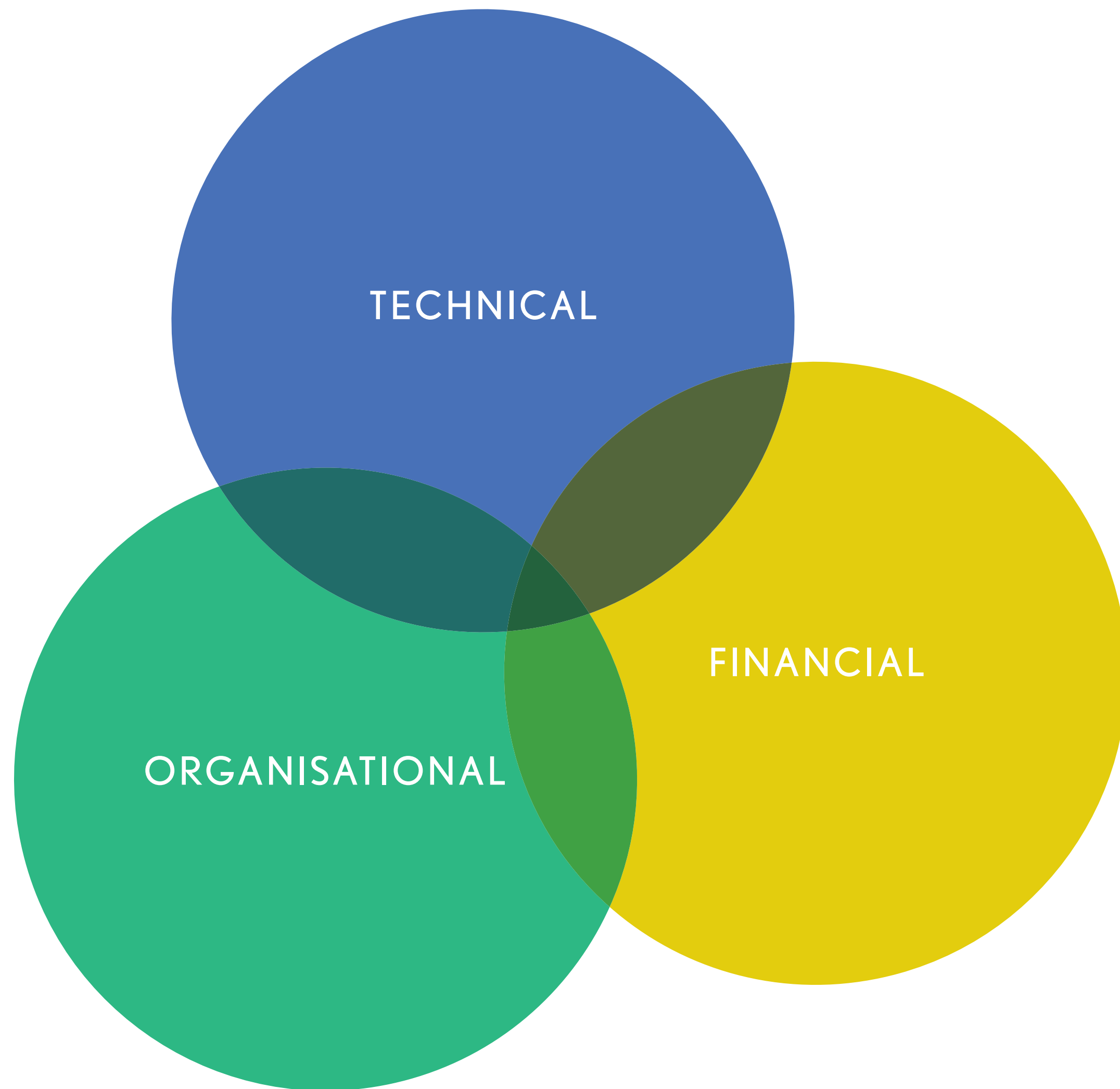


Figure 1. Circular Economy Framework [7]

## A circular economy requires changes in three perspectives

In order to transition towards an economy where our (virgin) resource use is decreased, change is needed in three perspectives [see figure 1]. First and foremost, the technical ‘*circularity*’ of a product. Reusing products, components or materials inherently means we need to rethink the way we make our products.

The second perspective that needs to be addressed is whether or not the product will be (re)used in a circular manner. We call this the organisational perspective because the circular (re)use must be organised up front in order to secure the product’s circularity throughout the value chain. The goal is to reuse products, components or materials with maximum value retention. A product can, in theory, be designed and produced according to the ‘*technical*’ principles of circularity; but our ultimate wish is to secure that our products (and components and materials) are also used in a ‘*circular*’ way. For example: a Cradle to Cradle (C2C) chair is circular in theory, but will only contribute to a circular economy if we prevent it from ending up on our landfill. Collaboration between value chain partners is therefore essential to transition to a circular model.

The fundamental question is, of course, how we actively secure that products are not only made circular but also used in a circular way? We firmly believe that a financial incentive is needed in order to effectively secure circular use – ideally making it economically attractive to choose for a circular business model for both the supplier as well as the customer – which brings us to the third perspective that is needed for a circular economy: the financial perspective.

A lot of research has been done into circular business models in the past decade [3] [8] [9] and many practical examples have emerged. The essence is almost always that when we shift from the ‘*ownership-based model*’ (in which the user becomes the owner of products) to a ‘*use-based*’ model, we make the supplier of the product responsible for effective reuse of the product, components or materials. This strategy is commonly known as ‘*Extended Producer Responsibility*’ (EPR).





## EU focus: Extended Producer Responsibility

Increasing producer responsibility has also been recognised in the EU Circular Economy Package. EPR is a means for accelerating the transition to the circular economy. EPR is “an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s life cycle” [10].

In theory, literature distinguishes between three different mechanisms to promote EPR [11]:

1. Creating a mandatory cost that will help compensate for the environmental externalities caused by the product’s lifecycle (e.g. a carbon tax);
2. An optional depository value scheme related to take-back schemes in which customers are economically incentivised to return their products in exchange for said fee (e.g. a deposit scheme for glass and plastic bottles);
3. Take-back schemes facilitated by third party entities called ‘producer responsibility organisations’ that carry out the duties of recycling and/or reuse (e.g. organisations that carry out WEEE Directive duties).

The most common forms of EPR schemes are now limited to type 2 and 3, with the main critique being that suppliers are not sufficiently stimulated to redesign their products to facilitate value retention, nor is value retention actually being stimulated. Most EPR schemes eventually lead to recycling

schemes, whereas for composite products it would be more sustainable to strive for maintenance, reuse or remanufacturing – the inner cycles of Ellen MacArthur Foundation’s ‘*butterfly diagram*’ [see figure 2].

## Contribution of circular revenue models

Circular revenue models (CRMs) such as lease, rent and pay-per-use will encourage product owners to retain ownership of their product. By doing so, the product owner has a financial incentive to facilitate maintenance, reuse and remanufacturing over low-grade recycling strategies. Working with a residual value model and tailored take-back schemes will similarly encourage product owners to want to take back their products themselves.

CRMs are currently underestimated in their importance in realising EPR, and can significantly contribute to the EU’s circular economy strategy. The unfortunate reality is that we have aligned our entire economy and economic policies on linear economic models, i.e. take-make-waste models which rely completely on vast amount of sales and result in huge landfills. A difficult, yet unavoidable truth to face for optimists at heart. These same optimists are trying to build a circular economy by redesigning products and reorganising supply chains,

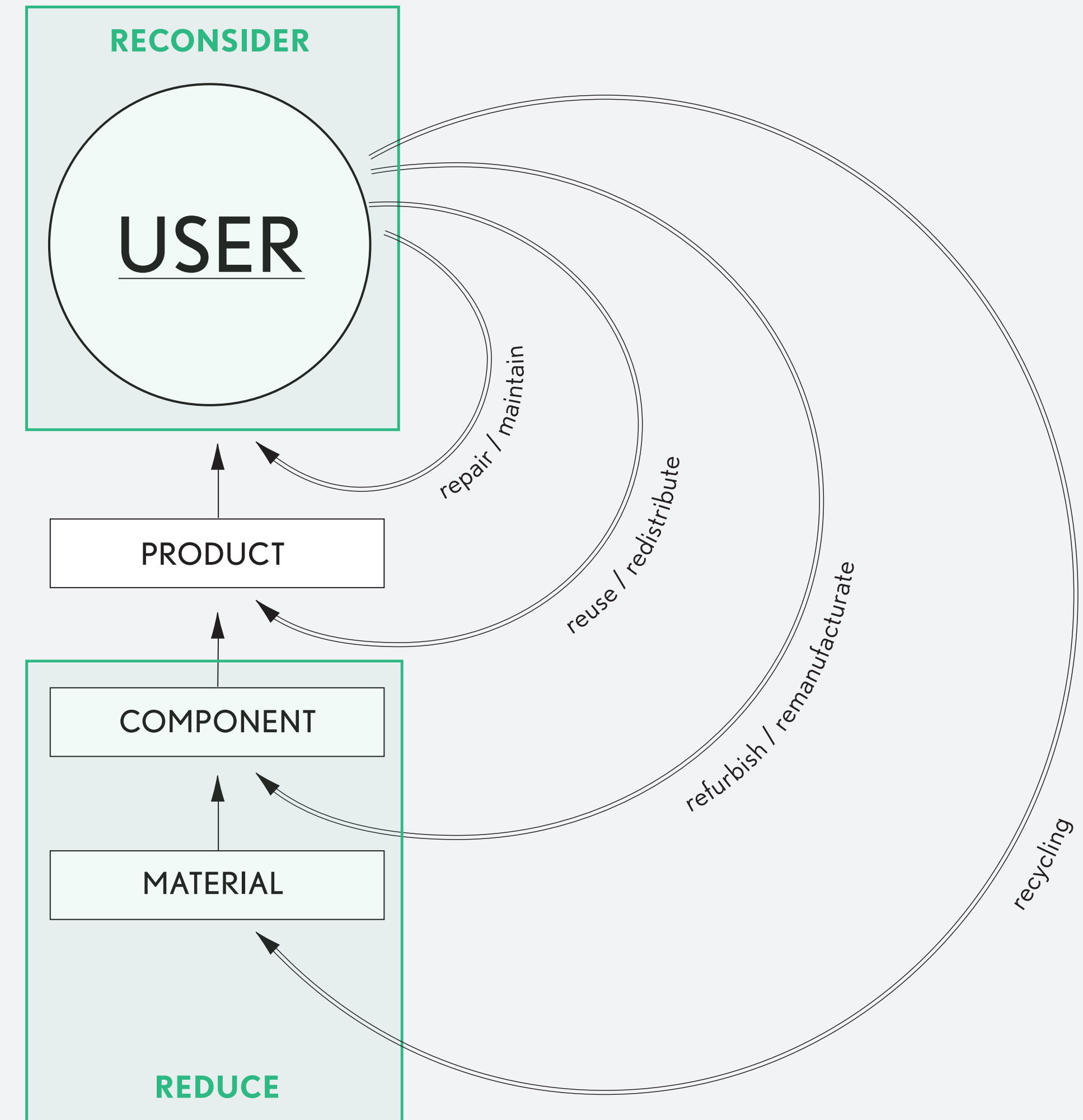


Figure 2. Butterfly figure of the circular economy - Adapted from [3]



but face barriers from linear economic and financial models that promote users to own products (linear) rather than paying for use (circular).

Our focus within this paper is therefore primarily on the revenue model, which is part of the larger business model [see red box in figure 3]. We are well aware of other challenges of the circular business model, such as current waste legislation and a tax regime that favours resource use over labour use, however seeing as these topics have already received significant attention we do not elaborate on these within this paper.

Furthermore, the positive contribution that CRMs can have on the global climate goals should not be underestimated. CRMs offer businesses an opportunity to decouple economic growth from resource use. Whereas current economic growth is largely dependent on ongoing consumption and therefore production; CRMs create a situation in which businesses can generate longer-term revenues by selling the use of the same product or asset. By preserving the embodied carbon and delaying end-of-life treatment, massive reduction in CO<sub>2</sub> can be realised. The Ellen MacArthur Foundation recently estimated that product reuse facilitated by CRMs can help reduce global CO<sub>2</sub> emissions by 12%. [12]

*Circular Revenue Models - Policy Barriers for the Transition to a Circular Economy* is the result of a collaboration between Copper8, KPMG Advisory and Kennedy Van der Laan. Front-runner circular businesses in the Netherlands have supported us in our research by sharing their own experience with implementing circular revenue models. The publication *Circular Revenue Models: Practical Tools for Organisations* provides guidance for developing circular revenue models for businesses.

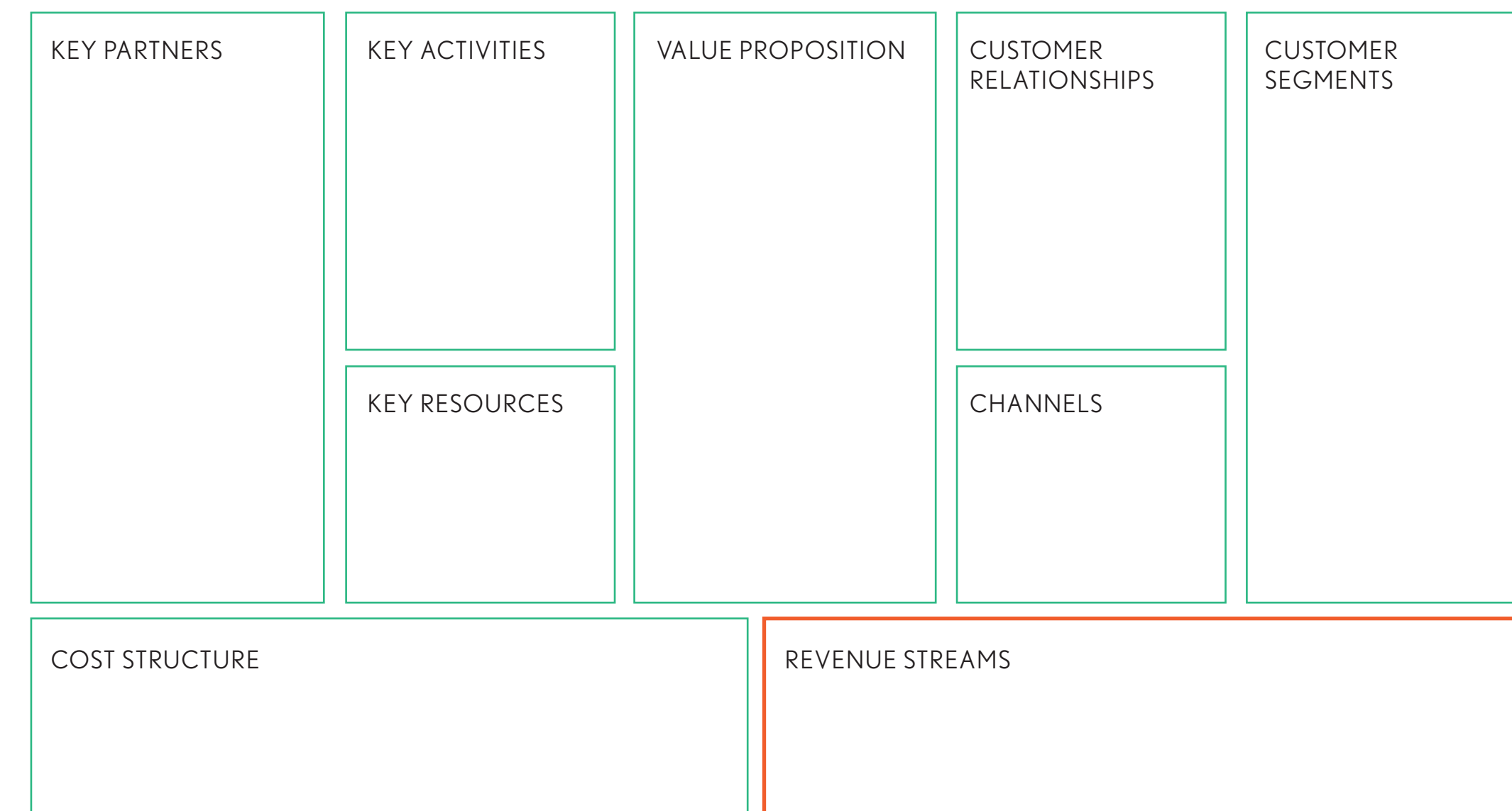


Figure 3. The difference between a business model and a revenue model, based on [13]

# Barriers towards adoption of circular revenue models

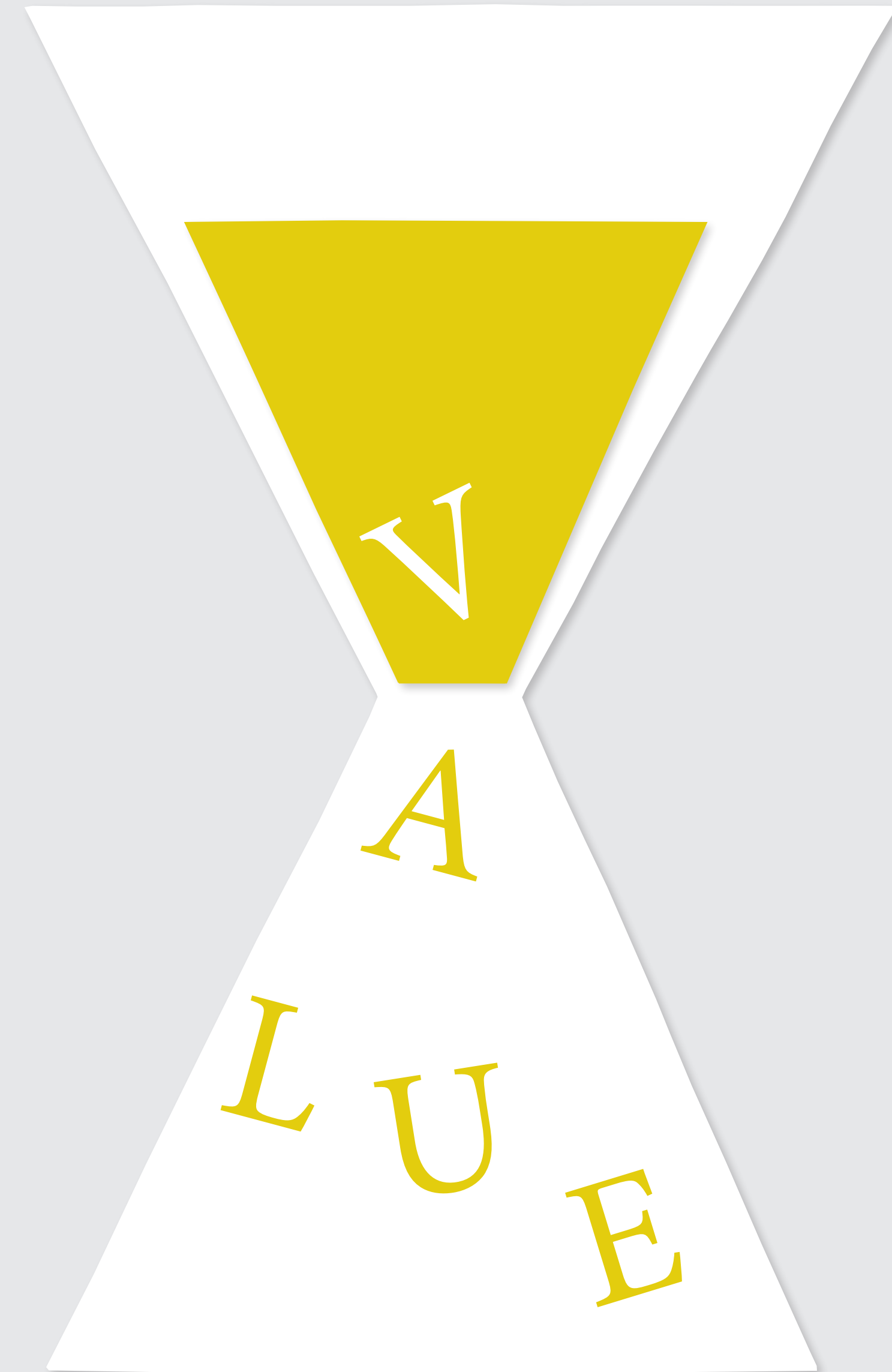
The barriers that were found during this research result in linear revenue models being kept as a status quo. Without assuring financially that circularity is achieved, linear business models will remain mainstream. When we discuss the different barriers below, we will consistently do so from the angle of the business offering the product or the service, not from the angle of the customer.

## Barrier 1. Nature of depreciation in accountancy

Businesses are stimulated to depreciate products quickly and down to €0, as this increases the tax benefits that they can obtain. This rapid depreciation lowers the perceived market value of used products, which is a barrier to the development of a circular economy for which used product value is a necessary precondition. Furthermore, depreciation standards also limit the maximum length of rental, lease or pay-per-use periods.

## Case: Bosch Blue Movement

Bosch Blue Movement rents washing machines to users rather than using a conventional sales model. Bosch retains ownership of their products which is an incentive to take care of the



product quality in order to make sure that returned washing machines can be redeployed. It also enables Bosch to gather valuable use and maintenance data and to reuse (parts of) returned products.

The washing machines, however, can be offered for a maximum contract length of 6 years. Accounting standards allow only 75% of the economic lifetime to be offered in a subscription, even after refurbishment. The product lifetime industry average is 8-10 years (Bosch machines will commonly last longer). Bosch is obliged to sell its used washing machines after 6 years and loses ownership over the products.

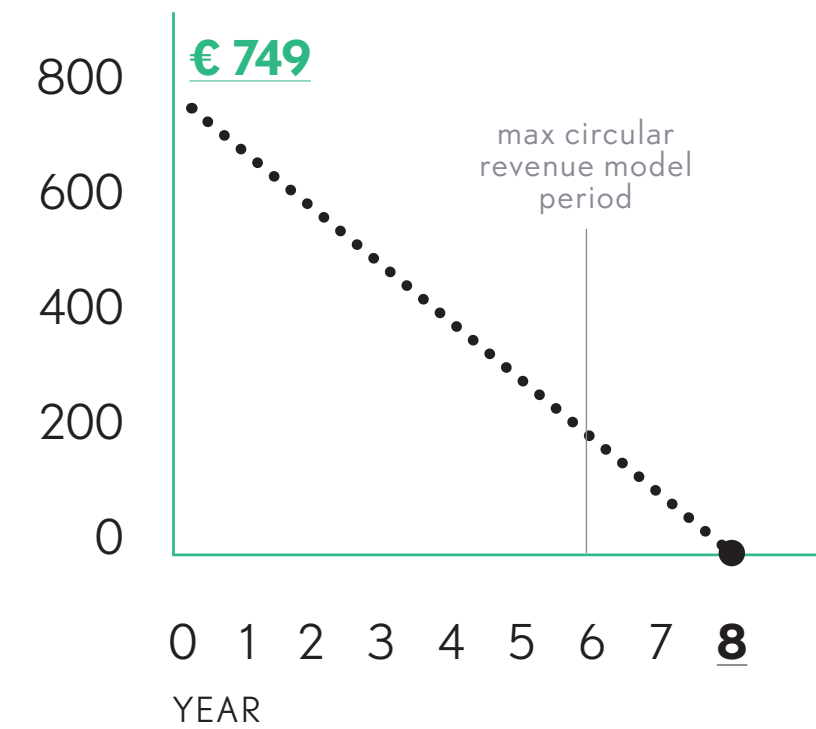
## Case: Gispén

Gispén sells office furniture with a take-back agreement. Returned products are refurbished to make them directly reusable or converted into a product with a different function. This encourages Gispén to manufacture their products in such a way that maintenance and remanufacturing is facilitated.

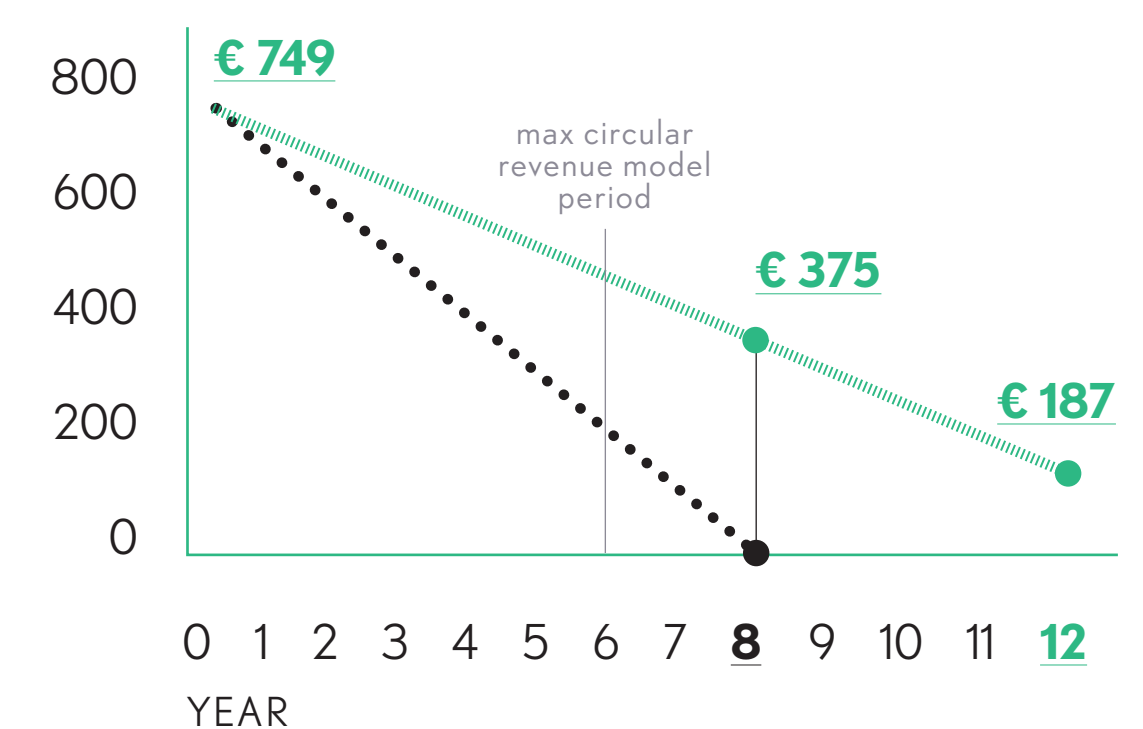
The standard for furniture to depreciate down to €0 (and constraints related to the balance sheet, see barrier 4) creates a situation in which Gispén pays users a lower value than Gispén actually believes to be the value of the used products.

*“If we depreciate our products, don’t we start treating them as waste?”*

Current depreciation method



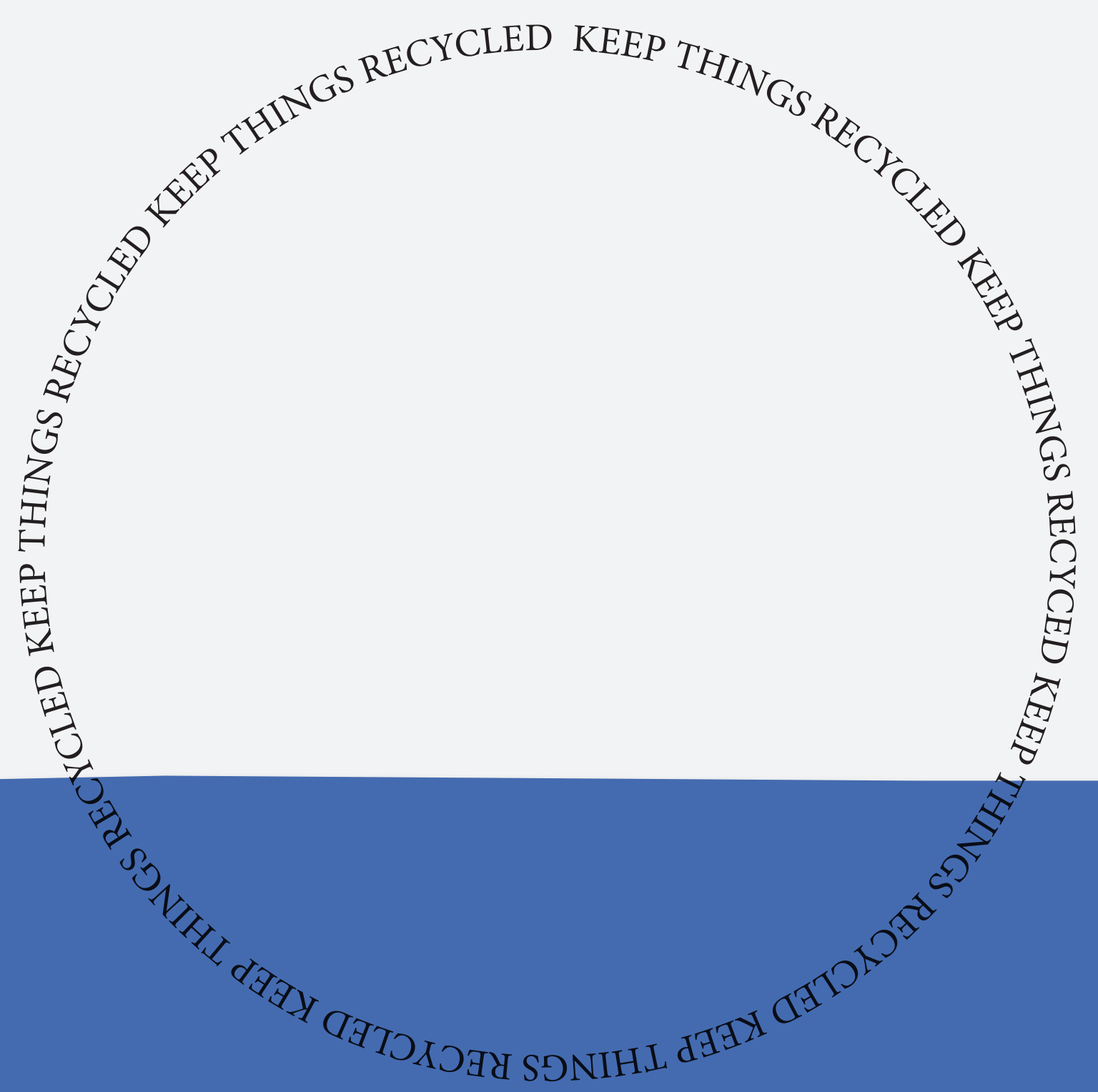
Circular depreciation method



- ..... FAST DEPRECIATION TO €0
- - - - - SLOW DEPRECIATION TO 25% RESIDUAL VALUE

### Current opportunity

In 2011, IFRS 13, Fair Value Measurement, was introduced in the EU. This enables firms to use the market-based price that would be received if they sell an asset or liability at the measurement date to make up its balance sheet. It can be used to assign a real market value to a firm’s assets, even if these assets are depreciated to €0. However, critics argue that this representation might be misleading due to, e.g. market inefficiencies or investor irrationality. It can therefore be seen as an addition to accounting based on historical data (with historical data representing the cost of investments and fair value the return on these investments) [14], but it also increases the administration burden.



## Barrier 2. VAT does not favour rent-purchase relationships

In a linear economy, most Producer-User relationships are traditional sales relationships with payment of the full product value upon sale. Producers need to pay VAT on the obtained revenue at the moment of sale. With the implementation of CRMs, Producer-User relationships will change towards rent-purchase, rent, lease and pay-per-use relationships in which revenues will be obtained over a longer period of time. Under the current tax regime, however, producers operating rent-purchase relationships with customers still need to pay VAT on all projected revenues obtained during the rental period, as rent-purchase is seen as a deferred supply of a good. This results in a negative business case in the early stages of this Producer-User relationship. If entire businesses are built on this relationship, upfront costs will have negative impacts on liquidity and business viability.

# Case: MUD Jeans

MUD Jeans rents jeans for a fixed monthly fee (€ 7,50 per month + € 29 sign-up fee = € 119 in total) through its Lease a Jeans concept . After one year, users can opt to keep the jeans, which results in the transaction being seen as rent-purchase, or swap them for a new pair. MUD Jeans operates a circular business model by incentivising users to use jeans for a longer period and ultimately recycling the returned jeans into new ones.

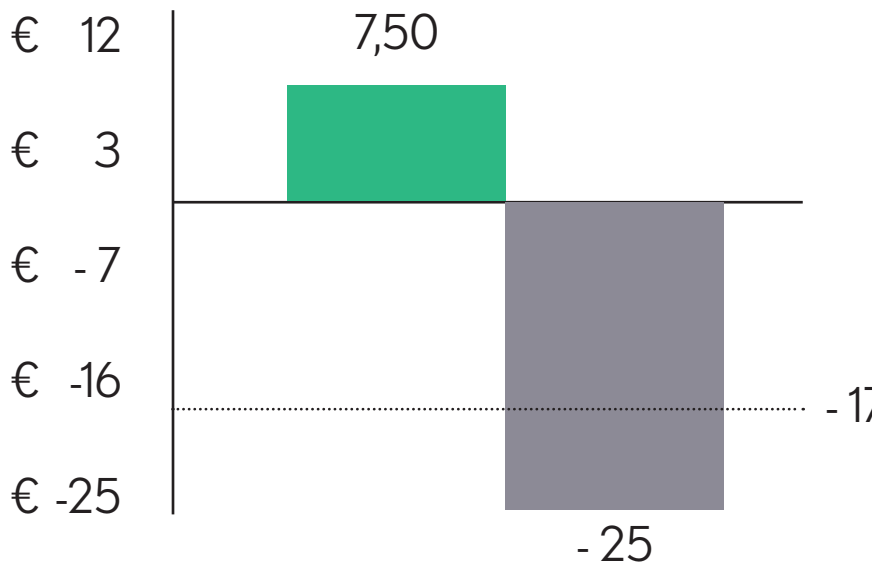
Current VAT rules have a negative effect on the revenue model of MUD Jeans and therefore its scalability. Upon first payment of the jeans, MUD Jeans only obtains 1/12 of the revenues but needs to pay the full VAT on all revenues obtained during the subscription period. Smaller companies trying to build their entire business on this CRM would require significant pre-financing each year in order to be able to pay VAT.

### Current opportunity

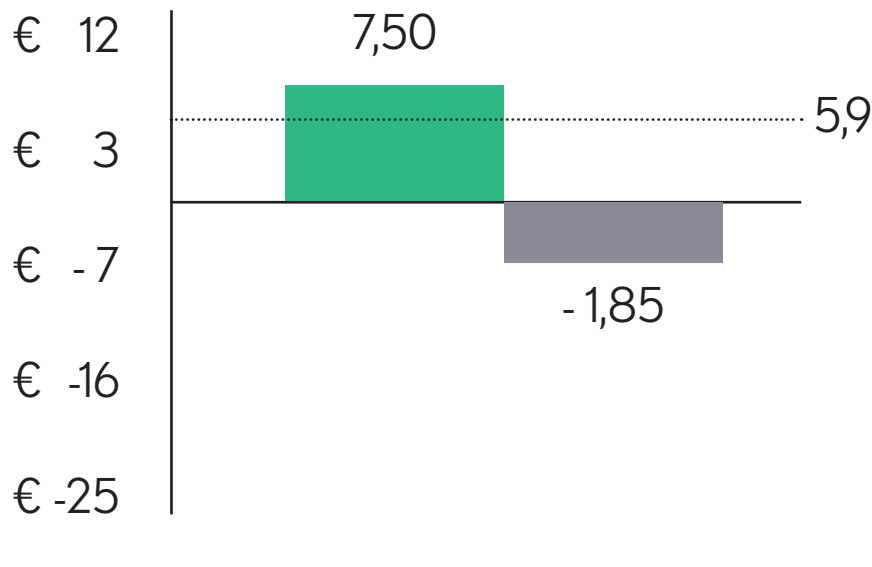
Most businesses need to apply an invoice accounting scheme, i.e. they need to pay VAT upon sending of an invoice [15]. This can have negative effects on liquidity. Entrepreneurs in specific market segments in the Netherlands, or entrepreneurs obtaining more than 90% of their revenues from B2C transactions need to apply a cash accounting scheme [16], i.e. they need to pay VAT upon actual receipt of money. Businesses that do not apply to the conditions for a cash accounting scheme, can request for this scheme in case they supply B2C for over 1 year for more than 80% of their revenues.

*“Businesses employing rent-purchase relationships need to pre-finance VAT on all projected revenues obtained during the rental period which is negative for business viability.”*

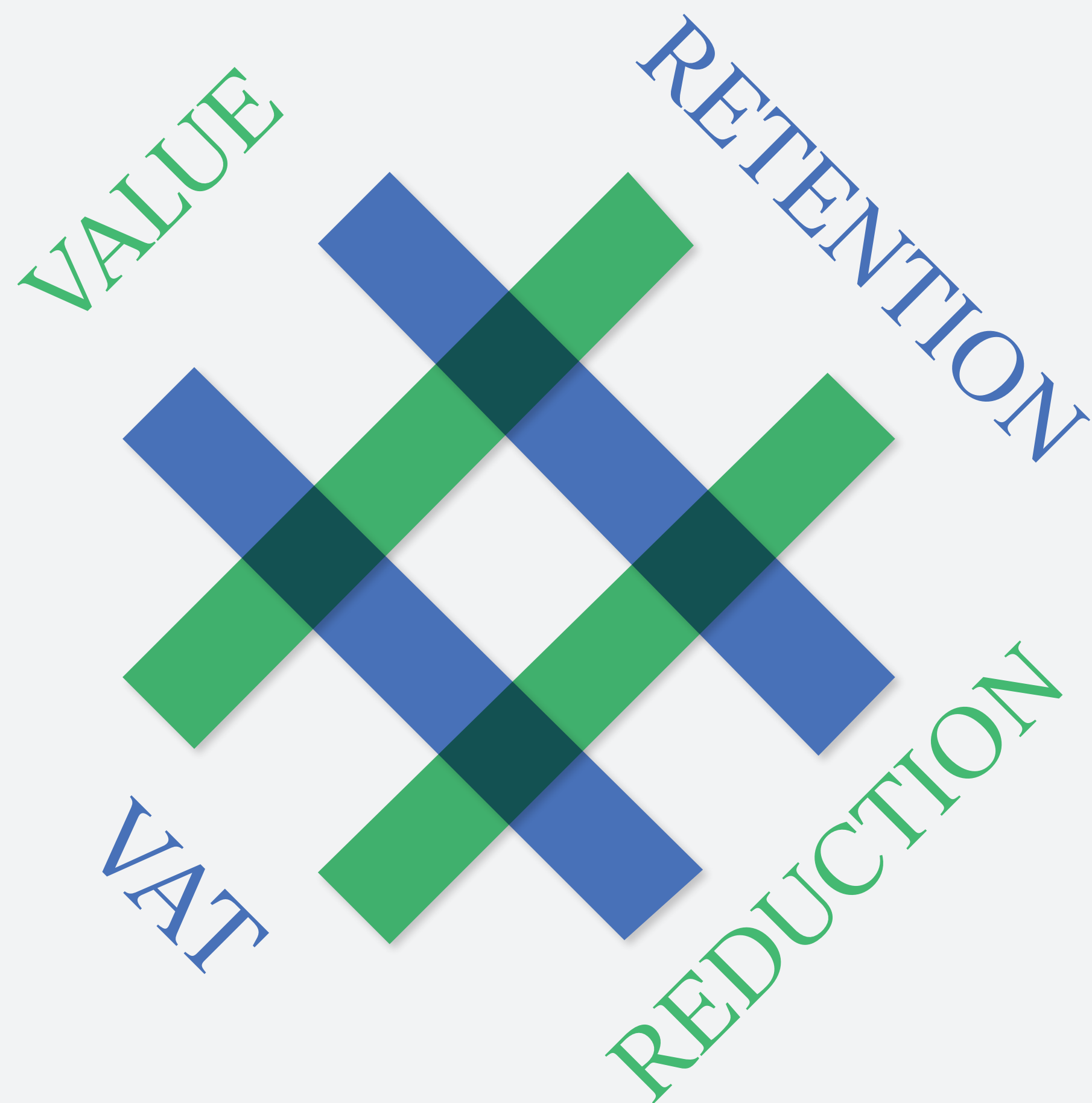
Current VAT regime



Circular VAT regime



- REVENUES AT FIRST PAYMENT IN €
- VAT AT FIRST PAYMENT IN €
- ..... IMPACT ON CASH IN €



### Barrier 3. VAT favors new products

The European tax regime entails several characteristics that hinder widespread adoption of CRMs, mostly related to value added tax (VAT) rules.

In B2C transactions, new, second-hand and recycled products are all taxed equally by the VAT. This means that for all products that are not new, the VAT is being paid twice or more often by the user: once at every transaction of the product. This can result in a non-competitive business case, especially considering the extra costs incurred to create a take-back system. To stimulate use of second-hand, refurbished, remanufactured or recycled products, VAT could be excluded or significantly decreased for product (parts) that have already been sold once. To make this work, information on product properties, among which the ratio of new versus reused components and materials, is essential in order to achieve this, e.g. by using material passports.

In B2B transactions this is not the case as the businesses involved in the transaction are exempted from VAT. However, most products eventually end up in a B2C transaction.

# Case: Interface

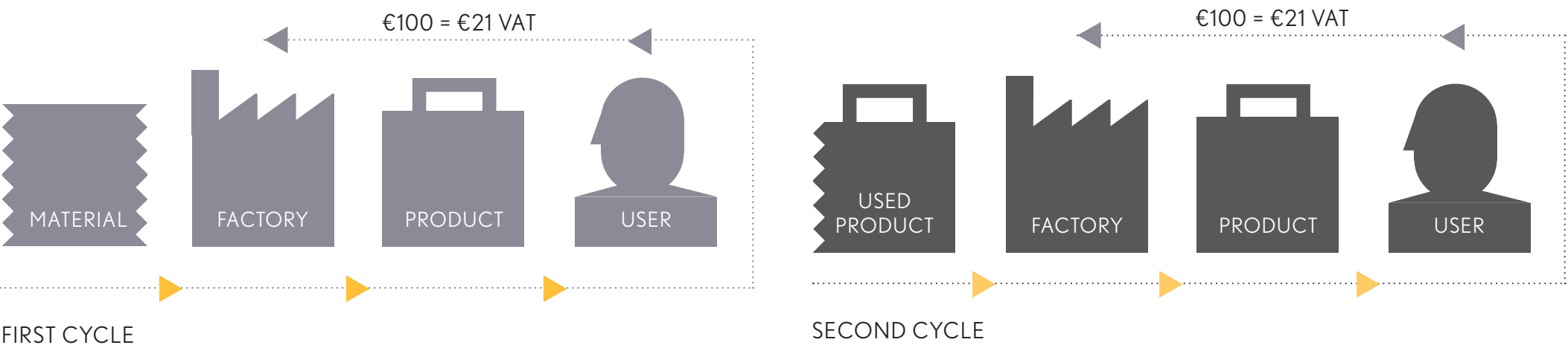
Interface sells carpet tiles with a take-back scheme for users. The depository value is based on a quality scan of the carpet tiles. Interface operates a circular business model in which used carpet tiles are returned and reused, refurbished or recycled into carpet tiles. Customers are not willing to pay the same price for used tiles as for new tiles. By changing VAT rules, the purchasing price of refurbished tiles will be lower and more attractive for the user.

### Current opportunity

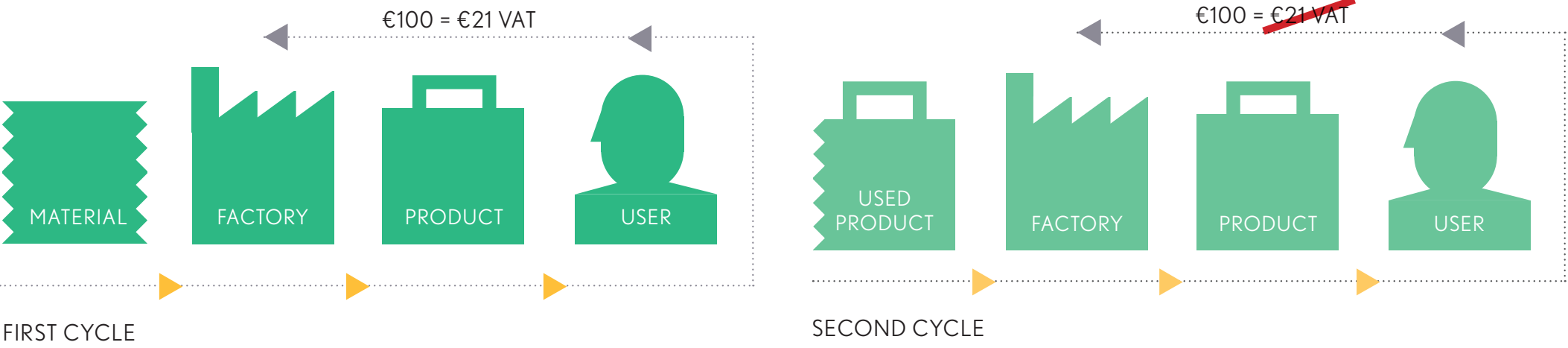
The EU legislation offers a special scheme of regular VAT practices for dealers in second-hand goods. These are goods that are "suitable for further use as it is or after repair" [17]. For these goods (e.g. a cleaned carpet tile), VAT is not paid over the revenue, but over the difference between the sales and purchase price (which is equal to margin). Goods that can only be used as raw materials, auxiliary materials or semi-finished products are excluded from this [18] (e.g. a carpet tile made of fibers of used carpet tiles).

*“In B2C transactions, VAT is being paid twice or more over reused products and materials.”*

### Current VAT regime



### Circular VAT regime



- ▶ Material flow
- ◀ Financial transaction

## Barrier 4. Traditional financial risk assessment of circular revenue models

The changed financial nature of circular revenue models (CRMs) make them more risky from a traditional financial risk assessment's point of view. CRMs are characterised by recurring periodic revenue streams and therefore longer payback periods. They also represent a value shift from assets to contracts.

In addition to the policy changes in terms of accounting and fiscal measures discussed earlier in this white paper, practice also shows that it is difficult for investors to attribute values to the opportunities regarding circular business models – such as longer product lifetime and higher residual values. Inversely, the risks ascribed to operating with circular revenue models – such as balance sheet extension, and uncertain income streams in case of B2C models – are dominant [see figure 4].

Traditional risk assessment of CRMs will address them as being riskier than traditional revenue models for several reasons [19]:

Balance sheet extension due to producer ownership;

Uncertainty on incoming cash, especially with B2C relationships (debtor risk);

Uncertainty on contract length due to increased contract flexibility;

Contract financing is seen as riskier than asset financing.

On the other side, CRMs represent a number of advantages, which are not being accounted for in traditional financial risk management:

Longer product lifetime;

Higher residual value;

More resilience towards future (virgin) resource scarcity;

An opportunity to expand to new (second-hand) markets.

Figure 4. Investments in CRMs are therefore less attractive than investments in traditional revenue models.



# Case: Auping

Auping is a major supplier of bedding furniture with high circular ambitions. Most mattresses are not suitable for high value reuse, because of their design and applied materials. Recently, Auping developed a modular mattress made solely with mono-materials which can easily be remanufactured into a new mattress. Auping chose not to set up a lease construction independently. Instead, they offer ‘sleep subscriptions’ through a separate entity called Bedzzzy. Bedzzzy sells the mattresses to a third party which offers them to customers through a rental construction. After five years, the mattresses are bought back by Bedzzzy (and Auping). If within this CRM the circular advantages could have been accounted for, Auping would be able to offer the mattresses through a rental construction themselves.

### Current opportunity

Because of the changed revenue flows of CRMs, they require more working capital. Producers exploiting such models can sell their to be paid invoices to a financial institution (at a discount) to free up working capital, also known as “factoring”. In case the producer has a large and creditworthy buyer, the buyer’s payments can be advanced by a financial institution to free up working capital for the producer, also known as “reversed factoring”. Because of the creditworthiness of the buyer, this might be cheaper than factoring [19].

*“Financial risk assessment should not only take into account the downsides of circular revenue models, but also the upside.”*

### Current linear risk assesment

INCLUDED ASPECTS	Lengthened balance		Changed revenue flow			
	assets	liabilities	Year	1	2	...
	1000	1000	Revenues	100	10	10

### Circular risk assesment

INCLUDED ASPECTS	Lengthened balance		Changed revenue flow			
	assets	liabilities	Year	1	2	...
	1000	1000	Revenues	100	10	10



## Follow-up

The four barriers described in this publication were found as the most urgent in relation to circular revenue models, primarily because they have not previously received attention. These barriers, however, cannot be seen in isolation from barriers related to circular business models. In this research we encountered many of these barriers, four of which are outlined below.

### Taxing labour versus taxing resources

51% of tax revenues in the EU come from labour taxes; only 6% come from resource taxes [20]. A shift of taxes from labour to resources (see Ex'Tax) will stimulate the adoption of circular business models as maintenance, repair and refurbishing activities are labour-intensive and resource-extensive. Currently businesses operating on value retention models that are labour-intensive are often non-competitive in a European context (unless subsidised labour is used). Rather than taxing labour, a carbon tax can be initiated which will tax the use of natural resources and pollution.

### IFRS 16 inhibits leasing by lessees

The International Financial Reporting Standards (IFRS) 16 came into effect on the 1st of January, 2019. This dictates that, in addition to lessors, lessees are now also obliged to report on

leased products with a value higher than \$5.000 on their balance. This will negatively impact debt, leverage and solvency ratios [21].

### Waste legislation inhibits reuse of waste

The current Waste Framework Directive (WFD) definition of waste dictates that a substance owner's behaviour determines whether a resource is seen as waste instead of the substance's properties [22]. Under this legislation too many substances are classified as waste, and innovative repurposing is not taken into account [23]. When a substance has been classified as waste, one is prohibited to trade, mediate, transfer or receive it without registration or permit.

### Easy access to finance for governments

CRMs are attractive from a user's perspective as costs are spread over a longer period of time and high upfront costs are avoided. Governments, however, can lend money very cheaply as their ability to repay debts is rated as very healthy. Moreover the structure of governmental budgets sometimes makes it difficult to operate with circular revenue models (investment vs operational budgets). This results in governments choosing for purchase instead of engaging in more circular revenue models, whilst they could set the example and perform a big role in the transition towards a circular economy.

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